



## MREAC - Cultivating Young Professionals

**M**s. Kara Baisley (BSc.), a graduate in biology from Atlantic Baptist University in 2005, and with a Diploma in Water Quality from the Marine Institute in St. John's in 2006, recently completed an 'internship' with MREAC. The program, called "Science Horizons", was sponsored by Environment Canada. The program is designed to create a pathway from university to the work world by offering young scientists work experience in their field. Ms. Baisley joined MREAC in June of 2007 and completed her internship in December.

"The diversity of the experiences in my chosen field was the strength of working with MREAC" says Kara. "I count about seven different outdoor projects that have all been learning experiences that will strengthen my career prospects'.

Ms. Baisley sees a future in relief work where she plans to improve and maintain water quality in developing countries. Hands on experience with MREAC in programs like Swim Watch, Sub-watershed Monitoring, and the Sanitary Shellfish Program all relate directly to this interest. Hundreds of samples were collected by Ms. Baisley throughout her work term. Many of these, Ms. Baisley analyzed herself in MREAC's micro-laboratory to determine levels of fecal and total coliforms. Several samples were also sent to provincial or federal accredited laboratory facilities that provided MREAC with sample results.



*Kara Baisley (MREAC) Scott Douglas (DFO)*

In a third party survey on the impacts of community-based programs, it was noted that one regional program in Atlantic Canada, the Atlantic Canada Action Program (of which MREAC is a member), generated 482 person years of employment between 1997 and 2001. Much of this work was created for youth. These work internships are key to supplementing the intern's university education with real world experiences, and it helps to make the young professionals become more marketable. This is apparent as most interns move into well paid positions within government or industry.

"As an educator, I see this role of community groups as a public service." says Joel Corcoran, MREAC's Chairperson. "If we are creating conditions that promote the career development of local youth, then we as a community reap the benefit. I hope we can continue to offer opportunities for our young people rather than exporting them out of the Miramichi."

MREAC continues to hire summer students and interns as opportunity allows. Further information on this and other MREAC programs can be provided through a call to 778-8591 or visit our website at [www.mreac.org](http://www.mreac.org).

# Sustained Water Quality Standards at Miramichi Beaches

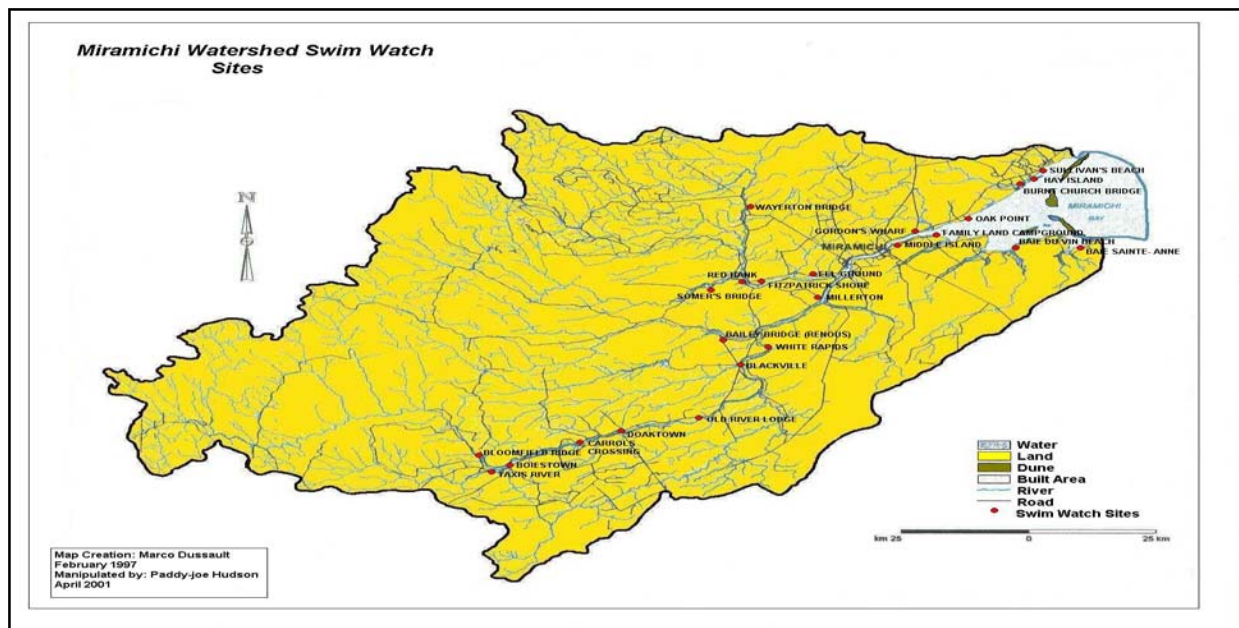
Fifteen years of sampling at thirty-one sites throughout the Miramichi – and counting. MREAC continues to monitor swimming locations throughout the Miramichi watershed. Once again 2007 testifies that the system maintains high water quality and we trust it will be sustained in future years. Regular monitoring of recognized and popular beaches is required by New Brunswick Health and Wellness. MREAC has provided the sample collection service for well over a decade along with any follow-up sampling required in the event of higher than acceptable results. The program for 2007 again assures us that swimmers can do so with minimal risk from high levels of bacterial contamination.

Specifically some of the most popular swimming locations familiar to MREAC are; Escuminac Beach, Familyland Campground, Middle Island, Gordons Wharf, Hay Island, Somers Bridge and Doaktown. Looking at acceptable standards as being under (or less than) 100 fecal coliforms per 100 ml samples the results for 2007 are as follows:

Location	Wk 1	Wk 2	Wk 3	Wk 4	Wk 5	Wk 6	Wk 7	Wk 8	Wk 9	Wk 10
Escuminac Beach						12				0
Familyland Campground	5	<10	10	30	<10	7	10	20	10	<10
Middle Island	7	30	30	210	40	7	10	<10	10	30
Gordon's Wharf	4	10	30	550	10	<10	<10	10	<10	30
Hay Island						30				<10
Somers Bridge	11	<10	60	20	10	50	<10	30	30	10
Doaktown						190				190

These are but six of the thirty-one locations (see map) where MREAC samples for water quality. As is true of each year of sampling we do see elevated sample results after a high rainfall event. On other occasions we find unexplained spikes that exceed acceptable standards but follow-up samples, as soon as possible, usually indicate the return to normal and acceptable standards.

For information on specific sites or other information on the Swim Watch Program call MREAC at 778-8591 or see visit [www.mreac.org](http://www.mreac.org).



## Miramichi Basin – Getting Our Heads Around Climate Change

Watch for it, but more importantly prepare for it. The world is on edge about climate change and rightly so. As a variation on a old Chinese proverb “If we keep going in the same direction, we’ll eventually get to where we are headed”. Climate change impacts are already being noted with record hot years, rising sea level, the influx of invasive species, and the increased frequency and ferocity of storm events.

But what is a body to do? Let’s consider our Miramichi watershed and this question of climate change. The Miramichi River watershed may be considered as representing four major systems; the coast (along the Northumberland Strait), the estuary (tidal water protected within Miramichi Inner Bay), freshwater rivers (including lakes and streams), and land area. All of these will be impacted by climate change.

Visitors to the Bouctouche dunes at the Irving Eco-centre may have observed already the impacts of storms on our coasts. Infrastructure suffers great damage and sometime complete destruction. Keeping our distance from the shoreline both vertically and horizontally is a good place to start. Recent coastal modeling suggest that infrastructure less than three meters (about nine feet) above normal high tide will suffer flooding by the inevitable combination of high tide and storm surges within the next several decades. Not only flooding but the potential of the battering by wind and wave by a Nor’easter should give any prospective coastal builder cause to proceed cautiously.



*Photo from Environment Canada Website*

Those on the somewhat sheltered coastline of our estuaries may get less of a battering, but every bit as much of the flooding. Again, if you build, build cautiously. Another challenge to the commercial fishers of our estuaries promises to be invasive marine species. Green crab, Codium (a.k.a. Oyster thief) and Tunicates are all heading our way along the Gulf of St Lawrence. Each of these introduced species is having a significant impact on estuarine ecosystems and are giving fisher folk grief. Mussel growers on many estuaries in PEI are battling Tunicates that foul their mussel lines. Oyster growers and harvesters are plagued by Codium as this buoyant seaweed will attach itself to oysters and storm turbulence will wash both ashore. Green crabs are destabilizing natural vegetation on estuaries to the east of us by their constant burrowing in the estuary mud. Other invasive species are expected, their impacts to be determined.

Within our rivers streams and lakes on the Miramichi, freshwater fishes are at risk due to climate change with the increase of water temperature. Cold water fish, including Atlantic salmon and Brook trout, cannot thrive during sustained periods of high water temperature. River managers are trying to promote the protection of cold water sources where stressed fish will rest and ride-out heat waves. Awareness of the importance of tree shade and the protection of tree buffer zones is vital. Recreational fishing during a heat wave can also lead to additional stress to already stressed fish.

On land, the very structure and composition of our forest is likely to be changed over the long term. Other invasive species including plants and insects are already on the horizon as perceived threats to our landscape. The Gypsy moth already has a foothold in New Brunswick and, while still distant, the western Pine beetle may hitchhike east and survive on eastern pine species before too long.

On all fronts awareness and adaptive measures can help us to deal better with the inevitable. Ultimately the reduction of green house gases is required to address this global threat. Despite much rhetoric, these gases continue to increase largely because the western (developed) world is unwilling to make the sacrifices to lifestyle that will make a difference.

# Miramichi Peat Harvesting at Capacity

The Province of New Brunswick is the primary peat producing region of Canada and the Miramichi watershed makes a contribution among the active harvesting operations. Peat moss extraction is deemed a non-renewable resource industry. As such the Government of New Brunswick, in consultation with environmental groups and the science community, has developed a management approach that tries to balance resource use and conservation. In 2001, policies were developed to encourage secondary processing and to establish zones where peat extraction is not permitted in order to protect wetland habitat. Peat extraction is carried out on public lands under the Quarriable Substances Act administered by the New Brunswick Department of Natural Resources. On private land, it is controlled under the Clean Water Act of the province administered by the New Brunswick Department of Environment.

Peat harvesting relies on warm sunny days to lower the surface moisture in the peat lands. Harrowed peat is exposed to sun and wind, dried to about 50% moisture content and then collected by tractor pulled vacuum harvesters before being screened and bagged. Some producers use mechanical block cutting machines to cut and stack blocks of peat. The blocks are then dried, crushed and bagged, which leaves the peat fibres more intact and creates a higher priced product. About 85% of the processed peat is compressed into bales. The remainder is mixed with fertilizers, fish meal, perlite, compost or vermiculite for sale as potting soil. New Brunswick peat is shipped principally to US and Japan.



Peat Harvesting Operation—Miramichi, NB



## 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



While New Brunswick holds less than 1% of Canada's peat lands it produces 35% of the country's peat shipments; a \$95M industry in Canada. About 25,000 hectares of peat lands makes up about 2% of the Northumberland County land surface. There are 13 commercial peat lands in the coastal lowlands of north-eastern New Brunswick with about 1500 ha currently under production (NB DNR 2004). Four of these operations occur within the estuarine segment of the Miramichi watershed boundary as of 2006 and a fifth slated for development. Peat extraction in the Miramichi River watershed is now at the maximum allowable capacity (J. Thibault, pers.com.).

## Contributing Partners



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### Miramichi River Environmental Assessment Committee

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