

Water Resources Division  
Qimugjuk Building  
P.O. Box 2200  
Iqaluit, Nunavut  
X0A 0H0  
référence

Your file - Votre

NWB3RAN

Our file - Notre référence

August 1, 2002

Ms. Phyllis Beaulieu  
Acting Licensing Administrator  
Nunavut Water Board  
P.O. Box 119  
Gjoa Haven, Nunavut  
X0E 1J0

Dear Ms. Beaulieu:

Re: Rankin Inlet - Environmental Assessment

Pursuant to Section 5 of the Canadian Environmental Assessment Act (CEAA), the Department of Indian and Northern Affairs Canada (INAC) has completed an environmental assessment of the Hamlet of Rankin Inlet's water licence application.

The Project proposal was reviewed by INAC's Water Resources Management Division in collaboration with the Department of Fisheries and Oceans, Environment Canada, and Health Canada. Based on the results of the screening, INAC has concluded that the project is not likely to cause significant adverse environmental effects. The incorporation of appropriate conditions in the new water licence will help mitigate the current environmental effects of Rankin Inlet's waste disposal facilities. Suggested licence conditions and mitigative measures are as follows:

General

- locate all waste, sewage contaminants, and fuel caches such that deleterious substances do not enter any water body
- locate all waste disposal areas at least 450 metres from any building used for human habitation or for the storage of food, as per the *General Sanitation Regulations, Public Health Act*.
- control all activities, including maintenance procedures and refueling, to prevent the entry of petroleum products or other deleterious substances into the water
- develop/update a spill contingency plan, and maintain appropriate materials for cleanups
- ensure compliance with the *Freshwater Intake End-of-Pipe Fish Screen Guideline*

(DFO, 1995), available upon request from DFO.

#### Solid Waste Disposal Site

- develop and implement an Operation and Maintenance Plan that outlines the following procedures:
  - safe handling, storage and disposal of waste oil and other hazardous wastes,
  - storage, disposal and/or removal of bulky items and scrap metal,
  - trench filling, compacting and covering,
  - disposal of sewage sludge from the sewage treatment plant
- designate a suitable area for hazardous waste storage
- repair and maintain fencing to prevent scattering of solid waste
- ensure that wastes are not deposited into water, specifically the pooled water below the waste disposal site (towards the former SNP station)
- establish SNP stations to monitor standing water quality and leachate at the landfill site, past analytical results have indicated metal concentrations exceeding the *Canadian Water Quality Guidelines for the Protection of Freshwater Aquatic Life* (ammonia: 3.48 mg/L vs 2.2 mg/L, cadmium: 0.6 µg/L vs 0.017 µg/L, copper: 77 µg/L vs 4 µg/L, iron: 392 µg/L vs 300 µg/L, and zinc 146 µg/L vs 30 µg/L)
- submit a plan to improve drainage at the waste disposal site and prevent the accumulation of standing water
- assess contaminants in the vicinity of the solid waste disposal site, submit an abandonment and restoration plan that summarizes these results and outlines the steps required to restore this site in a manner that will mitigate environmental impacts
- develop a plan for the construction of a new solid waste disposal facility; including ways to improve waste compaction and reduction

#### Sewage Treatment Plant

- sample sewage effluent monthly, as per the *Guidelines for the Discharge of Treated Municipal Wastewater in the Northwest Territories* (1992)
- evaluate the need for secondary treatment for sewage

The application states that the Hamlet plans to open a new waste disposal site within the next five years. It is expected that plans for the new site will be submitted to the Nunavut Water Board upon completion, and these will be reviewed through a licence amendment. As a relocation of the waste disposal facilities will constitute a major change in this project, INAC will be required to complete an environmental screening to meet the

requirements of CEAA.

The full CEAA screening report is attached and relevant correspondence is available upon request. Should you have any questions or comments, please do not hesitate to contact me at (867) 975-4548 or by e-mail at [johnsonmi@inac.gc.ca](mailto:johnsonmi@inac.gc.ca).

Sincerely,

Michelle Johnson  
Kitikmeot/Kivalliq Regional Coordinator

c.c.: Jordan DeGroot, Department of Fisheries and Oceans  
Anne Wilson, Environment Canada  
Maria Ooi, Health Canada

**CEAA SCREENING FORM**  
**Indian and Northern Affairs Canada**  
**Nunavut Region**

<b>I. General File Information on Screening</b>	
File Number: _____	<u>NWB3RAN</u> <small>Can be permit or licence number</small>
*FEA I.D. Reference Number: _____	_____ <small>A number assigned by the Agency; to be inserted here upon receipt of number from Agency</small>
*Project Title: _____	<u>Rankin Inlet Water Licence</u> <small>Title of project</small>
*Alias Project Title: _____	<u>None</u> <small>Alternate project name (if any)</small>
Proponent: _____	<u>Hamlet of Rankin Inlet</u> <small>Company/Applicant</small>
Type of proponent: _____	<u>Municipal Government</u> <small>(e.g. , Industry, Government, Other private)</small>
*Subject Descriptors: _____	<u>Inland Waters</u> <small>See Appendix A</small>
*EA Type: _____	<u>Screening</u> <small>Screening, Class Screening or Comprehensive Study</small>
*EA Start Date: _____	<u>July 9, 2002</u> <small>Date application received</small>
Proposed Date of Activity: _____	<u>Open - 2002</u>
*EA Determination: <u>20 (1)(a) Water Licence Application may proceed (see attached letter for comments)</u>	<small>Final screening determination from subsection 20(1) and section 23 - see # 13 of Screening Form and insert number here</small>
Project Abandoned      Yes      _____	<u>N/A</u> <small>Explain reason for abandonment</small>
*EA Determination Date: _____	<u>July 31, 2002</u> <small>Date of screening decision</small>
Follow-up program required:	
_____	<u>Annual INAC Water Licence Inspections</u>
_____	
_____	
	<small>Yes/No If Yes, by NAP or proponent (or both)</small>
*Estimated Follow-up program termination date: _____	<u>N/A</u>

\* Means this is a required field for a public registry

## 2. Responsible Authority (RA) Information

\*Lead RA and Screening Division: INAC - Water Resources  
Division of DIAND (e.g. Water Resources, Land Administration, etc.)

Lead RA Contact: Michelle Johnson, (867) 975-4548  
Name and telephone # of Regional Manager or Screener

NAP District: Nunavut

\*Lead RA Trigger Types: Inclusion List (Part X, Item 69)  
(e.g., proponent, funding, land disposition, law list approvals)

Type of Application: Water Licence  
(e.g., water licence, land use permit, quarry permit, lease, reserve, OIC)

Type of Approval being sought: New  
(e.g., new, renewal, amendment, cancellation)

Present licence/permit/lease number: None

Other RAs or Screening Divisions: None  
If yes, is there an Integrated Screening underway?

\*Other RA Trigger Types: None

Other RA Types of Approval: None

Project File Location: \_\_\_\_\_  
NAP office where project file is located

## 3. Project Location

\*Region: Nunavut  
Province/Territory

Topographic Map Sheet Number: \_\_\_\_\_  
1:50,000 map sheet number

\*Geographic Place Name: Rankin Inlet  
(e.g., nearest place name or geographic feature)

Latitude / Longitude: 64° 49'N, 92° 05'W  
(e.g., degrees, minutes, seconds)

\*Drainage Region: Peace Athabasca Arctic Coast Islands Lower Mackenzie Keewatin

Watershed: Lake Nipissar  
(nearest creek, river or lake system)

Street Name: N/A  
(complete address of project if it occurs in a municipality)

\*Nearest Community: Rankin Inlet

Surrounding Land Status: Crown Land  
(e.g., private, Commissioner's, crown land, settlement land)

Special Designation: No  
(Yes / No - e.g. heritage river system)

## 5. Description of Environment

\*Ecozone: #14 - Northern Arctic

See Appendix B for zone names

### Description of Biophysical Environment:

- Rankin Inlet is located on the west coast of Hudson Bay, it is approximately 96 km southwest of Chesterfield Inlet, and approximately 1088 km east of Yellowknife
- surface material consists mainly of exposed bedrock, and various types of re-worked ground moraine, notably marine terraces; the soil is a mixture of organic material, gravel, sands and fines
- the Hamlet is located within the continuous permafrost zone, with an estimated permafrost thickness of 300 meters, the active layer of permafrost extends 0.3 meters below the ground surface
- Rankin Inlet receives an average of 134.1 centimeters of precipitation annually, 16.0 centimeters as rain and 118.1 centimeters as snow

### Description of socio-economic and cultural environment:

- predominantly Inuit population with some non-Inuit residents
- hamlet level of government, local infrastructure includes an airport, RCMP office, community health center, school, and government offices
- major activities include arts and crafts, hunting, fishing, and trapping; local businesses include meat product and food sales, cartage, general retail, outfitting, hotels, restaurants, and transportation/communications

### Past and Current Land Use Activities in the Area

- Historical Maps (expired permits and licences)
- Running Maps (current permits and licences)
- Interference Maps (other land dispositions)
- Public Registry System
- GIS
- Indian Land Registry
- Land Transition Management Style

**Project Description**

\*Physical Work Being Assessed: Municipal Infrastructure: water use and waste disposal  
(e.g. road, bridges, etc.)

\*Multiple Activities?:  Yes  No

\*Physical Activity as identified from Inclusion List: Water Use  
(e.g., water use, etc.)

\*Project Category Code: **Point** Linear Areal circle one

\*Phase of Project / Primary Undertaking: Operation/ maintenance of water use and waste disposal facilities  
(e.g., construction, modification, operation, abandonment, decommissioning, repair, maintenance, installation, or expansion)

Project Description: Describe thoroughly (e.g. duration of project, size of project, related physical activities, machinery used, fuels and chemical use and storage, etc.)

*Water Supply -* water is pumped from Nipissar Lake, two km northwest of town, a second pumphouse is located at Williamson Lake at which point the water is chlorinated and discharged into a water storage tank adjacent to the pumphouse, the water is then pumped to two wetwells located in the pumphouse, fluorine (in the form of hydrofluosilicic acid) is added as the water enters the distribution system or water truck

*Sewage -* approximately 25% of the population is serviced with holding tanks that are pumped out, 75% of the population is connected to the sewer system, all sewage wastes are discharged to the treatment plant, owned and operated by the Government of Nunavut, the treatment plant has experienced significant operational problems and frequently by-passes

*Solid Waste -* collected by truck and deposited at a site located 1 km southeast of the community, the site is inadequately fenced which leads to scattered refuse in the area of the site, wastes are not compacted and are covered on an annual basis, separate areas are designated for sewage sludge and bulky wastes, waste oil is burned in a trench, the location of the site does not meet minimum setback distances for Navigation Canada (<3 km from airstrip) or the Department of Health (<450 m from the nearest residential dwelling)

*Future Modifications -* no significant changes are planned at this time, the Hamlet plans to upgrade older portions of the water distribution system, fence the landfill site; long terms plans are to develop a new waste disposal site by the summer of 2004, and investigate alternative technologies for sewage treatment

What sources of information did you use?

other government data

historical maps

scientific reports

personal information

CEAA public registry system

contour maps

other; Water Licence Application and supporting documentation



## 7. Identification of Project Components and Environmental Effects

Identify all components of the project under screening and their potential adverse environmental effects

### Project Components

(✓ check all the items appropriate to this project)

- access road
- construction
- abandonment/removal
- modification e.g., widening, straightening
- automobile, aircraft or vessel movement
- blasting
- building
- burning
- burying
- channelling
- cut and fill
- cutting of trees or removal of vegetation
- dams and impoundments
  - construction
  - abandonment/removal
  - modification
- ditch construction
- drainage alteration
- drilling other than geoscientific
- ecological surveys
- excavation
- explosive storage
- fuel storage
- garbage
  - disposal of hazardous waste
  - disposal of sewage
  - waste generation
- geoscientific sampling
  - trenching
  - diamond drill
  - borehole core sampling
  - bulk soil sampling
- gravel
- hydrological testing
- site restoration
  - fertilization
  - grubbing
  - planting/seeding
  - reforestation
  - scarify
  - spraying
  - recontouring
- slash and burn
- soil testing
- topsoil, overburden or soil
  - fill
  - disposal
  - removal
  - storage
- stream crossing/bridging
- tunnelling/underground
- other, explain: \_\_\_\_\_

accidents or malfunctions (Check if there is a possibility for malfunctions and accidents with this project. Describe:

- potential for sewage spills from trucks.

effects of environment on project (e.g. beaver dams).

Describe:

- effects of cold weather on bison wetland (freezing)

### Project Effects

(✓ check all the items appropriate to this project)

#### Biophysical Environment

1.  deposit into surface water
2.  deposit into ground water
3.  change in surface water flow
4.  change in ground water flow
5.  change in water temperature
6.  change in drainage pattern
7.  change in air quality
8.  change in air flow
9.  micro-climate change
10.  ice fog
11.  change in ambient noise level
12.  change in slope stability
13.  change in soil structure
14.  alteration of permafrost regime
15.  destabilization/erosion
16.  soil compaction
17.  loss of access to non-renewable resource
18.  depletion of non-renewable resource
19.  removal of rare/endangered plant species
20.  introduction of species
21.  toxin/heavy metal accumulation
22.  removal of rare/endangered wildlife species
23.  change in wildlife health
24.  impact to large mammals
25.  impact to small mammals
26.  impact to fish
27.  impact to birds
28.  impact to other wildlife
29.  impact in a calving, nesting or spawning area
30.  removal of wildlife buffer zone
31.  change in wildlife habitat/ecosystem
32.  other, explain: marine water quality

#### Directly-related Socio-economic and Cultural Environment

33.  impact to trappers
34.  impact to hunting
35.  impact to outfitters
36.  recreational or back country use
37.  impact to fishing
38.  impact to First Nation traditional use
39.  impact to community
40.  impact to industry
41.  impact to community health
42.  change in manpower or community economics
43.  change in housing or infrastructure
44.  change in regional transportation
45.  other, explain: \_\_\_\_\_
46.  impact to traditional use area
47.  impact to historical site or cultural landmark
48.  impact to local aesthetics
49.  impact to archaeological or historical site
50.  other, explain: \_\_\_\_\_

**7. Identification of Project Components and Environmental Effects (Cont.)**

Describe biophysical and socio-economic and cultural environmental effects identified from checklist.

<b>Environmental Effect</b>	<b>Describe</b>
surface water (fresh and saltwater)	inadequately treated sewage may have impacts on marine water quality by contributing suspended solids, nutrients, and biological oxygen demand
fisheries	sewage effluent may effect fish habitat, specifically through sedimentation
community health	the impact on fish could possible affect community health if they are subsequently consumed by the community

## 8. Identification of Other Resource Uses and Their Environmental Effects

Identify relevant past, current and future (pending applications) physical works and activities and their potential adverse environmental effects.

### Other Resource Uses

(✓ check all the items appropriate to this project)

- agriculture
- forestry
  - commercial
  - domestic
- fishing
- hunting/subsistence
- urbanization
  - commercial / residential
  - Built structures
  - Infrastructure
- mining
  - exploration
  - open pits
  - underground
- quarries
- transportation/communications
  - roads/trails
  - channels/canal
  - telephone lines, satellite dishes, cables
  - beacons
- solid waste disposal
- energy project
  - hydro
  - pipeline
  - transmission line
- other water licences, permits, leases
- land claims
  - selected
  - withdrawn
  - special management
  - heritage sites
  - cultural sites
- other private lands held under tenure
- recreational
- trapping
- mineral processing
- airport
- recreation
- other heritage site
- other, explain: \_\_\_\_\_

### Effects from other Resource Uses

(✓ check all the items appropriate to the scope of this project)

#### Biophysical Environment

1.  deposit into surface water
2.  deposit into ground water
3.  change in surface water flow
4.  change in ground water flow
5.  change in water temperature
6.  change in drainage pattern
  
7.  change in air quality
8.  change in air flow
9.  micro-climate change
10.  ice log
  
11.  change in ambient noise level
12.  change in slope stability
13.  change in soil structure
14.  alteration of permafrost regime
15.  destabilization/erosion
16.  soil compaction
  
17.  loss of access to non-renewable resource
18.  depletion of non-renewable resource
  
19.  removal of rare/endangered plant species
20.  introduction of species
21.  toxin/heavy metal accumulation
  
22.  removal of rare/endangered wildlife species
23.  change in wildlife health
24.  impact to large mammals
25.  impact to small mammals
26.  impact to fish
27.  impact to birds
28.  impact to other wildlife
29.  impact in a calving, nesting or spawning area
30.  removal of wildlife buffer zone
31.  change in wildlife habitat/ecosystem
32.  other, explain: \_\_\_\_\_

#### Directly-related Socio-economic and Cultural Environment

33.  impact to trappers
34.  impact to hunting
35.  impact to outfitters
36.  recreational or back country use
37.  impact to fishing
38.  impact to First Nation traditional use
39.  impact to community
40.  impact to industry
41.  impact to community health
42.  change in manpower or community economics
43.  change in housing or infrastructure
44.  change in regional transportation
45.  other, explain: \_\_\_\_\_
  
46.  impact to traditional use area
47.  impact to historical site or cultural landmark
48.  impact to local aesthetics
49.  impact to archaeological or historical site
50.  other, explain: \_\_\_\_\_

9. Cumulative Environmental Effects

Based on a comparison of effects identified in #7 and #8.

Matching Number(s)	Description of cumulative environmental effects
<u>24,-26</u>	<u>Inadequately treated sewage effluent may have cumulative effects on fish and marine mammals, particularly if raw sewage is discharged over an extended period; improvements to the sewage treatment plant that produces effluent that meets the recommended limits will help mitigate these effects</u>
<u>41</u>	<u>As mentioned above, inadequately treated sewage may impact community health if impacted fish are consumed; improvements to the sewage treatment plant will help mitigate this effect</u>

## 10. Mitigation Measures

For each environmental effect identified in #7 and #8, describe the required mitigation measure(s)

Number(s)	Description of Mitigation Measure(s)
1	<ul style="list-style-type: none"><li>- repair and maintain fencing to prevent scattering of solid waste</li><li>- locate all waste, sewage contaminants, and fuel caches such that deleterious substances do not enter any water body</li></ul>
1,24-26,32,41	<ul style="list-style-type: none"><li>- develop and implement an Operation and Maintenance Plan for the existing facility that outlines procedures for the safe handling, storage and disposal of waste oil and other hazardous wastes, storage and disposal/removal of bulky items and scrap metal, trench filling, compacting and covering, and disposal of sewage sludge from the sewage treatment plant</li><li>- designate a suitable area for hazardous waste storage</li><li>- ensure that wastes are not deposited into water, specifically the pooled water below the waste disposal site (towards the former SNP station)</li><li>- establish SNP stations to monitor standing water quality and leachate at the landfill site, past analytical results have indicated metal concentrations exceeding the <i>Canadian Water Quality Guidelines for the Protection of Freshwater Aquatic Life</i> (ammonia: 3.48 mg/L vs 2.2 mg/L, cadmium: 0.6 µg/L vs 0.017 µg/L, copper: 77 µg/L vs 4 µg/L, iron: 392 µg/L vs 300 µg/L, and zinc 146 µg/L vs 30 µg/L.)</li><li>- submit a plan to improve drainage at the waste disposal site and prevent the accumulation of standing water</li><li>- assess contaminants in the vicinity of the solid waste disposal site, submit an abandonment and restoration plan that summarizes these results and outlines the steps required to restore this site in a manner that will mitigate environmental impacts</li><li>- develop a plan for the construction of a new solid waste disposal facility; including ways to improve waste compaction and reduction</li><li>- control all activities, including maintenance procedures and refueling, to prevent the entry of petroleum products or other deleterious substances into the water</li><li>- develop/update a spill contingency plan, and maintain appropriate materials for cleanups</li><li>- sample sewage effluent monthly, during periods of flow, as per the <i>Guidelines for the Discharge of Treated Municipal Wastewater in the Northwest Territories</i> (1992)</li><li>- evaluate the need for secondary treatment for sewage</li></ul>
26	<ul style="list-style-type: none"><li>- ensure compliance with the <i>Freshwater Intake End-of-Pipe Fish Screen Guideline</i> (DFO, 1995), available upon request from DFO</li></ul>
41	<ul style="list-style-type: none"><li>- locate all waste disposal areas at least 450 metres from any building used for human habitation or for the storage of food, as per the <i>General Sanitation Regulations, Public Health Act</i>.</li></ul>

**11. Significance**

After taking into account the above mitigation measures, are any of the adverse environmental effects significant?

Yes  No

If yes, identify which one(s) and proceed to #12; if no, proceed to #13.

Number(s) \_\_\_\_\_  
\_\_\_\_\_

**12. Likelihood of Occurrence**

Of the identified adverse significant environmental effects in #11 which are likely to occur?

Yes  No

Number(s) \_\_\_\_\_  
\_\_\_\_\_

**13. CEEA Determination Recommendation**

Section 20 (1)(a) - Project may proceed as it is not likely to cause significant adverse environmental effects. **Refer to attached cover letter for recommendations.**

Section 20 (1)(b) - Project may not proceed as it is likely to cause significant adverse environmental effects that cannot be justified.

Section 20 (1)(c)(i) - Project must be referred to the Minister of Environment as it is uncertain whether the project is likely to cause significant adverse environmental effects

Section 20 (1)(c)(ii) - Project must be referred to the Minister of Environment as it is likely to cause significant adverse environmental effects.

Section 20 (1)(c)(iii) - Project must be referred to the Minister of Environment as public concerns warrant the reference.

**14. Screening Report and/or Decision Report**

Public Notice of availability of Screening Report

Yes  No

Public Notice of availability of Decision Report

Yes  No

No Decision Report

Decision Report sent out **Yes** No

To: Nunavut Water Board, Health Canada,  
Department of Fisheries and Oceans, and  
Environment Canada

Public Comments Received on Screening Report

Yes  No

Public Comments Received on Decision Report

Yes  No

Record of Comments attached to screening form

Yes  No, available upon request

**15. Authorization**

Prepared By: \_\_\_\_\_  
Screeners

Date: July 31, 2002

Approved By: \_\_\_\_\_  
Decision Maker (e.g., Regional Manager, engineer, etc.)

Date: July 31, 2002

## **Appendix A: Subject Descriptors**

Choose from this list and insert as a "Subject Descriptor"

- agriculture
- buildings
- communications
- defence
- energy
- forestry
- industry
- inland waters
- mining
- oceans
- oil and gas
- parks
- transportation

## Appendix B: Ecozone

Choose from this list and insert as "Ecozone" (Note that this list only includes Ecozone found within Nunavut).

- |    |                   |   |
|----|-------------------|---|
| 08 | Taiga Shield      | South-eastern mainland near the Hamlet of Arviat, as well the Belcher Islands and Sanikiluaq.   |
| 10 | Hudson Plains     | The islands within James Bay, such as Bear Island.  |
| 13 | Southern Arctic   | Nunavut mainland, including Rankin Inlet, Baker Lake, Kugluktuk and the Jericho/Lupin Mines area. Also includes Southampton Island and the community of Coral Harbour. Does not include the Melville Peninsula area.  |
| 14 | Northern Arctic   | The Melville Peninsula (Igloolik and Hall Beach) as well as all of the arctic islands, including Baffin, Ellesmere and Victoria (with the exception of Southampton Island). Note that it does not include the Cordillera regions on the eastern coasts of Baffin and Ellesmere Islands. |
| 15 | Arctic Cordillera | The area within the mountainous Cordillera, which include the east coasts of Baffin Island, Devon Island and Ellesmere Island.  |

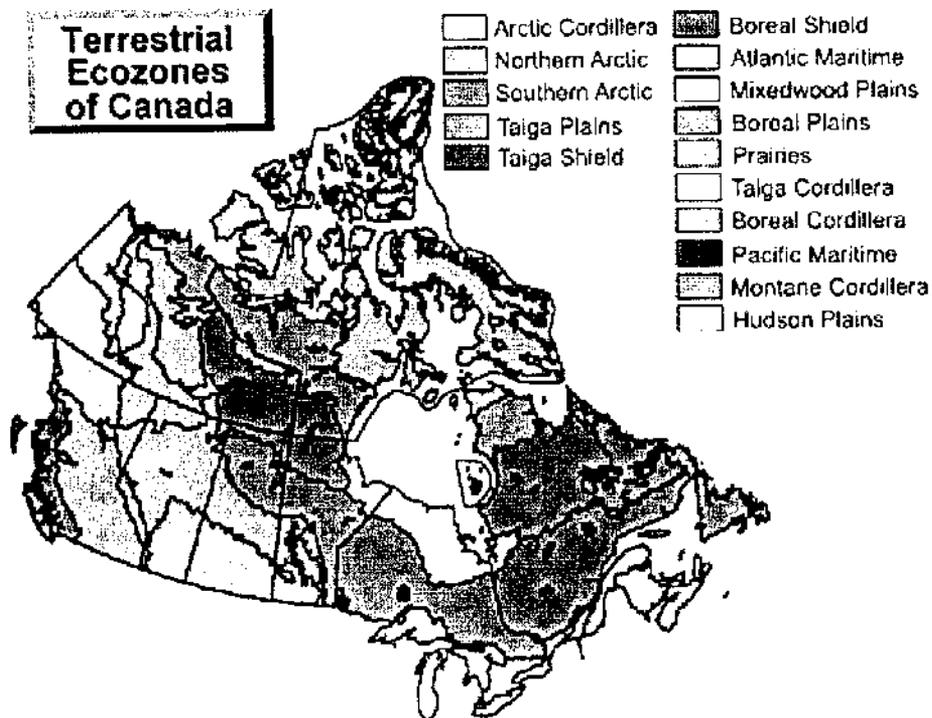


Image taken from Environment Canada at: <http://www2.ec.gc.ca/soer-rec/English/vignettes/Terrestrial/terr.cfm>