

NSRWA
therivershed.org

RiverWatch

January 2008

THE NORTH AND SOUTH RIVERS WATERSHED ASSOCIATION, INC.

Our Water Footprint

Floods, droughts, more intense storms, sea level rise, heat waves—our future is now in terms of global climate change. This year's local mini-drought pales in comparison to Atlanta's looming water crisis but it is most likely a precursor of the kinds of changes in weather patterns that we will see more often as a result of global climate change. In the face of predictions that we will have heavier rainfalls and dryer "dry" periods we need to re-evaluate our water policies in order to allow for people and natural resources to adapt to the unavoidable impacts of climate change. The intensification of the extremes within the water cycle will result in changes in our personal relationship with water and the need for natural systems to compensate. Human influences can exacerbate or mitigate some of the human and ecological impacts we will experience.

What's a Watershed Association to do? Recently, we signed onto a position statement with many other conservation groups on the Massachusetts Climate Change Policy. The statement underscores the need to reduce carbon emission by 80% by 2050 but it also asks Massachusetts policy makers to support funding and policy initiatives that will help natural

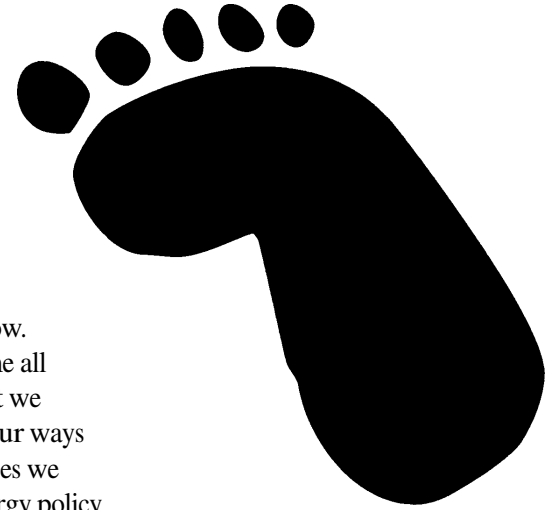
communities cope with and adapt to the unavoidable impacts of climate change. Conservation organizations such as ours are concerned about preserving and protecting the resiliency of natural systems and the plant and animal species they support. Facilitating adaptation to climate change means mitigating flooding to preserve property, conserving estuaries to maintain nurseries for fisheries and protect plants and forests that sequester carbon.

For example, we also have recently commented on water policy changes that the Massachusetts DEP is proposing that would allow communities that have met standards such as 65 gallons per capita per day and 10% unaccounted for water to allow outdoor watering. We believe a better method would be for water suppliers to use stream gauging—streamflow being the canary in the coal mine for the health of our aquifers—to determine when to enact outdoor watering restrictions.

We also were considering the impacts of climate change when we appealed the Rockland Wastewater Plant discharge permit. The wastewater infrastructure in Rockland is so leaky that when it rains, the infiltration of water into the pipes overwhelms the system and has resulted in extreme cases in discharges of un-

treated sewerage into our rivers. The rains are only going to get heavier and we need to fix this infrastructure now.

It has become all too apparent that we need to change our ways now—the changes we need for our energy policy we also need to be translated to our water policies—to conserve and renew this finite resource. It means rethinking our blue infrastructure and evaluating our personal water footprint. For watershed associations it means removing unnecessary dams that prevent river connectivity and fish migration and have the potential to endanger people. It means passing laws in our communities that require development and redevelopment to be watershed-friendly, including state-of-the-art water conservation fixtures, green landscaping that requires little to no water, minimizing our paved surfaces, and treating and recharging stormwater rather than plumbing it out to a stream or river. And it means rethinking our wastewater infrastructure to use water as a resource rather than throwing it away. It means changing the status quo and holding ourselves and our leaders accountable for changing how we use



and manage water. If we don't change the way we deal with water now in the future we run the risk of becoming the next Atlanta.

*by Samantha Woods
Executive Director*

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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.

OFFICERS

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STAFF

Executive Director: Samantha Woods
Assistant Director: Paula Christie
Watershed Ecologist & South Shore
Massachusetts Bays Program
Regional Coordinator: Sara Grady

Address Correspondence to:

NSRWA
P.O. Box 43
Norwell, MA 02061
phone: 781-659-8168
www.nsrwa.org

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Letter From The President Winter Birding in the Rivershed

For the past 107 years, thousands of bird-watchers have taken to the woods, meadows, rivers, ponds and oceans all over the United States and beyond, to survey the populations of birds that live within the established areas of the Annual Audubon Christmas Count. This census is the oldest and largest citizen science event in the world. Its methodology falls a little short of the standard scientific controls, but the data collected has the integrity that only time and the law of averages can provide. Scientists use the survey to track the populations of hundreds of species of birds. Bird species are incredibly diverse and widespread, acting as a canary in a coal mine, so to speak, often alerting us to “big picture” problems about pesticides and other pollutants, habitat destruction, climate change and the spread of disease. In fact it was NSRWA founders’ concern over the decline in bird populations at The Spit that prompted the formation of this organization.

A dedicated group of bird enthusiasts has covered one of these traditional delineations that includes much of our rivershed for dozens of years. Each year, sometime around the Christmas holiday, within a 24-hour period, small groups of people count both the number of species and number of individuals within those species in predetermined zones. Many get an early start in hopes of counting owls and will continue right up to dusk before gathering to tally numbers. The Marshfield count, which includes parts of other towns, generally hovers just above 100 species. Trading sightings of rare birds or large fluctuations in populations over hot cocoa or maybe a little scotch is often a highlight for many as winter has just officially arrived.

Birding, a hugely popular activity is a great way to add color to our long lasting winters. With preparation, which should include planning to visit a variety of habitats within our rivershed, one can expect to see dozens of species. An itinerary could include shrubby fields for sparrows and yellow-rumped warblers; look for hawks here too, perhaps a sharp-shin, red-tailed or northern harrier. Visit The Spit and look to the ocean for loons, scoters, eiders, golden-eyes; you might get lucky and find grebes, brant geese, harlequins and gannets. Turning around toward the protection of the river, look for red-breasted mergansers, black ducks, mallards, buffleheads and gulls. Scan the river’s salt marshes for an occasional over-wintering great blue heron, kingfisher or short-eared owl. Tramping through the woods will reward you with chickadees, nuthatches, kinglets, brown creepers and woodpeckers. Dropping in to visit friends with bird feeders could produce cardinals, bluejays, carolina wrens, titmice, goldfinch and maybe a cup of tea.

The NSRWA recommends periodic bird watching adventures in the rivershed throughout the winter. Watching birds is the perfect antidote for stress, sun deprivation or midwinter heavy hearts. Birds’ hurried flits, soaring circles on thermals, dabbling and shaking off beaded water, singing with unabashed confidence and delight or communal huddling in the low hanging sunlight are some of the many joys of winter in our rivershed. We hope to see you and share a sighting or two and tea from a thermos on a winter afternoon.

Thanks and blessings to you and your families throughout the holidays and new year.

*Doug Lowry, NSRWA President
Illustration by Doug Lowry*

Watershed Notes

NORTH RIVER CLAM BEDS OPEN DECEMBER 1: Its official! The water is clean enough again in December for the North River clam flats to be opened December 1st to recreational clamming. In addition, this year the open clamming area extends up to the Route 3A bridge (in previous years the upper extent was Damon's Point). Please contact Scituate Town Hall Town Clerk or the Marshfield Harbormaster's office to obtain a license to harvest clams.

WATERSHED ADVOCACY: CALL YOUR LEGISLATOR AND ASK THEM TO PASS A STRONG ENVIRONMENTAL BOND BILL! Governor Deval Patrick and Environmental Secretary Ian Bowles will soon announce a new five-year Environmental Bond Bill for Massachusetts. This is one of the most important pieces of legislation for protecting natural areas, working farms, rivers and streams, water quality, tourism, and our economy. State programs that support these goals will be depending on a new bond for funding over the next five years.

In 2002, a major Environmental Bond Bill in large part because such a broad and diverse partnership stood together in support. Almost 200 organizations presented a unified voice that the governor and legislature heard. Endorsers of the coalition included land trusts, hunters and anglers, water quality advocates, farmers, foresters, gardeners, friends of parks groups, municipal leaders, and business people.

To pass another Environmental Bond Bill this year that incorporates a significant infusion of money for land protection and management, water quality, geographic information systems data, agriculture and more, we are asking you to join us. The NSRWA has signed on to a large coalition and we are asking our members to let their legislators know they support the environmental bond bill and specifically they support programs that support watershed protection on the South Shore. Thank you!

CITIZENS' RIGHT TO APPEAL PRESERVED!: In response to NSRWA and many other environmental groups, the Patrick administration backed off a controversial plan to curtail the ability of 10-resident groups to appeal certain wetlands decisions. The proposed provision would have stripped the right of any ten citizens residing in the community where a wetland was located to initiate an appeal of a state Department of Environmental Protection decision.

Environmental advocates including the NSRWA said the provision would limit civic engagement and was at odds with Gov. Patrick's campaign call for increased citizen involvement in government. The proposal was part of Governor Patrick's effort to speed up permitting "to the speed of business," but appeared to run counter to his campaign pledge to get citizens more involved in government.

HUMAROCK VILLAGE OVERLAY ZONING DISTRICT: NSRWA Executive Director Samantha Woods and board member Carolyn Sones have been involved in providing input on including protections for the South River as part of a proposed overlay zoning district in Humarock.

The zoning overlay calls for an increase in allowed residential density in portions of the business district in order to allow for redevelopment within this area. Humarock residents would like to see the business district revitalized and wish to provide financial incentives by allowing an increase in residential units over the existing business zone.

Obviously, any increase in development on this sensitive, floodprone, peninsula between the ocean and the South River is not ideal however until flood insurance is no longer subsidized there will continue to be more building on barrier beaches. Our goal is ensure that any building that is done will not further contribute to degrading the South River's water quality, indeed the zoning should require improvements in that area.

The NSRWA asked for increased treatment of stormwater and wastewater as part of the zoning change that would be more protective of water quality in the South River. We anticipate that the zoning change will be before Scituate Town Meeting this spring.

Want to get reminders about our events and issues?

Sign up for our Rivernet Email news. Send a blank email to RiverNet - subscribe@lists.nsrwa.org or go to our website at www.nsrwa.org and click on Rivernet.

Watershed Notes

SCITUATE HERRING BROOK 40B : The proposed 60-unit 40B located adjacent to the Herring River was denied by the Scituate Board of Appeals on November 9, 2007. The developer has appealed the ZBA's decision to the Mass. Housing Board. The Scituate Zoning Board of Appeals denied the permit for many reasons but the most relevant to the rivers and watershed was the unresolved wetlands delineations and flooding issues that the NSRWA had provided comments on in addition to a neighborhood group called Preserve Herring Brook.

We will continue to track both the state and local permitting process and provide updates. Still outstanding in terms of environmental permits are the Mass Environmental Policy Act and Conservation Commission permits. The NSRWA has commented on the need to remove the development from the floodplain, the need to clarify the wetland resource delineations, and the need for the development to improve the proposed stormwater treatment to include Low Impact Development techniques which reduce stormwater volume and treat and recharge stormwater more naturally (i.e. rain gardens, permeable pavers).

PROPOSED TARGET ROUTE 53 HANOVER: In response to comments that the NSRWA submitted during the permitting process, the developer of the proposed Washington Street Shopping Center, which will contain a Target, has been working with the NSRWA and the Town of Hanover to improve their proposed stormwater systems to increase recharge and treatment from the parking lots that are proposed for over 1200 vehicles.

As a result of our comments, the developer has made significant improvements to the stormwater treatment systems by proposing rain gardens (bioretention cells) in the parking medians and decreased the amount of paved surfaces. In addition the development is proposing to capture rainwater from the roof and use it for irrigation.

The development is located within the Third Herring Brook watershed and the recharge zone for the Town of Hanover and Norwell's drinking water wells. The NSRWA is very concerned that the large amount of paved surface proposed (18 acres) would have a deleterious impact on the water resources of our watershed. In addition, this is the first in a series of redevelopment that will most likely occur on the Rte 53 corridor and the NSRWA would like this to be an example for others to follow in terms of protection of water in this sensitive area.

WEYMOUTH NAVAL AIR STATION UPDATE: The state approved the Final Environmental Impact report for the Weymouth Naval Air Station allowing them to begin construction. The NSRWA, as part of the Watershed Action Alliance of Southeastern MA, commented on the report and met with the representatives for the developer to ensure that French Stream, a headwater tributary to the North River is adequately restored and protected. Lennar Partners—the developer of the project—has agreed to daylighting a portion of French stream that had been culverted to restore it to a more natural stream. In addition, wastewater discharges will be highly treated and discharged into the ground or reused for golf course irrigation. Low Impact development techniques are also proposed which include minimizing paved surfaces, recharging stormwater using water gardens, using roof runoff and wastewater for irrigation and the installation of water conservation fixtures.

SAVING LAND TO PROTECT WATER: As a result of our partnership with the Wildlands Trust, 12 more acres were preserved via conservation restrictions placed on two parcels in Marshfield recently. Working with the Open Space Committee and the Marshfield DPW, the Wildlands Trust helped to protect land important to drinking water supply, open space preservation, and the South River watershed.

- The 7-acre Davis property is located on the easterly side of Church Street within the aquifer recharge area of the Church and Ferry Street Wells. As such, protecting the property was critical to maintaining the quality and quantity of the Little Creek Aquifer.
- The 5-acre Logan/Fitzgerald parcel was purchased by the Town with Community Preservation Act Funds. It is located to the rear of Ferry Street within the South River Street Well recharge area and abuts the Bridle Path and a potential future well-head site. This property with its beautiful forests, have been identified as priority habitats by the state's Natural Heritage and Endangered Species Program.
- Another small parcel (0.179 acres) on Ocean Street in Marshfield was acquired this past fall using CPC funds. The parcel has the potential to provide a park-like area in an otherwise heavily developed "entrance" to downtown Marshfield. The

Watershed Notes

property is the first piece of an envisioned greenway along the South River and that section of Route 139.

These 3 successful projects are part of our on-going North and South Rivers Initiative, a partnership between the NSRWA and the Wildlands Trust, with generous financial support from the Sheehan Family Foundation has enabled us to work more effectively to protect land critical to protecting water.

SCITUATE BIKE PATH USES INNOVATIVE MATERIALS TO DECREASE STORMWATER: With funds, from a legislative earmark, a s. 319 grant and Community Preservation Act Committee, the Town of Scituate's Conservation Commission has built a 1.5 mile long bike trail from the MBTA's Greenbush Station. The trail includes a porous paver parking lot at the trail head (next to Dunkin Donuts on the Driftway), a bioretention cell that treats an existing storm water outfall, and 300 foot long section of porous asphalt (which will be used as a test of the surface for ridability). The trail is part of Scituate's North River Marsh/Coastal access plan. Come see this new project at our walk on Sunday April 27th - Discover Hidden Greenbush. See Page 15 or details.

WINNING PHOTO: The photo below of the mouth of the North and South Rivers by NSRWA member Peggy Roth Major received Honorable Mention in the 2007 National Natural Landmarks Photo Contest and is featured in the 2008 National Landmark Calendar. The calendar is available for free to those who contribute to the NSRWA annual appeal fund. Please consider making a donation!

Please give to the Annual River Fund at nsrwa.org

Protect.
Educate.
Restore.

Give . . . to the Environment.

photo by Peggy Roth Major © windyworldcreations.com

NSRWA Watershed Steward Profile: Joe Strazdes

The North River wouldn't be as beautiful or protected without the dedication of Joe Strazdes. For the past 28 years, Joe has patrolled the waters of the North River enforcing the North River Protective Order. In fact, Joe has been the one and only patrol officer since the act was passed back in 1979. Besides patrolling the North River almost every summer weekend, Joe has lived on the South River at 4th Cliff in Humarock since 1970, has recently retired from teaching high school Social Studies and coaching in Scituate, and is the Shellfish Warden for the Town of Scituate.

We recently caught up with Joe on the off season to ask him a few questions about how the rivers and the people on it have changed over the past 28 years.

NSRWA: 28 years is a long time to patrol a river - what is your most memorable time on the river as North River Patrol Officer?

Joe: About 3 or 4 years ago a kid jumping off of the Union Street Bridge fell head first into my boat, which resulted in a broken collar bone — luckily he hit the padded seat which broke his fall and the seat. He was a 17 year old Hanover resident. I radioed for help and he was treated but he was lucky he didn't break his neck. It certainly surprised me!

NSRWA: How did you become the Scituate Shellfish Warden?

Joe: Well that is kind of an ironic story. Back in the 1970s I got caught digging clams illegally off of Fourth Cliff. After being appropriately reprimanded I saw the light and I started working with the shellfish warden as the Assistant Shellfish Warden and later became head Shellfish Warden in 1980. Of course this was when you could still recreationally clam in the South River.

NSRWA: What do you like most about the rivers?

Joe: The natural beauty - on some parts of



Joe Strazdes on the river. Photo by Samantha Woods.

the rivers you don't feel like you are in the middle of suburbia, though some of the development is encroaching on the views. South River and North River are both so unique, they are really special places.

NSRWA: What is the most frequent violation of the North River Protective Order?

Joe: Property owners on the river cutting vegetation to obtain a view (though I only report that to the North River Commission — I don't have enforcement responsibilities) and boaters exceeding the speed limit which is no wake or 6 mph. I am empowered to enforce the speed limit.

NSRWA: How do most people respond to you when you let them know of their violation?

Joe: 99% are apologetic and comply, particularly when I explain the reason is to preserve the marshes. Sometimes newer boaters are unaware but most know the limit. Warnings are usually satisfactory. Repeat offenders are ticketed.

NSRWA: How has the North River changed in the past 28 years?

Joe: The increase in the number of docks, and many properties in Norwell that weren't developed 28 years ago now are. On the positive side the North River is a lot cleaner (free of trash) and the water quality is improving because of the NSRWA and North River Commission.

NSRWA: Why are you a member of the NSRWA?

Joe: Its goals and mission are noble, it has done a great job of cleaning up the rivers and I live on it!

NSRWA: Do you think the Protective Order has made a difference in the health and beauty of the North River?

Joe: Without a doubt, it would be much more developed than if the order wasn't in place. I still watch people speeding up the South River with little enforcement.

continued, next page

Profile: Joe Strazdes, continued from page 6

NSRWA: If you could change one thing about the Order what would it be?

Joe: Wouldn't open that can of worms - leave it the way it is. It works.

NSRWA: What do you think the most important issues facing the rivers are?

Joe: Population growth and development. We need to continue with the good work to balance development with protection of the resource. And we need to keep identifying sources of pollution and try to remediate as population grows.

NSRWA: What can people do to help the rivers?

Joe: Appreciate what you have and don't take it for granted. It is not a receptacle for waste.

Thank you Joe for all the years of service you have given to the North River and your commitment to the rivershed!

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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.

NSRWA EVENTS

River Adventures Camp - Sign Up Now!

River Adventures is a unique outdoor education experience co-sponsored by the NSRWA and the South Shore YMCA. In 2007 we hosted four 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 and ends at 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. Sara Grady, NSRWA and Mass Bays Watershed Ecologist, helped the group explore Cove Creek and taught them about salt marsh ecology. The group also explored the upper reaches of the river from Luddam's Ford in Hanover to the Crotch, where the headwaters of the North River meet. River Adventurers left camp having learned essential paddling skills and gained a better understanding of the natural environment of the rivers and our watershed.

Due to the overwhelming success of this year's River Adventures, we will be offering six



A happy river camper. Photo by Sara Grady.

one-week adventures for 2008. River Adventures is available to boys and girls grades 6–8. The cost is \$320 per camper for each 1-week session. The six sessions for 2008 are:

- July 7-11
- July 14-18
- July 21-25
- July 28-August 1
- August 4-8
- August 11-15

For the past two years River Adventures has filled within an hour of open registration. NSRWA members will have the first opportunity to register. Registration forms are available at the NSRWA office. Registration will open to YMCA members in Mid February, therefore NSRWA members must register prior to February 8th, 2008 to be assured a space. Kayaking equipment is provided.

Meet Our New Board Members

Craig Hannafin - Norwell

After 15 years in the financial services industry in Manhattan, Craig and her husband moved to a small rural village in southeastern Pennsylvania. While there she served on and then chaired the township's Environmental Advisory Council, an advisory body to the Board of Supervisors and Planning Commission. The Council's purview included open space preservation, water quality and stream protection, storm water management, and agricultural and historic preservation. While in Pennsylvania, Craig also served as a board member of the newly formed West Vincent Land Trust. She came to Norwell in 2001, and had the good fortune to buy her home from Paula Christie, the NSRWA's Assistant Director, which not only gave her a view of the North River but also introduced her to the NSRWA. Craig is an avid gardener, and currently serves as the President of the Perennial Gardeners of the South Shore. Craig believes that good water and land stewardship are vital to the quality of life we have the privilege of enjoying, and we have a responsibility to work to preserve this for all who will follow.



Lenore White - Duxbury

Lenore White is a Duxbury resident, a longtime member of the NSRWA and is the founder of Wetland Strategies, Inc. Lenore is a Professional Wetland Scientist and has appeared and testified as an expert witness before U. S. District Court in Boston. Prior to beginning her own company, Lenore worked for over 20 years with the Massachusetts Department of Environmental Protection as a Senior Wetlands staff member. During her tenure with DEP, she was responsible for the administration and enforcement of the Massachusetts Wetlands Protection Act, coordinating DEP activities with local, state and federal agencies. In 1996, she was appointed the River Action Team leader in the Southeast Region, where she facilitated and presented technical outreach sessions for municipalities and watershed associations. Lenore's board membership, technical expertise regarding wetlands issues and passion for the rivers will serve the organization well.



Andrew T. Hebert - Pembroke

Andy Hebert lives in Pembroke and for the past 9 1/2 years has been employed by Sanofi-Aventis pharmaceuticals in drug discovery. Andy also has 15 years of experience as a marine biologist for the National Marine Fisheries Service involved in pollution research on the eastern seaboard, concentrated around Georges Banks and the coastal waters off of New York and New Jersey. Andy has a Bachelors degree in Biology and a Masters degree in Computer Science. You might see Andy paddling the upper reaches of the North River as he tries to get on the rivers at least once a weekend from early spring into late fall. Andy has come to realize the importance and appreciate the fragile beauty of the watershed areas of not only the North River, South River and Herring River but of the surrounding communities. Andy has been a member of the NSRWA for the past 4 years and has come to appreciate the hard work of its members and their many outstanding accomplishments and is proud to become a member of the NSRWA board.



Robert "Buck" Hayes - Marshfield

Robert "Buck" Hayes lives on Damon's Point. He and his wife Jane have been members of the Marshfield Hills community since 1998 when they moved from Uxbridge. Since moving here they have been members of the NSRWA, the Audubon Society and the North River Arts Society. Buck is not from around here as evidenced by the number of Rs he puts on words that end in R. Buck was born in Cincinnati, grew up in Michigan and has since lived in many places due to job transfers. For the past 32+ years, Buck has worked for Gannett Co., Inc., a major media company (mostly daily newspapers and TV stations). For the last nearly 20 years his primary responsibility has been producing USA TODAY for the New England area as general manager of the production facility in Norwood, MA. Since moving to Damon's Point, Buck and Jane spend as much time as possible on the river, either by power boat, kayak or dinghy. More often than not he bumps into Mark Norton, a longstanding NSRWA board member, at Damon's Point pier. It was Mark who approached Buck about becoming a board member. Buck brings to the board many years of management experience at various levels and more importantly, a love for the river. Buck believes this is an opportunity to give something back and to preserve and improve the quality of these natural wonders.



NSRWA 2007 Annual Meeting

The NSRWA's 37th Annual Meeting began with a wine & cheese reception, followed by as a business meeting to elect directors, award presentations and a new twist to the Annual Meeting, a game of "Rivershed Jeopardy."

We are pleased to have four great additions to the board and are looking forward to their contributions to moving the NSRWA forward. To learn more about these dedicated individuals read their biographies on page 8.

The Volunteer of the Year Award was presented to Austine Frawley, who was co-chairperson of the extremely successful 2005 and 2007 NSRWA benefit auctions. Austine was instrumental in helping the NSRWA raise almost \$50,000 at these two fundraisers. We cannot thank her enough for her efforts. The Barbara Pearson Memorial

Award was given to the Pembroke Watershed Association in recognition of their work to protect the Pembroke Ponds that are part of the headwaters of the North River. A special recognition award was given to Attorney Gary Thomas, long time board member, for his pro-bono legal services in the appeal of the Rockland Wastewater Plant discharge permit.

This year, instead of a feature speaker, NSRWA President, Doug Lowry, wanted to shake things up and test the audience's watershed knowledge with a NSRWA version of *Jeopardy*. Three teams were formed, competing against each other and responding to answers in question form from five different Rivershed categories. There was a panel of "expert" judges, including Don Salvatore, Ellyn Einhorn, Samantha Woods, and Sara Grady. Each contributed to the fun by expounding upon a particular watershed fact during

our version of *The Daily Double* - the Double Dose. The interactive game was engaging, fun and educational. Everyone went home knowing more about our local watershed and had fun learning. And of

course, they took home some lovely parting gifts!

Special thanks to Trader Joe's for donating food for the reception.

by Paula Christie



Volunteer of the Year Austine Frawley with Paula Christie. Photo by Samantha Woods.



The Pembroke Watershed Association receives the Barbara Pearson Memorial Award. Photo by Paula Christie.



The Rivershed Jeopardy Team mulls over their answer. Photo by Paula Christie.

Balancing Water Supply and Fisheries in the First Herring Brook

The restoration of herring to First Herring Brook in Scituate has been an important mission for the NSRWA and First Herring Brook Watershed Initiative for many years. Unfortunately no herring have been seen using the fish ladders at the two impoundments — Old Oaken Bucket Pond and the Reservoir — for many years. It is believed that one of the reasons that the fish no longer return to this brook is the way water is managed for water supply—no water is allowed out during the fall or outmigration season for the juvenile herring returning to sea. In addition to the lack of water during this critical time in the fish's life, another concern is the quality of the habitat within the impoundments, where the herring would spawn, if they could make it upstream. There are two main water bodies in the First Herring Brook system where spawning could occur — Old Oaken Bucket Pond (visible at the new traffic circle, by the water department) and the Reservoir (crossed by 3A).

This summer we surveyed Old Oaken Bucket Pond and the Reservoir with Margaret Kearns and Jo Carey from Mass. Riverways and Brad Chase from Mass. Division of Marine Fisheries. We tested temperature, conductivity, turbidity (i.e. how cloudy the water was), dissolved oxygen, and pH at a shallow and deep site in each water body. We also examined habitat quality by taking bottom grabs of the sediment within the impoundments.

Old Oaken Bucket Pond

Old Oaken Bucket Pond was shallow, and had a lot of algae in June and July, with the algae dying off in August. The bottom had a lot of organic muck, which increased after the algal die-off. Dissolved oxygen in the pond was generally good (above 5 mg/L) except in the deeper water of the pond, where it approached hypoxic (< 2 mg/L)



The reservoir on First Herring Brook in Scituate. Photo by Samantha Woods.

conditions in July and August. Secchi depth (a measure of water clarity) was about half a meter in June, July and August, indicating low visibility. The pond cleared up in September, when Secchi depth increased to ~1m. The water was warmest in July (22°C at 1m, 23°C at the surface) and coolest in September (~16°C at the surface and 1m). pH, usually a concern in the pond because it tends to be a little low (it should be above 5.8), ranged from 6.18 (at the “deep” site at 1m in August) to 7.60 (at the surface of the shallow site in August), better than expected.

The Reservoir

In June the Reservoir was relatively deep, and had quite a bit of high quality habitat, including some nice gravel/cobble areas at the edges. Unfortunately the lack of rain during the summer caused the reservoir to dry out and the high quality habitat was no

longer underwater but left “high and dry.” The water that remained in the reservoir was very turbid. We observed more than 50 Canada geese feeding in the Reservoir and most likely contributing additional nutrients to the already stressed system. That said, where we could test it, dissolved oxygen was good, with the lowest measurement (5.12 mg/L) in July, 2m deep. The water was warmest in July (24°C at 2m, 26°C at the surface). The lowest pH measurement was taken in July at 2m (6.5), while the highest was 8.8, very rare in this system and possibly due to increased ammonia concentration.

RIFLS Restoration Grant

If the summer 2007 drought was a rare occurrence, the Reservoir could be good habitat for the fish that we would like to restore

continued, page 11

Balancing Water Supply and Fisheries in the First Herring Brook, continued from page 10

to the system, and they may also find pockets of Old Oaken Bucket and the segment of First Herring Brook connecting the two water bodies to spawn in as well. The next step will be to assess how enough water can be provided for the First Herring Brook's ecological needs while still meeting the town's water needs. The NSRWA in cooperation with the Scituate Water Resources Committee has applied for a RIFLS (River Instream Flow Stewards) Restoration Grant from Mass. Riverways that would fund modeling of the way water cycles within the First Herring Brook system, and how different inputs and outputs could be changed to provide enough water for both the people and fish of Scituate.

*by Sara Grady, PhD,
Mass Bays South Shore/NSRWA
Watershed Ecologist*

MASS BAYS PROGRAM

Are We Drugging Our Water?

You probably don't think about this kind of pollution very often, but whenever you take a pill, the medicine doesn't all get used by your body and is excreted, ending up in either your septic tank or town wastewater treatment plant. The same thing occurs when you use antibacterial soap or rinse bug spray or other products off yourself — it enters the waste stream and can have ecological effects when it reaches local surface and groundwater.

Some of the most prominent ecological effects come from endocrine disrupting compounds like estrogen and similar chemicals. In one stream in Colorado, concentrations of an estrogen compound were <0.8 nanograms per liter (ng/L) above a wastewater treatment plant and 2.9 ng/L below the plant. As a result, the sex ratio was skewed downstream of the plant (many more females than males) and there were also "intersex" fish (males with ovaries). In another study, males exposed to concentrations of estrogen-like compounds (around 10 ng/L) in lab tests show a ~40,000-fold increase in liver activity with regard to the creation of vitellogenin, a protein used to make egg yolk (not needed by males).

Research is currently being done to evaluate how these chemicals can be removed at different stages of the waste stream. First of all, there needs to be a greater public understanding of the impacts of improper disposal of medicines (i.e. don't flush them down the toilet). A few communities in the US are spearheading pilot programs to collect unused medication and dispose of it properly. In a program in Maine, officials collected medications at 4 locations over the course of 4 hours collected 420 pounds of medication, including 5,500 pills of controlled substances.

This all sounds very alarming, but don't stop taking your medicine or taking a shower for fear of the effect it may have

downstream. As we gain a better understanding of the effects of personal care products and pharmaceuticals (PCPPs) and how they can be avoided or prevented, treatment of waste will likely improve. Until then, there are also viable alternatives to many of these chemicals or ways to dispose of them so they will not reach our lakes, streams, and ocean.

To find out more about this subject please attend our March 12th WaterWatch Lecture this year!

Interesting Facts

- Sludge contains the most hydrophobic (i.e. not soluble in water) and difficult to manage compounds and contains concentrations of PPCPs 1000X greater than the influent water.
- Caffeine is an excellent tracer of wastewater despite being 95% removed during the wastewater treatment process because the load (amount of caffeine coming into the system) is so high.
- Antidepressants can be detected in water, sediment, and fish tissue adjacent to wastewater treatment plants.
- Caffeine and analgesics (especially acetaminophen [Tylenol]) are present in most drinking water at very low concentrations (1 ng/L order of magnitude)
- Some of the best treatment for PPCPs occurs in Title 5 septic systems, due to the long processing time and exposure to a large amount of soil for a given quantity of waste.

- From 1993 to 2006, the US population has increased 14% but prescriptions have increased 71%. Americans average 118 prescriptions a year.

Credit: Talks given by Halden, Furlong, Schultz, Standley, Notch, Zimmerman, Pistel at the NEIWPC Conference August 8th and 9th, 2007, Portland, ME.

*by Sara Grady, PhD,
Mass Bays South Shore/NSRWA
Watershed Ecologist*



The Sounds of Nature

Ah, how I love the sounds of the woods. There is as much to hear in nature as there is to see. Often more. Try sitting in the woods with eyes closed and listen. Many creatures will become visible to your ears that are hidden from sight. You can track the passing seasons as easily by the sounds you hear as by the temperature of the air or the position of the sun.

Over the years, I have come to associate certain sounds with each season.

Winter is the time of quiet. The wind whispering in the pines or a family of chickadees keeping in touch might be the only sounds I hear until the peepers and wood frogs announce the coming of warmer weather.

Next are the birds, ushering in the spring with their love songs. As the summer heats up, the birds give way to the cicadas. Their loud buzzing high in the trees is a sure sign of a hot day approaching.

Fall is for the night insects. With a background chorus of crickets, the katydids fill the night with their song. Ka-ty, Ka-ty-did, clunk, Ka-ty, Ka-ty, Ka-ty-did, clunk.

Wait a minute. What was that sound. The one I didn't recognize. That "clunk" sound. Sounds like someone throwing a rock against a tree.

Not a rock, but an acorn. Acorns are falling in record numbers. Must be a mast year.

Mast is defined as, "the nuts of the oak or beech tree, or any other forest tree." A mast year is any year that these trees produce large numbers of nuts. For the oak trees, this happens every two to five years. In the in-between years, very few, if any nuts are produced. Scientists have noticed that many trees synchronize their mast



years. This includes many species of trees over large geographical regions, like all of New England and into Canada. How the trees coordinate this and why is up for debate.

There appear to be two schools of thought as to how trees mast in the same year. The first is climate. Trees will produce large amounts of nuts only when the weather is favorable. This of course can affect trees over a wide area. The second is genetics. There is a genetic clock in the DNA of trees telling them when to mast.

Whichever it is, and I suspect it's some of both, what advantage do the trees gain from masting? Of course there is a favorite theory. One that seems perfectly obvious and therefore must be true. But while there is much evidence for this favorite theory, there is also some evidence against it. Be that as it may, can you guess the favorite theory? What possible advantage could trees gain by masting?

Nuts are the seeds of many trees. For the species to survive, at least a few of the nuts must grow into trees. But nuts are in high demand as food by many animals. These include turkeys, blue jays, mice, squirrels, deer and many others. The population of these animals is limited by the food available. If the trees produce few nuts for a number of years, the animal populations will be small. If, however, after 5 years of few nuts, the trees were to produce an overabundance of nuts, the predators would not be able to eat them all and there would be a better chance of some surviving to grow into trees. Of course, the population of animals would rise that year because of the large food supply, but with a poor crop the next year, their numbers would die back again.

The problem with masting is that for it to be effective, many species of trees must mast at the same time. If they mast in different years, there will always be some food available for the predators, thereby conferring no advantage to the trees from masting.

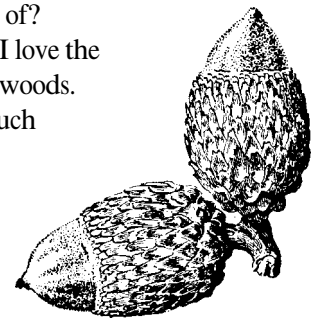
Any event in nature has far-reaching, and sometimes quite unexpected consequences. And so it is that the mast year affects us humans in many ways. It has been shown that the mast year has an indirect effect on gypsy moths and Lyme disease - two large concerns of humans.

In a mast year, with an abundance of food available for young mice, the mouse population soars. Since mice are one of the major predators of gypsy moths - feeding on the moth pupa- gypsy moth infestations are smaller during a mast year. In fact, some scientists think that this is the main cause of gypsy moth population crashes.

Deer ticks spread Lyme disease. Adult deer ticks feed primarily on deer. During an oak mast year, deer will migrate into oak forests in the fall to feed. After the ticks have fed, they fall to the floor of the oak forest, and lay their eggs the next spring. The eggs hatch in the late summer and the larvae feed on mice. If these mice have the bacteria for Lyme disease, then the larval ticks become infected when they feed. Once they have fed, the larvae overwinter and in the late spring molt into juvenile ticks. This is the stage that mostly infects people. Therefore, two years after a mast year, an oak forest is likely to have a greater abundance of the juvenile deer ticks, the most infective stage for Lyme disease.

The clunking of acorns is the sound of a mast year. It is also the sound of gypsy moths being eaten and deer ticks on the prowl. Who knows what else it is the sound of?

Ah, how I love the sounds of the woods. There is as much to hear in nature as there is to see. Often more.



by Don Salvatore



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 16 – March 19, 2008.

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

Water Watch Forum Lecture Series 2008

January 16 – March 19
Wednesdays at 7 pm

at the South Shore Natural Science Center

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JANUARY 16 - Leviathan: The History of Whaling in America • Dr. Eric Jay Dolin, Author

Recently awarded by Amazon.com to be one of the top ten history books of 2007, you won't want to miss this first lecture featuring the book *Leviathan*, an epic history of the rise and fall of whaling in North America. Historical sources, archival photographs and paintings, and individual stories of whale men and whales bring to life 300 years of whaling. *Leviathan* provides a fascinating view of this lucrative yet brutal industry that shaped American culture, economy and fortunes. A book-signing follows. Dr. Dolin will also have available for purchase his previous book *Political Waters: The Long, Dirty, Contentious, Incredibly Expensive but Eventually Triumphant History of Boston Harbor*.

JANUARY 23 - What's The Buzz • Howard Scott, Beekeeper and Author

What do Alexander the Great, Aristotle and Benjamin Franklin all have in common? They each were avid apiarists or commonly known as beekeepers! Join Howard Scott, author of *Bee Lessons*, a frequent contributor to *American Bee Journal* and a 25-year beekeeper to learn more about these fascinating creatures upon whom our very survival depends. Mr. Scott will discuss a year in the life of a beehive and provide insights on some of the current theories regarding Colony Collapse Disorder and declining bee populations.

JANUARY 30 - The Great Hurricane of 1938: A 70-Year History •

John Horrigan, Historical Folklorist

The surprise hurricane of September 21, 1938 devastated Long Island, Connecticut, Rhode Island and Western Massachusetts. Many victims drowned while others partied. Entire landscapes in Rhode Island were scoured and decimated. Some were swept out to sea and never seen again. There were unbelievable acts of heroism, cowardice, kindness and selfishness. Actress Katherine Hepburn lost her family home in Connecticut as others lost their livelihood and shelter to storm surge. 70 years later, New England folklorist John Horrigan takes you from the unheeded warnings through the botched forecasts to the unmarked graves with a driving narrative about "GH38".

FEBRUARY 6 - Ground Fishing, the Fisheries You Thought You Knew •

Frank Mirarchi, Fishing Boat Captain

Cod and haddock are icons of New England and Canada's Maritime Provinces. The lure of their abundance drew fishermen westward a century or more before the first colonists, because they were a stable and predictable source of food and wealth. By the 1960s the bedrock reliability of groundfish had begun to falter. As the lights of foreign flag factory trawlers became visible from Cape Cod beaches a political clamor grew, cresting in Washington where in 1976 Congress passed a landmark 200 mile fishing limit. Quickly, however American vessels replaced the Soviets and overfishing resumed. New Englanders still struggle to balance the recovery of overfished stocks with the economic needs of the fishing industry. Has there been any success? Can we restore sustainable and economically productive fisheries? The answer appears to be "yes," but the complex politics of fishery management are making solutions elusive.

FEBRUARY 13 - Bug Invasions! • Joe Francese, USDA Entomologist

Our trees are under attack on many different fronts, one of which is from invading insects. Join Joseph Francese, an entomologist with the USDA, for an inside view on several unwelcome invasive forest insect pests that currently attack or have the potential to attack and kill trees here in the northeast U.S. Learn more about the well-known gypsy and winter moths, as well as some lesser known insects like the Sirex (a wasp that kills pine trees), Emerald Ash Borer, and Asian Longhorn Beetle. Mr. Francese will recount fascinating and little known tales of how they got here, what is being done to prevent future arrivals, and detect invasive pests once they are here.

FEBRUARY 20 - Current Trends and Future Impacts of Global Warming to New England • Dr. Stephen Nodvin, Climate Messenger

In recent years it seems that spring has been arriving earlier and fall leaving later in New England. Those flowers that are blooming so early in the spring and staying so late into the fall in our gardens: is this just a fluke or part of a long-term trend? And what can we expect for the future of climate in New England? Dr. Stephen Nodvin, Head of the Department of Applied Mathematics and Science at Wentworth Institute of Technology, will review findings of recent studies documenting climate change trends in Massachusetts and New England. Dr. Nodvin, who is working with groups including the Union of Concerned Scientists and Al Gore's Climate Project, will also discuss scientific projections for potential future climate regimes for our region as well as actions people can take to help slow the pace of global warming to help minimize the risk of future climate catastrophes.

FEBRUARY 27 - The World is Your Oyster: Oyster Farming in Duxbury Bay •

Alex Mansfield and John Brawley, Duxbury Bay Aquaculture Farmers

If oyster tasting has become like wine tasting then Duxbury Bay is the new Napa Valley. Duxbury Bay oysters are sought by the finest of restaurants for their sweet plump juicy goodness. Come find out the ins and outs of oyster aquaculture, how oyster farming began in Duxbury Bay, and how oysters are contributing to a healthier bay. You might even get lucky and get a sample—Pass the cocktail sauce!

MARCH 5 - Fatal Forecast • Michael Tougias, Author

Author Michael Tougias will talk about one of the most remarkable survival stories ever recorded that was the subject of his book *Fatal Forecast*. During the program, Tougias will chronicle how in November of 1980, two fishing vessels, the *Fair Wind* and the *Sea Fever*, set out from Cape Cod to catch offshore lobsters at Georges Bank. The National Weather Service had forecast typical fall weather in the area for the next three days—even though the organization knew that its only weather buoy at Georges Bank was malfunctioning. Soon after the boats reached the fishing ground, they were hit with hurricane force winds and massive, sixty-foot waves that battered the boats for hours. The captains and crews struggled heroically to keep their vessels afloat in the unrelenting storm. Tougias will describe the struggle at sea as a hurricane strikes and the resulting court case against the National Weather Service.

MARCH 12 - Is Your Water Drugged? Personal Care Products and Pharmaceuticals in Our Water • Marc Zimmerman, US Geological Service (USGS) Scientist

Developed to promote human health and well-being, certain pharmaceuticals are now attracting attention as a potentially new class of water pollutants. Such drugs as antibiotics, anti-depressants, birth control pills, seizure medication, cancer treatments, pain killers, tranquilizers and cholesterol-lowering compounds have been detected in varied water sources. Along with pharmaceuticals, personal care products also are showing up in water. Generally these chemicals are the active ingredients or preservatives in cosmetics, toiletries or fragrances. What risk does chronic exposure to trace concentrations of pharmaceuticals pose to humans or wildlife? Join Marc Zimmerman, a researcher with the United States Geological Survey, to learn more about this emerging research on this issue.

MARCH 19 - Finding the First Minot's Ledge Lighthouse •

Victor Mastone, Underwater Archaeologist

The sea doesn't give up its secrets easily and documenting history underwater presents its own challenges. Join Victor Mastone as he recounts a recent archaeological survey dive in search of the remnants of the original Minot's Ledge Lighthouse that collapsed into the sea in 1851, only one year after its construction. Using a remote operated vehicle and divers, the project's mission is to use the information to nominate the site to the National Register of Historic Places. Victor Mastone is the Director and Chief Archaeologist of the Massachusetts Board of Underwater Archaeological Resources (BUAR).

To register
contact Paula Christie
at paula@nsrwa.org
or
781-659-8168.

NSRWA's Winter 2008 Events

Rivershed Outdoor Skills Workshop Series

The NSRWA is partnering with the Marshfield Recreation Department and Billington Sea Kayak to offer a series of hands on workshops covering a variety of outdoor skills. Series offerings will include: Nature Digital Photography, Outdoor Cooking, Small Craft Navigation, Buying your First Kayak or Canoe, Basic Kayaking Skills, Fishing from Kayaks, Knots, Star Gazing, Trip Leading, Expedition Planning, Introduction to Bird Watching, Exploring the Trails and Properties of the Rivershed and others. *Look for a complete list and registration information in mid-January at www.nsrwa.org, www.townofmarshfield.org, click on recreation programs or go to www.billingtonseakayak.com.*

Sounds of Spring

Wednesday, March 26 at 6 pm

Birds and amphibians will begin to announce the coming spring season. Join naturalist Elyn Einhorn at the end of the day, for an early evening walk to experience the sounds and some interesting sightings of the season. This is the time when wood frogs and spring peepers are calling to attract mates and woodcocks are involved in their courtship displays. Bring binoculars and dress for cool & possibly damp conditions. Warm beverage and snack provided.

Pre-registration is required - contact the NSRWA at (781)-659-8168 or email paula@nsrwa.org. Suggested donation is \$5.

Meet at Webster's Wilderness/Cherry Hill Thicket - located in the parking lot behind the Marshfield Senior Center located at 230 Webster St. Marshfield.

Valentine's Day Owl Prowl

Thursday, February 14 • 4:30-6:30 pm

Join naturalist Elyn Einhorn on the search for owls. This is the time that Great Horned and Eastern Screech owls get together as pairs to set up a nesting territory and mate. Good communication is key for any relationship, and owls do a lot of that! We hope to hear the owls as well as see them. Dress in warm clothing from head to toe and bring binoculars. The prowl begins at Mass Audubon's Daniel Webster Wildlife Sanctuary. We may visit two other locations. Hot chocolate will be provided. *Pre-registration is required as space is limited to 12 people. Contact the NSRWA at (781)-659-8168 or email paula@nsrwa.org. Suggested donation is \$5.*

Signs of Life in Late Winter

Saturday, March 1st • 1-4 pm

Join renowned teacher/naturalist Elyn Einhorn and NSRWA president Doug Lowry on a late winter walk at the Wildlands Trust's property Willow Brook Farm Preserve in Pembroke. Willow Brook is a tributary to the Herring Brook - headwater to the North River. We will look for animal tracks, foraging birds, early buds and other possible signs of Spring's imminent return. The property consists of open fields, wooded trails, streams and marsh and offers lots for an afternoon or morning of exploration. We will finish with hot cocoa and a treat. Come dressed for the weather conditions. *Pre-registration is required - contact the NSRWA at (781)-659-8168 or email paula@nsrwa.org. Suggested donation is \$5.*

The Willow Brook Farm parking lot is located off route 14 in Pembroke. From Route 53 South, take right on Route 14 West traveling 1/2 mile to preserve entrance on the right.

Discover Hidden Greenbush

Sunday, April 27th at 11 am

New sidewalks, walking trails, and bike paths have made some hidden gems of the Greenbush area more accessible. Join Carolyn Sones, NSRWA Board Member, on a walking adventure to explore this historical, and recreational, and diverse natural area. Meet at the Driftway Conservation Park and Boat Ramp (across from the Widow's Walk Golf Course in Scituate). *The program is limited to 20 participants. Pre-registration is required - contact the NSRWA at (781)-659-8168 or email paula@nsrwa.org. Suggested donation is \$5.*

NSRWA's Winter 2008 Events

Rockland Federal Credit Union Supports 2008 WaterWatch Lecture Series



Kathy Bartlett, Branch Manager and Mark Skalla, Rockland Federal Credit Union CFO, present sponsorship check for the 2008 Water Watch Lecture Series

Generous sponsorship for the 2008 WaterWatch Lecture Series was provided by the Rockland Federal Credit Union. The financial support of the provide allow us to provide a stipend to our speakers when needed, offsets some of the costs of running the program and help us to continue to provide it free to the public. See pages 14-15 for details.

Thank you Rockland Federal Credit Union!

Don't Miss

NSRWA's 6th Annual Kayak Expo

*Saturday, March 29th • 10 am - 4 pm
Norwell Middle School
328 Main Street (Route 123) Norwell*

15,000 Sq. Feet of Displays! All the areas major dealers and builders of kayaks & accessories will be at the Expo with the newest equipment for everyone from beginner to expert. These professionals will be pleased to answer your questions about the right boat and gear for you. This is a great opportunity to learn how to get started in kayaking and with the right equipment and instruction for all ages.

The Expo will feature kayaking experts presenting lectures and slide shows about paddling adventures, and instructional interactive workshops to participate in. Kayaking clubs and educators will be on hand to discuss upcoming paddling trips, and lessons. Boat building programs will have beautiful hand built wooden kayaks on display.

This year we will be expanding the focus on rowing with the addition of several fine recreational boats in both the fixed seat and sliding seat categories.

Whether you are interested in getting started in the sport, a novice or an experienced paddler, there will be something for everyone at the KAYAK EXPO.



RiverWatch

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