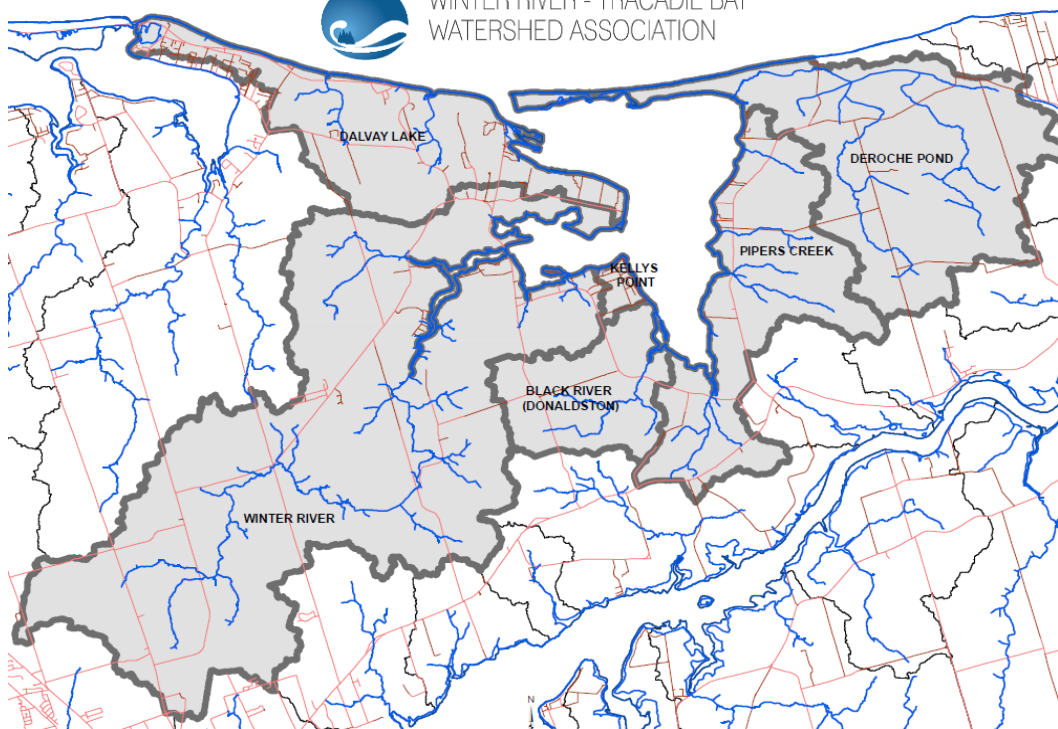




WINTER RIVER - TRACADIE BAY  
WATERSHED ASSOCIATION



Overview Map of the Watershed Area

*Currents*

Winter River - Tracadie Bay  
Watershed Association

Spring 2014

In This Issue

## Upcoming Events

### Wednesday, May 28th

Our Annual General Meeting will be held at 7 p.m. at the Corran Ban Hall, 1231 Rt 6. Our guest speaker for the evening will be Daryl Guignon, discussing "Silent Springs – Why Fish and People Need Water." Everyone in attendance will be entered in a draw for some water saving prizes.

### Saturday, June 7th

Come hike with us on June 7th, departing from the trail head of the Winter River Trail, located at the end of East Suffolk Road at 1 p.m. Lady's slipper flowers are usually in bloom this time of year.



Lady's Slipper from 2011 hiking day

### Saturday, June 14<sup>th</sup>

Join us to plant trees at 10 a.m. at the Union Road Pumping Station property at 588 Union Road. Barbeque to follow.

## Speaking of Water...

"With respect to water, Canadians and Americans suffer from the same disease: We say that it is priceless, but act as if it were absurdly cheap. Most North Americans pay far less for their water than even just the cost of supplying it, cleaning it up and returning it to the environment. Yet subsidizing water use is economically and ecologically disastrous. In fact, heavy subsidization of water in the US is the cause of any water "shortages" that may exist there."

- Editorial, The Toronto Globe and Mail,  
23 May 1998

Field Work	2
Land Water Connection	3
Water Conservation	4
High Capacity Wells	5
Nitrates	6
Estuary Watch	7
Allan MacCormac	8

## Field Work 2013

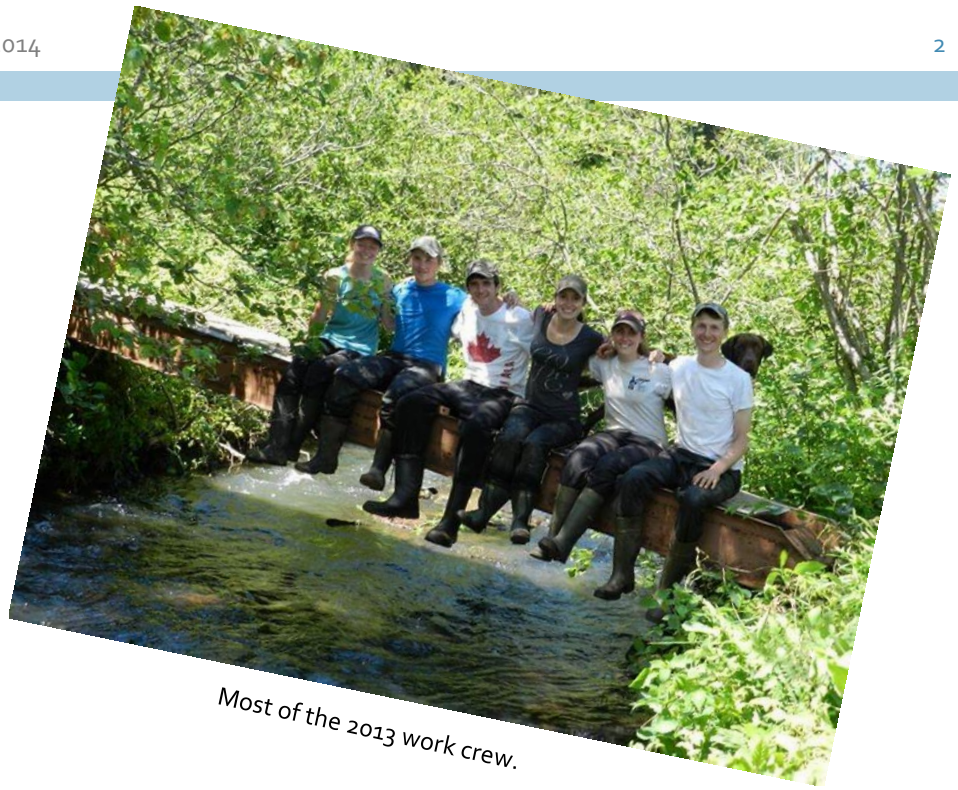
The summer of 2013 was a time of intense work by our summer staff to enhance the wildlife habitat in the Winter River. Under the direction of supervisor Chris Mutch, we had a great team of students including Nicole Murtagh, Samantha Hughes, Luke Peters, Derian Vessey, and Matt Costain (who volunteered for the whole summer). Steven Bruce started as an employee partway through the summer, worked with the students until the end of August and then helped watershed coordinator Bruce Smith for the remainder of the fall.

The main effort was tree planting and stream enhancement. Over 4,250 trees and shrubs were planted in the riparian zone, primarily downstream from Hardy's Pond.

Maintenance was carried out on previously planted trees and competing alders were trimmed back. Blockages were removed from all areas where work had previously been carried out, and major stream cleaning work took place on the branch coming from York.



*Nicole Murtagh demonstrating the height of a tree planted in 2010.*



*Most of the 2013 work crew.*

Also receiving major work, both in terms of tree planting and obstruction removal, was the section between the York Road and Officers Pond. Sixteen large brushmats were constructed, which served both to trap silt and to narrow and deepen the stream.

Bruce Smith concentrated on water collection, measuring water flow, and analyzing this data. Water flow measuring dams were installed in about 20 springs. Resident John te Raa volunteered by monitoring a well to determine water levels, carried out data analysis, and helped out with stream enhancement.

This spring WRTBWA, with the support of the City of Charlottetown, hosted a series of student field trips to the watershed. Students from three elementary schools toured the Union Road pumping station, saw nearby stream enhancement and planting sites, and then had an opportunity to plant seedlings as part of a habitat restoration initiative.

Staff with Island Emergency Medical Services also volunteered over 30 hours, primarily helping with installing kestrel and owl bird nest boxes and bat boxes, but also building brushmats.

Ducks Unlimited made a significant contribution by installing a new water control structure at the Hardy Mill Pond, which will allow improved pond management in the future. This resulted in the pond being empty for a second year, but will be of benefit in future years.

This year enhancement work will focus on the section of river below Officer's Pond and the head of tide. Efforts will primarily be directed at establishing fish cover, which is lacking in that section of the river. Work with farmers, water analysis and flow assessment, tree planting and maintenance on previously enhanced portions of the river will continue.



*V-notch from weir to measure streamflow.*





*Students helping plant trees.*



*This isn't a lawn and stream, it is what the Hardy Mill Pond looks like a while after being drained.*

## Speaking of Water...

"When we save a river, we save a major part of an ecosystem, and we save ourselves as well because of our dependence--physical, economic, spiritual,-- on the water and its community of life."

- Tim Palmer, - The Wild and Scenic Rivers of America

"Water, like religion and ideology, has the power to move millions of people. Since the very birth of human civilization, people have moved to settle close to it. People move when there is too little of it. People move when there is too much of it. People journey down it. People write, sing and dance about it. People fight over it. And all people, everywhere and every day, need it."

- Mikhail Gorbachev, President of Green Cross International quoted in Peter Swanson's Water: The Drop of Life, 2001BBC News, "Water arithmetic 'doesn't add up'," 13 Mar 2000

"Anything else you're interested in is not going to happen if you can't breathe the air and drink the water. Don't sit this one out. Do something. You are by accident of fate alive at an absolutely critical moment in the history of our planet."

- Carl Sagan

"The wars of the twenty-first century will be fought over water."

- Ismail Serageldin, World Bank Vice President for Environmental Affairs, quoted in Marq de Villiers' Water, 2000

"I didn't understand until much later that no one "owns" water. It might rise on your property, but it just passes through. You can use it, and abuse it, but it is not yours to own. It is part of the global commons, not "property" but part of our life support system."

- Marq de Villiers, Water, 2000

## ***The Land-Water Connection*** *It's All About Water Quality and Quantity*

### **Water Quality**

Precipitation that falls from the skies either flows into a stream or very slowly infiltrates into the ground becoming part of our groundwater supply. This groundwater can later come out in seeps or springs that feed our creeks and rivers at other times of the year. The land that the rain runs over and down through, is what determines the quality of water in the rivers and water that is pumped to your tap. Water running across a recently sprayed field or lawn could flow into a stream and cause a fishkill. Or water can pick up nitrates from fertilizers and carry these down to the aquifer.

### **Water Quantity**

In a sustainable system, some water is pumped out of the aquifer for use, and over the course of the year this amount is replaced by rainfall, melting snow and the used water from houses, all of which slowly goes down to the aquifer. However, if we take too much water out of an aquifer, the spaces between the soil particles and rocks begin to compress. Without the water to keep the spaces open, the weight of the soil and rock causes the ground to cave in and the spaces are lost; losing the capacity to store the same amount of water as it did before. Another issue in the Winter River, is that the water that is pumped to the City of Charlottetown never makes it back to our aquifer as it does when a local resident uses water.

Just sayin'!

# Conserve Water Today!

*A few ways you can easily conserve water, save money and affect the water supply*

- Inspect and repair all leaking faucets, pipes, hoses, and toilets
- When replacing toilets, washing machines and dishwashers, it's worth it both energy wise and water wise to buy the most efficient technology available.
- Install low flow showerheads and faucet aerators
- Try and keep your shower down to 5 minutes or less
- Consider the water you use, especially running water that is not in use –try turning off the water while brushing your teeth, shaving, or lathering your hands
- Water your gardens during the coolest part of the day
- Wash full loads in your dishwasher or washing machine.



*Turning off the taps while you brush your teeth, shave, or lather your hands helps conserve water. A typical faucet used 11-19 litres or 3-5 gallons of water per minute.*



*A low flow fixtures can cut water consumption in half – saving approximately 17000 litres or 4500 gallons of water per year if you take 5 minute showers.*

*Photo courtesy: water-smart-inc.com*

*Come to our Annual General Meeting (AGM) to:*

- Enter draws to win low flow showerheads.
- Talk about opportunities for a \$125 credit toward new low flow toilets.

The AGM will be held May 28<sup>th</sup> at 7 p.m. at the Corran Ban Hall, 1231 Rt 6

For more great water saving tips, visit the following sites:

- [http://eartheasy.com/live\\_water\\_saving.htm](http://eartheasy.com/live_water_saving.htm)
- <http://wateruseitwisely.com/100-ways-to-conserve/>
- <http://www.home-water-works.org/>

## Speaking of Water...

*"A river is the report card for its watershed."  
- Alan Levere*

## Websites to browse:

If you're looking to learn more about water conservation, or other issues that affect the water you access, check out the following websites:

[gov.pe.ca/environment](http://gov.pe.ca/environment)  
[DontFrackPEI.com](http://DontFrackPEI.com)  
[PEIWatershedAlliance.org](http://PEIWatershedAlliance.org)



# The Watershed, High Capacity Wells, and the City.

Our watershed provides almost all of the water used by the City of Charlottetown's residents, businesses, industries, and institutions. To collect this water, the City has 13 high capacity wells in our watershed. Given our experience with the impact of such wells, we are concerned about the lifting of the moratorium on new high capacity wells for purposes of potato irrigation. In February, we joined with more than 20 other organizations to form the *Coalition for the Protection of PEI Water*. The coalition presented a brief to the *Standing Committee on Agriculture, Environment, Energy and Forestry* to express our concerns about the impacts on groundwater of this proposed practice. At present, the moratorium is still in place.

A major goal of our watershed management plan is to reduce the water extracted from our watershed to sustainable levels; for many years the water pumped out has been far above recommended amounts. Two issues have occupied our attention: (1) encouraging the City to set clear targets to reduce their water usage to achieve sustainable levels in a reasonable time frame, and (2) the development of a new water source for the City at Miltonvale park to take pressure off the Winter River.

We haven't made much progress on the first of these issues. The City is developing a water conservation plan, but its goal seems to be to accommodate projected increases in population: while the aim is to reduce per capita water use, the overall amount of water used extracted may remain about the same. The City has developed some useful programs for water conservation, and is making a major investments in metering for all residents. Yet, in 2012, there was actually a 6.6% increase in water consumption compared to 2011, with less than a 1% decrease in the first half of 2013. On the second issue, the City has begun work on the wellfield at Miltonvale (MPW). They hope to have it operational by 2016, but the date depends on funding from different sources that hasn't been secured. We have met with Jim Young, head of the Department of Environment, to discuss the impact this new well field will have on our watershed.



*We hope that the new wellfield in Miltonvale Park, along with targeted reductions in water use will help us to avoid the dry stream beds we've experienced in recent years.*

Here's what we know at this point:

- ✚ There will be a reduction in extraction from Winter River Watershed once the MPW becomes operational: the amount can't be predicted at this time.
- ✚ No new well drilling would be considered in our watershed until MPW was operating: once its production is assessed, the wellfields in Winter River would be reviewed.
- ✚ New well fields closer to the head of tide (Suffolk) could not be ruled out but were unlikely.

- ✚ Once MPW is operational and its sustainable production is assessed, then reductions in extraction from Brackley (and possibly Union) pumping stations would be implemented.
- ✚ A key aim of the MPW is to assist in reduction of water extraction from our watershed.

We remain hopeful that the new wellfield will be completed in a timely manner, that it results in significant reduction in the water pumped from our watershed, and that no more wells will be drilled here.

**6.6% increase** in water consumption by the City of Charlottetown in 2012 vs. 2011

# Nitrates and the Winter River-Tracadie Bay Watershed

Nitrates can be both bad and good. First the good. For most agricultural production, the addition of nutrients is a required part of the process of growing plants. This applies to both crop growing and raising animals, as they must consume vegetation (hay, grains, etc.). For crops, the soil is a medium to grow the plant, but there also must be nutrients present to allow growth. Nitrogen in the form of nitrates is one of the key nutrients, along with phosphorous and potassium. Soil naturally contains organic matter including nitrogen compounds, which are converted by bacteria to nitrates. Even farmers in the past knew that adding nutrients resulted in increased yields and applying mussel mud as a soil amendment was a traditional winter activity. Because the nutrients were bound up in the shells, the fields could be fertilized less frequently than takes place now.

The problem is when nitrates become over abundant in the water, whether it is ground water, streams or estuaries. Nitrates are highly water soluble and if there are more nitrates available than can be used by the plants, the nitrates leach into the ground water. If drinking water has nitrate levels above 10 mg/L it can present health risks. Nitrates can interfere with the ability of red blood cells to carry oxygen and can result in Blue Baby Syndrome. The requirement for nitrates also applies to aquatic plants. The plants absorb nitrates from the water and because nitrates are often the limiting factors in the biomass produced, they can be critical to the health of aquatic ecosystems.

When nitrates enter the groundwater and then flow into streams, there becomes an abundance of nutrients. This can result in increased plant growth in ponds, but is especially a



*A look at Winter River*

problem in estuaries. The plants, especially algae or fast growing plants like sea lettuce, proliferate quickly. When estuaries are a "Lime Rickey" green colour, this is the result of an abundance of algae. During the day these plants produce oxygen, but at night they consume oxygen, the resulting great shifts in oxygen make it difficult for aquatic wildlife to survive.

The sudden proliferation of plant material near the surface also blocks sunlight from reaching other plants further down in the water column. Because these plants can't get sunlight, they die and in decomposing, use up oxygen. The lack of oxygen (anoxia or anaerobic conditions), results in the water turning white, and then all of the animal life that can't quickly move out of the area dies from lack of oxygen, and a smell is produced. This is the situation found above Corran Ban Bridge.

The mussel and other shellfish growing industries generate significant income to the Tracadie Bay area and we would not want to see this

industry negatively impacted as has happened in other estuaries.

The solution is to get better water circulation, which is why dredging took place at the Corran Ban Bridge, and to decrease the amount of nitrates entering the groundwater. We are working with farmers to minimize their nutrient use, but are also urging residential land owners to minimize the application of fertilizers to lawns. Non-functioning septic systems which allow material to flow directly into water courses or the estuary can also be a contributing factor.

Over the past year we have been working on a local *nutrient management program*. We have inventoried most of the fields in the watershed to determine crops being grown. With this information it will be possible to determine the approximate nitrate loading from agriculture.

To better analyze the concentration of nitrate in the water, we have monitored about 25 springs on a weekly or biweekly basis. A goal was



to determine how much seasonal variability occurred in the water flowing from the springs. Initially attempts were made to do the analysis ourselves or by staff at Bedeque Bay Environmental Management Association but with the equipment available, the results were not accurate enough to give figures that would show seasonal or more frequent changes. Additional funding was secured to allow for analysis by the provincial lab which allowed for results which were about 10 times more accurate.

A major focus was to work with 10 farmers in the watershed on a more detailed review of farming practices. For potato farmers, the amount of nutrients being applied was collected. This included both organic potato growing as well as conventional growing. There were at least 8 different potato varieties being grown

in our watershed. For the dairy farmers and one beef cattle farmer, the amount of nutrients being applied from synthetic fertilizers and manure was determined. For an apple farmer, the amount of nutrients being applied was collected. It should be noted that all of the information collected for individual farms is confidential and only data from types of farming will be released.

As part of the water collection, devices were installed to record flow from springs, and the main stem of the river, when the flow was low enough to allow the devices to operate. It is significant that near the wellfields, the flow in the main river was less than that of tributaries which flowed into the river further downstream. The reduction in spring flow, and in major tributaries a total elimination of spring flow, causes a lack of water, hence the streams dries up, but as well, in places

with reduced water flow the temperatures are much higher. In order to monitor river temperatures, both to help analyze problems and to compare to past and future conditions, automatic temperature recorders were installed at five locations in the river. In the Brackley Branch there was no temperature recorded as the stream totally dried up.

Discussions were held with both the provincial government, which approves water extraction levels, and the City of Charlottetown to discuss opportunities to reduce the level of extraction from Winter River. This summer an “Estuary Watch Program” will help monitor changes to this anoxia problem and it might be tied to changes, hopefully reductions to nutrient loading from various sources upstream.

## Estuary Watch Program

The provincial government has developed a new program and asked for the support of the Winter-River Tracadie Bay Watershed Association, as well as other watershed groups. For years, portions of estuaries have become anaerobic, meaning having no oxygen resulting in all life dying, the water turning white and becoming smelly. The government does not have enough staff to monitor all areas.

The goal of the program is to develop a network of volunteers who will record basic information about estuary conditions in the summer, with the goal of monitoring the situation and eventually reducing the problem. Volunteers will be asked to complete a daily log of conditions in their portion of an estuary from June to August, which should only take a few minutes per day. There will be regional training sessions which will last about 2 hours to familiarize volunteers about the paperwork.

If you are interested in volunteering, especially in the area above the Corran Ban Bridge, or the ponds on Winter River, please contact Bruce Smith at 628-7620



*Officer's pond in Suffolk with abundance of algae and other plants.*



## Allan MacCormac

Allan was a founding member of WRTBWA and served as the first Treasurer on our Board. We were saddened when Allan passed away on July 4<sup>th</sup>, 2013. He had a deep love for the watershed and a strong commitment to its protection and enhancement.

In his honor, we will be planting a large tree in the watershed. More details are forthcoming.

Thank-you for your dedication, Allan, may you rest in peace.

*Allan MacCormac was a founding member of our watershed and served as the first treasurer on our board*



*A photo of two barred owls taken in Suffolk area on Winter River, by Gauthier&Parkman in 2009. It was a favorite of Allan's, which we often print and frame as a gift for special volunteers.*

**Let's Talk** We're looking for you to get involved. From helping us to plant trees, to spreading news, to becoming a supporter or member – we're looking to connect with you. Check us out on Facebook, visit the website, call us, or look for our brochures or team members this summer as we go door to door to talk with you about what water means to you.

**Thank-you to our sponsors:**

