



# Lobster Tomalley Toxin Sampling

In the early 1990s, MREAC, with science support from Gulf Region Department of Fisheries and Oceans, conducted a contaminants study in order to access the water quality of the Miramichi River. Tissue was analyzed from the tomalley of lobster. The tomalley is the hepatopancreas of lobster, which means it is both the liver and pancreas. A liver functions to filters toxins from the body, so by analyzing this part of the lobster we were able to determine toxin levels found in the Miramichi estuary.



Conceptual Map of the Lobster Sampling Sites for Miramichi

Two toxins that were of particular importance in the analysis of the lobster tomalley were Chlorinated Dibenzodioxins (dioxins) and Dibenzofurans (furans). Dioxins and Furans are detrimental to animals and humans in various different ways such as skin disorders, liver problems, impairment of the immune system, and cancer. One of the most prevalent sources of dioxins and furans is the pulp and paper industry. With the mills along the river open and functioning at the time, it was found that there was a concentration of dioxins and furans within the tomalley of the lobster, but not to a high enough level to require a general health advisory warning.

This year, with Environment Canada's Science Linkage program support, MREAC and DFO took part in another lobster tomalley analysis project. On September 19<sup>th</sup>, with the help of Greg and Sarah Ross and their boat the S.S. Ross, MREAC set out 30 traps at six designated locations along the channel from Sheldrake Island out into Miramichi Bay (see map). The next day the traps were pulled in, samples collected, and the lobster shipped to DFO Moncton for further analysis.



S.S. Ross that was used to set the traps and collect the samples

The mills have been closed for a number of years and even before that the local pulp and paper mill achieved a "No Trace" dioxin rating for their effluent discharge (1995). With this improvement and minimal amounts expected through atmospheric sources it is hoped that toxin levels in the hepatopancreas of the lobsters collected in 2011 should be significantly lower than those collected in the 1990s. Analysis of the samples is currently underway and MREAC is awaiting the results.



# The Search for Wood Turtles

The Wood Turtle (*Glyptemys insculpta*) has been classified as a threatened species by both the Species at Risk Act (SARA) and the Committee on the Status of Endangered Wildlife in Canada (COSEWIC). Some feel that the Miramichi watershed is among the last strongholds for Wood Turtles globally. Overall populations are declining throughout their natural range due to threats of mainly human origin. Through support from the Environment Canada Habitat Stewardship Program and from other key partners, MREAC has taken on the task of more accurately assessing the status of Wood Turtles on the Miramichi in hopes of protecting the remaining stock.



Wood Turtle Found Southwest Miramichi (Photo Courtesy MREAC)

Three outings were arranged, two along stretches of the Southwest Miramichi River. MREAC staff and volunteer Tim Humes polled around one island and were thrilled to find one Wood turtle despite the thick overgrowth.

The third outing was to the Dungarvon River where reports of turtle sightings had been relayed to MREAC. The MREAC team, along with Dr. Maureen Toner of the New Brunswick Department of the Natural Resources and Ms. Vanessa Roy-McDougall of Nature NB, spent the afternoon scanning the banks of a river reach. No turtles were found but a distinctive turtle track was spotted on a sandy section of the river bank. Nearby fishermen later reported seeing one within minutes of our visit.

While our outings were not as successful as we hoped, turtles are elusive at the best of times. Wood Turtles are most easily spotted during a two-week window in the spring when they are emerging from hibernation, primarily due to the lack of vegetation cover. Late project approval meant that we were looking for turtles in the late summer/early fall. This is typically when turtles start preparing to hibernate and move to their respective hibernacula.

Accounts of turtle sightings have been recorded with the one goal of getting a better idea of Wood Turtle habitat and the strength of the population within the Miramichi Watershed. MREAC encourages readers to report turtle sighting and hopes to get out in the field again next spring continue the search. Most critical to the success of the program is to identify those ongoing risks to turtles and turtle habitat on the Miramichi and attempt to alleviate such risks.

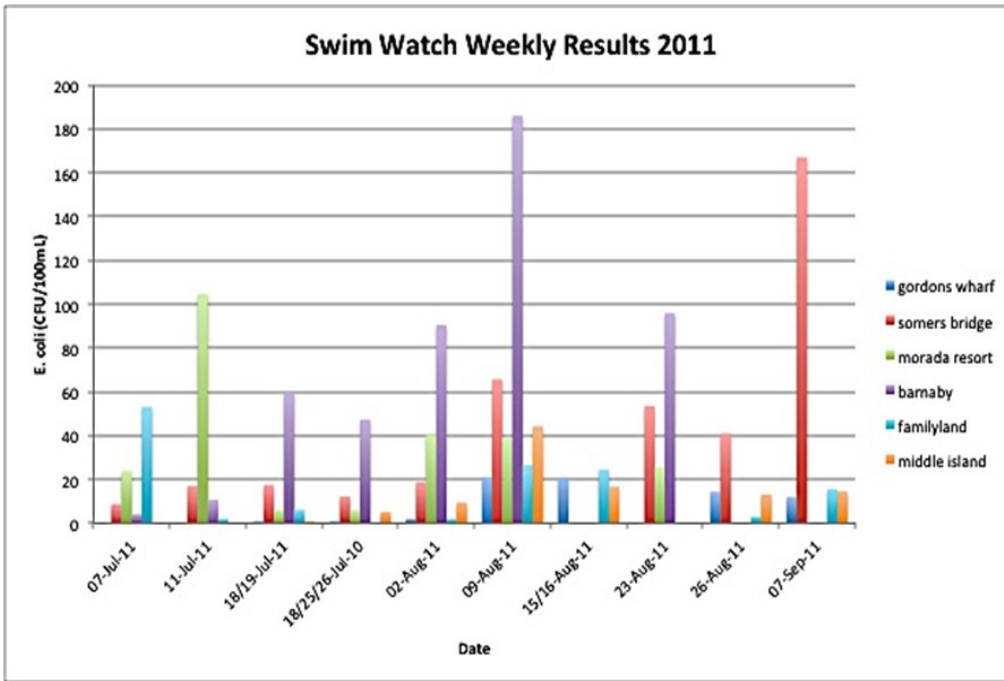
In 2012 MREAC intends to continue with this assignment expanding the assessment work. We have yet to explore critical habitat on the Northwest Miramichi and her tributaries. Beyond that we will engage regional partners and wildlife experts to share in lessons learned on the best approaches to protect turtles and their habitat



Turtle tracks in the sand on the Dungarvon River (Photo Courtesy MREAC)

# Swim Watch Results for 2011

Since 1993, MREAC has been collecting water samples at a number of sites throughout the Miramichi River watershed as part of the Swim Watch Program.



These water samples are then analyzed for fecal coliform contamination and compared with the Guidelines for Canadian Recreational Waters, in order to ensure the safety of recreational users at common swimming holes and beaches. In 2011, MREAC had laboratory support from NBCC-Miramichi, with a total of 104 samples taken throughout the watershed.

MREAC completed another year of this program in 2011, sampling 6 sites weekly from the beginning of July to the end of August, and twice during that time period 22 additional sites were sampled.

If water quality results present a health risk to humans, NB Health and Wellness will close the beach. In 2011, no beach closures were issued.

## A Bug's Life

In late October and early November MREAC, Environment Canada, and Canadian Rivers Institute staff participated in a Canadian Aquatic Monitoring Network (CABIN) survey. CABIN is a monitoring program that is used in assessing the health of river systems. Benthic invertebrates are used as biological indicators, meaning that the abundance, presence or lack of certain species can help indicate to scientists the general health (or lack thereof) of a river system. The sample sites included the following river systems; the Dungarvon, Renous, Northwest Miramichi, Catamaran Brook, Little Southwest, and the Southwest Miramichi.

CABIN sampling protocols that are followed at each sample site and a designated CABIN form is filled out for each. General assessments of surrounding habitat are observed and noted, water quality measurements, benthic samples, pebble count, discharge calculated and stream and bank width measured. A kick net is used to collect benthic samples. The net is lowered and substrate kicked and disturbed to release any invertebrates allowing them to flow into the collection net.

All needed data has been collected and sent to be analyzed with results being anticipated sometime in the new year.



Vladimir Trajkovic using a kick net at one of MREAC's CABIN sites

# Invasive Tunicate Results

MREAC again in 2011, had the opportunity to assist with the monitoring for invasive tunicate species with the Department of Fisheries and Oceans. Tunicates are detrimental to native species such as mussels and various seaweeds by dominating their native habitat. Invasive tunicate species are prevalent on the shores of Prince Edward Island and have great potential to cross the Northumberland Strait to New Brunswick attached to the hulls of boats or in bilge water.

To monitor for any establishment of tunicates, DFO created monitoring devices or 'collectors' that are to hang from the sides of wharves along the coast. The collector consists of a top plate and three small PVC plates strung together and weighted at the bottom with a brick. The tunicates, if present, will settle and grow on the plates.

MREAC installed four collector lines this summer, two at the Chatham Marina and two others at the wharf in Escuminac. The collectors were removed on October 3<sup>rd</sup>, and we were happy to observe that all were free of any tunicates.

MREAC received other less encouraging news on October 24<sup>th</sup> from Fisheries and Oceans who reported on other collectors along northeastern New Brunswick. Four areas reported finding tunicates. The Shediac Marina, Pointe du Chêne Marina, and the Caraquet Wharf all found signs of the invasive tunicate called Golden Star. Cape Tormentine found evidence of the invasive species known as the Violet Tunicate.

Additional information about this AIS and other invasive species is available through our MREAC office or by contacting us at the coordinates provided.



Collectors from the Escuminac Wharf

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A special thank you to our Executive, Technical Advisory Group & all of our MREAC members for their continuing support!

## 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 of the Miramichi region call:

778-8591 or 1800-567-4837  
• (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

