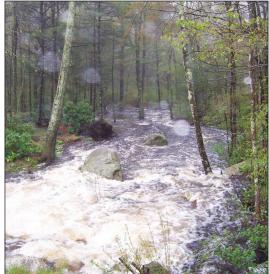


# WaterWatch

THE NORTH AND SOUTH RIVERS WATERSHED ASSOCIATION

Protecting our Waters Since 1970







# **Climate Is Changing... What Can We Do About It?**

Weather is the precipitation, temperature, and other measurements that occur locally over a short timeframe anywhere from a day to a year. Climate is the pattern and trend of those measurements over a long period of time, even decades. One popular analogy likens climate and weather to a man walking a dog. The man (climate) is heading in a certain direction along the sidewalk over time, but during that time, sometimes the dog (weather) veers left or right to either side of that path. You could compare those diversions from the overall path to having a very dry year like 2020, or a very wet year in 2021 (See page 3 for more on the rainfall patterns of these two very different years).

To be prepared for climate change, we have to be ready to cope with those diversions from the path, which can be extreme, as well as the direction that the general trend is headed.

#### What the NSRWA is Doing

Our work at the NSRWA and Mass-Bays helps our communities and local environment prepare for increased drought, more intense rainfall, higher temperatures, sea level rise, and more



acidic coastal waters. Fortunately, much of the work we currently do, and advocate for to protect our water resources, are the same solutions needed to adapt to climate change.

#### **What Towns Can Do**

One of the best ways for towns to act is through policy change, infrastructure improvements, and cooperating with neighboring towns towards a regional approach. The South Shore Climate Network is a group of South Shore towns that work in partnership with NSRWA, MassBays, the Metropolitan Area Planning Council (MAPC), Coastal Zone Man-

agement, and the Duxbury Beach Reservation. The group meets quarterly to discuss issues facing the South Shore, learn from one another, and provide support for adopting climate-ready policies and infrastructure. Among the policies towns can implement are stormwater bylaws (like the one we supported and recently passed in Norwell), and proposals such as the Town of Scituate's proposed water banking program, which would require new development to offset their water demand 1:1 and result in a net zero increase in demand.

Towns can also participate in the state Municipal Vulnerability Planning program, which helps identify problems and vulnerabilities that would be exacerbated by climate change, encourages development of a long-term plan, and makes funding available to implement projects that are in the plan.

Finally, towns can work to replace or improve aging infrastructure like undersized culverts, failing dams, stormwater, wastewater, and water supply systems that are the weak points when droughts or flooding rains occur. In many cases,

See Climate Change, Continued on Page 7

## NORTH AND SOUTH RIVERS WATERSHED ASSOCIATION

Our purpose is to Protect Our Waters.

We believe that an educated and engaged citizenry will result in healthy rivers and watersheds, thus Educate + Engage = Healthy Rivers.

Our goal for 2020 is to double the number of people we educate and engage.

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#### NSRWA

P.O. Box 43/214 South Street Norwell, MA 02061 phone: 781-659-8168 nsrwa.org and exploresouthshore.org

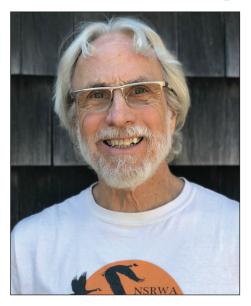
## **The Challenges of Climate Change**

Two and a half years ago when I started writing these President's letters, I noted how the North River had reconnected me with a youth spent canoeing and hiking in the woods of Maine. Paddling on the North River beyond Blueberry Island still evokes those memories enriched with osprey, and recently bald eagles, and reminded me again of Thoreau's notion that "all good things are wild and free." Thinking about these natural connections and what they have taught me over time I wondered if the natural world that I remembered so clearly then is the same world today?

Thinking about these questions, I remembered back over the recent summer and the past few years. What struck me were changes that seem to be happening. Winters don't seem as cold or long, lobsters are migrating to Canada, and the conifers appear to be suffering everywhere. When we moved into our current home there were five tall old pines on our lot and lots of gangly spruces. We now have only one dead pine, a snag, a resting place for red-tailed hawks. The rest died and were blown over. We lost 12 spruces in one violent storm a few years back.

This summer was remarkable for the continuous and heavy rain. Our Great River Race was almost cancelled as a one day 5-inch rainfall turned the river into a torrent under the Washington Street Bridge. There was no tide in this part of the river for four days. Regionally we have had serious intermittent flooding and New York City was brought to a standstill when subways were flooded by tropical storm rain.

At the start of the summer the herring "crashed," with greatly reduced counts from low spring stream water. Chronic water shortages have affected many local towns and water out of the tap has been brown and sometimes contaminated. Shellfishing has been banned locally and much of our mid-summer air was hazed with smoke from the west coast (the 5 largest fires in California since 1932 have occurred in 2020 and 2021, some still burning). In the Caribbean, tropical storms are "blowing up" to category 3



and 4 hurricanes in one day, ravaging the south with terrible winds, tornadoes, and unprecedented rain.

The climate appears to be changing! What should we be doing, individually and collectively? And for me, what kind of natural world am I leaving for my grandsons? Have I done enough individually to care for the natural world around me? These are hard and lingering questions that aren't answered simply.

We at NSRWA are trying to protect and preserve our natural resources locally, to get WaterSmart, maintain healthy water and pay attention to our impacts on the natural world, be good stewards; but what about the larger climate issues? What should we be doing? I am reminded again of Thoreau's noting in Walden all the rapid changes in technology and growth in his century and asking "...[T]hey are but improved means to an unimproved end." Help us remember that the natural world should remain a healthy place and let's not lose sight of where we are headed, trying to leave a recognizable legacy in our natural world.

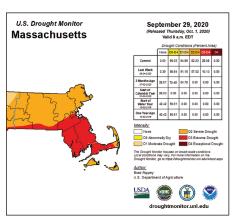
Peter Hainer NSRWA President

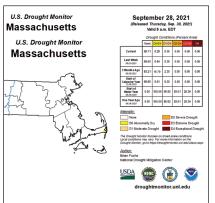
- Feter C. Hainer



Visit us online at nsrwa.org and connect with us on Facebook (nsrwa) and Instagram (northandsouthrivers)

# **Healthy Rivers**





## **Flash Drought and Record Rain**

The weather in 2020 and 2021 gave us a peek at what the future holds in terms of precipitation extremes predicted due to climate change. This past summer saw the wettest July in 127 years of record keeping! Statewide average July precipitation was 10.37 inches, 6.29 inches above normal. It is not just the increased amount of rain but the intensity of rain events that is increasing. When rain rapidly hits the surface of the earth it cannot be absorbed and runs off. A warming atmosphere can hold more moisture and is the main driver behind these increased intense precipitation events. This means more flooding in our streams and rivers, more polluting stormwater and less recharge to groundwater that is the source of our surface waters when it doesn't rain.

In our watershed, this summer's rains increased the bacteria in the rivers due to stormwater runoff and brought localized flooding often due to undersized culverts (where roads cross streams) and storm drainage infrastructure. Aging dams in our watershed are also undersized for large rain events leaving them vulnerable to failure. The good news is that streamflows were above normal and we didn't need to worry about running short of drinking water.

On the flip side, in 2020, we had what scientists call a flash drought. This relatively new term is described as "the rapid onset or intensification"

of drought. It is set in motion by lower than normal rates of precipitation... accompanied by abnormally high temperatures... winds and radiation. Higher temperatures increase evapotranspiration which further lowers soil moisture which decreases rapidly as drought conditions continue. In effect... a vicious feedback cycle can develop."

In May of 2020, a flash drought began with lower rainfall than normal. The average June - August 2020 summer temperatures in Boston were 1.8° above normal and precipitation was 3.57" below normal. By October 2020, 83% of the state was in a severe drought. While there was precipitation in the winter, recovery was slow and spring flows in 2021 were well below normal, leading some to speculate that it had impacts on the spring herring migration (See Herring Counts story, page 4).

The extremely warm, dry summer and fall of 2020 led to record low streamflows and concerns for water supplies. In our own watershed, the Town of Scituate cut off streamflow to the First Herring Brook in late June of 2020 and never turned it back on. A fish kill was documented on July 22, 2020 in the Third Herring Brook due to no streamflow just downstream of the drinking water wells for the towns of Norwell and Hanover.

Climate change will continue to exacerbate the impacts of water mismanagement. The time to change our relationship with water is now.



# Permanent Closure of Shellfish Beds in Our Watershed?

Shellfish are an important source of protein for shorebirds, and their habitats are an excellent measure of the health of our coastal waterways. For centuries the shellfish beds of the North and South Rivers have provided nourishment and recreation for Indigenous Peoples, European settlers, and generations of families. That all came to an abrupt halt in 1988, when more than 600 acres of shellfish beds were closed due to high fecal coliform levels.

In the last 30+ years, NSRWA staff and volunteers were instrumental in improving water quality through vigilant testing and advocating upgrades to the Scituate treatment plant, septic systems, stormwater, and new sewering in Marshfield. That multi-million-dollar investment resulted in a seasonal opening of the shellfish beds on the North River (1996) and South River (2011) to recreational harvest from November 1st – May 31st.

But in October 2020, the Massachusetts Division of Marine Fisheries (Mass-DMF) closed the beds indefinitely, citing an FDA regulation for interstate commercial shellfishing that requires a dilution rate around a sewer treatment plant outfall. Despite our best efforts and large municipal expenditures, it is doubtful that the Herring and North Rivers could ever meet this commercial standard, effectively ending recreational shellfishing in those rivers.

This August, Commissioner Ronald

See Shellfish Beds, Continued on Page 7



# Herring Counts Low in Almost All Locations This Year

This year, with herring count procedures starting to return to normal after the pandemic precautions of 2020, the NSRWA recruited 115 citizen scientist volunteers to monitor river herring migrating into First Herring Brook in Scituate, Third Herring Brook in Norwell and Hanover, Herring Brook in Pembroke, Bound Brook in Scituate, and the South River in Marshfield.

From April 1st to May 31st, volunteers spent about 83 hours in 10-minute intervals counting only 224 fish passing our counting locations. This is compared to 4,350 in 2020 and 11,230 in 2019. These are not population estimates, just raw counts of visual observations of herring passing at different sites. At this point we are not sure why there has been such a crash, but we were not alone as anecdotally many runs were low this year. Theories include a loss of juvenile fish in 2016 due to regional drought (fish that would now be returning to spawn), offshore fishing bycatch, or low streamflows this spring when the watersheds were still recovering from the 2020 drought. We hope to know more once we discuss it further with our other herring counting colleagues in the River Herring Network this fall.

Counts at First Herring Brook in Scituate have been low since flow was restored to the Old Oaken Bucket fish ladder in 2012. This year's count was 21 fish, comparable to a count of 18 in 2019. Part of that success was due to working with the Town of Scituate to try to ensure that the boards were out of the fish ladder if fish were present, although the comments on the data suggest that there were times fish were present and unable to pass. NSRWA is working closely with the Town of Scituate to continue to provide flows for herring and instream habitat and is working on expanding potential habitat by improving access to the reservoir.

Herring counts were conducted at two sites in the Third Herring Brook this year, the fourth year of counting after the removal of the Tack Factory Dam. Volunteers counted at both the River Street and Broadway culvert, as well as at the Tack Factory Dam removal site. After last year's count of 345 herring, none were seen at Tack Factory and low double digits were seen at Broadway. However, a single herring was seen by Eric Hutchins of NOAA upstream of the Peterson Pond Dam removal site while he was on a site visit! Peterson Pond Dam was removed in November 2020, and we hope to see herring reaching Jacob's Pond, the future site of a fish ladder and counting platform.

Herring Brook is home to our most robust herring population, and volunteers counted only 61 herring passing the ladder there, the lowest number since the ladder was broken and impassable in 2011. This run has been one of the largest in the state in past years, but the electronic counter at the site recorded less than 50,000 fish this year, compared to 187,776 in 2020 and 476,609 in 2019.

Volunteers at the South River did not see many herring at the Veterans Memorial Park fish ladder this year - potentially 73 although some downstream fish may have been counted as passing the ladder. The fish ladder is very sensitive to changes in flow and can be hard to manage. This is the second year we installed a camera at the ladder to allow for additional remote counting - according to preliminary data the camera recorded 324 fish. We are working with the Town of Marshfield and Mass. Division of Ecological Restoration to investigate removal of the dam and replacing it with stone weirs, which would assist with fish passage at the site.

Thank you to all of our volunteers - we hope you will join us in 2022 for what we hope will be a better year at all the runs!



Jacobs Pond Dam in Norwell.

# Funding Advances Fish Passage to Jacobs Pond

The Third Herring Brook Restoration Project was awarded \$20,415 in funding this year from the National Oceanic and Atmospheric Administration (NOAA) Community-based Restoration Program along with \$30,000 from the Town of Norwell to focus on fish passage into Jacobs Pond, the Third Herring Brook headwaters. The funding will be used to hire engineers to design a fish ladder. This funding is timely - Norwell just completed a required state dam inspection that noted the need for repairs that can be coupled with the fish passage project.

The NSRWA and its partners generally prefer dam removal, where feasible, to restore the entire ecological health of a stream or river and reduce the need for further human intervention for the system to be self-sustaining. Fish ladders require significant management and maintenance, do not always pass fish well and are specifically for river herring. However, Jacobs Pond is a headwater pond with 62 acres of spawning habitat, Route 123 would make removal a large, expensive project and the town of Norwell does not want to lose the unique recreational benefit of the pond. The site is also ideal for a herring counting platform and public outreach. Given these factors. we believe a fish ladder is the best restoration outcome at this site.

## Education



Local Scouts have dirt in their hands to protect the salamander they are holding and learning about.

### **Scouts in the Watershed!**

Backwoods navigation, outdoor leadership, wilderness survival, fishing, nature exploration, kayaking, and geocaching, are just a few of the popular programs the NSRWA offers.

The NSRWA has partnered with several local scout groups to offer fun and educational outdoor programs throughout the South Shore. From nature exploration to geocaching, or building their own fishing rod to wilderness survival shelters, there have been a wide variety of programs offered.

"Our Scouts have done several programs with the NSRWA including fishing and survival workshops.

The instructor connects very well with the kids and they all have such a great time." ~ Cohasset Scout Leader

Whether they're Scouts, BSA, GSUSA, or Cub Scouts, the NSRWA is here to provide programming that works toward their outdoor goals.

The NSRWA truly enjoys working with local scouting organizations because youth often have an interest in being outside and going on adventures.

Interested in booking a program for your group? Contact brian@nsrwa.org.

- "Awesomer than Christmas!"
- ~ Local Scout



A group of Norwell youth eagerly getting ready to head out for a kayaking expedition on Jacobs Pond.

## **Youth Enjoy Summer with a Splash!**

The NSRWA had another fantastic and adventurous summer! Through a combination of several programs including both new and continued partnerships, the NSRWA successfully completed a full summer programming schedule. In addition to Norwell Recreation, two new partnerships were formed to bring many youth out on adventures around the watershed. These new partnerships include Rockland Recreation and the Marshfield Boys and Girls Club.

Through these partnerships, the NSRWA expanded its reach by delivering fun, safe,

and environmentally-based recreation and adventure programs to youth from both in and outside the watershed area.

The NSRWA also ran several more weeks of the very popular summer out-door recreation program entitled South Shore Explorers. All these programs allow youth from wide and diverse backgrounds to have the opportunity to experience the wonders our local waterways have to offer.

The NSRWA looks forward to continuing and expanding these important partnerships and programs for many years to come!

#### **Summer in Review**

- 9 weeks of successful outdoor recreation and environmentally-based adventure programs
- Nearly 250 youth were brought out on our rivers, ponds, and open spaces
- Around 85 miles of river, pond, and trails were navigated by vouth
- Over 75 fish were caught and released by kids
- 100% of youth had adventures and smiles upon returning to their families at the end of the program!

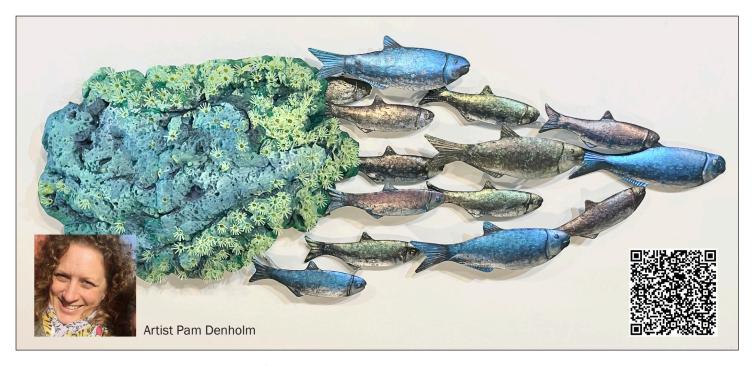
# New Digital Media for Schools

For many years the NSRWA has been a driver for watershed and environmental education in schools. Even in the face of the pandemic, the NSRWA has maintained its strong presence in schools with a shift toward a virtual platform.

At the beginning of 2021, the NSRWA worked closely with Harbor Media and their local TV crews, to produce high quality digital educational media for our school partners. This included the Water-Smart in-school Water All Around You program which was able to continue providing effective and meaningful watershed-based discovery to thousands of our local elementary school aged students.

"I absolutely love this series and look forward to each episode!" -Michelle Balconi, Executive Director of Harbor Media

Another program that was able to continue providing environmentally-based education to students is the river herring-focused program entitled F.I.S.H. School, which stands for Fostering Innovative Science through Herring counts in Schools. Working with the expertise and state-of-the-art equipment from Harbor Media, the resulting video series is a major step forward in continuing to be an important and useful resource for teachers and students.



## **Enter to Win One of 12 Custom Painted Wall Hangings!**

Please help us keep the South Shore's waters safe and clean for boating, fishing and swimming, as well as for all the wildlife that call our waters home. Take the pledge

to help keep our waters clean, and enter to win one of 12 wall hangings. Your donation advances NSRWA's efforts for clean waters and healthy rivers on the South Shore. Scan the QR code with your smartphone camera to take the pledge, make a donation, and register for the drawing. (A donation is not required to win.)

### **Fall Events in the Watershed**

Fall is a beautiful time to explore the watershed. Join us for autumn walks, kayaking, or a family fishing event.

**Learn to Kayak on Jacobs Pond** - Saturday, October 16 or 23 - Ages 16 and up. Register through Norwell Recreation Department. All skill levels welcome. Morning or afternoon sessions available. \$35 per person.

**Autumn Stroll at Hanover's Forge Pond Park and Summer Street Conservation Land** - Sunday, November 7 from 9-11am. Registration required, use QR code below. FREE.

**Autumn Stroll At Marshfield's Carolina Hill Reservation -** Sunday, November 14 from 10am-12pm. Registration required, use QR code below. FREE.

**Family Fishing at Jacobs Pond** - Sunday, November 21 from 10am-12pm. All equipment included. Great for all ages! Registration required, use QR code below. \$10 per person, ages 14 and under FREE with paid adult.

**Autumn Stroll at Pembroke's Hobomock Trails** - Sunday, November 21 from 2-4pm. Registration required, use QR code below. FREE.



#### Scan QR code to register

- 1. Open smartphone camera
- 2. Scan the QR code
- 3. Go to the Events web page







## **Member Corner**



"When we moved to Scituate a few years ago we wanted to find a way to start putting down roots and get involved with the community. The NSRWA was just what we were looking for, especially after falling in love with the South Shore's beaches, rivers, and marshes. We became monthly donors to help support a great local cause and have enjoyed the volunteer opportunities since joining, like planting marsh grass at Pegotty Beach in the spring and painting a fish wall hanging a couple of summers ago. I grew up in a Coast Guard family and learned at a

young age the importance of helping to protect the environment, with the bonus of having a lot of fantastic opportunities to volunteer on or near the water. It feels good to be able to help now to protect our local waters by supporting the NSRWA."

~ Nick and Deanna Van Lear with their daughter Adelaide





# Use Your RMD to Help Protect Our Local Waters!

Help advance our mission to protect local waters by asking your IRA custodian to make a distribution for you directly to the NSRWA.

That distribution won't be counted as taxable income and will count toward your Required Minimum Distribution (RMD) although it can't be taken as a charitable deduction.

Ask your tax advisor and/or your IRA custodian for information specific to you.

NSRWA's non-profit tax ID# is 23-7181992.

## **Climate Change**

Continued from Page 1

replacing (or in the case of dams, removing) this infrastructure has an additional ecological benefit by providing reconnected stream and river habitat, and reducing pollution to our waters.

#### What Individuals Can Do

While many large-scale changes have to occur on a regional or community level, individuals should feel just as empowered to make a difference. When you ask yourself what you can do to adapt to climate change, we hope you consider becoming a member of a watershed association.

Organizations like ours are poised to help us adapt locally through on-the-ground restoration, protection and adaptation projects. The NSRWA has several projects that you can participate in. You can take our Water for People Not Lawns Pledge, check out our WaterSmart program, and enter our Art for Water campaign that enters you into a drawing to win one of 12 beautiful handpainted fish wall hangings.

Many of the "environmentally-friendly" things you may already be doing help the local ecology prepare for climate change. When you keep rainfall in your yard through raingardens, you help replenish the aquifer and prevent stormwater pollution. Having a rain barrel reduces demand for water that could

stress our streams in times of drought. Eliminating fertilizer reduces nutrients that enter coastal waters, which worsens coastal acidification that harms shell-fish and other marine life. Maintaining a buffer to salt marshes allows them to migrate with sea level rise.

Climate change can seem daunting in terms of its effects and the timescale over which it occurs, and it is difficult to plan long-term when you are facing short-term concerns. However, we hope you will encourage your community to pursue many of the above strategies to prepare, and that you will consider making some changes of your own to prepare yourself, your community, and our coastal waters for what lies ahead.

### **Shellfish Beds**

Continued from Page 1

Amidon and MassDMF staff met with local recreational shellfishers, along with State Senator Patrick O'Connor, Representative Patrick Kearney, and NSRWA board and staff. Attendees pressed the Commissioner to consider regulating shellfishing in a manner similar to recre-

ational fishing or hunting, and he agreed to have his legal staff review the matter.

Thanks to NSRWA monitoring, we have data to show that our waters can meet the standards for recreational shellfishing from November - May. Further, there have been no reports of illness related to shell-fish harvested from the North and South Rivers' beds; soft shell clams (what is harvested locally) are cooked, not eaten raw;

the treatment plant uses ultraviolet light to kill viruses and bacteria; and tidal flushing in the North and South Rivers is significant.

NSRWA has partnered with EarthRise Law Center to generate a public records request that may shed more light on MassDMF's decision-making. Meanwhile, we continue to pursue all avenues to ensure that a popular aspect of our coastal heritage is not lost forever.



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### **Inside This Issue:**

- Climate Is Changing... What Can We Do About It?
- Permanent Closure of Shellfish Beds in Our Watershed?
- Herring Counts Low In Almost All Locations This Year
- New Digital Media for Schools
- Fall Events in the Watershed

## Join or Renew Your Membership online!

Join or renew today! Your membership contribution supports our mission to protect local waters. Your donation makes a difference locally and across the South Shore by making it possible for kids and their families to learn about water conservation, getting people outdoors to enjoy and connect with nature, and helping to restore the health of our rivers and streams.



## Support the NSRWA with Planet Subaru Share the Love Campaign

Are you searching for a new car? Head over to Planet Subaru of Hanover and help the NSRWA when you buy or lease a new Subaru.

Planet Subaru of Hanover has selected the North and South Rivers Watershed Association as one of its hometown charities to benefit from its Share the Love® event. The event is part of a national campaign run by Subaru of America, Inc., which donates \$250 for every new Subaru vehicle sold or leased from November 18, 2021



through January 3, 2022. to the customer's charity of choice.

The NSRWA was the recipient of

Planet Subaru's Share the Love donation in 2017, and used the funds to purchase a program vehicle. This car has been used for our education programs including our Water All Around You school programs, and is also used to haul our kayaks for our outdoor education programs.

So if you need a new car, please consider buying from Planet Subaru and then select the NSRWA to receive the funds. We thank Planet Subaru for partnering with us once again!