

**CANADA-NEWFOUNDLAND
WATER QUALITY MONITORING
AGREEMENT**

**ANNUAL WORK SCHEDULE
1997-98**



Water Resources Management Division
Department of Environment & Labour
St. John's, Newfoundland

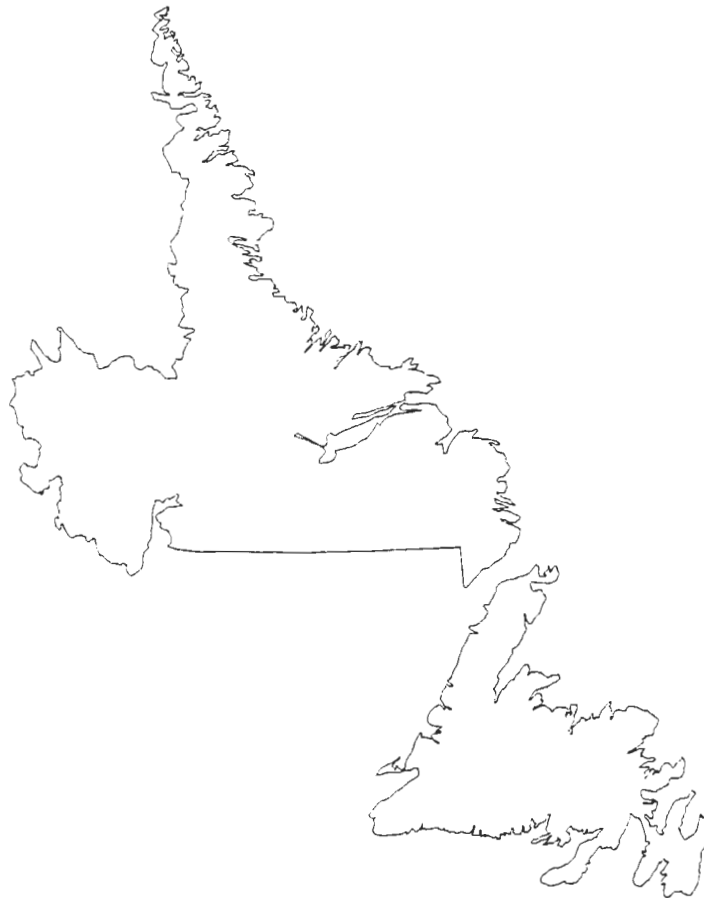
Ecosystem Science Division
Environmental Conservation Branch
Environment Canada
Moncton, New Brunswick

GC - For your information and
attention.

/ May 21/97

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MONITORING AGREEMENT

ANNUAL WORK SCHEDULE
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Water resources Management Division
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ANNUAL WORK SCHEDULE
1997-98

**Canada-Newfoundland
Water Quality Monitoring Agreement
Annual Work Schedule 1997-98**

The attached Schedules A, B, C, and D outline work activities to be carried out during the current fiscal year under the Canada-Newfoundland Water Quality Monitoring Agreement.

All four Schedules have been reviewed and approved by the Administrators of the Agreement.



Tom Pollock, Ph. D.
Administrator, on behalf of
Environment Canada



Martin Goebel, P.Eng.
Administrator, on behalf of
Newfoundland Environment

SCHEDULE A
AGREEMENT COMMITTEES

SCHEDULE A

The following officials are named to administer this Agreement according to Article x:

Dr. Tom Pollock	Environment Canada Atlantic Region, on behalf of Canada
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Mr. Martin Goebel	Newfoundland Environment, on behalf of Newfoundland.
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The Administrator will be assisted by a Coordinating Committee consisting of the following: 4

Dr. Tom Pollock	Environment Canada Atlantic Region
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Mr. Haseen Khan	Water Resources Management Division, Newfoundland Environment
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SCHEDULE B

**STATION LOCATION, DESIGNATION
AND SAMPLING FREQUENCY**

Schedule B

Index Station Location Designation and Sampling Frequency 1997-98

Station #	Description	Latitude	Longitude	SAMPLED BY # PER YEAR	Remarks
<u>ISLAND</u>					
NF02YA0001	Ste. Genevieve	51 08 17	56 47 30	P4	
NF02YC0001	Torrent River	50 36 44	57 10 05	F 6	
NF02YE0005	Western Brook	49 49 49	57 51 23	P12	
NF02YG0001	Main River	49 46 10	56 54 15	P6	
NF02YH0018	Lomond River	49 24 07	57 43 49	P12	
NF02YJ0004	Pinchgut Brook	48 47 51	58 03 43	P6	
NF02YJ0006	Harrys River	48 34 32	58 21 48	F12	
NF02YL0011	Humber River	49 20 54	57 14 07	P6	
NF02YL0012	Humber River	48 59 01	57 45 40	P6	
NF02YL0013	Corner Brook	48 56 40	57 56 12	P12	
NF02YL0029	Wild Cove Brook	48 58 28	57 53 02	P 12	
NF02YM0004	South West Brook	49 55 15	56 13 45	P4	
NF02YN0001	Lloyds River	48 18 16	57 43 07	P4	
NF02YN0036	Star Brook	48 33 43	57 12 22	P4	
NF02YN0039	Corduroy Brook	48 56 21	55 39 47	P12	
NF02YO0001	Exploits River	48 55 27	55 39 21	P12	
NF02YO0020	Exploits River	48 56 55	55 54 56	P4	
NF02Y00021	Exploits River	40 0 40	55 28 55	P12	
NF02Y00107	Exploits River	48 45 34	56 35 32	P4	
NF02YQ0006	NorthW. Gander R.	48 34 54	55 30 20	P4	
NF02YQ0030	Gander River	48 59 41	54 52 04	P6	
NF02YR0001	Pound Cove Brook	49 10 40	53 33 36	P4	
NF02YR0021	Middle Brook	48 48 08	54 13 34	P4	
NF02Y50001	Terra Nova River	48 30 27	54 12 43	P4	
N02YS0005	Southwest Brook	48 36 36	53 48 36	P4	
NF02YS0011	Terra Nova River	48 38 27	54 02 11	P4	
NF02ZA0006	Grand Codroy R.	47 52 08	59 07 05	P4	
NF02ZA0007	Crabbe's River	48 10 30	58 46 23	P4	
NF02ZB0001	Isle Aux Morts R.	47 36 50	59 00 33	F6	
NF02ZC0001	Grandy Brook	47 51 25	57 44 00	F6	HS
NF02ZC0011	White Bear River	47 48 29	57 16 40	F6	HS
NF02ZD0003	Grey River	47 44 35	56 56 03	F6	HS
NF02ZF0020	Bay du Nord River	47 44 45	55 26 23	F6	HS
NF02ZG0016	Garnish River	47 13 00	55 19 48	F6	
NF02ZG0024	Tides Brook	47 07 39	55 15 55	P4	
NF02ZH0001	Pipers Hole R.	47 55 51	54 16 25	F12	
NF02ZJ0024	Southern Bay River	48 22 24	53 40 19	P4	
NF02ZK0001	Rocky River	47 13 38	53 34 09	F12	
NF02ZK0005	Northeast River	47 16 23	53 50 25	P12	
NF02ZL0002	Hearts Content Bk	47 50 55	53 19 31	P4	

NF02ZL0029	Goulds Brook	47 30 18	53 17 28		P12
NF02ZM0009	Waterford River	47 31 46	52 44 34		P12
NF02ZM0014	Virginia River	47 35 02	52 41 29		P12
NF02ZM0015	Quidi Vidi Outlet	47 35 02	52 40 51		P12
NF02ZM0016	Rennies River	47 34 40	52 42 03		P12
NF02ZM0017	Raymond Brook	47 26 31	52 46 20		P12
NF02ZM0020	Broad Cove Brook	47 35 14	52 52 53		P6
NF02ZN0002	Northwest Brook	46 45 33	53 23 25		P4
NF02ZN0004	Salmonier River	47 10 54	53 23 56		P6
NF02ZM0109	Mundy Pond	47 33 40	52 44 38		P12
NF02ZM0144	Kelly's Brook	47 34 28	52 42 45		P12

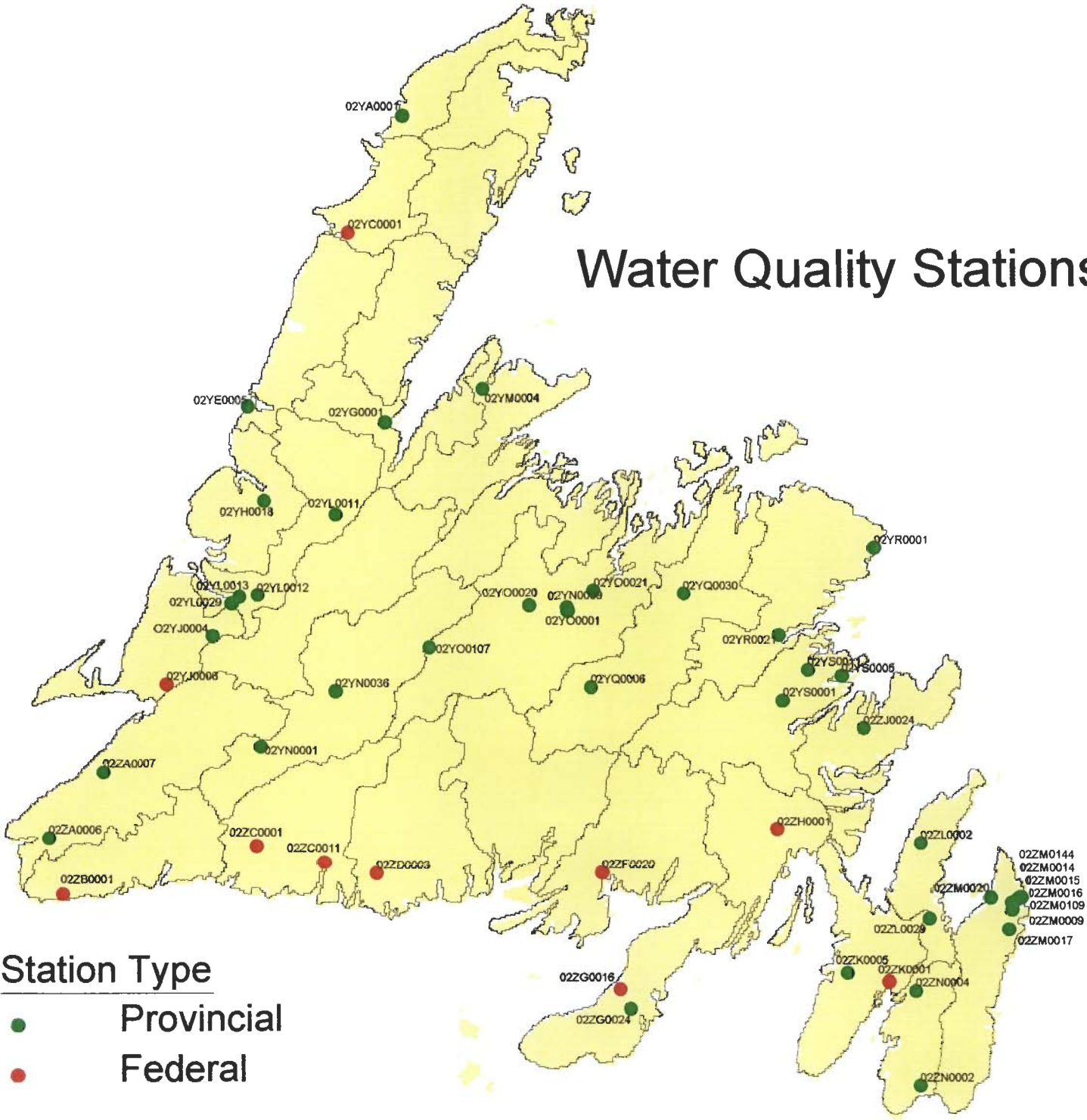
LABRADOR

NF03OE0001	Churchill River	53 15 29	60 45 00	F	F 4	HS
NF03QC0001	Eagle River	53 27 29	57 33 29	F	F 4	HS

HS - Helicopter site

- Note:
1. A total of 53 stations will be sampled during 1997-98
 2. Monthly stations will be sampled in the first week of every month; bi-monthly samples in the first week of April, June, August, October, December, and February and quarterly samples in the first week of April, July, October, and January.
 3. Lake sampling program in Gros Morne National Park may also continue subject to the availability of funds in Environment Canada.

Water Quality Stations



Water Quality Stations

Station Type

- Provincial
- Federal



SCHEDULE C

SAMPLING MEDIA AND ANALYTICAL PARAMETERS

Schedule C

Sampling Media and Analytical
Parameters 1997 - 98

Station #	Description	Sampling Media	Analytical Group	Analyzed by:
<u>ISLAND</u>				
NF02YA0001	Ste. Genevieve	W	W1, W2, W3	F
NF02YC0001	Torrent River	W	W1, W2, W3	F
NF02YE0005	Western Brook	W + M	W1, W2, W3	F
NF02YG0001	Main River	W	W1, W2, W3	F
NF02YH0018	Lomond River	W + M	W1, W2, W3	F
NF02YJ0004	Pinchgut Brook	W	W1, W2, W3	F
NF02YJ0006	Harrys River	W	W1, W2, W3	F
NF02YL0011	Humber River	W + M	W1, W2, W3	F
NF02YL0012	Humber River	W + M	W1, W2, W3	F
NF02YL0013	Corner Brook	W + M	W1, W2, W3, W5	F
NF02YL0029	Wild Cove Brook	W + M	W1, W2, W3	F
NF02YM0004	South West Brook	W	W1, W2, W3	F
NF02YN0001	Lloyds River	W	W1, W2, W3	F
NF02YN0036	Star Brook	W	W1, W2, W3	F
NF02YN0039	Cordroy Brook	W + M	W1, W2, W3, W5	F
NF02YO0001	Exploits River	W + M	W1, W2, W3, W5	F
NF02YO0020	Exploits River	W	W1, W2, W3, W5	F
NF02YO0021	Exploits River	W + M	W1, W2, W3, W5	F
NF02YO0107	Exploits River	W	W1, W2, W3, W5	F
NF02YQ0006	NorthW. Gander R.	W	W1, W2, W3	F
NF02YQ0030	Gander River	W + M	W1, W2, W3	F
NF02YR0001	Pound Cove Brook	W	W1, W2, W3	F
NF02YR0021	Middle Brook	W	W1, W2, W3	F
NF02YR0001	Terra Nova	W + M	W1, W2, W3	F
N02YS0005	Southwest Brook	W	W1, W2, W3	F
NF02YSC011	Terra Nova River	W + M	W1, W2, W3	F
NF02ZA0006	Grand Codroy R.	W	W1, W2, W3	F
NF02ZA0007	Crabbe's River	W	W1, W2, W3	F
NF02ZB0001	Isle Aux Morts R.	W	W1, W2, W3	F
NF02ZC0001	Grandy Brook	W	W1, W2, W3	F
NF02ZC0011	White Bear River	W	W1, W2, W3	F
NF02ZD0003	Grey River	W	W1, W2, W3	F
NF02ZF0020	Bay du Nord River	W	W1, W2, W3	F
NF02ZG0016	Garnish River	W	W1, W2, W3	F
NF02ZG0024	Tides Brook	W	W1, W2, W3	F
NF02ZH0001	Pipers Hole R.	W	W1, W2, W3	F
NF02ZJ0024	Southern Bay River	W	W1, W2, W3	F
NF02ZK0001	Rocky River	W	W1, W2, W3	F
NF02ZK0005	Northeast River	W	W1, W2, W3	F
NF02ZL0002	Hearts Content Bk	W	W1, W2, W3	F
NF02ZL0029	Goulds Brook	W	W1, W2, W3	F
NF02ZM0009	Waterford River	W + M	W1, W2, W3, W5	F

NF02ZM0014	Virginia River	W + M	W1, W2, W3, W5	F
NF02ZM0015	Quidi Vidi Outlet	W + M	W1, W2, W3, W5	F
NF02ZM0016	Rennies River	W	W1, W2, W3, W5	F
NF02ZM0017	Raymond Brook	W + M	W1, W2, W3, W5	F
NF02ZM0020	Broad Cove Brook	W	W1, W2, W3	F
NF02ZN0002	Northwest Brook	W + M	W1, W2, W3	F
NF02ZN0004	Salmonier River	W	W1, W2, W3	F
NF02ZM0109	Mundy Pond	W + M	W1, W2, W3	F
NF02Z0144	Kelly's Brook	W + M	W1, W2, W3	F

LABRADOR

NF03OE0001	Churchill River	W	W1, W2, W3	F
NF03QC0001	Eagle River	W	W1, W2, W3	F

W	-	Water
S	-	Sediment
B	-	Biota
F	-	Federal lab
M	-	Microbiology

* Refer to Table C.1 for analytical group codes

- Notes:
1. Microbiological (total and fecal coliform) analysis is carried out by the Provincial Public Health Lab.
 2. All other analytical work is carried out by federal labs in Burlington and Moncton.
 3. A total of 500 (400 Burlington and 100 Moncton) water samples will be analyzed by federal labs in Burlington and Moncton.
 4. Water quality parameters (temperature, pH, dissolved oxygen, and conductivity) are analyzed by Watershed Quality Officers in the provincial environment lab, as well as by Burlington and Moncton labs.

Table C.1
Analytical Parameters

Parameter Set	Analysis Type	Parameter Group
1) Water - Physical Parameters, Major Ions and Nutrients		
Temperature	Field	W1
pH	Field & Lab	W1
Specific Conductance	Field & Lab	W1
Dissolved Oxygen	Field	W1
Turbidity	Lab	W1
Colour	Lab	W1
Calcium (Diss.)	Lab	W1
Magnesium (Diss.)	Lab	W1
Potassium (Diss.)	Lab	W1
Sodium (Diss.)	Lab	W1
Alkalinity Total or Gran	Lab	W1
Chloride (Diss.) IC	Lab	W1
Sulphate (Diss.) IC	Lab	W1
Dissolved Organic Carbon	Lab	W1
Total Nitrogen	Lab	W1
Nitrate and Nitrite (Diss.)	Lab	W1
Total Phosphorus	Lab	W1
Silica Reactive	Lab	W1
2) Water - Total Extractable Metals		
Aluminum Barium	ICAP	W2
Iron Beryllium	ICAP	W2
Copper Chromium	ICAP	W2
Zinc Manganese	ICAP	W2

Parameter Set		Analysis Type	Parameter Group
Cadmium	Molybdenum	ICAP	W2
Lead	Lithium	ICAP	W2
Cobalt	Strontium	ICAP	W2
Nickel	Vanadium	ICAP	W2
Mercury		Lab	W2
3) Water - Total Dissolved Metals			
Aluminum		Lab	W3
Iron		Lab	W3
Copper		Lab	W3
Zinc		Lab	W3
Cadmium		Lab	W3
Lead		Lab	W3
Cobalt		Lab	W3
Nickel		Lab	W3
Mercury		Lab	W3
4) Water - Selected Organics			
OC/PCB		Lab	W4
5) Water - Bacterias			
Total coliform		Lab	W5
Fecal Coliform		Lab	W5
6) Sediments - Metals and Organics			
Lead		Lab	S1
Copper		Lab	S1
Zinc		Lab	S1
Mercury		Lab	S1
Iron		Lab	S1
Aluminum		Lab	S1

Parameter Set	Analysis Type	Parameter Group
Cadmium	Lab	S1
Chromium	Lab	S1
OC/PCB	Lab	S1
Organic Carbon	Lab	S1
Particle Size Analysis	Lab	S1
7) Fish - Metals, Organics and Physiology		
Lead	Lab	B1
Copper	Lab	B1
Zinc	Lab	B1
Mercury	Lab	B1
Cadmium	Lab	B1
OC/PCB	Lab	B1
Lipid Content	Lab	B1
Physiology	Lab	B1
8) Fish - Organics		
Scan	Lab	B2

SCHEDULE D

**DATA MANAGEMENT AND
TECHNICAL REPORTS**

**SCHEDULE D - Data Management and
Technical Reports**

Activity	Responsible Agency
1. Quality Assurance in the National Water Quality Laboratory and Moncton Laboratory	Environment Canada
1.1 Quality Control Procedures	
1.2 Guidelines for Good Laboratory Practices	
1.3 Guidelines for Instrument Performance	
2. Management Water Quality Data	Environment Canada
2.1 Data Recording, Documentation and Validation	
2.2 Data Screening and Verification	
2.3 Data Audits, Custody and Transfer	
2.4 Management of National Water Quality Database (ENVIRODAT)	
2.5 Downloading and Processing of Water Quality Data	Newfoundland Environment Water Resources Management Division
2.6 Management of Provincial Water Quality Database	Newfoundland Environment Water Resources Management Division
3. Technical Documents	Newfoundland Environment Water Resources Management Division
3.1 Agreement Annual Reports 1994-95, 1995-96 & 1996-97	
3.2 Fact Sheets on Some Urban Rivers	
3.3 Water Quality of St. John's Rivers	
3.4 Water Quality Trends in Wild Cove Brook	
3.5 State of Water Quality of Newfoundland	

Activity	Responsible Agency
3.6 Land Use Analysis Using GIS	Newfoundland Environment Water Resources Management Division
3.7 Planning for 1998-99 Recurrent Survey to Assess Impacts of Aquaculture Operations, Mining and Logging Activities on Water Quality	

MEETING MINUTES
1996-97

Canada-Newfoundland Water Quality Monitoring Agreement

Co-Ordinating Committee Meeting

Minutes

The Co-ordinating Committee for the Canada-Newfoundland Water Quality Monitoring Agreement, met on March 24, 1997 in the Boardroom of the Department of Environment and Labour. The following members were in attendance:

Tom Pollock	Environmental Conservation Branch, Ecosystem Science, Environmental Quality Section, Moncton, NB
Wasi Ullah	Water Resources Management Division, Department of Environment and Labour, St. John's, NF
Haseen Khan	Water Resources Management Division, Department of Environment and Labour, St. John's, NF

The following is an overview of discussions, decisions, and action items:

1. Network Size and Monitoring Activities for 1997-98

Dr. Ullah briefed about 1997-98 budget and expressed hope that the present level of provincial funding will continue for next three years.

Dr. Ullah indicated that as a part of the provincial program review, two positions (Water Quality Manager and Water Quality Officer for the central region) under this Agreement, were made redundant. This will require redesign of the water quality monitoring network. To this end, Dr. Ullah suggested that any changes in the present water quality monitoring network, should maintain adequate coverage to all geographic regions of the province. Haseen agreed to redesign the network.

Haseen provided an overview of the activities undertaken during 1996-97 fiscal year. A total of 62 stations were operated under the Agreement which were sampled according to the designed frequency by the federal and provincial staff.

Dr. Pollock indicated that the federal staff will continue to sample all those stations which were sampled by them in 1996-97. He also indicated that during 1997-98 Environment Canada Lab in Burlington will analyse about 400 water samples for nutrients, ions, metals, and other parameters. These samples are in addition to about 100 samples to be analysed by the Environment Canada Lab in Moncton, which are collected by the federal staff as a part of water quality related activities in Newfoundland.

2. Sample Shipping and Federal Contact Persons

As has been the practice in the past, all samples collected by the Water Resources Management Division will be shipped to Environment Canada Lab in Burlington and the samples collected by the federal staff will be shipped to Environment Canada Lab in Moncton. Wendy Charlton will remain the federal contact person in Burlington Lab.

3. Water Quality Database

Haseen informed that with the help of Environment Canada staff in Moncton, we have down loaded nine years (1986 to 1994) of water quality data from the NAQUADAT database for all stations operated under the Agreement. All data sets have been processed and are ready to be used for any type of analysis. This was quite tedious and time consuming task.

4. Water Quality Index

Haseen gave a brief overview of the approach, formulation, and its application to the Exploits River basin for testing purposes. The results of the index will be used to prepare a report entitled as "Newfoundland Water Quality Status Report". Water Quality Guidelines and State of Environment Reporting Task Groups of the CCME are promoting the use of this approach for the preparation of State of Environment Reports throughout the country.

5. Water Quality Data Requests and Charges

Dr. Ullah informed that we have introduced nominal fees for water quality data requests. The exact amount of fees is decided on a case -by-case basis depending on the record length of the requested data, data processing time, etc. Dr. Pollock expressed his agreement with the concept of data use charges, and indicated that the federal government is also moving in the same direction.

6. Annual Work Plan

After a brief discussion on various activities to be undertaken during 1997-98, it was agreed that an annual work plan be prepared. Haseen agreed to prepare the work plan which will be forwarded to Dr. Pollock for his review and signature.

7. Other Items

- (A) It was agreed that work should continue towards the preparation of following documents under this Agreement:

- Annual reports for the following fiscal years: 1994-95, 1995-96, and 1996-97.
 - Interpretive reports for each basin monitored under the Agreement.
 - Fact sheets for each basin monitored under the Agreement.
- (b) Dr. Ullah told the members that this his last meeting as the Provincial Administrator of the Agreement, and he will be retiring from the public services on March 31, 1997. He thanked Dr. Pollock for his excellent cooperation and support.

7. Next Meeting

Dr Ullah suggested that the Co-ordinating Committee for the Agreement should meet at least twice every year. It was agreed that one of these two meetings will be held in St. John's and the second in Moncton. Haseen and Tom will fix the next meeting date which will be held in Moncton.

