

# waterlines

COVEHEAD-BRACKLEY WATERSHED NEWS

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## WATERSHED ENHANCEMENT PLANS 2011

FCBB are planning another busy season completing the following watershed enhancements:

- Walk and clean all 5 streams from springs to estuaries
- Install more brush mats
- Plant 500 native trees and shrubs
- Dig out more springs
- Place more cover rocks
- Install more digger logs
- Build and hang more bird boxes
- Monitor local eagle and duck banding
- Participate in Canada Day celebrations with a display booth
- Test streams, springs, estuaries and bays with new water testing kits
- Host tours for schools, politicians and resource persons
- Install interpretive signs at Cass's and Marshall's ponds
- Youth Eco-Learning Day
- Host a Central Alliance Watershed Group meeting

- Monitor any anoxic events in bays
- Pond restoration water testing and planning
- More low-cost shoreline erosion reduction demo sites
- Plant more salt-resistant shrubs along shoreline erosion sites
- Complete development of a Wildlife Habitat Assessment Plan
- Develop ideas for sea lettuce reduction
- 2011 Newsletters
- Wildlife Indicator species surveys (April–October)
- Wetland Assessment Booklet and CD
- Bridge construction at Auld's Creek
- Charitable Status application
- Nitrate testing of drinking water
- Sea lettuce harvest pilot project
- Stewardship event with Evergreen Foundation and Molson Breweries
- Establish and measure erosion monitoring points.



2011 FCBB crew: Jessie, Christina, Wanson and Marcie. Missing: Nathan and Justin.

## UPCOMING ACTIVITIES

**July 19: Testing nitrate levels in drinking water (FREE).** Bring a sample of tap water in a clean container to Stanhope Place between 7–9 pm.

**July 29: Youth Eco-Learning Day!** Ages 8–12. Please register in advance by calling (902) 672-2182.

**Volunteer Covehead and Brackley Bays Shoreline Cleanup:** Any day at low tide. Clear bags and pickup are available at Stanhope Place office. Please call (902) 672-2182.

For more information, visit our website: [www.stanhopecovehead.pe.ca](http://www.stanhopecovehead.pe.ca)

*Public Watershed and  
Community Council Meeting*  
Wednesday, August 3 at 7 pm  
North Shore Community Centre

## TESTING THE WATERS

FCBB will be testing a lot more surface (streams, ponds, estuaries) and groundwater (springs) this year with our new water testing kits to establish a record of temperatures, oxygen levels and chemicals present at various “monitoring stations” in the watershed. Over time these readings will record changes, stream health and sources of chemicals in the watershed. What will we test for and why?

### Temperature

Water temperature is affected by air temperature, storm water runoff, groundwater inflows, turbidity and exposure to sunlight. Our two fish species, speckled and rainbow trout, both like cool temperatures around 9–12°C and will both avoid temperatures above 20°C.



### pH

pH is a measure of a solution's acidity and is measured on a scale between 1 to 14 with 1 being extremely acidic, 7 neutral, and 14 extremely basic. The largest variety of freshwater aquatic organisms prefer a pH range between 6.5 to 8.0.

### Turbidity

Turbidity is a measure of how particles suspended in water affect water clarity and is an important indicator of suspended sediment and erosion levels.

### Dissolved Oxygen

Plants and animals cannot directly use the oxygen that is part of the water molecule (H<sub>2</sub>O), instead depending on dissolved oxygen for respiration. Oxygen enters streams from the surrounding air and as a product of photosynthesis from aquatic plants. Consistently high levels of dissolved oxygen are best for a healthy ecosystem. Human factors affecting dissolved oxygen in streams include sewage, addition of nutrients, changing the flow of water, raising the water temperature and the addition of chemicals. 7-11 mg/L is best for most stream fish

### Nitrate

Nitrate enters streams from natural sources like decomposing plants and animal waste as well as human sources such as sewage or agricultural fertilizer.

Natural levels of nitrate are usually less than 1 mg/L. Sensitive fish such as salmon like concentrations around 0.06 mg/L while speckled and rainbow trout prefer levels under 2 mg/L .

### Phosphate

Small amounts of phosphate in streams cause significant plant growth and have a large effect on the aquatic ecosystem. Phosphate-induced algal blooms may initially increase dissolved oxygen via photosynthesis, but after these blooms die more oxygen is consumed by bacteria aiding their decomposition. This may cause a change in the types of plants which live in an ecosystem such as eelgrass and sea lettuce.

Sources of phosphate include animal wastes, sewage, detergent, fertilizer, disturbed land and road salts used in the winter. In general, concentrations greater than 0.1 mg/L will have a negative impact on streams and aquatic life.

## SEA LETTUCE HARVEST PILOT PROJECT

A new proposal involving the PEI Government, DFO, and PEI watersheds is being proposed to examine the impacts of mechanical harvesting of sea lettuce in three PEI watersheds. A PEI company is proposing to conduct 10 weeks of sea lettuce harvest in PEI to harvest up to 200 hectares of estuary and 10,000 m<sup>3</sup> of sea lettuce.

This project proposes to answer the following basic questions:

- How efficient is sea lettuce harvest under PEI conditions?
- What degree of harvest/removal

effort is needed to keep sea lettuce populations in check?

- What degree of harvest/removal effort is needed to prevent severe conditions such as anoxic events?



- What are the environmental effects achieved by the various degrees of harvest/removal activity?

Harvests may be carried out in three Island estuaries as follows:

- Southwest River estuary - A single harvest
- Mill River estuary - 2–4 harvests
- Covehead Bay estuary - 1–2 harvests (as project resources permit)

FCBB is to assist with monitoring and sampling during the project as our in-kind contribution.



## REMOTE CAMERAS IN PIPING PLOVER RECOVERY

Teetering on the brink of extinction, the Piping Plover requires human intervention to boost species population. Staff at Prince Edward Island National Park have been working on Piping Plover recovery since 1977. In addition to recording location and progress of nesting pairs, plover monitors spend a great deal of time engaging with beach users, explaining the rules and regulations that are in place to protect nesting habitat. In some cases where the threat of predation is high, they erect wire exclosures around nests. Data collected through the Piping Plover monitoring program is vital to understanding behaviour and threats to the birds, and enables Park staff to make decisions in favour of population recovery.

In 2008, a multi-year remote camera project was piloted at three National Parks in the Maritimes. The cameras record nests 24 hours a day, and fill in gaps when staff are not present. A primary objective of the camera project is to identify predators and their behaviour around plover nests. Parks Canada develops strategies to deal with new threats as they are identified through camera footage and traditional monitoring.

In addition to its value in increasing our understanding of behavioural ecology, camera footage provides Parks Canada with an educational tool to teach Canadians about the Piping Plover as a species at risk. As part of the multi-year project, Parks Canada

will edit footage and create a learning opportunity at venues both inside and outside of the Park.

To learn more, please email Tara McNally MacPhee at Prince Edward Island National Park at [tara.mcnally@pc.gc.ca](mailto:tara.mcnally@pc.gc.ca).



*Camera filming plover on nest (Megan Crowley)*

## WETLANDS: NATURE'S KIDNEYS

If forests are the lungs of the earth, then wetlands are nature's kidneys, cleaning and filtering our groundwater of harmful substances. Wetlands have many ecological functions with incalculable benefits for society and the economy. They filter and purify water, prevent floods and erosion, replenish groundwater and preserve the planet's biological diversity by providing habitats for a remarkable variety of plants and animals.

All ponds, swamps, marshes, vernal pools in forests and other wetlands provide a valuable and irreplaceable service to all life forms, yet 70%

of Canada's wetlands have been eliminated. Ducks Unlimited provides assistance for wetland enhancement and have a waiting list on PEI.

FCBB has an interest in improving wildlife habitat in our watershed as



well as increasing clean water and a healthy environment. Wetlands must be constructed and enhanced to reduce sources of excess nutrient enrichment in our streams. Varieties of plants like cattails, bulrushes and grasses can be planted to store up to 90% of nutrients before they reach streams through surface runoff and groundwater springs. FCBB will be working with Ducks Unlimited in our watershed on a Wetlands Assessment and Enhancement Project to identify, evaluate and promote potential wetland construction and enhancement sites.

## SIGNS OF CLIMATE CHANGE

Longer growing seasons, warmer weather and more rain less snow sounds good, but with this comes more pests, increased tidal surges, more erosion and flooding. Predictions of increased ocean levels of 25–40 cm (10–16 inches) with tide surges of 4 metres (13 feet) in 40 years will place a lot of PEI coastline at risk. Trees like white spruce and white

birch that like cool climates will move further north while red maple, red oak and white ash will increase.

There are many climate change sites (Google) that suggest potential impacts and the need to plan for changes. Erin Taylor (contact: [eotaylor@gov.pe.ca](mailto:eotaylor@gov.pe.ca) / (902) 368-6111) is PEI's Climate Change Coordinator, helping communities with

information and planning. FCBB will be establishing several erosion measuring points at vulnerable points around the watershed to record annual changes including the unprotected parts of the shoreline along Bay Shore Road which lost 2 feet on December 21, 2010 and is within 30 feet of the highway and walking trail.



*Friends of Covehead-Brackley Bay Inc. (FCBB) is a community-based volunteer organization established in 2000 and incorporated in 2001. It was formed by a group of community members concerned with the health and sustainability of the Covehead-Brackley watershed area. Its mandate is to create a watershed area that is healthy: one which nourishes the land and water; one which is sustainable to native flora and fauna; and, also balances the interests of residents, including those working in aquaculture, forestry, agriculture, fisheries and tourism.*

*Lyn Latimer holds a six-week-old eaglet with a new leg band used by the Provincial Wildlife Department to determine mortality rates, migration patterns and wintering grounds for PEI's bald eagle population. There are currently two known active eagles' nests within our watershed, but we hope to locate more through community involvement. Please contact the FCBB with sightings of eagle and osprey nests, fresh beaver cuttings or anoxic events in the Bays.*

## NITRATE AND VARIABLE RATES FERTILIZING

Most nitrates in streams are from fertilizers that are not used by the crops for growth and yield. Fortunately, more precise application of pesticides, herbicides and fertilizers, and better control of the dispersion of those chemicals are possible today through precision agriculture, thus reducing expenses, producing a higher yield and creating a more environmentally friendly farm. Precision agriculture involves collecting timely information on soil and plant yields and requirements and applying site-specific applications, such as variable rate fertilizing and spraying to increase agricultural production, reduce costs and protect the environment.

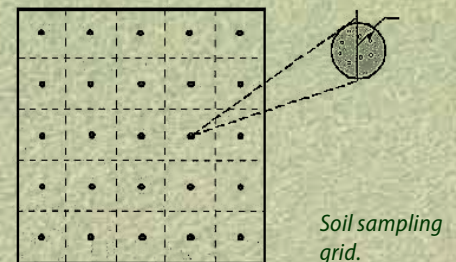
### The rate of fertilizer applied

**is dependent on the analysis of field yields and representative soil samples.** Two sampling strategies can be used for site specific fertilizer application — grid and zone sampling. **Grid sampling** uses a systematic approach that divides the field into squares or rectangles of equal size. **Zone sampling** divides any field into smaller units. Soil samples collected at random from within each “zone” are bulked together and analyzed to provide an average sample value for each unit. Much more information is available by searching the internet under “variable rate fertilizing”.

Wheatley River and Kensington North watersheds are participating in pilot projects this year to reduce the

80–90% of the nitrates in the watersheds that are coming from agriculture.

If free soil sampling was available to farmers through the ALUS program, would they invest in the GPS and GIS variable rate nutrient application technology? That would allow the precise amount of fertilizer, pesticide and herbicide needed by the crops at the right time, thus reducing extra nutrients into surface and ground water.



## FUNDING PARTNERS

*Friends of Covehead-Brackley Bay Watershed wish to thank the many funding partners and great volunteers, without which, very little could be accomplished.*

### 2011 Funding Partners:

- PEI Dept. of Environment, Energy & Forestry
- Environment Canada
- Greening Spaces Program
- Parks Canada
- PEI Jobs For Youth

- PEI Employment Development Agency
- Walmart-Evergreen Program
- North Shore Community Council
- PEI Environmental Futures
- Canada Summer Jobs
- FCBB Volunteer Board of Directors

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