

Endangered Plant Species. A review of the most recently published 'Canadian Species at Risk' by COSEWIC (1997 edition) shows that there are no plants present on the sites that are currently listed as at risk.

Mammals

The primary terrestrial animal species of concern in the Eastern Arctic are foxes, bears, muskoxen and caribou.

The Arctic Fox is present throughout the Arctic year-round. Its diet consists of lemmings, the eggs and young of many different species of birds and carrion. In some cases, foxes will dig young Ringed Seals out of their dens for food. These foxes are solitary except when breeding. Foxes are usually found on land but can go out on the sea ice, following polar bears and scavenging off of seal carcasses.

Polar Bears are the largest carnivorous land animals, although they spend much of their time at sea. These bears are permanent residents of the areas along the DEW Line. Migrations are localised in conjunction with the migration of food sources. Young are born in snow dens either on land or (rarely) at sea. Their diet mainly consists of Ringed Seals, Bearded Seals and Walrus. Occasionally, Beluga Whales and Arctic Cod will be consumed. An important facet of their feeding behaviour is that they often eat the blubber of their prey, leaving the carrion for other species of mammals.

Caribou spend winters in the more southern boreal forest and migrate to Arctic tundra in summer to bear young and forage. They travel in large herds, sometimes across to islands. Often, they will cross open water.

Muskoxen remain in Arctic tundra throughout the year. In summer, they congregate in grassy river valleys, lakeshores and meadows where sedges, grasses, willows and heath plants are found. In winter, muskox inhabit wind-swept hilltops and slopes where vegetation (woody plants) is exposed. Muskoxen can be found around DEW Line sites, especially on the more southern islands of the Arctic archipelago. Muskox travel in closely packed herds up to 100 individuals. Migration is localized.

Marine Environment

In undertaking development activities in the Nunavut Settlement Area, it is important to note the complexity of the regions ecosystem. This complex system results in a number of relationships between species of the Arctic. The major focus of these relationships is the need for all species to consume others within the ecosystem. Given the complex food web that is present, most mammals and birds have a varied diet.

Primary producers in the region along the DEW Line include phytoplankton and macroalgae both rooted on ocean bottoms and floating in the water column. These primary producers result in a large amount of biomass that feeds an assortment of animals.

Plants in the region are consumed by herbivores, including small invertebrates in zooplankton. These animals are primarily eaten by crustaceans (amphipods and copepods) and molluscs (benthic bivalves and pelagic pteropods).

Primary carnivores in the Nunavut region include a large number of species of zooplankton that feed on herbivorous crustaceans. The main groups of zooplankton include two types of crustaceans (pelagic euphausiids (or krill) and decapods (shrimps and crabs). Secondary carnivores consume small carnivorous and herbivorous invertebrates. Species in this category include all large pelagic invertebrates (fish, birds and mammals). The most abundant fish in the region of the DEW Line sites are Arctic Cod, Arctic Char, Cisco and Whitefish. Prevalent bird species include a number of ducks, geese, auks and loons.

Top carnivores at the top of the food web include Polar Bears, baleen whales, large toothed whales and birds of prey (i.e., Peregrine falcon and Snowy Owls). These predators consume a variety of organisms from lower levels, including fish, birds and smaller mammals (i.e., seals). Polar Bears catch seals when the opportunity permits (i.e., in shallow waters and shallow pools on the surface of ice floes. In rare cases, beluga whales are also a source of food for Polar Bears. Some birds become prey to certain mammals, such as the Arctic Fox and whales (which consume them when feeding on surface plankton). In many cases, birds eat other birds (young and eggs).

At the highest end of the food chain, humans consume food from many levels of the food chain, including fish, birds and mammals.

Biological Seasons

For the most part, biological seasons and associated activities are closely linked to ice conditions. It is these conditions that determine animal distribution and behaviour. The following section provides an outline of biological change that occurs immediately before and during the clean up of these sites.

Spring

For this period, ice occupies coastal areas and offshore areas. In the western areas of the Nunavut Settlement Area, bowhead and beluga whales migrate eastward in offshore waters. Marine mammals and birds start to accumulate along ice edges to feed and await breakup in order to migrate towards summer ranges. During this period, seal pups are born and caribou migrate northward towards the Coronation Gulf area.

Summer

In summer, marine mammals have access to and are found at traditional summering areas. Belugas are found in estuaries in Hudson Bay. Walrus spend a great deal of time at traditional haul out sites. Narwhal and harp seals are found throughout their range. Along the north coast around DEW Line sites, seabirds and waterfowl eggs hatch and the young are reared.

Fall

The onset of this period is characterised by the southward migration of waterfowl and shorebirds, the movement of marine mammals to wintering areas. Caribou migrate southward across sea ice in Coronation Gulf.

Overview of the Socio-economic Environment

Demographics

Approximately 19,500 (1991) people live in the Nunavut Settlement Area. Communities that are in close proximity to the DEW Line sites are shown in the following table:

Community (Local Name)	1991 Population
Qikiqtani Region	
Broughton Island (Qikiqtarjuaq)	461
Clyde River (Kangigluugaapik)	565
Hall Beach (Sanirajak)	526
Iglolik (Iguilik)	936
Iqaluit	3552
Kivalliq Region	
Rankin Inlet	1706
Kitikmeot Region	
Cambridge Bay (Ikaluktutiak)	1116
Kugluktuk	1059
Gjoa Haven (Ursuqtuq)	783
Pelly Bay (Arviligtuq)	409
Taloyoak	580

Each site may have a number of outpost camps, traditional use areas, camps or other areas of interest. During the community meetings to be held prior to the clean up of each site, the project management office will endeavor to identify these areas with local residents. Where required, applicable mitigation measures (i.e., timing restrictions, etc.) will be included in the site specific environmental protection plan in order to prevent interruption of these activities.

Approximately 80% of the population in this area is Inuit. Non-native populations are concentrated in centres of regional government (Iqaluit, Cambridge Bay and Rankin Inlet). Unemployment among the Inuit population is high compared to the non-native population of the area (30% versus 2%). The cost of living is approximately 1.5 to 2 times that in southern cities, while the average household income is approximately two-thirds of that in the rest of Canada.

Area Economy

Much of the area within close proximity of the DEW Line is currently based on renewable resource harvesting, non-renewable resource extraction and energy development. Additionally, service industries such as tourism and government are becoming increasingly more important facets of the economy, particularly given the imminent formation of the new territorial government in 1999. Wage employment is often available in the mining, oil and gas, construction, tourism and government sectors. Trapping, fishing and traditional arts also provide a portion of the population with regular wage employment. Demand for wage employment still outweighs supply, however. This has resulted in an increased importance for the subsistence economy which supplies food, clothing and raw materials.

Renewable Resource Harvesting

Owing to the high levels of unemployment and the expense of food from southern sources, country foods play an important role in the area's economy. Five out of six households hunt and fish at least part-time. Approximately 60% of households rely on country food for a large proportion of their meat. The main types of country foods are seal, narwhal, caribou, fish and walrus. Additionally, the Inuit use a variety of plants for food and medicinal purposes. In addition to providing food, renewable resource harvesting also satisfies other needs, including clothing.

The DEW Line Clean Up project recognises the need to protect these resources.

Native Land Use

Hunting

It is recognised that hunting and the relationship to the land are of profound cultural and spiritual importance to the Inuit. Hunting itself provides a means for linking modern day lifestyles and culture with the past. Hunting is valued by the Inuit as it contributes to both independence and community well-being.

The harvesting of marine mammals is the foundation of the Inuit subsistence economy and much of the marine mammal harvesting is done from sea ice. There are a large number of routes linking hunting areas, outpost camps and other communities. Of all marine mammals hunted, the ringed seal is the most important. This mammal provides a year round source of food as well as

a cash income. During the clean up of the DEW Line sites (July – October annually), it is expected that these seals will exist on fast ice and open water.

The main terrestrial mammals used for food and other applications are polar bears, caribou and muskoxen. In some communities, these mammals (especially caribou) are a more important source for food than marine mammals. Caribou are hunted year round but most intensely in September when the animal congregate in large herds prior to migrating south. Caribou are shot both on land and from boats as they are crossing water bodies.

Wage Economy

Since the 1950's, an important source of income has been based on waged employment, whether from individual activities or more traditional forms of wage employment (i.e., construction work, oil and gas industry, etc.). Tourism is becoming an increasing important facet of the economy. It is expected that, for the short term in particular communities and the longer term (i.e., approximately 20 years), a significant number of person-years of employment will be generated as a result of this project. Additionally, further enhancement of the areas' economy is expected resulting from increased local purchases and use of local businesses.

Valued Ecosystem Components

Valued Ecosystem Components (VEC's) for each site are outlined in the individual site environmental screening reports included with this submission. This section outlines those VEC's common to each of the 15 sites in the Nunavut Settlement Area.

Physical

- Protection of Permafrost soils
- Surface water, particularly related to the drinking water supply

Biological

- Wetland habitats (lakes and ponds) used by birds for feeding and nesting
- Tundra habitat including:
 1. Feeding and nesting areas for birds
 2. Feeding areas for herbivores
 3. Feeding and calving areas for caribou, bears and muskoxen
- Local vegetation
- Marine mammals off coasts