



WATERSTRIDER



Clean Annapolis River Project

Restoring and protecting the ecological health of the Annapolis River watershed through science, leadership and community engagement

Happy as a Clam!

Article by Marla Bojarski, Resource Conservation Biologist

The clam industry in the Annapolis Basin provides a valuable economic contribution to the provincial economy. However, due to frequent closures, beach availability can be limited, causing problems to the clambers who rely on this resource for income.

The Clean Annapolis River Project (CARP) has been working on a number of clam enhancement projects in the Annapolis Basin in order to identify the best methods to re-build clam stocks.

CARP is evaluating different methods that may be effective in encouraging clam spat or 'baby clams' to settle on certain areas of the clam flats. With lots of enthusiastic help, two sites were set up at Twin Cove and Pony roads in Clementsport. Four dif-



Marla Bojarski preparing soft-shell clam (*mya arenaria*) for the tidal cover and clam density study.

ferent methods are being tested, and the study area will stay in place until mid October.

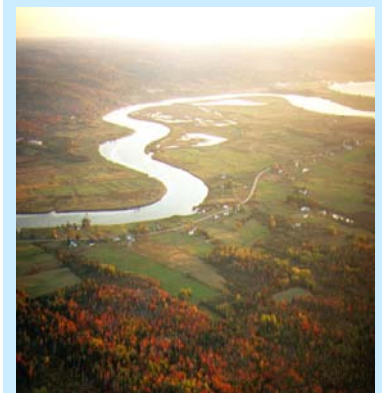
A pilot project is also being carried out to investigate whether tidal cover and clam densities affect growth rates. Clams have been planted in plots of increasing densities at high inter-tidal levels as well as at low tidal levels. These clams will be measured and weighed again in October to determine whether relocating clams on the same beach, but to different tidal levels, can affect their growth rates.

It is hoped that these trials will prove effective and be worth investing more time and money in.



Staff members Megan Tardif-Woolgar and Jeffrey Glenen digging a trench to install snow fencing at Twin Cove Road.

Clean Annapolis River Project is a charitable, community-based organization dedicated to restoring and protecting the ecological health of the Annapolis River watershed through science, leadership, and community engagement.



Individually, we are one drop. Together, we are an ocean.

Ryunosuke Satoro

Battle of the buckthorn

Article by Megan Tardif-Woolgar,
Riparian Habitat Technician

Since Europeans first arrived, they have been intentionally and accidentally introducing alien and invasive plants to North America. This has continued through the convenience of modern travel. The introduction of invasive species has become the second largest threat to biodiversity in the world. That stands true for this region as well.

Plants native to a specific location have evolved to compete for resources with other species, thereby creating a harmonious environment where no



Volunteer Tristan Tardif-Woolgar surrounded in a sea of glossy buckthorn.

one species will out-compete the other.

Unfortunately, the negative impacts of invasive species was unknown to European settlers when they brought the highly invasive *Rhamnus frangula* or glossy buckthorn to Nova Scotia in the late 1800s.

This deciduous perennial was brought over as an ornamental hedge-row and spread like wildfire with nothing to out-compete it for resources. The plant has spread throughout Atlantic Canada, and stretches as far West as Manitoba.

There are several infestations in the Annapolis Royal Marsh, which threaten local biodiversity and restrict the growth of indigenous species.

Working in partnership with the Wal-Mart Evergreen Fund, the Shell Environmental Fund, and the Nova Scotia Habitat Conservation Fund, we hope to control glossy buckthorn and replace it with a diverse native plant



Tips for Identifying Glossy buckthorn

A. The speckled bark of glossy buckthorn tends to be purplish in young plants and near the base of older specimens.

B. A smooth glossy buckthorn leaf. Although similar to alder, the underside of the buckthorn leaf is hairless and its edge is smooth

C. An image of the fruit which ripens in mid to late August. The fruit is often dispersed by wildlife.

population, in turn increasing the available habitat and food for other species residing in the Annapolis Royal Marsh.

There are several methods of buckthorn removal available. One of the most popular is treating the cut stumps with a herbicide. Although this method can be successful and convenient, many herbicides can persist in the environment and can adversely impact non-target native species.

An alternative method of removal is to girdle the base of the trunk, forcing the roots to die as the tree "bleeds out". An incision is cut through the generative and sugar transporting layers of the tree (the cambium and phloem respectively). The growth of new cells is inhibited and the roots are starved of nutrients, causing the tree to die.

CARP has also incorporated the use of the Extractagator™, a "weed wrench" that uses body weight and leverage to uproot trees with a diameter of up to two inches.

Once the larger trees are destroyed and have stopped producing fruit, the smaller seedlings must still be pulled from the soil. The seeds stay viable in the soil for up to seven years, so the same area will have to be cleared out for many years to come.

In addition to pulling, CARP has planted 200 native plant species in an effort to out-compete the glossy buckthorn seedlings. This will be a continuing project for many years into the future. We welcome any volunteers to come out and help control this alien invasive.

EMPOWER!

young environmental leaders in the southwest nova biosphere reserve

This past summer Mersey Tobetic Research Institute (MTRI) in partnership with CARP and the Southwest Nova Biosphere Reserve Association have been working together to support and encourage young environmental leaders in Southwest Nova Scotia. Lucas Mader and Shaun Allain, two students hired through the Nova Scotia Youth Conservation Corps have been doing the majority of the leg-work.

The EMPOWER! project is guided by the three principles of UNESCO's Man and the Biosphere Project (capacity building, conservation and sustainable development) and is focused on three main objectives:

1. To develop a network of active youth and opportunities within our region
2. To research rural out-migration and counter it with examples of innovative professionals and businesses in the biosphere reserve.
3. To host a conference at Kejimikujik National Park the first weekend in October.

The EMPOWER! conference was an extremely successful event with more than 30 youth participants from Southwest Nova and a Halifax. The conference will be an annual event.

For more information about the project visit: <http://www.merseytobetic.ca/projects-human-dimension-empower.php>

Rain Gardens

Article by Nicole Oliver, Water Conservation Advisor

Water is life's matter and matrix, mother and medium. There is no life without water.

Albert Szent-Gyorgyi

Throughout history, from people of all walks of life come acclamations of the importance of water. In some cultures water is raised to the level of deity. However, Canadians are some of the world's worst water wasters with an average daily water use of 329 L per capita.

Canadian water use can increase by 50% in the summer months. In the growing season, our daily average use can balloon up to 490 L (per capita per day).

Although water is necessary for lawns and gardens to survive, some methods of watering such as oscillating sprinklers can lose as much as 50% of the water they disperse through evaporation. Since nearly 75% of Canadians use municipally treated water the majority of water used for

lawns and garden irrigation is potable.

Two unique approaches to water conservation are rain barrels and rain gardens.

Rain barrels are any sort of holding tank that collects water during periods of rain. Often roof downspouts are directed to fill the barrels during rain. Rain barrels can be as simple as an old drum fitted with a cover and spigot, or a collapsible, UV resistant, vinyl hexagon.

Care of barrels is relatively simple. They need to be kept covered with a screen to prevent mosquitoes, leaf litter and animals from getting into the barrel. It is necessary to keep the spigot and downspout clear of debris and take it out of operation in the winter.

A hose attachment can be added to your rain barrel with a small sump pump to water your garden. Watering cans can be filled from the spigot or from the top. Gravity drip irrigation systems can also be used with an elevated rain barrel.

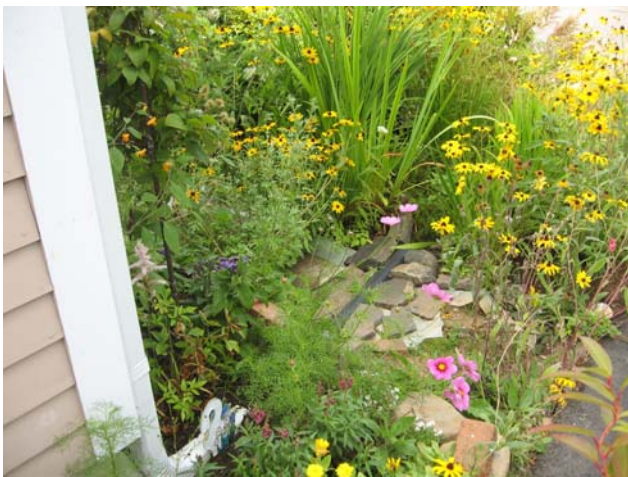
Aside from the costs of the rain barrel itself, using rainwater for

irrigation is much cheaper than municipally treated water. This time of year, the price is right for a rain barrel at a garden supply store.

A rain garden is an aesthetically pleasing collection of water loving plants. They are planted in a natural or dug depression to receive water during a rainfall. They can also be used adjacent to parking lots to filter pollutants from the water. As the gardens are slightly concave, water collects in them and infiltrates the ground anywhere from a few hours to a few days depending on rainfall volume.

Native plants are excellent candidates for rain gardens. Aside from a little weeding and watering the first year or possibly two, they will take care of themselves. They are adapted to our climate patterns, insects and soils.

CARP has a variety of resources available for building your own rain barrel or constructing a rain garden. Please contact the office for more information.



Left: A bog inspired rain garden. It is surrounded by black eyed Susans (*rudbeckia laciniata*).



Right: A downspout connected to PVC tubing to direct rain fall into the bog garden.

This garden was designed and planted by Gini Proulx, a local botanist who has contributed greatly to the knowledge of rare plant populations in our region.

She decided to build this garden because the slope of her property directed the water from her downspout towards her home. This allowed water to enter her basement. She has had her bog garden since the spring of 2008 and she finds it very effective in absorbing rain water.

Gini plans on creating a more marsh themed garden at the other downspout in her backyard.

Interested in managing your storm water?

This past summer, CARP worked with various individuals in Annapolis Royal to solve their storm water and water needs. This fall, we will be offering tours of the work that we have done. For more information or to book your tour please contact Nicole Oliver.

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Helping Your Home Take Care of You

Article by Les Smith, Certified
EnerGuide Auditor

Houses come in many shapes and sizes, ages and variations in construction but they have one thing in common: families live in them. How comfortably that family can live there depends upon how well the house does its job.

A home must meet many expectations. It must keep the weather off throughout the year. It should be easy to heat in winter and maintain its cool in summer. It should be snug when needed, but 'breathe' in order to maintain human health. That is a tall order.

Currently there are programs from Natural Resources Canada (NRCAN) and Conserve Nova Scotia, which offer rebates to homeowners who wish to make their houses more energy efficient and comfortable. Certified Energy Auditors audit houses upon request to give homeowners a starting point for the work.

A report is generated with suggestions to improve energy efficiency. This report ties in with the Federal rebate schedule (Provincial rebates are streamed in the same

program, but are not shown on the report). To be eligible for rebates the homeowner must complete energy efficiency actions and undergo a follow-up audit within 18 months (or until March 31, 2011) of the initial audit.

Eligible work might include installation of heat pumps, new energy efficient furnaces, windows, additional insulation in ceilings, basements or walls, solar domestic hot water heaters, drain water heat recovery devices, balanced heat recovery ventilation systems and low-flush toilets. Work may be done by homeowners in some cases or by a certified professional where appropriate.

Every home is different but the goal is to save energy and reduce some of the cash flow expended upon just keeping warm each winter.

To date (Aug 1, 2009), well over 400 homeowners have entered the program by having their houses audited by Certified Energy Auditors with Clean Nova Scotia working through the office of Clean Annapolis River Project.

To book your audit, call us toll-free at 1-888-547-4344

Cleaning the Annapolis River

Editorial by Nicole Oliver

The Clean Annapolis River Project seems to be a simple, straightforward name that explains the purpose of the organization. Images of removing discarded shopping carts, pop cans and chip bags from the river or possibly curtailing factories from dumping untreated waste or noxious chemicals may come to mind.

Although these things are important and CARP supports these activities, the approach the organization takes when it comes to the environment is more holistic and broad in view. The environment is a system of continuously interacting, interconnected elements. Therefore, actions in a terrestrial environment can also affect aquatic habitats. The majority of the work CARP does is within the Annapolis River watershed, which incorporates terrestrial, marine and freshwater ecosystems.

Because of the watershed approach CARP takes, some projects may not have a clear or obvious connection to 'cleaning the river'. An example could be the EnerGuide for Houses program; it may not be immediately apparent how reducing home energy use could benefit the river. However, by increasing energy efficiency, CO₂ emissions are reduced. Carbon dioxide is greenhouse gas, which contributes to climate change. Increased flooding events are a projected impact of climate change, which can carry pesticides, excess nutrients and urban pollutants (road salt, oil, etc) into the river.

By working from a watershed perspective, CARP is able to address a wide variety of environmental problems. So really, the Clean Annapolis River Watershed Project would be a more appropriate name, but CARWP is not nearly as nice an acronym as CARP.

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Contribution deadlines:

Spring: 1 March

Summer: 1 June

Autumn: 1 September

Winter: 1 December

Membership:

Adult \$7

Family \$10

Student \$5

Other \$25