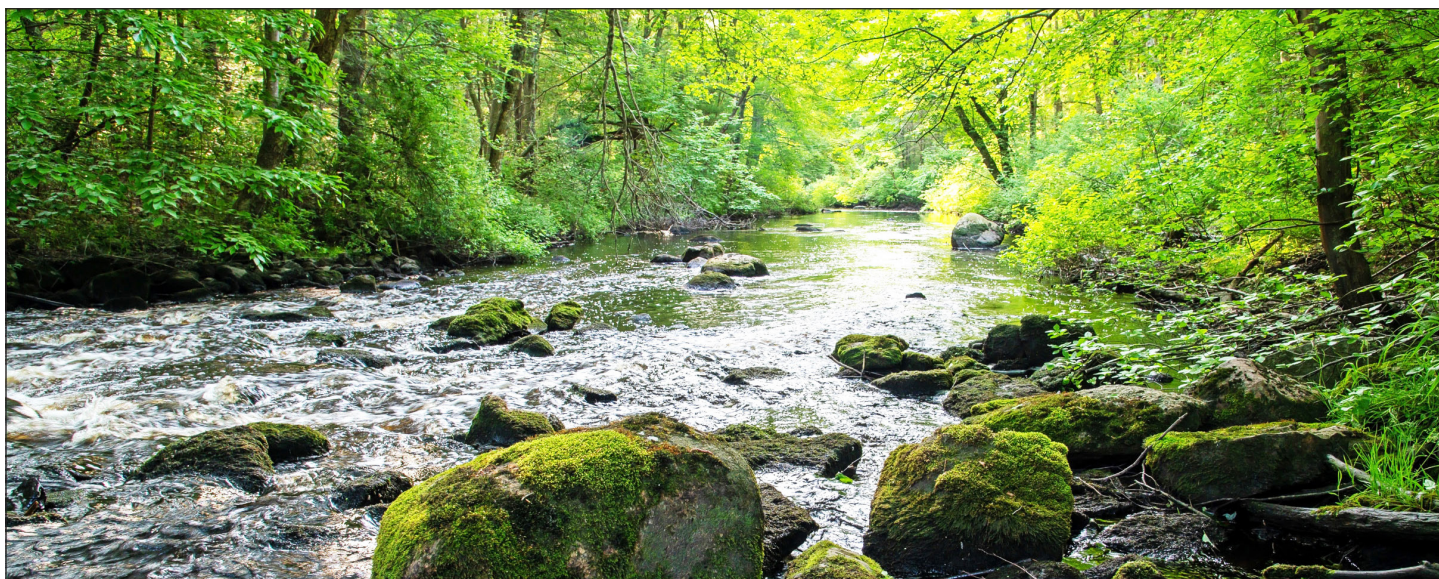




# WaterWatch

THE NORTH AND SOUTH RIVERS WATERSHED ASSOCIATION  
Protecting our Waters Since 1970



Early morning looking west along the Indian Head River in Pembroke. Photo by Rob MacDonald.

## Restoring the Indian Head River - Is It Possible?

The Indian Head River is one of the largest, most scenic, and potentially ecologically rich tributaries that flow into the North River. It flows east for 3.7 miles delineating the Hanson, Hanover, and Pembroke town borders before meeting the Herring Brook and forming the headwaters of the North River - locally referred to as the Crotch! This part of the river is a unique freshwater tidal system. These freshwater tidal systems are rare, only a handful still exist in the state, and are a result of undammed coastal rivers that are still connected to freshwater.

The Indian Head River is host to shad, herring, white perch, eels, and multiple birds and mammals. It is one of only nine rivers that supports an American shad fishery in the state of Massachusetts. Shad are the largest member of the herring family, reaching 1-2 feet in length! Shad, like river herring, return each spring to just below the dam at Elm St. at Luddam's Ford Park. Due to the inability to monitor the fish ladder safely (the fish ladder is in the middle of the spillway) no one knows if the shad or herring can make it above the dam to

spawn. They continue to make use of the habitat just downstream of the dam.

Moving upstream on the Indian Head River from the Elm St. dam at Luddam's Ford, the second dam on the Indian Head River is just downstream of the Cross St. Bridge. While largely just a pile of rocks, it too poses a barrier to fish migration. The third dam moving upstream on the Indian Head River is at Factory Pond in Hanover and Hanson. The pond and adjacent uplands were contaminated

See Indian Head, Continued on Page 11



American shad by Lauren Owens Lambert.

## Shad Fishing in the North and South Rivers

By Warren Winders (edited by Samantha Woods)

You may have noticed that spring-time in the North and South Rivers is marked by a sequence of migrations. Birds begin to arrive from the south to establish their nesting territories along the shores of the rivers. Then one day you hear a high-pitched whistle and look up to see an osprey hovering

above the stream. That is when you know that the herring and shad are making their way into the river.

Depending on the weather, this first shad sighting takes place sometime between mid-April and the first of day of May. The shad will usually wait until the water rises above 50 degrees Fahrenheit to move up to their spawning water,

See Shad, Continued on Page 11



## **NORTH AND SOUTH RIVERS WATERSHED ASSOCIATION**

*Our purpose is to Protect Our Waters.*

*Educate + Engage = Healthy Waters*

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MassBays Partnership South Shore  
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Ecologist - Sara Grady

Director of Marketing & Communications -  
Lori Wolfe

Environmental Educator - Brian Taylor

Community Outreach Coordinator -  
Terri Birkeland

Financial and Operating Support -  
Claudia Bernardi

Lead Pontoon Boat Captain - Willard  
Boulter

Yoga at the Rivers Edge and Columnist -  
Kezia Bacon

### **NSRWA**

P.O. Box 43/214 South Street  
Norwell, MA 02061  
phone: 781-659-8168  
[nsrwa.org/exploresouthshore.org](http://nsrwa.org/exploresouthshore.org)

# Letter from the President

Over the past seven years as a member of the Board, I have watched as our organization has adapted and grown into the resilient organization that we are today. Much of our growth and adaptation happened during some very austere times, and that would not have been possible without supporters and sponsors like you. Thank you! As I take on the role of President, I find myself reflecting on our evolution and looking to past experiences to help guide us through tomorrow. Over 40 years ago, I proudly watched as my dad turned his vision of building an environmental and science camp for the 4-H'ers of Alabama into a center that today reaches nearly 25,000 youth a year. Many of my fondest outdoor experiences were shaped by walks at the center which provided an outdoor learning canvas for myself and many children. Now, having lived on the North River for over 15 years, I have had the opportunity to explore our watershed and experience our outdoor programming firsthand, and it inspires me every day.

Last year as our organization's Treasurer, I wrote: "The year 2020, for NSRWA, was to have been a year of reflection and celebration for having completed fifty years of protecting and connecting our communities around the North and South Rivers Watershed. It was also the last year of an ambitious five-year strategic plan where we planned to materially change what we as an organization could achieve, especially in Engagement and Education." As I reflect on 2021 and now the crafting of 'The Journey to 2025' Strategic Plan update, the foundation for the future was laid, and it is now our destiny to take NSRWA to the next level one more time.

As we look to the Journey to 2025, we aspire to build a stronger foundation for our Education and Engagement programs by connecting people to their waters; increasing equitable access to our waters, and inspiring action to build a resilient watershed in the face of climate change.

And while a lot of what we learned in our plan for 2020 will stay the same, there will be some areas we want to move forward. The foundational elements of Engagement and Education and Healthy Waters will continue to be the core of our work. But as we look ahead we must renew our emphasis on building a



watershed that is climate resilient and ask ourselves are we doing enough to both represent within our organization and provide environmental programs to those who are most vulnerable in our watershed.

We are so blessed to have a team in Samantha, our Executive Director, Gabriela as our Director of Development & Community Engagement, Sara as our Ecologist, Brian as our Environmental Educator, Lori as our Director of Marketing & Communications and Terri as our Community Outreach Coordinator. Without them, their energy, and dedication, we could not have navigated the rapids of this past two years' pandemic journey!

Rick Mayfield, NSRWA President

**Visit us  
online at  
[nsrwa.org](http://nsrwa.org)**



**And connect with us on:**

- **Facebook** [nsrwa.org](http://nsrwa.org)
- **Twitter** @nsrwa
- **Instagram** northandsouthrivers



Protest of the Shellfish Bed Closures November 1, 2021.

# Shellfish Beds Closure: Balancing Public Health and Public Access

The unilateral closure of over 600 acres of local shellfish beds by the Massachusetts Department of Marine Fisheries (DMF) in October 2020 has raised an important challenge for the North and South Rivers Watershed Association: How should we respond to a regulatory action that we believe does more harm than good?

The NSRWA has worked tirelessly with regulators at federal, state and local levels to improve water quality, public health, environmental sustainability, and recreational enjoyment. When the North River shellfish beds were reopened in 1996 and the South River in 2011 – the culmination of decades of work by the NSRWA and local authorities – we thought we had achieved a reasonable balance between the need to ensure public health and the right to access the rivers for recreational use. But in 2020, the rules changed without warning and with no opportunity for public input.

The current state water quality metric for shellfish safety is fecal coliform, found in the waste of all warm-blooded animals, including human sewage. The Scituate Wastewater Treatment Plant treats sewage and releases treated effluent into a creek feeding into the North River. Over 30 years ago, the release of untreated sewage prompted our “Plug the Pipe” initiative; today the plant meets state standards for fecal coliform, copper, and other metrics. The water quality of the effluent, which is monitored by the

NSRWA, is “excellent” according to a state scientist with whom we work.

However there is emerging science that male-specific coliphage (MSC) may be a better indicator than fecal coliform for viruses, like norovirus, that can be found in wastewater. The good news is that the treatment plant uses UV radiation, which should render viruses inactive. Currently the state is conducting a site-specific test on the quality of the effluent and how quickly the water flushes out of the estuary. The application of this new science is a concern to us, and we will continue to advocate during the plant’s license renewal this spring for monitoring outflows for this new indicator and enhancing the treatment that reduces viruses from the effluent, if it is needed. One challenge this emerging science presents is that there is no state or federal water quality standard for MSC which makes it hard to ask the treatment plant to meet it!

As we advocate for better data and treatment, we are also advocating for re-opening recreational harvesting because we believe the risk is very low. In the two decades plus, since the North River shellfish beds have been reopened, there has been no reported illness and the shellfish harvested (soft-shell clams) are eaten cooked, not raw, which should provide additional protection if there is any virus in the shellfish.

The new policies were put in place to govern the commercial sale of shellfish

and are a one-size-fits-all approach.

We believe there should and could be a distinction between regulating a food item for commercial sale vs. a locally harvested food. This is akin to regulating the harvest of your vegetable garden like a commercial farm. The risk can never be zero for any activity but the final choice should rest with informed individuals. The experiential value of local people harvesting food from their local waters is worth protecting. When local people are invested in the land and water, we all become better stewards.

Since the ban was imposed, several NSRWA staff and Board members have been in communication with DMF leadership and staff, providing updated data to support our position. Last November, the NSRWA sponsored a Recreational Shellfish Harvesting Sit-In at Scituate’s Driftway Conservation Park, attended by local officials and over 50 shellfishers. The event launched our “Shellfishin’ is Our Tradition” poster campaign and Shellfishin’ is Our Tradition Facebook page.

This has been a difficult position to sort through because we recognize the continuous risk of the sewage plant’s location, nature’s involvement, and evolving data. While we continue to work with regulators on new metrics, we want local people to have the option of deciding for themselves, so we can all be better advocates of this magnificent watershed we love so much.





## Blue Mussels, Red Knots, and Green Crabs

The blue mussel, *Mytilus edulis*, used to be more common in the North and South Rivers, but has disappeared from the intertidal over the past few decades. There used to be a mussel harvest in the rivers, but they fell out of favor in comparison to mudflat bivalves like clams. There are stories that mussel reefs were even intentionally destroyed.

However, mussels have declined all over the coast, and the leading theory for this disappearance is predation by invasive crabs that may have reduced an already declining population. Unlike clams and oysters, blue mussels prefer harder, rockier habitats, exactly where we see Asian shore crabs and green crabs. Blue mussels attach themselves to rocks using a strong fiber called a byssal thread. The mussel secretes the thread and glues itself down using its foot. Planktonic mussel larvae are attracted to other mussels, so if given the opportunity over time, mussels will form a reef with a lot of complexity that provides food and shelter to many other species.

Mussels are a key part of the intertidal food web. They provide food for everything from snails to seals. At the mouth of the rivers, they have historically played an important role as a primary food source for red knots and other migratory shorebirds. Red knots are listed as a federally threatened species, for reasons like sea level rise, loss of habitat, and loss of important food sources. The northward migration of red knots from Tierra de Fuego to the

Arctic is fueled by spawning horseshoe crabs in the spring. As these shorebirds fly north they stop off in Delaware Bay to fatten up. On the southward journey, these birds mostly eat intertidal animals, especially mussels. Massachusetts is a prime stopover location for these birds and other important shorebirds, so locally MassAudubon monitors them at Third and Fourth Cliffs.

The NSRWA and MassBays are currently working on a multi-year project in partnership with MassAudubon's Coastal Waterbird Program, Texas A&M University, and the Air Force (via Hanscom AFB and Fourth Cliff Recreation Area) to restore blue mussels at the mouth of the rivers. Our plan, piloted about 6 years ago, is to remove larger mussels from local floating docks when they are removed in the fall. These would be transplanted to the low intertidal and subtidal off of Fourth Cliff, and allowed to form reefs, which would then naturally spawn and provide food for the shorebirds migrating through. Preliminary research by the NSRWA and MassBays during the early 2010s, with the assistance of local resident Calli Bianchi, showed that the mussels growing on docks are adequately sized to avoid green crab predation. We also found that growing mussels from spat was not efficient, especially given readily available mussels on docks that would die anyway. The mussels that were placed off Fourth Cliff in our pilot effort are still thriving today, as verified by snorkel surveys.

This is a sizable undertaking that involves finding the source docks, timing volunteer and boating efforts to scrape and move the mussels, and then monitoring both mussels (NSRWA/MassBays) and birds (MassAudubon) to evaluate the success of the effort. The first year of the project is going to focus on the first part - finding docks and volunteers, as well as surveying the intertidal around Fourth Cliff to choose candidate sites. We will scrape and transplant mussels the following fall, placing them in biodegradable socking to protect them and encourage them to attach. Finally, we will monitor the mussels' survival and abundance. We hope to engage students from Hanscom and Scituate in the project too, wrapping in lessons about food webs and coastal ecology. The project is funded for at least three years, so we hope you will continue to follow our progress on this unique restoration effort. If you are interested in helping or have a dock to offer, please contact us!

For more details on the blue mussel project, please listen to the March episode of Sara's podcast, The Estuarine Gradient.





# Local Youth Learn Their River's Story Through F.I.S.H. School

There are many signs of spring that herald in the new season. Birds are singing and bulbs are emerging. However one of the most amazing yet often overlooked signs of spring is the arrival of herring to our local estuaries and tributaries of the watershed. Air temperature can fluctuate considerably between warm and cold during spring. But it's the water temperature that makes a more gradual shift during springtime. When the water temperature warms to a certain point, an amazing migration occurs. A once dormant and quiet waterway begins teeming with life. The river herring spring to action and begin migrating upstream to spawn!

For over fifty years, the NSRWA has worked very hard to help these keystone species return to our local waterways. Removing barriers, restoring habitat, and organizing citizen science programs are just a few of the ways the NSRWA works to help the river herring. One big part of positive change in a watershed is through



*Every river has a story to tell. NSRWA Educator Brian Taylor in Third Herring Brook filming River Stories, a new addition to the F.I.S.H. School program.*

education. By engaging the younger generations in river herring discovery and education, the NSRWA provides the best chance for herring to continue to be supported for years to come.

Now entering its third year, F.I.S.H. School (Fostering Innovative Science through Herring counts in schools), will begin stepping up its educational engagement to the next level. F.I.S.H. School engages local youth in learning about the life cycle of the river herring

and allows them to join in counting them remotely via underwater cameras in fish ladders! In this next iteration, the NSRWA is partnering with Harbor Media to develop a new series of videos focused on restoring rivers to health. Building on our past curriculum, students in our partner schools will take a deeper look at the hard work it takes to make positive change, through science and public education, to restore not only river herring but the entire river to health.

Through this new phase of F.I.S.H. School, students of the South Shore will discover the stories of their rivers, their herring, and their water. Each river tells a story of challenge, hard work, and dedication to make positive change. This new series, River Stories, will make connections and instill passion in the students of today, ensuring that river herring will continue to be a part of our watershed for generations to come.

This program is made possible by a generous grant from Battelle.

## NSRWA Offers Year Round Opportunities for Youth!

It was a busy fall and winter for the NSRWA Education Department. After-school youth discovery programs, holiday break and February vacation programs, and the long awaited return of the Water-Smart in-person Water All Around You School program are all examples of how the NSRWA continues to engage youth of all ages in outdoor and environmental-based education. In addition to a rapidly expanding summer youth activities schedule, the North and South Rivers Watershed Association has been steadily increasing the number of outdoor youth programs offered during the fall, winter, and spring.

In fall, the NSRWA ran a four week after school outdoor discovery program for a local homeschool group that was looking for supplemental enrichment opportunities for their students. Fishing, water ecology, and macro-invertebrate observation and identification were all topics and activities included in the multi-week program. This program is a great example of how the NSRWA continues to expand its reach to students from all corners of the watershed.

During winter, the NSRWA partnered



*Nature, teamwork, and adventure! NSRWA's February Youth Adventurers standing in front of their survival shelter with the North River in the background.*

with the Norwell and Rockland Recreation Departments and offered two separate week-long programs to middle school-aged youth over the holiday and February breaks. Both programs were very well received and had fantastic turnouts. Nature games, geocaching, and survival shelter building were all part of the fun outdoor activities of the programs.

"We might be running around playing a game of capture the flag, however we also discuss topics of camouflage, adaptations, and forest ecology that add elements of nature-based education to these fun activities" said NSRWA Educator Brian Taylor. "The learning comes easy when the group is active, engaged, and having fun. In my opinion, the outdoors is the best classroom a kid could ask for."





Norwell Pathway

## Get Out and Explore South Shore!

Are you ready for a challenge? Each week in 2020 and 2021, our Explore South Shore program featured a different park or nature preserve, and invited you to explore it. We also encouraged you to participate in our monthly contest, for which we selected a winning photo on Instagram.

Even though there are hundreds more places on the South Shore still worthy of your attention, this year we're changing things up a bit. Instead of destinations, we're suggesting activities for you to try.

Accept our weekly Explore South Shore Challenge and you will find yourself identifying birds and trees, searching for fireflies, picking blueberries, and even getting up early to watch a sunrise! Ready to explore a tidepool? Or to learn what geocaching is all about? Thirsty for some hike-local brewery pairings? Every Wednesday we will introduce a new activity, and identify locations on the South Shore where the challenge can be fulfilled.

Follow us on Facebook so you don't miss each week's theme, and on Instagram to see daily posts and suggestions.

As always, we'll be offering a prize package to each month's contest winner. Remember to post a photo or selfie from

your adventure to Instagram with the hashtag #ExploreSouthShore.



### Date/Challenge/Suggested Sites

• **May 11 – Take A Bike Ride** – Rockland Rail Trail, North Plymouth Rail Trail, Norwell Pathway, Wompatuck, Bare Cove Park, Great Esker Park, **Hit The Trails on a Mountain Bike:** Round Pond Conservation Area, Knapp Town Forest, Carolina Hill Reservation, Wompatuck State Park Norwell

• **May 18 – Pair a Hike with a Local Ice Cream Shop** – Hornstra Dairy Farm/Hatch Mill, Dairy Twist/Misty Meadows or Willow Brook, Nona's/Driftway Multi-Purpose Path, FarFars/Lapham Woods or Williams Preserve, B's Ice Cream/Pratt Farm and Rail Trail/

Bridle Trail, Rocky Roads/Harbor Walk, Magoo's/Rockland Town Forest, Nona's/Triphammer Pond, JJ's Dairy Hut/Great Brewster Woods, JC's Ice Cream/Denham Pond, Peaceful Meadows (Whitman) Heidi's Hollow/Forge Pond Park, Veterans Memorial Town Forest



The schedule continues through the end of the year. Scan the QR code with your smartphone camera to see more fun things to do all year long!



Explore South Shore is Powered by Planet Subaru.



# Get Outdoors with NSRWA this Spring



## Walking Club is Back

Join NSRWA volunteers, Ellen Herling and Alida Alberts, on walks every second Saturday of the month at 10:00am. Visit local trails, enjoy nature, and meet new people on these fun, informative, and FREE walks. We hope you can join us!

### Dates/Places:

- Saturday, May 14 - John Little Conservation Area, Marshfield
- Saturday, June 11 - Nelson Memorial Forest, Marshfield

Visit our Events web page to see more Walking Club events at [www.nsrwa.org/events/](http://www.nsrwa.org/events/)



## River Adventures Returns!

The NSRWA is excited to partner with Marshfield Boys and Girls Club to offer two weeks of River Adventures Kayak Camp this summer! July 11-15 and August 8-12, 2022. Ages 12-14. Full day kayaking, nature discovery, geocaching, and survival skills are all part of the adventure! Visit [bgcmarshfield.org](http://bgcmarshfield.org) to register. Contact [brian@nsrwa.org](mailto:brian@nsrwa.org) for more information.



## Enjoy our Group Pontoon Tours and More!

Looking to get your group outside and into an adventure? The NSRWA is offering private custom guided outdoor adventure programs for small groups. Professionally guided pontoon tours, fishing trips, kayak tours, hikes, wilderness survival workshops, vernal pool exploration, and geocaching. Great for scout troops, families, and youth organizations. Outdoor programs for

all ages. Whether you're looking for an educational outing, or a family fun day, let us know what you are interested in and we can plan an adventure for you! All equipment included! From a short 1- hour hike, to an all-day river paddle, we offer a range of options tailored specifically to your group!

Contact [info@nsrwa.org](mailto:info@nsrwa.org) for more information.

## Join Us for Small Group Walks and Paddles

Get outdoors with our small group activities, including walks, paddles and more. For more information, go to our website at [nsrwa.org](http://nsrwa.org) or scan the QR code with your smartphone camera.



### FREE Walks

**Saturday, May 21** - 10:00-11:30am - Guided Insect Discovery Walk w/Blake Dinius

**Saturday, May 28** - 10:00-11:30am - Geocaching at Stetson Meadows

**Sunday, May 29** - 11:00am-1:00pm - Crabby Kids at Howland's Landing

**June 7, 14, 21, 28** - Birding with MassAudubon and the NSRWA

### Paddles

**Tuesday, June 21** - 6:00-8:00pm - Summer Solstice Guided Kayak Paddle \$25

**Tuesday, June 28** - 1:00-3:00pm - Guided Kayak Paddle with Blake Dinius \$25



# People of the Watershed

## Board Member Nick Vercollone



*Nick out on his boat fishing for stripers.*

### Why did you join the NSRWA Board?

I've known about the NSRWA my whole life, my family have been members, and growing up on the North River. Then, when I heard about the Striper Tournament, it

made sense to get more involved because I love being on the water.

### What about the mission and work of the NSRWA is important to you?

Dams have caused so many issues for fish. For me it's NSRWA's work to remove dams and see those areas come back. I want to make sure the North River stays the same or better. When I have kids I want them to have the adventures I had when I was a kid.

### You serve on NSRWA's Striper Tournament Committee, what's the plan?

Our goal with the Striper Tournament is to raise awareness about the NSRWA. We want to get people on the water with their friends and family. It's about bringing people together outdoors and for everyone around to see our amazing new logo and hear about this work that resonates with so many people.

## Monthly Donor Julie Mackin

Julie and her husband moved to Norwell 5 years ago and her realtor gave her an NSRWA Outdoor Guide Map. "We have a dog, so that Guide Map and your website have come in handy to



find places to go on walks. We like going to conservation lands in Norwell, and to others like Willow Brook Farm. We've also taken a couple of NSRWA pontoon tours when people have come to visit. It's a great way to see and enjoy the river. We became monthly donors because it's easier and because we are interested in seeing our local waters protected so everyone can enjoy them. We are closely tied to the water – our neighborhood backs-up to the river. We are so close to the coast, and with erosion and storms getting stronger, being monthly donors is a way we can help mitigate all that. It's really about the conservation of the environment."

## Conversation with Robert Tuzik Leadership Giving Circle Member Since 2021

Robert grew up on the South Shore, and in 2021 he and his wife Beata moved to Norwell. They heard about the North and South Rivers Waters Association and were excited to learn about our mission as they are very environmentally conscious. "We joined NSRWA's Leadership Giving Circle because we love what you do and we feel it is our responsibility to do what we can to protect the river and its ecosystems. We live on the river and have had the chance to spend time on it. When we first moved here, I would get out on our whaler or our kayaks or paddle boards. You really take in the beauty of this place when you are on the river. Soon we started seeing trash floating everywhere, and we wanted to do something about it, so we joined the NSRWA. We also started picking up the trash in the water and at landings, and our bucket would fill up every time. I hope we can have a trash pick-up day when everyone



*Robert and his wife, Beata, on the North River.*

can help clean-up our rivers. I think that would bring people together and help keep the rivers clean. The North River is such a special place that never gets old, and with climate change and environmental impacts, we have to do everything that we can to protect it."

NSRWA will be promoting a river trash pick-up day in the fall. Stay tuned!

## Volunteer Coordinator Theresa Delahunt

### Why do you volunteer with the NSRWA?

"We are blessed to live in this gorgeous, water rich part of the earth. Understanding our place as one of many species dependent upon our waters for survival is something I care deeply about. Water



is life. I am amazed at the breadth and depth of activities and efforts by the NSRWA to promote and deepen this understanding. While it is a small organization, it's impact is far reaching: water protection, education of children and adults in why caring for our waters is important, citizen science, monitoring, and community engagement are all critical components of this organization's mission. I am honored and excited to be a small part of this effort."





# North and South Rivers Watershed Association 2021 Annual Report



## 2021 Treasurer's Report

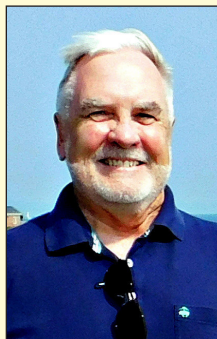
The years 2020 and 2021 may certainly be recalled as the "Pandemic" years. These were unprecedented times for many enterprises. Non-profits and other businesses

dealt with waves of constant change and uncertainty due to forced closures, months of remote work, and national, state and local inconsistent reopening plans.

NSRWA tweaked their models and services to work safely during the pandemic. In-person events became virtual ones. Business models developed over years had to adapt to the unforeseen changes. Our staff showed great ingenuity as they zigged and zagged to get their mission accomplished.

Incredibly, the NSRWA financial position continued to be solid. This is important to note as one reads "that the economic effects of COVID-19 put one in three nonprofits in financial peril due to a lack of donations and government funds."

Fortunately, the ongoing tremendous



Jack Zarkauskas

support of our members keeps us in a very strong financial position and prepared to introduce and expand more "Engagement and Education" programming in 2022 and beyond.

Net income decreased approximately 9%, this was offset by a reduction in expenses of approximately 5%. On the positive side, our Individual Giving increased by ~ 2%. A notable accomplishment when some 24% of non-profits saw a decrease in the contribution area during the pandemic years.

Not reflected in the preceding net income analysis is the recognition of \$76,322 from the Payroll Protection Plan (PPP) "Loan" received in 2020. The loan gave us the security to maintain our staff and much of our programming. In continuing our conservative stance until loan forgiveness was received through the SBA this loan was carried as a liability in 2021. With receipt of forgiveness, the proceeds will be recognized as income in 2022.

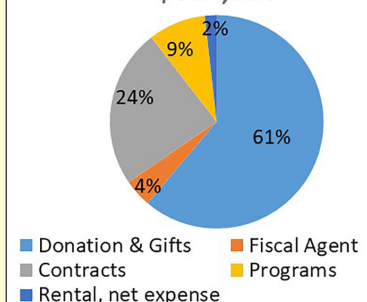
In the asset area, the NSRWA Endowment Fund has increased by over 15% from a balance of \$260,000 at year-end 2020 to a 2021 year-end balance of just over \$300,000.

Entering 2022, NSRWA continues to be on solid financial ground and well-positioned to continue to expand on our

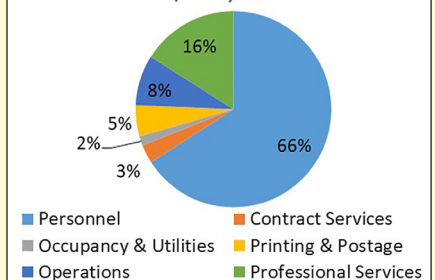
goals of Education and Engagement providing for a Healthy Watershed.

Jack Zarkauskas,  
NSRWA Treasurer

### 2021 Revenues \$624,110



### 2021 Expense \$620,754





# 2021 Accomplishments

## Educated:

- Delivered watershed science education to 3,300+ youth
- Reached more than 140,000 people with our water conservation messages
- Conducted 9 weeks of successful outdoor recreation adventure programs for youth

## Engaged:

- Educated and engaged 4,200 people with the outdoors, including 600+ children
- Partnered with 25+ regional organizations and 12 towns to advance our mission

## Advocated:

- Empowered local residents to take action to protect the North River and local shellfishing traditions through petitions and outreach to legislators
- Successfully advocated for the enforcement of No Wake and No Discharge in the North and South Rivers

## Healthy Rivers:

- Advanced on-the-ground river restoration projects that build climate resilience in our watersheds
- Furthered efforts to remove dams on the South River and the restoration of the Third Herring Brook

## Thank You for Your Support!

A special thank you to the more than 6,000 people of our NSRWA community for everything that you do to protect our local waters. Each one of you helps advance our mission, whether through your financial support, volunteerism, expert advice, or participation in our efforts including our programs, events, and on-the-ground projects. With your help, we had many accomplishments and successful events in 2021, including our South Shore Striper Tournament, Great River Race, Scitstock, and Annual Meeting & Member Appreciation Picnic. We couldn't do it without you.

### 2021 Corporate Sponsors

#### River Defender (\$5,000 - \$9,999)

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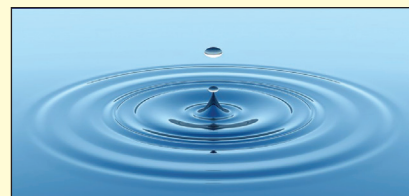
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This newsletter was produced in cooperation with See Plymouth and Plymouth County Commissioners.



## NSRWA Legacy Circle

Our Legacy Circle honors those who have included the NSRWA in their estate plans. Their visionary support will ensure future generations may enjoy and rely on precious local waters.

Email [samantha@nsrwa.org](mailto:samantha@nsrwa.org) if you would like more information about naming the NSRWA as a beneficiary in your estate plans, or if you've already included the NSRWA in your estate plans so we may welcome you to our Legacy Circle. A special thank you to our current Legacy Circle members:

- William and Susanne Bottiggi
- David DeGhetto
- Betsey and Robert Detwiler\*
- Peter and Julie Kelly-Detwiler\*
- Herb and Pauline Emilson\*
- Craig and Danny Hannafin\*
- Richard and Jackie Leach\*
- Deborah Lenahan\*
- Pieter and Susan Mimno
- Brad White
- Michael and Susan Wolfe\*

\*Founding members



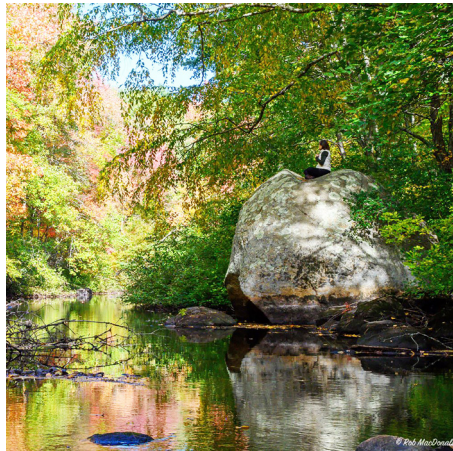
# Indian Head

Continued from Page 1

by industrial uses throughout the 20<sup>th</sup> century. The most widespread and ecologically concerning contaminant left behind is mercury which is found in the pond sediments and adjacent land. Mercury bioaccumulates up the food chain and has contaminated the fish and other wildlife in the vicinity of the contaminated site.

Multiple parties have been identified as being potentially responsible for the contamination and formed the Joint Fireworks Defense Group. In 2011 a \$6.9 million Natural Resources Damages (NRD) Trust Fund was created from the bankruptcy settlement with one of the potentially responsible parties. These funds can only be used for the restoration of natural resources damaged by the contamination, and include fish and river habitats that were injured by the release of mercury into the environment.

The use of the NRD funds is a separate effort and funding source from the ongoing clean-up operation at the area of the Factory Pond site to remove the mercury



Large glacial erratic on the Indian Head River by Rob MacDonald.

and other contaminants. The site clean-up effort continues to move forward with the detonation and removal of unexploded ordnances that have been found in Factory Pond and adjacent lands.

Last summer a state funded preliminary study examined the removal of the lower two dams at Elm St. and Cross St. to restore the Indian Head River. Their findings indicate that removal is possible but some contaminated sediments were found behind both dams. The big question is who is responsible for those?

Did they migrate from the Fireworks site upstream? If so, then the Joint Fireworks Defense Group would be responsible for their removal. If not, then perhaps the NRD Trust Fund could pay for both dam removals and the contaminated sediments. Whoever is responsible, leaving contaminated sediment in the river is not the solution.

Recently the NSRWA, with the support of the towns of Hanover, Hanson, and Pembroke, was awarded a portion of the NRD funds for further investigation and community discussion for the potential to restore fish habitat in the Indian Head River through dam removal. The restoration of the Indian Head River to a free-flowing river would make it more resilient in the face of a changing climate, eliminate contaminated sediments, and remove the town's liability of fixing and maintaining old infrastructure and return the river to the native shad, herring, eels, and other river-loving species that once called it home.

## Shad

Continued from Page 1

and just as with the herring, a cold snap will slow or stop the run, pushing the shad back into the depths until things warm up.

### Fishing For American Shad (*Alosa sapidissima*)

American shad are the largest members of the herring family (*Clupeidae*). Male shad average 2 to 3 pounds at maturity, while females average 4 to 5 pounds. Shad of over 8 pounds have been caught in the Indian Head River and shad of 15 pounds have been recorded.

Roughly translated, "sapidissima" means 'most delicious'; this as opposed to the name for hickory shad, which is *Alosa mediocris*. We don't need to know much Latin to figure out that hickory shad are not valued as a food fish, while American shad certainly are – or were.

Shad were prized both for their sweet flesh and for their roe and the commer-

cial harvest of shad made it the most important river fishery in the state of Massachusetts. But by 1867, when the Massachusetts Fishery Commission was formed, shad were disappearing from the Connecticut, Merrimack and other rivers due to dams and pollution. In his book, *The History of Scituate*, Samuel Deanes laments that, as early as 1830, the herring, shad and striped bass of the North River were in steep decline due to the proliferation of dams.

Today, in Massachusetts, shad are treated as a sport fish, and are often referred to as the "Poor Man's Salmon." To some extent, shad have been restored to both the Connecticut and Merrimack Rivers, and the runs of shad in the North and South Rivers, although limited by the continued presence of dams, still provide the unique opportunity to fish for American shad in relatively small and wadeable streams. As anyone who has hooked up with a freshly returned shad in the Indian Head River knows, shad can be worthy of their comparison to salmon.

A recent assessment of the Indian Head's shad population found that it is relatively small, a probable consequence of the limited spawning water that is available below the Luddam's Ford Dam at West Elm Street. Because of the limited population, fishing for shad in the North and South Rivers is now only allowed on a catch and release basis.

I rarely fish for the shad now, except as a part of a yearly ritual that includes waiting for their return in April, or a morning spent standing in the pool where I used to fish for shad at night back in the 70s. And during the day I get to see what I was missing at night, things like the spawning lamprey eels, and the giant snapping turtles that prowl the river bottom scavenging for dead shad and herring. It's still good to stand in the river with the water flowing around me. At such times I think about a spring day when the dams upstream will be gone, and the shad will have their river again.





# WaterWatch


NORTH AND SOUTH RIVERS WATERSHED ASSOCIATION  
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[www.nsrwa.org](http://www.nsrwa.org) • 781-659-8168

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## Inside This Issue:

- Restoring the Indian Head River
- Shellfish Beds Closure
- Blue Mussels, Red Knots, and Green Crabs
- 2021 Annual Report

**NSRWA 6<sup>th</sup> Annual**  
**South Shore Striper**  
**Tournament**  
**June 10-12, 2022**  
**\$3,000 in CASH PRIZES**  
**Includes a Fly Fishing Division!**  
**Details at [nsrwa.org](http://nsrwa.org)**



## Join or Renew Your Membership Online!

Scan QR code  
with smartphone  
camera



## Celebrate the Indian Head River and Trails Day

Saturday, May 14, 2022  
9:00am—3:00pm

Events include:

- Morning Trail Run
- Guided Paddling
- Flyfishing Workshop
- Guided Walks
- And More!



For shedule and registration, visit, [www.nsrwa.org/events/](http://www.nsrwa.org/events/)



**2022 Great River Race**  
**Live Race - Sunday, July 24 • 9:15am Start**