

2019

**AHIAK**  
**(QUEEN MAUD GULF)**  
**MIGRATORY**  
**BIRD**  
**SANCTUARY**  
**MANAGEMENT PLAN**



Environment and  
Climate Change Canada

Environnement et  
Changement climatique Canada

Canada 

## Acknowledgements

The following management plan was developed by the former and current members of the Ahlak Area Co-management Committee (Ahlak ACMC): Simona Akkikungnaq, David Evalik, Jeannie Evalik, Ben Putuguq, Jennie Rausch, Kitty Taipagak, and Joseph Tikhak Sr.

Further contributions were made by E. Kim Klaczek who prepared the outline, document inventory and early drafts; Julie Harris (Contentworks Inc., Nunavut Tunngavik Inc. (NTI), Cultural Resources Inventory and Interpretative Materials Study (CRIIM) project manager, 2010-2011) and William Kemp (NTI, CRIIM project director, 2012-2017) along with Erik Val and Drew Hannen, for their contributions to the cultural material within this report; Bonnie J. Findlay (ECCC-CWS) and Kevin J. McCormick (ECCC-CWS) who drafted an earlier version of the management plan in 1984 (some text of this plan are taken directly from their draft version); the Kitikmeot Inuit Association Community Liaison Officers from Cambridge Bay and Gjoa Haven for their Part in the success of the establishment and operation of the Ahlak ACMC; Suzie Napayok and Emily Angulalik for the translation of this management plan into Inuktitut and Inuinnaqtun; and to Paul Latour (ECCC-CWS), Susanne Emond (ECCC-CWS), and Vicky Johnston (ECCC-Strategic Integration and Partnerships) for their contributions to the material and expert review throughout the management planning process. The Canadian Wildlife Service also wishes to thank all the organizations and people who reviewed this document at any Part of the management planning process.

**AHIAK**  
(QUEEN MAUD GULF)  
**MIGRATORY**  
**BIRD**  
**SANCTUARY**  
**MANAGEMENT PLAN**

**2019**



# About Environment and Climate Change Canada's Protected Areas and Management Plans

## **What are Environment and Climate Change Canada Protected Areas?**

Environment and Climate Change Canada establishes marine and terrestrial National Wildlife Areas for the purposes of conservation, research and interpretation. National Wildlife Areas are established to protect migratory birds, species at risk, and other wildlife and their habitats. National Wildlife Areas are established under the authority of the *Canada Wildlife Act* and are, first and foremost, places for wildlife. Migratory Bird Sanctuaries are established under the authority of the *Migratory Birds Convention Act, 1994* and provide a refuge for migratory birds in the marine and terrestrial environment.

## **How has the federal government's investment from Budget 2018 helped manage and expand Environment and Climate Change Canada's National Wildlife Areas and Migratory Bird Sanctuaries?**

The Nature Legacy represents a historic investment over five years of \$1.3B and will help ECCC expand its national wildlife areas and migratory bird sanctuaries to contribute to Canada's biodiversity targets and increase ECCC's capacity manage its protected areas.

ECCC will be conserving more areas, and have more resources to effectively manage and monitor the habitats and species who reside in its protected areas.

## **What is the size of the Environment and Climate Change Canada Protected Areas Network?**

The current Protected Areas Network consists of 55 National Wildlife Areas and 92 Migratory Bird Sanctuaries comprising more than 14 million hectares across Canada.

## **What is a management plan?**

A management plan provides the framework in which management decisions are made. They are intended to be used by Environment and Climate Change Canada staff to guide decision-making, notably with respect to permitting. Management is undertaken in order to maintain the integrity of the protected area and to maintain the attributes for which the protected area was established. Environment and Climate Change Canada prepares a management plan for each protected area in consultation, or co-written with Indigenous people, and in consultation with the public and other stakeholders. In the Nunavut Settlement Area, the management plan is written in partnership with Nunavut Inuit.

A management plan specifies activities that are allowed and identifies other activities that may be undertaken under the authority of a permit. It may also describe the necessary improvements needed in the habitat, and specify where and when these improvements should be made. A management plan identifies Indigenous rights and allowable practices specified under land claims agreements. Further, measures carried out for the conservation of wildlife must not be inconsistent with any law respecting wildlife in the province or territory in which the protected area is situated.

### **What is Protected Area Management?**

Management includes monitoring wildlife, maintaining and improving wildlife habitat, periodic inspections, enforcement of regulations, as well as the maintenance of facilities and infrastructure. Research is also an important activity in protected areas; hence, Environment and Climate Change Canada staff carries out or coordinates research in some sites.

### **The series**

Environment and Climate Change Canada will write management plans for all of the Migratory Bird Sanctuaries administered by the Department. This template can also be used by other agencies and departments to write management plans for Migratory Bird Sanctuaries in other jurisdictions. These management plans will be initially reviewed 5 years after the approval of the first plan, and every 10 years thereafter.

### **To learn more**

To learn more about Environment and Climate Change Canada's protected areas, please visit our website at [www.canada.ca/en/environment-climate-change/services/national-wildlife-areas.html](http://www.canada.ca/en/environment-climate-change/services/national-wildlife-areas.html) or contact the Canadian Wildlife Service.

# Ahiak (Queen Maud Gulf) Migratory Bird Sanctuary

Established in 1961, the Ahiak (Queen Maud Gulf) Migratory Bird Sanctuary (MBS; Ahiak MBS) covers 62,920 square kilometers of contiguous land and sea making it the largest protected area in Canada. Located on Nunavut's central mainland coast, this expansive track of intact natural land is the only MBS within the Kitikmeot Region of Nunavut and remains rich in both wildlife and cultural resources. The original purpose of the Ahiak MBS was to protect the largest variety of geese of any nesting area in North America. However, because of size and variety of habitats protected within, not only is the Ahiak MBS important for geese, it is important for many other species of migratory birds and supports important populations of other wildlife.

The Ahiak Migratory Bird Sanctuary's lowlands are among the most extensive wetlands in the central Arctic providing essential habitat for globally significant populations (over 1% of global populations) of white geese. Additionally, the Ahiak MBS maintains important habitat for other species of migratory birds including various shorebirds, landbirds, waterbirds and other waterfowl. In 1982, Ahiak MBS was further recognized under the *Ramsar Convention* as the World's second largest Wetland of International Importance. It is also Part of BirdLife International's Queen Maud Gulf Lowlands Important Bird Area (IBA) and is a Canadian Wildlife Service Key Migratory Bird Terrestrial Habitat Site and Important Area for Birds in Nunavut.

The landscape of the Ahiak MBS is a generally flat plain of post-glacial marine emergence, extending 135 km inland from the coast. The western upland, which rises from 30 to 60 m above sea level, is characterized by rock outcrops, drumlins and boulder fields. The slopes of hills show prominent old beach ridges. Relief on the central lowland, a vast expanse of tundra meadows and marshes, is provided by rock outcrops, drumlins, streams and shallow lakes. The eastern upland, ranging in elevation from 60 to 90 m above sea level, is characterized by abrupt hills, ridges and boulder fields.

Numerous lakes varying in size and shape occur on the hilly plains. Large rivers such as the Tingmeak, Ellice, Perry, Armark, Simpson and Kaleet Rivers, are a major component of the landscape of the Ahiak MBS and wildlife make use of the extensive, vegetation rich river valleys.

### **Importance of the Ahiak MBS**

Over 90 percent of the world's population of Ross' Goose and 8 percent of the Canadian population of Snow Goose (which includes more than 30% of the Western Canadian Arctic Lesser Snow Goose population) nest within the sanctuary. This amounts to over 2 million white geese. As well, the area supports smaller populations of nesting and molting Canada Goose, Greater White-fronted Goose, Brant and Tundra Swan. Most of the geese, which arrive in the area in late May, molt on the inland lakes and rivers, and leave the area in late August and early September.

Other common bird species which breed in the Sanctuary are Long-tailed Duck, King Eider, American Golden-Plover, Semipalmated Plover; Pectoral Sandpiper, Dunlin, Semipalmated Sandpiper, Red Phalarope, Glaucous Gull, Herring Gull, Arctic Tern, Pacific Loon, Red-throated Loon, Parasitic Jaeger, Long-tailed Jaeger, Common Redpoll, Lapland Longspur, Savannah Sparrow, Peregrine Falcon, Rough-legged Hawk and Snowy Owl. Species that have been assessed as at risk by the Committee on the Status of Endangered Wildlife in Canada (COSEWIC), or listed under the federal *Species at Risk Act* that breed in and/or use the area are Barren-ground Caribou (Dolphin and Union population), Buff-breasted Sandpiper, Grizzly Bear, Peregrine Falcon, Red Knot (*rufa* subspecies) and Wolverine.

All of the Ahiak MBS is used by Barren-ground Caribou (Beverly and Ahiak herds) as Part of its traditional calving grounds. It also supports an estimated 6,000 Muskoxen and is believed to be the originating stock for most of present day mainland muskoxen. These ungulate herds combined with vast open habitat accommodate substantial populations of predators. Wolves, grizzly bears, foxes, and wolverines are all regularly observed. Additionally, the 300 km of Arctic coastline provides an important marine component and numerous lakes, ponds, and rivers supply freshwater habitat for aquatic species. Several species of fish, in particular Arctic Char, are regularly harvested and known to be abundant. Offshore waters are used by Ringed Seals, the most abundant marine animal in the area.

The land within Ahiak MBS has been, and continues to be identified by Inuit as a place of cultural significance and the area is known to harbor numerous archaeological features. Inuit from Cambridge Bay, Gjoa Haven and Umingmaktok regularly journey to the MBS to harvest wildlife, birds, eggs, berries, and fish, mainly during the open water season.



### **Co-Management and Approval Process**

As required by the *Nunavut Agreement (NA)* formerly known as the Nunavut Land Claim Agreement, an *Inuit Impact and Benefit Agreement for National Wildlife Areas and Migratory Bird Sanctuaries in the Nunavut Settlement Area (IIBA)* was first concluded in 2006 for a seven year term and renegotiated in 2016 for an additional seven years. Article 3 (Co-Management) of the *IIBA* states the following objectives:

- a) effective co-management of NWAs and MBSs by Inuit and the Canadian Wildlife Service in accordance with the *NA*, and particularly Articles 9 and 5 of the *NA*;
- b) decision-making for NWAs and MBSs that is substantially informed and influenced by *Inuit Qaujimajatuqangit*; and
- c) local Inuit involvement in the planning and management of NWAs and MBSs.

The Ahiak Migratory Bird Sanctuary is managed by the Canadian Wildlife Service (a Part of Environment and Climate Change Canada) in partnership with the Ahiak Area Co-Management Committee (Ahiak ACMC) of Cambridge Bay, Gjoa Haven, and Umingmaktok, Nunavut. The Ahiak ACMC provides advice on all aspects of MBS management, including all significant policy decisions affecting the MBS. This includes advising on the management plan, permit applications, any research conducted within the MBS, the management and protection of wildlife and wildlife habitat, and visitor use. The Ahiak ACMC has six members, three appointed by the Kitikmeot Inuit Association (KitIA) and three appointed by Environment and Climate Change Canada (ECCC). Five of the members were appointed from the Cambridge Bay and Gjoa Haven Community Beneficiary Committees; the remaining member is a Canadian Wildlife Service employee.

As per the *IIBA*, the Ahiak ACMC prepared the Management Plan for Ahiak MBS in consultation with Inuit, the KitIA, Nunavut Tunngavik Incorporated (NTI) and local interested parties in Cambridge Bay, Gjoa Haven and Umingmaktok. The ACMC shall recommend the completed Management Plan to the Nunavut Wildlife Management Board (NWMB) for approval in accordance with s. 5.2.34(c) and s. 5.3.16 of the *NA*. As per s. 3.6.2 of the *IIBA*, the ACMC shall provide the KitIA and NTI with a copy of the completed Management Plan when it sends the plan to the NWMB. If, in accordance with the decision-making process set forth in the *NA*, if the NWMB or the Minister rejects, in whole or part, the completed Management Plan and the Plan is returned to the ACMC for reconsideration, the ACMC shall reconsider the Plan and re-submit it to the NWMB for final decision. Once the Minister has accepted the Management Plan, the Minister shall proceed forthwith to do all things necessary to implement the Plan.

*For greater certainty, nothing in this management plan shall be construed so as to abrogate or derogate from the protection provided for existing aboriginal or treaty rights of the aboriginal peoples of Canada by the recognition and affirmation of those rights in Section 35 of the Constitution Act, 1982.*



# Table of Contents

<b>LIST OF TABLES</b>	<b>XIV</b>
<b>LIST OF FIGURES</b>	<b>XV</b>
<b>LIST OF ABBREVIATIONS</b>	<b>XVI</b>
<b>1. DESCRIPTION OF THE PROTECTED AREA</b>	<b>01</b>
<b>1.1 REGIONAL CONTEXT</b>	<b>08</b>
1.1.1 Physiography	08
1.1.2 Geology	08
1.1.3 Topography	09
1.1.4 Soils	09
1.1.5 Hydrology	09
1.1.6 Climate and Weather Conditions	10
1.1.7 Ice Conditions	10
1.1.8 Climate Change	10
<b>1.2 HISTORICAL BACKGROUND</b>	<b>11</b>
<b>1.3 LAND OWNERSHIP AND INTERESTS</b>	<b>11</b>
1.3.1 Inuit Owned Lands	11
1.3.2 Subsurface Interests	12
<b>1.4 FACILITIES AND INFRASTRUCTURE</b>	<b>13</b>
<b>2. ECOLOGICAL RESOURCES</b>	<b>15</b>
<b>2.1 TERRESTRIAL AND AQUATIC HABITATS</b>	<b>15</b>
<b>2.2 BIRDS</b>	<b>16</b>
2.2.1 Waterfowl and Geese	16
2.2.2 Waterbirds	17
2.2.3 Landbirds	17
2.2.4 Shorebirds	18
2.2.5 Raptors	18
<b>2.3 OTHER WILDLIFE</b>	<b>18</b>
2.3.1 Terrestrial Mammals	18
2.3.2 Marine Mammals	19
2.3.3 Fish	19
2.3.4 Reptiles and Amphibians	19
<b>2.4 VEGETATION</b>	<b>19</b>
<b>2.5 SPECIES AT RISK</b>	<b>20</b>
2.5.1 Birds	21
2.5.2 Terrestrial and Marine Mammals	21

2.5.3	Fish	21
2.5.4	Reptiles and Amphibians	21
<b>3.</b>	<b>CULTURAL RESOURCES</b>	<b>22</b>
<b>3.1</b>	<b>CULTURAL RESOURCES INVENTORY AND INTERPRETATIVE MATERIALS STUDY</b>	<b>22</b>
<b>3.2</b>	<b>INUIT LAND USE</b>	<b>23</b>
3.2.1	Historical Inuit Land Use	24
3.2.2	Current Inuit Land Use	28
<b>4.</b>	<b>GOALS AND OBJECTIVES</b>	<b>30</b>
<b>4.1</b>	<b>VISION</b>	<b>30</b>
<b>4.2</b>	<b>GOALS AND OBJECTIVES</b>	<b>30</b>
<b>4.3</b>	<b>EVALUATION</b>	<b>31</b>
<b>5.</b>	<b>MANAGEMENT CONSIDERATIONS</b>	<b>32</b>
<b>6.</b>	<b>MANAGEMENT APPROACHES</b>	<b>36</b>
<b>6.1</b>	<b>HABITAT AND CULTURAL RESOURCES MANAGEMENT</b>	<b>36</b>
6.1.1	Change in designation of the protected area	36
6.1.2	Cultural and Heritage Resources	37
6.1.3	Wildlife Areas of Importance to Inuit	38
6.1.4	Place names	38
<b>6.2</b>	<b>MONITORING, RESEARCH AND WILDLIFE MANAGEMENT</b>	<b>38</b>
6.2.1	Permitting	40
6.2.2	Overabundant Light Geese	40
6.2.3	Water Quality	41
6.2.4	Marine Traffic	41
6.2.5	Air Traffic	41
6.2.6	Fish	42
6.2.7	Species at Risk	42
6.2.8	Harvesting	43
6.2.9	Non-native and Invasive Species Control	43
<b>6.3</b>	<b>PUBLIC INFORMATION MANAGEMENT</b>	<b>43</b>
6.3.1	Public Awareness	43
6.3.2	Interpretive Materials	43
6.3.3	Tourism Activities	44
6.3.4	Student Initiatives	44
6.3.5	Camps	44
6.3.6	Inuit Owned Lands	44

6.3.7	Compliance Promotion	45
6.3.8	Regional Planning	45
<b>7.</b>	<b>AUTHORIZED ACTIVITIES, PROHIBITED ACTIVITIES AND ACCESS</b>	<b>47</b>
<b>7.1</b>	<b>AUTHORIZATIONS</b>	<b>48</b>
7.1.1	Authorizations by Permit	48
7.1.2	Nunavut Inuit Activities Authorized Without a Permit	48
7.1.3	Nunavut Inuit Activities Authorized Only By Permit	48
7.1.4	Non-Inuit Activities Authorized Without a Permit	49
7.1.5	Non-Inuit Activities Authorized Only By Permit	49
7.1.6	Activities Authorized by Permit on Inuit Owned Lands	49
7.1.7	CWS Permit Application Process	49
<b>7.2</b>	<b>OTHER FEDERAL AND TERRITORIAL AUTHORIZATIONS AND PERMITS</b>	<b>50</b>
<b>8.</b>	<b>SITE DESIGNATION</b>	<b>51</b>
<b>9.</b>	<b>SECURITY, HEALTH AND SAFETY</b>	<b>52</b>
<b>10.</b>	<b>ENFORCEMENT</b>	<b>53</b>
<b>11.</b>	<b>PLAN IMPLEMENTATION</b>	<b>54</b>
<b>11.1</b>	<b>MANAGEMENT PLAN AMENDMENT</b>	<b>56</b>
<b>11.2</b>	<b>MANAGEMENT AUTHORITIES</b>	<b>56</b>
<b>12.</b>	<b>COLLABORATION</b>	<b>57</b>
<b>12.1</b>	<b>INUIT AND PUBLIC PARTNERS</b>	<b>57</b>
<b>12.2</b>	<b>GOVERNMENT OF NUNAVUT</b>	<b>58</b>
<b>13.</b>	<b>LITERATURE CITED</b>	<b>59</b>
	<b>APPENDIX A: LEGAL DESCRIPTION</b>	<b>64</b>
	<b>APPENDIX B: LAND COVER TYPES IDENTIFIED WITHIN AHIK MIGRATORY BIRD SANCTUARY</b>	<b>66</b>
	<b>APPENDIX C: CRITERIA FOR DESIGNATION AS A NATIONAL WILDLIFE AREA AND HOW AHIK MBS MEETS THESE CRITERIA</b>	<b>67</b>

# List of Tables

Table 1: Ahiak (Queen Maud Gulf) Migratory Bird Sanctuary Summary Information	02
Table 2: Physiographic and Ecological Classifications for Ahiak (Queen Maud Gulf) Migratory Bird Sanctuary	08
Table 3: Facilities & Infrastructure	14
Table 4: Federally-listed and COSEWIC-assessed species at risk with potential to occur within the Ahiak MBS	20
Table 5: Management Goals and Objectives	31
Table 6: Summary of management considerations for the Ahiak MBS with accompanying goals/objectives and management approaches to address each consideration	33
Table 7: Summary of historical research and monitoring surveys within Ahiak MBS. The researcher last name and years for projects after 1984 are taken from the issued CWS permits.	39
Table 8: Five-year implementation schedule for Management Plan action items for the Ahiak MBS	55
Table B - 1: Land cover types identified within the Ahiak Migratory Bird Sanctuary	66
Table C - 1: Criteria for designation as a National Wildlife Area and how Ahiak Migratory Bird Sanctuary meets these criteria	67

# List of Figures

Figure 1: Map of Ahiak (Queen Maud Gulf) Migratory Bird Sanctuary with some traditional place names	07
Figure 2: Map of Inuit-Owned Lands in and around the Ahiak (Queen Maud Gulf) MBS	12
Figure 3: Map of Subsurface Interests around the Ahiak (Queen Maud Gulf) MBS	13
Figure 4: Location of white geese colonies within Ahiak (Queen Maud Gulf) Migratory Bird Sanctuary	17
Figure 5: Year-round importance of Ahiak MBS for Inuit harvesting and cultural practices	27
Figure 6: Inuit Land Use in the Ahiak (Queen Maud Gulf) MBS (Ahiak ACMC 2012)	29
Figure 7: Schematic of the Migratory Bird Sanctuary permit application process	50
Figure A-1: The legal land description for the Ahiak Migratory Bird Sanctuary in the <i>Migratory Bird Sanctuary Regulations</i> has a known coordinate typo that will be corrected. The incorrect (original) and corrected boundaries are shown on this map for display purposes.	65

# List of abbreviations

<b>ACMC</b>	Area Co-Management Committee
<b>IIBA</b>	<i>Inuit Impact and Benefit Agreement for National Wildlife Areas and Migratory Bird Sanctuaries in the Nunavut Settlement Area</i> also known as Conservation Areas Inuit Impact and Benefit Agreement
<b>CLO</b>	Community Liaison Officer
<b>COSEWIC</b>	Committee on the Status of Endangered Wildlife in Canada
<b>CRIMM</b>	Community Resources Inventory and Interpretive Materials
<b>CWA</b>	<i>Canada Wildlife Act</i>
<b>CWS</b>	Canadian Wildlife Service
<b>INAC</b>	Indigenous and Northern Affairs Canada
<b>DFO</b>	Department of Fisheries and Oceans
<b>ECCC</b>	Environment and Climate Change Canada
<b>GN</b>	Government of Nunavut
<b>HTO</b>	Hunters and Trappers Organisation
<b>IBA</b>	Important Bird Area
<b>IHT</b>	Inuit Heritage Trust
<b>IOL</b>	Inuit-Owned Lands



<b>ILUOP</b>	Inuit Land Use Occupancy Project
<b>IQ</b>	<i>Inuit Qaujimajatuqangit</i>
<b>IUCN</b>	International Union for the Conservation of Nature
<b>KitIA</b>	Kitikmeot Inuit Association
<b>MBCA</b>	<i>Migratory Birds Convention Act</i>
<b>MBS</b>	Migratory Bird Sanctuary
<b>NIRB</b>	Nunavut Impact Review Board
<b>NA</b>	<i>Agreement between the Inuit of the Nunavut Settlement Area and Her Majesty the Queen in right of Canada, also known as Nunavut Agreement</i>
<b>NPC</b>	Nunavut Planning Commission
<b>NTI</b>	Nunavut Tunngavik Incorporated
<b>NWA</b>	National Wildlife Area
<b>NWMB</b>	Nunavut Wildlife Management Board
<b>NU</b>	Nunavut
<b>PA</b>	Protected Area
<b>RIA</b>	Regional Inuit Association
<b>SARA</b>	<i>Species at Risk Act</i>





1.

## DESCRIPTION OF THE PROTECTED AREA

The Ahiak (Queen Maud Gulf) Migratory Bird Sanctuary (Ahiak MBS) is located in the Kitikmeot region of Nunavut, approximately 90 kilometres (km) south of Cambridge Bay, 140 km southwest of Gjoa Haven and 110 km east of Umingmaktok (Table 1; Figure 1; Appendix A; Appendix Figure A - 1). The Ahiak MBS was established in 1961 to protect the nesting grounds of what was then, 90% of the world's population of Ross's Goose. It is protected area under the federal *Migratory Birds Convention Act* encompassing roughly 62,920 square kilometers (6,292,818 hectares) of tundra vegetation, coastal tidal flats, and open ocean (Arctic Ocean). It is approximately 225 km from west to east. The southern boundary is at 66° 20' North Latitude, just south of the Arctic Circle, and bounded to the north by the Queen Maud Gulf.

The MBS supports breeding habitat for globally significant populations (greater than 1%) of Ross's Goose, as well as important habitat for other species of migratory birds and mammals; including culturally significant species such as barren-ground caribou, muskox, wolverine and grizzly bear. Since its establishment, 12 of the species found within the Ahiak MBS have been assessed by the Committee on the Status of Endangered Wildlife in Canada (COSEWIC) as being at risk. To date, six of these have since been listed under the federal *Species at Risk Act*.

Major rivers within the MBS (named from west to east) include the Tingmeak River, Ellice River, Perry River, Simpson River and Kaleet River. The Ahiak MBS contains Inuit Owned Lands (IOL) and is co-managed by Inuit and the federal government through the Ahiak Area Co-Management Committee, a local committee established under the *Inuit Impact and Benefit Agreement for National Wildlife Areas and Migratory Bird Sanctuaries in the Nunavut Settlement Area (2016; IIBA)*.

In 1982, the Ahiak MBS was declared a Wetland of International Importance under the *Ramsar Convention* (Ramsar 2001). The Queen Maud Gulf area has also been designated a Key Migratory Terrestrial Bird Habitat site in Nunavut (Latour *et al.* 2008), an Important Area for Birds in Nunavut (EC-CWS 2012), and was identified as a significant site under the International Biological Programme (Beckel 1975). The area is also recognized as an Important Bird Area (Bird Studies Canada 2017).

**Table 1: Ahiak (Queen Maud Gulf) Migratory Bird Sanctuary Summary Information**

Protected Area Designation	Migratory Bird Sanctuary
Criteria for Protected Area Designation	<p>An area will be considered suitable for the establishment of a Migratory Bird Sanctuary if it meets one or more of the following criteria:</p> <ol style="list-style-type: none"> <li>1. It supports populations that are concentrated, for any Part of the year, in order to meet one or several essential needs; as such, the area figures prominently in the requirement for the management of regional populations of migratory birds.</li> <li>2. The area is vulnerable to area-specific threats. As a significant portion of the populations could be affected, threats may include intensive hunting, exploration, development, etc. Such key habitat sites could include areas for nesting, moulting, wintering or staging.</li> <li>3. It supports populations that occupy habitats of restricted geographical area and that are vulnerable to human disturbance. Areas that support threatened, endangered or rare species are examples.</li> <li>4. It regularly supports at least 1% of a population of one species or subspecies. In Nunavut, the Northwest Territories and Yukon (north of the Arctic Circle for Yukon), national population totals (when known) will be used as benchmarks. South of the Arctic Circle (including southern Yukon), the provincial or regional population status of featured species will be used.</li> </ol>
Criteria Met by this Protected Area	1, 3, 4
Province or Territory	Nunavut
Settlement Region	Kitikmeot
Associated Communities	<p>Cambridge Bay (also known as Iqaluktuuttiaq)</p> <p>Gjoa Haven (also known as Uqsuqtuuq)</p> <p>Umingmaktok (formerly known as Bay Chimo)</p>
Latitude/Longitude	67°00' N / 101° 00' W (Approximate centre point)
Size	62,923 square kilometers (6,292,818 hectares or 24,295 square miles) which includes 6,553 square kilometers (655,334 hectares or 2,530 square miles) of marine habitat
Elevation (m)	Sea level to approximately 100 metres
Year Established (Gazetted)	1961

Protected Area Designation	Migratory Bird Sanctuary
Protected Area (PA) Designation Criteria	<p>Historically: Established to protect the nesting grounds of the Ross's Goose (90% of world population).</p> <p>Currently: Area supports 90% of the world's population of Ross's Goose, 30% of western population of Lesser Snow Goose, and over 1 million nesting shorebirds during the breeding season.</p>
Protected Area Classification System	A (high) species or critical habitat conservation value
International Union for Conservation of Nature (IUCN) Classification	<p>Category Ib: Wilderness Area</p> <p>Protect long-term ecological integrity of natural areas so that current and future generations can experience such areas. Other objectives of this category: enable indigenous communities to maintain traditional lifestyles, protect cultural and spiritual values, allow for low-impact educational and scientific research activities.</p>
Order in Council Number	P.C. 1961 – 1617 (SOR/74-514)
Directory of Federal Real Property (DFRP) Number	<p>DFRP#070941: Environment and Climate Change Canada, Stn # YCB AWOS/ CARS, Property Number: 70941 (with federal building 070941): Occupied without an interest, no restrictions, primary use is Research and Technological Development, AWOS shelter (14 sq. m) built in 1994, located: 67.716°N, -104.150°W (near Ellice River).</p> <p>DFRP#029584: Fisheries and Oceans Canada, Mulroak Island, Property Number: 29584; Crown Owned, no restrictions, primary use is Transportation Marine, no buildings, located: 67.955°N, -102.667°W (in the Queen Maud Gulf, north of Perry River).</p> <p>FCSI#00000331: Indigenous and Northern Affairs Canada (Northern Affairs Program), Federal Contaminated Sites Inventory Site 331 - Regan Lake, contaminant details unknown, located: 67.817°N, -104.85°W (near Brichta Lake).</p>

Protected Area Designation	Migratory Bird Sanctuary		
Inuit Owned Lands (Parcel ID)	Parcel ID	Rights	Total Area (ha)
	BB-17	Surface	140,000
	BB-19	Surface	72,497
	CB-01	Surface	6,975
	CB-02	Surface	18,582
	CB-03	Surface	156
	CB-04	Surface	52,993
	CB-05	Surface	79,713
	CB-06	Surface	3,796
	CB-07	Surface	168
	CB-08	Surface	32,593
	CB-09	Surface	150,000
	CB-10	Surface	1,024
	CB-11	Surface	197
	CB-17	Surface	55,497
	GH-20	Surface	32,749
	GH-21	Surface	190,000
	GH-22	Surface	28,883
	GH-23	Surface	28,835
Additional Designations	<ul style="list-style-type: none"> <li>• Key Migratory Bird Terrestrial Habitat Site (NU37)</li> <li>• Ramsar Site No. 246 – Wetland of International Importance</li> <li>• Important Bird Area in Canada (IBA) (NU009)</li> <li>• International Biological Programme Site (Site 4-8)</li> <li>• Important Areas for Birds in Nunavut (Site 30)</li> <li>• Under consideration as a World Heritage Site</li> </ul>		

Protected Area Designation	Migratory Bird Sanctuary
Faunistic and Floristic Importance	<ul style="list-style-type: none"> <li>• Largest protected area in Canada (and 22nd largest protected area in the world); covers over 6 million hectares of both marine and terrestrial habitat</li> <li>• World's second largest Ramsar site; among the most extensive wetlands in the mid-Arctic</li> <li>• Provides nesting and feeding grounds for the largest variety of geese in any single area in North America; including over 90% of the world population of Ross' Geese (<i>Anser rossii</i>) and more than 30% of the world population of Western Canadian Arctic, Lesser Snow Goose (<i>Anser c. caerulescens</i>)</li> <li>• One of the few nesting areas for both Atlantic Brant (<i>Branta bernicla hrota</i>) and Pacific Brant (<i>B. b. nigricans</i>)</li> <li>• Important breeding habitat for an estimated 1 million shorebirds</li> <li>• Meets IBA criteria for Globally Significant: Congregatory Species, Waterfowl Concentrations, Wading Bird Concentrations; Continentally Significant: Congregatory Species; Nationally Significant: Restricted Range Species</li> <li>• The large undisturbed tract of land provides important habitat for wolves (<i>Canis lupus</i>) and Grizzly bears (<i>Ursus arctos</i>)</li> <li>• Originating stock for most of present day mainland muskoxen (<i>Ovibos moschatus</i>) including rare "white musk ox"</li> <li>• Encompasses calving grounds of the Beverly and Ahiak barren-ground caribou (<i>Rangifer tarandus groenlandicus</i>) herds</li> <li>• Covers over 95% of the Queen Maud Gulf Lowlands Ecoregion of Canada</li> </ul>
Invasive Species	None confirmed

Protected Area Designation	Migratory Bird Sanctuary
Species at Risk	<p><b>Listed under the federal <i>Species at Risk Act (SARA)</i></b></p> <p><u>Endangered:</u> Red Knot (rufa subspecies; <i>Calidris canutus rufa</i>)</p> <p><u>Special Concern:</u> Buff-breasted Sandpiper (<i>Tryngites subruficollis</i>) Dolphin and Union Caribou (<i>Rangifer tarandus groenlandicus</i>) Peregrine Falcon (<i>Falco peregrinus tundrius</i>) Polar Bear (<i>Ursus maritimus</i>) Short-Eared Owl (<i>Asio flammeus</i>)</p> <p><b>Assessed by the Committee on the Status of Endangered Wildlife in Canada (COSEWIC)</b></p> <p><u>Threatened:</u> Barren-ground Caribou (<i>Rangifer tarandus barren-ground population</i>)</p> <p><u>Special Concern:</u> Grizzly Bear (<i>Ursus arctos</i>) Harris' Sparrow (<i>Zonotrichia querula</i>) Red-necked Phalarope (<i>Phalaropus lobatus</i>) Transverse Lady Beetle (<i>Coccinella transversoguttata</i>) Wolverine (<i>Gulo gulo</i>)</p>
Management agency	Environment and Climate Change Canada (Canadian Wildlife Service) in partnership with the Ahiak Area Co-Management Committee (Ahiak ACMC)
Public access & use	Nunavut Inuit have a free and unrestricted right of access for the purpose of harvesting to all lands, waters and marine areas within the MBS (as set forth in <i>Article 5</i> of the <i>IIBA</i> and subject to <i>s. 5.7.18</i> of the <i>Nunavut Agreement</i> ). Permits may be required for Inuit commercial activities. Non-Inuit may access the MBS for recreational or other purposes with appropriate permits as per the <i>MBCA</i> .



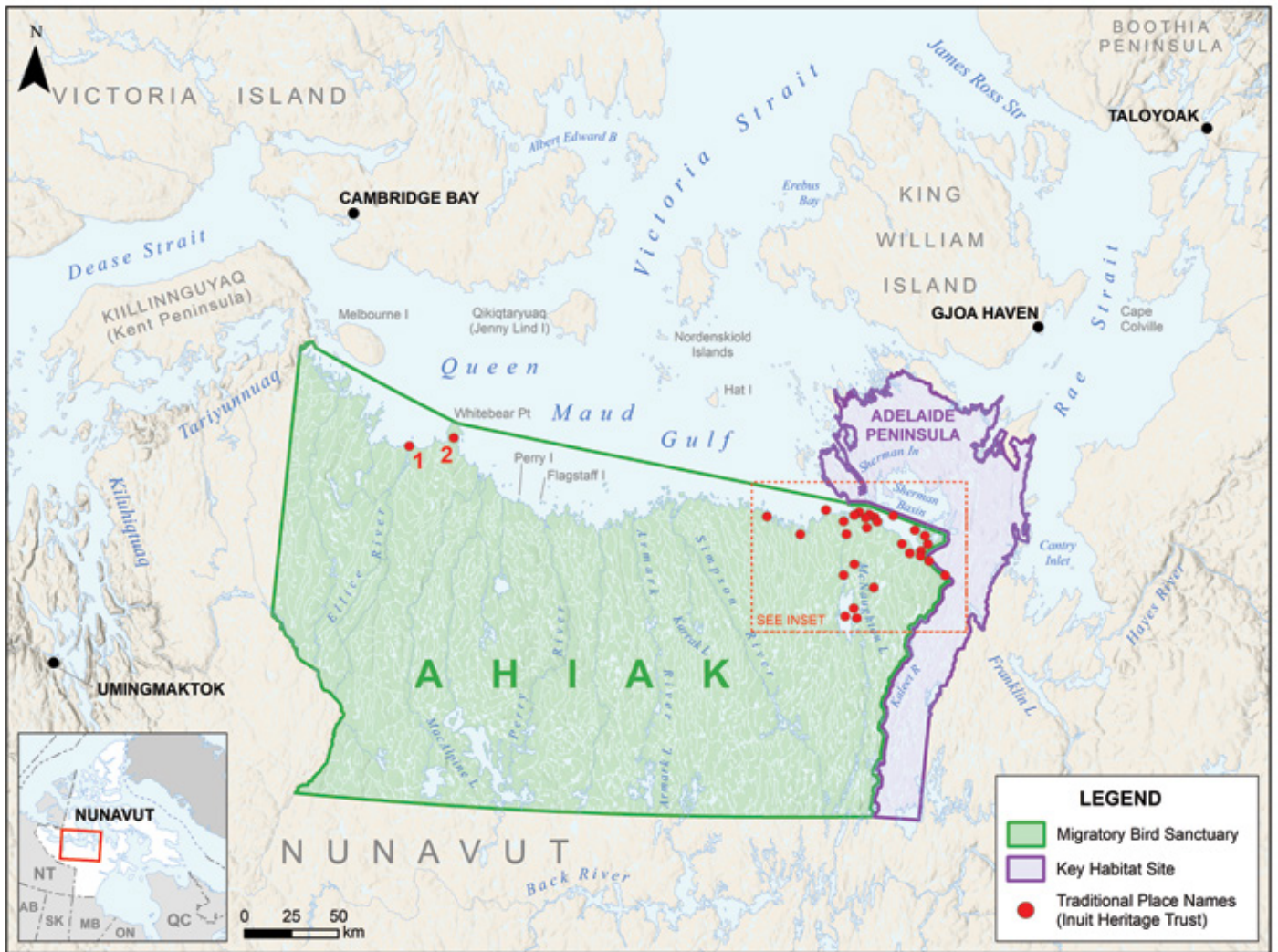
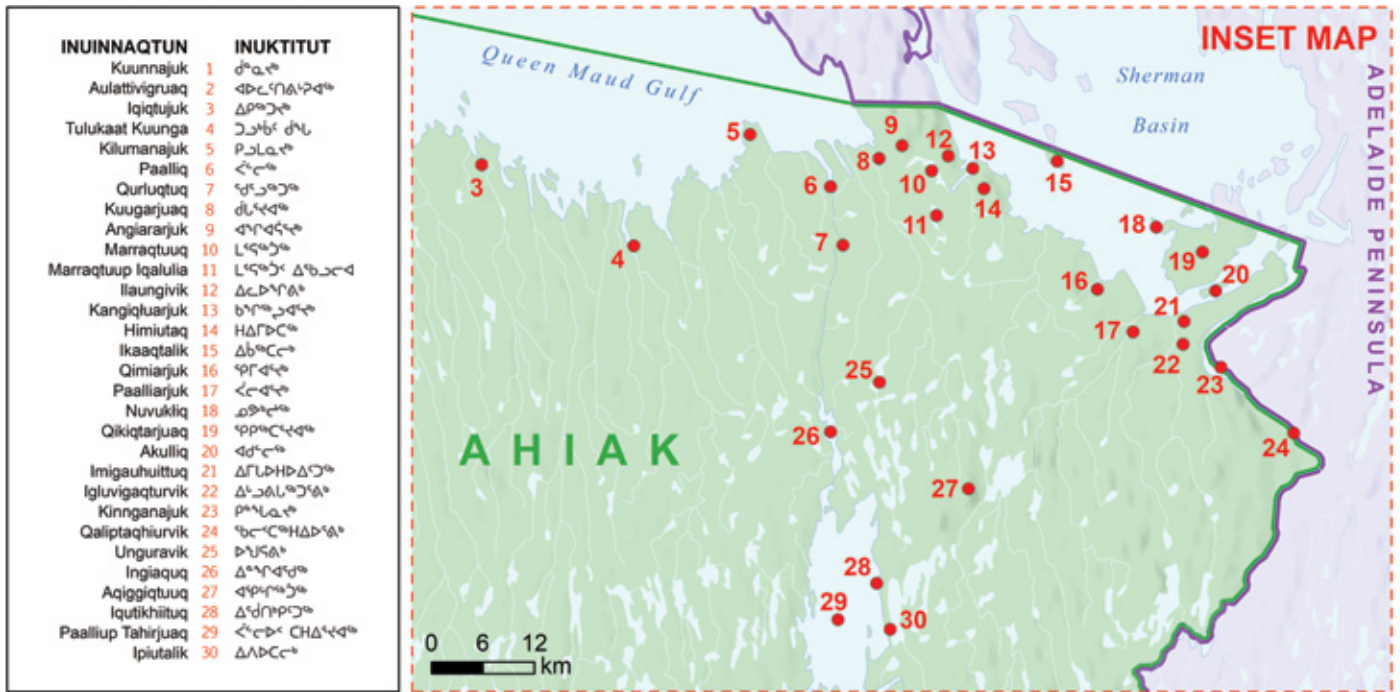


Figure 1: Map of Ahiaik (Queen Maud Gulf) Migratory Bird Sanctuary with some traditional place names

## 1.1 Regional Context

### 1.1.1 Physiography

Aside from a few off-shore islands and a certain extent of coastal waters, the Ahiak Migratory Bird Sanctuary consists mainly of a single landmass. Massive rocks and Precambrian granitic bedrock form the Sanctuary's broad, sloping uplands which reach their peak elevation (approximately 100m) in the south, and subdued undulating plains near the coast overlain with glacial till, marine clays and silts. Much of the area has recently emerged from the sea and now Part of the Coronation Gulf-Queen Maud Gulf drainage basin. The ground is underlain by continuous permafrost with active layers that are usually moist or wet throughout. Drumlins, outcrops, ridges, and eskers are all glacial features typically found along the coast and inland.

Queen Maud Gulf lowlands are Part of the Back Lowland division of the Kazan Region (Table 2). This region occurs within the western portion of the Canadian Shield (Bostock 1970). The area is typical of the treeless shield. Numerous lakes and rivers, carve into the generally flat plain of the MBS, are evidence of past glacial recession. The coast is mantled by mud and silt of post-glacial marine overlap, whereas eskers are a typical inland feature (Bostock 1970).

**Table 2: Physiographic and Ecological Classifications for Ahiak (Queen Maud Gulf) Migratory Bird Sanctuary**

<b>Physiographic Region</b>	Canadian Shield
<b>Geological Province</b>	Churchill Province
<b>Topographic Region</b>	Arctic
<b>EcoZone</b>	3 Southern Arctic
<b>EcoRegion</b>	39 Queen Maud Gulf Lowland
<b>EcoProvince</b>	3.2 Keewatin Lowlands
<b>EcoDistrict (Land Resource Areas)</b>	159 Brichta Lake 160 McNaughton Lake

### 1.1.2 Geology

Most of the MBS is underlain by folded, foliated Precambrian bedrock. The essentially uniform geomorphology of the lowlands is composed of highly metamorphic rocks of volcanic and sedimentary origin (Bird 1967). The area is scarred by Pleistocene glaciation. Till and ice contact materials such as boulder, sandy and gravelly landforms are extensive.

The coastal area is underlain by paragneisses which are intruded by monzonites, pegmatites, and large sills of a diabasic nature. The lower Simpson and Armark rock plains have rocks of massive igneous character; common types being anthrosites, diorites and gabbros. The MacAlpine Lake area is characterized by foliated and steeply dipping paragneisses and orthogneisses, which are intruded by rocks of diabasic composition and altered amphibolites (Hanson *et al.* 1956, Bird 1967).

Substantial chalcopyrite and nickeliferous pyrrholite may be found in intermediate rocks throughout the area (Hanson *et al.* 1956). Numerous rusty zones of iron oxide, copper-bearing rocks, quartzite, and calc-silicate deposits are locally present (Hanson and Jones 1976).

Fossils found in the area consist of barnacles and pelecopod and gastropod shells (Craig 1961). The age of the rocks suggests that sedimentary rocks were deposited before or during the Metamorphic period and before the end of the Tectonic Cycle (Bird 1967).

### **1.1.3 Topography**

Topographical features were formed during the last glacial period and post-glacial marine transgression. The area has a 'banded' topography of parallel ridges separated by roughly parallel lakes and river courses. Eskers, rock outcrops and drumlins provide relief on this relatively flat lowland region. The countless lakes, streams and rivers are interspersed with expanses of tundra meadows and wetlands (Ryder 1972). Heavy frost action is shown by widespread rock heaves, polygonal markings, solifluction effects and soil eruptions (Hanson *et al.* 1956).

The lowland elevations nowhere exceed 300m and generally consist of flat plains covered with marine and glacial drift (Bird 1967). Although limited in wetlands, eskers are widespread and numerous and whaleback outcrops occur sporadically. Continuous belts of drumlins, up to 30m high, occur throughout the interior. A prominent end-moraine ridge extends northeast from the Back River to MacAlpine Lake. Nelson Hill, rising to 240m is a prominent landmark northeast of MacAlpine Lake. These landmarks, as well as scars and frost cracks on polished bedrock outcroppings, are evidence of the north-northwesterly recession of the Keewatin ice sheet. The ice front apparently curved eastward toward Chantrey Inlet.

Inland, the ground rises gradually to a maximum of 245m high, north of MacAlpine Lake (Hanson *et al.* 1956). In the eastern Part of the MBS, the Simpson and Armark plains slope gently and evenly to the north coast of the Queen Maud Gulf. This slope continues into the sea and creates an extremely shallow coastline. The coasts have glaciated exhumed surfaces forming rock plains close to sea level.

### **1.1.4 Soils**

Thick deposits of marine silts and clay are a particularly significant component of the terrain in the region. This indicated that post-glacial marine invasion was extensive in the area. Sandy soils are commonly found further inland.

The dominantly cryic regosolic soils found in this area are characterized by an extremely shallow active layer. These soils are young and poorly weathered. Permafrost usually occurs within a depth of one meter (Clayton *et al.* 1977). Regosols exhibit a wide variety of textures, ranging from coarse glacial till and outwash to variable marine sediments. These soils show a cold soil climate and a high moisture regime; often becoming saturated for moderately long periods of time. These poorly drained soils result in a shallow surface peat cover (Tarnocai 1977).

### **1.1.5 Hydrology**

The MBS is drained by many meandering rivers and streams which flow into the Queen Maud Gulf. Major rivers in the area include the Armark, Ellice, Kaleet, Karrak, Perry, Pitok, and Simpson rivers. The main axes of these rivers run roughly north-south and their upper courses flow through chains of small lakes. Many small rapids occur along the rivers, and braiding or deltaic deposition occurs at

their mouths. Meander scrolls and scars mark alluvium-filled valleys in the lower reaches of the rivers (Hanson *et al.* 1956). Spring breakup results in flooding of these valleys. Most years, the breakup of major rivers is completed by early July.

The landscape is dotted with countless pools, ponds, shallow lakes and a few deep lakes. Water covers about 40% of the MBS's land surface area. Thaw lakes, developing from the melting of ground ice, are widely scattered on marine and alluvial silts of the coastal lowlands around the Queen Maud Gulf (Bird 1967). River and lake waters are turbid near the coast, clearing well inland where clayey soils give way to sandier soils and stretches of gravel and boulders.

### **1.1.6 Climate and Weather Conditions**

Classified as having a low arctic ecoclimate, the mean annual temperature is approximately -11°C. The Sanctuary experiences short, cool summers, with mean local temperatures ranging from 4°C to 6°C. Winters are long and very cold, with local mean temperatures from -28°C in the northwest to -17.5°C in the southeast. First-year ice covers the gulf all year long, except for a short period during the summer months which causes low mean daily temperatures and high frequencies of low cloud and fog (Maxwell 1981). Onshore winds, bringing cold air from the still-frozen gulf, and continental air masses approaching from the south greatly influence the MBS's climate (Ryder 1967). Temperatures along the coastal Parts of the Sanctuary are colder than inland parts. Generally, inland temperatures are about 2 °C higher than on the coast and can reach temperatures as high as 20 °C. Due to the flat topography and close proximity to the coast, high winds and fluctuations in weather are common. The climate can be extreme and snow is not unusual during any month of the year. Winds prevailing from the north, northeast and northwest, are averaged at 20 km per hour in the summer, but are frequently greater than 40 km per hour (Maxwell 1981). The mean annual precipitation ranges from 125-200 mm. The appearance of open water in the late summer and early fall helps moderate local climate and can create drizzly, foggy seasonal weather.

### **1.1.7 Ice Conditions**

The Queen Maud Gulf is characterised by fast ice, where first-year ice predominates. Although no significant polynyas occur (Smith and Rigby 1981), the gulf develops shore leads and may become ice-free for a period of a few days to several weeks during the summer. Ice cover is more persistent in the eastern and northeastern Parts of the gulf (Maxwell 1981).

Freeze-up usually starts in late September and is completed by November. Rivers and tributaries become almost completely ice bound during winter. Rivers flowing northward into the gulf are cleared of ice between July and August and cause some clearing of sea ice along the mainland.

### **1.1.8 Climate Change**

Climate-induced changes in the Cambridge Bay area by 2100 are predicted to be extremely high. It is predicted that species will turn over 100% or more than 100% (turn over completely, then again; Environment and Climate Change Canada 2016a). This area is Part of a band that stretches from the lower Victoria Island (Nunavut) down through the Kitikmeot region and across northern Quebec. However, the Queen Maud Gulf area, in general, has a longer open-water season than other areas in the Canadian Arctic and therefore marine biodiversity of species which are either ice-dependent or ice-associated will likely be less vulnerable to predicted changes to sea ice.

## 1.2 Historical Background

Prompted by mineral exploration in the area, the Queen Maud Gulf Migratory Bird Sanctuary (MBS) was established in 1961 under the *Migratory Bird Sanctuary Regulations* of the *Migratory Birds Convention Act* of 1917 to protect what were then the only known nesting grounds of Ross's Geese; as well as habitat for the largest variety of geese in any single area in North America. The Sanctuary pre-dates the *Canada Wildlife Act*, which has been used as Environment and Climate Change Canada's primary habitat conservation tool since 1973. Prior to the promulgation of the *Canada Wildlife Act*, the only regulatory habitat conservation tool available to the Government of Canada was the *Migratory Bird Convention Act*.

The designation of a Migratory Bird Sanctuary starts with the evaluation of an area against a set of criteria. If one or more of the requirements are met the area will be considered suitable for the establishment of a Migratory Bird Sanctuary (Government of Canada 2017a). Once a Migratory Bird Sanctuary is listed under the *Migratory Bird Sanctuary Regulations*, an amendment of the *Migratory Bird Sanctuary Regulations* is required for the establishment of any boundary modifications made, or the cancellation of a sanctuary.

In addition to the designation as a Migratory Bird Sanctuary, in 1982 the Ahiak MBS was also designated a "Wetland of International Importance especially as Waterfowl Habitat", under the terms of the *Ramsar Convention*; making it the world's second largest Ramsar site (Ramsar 2001).

## 1.3 Land Ownership and Interests

The Ahiak MBS occupies an area of coastland and low-lying inland terrain in the traditional use areas of Inuit who now live in Cambridge Bay and Gjoa Haven and also at Bathurst Inlet or Umingmaktok (Contentworks 2011). Most of the Sanctuary is crown land; however, under the Nunavut Land Claims Agreement there are parcels of Inuit-owned land (IOL; surface rights) along the coasts in the extreme west and east of the sanctuary (Figure 2). The land surrounding the Ahiak MBS is a mixture of crown land and IOL. Territorial Land Use Regulations apply to the federal Crown land.

### 1.3.1 Inuit Owned Lands

Eighteen parcels of Inuit Owned Lands (IOL) are located within the MBS (parcels BB-17, BB-19, CB-01 through CB-11, CB-17, GH-20 through GH-23). The Kitikmeot Inuit Association holds the surface rights to these parcels. There are other IOL (surface) parcels surrounding the MBS (Figure 2).

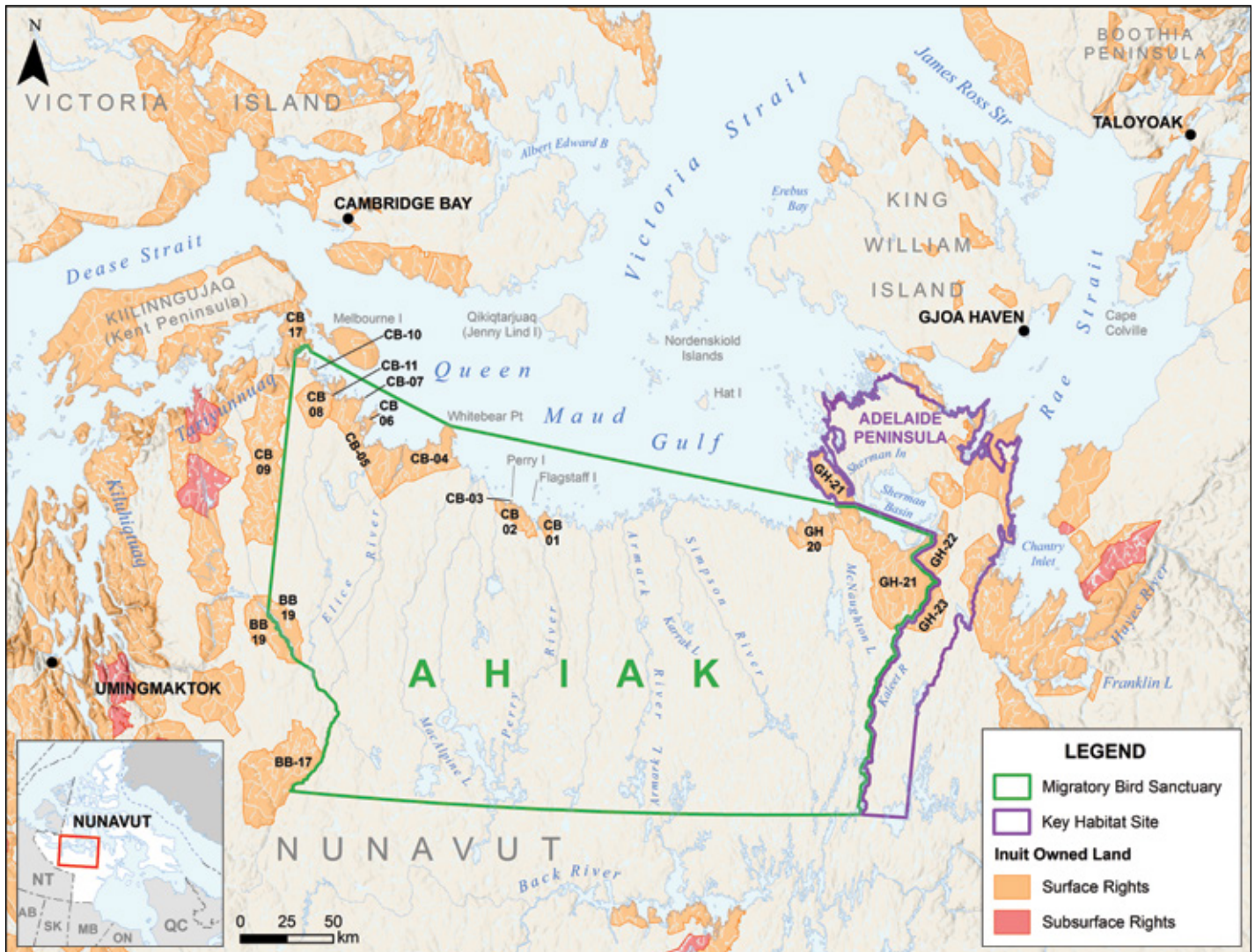


Figure 2: Map of Inuit-Owned Lands in and around the Ahiak (Queen Maud Gulf) MBS

### 1.3.2 Subsurface Interests

Limited mining exploration has occurred within the Queen Maud Gulf region. Hanson and Jones (1976) reported occasional copper-bearing, pyrite-bearing and magnetite-bearing rocks interspersed throughout the area, and several small iron deposits occur along Sherman Inlet in the northeast Part of the MBS. The area, which is described as having high mineral potential, was actively explored in the early 1970s. The Perry River Nickel Mines, Giant Mines, and Cominco had staked claims within the area (Allison 1977), but these claims expired in the 1980s. There are several mining projects in various stages outside boundary of Ahiak MBS to the west, with the closest one being ~45 km from west of the western border (Hope Bay Project; Government of Nunavut 2016; Figure 3).

The Queen Maud Gulf lowlands do not appear to have substantial hydrocarbon reserves (J. Hamilton personal communication). The gulf is not considered to be a high priority basin for petroleum exploration (Fenco Consultants Ltd. and F.F. Slaney and Co. Ltd. 1978).

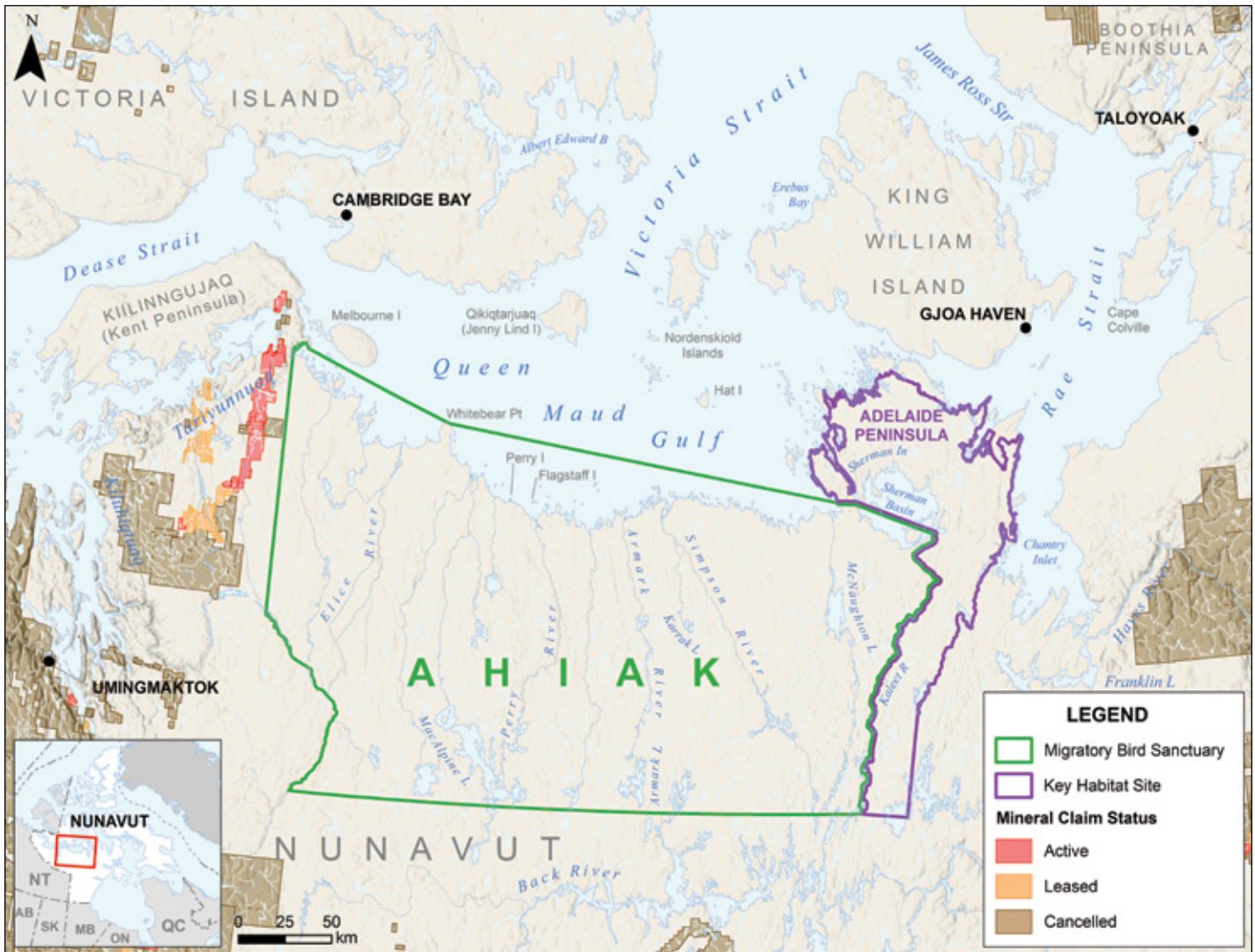


Figure 3: Map of Subsurface Interests around the Ahiak (Queen Maud Gulf) MBS

## 1.4 Facilities and Infrastructure

There are nine federal government structures within Ahiak MBS (Table 3). In 1991, the Canadian Wildlife Service established the Karrak Lake Research Station. It is located on the largest island on Karrak Lake and consists of 4 permanent cabins and 2 sheds. There is also a smaller cabin northwest of Karrak Lake on the North Karrak River that is occasionally used. Two out-camp cabins used to be located by goose colonies 10 and 46 (see Figure 4), but they were removed in 2015. The Karrak Lake Research Station also has an out-camp cabin at the Perry River used for staging during goose banding activities. The Karrak Lake Research Station is maintained and operated by Dr. Ray Alisauskas (Wildlife and Landscape Science Division, Science and Technology Branch, ECCC). Water Survey of Canada has a water gauge and cabin at the Ellice River as Part of their water northern water quantity monitoring program. The station operates automatically but is serviced once or twice a year.

**Table 3: Facilities & Infrastructure**

Type (identifying name)	Condition	Approximate Size (feet)	When Built	Responsibility	Location
Building (Karrak Lake – main cabin)	Good	18' x 20'	1990s	ECCC	Island in the center of Karrak Lake
Building (Karrak Lake – food cabin)	Good	12' x 16'	1990s	ECCC	Island in the center of Karrak Lake
Building (Karrak Lake – equipment cabin)	Good	12' x 16'	1990s	ECCC	Island in the center of Karrak Lake
Building (Karrak Lake – staff cabin)	Good	12' x 16'	1990s	ECCC	Island in the center of Karrak Lake
Building (Karrak Lake – skidoo shed)	Good	5' x 10'	1990s	ECCC	Island in the center of Karrak Lake
Building (Karrak Lake – storage shed)	Good	10' x 10'	1990s	ECCC	Island in the center of Karrak Lake
Building (North Karrak River - F-14 cabin)	Good	12' x 16'	1990s	ECCC	North of Karrak Lake
Building (Perry River – goose banding cabin)	Good	12' x 16'	1964	ECCC	Near the mouth of the Perry River, east bank
Building (AWOS shelter; Water Survey of Canada gauge)	Good	10' x 12'	1970s	ECCC	Near the mouth of the Ellice River, west bank

In addition to the above federal structures, there are several Inuit personal cabins and Hunters and Trappers Organizations' cabins within Ahiak MBS that the Ahiak ACMC is compiling a list of.





2.

## ECOLOGICAL RESOURCES

### 2.1 Terrestrial and Aquatic Habitats

The Ahiak MBS covers more than 95% of the Queen Maud Gulf Lowlands ecoregion. The Queen Maud Gulf Lowlands cover an area of over 6,000,000 ha. Approximately 40% of the Sanctuary's total surface area is wetlands (Bird Studies Canada, 2017).

Wetlands are a crucial component of terrestrial and aquatic habitats within the Ahiak MBS. They provide productive and important habitat for a number of species; in particular large populations of migratory geese. Habitats include marine and coastal wetlands: marine waters, rocky marine shores, estuarine waters, and intertidal mud, sand, and salt flats and marshes (Ramsar 2001). Inland wetland types include permanent rivers and streams, inland deltas, permanent freshwater lakes, permanent freshwater ponds, marshes and swamps, and peatlands.

The widespread, gently rolling Lowlands of the Ahiak MBS are drained by several rivers including, the Tingmeak River, Ellice River, Perry River, Amark River, Simpson River and Kaleet River, all of which flow north out of the interior into Queen Maud Gulf. Numerous streams, ponds and shallow basins (averaging less than 100m in depth) have established interspersed with expanses of lush, wet sedge meadows and marsh tundra. Dry upland habitats are typical along the coast and inland along glacial topographic features such as drumlins, outcrops and eskers. Upland habitats contain lichens, mosses, and vascular plants.

The Ahiak MBS is studded with many shallow lakes, ponds, and wetlands. Onshore water bodies occupy 18.6% of the total area within the Sanctuary. However, for approximately nine months of the year ice cover is complete, predominantly land fast ice, and many of the channels and straits are ice-choked through the summer (Parks Canada 1995). Offshore, coastal water occupy 10.3% of the total area within the Sanctuary and are speckled with islands, islets, passages and bays. McLoughlin Bay, Ogden Bay, Flagstaff Island, Perry Island, and Whitebear Point are notable features along the coast of the Sanctuary. The coastline is regular, with moderately high rolling headlands along the western coast with gently sloped beaches and sandy tidal flats occurring towards the east (Parks Canada 1995). Cliffs can reach up to 200m in height.

Land cover mapping of Ahiak MBS (Didiuk and Ferguson 2005) identified thirteen unique land cover types within the boundaries of the Ahiak MBS. These land cover types include three turbidity classes of onshore water bodies and 10 terrestrial land cover types (Appendix B; Appendix Table B - 1).

## 2.2 Birds

A checklist of the birds that can be found within the Ahiak MBS is available online at: <https://NunavutACMC.com/Ahiak>.

### 2.2.1 Waterfowl and Geese

While Samuel Hearne was exploring the arctic coast of continental NT in the late 1700s he described a goose that is now known as the Ross's Goose. However, it wasn't until 1935 that Angus Gavin discovered the nesting grounds of this goose in the Perry River area. Stone corrals used to trap moulting geese were located throughout the area showing that Inuit knew of the goose colonies long before the arrival of explorers and researchers.

When fur trading became important in the late 1920s, the Hudson's Bay Company set up trading posts at the mouths of several rivers flowing into the Queen Maud Gulf (Usher 1975). Angus Gavin was manager of the Perry River trading post when he discovered the Ross's Goose colony at Discovery Lake (Gavin 1947). In 1949, Hanson, Queneau and Scott explored the Perry River region and increased the number of known Ross's Goose colonies (Hanson *et al.* 1956). Subsequent reconnaissance waterfowl surveys revealed that the Queen Maud Gulf area supported a variety of widely dispersed goose species (Barry 1961).

Hundreds of thousands of waterfowl, notably Ross's, Brant, Greater White-fronted, Snow, Cackling and Canada geese, Tundra Swans, Common and King Eiders, and Long-tailed Ducks breed, moult, and stage in the Ahiak MBS. Approximately 60 goose colonies are scattered throughout the Lowlands which includes over 90% of the world's population of Ross's Goose and a significant proportion of the Midcontinent Population of Lesser Snow Geese population (Kerbes *et al.* 2014). There are at least two nesting groups of Canada goose, known as the tall grass prairie and short grass prairie populations (Ramsar 2001). The Ahiak MBS is one of the few nesting areas with both Atlantic and Pacific Brant geese (Ramsar 2001), and is also an important nesting area for Midcontinent Cackling Geese (Leafloor *et al.* 2018) and Midcontinent White-fronted Geese (Alisauskas *et al.* 2018a).

Globally significant (over 1%) populations of several other waterfowl species have also been documented. Surveys conducted in the coastal section, and up to 50 km inland in 1990 and 1991, revealed as much as 18% of the eastern Tundra Swan population (7% of the North American population); 14% of the mid-continent Greater White-fronted Goose population; approximately 5% of the Pacific Brant population; 10 to 12% of the Midcontinent Cackling Goose population; about 1% of the mid-continent Northern Pintail population; and 6% of the west/central North American King Eider population (Bird Studies Canada 2017). The highest recorded breeding densities of the North American King Eiders originate just south of the Ahiak MBS.

Geese arrive to the Ahiak MBS in late May and nesting typically begins within a week after arrival. The peak of hatch is in mid-July. Adults and goslings move to areas along the coast to feed during the post-hatching period. The geese depart from the MBS for their southward migration in late August after moulting is complete.

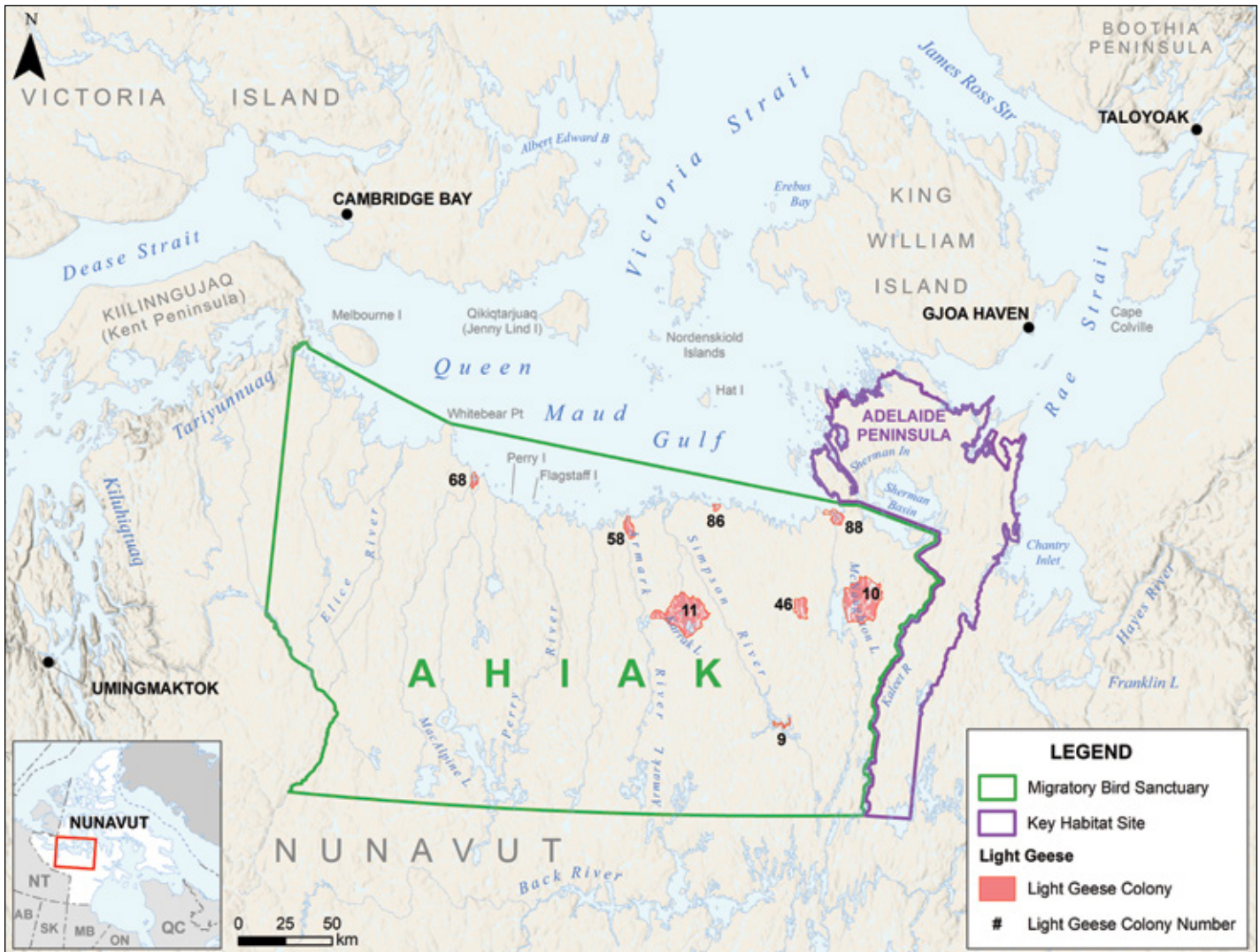


Figure 4: Location of white geese colonies within Ahiak (Queen Maud Gulf) Migratory Bird Sanctuary

### 2.2.2 Waterbirds

Thousands of Waterbirds breed within the Sanctuary; particularly several species of loons (Pacific, Yellow-billed, and Red-throated) and over 2% of the global Sandhill Crane population (Bird Studies Canada 2017). Other common summer species include various gulls, terns, and jaegers.

### 2.2.3 Landbirds

Land cover includes many shrubs of low to medium height which provides ideal habitat for many passerines, especially songbirds. Ptarmigans and songbirds such as Lapland Longspur and Snow Bunting are often observed nesting within the sanctuary.

## 2.2.4 Shorebirds

Abundant populations of shorebird species may harbour within the Ahiak MBS such as Red-necked Phalarope, Dunlin, and White-rumped Sandpiper. The wet sedge meadow, delta (active deposits), and upland tundra (both moss-lichen tundra and lichen-heath tundra) landcover types provide the best nesting habitats. Several shorebird species have been confirmed as nesting including Pectoral Sandpipers, Semipalmated Sandpipers, American Golden-Plovers, and rare Buff-breasted Sandpipers (J. Rausch, unpublished data). Recent population calculations have estimated that there are as many as one million shorebirds using the Ahiak MBS (J. Rausch, unpublished data).

## 2.2.5 Raptors

When the Ahiak MBS was established, several pairs of the then Threatened *tundrius* subspecies of Peregrine Falcon were regularly recorded in the Perry River area. The tundra Peregrine Falcon, now listed nationally as Special Concern under the federal *Species at Risk Act*, is the third most common raptor in the area after Rough-legged Hawk and Snowy Owl (Bird Studies Canada, 2017).

## 2.3 Other Wildlife

A checklist of the non-bird wildlife that can be found within the Ahiak MBS is available online at: <https://NunavutACMC.com/Ahiak>.

### 2.3.1 Terrestrial Mammals

Mammals range in size from large Grizzly Bears to small Collared and Brown Lemmings. Barren-ground caribou, Arctic fox, and Arctic hare are commonly observed. Other mammals less commonly observed but present include wolves, wolverines, muskoxen, least weasels, and Northern red-backed voles. Some of these species have fur coats that transition from brown in the summer to brilliant white in winter.

One hundred percent of the terrestrial area of the Ahiak MBS is used for calving and overlaps with about 35% (GNWT, unpublished data) of the historical barren-ground caribou (Beverly and Ahiak herds) calving grounds (Nagy 2011, Nagy *et al.* 2011, J. Nagy personal communication); as well as what was the traditional calving grounds of the declining Bathurst herd, which is also used by the Barren-ground Caribou (Dolphin and Union population). While some caribou remain within the MBS year round (mainly in the eastern Part of the MBS), most of the caribou migrate out of the area in mid-summer to south of Garry Lake and in autumn from the MacAlpine Lake area to Baker Lake. Consequently, the winter population of caribou in the MBS is smaller than the summer population.

The Ahiak MBS is also the originating stock for most of present day mainland muskoxen, with estimates of over 6,000 individuals.

These ungulate herds combined with vast open spaces support substantial populations of predators. Caribou are the main prey in the MBS. However, vulnerable and seasonally abundant foods, such as migratory birds, also contribute largely to prey taken, especially in late summer when ducks and geese are flightless during their annual molt.

Historically, Grizzly Bears were only occasionally seen in the MBS. In recent years, many Grizzly Bears are regularly seen, however the population size is unknown. Although rare, Polar Bears can venture south from the northern Parts of the gulf and have occasionally been seen in the Perry River area.

### 2.3.2 Marine Mammals

The Ringed seal is the most common marine mammal of the Queen Maud Gulf. The area around Perry River includes important Ringed seal habitat and was historically used as a staging area for hunting both Ringed and Bearded seals (Contentworks 2011). Whales are rare, except for the occasional narwhal (Parks Canada 1995). Polar bears regularly frequent the surrounding waters; however, they are rarely observed close to the boundaries of the Ahiak MBS.

### 2.3.3 Fish

Over twenty species of freshwater fish are known or suspected in Nunavut's freshwater habitats (CESCC 2006). The Ahiak MBS's numerous lakes, ponds, and rivers supply freshwater habitat for species of fish. Arctic Char, Northern Pike and Whitefish are relatively abundant. Other fish believed to occur within the MBS include Arctic Flounder, Grayling, Lake trout, Stickleback and both Polar and Arctic cod, although few studies of the fish in the MBS have been done.

### 2.3.4 Reptiles and Amphibians

Eight species of amphibians and one species of reptile (Common Garter-snake) are suspected to exist in Nunavut, however they have not yet been properly assessed (CESCC 2006) or suspected to occur within the boundaries of the Ahiak MBS.

## 2.4 Vegetation

Much of the area has recently emerged from the sea and is characterized by a cover of shrub tundra and marsh tundra vegetation. Wet sites are dominated by sphagnum moss and sedge tussocks. In low-lying areas the vegetation consists of wet sedge meadows and marsh tundra, while the upland areas contain lichens, mosses, and vascular plants. Herb and lichen species are very common, in mixture with other vegetation.

Grassland or marsh tundra occurs on moist marine silt. These areas are usually flooded during spring break-up and are dominated by well-vegetated, hummocky tussocks comprised mainly of cotton grasses (*Eriophorum* spp.) and sedges (*Carex* spp.). Mosses often grow in the wet ground between hummocks (e.g. *Aulacomnium turigidum*, *Drepanocladus revolvens*, *Meesea triquetra*, *Tetra urceolatus*). Emergent (often flooded) species include sedges (*Carex* spp.) and Common Mare's tail (*Hippuris vulgaris*). Herbaceous plants and dwarf shrubs (*Salix* spp., *Betula* spp.) are typically scattered throughout on drier micro-sites.

Heath tundra incorporates a greater proportion of lichens and herbaceous plants. It occurs on lower slopes of drumlins, which remain snow covered until early July. Dominant species include sedges, Labrador tea, arctic heather, Lapland rosebay, willows, and several berry plants.

As the soil becomes sandy and moderate to well drained, the shrub component increases within plant associations, in particular mountain avens (*Dryas* spp.). Lichens and many small herbaceous plants such as sweetgrass, sedges, rushes, legumes, and berry plants make up the remaining portion of this plant community.

Bedrock outcrops are covered by well-developed, crustose dominated lichen communities while marine clay sediments are sparsely vegetated (Zoltai and Johnson 1978).

A partial checklist (it is by no means complete) of the plants that can be found within the Ahiak MBS is available online at: <https://NunavutACMC.com/Ahiak>.

## 2.5 Species at Risk

Species at risk in Canada are first assessed by the Committee on the Status of Endangered Wildlife in Canada (COSEWIC-assessed) and then listed under the federal *Species at Risk Act* (SARA-listed) after a consultation process. Species are assessed or listed and labelled in one of six categories. The categories as given here are in order from most at risk to least at risk: Extinct, Extirpated, Endangered, Threatened, Special Concern, and Not at Risk. There are also two unrated categories: Data Deficient and No Status (have not been rated).

There are many species at risk (either COSEWIC-assessed or SARA-listed) that are confirmed to be within Ahiak MBS, or which could potentially be found there (Government of Canada 2017b; Table 4).

**Table 4: Federally-listed and COSEWIC-assessed species at risk with potential to occur within the Ahiak MBS**

Common and scientific names of species	Status in Canada		Presence in Ahiak MBS
	COSEWIC-assessed	SARA-listed	
<b>Birds</b>			
Peregrine Falcon <i>Falco peregrinus anatum/tundrius</i>	Not at Risk	Special Concern	Confirmed
Short-Eared Owl <i>Asio flammeus</i>	Special Concern	Special Concern	Confirmed
Red Knot ( <i>rufa</i> subspecies) <i>Calidris canutus rufa</i>	Endangered	Endangered	Confirmed
Red-necked Phalarope <i>Phalaropus lobatus</i>	Special Concern	No Status	Confirmed
Buff-breasted Sandpiper <i>Tryngites subruficollis</i>	Special Concern	Special Concern	Confirmed
Harris' Sparrow <i>Zonotrichia querula</i>	Special Concern	No Status	Potential
<b>Mammals</b>			
Polar Bear <i>Ursus maritimus</i>	Special Concern	Special Concern	Confirmed
Grizzly Bear <i>Ursus arctos</i>	Special Concern	No Status	Confirmed
Wolverine <i>Gulo gulo</i>	Special Concern	No Status	Confirmed

Common and scientific names of species	Status in Canada		Presence in Ahiak MBS
	COSEWIC-assessed	SARA-listed	
Barren-ground Caribou <i>Rangifer tarandus</i>	Threatened	No Status	Confirmed
Dolphin Union Caribou <i>Rangifer tarandus groenlandicus</i>	Special Concern	Special Concern	Confirmed
<b>Insects</b>			
Transverse Lady Beetle <i>Coccinella transversoguttata</i>	Special Concern	No Status	Potential

### 2.5.1 Birds

In April 1978, the Peregrine Falcon *tundrius* subspecies was evaluated by COSEWIC as “Threatened” due to the use of harmful pesticides during the 1950s, 60s, and 70s. The pesticides responsible were banned in Canada and populations have shown continuing increases since the 1970’s to near historical numbers. As a result, down-assessment has been achieved and the species was re-evaluated by COSEWIC as of “Special Concern” in April 1992 and “Not at Risk” in 2017. It is still currently federally listed under the *Species at Risk Act* as “Special Concern” (Environment and Climate Change Canada 2017a).

### 2.5.2 Terrestrial and Marine Mammals

Both the Grizzly bear and Wolverine are assessed by COSEWIC as species of “Special Concern”. The Grizzly Bear in Canada is also designated as at risk on Appendix B of the Convention on the International Trade in Endangered Species (CITES) and by the World Conservation Union (IUCN).

### 2.5.3 Fish

Of the twenty-four species of freshwater fish that are known or suspected in Nunavut’s freshwater habitats, four are considered “Sensitive”, seven are “Secure” and 13 are “Undetermined” or “Not Assessed”. Arctic Char and three other species were categorized as “Sensitive” because of local over harvesting, or because of very limited distribution in Nunavut (CESCC 2006).

### 2.5.4 Reptiles and Amphibians

Due to lack of information and inventory work, all amphibian and reptile species have a General Status rank of “Undetermined” or “Not Assessed” in Nunavut. There has been no proper assessment to determine whether or not these species exist within the boundaries of the Ahiak MBS.



3.

## CULTURAL RESOURCES

The focus of migratory bird sanctuaries is the conservation of migratory birds and their habitat, but through the *IIBA*, the unique relationship between the Inuit of Nunavut and the ecosystems within Ahiak MBS is recognized as being of ecological, spiritual, and social in nature. *Inuit Qaujimagatuqangit* (IQ), Inuit traditional knowledge or ‘that which has long been known by Inuit’, is necessary for responsible decision-making regarding the lands, waters and marine areas within the MBS. Much of IQ deals with knowledge and use of the land. The cultural values associated with land use may be either tangible or intangible; travel routes, place names and knowledge of weather and the ways of animals are a few examples of intangible heritage, while fish weirs, kayak stands, the many types of inuksuit, and the remains of past habitations, including grave sites, are all Part of the tangible heritage of Inuit land use (Contentworks, 2011).

### 3.1 Cultural Resources Inventory and Interpretative Materials Study

The patterns of Inuit knowledge and use of the MBS are evident on land use and occupancy maps compiled in 1973-76 by the Inuit Tapirisat of Canada and in 1985-92 by the Tunngavik Federation of Nunavut.

The Inuit Land Use and Occupancy Project (INAC 1976) report explained and mapped the historical development of Inuit occupancy of much of the surface of Nunavut (including sea ice). The Nunavut Atlas (Riewe, 1992) refined this by showing the most intensively used lands, those which were visited by Inuit every year before the centralization of people into their present communities, along with those lands which were visited regularly, though not necessarily every year, up to the time when the Nunavut Atlas was published in 1992. These two publications, the Inuit Land Use and Occupancy Project (ILUOP) and the Nunavut Atlas, valuable though they are, are limited by their focus on subsistence practices rather than other cultural practices.

Nunavut Tunngavik Incorporated (NTI) has obligations under Article 6 of the *IIBA* to prepare inventories of resources important to Inuit for Migratory Bird Sanctuaries and National Wildlife Areas in Nunavut. The purpose of the inventories is to support the management of each protected area, aid the development of interpretive materials, document information of cultural importance to Inuit, and support the development and use of official Inuit language names in management of these protected areas. As a result, NTI hired consultants to work on cultural inventories for the Ahiak MBS in 2010 (J. Harris, Contentworks) and again in 2012-2017 (B. Kemp and E. Val).



The 2010-2011 work focused on the cultural heritage of Inuit, including sites, objects, routes, landscapes (including tidal and fresh water), place names and IQ (Contentworks, 2011). The consultants relied primarily on publicly accessible sources, such as the Inuit Land Use and Occupancy Project (1970s) publications and records, Parks Canada studies, oral histories, archaeological site records, and other records and surveys, such as Indigenous Affairs Canada-Environment and Climate Change Canada's (then known as the departments of Indian Affairs and Northern Development and Environment Canada) Northern Land Use Information mapping project (1980s). The products were a Cultural Heritage Inventory and a Cultural Heritage Resources Report.

In 2012, NTI hired consultants to begin a more thorough inventory of cultural resources associated with the people of Gjoa Haven. The research team conducted mapping interviews in November 2013 to determine Inuit land use, places of importance, place names and sites containing physical cultural resources such as living sites, kayak stands, caches, and cairns. Although interviewees were questioned specifically about places and land-use in and around the Ahiak MBS, the interviewees also shared their knowledge about resources throughout the region. Most of the content of this section of the management plan is sourced from the information provided by Inuit and recorded by B. Kemp and E. Val. Their work built upon that which was started with the Inuit Land Use and Occupancy Project (INAC, 1976) and has provided a well-rounded description of the use of the Ahiak MBS for all Inuit uses and its cultural resources.

The Ahiak ACMC conducted a site visit to the MBS in the August 2012. Access to a helicopter allowed the members to visit a large variety of sites within the MBS including the Ellice River Water Survey of Canada gauge station, the Karrak Lake Research Camp and the former Perry Island settlement. The members were accompanied by a filmmaker from Yellowknife, Christopher Gamble, who recorded footage of the MBS as well as conducted interviews with the members and support personnel who accompanied the members on the site visit.

In addition to these newer initiatives, the Kitikmeot Inuit Association's "*Walking in the path of the caribou: knowledge of the Copper Inuit placenames atlas*" (Banci *et al.* 2004) based on interviews conducted in 1996, and NTI's "*Perry River Oral History Project*" (2003) were valuable resources to the Ahiak ACMC in creating this Management Plan.

## 3.2 Inuit Land Use

Traditional Inuit land use includes all the ways in which Inuit know, own and use their land and its resources (Contentworks 2011). The knowledge and actions involved in land use vary from place to place and from season to season, and include not only land but water, whether open or in the form of ice, especially the land-fast ice over salt water. The values associated with land may be tangible (e.g. kayak stands, gravel sites, inuksuit) or intangible (e.g. knowledge of weather, travel routes, place names, ways of the animals). The land covered by the Ahiak MBS has been used by Inuit for thousands of years and is still an important cultural and traditional harvesting area for present day Inuit.

### 3.2.1 Historical Inuit Land Use

The Ahiaq MBS was used by seven cultural groupings:

- **Nattiligi**miut (people of the Nattiliq region)
  - o Gjoa Haven, Taloyoak & Kugaaruk covering a large area as far north as Bellot Strait/Fort Ross, the Boothia Peninsula, King William Island, south east Queen Maud Gulf, Simpson Strait & Rasmussen Basin
  - o Relied primarily on seal and fish with limited access to caribou.
- **Utkuhigsali**gi (people of the Utkuhigsaliq region)
  - o Covering an area that includes lower north-south portion of the Back River, Chantrey Inlet & the Hayes River watershed
  - o Relied on fresh water fish, marine fish, seal and caribou.
- **Haningar**uq (people of the Haningarug region)
  - o Covering an area that includes the upstream/inland east-west portion of the Back River to as far west as the Garry Lakes
  - o Relied mainly on inland resources of caribou and fish. Use of marine mammals and fish was rare.
- **Iluli**gi (people of the Iluliq region)
  - o Covering an area that includes the mainland, the Adelaide Peninsula, the Simpson Strait, the eastern half of the Queen Maud Gulf Migratory Bird Sanctuary to as far south as the Garry Lakes.
  - o Relied on both inland and coastal resources based on seasons (seal and marine fish harvesting in late winter and early spring, moving inland to hunt caribou, access fresh water fish and harvest geese in late summer and early fall).
  - o Many Iluliqmiut moved to Gjoa Haven in the late 1960s when the Hudson Bay trading posts on the mainland closed.
- **Ahia**q (people of the Ahiaq region)
  - o Covering an area that includes the western Queen Maud Gulf Migratory Bird Sanctuary including the Perry & Ellice Rivers to as far south as the western end of the Garry Lake
  - o Similar to Iluliqmiut in seasonal harvest and land use patterns.
- **Kiluh**iqtuq (people of the Kiluhigtug region)
  - o Bathurst Inlet & Umingmaktok covering an area that includes the entire Bathurst Inlet and Kent Peninsula to as far south as the upper Back River west of Garry Lake
  - o Similar to Iluliqmiut in seasonal harvest and land use patterns.
- **Ki'lini**gi (people of the Ki'liniqmiut region)
  - o Cambridge Bay, Kugluktuk, Sachs Harbour and Ulukhaktok covering a large area including Victoria Island & Bathurst Inlet to as far west as the Dolphin-Union Strait, east of the Beaufort Sea
  - o Many of the Ahiaqmiut and Kiluhigtugmiut relocated to the Ki'liniqmiut region when the Hudson Bay posts within the Ahiaq MBS closed in the late 1960s.

Although there was variation in the language, clothing and specific land use related to the seasons and access to resources, all groups shared in common harvesting of caribou and fish within Ahiak MBS and there was much geographical overlap between the cultural groups. Movement throughout the MBS was tied closely to the movements of caribou and availability of other food sources. After late summer and fall caribou hunting inland in the southern portion of the Ahiak MBS, people would cache meat for winter use. Wood (from upstream boreal forest) would be collected for fires from the rivers as people moved north and south with the seasons. Before 1920, the cultural groupings had more distinct customary areas of land use. With the establishment of trading posts and the expansion of the fur trade after 1920, the groups expanded their land use areas and overlap became more common until the closure of the trading posts.

There are many goose traps throughout the Ahiak MBS. These stone structures (2-3 feet high; 10-12 feet round) were typically placed close to lake shores where a kayaker could herd flightless geese into the stone fence through a small opening. Snow geese were the easiest to capture because they scattered less than Canada Geese. Once in the trap, the entrance was blocked with a large rock and people would enter over the walls and kill the birds by wringing their necks.

Inuksuit used for caribou hunting and fishing weirs are other common stone structures throughout the Ahiak MBS. The eastern-most quarter of the Ahiak MBS was a very important area for caribou hunting for the Iluiliqmiut. In years of scarcity, caribou would be found closer to the Back River. Once the snow started to melt, then people could travel north on foot or by dog team towards the coast to hunt seal on the ice in May and June. Along the eastern border of the Ahiak MBS was the main caribou harvesting area for the Utkuhigsaligmiut. In the western half of the Ahiak MBS, before there were rifles, Ahiqmiut would hunt caribou from kayaks right when the ice cleared from the coast near and between the Perry and Simpson Rivers using spears made of wood with antler for the tip. As the caribou moved inland, Ahiqmiut would follow them inland as far as MacAlpine Lake.

Many camp sites can be found along the coast of the mainland at the Queen Maud Gulf. People would set up sealing camps and repair and make gear and sew clothing while hunting seal and waiting for the coat of the caribou to thicken (so that it would make better winter clothing for next year) before moving inland.

While harvesting seal, polar bears would also advantageously be harvested in April and May at two main areas: 1) north of the Ellice River and 2) northeast of Perry River/north of Armark River on the ice in the Queen Maud Gulf.

The importance of the Ahiak MBS to Inuit is graphically displayed in Figure 5.

The extensive coastline and rivers flowing north into the gulf from the south of the MBS helped define the main lines of Inuit activity in the sanctuary. The first Europeans known to have visited the area were during the first expedition of John Franklin in 1821. There was little outside contact until the 1920s when the Roman Catholic Church, CanAlaska Trading Company and the Hudson's Bay Company (HBC) arrived. Inuit largely abandoned seal camps in favour of traplines in the 1920s in response to the trading companies' presence. Hudson's Bay Company Trading posts in the Ahiak MBS were established at Perry River (1926-1967), Ellice River (1926-1927), Whitebear Point (1926-1927), Flagstaff Island (1937-1941), Sherman Inlet (1947-1955) and Perry Island (1957-1967). These trading posts helped sustain subsistence activities and trapping along the coast and in the interior. In 1938, Angus Gavin, who was stationed at the Hudson's Bay Company outpost at Perry River and led by Inuit guides, documented the nesting grounds of the Ross's goose (*Anser rossii*) at Discovery Lake (Gavin 1947) within the Ahiak MBS. In 1967 the Hudson's Bay Company abruptly closed and abandoned the last of the trading posts within the Ahiak MBS for one at Umingmatok. The absence of the Hudson's Bay Company marked the end of year round habitation many Inuit within Ahiak MBS. Many had become accustomed to the added security of supplies from the Hudson's Bay Company and had no choice but to relocate to either Cambridge Bay or Gjoa Haven (NTI 2003). None of the places supported by trade became a year-round community in the Ahiak MBS after 1968, and out-migration from the area reduced the amount of activity in the central Parts of the MBS in particular around the mouth of the Perry River.

Community land use in the 1970s and 1980s consisted of almost the whole population living in centralized settlements of Cambridge Bay and Gjoa Haven. People were interviewed where they lived, and consequently many reported using areas which they, as individuals, no longer visited. For the Ahiakmiut however, the MBS was the centre rather than a periphery of their area of use and many still journeyed regularly to the mainland to hunt and fish. Remnants of some of the buildings are still evident at Perry Island.

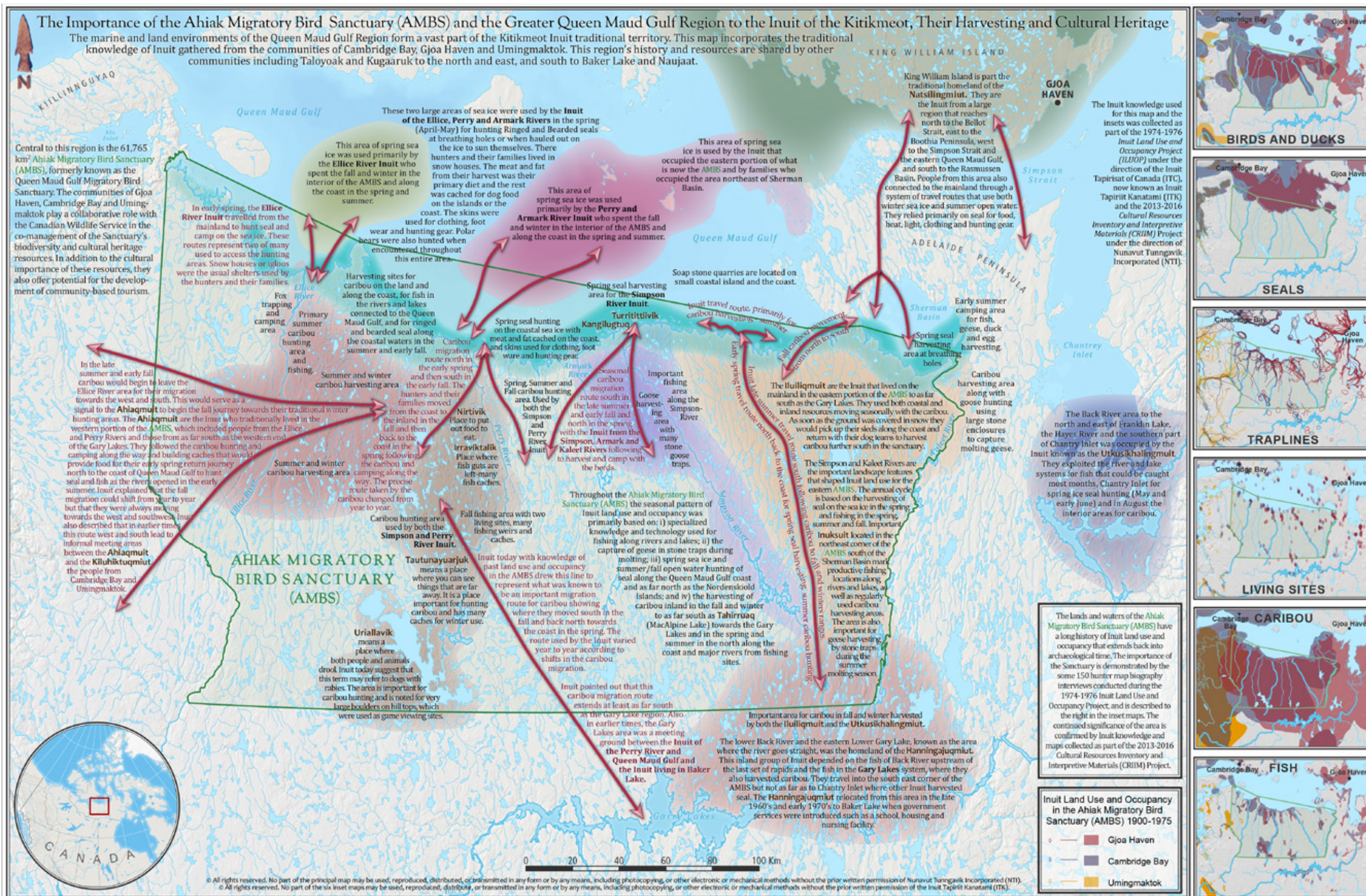


Figure 5: Year-round importance of Ahlak MBS for Inuit harvesting and cultural practices

### 3.2.2 Current Inuit Land Use

Use of the MBS is primarily hunting, trapping, fishing, egg gathering, and berry picking by Inuit from the communities of Cambridge Bay, Umingmatok, and Gjoa Haven (Figure 6). One or two families regularly set up fish camps and spend a portion of the summer near the mouth of several of the major rivers. To a lesser extent, Inuit from Baker Lake still make use of the Ahiak MBS as well. The Kitikmeot Region is the least populated region of Nunavut and subsistence activities are still omnipresent with most residents relying heavily (above 50%) on wildlife for food or income from the sale of meat and furs or working as sports hunting guides (Government of Nunavut 2007). Most of the use is during the open-water season when Inuit can travel to the northern, coastal Parts of the Ahiak MBS by boat, but it is also used in the winter, primarily for trapping arctic fox, wolf and wolverine. Char and whitefish are taken in the major rivers in many of the lakes and seals (bearded and some ringed) are hunted in the spring and summer along the coast. Guided hunts are typically for muskox and caribou in the western Part of the Ahiak MBS, and muskox in the east. Non-lethal uses of wildlife, such as ecotourism are still limited but the Inuit Tourism Providers Fund associated with the *IIBA* has targeted Gjoa Haven (one of the associated communities for Ahiak MBS) as one of three tourism focal projects.

Although most hunting and trapping occurs along the coastal region, trap lines up to 160 km inland are used to harvest fox, wolves and wolverine. Muskox are harvested offshore in the Queen Maud Gulf in the winter. The former Perry Island trading post still has remnants of many buildings and is an important Part of some families' personal history, as are the many grave sites along the Queen Maud Gulf coast. These sites are purposely not marked on our maps to protect the sites.

There has been a commercial meat plant in Cambridge Bay since 1971 but the meat being supplied to Kitikmeot Foods does not come from Ahiak MBS.





# 4.

## GOALS AND OBJECTIVES

### 4.1 Vision

The renewed long-term vision for the management of Ahiak MBS is multi-dimensional, and takes into account:

- Migratory bird conservation and management;
- Species at Risk recovery goals, as well as safeguarding of the habitat of non-federally regulated species (with the agreement and cooperation of regional institutions of public government as well as local resource co-management boards and authorities);
- Protection of Inuit cultural resources and use of the MBS, while ensuring that Inuit fully benefit from and fully participate in the economic and other opportunities arising from the management of the MBS (as per *IIBA Article 2*);
- Public information and education needs; and
- Co-existence of wildlife and people.

With the above in mind, the vision for the MBS is as follows:

**The Ahiak Migratory Bird Sanctuary will be managed to ensure the long-term conservation and protection of the land for use by all wildlife, including migratory birds, and, for uses by people that do not threaten the integrity of the habitats that wildlife need to thrive.**

### 4.2 Goals and Objectives

The goals (Table 5) for the Ahiak MBS are critical in ensuring the vision is achieved and maintained. The objectives (Table 5) were specifically designed to meet the goals while addressing each management challenge of, and threat to, the Ahiak MBS (refer to this plan section 5.0 – *Management Considerations*).

The goals are listed in order of importance, with Objective 1.1 being both the short- and long-term primary focus by the Ahiak ACMC for management of the Ahiak MBS.



**Table 5: Management Goals and Objectives**

Goals	Objectives
<p><b>Goal 1:</b> Protect the area for all wildlife and culture resources.</p>	<p>Objective 1.1: To work towards converting the MBS to a National Wildlife Area to ensure it is best suited to co-management, and to the year-round protection of habitat for all wildlife (not just birds), especially species at risk.</p> <p>Objective 1.2: Ensure areas rich in wildlife and cultural resources are documented, conserved and protected.</p> <p>Objective 1.3: Promote and encourage traditional use, and tourism and interpretive uses, of the protected area.</p> <p>Objective 1.4: Be aware of the threats that we can't control, and try to influence or mitigate their effects on the protected area.</p>
<p><b>Goal 2:</b> Manage and conserve the protected area consistent with the rules of the legislation.</p>	<p>Objective 2.1: Make sure permitting processes are being followed and there is no illegal activity.</p> <p>Objective 2.2: Encourage research that addresses the management considerations (Table 6).</p>
<p><b>Goal 3:</b> Keep the land and water from being harmed so it is safe for wildlife and people to use.</p>	<p>Objective 3.1: Know what activities are taking place within the protected area.</p> <p>Objective 3.2: Encourage best practices that prevent unnecessary disturbance to wildlife within and adjacent to the protected area (e.g. flight heights, developments near border, etc.).</p> <p>Objective 3.3: Ensure that the potential for water or land contamination is minimized.</p>
<p><b>Goal 4:</b> Increase public awareness and appreciation of the natural and cultural resources of the protected area.</p>	<p>Objective 4.1: Ensure Management Plan is distributed and followed.</p> <p>Objective 4.2: Ensure the public and companies are aware of when permits are required and the activities that are and are not consistent with the goals of the Management Plan.</p> <p>Objective: 4.3: Advise Nunavummiut, and all Canadians, about the value and importance of the protected area for wildlife and Inuit.</p>

### 4.3 Evaluation

Annual monitoring will be performed within the limits imposed by the availability of financial and human resources. The management plan will be reviewed 5 years after its initial approval and reviewed and updated every 10 years thereafter. The evaluation will take the form of an annual review of monitoring data obtained from the monitoring and research projects outlined below. This monitoring will be used to establish priorities for action and to allocate resources.



# 5.

## MANAGEMENT CONSIDERATIONS

Currently, there are no immediate, major threats to the Ahiak MBS. The natural habitats, for the most part, are intact. Accessible only by air or by boat during the short open-water season, the MBS has remained relatively isolated. However, management considerations such as increased resource exploration and development in the Kitikmeot and the exponential growth in white geese populations over the last 50 years, along with other less major management considerations must be integrated into management planning (Table 6).

Mining is a rapidly growing industrial threat in the Queen Maud Gulf Lowland Ecoregion, especially with respect to gold, diamonds and copper. To the west of this area is significant mineral exploration activity including gold, uranium and diamond. Interest in mineral exploration is also growing in the eastern portion of the Ecoregion. The Ahiak MBS also borders a proposed shipping route for a lead/zinc mine in the Coronation Gulf, however, development of the mine and a port site are currently not proceeding due to the depressed world market for base metals. Increased exploration in the area surrounding protected areas often leads to pressure to permit exploration within a protected area so this pressure is of ongoing concern to the Ahiak ACMC.

The Northern Mineral Policy (INAC 1986) instructed the federal government to review the boundaries of all the MBSs in the north. In 1990, the Conservation Advisory Committee on the Northern Mineral Policy composed of representatives from various federal and territorial government departments recommended that the Ahiak MBS should be reduced in size (Conservation Advisory Committee 1990). In the mid-1990s, Environment Canada (Canadian Wildlife Service) and the Government of the Northwest Territories undertook a wildlife habitat study that recommended shrinking the size of the Migratory Bird Sanctuary by 12 percent and converting the MBS to a National Wildlife Area (NWA). The NWA status would provide more robust, year-round, protection for non-bird species of wildlife and wildlife habitat. The *Canada Wildlife Act*, under which National Wildlife Areas are created, is better suited to the co-management style of wildlife conservation in Nunavut and would help ensure meaningful co-operative management of wildlife. When the MBS was designated, the Migratory Bird Convention Act was the only regulatory tool available for habitat protected. The *Canada Wildlife Act*, created in 1973, is a better tool for managing habitat and conserving wildlife.

When the MBS was created, it was to protect 90% of the world's Ross's Goose population which at the time were only found in a few colonies. Since the mid-1960s Ross's geese and Snow geese (together known as "light geese") populations have grown exponentially (Alisauskas *et al.* 2011, 2012). This growth in population size is largely due to agriculture in the south (more food available on migration

and in the winter). Between 1966 and 2010, the Karrak Lake colony (the largest colony located within the Ahiak MBS) grew from nearly 17,000 to over 1.2 million birds, and the land area occupied by the colony has increased dramatically (R. T. Alisauskas, unpublished data).

At a larger geographic scale, midcontinent lesser snow geese and Ross’s geese have increased dramatically; midcontinent snow geese averaged 12.6 million adults (Alisauskas *et al.* 2018b), and Ross’s geese averaged 1.6 million adults from 2006-2015 (Alisauskas *et al.* 2018c). Increases in population size have led to concerns about potential impacts to arctic habitats caused by the foraging activities of large numbers of geese (e.g., Batt 1997). Habitat loss due to over-grazing is currently being studied to see what effect it may have on other bird species. Overgrazing may lead to reduced food availability and loss of nesting habitat for other bird species. The effect on other wildlife species is still unclear.

Each goal and objective for management of Ahiak MBS has a direct link to a known management challenge of, or potential threat to, the Ahiak MBS. These, plus the corresponding management approach to address each challenge or threat are listed in Table 6.

**Table 6: Summary of management considerations for the Ahiak MBS with accompanying goals/objectives and management approaches to address each consideration**

Management Considerations	Corresponding Goals/Objectives from Table 5	Management Approach(es)
Currently the Ahiak MBS provides protection primarily for migratory birds, while the regulations provide ancillary benefits for other wildlife. The Ahiak MBS is important for many wildlife species and the <i>Canada Wildlife Act</i> and its regulations are better suited to co-management.	1.1	6.1 Habitat and Cultural Resources Management
Significant mineral exploration activity including gold, uranium and diamond in the surrounding area.	1.1, 1.2, 3.2, 3.3	6.1 Habitat and Cultural Resources Management
Increased exploration and development in the areas surrounding the Ahiak MBS could lead to increased air traffic in and around the area. Increased noise pollution (like blasting and camp activities) near the Ahiak MBS boundary.	3.2	6.3 Public Information Management
Aircraft (helicopters and fixed wing planes) fly over the sanctuary. We want to make sure they are not disturbing wildlife and birds, or that when it is required (permitted work), that the effect be minimized.	2.1, 3.2	6.2 Monitoring, Research and Wildlife Management
People don’t know the Ahiak MBS is there, and where it actually is.	4.1, 4.2, 4.3	6.3 Public Information Management

Management Considerations	Corresponding Goals/Objectives from Table 5	Management Approach(es)
There are a limited number of federal wildlife enforcement officers for many Nunavut MBSs and NWAs.	2.1, 3.2, 4.1, 4.2, 4.3	6.3 Public Information Management
As development and exploration starts happening more outside the Ahiak MBS, wildlife will need the Ahiak MBS as a safe place.	All	6.1 Habitat and Cultural Resources Management
Too many light geese which could be causing habitat damage and potentially negatively affecting other birds and wildlife.	1.4, 2.2	6.2 Monitoring, Research and Wildlife Management
Water quality related to developments and mines outside and downstream of the Ahiak MBS, water quality changes related to geese overpopulation.	2.2, 3.2, 3.3	6.2 Monitoring, Research and Wildlife Management 6.3 Public Information Management
There are Inuit Owned Lands under KIA administration within the Ahiak MBS which is under federal government (Canadian Wildlife Service) administration. This could lead to land access conflicts.	4.1, 4.3	6.3 Public Information Management
Not all locations of cultural or heritage importance have been inventoried (archaeological sites, traditional hunting areas, current harvesting areas (wildlife, eggs, fish and berries)).	1.2	6.1 Habitat and Cultural Resources Management
Hudson Bay Company Trading Post (old site) and Perry Island outpost camp (newer site) and Flagstaff Island are important to people who are from the Ahiak MBS but have been abandoned and may be being vandalized.	1.2	6.1 Habitat and Cultural Resources Management
There are several potential threats that are beyond our management control that may affect the Ahiak MBS. Such as: climate change, air pollution, non-native species, bioaccumulation, improper environmental assessment and management outside the Ahiak MBS.	3.2, 4.3	6.3 Public Information Management
Lack of inventory on fish and marine mammal species using the Ahiak MBS.	1.2	6.2 Monitoring, Research and Wildlife Management

Management Considerations	Corresponding Goals/Objectives from Table 5	Management Approach(es)
There are Committee on the Status of Endangered Wildlife in Canada (COSEWIC) and federal <i>Species at Risk Act</i> listed species at risk that use Ahiak MBS.	1.1	6.1 Habitat and Cultural Resources Management 6.2 Monitoring, Research and Wildlife Management
Potential for oil spills as shipping through the Gulf continues and potentially increases.	2.1, 3.2, 3.3	6.3 Public Information Management
Ecotourism may be increasing, but we don't really know by how much. E.g. how many ships (marine traffic) are passing through the water portion of Ahiak MBS.	2.1, 3.1, 4.1	6.3 Public Information Management
Cabins already exist in the Ahiak MBS. Future cabins may be created.	1.3, 3.1, 4.1	6.3 Public Information Management
Loss of knowledge of traditional place names; no comprehensive cultural maps developed for the Ahiak MBS that could be used in management planning.	1.2, 2.2	6.1 Habitat and Cultural Resources Management



# 6.

## MANAGEMENT APPROACHES

The Ahiak MBS will be managed to achieve the overall goals of the MBS by focusing on three main management approaches: Habitat and Cultural Resources Management (section 6.1), Monitoring, Research and Wildlife Management (section 6.2), and Public Information Management (section 6.3). This section contains a description of the possible approaches that could be used in the management of the Ahiak MBS to meet the vision, goals and objectives of this management plan while being cognisant of the management considerations. Implementation of these management actions will be determined during the annual work planning process and will be initiated as human and financial resources allow.

### 6.1 Habitat and Cultural Resources Management

#### 6.1.1 Change in designation of the protected area

The *Migratory Bird Convention Act* and the *Migratory Bird Sanctuary Regulations* provide protection against any activities that could harm migratory birds; their nests or their eggs. Habitat is also protected through the permitting regime created by the regulations and implemented by the ACMC. However, the habitat protections under the Sanctuary Regulations are specific to migratory birds. Given the importance of this area for wildlife, the *Canada Wildlife Act* and the *Wildlife Area Regulations* would be a more appropriate regulatory tool. The Sanctuary is important to significant populations of geese, more than a million shorebirds of several species (most of which are experiencing population declines), barren-ground caribou, and species at risk such as Wolverine and Grizzly Bear. Ahiak MBS is the largest protected area of any type in Canada and predates the *Canada Wildlife Act*. A better conservation and regulatory tool is now available in the form of the *Canada Wildlife Act* and the *Wildlife Area Regulations*. Ahiak MBS meets the criteria for designation of an area as a National Wildlife Area (Appendix C; Appendix Table C - 1).

The *Wildlife Area Regulations* effectively prohibit all activities. However, a permitting regime is enabled through the Act and the Regulations and activities can be authorized so long as they do not interfere with the conservation of wildlife. The broad prohibitions and the application of these prohibitions to all wildlife, cultural artefacts, and habitat better reflects the rich wildlife and cultural resources of Ahiak. Further, the permitting regime better reflects the current structure and partnership of the ACMC. Designation as a National Wildlife Area affords a more appropriate level of protection than a Migratory Bird Sanctuary. A National Wildlife Area designation would also help protect areas of cultural and historical importance like grave sites, former settlements and traditional camping areas that the Ahiak ACMC would like to see protected. The spirit and intent of the *IIBA* was set up to

provide a framework for managing conservation areas in Nunavut for all wildlife and cultural resources. However, a MBS designation does not provide the legislation with which to carry out these management activities, while and that of a NWA does.

To provide stronger protection to the area and better co-management, CWS recommended in the past that the designation of the Ahiak MBS be changed to a National Wildlife Area. Though the designation change was first contemplated in the mid-90s, the proposal was put on hold pending resolution of other land use issues in the region. The Ahiak ACMC wholly supports the designation change and has written letters to CWS, NTI and KitIA (03 June 2015) formally requesting CWS pursue the option of a status change, the process for which is outlined in *Article 13* of the *IIBA*. This process includes (but is not limited to) notification and consultation with NTI, KitIA, the associated communities and the ACMC, and will involve the establishment of an assessment group to consider the status change.

The conversion to from a MBS to a NWA process could be accompanied by a boundary change. There are potential areas along the southern border which may be considered for exclusion. A previous study of wildlife habitat within the MBS recommended that the southern 12% of the MBS could be removed without affecting important wildlife habitat. In 1996, the Nunavut Wildlife Management Board supported the change in designation and the boundary change, subject to regional consultation. These changes were also proposed in the draft West Kitikmeot Land Use Plan. Consultations were initiated with the Kitikmeot Inuit Association but at the same time the West Kitikmeot Land Use Plan was not approved, and further discussions on the Ahiak MBS's protection designation and size changes were put on hold.

There are also portions of the 'Queen Maud Key Terrestrial Habitat Site' (Latour *et al.*, 2008) to the east of the current boundary that are important to birds and wildlife (caribou) that were left out of the original MBS boundary for reasons that are unknown. The Ahiak ACMC would like this area included in the revised conservation area.

The net result of excluding portions near the southern border as per the 1990s recommendations, and adding the eastern key habitat area because of its importance to wildlife, would be that the size of the conservation area would remain approximately the same. The Ahiak ACMC is initiating a mapping exercise to determine the exact parcel sizes.

### **6.1.2 Cultural and Heritage Resources**

In accordance with s. 2.1.7 of the *IIBA*, the archaeological and cultural heritage of Inuit must be protected in the management of Ahiak MBS. This includes protection and conservation of archaeological sites, artifacts, and cultural sites of importance to Inuit. All activities within the sanctuary must comply with the requirements of the *Nunavut Archaeological and Palaeontological Sites Regulations* and *Article 33* of the *Nunavut Agreement*. If an archaeological site, specimen or artifact is encountered which has not been previously identified, it should be photographed and the geographic coordinates recorded. This information must then be provided to the Government of Nunavut's Department of Culture and Heritage, the Inuit Heritage Trust, and NTI as soon as reasonably practicable.

The management of the Ahiak MBS should avoid social and cultural disruption to Inuit and their relationship with and use of the lands (including IOL), the waters and the resources of the MBS (*IIBA* s. 2.1.4). Traditional place names and the use of Inuit-language should be preserved and its use should be supported and promoted in management of the MBS (*IIBA* s. 2.1.6). The Ahiak ACMC will seek information, when necessary to manage the MBS, from NTI with respect to Archaeological Sites, and Cultural Sites of Importance to Inuit obtained through the inventories conducted under s. 6.4 through s. 6.7 of the *IIBA*.

Sites of cultural importance should be mapped and the inventory used to make informed management decisions. Sites should be preserved and maintained as cultural resource, or catalogued and documented before further destruction happens. Additionally, these sites should be looked at to see if the areas need to be cleaned up or preserved, or if artifacts need to be removed to a museum or the cultural centre.

### **6.1.3 Wildlife Areas of Importance to Inuit**

Wildlife Areas of Importance to Inuit identified by NTI within the Ahiak MBS through *Article 6* of the *IIBA* and provided to CWS (*IIBA Article 12.2.1*), will be managed in cooperation with other agencies having jurisdiction over wildlife and in a manner consistent with *Article 5* of the *Nunavut Agreement*. This includes management of the MBS and Wildlife Areas of Importance to Inuit to: (1) Minimize disturbance to wildlife and wildlife habitat, and promote the maintenance of vital, healthy wildlife populations; (2) Make all reasonable efforts, consistent with the Minister's jurisdiction under the *MBCA* to respect the cultural significance of Wildlife Areas of Importance to Inuit, taking into account any *Inuit Qaujimaqatuqangit* documented and presented to it by Inuit, the Ahiak ACMC and other knowledgeable parties; (3) Investigate public concerns regarding the protection or management of wildlife and document the response, or refer the matter to the wildlife management agency having jurisdiction; and, (4) As appropriate, consult Inuit organizations about issues pertaining to the effective management of wildlife and wildlife habitat within the MBS (*IIBA s. 12.2*).

Wildlife Areas of Important to Inuit should continue to be mapped within Ahiak MBS and the inventory used to make informed management decisions.

### **6.1.4 Place names**

An objective of the *IIBA* (s. 2.1.6) is to document Inuit place names and promote the use of these place names in the management of the protected area. While this documentation has been partially completed for Ahiak MBS, continuation of the work, in particular for the western half of the Ahiak MBS should be completed. Production of digital community maps that could be used to more effectively collect and communicate cultural information in 'real time', including 'volunteered' place names that may not become official may be one method that could aid in completion of this task.

## **6.2 Monitoring, Research and Wildlife Management**

A history of monitoring and research that has been conducted in the Ahiak MBS can be found in Table 7.



**Table 7: Summary of historical research and monitoring surveys within Ahiak MBS. The researcher last name and years for projects after 1984 are taken from the issued CWS permits.**

Year	Researcher Last Name (Organization)	Purpose or Topic
1969-2017	Various (Water Survey of Canada, ECCC)	Water quantity
1984, 1986, 1990	Heard (Government of the Northwest Territories)	Caribou surveys
1984-1985	McCormick (Canadian Wildlife Service, ECCC)	Canada Goose research
1986, 1988-1991, 1996, 2009	Gunn, Bromley, Nishe, Williams (Government of the Northwest Territories)	Muskox and Caribou surveys
1986, 2004	Nabe, Kearnan (Geological Survey of Canada, Natural Resources Canada)	Legal land surveys
1987	Duval (Geological Survey of Canada, Natural Resources Canada)	Land mapping
1988-1989, 2010	Kerr, Chacko (University of Alberta)	Geological mapping
1988-1990	Kerbes (Canadian Wildlife Service, ECCC)	Snow and Ross' Goose research
1990, 1999-2019	Alisauskas (Canadian Wildlife Service/Science and Technology Branch, ECCC)	Goose, Waterfowl, Habitat, Predator research
1993	Didiuk (Canadian Wildlife Service, ECCC)	Vegetation surveys
1997, 2010-2011	Mueller, Cox, Kelly (Government of the Northwest Territories)	Caribou habitat research
2001, 2005-2007, 2013-2019	Johnston, Rausch (Canadian Wildlife Service, ECCC)	Shorebird surveys
2003-2008	Caswell (Canadian Wildlife Service, ECCC)	Goose research
2006-2008	Mallory (Canadian Wildlife Service, ECCC)	Bird research
2007-2009, 2011-2013	MacDonald, Groves (United States Fish and Wildlife Service)	Waterfowl and Goose surveys
2007	Wayland (Canadian Wildlife Service, ECCC)	Gull research
2009-2017	Leafloor (Canadian Wildlife Service, ECCC)	Waterfowl and Goose surveys
2013, 2016	Awan, Leclerc, Lamont, Campbell (Government of Nunavut)	Caribou surveys

Year	Researcher Last Name (Organization)	Purpose or Topic
2014-2016	Alkire (University of Washington)	Water research
2015-2019	Gurney (Science and Technology Branch, ECCC)	Bird contaminants research
2017-2019	Eert (Fisheries and Oceans Canada)	Oceanographic surveys

### 6.2.1 Permitting

The CWS permitting system is the primary way in which the Ahiak ACMC monitors activities within the Ahiak MBS. Effective and efficient monitoring requires a coordinated approach and will be carried out through liaison with researchers and partner agencies in a manner that contributes to the goals and objectives outlined in this plan. Monitoring and research needs are identified below. Unsolicited monitoring and research activities outside of the headings below will be considered for permitting when the results of the study have potential to: (1) Provide further insight on the wildlife of the MBS; (2) Evaluate the nature and intensity of habitat change in the MBS; (3) Contribute to *Inuit Qaujimajatuqangit* for the MBS; or (4) Increase our understanding of the ecological and cultural resources within the MBS. Proposals are screened to ensure compatibility with management goals and objectives. Projects that require extensive collecting, excessive depletion of any non-overabundant population, or significant disturbance of animals or disruption of habitat will likely not be permitted. All research proposals must be submitted to Environment and Climate Change Canada’s Canadian Wildlife Service, refer to section 7.0 of this management plan for information related to permitting.

### 6.2.2 Overabundant Light Geese

The severity, extent, and ecological impacts of overabundant light geese within the MBS are not well understood but all viable management approaches and tools to address the issue are under consideration. Migratory Bird Sanctuaries are established to conserve migratory bird populations or species that need to be protected as was done for the Ross’s Goose in the Ahiak MBS. Light geese are now designated as over-abundant, and some impacts on the habitat within the MBS have been documented near nesting colonies (e.g., Conkin and Alisauskas 2017). Liberal hunting regulations designed to increase light goose harvest in the midcontinent region of Canada and the United States have been in place since 1999. Though harvests have increased substantially, growth of goose populations have outpaced increases in harvest, and harvest rates have actually declined overall. Nonetheless, there is evidence that recruitment of young geese has declined over time as the population has grown, and population growth has levelled off on its own in recent years (Ross *et al.* 2017).

The Ahiak ACMC supports increased harvest of snow geese and Ross’s geese, but also recognizes that light geese are important components of the ecosystem and wildlife heritage within the Ahiak MBS. Ongoing research and monitoring is key to help understand the dynamics of breeding geese and other species within the MBS. Management decisions by the ACMC will be based on the best available knowledge, IQ, and science, and supported by a wide range of research, including a commitment to integrated scientific monitoring and reporting. Concerns about the effects of habitat loss on other species of migratory birds and other ecosystem components are being investigated by Environment and Climate Change Canada.

The Ahiak ACMC would also like to encourage a habitat study to determine the carrying capacity of the MBS for light geese, and any projects that determine the effect of light geese on other harvested wildlife.

### **6.2.3 Water Quality**

Research and monitoring programs focusing on quality of water entering and flowing through the Ahiak MBS are encouraged, as relatively little information is known in this area. Topics of particular interest to the Ahiak ACMC include possible downstream contamination from major geese colonies, as well as from mining operations located outside the Ahiak MBS.

### **6.2.4 Marine Traffic**

Marine habitat will be managed in consultation with federal, territorial, and local governments and agencies, as well as local fishermen/harvesters, and commercial fishermen to ensure the marine habitat is protected from vessels travelling through the waters of the Queen Maud Gulf adjacent to, and contained within, the MBS. Some concerns have been raised about the impact they may have on the coastal environments in the event of a spill.

Year-round, vessels will be expected to: (1) comply with the *Arctic Shipping Pollution Prevention Regulations* of the *Arctic Waters Pollution Prevention Act (1985)*; (2) not dump bilge water, exchange ballast water or dump sewage within the MBS boundary; (3) minimize noise emissions (such as sudden engine noise from acceleration and avoiding using horns) from vessels within 1 km of the MBS (subject to safety considerations); and, (4) that proponents consult with the ECCC-CWS Iqaluit office prior to project commencement to discuss ship routing through the site and appropriate emergency preparedness requirements.

Seasonally (i.e. when birds are present), setback mitigations will be expected to be followed. These mitigations for all vessels, including cruise ships, are: (1) avoid activity near nesting birds (May-August); (2) keep a 500 m setback distance from the coastline within the MBS (subject to safe navigation considerations); and, (3) keep a 500 m setback distance from aggregations of birds and/or colonies during the breeding season (Environment and Climate Change Canada 2016b).

Monitoring should be undertaken to improve oil spill readiness including mapping of bird and cultural areas along the coast that would be first impacted in the event of a spill.

Monitoring and research to determine best practices for marine traffic should be conducted and is encouraged. An assessment of the effects of these best practices on birds and other wildlife would be a valuable tool for management of Ahiak MBS and other protected areas in Nunavut.

### **6.2.5 Air Traffic**

Seasonally (i.e. when birds are present), air traffic above the Ahiak MBS will be recommended to (1) keep a minimum flight altitude of 650 m (2,100 feet) in areas likely to have birds; (2) minimize flights during vulnerable periods (migration, nesting and moulting); (3) plan flight paths to avoid known concentrations of birds (e.g., bird colonies, moulting areas) by a lateral distance of at least 1.5 km; (4) if avoidance is not possible, maintain a minimum flight altitude of 1,100 m (3,500 feet) over areas where birds are known to concentrate. For flights along the coast, in addition to the afore listed restrictions, air traffic will be required to (5) maintain a minimum lateral distance of 3 km from areas used by flocks of coastal waterfowl or seabirds (Environment Canada 2014; Environment and

Climate Change Canada 2016b). The Ahiak ACMC recognizes that depending on the work being conducted (i.e. migratory bird surveys), that these best practices may not be practical and this will be addressed through the permitting process.

Monitoring and research to determine best practices for aircraft should be conducted and is encouraged. An assessment of the effects of these best practices on birds and other wildlife would be a valuable tool for management of Ahiak MBS and other protected areas in Nunavut.

### **6.2.6 Fish**

With respect to commercial marine fisheries, the NWMB exercises an extensive decision-making jurisdiction in the marine waters of the Nunavut Settlement Area. This includes waters directly adjacent to Nunavut and extending to the 22 kilometre (12 nautical miles) limit of Canada's Territorial Sea boundary (Article 3). That decision-making jurisdiction concerning commercial marine fisheries is shared with the Minister of Fisheries and Oceans and is subject to the terms and conditions of the *Nunavut Agreement*.

Fisheries and Oceans Canada (DFO 2017) identifies Restricted Activity Timing Windows for Nunavut lakes, rivers and streams to protect fish during spawning and incubation periods when spawning fish, eggs and fry are vulnerable to disturbance or sediment. During these periods, no in-water or shoreline activity is allowed except under site- or project-specific review and with the implementation of protective measures. Restricted activity periods are determined on a case by case basis according to the species of fish in the water body, whether those fish spawn in the spring, summer or fall, and where the water body is located.

In addition, mitigations for the Ahiak MBS require that commercial fishing operations: (1) avoid bottom trawling within 10 km of bird colonies; (2) monitor and report bird by-catch; (3) ensure bird by-catch mitigation measures be in place; (4) minimize noise emissions (such as sudden engine noise from acceleration and avoiding using horns) from vessels within 1 km of the MBS (subject to safety considerations); and, (5) that proponents consult with the ECCC-CWS Iqaluit office prior to project commencement to discuss ship routing through the site and appropriate emergency preparedness requirements (Environment Canada 2014).

Little is known about the aquatic species (fish and mammals, both fresh water and marine) that use the Ahiak MBS. Research, monitoring and collection of Inuit knowledge related to determining what aquatic species are present, is needed.

### **6.2.7 Species at Risk**

When a species is listed under the federal *Species at Risk Act*, a recovery strategy (for species listed as 'Endangered' or 'Threatened') or a management plan (for species listed as 'Special Concern') is created for that species. These strategies or plans help define the habitats that species at risk need to survive.

Knowledge of habitat use by species at risk in the Ahiak MBS will aid in the implementation of these strategies and plans, or in the creation of these strategies or plans for newly listed species. The Ahiak MBS is to be managed to protect the habitat that species at risk need to survive and recover to healthy population sizes. Furthermore, a change in designation of the Ahiak MBS from a Migratory Bird Sanctuary to a National Wildlife Area (see this plan section 6.1.1) will aid in the year-round protection of this area for all wildlife (in particular non-bird species at risk; Table 4).

## 6.2.8 Harvesting

The Ahiak ACMC recognizes that hunting is an important source of food, income and means of connecting to the land for Inuit. The management of Ahiak MBS shall be consistent with Inuit harvesting rights under the *Nunavut Agreement* as per the *IIBA* s. 2.1.5. Hunting activities for waterfowl and other game birds will be managed in a manner consistent with the *Nunavut Agreement* and the *MBCA* and its associated regulations. Bears killed as a result of an emergency or accident within the MBS or during travel to or from the MBS must be reported. Any valuable Parts of wildlife killed in an emergency, illegal, or accidental kill shall be handled in accordance with s. 5.6.55 of the *Nunavut Agreement*.

## 6.2.9 Non-native and Invasive Species Control

There are no non-native (introduced) or invasive (e.g. weeds) plant species of concern within the boundary of the Ahiak Migratory Bird Sanctuary. The Government of Nunavut has designated 14 species of vascular plants as exotic within Nunavut; species that have been moved beyond their natural range as a result of human activity (CESCC 2011). None of the species which have been identified are considered to be invasive species, and are not regarded as a threat to Nunavut's naturally occurring biodiversity. As climate change alters arctic ecosystems and enables greater human activity, biological invasions are likely to increase and should be monitored. Observations of climate change affecting vegetation in the north include the introduction of dandelions and an increase in willows and moss (Arctic Climate Impact Assessment 2005).

## 6.3 Public Information Management

### 6.3.1 Public Awareness

The Ahiak ACMC strongly believes that it is important for Nunavummiut, visitors to Nunavut and all Canadians to be educated about the natural, cultural and heritage resources of the Ahiak MBS (*IIBA* s. 6.1.1(d)). Materials (written (including electronic), audio and video) produced to educate or inform the public about the MBS will be made available in the Inuit Languages (*IIBA* s. 6.2.1).

Advertising, presentations, and printed material will be produced in cooperation with NTI and ECCC-CWS staff to ensure consistency, as well as the translation requirements. All materials will also be approved by the Regional Director ECCC-CWS to ensure messages are compliant with policy and regulations in effect at that time. If CWS displays information on the Ahiak MBS, it will make use of visitor centres and similar facilities in Cambridge Bay, Gjoa Haven and Umingmaktok in accordance with s. 6.9.1 of the *IIBA*. Information will also be made available online through the ECCC Protected Areas Program website.

The Ahiak ACMC has a communications section in their annual work plans as an ongoing Part of the management responsibilities of the ACMC. Past activities designed to increase public awareness have included the production of a one minute television public service announcement (Hinterland Who's Who), and a 10 minute movie based on the Ahiak ACMC's 2012 visit to the Ahiak MBS. Future plans include posters, brochures and one-on-one contact with people using, or interested in, the Ahiak MBS.

### 6.3.2 Interpretive Materials

In accordance with s. 6.8.1 of the *IIBA*, NTI is tasked with the development of interpretive materials, such as signs, displays, brochures, and other information about the natural and cultural resources in and around Ahiak MBS. The primary purpose of the Interpretative Materials is to facilitate the development of environmentally sustainable tourism and guiding in and around the MBS. Inuit

Language will be preserved by supporting and promoting it in the management of the MBS. For example, traditional place names should be used when developing maps, signs, or interpretive materials. All materials shall incorporate *Inuit Qaujimagatuqangit*, with special regard to the MBS's physical features, ecology, wildlife, and Inuit heritage and culture (*IIBA s. 6.8.4*) and will be reviewed by CWS, to ensure accuracy of the biological and ecological information contained within the Interpretive Materials (*IIBA s. 6.8.5*).

### **6.3.3 Tourism Activities**

In accordance with the *IIBA*, CWS provides funding to NTI, who administers those funds to build capacity among Inuit Tourism Providers in Cambridge Bay, Gjoa Haven and Umingmaktok and develops effective community-based tourism services. These services include training or mentoring for interested Inuit Tourism Providers; developing local services for tourists; and developing strategies, tourism packages, and marketing plans (*IIBA s. 7.2*). The Ahiak ACMC supports sustainable tourism operations within the Ahiak MBS which are consistent with the goals and objectives outlined in this plan. Inuit should fully benefit from and fully participate in the economic and other opportunities arising from the management of the Ahiak MBS (*IIBA s. 2.1.3*).

### **6.3.4 Student Initiatives**

Student initiatives such as youth participation in research and the management of Ahiak MBS is recognized as an important component in fostering a close relationship with the land as well as promoting conservation-related work; particularly as youth are spending less time on the land than previous generations. CWS has agreements in place to hire, train, and mentor Inuit students (*IIBA s. 9.2*). CWS also co-operates with the GN in the development of materials and information designed to explain conservation-related jobs, career and business opportunities to Nunavut youth (*IIBA s. 9.2.1*). In further support of this, the Ahiak ACMC encourages permit applicants to hire Inuit students and Nunavut youth as a regular recommendation for permit approval.

### **6.3.5 Camps**

The Ahiak ACMC will maintain a list of existing cabins (camps) within the Ahiak MBS. Under *s. 5.5.5* of the *IIBA*, if a visitor wishes to visit an outpost camp, the Ahiak ACMC shall advise the visitor on the appropriateness of the visit.

New outpost camps (those established in the MBS after the date of ratification of the *Nunavut Agreement*) are permitted pursuant to *Nunavut Agreement s. 7.2.2* where establishment of new outpost camps is subject to the approval of the appropriate HTO or HTOs. Inuit intending to establish a new outpost camp in the Ahiak MBS shall discuss the intended location of the camp with the HTO and the Ahiak ACMC, with a view to minimizing impacts on wildlife or wildlife habitat (*IIBA s. 5.5.4*). At this time, the Ahiak ACMC has identified no areas where the establishment of a new outpost camp would be inconsistent with the conservation of wildlife and wildlife habitat, including the maintenance of healthy wildlife populations (*IIBA s. 5.5.2*).

### **6.3.6 Inuit Owned Lands**

Inuit Owned Lands within the MBS will be managed in accordance with *Article 4* of the *IIBA* which states the natural resource values of the IOL that lie within the MBS will be maintained, defines the roles and responsibilities of the KIA and the Minister in managing IOL within the MBS, outlines the dispute resolution process and ensures access considerations (by CWS agents, employees and contractors), as well as access across the MBS to IOL.

### 6.3.7 Compliance Promotion

Promotion of compliance with the laws, regulations and agreements related to protected areas in Nunavut is an important tool in managing these protected areas. Compliance promotion is done through sharing information to increase public awareness and education about the protected area, the legislation and policies affecting the area and the goals and objectives for management of the area.

Management actions for compliance promotion in Ahiak MBS should include:

- Distribution of this management plan,
- Actioning of the annual communications activities work planned by the Ahiak ACMC,
- Putting signage at major locations and entry points to the MBS, including information in the associated communities' visitor's centers,
- Ensuring marine traffic is aware that they may require a permit to access the waters of the Ahiak MBS,
- Ensuring air traffic is aware that they may require a permit to land within the boundaries of the Ahiak MBS,
- Ensuring the public, including businesses, are aware that permits may be required for activities within the Ahiak MBS,
- Encouraging the public to report illegal activities within the Ahiak MBS or involving migratory birds to the Canadian Wildlife Service or another authority (see this plan section 9.0 for contacts), and
- Encouraging regular patrol visits or desktop patrols (such as reviewing track log files from marine vessels or aircraft) of the Ahiak MBS.

### 6.3.8 Regional Planning

Activities outside of the Ahiak MBS may affect the wildlife and habitat within it. While many of these regional influences are outside of the scope of this management plan or the mandate of the Ahiak ACMC, awareness of the bigger regional picture is important for effective management of the protected area.

The management actions related to regional planning are related to those in the compliance promotion section of this plan (section 6.3.7) and fit in two categories:

1. Sharing information outward:
  - a) Provide mines or developments near the boundary of the Ahiak MBS with awareness information and encourage them to share it with their employees.
  - b) Ask NIRB to consider the Ahiak MBS and how it might be influenced by projects outside of, but near, the Ahiak MBS.
  - c) Inform Environment and Climate Change Canada staff involved with environmental assessments in Nunavut of the contents of this management plan and ask that they consider Ahiak MBS when assessing proposals and projects near Ahiak MBS.
  - d) Encourage Environment and Climate Change Canada to do oil spill response risk mapping for the area surrounding Ahiak MBS (for example, water current or ice movement mapping in addition to wildlife mapping) and ensure the spill response teams are prepared for potential oil spill events in this area.

## 2. Receiving information inward:

- a) Ask NIRB to inform us about project applications near (within 100 km) of the Ahiak MBS boundary.
- b) Follow-up with regulatory agencies to ensure projects in the areas surrounding Ahiak MBS are doing their environmental monitoring and not negatively impacting the water quality within Ahiak MBS.

Being flexible, controlling the things we can, and trying to influence the things we do not have direct control over are important guiding principles for management of the protected area within the regional context.





7.

## AUTHORIZED ACTIVITIES, PROHIBITED ACTIVITIES AND ACCESS

The *Migratory Birds Convention Act (1994)* is the regulatory framework that protects migratory birds, and their nests, eggs and habitat from harm. The *Migratory Bird Sanctuary Regulations (C.R.C., c.1036)* follow from the *MBCA* and enable the establishment of Migratory Bird Sanctuaries and provide the basis for their management. Entry and access to most Migratory Bird Sanctuaries is not restricted. However, the *Migratory Bird Sanctuary Regulations* set out activities that are prohibited (*Migratory Bird Sanctuary Regulations s. 3, s. 4, s. 5, and s. 10*) and provide authority to the Minister of the Environment to authorize or permit activities in Migratory Bird Sanctuaries that are otherwise prohibited (*Migratory Bird Sanctuary Regulations s. 9*).

As provided for in the *Nunavut Agreement* and subject to certain limitations described in the *Nunavut Agreement*, “Inuit have a free and unrestricted right of access for the purpose of harvesting to all lands, waters and marine areas within the Nunavut Settlement Area” (*Nunavut Agreement s. 5.7.16*). This includes the Ahiak MBS. The *Nunavut Agreement* also exempts Inuit from the requirement to obtain a permit to harvest migratory birds and engaging in activities reasonably incidental to the harvesting of migratory birds in a Migratory Bird Sanctuary.

The authorization or permitting of activities in the Ahiak MBS is guided by this Management Plan, the Inuit Impacts and Benefit Agreement for National Wildlife Areas and Migratory Bird Sanctuaries in the Nunavut Settlement Area, and ECCC’s *Policy when Considering Permitting or Authorizing Prohibited Activities in Protected Areas Designated Under the Canada Wildlife Act and Migratory Birds Convention Act, 1994*.

Under the *Migratory Bird Sanctuary Regulations* the following activities are not allowed (prohibited) except under authority of a permit (note the Inuit harvesting exception mentioned above):

- No person shall hunt migratory birds.
- No person shall disturb destroy or take the nests of migratory birds.
- No person shall have in his possession a live migratory bird, or a carcass, skin, nest or egg of a migratory bird.
- No person shall have in his possession any firearm or hunting appliance.
- No person shall permit their cat or dog to run at large.
- No person shall carry on any activity that is harmful to migratory birds or their eggs, nests or habitat of migratory birds.

The following sections outline conditions that must be met in order for a permit to be issued, the categories of people and activities and whether they do or do not require permits, as well as the permit application process.

## **7.1 Authorizations**

### **7.1.1 Authorizations by Permit**

Under the *Migratory Bird Sanctuary Regulations* and upon application, the Minister of the Environment may authorize an activity that is prohibited under the *Migratory Bird Sanctuary Regulations* through the issuance of a permit. That activity must meet one or both of the following purposes and pre-conditions as described in ECCC's *Policy when Considering Permitting or Authorizing Prohibited Activities in Protected Areas Designated under the Canada Wildlife Act and Migratory Birds Convention Act, 1994*.

#### **Purposes:**

- The activity is not harmful to migratory birds, their eggs, nests, or habitats; or
- The activity is not inconsistent with the purpose and criteria used for which the Migratory Bird Sanctuary was established and is consistent with the most recent management plan for the Migratory Bird Sanctuary.

#### **Pre-conditions:**

- Alternatives to the project/activity have been considered, and;
- Mitigation measures have been considered and adopted.

Terms and conditions governing the activity, which the Minister considers necessary for protecting and minimising the impact of the authorised or permitted activity on migratory birds and their habitat, may be added to a permit. Refer to this plan section 7.1.7 below for more information on permits.

### **7.1.2 Nunavut Inuit Activities Authorized Without a Permit**

Nunavut Inuit are guaranteed right of access to Migratory Bird Sanctuaries, without fee or permit, for the following activities:

- Harvesting and activities incidental (*Nunavut Agreement s. 5.7.18* and *IIBA s. 5.2*),
- Removal of up to 50 cubic yards of carving stone with the MBS and any amount from IOL within the MBS (*Nunavut Agreement s. 19.9.4* and *IIBA s. 5.4*), and
- Establishment of new outpost camps (so long as consistent with this plan section 6.3.5 above, *s. 5.5* of the *IIBA* as well as the *Nunavut Agreement*).

The *IIBA* (*s. 5.3*) gives Inuit a further right of access without permit for the purpose of guiding sport hunters in or across the Sanctuary, and to carry a firearm for self-protection or the protection of clients. It also extends the right of access for the purpose of harvesting (without permit) to cover activities that are reasonably incidental to harvesting.

This right and exemption cannot be assigned to a non-Inuk (even if hunting rights are assigned to that person pursuant to *Nunavut Agreement s. 5.7.35*).

### **7.1.3 Nunavut Inuit Activities Authorized Only By Permit**

Commercial ventures or businesses require a permit to conduct commercial activities within the MBS even if the commercial venture or business is Nunavut Inuit-owned. The one exception to commercial activities is guiding sports hunters or sport fishermen; a Nunavut Inuk guide does not require a permit,

but the non-Inuit hunters or fishermen he or she is guiding do require a permit. Refer to 7.1.5 below for non-Inuit. Other types of guiding (eco-tourism, canoeing, etc.) by Nunavut Inuit may require a permit. Refer to this plan section 7.1.7 below for more information on permits.

#### **7.1.4 Non-Inuit Activities Authorized Without a Permit**

There are no activities authorized without a permit for non-Inuit when migratory birds are present (April through October). In addition, any activity at any time of year that may result in the destruction of migratory bird habitat requires a permit. All activities by non-Inuit require a permit even if hunting rights have been assigned to that non-Inuk under s. 5.7.35 of the *Nunavut Agreement*. Refer to this plan section 7.1.7 below for more information on permits.

#### **7.1.5 Non-Inuit Activities Authorized Only By Permit**

Non-Inuit may require a permit to undertake any activity in Migratory Bird Sanctuaries in Nunavut. Non-Inuit must have a permit to carry a firearm in a Migratory Bird Sanctuary. A permit is also required by non-Inuit to shoot and have dead migratory birds in his or her possession. This includes non-Inuit hunters on guided hunts for any wildlife species (even when the guide is a Nunavut Inuk and he or she does not require a permit; *IIBA* s. 5.3.1; this plan section 7.1.2 above). Refer to this plan section 7.1.7 below for more information on permits.

#### **7.1.6 Activities Authorized by Permit on Inuit Owned Lands**

The *Migratory Birds Convention Act* and its Regulations apply on Inuit-Owned Lands that are within Migratory Bird Sanctuaries. The Minister of the Environment may issue permits to undertake activities on Inuit-Owned Lands, in consultation with the relevant Regional Inuit Association. There is a special process for determining whether or not to issue a Migratory Bird Sanctuary permit on Inuit-Owned Lands where the Regional Inuit Association (KitIA) expressly supports the permit application. This process is covered in *Article 4* of the *IIBA*.

In addition to the MBS permit, a proponent must also obtain permission from the relevant Inuit organization to enter any Inuit-Owned Lands within the MBS.

#### **7.1.7 CWS Permit Application Process**

Application forms can be obtained from, and all permit requests must be made to:

##### **Canadian Wildlife Service**

Environment and Climate Change Canada

Prairie and Northern Region

PO Box 1870

Qilaut Building, 933 Mivvik Street, 3rd Floor

Iqaluit, NU X0A 0H0

Email: [ec.nupermisscf-cwspermitnu.ec@canada.ca](mailto:ec.nupermisscf-cwspermitnu.ec@canada.ca)

Contact [ec.nupermisscf-cwspermitnu.ec@canada.ca](mailto:ec.nupermisscf-cwspermitnu.ec@canada.ca) or 1-800-668-6767 (in Canada only) if you have any questions, comments, or concerns about federal wildlife permits in Nunavut or if you need assistance completing an application form.

Once submitted, the permit undergoes the following process displayed in Figure 7.

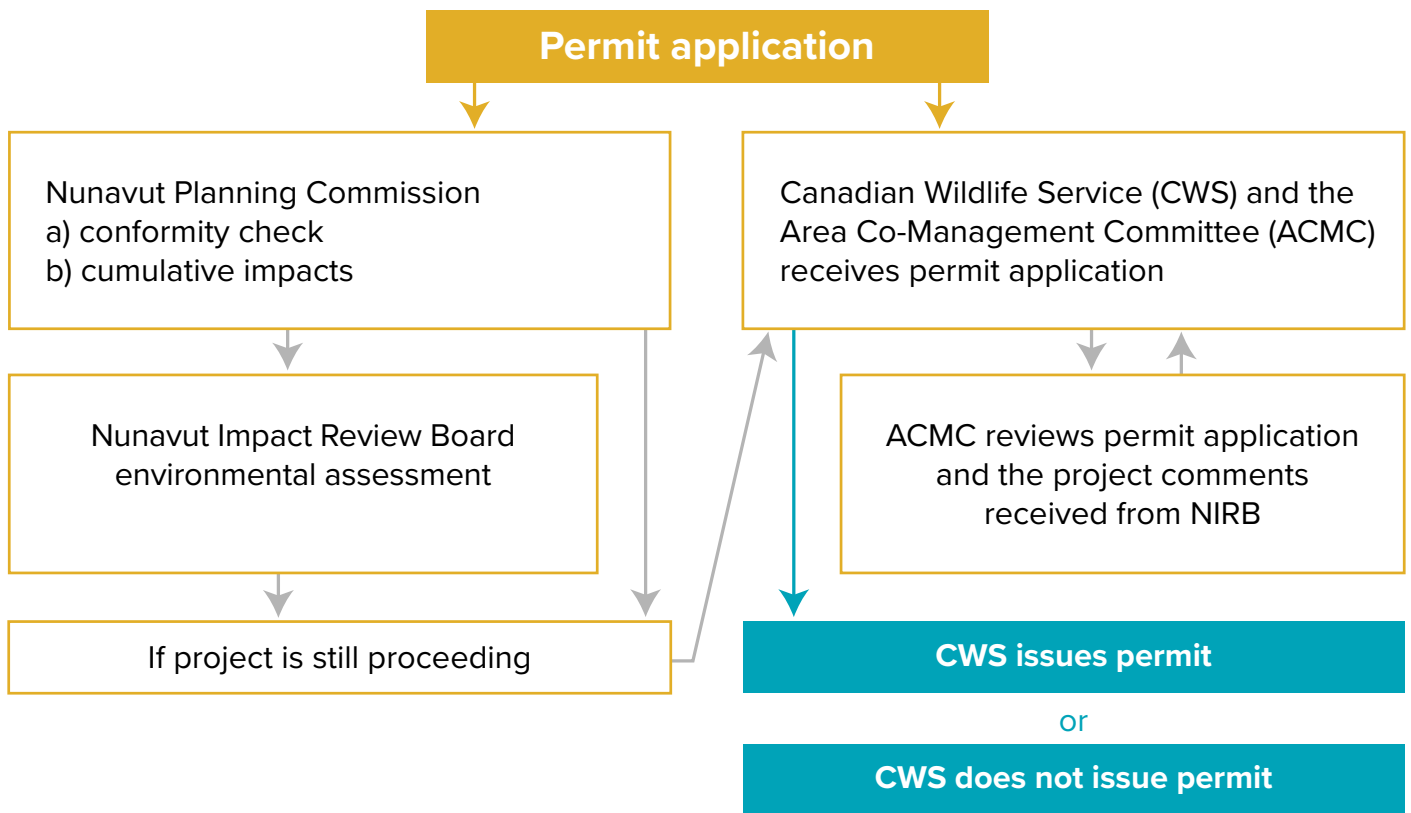


Figure 7: Schematic of the Migratory Bird Sanctuary permit application process

## 7.2 Other Federal and Territorial Authorizations and Permits

Depending on the type of activity, other federal or territorial authorisations or permits may be required territorial permitting offices for more information.



8.

## SITE DESIGNATION

The Ahiak MBS is currently designated as a Migratory Bird Sanctuary; however the wildlife and cultural resources within it are better suited by protection as a National Wildlife Area. This is discussed in more detail in this management plan under section 6.1.1 with its accompanying Appendix C.



9.

## SECURITY, HEALTH AND SAFETY

**In the case of environmental emergencies, please contact the Canadian Environmental Emergencies Notification System for the Northwest Territories and Nunavut: 1-867-920-8130.**

All reasonable efforts will be made to protect the health and safety of the public including adequately informing visitors of any known or anticipated hazards or risks. Further, Environment and Climate Change Canada staff will take all reasonable and necessary precautions to protect their own health and assure safety as well as that of their co-workers. However, visitors (including researchers and contractors) must make all reasonable efforts to inform themselves of risks and hazards and must be prepared and self-sufficient. Natural areas contain some inherent dangers and proper precautions must be taken by visitors, recognising that Environment and Climate Change Canada staff do not regularly patrol or offer services for visitor safety in Migratory Bird Sanctuaries.

Any incidents within the Ahiak MBS can be reported to the below offices and you may request anonymity:

- Royal Canadian Mounted Police detachment in your community
- Government of Nunavut Wildlife Office in your community
- Canadian Wildlife Service Enforcement Office (Yellowknife or Iqaluit)
- Canadian Wildlife Service Permitting Office (Iqaluit): [ec.nupermisscf-cwspemitnu.ec@canada.ca](mailto:ec.nupermisscf-cwspemitnu.ec@canada.ca)
- Vice-chair of the Ahiak Area Comanagement Committee: [jennie.rausch@canada.ca](mailto:jennie.rausch@canada.ca)
- Any member of the Ahiak Area Comanagement Committee in your community



10.

## ENFORCEMENT

For the purposes of the administration of the *Migratory Bird Convention Act* and *Migratory Bird Sanctuary Regulations*, Environment and Climate Change Canada Wildlife Officers possess the powers of a police constable. Designated territorial Conservation Officers and the Royal Canadian Mounted Police are also authorized to enforce the *Migratory Bird Sanctuary Regulations* under the *Migratory Birds Convention Act*.

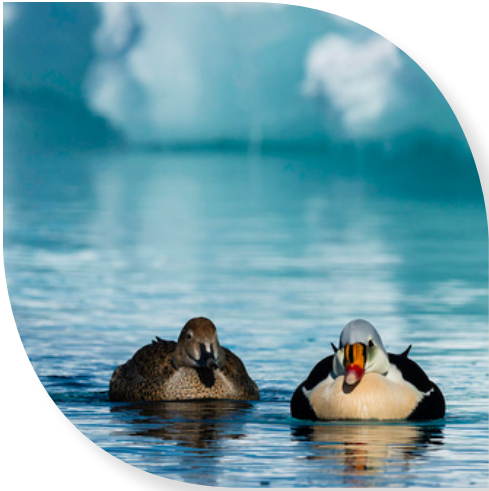
Officers monitor compliance with authorizations and permits issued under the *Migratory Bird Convention Act* and the *Migratory Bird Sanctuary Regulations* on an ongoing basis and will initiate investigations as required. The *Migratory Bird Sanctuary Regulations* lists prohibited activities in s. 3 and s. 10. The prohibited activities are:

- Hunting of migratory birds (excepting Inuit and their harvesting rights provided for in the *Nunavut Agreement*)
- Disturbing, destroying or taking the nests of migratory birds
- Having in your possession a live migratory bird, or a carcass, skin, nest, or egg of a migratory bird
- Carry on any activity that is harmful to migratory birds or the eggs, nests, or habitat of migratory birds
- Carrying a firearm in a Migratory Bird Sanctuary (excepting Inuit who are engaged in harvesting activities).

If prohibited activities are being done without a permit, the *Migratory Bird Sanctuary Regulations* will be universally enforced. When necessary, charges will be laid.

The Ahiak MBS is federal lands and waters (excepting the IOLs), so the general prohibitions of the *Species at Risk Act* (s. 32 and s. 33) apply to all species listed on Schedule 1 as extirpated, endangered, or threatened. Individuals of such listed species shall not be killed, harmed, harassed, captured or taken, and residences shall not be damaged or destroyed. If critical habitat of a listed species is identified within the Ahiak MBS, a description of that habitat must be published in the *Canada Gazette*. Section 58 of the *Species at Risk Act* prohibits the destruction of critical habitat.

Suspected illegal activities within the Ahiak MBS may be reported to any federal or territorial wildlife officer, or RCMP detachment, or directly to the Ahiak Area Comanagement Committee via the Canadian Wildlife Service at [ec.nupermisscf-cwspermitnu.ec@canada.ca](mailto:ec.nupermisscf-cwspermitnu.ec@canada.ca).



11.

## PLAN IMPLEMENTATION

The management plan will be implemented over a 10-year period. Annual work plans will be developed in accordance with priorities and budgets and the details of management plan implementation will be developed through Environment and Climate Change Canada's annual work planning process and will be implemented as human and financial resources allow. An adaptive management approach will be favoured for the implementation of the management plan.

Implementation efforts will be directed through the Ahiak ACMC and based on the mutual commitment of all parties involved (in accordance with s. 2.1.9 of the *IIBA*). The implementation of the plan will be evaluated by CWS five years after initial acceptance and every ten years thereafter on the basis of the actions identified in Table 8. This section of the management plan is not meant to replace annual work planning but to help establish priorities for work planning.

Data obtained from monitoring and research projects will be reviewed through CWS and used to inform future management decisions. When appropriate, the local public will also be consulted. Information will also be used to evaluate federal contributions towards accomplishing the mandates specific to Environment and Climate Change Canada for which the protected area was established, including future designation goals.



**Table 8: Five-year implementation schedule for Management Plan action items for the Ahiak MBS**

Activity	Year				
	1	2	3	4	5
Advise the Minister of Environment, as appropriate, on all aspects of management planning; carefully considering any <i>Inuit Qaujimagatuqangit</i> brought forward by members (in accordance with Part 3.3 of the <i>IIBA</i> ).	X	X	X	X	X
Fulfill the other functions of the ACMC set forth in the Inuit Impact Benefit Agreement for Conservation Areas ( <i>IIBA</i> ), including advising on: <ul style="list-style-type: none"> <li>• The NWA Strategy and Action Plan for Nunavut (<i>IIBA</i> Part 3.4);</li> <li>• Management Plans (<i>IIBA</i> Parts 3.5 to 3.7);</li> <li>• RIA-Supported Permit Applications (<i>IIBA</i> Part 4.3);</li> <li>• Camps and cabins in Ahiak MBS (<i>IIBA</i> Part 5.5);</li> <li>• The inventories of resources important to Inuit, including oral history projects, archaeological projects and Inuit Language place names (<i>IIBA</i> Part 6.4 to 6.7);</li> <li>• Research within Ahiak MBS (<i>IIBA</i> Part 10.2)</li> <li>• CWS’s role in the protection of Archaeological Sites, Artifacts and Specimens and Cultural Sites of Importance to Inuit (<i>IIBA</i> Part 11.3);</li> <li>• The management and protection of wildlife and wildlife habitat within the Ahiak MBS (<i>IIBA</i> Part 12.2);</li> <li>• The Establishment, Enlargement, Status Change, Reduction or Disestablishment of Ahiak MBS, as appropriate (<i>IIBA</i> Part 13.5); and</li> <li>• Visitor use of Ahiak MBS (<i>IIBA</i> Parts 14.2 and 14.4).</li> </ul>	X	X	X	X	X
Review permits and collaborative arrangements; revise and renew as appropriate.	X	X	X	X	X
Increase public awareness of the importance of the Ahiak MBS for all wildlife.	X	X	X	X	X
Document and report incidents of illegal activities.	X	X	X	X	X
Encourage research that aligns with the Ahiak MBS management plan.	X	X	X	X	X

## 11.1 Management Plan Amendment

The Canadian Wildlife Service may amend a management plan at any time. The government or any person whose interests are affected by this management plan may propose an amendment to management plan by contacting CWS (*IIBA* s. 3.7.1). Management plans and any subsequent revisions are subject to the approval of the Nunavut Wildlife Management Board.

Any revisions or changes to the management plan will be finalized by the Ahiak ACMC. CWS will then coordinate external consultation and review of the plan. Any changes to the review process and approval steps will be addressed in accordance with s. 5.3.34(c) and s. 5.3.16 of the *Nunavut Agreement*.

## 11.2 Management Authorities

Migratory Bird Sanctuaries are created under the *MBCA* and managed pursuant to the *Migratory Bird Sanctuary Regulations* administered through the CWS; under the authority of the federal Minister of the Environment. In Nunavut, through the *Nunavut Agreement* and the *IIBA*, Inuit have a significant role in the decision making of wildlife and wildlife habitat, including migratory birds and their habitat and MBSs. For the Ahiak MBS, these agreements are enacted through the Ahiak Area Co-Management Committee, the advisory committee responsible for the day-to-day management of the Ahiak MBS.



12.

## COLLABORATION

The ultimate success of this management plan depends on collaboration and consultation between Environment and Climate Change Canada, other federal agencies and departments, the Government of Nunavut, non-government organizations, community members in Cambridge Bay, Gjoa Haven and Umingmaktok, and all Inuit; who by virtue of their objectives, have a role to play in the protection of the Ahiak MBS and the long-term conservation of wildlife species and their habitats. This includes collaboration in research, land management, and wildlife and fisheries management. Successful implementation and operation of programs, research projects, monitoring and protection described for the MBS would not be possible without these formal and informal collaborative arrangements. Coordination of efforts will be conducted through the Ahiak ACMC.

### 12.1 Inuit and Public Partners

The Ahiak ACMC will advise on the management of migratory bird populations in consultation with regional institutions of public government as well as local resource co-management boards and authorities; such as the Kitikmeot Inuit Association (KIA) and the Kitikmeot Wildlife Board (KWB) in addition to the Nunavut Wildlife Management Board (NWMB). NWMB plays a key role in wildlife management within Nunavut including regulating harvesting activities within the MBS. Other partners may include the Hunters and Trappers Organizations (HTO) in Cambridge Bay and Gjoa Haven, Nunavut Marine Council, Nunavut Planning Commission (NPC), the Hamlets of Cambridge Bay and Gjoa Haven, Inuit Heritage Trust (IHT), Prince of Wales Northern Heritage Trust, Kitikmeot Heritage Society, Canadian Museum of Civilization, and Nunavut Tourism.

## 12.2 Government of Nunavut

The GN Department of Environment - Wildlife Management Division has a legislated mandate for the management of terrestrial wildlife species in Nunavut. In addition to the *Nunavut Wildlife Act*, the Wildlife Management Division is responsible for fulfilling government responsibilities under a wide range of federal legislation and both national and international agreements and conventions, including on-going responsibility for the co-management of Nunavut wildlife as obligated under the *Nunavut Agreement*. One of the primary goals of the Division is to achieve a balanced approach to wildlife management that meets legislative requirements, uses both science and *Inuit Qaujimajatuqangit* (IQ) and reflects the values and needs of Nunavummiut.

The GN Department of Culture and Heritage develops and implements policies, programs and services. These services are aimed at strengthening the culture, language, heritage and physical activity of Nunavummiut. Close working relationships are maintained with the professional archaeology and palaeontology communities, with Nunavut communities, with the Inuit Heritage Trust, and with other territorial and federal government agencies.

## LITERATURE CITED

- Ahiak ACMC (Area Co-management Committee). 2012. Ahiak Area Co-management Committee Meeting March 14-17. Cambridge Bay, NU.
- Alisauskas, R. T., Leafloor, J. O. and Kellett, D. K. 2012. Population status of midcontinent lesser snow geese and Ross's geese following special conservation measures in Leafloor, J. O., T. J. Moser, and B. D. J. Batt (editors), Evaluation of special management measures for midcontinent lesser snow geese and Ross's geese. Arctic Goose Joint Venture Special Publication, U.S. Fish and Wildlife Service, Washington, DC and Canadian Wildlife Service, Ottawa, ON. Pp.132-177.
- Alisauskas, R. T., J. B. Fischer, and J. O. Leafloor. 2018a. Midcontinent greater white-fronted goose *Anser albifrons frontalis* in Fox, A. D., and J. O. Leafloor (editors). A global audit of the status and trends of Arctic and Northern Hemisphere goose populations (Component 2: Population accounts). CAFF Monitoring Report No. 978-9935-431-74-5. Conservation of Arctic Flora and Fauna International Secretariat, Akureyri, Iceland. Pp.32-34.
- Alisauskas, R. T., K. W. Dufour, and J. O. Leafloor. 2018b. Midcontinent lesser snow goose *Chen caerulescens caerulescens* in Fox, A. D., and J. O. Leafloor (editors), A global audit of the status and trends of Arctic and Northern Hemisphere goose populations (Component 2: Population accounts). CAFF Monitoring Report No. 978-9935-431-74-5. Conservation of Arctic Flora and Fauna International Secretariat, Akureyri, Iceland. Pp.72-74.
- Alisauskas, R. T., K. W. Dufour, and J. O. Leafloor. 2018c. Ross's goose *Chen rossii* in Fox, A. D., and J. O. Leafloor (editors), A global audit of the status and trends of Arctic and Northern Hemisphere goose populations (Component 2: Population accounts). CAFF Monitoring Report No. 978-9935-431-74-5. Conservation of Arctic Flora and Fauna International Secretariat, Akureyri, Iceland. Pp.83-86.
- Alisauskas, R. T., R. F. Rockwell, K. W. Dufour, E. G. Cooch, G. Zimmerman, K. L. Drake, J. O. Leafloor, T. J. Moser and E. T. Reed. 2011. Harvest, survival, and abundance of midcontinent lesser snow geese relative to population reduction efforts. Wildlife Monographs 179:1-42.
- Allison, L. 1977. Migratory bird sanctuaries in the Northwest Territories. Canadian Wildlife Service, Edmonton, AB. 370pp.
- Arctic Climate Impact Assessment. 2005. Arctic climate impact assessment. Cambridge University Press, New York, NY. 1020pp.

- Banci V. A., C. C. Hanks, R. M. Spicker, G. Atatahak and Katimiut Inuit Kiuyikatigiingit. 2004. Walk in the path of the caribou: knowledge of the Copper Inuit, placenames atlas. Kitikmeot Inuit Association. Cambridge Bay and Kugluktuk, NU. 80pp.
- Barry, T. W. 1961. Proposed migratory bird sanctuary at south coast, Queen Maud Gulf, NWT. Unpublished report, CWS-45-61, Canadian Wildlife Service, Edmonton, AB. 4pp.
- Batt, B. D. J. (editor). 1997. Arctic ecosystems in peril: report of the Arctic Goose Habitat Working Group. Arctic Joint Venture Special Publication. U.S. Fish and Wildlife Service, Washington DC and Canadian Wildlife Service, Ottawa, ON. 120pp.
- Beckel, D. K. B. 1975. IBP Ecological Sites in Subarctic Canada Region 10: a contribution of the Canadian Committee of the International Biological Programme, Conservation of Terrestrial Biological Communities Subcommittee. University of Lethbridge Production Services, Lethbridge, AB. 163pp.
- Bird, J. B. 1967. The physiography of Arctic Canada with species reference to the area south of the Parry Channel. John Hopkins Press, Baltimore, OH. 336pp.
- Bird Studies Canada. 2017. Important Bird Areas (IBA) Canada site summary: Queen Maud Gulf. [Online] 2017. [www.ibacanada.com/site.jsp?siteID=NU009&lang=EN](http://www.ibacanada.com/site.jsp?siteID=NU009&lang=EN)
- Bostock, H. S. 1970. Physiographic subdivisions of Canada. Geology and economic minerals of Canada: Geological Survey of Canada. Economic Geology Report 1. Pp.9-30.
- CESCC (Canadian Endangered Species Conservation Council). 2011. Wild Species 2010: The General Status of Species in Canada. National General Status Working Group, Ottawa, ON. 302pp.
- CESCC (Canadian Endangered Species Conservation Council). 2006. Wild species 2005: The General Status of Species in Canada. National General Status working Group, Ottawa, ON. 141pp.
- Clayton, J. S., W. A. Ehrlich, D. B. Cann, J. H. Day and I. B. Marshall. 1977. Soils of Canada. Unpublished report, Department of Agriculture, Ottawa, ON. 2 vols. 243pp. + 239pp. + maps.
- Conkin, J., and R. T. Alisauskas. 2017. Conversion of tundra to exposed peat habitat by snow geese (*Chen caerulescens caerulescens*) and Ross's geese (*C. rossii*) in the central Canadian Arctic. *Polar Biology* 40:563-576.
- Conservation Advisory Committee. 1990. A review of the boundaries of bird sanctuaries in the Northwest Territories. Conservation Advisory Committee on the Northern Mineral Policy, Department of Indian Affairs and Northern Development, Ottawa, ON. 15pp.
- Contentworks. 2011. NTI //BA for Conservation Areas: Cultural Heritage and Interpretative Materials Study, Phase I: Cultural Heritage Resources – Queen Maud Gulf Migratory Bird Sanctuary. Report prepared for Nunavut Tunngavik Inc. 337pp.
- Craig, B. G. 1961. Surficial geology of northern district of Keewatin Northwest Territories. Paper 61-5. Geological Survey of Canada, Ottawa, ON. 20pp.
- Department of Fisheries and Oceans Canada (DFO). 2017. Nunavut restricted activity timing windows for the protection of fish and fish habitat. [Online] 2017. [www.dfo-mpo.gc.ca/pnw-ppe/timing-periodes/nu-eng.html](http://www.dfo-mpo.gc.ca/pnw-ppe/timing-periodes/nu-eng.html)

- Didiuk, A. B. and R. S. Ferguson. 2005. Land cover mapping of Queen Maud Gulf Migratory Bird Sanctuary, Nunavut. CWS Occasional Paper No. 111. Canadian Wildlife Service, Saskatoon, SK. 36pp.
- Didiuk, A. B., R. T. Alisauskas, and R. F. Rockwell. 2001. Interaction with arctic and subarctic habitats in Moser, T. J. (editor), *The Status of Ross's Geese*. U.S. Fish and Wildlife Service, Washington, DC and Canadian Wildlife Service, Ottawa, ON. Pp.19-32.
- Environment and Climate Change Canada. 2017a. Species at risk public registry. [Online] 2017. [www.registrelep-sararegistry.gc.ca/default.asp?lang=en&n=24F7211B-1](http://www.registrelep-sararegistry.gc.ca/default.asp?lang=en&n=24F7211B-1)
- Environment and Climate Change Canada. 2017b. National Wildlife Areas. [Online] 2017. [www.canada.ca/en/environment-climate-change/services/national-wildlife-areas.html](http://www.canada.ca/en/environment-climate-change/services/national-wildlife-areas.html)
- Environment and Climate Change Canada. 2016a. Climate data and scenarios for Canada: synthesis of recent observation and modelling results. [Online] 2017. [http://publications.gc.ca/collections/collection\\_2016/eccc/En84-132-2016-eng.pdf](http://publications.gc.ca/collections/collection_2016/eccc/En84-132-2016-eng.pdf)
- Environment and Climate Change Canada. 2016b. Environment and Climate Change Canada's input to the Nunavut Planning Commission regarding Key Habitat Sites for migratory birds in the Nunavut Settlement Area, May 2016 revision. Canadian Wildlife Service, Yellowknife, NT. 134pp.
- Environment Canada. 2014. Environment Canada's input to the Nunavut Planning Commission regarding Key Habitat Sites for Migratory Birds in the Nunavut Settlement Area, DRAFT, April 2014. Environment Canada, Yellowknife, NT. 74pp.
- Environment Canada. 2011. Environment Canada Protected Areas Strategy. [Online] 2017. [www.ec.gc.ca/ap-pa/default.asp?Lang=En&n=8477CFB6-1](http://www.ec.gc.ca/ap-pa/default.asp?Lang=En&n=8477CFB6-1)
- EC-CWS (Environment Canada – Canadian Wildlife Service). 2012. Important Areas for Birds in Nunavut. Environment Canada. [Online] 2012. <https://ec.gc.ca/Publications/default.asp?lang=En&xml=BA2DC13E-436B-49D0-A509-52A236D8DF6A>
- Fenco Consultants Ltd. and F. F. Slaney and Company Ltd. 1978. An Arctic Atlas: Background information for developing marine oilspill countermeasures. Arctic Marine Oilspill Program Report ESP-9-EC-78-1. Ottawa, ON. 475pp.
- Gavin, A. 1947. Birds of the Perry River district, Northwest Territories. *Wilson Bulletin* 59(4):195-203.
- Government of Canada. 2017a. Migratory bird sanctuaries. [Online] 2017. [www.canada.ca/en/environment-climate-change/services/migratory-bird-sanctuaries.html](http://www.canada.ca/en/environment-climate-change/services/migratory-bird-sanctuaries.html)
- Government of Canada. 2017b. A to Z Species Index. [Online] 2017. [www.registrelep-sararegistry.gc.ca/sar/index/default\\_e.cfm](http://www.registrelep-sararegistry.gc.ca/sar/index/default_e.cfm)
- Government of Nunavut. 2016. Nunavut Mineral Exploration, Mining and Geoscience Overview 2016. Government of Nunavut. Iqaluit, NU. [Online] 2017. [www.gov.nu.ca/edt/documents/nunavut-mineral-exploration-mining-and-geoscience-overview](http://www.gov.nu.ca/edt/documents/nunavut-mineral-exploration-mining-and-geoscience-overview)
- Government of Nunavut. 2007. Statutory report on wildlife to the Nunavut Legislative Assembly (Section 176 of the Wildlife Act), May 2007. Government of Nunavut. Iqaluit, NU. [Online] 2017. [www.gov.nu.ca/environment/documents/statutory-report-wildlife-nunavut-legislative-assembly-section-176-wildlife](http://www.gov.nu.ca/environment/documents/statutory-report-wildlife-nunavut-legislative-assembly-section-176-wildlife)

- Hanson, H. C. and R. L. Jones. 1976. The biogeochemistry of blue, snow, and Ross' geese. Southern Illinois University Press, Urbana, IL. 281pp.
- Hanson, H. C., P. Queneau and P. Scott. 1956. The geography, birds, and mammals of the Perry River region. Special Publication No. 3. Arctic Institute of North America, Washington, DC. 96pp.
- INAC (Indian and Northern Affairs Canada). 1986. Northern Mineral Policy. Department of Indian and Northern Affairs Canada. Ottawa, ON. 33pp.
- INAC (Indian and Northern Affairs Canada). 1976. Inuit Land Use and Occupancy Project, 1974. Milton Freeman Research Ltd. for the Department of Indian and Northern Affairs Canada. Ottawa, ON. 96pp.
- Kerbes, R. H., K. M. Meeres, R. T. Alisauskas, F. D. Caswell, J. H. Caswell. 2014. Surveys of midcontinent lesser snow and Ross's geese in eastern and central arctic Canada, 2002-2009. Arctic Goose Joint Venture Special Publication. U.S. Fish and Wildlife Service, Washington, DC, and Canadian Wildlife Service, Ottawa, ON. 56pp.
- Latour, P. B., J. Leger, J. E. Hines, M. L. Mallory, D. L. Mulders, H. G. Gilchrist, P. A. Smith and D. L. Dickson. 2008. Key migratory bird terrestrial habitat sites in the Northwest Territories and Nunavut. 3<sup>rd</sup> ed. Canadian Wildlife Service Occasional Paper No. 114. Canadian Wildlife Service, Yellowknife, NT. 120pp.
- Leafloor, J. O., K. W. Dufour, and R. T. Alisauskas. 2018. Midcontinent cackling goose *Branta hutchinsii hutchinsii* in Fox, A. D., and J. O. Leafloor (editors), A global audit of the status and trends of Arctic and Northern Hemisphere goose populations (Component 2: Population accounts). CAFF Monitoring Report No. 978-9935-431-74-5. Conservation of Arctic Flora and Fauna International Secretariat, Akureyri, Iceland. Pp.147-149.
- Maxwell, J. B. 1981. Climatic regions of the Canadian Arctic islands. *Arctic*. 34(3):225-240.
- Nagy, J. A. 2011. Use of space by caribou in northern Canada. PhD Thesis. University of Alberta. Edmonton, AB. 184pp.
- Nagy, J. A., D. L. Johnson, N. C. Carter, M. W. Campbell, A. E. Derocher, A. Kelly, M. Dumond, D. Allaire and B. Croft. 2011. Subpopulation structure of caribou (*Rangifer tarandus* L.) in arctic and subarctic Canada. *Ecological Applications* 21:2334-2348.
- NTI (Nunavut Tunngavik Incorporated). 2003. Perry River. [Online] 2012. [www.tunngavik.com/blog/initiative\\_pages/perry-river](http://www.tunngavik.com/blog/initiative_pages/perry-river)
- Parks Canada. 1995. Sea to Sea to Sea: Canada's National Marine Conservation Areas System Plan. Parks Canada, Ottawa, ON. Pp.42-43.
- Ramsar. 2001. Ramsar Sites Information Service: Queen Maud Gulf Migratory Bird Sanctuary. [Online] 2017. <https://rsis.ramsar.org/RISapp/files/RISrep/CA246RIS.pdf>
- Riewe, R. (editor). 1992. Nunavut Atlas. Canadian Circumpolar Institute and Tungavik Federation of Nunavut, Edmonton, AB. 272pp.
- Ross, M. V., D. C. Douglas, R. T. Alisauskas, and D. K. Kellett. 2017. Decadal declines in avian herbivore reproduction: density-dependent nutrition and phenological mismatch in the Arctic. *Ecology* 98:1869-1883.



- Ryder, J. P. 1972. Biology of nesting Ross' geese. *Ardea* 60:185-215.
- Ryder, J. P. 1967. The breeding biology of Ross' goose in the Perry River region, Northwest Territories. Canadian Wildlife Service Report Series Number 3. Canadian Wildlife Service, Ottawa, ON. 10pp.
- Smith, M. and B. Rigby. 1981. Distribution of polynyas in the Canadian Arctic in Stirling, I., and H. Cleator (editors), *Polynyas in the Canadian Arctic*. CWS Occasional Paper No. 45. Canadian Wildlife Service, Ottawa, ON. Pp.7-28.
- Tarnocai, C. 1977. Soils of north central Keewatin in Geological Survey of Canada, Report of Activities Part A Paper 77-1A. Geological Survey of Canada, Ottawa, ON. Pp.61-64.
- Usher, P. J. 1975. The growth and decay of the trading and trapping frontiers in the western Canadian arctic. *Canadian Geographer* 19:308-320.
- Zoltai, S. C. and J. D. Johnson. 1978. Vegetation-soil relationships in the Keewatin District. ESCOM Report No. A1-25. Canadian Wildlife Service for the Department of Indian and Northern Affairs, Ottawa, ON. 95pp.

## APPENDIX A: LEGAL DESCRIPTION

The legal description as copied directly from the *Migratory Bird Sanctuary Regulations* (C.R.C., c. 1036; 1958) is as follows:

“COMMENCING at a point in the easterly shore of McLaughlin Bay at latitude 69°50’; THENCE, east along parallel of latitude 67°50’ to the westerly shore of Sherman Inlet; THENCE, southeasterly in a straight line to the northernmost point in the shore of the promontory east of the mouth of the Kaleet River at Latitude 67°41’ and longitude 97°09’; THENCE, southerly along the easterly banks of the Kaleet River and its widenings to latitude 66°20’; THENCE, west along parallel of latitude 66°20’ to the westerly bank of the Ellice River; THENCE, northerly along the westerly bank of the Ellice River and westerly bank of that tributary which flows into the Ellice River altitude 66°48 1/2’ and longitude 104°38’ to longitude 105°30’; THENCE, due north to the northwesterly shore of Labyrinth Bay; THENCE, northerly and easterly along the shore of Labyrinth Bay to the southeastern most point in the shore of Cape Roxborough; THENCE, southeasterly in a straight line to the northernmost point in the shore of Whitebear Point; THENCE, southeasterly in a straight line to the point of commencement; all being described with reference to map sheets 66 N.W. and 66 N.E. dated 1953, 76 N.W. and 76 N.E. dated 1954, 77 S.W. and 77 S.E. dated 1958, of the National Topographic Series, scale 8 miles to 1inch, and map sheet 67 S.W. and 67 S.E. dated 1958, of said series, scale 1:500,000, said sanctuary containing about 24,240 square miles.”

However, there are three known errors (typos) in the legal land description in the *Migratory Bird Sanctuary Regulations* that will be corrected (see bolded text below for corrections; valid as of December 2017):

“COMMENCING at a point in the easterly shore of McLoughlin Bay at latitude 67°50’; THENCE, east along parallel of latitude 67°50’ to the westerly shore of Sherman Basin; THENCE, southeasterly in a straight line to the northernmost point in the shore of the promontory east of the mouth of the Kaleet River at Latitude 67°41’ and longitude 97°09’; THENCE, southerly along the easterly banks of the Kaleet River and its widenings to latitude 66°20’; THENCE, west along parallel of latitude 66°20’ to the westerly bank of the Ellice River; THENCE, northerly along the westerly bank of the Ellice River and westerly bank of that tributary which flows into the Ellice River altitude 66°48 1/2’ and longitude 104°38’ to longitude 105°30’; THENCE, due north to the northwesterly shore of Labyrinth Bay; THENCE, northerly and easterly along the shore of Labyrinth Bay to the southeastern most point in the shore of Cape Roxborough; THENCE, southeasterly in a straight line to the northernmost point in the shore of Whitebear Point; THENCE, southeasterly in a straight line to the point of commencement; all being described with reference to map sheets 66 N.W. and 66 N.E. dated 1953, 76 N.W. and 76 N.E. dated 1954, 77 S.W. and 77 S.E. dated 1958, of the National Topographic Series, scale 8 miles to 1inch, and map sheet 67 S.W. and 67 S.E. dated 1958, of said series, scale 1:500,000, said sanctuary containing about 24,240 square miles.”

Figure A - 1 shows the boundary as taken directly from the legal land description (original) in the *Migratory Bird Sanctuary Regulations* in comparison with the corrected legal land description that will eventually be officially corrected. This is for clarity and display purposes. All other maps contained in the accompanying management plan are based on the corrected legal land description.

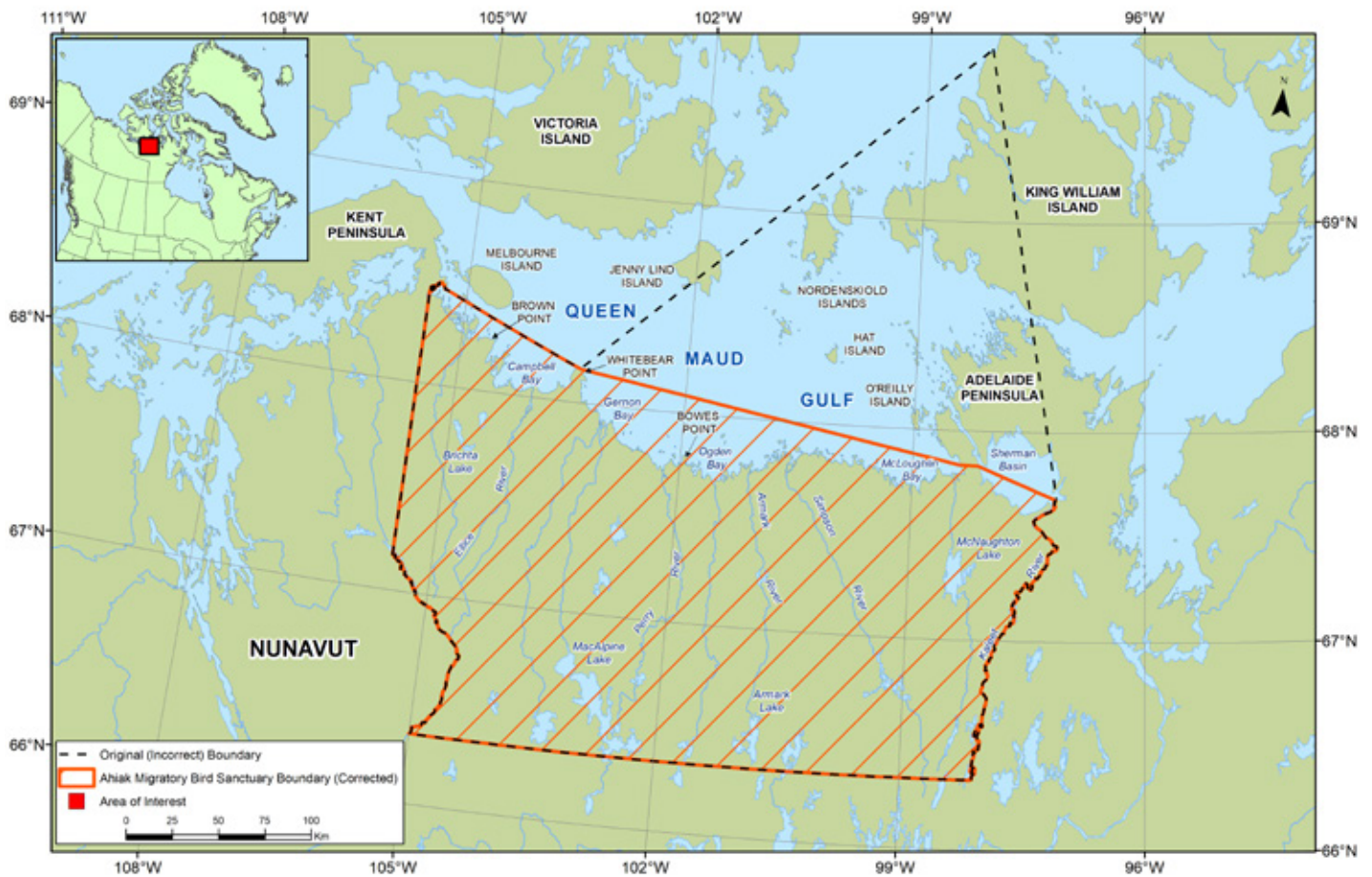


Figure A-1: The legal land description for the Ahlak Migratory Bird Sanctuary in the *Migratory Bird Sanctuary Regulations* has a known coordinate typo that will be corrected. The incorrect (original) and corrected boundaries are shown on this map for display purposes.

# APPENDIX B: LAND COVER TYPES IDENTIFIED WITHIN AHIK MIGRATORY BIRD SANCTUARY

The below Table B - 1 is taken from Didiuk and Ferguson (2005).

**Table B - 1: Land cover types identified within the Ahlak Migratory Bird Sanctuary**

General Cover Type	Specific Cover Type
Water	Water – clear
Water	Water – moderately turbid
Water	Water - turbid
Lowlands	Lowlands - Wet sedge meadow
Lowlands	Hummock graminoid tundra
Lowlands	Tussock graminoid tundra
Lowlands	Low shrub tundra
Lowlands	Shrub thicket
Uplands	Moss-lichen tundra
Uplands	Lichen-heath tundra
Uplands	Bedrock and boulder field
Uplands and Lowlands	Active deposits
Uplands and Lowlands	Exposed peat

# APPENDIX C: CRITERIA FOR DESIGNATION AS A NATIONAL WILDLIFE AREA AND HOW AHIAK MBS MEETS THESE CRITERIA

The original designation of the conservation area as a Migratory Bird Sanctuary suited the species conservation at the time. However, over the past 50 years, the needs for the area for conservation of wildlife and Inuit cultural resources have change. While it was created to provide protection for light geese during the breeding season, its increasing importance to other migratory birds and year-round importance to large mammals and for the protection of the cultural resources of importance to Nunavummiut within, Ahiak is better suited for protection as a National Wildlife Area.

An area must meet at least one of the below criterion for proposal as a National Wildlife Area. Ahiak MBS currently meets two of the criteria for designation as a National Wildlife Area (Table C - 1).

**Table C - 1: Criteria for designation as a National Wildlife Area and how Ahiak Migratory Bird Sanctuary meets these criteria**

Criteria for eligibility as a National Wildlife Area (Environment and Climate Change Canada 2017b)	How Ahiak MBS meets criterion for designation as a National Wildlife Area
1. The area supports at least 1% of the Canadian population of a species or subspecies of migratory bird or species at risk <sup>1</sup> .	<ul style="list-style-type: none"> <li>✓ Over 90% of the world's population of Ross' Goose</li> <li>✓ 8% of the Canadian population of Snow Goose nest within the Ahiak MBS</li> <li>✓ over 2% of the global Sandhill Crane population</li> <li>✓ 18% of the eastern Tundra Swan population (7% of the North American population)</li> <li>✓ 14% of the mid-continent Greater White-fronted Goose population</li> <li>✓ approximately 5% of the Pacific Brant population</li> <li>✓ 10 to 12% of the Short-grass Prairie Canada Goose population</li> <li>✓ 1% of the mid-continent Northern Pintail population</li> <li>✓ 6% of the west/central North American King Eider population</li> </ul>

<sup>1</sup> This criterion includes areas on which species or subspecies depend to complete any Part of their life cycle, such as nesting, feeding, migration and wintering areas.

Criteria for eligibility as a National Wildlife Area (Environment and Climate Change Canada 2017b)	How Ahiak MBS meets criterion for designation as a National Wildlife Area
<p>2. The area supports an appreciable assemblage<sup>2</sup> of species or subspecies of migratory birds or species at risk, or an appreciable number of individuals of any one or more of these species or subspecies where total populations are not known or the assemblage represents a regionally significant area.</p>	<ul style="list-style-type: none"> <li>✓ Six species at risk listed under the federal <i>Species at Risk Act</i></li> <li>✓ Provides habitat for the largest variety of geese in any single area in North America</li> <li>✓ Only place where two types of Brant nest</li> <li>✓ One million shorebird species, most of which are in population decline, using Ahiak MBS during the breeding season</li> <li>✓ High arctic nesting shorebirds are using Ahiak MBS as a stop-over site during northbound migration</li> </ul>
<p>3. The area has been identified as critical habitat for a listed migratory bird or other species at risk population, subspecies or species.</p>	<p>Not applicable.</p>
<p>4. The area is a rare or unusual wildlife habitat of a specific type in a biogeographic region, or has special value for maintaining the genetic and ecological diversity of a region because of the wide range, quality and uniqueness of its flora and fauna<sup>3</sup>.</p>	<p>Not applicable.</p>
<p>5. The area possesses a high potential for restoration or enhancement, now or in the future, such that wildlife populations could be increased or managed to meet national objectives.</p>	<p>Not applicable.</p>

<sup>2</sup> An "appreciable assemblage" of species or subspecies would be a grouping that, in relative terms, is generally accepted as being sufficient to warrant conservation action, such as waterfowl.

<sup>3</sup> This criterion allows for habitats that always have been rare in a region, as well as habitats reduced to a remnant of their former extent.