

**Canada-Newfoundland
Water Quality Monitoring Agreement
Annual Work Schedule 2004-2005**

The attached Schedules A, B, C, D and E outline work activities to be carried out during the current fiscal year under the Canada-Newfoundland Water Quality Monitoring Agreement. All five Schedules have been reviewed and approved by the Administrators of the Agreement.

Jean Guy Deveau
Administrator, on behalf of
Environment Canada

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

Schedule A
Agreement Committees

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

Mr. Jean Guy Deveau	Environment Canada Atlantic Region, on behalf of Canada
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Mr. Martin Goebel	Department of Environment & Conservation, on behalf of Newfoundland & Labrador
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The Administrators will be assisted by a Coordinating Committee consisting of the following:

Mr. Art Cook	Environment Canada Atlantic Region
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Mr. Haseen Khan	Water Resources Management Division, Newfoundland & Labrador Department of Environment & Conservation
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Schedule B

**Station Location, Designation
and Sampling Frequency**

Canada-Newfoundland Water Quality Monitoring Agreement
Index Station Location, Designation and Sampling Frequency 2004-2005

Station #	Description	Latitude	Longitude	Samples/year Sampled By	Remarks
<u>EASTERN REGION</u>					
NF02ZK0005	Northeast River	47 16 23	53 50 25	P 4	
NF02ZL0029	Goulds Brook	47 30 18	53 17 28	P 4	
NF02ZM0004	Waterford River	47 31 19	52 48 29	P 4	
NF02ZM0009	Waterford River	47 31 46	52 44 34	P 6	
NF02ZM0014	Virginia River	47 35 02	52 41 29	P 12	
NF02ZM0015	Quidi Vidi Outlet	47 35 02	52 40 51	P 6	
NF02ZM0016	Rennies River	47 34 40	52 42 03	P 6	
NF02ZM0098	Virginia River	47 35 56	52 45 17	P 4	
NF02ZM0109	Mundy Pond	47 33 40	52 44 38	P 4	
NF02ZM0144	Kelly's Brook	47 34 28	52 42 45	P 6	
NF02ZM0175	Waterford River	47 31 34	52 45 48	P 4	
NF02ZM0176	South Brook	47 31 41	52 44 48	P 4	
NF02ZM0177	Rennies River	47 34 28	52 42 36	P 4	
NF02ZM0178	Learys Brook	47 34 21	52 44 21	P 4	RT
NF02ZM0179	Virginia River	47 35 47	52 42 06	P 4	
NF02ZM0180	Virginia River	47 35 59	52 42 02	P 4	
NF02ZM0181	Waterford River	47 32 53	52 43 09	P 6	
NF02ZM0182	Waterford River	47 31 07	52 51 21	P 4	
NF02ZM0183	Kelligrews River	47 29 45	53 01 03	P 4	
NF02ZM0184	Learys Brook	47 34 16	52 47 29	P 4	
NF02ZM0185	South Brook	47 29 37	52 51 02	P 4	
NF02ZN0002	Northwest Brook	46 45 33	53 23 25	P 4	
NF02ZN0004	Salmonier River	47 10 54	53 23 56	P 4	
NF02ZM0294	Manuals River	47 31 11	57 56 41	P 4	
NF02ZG0016	Garnish River	47 13 00	55 19 48	F 6	
NF02ZH0001	Pipers Hole River	47 55 51	54 16 25	F 6	
NF02ZK0001	Rocky River	47 13 38	53 34 09	F 6	
<u>CENTRAL REGION</u>					
NF02YM0004	South West Brook	49 55 15	56 13 45	P 4	
NF02YM0003	Indian Brook	49 29 53	56 10 35	P 4	
NF02YO0123	South Twin Lake	49 11 11	55 55 24	P 6	
NF02YO0189	Joe's Lake	49 01 43	56 04 01	P 6	
NF02YO0107	Exploits River	48 45 34	56 35 32	P 6	
NF02YO0020	Exploits River	48 56 55	55 54 56	P 12	
NF02YO0001	Exploits River	48 55 27	55 39 21	P 12	
NF02YO0142	Corduoy Brook	48 56 21	55 39 47	P 12	
NF02YO0143	Exploits River	49 01 15	55 27 15	P 12	
NF02YO0006	Peter's River	49 06 21	55 24 38	P 12	RT
NF02YQ0006	NorthW. Gander River	48 34 54	55 30 20	P 4	
NF02YQ0030	Gander River	48 59 41	54 52 04	P 4	
NF02YR0001	Pound Cove Brook	49 10 40	53 33 36	P 4	
NF02YR0021	Middle Brook	48 48 08	54 13 34	P 4	
NF02YS0001	Terra Nova River	48 30 27	54 12 43	P 6	
NF02YS0011	Terra Nova River	48 38 27	54 02 11	P 6	
NF02YS0083	Northwest River	48 23 44	54 11 53	P 6	
NF02ZF0020	Bay du Nord River	47 44 45	55 26 23	F 4	HS

WESTERN REGION

NF02YE0005	Western Brook	49 49 49	57 51 23	P 4	
NF02YG0001	Main River	49 46 10	56 54 15	P 6	
NF02YG0020	Eagle Mountain Brook	49 49 53	57 17 15	P 6	
NF02YH0018	Lomond River	49 24 07	57 43 49	P 4	
NF02YJ0004	Pinchgut Brook	48 47 51	58 03 43	P 6	
NF02YL0011	Humber River	49 20 54	57 14 07	P 6	
NF02YL0012	Humber River	48 59 01	57 45 40	P 6	RT
NF02YL0013	Corner Brook	48 56 40	57 56 12	P 6	
NF02YL0029	Wild Cove Brook	48 58 28	57 53 02	P 6	
NF02YN0001	Lloyds River	48 18 16	57 43 07	P 4	
NF02ZA0006	Grand Codroy R.	47 52 08	59 07 05	P 6	
NF02ZB0001	Isle aux Mort River	47 36 50	59 00 33	P 6	
NF02ZC0001	Grandy's Brook	47 51 25	57 44 00	F 6	HS
NF02ZD0003	Grey River	47 44 35	56 56 03	F 4	HS
NF02YC0001	Torrent River	50 36 44	57 10 05	F 6	
NF02YJ0006	Harry's River	48 34 32	58 21 48	F 6	

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NF02XA0001	Little Mecatina River	52 13 42	61 19 32	F 4	HS
NF03NF0013	Ugjoktok River	55 13 60	61 17 57	F 4	HS
NF03OC0012	Atikonak River	52 58 03	64 39 40	F 4	HS
NF03OD0011	East Metchin River	53 26 07	63 14 03	F 4	HS
NF03OE0001	Churchill River	53 14 52	60 47 21	F 6	HS
NF03OE0030	Minipi River	52 36 53	61 11 11	F 4	HS
NF03OE0032	Pinus River	53 08 52	61 33 31	F 4	HS
NF03OE0033	Big Pond Brook	53 30 43	60 17 31	F 4	HS
NF03PB0025	Naskaupi River	54 07 54	61 25 45	F 4	HS
NF03QC0001	Eagle River	53 27 54	57 33 29	F 4	HS
NF03QC0002	Alexis River	52 38 57	56 52 17	F 4	HS

LABRADOR ASHKUI

NF03NG0032	Shipiskan Lake West	54 39 22	62 24 21	F1	HS
NF03NG0033	Shipiskan Lake North	54 39 42	62 21 54	F1	HS
NF03NG0034	Shipiskan Lake East	54 37 24	62 12 58	F1	HS
NF03OD0012	Wilson River E. Branch	53 18 33	62 55 11	F1	
NF03OE0034	Minipi Lake	52 32 55	60 57 43	F1	HS
NF03OE0035	Dominion Lake	52 43 45	61 45 17	F1	HS
NF03OE0036	Pinus River	53 02 25	61 17 45	F3	
NF03OE0037	Cache River	53 11 33	62 12 11	F1	
NF03PB0027	Naskaupi River	53 47 44	60 50 26	F3	HS
NF03PB0028	Cape Caribou River	53 37 16	60 24 52	F1	HS
NF03PB0030	Seal Lake Narrows	54 19 55	61 38 27	F1	HS
NF03PB0032	Susan River	53 44 17	60 56 48	F3	HS
NF03PB0037	Wuchusk Lake	54 23 43	61 47 09	F1	HS
NF03QA0045	Kenamu River	53 28 34	59 55 01	F3	HS
NF03QA0066	Kenamu River	52 46 50	60 10 38	F3	HS

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NF03NE0001	Reid Brook	56 22 22	62 09 43	C	HS/RT
NF03NE0002	Camp Pond Brook	56 20 32	62 06 24	C	HS/RT
NF03NE0011	Lower Reid Brook	56 18 18	62 05 34	C	HS/RT

P-Provincial
F-Federal
C-Contributed
HS - Helicopter site
RT-Real Time Station

- Note:
1. A total of 90 stations will be sampled during 2004-2005.
 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. The focus is to optimize the number of stations sampled in the 2004-05 work schedule, analyse existing data, and prepare technical reports regarding water quality at index stations.
 4. For Ashkui sites, samples are collected 3 times a year and analysed at the Moncton Laboratory for physical parameters, major ions, nutrients, Hg (trace), metals and for chlorophyll at DalTech.
 4. The following Ashkui stations were sampled once in the Spring of 2004, but will no longer be sampled, and will be dropped from the program in 2005-06:

NF03NG0032	Shipiskan Lake West
NF03NG0033	Shipiskan Lake North
NF03NG0034	Shipiskan Lake East
NF03PB0037	Wuchusk Lake
NF03PB0030	Seal Lake
NF03PB0028	Cape Caribou River
NF03OE0035	Dominion Lake
NF03OE0034	Minipi Lake
NF03OE0037	Cache River
NF03OD0012	Wilson River East Branch

Schedule C

Sampling Media and Analytical Parameters

**Sampling Media and Analytical
Parameters 2004 - 2005**

Station #	Description	Sampling Media	Analytical Group	Analyzed by:
<u>EASTERN REGION</u>				
NF02ZK0005	Northeast River	W + M	W1, W2, W3, W5	F
NF02ZL0029	Goulds Brook	W + M	W1, W2, W3, W5	F
NF02ZM0004	Waterford River	W + M	W1, W2, W3, W5	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 + M	W1, W2, W3, W5	F
NF02ZM0098	Virginia River	W + M	W1, W2, W3, W5	F
NF02ZM0109	Mundy Pond	W + M	W1, W2, W3, W5	F
NF02ZM0144	Kelly's Brook	W + M	W1, W2, W3, W5	F
NF02ZM0175	Waterford River	W + M	W1, W2, W3, W5	F
NF02ZM0176	South Brook	W + M	W1, W2, W3, W5	F
NF02ZM0177	Rennies River	W + M	W1, W2, W3, W5	F
NF02ZM0178	Learys Brook	W + M	W1, W2, W3, W5	F
NF02ZM0179	Virginia River	W + M	W1, W2, W3, W5	F
NF02ZM0180	Virginia River	W + M	W1, W2, W3, W5	F
NF02ZM0181	Waterford River	W + M	W1, W2, W3, W5	F
NF02ZM0182	Waterford River	W + M	W1, W2, W3, W5	F
NF02ZM0183	Kelligrews River	W + M	W1, W2, W3, W5	F
NF02ZM0184	Learys Brook	W + M	W1, W2, W3, W5	F
NF02ZM0185	South Brook	W + M	W1, W2, W3, W5	F
NF02ZN0002	Northwest Brook	W + M	W1, W2, W3, W5	F
NF02ZN0004	Salmonier River	W + M	W1, W2, W3, W5	F
NF02ZM0294	Manuals River	W + M	W1, W2, W3, W5	F
NF02ZG0016	Garnish River	W + M	W1, W2, W3, W5	F
NF02ZH0001	Pipers Hole River	W + M	W1, W2, W3, W5	F
NF02ZK0001	Rocky River	W + M	W1, W2, W3, W5	F
<u>CENTRAL REGION</u>				
NF02YM0004	South West Brook	W + M	W1, W2, W3, W5	F
NF02YM0003	Indian Brook	W + M	W1, W2, W3, W5	F
NF02YO0123	South Twin Lake	W + M	W1, W2, W3, W5	F
NF02YO0189	Joe's Lake	W + M	W1, W2, W3, W5	F
NF02YO0107	Exploits River	W + M	W1, W2, W3, W5	F
NF02YO0020	Exploits River	W + M	W1, W2, W3, W5	F
NF02YO0001	Exploits River	W + M	W1, W2, W3, W5	F
NF02YO0142	Corduoy Brook	W + M	W1, W2, W3, W5	F
NF02YO0143	Exploits River	W + M	W1, W2, W3, W5	F
NF02YO0006	Peter's River	W + M	W1, W2, W3, W5	F
NF02YQ0006	NorthW. Gander River	W + M	W1, W2, W3, W5	F
NF02YQ0030	Gander River	W + M	W1, W2, W3, W5	F
NF02YR0001	Pound Cove Brook	W + M	W1, W2, W3, W5	F
NF02YR0021	Middle Brook	W + M	W1, W2, W3, W5	F
NF02YS0001	Terra Nova River	W + M	W1, W2, W3, W5	F
NF02YS0011	Terra Nova River	W + M	W1, W2, W3, W5	F

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NF02YS0083	Northwest River	W + M	W1, W2, W3, W5	F
NF02ZF0020	Bay du Nord River	W + M	W1, W2, W3, W5	F

WESTERN REGION

NF02YE0005	Western Brook	W + M	W1, W2, W3, W5	F
NF02YG0001	Main River	W + M	W1, W2, W3, W5	F
NF02YG0020	Eagle Mountain Brook	W + M	W1, W2, W3, W5	F
NF02YH0018	Lomond River	W + M	W1, W2, W3, W5	F
NF02YJ0004	Pinchgut Brook	W + M	W1, W2, W3, W5	F
NF02YL0011	Humber River	W + M	W1, W2, W3, W5	F
NF02YL0012	Humber River	W + M	W1, W2, W3, W5	F
NF02YL0013	Corner Brook	W + M	W1, W2, W3, W5	F
NF02YL0029	Wild Cove Brook	W + M	W1, W2, W3, W5	F
NF02YN0001	Lloyds River	W + M	W1, W2, W3, W5	F
NF02ZA0006	Grand Codroy River	W + M	W1, W2, W3, W5	F
NF02ZB0001	Isle Aux Morts River	W + M	W1, W2, W3, W5	F
NF02ZC0001	Grandy Brook	W + M	W1, W2, W3, W5	F
NF02ZD0003	Grey River	W + M	W1, W2, W3, W5	F
NF02YC0001	Torrent River	W + M	W1, W2, W3, W5	F
NF02YJ0006	Harrys River	W + M	W1, W2, W3, W5	F

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NF02XA0001	Little Mecatina River	W	W1, W2, W3	F
NF03NF0013	Ugjohtok River	W	W1, W2, W3	F
NF03OC0012	Atikonak River	W	W1, W2, W3	F
NF03OD0011	East Metchin River	W	W1, W2, W3	F
NF03OE0001	Churchill River	W	W1, W2, W3	F
NF03OE0030	Minipi River	W	W1, W2, W3	F
NF03OE0032	Pinus River	W	W1, W2, W3	F
NF03OE0033	Big Pond Brook	W	W1, W2, W3	F
NF03PB0025	Naskaupi River	W	W1, W2, W3	F
NF03QC0001	Eagle River	W	W1, W2, W3	F
NF03QC0002	Alexis River	W	W1, W2, W3	F

LABRADOR ASHKUI

NF03NG0032	Shipiskan Lake West	W	W1, W2, W3	F
NF03NG0033	Shipiskan Lake North	W	W1, W2, W3	F
NF03NG0034	Shipiskan Lake East	W	W1, W2, W3	F
NF03OD0012	Wilson River East Branch	W	W1, W2, W3	F
NF03OE0034	Minipi Lake	W	W1, W2, W3	F
NF03OE0035	Dominion Lake	W	W1, W2, W3	F
NF03OE0036	Pinus River	W	W1, W2, W3	F
NF03OE0037	Cache River	W	W1, W2, W3	F
NF03PB0027	Naskaupi River	W	W1, W2, W3	F
NF03PB0028	Cape Caribou River	W	W1, W2, W3	F
NF03PB0030	Seal Lake Narrows	W	W1, W2, W3	F
NF03PB0032	Susan River	W	W1, W2, W3	F
NF03PB0037	Wuchusk Lake	W	W1, W2, W3	F
NF03QA0045	Kenamu River	W	W1, W2, W3	F
NF03QA0066	Kenamu River	W	W1, W2, W3	F

LABRADOR VOISEY'S BAY

NF03NE0001	Reid Brook	W	W1, W2, W3	F
NF03NE0002	Camp Pond Brook	W	W1, W2, W3	F
NF03NE0011	Lower Reid Brook	W	W1, W2, W3	F

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

* Refer to Table C.1 for analytical group codes

Notes:

1. Microbiological (total and faecal 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 water samples will be analysed by federal labs in Burlington and Moncton.
4. Some physical parameters (temperature, pH, dissolved oxygen, and conductivity) are analysed by Water Quality Officers in the field, 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	W1
Specific Conductance	Field	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
Cadmium Molybdenum	ICAP	W2
Lead Lithium	ICAP	W2

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Cobalt	Strontium	ICAP	W2
Nickel	Vanadium	ICAP	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
4) Water - Selected Organics			
OC/PCB		Lab	W4
5) Water - Bacteria			
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
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

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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

Data Management and Technical Reports

Activity	Responsible Agency
1. Quality Assurance in the National Water Quality Laboratory and Moncton Laboratory	
1.1 Quality Control Procedures	Environment Canada
1.2 Guidelines for Good Laboratory Practices	Environment Canada
1.3 Guidelines for Instrument Performance	Environment Canada
2. Management of Water Quality Data	
2.1 Data Recording, Documentation and Validation	Environment Canada
2.2 Data Screening and Verification	Environment Canada
2.3 Data Audits, Custody and Transfer	Environment Canada
2.4 Management of National Water Quality Database (ENVIRODAT)	Environment Canada
2.5 Management of Provincial Water Quality Database	Newfoundland and Labrador Environment & Conservation, Water Resources Management Division
2.6 GIS Application for Data Reporting: <ul style="list-style-type: none"> •Site Documentation Database •Water Quality Index Database •Bacteriological Database •Fact Sheet • 	Environment Canada, Environmental Science and Integration Division (Sarah Hall and Group) & Newfoundland and Labrador Environment & Conservation, Water Resources Management Division
2.7 Management and Updating of Real Time Water Quality Data and Web-site	Newfoundland and Labrador Environment & Conservation, Water Resources Management Division
2.8 Management and Updating of Site Documentation Database	Environment Canada and Newfoundland and Labrador Environment & Conservation, Water Resources Management Division
2.9 Management and Updating of Water Quality Index Database	Environment Canada and Newfoundland and Labrador Environment & Conservation, Water Resources Management Division
2.10 Management and Updating of Bacteriological Database	Environment Canada and Newfoundland and Labrador Environment & Conservation, Water Resources Management Division

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2.11 Development of dynamic link between ENVIRODAT and Water Quality Index code	Environment Canada, Environmental Science and Integration Division (Sarah Hall & Group) and Newfoundland and Labrador Environment & Conservation, Water Resources Management Division
2.12 Development of site specific watershed Water Quality Index roll-up capability	Environment Canada and Newfoundland and Labrador Environment & Conservation, Water Resources Management Division
2.13 Development of a site specific guidelines calculation using CCME background concentration method	Environment Canada and Newfoundland and Labrador Environment & Conservation, Water Resources Management Division
2.14 Testing of the Water Quality Index on-line service	Environment Canada and Newfoundland and Labrador Environment & Conservation, Water Resources Management Division
3. Technical Documents	
3.1 Site Documentation Report Update (printed version)	Newfoundland and Labrador Environment & Conservation, Water Resources Management Division
3.2 Fact Sheets on selected Rivers	Newfoundland and Labrador Environment & Conservation, Water Resources Management Division
3.3 Water Quality of St. John's Rivers	Newfoundland and Labrador Environment & Conservation, Water Resources Management Division
3.4 Water Quality Index - Research and Development	Newfoundland and Labrador Environment & Conservation, Water Resources Management Division
3.5 Intensive Survey Report	Newfoundland and Labrador Environment & Conservation, Water Resources Management Division
3.6 Canal Project position paper	Environment Canada and Newfoundland and Labrador Environment & Conservation, Water Resources Management Division
3.7 Documentation and development of water quality Index protocols	Environment Canada and Newfoundland and Labrador Environment & Conservation, Water Resources Management Division

Schedule E

Special Studies

A special study for water, biota and sediment survey will be planned for a selected basin in this fiscal year, in consultation with Environment Canada.

Schedule F
Meeting Minutes

**Canada-Newfoundland Water Quality Monitoring Agreement
Annual Meeting
St. John's, NL
Confederation Building
Monday, May 10th, 2004
9:00am - 4:00pm**

Attendance:

Haseen Khan	(Dept of Environment and Conservation)
Amir Ali Khan	(Dept of Environment and Conservation)
Renee Paterson	(Dept of Environment and Conservation)
Jean-Guy Deveau	(Environment Canada)
Sarah Hall	(Environment Canada)
Art Cook	(Environment Canada)
Tom Kralidis	(Environment Canada)

1) Jurisdictional Overview:

> Environment Canada

- Jean-Guy introduced himself and informed the group that he will be acting in the position that was held by Geoff Howell.
- He is very interested in allowing work to proceed under the Canada-Newfoundland Water Quality Monitoring Agreement (WQMA) utilizing some resources from the ResEau project.
- Jean-Guy asked if administrators needed to be appointed under this Agreement; Haseen responded that administrators do not need to be appointed.

> Water Resources Management Division (WRMD)

- Haseen stated that this annual meeting is usually held during the last week of March, however, due to the strike, the meeting was postponed until the beginning of May.
- **It was decided among the group that there should be additional meetings set up for the fall to follow the progress and keep the lines of communication open between the federal and provincial partners.**
- Haseen explained that there have been numerous changes to departments and programs since the new PC government was established in the fall; the name of the department is now changed to the Department of Environment and Conservation; numerous activities/duties have been added to the department such as the inclusion of wildlife; parks and lands.
- The provincial budget was put forth at the end of March; it was a very restrictive budget with substantial cuts to the Water Quality Monitoring Agreement budget in particular.
- The revenue generated under the real-time water quality network is a positive aspect that must be built upon; **WRMD is in the process of promoting the real-time water quality network with any potential partners in order to generate revenue.**
- Haseen pointed out that the resources from the ResEau project will be very helpful; help and cooperation from federal counterparts is essential and very much appreciated.

> General Discussion

- Jean-Guy asked if Haseen was familiar with a new initiative through Agri-Canada; Haseen stated that he had a short meeting to discuss this project but that it was mainly concerned with water shortage issues; not issues that are of great concern in Newfoundland and Labrador.
- **It was agreed that both the federal and provincial partners will try to keep each party**

informed of any new initiatives or projects that arise.

- Haseen then invited Jean-Guy and Sarah to attend a CCME meeting in October and give a presentation on ResEau; this will be a good forum to interact with all jurisdictions.
- **It was decided that Sarah and Jean-Guy will let Haseen know who will give the presentation.**
- Jean-Guy informed Haseen that Rob Kent's group is in the process of increasing the # of stations under GEMS throughout Newfoundland and Labrador; Jean-Guy has submitted a list to Rob Kent's group; **he will forward this list to Haseen**; it is important to note that this project is just in the planning phase.

2) Annual Work Schedule

> Monitoring Activities and Northern Ecosystem Issues

- There is substantial monitoring that takes place in Labrador under the Agreement; due to budget constraints, it will be very difficult to monitor the Labrador stations; **Haseen will discuss Labrador monitoring with Howie Wills.**
- May be a possibility to harmonize monitoring of the Northern Ecosystem (Ashkui stations); the plan is to sample approximately 13 Ashkui stations this year; **Jean-Guy will provide Haseen with the list of Ashkui stations to be monitored this fiscal year.**

> Analytical Services

- Art stated that there are no outstanding issues with the Burlington lab this year; switched to the one-time use bottle system beginning this fiscal year (2004-05); the provincial officers in each region have received all necessary bottles; the provincial officers now have a direct contact with Burlington lab to ensure communication lines are open.
- All samples collected under the routine Agreement sampling are sent to Burlington for analysis; however, all Ashkui samples are sent to Moncton.
- Art stated that the Moncton lab has upgraded its potential to do mercury speciation; there was some discussion as to whether or not the Ashkui stations will be monitored for mercury; **this is to be discussed in further detail.**
- Art stated that the Moncton lab is also doing a significant amount of work with respect to pesticides.
- Haseen asked if there is analytical work proceeding concerning municipal wastewater effluent (MWWE) in the receiving environment; Art stated that there is some analytical work proceeding; still developing techniques; Haseen explained that there is a new CCME strategy on MWWE that will first go through the consultation phase and then it will get into implementation and monitoring.
- The issue of HAAs analysis was raised. In the past, all HAA samples from Newfoundland and Labrador were sent to Moncton lab for analysis. This fiscal year, the contract (including HAAs analysis) was put to tender as per instructions by GPA; awaiting the results this week; HAAs will be analysed by whichever lab wins the tender.

> Data Management

- Art stated that all data has been proofed up to 2001 and entered in ENVIRODAT; it is all a matter of resources; there has been significant progress in that there are no holes in the data and it is now outside the firewall.
- Ali explained that in the past the province got data transfers on a regular basis from Moncton and then considerable time was spent processing the data by the provincial officers. Throughout the past year, Ali (and the provincial officers) compared the data from ENVIRODAT to the provincial processed data; it was found that both sets of data were very similar with only minor differences; thus it is feasible for the province to utilize the data directly from ENVIRODAT.
- The major issue of concern is that it is necessary to keep track of VMV code changes from year to year; it was stated that VMV codes can only be changed in Burlington or Moncton; this is a task that has to be done at the lab level; this is on the list of tasks when the new Data Manager is in place; **it was agreed that Art would email Haseen and Ali discussing VMV code changes each year.**

Canada-Newfoundland Water Quality Monitoring Agreement

- It was agreed that the province should be able to get the data from the CANAL website and ENVIRODAT; **Ali and Sarah will try a batch transfer to ensure it is working properly.**
- **It was agreed that the provincial officers will look closely at the data for the first year and provide verification; Ali, Renee and Paul will develop formal steps to QA/QC the data.**

> **Special Study**

- **Renee will check with Joanne Sweeney (central) to determine what results are missing from the Special Study 2003 – Exploits River; an email will be sent to Art requesting the missing data.**
- **Renee will inform Art if there will be a special study in the upcoming fiscal year (2004-05) after this issue is discussed in the Water Quality Section meeting next week.**
- It was agreed that benthic monitoring should be incorporated in future special studies.

> **Delineation and Digitization of Agreement Watersheds**

- Haseen and Ali explained that all Agreement watersheds should be delineated and then digitized so that interesting products such as DEMS and slope maps can be produced.
- Should begin by identifying major stations and then slowly including all stations.
- This is a valuable project for a CO-OP student, however, funding will need to be secured to employ a student.

> **Real-Time Water Quality Monitoring Network**

- Renee gave a presentation describing the provincial real-time water quality network; it is a fairly new initiative that has progressed greatly in the past two years; it is a very positive aspect of the Agreement and will be promoted in the upcoming fiscal year.
- **Sarah will forward the information concerning the new technology from ACG to Ali.**

> **Technical Reports**

- The Trend Analysis Report has been completed by Paula Dawe (western region) for all Agreement stations; **a copy of the report will be forwarded to Jean-Guy for review and input;** in addition, it was suggested that possibly Tom Pollock, Vincent Mercier and Art Cook would be interested in reviewing this report.
- The Network Design Report has been completed by Paula Dawe (Western region); **a copy of the report will be forwarded to Jean-Guy for review and input.**
- A sample fact sheet has been completed for one station; **a copy of the fact sheet will be forwarded to Jean-Guy for review and input.**

3) CANAL Project / ResEau Project

> **General Discussion**

- The ResEau project is presently going through the Treasury Board submission process; this process may not be complete until September due to the election call; there is high level of confidence that this project will proceed; the funding cannot be committed until it is through Treasury Board, however, Sarah may have a better idea of where the funding stands in July or August.
- Due to the delay in funding, there will only be approximately six months of work in this fiscal year; the money will still be spent over a two-year period, however, it is important to determine what can reasonably be done in six months and what should be forwarded to the next year.

> **Station Profile Database; Water Quality Index (WQI) Database; Bacteriological Database Year 1**

- **Lesley (from Sarah's group) will be working to make the databases relational in nature**
- **Lesley may combine the Bacteriological database with the Station Profile database**
- **Lesley will design entry screens for the Station Profile database and Bacteriological database where appropriate**
- Updates will be put on hold until this work is complete

- **It was suggested that we add additional information to the Station Profile database such as digital watersheds; fact sheets (for printing); and trend analysis information in the future.**
- It was decided that we will not need the WQI database when everything is automated.

> **CANAL web page Year 1**

- Sarah's group have made most revisions to the web page; **they are still working on the bacteriological graphs**
- The web page has been made public and can be linked through the CISE web page
- It is important for the Department of Environment and Conservation to have a link to the CANAL site from the Water Resources Management web page; **Ali will ask Paul Neary to complete this task.**

> **Server for Databases**

- There was significant discussion among Sarah, Ali and Tom regarding the best possible server options for the databases; **it was decided that Sarah would provide Ali with a diagram showing typical configurations that will provide some options/specifications;** an IT action plan is needed.
- **Ali will check into this issue further.**

> **Validation System Year 2 (no longer referred to as Security Approval System)**

- This system needs to be put into place at the same time as the automated WQI is released.

> **Automated WQI Calculation Year 2**

> **Documentation for Development of WQI Protocols and Programs Year 1**

> **Development of watershed WQI rollup capability Year 1**

> **Development of a model for using the WQI to detect land-use changes Year 2**

> **Testing of WQI on-line services Year 1**

> **Development of statistically valid ranking system by site Year 1**

> **Site-specific guidelines calculation using CCME background concentration methods Year 1**

- **This work will be done by Ali's group; will develop and test using Newfoundland and Labrador data; will then try one or two stations from other jurisdictions for testing purposes;** will keep in touch with Pierre-Yves Caux.

> **Publications Year 1**

- It is essential to present the CANAL project on a national/international forum; should present to a wide range of audiences; need to get adequate recognition for our work with the WQI.

> **Additional projects Year 2**

- Will be discussed/determined in a fall meeting; by that time there will be a much clearer picture of the ResEau project.

4) Other Business

> **Interoperability and Sensor Web Presentation**

- Tom gave a very interesting presentation on interoperability and web services.

Water Quality Index Meeting
St. John's, NF
Confederation Building
Wednesday, February 11th, 2004
9:30am – 12:30pm

Attendance:

Sarah Hall
Haseen Khan
Ali Khan
Renee Paterson

- The meeting started at 9:30am with Haseen suggesting that we really try to continue the strong partnership and working relationship that was initiated under Geoff Howell. Sarah agreed that the work should continue.

- Sarah began by explaining where the project stands to date. She said it is being implemented as a web service that will automatically go to ENVIRODAT and calculate the WQI. This has been developed and is presently being tested. Dave has been working on this project and now Ron Gauthier is getting involved as well. Sarah said that by March they want to have a map of Canada with all stations plotted but with only the NL stations activated. There will be four options to the end-user: 1) see station profile; 2) see metadata; 3) download data; 4) calculate the WQI from ENVIRODAT. Sarah suggested that it would be nice to have an interface to choose parameters and enter site specific objectives. Ali reminded Sarah that we are in the process of updating the site doc and bacteriological databases; Sarah suggested that this may be able to be done on-line (i.e. updating); Ali also reminded Sarah about the verification tool that was discussed at the last meeting (i.e. expert sign-off).

- Haseen stated that the WQI is an evolving national tool that is receiving a high level of recognition (speech from the throne) and for this reason we must continue to refine and strengthen this tool. Haseen brought up three points:
 2. One area of deficiency is that we have not yet published this work for the scientific community and they therefore still have some reservations; the work that we have done together as a group needs to be published.
 3. Need to refine and give some scientific flavour to the WQI and continue to move forward at a fast pace. We know the deficiencies raised at the WQI workshop therefore we need to build a path forward.
 4. We need to remember to stand back and look at this project from a holistic approach with a greater vision incorporating numerous aspects such as sediment and biota, in addition to water quality.
 - Ali began to bring up some important issues surrounding the WQI and then Haseen summarized them as follows:
 - 1) There is a need for a report to document all the work completed to date on the CANAL project.
Action Item: Ali and Renee will sit together and prepare a Table of Contents; this will then be sent to Sarah for review and input.
 - 2) A variety of technical papers need to be identified for various journals and conferences; Sarah suggested a common presentation tool should be prepared for use by both parties.
Action Item: Sarah will initiate work on this project and circulate to NLDOE for review and input.

3) There is a need to discuss in more detail and prioritize each of the following tasks for refinement of the WQI:

a) look at the WQI from an area/watershed basis as opposed to separate stations (i.e. roll-up)

Action Item: Ali and Renee will do some testing on this issue in the short term.

b) look at the WQI with respect to sensitivity analysis; Ali is very familiar with this aspect and can provide guidance

c) look at the site specific objectives issue with respect to the WQI; there was some discussion on using the ambient water quality data to calculate site specific objectives

Action Item: Ali and Renee should have a discussion with Pierre Yves-Caux to determine if this approach is scientifically defensible.

d) look at the WQI with respect to ranking categories; there was some discussion on the linkage between setting site specific objectives and setting the ranking categories - definitely do not want to double count; Ali explained how the ranking categories can be refined using a non-subjective approach (i.e. normal distribution); Ali is very familiar with this aspect and can provide guidance

e) using the WQI as a web-based tool (on-line)

f) incorporation of features from the French index into the WQI; the French index provides a more holistic approach as an indicator for the total ecosystem (physical; chemical and biological); presently the WQI only looks at the chemical aspect; our work together has incorporated a bacteriological component; other components such as physical (using a GIS tool) and biological aspects should try to be incorporated; Sarah suggested that a tool available from Natural Resources Canada may be helpful with determining the physical attributes

g) application of WQI to groundwater; it was decided that not too much additional work will need to be done to bring in the feature of flagging problem areas with respect to groundwater; Ali is very familiar with this aspect and can provide guidance

h) WQI as a planning tool; NL DOE has already done some work on a forestry WQI as a planning tool; Sarah suggested that the Pockwock Watershed has a significant amount of pre and post forestry data

Action Item: Sarah will discuss this issue of near real-time data with Todd Smith and let Ali know the results of the discussion

i) Sediment Quality Index and other media; important to continue to move forward on exploring the use of the sediment quality index developed by Scott Painter; Annette is testing the model and determining improvements that need to be made as well as preparing a literature review

j) integration of many media into one index

Sarah provided some detail regarding “**ResEau – The Water Connection**”. Back in the fall, Geoff prepared a proposal for Health Canada requesting funding; the funding was recently rewarded. Sarah is the Technical Manager for the project while Rob Kent and Ron Gauthier are both Project Managers. Essentially, the project is designed to address water quality (some water quantity) on an issue basis; want to be able to ask questions (from simple to complex) and get answers. The overall idea is to increase public and internal access to water quality information.

The vision is to build partnerships with the provinces; NL already has an Agreement in place therefore it is much easier to move forward as a key player. There will be a communication/outreach management team that will approach the provinces and try to involve them in this new initiative by determining what they need; they will use the partnership with NL as a demonstration of how this can be beneficial to both parties.

The main list of activities for the upcoming two years is as follows:

1. Partnership promotion and Agreements
2. User-Need Workshops
3. Internal connection of water quality data
4. Metadata discovery and access
- 5) Pockwock watershed project

6) Continued launch of CANAL and associated work (refinement and additional work)

Action Item: Sarah will send the URL to Ali for review before it is made public in the spring

1. Model WQI service to be used across the country
2. Look-up services
3. Water meter application service

Action Item: Haseen will send a copy of the Pasadena report (Water meters) to Sarah.

1. Outreach to youth (can combine this with above point)

It was decided that it is essential to have frequent meetings and conference calls to keep updated on the progress of the CANAL project and any additional projects.

Miscellaneous Items:

- Haseen gave Sarah a little background information on EMS

Action Item: Haseen will forward any relevant documents to Sarah regarding EMS

- improvements are being made nationally regarding the VMV codes

Action Items:

- > **Ali and Renee will sit together and prepare a Table of Contents; this will then be sent to Sarah for review and input.**
- > **Sarah will initiate work on this project and circulate to NLDOE for review and input.**
 - > **Ali and Renee will do some testing on this issue (Roll-up) in the short term.**
 - > **Ali and Renee should have a discussion with Pierre Yves-Caux to determine if this approach to calculating site specific objectives is scientifically defensible.**
 - > **Sarah will discuss this issue of near real-time data with Todd Smith and let Ali know the results of the discussion.**
 - > **Sarah will send the URL to Ali for review before it is made public in the spring.**
 - > **Haseen will send a copy of the Pasadena report (Water meters) to Sarah.**
 - > **Haseen will forward any relevant documents to Sarah regarding EMS**
 - > **Ali and Renee will prepare a WQI (long-term) path forward.**