



NSRWA
therivershed.org

January 2009

RiverWatch

THE NORTH AND SOUTH RIVERS WATERSHED ASSOCIATION, INC.

What We Think We Know About the Environment

- 45 million Americans think the ocean is a source of fresh water
- 120 million think spray cans still have CFCs in them even though CFCs were banned in 1978
- Another 120 million people think disposable diapers are the leading problem with landfills when they actually represent about 1% of the problem
- 130 million believe that hydropower is America's top electricity source, when it accounts for just 10% of the total (coal and other flammable materials is the top energy source for our electricity) and
- Less than half of those surveyed knew what the term "watershed" meant

Source:
National Environmental Training and Education Foundation,
"Environmental Literacy in America,"
Results of surveys of Americans from 1995-2005.

Take the Challenge!

"Acts of conservation without the requisite desires and skill are futile. To create these desires and skills, and the community motive, is the task of education." Aldo Leopold, 1944



One of our 2008 River Campers.

At a time when society is confronted with increasingly challenging environmental choices, a decade of surveys of the American public revealed that our citizenry is by and large both uninformed and misinformed (*see survey results sidebar*). While these results are worrisome, don't give up hope. The surveys also revealed that people want to understand environmental issues and how they apply to their daily lives.

For example, when plastic six-pack rings were publicized as a cause of wildlife entrapment, millions began snipping the rings with knives and scissors before throwing them out. It was easy to do and people felt they could make a real difference and that others were

participating too. Unfortunately, that action, while helpful, didn't get to the root of that problem—that more fish are entangled by discarded fishing gear than six-pack holders. While the environmental efficacy of this particular action did not withstand later reexamination, people's willingness to take individual steps on behalf of environmental protection was impressive.

To truly be good stewards of the earth (and our watersheds!) we have to have more than environmental information, we must have environmental education that provides us with a deeper understanding of how nature works so we can make appropriate decisions about the efficacy of any particular action.

Please take the challenge this

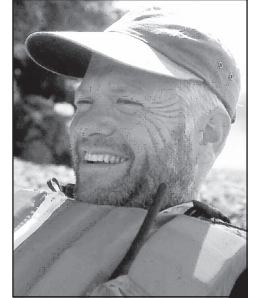
year to make yourself, your children, your friends and neighbors more environmentally literate by actively participating with us in one of our events, by volunteering with the NSRWA or visiting our new website and Kids Corner.

Gaining a deeper understanding of how our watershed and our environment works will only help all of us in the difficult choices we will face in the future. The NSRWA has multiple opportunities and programs available for those who would like to get involved to improve our environment and become more environmentally literate at the same time.

Happy New Year and See You on the Rivers!

by Samantha Woods
Executive Director

Letter From The President



I love my job. Wilderness travel provides the fuel for my soul. Sharing wilderness experiences with others that have the same appetite is rewarding in so many ways. This calendar year has yielded a bumper crop of memorable encounters.

From paddling below the cliffs of Canal Salqueman in Chile, watching thousands of herons, egrets, spoonbills and ibis descend at sunset to roost on Bird Island in the Yucatan, staying up all night holding a cougar at bay that had made two attempts at attacking us on the British Columbia coast, swimming at night in the Sea of Cortez, spellbound by the sparkling bioluminescence that framed our bodies, or camping on the granite and spruce slabs of Down-east Maine with participants of our NSRWA fundraiser, each experience was more fulfilling because they were shared with those who find value in the wildest places.

Carolyn Sones and I had the pleasure of spending a week this past September with several NSRWA members as we sea kayaked and camped the islands off of Stonington Maine. Karen, Joanne, Judi, Sally, Jack and Betty shared wonderful weather, laughs, Carolyn's famous scones, yoga sessions, some spectacular paddling, day hikes and an ice cream or two. We even did a little down wind sailing with a tarp lashed to upright paddles, our kayaks held together to make a multi-hulled vessel. We hoped as we raced along at a blistering two knots, the schooners that shared the waters around us were looking on with awe and envy. We decided we should settle with just "looking on." Fortunately we didn't run aground or hit anything, Betty kept us on course as she was the only one in front of the sail and subsequently the only one who could see where we were going. Guillemots and cormorants were our constant companions as we paddled to islands like Hell's Half Acre, Wheat and Wreck. A highlight was a visit to Isle au Haut and its small village community.



*Maine Fundraiser Participants.
Photo by Doug Lowry.*

Each evening as we finished dinner and watched the sunset, bits and pieces of each other's life experiences trickled out into our collective awareness. Common threads were a commitment to life-long learning, supporting conservation and enjoying the ever expanding options that life offers. A friend describes this approach with the Inuit word; Nuanarpuk, which means, "to take extravagant pleasure in being alive." What a treat it was to draw inspiration from every member of this group. How encouraging it is to know that our membership includes so many folks like our Maine fundraiser participants.

As the calendar year closes, I am grateful for the many gifts of time, energy and commitment the organization received from NSRWA's members, staff, board and volunteers. This was a year of fruition, as many projects were completed or introduced. From a new film, new fundraisers, new ways of promoting events and our mission, new properties acquired for preservation, well attended walks, paddles and lectures our organization continues to be vibrant, important and healthy.

Happy New Year and Nuanarpuk,

Doug Lowry, President

Rivershed Steward Profile: Tom Hall

Tom Hall is a resident of Hingham whose family has lived along the Third Herring Brook for generations. He has been very generous with his time and money, most recently assisting us with our stream gauge reading on the Third Herring Brook.

How long have you been a member of the North and South Rivers Watershed Association?

I joined in 2002. The reasons are two-fold: First, I became a trustee of a foundation, the Sylvester Foundation, so I had money available to donate. I looked for a good organization, and my son, Jay Hall, a wetlands environmental consultant, recommended that I donate to the NSRWA. I am also interested in the dams and fish passage on Third Herring Brook.

My grandfather, Albert Sylvester, built the Tack Factory dam on the Third Herring Brook. In the process of building it, they never put up a fish ladder, and that limited herring for the future years. Since the foundation money was his money, I thought it would be a good idea to give some of it back to help the Third Herring Brook.

Why did you decide to get involved with our flow monitoring?

Because you asked! I figure it's not just money, it's time. As projects come up it is a good way to contribute my time as well as money. Jay and I help clean out the stream once a year, as well. I have enjoyed being associated with NSRWA. You are a great organization. Keep up the good work!

What concerns you most about the future of the watershed?

Two things: First, the condition of the dams. Something needs to be done about them because many of them are ready to blow out. The Tack Factory Dam is in poor condition according to the state, and the Mill Pond Dam has already had problems. My other concern is pollution from storm water, coming from commercial developments such as the Hanover Mall. There was a recent article



Tom Hall next to a sign noting where the Third Herring Brook is crossed by Rt 123 on the Norwell/Hanover line.

in the Boston Globe about EPA limiting the storm water from commercial complexes which I think is a good idea.

Where is your favorite place in the watershed?

The Third Herring Brook. I have fished it for years, caught herring in it, and it is one of my favorite places. I've lived here all my life and have a very fond feeling for it. I also like the brook in Pembroke on Rt. 14 [Herring Brook] and the headwaters (Indian Head River) and the old rubber mill pond.

What are the two things you think everyone who lives in the watershed should know about the watershed?

I think people need to be educated about how fragile the watersheds are and how quickly they can be destroyed or caused to not function properly and how to protect them. Also, we have a responsibility and a legacy to preserve our watersheds and pass them on to future generations in at least the same if not better condition than they were passed on to us.

*by Sara Grady, PhD
Watershed Ecologist and Mass Bays South Shore Coordinator*

The NSRWA Steward Profile is a series of interviews of active volunteers that have contributed their skills, hard work and commitment to the North and South Rivers watershed community. The NSRWA thanks each of our volunteers —our organization thrives because of your participation.

Photos of the Watershed Wanted!

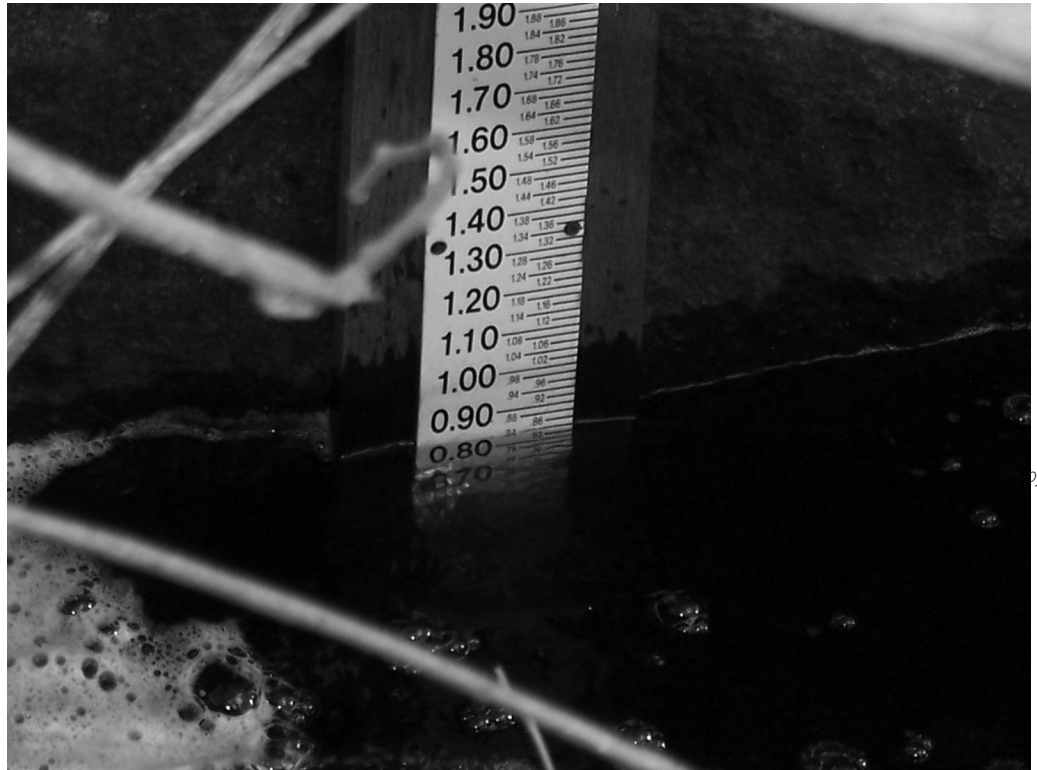
Have a great photo of the rivers, wildlife or conservation area in the watershed you want to share with others? The NSRWA is interested in receiving your favorite digital photos of special places on the rivers and in the watershed. We will choose the top 12 photos and highlight one each month on our new website! Please send your digital photos to us at paula@nsrwa.org.



Third Herring Brook Flow Monitoring

During the summer of 2008 stream gauges were installed at three locations in the Third Herring Brook - at River Street/Broadway, at Mill Street near the NSRWA office, and at 123 and Jacobs Pond. A stream gauge is essentially a large ruler that allows an observer to measure the level of the water in the stream. The gauges were installed with the help of Jo Carey and Alex Hackman from Massachusetts Riverways Program. Jo and Alex worked with Sara Grady from our office to measure flow in the stream at different water levels. Once enough paired flow and water level measurements have been made, it is possible to make a graph correlating these two variables, called a “rating curve.” Once this relationship is established, flow can be estimated simply by knowing the water level.

We want to know the variation and range of flows in the Third Herring Brook for a few reasons. If we are able to restore fish passage to the Third Herring Brook someday we would like to know that the stream doesn't dry



The Jacobs pond gauge, reading 0.84 feet

up at critical times during the life cycle of the herring and other fish that might be migrating up or downstream. We want to know how quickly the Third Herring Brook responds to rain events. A stream that rapidly increases in flow and water level after rain indicates that it is “flashy,” which

is often a function of the amount of impervious surface surrounding it. The Third Herring Brook intercepts many roads and parking lots on its path to the North River, and all of these are contributing stormwater. Finally, we want to see if there is any impact on flow from groundwa-

ter withdrawals within the Third Herring Brook watershed, as both the towns of Norwell and Hanover draw water from the groundwater that feeds the Third Herring Brook.

*by Sara Grady, PhD
Watershed Ecologist and
Mass Bays South Shore Coordinator*

VOLUNTEERS NEEDED

If you are interested in helping to read the stream gauges in the Third Herring Brook, please contact Sara Grady at sara@nsrwa.org or fill out our online volunteer application form at www.nsrwa.org. It is one of our quickest and easiest volunteer opportunities - it takes less than a minute to read the gauge and is as simple as reading a ruler.

New(s) at the NSRWA

Our "New" Website! www.nsrwa.org

With an entirely new look, you'll find our website is much easier to find up-to-the minute information about goings on at the NSRWA. Checking the website regularly, you'll never miss an event, a recent article, opportunities for learning or volunteering - it's all there! We are thrilled to have this new NSRWA 'window to the world.'

Our New E-mail! Sign up at www.nsrwa.org

With a new e-mail provider and new tools to create more attractive e-mails, you will notice many changes (hopefully for the better) in the next few weeks. Like many things, there is a learning curve, and we are working to master our new technology to bring you useful information each week.

Visit Our Kids' Corner!

A work in progress, the Kids' Corner on our website will continuously be growing, with entertaining, educational, kid-friendly environmental activities.

Eradicating Japanese Knotweed Along First Herring Brook

In our July RiverWatch newsletter we provided information about one of our more problematic invasive plants on the South Shore, Japanese knotweed (*Polygonum cuspidatum*). You may recall that it favors areas that have been disturbed, particularly riverbanks and roadsides, and that it is difficult to eradicate due to extensive rhizome networks and roots that can penetrate to 9 feet deep. In late August 2008 the town of Scituate contracted Polatin Ecological Services to begin an eradication plan for Japanese knotweed growing along the First Herring Brook in Scituate.

The herbicide Rodeo was applied to the knotweed using a truck with a hydraulic sprayer

and backpack sprayers while the plants were flowering. In areas that were within fifteen feet of the First Herring Brook, a stem injection system was used instead. Treating plants when they are flowering is a strategy that maximizes effect, because when a plant is flowering it is directing most of its energy to above-ground parts of the plants and thus is more vulnerable.

About 2.5 acres of knotweed were treated, mostly along the bike path and Driftway. As of mid-October 2008, most of the treated knotweed was standing dead - withered brown stalks. The knotweed stands will require re-application during the summers of 2009 and 2010, to ensure that any resurgent

sprouts are killed off. This may be combined with cutting in June to weaken the root system and reduce the size of the plants, making the August herbicide application easier and more effective.

Thanks to Chris Polatin and Scituate Conservation Commission for knotweed treatment details - we look forward to seeing the results! This work was funded as part of the MBTA mitigation for stormwater violations during their construction of the Greenbush commuter rail station in Scituate at the request of the Scituate Conservation Commission.

by Sara Grady, PhD
Watershed Ecologist and
Mass Bays South Shore Coordinator



Inset: a close-up view of Japanese knotweed. Above: Dead Japanese knotweed on the banks of the First Herring Brook.



Invasive Species Surveys 2008

During the summer of 2008 we surveyed for marine invasive species as part of a statewide program run by Mass. Coastal Zone Management called the Marine Invasive Monitoring and Information Collaborative (MIMIC). We participate in marine invasive surveys with two purposes in mind. First of

all, we want to educate people about the invasive species that are already present, while teaching some natural history about our native species as well. The second purpose is to enable us to detect new invaders more quickly – if there is nobody out there looking, then a new creature could easily go undetected.

Our surveys in 2008 focused

on three intertidal areas (Third Cliff, Fourth Cliff, and Brant Rock) and three docks (Scituate Harbor, Duxbury Harbor, and Plymouth Harbor) on the South Shore.

Become an Invasive Species Monitor! We will be continuing our surveys next year, so if you want to get outside and poke around in tidepools, please let

us know. We'd love your help. Thank you to this past year's volunteers (alphabetically): **J**oanna Borr, **A**manda and **N**athan Buckingham, **W**yatt Dowd, **J**amie and **M**arta MacFarland, and **K**athy Miller.

*by Sara Grady, PhD
Watershed Ecologist and
Mass Bays South Shore Coordinator*

Invasive Species Survey Results • 2008

	Club tunicate (<i>S.clava</i>)	A. <i>aspersa</i>	Orange sheath tunicate (<i>B.violaceus</i>)	Golden star tunicate (<i>B.schlosseri</i>)	Sea Squirt (<i>Didemnum sp.</i>)	Green crab (<i>C.maenas</i>)	Asian shore crab (<i>H.sanguineus</i>)
Third Cliff	-	-	Rare	-	-	Few	Common
Fourth Cliff	-	-	-	Rare	-	Few	Common
Brant Rock	-	-	-	-	-	Few	Common
Scituate Harbor	Few	Few	Few	Rare	-	Rare	-
Duxbury Harbor	Few	-	Rare	Rare	-	-	-
Plymouth Harbor	Abundant	-	Abundant	Few	Few	-	-

Abundance of invasive species at survey sites.

Rare = only one or two specimens at site

Common = moderate abundance (>50% of areas looked)

Few = low abundance (< 50% of areas looked)

Abundant = high abundance (almost everywhere looked)

Green Crabs

Introduced: East coast in 1817, the west coast in the 1980s.

Arrived: Through ship ballast water.

Native To: Europe

Current U.S. Distribution: North Atlantic Coast, Pacific Coast.

Impacts: Preys on Softshell clams and scallops, has been blamed for the collapse of the soft-shell clam industry in Maine.

Asian Shore Crab

Introduced: Cape May, New Jersey, 1988.

Arrived: Through ship ballast water.

Native To: Western Pacific from Russia to Japan.

Current U.S. Distribution: Now well established along the east coast from Maine to North Carolina.

Impacts: With a very broad diet and wide ranging habitat this crab has the potential to impact native species through direct predation or competition for a food source.

Sea Squirt - Didemnum

Introduced: 2000

Arrived: Through hull fouling and ship ballast water.

Native To: Europe, Asia or New Zealand.

Current U.S. Distribution: Coastal New England and Coastal Pacific Northwest. First discovered in 2003 on the sea floor of Georges Bank, the sea squirt *Didemnum* now covers approximately 88 square miles of sea floor on George's Bank.

Impacts: Spreads rapidly and forms dense colonies that smother other species like bivalves.

Sources: www.sgnis.org/kids/atlanti.html and www.invasivespeciesinfo.gov

River Adventures Camp - Sign Up Now!



River Adventures Camp is a unique outdoor education experience co-sponsored by the NSRWA and the South Shore YMCA. In 2008 we hosted six one-week camp sessions for children grades 6 - 8 to learn kayaking skills, water safety, and navigation while discovering the natural and cultural history of the North and South Rivers. Paddling skills were reinforced with games, group challenges, and hands-on natural history educational experiences while paddling a different section of the rivers each day.

Camp day begins at 9 am and ends at 4 pm the South Shore YMCA Camp Gordon Clark located in Hanover. Groups consist of eight students, one camp counselor and two instructors. The participants begin by learning the fundamentals of sea kayaking and practicing emergency procedures. Trips on the rivers included a launch at the Union Street Bridge paddling with the tide to Couch's Beach and back and from Mary's boat ramp to the Union Street Bridge. The upper reaches of the river from Luddam's Ford in Hanover to the Crotch, where the

headwaters of the North River meet are also explored. River Adventurers leave camp having learned essential paddling skills and gaining a better understanding of the natural environment of the rivers and our watershed.



SIGN UP INFORMATION

River Adventures is available to boys and girls grades 6 - 8. The six sessions for 2009 are:

- July 6 - 10*
- July 13 - 17*
- July 20 - 24*
- July 27 - 31*
- August 3 - 7*
- August 10 - 14*

River Adventures has filled within an hour of open registration at the YMCA. **NSRWA members will have the first opportunity to register, before YMCA members.** NSRWA members can take advantage of early registration until February 10, 2009 to be assured a space. YMCA members begin registration February 12th. For sign up forms, contact the NSRWA office at 781-659-8168 or email Samantha@nsrwa.org. To sign up as an NSRWA member you must register through the NSRWA office and return completed sign up forms with payment to the office by 4 pm on February 10. **Proof of NSRWA current membership is required to register early.** Kayaking equipment is provided. The cost of this one week of River Adventures Camp is \$345.

We would like to Thank Billington Sea Kayak in Plymouth for their support of the River Adventures Program. All kayaking equipment for the campers was supplied at cost from Billington Sea Kayak. Thank You Doug Gray!

Food For Thought Offered Plenty to Savor (and Think About)

On the autumnal equinox, (September 22), over 140 people flocked to the Mill Wharf restaurant on Scituate Harbor, to enjoy dishes prepared by local restaurants and food purveyors using local ingredients. Adding the blend of sultry jazz by the Lance Van Lenten Jazz Trio, the cozy ambiance of the Mill Wharf, complimentary beer and wine tastings from local breweries and wine companies, and even artful, creative food demonstrations, this NSRWA fundraiser was, by all accounts, a smashing success. The overwhelming consensus seemed to be that this event becomes an NSRWA tradition.

No one could possibly have gone home hungry, because each restaurant outdid themselves in preparing generous, flavorful dishes, which truly showcased



Mount Blue served three kinds of Pad Thai in mini Chinese take-out boxes.



Sultry jazz from the Lance Van Lenten Jazz Trio set the tone for a memorable evening.

how bountiful our local harvest is from both land and sea. We would like to thank the Food for Thought committee that worked so diligently to pull all the details together - **Craig Hannafin, Buck Hayes, Mark Norton**, and especially **Debbie Lenahan and Carolyn Sones**, who contacted most of the restaurants.

We also would like to thank the following restaurants and food purveyors for their wonderfully generous food offerings, and their willingness and cooperation to create a dish that met our request to use local ingredients: **Arthur & Pat's, Brant Rock Fish Market, French Memories, Hola, Holly Hill Farm, Gerard's, Mount Blue, Mullaney's, P.J.'s Country House, Panera, Phin's, The Silent Chef, Trader Joe's, White's Pastry Shop, Whole Foods, and Yankee Trader Seafood.** We would also like to thank **Mayflower Brewing, Classic Wines** and **Commonwealth Wines** for beer and wine tastings.

continued, next page

More Food For Thought, continued from page 8

Thanks also go to **Thai Fruit and Vegetable Carving** and **Mount Blue** for their cooking demonstrations, and to **R & C Farms** for their donation of mums. A very special thank you goes to **Bob Warner**, owner of the **Mill Wharf restaurant**, who was so accommodating and generous! And we would be remiss not to thank **Carmine**, the head chef at Mill Wharf, who delayed his trip to Italy so that he could help in any way he could, (and make his acclaimed crab cakes).



Punnee Burgess, owner of Thai Fruit and Vegetable Carving, creates exquisite designs.



Photo of Food for Thought Committee (from Patriot Ledger). L-R front: Craig Hannafin, Samantha Woods; back: Buck Hayes, Bob Warner (owner of Mill Wharf), Mark Norton and Debbie Lenahan. Not pictured: Carolyn Sones.

ADVERTISE WITH US!

Reach over 2600 environmental activists, outdoor enthusiasts, paddlers, rowers and boaters, families, fishermen, and people who love and want to protect our rivers!

Contact: Debbie at 781.659.8168 or debbie@nsrwa.org. Download our informational brochure from www.nsrwa.org

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THE NORTH AND SOUTH RIVERS WATERSHED ASSOCIATION

The mission of the North & South Rivers Watershed Association is to preserve, restore, maintain and conserve in their natural state, the waters and related natural resources within the watershed.

Our goals are to:

- Restore the water quality of the rivers by identifying and correcting adverse impacts;

- Encourage stewardship of the watershed through public education, outreach and recreation programs; and

- Promote responsible growth by working in partnerships to preserve open space, scenic vistas and sensitive natural resources.

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NSRWA PROGRAMS

NSRWA's 2008 Annual Meeting

The North & South Rivers Watershed Association 38th Annual Meeting was extra special this year with the premiere of our first short film "Streams of Preservation" made by students of the **Boston University's Center for Digital Imaging**. The film showcased the beautiful views of our rivers and tributaries and perspectives from the people that care about them.

The evening began with a wine & cheese reception, followed by a business meeting to elect directors and an overview of 2008 watershed moments by Executive Director, Samantha Woods. The NSRWA had another first this year. The volunteer of the year award went to 17 year old **Alyssa Scoppetuelo**, the youngest recipient of this award in our history. Alyssa, a senior at Pembroke High School, was honored for her outstanding contributions to the organization by leading the River Watch volunteer



Howie Kreutzburg, Chair of Scituate Waterways Committee and John Taylor, Chair of Marshfield Waterways Committee receive the 2008 Barbara Pearson Memorial Award from Samantha Woods at the NSRWA Annual Meeting.

sampling program this past summer and writing the final report featured in our newsletter and the local newspapers. Alyssa has also volunteered for other events including the Kayak Expo and Clean Up Day.

The Barbara Pearson Memorial Award went to the **Marshfield and Scituate Waterways Committees** for help-

ing in the passage of the "No Discharge Area" designation (NDA) for boats in the harbors and surrounding coastal waterways of Scituate, Marshfield and Cohasset. The award goes to a person or group that has made outstanding contributions to the environment in our watershed.

Retiring State Representative, **Frank Hynes**, who served 13 terms representing Marshfield and Scituate spoke about his long time experience in state government and his care and concern of the environment.

A special round of applause should go to board members, **Russ Haskell** and **Deb Lenahan** for working diligently with the BU students to create a wonderful film about the NSRWA.

by Paula Christie



Alyssa Scoppetuelo receives the 2008 Volunteer of the Year Award from Paula Christie at the NSRWA Annual Meeting.

A Life of Community Service

One day this past autumn, I was standing by a stream watching the falling leaves. One leaf landed in the stream in front of me and was immediately carried away by the current and disappeared from view. It passed without a sound, and had I not been standing at the stream at that exact time, its passing would have occurred totally unnoticed. After all, it was just one of perhaps 200,000 leaves on a tree, which was just one tree of the thousands that line the stream where they have been shedding their leaves for millions of years. Such a small insignificant event, yet it got me thinking. If this leaf had never existed, would it have made any difference in the world? Would its absence have been noticed? Where did it come from? Where will it end? And what good did it do along the way?

Leaves are literally made from air and water. Trees take up carbon dioxide from the air-0.03% of air is carbon dioxide- and water from the ground. Using the energy from sunlight, these two molecules are broken down during photosynthesis, and recombined as the sugar glucose. Some of this sugar is used to produce cellulose, the stuff that makes up leaves, and the rest of the tree.

During its life on the tree, the leaf is busy taking in carbon dioxide and water, and converting them into more sugar. This sugar is not only the raw material for cellulose; it is also the food - the energy source - of the tree. In a process called respiration, the sugar is split back into its component parts of carbon dioxide and water, releasing the energy originally stored in the sugar, making it available to be used in all the biological processes of the tree. In this way, the leaf, along with all of its sister leaves, provides all the food required by the tree.

Feeding a tree may seem like a pretty big job, but the leaf does not stop there. Any number of animals - from insects to deer - also use the sugar produced by the leaf as food. You only need to look at the leaves of a tree to see where others have chewed through the leaf, sucked out its contents, scraped its sur-

face, tunneled through its interior or in some other way benefited from the bounty of the leaf. At any one time, the leaves of a tree may be feeding thousands of other creatures.

The leaf's service to others doesn't end with its death. When the leaf drops into the river in the fall, it is immediately attacked by fungi. The fungi begin to break down the leaf, utilizing the sugar stored within as its food source. During this time of decay, a whole succession of different fungi will feed on the leaf, each in its own turn.

Once the leaf has reached a sufficient level of decay, it is now ready to be of service to another group of living organisms - the leaf shredders. The leaf, or bits of the leaf, now traveling along the bottom of the stream, will feed a whole host of aquatic insect larvae such as caddisflies, stoneflies and crane flies. They will chew up the leaf into finer and finer particles, extracting the nutrients as they go.

To finish off any nutrients left in the original leaf, the bacteria will now take their turn.

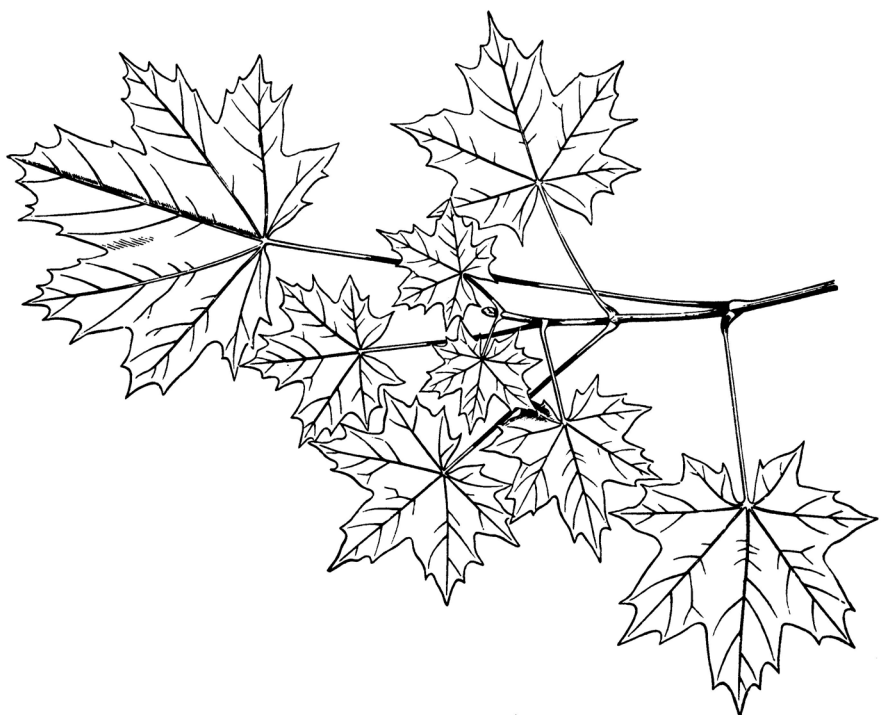
Even though the leaf is now completely decomposed, its service to others is not yet

done. Waste products from all those that fed on the leaf - products that originated in the leaf - are carried downstream to nourish many of the single celled organisms that make up the plankton, single celled plants and animals that float with the current. Also benefiting from the leaf are the grazers and predators that feed on the fungi, insects and bacteria that initially took their nourishment from the leaf. Even though these grazers and predators do not feed directly from the leaf, it is still the leaf's nutrients that eventually find their way to these animals.

Even though falling leaves are not a part of the stream habitat per se, their importance to all the creatures in the stream cannot be understated. It is their service of providing a food source long after the leaf has died that sustains the life in our streams. Such a small insignificant event like a leaf falling in a stream is a matter of life and death to so many.

For a science activity on decaying leaves, check out Don's nature blog at www.backyardbiology.net.

by Don Salvatore



Watershed Notes

SCITUATE SALT MARSH RESTORATION PROJECT: During construction of the MBTA's Greenbush Commuter Rail project, wetlands along the train tracks were filled in to make way for the new commuter rail. The wetlands permitting required that restoration of wetlands be part of the mitigation for the loss of the filled in wetlands. To meet their permitting conditions, the MBTA proposed to restore 2.84 acres of salt marsh along the Herring River in Scituate that had been lost due to previous filling. The salt marsh restoration site is located adjacent to the old railbed off the Driftway and next to the new RiverViews condominiums. The project is now mostly completed as the Herring River has been reconnected via a break in a berm to allow tidal flooding of the replanted and graded salt marsh. The new Driftway Trail in Scituate encircles the newly restored salt marsh. This new bike and walking trail can be accessed from Driftway park or along the Driftway next to the Dunkin Donuts there is another public access point.



Newly planted salt marsh restoration project off the Driftway Trail at high tide.



New inlet through dyke allowing tidal flooding of salt marsh plants.

NSRWA TOURS MARSHFIELD BOARDS: In our October newsletter you may have read the article on the recent water quality data we collected on the South River which identified some areas where stormwater was the water pollution culprit and some areas where wastewater seemed to be more indicated as the source. We decided more people needed to know about this (particularly those who might have the power to make a difference in remediating these pollution sources) so we went on a tour of the relevant Marshfield boards and committees. As of the writing of this newsletter we have presented the data and some potential solutions to the Planning Board (who is interested in pursuing a Stormwater Bylaw), the Conservation Commission, the Department of Public Works Commission, and the Waterways Committee. We hope to get on the agenda of the Board of Health and will present this information to the Ventress Library Trustees in mid-January. Our hope is to educate these committees about the issue and garner their support to work together to fix these problems. We have identified some grant funding for stormwater demonstration projects. We hope to partner with the town of Marshfield in applying for these funds to reach our goal to get the South River to be open for clamming in the future. We will keep you posted on our progress.

Watershed Notes

SHELLFISH BEDS ARE OPEN AS OF DECEMBER 1ST! Get your waders and clam rakes out--the North River shellfish are open for recreational clamming! The shellfish beds are open to all with a valid shellfish permit. Permits can be obtained from the Marshfield Harbormaster or Scituate Town Clerk. Last year the shellfish beds were closed in late May/early June due to an outbreak of PSP or Paralytic Shellfish Poisoning because of a bloom a particular kind of phytoplankton that shellfish ingest. The State Division of Marine Fisheries monitors for any contamination and will notify the public if the beds are not open for shellfishing. If you are going to shellfish please visit the NSRWA website and the Division of Marine Fisheries website for up to date information on local closures.



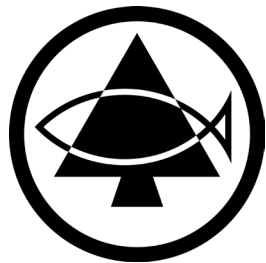
MARSHFIELD NSRWA MEMBERS SUPPORT SAVING LAND AT SPECIAL TOWN MEETING: Thank you to our Marshfield members who heeded our call to action and attended the Special Town Meeting this past October and voted to support saving land critical to our watershed! Two parcels in particular were supported by your efforts – the Buckles and Board parcel along the South River on Rte 139, and a 25 acre parcel which abuts already protected land along on the North River. The Buckles and Boards parcel, while only a small parcel, (~0.48 acres) will complement another already protected piece along the South River. At the town meeting the town was authorized to spend up to a certain amount, some negotiations are still ongoing with the landowners so it is not a certainty that these parcels will ultimately be protected – so keep your fingers crossed. We will keep you posted as things progress.



TELL US YOUR STORY! We are fast approaching the 40th anniversary of the founding of the NSRWA. Now that we are middle aged we thought it would be a good time to make sure we get all of your stories archived for posterity! Many people have come before us whose legacy we endeavor to uphold through the mission of the NSRWA. If you have an interesting story about an experience you have had on the rivers or in the watershed, or a relevant story about the NSRWA that you would like to share please contact Samantha Woods at 781-659-8168 or Samantha@nsrwa.org. We are hoping to compile these stories either via audiotape, film or in writing for our 40th anniversary. We have already begun some of this with our film project but are looking for more good stories!



NSRWA
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www.massaudubon.org/southshore

2009 Water Watch Lecture Series

January 14 – March 25

Wednesdays at 7 pm

at the South Shore Natural Science Center

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The North & South Rivers Watershed Association, the South Shore Natural Science Center and Mass Audubon South Shore Regional Headquarters are pleased to announce their partnership in presenting a series of 10 free Wednesday evening lectures, January 14 – March 25, 2009.

This fascinating series offers something for everyone. All lectures will begin at 7pm and take place at the South Shore Natural Science Center, Jacobs Lane, Norwell. Members and the general public are encouraged to attend. Admission is free of charge!

For more information, or to be notified by email about this series and other NSRWA events via Rivernet, visit www.nsrwa.org or contact North & South Rivers Watershed Association 781-659-8168; South Shore Natural Science Center 781-659-2559; or Mass Audubon South Shore Regional Headquarters 781-837-9400.

JANUARY 14 - *Discovering the Boston Harbor Islands: A Guide to the City's Hidden Shores* • Christopher Klein, Author

Did you know which Boston Harbor island was once owned by Harvard, which housed Italian Prisoners of Wars during World War II or on which island pirates were hung on gibbet chains as a warning to mariners? Join author Christopher Klein as he uncovers one of the best kept secrets in the Northeast—the Boston Harbor Islands with all their beauty and colorful history. Christopher Klein has written the most compelling invitation to date to explore the Boston Harbor Islands national park area. Come out and get inspired to leave port next summer, and to enjoy the pleasures of the islands: hiking, camping, swimming, fishing, and exploring historical forts and lighthouses. This incomparable urban archipelago offers a unique chance to journey into nature and back into time—all within the shadows of the city skyline.

JANUARY 21 - *Lobster Tales* • Dave Casoni, Mass Lobsterman's Association

Homarus Americanus, our American Lobster, is the most recognized seafood in the world! The transition from the Pilgrims harvesting lobsters (20+ pounders) from the beach to use as fertilizer, to our modern day linen table delicacy has been an ongoing process. Today the process to bring a lobster to our tables is very complicated and involves industry, science, managers, conservationists, and consumers. Dave Casoni, a commercial lobsterman, will give an insider's view of the lobstering industry, from techniques of harvesting a lobster to managing lobster stocks so they will be here in the future. You'll find out everything you wanted to know about lobstering but were afraid to ask! Sorry - no free samples!

JANUARY 28 - *Rediscovering the Wampanoag Canoe Trail Passage* • Peter Kelley Detwiler

Long ago, the Native Americans of the Northeast used the rivers as their highways. The Wampanoag Canoe Trail passage connects the North River to Narragansett Bay via the Taunton River. Find out more about this secret and still navigable (with portage!) passage connecting Massachusetts Bay and Narragansett Bay even today. Peter Kelley Detwiler will recount his youthful experience with the Boy Scouts

traveling this ancient canoe trail with the Norwell professor, Thomas Clark, who rediscovered this venerable Indian trail once traversed by King Philip and his marauding band.

FEBRUARY 4 - The North River, Scenic Waterway of the South Shore • John Galluzzo, Author

The North River is steeped in history. Noted for launching 1,000 ships, the North River has played a prominent role in shaping the identity of the South Shore. Join author John Galluzzo, who leads cultural and natural history tours for Mass Audubon, as he traces this natural landmark's rich history from several vantage points—first as a natural highway for trade and travel, then as a shipbuilding center, and now as a recreational magnet and protected wildlife sanctuary.

FEBRUARY 11 - The Secret Lives of Marine Mammals •

Joy Marzolf, MA Audubon Marine Mammal Specialist

The waters of Massachusetts Bay host an amazing assortment of marine mammals. We can probably name most of them - humpbacks, minke, finbacks; gray and harbor seals; and Atlantic white-sided dolphins. But how much do we really know about these majestic animals? Joy Marzolf will divulge their secret lives, and discover that there is more to these creatures than we see at the surface, they are really creatures of the deep, and more complicated than we have imagined.

FEBRUARY 18 - Golden Wings and Hairy Toes: Encounters with New England's Most Imperiled Wildlife • Todd McLeish, Author

Essayist and wildlife advocate, Todd McLeish examines the stories of 14 rare and endangered New England animals and plants listed under the Endangered Species Act. By accompanying the scientists who study each species, McLeish is able to get up close and personal with such disparate animals as right whales, burying beetles, shortnose sturgeons, and golden-winged warblers. He also discovers two rare plants: the sandplain gerardia, which is found in old cemeteries, and Jessup's milk vetch, which requires scouring by winter ice. By accompanying research scientists out in the field and researching scientific literature, he explains the reasons for each species' decline. This combination of firsthand reporting and background science is irresistible and will leave the reader caring about the ultimate fate of each species.

FEBRUARY 25 - The Mystery of the Disappearing Saltmarsh •

Mark Faherty, Citizen Science Coordinator at Mass Audubon's Wellfleet Bay Wildlife Sanctuary

It began in earnest, but we really didn't take notice of it until it hit close to home: sudden saltmarsh dieback. Suddenly healthy, robust saltmarshes were turning a sickly brown, but why? With no obvious cause (erosion, changes in tidal flow, etc.) scientists along the coast of Massachusetts have been stumped. Mark Faherty will explain the story of saltmarsh dieback and the latest theories being tested to decipher its cause.

MARCH 4 - Our Changing Forests • Phil Benjamin, Owner Benjamin Forestry Services

Join Phil Benjamin on a virtual tour of our local forests and how they may not be the same forests our ancestors saw or our descendants will see. Mr. Benjamin will discuss the six major forest ecosystems in New England, and the specific forest types close to home such as the pitch pine and white pine forests of southeastern Massachusetts. In constant flux due to pests, climate changes and the vagaries of nature, our forests are changing and evolving and you may be surprised at how different they may be in the future.

MARCH 11 - Climate Change and Global Warming: Is What's Happening Today Part of Earth's Natural Cycle or Not? • Rick Murray, PhD, Boston University Professor of Earth Sciences

A burning question today, posed by many policymakers, voters, economists and scientists alike, is whether our warming climate is due solely to natural factors, or has mankind contributed? Based on Dr. Murray's extensive research, he will discuss Earth's climate changes over the millennia, to develop an understanding of how the Earth's climate today -and predicted in the future- fits into the context of natural climate variability. Rick Murray is a Professor of Earth Sciences at Boston University, and is also Director of the BU Marine Program. Murray is a marine geologist with research interests in sedimentary records of climate change.

MARCH 18 - From Your Yard to the Table •

Jon Belber, Holly Hill Farm, and Joanne Mirise, Permaculturist and Environmental Writer

Think globally, eat locally—and we mean really locally! Learn how the farmers at Holly Hill Farm in Cohasset are bringing us fresh organic local food and how you can transform your own backyard into something good enough to eat. By growing more food locally and organically we are saving precious resources—and it really tastes better. Join JoAnn and John as they demonstrate how it is possible to transform a typical lawn into a bountiful, beautiful habitat by cultivating gardens, orchards and ground cover, raising small livestock, capturing and reusing water, and composting - all possible for the average homeowner/renter to achieve at any scale.

MARCH 25 - Snow Date

To sign up or
for more information
contact us at
781-659-8168 or paula
@nsrwa.org

NSRWA's Winter 2009 Events

Welcome to Spring Walks on the Bay Circuit Trail

*Sunday March 29th at 1 pm - Duxbury
Sunday April 26th at 1 pm - Pembroke*

The Bay Circuit Trail is a 200 mile footpath through 50 communities ranging from Newburyport to Duxbury. Now over 140 miles are open to the public. Welcome spring and join us for a walk along sections of the trail that are in the South River watershed. On Sunday March 29th at 1:00 pm we will walk along the trail from Round Pond in Duxbury to Valley Street (about 4.5 miles).

If you can't make it to our March walk or want to explore more of the Bay Circuit Trail join us on Sunday April 26th at 1:00 pm and we will continue to explore the Bay Circuit trail in Pembroke.

Walks are limited to 20 participants and pre-registration is required. Parking and directions will be available when you register. Suggested donation is \$5 per person.

Make the walk more entertaining and educational by visiting our Kids Corner for the activity that corresponds to this event!

You can register for this walk online at www.nsrwa.org or contact us at 781-659-8168.

Save the Date!

NSRWA's Kayak and Rowing Expo with 15,000 Sq. Feet of Displays!

*Saturday, March 21st, 10am-4pm
Norwell Middle School
(Rt. 123) 328 Main St., Norwell, Massachusetts*

The North & South Rivers Watershed Association's 7th Annual Kayak Expo will be bigger, better and more fun than ever with something for everyone whether you are a beginner or advanced paddler, or thinking about getting into the sport. All the major vendors of kayaks and equipment will be present with new products and discount coupons. Due to the growing popularity of rowing there will be a great assortment sleek sliding seat shells and fixed seat dories. Also kayak tour companies, paddling clubs, videos presentations and more!

Back by popular demand, will be a kid's corner with Dr. Sara, featuring "Stormy" the 15 ft. duck. Children will have to the opportunity to participate in interactive educational games and have their picture taken with the giant duck.

Admission is \$5 for Adults/\$3 age 12 and under.

For more information, visit the North & South Rivers Watershed Association's website www.nsrwa.org or email paula@nsrwa.org or call (781)-659-8168.



RiverWatch

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