



Review Summary: State of the Environment Report 2007

From 2005 to present, MREAC has worked toward an up-to-date State of Environment for the Miramichi River watershed. This report updates an earlier effort by MREAC stemming back to 1992. This report was compiled by three authors: Dr. John Allen, Dr. Peter Eaton and MREAC's executive director, Harry Collins. The following features some of the key findings from the full report (available at www.mreac.org or at our MREAC office).

The Approach

What our State of the Environment (SOE) report attempts to answer are five key questions:

- * **What is happening in the environment** (i.e., how are environmental conditions and trends changing)?
- * **Why are these changes happening** (i.e. how are human activities and other stresses linked to the issue in question)?
- * **Why is it significant** (i.e. what are its ecological and socio-economic effects)?
- * **What is being done about the changes** (i.e. how is society responding to the issues through government and industry action as well as voluntary initiatives)?
- * **Is the development sustainable** (i.e. are human actions depleting environmental capital and causing deterioration of ecosystem health)?

Background

The Miramichi watershed, the second largest in the Maritimes, covers a large expanse of north-eastern New Brunswick and is home to some 55,000 people, most of whom are concentrated in the communities which make up the amalgamated area of the City of Miramichi on the upper estuary of the Miramichi River. The remainder of the nearly 14,000 km² watershed is sparsely populated and about 90 percent forested and, for this reason in part, river water in the majority of the watershed is of a high quality. Forestry is the major industry throughout most of the area and forestry-related industries (pulp and paper, wood treatment and manufacturing) have had a significant impact on the environment, particularly in the lower reaches of the river system. Forestry activities have also had an impact on fish habitat throughout the system by increasing siltation, water temperature, runoff, human access and, in past years, contamination from pesticide use.

Dramatic changes have taken place in the watershed over the past two decades. These are highlighted throughout the report. Many are positive environmental changes leading toward a more sustainable environment.

- * The closure of the kraft pulp mill has removed organic pollution to the estuary and improved air quality.
- * The two new sewage treatment plants serving the City of Miramichi (since 1998) are located on the south and north sides of the river and have resulted in substantial reductions to bacterial contamination.
- * A multi-year program of upgrading private septic systems (55 to date) has improved water quality.
- * Closure of the Chatham air base has removed a source of pollution for the Napan River.

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- * The closure of the Domtar wood treatment plant near Newcastle eliminated one of the most serious polluters in the estuary.
- * Concentrations of dioxins and furans in effluent from Miramichi Pulp and Paper Mill at Newcastle dropped dramatically between December 1988 and May 1994, meeting “no trace” levels of these contaminants.
- * The Heath Steele base metals mine at Tomogonops was closed and decommissioned in 2000.
- * Acid mine drainage and metal leachate on the NW Miramichi, as well as the leaching from stockpiled metals for shipping at local wharves, are no longer contaminant sources.

Both air and water quality from industry have improved due to either industrial closures or improvements in process. Many municipalities have upgraded sewage treatment. The legacy of industrial and municipal impacts are still evident in river sediments. The following concerns have been noted:

- * The sediments in the Miramichi River estuary have concentrations of metals and organic contaminants that exceed the Interim Sediment Quality Guidelines established by the Canadian Council of Ministers of the Environment.
- * Polycyclic aromatic hydrocarbons (PAH) can still be found in river sediments at elevated levels. The levels of polychlorinated biphenyls (PCB) are still elevated particularly at downstream locations.
- * Sediments from locations where fine silt or clay has accumulated are still found to be toxic.
- * The Miramichi River estuary supports an impoverished benthic community with low numbers of species, although there is a suggestion that some recovery may have occurred between 1993 and 2002.



City of Miramichi – Southside Sewage Treatment Plant

Bracing For Climate Change

Climate change is identified as possibly the most serious form of stress that the environment of the watershed might face in the long-term. The implications of a changing climate are far-reaching, from sea-level rise to changes in fish and wildlife habitat, to alterations in forest structure and the prevalence of disease and invasive species. Over the next 100 years, mean temperature increases for New Brunswick have been predicted, anywhere from +2 to +6 ° C. Some of the other physiographic changes that will likely occur are: changes in ice cover and ice break-up in rivers, changes in precipitation (increases in the case of Miramichi area), changes in river discharges (maxima & minima), more extreme weather events, a rise in sea level and an increase in storm surges. It is probable that some of these changes will occur too quickly for certain species to adapt. It could ultimately change the way in which environmental resources are utilized and alter the way of life for watershed residents. As with elsewhere on the planet, immediate attention would be prudent to adapt to the projected challenges climate change will bring.

While events causing climate change can be accepted as a worldwide phenomenon, there are local issues that can be addressed at least in part. As environmental stresses caused by industry are decreasing, stresses caused by individual action could be on the rise. Individual wealth encourages more travel and more recreation. This can result in more vehicles per household including ATV's, power lawn mowers and outboard motors. The availability of specialised vehicles permits more access to what was previously wilderness or only utilised by individuals or groups with a vested interest in at least maintaining the status quo. Disturbing sensitive vegetation or wildlife habitat can have far-reaching effects. Increasing internal combustion emissions, along with the greater use of wood for burning to provide heat in our larger and/or poorly

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sealed homes, are seen as impacting air quality in the region and climate change in general.

Miramichi Science & Monitoring

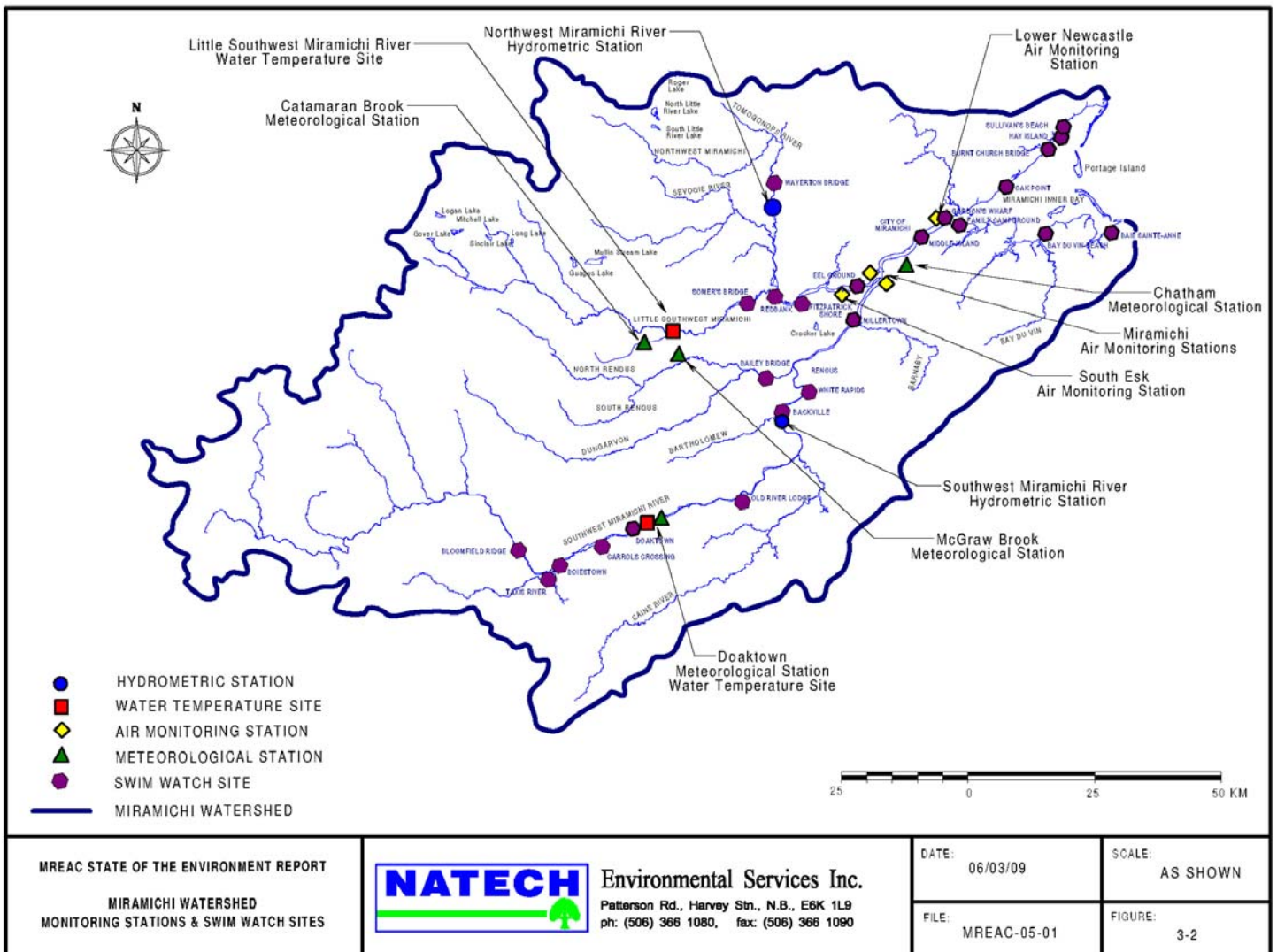
The Miramichi is blessed with much attention from the scientific community and a substantial science library exists on the river and watershed. This attention comes from universities, industries and various levels of government.

Of particular note is the long-term study on forest harvesting impacts focused on a small river system that drains into the Little Southwest, name by Catamaran Brook.

Available science has provided the core content for this State of the Environment Report. Much of the science is supported by environmental monitoring at locations throughout the Miramichi. The map below illustrates a number of the monitoring stations that have provided data to this state of environment report.



Beach Seining – Courtesy of Nelson Poirier



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Summary

Overall, the state of the Miramichi watershed is good and improving, but there is no room for complacency in striving for long term sustainability. Environmental stresses should continue to be addressed and diminished. The potential impacts of Climate Change are hard to overstate. Some natural resources are being used more quickly than they can recover. These issues should be addressed immediately. In the battle ahead for a sustainable future the authors of this report assert that the Miramichi is capable of supporting activities essential to a thriving society with such traditional economic drivers as the fisheries, forestry, and diverse recreational activities presently enjoyed. In its relatively healthy position it is suggested that the eco-economy potential of the watershed should be considered as having significant potential to provide future livelihoods and increased health and well being of a changing environment.

Despite all of these positives there has rarely been a time of such anxiety of what is to come. The actual longer-term impacts of climate change will only be determined over that long-term and on how well we adapt. At best we will be challenged. This is not to suggest that the Miramichi is isolated from climate change impacts on a national and global scale. Those challenges are likely to test the fibre of all society to the core.

Socially, the Miramichi is already challenged by the economic impacts of industrial decline, mechanization, and large reductions in the traditional work force. A diversification of the economy has helped but has not been effective in stemming the out-migration of the work force, especially our youth.

It seems incumbent on the residents of the Miramichi to prepare, adapt and take advantage of what the future will bring. We need to position ourselves intelligently and root ourselves well to be benefactors rather than the victims of the future.

Sustainability will be a major test to this region. Much needs to be accomplished in the traditional pursuits of commercial fishing and forestry. Prospects for the future appear to rest with the resource base that is here-to-fore stable; that of clean air, water and land on an internationally renown landscape. The eco-economy of the Miramichi offers a largely untouched market opportunity that may soon be discovered.



**River Watch
Air Watch**

Please help protect the Miramichi Watershed and Airshed through the River/Air Watch program.

If you see anything that concerns you about the environmental health of the Miramichi region call:

778-8591 or 1-800-567-4837
(1-800-56RIVER)

This is a program of the Miramichi River Environmental Assessment Committee (MREAC)

In case of an environmental emergency call 1-800-565-1633



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