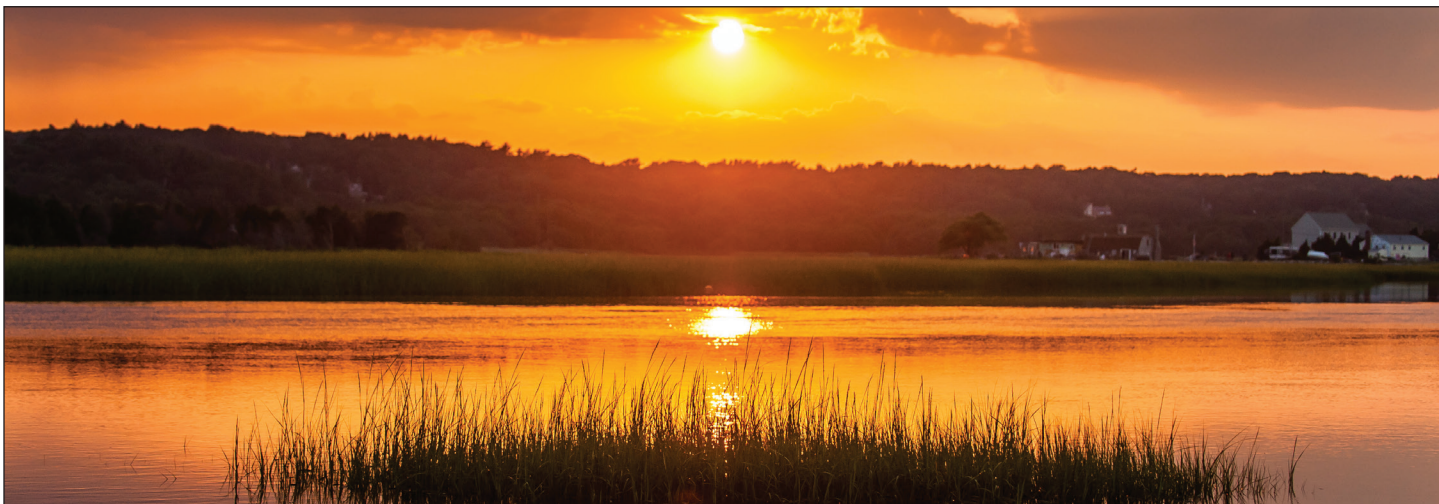




WaterWatch

THE NORTH AND SOUTH RIVERS WATERSHED ASSOCIATION

Protecting our Waters Since 1970



The South River side of Rexhame Beach by Kjeld Mahoney.

\$1 Million Grant Expands Capacity for Restoration

The need to restore, heal and make our rivers, streams and salt marshes more resilient is critical to our healthy watershed approach to the changing climate. Coastal wetland ecosystems provide valuable services, and keeping them healthy is important so they continue to act as carbon sinks as well as soak up flood waters, filter pollutants, and support wildlife and recreation.

In February, the NSRWA was awarded a \$1 million grant – the single largest grant in our history. Gifted by a generous anonymous donor, these funds are earmarked to build capacity for dam removal and river restoration projects in

our watershed over the next three years.

We are grateful for this gift, which will accelerate our capacity to remove dams and build fish passage projects by helping to pay for direct expenses (such as engineering, permitting and construction costs), expanding our staff capacity for project management, increasing our education programs about the benefits of restoring rivers, and identifying new river restoration projects in our watershed. As an added bonus, by increasing our staff capacity for river restoration, this gift will allow our existing staff to focus on developing new plans for the restoration of our salt marshes.

The concept of restoration is often tied to the past, an idea of putting things back the way they were. However, when we begin our restoration projects, we are looking toward the future. We are thinking about how things can get better. We are thinking about being resilient against the threats of climate change on the horizon and, in many ways, already creating change in our coastal ecosystem. Two of our upcoming projects are highlighted in this newsletter, one at our headwaters (pg. 4) and the other at the coast (below), that show how we are looking toward a brighter ecological future and one that can better adapt to the challenges of a changing climate.

Restoration and Resilience for the Future

Salt marshes are a beautiful and ecologically-important part of our coastal ecosystem on the South Shore. They provide food and shelter for animals, protect our coasts, and buffer our rivers from upland pollution. Between getting battered by storms and impacted by fertilizer, they also have to cope with erosion from boat wakes. Sea level rise is currently causing our marshes to degrade, as higher water levels are taking advantage of centuries-old

modifications to the marsh for farming and decades-old ditching. This impacts the upper part of the marsh dominated by *Spartina patens* (salt marsh hay), which is slowly disappearing, and along with it, critical habitat for species like salt marsh sparrows.

NSRWA and MassBays South Shore are beginning a multi-year effort to evaluate the marshes of the South Shore using

See Marsh, 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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NSRWA

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

Letter from the President

In 2022, we revisited the North and South Rivers Watershed Association's mission and purpose, focusing on what the future would hold for us. How could we pivot with the changing climate challenges and deliver more to our advocates and supporters? That review provided a simple but effective mission; our focus would be "Education + Engagement = Healthy Waters". Each of those elements could not be more important and gave us the direction to focus on what matters.

In 2022, our education programming reached over 4,500 youth; more than double the number we worked with in 2017. We also developed and began delivering new programs focusing on climate change. In addition, we provided free outdoor educational programming through our Estuary Explorers program to those who could not afford it, thanks to a gift from the Michele E. Dufault Foundation. This program provides estuarine science excursions to our rivers either by kayak, our pontoon boat, or via the Spit.

Through active engagement with our communities, we interacted and explored our diverse watershed with over 2,500 adults. Whether through a guided walk, a citizens science adventure with our staff ecologist, a paddle through one of our streams or rivers, or a Saturday morning yoga retreat at the river's edge, these interactions allowed us to get to know you better and share the intricate details of our beautiful watershed ecosystem.

Last year, I wrote that as part of revisiting our strategic plan and "Journey to 2025", we needed a deeper focus on a healthy watershed to ensure we didn't lose sight of our advocacy focus and a renewed emphasis on climate resiliency. Through the following pages, you will learn what our team is doing to bring this to life at the river's source. You'll find stories about restoring our rivers, healing our salt marshes, and restoring shellfishing to the rivers. You will also read that through your and our team's efforts, we are stronger financially than ever before as an organization.

Our team this past year has worked tirelessly to deliver on this expanded advocacy and programming commitment.



We successfully secured over \$500,000 in grants, donations, and gifts to support our focus on advocacy and climate resiliency. And as of this writing, we were informed that we are the recipient of an anonymous gift of \$1,000,000. This gift directly results from our team's success in delivering on our river restoration efforts. It will give us the foundation for the next three years to further this focus and delivery against our goals. You will see through the stories to come just how we will be leveraging this tremendous commitment.

Rick Mayfield, NSRWA President

**Visit us
online at
nsrwa.org**



And connect with us on:

- **Facebook** nsrwa.org
- **Twitter** @nsrwa
- **Instagram** @northandsouthrivers



Photos from Tuesday, November 1, 2022 when concerned citizens gathered at the Driftway in Scituate to protest the closure of the shellfish beds.

Shellfish Beds Open... Then Shut!

After 2 ½ seasons of not being able to harvest shellfish in our rivers, a portion of the shellfish beds were finally reopened on January 1, 2023! In December last year, the Massachusetts Division of Marine Fisheries (Mass DMF) presented the findings of a dilution study and water quality sampling results from the Scituate Wastewater Treatment Plant that allowed approximately 60% of the formerly open shellfish bed area in the North and South Rivers to be reopened. The remaining 40% is closed due to “the potential for contamination”, not actual contamination from the Scituate Wastewater Treatment Plant.

Our thanks to all who have signed petitions, emailed their legislators, and attended public meetings and shellfish sit-ins. Your collective voices have been instrumental in getting this reopening to happen! Particular thanks go to Representative Patrick Kearney and Senator Patrick O'Connor for securing funding for the studies and to David Dauphinee and Shellfish Warden Mike DiMeo, both avid clammers who have advocated for all of us to be able to harvest our own food.

Rockland Sewer Overflows Into French's Stream Closing Shellfish Beds 16 Miles Downstream

Unfortunately, on January 27, 2023, 26 days after re-opening, the shellfish beds were once again closed, this time until February 17th, due to an actual spill of partially treated sewage from the Rockland Wastewater Treatment Plant, which discharges approximately 16 miles upstream in a tributary called French's Stream. As we were putting this



newsletter together, yet another closure occurred on March 15, 2023, due to the release of partially treated sewage from Rockland sewer due to heavy rains.

The Rockland Wastewater Treatment Plant has an ongoing problem due to leaky sewer pipes. During significant rainfall (the two events were 5" and 4" events respectively) rain water infiltrates the sewer pipes and overwhelms the treatment plant, resulting in a release of partially treated effluent (solids are removed and the water is chlorinated) into French's Stream. French's Stream flows into Forge Pond, then into the Drinkwater River which flows into the Indian Head River, and eventually into the North River.

The infiltration and inflow (I/I) and overflow issue in Rockland's sewer system has been an outstanding concern of the NSRWA for years. In 2006, the NSRWA appealed the town's National Pollution Discharge Elimination System (NPDES) Clean Water Act permit that

allows Rockland to discharge into French's Stream over this very same issue. In 2022, 16 years later, a new order to comply with the Clean Water Act was issued by the US EPA. Currently, the town of Rockland is working to resolve these overflow issues and is undergoing a Comprehensive Wastewater Planning process. A sewer hook-up moratorium was instituted in July 2021. Stay tuned.

Water Quality Threats Highlighted with New Sewage Notification Law

These overflows are likely a common occurrence when it rains but this is the first time the public and Mass DMF were made aware of it. This is due to a piece of legislation that we helped pass with our partners in 2021 called the Sewage Notification Act. This law is working just as we intended – to alert the public and other state agencies to these infrastructure problems and hold wastewater dischargers accountable for their failing infrastructure.





Luddam's Ford Dam on the Indian Head River. Photo by Samantha Woods.

Dams - What are They Good For?

All over the world, free-flowing rivers have been dammed to accommodate population growth, industry, and exploration. As a result, these types of rivers are akin to an endangered species and should be protected accordingly.

As we look towards the future, NSRWA is working to reconnect and restore the natural flows of our water bodies. One of these projects will look at the Indian Head River, which is the headwaters of the North River. There are three dams along this river that runs through the towns of Hanover, Hanson, and Pembroke. We

are in the early stages of a study that will look at the potential impacts of removing Luddam's Ford Dam and State St./Cross St. Dam, the first 2 dams from the ocean, to reconnect 3 miles of the Indian Head River to the ocean.

These are just 2 of over 3,000 dams across Massachusetts. Of those 3,000 dams, 1% are currently used for hydro-electric power, 1% are used for flood control, and 2% are reservoirs. The remaining 2,500 or so were built to support industries that no longer exist.

Once you remove that human need

for the dam, we are left with the many negative impacts dams have on rivers. When a river is dammed, it turns that free-flowing body of water into a series of ponds. This leads to increased water temperatures which decreases oxygen levels and makes it an inhospitable place for plants and animals to live.

Dams also create a physical barrier for fish that use the rivers for passage. This applies to both anadromous fish that need to travel upstream from the

See Dams, Continued on Page 11

Meet the Indian Head River Restoration Steering Committee Members

Last fall, the Towns of Hanson, Hanover, and Pembroke each appointed one member to sit on the Indian Head River Restoration Steering Committee. The Steering Committee members are community liaisons who provide input to help guide the project and facilitate outreach. They are an essential part of the process and we asked them to share their perspectives after sitting on the Steering Committee for the last few months.

Matt Dyer, Hanson Representative, Previous Select Board Member

With the build-up of potential toxins at the base of the aging infrastructure, it is nerve-racking to think what could happen



Matt Dyer

if action is not taken.

It is time to remove the dams, not only for public safety or fiscal reasons, but for the environmental and ecological benefits that it would bring to our communities. The dams serve no function to industry and are outdated.

Becky Coletta, Pembroke Representative, Pembroke Select Board

I have learned that Luddam's Ford Dam is the first dam blocking fish migration up from the ocean and that it does not allow the flow of fish into the river system.

Also, the dams that were built to support the original development of our country are now having a negative impact



Becky Coletta

on the rivers. Once the dams were no longer needed, we failed to go back and restore the ecosystems.

Steve Kmito, Hanover Representative, Previous Advisory Committee Member

My biggest concern is the impact the dams have on fish and their spawning habitats. Salmon runs are long gone and, when they tried to reintroduce them when I was younger, it didn't last more than a year or so. Salmon need cold water and the dams cause higher water temperatures. I just want to see the river back to its original state - a free flowing river, the way it should be.



Steve Kmito

Water Supply on the South Shore

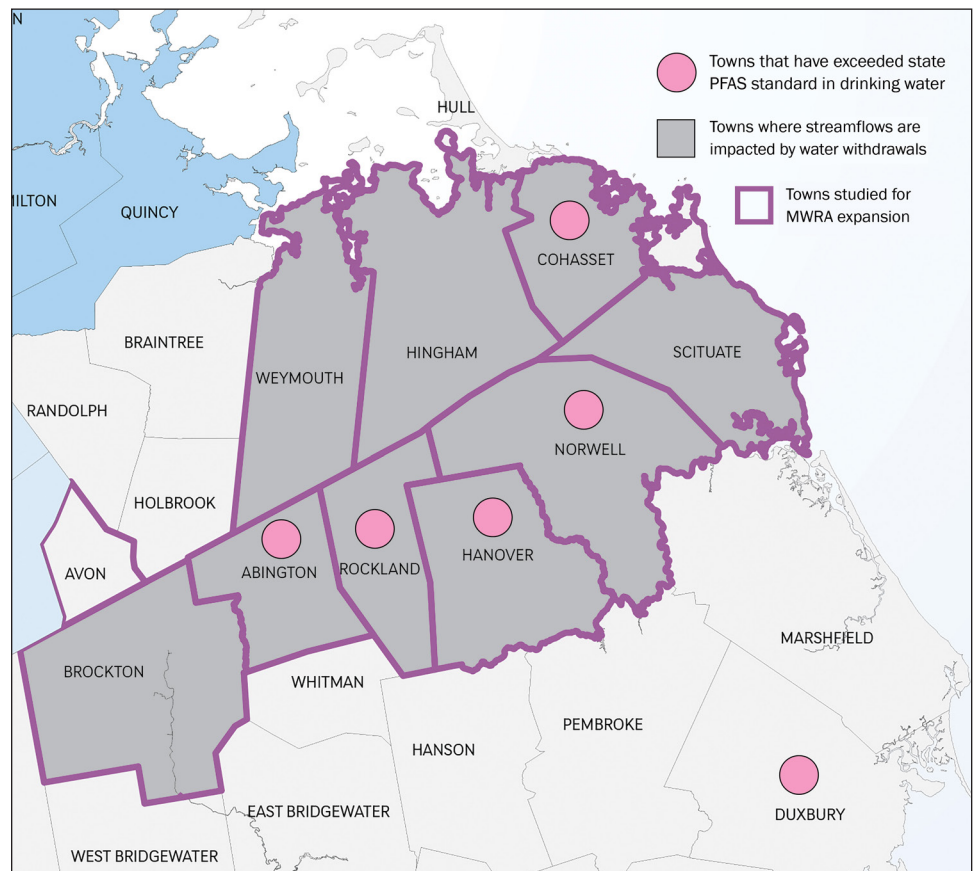
Is MWRA Part of the Solution to Water Supply and Streamflow Problems?

At the request of the legislature, a recent study was completed by the Massachusetts Water Resources Authority (MWRA) that examined the feasibility of expanding the MWRA water supply system to serve towns on the South Shore of Massachusetts as well as the North and MetroWest regions. The MWRA system's source of water is the Quabbin Reservoir and currently serves the city of Boston and greater Boston. The study was done in response to communities facing multiple water supply stressors including:

- Contamination of local water supplies by PFAS (per- and poly-fluoroalkyl substances),
- More intense summer drought and heat due to climate change,
- Lack of new available local sources,
- Lack of water supply in the summer-time due to increased summer demands, and
- Depletion of streamflow negatively impacting local fish and wildlife.

The MWRA Water System South Shore Expansion Evaluation examined supplying 10 communities: Weymouth, Brockton, Abington, Rockland, Avon, Hingham, Hanover, Norwell, Scituate and Cohasset. This planning level study is conceptual and not at all a final blueprint for how this could be accomplished, but rather a first attempt to understand what might be feasible. The report examined two different alternatives - one in which MWRA fully supplied all 10 communities and one that only served Weymouth, Brockton and Avon.

The report did not examine MWRA providing partial supply where towns might blend MWRA water with local water supplies, or use it seasonally to meet summer demands, nor does this study examine wheeling water - conveying water through one community to another through interconnected existing water lines. The cost to supply all the communities totally with MWRA water was estimated to be \$1.5 billion and would take 20- 25 years to complete. The second alternative to supply only Brockton, Avon, and Weymouth was



Map from Massachusetts Water Resources Authority edited with NSRWA content.

estimated at \$540 million and would take 7-10 years.

We have been involved in discussions with other watershed associations, regional planning agencies, the South Shore Chamber of Commerce, and our state legislators about this study and how we can promote a sustainable approach that ensures affordable, clean, adequate drinking water, that improves and protects the South Shore's watersheds' streamflows, and does not promote inappropriate growth.

It is a lot to hope for, but we need to get it right for the future of the region's people, wildlife, and water resources.

To read the entire report visit:
www.mwra.com/O2org/html/expansion/102022-southshore.pdf

Towns in Our Watershed that Have Had PFAS Found Above State Drinking Water Standards

Abington/Rockland Joint Water Treatment System - The Public Water Supplier (PWS) detected PFAS above 20

ppt in one of its water sources (Hingham Street). The PWS installed a treatment system to remove PFAS and is also determining long term corrective action(s). Contact PWS for more information.

Hanover and Norwell - Use QR code to watch the NSRWA's WaterWatch Lecture "PFAS in Our Waters" to hear more about how Norwell and Hanover are dealing with PFAS in their drinking water.



Cohasset - PWS shut down the well that had PFAS and is looking into treatment options.

Duxbury - PWS shut down the well that had PFAS and is looking into treatment options.

Please visit your town's water department website for the most up-to-date info.

To find out more about PFAS in your water visit: www.mass.gov/info-details/per-and-polyfluoroalkyl-substances-pfas



X-Cel Conservation Corps preparing to paddle the Driftway. Photo by Don Sands.

The Outdoors is for Everyone - Breaking Down Barriers through Estuary Explorers

NSRWA's 'Journey to Healthy Waters 2025' Strategic Plan aspires to build a stronger foundation for our education and engagement programs by connecting people to their waters, increasing equitable access to water, and inspiring action to build a resilient watershed in the face of climate change. One of our key strategies is to deepen our commitment within our organization and through our programs to building a culture that is diverse, equitable, and inclusive of underrepresented groups.

The goal of our Estuary Explorers program is to bring youth of all ages out into the North and South Rivers estuary to explore its many diverse areas, understand their importance, see amazing wildlife, and learn how we can all help protect our waters and environment. Last year, we provided participants the opportunity to explore local salt marshes, tide pools, mud flats, and dunes.

They learned about local ecology through fun, hands-on shellfish identification, coastal wildlife searches, and scavenger hunts. These students become familiar with coastal estuary habitats and some of the tools scientists use to assess their health. These unique experiences are invaluable for our youth to become better stewards of local waters and nature.

Thanks to the Michele E. Dufault Foundation, our Estuary Explorers program offers fully subsidized 2-hour hands-on science-based estuary explorations in our own North and South Rivers. In 2022 we served 399 youth, with 60 adult volunteers supporting the program. We hosted 13 trips and engaged 9 partners.

One partnership we are most proud of is with X-Cel Conservation Corps. X-Cel Conservation Corps breaks the cycle of poverty by preparing Boston youth for careers in water management and

conservation that lead to economic self-sufficiency. Key components of the X-Cel Conservation Corps include workforce readiness development, paid conservation projects to improve water quality and build environmental resilience in Eastern Massachusetts, classes to prepare for wastewater operator licenses, and paid internships in the water management field. In 2022, we engaged 43 participants from X-Cel Conservation Corps as part of their education to become future water managers!

Also in 2022, we were also able to take 75 students from the Scituate High School Post Grad Special Education program. What a great experience to bring these young people out to experience the science and nature of our coast.

We believe that nature belongs to everyone and that we have a responsibility to share it with them.

NSRWA Outdoor Adventures are Going Mobile!



For the past 4 years, the NSRWA has continued to expand its outdoor education and engagement opportunities for youth. This year is no exception. Through a blend of NSRWA and partner programs, the Association is becoming an organization that parents and guardians from the community look to for educational, safe, and fun outdoor opportunities for their youth.

Something new to look forward to this year is the addition of a 15-passenger van. The NSRWA will soon be able to provide transportation to and from activity locations. This will allow us to be more accessible for families who want their youth to engage in meaningful outdoor activities, but may not have the ability to get to program locations. Our upcoming programs are listed below, including some in which transportation is provided. We will see you around the watershed this year in our new van!



April Vacation Adventures with the NSRWA

A co-op with Norwell and Rockland Recreation, this 4-day morning adventure program will develop different outdoor skills each day.

Dates: April 17-20, Monday-Thursday

Time: 9:00am-12:00pm

Monday - Fishing @ Jacobs Pond, Norwell

Tuesday - Geocaching @ Jacobs Pond, Norwell

Wednesday - Forest Ecology and Quaking Bog Exploration @ Black Bog, Norwell
Thursday - Vernal Pool Discovery @ Hartstuff Park, Rockland

Ages: 9-12

Norwell Registration: www.townofnorwell.net/recreation-department

Rockland Registration: www.rocklandma.myrec.com/

Registration open to other towns.

Spring Outdoor Adventures with the NSRWA

Dates: May 3-24, 4 week program, Wednesdays

Time: 4:00-5:30pm

These weekly after school adventures help to develop different outdoor skills.

Ages: 9-12

Meet at 4:00pm each Wednesday at the following locations:

May 3 - Fishing @ Jacobs Pond, Norwell

May 10 - Vernal Pool Aquatic Discovery @ Denham Pond, Hanover

May 17 - Geocaching & Capture the Flag @ Stetson Meadows, Norwell

May 24 - Fire Building & Survival Skills @ Couch Beach, Marshfield

Visit: www.townofnorwell.net/recreation-department for more info and registration.



Summer Youth Programs South Shore Explorers

Dates:

June 26-29 AM Session - Rockland Rec.

June 26-29 PM Session - Norwell Rec.

July 17-20 AM Session - Norwell Rec.

July 24-27 AM Session - Rockland Rec.

July 31-August 3 - AM and PM Sessions - Norwell Rec.

August 14-18 AM Session - Norwell Rec.

August 21-25 AM Session - Rockland Rec.

Times: AM Session 9:00am-12:00pm

PM Session 1:00-4:00pm

Monday - Thursday (Friday rain date)

4-day outdoor leadership, survival, and adventure activities. Kayaking, fishing, geocaching, hikes, and more! All equipment included.

Ages: 9-12

Norwell Registration: www.townofnorwell.net/recreation-department

Rockland Registration: www.rocklandma.myrec.com/

Registration open to other towns.



NSRWA Summer Adventures

Dates and Times:

July 5-7 from 9:00am-12:00pm

July 26-28 from 1:00-4:00pm

August 23-25 from 1:00-4:00pm

3 Day program

Ages: 9-13

Morning and afternoon sessions available. Kayaking, fishing, hikes, outdoor leadership. Transportation included!

Visit nsrwa.org/events

River Adventures

Dates:

July 10-14, August 7-11 - 5 Day, Monday-Friday program

Time: 9:00am-4:00pm

A partnership with the Marshfield Boys and Girls Club. Transportation included.

Kayak the North, South, and Green Harbor Rivers! Explore a different area each day. Build kayak confidence. Discover local marine and freshwater ecology. Build outdoor leadership skills. Have a ton of fun.

Ages: 11-13.

Visit: www.bgcmarshfield.org



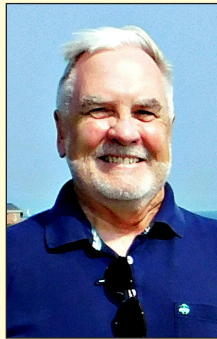
2022 Annual Report

2022 Treasurer's Report

Last year, in the 2021 Treasurer's Report it was noted that "The years 2020 and 2021 may certainly be recalled as the 'Pandemic' years." Although 2022 did see some continuation of the pandemic's impact, fortunately we started to see some cautious return to a new state of "normalcy". Of course, in the financial sense, this recovery was tempered somewhat by new inflationary pressures which affected all of us on a personal level. The North and South Rivers Watershed Association experienced similar financial pressures. Fuel, electricity, insurance, outside services and a myriad of other expense categories saw increases reflective of the economy as a whole.

However, NSRWA continued to adhere to and even expanded upon its purpose to protect our waters through public education and engagement programs as well as on the ground restoration projects.

Not surprisingly, the commitment



Jack Zarkauskas

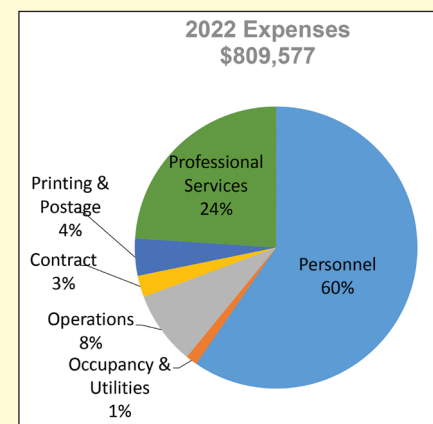
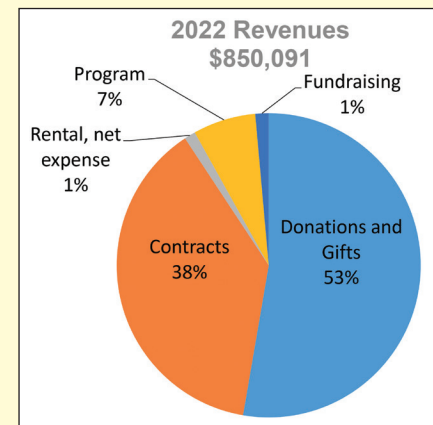
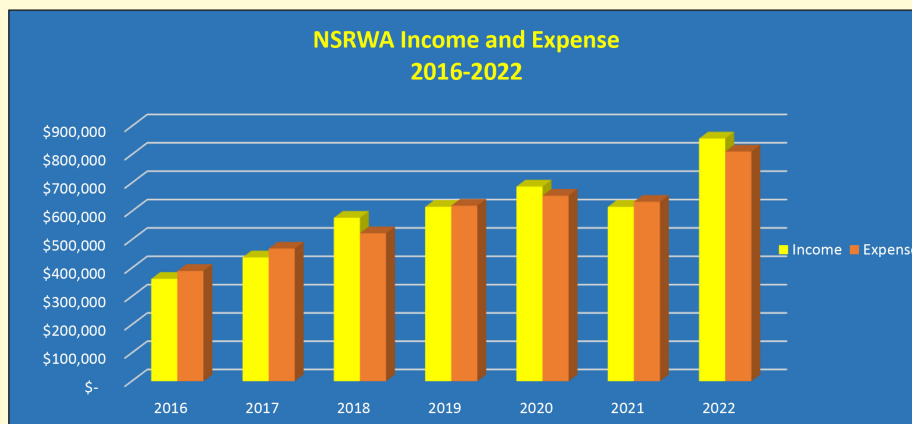
to broaden the programs and the numbers of people involved also requires the diligent raising and use of financial resources. The NSRWA financial position continues to be solid. This is due to the continued and expanded support of contributors who realize the need to protect our water resources. Elsewhere in this issue you will find the facts and figures as to how NSRWA has increased its resources (and increased financial support) to programs fulfilling the mission. As Treasurer, I commend the staff, volunteers and contributors for their initiative, energy, stamina and commitment throughout some rather challenging years.

Net income for the year was a positive 4.7% with revenue and expenses reaching approximately \$850,000 and \$809,000 respectively. Of special note we saw our Donations and Gifts increase vs. 2021 in all areas including Individuals, Corporations and Foundations. Of all areas, the one less positive result was unsurprisingly the return in our endowment fund which is directly traced to the negative returns of the financial markets on a whole. Any non-cash investing continues to be governed by our conservative investment policy and a return to positive results is expected in lockstep with a broader economic recovery.

The organization carries no Long Term or Short-Term debt. It currently enjoys a Current Ratio of over 14 (reflects very strong ability to cover current liabilities with current assets).

Entering 2022, NSRWA continues to be on solid financial ground and well-positioned to continue and expand on our goals of Education and Engagement providing for a healthy watershed.

Jack Zarkauskas
NSRWA Treasurer

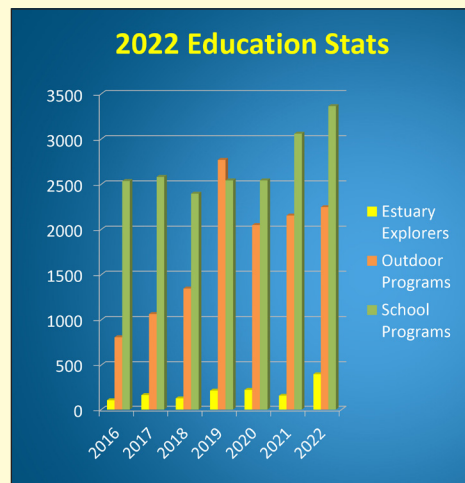


NSRWA Sees Growth in Education

Youth Climate Action Toolkit

The NSRWA continues to expand its education and engagement reach. In addition to the many educational opportunities for students, the NSRWA is now looking to be a resource for local South Shore teachers and educators. Building upon the success of programs like F.I.S.H. School, paired with the expansion of the new Grow Native program, the Association will soon offer a place for educators to go to access the wonderful resources of our educational programming.

This new initiative will be called Youth CAT, standing for Youth Climate Action Toolkit. Due to the need to make school curriculum as user friendly as possible, plus the rapidly changing educational landscape of the past few years, the NSRWA has created several programs that can fit the diverse needs of schools, classes,



and audiences. We look forward to launching this “one stop shop” site to better make programs more available and accessible.

Banner Year for Estuary Explorers

2022 saw a rapid expansion in the numbers of partnerships, program expedi-

tions, and students engaged. A couple noteworthy changes included the addition of “teacher led” activities which provided instruction and activities for visiting teachers to lead. This allowed for multiple groups to be formed, resulting in the NSRWA’s ability to host entire grades all at once.

Another achievement was the adaptation of multiple fourth grade marine science and ecology standards, which makes the program a great field trip opportunity for local schools, allowing us to run programs well into the fall. And lastly, since the NSRWA has made it a priority to have our outdoor youth programming accessible to any student, we were able to tailor the program’s model to better engage groups of diverse needs and backgrounds. This allowed us to form new partnerships including Scituate High School’s Post Graduate Program and The American Field Services Cultural Exchange Program.

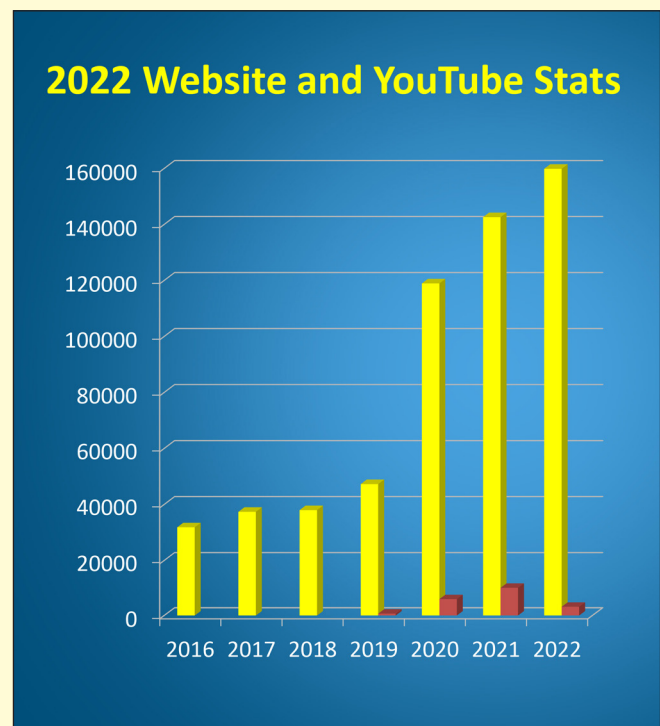
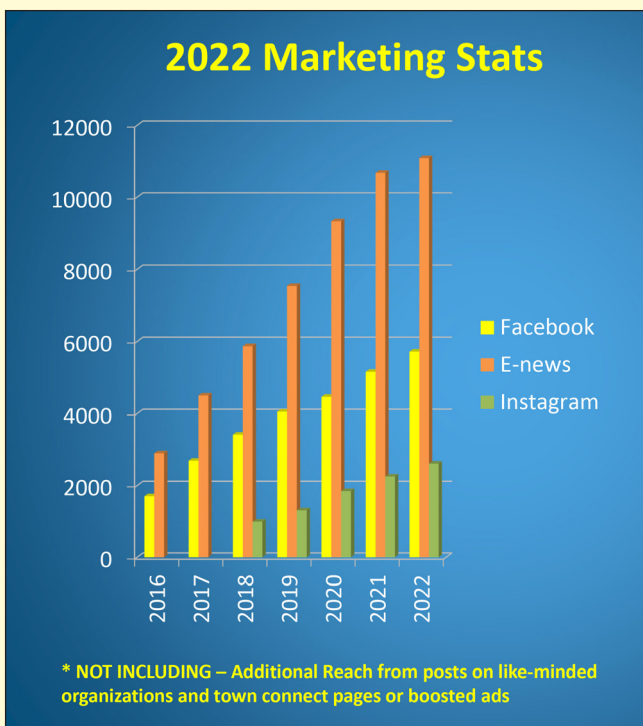
Audience Growth Since 2016

Facebook – In 2022, we had a 10.9% increase in followers (National average increase 1.23%)

E-news – We had a 48% Open Rate (Average open rate for nonprofits is 25%)

Instagram – There was a 15.9% increase in followers (National average increase 1.6%)

Website – The Explore South Shore pages are consistently top website searches and 1st in Google searches



Meet Our New NSRWA Board Members

Josh Hoch

Josh Hoch lives in Hingham and enjoys kayaking, paddle boarding and beach days with his wife and two children. Josh got involved with the NSRWA because he feels strongly



Josh Hoch

about cleaning and protecting our local rivers. He believes we need to educate the public, especially our children, about our watersheds and caring for the precious natural resources we are lucky to have in our area.

Russ Landon

Russ and his family have lived on the North River in Norwell since 1998. His company, North River Capital Advisors, provides financial advisory services to companies in the environmen-

tal, renewable energy, climate change management and sustainability sectors, this sector focus going back for over 30 years. In addition, he has served on the Board of the Northeast Clean Energy Council for the last 15 years.

The North and South Rivers Watershed is an incredible resource, and what better way to make a difference in climate change and sustainability than to get involved in our own back yard.



Russ Landon

Jocelyn Keegan

Jocelyn grew up in and out of Hanover. She fell in love with open space and public access to trails and waterways since her days in Colorado and DC. Together with her now teenage sons, she and husband Dave can often be found with friends and family enjoying local trails, ponds and rivers. She got involved with the NSRWA because she's seen

firsthand the direct benefits of increased conservation: cleaner waters, restored shellfishing, and large birds like egrets, hawks, and eagles returning to our rivers right in our own backyards. At the same time, she knows there are new and continued challenges from human impact on climate and ecosystems: warmer and rising waters, beach and soil erosion, household and industrial waste and hazardous materials leaching into our waterways. Change is, at its core, human powered. We each have the opportunity and responsibility to continue to restore and create the resiliency needed to protect our local ecosystems.



Jocelyn Keegan

Thank You for Your Support!

We are grateful to the following corporations and organizations for their financial support and in-kind donations in 2022 to help protect our local waters.

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Conservation Through the Generations

A notable program took place at the end of 2022. The NSRWA brought F.I.S.H. School to the third graders of Plymouth River Elementary in Hingham. Like so many other F.I.S.H. School programs the NSRWA has run, the students of Hingham participated in a live presentation, navigated a herring simulator obstacle course, and performed citizen science by counting fish as they swam past the underwater camera during their migration period. All activities geared towards the discovery, education, and conservation of river herring, one the South Shore's keystone species.

This program has educated thousands of school students all over the watershed area. This particular program visit was extra-special because one of the third grade participants was Micah Levine the great-grandson Jean Foley, the founder of the North and South Rivers Watershed Association.

As you are probably well aware, around 1969, Jean formed a group of



Micah Foley, Jean Foley's great grandson participating in a "Herring Challenge Obstacle Course" as part of NSRWA's River Herring Program entitled F.I.S.H. School.

concerned citizens after discovering an absence of bird calls from the once common Salt Marsh Sparrow. The NSRWA was officially formed in 1970 and the rest is history. Now, fast forward 50+ years later and the legacy of Jean's work continues.

It came full circle as her great grandson and his entire grade discovered the importance of river herring, became scientists for the day, and made connections with their natural world. "He's always been interested in nature and exploring outdoors, just like she was," said Jessica Foley, Micah's mom, "This program was great for me because it brought back so many memories of my grandmother (Nana), and as an adult I can appreciate how she went about founding NSRWA. It has also given me the chance to tell Micah more about her and Jack Foley, my dad, because he never got to meet them."

For the past 53 years, the mission of the NSRWA has been to preserve and protect our waters for now and forever. And it is neat little moments like this that bring the past, present, and future all together. If Jean were here today, there's a good chance she would have been so happy to see this special day. "She would have been absolutely delighted!", said Jessica.

Marsh

Continued from Page 1

boots-on-the-ground monitoring and desktop analysis. We have, occasionally, monitored transects since 2000 which will provide us with information on what has changed. Our Salt Marsh Sentinels program measures marsh change as it has occurred over the last 5-6 years. The next step will be using tools like aerial photography, LIDAR-based topography, models of sea level rise, and other data sources to compile a picture of existing and future conditions. The goal is to create

a restoration prioritization based on how damaged marshes are, their trajectory for the future given sea level rise predictions, and their capacity to be restored through techniques that will help maintain the ideal amount of flushing for a healthy salt marsh, like runneling (making shallow drainage paths for water to drain off the upper marsh and out of pannes) and filling unnecessary ditches.

We will simultaneously work with our towns, state, and federal governments to determine the best way to permit these techniques. In the meantime, those living near our marshes and using our waterways

can help prevent further degradation by limiting or eliminating fertilizer use, obeying no wake zones, and looking for trees dying at the upland edge (ghost trees) and areas where vegetation is starting to disappear.

We are optimistic about the resilience of the marsh that hasn't been lost yet, and perhaps there is even a chance to bring the marsh back where it once was. The North River, in particular, is a place for hope because its undammed extent up to the Indian Head River allows for the salt marsh to migrate upstream, and that extent may increase in the upcoming years.

Dams

Continued from Page 4

ocean to their spawning grounds – such as river herring and shad – or fish that simply use the river to get from place to place – such as brook trout.

Finally, sediment gets trapped and builds up behind the dams. This places a strain on species that use the river bed for habitat. In addition, if there is any contamination in that sediment, concentrations of those materials can increase

in the water body behind the dam (also called an impoundment) and further degrade water quality.

When you weigh these impacts against the remaining benefits, such as aesthetics and recreation, it can be hard to make the case against dam removal. In addition to restoring the ecosystem functions mentioned above, dam removal can benefit dam owners who are liable for any damages that would result from a breach. These dams were built over 100 years ago and do not meet

today's engineering standards for flooding. Simply fixing these dams will not address the larger scale impacts dams have on the health of the rivers.

The good news is that it is not too late. The NSRWA has led in the removal of 3 dams on the South Shore, reconnecting 10 miles of river. The Indian Head River Restoration project is just one of many opportunities the NSRWA sees as having real potential to restore our free-flowing rivers.



WaterWatch

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Inside This Issue:

- \$1 Million Grant Expands Capacity for Restoration
- Shellfish Beds Open... Then Shut!
- Dams - What are They Good For?
- 2022 Annual Report

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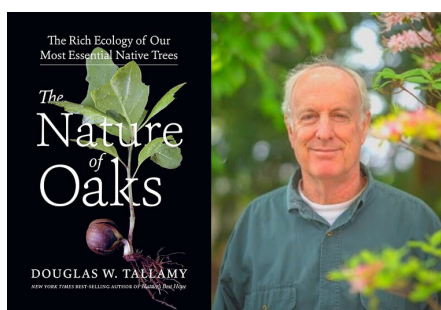
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2023 Great River Race

Sunday, July 30 • 9:00am Start