

**Canada-Newfoundland and Labrador
Water Quality Monitoring Agreement
Annual Work Schedule 2006-2007**

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

Charles LeBlanc
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. Charles LeBlanc Environment Canada Atlantic Region, on behalf of Canada

Mr. Martin Goebel Department of Environment & Conservation, on behalf of
Newfoundland & Labrador

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

Mr. Joe Pomeroy Environment Canada Atlantic Region

Mr. Haseen Khan Water Resources Management Division, Newfoundland &
Labrador Department of Environment & Conservation

Schedule B

Work Shared Activities for Fiscal Year 2006-07

Schedule B – Work Shared Activities 2006-07

| Activity | Responsible Agency | Remarks |
|--|--|--|
| Ambient Water Quality Sampling | Newfoundland and Labrador Department of Environment and Conservation | Refer to Table B.1 & Figure 1 for sampling details |
| Ambient Water Quality Analysis | Environment Canada – National Laboratory for Environmental Testing (NLET) | Refer to Table B.2 and B.3 for analysis details |
| Recreational Water Quality Sampling and Analysis | Newfoundland and Labrador Department of Environment and Conservation | Refer to Table B.4 and Figure 2 for sampling details |
| Lake Water Quality Sampling and Analysis and Long-Range Transport of Pollutants (LRTAP) | | Under planning for fiscal year 2007-08 |
| Biomonitoring Sampling and Analysis | | Under planning for fiscal year 2007-08 |
| Data Management, Analysis, Interpretation and Reporting | Newfoundland and Labrador Department of Environment and Conservation <u>and</u> Environment Canada | Refer to Table B.5 for details |

Table B.1: Index Station Location, Designation and Sampling Frequency 2006-2007

| Station # | Description | Latitude | Longitude | Samples/year | Sampled By |
|------------------------------|-------------------------|----------|-----------|--------------|------------|
| <u>EASTERN REGION</u> | | | | | |
| NF02ZK0005 | Northeast River | 47 16 23 | 53 50 25 | 4 | P |
| NF02ZL0029 | Goulds Brook | 47 30 18 | 53 17 28 | 4 | P |
| NF02ZM0004 | Waterford River | 47 31 19 | 52 48 29 | 4 | P |
| NF02ZM0009 | Waterford River | 47 31 46 | 52 44 34 | 6 | P |
| NF02ZM0014 | Virginia River | 47 35 02 | 52 41 29 | 6 | P |
| NF02ZM0015 | Quidi Vidi Outlet | 47 35 02 | 52 40 51 | 6 | P |
| NF02ZM0016 | Rennies River | 47 34 40 | 52 42 03 | 6 | P |
| NF02ZM0020 | Broad Cove Brook | 47 35 53 | 52 52 53 | 4 | P |
| NF02ZM0098 | Virginia River | 47 35 56 | 52 45 17 | 4 | P |
| NF02ZM0109 | Mundy Pond | 47 33 40 | 52 44 38 | 4 | P |
| NF02ZM0144 | Kelly's Brook | 47 34 28 | 52 42 45 | 6 | P |
| NF02ZM0175 | Waterford River | 47 31 34 | 52 45 48 | 4 | P |
| NF02ZM0176 | South Brook | 47 31 41 | 52 44 48 | 4 | P |
| NF02ZM0177 | Rennies River | 47 34 28 | 52 42 36 | 4 | P |
| NF02ZM0178 | Learys Brook | 47 34 21 | 52 44 21 | 4 | P |
| NF02ZM0179 | Virginia River | 47 35 47 | 52 42 06 | 4 | P |
| NF02ZM0180 | Virginia River | 47 35 59 | 52 42 02 | 4 | P |
| NF02ZM0181 | Waterford River | 47 32 53 | 52 43 09 | 6 | P |
| NF02ZM0182 | Waterford River | 47 31 07 | 52 51 21 | 4 | P |
| NF02ZM0183 | Kelligrews River | 47 29 45 | 53 01 03 | 4 | P |
| NF02ZM0184 | Learys Brook | 47 34 16 | 52 47 29 | 4 | P |
| NF02ZM0185 | South Brook | 47 29 37 | 52 51 02 | 4 | P |
| NF02ZM0294 | Manuals River | 47 31 11 | 52 56 41 | 4 | P |
| NF02ZN0004 | Salmonier River | 47 10 54 | 53 23 56 | 4 | P |
| NF02ZG0016 | Garnish River | 47 13 00 | 55 19 48 | 4 | F |
| NF02ZH0001 | Pipers Hole River | 47 55 51 | 54 16 25 | 4 | F |
| NF02ZK0001 | Rocky River | 47 13 38 | 53 34 09 | 4 | F |
| <u>CENTRAL REGION</u> | | | | | |
| NF02YM0003 | Indian Brook | 49 29 53 | 56 10 35 | 4 | P |
| NF02YM0004 | South West Brook | 49 55 15 | 56 13 45 | 4 | P |
| NF02YO0001 | Exploits River | 48 55 27 | 55 39 21 | 6 | P |
| NF02YO0121 | Peter's River | 49 06 21 | 55 24 38 | 4 | P |
| NF02YO0020 | Exploits River | 48 56 55 | 55 54 56 | 6 | P |
| NF02YO0107 | Exploits River | 48 45 34 | 56 35 32 | 6 | P |
| NF02YO0123 | South Twin Lake | 49 11 11 | 55 55 24 | 6 | P |
| NF02YO0128 | Exploits River | 48 56 12 | 55 37 03 | 6 | P |
| NF02YO0142 | Corduroy Brook | 48 56 21 | 55 39 47 | 6 | P |
| NF02YO0143 | Exploits River | 49 01 15 | 55 27 15 | 6 | P |
| NF02YO0189 | Joe's Lake | 49 01 43 | 56 04 01 | 6 | P |
| NF02YQ0006 | North West Gander River | 48 34 54 | 55 30 20 | 4 | P |
| NF02YQ0030 | Gander River | 48 59 41 | 54 52 04 | 4 | P |
| NF02YR0001 | Pound Cove Brook | 49 10 40 | 53 33 36 | 4 | P |
| NF02YR0021 | Middle Brook | 48 48 08 | 54 13 34 | 4 | P |
| NF02YS0001 | Terra Nova River | 48 30 27 | 54 12 43 | 6 | P |
| NF02YS0011 | Terra Nova River | 48 38 27 | 54 02 11 | 6 | P |
| NF02YS0083 | Northwest River | 48 23 44 | 54 11 53 | 6 | P |

| WESTERN REGION | | | | | |
|-----------------------|----------------------|----------|----------|---|---|
| NF02YE0005 | Western Brook | 49 49 49 | 57 51 23 | 4 | P |
| NF02YE0004 | Portland Creek | 50 10 54 | 57 36 13 | 4 | P |
| NF02YG0001 | Main River | 49 46 10 | 56 54 15 | 6 | P |
| NF02YG0020 | Eagle Mountain Brook | 49 49 53 | 57 17 15 | 6 | P |
| NF02YH0018 | Lomond River | 49 24 07 | 57 43 49 | 4 | P |
| NF02YJ0004 | Pinchgut Brook | 48 47 51 | 58 03 43 | 6 | P |
| NF02YK0022 | Humber Canal | 49 09 58 | 57 24 56 | 6 | P |
| NF02YL0011 | Humber River | 49 20 54 | 57 14 07 | 6 | P |
| NF02YL0012 | Humber River | 48 59 01 | 57 45 40 | 6 | P |
| NF02YL0013 | Corner Brook | 48 56 40 | 57 56 12 | 6 | P |
| NF02YL0029 | Wild Cove Brook | 48 58 28 | 57 53 02 | 6 | P |
| NF02YN0001 | Lloyds River | 48 18 16 | 57 43 07 | 4 | P |
| NF02ZA0006 | Grand Codroy River | 47 52 08 | 59 07 05 | 6 | P |
| NF02ZB0001 | Isle aux Mort River | 47 36 50 | 59 00 33 | 4 | F |
| NF02YC0001 | Torrent River | 50 36 44 | 57 10 05 | 4 | F |
| NF02YJ0006 | Harry's River | 48 34 32 | 58 21 48 | 4 | F |

P-Provincial

F-Federal

Notes:

1. A total of 61 stations will be sampled during 2006-2007 on the island portion of the province.
2. For statistical analysis it is important that at least four samples are collected from each station.

Water Quality Stations 2006-07 - Newfoundland

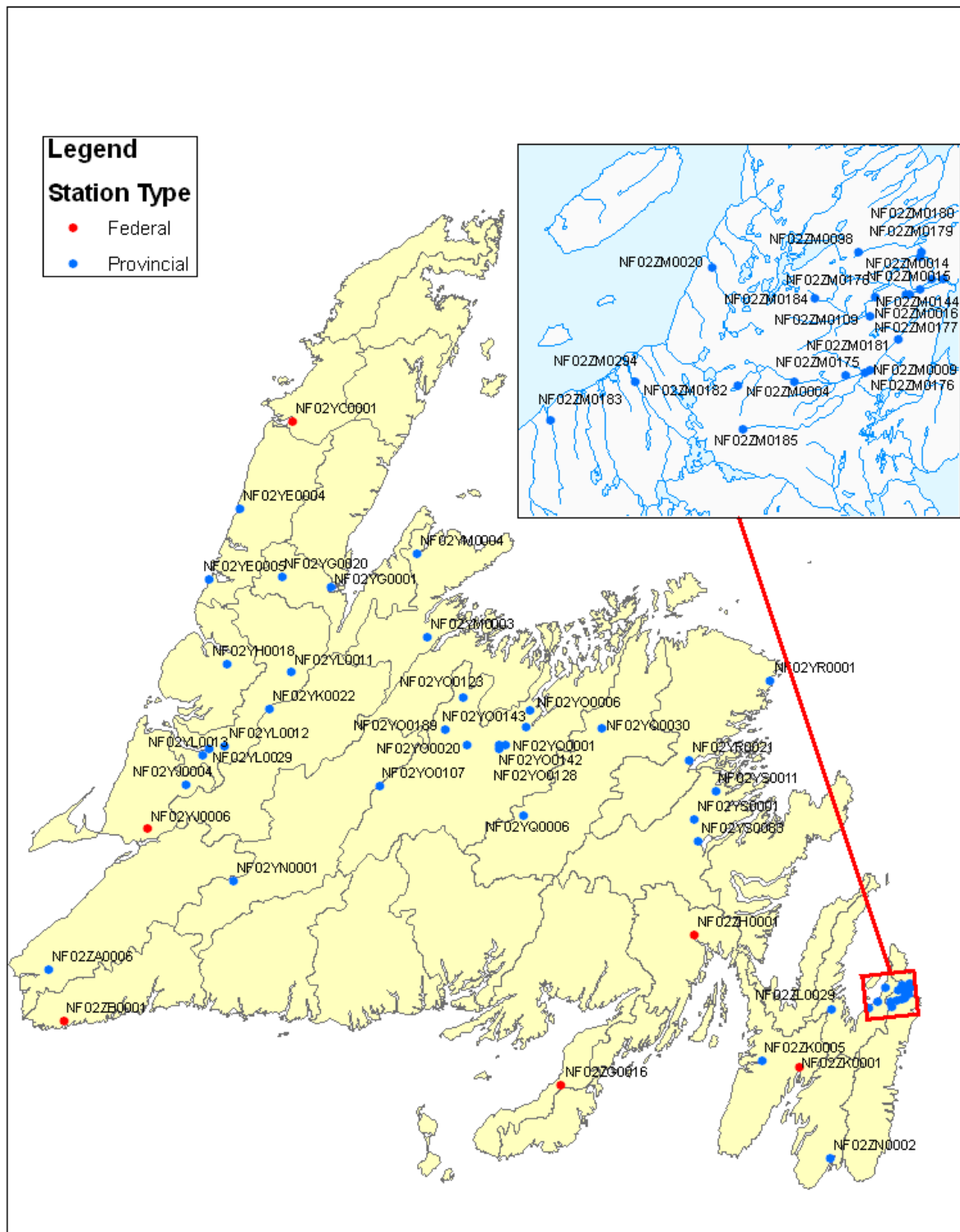


Figure 1 – Water Quality Stations 2006-07 - Newfoundland

Table B.2: Analytical Parameters 2006 - 2007 for Newfoundland Stations

| Station # | Description | Sampling Media | Analytical Group * | Analysed By ** |
|------------------------------|-------------------------|----------------|--------------------|----------------|
| <u>EASTERN REGION</u> | | | | |
| NF02ZK0005 | Northeast River | W | W1, W2 | F |
| NF02ZL0029 | Goulds Brook | W | W1, W2 | F |
| NF02ZM0004 | Waterford River | W | W1, W2 | F |
| NF02ZM0009 | Waterford River | W | W1, W2 | F |
| NF02ZM0014 | Virginia River | W | W1, W2 | F |
| NF02ZM0015 | Quidi Vidi Outlet | W | W1, W2 | F |
| NF02ZM0016 | Rennies River | W | W1, W2 | F |
| NF02ZM0020 | Broad Cove Brook | W | W1, W2 | F |
| NF02ZM0098 | Virginia River | W | W1, W2 | F |
| NF02ZM0109 | Mundy Pond | W | W1, W2 | F |
| NF02ZM0144 | Kelly's Brook | W | W1, W2 | F |
| NF02ZM0175 | Waterford River | W | W1, W2 | F |
| NF02ZM0176 | South Brook | W | W1, W2 | F |
| NF02ZM0177 | Rennies River | W | W1, W2 | F |
| NF02ZM0178 | Learys Brook | W | W1, W2 | F |
| NF02ZM0179 | Virginia River | W | W1, W2 | F |
| NF02ZM0180 | Virginia River | W | W1, W2 | F |
| NF02ZM0181 | Waterford River | W | W1, W2 | F |
| NF02ZM0182 | Waterford River | W | W1, W2 | F |
| NF02ZM0183 | Kelligrews River | W | W1, W2 | F |
| NF02ZM0184 | Learys Brook | W | W1, W2 | F |
| NF02ZM0185 | South Brook | W | W1, W2 | F |
| NF02ZM0294 | Manuals River | W | W1, W2 | F |
| NF02ZN0004 | Salmonier River | W | W1, W2 | F |
| NF02ZG0016 | Garnish River | W | W1, W2 | F |
| NF02ZH0001 | Pipers Hole River | W | W1, W2 | F |
| NF02ZK0001 | Rocky River | W | W1, W2 | F |
| <u>CENTRAL REGION</u> | | | | |
| NF02YM0003 | Indian Brook | W | W1, W2 | F |
| NF02YM0004 | South West Brook | W | W1, W2 | F |
| NF02YO0001 | Exploits River | W | W1, W2 | F |
| NF02YO0121 | Peter's River | W | W1, W2 | F |
| NF02YO0020 | Exploits River | W | W1, W2 | F |
| NF02YO0107 | Exploits River | W | W1, W2 | F |
| NF02YO0123 | South Twin Lake | W | W1, W2 | F |
| NF02YO0128 | Exploits River | W | W1, W2 | F |
| NF02YO0142 | Corduoy Brook | W | W1, W2 | F |
| NF02YO0143 | Exploits River | W | W1, W2 | F |
| NF02YO0189 | Joe's Lake | W | W1, W2 | F |
| NF02YQ0006 | North West Gander River | W | W1, W2 | F |
| NF02YQ0030 | Gander River | W | W1, W2 | F |
| NF02YR0001 | Pound Cove Brook | W | W1, W2 | F |
| NF02YR0021 | Middle Brook | W | W1, W2 | F |
| NF02YS0001 | Terra Nova River | W | W1, W2 | F |
| NF02YS0011 | Terra Nova River | W | W1, W2 | F |
| NF02YS0083 | Northwest River | W | W1, W2 | F |

| WESTERN REGION | | | | |
|-----------------------|----------------------|---|--------|---|
| NF02YE0005 | Western Brook | W | W1, W2 | F |
| NF02YE0004 | Portland Creek | W | W1, W2 | F |
| NF02YG0001 | Main River | W | W1, W2 | F |
| NF02YG0020 | Eagle Mountain Brook | W | W1, W2 | F |
| NF02YH0018 | Lomond River | W | W1, W2 | F |
| NF02YJ0004 | Pinchgut Brook | W | W1, W2 | F |
| NF02YK0022 | Humber Canal | W | W1, W2 | F |
| NF02YL0011 | Humber River | W | W1, W2 | F |
| NF02YL0012 | Humber River | W | W1, W2 | F |
| NF02YL0013 | Corner Brook | W | W1, W2 | F |
| NF02YL0029 | Wild Cove Brook | W | W1, W2 | F |
| NF02YN0001 | Lloyds River | W | W1, W2 | F |
| NF02ZA0006 | Grand Codroy River | W | W1, W2 | F |
| NF02ZB0001 | Isle aux Mort River | W | W1, W2 | F |
| NF02YC0001 | Torrent River | W | W1, W2 | F |
| NF02YJ0006 | Harry's River | W | W1, W2 | F |

* Refer to Table B.3 below for analytical group codes

** Federal lab

Table B.3: Analytical Group Codes

| Parameter Set | Analysis Type | Parameter Group |
|---|---------------|-----------------|
| 1) Water - Physical Parameters, Major Ions and Nutrients | | |
| Temperature, pH, Specific Conductance, Dissolved Oxygen | Field | W1 |
| Turbidity, Colour, pH, Specific Conductance, Calcium (Diss.), Magnesium (Diss.), Potassium (Diss.), Sodium (Diss.), Alkalinity Total or Gran, Chloride (Diss.) IC, Sulphate (Diss.) IC, Dissolved Organic Carbon, Dissolved Inorganic Carbon, Total Nitrogen, Nitrate and Nitrite (Diss.), Total Phosphorus | Lab | W1 |
| 2) Water - Total Metals | | |
| Aluminium, Antimony, Arsenic, Barium, Beryllium, Bismuth, Boron, Cadmium, Chromium, Cobalt, Copper, Gallium, Lanthanum, Iron, Lead, Lithium, Manganese, Molybdenum, Nickel, Rubidium, Selenium, Silver, Strontium, Thallium, Uranium, Vanadium, Zinc | ICAP | W2 |

Table B.4: Station Location, Designation and Bacteriological Sampling Frequency 2006-2007

| Station # | Description | Latitude | Longitude | Samples/year | Sampled By |
|------------------------------|--------------------------------------|----------|-----------|--------------|------------|
| <u>EASTERN REGION</u> | | | | | |
| NF02ZM0014 | Virginia River | 47 35 02 | 52 41 29 | 2 | P |
| NF02ZM0015 | Quidi Vidi Outlet | 47 35 02 | 52 40 51 | 2 | P |
| NF02ZM0016 | Rennies River | 47 34 40 | 52 42 03 | 2 | P |
| NF02ZM0098 | Virginia River | 47 35 56 | 52 45 17 | 2 | P |
| NF02ZM0175 | Waterford River | 47 31 34 | 52 45 48 | 2 | P |
| NF02ZM0180 | Virginia River | 47 35 59 | 52 42 02 | 2 | P |
| NF02ZM0181 | Waterford River | 47 32 53 | 52 43 09 | 2 | P |
| NF02ZM0182 | Waterford River | 47 31 07 | 52 51 21 | 2 | P |
| NF02ZM0184 | Leary's Brook | 47 34 16 | 52 47 29 | 2 | P |
| NF02ZM0004 | Salmonier River | 47 10 54 | 53 23 56 | 2 | P |
| NF02ZM0297 | Topsail Pond | 47 31 29 | 52 54 13 | 4 | P |
| NF02ZM0298 | Sunshine Rotary Park | 47 34 31 | 52 50 36 | 4 | P |
| NF02ZM0295 | Whiteway Pond | 47 39 36 | 52 45 23 | 4 | P |
| NF02ZM0296 | Manuals River | 47 31 16 | 52 56 45 | 4 | P |
| <u>CENTRAL REGION</u> | | | | | |
| NF02YO0001 | Exploits River | 48 55 27 | 55 39 21 | 2 | P |
| NF02YO0020 | Exploits River | 48 56 55 | 55 54 56 | 2 | P |
| NF02YO0123 | South Twin Lake | 49 11 11 | 55 55 24 | 2 | P |
| NF02YO0128 | Exploits River | 48 56 12 | 55 37 03 | 2 | P |
| NF02YO0142 | Corduroy Brook | 48 56 21 | 55 39 47 | 2 | P |
| NF02YO0143 | Exploits River | 49 01 15 | 55 27 15 | 2 | P |
| NF02YO0189 | Joe's Lake | 49 01 43 | 56 04 01 | 2 | P |
| NF02YQ0030 | Gander River | 48 59 41 | 54 52 04 | 2 | P |
| NF02YG0021 | Flatwater Pond | 49 45 41 | 56 18 57 | 4 | P |
| NF02YO0191 | Thunder Brook | 48 56 53 | 55 49 48 | 4 | P |
| NF02YQ0069 | Jonathan's Pond Park | 49 03 51 | 54 32 26 | 4 | P |
| NF02YS0100 | Sandy Pond | 48 29 34 | 54 01 05 | 4 | P |
| <u>WESTERN REGION</u> | | | | | |
| NF02YK0022 | Humber Canal | 49 09 58 | 57 24 56 | 2 | P |
| NF02YL0011 | Humber River | 49 20 54 | 57 14 07 | 2 | P |
| NF02YL0012 | Humber River | 48 59 01 | 57 45 40 | 2 | P |
| NF02YL0013 | Corner Brook | 48 56 40 | 57 56 12 | 2 | P |
| NF02YL0029 | Wild Cove Brook | 48 58 28 | 57 53 02 | 2 | P |
| NF02YL0089 | Corner Brook @ Margaret Bowater Park | 48 56 37 | 57 56 04 | 4 | P |
| NF02YL0091 | Humber River @ Pasadena Beach | 49 01 20 | 57 36 30 | 4 | P |
| NF02YK0031 | Deer Lake @ Bridge | 49 10 13 | 57 26 16 | 4 | P |
| NF02YL0090 | Cook's Brook @ Route 450 | 48 58 11 | 58 03 55 | 4 | P |

Notes:

1. Bacteriological monitoring will take place in the summer months, from June to September.
2. This is a new initiative and the collection of samples will depend on workload/other factors.

Bacteriological Water Quality Stations 2006-07 - Newfoundland

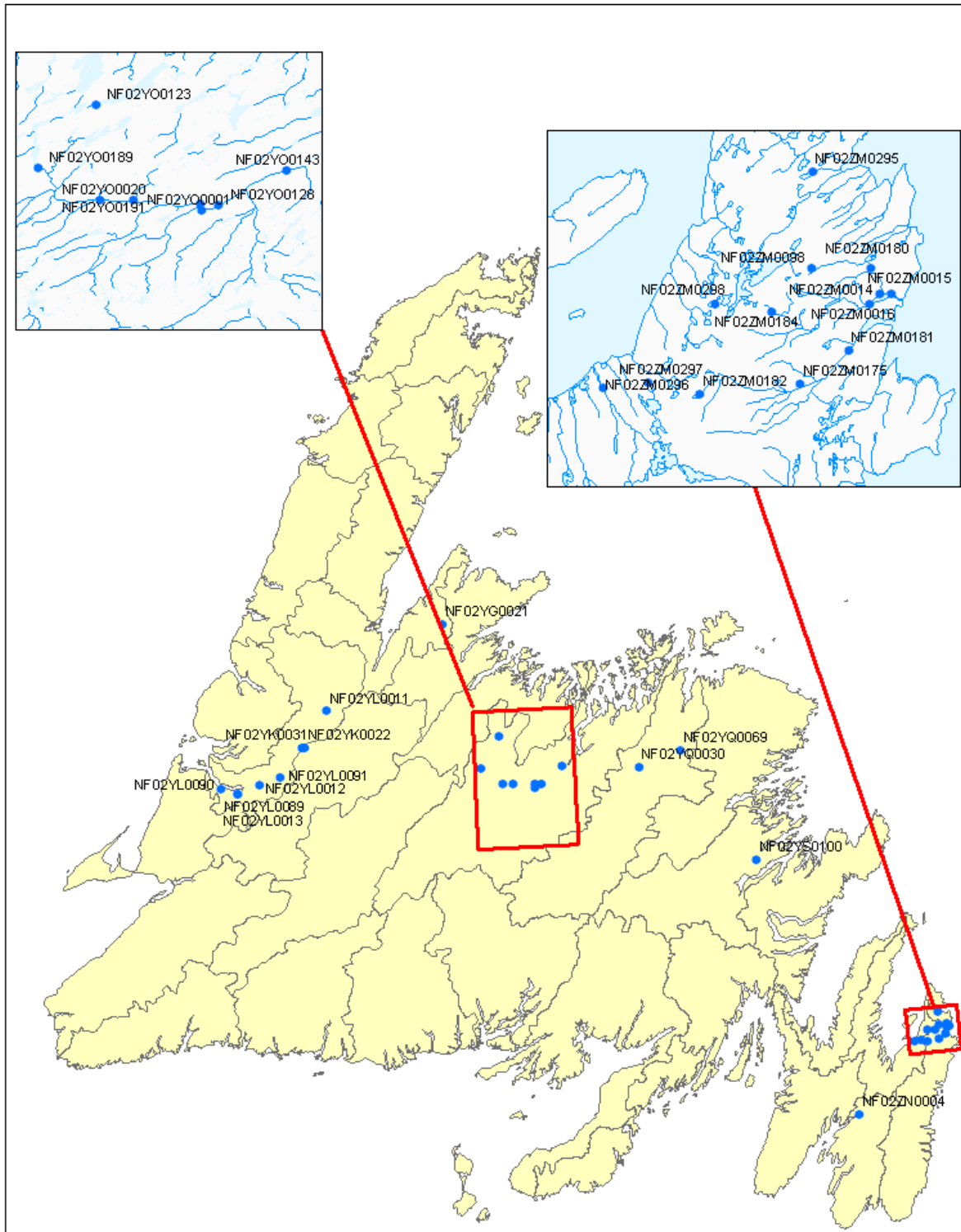


Figure 2 – Bacteriological Water Quality Stations 2006-07 - Newfoundland

Table B.5: Data Management, Analysis, Interpretation and Reporting

| Project | Activity | Responsible Agency |
|--|---|---|
| 1. Quality Assurance and Quality Control | 1.1 Quality control procedures | Environment Canada |
| | 1.2 Guidelines for good laboratory practice | Environment Canada |
| | 1.3 Guidelines for instrument performance | Environment Canada |
| 2. Data Management | 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 Department of Environment and Conservation |
| | 2.6 Quality assurance and quality control of datasets | Newfoundland and Labrador Department of Environment and Conservation |
| 3. Maintenance and Updating | 3.1 On-going updating of the Site Documentation Database | Newfoundland and Labrador Department of Environment and Conservation |
| | 3.2 On-going updating of the Bacteriological Database | Newfoundland and Labrador Department of Environment and Conservation |
| | 3.3 Development of protocols for application of real time WQI calculation to real time water quality data | Newfoundland and Labrador Department of Environment and Conservation |
| | 3.4 Real-time Service Delivery (ADRS – reporting) | Newfoundland and Labrador Department of Environment and Conservation |
| | 3.5 Development of Station Level Metadata for Real-time Stations | Environment Canada & Newfoundland and Labrador Department of Environment and Conservation |

| | | |
|------------------------|--|--|
| 4. Technical Documents | 4.1 Fact sheets on selected rivers | Newfoundland and Labrador Department of Environment and Conservation |
| | 4.2 Posters on selected rivers | Newfoundland and Labrador Department of Environment and Conservation |
| | 4.3 Water Quality Index - research and development | Newfoundland and Labrador Department of Environment and Conservation |
| | 4.4 Intensive survey reports – Exploit’s River & Corner Brook Stream | Newfoundland and Labrador Department of Environment and Conservation |
| | 4.5 Canal project position paper in review process of publication | Newfoundland and Labrador Department of Environment and Conservation |
| | 4.6 WQMA Sampling Manual | Newfoundland and Labrador Department of Environment and Conservation |
| | 4.7 Real-Time Water Quality Manual | Newfoundland and Labrador Department of Environment and Conservation |
| | 4.8 Real-Time Water Quality Monthly and Annual Reports | Newfoundland and Labrador Department of Environment and Conservation |
| | 4.9 Summary of WQMA Data using the WQI | Newfoundland and Labrador Department of Environment and Conservation |
| | 4.10 Summary of RTWQ Data using the WQI | Newfoundland and Labrador Department of Environment and Conservation |

Schedule C

Cost Shared Activities for Fiscal Year 2006-07

Schedule C – Cost Shared Activities 2006-07

| Activity | NL Contribution | EC Contribution | Remarks |
|--|-----------------|-----------------|--|
| <p>Delineation and Digitization of WQMA watersheds (CANAL)</p> | <p>\$20,000</p> | <p>\$20,000</p> | <p>- NL is the lead jurisdiction and responsible for the completion of work</p> <p>-EC will pay its share by March 31st, 2007 to NL Exchequer</p> <p>- NL financial contribution is part of the Water Quality Monitoring Agreement budget</p> |
| <p>Real-time Water Quality Monitoring Network</p> <p>- Operation and maintenance of two federal real-time water quality stations (Main River; Minipi River)</p> <p>- Operation and maintenance of four provincially operated real-time water quality stations (Waterford River; Leary’s Brook; Peters River; Humber River)</p> <p>- Operation and maintenance of industry funded real-time water quality stations (5 stations at VBNC; 3 stations at Aur Resources)</p> | <p>\$45,000</p> | <p>\$30,000</p> | <p>- For station details see Table C.1 and Figures 3 & 4</p> <p>- NL is the lead jurisdiction and responsible for the completion of work</p> <p>- EC will pay its share by March 31st, 2007 to NL Exchequer</p> <p>- NL financial contribution is part of the Water Quality Monitoring Agreement budget</p> |
| <p>Northern Sampling and Analysis (Labrador)</p> | <p>\$50,000</p> | <p>\$50,000</p> | <p>- Refer to Table C.2 and Figure 5 for sampling details</p> <p>- Labrador water samples are collected by both federal and provincial staff</p> <p>- Refer to Tables C.3 & C.4 for parameter analysis details</p> <p>- NL is the lead jurisdiction and responsible for the</p> |

| | | | |
|--|------------------|------------------|--|
| | | | <p>completion of work</p> <ul style="list-style-type: none"> - EC will pay its share by March 31st, 2007 to NL Exchequer - NL financial contribution is part of the Water Quality Monitoring Agreement budget |
| Special Studies (Recurrent Surveys) | | | - Under planning for fiscal year 2007-08 |
| Total | \$115,000 | \$100,000 | |

Table C.1 Real-time Water Quality Monitoring Stations

| Station # | Description | Latitude | Longitude | Accessibility | Remarks |
|---|--|----------|-----------|---------------|--|
| <u>VOISEY'S BAY NICKEL COMPANY LTD. (VBNC)</u> | | | | | |
| NF03NE0009 | Reid Brook | 56 22 22 | 62 09 43 | HS | - These stations are fully industry funded |
| NF03NE0010 | Camp Pond Brook | 56 20 32 | 62 06 24 | HS | |
| NF03NE0011 | Lower Reid Brook | 56 18 18 | 62 05 34 | HS | |
| NF03NE0012 | Tributary to Reid Brook | 56 18 21 | 62 05 39 | HS | |
| NF03NE0008 | Well after Tailings Dam (VBNC) | 56 19 42 | 62 00 17 | | |
| <u>AUR RESOURCES INC.</u> | | | | | |
| NF02YO0190 | Gill's Pond Brook | 48 38 26 | 56 31 44 | | - These stations are fully industry funded |
| NF02YO0193 | Well after Tailings Dam (Aur Resources) | 48 39 18 | 56 28 55 | | |
| NF02YO0192 | East Pond Brook | 48 40 55 | 56 30 39 | | |
| <u>IRON ORE COMPANY OF CANADA (IOCC)</u> | | | | | |
| | Wabush Lake @ Dolomite Road ** | | | | - These stations are fully industry funded |
| | Wabush Lake @ Julienne Narrows ** | | | | |
| <u>LONG HARBOUR (VBNC)</u> | | | | | |
| Real-time water quality station(s) will be established; in the early stages of negotiations | | | | | |
| <u>ENVIRONMENT CANADA</u> | | | | | |
| NF02YG0022 | Main River | 49 46 48 | 57 09 24 | HS | - These stations are funded by EC |
| NF03OE0030 | Minipi River * | 52 36 53 | 61 11 11 | HS | |
| NF02ZE0033 | Water Supply Intake ** (Miawpukek watershed) | | | | |
| <u>DEPARTMENT OF ENVIRONMENT AND CONSERVATION</u> | | | | | |
| NF02ZM0178 | Learys Brook* | 47 34 21 | 52 44 21 | | - These stations are funded by DOEC |
| NF02ZM0009 | Waterford River* | 47 31 46 | 52 44 34 | | |
| NF02YO0121 | Peter's River* | 49 06 21 | 55 24 38 | | |
| NF02YL0012 | Humber River* | 48 59 01 | 57 45 40 | | |

* These stations are also part of the ambient water quality index network where grab samples are collected either 4 or 6 times per year.

** Exact locations and coordinates to be determined.

Notes:

1. All real-time water quality stations have grab samples collected on a monthly basis for QA/QC purposes; all analysis is completed at the same lab as that used for the analysis of the samples under the drinking water program.
2. Presently, the grab samples collected at Leary's Brook and Humber River real-time stations are being used to develop statistical equations for regression analysis.

Real Time Water Quality Stations 2006-07 - Newfoundland

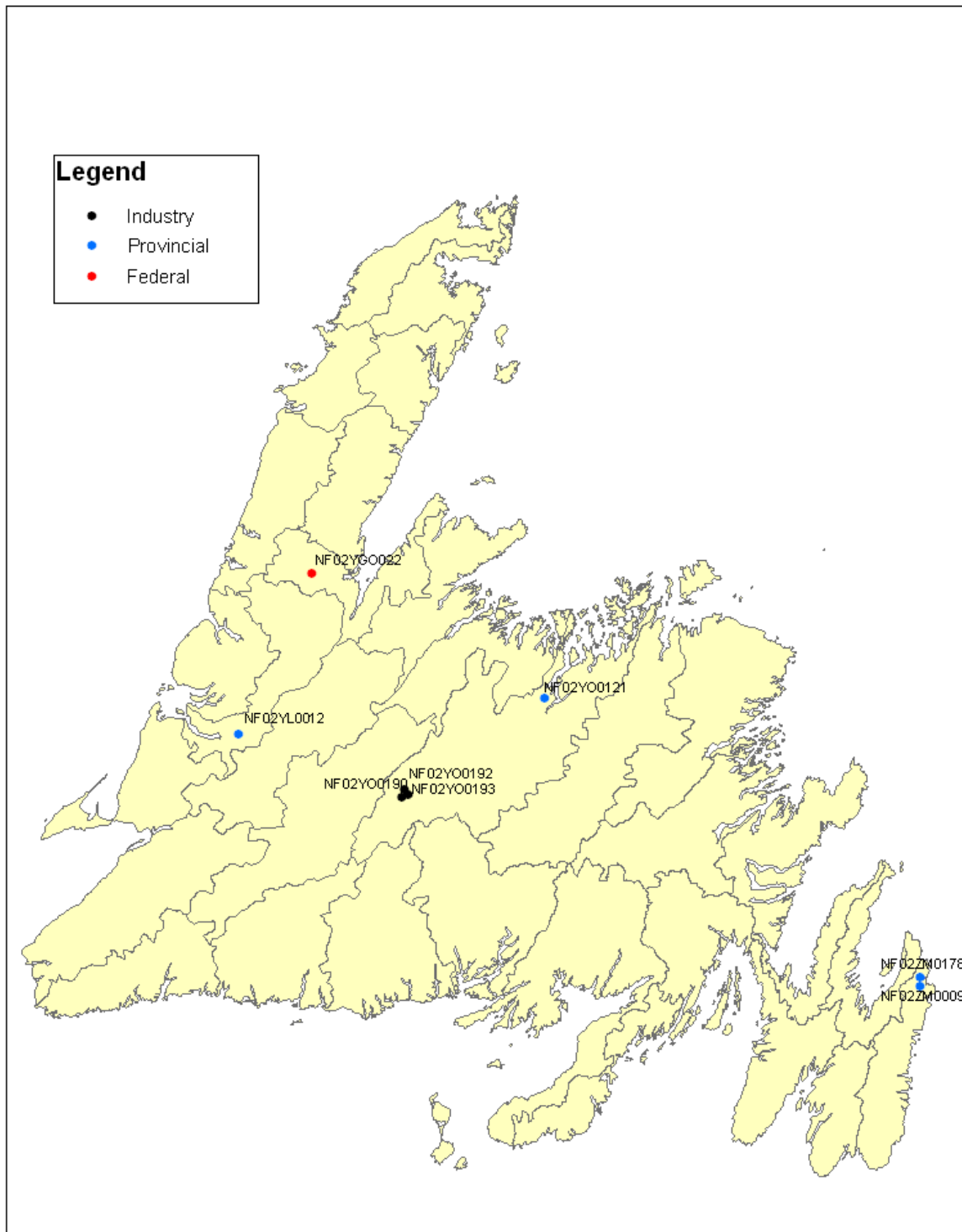


Figure 3 – Real-Time Water Quality Stations 2006-07 - Newfoundland

Real Time Water Quality Stations 2006-07 - Labrador

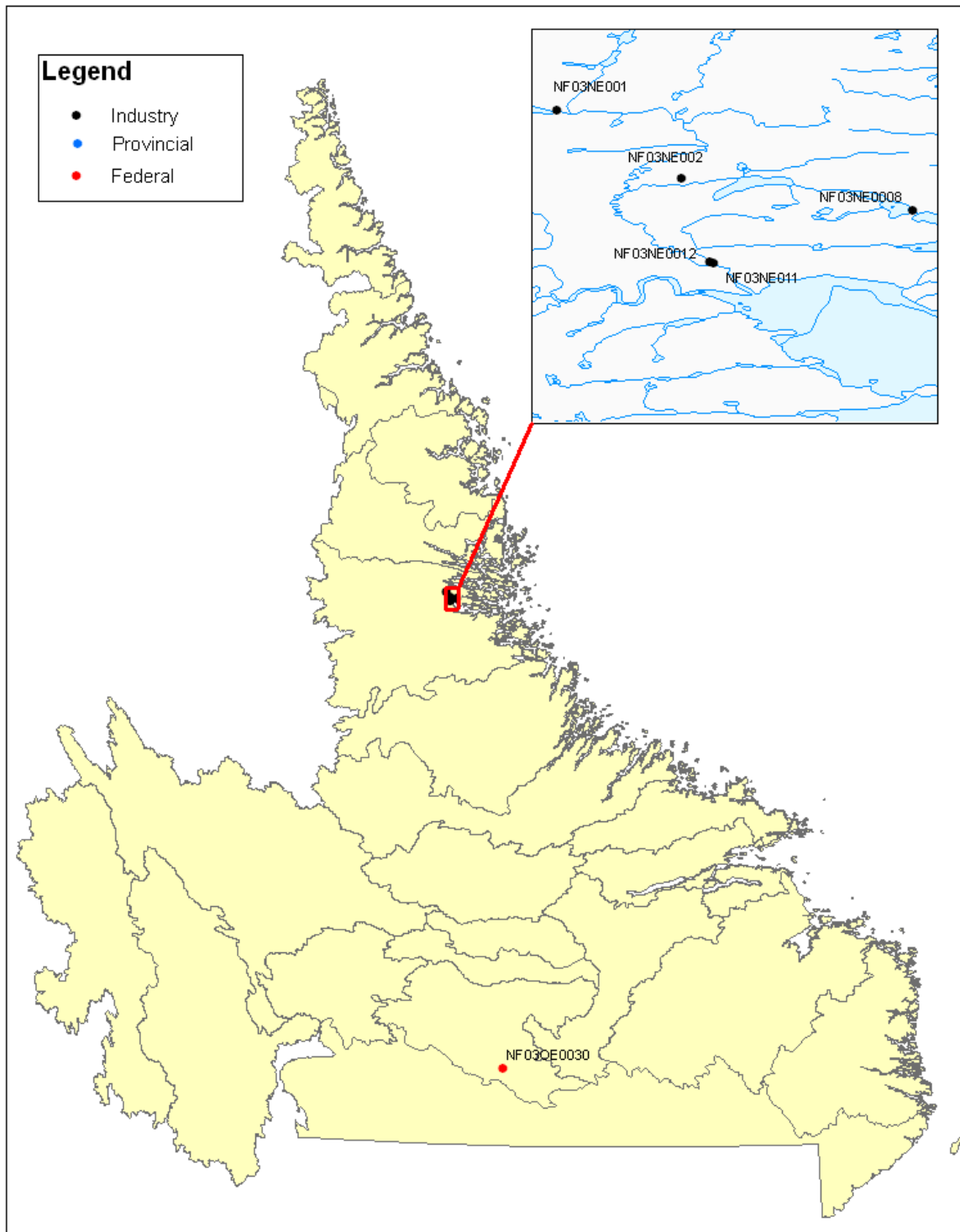


Figure 4 – Real-Time Water Quality Stations 2006-07 - Labrador

Table C.2: Northern Index Station Location, Designation and Sampling Frequency 2006-2007

| Station # | Description | Latitude | Longitude | Samples/year | Sampled By |
|------------------------|------------------------|----------|-----------|--------------|------------|
| LABRADOR REGION | | | | | |
| NF02XA0001 | Little Mecatina River | 52 13 42 | 61 19 32 | 4 | F/P |
| NF03NF0013 | Ugjoktok River | 55 13 60 | 61 17 57 | 4 | F/P |
| NF03OC0012 | Atikonak River | 52 58 03 | 64 39 40 | 4 | F/P |
| NF03OD0011 | East Metchin River | 53 26 07 | 63 14 03 | 4 | F/P |
| NF03OE0001 | Churchill River | 53 14 52 | 60 47 21 | 4 | F/P |
| NF03OE0030 | Minipi River | 52 36 53 | 61 11 11 | 4 | F/P |
| NF03OE0032 | Pinus River | 53 08 52 | 61 33 31 | 4 | F/P |
| NF03OE0033 | Big Pond Brook | 53 30 43 | 60 17 31 | 4 | F/P |
| NF03PB0025 | Naskaupi River | 54 07 54 | 61 25 45 | 4 | F/P |
| NF03QC0001 | Eagle River | 53 27 54 | 57 33 29 | 4 | F/P |
| NF03QC0002 | Alexis River | 52 38 57 | 56 52 17 | 4 | F/P |
| NF03NG0034 | Shipiskan Lake East | 54 37 24 | 62 12 58 | 4 | F/P |
| NF03OD0012 | Wilson River E. Branch | 53 18 33 | 62 55 11 | 4 | F/P |
| NF03OE0035 | Dominion Lake | 52 43 45 | 61 45 17 | 4 | F/P |
| NF03OE0037 | Cache River | 53 11 33 | 62 12 11 | 4 | F/P |
| NF03PB0028 | Cape Caribou River | 53 37 16 | 60 24 52 | 4 | F/P |
| NF03PB0029 | Northwest River | 53 31 18 | 60 08 31 | 4 | F/P |
| NF03PB0030 | Seal Lake Narrows | 54 19 55 | 61 38 27 | 4 | F/P |
| NF03PB0032 | Susan River | 53 44 17 | 60 56 48 | 4 | F/P |
| NF03PB0037 | Wuchusk Lake | 54 23 43 | 61 47 09 | 4 | F/P |
| NF03QA0044 | Carter Basin | 53 29 52 | 59 52 25 | 4 | F/P |
| NF03QA0045 | Kenamu River | 53 28 34 | 59 55 01 | 4 | F/P |

P-Provincial

F-Federal

Notes:

1. A total of 22 stations will be sampled during 2006-2007 in Labrador.
2. The Labrador stations are listed as being sampled 4 times per year; this refers to the number of samples taken (not the number of trips made to the site); there must be a **minimum** of three samples taken each fiscal year at the Labrador sites.
3. All Labrador stations are accessible only by helicopter.

Water Quality Stations 2006-07 - Labrador

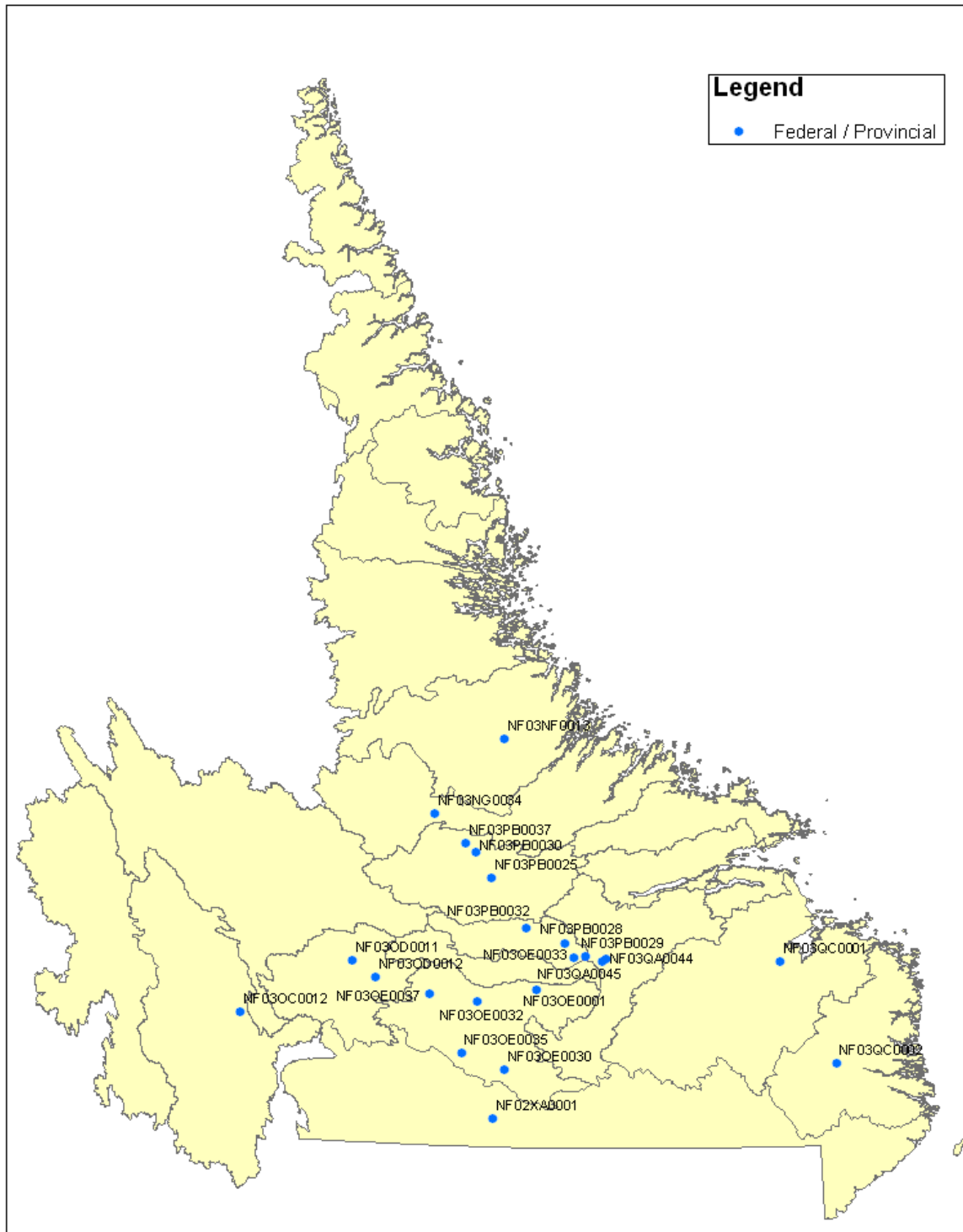


Figure 5 – Water Quality Stations 2006-07 - Labrador

Table C.3: Analytical Parameters 2006 – 2007 for Labrador Stations

| Station # | Description | Sampling Media | Analytical Group * | Analysed By ** |
|------------------------|------------------------|----------------|--------------------|----------------|
| LABRADOR REGION | | | | |
| NF02XA0001 | Little Mecatina River | W | W1, W2 | F |
| NF03NF0013 | Ugjoktok River | W | W1, W2 | F |
| NF03OC0012 | Atikonak River | W | W1, W2 | F |
| NF03OD0011 | East Metchin River | W | W1, W2 | F |
| NF03OE0001 | Churchill River | W | W1, W2 | F |
| NF03OE0030 | Minipi River | W | W1, W2 | F |
| NF03OE0032 | Pinus River | W | W1, W2 | F |
| NF03OE0033 | Big Pond Brook | W | W1, W2 | F |
| NF03PB0025 | Naskaupi River | W | W1, W2 | F |
| NF03QC0001 | Eagle River | W | W1, W2 | F |
| NF03QC0002 | Alexis River | W | W1, W2 | F |
| NF03NG0034 | Shipiskan Lake East | W | W1, W2 | F |
| NF03OD0012 | Wilson River E. Branch | W | W1, W2 | F |
| NF03OE0035 | Dominion Lake | W | W1, W2 | F |
| NF03OE0037 | Cache River | W | W1, W2 | F |
| NF03PB0028 | Cape Caribou River | W | W1, W2 | F |
| NF03PB0029 | Northwest River | W | W1, W2 | F |
| NF03PB0030 | Seal Lake Narrows | W | W1, W2 | F |
| NF03PB0032 | Susan River | W | W1, W2 | F |
| NF03PB0037 | Wuchusk Lake | W | W1, W2 | F |
| NF03QA0044 | Carter Basin | W | W1, W2 | F |
| NF03QA0045 | Kenamu River | W | W1, W2 | F |

* Refer to Table C.4 below for analytical group codes

** Federal lab

Table C.4: Analytical Group Codes

| Parameter Set | Analysis Type | Parameter Group |
|---|---------------|-----------------|
| 1) Water - Physical Parameters, Major Ions and Nutrients | | |
| Temperature, pH, Specific Conductance, Dissolved Oxygen | Field | W1 |
| Turbidity, Colour, pH, Specific Conductance, Calcium (Diss.), Magnesium (Diss.), Potassium (Diss.), Sodium (Diss.), Alkalinity Total or Gran, Chloride (Diss.) IC, Sulphate (Diss.) IC, Dissolved Organic Carbon, Dissolved Inorganic Carbon, Total Nitrogen, Nitrate and Nitrite (Diss.), Total Phosphorus | Lab | W1 |
| 2) Water - Total Metals | | |
| Aluminium, Antimony, Arsenic, Barium, Beryllium, Bismuth, Boron, Cadmium, Chromium, Cobalt, Copper, Gallium, Iron, Lanthanum, Lead, Lithium, Manganese, Molybdenum, Nickel, Rubidium, Selenium, Silver, Strontium, Thallium, Uranium, Vanadium, Zinc | ICAP | W2 |

Schedule D

Special Projects for Fiscal Year 2006-07

Schedule D – Special Projects for Fiscal Year 2006-07 *

| Project | Activity | Cost | Remarks |
|--|--|-----------------|---|
| Canadian Environmental Sustainability Indicators (CESI) | Site selection, water quality data extraction, and manipulation | \$20,000 | - NL is the lead jurisdiction and responsible for the completion of work |
| | Decision on WQI inputs and calculation of ratings for each station | | - EC will pay its share by March 31 st , 2007 to NL Exchequer |
| | Overview interpretation of results (2 pager on parameters & issues driving the ratings and spatial trends) | | - CESI 2006-07 Report |
| | Data analysis and report preparation | | |
| | Development of protocols and calculation of site specific guidelines | \$20,000 | - Site specific Guidelines |
| | Site-level templates | | |
| | Short methods paper on protocol used for WQI calculations | | |
| | Revisions to CCME Sediment Quality Index | \$5,000 | - Updated calculator |
| | Vulnerability Index as a part of the EC Source Water Protection program | \$35,000 | - VI Product |
| Public RTWQ Portal | Multi-year project to be carried out in fiscal years 2006-07; 2007-08; 2008-09 | \$15,000 ** | - NL is the lead jurisdiction and responsible for the completion of work - To come from NL WQMA Budget |
| Total | | \$80,000 | |

* Equivalent NL contribution is in-kind

** Provincial contribution not included in total cost

Schedule E

Samples Collected in 2005-2006 Fiscal Year

Table E.1: Provincial Samples Collected in 2005-2006 Fiscal Year

| Station # | Description | Number of Samples Scheduled in 05-06 | Number of Samples Collected in 05-06 |
|------------------------------|-------------------|--------------------------------------|--------------------------------------|
| <u>EASTERN REGION</u> | | | |
| NF02ZK0005 | Northeast River | 4 | 3 |
| NF02ZL0029 | Goulds Brook | 4 | 3 |
| NF02ZM0004 | Waterford River | 4 | 4 |
| NF02ZM0009 | Waterford River | 6 | 6 |
| NF02ZM0014 | Virginia River | 12 | 11 |
| NF02ZM0015 | Quidi Vidi Outlet | 6 | 6 |
| NF02ZM0016 | Rennies River | 6 | 6 |
| NF02ZM0098 | Virginia River | 4 | 3 |
| NF02ZM0109 | Mundy Pond | 4 | 3 |
| NF02ZM0144 | Kelly's Brook | 6 | 5 |
| NF02ZM0175 | Waterford River | 4 | 4 |
| NF02ZM0176 | South Brook | 4 | 4 |
| NF02ZM0177 | Rennies River | 4 | 3 |
| NF02ZM0178 | Learys Brook | 4 | 4 |
| NF02ZM0179 | Virginia River | 4 | 4 |
| NF02ZM0180 | Virginia River | 4 | 4 |
| NF02ZM0181 | Waterford River | 6 | 6 |
| NF02ZM0182 | Waterford River | 4 | 4 |
| NF02ZM0183 | Kelligrews River | 4 | 4 |
| NF02ZM0184 | Learys Brook | 4 | 4 |
| NF02ZM0185 | South Brook | 4 | 4 |
| NF02ZN0002 | Northwest Brook | 4 | 3 |
| NF02ZN0004 | Salmonier River | 4 | 3 |
| NF02ZM0294 | Manuals River | 4 | 3 |
| <u>CENTRAL REGION</u> | | | |
| NF02YM0004 | South West Brook | 4 | 4 |
| NF02YM0003 | Indian Brook | 4 | 3 |
| NF02YO0123 | South Twin Lake | 6 | 5 |

| Station # | Description | Number of Samples Scheduled in 05-06 | Number of Samples Collected in 05-06 |
|------------------------------|-------------------------|--------------------------------------|--------------------------------------|
| NF02YO0189 | Joe's Lake | 6 | 5 |
| NF02YO0107 | Exploits River | 6 | 6 |
| NF02YO0020 | Exploits River | 12 | 9 |
| NF02YO0001 | Exploits River | 12 | 9 |
| NF02YO0142 | Corduoy Brook | 12 | 12 |
| NF02YO0143 | Exploits River | 12 | 12 |
| NF02YO0006 (xx) | Peter's River | 12 | 10 |
| NF02YQ0006 | North West Gander River | 4 | 3 |
| NF02YQ0030 | Gander River | 4 | 4 |
| NF02YR0001 | Pound Cove Brook | 4 | 4 |
| NF02YR0021 | Middle Brook | 4 | 4 |
| NF02YS0001 | Terra Nova River | 6 | 4 |
| NF02YS0011 | Terra Nova River | 6 | 5 |
| NF02YS0083 | Northwest River | 6 | 5 |
| <u>WESTERN REGION</u> | | | |
| NF02YE0005 | Western Brook | 4 | 0 |
| NF02YG0001 | Main River | 6 | 5 |
| NF02YG0020 | Eagle Mountain Brook | 6 | 5 |
| NF02YH0018 | Lomond River | 4 | 0 |
| NF02YJ0004 | Pinchgut Brook | 6 | 0 |
| NF02YL0011 | Humber River | 6 | 0 |
| NF02YL0012 | Humber River | 6 | 0 |
| NF02YL0013 | Corner Brook | 6 | 0 |
| NF02YL0029 | Wild Cove Brook | 6 | 0 |
| NF02YN0001 | Lloyds River | 4 | 0 |
| NF02ZA0006 | Grand Codroy River | 6 | 0 |
| TOTAL SAMPLES | | 294 | 218 |

Note:

1. Total number of samples collected in 2005-2006 does not include triplicate samples or bottle blanks.
2. As of March 31st, 2006, the Labrador sampling was done by federal staff thus there is no documentation of numbers of samples collected in Labrador for fiscal year 2005-06. As of April 1st, 2006, the provincial staff now coordinates the sampling of the Labrador sites (sampled by both federal and provincial staff) thus the samples collected will be documented from now onward.

Schedule F
Meeting Minutes

**Canada-Newfoundland Water Quality Monitoring Agreement
Annual Meeting
St. John's, NL
Confederation Building
April 17th & 18th, 2006**

Attendance:

| | |
|-----------------------|--|
| Joe Pomeroy | (Environment Canada) |
| Art Cook | (Environment Canada) |
| Haseen Khan | (Dept of Environment and Conservation) |
| Amir Ali Khan | (Dept of Environment and Conservation) |
| Renée Paterson | (Dept of Environment and Conservation) |
| Paul Neary | (Dept of Environment and Conservation) |
| Rob Holloway | (Dept of Environment and Conservation) |

1) Jurisdictional Overview:

Environment Canada

- Joe Pomeroy introduced himself and explained that the recent reorganization within EC has led to some significant changes with respect to reporting structure.
- Joe is now going to be the contact person (from the federal side) for the Canada-Newfoundland Water Quality Monitoring Agreement (WQMA) providing some stability and opening the communication between the province and the federal government.
- Joe reports to Charles LeBlanc who is currently the acting Manager.
- Joe explained how “water” has become an issue of national concern once again; Agreements have deteriorated over the past 10 years; steps are now being taken to address this issue.
- Joe was involved with the WQMA back in the early 90's and thus has a good foundation and open relationships with those involved in the Agreement.
- Joe gave a brief presentation illustrating that EC is now a national team and provided a breakdown of the organizational structure.
- Joe reiterated that he works closely with Art from the analytical perspective.
- The EC regions are waiting to hear back regarding their available budget and resources; the regions should be made aware of their budgets within 4 to 8 weeks; will definitely know by September so that money transfer through the Agreement can still take place.

Water Resources Management Division (WRMD)

- Haseen welcomed Joe and Art to NL and introduced everyone around the table.
- Haseen began by stating that the administrative setup in the Department of Environment and Conservation (DOEC) has changed within the past month with a new Minister (Honourable Clyde Jackman) being assigned; he stated that there has also been a number of changes within the Executive (Brenda Caul – DM; Bas Cleary – Acting ADM).
- Haseen is the key contact for both the WQMA and the Hydrometric Agreement.

- Haseen felt that it was very important to set a tentative meeting date for sometime in May to discuss the issues that could not be resolved in this meeting due to “the unknown” regarding the transfer of funds.
- Haseen described that the primary objective of this partnership is to share information and try to move forward and strengthen this program; it is imperative to have a strategic plan.
- Haseen felt that it is good to deal with individuals who have been around since the inception of this Agreement and appreciate its importance; it’s a good opportunity to work together under a great partnership.

- Haseen provided a brief history of the Agreement:
 - it was signed in 1986 as a joint federal/provincial partnership
 - the Agreement was written in a way that provided a lot of flexibility for technical people to work within
 - the Agreement was very successful from 1986-1991
 - a decline began in 1991 - 1995 whereby the federal government wanted to reduce/discontinue this Agreement
 - from 1995-2001 both levels of government were disinterested in the Agreement and financial resources were diminishing
 - Tom Pollock worked very hard to provide justification for the need of this Agreement (at both the federal and provincial levels)
 - in 2001 Geoff Howell injected some new resources into the Agreement and started some projects that have since been showcased across the country
 - there were a few dedicated individuals that kept this Agreement alive

- Haseen provided a brief path forward for the Agreement:
 - recent changes within EC provides a good opportunity to strengthen this program; we must take advantage of this 2-3 year window of opportunity
 - need to have concrete deliverables and products resulting from work under the Agreement so that the public can see the benefit of water quality monitoring (output-oriented approach)
 - need to try to optimize the network in order to fill in noticeable data gaps (ex: biological monitoring) while at the same time being selective and strategic
 - there are a lot of interesting projects that can be initiated
 - need to establish a regional relationship throughout Atlantic Canada (i.e. Atlantic Canada Water Managers Meeting)

Technical Presentations

- **Canada and Newfoundland and Labrador Aqua Link (CANAL) Presentation**

—

Amir Ali Khan

- CANAL was first developed as a pilot project through ResEau funding
- It was developed as a tool to bring water quality data/information to Canadians
- Its main goal is to convert information to knowledge

- It is an innovative product that was achieved through partnership under the Agreement
- There was a substantial exchange of expertise that allowed this project to work
- The general public accesses CANAL through one web page, however, it is blended from federal and provincial servers
- CANAL has also been repackaged and can be accessed through Google Earth
- It is an ideal location to continue to add data /tools
- CANAL web site is launched and is awaiting a press release under the Agreement
- There was a lot of background work to develop CANAL (ie; convert Site Doc into database; convert spreadsheets into database; develop development pressures calculator; development and implementation of WQI protocols with VMV codes; etc.)
- The weakest link with CANAL is the downloading of data from ENVIRODAT; it is not user-friendly and the data is out-of-date; it is not being updated and managed properly.
- There was a lot of work initiated throughout the CANAL project, however, some of the work never got implemented into the web site (i.e. created an automated calculator but did not implement it; watershed rollup capacity of WQI scores not implemented; site-specific guidelines WQI calculator was developed but not implemented; etc)
- NL continued to work in many areas as a result of CANAL (CANAL paper submitted in Dec 2005 awaiting a response; paper on relative ranking of WQMA sites using WQI submitted in Dec 2005 awaiting a response; integration of CANAL into GIS Intranet system)
- There is a lot of work continuing that can be incorporated into the CANAL web site such as:
 - 1) Contour Maps for many water quality parameters
 - 2) Delineated and digitized watersheds maps for all WQMA and hydrometric sites
 - 3) Fact Sheets
 - 4) Watershed Roll-up using WQI scores
 - 5) Automated WQI calculator
 - 6) Utilizing the WQI with real-time data
- The “Key Notes” from this presentation were as follows:
 - 1) Improve functioning of ENVIRODAT
 - 2) Continue to use CANAL as a pilot test site; then import to national site
 - 3) Try to clue up initiatives that have already started
 - 4) Secure additional resources for more initiatives

Action Item: Incorporation of contour maps into CANAL; lead for this project is Ali.

Action Item: Provincial staff (Renee; Annette and Joanne) will work on developing fact sheets for the various major river systems across the province; they will also identify selected basins for fact sheets in their representative regions along with time line for completion.

Action Item: Incorporation of fact sheets into CANAL; lead for this project is Ali.

- **Real-Time Water Quality Monitoring in NL – Renée Paterson**
 - Real-Time Water Quality Monitoring is an innovative technology that is gaining national attention.
 - The RTWQ network currently consists of seven active stations with plans for an additional eight stations in 2006-07 (2 at Duck Pond; 2 at VBNC; 2 at IOC; 2 with EC).
 - NL Hydro is a potential partner for 2007-08.
 - The presentation touched on issues involved in calibration/maintenance; QA/QC; data communication; data management and reporting.
 - The “Key Notes” from this presentation were as follows:
 - 1) This is an innovative and creative way for environmental protection (ie: early warning system).
 - 2) It uses the concept of proactive environmental management.
 - 3) The RTWQ network is expanding and has good potential to become self-sustaining with its own resources.
 - 4) NL is the only province with RTWQ monitoring
 - 5) To this point, it has been 100% fully funded by the province; should pursue incorporating network into the Agreement (ie: stronger foundation).
 - 6) Renee is the operational lead for this program.

- **Drinking Water Quality Information System – Paul Neary**
 - The application was developed by ESRI Canada and in-house expertise was developed at the same time in conjunction with its development.
 - It is a GIS application that incorporates drinking water information and now ambient water quality information as well.
 - The WQMA sites can be identified on the map and depending on the station there is a link to the CANAL web site and/or the real-time web site.
 - This is available to users within government.
 - There is the potential and plans for much more information to be incorporated into this GIS application

2) Annual Work Schedule 2006-07

Monitoring Activities:

1) Addition/Discontinuation of sampling stations:

- There was significant discussion about the addition and discontinuation of sampling sites under the Agreement in Schedule B of the Annual Work Schedule using the email prepared by Annette (listing the changes).
- It was decided that the decisions made by Annette in her preparation of the draft Schedule B were accurate with only minor changes being suggested.
- It was decided that for Virginia River @ the Blvd (Eastern) the sampling frequency would be reduced from 12 to 6 times per year.
- There were some qualifying and additional points that are needed as footnotes.

Action Item: Renee will incorporate all changes to Schedule B of the Annual Work Schedule and distribute when the document is signed.

- Before any of the federal sampling stations are dropped from the south coast of the province, it will be necessary to have a conference call with Howie and his staff to determine if they can logistically remain on the list.

Action Item: Annette will arrange a conference call between Haseen, Joe, Howie and staff to determine logistics for sampling south coast and to get an overview of Howie's shop involvement.

2) Labrador Sampling:

- The main issue arising from Labrador is that there is only a short window of opportunity during open water for sampling.
- Haseen suggested that we send our provincial staff once a year and continue to make use of the hydrometric network.
- There was substantial concern raised about the sampling protocols/bottles being used by the individuals from the hydrometric network; possibility of sources of error being introduced.

Action Item: On an annual basis Annette will organize a conference call with all hydrometric network individuals to go through sampling protocols and to ensure consistency between federal and provincial sampling protocols.

Action Item: Annette will travel with the hydrometric network individuals to each Labrador site at least once this year; if this is not achievable, Annette will arrange one trip along with the drinking water quality monitoring program.

- It was decided that all 18 Askui sites will be added back on the Work Schedule to be sampled this fiscal year; there is a definite data gap with respect to northern sites currently being monitored.
- It was decided that all Labrador sites and Askui sites will be listed in the Schedule B to have at least 3 samples per year; this number does not refer to the number of trips but rather the number of samples taken.

3) Recreational Water Quality Monitoring:

- There was discussion regarding the new Recreational Water Quality Monitoring in Schedule D of the Annual Work Schedule; this is a new initiative that should provide interesting results.
- It was decided that the new stations chosen (and listed as 6 times) may have to be reduced since the sampling will take place over the summer months when Officers are on annual leave; will reduce the number to 3 to 4 times instead of 6 times (especially for the first year).

Action Item: Joanne and Annette will provide Renee with a short site description and GPS coordinates for any new stations by late May.

Action Item: Renee will email a list of all new stations (coordinates and descriptions) to Abbey requesting station ID numbers when necessary information is received from each regional officer.

Action Item: Any new stations must have a station profile added in the Site Documentation Database and the associated watershed delineated and digitized by Water Quality Officers.

Action Item: Ali will arrange a meeting with Paul and Renee to discuss adding the recreational water quality monitoring stations into CANAL.

4) Real-time Water Quality Monitoring:

- Majority of the information concerning the real-time water quality monitoring network was discussed as part of the presentation at the beginning of the meeting.
- EC will be providing NL with two new hydrolabs to be placed in Main River and Minipi River.
- Haseen provided a cost estimate (ballpark figure) needed for operation/maintenance and data processing and management; this cost does not include helicopter time; this will be discussed and negotiated separately.

Action Item: Renee will be in contact with Todd Smith to discuss the installation of the two new hydrolabs.

- Renee and Ali informed the group that they are pursuing the idea of organizing an additional statistics course on analysing RTWQ data; Joe was very interested in this concept.
- Province will provide an additional Hydrolab for the efficient operation of the two new stations in partnership with EC.

Action Item: Ali will inform Joe when another statistics course (RTWQ data) is arranged.

5) Station IDs and Tertiary Watershed Boundaries Not Matching:

- Joanne prepared a document that outlines where the WQMA station IDs do not match the tertiary watershed boundary IDs in many instances throughout the province.
- This problem needs to be corrected because it will lead to issues when trying to integrate WQMA and Hydrometric information into GIS applications.
- It is unclear what the procedure will be to make the necessary changes.

Action Item: Joe will speak with IT in Moncton.

Action Item: Joe will set up a meeting to discuss this issue in greater detail; Joe will be the EC lead while Ali will be the lead from DOEC; Jean-Guy will also have to be brought into the discussion.

Action Item: Ali and Rob will go through the stations in more detail.

6) New Initiatives:

a) First Nations Source Water:

- There are definitely three First Nations areas in our province and possibly more depending on actions being taken in Labrador.
- May be able to include these areas under the new “First Nations Source Water” initiative.
- NL already has a very comprehensive and successful drinking water monitoring program in place; can possibly work the First Nations monitoring into this program.
- Haseen suggested that he is available to give a presentation on the drinking water monitoring program and the OETC program as well.

Action Item: Renee will add a new schedule to the Annual Work Schedule entitled “Drinking Water Monitoring for First Nation Communities”.

Action Item: Haseen and Renee will meet to discuss the contents of this new Schedule.

Action Item: Joe will keep Haseen informed of any new developments in this area.

b) International Polar Year:

- There is a new initiative entitled “International Polar Year” being coordinated by Fred Rona.
- They will be interested in gaining knowledge of aquatic ecosystems and hydrology in northern regions.
- The budget has not yet been determined; may be an opportunity for a special project through the Agreement with IPY funding.

Action Item: Joe will keep Haseen informed of any new developments in this area.

c) Additional Initiatives:

- It was agreed that any new initiatives involving water quality monitoring in NL should go through the Agreement.

Action Item: Joe and Ali will continue to correspond regarding possible options for mapping/modelling in Labrador.

Action Item: Joe will keep Haseen informed of any new initiatives (Meally Mountains; Eagle River; Torngat Park; etc.)

Analytical Services:

1) Bottle # Requirements:

- Art and Renee discussed the number of bottles that will be needed for each region; the overall estimate is 550 bottles in total.

Action Item: Art will submit the number of bottles needed by each region to the lab in Burlington.

Action Item: Annette will contact the lab to find out if bottles have been/going to be sent soon so that Officers can start sampling for the new fiscal year.

Action Item: Art will send any additional information as received from Burlington lab (ie. Schema #'s; etc).

Action Item: Joanne will send the names of all hydrometric network individuals (and associated office) to Art so that he can begin to arrange to have the new bottles (currently being used) sent to them as needed; this information needs to be cced to Haseen and Joe.

Action Item: Art will follow up with the lab about number of bottles needed by hydrometric network individuals and where to send them.

2) Apparent Colour vs. True Colour:

- This issue was resolved before the meeting with discussions between Moncton lab, Burlington lab and Haseen.
- It was agreed that the cost and effort to sample for true colour is too high when the apparent colour value is accurate.

3) Resolution of Sample ID # Problem:

- This issue has been resolved.

Action Item: Renee will send an email to Joanne and Annette at the beginning of the new fiscal year (annually) reminding staff to change Sample ID #'s and reprint all hardcopies of field sheets and labels.

4) VMV Codes and Associated Standard Methods:

- Most VMV codes follow a standard method or a USEPA method.
- The work being done by Chris Lochner (EC) will document the VMV code and associated standard method where available.
- A potential project for a work-term student is to work on the VMV codes and their associated standard methods in conjunction with the work being done on the national level.

Data Management:

1) ENVIRODAT:

- The public version of ENVIRODAT (available through CANAL) is not getting updated frequently enough (not since 2002).

- The public version of ENVIRODAT was a good first attempt but could use some improvements to make it more user-friendly.
- The following issues need to be addressed:
 - 1) the project numbers are not explained
 - 2) it does not differentiate between the full record vs. the spreadsheet download options
 - 3) data opens in notebook and is confusing to read
 - 4) VMV codes are not explained
 - 5) there is an extra column that is not explained
 - 6) no indication of latest available data
- Art feels strongly that the resources are not in place in the regional office (Moncton) to maintain the system to necessary standards; no one has been assigned to this task in many years.
- ENVIRODAT is working on a 6 month delay with respect to available data.

2) Annual Batch Transfer:

- In the past, the province has received a number of batch transfers of the WQMA data.
- This was found to be a very worthwhile exercise.
- Need an in-house provincial database to keep a backup of the data available from ENVIRODAT; cannot solely rely on ENVIRODAT just in case a problem arises.
- Paul Neary distributed a flow diagram illustrating the old NAQUADAT model and how he would like to receive the data from the batch transfer.
- It is necessary to have the complete download from the start of the Agreement (1986) to ensure all data is accounted for.
- Paul Neary will be the contact person for DOEC concerning the batch transfer of data; Paul can travel to Moncton to discuss this issue if need be.

Action Item: Joe will assign this task (batch transfer) to someone in EC; Joe will inform Haseen and Paul who the contact person is from EC so the work can proceed.

Action Item: Joe will work to address ENVIRODAT deficiencies and update Haseen on the progress.

Special Study:

- In the early years of the Agreement there were numerous special studies carried out which analysed water, sediment and biota.
- When resources were limited, the special studies diminished.
- Began to carry out special studies on an annual basis starting in 2002.
- The Urban Water Bodies Report (2002) has been completed for sometime.
- The Exploits River Report (2003) is almost complete.
- The data for the Corner Brook Stream (2004) special study had not been received up to this point in time; Art explained that this was an oversight because the data has been analysed for some time.

Action Item: Art will send the data from the Corner Brook Stream special study upon return to Moncton.

- Joe expressed interest in continuing with special studies under the Agreement with participation from both provincial and federal staff.

Action Item: Joe and Haseen will discuss the issue of adding a special study for this upcoming fiscal year in the next meeting.

Technical Documents:

- Under the WQMA, there are numerous technical documents completed or in process such as:
 - 1) **Trend Analysis Report and Paper** - complete
 - 2) **Evaluation and Redesign of Network Report** - complete
 - 3) **Contour Maps** – complete; need to be incorporated into CANAL
 - 4) **Intensive Survey Reports** – on-going; will need to be reviewed by both EC and DOEC
 - 5) **Fact Sheets** – template created using Humber River; working on developing additional fact sheets on major river systems throughout the province; need to be incorporated into CANAL
 - 6) **WQMA Sampling Manual** – to be updated this fiscal year; will need to be reviewed by both EC and DOEC
 - 7) **Posters** – on-going; numerous posters completed
 - 8) **Monthly Real-time Station Reports** – available on web page; on-going
 - 9) **Annual Real-time Station Reports** – on-going; all stations will have an annual report at the end of this calendar year
 - 10) **Summary of RTWQ data using WQI** – pilot project complete; work is on-going in this area
 - 11) **General Statistical Analysis of RTWQ Data by Site** – on-going this fiscal year
 - 12) **Determination of Non-analysed Variables using Regression Analysis on RTWQ Data** – work is on-going in this area
 - 13) **Water Quality Modeling Report using RTWQ Data** - on-going this fiscal year
 - 14) **Summary of WQMA Data using WQI** – available through CANAL; needs to be updated this fiscal year
 - 15) **Discussion Paper on Surface/Groundwater Interactions** - on-going this fiscal year
 - 16) **RTWQ Manual** – on-going this fiscal year
 - 17) **Scientific Publications** – two papers submitted awaiting decisions

Miscellaneous:

- 1) **ResEau** – there are many projects that fall under this funding; need a status report on this project.

Action Item: Joe will check into the status of ResEau and provide update to Haseen.

- 2) **National Water Quality Indicators Project** – this project is proceeding again this year.

Action Item: Art will look at the station list to determine why some Terra Nova sites are not listed but have the same project #; Art will inform Ali.

Action Item: Joe will check into the continuation of funding for this project (at last years level); Joe will inform Haseen of the outcome.

Action Item: Provincial staff will review the data and perform calculations of WQI; will contact Joe with issues as they arise.

- 3) **Site-Specific Guidelines vs. Background Concentration Project** – this is an interesting project that we should pursue; biggest challenge is to locate a reliable source of data.

Action Item: Joe will explore the national sources of data and will check with Connie Gaudet as well; Joe will inform Haseen of the outcome.

- 4) **Delineation and Digitization (as well as QA/QC) of WQMA Watersheds** – this is a top priority; Haseen agreed to contribute \$35,000-\$40,000 to go toward hiring someone to complete this work; Joe will determine the contribution from EC when the budget is determined; we need to employ a person with a surveying background to perform QA/QC of maps.

Action Item: Haseen and Joe will discuss this project during the meeting in May.

- 5) **Posters for EC Office** – Joe would like to have copies of the posters for the EC office.

Action Item: Jennifer will order a set of posters and ship to Joe.

- 6) **Atlantic Water Managers Meeting** – A meeting with all the Water Managers would help in building a strong foundation and better relationships throughout the region.

Action Item: Joe will coordinate a meeting with all the Water Managers from the Atlantic Provinces including Charles LeBlanc.

- 7) **Additional meeting** – Haseen and Joe agreed that an additional meeting would be necessary to discuss a preliminary payment schedule when the federal budget is determined.

Action Item: Haseen and Joe will determine when a meeting can be held for this purpose; will invite Jean-Guy to attend the meeting.

- 8) **Wetlands Meeting** – Al will be visiting NL on May 25th and 26th to discuss the continuation of the wetlands project that was initiated in the past fiscal year; it was agreed that the Agreement could be used to transfer funds, however, the linkage with the Agreement starts and ends at that point.

**Meeting Minutes
May 18th and 19th, 2006**

Attendance:

Haseen Khan (DOEC)
Joe Pomeroy (EC)
Jean-Guy Deveau (EC)
Howie Wills (EC)

May 18th (PM)

- Meeting held between Joe and Haseen to discuss the administrative aspects of the *Canada-Newfoundland and Labrador Water Quality Monitoring Agreement* (WQMA).
- Haseen and Joe decided to meet with the hydrometric individuals in the morning of the 19th and then carry on this discussion in the afternoon of the 19th.

May 19th (AM)

- Meeting held between Haseen, Joe, Jean-Guy and Howie.
 - o **Equipment Depreciation (Capital cost):**
 - Not within the framework of the current Agreement
 - Federal government must provide a letter to Haseen by Fall 2006 outlining the annual cost of depreciation along with provincial/federal share
 - o **Schedule D:**
 - Schedule D as presented by Jean-Guy is OK
 - It was agreed that the Hydrometric Agreement needs to be expanded into the north (Torngat Mountains; Meeley Mountains)
 - Agreement will provide funding for a new Hydrometric Technician position in NL
 - Emphasis needs to shift to tools/products as opposed to data collection only
 - o **Annual Report:**
 - An Annual Hydrometric Report needs to be prepared
 - o **WQMA Sampling:**
 - WQMA provincial staff will coordinate the sampling of all water quality stations sampled by federal staff; protocols to be worked out

May 19th (PM)

- Meeting held between Haseen and Joe

- **Federal Contribution (2006-07):**
 - All federal funding for water quality work in NL will be channeled through the WQMA
 - \$50,000 for water quality monitoring in the north
 - \$30,000 for water quality monitoring in the north; operation and maintenance of two federal real-time water quality stations (Main River and Minipi River)
 - \$25,000 - \$30,000 for intensive survey which will be used for delineation and digitization work in 2006-07
 - \$40,000 for CESI project (\$20,000 for work to be done by NL; \$20,000 for special projects)

- **Biomonitoring:**
 - Biomonitoring is a new activity to be initiated
 - Federal government will provided funding
 - Exact funding to be determined

- **Assessment of Contribution:**
 - EC is assessing the in-kind contribution of both levels of government under the WQMA and will provide a detailed response to Haseen by Fall 2006

- **Shellfish Monitoring:**
 - There was some discussion on shellfish monitoring

**Meeting Minutes
August 23rd, 2006
10:30am – 2:00pm**

Attendance:

Haseen Khan (DOEC)

Joe Pomeroy (EC)

- Haseen and Joe reviewed and finalized the draft version of the Annual Work Schedule
- It was agreed that biomonitoring along with lake water quality monitoring will be planned activities for the next fiscal year (2007-08)
- It was agreed that the discussed changes will be incorporated and the revised Annual Work Schedule will be emailed to Joe by August 29th, 2006 for final review by Environment Canada
- Joe will inform Haseen of any revisions needed to the Annual work Schedule
- After Labour Day, Haseen will get two originals of the Annual Work Schedule signed by Martin and then forwarded to Joe for signature by Charles
- Haseen will talk to Howie to determine the timing of establishing the Conne River station
- Joe will talk to Tom Clair regarding the Long-range Transport of Pollutants (LRTAP) program
- Joe reaffirmed his interest to continue with a hydrologic modeling study in Labrador in cooperation with Amir Ali Khan; this project will not begin until the upcoming fiscal year (2007-08)

