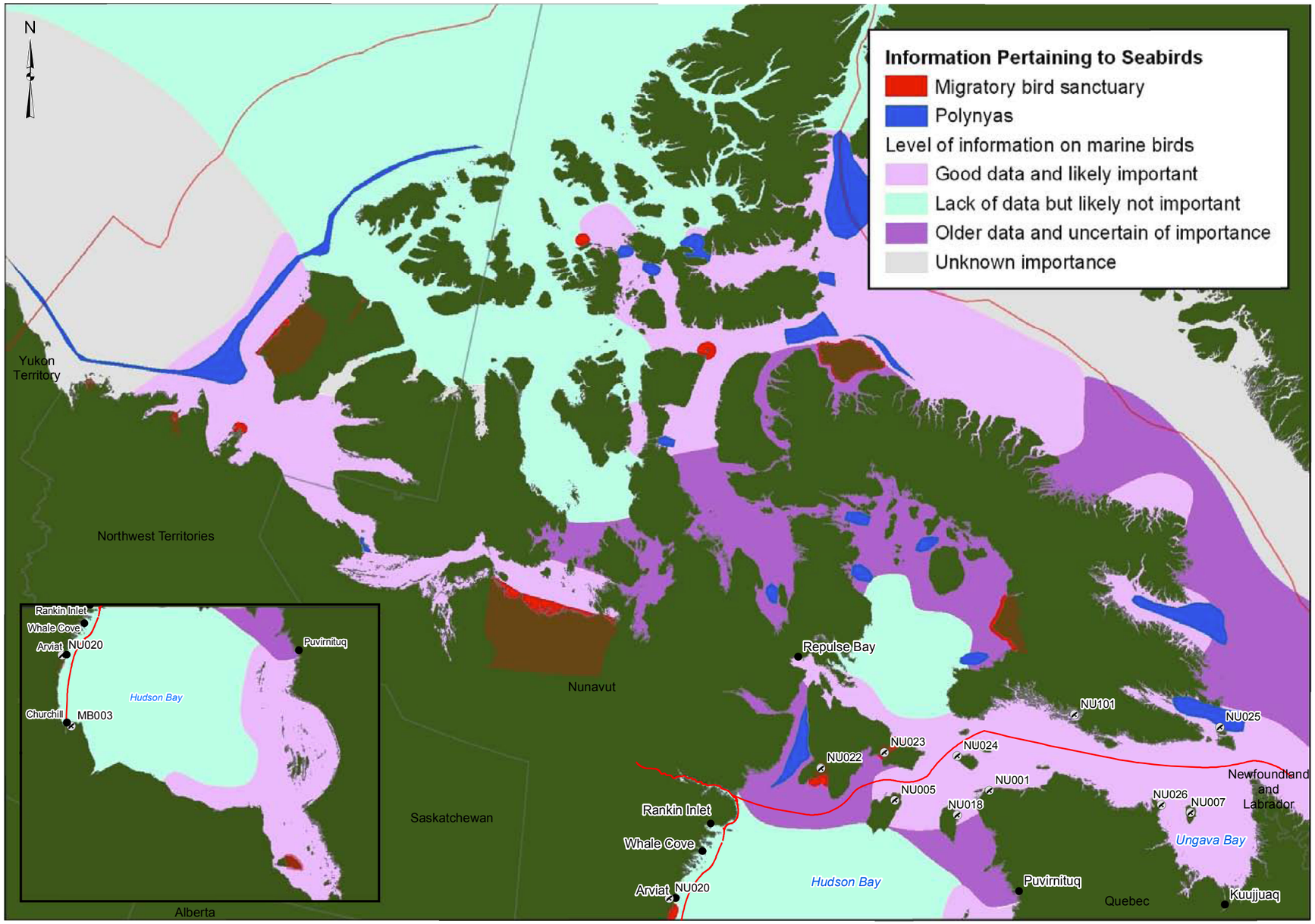

LEGEND

SHIPING ROUTE

ID#	Important Bird Areas
NU022	Harry Gibbons Migratory Bird Sanctuary (federal)
MB003	Wapusk National Park (federal)
NU005	Cape Pembroke
MB013	Seal River Estuary Heritage River (federal)
NU020	McConnell River Migratory Bird Sanctuary (federal) & Ramsar Site
NU023	East Bay Migratory Bird Sanctuary (federal)
NU024	Fraser Island
NU001	Digges Sound
NU101	Markham Bay Eider Colony
NU026	Eider Islands
NU007	Akpatok Island
NU018	Mansel Island
NU025	Hantzsch Island

REFERENCE

1. PROVINCIAL DATA OBTAINED FROM E.S.R.I.
2. BASE IMAGE OBTAINED FROM STEPHENSON AND HARTWIG, 2010, IBA 2012
3. SHIPPING ROUTE DATA OBTAINED FROM THE DEPARTMENT OF NATURAL RESOURCES CANADA. ALL RIGHTS RESERVED.

DATUM: NAD 83 PROJECTION: CANADA ALBERS EQUAL AREA CONIC

240 0 240
KILOMETRES

PROJECT
AGNICO EAGLE

AGNICO EAGLE MINES LIMITED:
MEADOWBANK DIVISION
WHALE TAIL PIT PROJECT

TITLE
DISTRIBUTION OF MARINE BIRDS AND BIRD HABITAT IN HUDSON BAY, HUDSON STRAIT AND ADJACENT ARCTIC WATERS

Golder Associates

PROJECT NO.	1541520	FILE No.			
DESIGN	AK	19 Jul. 2012	SCALE AS SHOWN	REV.	0
GIS	DSC	24 Jul. 2012			
CHECK	AO	06 Jun. 2016			
REVIEW	PR	06 Jun. 2016			

FIGURE 3.A.18

Y:\burnaby\CAD-GIS\Client\Agnico_Eagle_Mines_Ltd\Whale_Tail\99_PROJECTS\1541520_FEIS\02_PRODUCTION\FEIS\MXD\3600_Marine\Report\1541520_FIG_18_Distribution_of_Birds.mxd

Figure 3-A-19: Preliminary EBSA Identification Results for Foxe Basin (in solid red; 1.1 to 1.3) and for Hudson Bay / Hudson Strait (in red hatched lines; 1.4 to 1.12) as Determined through a Series of Workshops Conducted in 2009. Sources: DFO (2010); extracted from Cobb 2011.

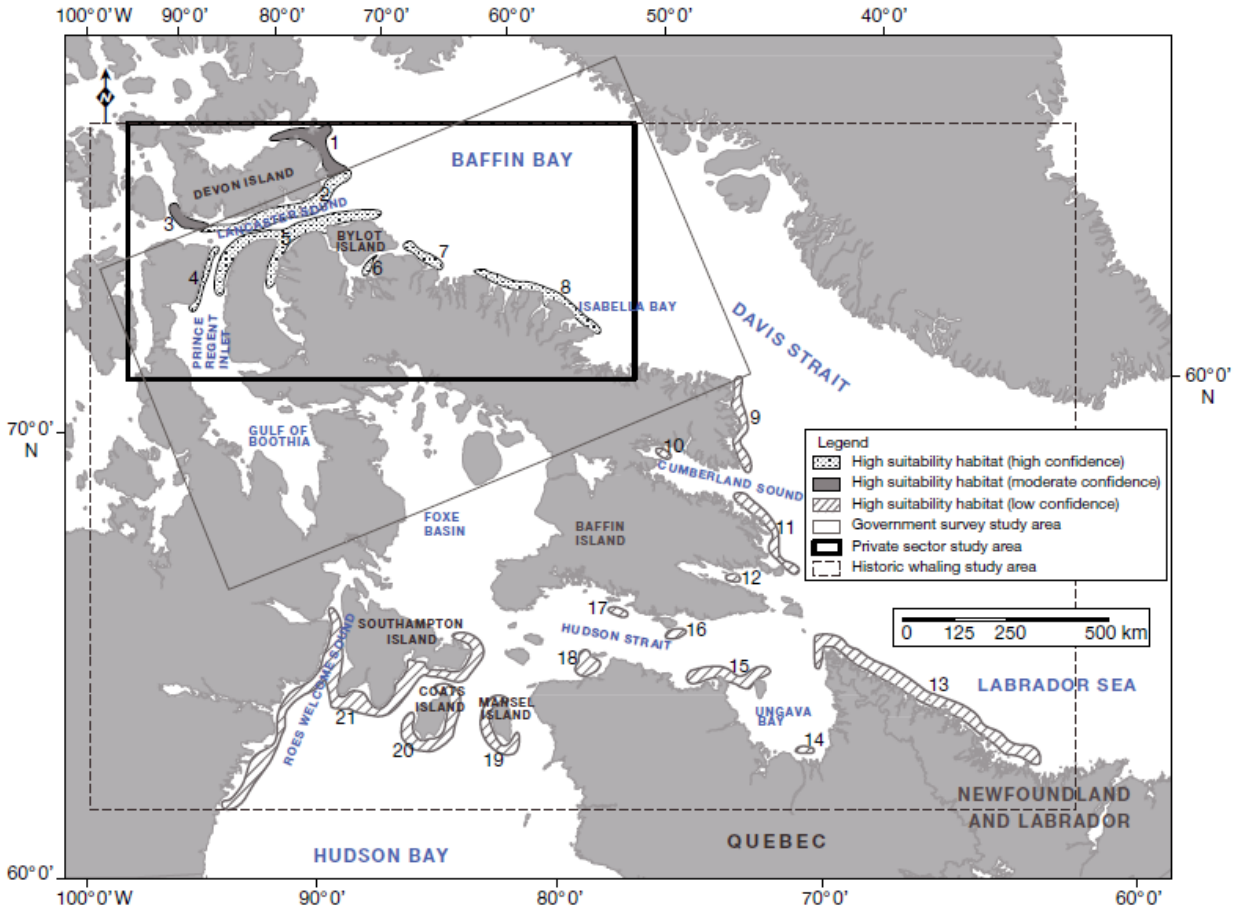

Figure 3-A-20: Discrete Areas of Highly Suitable Bowhead Whale Habitat Identified for Three or More Months from June to October in the Eastern Canadian Arctic (by analytical confidence). Produced by Ecological Niche Factor of Three Bowhead Location Datasets and Associated Eco-Geographical Variables. Source: extracted from Wheeler et al. (2012).

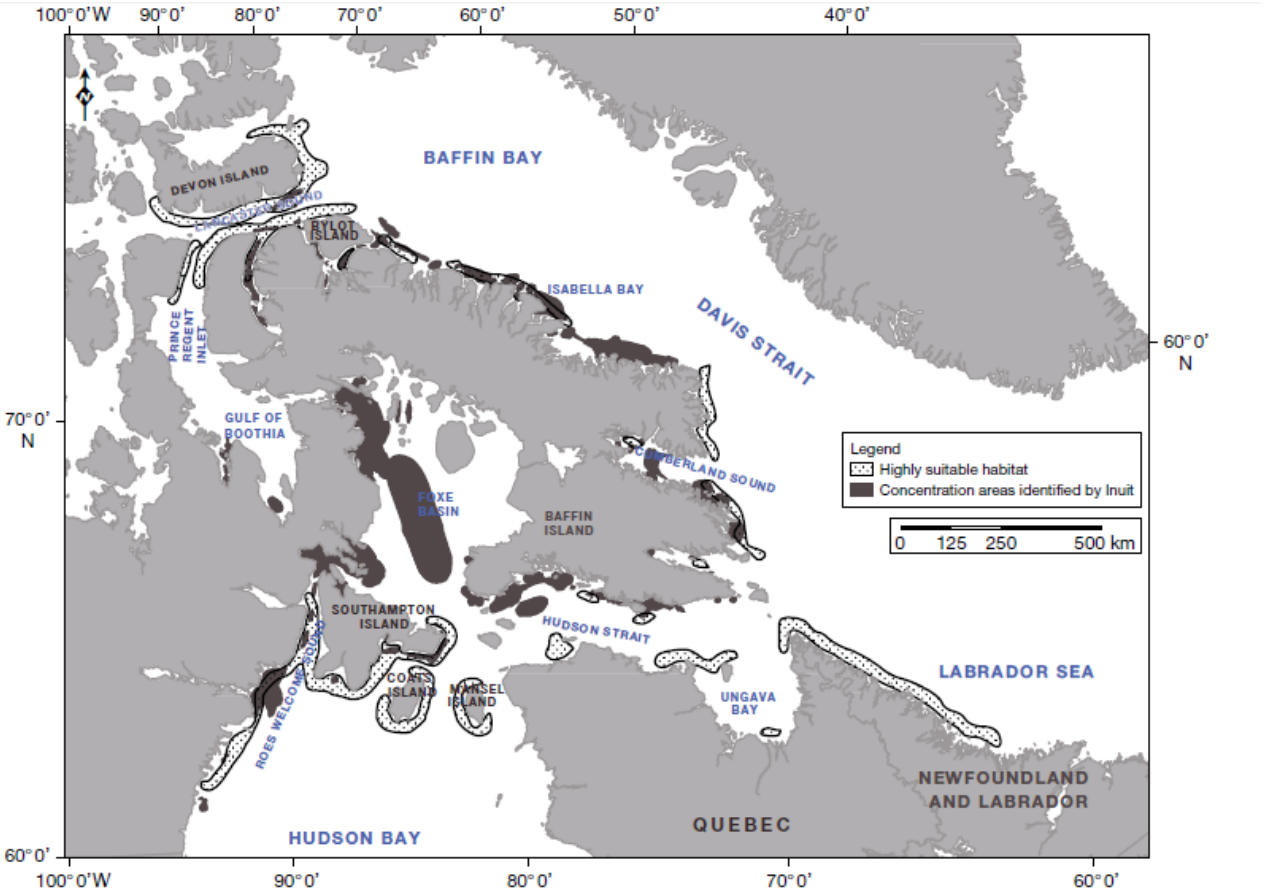

Figure 3-A-21: Comparison of Highly Suitable Bowhead Whale Habitat Predicted by Ecological Niche Factor Analyses with Bowhead Concentration Areas Identified by Inuit in Nunavut, Canada, in Late Spring, Summer, and Early Fall Source: Adapted from NWMB (2000) and Wheeler et al. (2012).

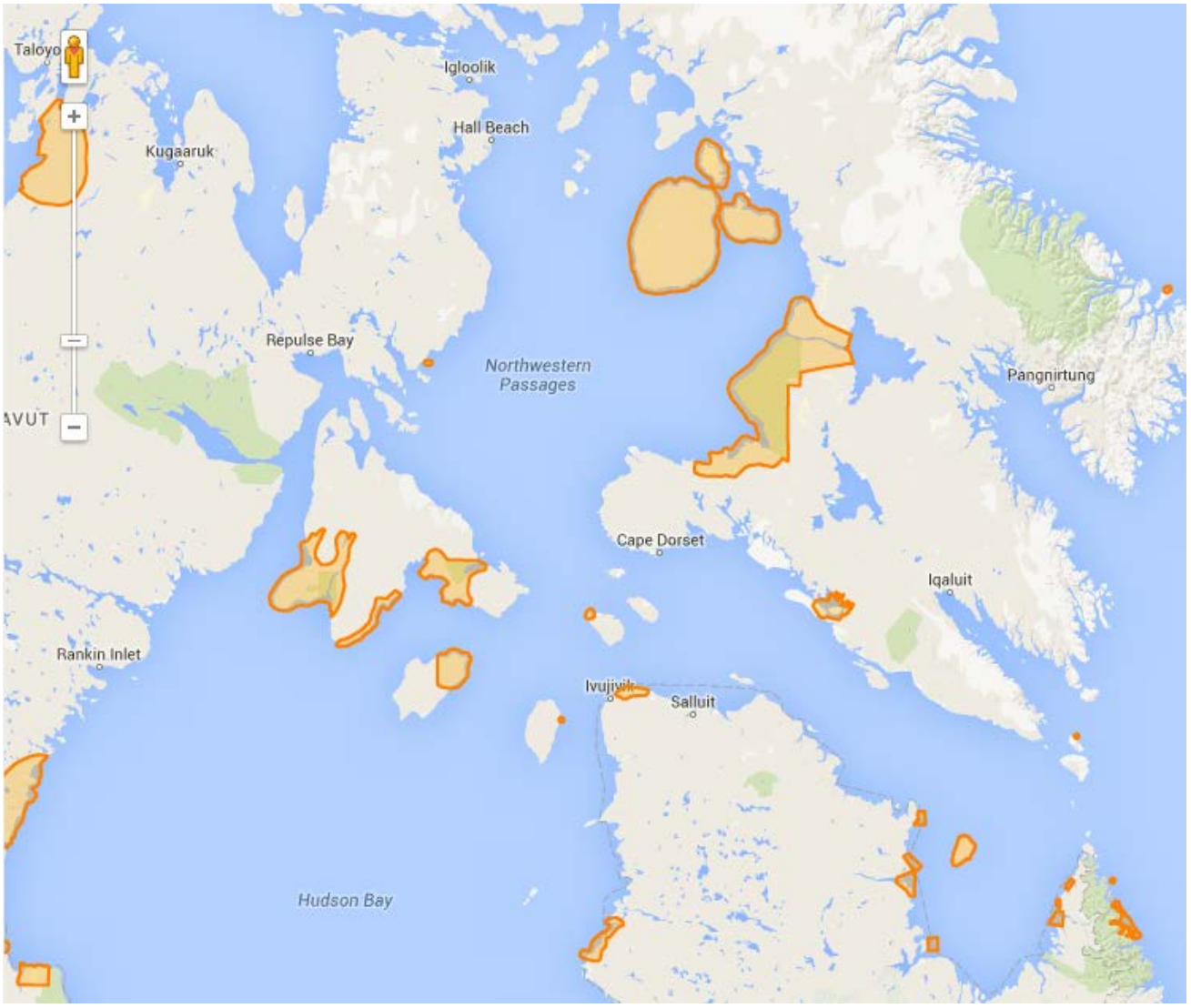

Figure 3-A-22: Important Bird Areas within and Adjacent to the Study Area. Source: Extracted from IBA Canada (2015).

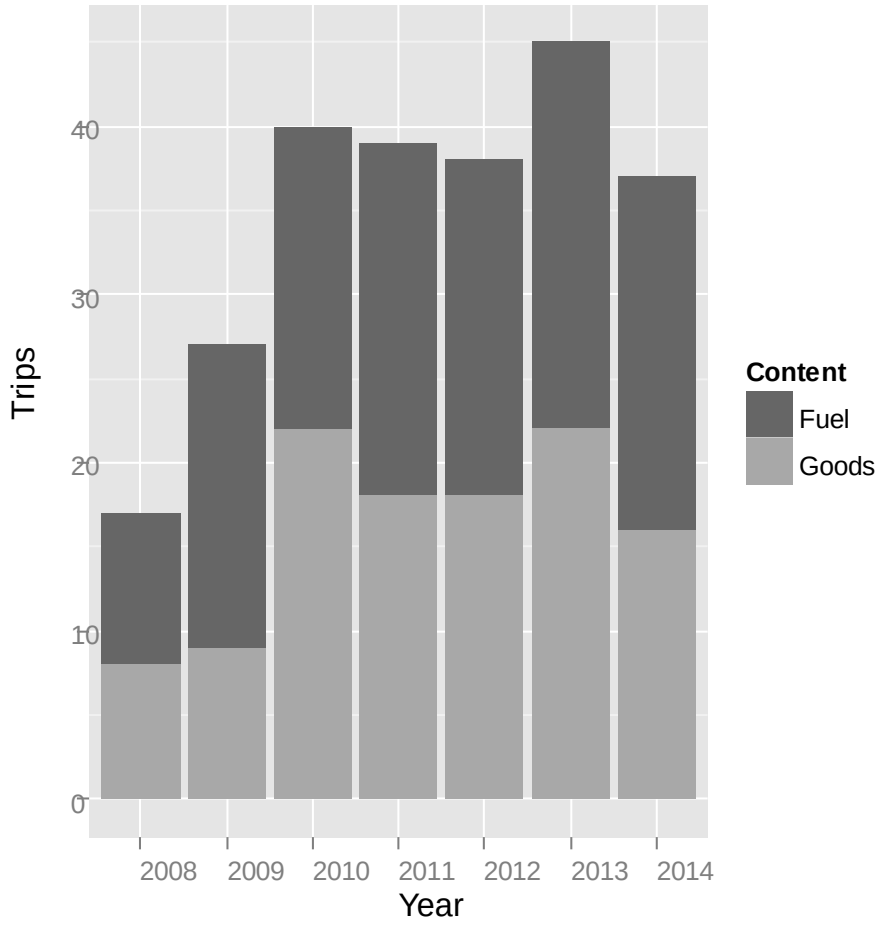

Figure 3-A-23: Barge traffic (number of trips/year) arriving in Baker Lake from Chesterfield Inlet since 2008 (adapted from the Meadowbank 2014 annual report (Agnico Eagle 2014a)).

ATTACHMENT 3-A.2
Tables

Table 3-A-1: Marine Environment and Marine Wildlife Valued Components

Valued Component	Rationale for Inclusion
Marine Water Quality	▪ Aboriginal, regulatory, conservation, and other stakeholder importance ▪ Project shipping activities have the potential to affect chemical properties of marine water in shipping corridor ▪ Marine water quality is important for the health of marine wildlife, and human uses that rely on those resources ▪ Pathway component with direct and indirect linkage to marine fish, marine mammal and marine bird VCs
Marine Fish	▪ Commercial, social, cultural, and ecological importance in Project area ▪ Potential to be affected by Project activities ▪ Identified as important during Traditional Knowledge studies
Marine Mammals	▪ Commercial, social, cultural, and ecological importance in Project area ▪ Biological indicators for marine and terrestrial ecosystem health ▪ Potential to be affected by Project activities ▪ Include several federally listed species ▪ Identified as important during IQ studies
Marine Birds	▪ Cultural and aesthetic value to society ▪ Ecological importance in Project area ▪ Biological indicators for marine and terrestrial ecosystem health ▪ Migratory and non-migratory species protected by provincial and federal regulations ▪ Include several federally listed species ▪ Potential to be affected by Project activities ▪ Identified as important during IQ studies

VC = valued component

Table 3-A-2: Overview of Marine Fish Species within the Study Area

Common Name	Species	Habitat	SARA Status[a]	COSEWIC Status[b]	Of Cultural, Economic or Subsistence Importance
Arctic char	*Salvelinus alpinus*	Anadromous fish found in coastal waters of the marine environment and occupying depths between 30 and 70 m.	No Status	Not Assessed	Yes
Greenland cod	*Gadus ogac*	Demersal[c] fish occurring in coastal waters up to 400 m in depth.	No Status	Not Assessed	Yes
Polar cod	*Arctogadus glacialis*	Cryopelagic[d] or epontic[e] or epontic fish found in both shallow and deep waters up to 1,000 m in depth.	No Status	Not Assessed	Yes
Arctic cod	*Boreogadus saida*	Cryopelagic or epontic fish found in both shallow coastal and deep waters to a depth of 1,400 m.	No Status	Not Assessed	Yes
Fourhorn sculpin (marine form)	*Myoxocephalus quadricornis*	Benthic fish occurring in shallow coastal and estuarine environments. It migrates to deep waters during summer months, generally between 45 and 100 m in depth.	No Status	Not at Risk	Yes
Arctic staghorn sculpin	*Gymnocanthus tricuspis*	Benthic fish occurring in coastal environments with preference of sandy-bottom areas.	No Status	Not Assessed	Yes
Arctic sculpin	*Myoxocephalus scorpioides*	Benthic fish found in shallow marine environments up to 275 m.	No Status	Not Assessed	Yes
Slender eel blenny	*Lumpenus fabricii*	Benthic fish found in sandy and rocky habitats with preference of seagrass and macroalgae presence.	No Status	Not Assessed	No
Greenland halibut	*Reinhardtius hippoglossoides*	Epibenthic[f] fish occurring in shallow to deep waters up to 2,000 m in depth.	No Status	Not Assessed	Yes
Capelin	*Mallotus villosus*	Forage fish that ranges from shallow coastal waters to 700 m in depth and prey on plankton, worms and small fish.	No Status	Not Assessed	Yes
Thorny skate	*Amblyraja radiata*	Benthic species ranging from shallows to over 900 m in depth (Coad and Reist 2004).	No Status	Special Concern	Yes
Greenland shark	*Somniosus microcephalus*	Epibenthic and pelagic[g] species ranging from shallows to over 1,000 m in depth.	No Status	Not Assessed	Yes

[a] SARA (*Species at Risk Act*). The Act is a key federal government commitment to prevent wildlife species from becoming extinct and secure the necessary actions for their recovery. It provides for the legal protection of wildlife species and the conservation of their biological diversity (extracted from SARA 2012).

[b] COSEWIC (Committee on the Status of Endangered Wildlife in Canada) is a committee of experts that assesses and designates which wildlife species are in some danger of disappearing from Canada. It is up to Government to legally protect wildlife species designated by COSEWIC. The potential impacts of legal listing are for Government to analyse, and the *Species at Risk Act* (SARA) applies only to wildlife species on the SARA legal list (extracted from COSEWIC 2015).

[c] live on or near the seafloor.

[d] cold, deep marine environments.

[e] associated with the lower interface of the sea ice.

[f] live upon the seafloor.

[g] neither close to the bottom nor close to the shore.

No Status = species found in COSEWIC or SARA database but with no designation indicated; Not Assessed = species could not be found in either COSEWIC or SARA database; Special Concern = species at low density that does not qualify for threatened status; Not at Risk = species that has been evaluated and determined to be not at risk of extinction.

Table 3-A-3: Marine Mammals Harvested throughout the Year by Coastal Inuit Communities in Nunavut

Target species	Jan	Feb	Mar	April	May	June	July	Aug	Sept	Oct	Nov	Dec
Ringed seal	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Bearded seal	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Harp seal	✓			✓		✓	✓	✓	✓	✓	✓	
Hooded seal							✓	✓	✓	✓	✓	✓
Harbour seal							✓	✓	✓	✓	✓	
Walrus	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Beluga	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Narwhal	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Bowhead								✓				
Polar bear	✓	✓	✓	✓	✓					✓	✓	✓

Source: Priest and Usher (2004).

Table 3-A-4: Overview of Marine Mammal Species within the Hudson Bay / Hudson Strait Area

Common Name	Species	Seasonal Occurrence	Habitat	SARA Status[a]	COSEWIC Status[b]	Of Cultural, Economic or Subsistence Importance
Ringed seal	*Pusa hispida*	Year-round	Shore-fast ice and pack-ice	No Status	Not at Risk	Yes
Harp seal	*Pagophilus groenlandica*	Open-water season (July-Sept)	Pack-ice	No Status	No Status	Yes
Bearded seal	*Erignathus barbatus*	Year-round	Pack-ice	No Status	Data Deficient	Yes
Harbour seal	*Phoca vitulina concolor*	Year-round	Coastal terrestrial areas and edge of shore-fast ice	Not at Risk	Not at Risk	Yes
Hooded seal	*Cystophora cristata*	Open-water season (July-Sept)	Pack-ice	No Status	Not at Risk	Yes
Atlantic walrus	*Odobenus rosmarus*	Year-round	Pack-ice or coastal waters during summer; floe-edge / polynyas during winter	No Status	Special Concern	Yes
Polar bear	*Ursus maritimus*	Year-round	Spring: shore-fast ice; Summer: coastal areas and inland; and Winter: shore fast-ice and coastal areas for denning	Special Concern (Schedule 1)	Special Concern	Yes
Beluga whale	*Delphinapterus leucas*	Winter (Nov-May) and Summer	Spring: ice-edges/leads; Summer: shallow coastal areas (around Southampton Island and western Hudson Bay); Fall: deep water (foraging); Winter: offshore pack-ice (Hudson Strait)	Threatened (St. Lawrence River population), No status (Western Hudson Bay , Eastern Hudson Bay, Baffin Bay, Ungava Bay and Cumberland Sound populations)	Special Concern (Western Hudson Bay Population, Baffin Bay population) Endangered (Eastern Hudson Bay Population, Ungava Bay Population) Threatened (Cumberland Sound population, St. Lawrence River population)	Yes
Narwhal	*Monodon monoceros*	Year-round	Winter: deep water / edge of banks; Summer: fjords / coastal waters	No Status	Special Concern	Yes

Table 3-A-4: Overview of Marine Mammal Species within the Hudson Bay / Hudson Strait Area

Common Name	Species	Seasonal Occurrence	Habitat	SARA Status[a]	COSEWIC Status[b]	Of Cultural, Economic or Subsistence Importance
Bowhead whale	*Balaena mysticetus*	Winter (Feb-Jun)	Spring : along the ice-edge; Summer: open-water / pack-ice; Winter: heavy pack-ice	No Status (Eastern Canada-West Greenland Population)	Special Concern (Eastern Canada-West Greenland Population)	Yes
Killer whale	*Orcinus orca*	Jun-Aug	Coastal / offshore	No Status	Special Concern	No

[a] SARA (*Species at Risk Act*). The Act is a key federal government commitment to prevent wildlife species from becoming extinct and secure the necessary actions for their recovery. It provides for the legal protection of wildlife species and the conservation of their biological diversity (extracted from SARA 2012).

[b] COSEWIC (Committee on the Status of Endangered Wildlife in Canada) is a committee of experts that assesses and designates which wildlife species are in some danger of disappearing from Canada. It is up to Government to legally protect wildlife species designated by COSEWIC. The potential impacts of legal listing are for Government to analyse, and the *Species at Risk Act* (SARA) applies only to wildlife species on the SARA legal list (extracted from COSEWIC 2015).

No Status = species found in COSEWIC or SARA database but with no designation indicated; Not Assessed = species could not be found in either COSEWIC or SARA database; Special Concern = species at low density that does not qualify for threatened status; Data Deficient = information is insufficient to determine criteria or assign any status; Not at Risk = species that has been evaluated and determined to be not at risk of extinction; Threatened = species that is likely to become an endangered if nothing is done to reverse factors.

Table 3-A-5: Ecologically and Culturally Important Seabird Species Potentially Present within the Study Area

Common Name	Species	Seasonal Occurrence	Distribution	Other relevant information	*SARA* Status[a]	COSEWIC Status[b]	Of Cultural, Economic or Subsistence Importance
Black guillemot	*Cepphus grylle*	year-round	coastal / offshore	Harvested for subsistence. Nests in small colonies on steep shores on Southampton and Coats islands.	No Status	Not Assessed	Yes
Thick-billed murre	*Uria lomvia*	summer	coastal / offshore	Large breeding colony (520 000 pairs) on Akpatok Island in Hudson Strait. TK and IQ suggests that murres winter in large numbers in areas of open water west of the Belcher Islands in southeast Hudson Bay. Moulting adult birds with their young complete swimming migration in August from a number of known bird colonies in Hudson Bay through the Hudson Strait to offshore areas of Newfoundland and Labrador (Mallory and Fontaine 2004).	No Status	Not Assessed	Yes
King eider	*Somateria spectabilis*	year-round	coastal	Widely distributed in James Bay and Hudson Bay.	No Status	Not Assessed	Yes
Common eider	*Somateria mollissima*	year-round	coastal / offshore	Hudson Bay subspecies that overwinters in areas where open water and shallow depth coincide. Breeds along rocky coasts or tundra throughout Hudson Bay. Present along ice edge and at polynyas. Feed exclusively on blue mussel.	No Status	Not Assessed	Yes
Northern fulmar	*Fulmarus glacialis*	summer/ fall	coastal / offshore	Rare visitor to James Bay in late fall. Observed at Coats Island.	No Status	Not Assessed	No
Black-legged kittiwake	*Rissa tridactyla*	summer	coastal / offshore	Occurs on the open waters of northern Hudson Bay in July and August, and occasionally at Churchill in early summer.	No Status	Not Assessed	No
Dovekie	*Alle*	year-round	coastal / offshore	Winter offshore in Hudson Bay, Hudson Strait and Gulf of St. Lawrence.	No Status	Not Assessed	No
Long-tailed duck	*Clangula hyemalis*	May-Oct	coastal	Occur in large numbers close to shore in Hudson Bay and James Bay. Some individuals also overwinter on open water of James Bay.	No Status	Not Assessed	No
Canada goose	*Branta canadensis*	summer and fall	coastal	Spring and fall transient. Breeds in large numbers along the coasts (McConnell River Migratory Bird Sanctuary) and on the islands of Hudson Bay and James Bay (e.g., Southampton Island).	No Status	Not Assessed	Yes

Table 3-A-5: Ecologically and Culturally Important Seabird Species Potentially Present within the Study Area

Common Name	Species	Seasonal Occurrence	Distribution	Other relevant information	*SARA* Status[a]	COSEWIC Status[b]	Of Cultural, Economic or Subsistence Importance
Lesser snow goose	*Anser caerulescens*	May – Sept	coastal	Migratory species. Breeding colonies occur along the coasts (McConnell River Migratory Bird Sanctuary) and on the islands of Hudson Bay (e.g., Southampton Island). Hudson Bay supports over 50% of the eastern Arctic breeding population.	No Status	Not Assessed	Yes
Atlantic Brant	*Branta bernicla*	April to October	coastal	Migratory species. Breed on Southampton Island. During the fall migration, > 50% of the population frequents eelgrass habitat in James Bay.	No Status	Not Assessed	No
Glaucous gull	*Larus hyperboreus*	summer	coastal / offshore	Breed along the northern coasts of Hudson Bay, the Belchers, and widely throughout the Canadian Arctic.	No Status	Not Assessed	No
Herring gull	*Larus argentatus*	April-Nov	coastal / offshore	Migratory species. Breed along the coasts of Hudson Bay and James Bay in summer and in the Belchers.	No Status	Not Assessed	No
Ross's gull	*Rhodostethia rosea*	spring and autumn	coastal / offshore	Established nesting areas near Churchill, McConnell River Migratory Bird Sanctuary, and in the Canadian High Arctic (Devon Island). May overwinter in polynyas.	Threatened (Schedule 1)	Threatened	No
Ivory gull	*Pagophila eburnean*	year-round	coastal / offshore	Occur in Hudson Bay during both summer and winter, but breed in the Canadian High Arctic.	Endangered (Schedule 1)	Endangered	No
Sabine's gull	*Xema sabini*	summer	coastal / offshore	Migratory species. Breeds on colonies along the northern coasts of Hudson Bay. Pelagic outside breeding season.	No Status	Not Assessed	No
Thayer's gull	*Larus thayeri*	summer	coastal / offshore	Migratory species. Breeds along the coasts of northern Hudson Bay during summer including Coats and Southampton islands.	No Status	Not Assessed	No
Arctic tern	*Sterna paradisaea*	summer	coastal / offshore	Migratory species that breeds throughout the Hudson Bay and Hudson Strait.	No Status	Not Assessed	No
Pacific loon	*Gavia pacifica*	summer	coastal	Migratory species. Arctic breeding species common and numerous along the mainland and island coasts of the Hudson Bay coast.	No Status	Not Assessed	No
Red-throated loon	*Gavia stellata*	summer	coastal	Migratory species. Arctic breeding species common and numerous along the mainland and island coasts of Hudson Bay.	No Status	Not Assessed	No

Table 3-A-5: Ecologically and Culturally Important Seabird Species Potentially Present within the Study Area

Common Name	Species	Seasonal Occurrence	Distribution	Other relevant information	*SARA* Status[a]	COSEWIC Status[b]	Of Cultural, Economic or Subsistence Importance
Common loon	*Gavia immer*	summer	coastal	Migratory species. Common in southeastern Hudson Bay and James Bay.	No status	Not at Risk	No
Black scoter	*Melanitta americana*	summer	coastal	Migratory species. Common on the Belchers and along the coast from southeastern Hudson Bay west to Churchill. May overwinter in small numbers in James Bay.	No Status	Not Assessed	No
Red-breasted merganser	*Mergus serrator*	summer	coastal	Migratory species. Common along the coasts of James Bay and southwestern Hudson Bay. Males and non-breeding birds frequent coastal marine waters.	No Status	Not Assessed	No
Red-necked phalarope	*Phalaropus lobatus*	summer	coastal / offshore	Migratory species. Breeds widely across the Arctic and throughout Nunavut.	No status	Special Concern	No
Red phalarope	*Phalaropus fulcarius*	summer	coastal / offshore	Migratory species. Breeds along the west coast of Hudson Bay, on the Ungava Peninsula and on the southern end of Baffin Island in Nunavut.	No Status	Not Assessed	No
Parasitic jaeger	*Stercorarius parasiticus*	summer	coastal / offshore	Migratory species. Breed along the coast and islands of Hudson Bay.	No Status	Not Assessed	No
Long-tailed jaeger	*Stercorarius longicaudus*	summer	coastal / offshore	Migratory species. Breeds along the Quebec coast of Hudson Bay, on Southampton Island, and along the Kivalliq coast.	No Status	Not Assessed	No
Pomarine jaeger	*Stercorarius pomarinus*	summer	coastal / offshore	Migratory species. Breeds along the Quebec coast of Hudson Bay and on Southampton Island.	No Status	Not Assessed	No
Sandhill crane	*Grus canadensis*	summer	coastal	Migratory species. Summer visitors to the southern and western coasts of James Bay and Hudson Bay, from Boatswain west and north. Also reported on the Belchers and Southampton islands.	No status	Not at Risk	No
Dunlin	*Calidris alpina*	summer	coastal	Migratory species. Breeds along the west coast of Hudson Bay, on Southampton and Coats islands and on the southern end of Baffin Island in Nunavut.	No Status	Not Assessed	No
Semi-palmated sandpiper	*Calidris pusilla*	summer	coastal	Migratory species. Breeds in Hudson Bay including Southampton Island, Coats Island and the southern end of Baffin Island.	No Status	Not Assessed	No

Table 3-A-5: Ecologically and Culturally Important Seabird Species Potentially Present within the Study Area

Common Name	Species	Seasonal Occurrence	Distribution	Other relevant information	*SARA* Status[a]	COSEWIC Status[b]	Of Cultural, Economic or Subsistence Importance
Least sandpiper	*Calidris minutilla*	summer	coastal	Migratory species. Common breeder on the mainland shores of Hudson Bay south of Chesterfield Inlet in the west and Inukjuak in the east	No Status	Not Assessed	No
White-rumped sandpiper	*Calidris fuscicollis*	summer	coastal	Migratory species that breeds on the southern tip of Baffin Island and on the northwestern side of the Hudson Bay.	No Status	Not Assessed	No
Baird's sandpiper	*Calidris bairdii*	summer	coastal	Migratory species that breeds on the northern end of Baffin Island and in the coastal areas of the northern Foxe Basin.	No Status	Not Assessed	No
Pectoral sandpiper	*Calidris melanotos*	summer	Coastal	Migratory species that breeds along the northwest coast of the Hudson Bay, on Southampton and Coats islands in Nunavut.	No Status	Not Assessed	No
American golden plover	*Pluvialis dominica*	summer	Coastal	Migratory species that breed along the shores of Hudson Bay and James Bay and Southampton Island.	No Status	Not Assessed	No
Semi-palmated plover	*Charadrius semipalmatus*	summer	Coastal	Migratory species that breed along the shores of Hudson Bay and James Bay.	No Status	Not Assessed	No
Black-bellied plover	*Pluvialis squatarola*	summer	Coastal	Migratory species that breeds on the shores of northern Hudson Bay and Southampton Island.	No Status	Not Assessed	No
Ruddy turnstone	*Arenaria interpres*	summer	Coastal	Migratory species that breeds on the southern end of Baffin Island, along the coastal areas of the northern Foxe Basin, and on Southampton Island and Coats Island.	No Status	Not Assessed	No
Sanderling	*Calidris alba*	spring / summer	Coastal	Migratory species. Common spring migrant along the coast near Churchill en-route to its breeding grounds in the Arctic.	No Status	Not Assessed	No

Table 3-A-5: Ecologically and Culturally Important Seabird Species Potentially Present within the Study Area

Common Name	Species	Seasonal Occurrence	Distribution	Other relevant information	*SARA* Status[a]	COSEWIC Status[b]	Of Cultural, Economic or Subsistence Importance
Red knot	*Calidris canutus*	summer	Coastal	Migratory species. Hudson Bay ecosystem provides critical resources for this species.	Endangered *rufa* ssp. (Schedule 1) Threatened-*roselaari* ssp. (Schedule 1) Special Concern-*islandica* ssp. (Schedule 1)	Endangered -*rufa* ssp. Threatened-*roselaari* ssp. Special Concern-*islandica* ssp.	No
Peregrine falcon	*Falco peregrinus*	summer	coastal	Breed and hunt along the coasts of Hudson Bay and James Bay in summer. Breed in areas with high to moderate relief along the Hudson Bay coast of Manitoba, Nunavut, and northern Quebec and on Southampton, Coats and the Belcher and Nastapoka islands	Special Concern-*anatum/tundrius* ssp. (Schedule 1)	Special Concern-*anatum/tundrius* ssp.	No
Snowy owl	*Bubo scandiacus*	summer	coastal	Breed and forage along the coasts of Hudson Bay and James Bay	No status	Not at Risk	No

[a] SARA (*Species at Risk Act*). The Act is a key federal government commitment to prevent wildlife species from becoming extinct and secure the necessary actions for their recovery. It provides for the legal protection of wildlife species and the conservation of their biological diversity (extracted from SARA 2012).

[b] COSEWIC (Committee on the Status of Endangered Wildlife in Canada) is a committee of experts that assesses and designates which wildlife species are in some danger of disappearing from Canada. It is up to Government to legally protect wildlife species designated by COSEWIC. The potential impacts of legal listing are for Government to analyse, and the *Species at Risk Act* (SARA) applies only to wildlife species on the SARA legal list (extracted from COSEWIC 2015).

No Status = species found in COSEWIC or SARA database but with no designation indicated; Not Assessed = species could not be found in either COSEWIC or SARA database; Special Concern = species at low density that does not qualify for threatened status; Data Deficient = information is insufficient to determine criteria or assign any status; Not at Risk = species that has been evaluated and determined to be not at risk of extinction; Threatened = species that is likely to become an endangered if nothing is done to reverse factors; Endangered = species facing imminent extinction.

Table 3-A-6: Ecologically and Biologically Significant Areas (EBSAs) in the Vicinity of the Study Areas

Region	EBSA	Key Ecological and Biological Features
Hudson Bay	Southhampton Island (including Coats Island) (EBSA 1.5)	▪ High marine productivity driven by dynamic oceanographic mixing ▪ Habitat for Atlantic walrus (Special Concern under COSEWIC) during summer and winter ▪ Migration routes for beluga and EC-WG bowhead whales (Special Concern under COSEWIC) during spring and fall ▪ Important polar bear denning and summer refuge habitat ▪ Important nesting habitat for thick-billed murre, common eider, and black guillemot
	Western Hudson Bay (Whale Cove to Arviat) (EBSA 1.6)	▪ Important habitat for beluga and killer whales ▪ Dense kelp beds along coastline ▪ Important Arctic char stocks which, along with marine mammal populations, are used for subsistence harvesting (DFO 2011b)
	Western Hudson Bay / Churchill / Nelson / Seal River Estuaries (EBSA 1.7)	▪ World's largest summer aggregation of beluga whales (in the Nelson River estuary) ▪ Important Western Hudson Bay polar bear denning and feeding habitat; the Western Hudson Bay polar bear population is listed as Threatened under *The Endangered Species Act* of Manitoba (Government of Manitoba 1990) ▪ Important bird habitat in the Seal River estuary, identified as an Important Bird Area in 1999 and significant migrating habitat for global Black Scoter populations
Hudson Strait	West and Central Hudson Strait (1.10)	▪ Unique oceanographic environment with influence of Arctic and Atlantic ocean waters ▪ Seasonal migration route for marine mammal species (i.e. beluga whales, bowhead whales, narwhal) which spend at least part of their year in Hudson Bay, Foxe Basin, Hudson Strait and/or Davis Bay ▪ Winter habitat for walrus on shorelines, ice flows and islands ▪ Nesting and feeding habitat for thick-billed murre, common eider, and a small population of Atlantic puffin
	Eastern Hudson Strait (EBSA 1.11)	▪ Overwintering habitat for Hudson Bay beluga and thousands of bowhead whales ▪ Important area for shrimp; part of Canadian Shrimp Fishing Area #3 overlaps with eastern Hudson Strait ▪ Habitat for Greenland halibut ▪ High concentrations of soft corals and sponge beds near outflow of Hudson Strait (Kenchington et al. 2011)
	Ungava Bay (EBSA 1.12)	▪ Habitat for Ungava Bay beluga population listed as *Endangered* under COSEWIC (under consideration for designation under SARA) ▪ Nesting and breeding habitat for black guillemot, common eider and largest number of breeding thick-billed murres in Canada ▪ Denning and rearing habitat for Davis Strait population of polar bear in summer

Table 3-A-7: Environment Canada Key Marine Habitat Sites for Migratory Birds in the Vicinity of the Project Area

Site Name	Sensitivities	Biological Significance	Status	Size (km^2)	
				Marine	Land
Coats Island near Cape Pembroke	Sensitive to disturbance of important nesting sites along coast, important foraging grounds and staging / breeding areas in the marine environment, and key migratory corridors. Concerns around increases in vessels in the area coming close to Coats and Walrus islands.	Important nesting areas occur on Coats Island for seabirds (thick-billed murre, common eider, and black guillemot), which feed on aggregations of marine fish (e.g., capelin and Arctic cod). Glaucous gull and peregrine falcon can be found along the cliffs at the colonies. Home to a large Iceland gull (*Larus glaucoides*) colony and the largest single colony of common eider in Nunavut occurs in East Bay.	International Biological Programme site (Region 9, Site No. 6-3) and an IBA (NU005).	1,918	0
Digges Sound	Sensitive to disturbance of important nesting sites along coast, important foraging grounds and staging / breeding areas in the marine environment, and key migratory corridors. Concerns around increases in vessels in the area. Colonies are considered to be some of the most disturbed by human activities in the Canadian Arctic.	20% of North American population of thick-billed murre and a small colony of Atlantic puffin (*Fratercula arctica*) and razorbill (*Alca torda*) occur near Digges Sound. 10% of the Canadian population of common eider breed and feed near Markham Bay. Other species that also breed here are black guillemot, glaucous gull, Iceland gull, herring gull, and Arctic tern.	International Biological Programme site (Region 9, Site No. 6-7) and an IBA in Canada (NU001).	2,207	102
Frobisher Bay	Sensitive to disturbance of important nesting sites along coast, important foraging grounds and staging / breeding areas in the marine environment, and key migratory corridors. Concerns around increases in vessels in the area and potential hydrocarbon exploration. The complex nature of currents in the region suggests that a potential oil spill in southern Davis Strait could reach this marine area.	Colony represents 3% of the Canadian thick-billed murre population. Glaucous gull, black-legged kittiwake, and possibly Northern fulmar breed here. Nearby Loks Land is thought to support Nunavut's largest known colony of razorbill (not been visited since 1953). Dovekies congregate off the Hall Peninsula in August. An important nesting, feeding, and migration stop-over for common eider, Iceland gull, ivory gull, and harlequin duck (*Histrionicus histrionicus*). Canada goose and long-tailed ducks may also be found here.	Hantzsch Island is an International Biological Programme site (Region 9, Site No. 7-10) and a Canadian IBA (NU025).	12,442	1,336

Table 3-A-7: Environment Canada Key Marine Habitat Sites for Migratory Birds in the Vicinity of the Project Area

Site Name	Sensitivities	Biological Significance	Status	Size (km^2)	
				Marine	Land
Button Islands	Sensitive to disturbance of important nesting sites along coast, important foraging grounds and staging / breeding areas in the marine environment, and key migratory corridors. Concerns around increases in vessels in the area and potential hydrocarbon exploration. The complex nature of currents in the region suggests that oil spills in southern Davis Strait could enter this marine area. Oil spills associated with shipping could endanger a large number of marine birds and pollute their feeding areas.	Black-legged kittiwake and northern fulmar forage near the Button Islands. Ivory gulls and common eider have been observed. Thick-billed murre breed here.	International Biological Programme site (Region 9, Site No. 6-8).	3,909	81
Akpatok Island	Sensitive to disturbance of important nesting sites along coast, important foraging grounds and staging / breeding areas in the marine environment, and key migratory corridors - particularly for murres. Shoreline around Akpatok Island is considered to be “high hazardous risk of oil spills”. Concerns around increases in vessels in the area and potential hydrocarbon exploration. The complex nature of currents in the region suggests that oil spills in southern Davis Strait could reach this marine area. Oil spills associated with shipping could endanger a large number of marine birds and pollute their feeding areas.	Large breeding colony of thick-billed murre. Black guillemots also nest along the Akpatok Island coast. Black guillemot nest along the island’s coast. Peregrine falcon and glaucous gull also breed here.	International Biological Programme site (Region 9, Site No. 6-6) and an IBA in Canada (NU007).	4,943	859

Table 3-A-7: Environment Canada Key Marine Habitat Sites for Migratory Birds in the Vicinity of the Project Area

Site Name	Sensitivities	Biological Significance	Status	Size (km^2)	
				Marine	Land
Ungava Bay Archipelagoes	Sensitive to disturbance of important nesting sites along coast, important foraging grounds and staging / breeding areas in the marine environment, and key migratory corridors.	Support a large portion of breeding common eider. Eider occur in this area from April through October	The Plover and Payne, Gyrfalcon, and north eastern Ungava Bay islands are Canadian IBA (NU027, NU028, NU029).	5,624	5
Sleeper Islands	Degradation of staging and foraging areas, particularly for eiders. Potential hydrocarbon exploration. Prevailing west and north west winds render the east coast of the Bay most susceptible to oil damage.	Common eiders nest here in the summer months. Over 30 species of birds have been observed in the Sleeper Islands.	IBA site (NU033).	1,880	90
Belcher Islands	Degradation of staging and foraging areas, particularly for eiders. Excessive harvest of down from breeding colonies. Potential hydrocarbon exploration. Prevailing west and north west winds render the east coast of the Bay most susceptible to oil damage.	Common eider nest here in the summer. In the winter, polynyas and the floe edge support substantial numbers of common eider and long-tailed duck.	The North Belcher and South Flaherty islands are Canadian IBA (NU031, NU100).	5 to 15 recurrent, small polynyas	
Northern Ontario Coastline	Degradation of staging and foraging areas, particularly for ducks. Potential hydrocarbon exploration.	Black scoter moult along this marine area feeding on blue mussels and other molluscs. Common eiders are year-round residents. Canada geese and lesser snow geese make use of coastal areas.	Waters in James Bay are part of the James Bay Preserve.	7,860	41

Table 3-A-7: Environment Canada Key Marine Habitat Sites for Migratory Birds in the Vicinity of the Project Area

Site Name	Sensitivities	Biological Significance	Status	Size (km^2)	
				Marine	Land
Markham Bay	Disturbance and sensitivity to potential pollution of foraging, staging and migrating areas.	Support a large portion of breeding common eider. Support substantial numbers of Kumlien's gull (*Larus glaucoides kumlieni*) and black guillemot. Eiders occur in this area from April through October.	No special designation.	4,015	423
East Bay	Disturbance and sensitivity to potential pollution of foraging, staging and migrating areas.	Supports Arctic Canada's largest single colony of common eider. Supports colony of black guillemot and a large population of lesser snow goose. Substantial numbers of Atlantic brant and Sabine's gull also breed here. Supports some of the highest known breeding densities of shorebirds in the eastern Arctic. Red phalarope are the most common shorebirds.	Migratory Bird Sanctuary and a Canadian IBA (NU023).	274	1

km^2= square kilometres.

Table 3-A-8: Summary of Vessel Traffic Encountered in Hudson Strait by Industry Sector between 2007 and 2013

Sector	% of Traffic	Traffic Assessment
Domestic Supply	54	Domestic resupply/sealift operations for communities in Eastern Arctic which are dependent on operations for consumer, commercial, and construction needs.
Mining and Mineral Extraction	14	Supply to and export from Ragland and Nunavik mines, supply to Baker Lake.
Oil and Gas Exploration	1	Currently no development occurring in Hudson Strait. Vessels use Strait to access Hudson Bay and enter/exit Arctic Archipelago and Northwest Passage.
Shipping	15	Frequent bulk carrier exports of grain to foreign destinations.
Fishing	1	Small numbers of fishing vessels pass through Hudson Strait in transit between NAFO fishing zones and home ports.
Government Activities	9	Coast Guard icebreakers perform research activities, navigational assistance, community visits, etc.
Tourism	5	Passenger vessels used to access interior Arctic and Hudson Bay.
Other	1	Scientific research and ocean survey vessels perform research, tugs assist with towage.

Source: adapted from WWF Canada (2015).

Table 3-A-9: Vessels in Hudson Strait between 2007 and 2013

Vessel Type	Average Annual Vessels	Average Annual Transits
Bulk Carrier	17	27
General Cargo	13	71
Fishing Vessel	3	5
Tanker	8	34
Tug	6	14
Passenger Vessel	5	9
Government Icebreaker	6	11
Other	2	3

Source: adapted from WWF Canada (2015).

Table 3-A-10: Potential Pathways for Effects on Marine Environment and Marine Wildlife

#	Project Activity	Valued Components				Effects Pathways	Environmental Design Features and Mitigation	Pathway Assessment
		Water quality	Marine Mammals	Marine Fish	Marine Birds			
1	Marine operations including navigation in the shipping corridor and the channel of Chesterfield Inlet and reloading (lightering) of fuel and dry goods from ocean-going ships onto barges	X	X	X	X	Solid waste, grey water, and bilge water discharges from ships may result in direct adverse effects on marine water quality in the proposed shipping corridor and associated adverse effects on marine wildlife and their habitats.	Adherence to MARPOL Convention, Protocols and Annexes as set out by the International Maritime Organization (IMO 2008; MARPOL 73/78). Adherence to mitigation outlined in Agnico Eagle's Shipping Management Plan (Volume 8, Appendix 8-D.5).	Secondary
2			X	X	X	Introduction of exotic marine species (including pathogens) from ship ballast water exchange during seasonal shipping events can affect native marine wildlife VCs.	Adherence to Ballast Water Management Plan (BWMP) as defined in the Shipping Management Plan (Volume 8, Appendix 8-D.5). Adherence to mitigation outlined in Agnico's Shipping Management Plan (Volume 8, Appendix 8-D.5).	Secondary
3		X	X	X	X	Antifouling toxins (e.g., tributyltin) potentially leaching from Project vessels can have an effect on the marine environment and bio-accumulation in marine food chains.	Adherence to MARPOL Convention, Protocols and Annexes as set out by the International Maritime Organization (IMO 2008; MARPOL 73/78). Adherence to mitigation outlined in Agnico Eagle's Shipping Management Plan (Volume 8, Appendix 8-D.5).	Secondary

Table 3-A-10: Potential Pathways for Effects on Marine Environment and Marine Wildlife

#	Project Activity	Valued Components				Effects Pathways	Environmental Design Features and Mitigation	Pathway Assessment
		Water quality	Marine Mammals	Marine Fish	Marine Birds			
4	Marine operations including navigation in the shipping corridor and the channel of Chesterfield Inlet and reloading (lightering) of fuel and dry goods from ocean-going ships onto barges	X	X	X	X	Accidents and malfunctions could result in fuel spills with direct adverse effects on marine water quality and associated adverse effects on marine wildlife VCs and their habitats.	Adherence to Spill Contingency Plan (Volume 8, Appendix 8-D.6). Adherence to Emergency Response Plan (Volume 8, Appendix 8-D.3). Adherence to Shipping Management Plan (Volume 8, Appendix 8-D.5). Adherence to Oil Pollution Emergency Plan (OPEP; Volume 8, Section 8.3.4.6). Compliance with Shipboard Oil Pollution Emergency Plan (SOPEP). Adherence to MARPOL Convention, Protocols and Annexes as set out by the International Maritime Organization (IMO 2008; MARPOL 73/78); *Canada Shipping Act*; and *Arctic Waters Pollution Prevention Act*. Operational activities have been engineered to use contained handling systems to minimize the risk of accidental spills into the marine environment.	Primary
5		X	X	X	X	Accidental spills from spills of dry cargo (loading and offloading barges) can have direct adverse effects on marine water quality and associated adverse effects on marine wildlife VCs and their habitats.	See Item 4	Secondary

Table 3-A-10: Potential Pathways for Effects on Marine Environment and Marine Wildlife

#	Project Activity	Valued Components				Effects Pathways	Environmental Design Features and Mitigation	Pathway Assessment
		Water quality	Marine Mammals	Marine Fish	Marine Birds			
6	Marine operations including navigation in the shipping corridor and the channel of Chesterfield Inlet and reloading (lightering) of fuel and dry goods from ocean-going ships onto barges		X	X	X	Alteration in marine wildlife behavior due to underwater noise from vessel activities	Vessels will follow established navigation lanes in LSA, maintaining a constant course and constant speed. Implementation of vessel speed restrictions: <14 knots in shipping lanes. Avoidance of rapid accelerations. To the extent possible, vessel will shut-down vessel engines and propellers while anchored. Vessels will not approach within 300 m of a walrus or polar bear on sea ice, or any mammal engaged in feeding activities. For all other mammal encounters, vessels will not approach within 100 m. If a mammal approaches within 100 m of a vessel, the vessel shall reduce its speed and, if possible, cautiously move away from the animal. If a vessel is unable to detour around a stationary marine mammal, it shall reduce its speed and wait until the animal(s) moves at least 100 m from the vessel prior to resuming speed. The vessel shall not be operated in such a way as to separate an individual member(s) of a group of marine mammals from other members of the group. Adherence to all other mitigation outlined in Agnico Eagle's Shipping Management Plan (Volume 8, Appendix 8-D.5).	Primary (Marine Mammals); Secondary (Marine Fish); No Linkage (Marine Birds)

Table 3-A-10: Potential Pathways for Effects on Marine Environment and Marine Wildlife

#	Project Activity	Valued Components				Effects Pathways	Environmental Design Features and Mitigation	Pathway Assessment
		Water quality	Marine Mammals	Marine Fish	Marine Birds			
7	Marine operations including navigation in the shipping corridor and the channel of Chesterfield Inlet and reloading (lightering) of fuel and dry goods from ocean-going ships onto barges		X		X	Vessel movements in the shipping corridor may result in collisions with marine mammals	Adherence to mitigation outlined in Agnico Eagle's Shipping Management Plan (Volume 8, Appendix 8-D.5) (see above).	Primary
8					X	Vessel lighting at night may result in marine bird mortality or injury due to collisions with vessels (sensory disturbance)	Where feasible, lights on ships will be minimized to mandatory navigational lighting or shielded and/or angled to minimize direct illumination and reflection of the sea surface. Navigation will occur during summer when daylight is extended, minimizing the need for lighting. Vessels will maintain a minimum distance of 200 m from nesting locations in accordance with best management practices for raptor conservation (Demarchi et al. 2005)	Primary
9					X	Alteration of marine bird behavior due to vessel lighting at night and in-air noise during ship-to-ship loading (lightering)	Activities will be scheduled during daylight hours whenever practical to minimize the need for staging lights. Work will occur during summer when daylight is extended, minimizing the need for site lighting. Lightering occurs at approximately 1 km distance from the shore and no large bird concentrations were previously reported in this area, therefore in-air noise disturbance for birds will be negligible	Primary

Table 3-A-11: Residual Impacts Classification and Determination of Significance on Marine Wildlife Valued Components

Pathway	Magnitude		Geographic Extent		Duration	Frequency	Reversibility	Likelihood	Significance for Assessment Endpoint
	Incremental	Cumulative	Incremental	Cumulative					
Marine Fish and Fish Habitat									
Mortality and health effect from minor fuel spill	Moderate	Moderate	Local	Local	Short-term	Isolated	Reversible	Unlikely	Not Significant
Mortality and health effect from major fuel spill	High	High	Regional to Beyond Regional	Regional to Beyond Regional	Medium-term	Isolated	Reversible	Unlikely	Not Significant
Change in Habitat Quality due to minor spill	Moderate	Moderate	Local	Local	Short-term	Isolated	Reversible	Unlikely	Not Significant
Change in Habitat Quality due to Major spill	High	High	Regional to Beyond Regional	Regional to Beyond Regional	Medium-term	Isolated	Reversible	Unlikely	Not Significant
Marine Mammals									
Mortality and health effect from minor fuel spill	Low	Low	Local	Local	Short-term	Isolated	Reversible	Unlikely	Not Significant
Mortality and health effect from major fuel spill	High	High	Regional to Beyond Regional	Regional to Beyond Regional	Medium-term	Isolated	Reversible	Unlikely	Not Significant
Change in Habitat Quality due to minor spill	Low	Low	Local	Local	Short-term	Isolated	Reversible	Unlikely	Not Significant
Change in Habitat Quality due to Major spill	High	High	Regional to Beyond Regional	Regional to Beyond Regional	Medium-term	Isolated	Reversible	Unlikely	Not Significant
Mortality and Injury Risk due to Vessel Collision	Low	Moderate	Local	Regional to Beyond Regional	Medium-term	Isolated	Reversible	Possible	Not Significant
Change in Behaviour due to Underwater Noise	Low	Moderate	Regional	Regional to Beyond Regional	Short-term	Periodic	Reversible	Likely	Not Significant
Marine Birds									
Mortality and Health Effect from Minor Fuel Spill	Low	Low	Local	Local	Short-term	Isolated	Reversible	Unlikely	Not Significant

Table 3-A-11: Residual Impacts Classification and Determination of Significance on Marine Wildlife Valued Components

Pathway	Magnitude		Geographic Extent		Duration	Frequency	Reversibility	Likelihood	Significance for Assessment Endpoint
	Incremental	Cumulative	Incremental	Cumulative					
Mortality and Health Effect From Major Fuel Spill	High	High	Regional to Beyond Regional	Regional to Beyond Regional	Medium-term	Isolated	Reversible	Unlikely	Not Significant
Change in Habitat Quality due to minor spill	Low	Low	Local	Local	Short-term	Isolated	Reversible	Unlikely	Not Significant
Change in Habitat Quality due to Major spill	High	High	Regional to Beyond Regional	Regional to Beyond Regional	Medium-term	Isolated	Reversible	Unlikely	Not Significant
Mortality and Injury Risk due to Collision with Vessels	Low	Low	Local	Regional to Beyond Regional	Medium-term	Isolated	Reversible	Unlikely	Not Significant
Change in behaviour due to In-air Noise and Vessel Lighting	Low	Moderate	Local	Regional to Beyond Regional	Medium-term	Periodic	Reversible	Likely	Not Significant