



Aboriginal Affairs and
Northern Development Canada

Affaires autochtones et
Développement du Nord Canada

LAND USE PERMIT
NORTHERN AFFAIRS PROGRAM

PERMIS D'UTILISATION DES TERRES
PROGRAMME DES AFFAIRES DU NORD

Permit Class - Permis Catégorie

A

Permit No - NE de permis

N2014N0021

Subject to the Territorial Land Use Regulations and the terms and conditions in this permit, authority is hereby granted to:

Sous réserve du Règlement sur l'utilisation des terres territoriales et des conditions de ce permis:

Dr. RAY T. ALISAUSKAS

Permittee - Détenteur de permis

To proceed with the land use operation described in the application of:

Est autorisé à entreprendre les travaux d'exploitation des terres décrits dans la demande de permis du:

Signature

Dr Ray T. Alisauskas

Date

December 8, 2014

Type of Land Use Operation - Genre de travaux d'exploitation des terres

Research Project

Location - Emplacement

Karrak Lake, Kitikmeot, NU, NTS 66N01

The conditions attached to this permit are incorporated into and form an integral part of the permit.

Les conditions attachées à ce permis en font partie intégrante.

This permit may be assigned, extended, discontinued, suspended or cancelled pursuant to the Territorial Land Use Regulations.

Ce permis peut faire l'objet d'une cession, d'une prolongation d'une cessation d'une suspension ou d'une annulation, en vertu du Règlement sur l'utilisation des terres territoriales.

Dated at

Date à **Iqaluit**

Engineer

Ingénieur

This

Ce **8th** Day of **December**, **2014** jour de

Commencement Date

Date du début des travaux **December 8th, 2014**

Expiry Date

Date d'achèvement **December 7th, 2016**

NOTE

IT IS A CONDITION OF THIS PERMIT THAT THE PERMITTEE COMPLY WITH ANY OTHER APPLICABLE ACT, REGULATION, ORDINANCE BY - LAW OR ORDER DEFAULT HEREOF MAY RESULT IN SUSPENSION OR CANCELLATION OF THIS PERMIT.

REMARQUE

LE DÉTENTEUR DU PRÉSENT PERMIS DOIT SE CONFORMER À TOUT AUTRE RÈGLEMENT, LOI, DÉCRET RÈGLEMENT MUNICIPAL OU ARRÊTÉ APPLICABLE. LE MANQUEMENT À CETTE OBLIGATION POURRAIT DONNER LIEU À LA SUSPENSION OU À L'ANNULATION DU PERMIS.

Canada

**CONDITIONS ANNEXED TO AND FORMING PART
OF LAND USE PERMIT NUMBER N2014N0021**

31 (1) (a) - Location and Area

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| 1 | The Permittee shall not conduct this land use operation on any lands not designated in the accepted application, unless otherwise authorized in writing by the Engineer. | PLANS |
| 2 | The Permittee shall remove from Territorial Lands, all scrap metal, discarded machinery and parts, barrels and kegs, buildings and building material. | REMOVE WASTE MATERIAL |
| 3 | The Permittee shall locate all camps on gravel, sand or other durable land. | CAMP LOCATION |
| 4 | The Permittee shall provide exact GPS coordinates of the camp location within ten (10) days of the establishment to the Inspector and Engineer. | UPDATE LOCATION |

31 (1) (b) – Time

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| 5 | The Permittee's Field Supervisor shall contact or meet with a Land Use Inspector at the Kugluktuk office of the Department of Aboriginal Affairs and Northern Development, phone number (867)982-4306, at least 48 hours prior to the commencement of this land use operation. | CONTACT INSPECTOR |
| 6 | The Permittee's Field Supervisor shall provide notification of commencement of the land use operation to the Engineer at the Iqaluit office of the Department of Aboriginal Affairs and Northern Development Canada either by emailing landsmining@aandc.gc.ca or by telephone at (867) 975-4283. | NOTICE TO ENGINEER |
| 7 | <p>The Permittee shall advise a Land Use Inspector at least 10 days prior to the completion of the land use operation of ;</p> <p>a) the plan for removal or storage of equipment and materials, and</p> <p>b) when final clean-up and restoration of the lands used will be completed.</p> | REPORTS BEFORE REMOVAL |
| 8 | <p>The Permittee shall submit an annual report to the Engineer by March 30th of each year of permitted activities. The annual report must contain, but not limited to, the following information:</p> <p>a) A summary of activities undertaken for the year including</p> <p>b) A map showing the following items with exact coordinates (degrees/min/sec, in NAD 83):</p> <p>i. All camp locations</p> <p>ii. Air strip and landing location</p> <p>iii. All drilling locations</p> <p>iv. All fuel caches</p> <p>v. Any other location where activities were conducted</p> <p>c) A work plan for the following year, including any progressive reclamation work undertaken.</p> | ANNUAL REPORT |

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| 9 | The Permittee shall complete all clean-up and restoration of the lands used prior to the expiry date of this permit. | CLEAN-UP |
| 10 | The Engineer reserves the right to impose closure to any area to the Permittee in periods when dangers to natural resources are severe. | CLOSURE |

31 (1) (c) - Equipment

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| 11 | The Permittee shall not use any equipment except of the type, size and number that is listed in the accepted application, unless otherwise authorized in writing by the Land Use Inspector. | ONLY APPROVED EQUIPMENT |
| 12 | The Permittee shall keep all garbage and debris in a covered metal container until disposed of. Garbage should be stored in such a manner as to prevent access by wildlife. | GARBAGE CONTAINERS |
| 13 | The Permittee shall burn all combustible garbage and debris in a container acceptable to a Land Use Inspector | INCINERATION |

31 (1) (d) - Methods and Techniques

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| 14 | The Permittee shall not erect camps or store material on the surface ice of streams. | STORAGE ON ICE |
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31 (1) (e) - Type, Location, Capacity and Operation of Facilities

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| 15 | The Permittee shall not erect camps or store materials on the surface ice of lakes or streams, except that which is for immediate use. | CAMPS |
| 16 | The Permittee shall ensure that all camps are located on gravel, sand or other durable land. | TEMPORARY CAMPS |
| 17 | The Permittee shall protect the ground surface beneath all structures to prevent any vegetation present from being removed, the melting of permafrost, and ground settling and/or eroding. | PROTECT GROUND SURFACE |
| 18 | The Permittee shall not locate any sump within thirty-one (31) metres of the normal high water mark of any water body. | SUMPS FROM WATER |
| 19 | The Permittee shall backfill and restore all sumps prior to the expiry date of this permit. | BACKFILL SUMPS |
| 20 | The Permittee shall ensure that the land use area is kept clean and tidy at all times. | CLEAN WORK AREA |

31 (1) (f) - Control or Prevention of Flooding, Erosion and Subsidence of Land

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| 21 | The Permittee shall ensure that no disturbance of the stream bed or banks of any definable watercourse be permitted. | STREAM BED |
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| 22 | The Permittee shall install erosion control structures as the land use operation progresses unless otherwise authorized by a Land Use Inspector. | EROSION CONTROL |
| 23 | The Permittee shall prepare the site in such a manner as to prevent rutting of the ground surface. | PREVENTION OF RUTTING |
| 24 | The Permittee shall not move any equipment or vehicles unless the ground surface is in a state capable of fully supporting the equipment or vehicles without rutting or gouging. | VEHICLE MOVEMENT FREEZE-UP |
| 25 | The Permittee shall suspend overland travel of equipment or vehicles if rutting occurs. | SUSPEND OVERLAND TRAVEL |
| 26 | The Permittee shall not move any equipment or vehicles without prior testing of the thickness of the ice to ensure the lake is in a state capable of fully supporting the equipment or vehicles. | TESTING OF ICE THICKNESS |
| 27 | The Permittee shall ensure that all disturbed areas are restored to a stable or pre-disturbed state as practical as possible upon completion of field work. | RESTORATION OF DISTURBED AREAS |
| 28 | The Permittee shall remove all garbage, fuel and equipment upon abandonment. | REMOVE GARBAGE |

31 (1) (g) - Use, Storage, Handling and Disposal of Chemical or Toxic Material

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| 23 | The Permittee shall not use chemicals in connection with the land use operation without the prior approval of the Engineer. | APPROVAL OF CHEMICALS |
| 30 | The Permittee shall store all fuel and chemicals in such a manner that they are inaccessible to wildlife. | FUEL AND CHEMICAL STORAGE |
| 31 | The Permittee shall locate all fuel and other hazardous materials a minimum of thirty-one (31) metres away from the high water mark of any water body and in such a manner as to prevent their release into the environment. | FUEL AND CHEMICALS BY WATER |
| 32 | The Permittee shall deposit all sewage into a sump. | SEWAGE DISPOSAL |
| 33 | The Permittee shall remove all garbage and debris from the land use area to a disposal site approved in writing by a Land Use Inspector. | REMOVE GARBAGE |
| 34 | The Permittee shall dispose of all combustible waste petroleum products by removal. | WASTE PETROLEUM DISPOSAL |

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| 35 | The Permittee shall dispose of all toxic or persistent substances in a manner as approved in writing by the Engineer. | WASTE CHEMICAL DISPOSAL |
| 36 | The Permittee shall use drip pans or other equivalent device when refueling equipment on-site. Appropriate spill response equipment and clean-up materials (e.g., shovels, pumps, barrels, drip pans and absorbents) must be readily available during any transfer of fuel or hazardous substances. | SPILL RESPONSE |
| 37 | The Permittee shall ensure that all personnel are properly trained in fuel and hazardous waste handling procedures as well as spill response procedures. | TRAINING |
| 38 | The Permittee shall report all spills immediately in accordance with instructions contained in "Spill Report" form NWT 1752(05/93). Twenty four (24) hour spill report line (867)920-8130. | REPORT CHEMICAL AND PETROLEUM SPILLS |
| 39 | The Permittee shall remove and treat hydrocarbon contaminated soils on site or transport them to an approved disposal site for treatment. | CONTAMINATED SOIL |
| 40 | The Permittee shall dispose of non-hazardous materials only at the landfill and shall limit this disposal to those materials listed as acceptable for disposal. Hazardous materials, materials listed as unacceptable for disposal at the landfill, or materials that contain asbestos, fluorescent tubes or ozone depleting substances are not to be disposed of in the landfill and must be disposed of at an authorized facility. | DISPOSAL OF HAZARDOUS MATERIALS |

31 (1) (h) - Wildlife and Fisheries Habitat

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| 41 | The Permittee shall not unnecessarily damage wildlife habitat in conducting this land use operation. | HABITAT DAMAGE |
| 42 | The Permittee shall not harass wildlife. This includes persistently worrying or chasing animals, or disturbing large groups of animals. | WILDLIFE HARASSMENT |
| 43 | The Permittee shall cease activities that may interfere with the migration or calving of caribou or muskox, until the caribou or muskox have passed or left the area. | WILDLIFE SENSITIVITIES |
| 44 | During the period of May 15 to July 15, when caribou are observed within 1 km of project operations, the Permittee shall suspend all operations, including low-level over flights, blasting, and use of snowmobiles and all-terrain vehicles outside the immediate vicinity of the camps. Following July 15, if caribou cows or calves are observed within 1 km of project operations, the Permittee shall also suspend all operations in the vicinity, including low-level over flights, blasting, and use of snowmobiles and all-terrain vehicles, until caribou are no longer in the immediate area. | WILDLIFE SENSITIVITY |

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| 45 | The Permittee shall not block or cause any diversion to caribou migration, and shall cease activities likely to interfere with migration the moving of equipment or personnel until such a time that the caribou have passed. | CARIBOU MIGRATION |
| 46 | The Permittee shall not construct or operate any camp, cache any fuel, or conduct blasting within 10 km of any paths or crossings known to be frequented by caribou (e.g. designated caribou crossings). | AVOIDANCE OF CARIBOU CROSSINGS |
| 47 | The Permittee shall not disturb or destroy the nests or eggs of any birds. If nests are encountered and/or identified, the Permittee shall take precaution to avoid further interaction and/or disturbance (e.g. a 100 meter buffer around the nests). If active nests are discovered (i.e. with eggs or young) the Permittee shall avoid these areas until nesting is complete and the young have left the nest. | WILDLIFE SENSITIVITY |
| 48 | The Permittee shall not extract water from any fish-bearing water body unless the water intake hose is equipped with a screen of appropriate mesh size to ensure that there is no entrapment of fish. | MESH SCREEN REQUIRED |
| 49 | Your operation is in an area where bears may be encountered. Proper food handling and garbage disposal procedures will lessen the likelihood of bears being attracted to your operation. Information about the latest bear detection and deterrent techniques can be obtained from the Department of Renewable Resources at (867)982-7450. | BEAR/MAN CONFLICT |
| 50 | The Permittee shall not feed wildlife. | NO FEEDING WILDLIFE |

31 (1) (k) - Petroleum Fuel Storage

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| 51 | The Permittee shall report in writing to a Land Use Inspector the exact GPS location and quantity of all petroleum fuel caches within ten (10) days after the establishment. | REPORT FUEL LOCATION |
| 52 | The Permittee shall not place any petroleum fuel storage containers within thirty-one (31) metres of the normal high water mark of any water body. | FUEL BY WATER |
| 53 | The Permittee shall provide approved secondary containment for all fuels stored associated with this land use permit. | APPROVED SECONDARY CONTAINMENT |
| 54 | The Permittee shall not allow petroleum products to spread to surrounding lands or into water bodies. | FUEL CONTAINMENT |
| 55 | The Permittee shall store all fuel and chemicals in such a manner that they are inaccessible to wildlife. | FUEL INACCESSIBLE TO WILDLIFE |

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| 56 | The Permittee shall: a) examine all fuel storage containers for leaks immediately upon delivery b) examine all fuel storage containers for leaks a minimum of once every day c) repair all leaks immediately | CHECK FOR LEAKS |
| 57 | The Permittee shall ensure that re-fuelling of all equipment occurs a minimum of thirty-one (31) metres away from the high water mark of any water body. | RE-FUELLING |
| 58 | The Permittee shall mark all stationary petroleum products storage facilities with flags, posts or similar devices so that they are at all times plainly visible to local vehicle travel. | MARK FUEL LOCATION |
| 59 | The Permittee shall seal all container outlets except the outlet currently in use. | SEAL OUTLET |
| 60 | The Permittee shall mark all fuel containers with the Permittee's name. | MARK CONTAINERS |

31 (1) (m) - Matters Not Inconsistent with the Regulations

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| 61 | The Permittee shall display a copy of this permit in a conspicuous place in each campsite established to carry out this land use operation. | DISPLAY PERMIT |
| 62 | The Permittee shall keep on hand, at all times during this land use operation, a copy of the Land Use Permit. | COPY OF PERMIT |
| 63 | The Permittee shall provide in writing to the Engineer, at least forty-eight (48) hours prior to commencement of this land use operation, the following information: a) person, or persons, in charge of the field operation to whom notices, orders, and reports may be served; b) alternates; c) all the indirect methods for contacting the above person(s). | IDENTIFY AGENT |
| 64 | The Permittee shall conspicuously display the land use permit number on all vehicles and equipment. | DISPLAY PERMIT NUMBER |
| 65 | <u>Part 1</u> - In this Permit: "sump" means a man-made pit, trench hollow or cavity in the earth's surface used for the purpose of depositing waste material therein. | DEFINITIONS |

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| 66 | The Permittee shall abide by and comply with all applicable lawful rules, acts, regulations, and by-laws of Canada, Nunavut, any Municipal or regulatory body or authority having jurisdiction, the Nunavut Land Claim Agreement, and all other agreements, permits, licenses, and other instruments whatsoever related to the project. | ADHERENCE TO LAWFUL RULES, ACTS, REGS & BYLAWS |
| CARIBOU PROTECTION MEASURES | | |
| 67 | <p>(a) The Permittee shall not, without approval, conduct any activity between May 15 and July 15 within the Caribou Protection Areas depicted on the map certified by the Engineer as the "Caribou Protection Map" and annexed to this Land Use Permit.</p> <p>(b) A Permittee may, upon approval by the Land Use Inspector, operate within the said Caribou Protection Areas beyond the May 15 deadline set out in 1 (a), provided that, when monitoring information indicates that caribou cows are approaching the area of operation, the Permittee will implement 1 (c).</p> <p>(c) On cessation of activities pursuant to 1 (a) or 1 (b), the Permittee will remove from the zone all personnel who are not required for the maintenance and protection of the camp facilities and equipment, unless otherwise directed by the Land Use Inspector.</p> <p>(d) The Permittee may commence or resume activities prior to July 15 within those parts of the Caribou Protection Areas released by the Land Use Inspector for the reason that caribou cows are not expected to use those parts for calving or post-calving.</p> | RESTRICTION OF ACTIVITY |
| 68 | <p>(a) In the event that caribou cows calve outside of the Caribou Protection Areas, the Permittee shall suspend operations within the area(s) occupied by cows and/or calves between May 15 and July 15.</p> <p>(b) In the event that caribou cows and calves are present, the Permittee shall suspend:</p> <ul style="list-style-type: none"> (i) blasting; (ii) overflights by aircraft at any altitude of less than 300 meters above ground level; and (iii) the use of snowmobiles and ATVs (all-terrain vehicles) outside the immediate vicinity of the camp. | SUSPENSION OF OPERATIONS |
| 69 | <p>(a) During migration of caribou, the Permittee shall not locate any operation so as to block or cause substantial diversion to migration.</p> <p>(b) The Permittee shall cease activities that may interfere with migration, such as airborne geophysics surveys or movement of equipment, until the migrating caribou have passed.</p> | CARIBOU PROTECTION MIGRATION |

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| 70 | <p>(a) The Permittee shall not, between May 15 and September 1, construct any camp, cache any fuel, or conduct any blasting within 10 kilometres of any "Designated Crossing" as outlined on the map certified by the Engineer as the "Caribou Protection Map" and annexed to this Land Use Permit.</p> <p>(b) The Permittee shall not, between May 15 and September 1, conduct any diamond drilling operation within 5 kilometres of any "Designated Crossing" as outlined on the map certified by the Engineer as the "Caribou Protection Map" and annexed to this Land Use Permit.</p> | DESIGNATED CARIBOU CROSSINGS |
| ARCHAEOLOGICAL & PALEONTOLOGICAL TERMS AND CONDITIONS | | |
| 71 | <p>"archaeological site" means a place where an archaeological artifact is found.</p> <p>"archaeological artifact" means any tangible evidence of human activity that is more than 50 years old and in respect of which an unbroken chain of possession or regular pattern of usage cannot be demonstrated, and includes a Denesuline archaeological specimen referred to in section 40.4.9 of the Nunavut Land Claims Agreement.</p> <p>"paleontological site" means a site where a fossil is found.</p> <p>"fossil" includes:</p> <ul style="list-style-type: none"> (a) natural casts (b) preserved tracks, coprolites and plant remains; and (c) the preserved shells and exoskeletons of invertebrates and the eggs, teeth and bones of vertebrates. | DEFINITIONS |
| 72 | The Permittee shall avoid any known or suspected archaeological and/or paleontological sites. | AVOIDANCE OF ARCHAEOLOGICAL AND/OR PALEONTOLOGICAL SITES |
| 73 | The Permittee shall not remove, disturb, or displace any archaeological artifact or site, or any paleontological site or fossil. | DISTURBANCE OF ARCHAEOLOGICAL AND/OR PALEONTOLOGICAL SITE |

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| 74 | <p>The Permittee shall immediately cease any activity should a suspected archaeological, paleontological, or burial site be discovered during the course of a land use operation. The Permittee is required to immediately contact the Land Administration division at Indian and Northern Affairs Canada at (867)975-4283 or (867)975-4285 or (867)975-4280 as well as the Department of Culture, Language, Elders and Youth at (867)934-2046 or (867)975-5500 or 1(866)934-2035.</p> <p>Permission to resume land use operations must be obtained from the Engineer. At such time the Engineer may, at his/her discretion, require that you have an archaeologist or palaeontologist perform the following functions:</p> <ul style="list-style-type: none"> (a) Survey (b) Inventory and documentation of the archaeological or paleontological resources of the land use area (c) Assessment of potential for damage to archaeological or paleontological sites (d) Mitigation (e) Marking boundaries of archaeological or paleontological sites (f) Site restoration | CEASE OPERATION OF LAND USE ACTIVITY |
| 75 | <p>The Permittee shall ensure that all persons working under the authority of the permit are aware of these conditions pertaining to archaeological sites and artifacts as well as paleontological sites and fossils.</p> | KNOWLEDGE OF ARCHAEOLOGICAL AND PALEONTOLOGICAL TERMS AND CONDITIONS |

Species At Risk in Nunavut

This list includes species listed on one of the Schedules of SARA (*Species at Risk Act*) and under consideration for listing on Schedule 1 of SARA. These species have been designated as at risk by COSEWIC (Committee on the Status of Endangered Wildlife in Canada). This list may not include all species identified as at risk by the Territorial Government.

- a) Schedule 1 is the official legal list of Species at Risk for SARA. SARA applies to all species on Schedule 1. The term "listed" species refers to species on Schedule 1.
- b) Schedule 2 and 3 of SARA identify species that were designated at risk by the COSEWIC prior to October 1999 and must be reassessed using revised criteria before they can be considered for addition to Schedule 1.
- c) Some species identified at risk by COSEWIC are "pending" addition to Schedule 1 of SARA. These species are under consideration for addition to Schedule 1, subject to further consultation or assessment.

Schedules of SARA are amended on a regular basis so it is important to periodically check the SARA registry (www.sararegistry.gc.ca) to get the current status of a species.

| Terrestrial Species at Risk | COSEWIC Designation | Schedule of SARA | Government Organization with Lead Management Responsibility |
|--|---|--|---|
| Eskimo Curlew | Endangered | Schedule 1 | EC |
| Ivory Gull | Endangered | Schedule 1 | EC |
| Ross's Gull | Threatened | Schedule 1 | EC |
| Harlequin Duck (Eastern population) | Special Concern | Schedule 1 | EC |
| Rusty Blackbird | Special Concern | Schedule 1 | Government of Nunavut |
| Felt-leaf Willow | Special Concern | Schedule 1 | Government of Nunavut |
| Peregrine Falcon | Special Concern (<i>anatum-tundrius</i> complex) | Schedule 1 (<i>anatum</i>) Schedule 3 (<i>tundrius</i>) | Government of Nunavut |
| Short-eared Owl | Special Concern | Schedule 3 | Government of Nunavut |
| Peary Caribou | Endangered | Schedule 1 | Government of Nunavut |
| Barren-ground Caribou (Dolphin and Union population) | Special Concern | Schedule 1 | Government of Nunavut |
| Polar Bear | Special Concern | Schedule 1 | Government of Nunavut |
| Red Knot (<i>rufa</i> subspecies) | Endangered | Pending | EC |
| Red Knot (<i>islandica</i> subspecies) | Special Concern | Pending | EC |
| Porsild's Bryum | Threatened | Pending | GN |
| Horned Grebe (Western Population) | Special Concern | Pending | EC |
| Grizzly Bear | Special Concern | Pending | Government of Nunavut |
| Wolverine (Western Population) | Special Concern | Pending | Government of Nunavut |
| Atlantic Cod, Arctic Lakes | Special Concern | No Schedule | DFO |
| Atlantic Walrus | Special Concern | Pending | DFO |
| Beluga Whale (Cumberland Sound population) | Threatened | Pending | DFO |
| Beluga Whale (Eastern Hudson Bay population) | Endangered | Pending | DFO |

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| Beluga Whale (Western Hudson Bay population) | Special Concern | Pending | DFO |
| Beluga Whale (Eastern High Arctic – Baffin Bay population) | Special Concern | Pending | DFO |
| Bowhead Whale (Eastern Canada – West Greenland population) | Special Concern | Pending | DFO |
| Killer Whale (Northwest Atlantic / Eastern Arctic populations) | Special Concern | Pending | DFO |
| Narwhal | Special Concern | Pending | DFO |

Updated: January 2012