

RiverWatch

THE NORTH AND SOUTH RIVERS WATERSHED ASSOCIATION, INC.
Protecting And Restoring The Rivers Since 1970



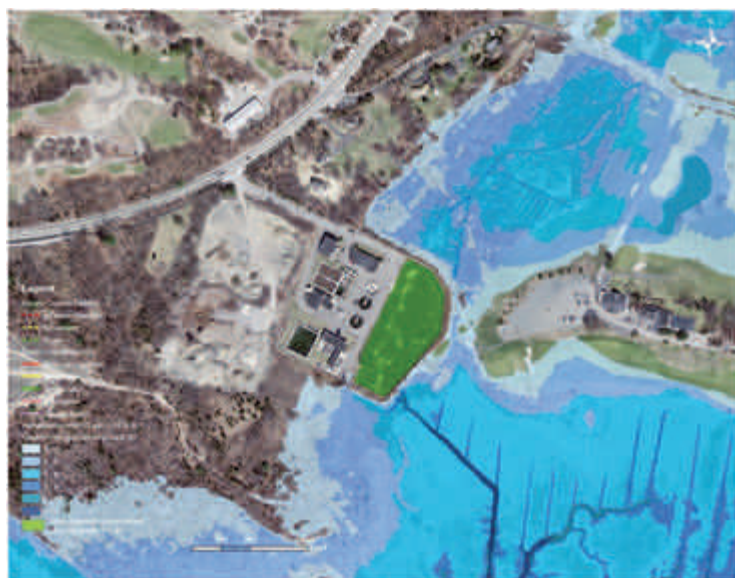
25 and 75 years projections of sea level rise at Central Avenue, Humarock, Scituate 2038 and 2088 with Sea Level Rise of 1.08 ft and 5.16 feet. 2013 Sea Level Rise Study Towns of Marshfield, Scituate and Duxbury, by Kleinfelder Associates. The full report can be downloaded from each of the town's websites.

Adapting to Climate Change NSRWA's 3-Part Strategy of Scientific Monitoring, Public Education, and Local Adaptation

Climate change is real, and a challenge to us all. Rising sea levels and changing precipitation patterns pose a larger challenge for those of us living near water, including near our North and South Rivers.

Climate change impacts in watersheds include changes in precipitation and temperature, floods, and droughts. Climate change issues will compound existing stresses such as population growth, development, habitat fragmentation, degraded water quality, and increasing demand for water.

Our Association's latest 5 Year Strategic Plan focuses on climate change adaptation as a key strategic goal. Our work will be focused on three program areas: Scientific monitoring, to get the best information possible about what is happening to our watershed and what will be its impacts; public education, to assure that people understand what is happening; and local adaptation, to help landowners and municipalities minimize adverse impacts.



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75 year projections of sea level rise at Scituate Wastewater Treatment plant

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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Letter from the President



Last month, we celebrated yet another annual meeting at the South Shore Natural Science Center. It was one of the best yet, as we had a chance to honor two champions of the river: Kathy Harrington, as Volunteer of the Year, while the Barbara Pearson Award went to Gary Thomas.

Many of you probably know Kathy. She's out there with net or notebook, counting herring or undertaking some other task that gets her outside rain or shine and connects her to our natural world. Kathy will tell you that it is a privilege to be out there in the mosquitoes and muck, and her attitude is contagious.

Many of you will know Gary as well, from his years serving the North River Commission or his earlier days teaming up with Damon Reed, Dan Jones, and others to take on the Town of Scituate and stop the dumping of sewage overflow into the Herring River.

Gary, Damon, and Dan reminisced at the annual meeting about the sheer fierce enthusiasm and fun they brought to the task of saving the river. The campaign went on for years, ending in a lawsuit and a victory, and it served as the genesis of the NSRWA of today. The strength of their enduring friendships were evident for all to see.

In that meeting as well, we said goodbye to Craig Hannafin as our outgoing President (not to worry though, she's still on the Board), and recognized the extraordinary skill and leadership she has brought to the organization in recent years.

So, now it's my turn to take the reins, and I do such with anticipation. I love the rivers. I love rowing on them all seasons of the year, and the extraordinary surprises they offer me. I worship the return of the herring in the spring, and the striped bass that follow (I hate the no-see-ums that come too). I am amused by the chipmunk that swims across the river at Kings landing, surprised by the mink that follows my shell as I draft past Rocky Reach, and grateful for the deer that swims across my path up by the Stone Bridge.

The rivers are different with every day, every tide, every season. And they would be nowhere near as beautiful or serene if it were not for the work of the Craig Hannafins, the Kathy Harringtons, the Garys, the Damons and the Dans, and hundreds of volunteers over the past decades. So as I humbly slide into the seat vacated by Craig, I know without a doubt that I sit on the shoulders of giants.

Sincerely,

Peter Kelly-Detwiler
Board President

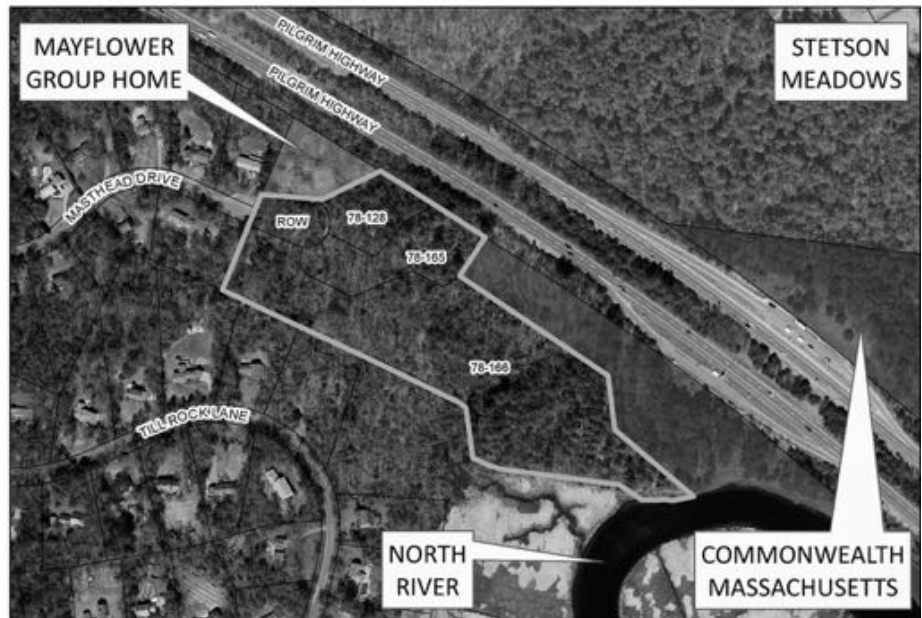
Town of Norwell Protects 11.34 Acres on North River!

Thank you to Norwell voters who voted to protect this new potential access point on the North River!

Brook Trout Found in Tributaries to Third Herring Brook and Indian Head River

Native Eastern Brook Trout are important indicators of stream health as they are sensitive to pollution and temperature changes. Unfortunately their populations are greatly diminished but our efforts to restore river connectivity through dam and culvert removals will benefit their populations.

This past fall we partnered with Trout Unlimited and Dept of Fish and Wildlife to document if any native populations of Eastern Brook Trout remained. In our watershed we found Brook Trout in three locations - two tributaries to the Third Herring Brook both upstream and downstream of the Tack Factory Pond dam and one to the Indian Head River – the Iron Mine Brook where we hope to remove a culvert blocking their passage.



Map of land on Masthead Lane in Norwell for access to North River recently voted to be acquired.

November 1st Shellfish Bed Opening Draws a Crowd!

The NSRWA celebrated the opening of the shellfish beds a month earlier than last year by taking two boatloads of people out to dig soft shell clams! Thank you to John Zarrella of North River Marina and Russell Clark of Humarock Mooring Service for volunteering to transport us.



NSRWA 43rd Annual Meeting Celebrates Gary Thomas and Kathy Harrington



Dan Jones gives Gary Thomas (2013 Barbara Pearson Memorial Awardee) clams dug from the river with Bill Stanton and Damon Reed.



Kathy Harrington receives Volunteer of the Year Award at 2013 Annual Meeting

Adapting to Climate Change

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Scientific Monitoring

The credibility of our long-term, science based monitoring of many aspects of the watershed makes us uniquely positioned to assist landowners and municipalities in designing their adaptation strategies to minimize adverse impacts.

The data we are collecting for assessing and restoring the health of our rivers can serve multiple purposes. For example, our herring count data, which includes when the first fish appear, water temperature, and streamflows, when viewed over time, can provide insight to changes in timing of migration and precipitation patterns. Our 2010 inventory of the size and condition of culverts and dams in our watershed can be used both to improve our watershed now and to assess vulnerability to climate change due to increases in intense precipitation events.

Changes in the marsh vegetation zonation can be an indicator of sea level rise. In 2001 six salt marsh sampling sites were established in the North and South Rivers. This year we intend to revisit these sites and assess if changes have occurred in the salt marsh vegetation over the last decade. Our scientific monitoring of these systems will help to determine what trajectory these systems are on and how sea level rise and other climate change impacts are impacting our 3,000+ acres of salt marshes.

Public Education

Providing education for people at the local level on how climate change may impact their lives and our local environment is critical for adapting to a changing climate. Education, public forums, and support for grants that allow communities to examine how climate change will impact existing infrastructure are all part of our strategy to help people and our landscape adapt to a changing climate.

In 2014 we are co-sponsoring a lecture series entitled "Climate Change in Your Backyard" with the Massachusetts Bays Program and the Jones River Watershed Association (see page 5 for details). Look for notices also in your email this February for a screening of the movie "Chasing Ice" at the Mill Wharf in Scituate and Cameo Cinemas in Weymouth.

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Mass Bays Estuary Program Partnership:

The Foundation of NSRWA's Scientific Capability

The EPA's National Estuary Program was formed in 1987 under the Clean Water Act to address problems facing estuaries in our nation. In 1990 Massachusetts Bay was designated a National Estuary. The Mass Bays program (MBP) area stretches from the New Hampshire border to the tip of Cape Cod, including 50 coastal communities that are home to over 1.7 million people. Because of its large size and geographic diversity, the MBP area is divided into sub-regions that are served by regional coordinators working to address coastal planning needs at the local level.

The Association has been host to the South Shore Regional Coordinator for the Massachusetts Bays National Estuary Program since 2001. Sara Grady is the MBP South Shore Regional Coordinator, and is the Watershed Ecologist for the NSRWA. The partnership between the Mass Bays Program and the NSRWA enables us to fund Sara as a full time scientist to provide technical support to the South Shore. Sara holds a PhD from the Boston University Woods Hole Marine Program and a BSc from Brown University. Sara also was a science intern with the NSRWA and was Volunteer of the Year in 1998.



Sara Grady getting into her work!

As regional MBP coordinator, the North and South Rivers Watershed Association (NSRWA) works with a wide range of partners and interests in the region. Accomplishments over the last 5 years include:

Leveraged \$4,863,000 in cash for projects in the region, including:

- \$1,865,000 for protection of land and water resources
- \$1,533,000 for restoration of tidal wetland and instream habitat
- \$1,116,000 for remediation of boat and stormwater pollution
- \$208,000 for water quality and habitat monitoring
- \$141,000 for outreach to local communities and their schools

Protected and restored over 2,520 acres of coastal habitat and 23 miles of stream, including:

- 2105 acres of tidal wetland through five different tidal hydrology restoration projects
- 313 acres of shellfish beds in the South River
- 23 miles of reconnected and revitalized instream habitat

Climate Change Adaptation for Rivers and People – Or Things We Should Be Doing Anyway

The impacts of climate change only make our work to restore our rivers more urgent.

Give Rivers Room to Move - Protect Open Space Along River Corridors

We help protect properties along our river corridors for a variety of reasons already: to maintain wildlife corridors and habitat; protect water quality; and to enhance public access to our rivers. Climate change adds yet another reason to protect land along rivers. With increased precipitation we want to ensure people and infrastructure are not in harm's way and that floodplains are maintained.

Open Rivers for Fish and Wildlife

Re-establishing river connectivity for fish and wildlife will allow rivers and the species that rely on them to adapt to a changing climate. Restoring river habitat through removing obstructions in our waterways such as dams and culverts that disconnect rivers will allow for species to expand their range and increase their populations and genetic diversity, and allow them to be resilient in the face of temperature and precipitation changes.

Conserve Water and Manage Stormwater

Our work in the First Herring Brook to restore fisheries and streamflows brought this home to us during Tropical Storm Irene in 2011. That was the first year the town of Scituate enacted a water conservation restriction which resulted in saving 300,000 gallons per day. Having enough water in the reservoirs at the end of August gave the town added security during this emergency situation. The lesson? Saving water helps the town not only meet streamflows but keeps the town's water supply safer during droughts (which are predicted to happen more often) and extreme weather events.



Photo taken at a King High Tide at the Norwell Boat ramp. This picture is representative of what a daily high tide would look like if sea level rises 2 feet.

Climate Change in Your Back Yard

Every other Thursday at 7 pm at the Jones River Landing, Kingston. Sponsored by NSRWA, Mass Bays Program and the Jones River Watershed Association

January 9:

Sea Level Rise Projections for the South Shore

Andre Martecchini, Kleinfelder Associates

The towns of Scituate, Marshfield, and Duxbury recently completed a modeling effort to determine the local impacts of sea level rise over the next 25, 50, and 75 years. Background on sea level rise and maps of these future projections will be presented, to provide context for the rest of the lecture series.

January 23:

Climate Change and Storm Preparedness

Juliet Simpson, MIT Sea Grant

The serious impacts of storms like northeasters and hurricanes are compounded by climate change and sea level rise. This presentation will focus on preparing for such storms and how these preparations may change along with the climate.

February 13: Ecological Restoration, Coastal Stabilization, and Invasive Species Management

Seth Wilkinson, Wilkinson Ecological Design (pending)

Our shorelines are naturally protected by soft structures like dunes and salt marshes. Protecting and enhancing these structures can help reduce damage from storms and provide places for coastal features to migrate with sea level rise. This presentation will focus on adapting and enhancing landscaping to more effectively cope with sea level rise and climate change.

February 27: The Process and Benefits of Elevating Your Home

David Ray, Nantasket Survey Engineering

Many homeowners have been told to elevate their homes in the face of sea level rise, and a few have already done so in vulnerable coastal locations. This presentation will focus on what homeowners need to know before deciding to elevate, how they decide how high to go, and the benefits of doing so. There will also be a brief video presented of an interview with a homeowner who has gone through the process.

March 13: Vulnerability of Salt Marshes to Sea Level Rise

Marci Coke Ekberg, Save the Bay

Many southern New England salt marshes seem to be showing initial signs of marsh response to the effects of rapid sea level rise and increased inundation due to anomalous tides. This presentation will discuss preliminary results of an effort to assess and quantify these impacts to salt marshes.

March 27: Review and Discussion (a.k.a. "Now what?")

This session will be a review of information from the previous lectures and will feature an open discussion about the next steps that coastal homeowners can undertake to adapt to sea level rise and climate change in and near to their own back (or front) yards.



2014 Water Watch Lecture Series

January 15 – March 19

Wednesdays at 7 pm

at the South Shore Natural Science Center

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MASSACHUSETTS CULTURAL COUNCIL

The North & South Rivers Watershed Association, the South Shore Natural Science Center and Mass Audubon South Shore Sanctuaries are pleased to announce their partnership in presenting a series of 10 free Wednesday evening lectures, January 15 – March 19, 2014.

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 Sanctuaries 781-837-9400.

JANUARY 15 - Eat the Invaders: Adventures in Sustainable Seafood

Chef Bun Lai, Owner of Miya's Sushi

On the menu at this restaurant are surprising selections such as *Le Soupe Du Mean Greenies* consisting of the invasive Asian shore crab and *Peanut Butter and Jelly*, a dish composed of invasive feral rabbits and jellyfish. A 2013 James Beard Award Nominee Bun Lai is committed to solving the invasives species problem by eating them. Some of the ingredients on the menu are foraged right in his own backyard tidepool. He's been featured in Food and Wine Magazine, the New York Times, and Scientific American Magazine and appeared on ABC, NBC and the Food Network.

JANUARY 22 - In Desperate Need of Water: A Look at Boston's 1872 Conflagration

Stephanie Schorow, Author and Historian

Water is the first line of defense against fire and a lack of water played a role in the devastating fire in 1872 in Boston. Firefighters, including Chief John Damrell, were aware of problems in the system but were told to "stop magnifying" the problem. The result: a mammoth conflagration that burned 66 acres in downtown Boston.

JANUARY 29 - A Bird's Eye View: The State of Birds in Massachusetts

Joan Walsh, Mass Audubon

40 years ago MassAudubon volunteers embarked upon a 5-year inventory of all breeding birds in Massachusetts. Just recently they completed their second 5-year inventory which allowed them to compare which species are doing well, which are not and what we can do to maintain the highest abundance & diversity of birds. A must for bird lovers!

FEBRUARY 5 - How Green Is Your Grocer?

Peter Cooke, Manomet Center for Conservation Sciences

Refrigeration, food waste, plastic bags...36,000 supermarkets around the U.S. produce 68.4 million tons of carbon each year, equivalent to annual emissions of almost 13 million cars. Manomet Center and Hannaford Supermarkets have teamed up to launch the nation's first and only grocery sustainability certification program. Find out how you can get your grocer to be truly green.

FEBRUARY 12 - In Hot Water - Fish Moving On?

Jon Hare, Northeast Fisheries Science Center, National Marine Fisheries Service

Warmer waters mean changing habitats, and different fish species are beginning to inhabit our coastal waters. Jon will share the latest biological and physical oceanic conditions in the North Atlantic and how climate change is already affecting our fisheries.

FEBRUARY 19 - Ocean Acidification: The Other CO₂ Problem

Scott Doney, Senior Scientist, Woods Hole Oceanographic Institute

One third of all the carbon dioxide emitted by humanity has been absorbed into the world's oceans making them more acidic than they have been for tens of thousands of years. Oysters have been dying off in the Pacific Northwest and worldwide plankton and coral reefs are threatened. Is this a warning of changes to come?

FEBRUARY 26 - "Green Fire," Award Winning Documentary

Bob Wilber, Mass Audubon

The first full-length documentary about legendary conservationist Aldo Leopold, *Green Fire* explains how he shaped the modern environmental movement. Leopold's vision of a community that cares about both people and land continues to inspire current projects around the world. After the documentary, Bob Wilber, will discuss the need to connect people to the land and conservation on the South Shore.

MARCH 5 - Sharks in Our Waters

Bram Lutton, Professor, Endicott College

Learn about the different species of sharks commonly found in the waters off our coast and everything you want to know about the biology of these tremendous animals, conservation efforts to protect them, and research efforts underway to understand them.

MARCH 12 - Stellwagen's Living Laboratory: An Unprecedented Ocean Research Opportunity

Craig MacDonald, Superintendent, Stellwagen Bank National Marine Sanctuary

A portion of Stellwagen Bank National Marine Sanctuary is being considered to be set aside as an undisturbed research area. The first of its kind in the Gulf of Maine, this proposal has generated controversy in the fishing community. Come find out more about the rationale behind this proposal and the research being proposed.

MARCH 19 - "The Snail Darter and the Dam: How Pork-Barrel Politics Endangered a Little Fish and Killed a River"

Zygmunt Plater, Author and Boston College Law Professor

Thirty years after the legal battles to save the endangered snail darter, the little fish that blocked completion of a TVA dam is still invoked as an icon of leftist extremism and governmental foolishness. In this eye opening book, the lawyer who with his students fought and won the Supreme Court case—known officially as *Tennessee Valley Authority v. Hill*—tells the hidden story behind one of the nation's most significant environmental law battles.



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Native Eastern Brook trout found in tributaries in our watershed.