

In With the Tide

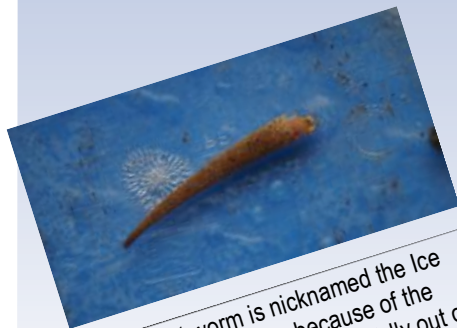
The Bay of Fundy Discovery Centre Association Newsletter



Our Fundy-Our Future

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This neat worm is nicknamed the Ice Cream Cone Worm because of the shape of its home; built skillfully out of grains of sand.

GOMI Prepares for Marine Education Project

By Roger Outhouse

On a very low tide in Freeport's Northeast Cove the Gulf of Maine Institute's Digby Neck / Islands Team gathered at the Warner House to go through the Arts n Adventures in the Cove "Walk on the Ocean's Bottom Tour". For several years now our GOMI youth have wanted to get involved in wildlife education with youth and tourism potential modeled on the very successful Wetlands Education Program operated in Sackville, New Brunswick.

Our youth signed the guest book, took a brief look at the Warner House, and got a slide presentation about the habitat and what we would see. Armed with a shovel and some collection containers we made our way down the mudflats and viewed dozens of animal and plant marine species. With keen eyesight and a great optimism we discovered some new species to add to the growing

list of critters found in Northeast Cove. We retrieved a number of these, which allowed us to photograph and video later. Sand Shrimp, Burrowing Anemones, Hermit Crab covered with a colony of Hydroid animals called "snail fur", Rock Eel, Ice Cream Cone Worm, Boat Limpets, Sand Dollar, and Lugworm were all great finds. It was great to see everyone exploring, contributing to the work and enjoying themselves while learning about our incredible Bay of Fundy; education at its best!



This chubby marine specimen is called a Lugworm and is a real mover of mud and sediment on the ocean floor. It is adorned with rows of colourful reddish gills.



These two Dog Whelks are referred to as the "wolves of the sea" as they are efficient predators of mollusks and sea snails; always on the hunt! Look carefully and you can see a few small-coiled Boreal Tube Worms growing on their shells.

Over the next few months the GOMI squad will GPS areas in the cove, sample and catalogue the flora and fauna, and study the life cycles of these creatures. All this will become part of a better understanding of our area and allow the team to prepare for creating a better walking tour for educating the public. The Gulf of Maine and its entire watershed are vital to maintain so that our communities can have a viable future. Look for future updates as our work continues!



The Sand Shrimp spends much of its time blending in perfectly with the mud for protection.

Creatures of the Cove – Acadian Hermit Crab (*Pagurus acadianis*) and Hydroid Snail Fur (*Hydractinea echinata*)

By Roger Outhouse

Just staring at a small tide pool can be a fabulous experience as we often forget that there are dramas unfolding at our feet. Closer scrutiny reveals a host of Smooth Periwinkles with extended foot (feet) and antennae grazing on algae at a snail's pace along the bottom. Out of the pack emerge two racing snails tearing across the bottom. I am immediately reminded of the world's fastest land snail named Speedy who was a celebrity because of his record-breaking achievements. Alas Speedy's fame became his undoing as he became an

endorsement for beer commercials (snails love

beer) and it is believed that the chemicals in the suds lead to a premature death of the promising athlete. He should have stuck with veggies!

Capturing the speedsters was not difficult but it was equally easy to determine that the individuals were imposters. Large claws on an orange body adorned with



When the hermit crab is threatened it will draw into its shell and use its larger claws to protect the entrance from predators.

large eyes on beautiful blue stalks gave them away. They were really Acadian Hermit Crabs occupying empty periwinkle shells. The crabs routinely seek out new homes from a wide array of empty periwinkle, whelk or moon snail shells that litter the bottom. As this crustacean grows it must seek out better and bigger real estate. Sometimes they struggle with others of their species over a prospective new home. The animal has a pair of larger pincer claws, which gather food (often algae) and can be used to protect the crab by blocking the entrance of the shell. The

second, third and fourth pairs of legs are for

walking and a fifth pair is adapted to holding its body in the borrowed shell.

When a female hermit crab mates with a male neither one completely leaves their shell and mating can only occur when the crabs are molting (shedding their outgrown body armour). There are reports of larger males dragging smaller females around by the shell until mating actually happens. The female then stores the fertilized eggs on her abdomen protected inside the shell until they hatch out and drift in the ocean as plankton larva for several weeks before settling to the bottom in search of a borrowed shell.

The male crabs are very aggressive but settle their neighbourhood disputes in a rather civilized and almost humorous way. The male with the largest claws will simply

knock on the outside of the other smaller male's shell until they leave the area carrying their home with them.

That brings us to the second creature of our story, which is bonded to the fortunes of the hermit crab. Not long ago on a field trip with our Gulf of Maine Institute youth team one member collected a Hermit Crab that had a beautiful pinkish colored "fur coat". This is called Hydroid Snail Fur (*Hydractinia echinata*) and is composed of



hundreds of small animals. This massive colony lives only on the dead shells occupied by the Acadian Hermit Crab. It is made up of five specialized types of polyp cells that feed, distribute nutrients, defend the colony with stinging cells or are male or female reproductive cells. The sad part of this condo type living is if the crab abandons its fur covered shell then all the hydroids die unless their shell is picked up by another hermit crab. This type of hydroid

specie owes its very existence to the Acadian Hermit Crab.

One never knows when we too might discover just how important these small life forms are to our own survival!

This handsome Acadian Hermit Crab's borrowed shell is sporting a Hydroid Snail Fur coat made of thousands of tiny animals.

Welcome in 2014

By Anna-Marie MacKenzie Kelly
Photos by Tony Kelly

Seven Polar Bear Dippers welcomed in 2014 at 12:30 pm on a sunny January 1st by taking a cool dip in St. Mary's Bay in Sandy Cove. This was the 13th Digby Neck dip. The outside temperature was -8°C with a wind chill of -19°C. The water was a balmy 0°C. Many thanks go out to our friends who built the warming fire and for the many donations to the Digby Area Food Bank. It is always an invigorating way to start a new year!

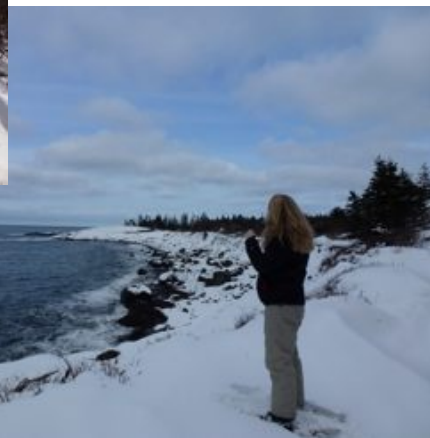


Dippers: Emma Gwyn, Janet McNeil, Cindy Graham, Anna-Marie MacKenzie Kelly, Willow Walker, Geanna Walker and Peter Gwyn



Embracing Winter!

Photos by Anna-Marie MacKenzie Kelly



Winter 2014 offered us wonderful opportunities to get out in the fresh air and enjoy our natural environment close to home. There was no need to travel afar with so much on our doorstep!



Clockwise from top left: view of Little River from Eastern Head, Snowshoeing in Little River, White's Cove in Little River and Pond Hockey on Bottomless Lake in Sandy Cove

UFO in Sandy Cove?



This **Unidentified Floating Object** appeared in St. Mary's Bay in Sandy Cove in the autumn of 2013. It sure became a topic of conversation with many wondering what it is and why it is there. My research tells me it is a Hyperbaric Lifeboat. ***In With the Tide*** will welcome anyone with more information about this odd looking vessel to write about its origin and why it is tied up in Sandy Cove.

Plant of the Cove – Bittersweet Nightshade (*Solanum dulcamara*)

By Roger Outhouse

What a terrific looking plant with great looking leaves and amazing blue to violet flower! It grows like a vine climbing other vegetation and appears spring to fall along highways and thickets near human habitation in all Canadian provinces. The five petals curve back, revealing a golden yellow cone projecting from the centre. This European plant has spread throughout this country and produces small green berries that turn shiny black and then bright red as fall progresses.

While its flowers and berries may look inviting they are considered poisonous, as are the leaves, stems and roots. Eating any parts of the plant can lead to a host of nasty symptoms ranging from vomiting, dizziness, and heart problems all the way to convulsions, paralysis and even death. Livestock have become sick from eating these plants and in rare instances doing so has resulted in their death. Oddly enough cattle and rabbits seem to show no ill effects from eating the plant. Extracts from the stem have been used as medicine for a whole host of ailments but none of these are supported by science. The power of its

chemical content is however being studied for possible treatments of other complex diseases such as cancer.

History associates this plant as a weapon, a cosmetic and medicine. It was rumoured that some ancient Roman dignitaries used this poison to dispose of enemies. Earlier records indicated soldiers would craft poison tipped arrows for battle. Physicians before the Middle Ages used

balance resulting in stumbling, which was less alluring and possibly even dangerous!

Beautiful Bittersweet Nightshade is not to be consumed because it is toxic but before we all become fearful it is probably good to realize that this plant is also related to common food plants like potato, tomato, and chili peppers which have leaves and stems that also contain toxins and should also be avoided by humans and their pets.



The berries of Deadly Nightshade start out green; turn shiny black in summer and then an attractive bright red in fall.



The beautiful flowers of Deadly Nightshade belong to one of the most toxic plants in the Western Hemisphere.

the plant's powers as a surgical anaesthetic; the plant does have chemicals that can cause delirium and hallucinations.

The name "Deadly Nightshade" is a famous nickname as is "Belladonna" which means beautiful woman. Apparently if the herb was applied with drops to female eyes the pupils would become large and mysteriously alluring to the males. The practice did however have some major drawbacks as its side effects were blurry vision and loss of



GOMI students are all smiles after working to clear the Fundy View Trail

Nature Conservancy Open House a Big Success

The Nature Conservancy of Canada (NCC) hosted an open house on the evening of March 19 at the Westport Community Hall. Doug van Hemessen, Stewardship Coordinator with NCC and Nick Hill, Fern Hill Institute for Plant Conservation, provided an overview of a project looking at the current state and history of Big Meadow on Brier Island. The project seeks to conserve an endangered plant that grows there but almost nowhere else in the world except for much smaller numbers on Digby Neck and two places in New Hampshire. It may not be well known, but the plant - eastern mountain avens - is in fact one of the most endangered plants in Canada.

Big Meadow is one of the most important remaining habitats for the plant. This large historic bog was impacted by drainage in the 1950s in an attempt to change the land to agriculture. Ditching lowered the water table and over the years since then non-bog species including trees and shrubs have moved in. The changes have also proved attractive to nesting gulls - nearly 5000 birds at last count. The altered conditions are a threat to the presence of the avens.

The three year project is a partnership of other organizations being led by NCC: the Fern Hill Institute for Plant Conservation; Mersey Tobeatic Research Institute; Nova Scotia Department of Natural Resources; Canadian Wildlife Service; Atlantic Coastal Plain Flora Recovery Team; and the Gulf of Maine Institute (GOMI). The goal of the project is to assess options for restoring Big Meadow Bog through three key objectives: maintaining habitat for threatened plants; developing a restoration plan, and; working with the community.

As part of that third objective Roger Outhouse and GOMI youths organized interviews with long time Brier Island residents to get their recollections of Bi



g Meadow Bog; what it looked like, activities that took place in there, and changes they've observed. The information will contribute to understanding how the bog might be restored.

Roger presented a summary of

the interview results at the workshop. The crowd enjoyed hearing about some of the memories and the people that provided them. Duck hunting and skating on the adjacent ponds and berry picking were common memories.

The outcomes of the project will include detailed baseline knowledge of ecological conditions in Big Meadow; a plan assessing options for restoration of the bog, and the support of an informed, involved community. Subsequent activities could also result in an eventual reduction of the gull population.

Over thirty people attended the workshop, including Municipal Councillor David Tudor, and enjoyed treats provided by the Westport Ladies Recreational Auxiliary. Further project work will be undertaken in 2014. If you have any questions about the project you can contact Doug van Hemessen, 902-405-4334 ex 3301 or doug.vanhemessen@natureconservancy.ca

Bay of Fundy Discovery Centre Association

The News: Briefly

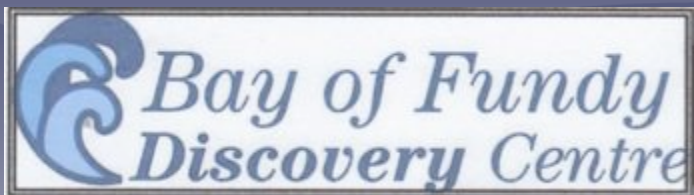
Information provided by Roger Outhouse

- The NS Department of Tourism has approved funding for more interpretive panels for the Balancing Rock Trail. We will be working with the Municipality of Digby to create panels focusing on fishing activities, pollination, lichens, geology and wetlands.
- We are working with DARC to produce a trails brochure for the county.
- Our GOMI team will be helping clear areas around the Loyalist Park, Freeport Development Centre and the Lent House as well as spread gravel along the Fundy View Trail and do a Spring clean-up along The Balancing Rock Trail.
- Repairs to the Warner House property and marketing improvements for "Arts n Adventures in the Cove" are underway. The GOMI youth are preparing a multi-media presentation and sea life display titled, "Walk on the Ocean Bottom"
- Discussions are underway with Natural Resources staff for a possible butterfly-monitoring project.
- The Nature Conservancy of Canada held an Open House in March to discuss the projects currently on the go to study the endangered Eastern Mountain Avens and Big Meadow Bog on Brier Island. Our GOMI youth conducted historical interviews with residents to help better understand the history about Big Meadow Bog.
- Plans are still in progress for the trail behind the school in Freeport. More information is needed to assess the bridge across the Freeport Brook and a consultant will be coming to look at the situation.
- The GOMI Summer Institute will be held at Adelynrood in Newburyport, Mass. Our youth teams will head out Saturday 28 June 2014 and return Sunday 6 July 2014. This international conference is always a great educational and fun experience for our GOMI youth.
- The Bay of Fundy Discovery Centre Association currently has 74 members. New members are always welcome!

Big Meadow photographs Wanted

Gulf of Maine Institute youths are putting together a photo history. We are looking for old, historic photographs of Brier Island's Big Meadow bog. If you have any suitable photos please contact:

Roger Outhouse [\(902\) 839-2068](tel:902-839-2068) or righthouse51@gmail.com



Our Fundy-Our Future

**Bay of Fundy Discovery Centre
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