

**CANADA-NEWFOUNDLAND
WATER QUALITY MONITORING
AGREEMENT**

**ANNUAL WORK SCHEDULE
2001-2002**



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

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

**Canada-Newfoundland
Water Quality Monitoring Agreement
Annual Work Schedule 2001-2002**

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

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

Dr. Tom Pollock	Environment Canada Atlantic Region, on behalf of Canada
Mr. Martin Goebel	Newfoundland Department of Environment, on behalf of Newfoundland

The Administrators will be assisted by a Coordinating Committee consisting of the following:

Mr. Art Cook	Environment Canada Atlantic Region
Mr. Haseen Khan	Water Resources Management Division, Newfoundland Department of Environment

Schedule B

**Station Location, Designation
and Sampling Frequency**

Index Station Location, Designation and Sampling Frequency 2001-2002

Station #	Description	Latitude	Longitude	Samples/year Sampled By	Remarks
ISLAND					
NF02YA0001	Ste. Genevieve	51 08 17	56 47 30	P 4	
NF02YC0001	Torrent River	50 36 44	57 10 05	F 6	
NF02YE0005	Western Brook	49 49 49	57 51 23	P 6	
NF02YG0001	Main River	49 46 10	56 54 15	P 6	
NF02YH0018	Lomond River	49 24 07	57 43 49	P 6	
NF02YJ0004	Pinchgut Brook	48 47 51	58 03 43	P 6	
NF02YJ0006	Harrys River	48 34 32	58 21 48	F 12	
NF02YL0011	Humber River	49 20 54	57 14 07	P 6	
NF02YL0012	Humber River	48 59 01	57 45 40	P 6	
NF02YL0013	Corner Brook	48 56 40	57 56 12	P 12	
NF02YL0029	Wild Cove Brook	48 58 28	57 53 02	P 6	
NF02YM0004	South West Brook	49 55 15	56 13 45	P 4	
NF02YN0001	Lloyds River	48 18 16	57 43 07	P 4	
NF02YN0036	Star Brook	48 33 43	57 12 22	P 4	
NF02YN0038	Exploits River	49 01 15	55 27 15	P 4	
NF02YN0039	Corduroy Brook	48 56 21	55 39 47	P 12	
NF02YO0001	Exploits River	48 55 27	55 39 21	P 12	
NF02YO0020	Exploits River	48 56 55	55 54 56	P 6	
NF02YO0021	Exploits River	49 00 40	55 28 55	P 12	
NF02YO0107	Exploits River	48 45 34	56 35 32	P 4	
NF02YO0128	Exploits River	48 56 12	55 37 05	P 4	
NF02YQ0006	NorthW. Gander River	48 34 54	55 30 20	P 6	
NF02YQ0030	Gander River	48 59 41	54 52 04	P 6	
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	
NF02YS0005	Southwest Brook	48 36 36	53 48 36	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	
NF02ZA0006	Grand Codroy River	47 52 08	59 07 05	P 4	
NF02ZA0007	Crabbe's River	48 10 30	58 46 23	P 4	
NF02ZB0001	Isle Aux Morts River	47 36 50	59 00 33	F 6	
NF02ZB0005	Cing Cerf Brook	47 42 40	58 08 47	P 4	HS
NF02ZC0001	Grandy Brook	47 51 25	57 44 00	F 6	HS
NF02ZC0011	White Bear River	47 48 29	57 16 40	F 4	HS
NF02ZD0003	Grey River	47 44 35	56 56 03	F 6	HS
NF02ZF0020	Bay du Nord River	47 44 45	55 26 23	F 6	HS
NF02ZG0016	Garnish River	47 13 00	55 19 48	F 6	
NF02ZG0024	Tides Brook	47 07 39	55 15 55	P 4	
NF02ZH0001	Pipers Hole River	47 55 51	54 16 25	F 12	
NF02ZJ0024	Southern Bay River	48 22 24	53 40 19	P 4	
NF02ZK0001	Rocky River	47 13 38	53 34 09	F 12	
NF02ZK0005	Northeast River	47 16 23	53 50 25	P 6	
NF02ZL0029	Goulds Brook	47 30 18	53 17 28	P 4	
NF02ZM0004	Waterford River	47 31 19	52 48 29	P 6	
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 12
NF02ZM0017	Raymond Brook	47 26 31	52 46 20	P 2
NF02ZM0098	Virginia River	47 35 56	52 45 17	P 6
NF02ZM0109	Mundy Pond	47 33 40	52 44 38	P 6
NF02ZM0144	Kelly's Brook	47 34 28	52 42 45	P 6
NF02ZM0175	Waterford River	47 31 34	52 45 48	P 6
NF02ZM0176	South Brook	47 31 41	52 44 48	P 6
NF02ZM0177	Rennies River	47 34 28	52 42 36	P 6
NF02ZM0178	Learys Brook	47 34 21	52 44 21	P 6
NF02ZM0179	Virginia River	47 35 47	52 42 06	P 6
NF02ZM0180	Virginia River	47 35 59	52 42 02	P 6
NF02ZM0181	Waterford River	47 32 53	52 43 09	P 12
NF02ZM0182	Waterford River	47 31 07	52 51 21	P 6
NF02ZM0183	Kelligrews River	47 29 45	53 01 03	P 4
NF02ZM0184	Learys Brook	47 34 16	52 47 29	P 6
NF02ZM0185	South Brook	47 29 37	52 51 02	P 6
NF02ZM0186	Nut Brook	47 26 24	52 58 22	P 2
NF02ZN0002	Northwest Brook	46 45 33	53 23 25	P 4
NF02ZN0004	Salmonier River	47 10 54	53 23 56	P 6

LABRADOR

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 7	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

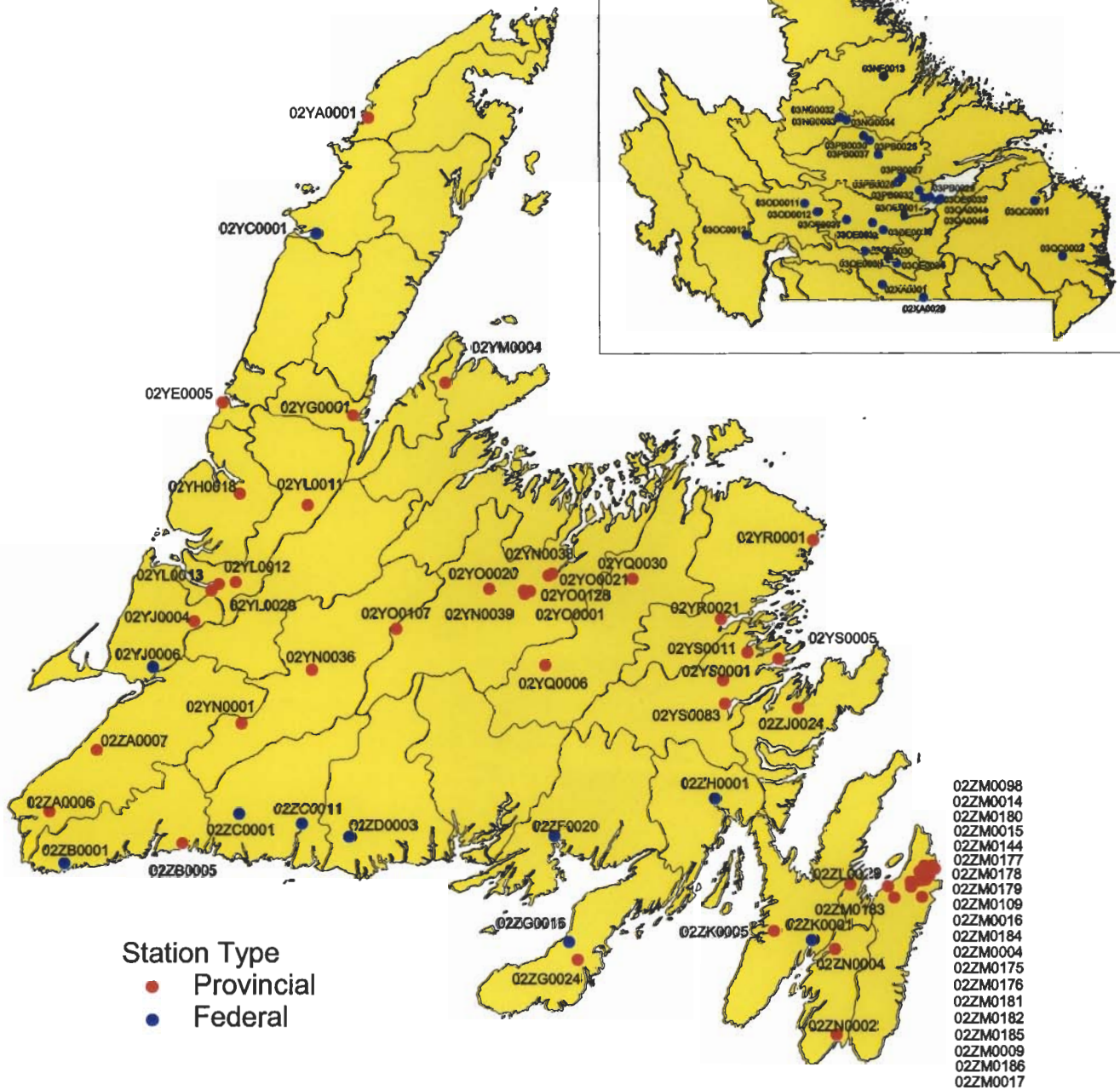
LABRADOR ASHKUI

NF02XA0029	Lac Fourmont	52 01 58	60 18 40	F3	HS
NF03NG0032	Shipiskan Lake West	54 39 22	62 24 21	F3	HS
NF03NG0033	Shipiskan Lake North	54 39 42	62 21 54	F3	HS
NF03NG0034	Shipiskan Lake East	54 37 24	62 12 58	F3	HS
NF03OD0011	East Metchin River	53 26 07	63 14 03	F3	
NF03OD0012	Wilson River East Branch	53 18 33	62 55 11	F3	
NF03OE0034	Minipi Lake	52 32 55	60 57 43	F3	HS
NF03OE0035	Dominion Lake	52 43 45	61 45 17	F3	HS
NF03OE0036	Pinus River	53 02 25	61 17 45	F3	
NF03OE0037	Cache River	53 11 33	62 12 11	F3	
NF03PB0027	Naskaupi River	53 47 44	60 50 26	F3	HS
NF03PB0028	Cape Caribou River	53 37 16	60 24 52	F3	HS
NF03PB0029	Northwest River	53 31 18	60 08 31	F3	
NF03PB0030	Seal Lake Narrows	54 19 55	61 38 27	F3	HS
NF03PB0032	Susan River	53 44 17	60 56 48	F3	HS
NF03PB0037	Wuchusk Lake	54 23 43	61 47 09	F3	HS
NF03QA0044	Carter Basin	53 29 52	59 52 25	F3	HS
NF03QA0045	Kenamu River	53 28 34	59 55 01	F3	HS

HS - Helicopter site

- Note:
1. A total of 82 stations will be sampled during 2001-2002.
 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. A total of about 120 municipal wastewater samples will also be collected from 24 locations. Municipal wastewater samples will be analysed by Moncton Lab for BOD, TSS, pH, oil and grease, phenols, metals, ammonia, total N and P.
 4. Ashkui sites where 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.

Water Quality Stations 2001-02



Schedule C

Sampling Media and Analytical Parameters

**Sampling Media and Analytical
Parameters 2001 - 2002**

Station #	Description	Sampling Media	Analytical Group	Analyzed by:
ISLAND				
NF02YA0001	Ste. Genevieve	W	W1, W2, W3	F
NF02YC0001	Torrent River	W	W1, W2, W3	F
NF02YE0005	Western Brook	W	W1, W2, W3, W5	F
NF02YG0001	Main River	W	W1, W2, W3	F
NF02YH0018	Lomond River	W	W1, W2, W3, W5	F
NF02YJ0004	Pinchgut Brook	W	W1, W2, W3	F
NF02YJ0006	Harrys River	W	W1, W2, W3	F
NF02YL0011	Humber River	W	W1, W2, W3, W5	F
NF02YL0012	Humber River	W	W1, W2, W3, W5	F
NF02YL0013	Corner Brook	W + M	W1, W2, W3, W5	F
NF02YL0029	Wild Cove Brook	W	W1, W2, W3, W5	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
NF02YN0038	Exploits River	W	W1, W2, W3, W5	F
NF02YN0039	Cordroy Brook	W + M	W1, W2, W3, W5	F
NF02YO0001	Exploits River	W	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
NF02YO0128	Exploits River	W	W1, W2, W3, W5	F
NF02YQ0006	NorthW. Gander River	W	W1, W2, W3	F
NF02YQ0030	Gander River	W	W1, W2, W3, W5	F
NF02YR0001	Pound Cove Brook	W	W1, W2, W3	F
NF02YR0021	Middle Brook	W	W1, W2, W3	F
NF02YS0001	Terra Nova River	W	W1, W2, W3, W5	F
NF02YS0005	Southwest Brook	W	W1, W2, W3, W5	F
NF02YS0011	Terra Nova River	W	W1, W2, W3, W5	F
NF02YS0083	Northwest River	W	W1, W2, W3	F
NF02ZA0006	Grand Codroy River	W	W1, W2, W3	F
NF02ZA0007	Crabbe's River	W	W1, W2, W3	F
NF02ZB0001	Isle Aux Morts River	W	W1, W2, W3	F
NF02ZB0005	Cing Cerf Brook	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 River	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
NF02ZL0029	Goulds Brook	W	W1, W2, W3, W5	F
NF02ZM0004	Waterford River	W	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	W1, W2, W3, W5	F
NF02ZM0016	Rennies River	W + M	W1, W2, W3, W5	F
NF02ZM0017	Raymond Brook	W	W1, W2, W3, W5	F
NF02ZM0098	Virginia River	W	W1, W2, W3, W5	F
NF02ZM0109	Mundy Pond	W + M	W1, W2, W3, W5	F
NF02ZM0144	Kelly's Brook	W	W1, W2, W3, W5	F
NF02ZM0175	Waterford River	W + M	W1, W2, W3, W5	F
NF02ZM0176	South Brook	W	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	W1, W2, W3, W5	F
NF02ZM0180	Virginia River	W	W1, W2, W3, W5	F
NF02ZM0181	Waterford River	W	W1, W2, W3, W5	F
NF02ZM0182	Waterford River	W	W1, W2, W3, W5	F
NF02ZM0183	Kelligrews River	W	W1, W2, W3, W5	F
NF02ZM0184	Learys Brook	W	W1, W2, W3, W5	F
NF02ZM0185	South Brook	W	W1, W2, W3, W5	F
NF02ZM0186	Nut Brook	W	W1, W2, W3, W5	F
NF02ZN0002	Northwest Brook	W	W1, W2, W3	F
NF02ZN0004	Salmonier River	W	W1, W2, W3, W5	F

LABRADOR

NF02XA0001	Little Mecatina River	W	W1, W2, W3	F
NF03NF0013	Ugjoktok 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

NF02XA0029	Lac Fourmont	W	W1, W2, W3	F
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
NF03OD0011	East Metchin River	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
NF03PB0029	Northwest 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
NF03QA0044	Carter Basin	W	W1, W2, W3	F
NF03QA0045	Kenamu 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 analysed by federal labs in Burlington and Moncton.
 4. Water quality parameters (temperature, pH, dissolved oxygen, and conductivity) are analysed by Water 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
Cadmium Molybdenum	ICAP	W2

Parameter Set		Analysis Type	Parameter Group
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
Cadmium		Lab	S1
Chromium		Lab	S1
OC/PCB		Lab	S1

Parameter Set	Analysis Type	Parameter Group
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

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	
2.1 Data Recording, Documentation and Validation	Environment Canada
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	
2.7 GIS Application for Data Reporting	
3. Technical Documents	Newfoundland Environment, Water Resources Management Division
3.1 Site Documentation Report Update	
3.2 Fact Sheets on selected Rivers	
3.3 Water Quality of St. John's Rivers	
3.4 Water Quality Index - Refinement and Application	

Schedule E

Special Studies

Special studies for water, biota and sediment survey will be planned, in consultation with Environment Canada, for selected basins.

Schedule F
Meeting Minutes

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 23, 2000, 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
John Merrick	Meteorological Service of Canada, Dartmouth, NS
Bill Brimley	Meteorological Service of Canada, Dartmouth, NS
Calvin Baker	Atmospheric Environment Services, St. John's, NF
Martin Goebel	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. Annual Work Schedule 1999-00

- Environment Canada (AES) sampled ten remote stations on the Island and nine stations in Labrador during the current fiscal year (1999-00).
- No changes were made in water quality analysis work, carried out by Burlington and Moncton Laboratories of Environment Canada. Samples were analysed as per 1999-00 annual work schedule.
- Joe Pomeroy, Calvin Baker and Paul Barnable are working to establish a real-time water quality data collection station.
- All water quality data collected during 1995 to 99 has been processed and is ready for use.
- All backlogged annual agreement reports have been cleared and four technical reports (Exploits, Humber, Urban Rivers and State of Water Quality) are in progress.

- **Biota and Sediment Monitoring**

- Four to five water bodies in St. John's area were monitored as per annual work schedule (1999-00). This program will continue in the next fiscal year(2000-01). The site specific details will be included in the annual work schedule.

- **Other Monitoring Programs - 1999-00**

- About 946 drinking water samples (for THM analysis) were submitted to St. John's Lab of Environment Canada. All invoices have been processed.
- About 144 tap water samples (for selected inorganic analysis) were submitted to Moncton Lab of Environment Canada.
- About 79 municipal wastewater samples were submitted to Moncton Lab of Environment Canada.

- **Invoicing**

- Two invoices in the amount of \$10K were processed for tap water quality and municipal wastewater samples by Environment Canada Moncton Lab. The Department of Environment and Labour has \$13,233 credit with Environment Canada under this activity. This credit will be used for analytical work during 2000-01.
- Four invoices in the amount of \$30,000 were processed for THM work by Environment Canada Lab in St. John's.