Miramichi River Environmental Assessment Committee

Napan River Sub- Watershed Monitoring Project

1997-98

Table of Contents

Tables/Appendices

1.0 MREAC History:

The Miramichi River Environmental Assessment Committee is a non-profit, non-government, community based organization. It was found in 1989 as the Miramichi Pulp and Paper Incorporated Committee on Public Information and Public Concerns. Later that year the organization evolved into the Miramichi River Environmental Assessment Committee. There were 21 founding members including: Concerned citizens, representatives from both Federal and Provincial government departments and company representatives.

In it's infancy, the committee made several recommendations including:

- A two year study of the health of the Miramichi River (estimated cost $100 000).
- A cost sharing by Miramichi industries, Municipalities, and Federal and Provincial governments.

MREAC's mandate was an assessment of the environmental quality of the Miramichi Watershed from a two year study which would identify and quantify both point and non-point sources of pollution and to determine the effect of contaminants on water quality, aquatic life and on river sediments.

The study area extended from the headwaters to the barrier islands, total area 13 465 km^2 (approximately 300 km^2 estuarine.) After the study it was concluded that:

- After routine treatment in most areas the water is safe to drink; swimming at many (not all) locations is ok.
- In general, levels of contaminants are not high enough to close commercial fisheries (except Mercury levels in Striped Bass, which are unsuitable for consumption by children or mothers.)
- Contamination of shell fish with faecal coliform bacteria has caused closures of large areas in the bay and complete closure of the upper and lower estuary.

It was therefore concluded that an organised plan was required to improve and protect the Miramichi River quality.

2.0 Purpose

Now in it's tenth year, MREAC has begun to focus on smaller watersheds within the Miramichi Watershed. Bacteriological (sewage related) impacts are persistent. Despite considerable upgrades of several municipal waste water systems the shellfish closure line remains the same, from Oak Point to Point aux Carr.

In 1997 MREAC launched its sub-watershed monitoring program. The new concept is more detailed, monitoring Miramichi tributaries (sub-watersheds) within the large Miramichi drainage area. Out of the 12 or so sub-watersheds, the Napan River was chosen

as the pilot project for many reasons including: It's proximity to MREAC headquarters, it is reasonable small, there is significant agricultural activity and rural development along it's banks, it's shallow brackish waters act like a nursery for many fish species, it is also the receiving stream of drainage from the former Canadian Forces Base Chatham (long term DND property). The former air base also acted as a center for forest spraying programs, in the past, and remains to be an active airport, (boasting the longest runway in Atlantic Canada, > 10 000m), as well, it currently acts as a base for a fleet of water bombers. There have been local reports of livestock refusing to drink from a stream that drains the Chatham base. It is unknown whether this has changed since the DND base closure in 1996.

All of these reasons together make the Napan River a logical choice for preliminary monitoring. Environment Canada, NBDOE, NBH&CS, and NBCC-Miramichi all contributed to assess the health of the Napan River in cooperation with MREAC.

This initiative could contribute to a better understanding of the ecosystem in general and/or the impact of human activities. The results of this monitoring program will present and Napan residents with a comprehensive report on the health of their river ecosystem. MREAC is committed to the growth of environmental awareness to the point where the concerned public assumes responsibility of watershed stewardship.

2.1 Initial Assessment

Early in the summer of 1997, students from NBCC-Miramichi and Environment Canada in cooperation with MREAC, conducted a monitoring program to assess the health of the Napan River Watershed. The assessment was comprised of stream surveys and water and sediment quality sampling. It was concluded that there was a concern regarding the potential problems in the river, and therefore monitoring should be carried over to 1998.

3.0 Introduction:

3.1 Napan River Watershed Description:

The Napan River Watershed is a smaller tributary of Miramichi Inner Bay. The length of the river is 30 km with up to half this distance being influenced by tidal waters. The Napan River valley is one of few in the Miramichi Watershed that is rich in agricultural activity along with a ribbon of rural communities along the North and South Napan Road. Several farming operations run along the lower half of the river in the Center Napan and Lower Napan area. Most of these farms are livestock based with corresponding feed-lands (hay and grains). Environmental issues related to livestock rearing are: Manure and waste handling practices, fertilizer application, and the use of herbicides. Specifically, the herbicides MCPA, 2-4DB (EMBITOX 625, COBUTOX, CALIBER 400), MCPB/MCPA (Tropotox Plus), MCPA/Mecoprop/Dicamba (Target) application, it was suggested, would

likely be minimal according to the local agricultural representative for the province. Because many of these farm lands are in close proximity to the river, there is a possibility of release to the river caused by runoff from the fields. Any releases to the river, either direct of indirect, will impact the environmental quality of the river and the estuary below. Within the estuary, there are shellfish growing areas that are currently closed to shellfish harvesting, thus, there is an interest to learn more about the degree activities in the watershed impact, not only the river itself, but also the receiving part of the estuary.

4.0 Sampling Methodology:

In June 1997, students from the NBCC-Miramichi and staff from MREAC began a stream survey of the Napan River. Two teams completed a survey from the headwaters and progressed downstream as required. The surveyors walked through the stream or along the bank. A Magellan 5000 GPS was used to pin-point locations where sources of pollution were identified, as well as sample site locations. Water and sediment samples were collected at pre-determined locations by MREAC staff and Environment Canada.

In June 1998, staff members of MREAC progressed down stream as far as possible on foot, part of the assignment was to confirm work completed by NBCC-Miramichi students in 1997. The final stretch of the River, to the Sweezey Bridge, was surveyed by boat. In addition to the stream survey, a ditch line survey was conducted around the perimeter of rural area, seeking evidence of black water discharges.

4.1 Sample Parameters

The sampling program for the Napan River includes sediment and water quality analysis. Water/sediment sample site parameters obtained June 23-25, 1998 can be found in appendix A. Technical/analytical support provided by partners is as follows:

1. Suites of organic (herbicides) analysis at multiple sites (20 samples) [Environment Canada, Moncton]

2. Suites of traditional analyses at multiple sites for BOD, total carbon, total organic carbon, nutrients and suspended solids, (20 samples); [Environment Canada, Moncton]

3. Sets of sediment samples (9 herbicides) along the length of the river (14 sites) [Environment Canada, Moncton]

4. Bacteriological water quality (fecal coliform) (bi-weekly) (3 sites with 5 runs) [NBDH&CS, Fredericton]

5. Other parameters: pH, temperature, dissolved oxygen, turbidity, salinity. [NBDOE, Fredericton and MREAC]

The results from this sampling program will assist in defining the priorities for any needed remedial work on the Napan Watershed to secure any needed improvements in water and sediment quality. Improvements to the farming activities in the watershed should result in parallel gains in the shellfish areas.

4.2 Napan River Sub-watershed Main Monitoring Sites

Site #1- Sample is taken from the South side of the river, down river from the bridge from between the first and second cut off pillions. This bridge is the lowest sample site on the Napan River, known as the Sweezey Bridge.

Sites #2- Sample is taken from the North side of the river at an old bridge embankment "Old White Bridge". Access via long lane to get to river.

Site #3- Sample is taken from the North side of the river on the down side of "Johnson's Bridge". It is the bridge on the road beside the Napan Elementary School that runs from North Napan Road to South Napan Road.

Site #4- Sample is taken at bridge on Highway 11 from concrete ramp separating the two culverts. Sample from the right hand or north tunnel if you are facing west. The sample is from the upriver side of the bridge.

Site #5- Sample is taken at South branch of the Napan River, southern most bridge on the Hannah Hills Road in Upper Napan. The sample is taken on the downstream side of the bridge. The Hannah Hills Road is about 2 km up from the highway (first road to the right after turning off of the highway).

Site #6- Sample is taken from the North branch of the Napan River and is taken from first bridge North of Site #5. (The two bridges are <100m apart). The sample is taken down river from bridge and on the northern side of the river by standing on wood cribbing jutting out from side of bridge.

Site #7- Sample is taken from the bridge on the O'Hearn Road about 2 km farther up from the Hannah Hills Road. Sample from the down river side of the bridge on the west side of the river, (i.e. the same side that the house is on). Sample is taken from bridge cribbing and requires reaching down to correct sampling depth.

Photographs of actual water quality sample sites #1-7 can be found in appendix B. Napan River Watershed map can be found in appendix C.

5.0 Results/Conclusions:

5.1 Water Quality Analysis

Results from water samples taken in 1997 and 1998, (Table #1), indicate a bacteria problem that could limit recreational activities in certain locations (See Water Quality Ladder, Table #2)
Two of seven sites contained elevated levels of bacteria, these sites were at the Old White Bridge and Johnson Bridge.

5.2 Sediment Quality Analysis

Sediment sample testing form 1997 revealed elevated levels of pesticides including DDT from a sample taken on the north branch of the Napan River. (See Table #3) These results were unexpected and are cause for concern, 16 times greater than Interim Sediment Quality Guidelines for DDT, and so, warrant further investigation into 1998.

5.3 Results from ditch line survey

Black water discharges from rural residences were not an overwhelming occurrence, however, there was black water (sewage) seepage into ditches at four different locations within the community. These sites were identified by the appearance of "black water", as well as, pungent odor.

The shellfish closure line from Oak Point to Point aux Carr is just below the mouth of the Napan River. This monitoring program was designed, in part, to determine if discharges from the Napan River contributed to the location of this line. Findings from 1997 do not suggest a large discharge of faecal coliforms.

To date, water quality and sediment analysis for 1998 are unavailable. These results should be available in the spring of 1999.

Appendix B

"SWEEZEY BRIDGE"

SITE #1

"Old White Bridge"

Site #2

"JOHNSON'S BRIDGE"

SITE #3

"HIGHWAY 11 BRIDGE"

SITE #4

"South Hannah Hills Bridge"

Site #5

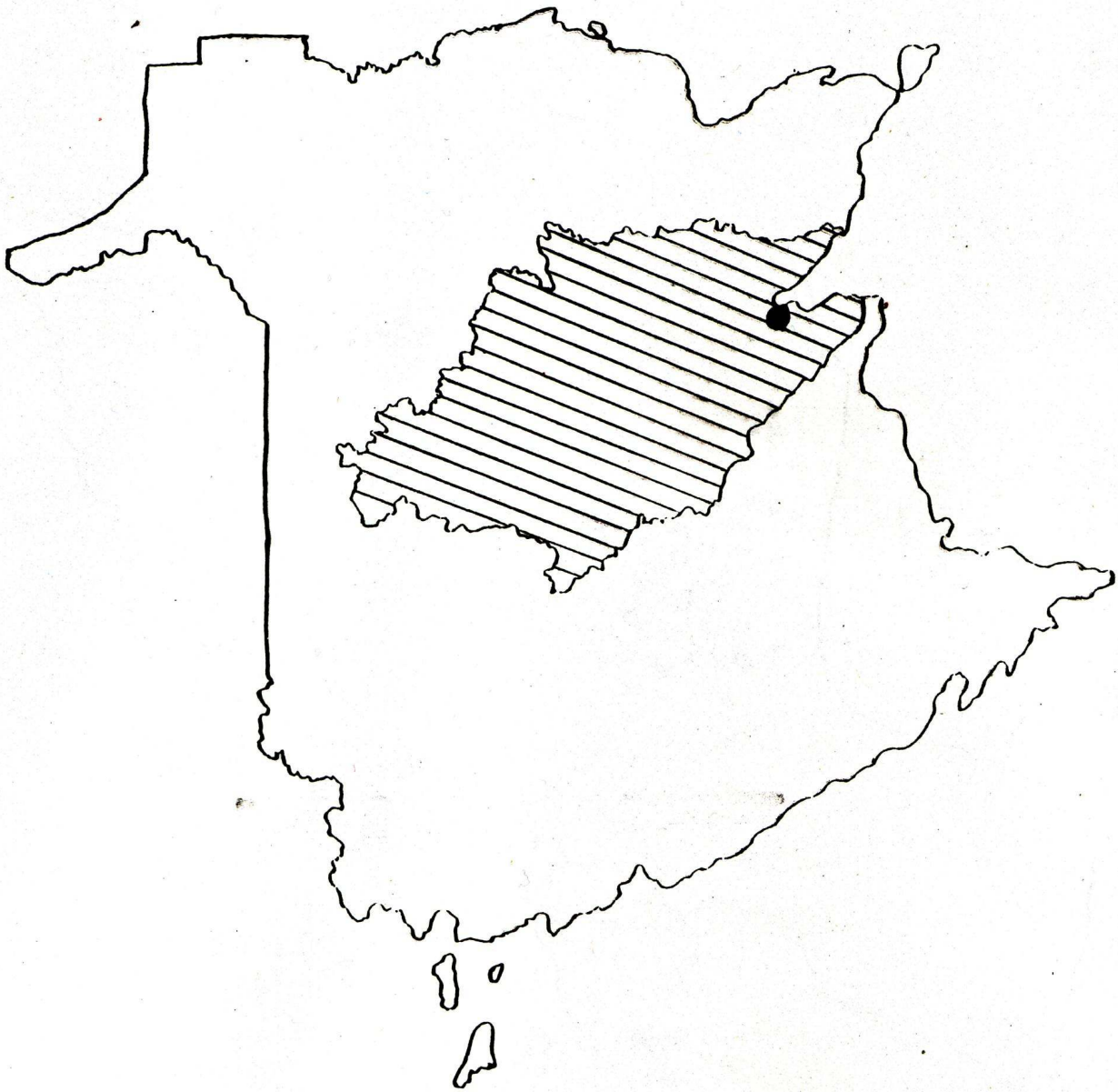
"North Hannah Hills Bridge"

Site #6

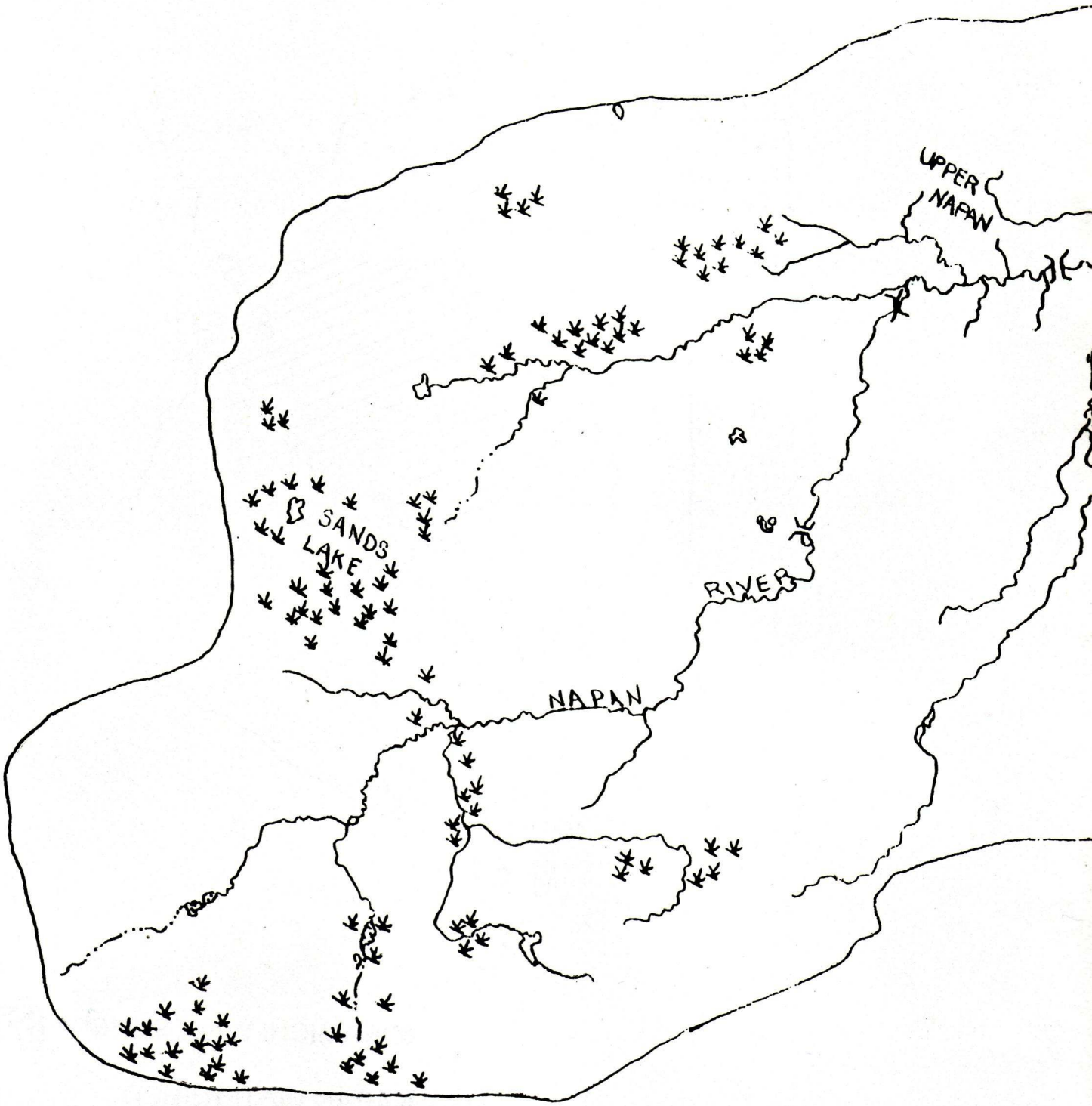
"O'HEARN RD BRIDGE"

SITE #7

Appendix C



NAPAN RIVER WATERSHED



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