Indian and Northern Affairs Canada
www.inac.gc.ca

Affaires indiennes et du Nord Canada
www.ainc.gc.ca

Nunavut Regional Office
P.O. Box 2200
Iqaluit, NU, X0A 0H0

Your file - Votre référence
NWB3ARC
Our file - Notre référence

September 16, 2002

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

Sent by email to:
rbecker@polarnet.ca

***Canadian Environmental Assessment Act (CEAA)* Screening Report on Municipality of Arctic Bay Water Licence Application**

Pursuant to Section 5 of the *Canadian Environmental Assessment Act (CEAA)*, Indian and Northern Affairs Canada (INAC) has conducted an environmental assessment of the Municipality of Arctic Bay water use and waste disposal facilities as described in the water licence application submitted to the Nunavut Water Board (NWB) on July 18, 2002.

The project proposal was reviewed by INAC's Water Resources in collaboration with the Department of Fisheries and Oceans (DFO), Environment Canada (EC), and Health Canada (HC). 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 caused by Arctic Bay's waste disposal facilities.

The application states that the Municipality of Arctic Bay plans to create a new sewage lagoon adjacent to the current sewage lagoon. This new lagoon will be of sufficient size and design to act as an "ice pack holding area," holding all frozen sewage from the winter so that, come spring melt, the sewage will end up in the new lagoon. Meanwhile, the old lagoon will be converted into a honey bag pit.

In the downstream braided flow of the sewage effluent, the proponent plans on installing three bermed ponding areas to increase the retention time and aeration, and thus treatment, of the sewage effluent. Likewise, a diversion berm will be created along the eastern edge of the drainage area to divert streams and reduce the flow of water through the area.

Finally, the proponent will finalize the consolidation of the bulk waste as well as install a fence around the perimeter of the solid waste disposal area.

Canada

The following water licence conditions are provided for the NWB's consideration:

- Sample lagoon effluent annual (as a minimum), during periods of flow, as per the *Guidelines for the Discharge of Treated Municipal Wastewater in the Northwest Territories* (1992). The effluent must meet the following criteria:

Total Suspended Solids	120 mg/L
BOD	100 mg/L
Oil and Grease	no visible sheen
pH	6 to 9
Fecal Coliforms	100,000 CFU/L
Ammonia	monitor only

- Ensure compliance with the *Freshwater Intake End-of-Pipe Fish Screen Guidelines* (DFO, 1995), available upon request from DFO.

- 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.*

- Locate all waste, sewage contaminants, and fuel caches a minimum of 30 metres from the normal high water mark of any water body, and be sufficiently bermed or otherwise contained to ensure that deleterious substances do not enter any water body.

- Requirements for the submission of an Operation and Maintenance Plan, Spill Contingency Plan, and Abandonment and Restoration Plan; the plans must include provisions for the water treatment and waste disposal facilities.

- Hazardous wastes, such as petroleum or batteries, should be segregated from the normal waste and stored/disposed of in an appropriate manner.

- Ensure completion of appropriate training of municipal staff to ensure quality control in sampling collection and preparation.

- Report all spills of oil, fuel, or other deleterious material immediately to the 24-Hour Spill Line at (867) 920-8130.

- Emplacement of a proper fence around the solid waste disposal site.

- Implement and maintain sediment and erosion control measures prior to, and during work to prevent sediment entry into the water during a spring thaw.

- Control all activities, including maintenance procedures and refueling, to prevent the

entry of petroleum products or other deleterious substances into the water.

- Upon completion of work, all disturbed areas should be stabilized and re-vegetated as required, and restored to a pre-disturbed state.

- No material should be left on ice when there is potential for that material to enter the water (i.e. spring break-up).

- The design of the berms should include adequate erosion control measures. For the ponding-area berms, the effects of the pooling of water on the permafrost regime. and thus the stability of the berm, should be taken into consideration. For the stream diversion berm on the eastern edge, the constant flow of water may require armouring to prevent erosion. A monitoring program should be implemented for the first few years to confirm that the erosion control measures are adequate.

If you have any concerns or questions, please feel free to contact me.

Sincerely,

Original Signed By: Michael Roy

Michael Roy
Qikiqtani Regional Coordinator, Water Resources
INAC - Nunavut Regional Office
P.O. Box 2200, Iqaluit, NU, X0A 0H0
(867) 975-4555
fax: (867) 975-4560
roymjp@inac.gc.ca

1. General File Information on Screening

File Number: NWB3ARC
Can be permit or licence number

*FEAI I.D. Reference Number: _____
A number assigned by the Agency, to be inserted here upon receipt of number from Agency

*Project Title: Arctic Bay Water Licence Application
Title of project

*Alias Project Title: _____
Alternate project name (if any)

Proponent: Municipality of Arctic Bay
Company/Applicant

Type of proponent: Municipal Government
(e.g., Industry, Government, Other private)

*Subject Descriptors: Inland Waters
See Appendix A

*EA Type: Screening
Screening, Class Screening or Comprehensive Study

*EA Start Date: August 19, 2002
Date application received

Proposed Date of Activity: Summer 2002 until 2007

*EA Determination: 20 (1)(a) Water Licence Application may proceed (see attached letter for comments)
Final screening determination from subsection 20(1) and section 23 -- see # 13 of Screening Form and insert number here

Project Abandoned Yes _____
Explain reason for abandonment

*EA Determination Date: September 16, 2002
Date of screening decision

Follow-up program required:

None beyond INAC's normal Water Licence Inspections

Yes/No If Yes, by NAP or proponent (or both)

*Estimated Follow-up program termination date: Not Applicable

* 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: Michael Roy, Qikiqtani Regional Coordinator, Water Resources, (867) 975-4555
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: Approval of new water licence
(e.g., new, renewal, amendment, cancellation)

Present licence/permit/lease number: None

Other RAs or Screening Divisions: No
If yes, is there an Integrated Screening underway?

*Other RA Trigger Types: Not Applicable

Other RA Types of Approval: Not Applicable

Project File Location:
NAP office where project file is located

3. Project Location

*Region: Nunavut
Province/Territory

Topographic Map Sheet Number: 48 C 2
1:50,000 map sheet number

*Geographic Place Name: Municipality of Arctic Bay
(e.g., nearest place name or geographic feature)

Latitude / Longitude: 73°02' N, 83°05' W
(e.g., degrees, minutes, seconds)

*Drainage Region: Peace Athabasca **(Arctic Coast Islands)** Lower Mackenzie Keewatin circle one

Watershed: Marcil Lake (source), Admirality Inlet (discharge)
(nearest creek, river or lake system)

Street Name: Not applicable
(complete address of project if it occurs in a municipality)

*Nearest Community: Arctic Bay

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

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

4. 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 and maintenance of 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 obtained from Marcil Lake. It is treated with sodium hypochlorite and trucked to the individual households of the community. No signs currently identify the drinking water source of the community.

- Sewage: Current sewage lagoon is a permeable dyke design. However, portions have become plugged, which has caused the sewage to breach the berm and overflow in the past. Retention time is moderate (roughly 30 days), and sewage travels overland in a braided flow toward Arctic Bay, and ultimately, the ocean. The sewage lagoon is too small to hold the sewage generated by the community's population. Honey bags are deposited in a separate pit located within the solid waste disposal area.

- Solid Waste: Solid waste is collected 3 times per week and deposited in landfill about 2.5 km south west of community. The waste is burned regularly and compacted on a monthly basis. The landfill area is not fenced. Scrap metal is stored in a separate area south west of disposal site. The community has recently consolidate most of their bulk waste in one area. Hazardous waste is also stored in a separate area (sea lift container) until it is shipped out.

- Proposed Changes: The plans presented with the application indicate a new sewage lagoon will be built beside the current one. The current sewage lagoon will be transformed into the new honey bag pit. Retention berms will be installed downstream of the lagoon to promote both retention and the spreading, and thus aeration, of the sewage effluent. A berm will be installed on the east side of the drainage area to divert incoming streams to reduce the flow through the area and promote retention and treatment. Finally, the solid waste disposal area will be fenced.

What sources of information did you use?

✔ other government data
___ historical maps
___ scientific reports
___ personal information
___ CEAA public registry system
___ contour maps
✔ other, specify: **Application Form and Questionnaire**

5. Description of Environment

*Ecozone: 14 - Northern Arctic

See Appendix B for ecozone numbers and names

Description of Biophysical Environment:

- Located in the northwestern region of Baffin Island, on the banks of Adams Sound. Arctic Bay is connected by a 21 km road to Nanisivik Mine and airport)
- Located in a permafrost zone, with only a shallow active layer. The winters are long and cold, and the summers short and cool.
- Local wildlife includes: arctic chars, arctic foxes, arctic hares, caribou, muskox, polar bears, seals, whales, and wolves.

Description of socio-economic and cultural environment:

- Almost all Inuit with a small non-native population.
- Community has a hamlet level of government, with airport, RCMP, community health center and school.
- Major activities include marine mammal harvesting, hunting, fishing, trapping, and carving.

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

6. Consultation/Referral of Application

Was public consultation deemed appropriate? ___ Yes ✔ No

Date application referred to government departments: August 19, 2002

Date application referred to public: N/A (The Nunavut Water Board referred to public on August 19, 2002)

Deadline date for public comments: N/A (The Nunavut Water Board gave a September 16, 2002 deadline)

Referral sent to:			**Date comments received:**
Federal Government		Contact Person	
DIAND	Water	○	○
	Lands	○	○
	Minerals	○	○
	Ec. Dev.	○	○
	Env'nt	○	○
	I&I	○	○
	D.M.	○	○
	R.M.O.	○	○
DFO		✓ Jordan deGroot	○
DOE		✓ Paula Pacholek / Anne Wilson	✓ August 29, 2002
Health Canada		✓ Maria Ooi	○
DOT		○	○
Coast Guard		○	○
Nunavut Government			
CG&T		○	○
Health		○	○
DSD		○	○
Tourism		○	○
CLEY		○	○
Other:		○	○
Institutions of Public Government			
NIRB		○	○
NWB		○	○
NWMB		○	○
NPC		○	○
NSRT		○	○
Inuit Organizations			
NTI		○	○
QIA/KIA/KIA		○	○
QWB		○	○
		○	○
		○	○
Public/Interested Parties			
HTO		○	○
Hamlet		○	○
		○	○
		○	○
		○	○

record of comments attached to screening form

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:
_____
_____
_____

✓ effects of environment on project (e.g. beaver dams). Describe:
Cold weather causes sewage lagoon to freeze
_____
_____

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: **Impact on 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.

Environmental Effect	Describe
1 and 32	Deposit into surface waters and affecting marine water quality: Inadequate sewage treatment can affect surface and marine waters by contributing suspended solids and nutrients.
26	Impact to Fish: the marine environment, downstream from the sewage lagoon, could potentially be impacted assuming inadequate sewage treatment. This could result in an impact to fish in the marine environment.
41	Community Health: the improper treatment and/or disposal of sewage and/or solid waste could possible affect community health.
26 and 41	If fish are being impacted (26), this could lead to an impact on community health (41) if the community is consuming the fish.

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 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:_____

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
26	Impact to Fish: An inadequate sewage treatment facility can result in impact on water quality, and therefore an impact on fish and fish habitat. Local fishing activities can also result in an impact on fish.

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)
	All of the potential environmental effects can be prevented with a properly designed sewage treatment facility and solid waste disposal site with appropriate mitigation measures. These measures include:
1, 13, 14, 16, 24, 25, 26, 32, and 41	• Prepare, submit, and implement a proper Operation and Maintenance plan for the sewage treatment facility and waste disposal sites. • Sediment and erosion control measures should be implemented prior to, and maintained during the work to prevent sediment entry into the water during spring thaw.
1, 24, 25, 26, 32, and 41	• Locate all waste, sewage contaminants, and fuel caches a minimum of 30 metres from the normal high water mark of any water body, and be sufficiently bermed or otherwise contained to ensure that deleterious substances do not enter any water body. • Hazardous waste, such as petroleum and batteries, should be properly segregated from the normal waste and stored/disposed of in an appropriate manner. • Emplacement of a proper fence surrounding the solid waste disposal site. • Sample lagoon effluent annually (as a minimum), during periods of flow, as per the *Guidelines for the Discharge of Treated Municipal Wastewater in the Northwest Territories* (1992). The effluent must meet the following criteria: Total Suspended Solids - 120 mg/L; BOD - 100 mg/L; Oil and Grease - no visible sheen; pH - 6 to 9; Fecal Coliforms - 100,000 CFU/L; Ammonia - monitor only. • All activities, including maintenance procedures and refueling, should be controlled to prevent the entry of petroleum or other deleterious substances into the water.
13, 14, 16, 24, and 25	• Upon completion of work, all disturbed areas should be stabilized and re-vegetated as required, and restored to a pre-disturbed state.
41	• No waste disposal area shall be located within 450 metres of any building used for human habitation or for the storage of food, as per the *General Sanitation Regulations, Public Health Act.*

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. CEAA Determination Recommendation ‡

✓ Section 20 (1)(a) - Project may proceed as it is not likely to cause significant adverse environmental effects.

_____ 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.

‡ Also see attached cover letter for additional details

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 whom (attach list)	
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

15. Authorization

Prepared By: *Michael Roy* Date: *September 17, 2002*

Screener

Approved By: *Glen Stephens* Date: *September 17, 2002*

Decision Maker (e.g., Regional Manager, engineer, etc.)

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 Ecozones 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 area) 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.

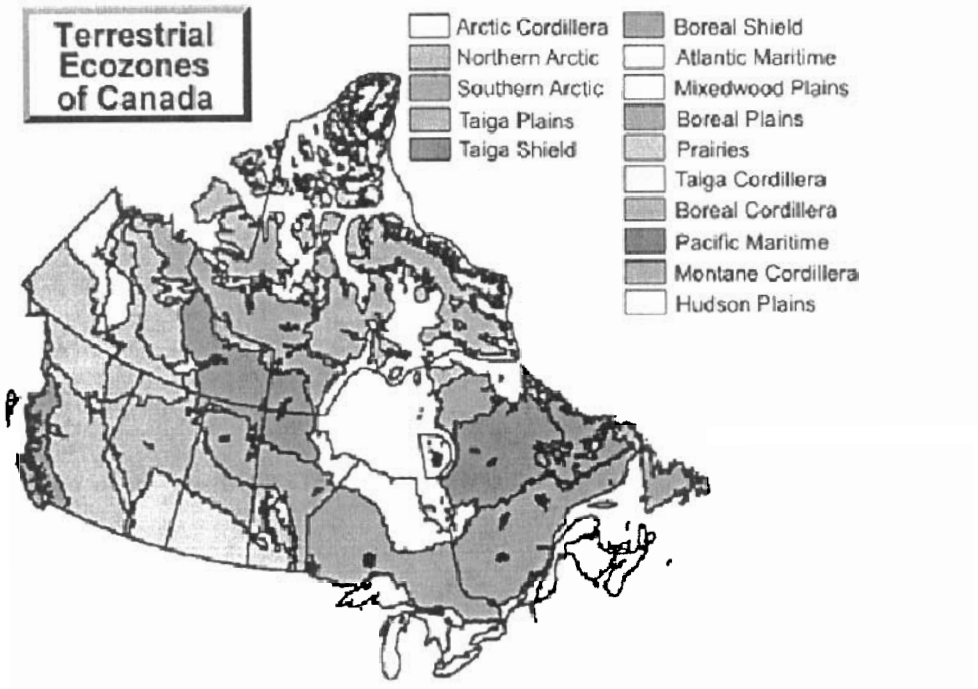

Image taken from Environment Canada at: http://www2.ec.gc.ca/soer-ree/English/vignettes/Terrestrial/terr.cfm