Kennebecasis Watershed Restoration Committee

RIPARIAN READS

Newsletter of the Kennebecasis Watershed Restoration Committee

Summer 2022

Lost binoculars
Photo by Ellen MacGillivray

Manager's Message

Summer is typically our busiest time of year, and this season is proving to be no different. We have had a number of funding partners provide support for a number of important projects, and we've hired our summer staff to help complete the projects. It is a full team effort here at the KWRC. Our committee members, our staff, volunteers, cooperative landowners, and even those who simply call in to report what they're seeing in the watershed all play a role in helping us keep the Kennebecasis healthy and vibrant.

This year we have some new and interesting projects underway. How would you like to monitor bee populations in a farm field? Or maybe you would rather monitor for invasive species by sling-shotting a tennis ball through the forest canopy. If you like to see your efforts, maybe you'd prefer removing invasive species from a site and promoting native plants there. If you're more of an observer, we have a few 'bioblitz' events in the works. All of these projects take a team to organize and carry out. Sometimes the amount of work our staff does is overlooked.

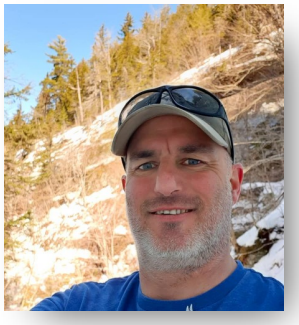
We have also put up several educational signs, maintained our demo site and rain gardens, and we've already enhanced over 10,000 m^2 of riparian area by planting trees and shrubs and putting in willow stakes where needed. We've been busy completing site surveys and applying for 3 wetland and watercourse alteration permits in order for work to be carried out later in the summer.

As many students prepare for the end of the school year, teachers are eager to get them outside for a learning experience. The KWRC has engaged over 150 kids already this Spring. Kids from elementary to high school have participated in tree planting events, biodiversity talks and conversations on life cycles and the importance of observation. We hope these youth will become future staff or future conservationists and will continue to make a positive impact on the watershed.

As you read through this summer version of our newsletter, I hope you can appreciate the learning experiences the KWRC offers for the community and for staff. We are not simply a restoration and tree-planting organization.

Even through the process of putting together a Riparian Reads Newsletter, our staff are learning valuable skills that will serve them well beyond the time they spend here at the KWRC.

Thanks for continuing to wade into it with us. See you on the water!



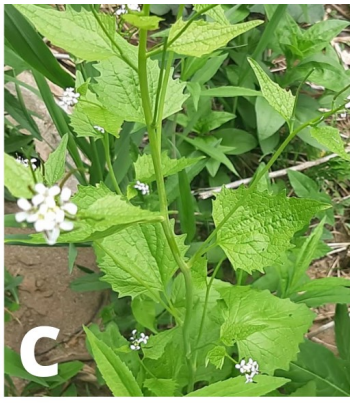
~ Ben Whalen

Project Manager

Ben gives our summer staff a tour of the demo site

Invasive Species Along the Lower Trout Creek

Japanese knotweed is extremely invasive because it can sprout from its rhizomes. If not removed entirely, it will continue to persist and out-compete native species.



A Japanese knotweed

B Dame's rocket

C Garlic mustard

This summer the KWRC is turning focus to invasive species and biodiversity. These two are highly associated with one another: the more invasive species within our watershed, the lower the biodiversity of native species due to intense competition. As the Invasive Species and Biodiversity Coordinator at the KWRC, my work involves finding and identifying invasive populations across the watershed, mapping them, managing them to some extent, and as always educating our staff and the public on this issue.

While installing a temp HOBO in Trout Creek earlier this year, I spotted a pinkish purplish sprout that resembled asparagus. I tried to identify it on iNaturalist, but it was difficult for the app to identify in the plant's early stage. It wasn't until a meeting with NBISC that I learned what we'd observed: Japanese knotweed! This June, the KWRC team set out to explore the site further. From that first stand we travelled downstream, walking both sides of the river; within those 500m of riparian area, we identified four more stands of knotweed, one of them covering approximately 700m^2.

Japanese knotweed was not the only invasive we saw on this assessment. Dame's rocket and Manitoba maple were plentiful, as well as early stages of wild parsnip and woodland angelica; we identified our first known garlic mustard and goutweed patches, and even a couple of honeysuckle. That's a count of 8 invasive species within 500m! Back at the office, I documented these findings and started researching how to properly remove Japanese knotweed.

Japanese knotweed. Note the pinkish stems and branches, and pointed tip and flat base of the leaves.

The process of removal is daunting, because knotweed can regrow from its root fragments. We chose a small stand to begin management trials on root removal. This involved cutting the stems down and digging up the rhizomes. We contained all the material in black garbage bags, which will absorb the sun's heat, preventing the persistent capabilities of the plant material inside.

In a month we will return to the site and monitor whether we were successful. The KWRC will plant native trees and shrubs in the disturbed area to promote regrowth of other native species. This is just the start of a difficult and necessary battle against invasive species in our watershed!

~ Laura Lavigne

Invasive Species and Biodiversity Project Coordinator

Read through to find a matching puzzle later in this newsletter and test your knowledge on invasive species within the watershed!

Biodiversity of our Local Lakes

June is when we get into the real swing of our lake monitoring projects, when we get the kayaks out and onto the water, but we've actually been at it since late May. One of the first aspects of lake monitoring that we do and continue to do at each visit is a general assessment, which measures various physical, chemical and biological parameters of the lake, such as temperature, conductivity and dissolved oxygen; but we also use our observational skills to study the biodiversity at each site.

Biodiversity refers to the variety of organisms found in an ecosystem, and in this case, at our particular lakes. Biodiversity both influences an ecosystem's health and reflects it: more diverse ecosystems are healthier and more resilient than a less diverse ecosystem. Besides a keen eye, one of our tools for biodiversity monitoring is the free mobile app iNaturalist. If you read our last newsletter, you might have seen that we included instructions for how to use it.

We recently performed lake assessments at all 5 of our monitoring sites. We used the iNaturalist app to collect biodiversity information by taking pictures of the different species at these lakes and using the app to identify them. The photos are named accordingly and put into folders assigned to each lake. Each lake appears to offer healthy diversity as well as some species which are not shared by the other lake sites.

At Hamilton Lake for example, we identified a bald eagle, a Canada jay, salamanders and tadpoles, a pickerel frog, and plants such as bluebead lily, red trillium, and tall meadow-rue. A recent Watershed Walk video on our YouTube channel shares the scenery and some of our findings at Hamilton Lake.

Some observations overlap. We saw red trillium at Erb Lake, but beavers and Canadian geese were new to the database. Another bald eagle was spotted at Mud Lake, while it offered a whole host of birds not present at our other sites. The waters there also contain pumpkinseed sunfish, even though the soft sediment is much different than the sandy substrate of McManus, where we also see sunfish. It is clear that each individual lake contains its own biodiverse ecosystem and yet each plays a similarly significant role in the grand picture of health of our watershed. Stay tuned for more videos to come of the lake sites!

~ Abby Lamrock

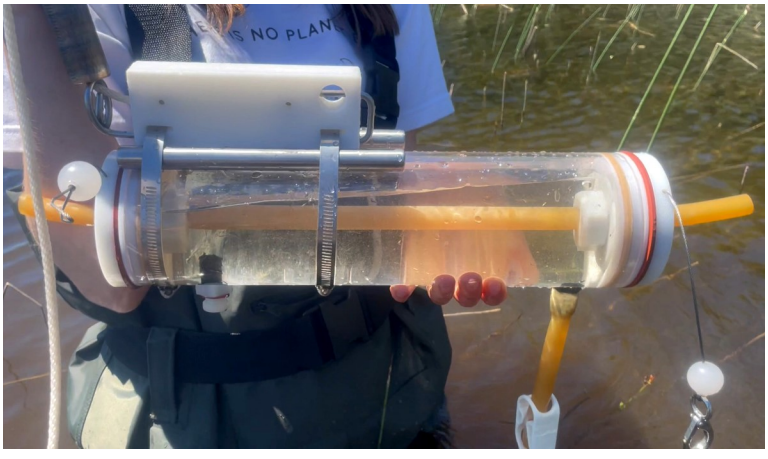
Habitat Technician

What Lurks Beneath the Water's Surface

Like us, fish will only inhabit an environment they can tolerate. Some species are resilient and can withstand poor water quality and extreme temperature conditions, while others are sensitive to conditions outside of their comfort levels. For this reason, fish presence and species diversity tell us about the conditions of our lakes. However, data gathering for fish species is not always easy.

Catching fish in lakes is often difficult for us. Fish are skittish and quick, easily able to avoid or escape the nets we use to sample species. But like many living beings, they leave behind clues which give away their presence. Through eDNA sampling, we can identify fish species in our lakes without needing to physically see them. EDNA stands for environmental DNA, and involves the identification of aquatic species through DNA found in water samples.

Specifically, we're looking for brook trout, chain pickerel and smallmouth bass, because each have their own set of water condition tolerances. Brook trout, native to New Brunswick, prefer cool temperatures with pristine water conditions. Chain pickerel and smallmouth bass are non-native, invasive species that can withstand poorer water quality. The presence of chain pickerel and smallmouth bass creates a problematic scenario for our lakes because it could indicate the lakes are becoming inhospitable for our native species, or that we risk having invasive species reduce the biodiversity in our lakes.



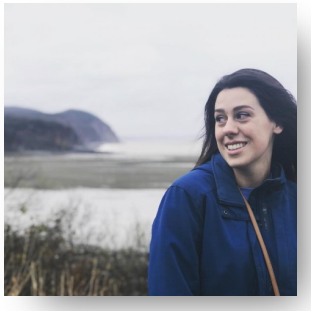
This device allows us to collect water samples from deep lake columns while avoiding the collection of water closer to the surface, which could be contaminated with irrelevant eDNA; lake fish are often in deeper water where it is cool.

Kayaking on McManus Lake to conduct eDNA sampling. Last summer we experimented with nets, but those results depend on ample sampling sites, i.e. where we're able to operate the nets.

In 2021, we saw a variety of results. At Hamilton and Erb Lake, we saw positive results for brook trout. This presents evidence that these lakes have cool, healthy water temperatures and environments for aquatic organisms. Byrnes Lake only tested positive for chain pickerel. This was not surprising since we found that Byrnes Lake had hot temperatures that sensitive fish like brook trout would not withstand. McManus Lake tested positive for chain pickerel and smallmouth bass. The presence of both invasive species and no brook trout will push us to dig deeper, focusing on the biodiversity and water conditions of the lake during our 2022 field season. At Mud Lake, we did not get any positive hits. This is because there were compounds in the water that prevented DNA extraction, even though we *have* physically seen chain pickerel in Mud Lake, elusive as they are.

It is essential to know that just because a sample does not test positive does not mean the species does not exist in the waterbody; it simply means there was not enough DNA in the sample to provide a strong result.

~ Ashton Howe
Monitoring Coordinator



Updates on our Waste Reduction Initiatives

Our staff with the garbage bin at Salmon River Covered Bridge. We also have 21 fishing line recycling bins (right) located across the watershed! Take advantage of these!

Community Waste Bins

This summer we have placed 5 garbage bins around the Sussex area in hopes that the public will throw their waste away properly rather than into the environment. You can find these bins at the following locations:

- Plumweseep Boat Launch
- Salmon River Boat Launch
- On the berm behind Sobey's
- Near the Maple Avenue Bridge
- Edge of parking lot behind Main St Tim Horton's

So far, we have seen a significant difference in the areas these cans were placed. The most impressive change has been at the Salmon River Covered Bridge. This past Fall, our staff conducted garbage cleanups here on multiple occasions and found a large volume of trash within the trees and on the path. Since installing this bin, there has been less trash on the ground and the can has been full almost every week. We are pleased with the success of the garbage bins to date and hope they continue to make a positive impact.

Agricultural Plastic Disposal Program

We are having great success with our agricultural (ag) plastic disposal program which started on April 4th of this year. Within the first 10 weeks, we had 20 farmers register and 15.5 tons of plastic diverted from the environment. This program was set to end on June 6th, but has since been extended due to available funding and continued interested. The program has now been extended to October 31st. Farmers continue to register each week through our website, and as word continues to spread about this project, we hope more farms will participate in this convenient and environmentally-oriented initiative.

If this program sounds useful to you, head over to our website where you can learn more about the program and register to receive your membership card!

Plastic Assessments

We began plastic assessments early in the field season, and have already completed 15.6km of our 50km goal. With our additional summer staff, we've been more efficient and able to cover more ground. These assessments allow the KWRC staff to explore new rivers and gain an appreciation for the province on a whole new level. The purpose of these assessments is to determine the problem areas of plastic waste along the waterways, with a specific focus on ag plastic. It isn't hard to spot as it sticks out prominently against the natural environment. This year we have been finding little ag plastic compared to last year, but we still have many more tributaries to explore.

~ Brooklynne King

Waste Diversion
Project Coordinator

Our Agricultural Plastic Disposal Program has allowed us to divert over 15 tons of ag plastic from the environment so far!

The Summer Student Experience

I'm a university student studying marine biology and recently started as a habitat technician with the KWRC. Initially I was drawn to this organization because I enjoy working outdoors, but this was only one of the many benefits of being a member here. I have found that the KWRC offers a wide array of experiences, from fence installation and tree planting to measuring water parameters in a kayak—this job is a wonderful learning environment that knows no limits! Furthermore, there's nothing I love more than making a positive impact on my community and local environment, and that's what our day-to-day work is all about. We aim to restore and maintain riparian zones at multiple sites across the watershed by using tried and true bioengineering techniques such as willow staking and tree planting along eroded banks. We also put up signs where needed, such as angling or cyano-bacteria information. Right now there are two projects we're placing a strong focus on: our agricultural plastics program and on-going monitoring, and our invasive species monitoring. My favourite of the two would have to be the invasive species monitoring, which requires us to build a familiarity with the plants. The other day a team of us accompanied our Invasive Species Coordinator to a site along Trout Creek to remove a stand of Japanese knotweed, an invasive plant which somewhat resembles bamboo with its segmented stems. We had to get right down to the roots to prevent a chance of regrowth. It was very cool to learn how persistent invasive species can be.

Ultimately, I'd highly recommend working for the Kennebecasis Watershed Restoration Committee to anyone and everyone who has any interest whatsoever. I say this because the job is extremely variable, able to suit anyone looking to strengthen or learn new skills, or satisfy someone simply fascinated by biology and science, as you will get to experience a multitude of neat nature things first-hand. Although I've only just begun my summer here at the KWRC, I can confidently say that this is a job everyone should have the pleasure of working!

~ Reese Simpson

Habitat Technician

Staff with one of our cyanobacteria signs and fishing line recycling bins at the Norton boat launch

If I were to be asked about one thing that I have learned so far while working for the KWRC, I would not hesitate to say that is it the importance of teamwork. This year's staff is full of individuals with broad educational backgrounds and interests, each bringing something unique to the table. As a summer student, I have had the opportunity to be part of some interesting projects, including water monitoring with Ashton, invasive species monitoring with Laura, plastic assessments with Brooklynne, and several education outreach events with Ellen. Since beginning my work here in May, every member of the KWRC has taught me something unique and has taken the time to ensure that I understand not just the 'how' but the 'why' behind these important projects.

Not only has the teamwork and leadership within the KWRC impressed me, but also the scope of projects and research being done. I had no idea going into this job that I would be able to learn so much about the environment and ways to prevent current issues within the watershed. I am positive that these skills and ideas will stick with me throughout my future, not only in the educational aspect but also in my life.

~ Marika Wesselius

Habitat Technician

Invasive Species of the Kennebecasis Watershed

How well do you know the species of concern in our watershed?

Complete the puzzle below by matching the invasive species to its description.

Answers on back page.

____ Woodland Angelica

____ Japanese Knotweed

____ Dame's Rocket

____ Emerald Ash Borer (EAB)

____ Eurasian Water-milfoil (EWM)

____ Glossy Buckthorn

____ Manitoba Maple

____ Wild Parsnip

____ Garlic Mustard

B An edible biennial with a distinctive smell and taste

E Small tree with red or black berry-like fruit

H Decorative plants with pink, purple, or white flowers

G Not in the watershed yet, but projected to be. Metallic beetle capable of devastating ash tree populations

F Aquatic plant that could still flowing waters

D Native tree in Canada, but known as invasive in New Brunswick

A Rhizomic plant whose stems are reminiscent of bamboo

I Has phototoxic sap, yellow flowers

C Has phototoxic sap and umbrels of white flowers

Fueling Familiarity / What to Look Forward To

In our last newsletter, I talked about the importance of building a personal relationship with nature by spending time in outdoor spaces and making observations of the surroundings. The importance lies in familiarity: when we develop familiarity toward a certain species or a favourite hiking or fishing spot, we strengthen our desire to be environmental stewards; we're more proactive against harmful practices because we have a personal involvement with the species or ecosystem at risk. For example, one of the invasive species we try to spread awareness about is Eurasian water-milfoil, because even its fragments can sprout roots. That means boating or other recreational activities can break up this aquatic plant and cause dense infestations that drown out native fish and plant life. Although this sounds unpleasant to any nature-lover, it's those who have witnessed the degradation of beloved swimming, fishing and boating places that feel the full weight of this issue. Similarly, another invasive species called Japanese knotweed, sometimes planted for its ornamental value, has taken over people's properties so that the fight for yard space is continuous. Many of these landowners would do anything to have prevented this spread before it got out of hand. And that *is* the goal when it comes to invasive species: prevention, before anyone, environment included, has to experience the heartbreak of lost land or biodiversity.

So what are we doing to prevent invasive species and fuel environmental stewardship in the community?

We have already had the opportunity to engage several groups in stewardship-centered activities, such as willow staking with Sussex Pathfinders, our cleanup contest, and nature walks with SES where we discussed invasive species and encouraged observation through our many senses. This summer we are looking forward to collaborating with the CLASS after-school program to teach introductory nature journaling to the youth as well as invasive species awareness, of course. We hope these activities will spark an interest in the kids that fuels their passion for the environment, contributes to community-mindedness, and enriches their overall enjoyment of the outdoors through observational skills.

You will be able to catch us this summer at Sussex Farmers Market and Lupine eco-market in Hampton, where we will have informational booths focused on invasive species awareness and spread prevention techniques, cyanobacteria, and general chit-chat about restoration, erosion, native biodiversity and climate change resilience. Come see us! Make sure to follow us on social media to stay informed about our market dates and events.

Speaking of events, the KWRC is hosting for the first time a 4-part BioBlitz Invasion. The term 'invasion' is kind of an ironic way of bringing light to the topic of invasive species while referring to the nature of a BioBlitz: people getting together and storming the nature trail or in this case, our demo site in Millstream, taking photos of anything and everything and uploading them to an ID app like iNaturalist. To ensure people get the most out of the experience and have the chance to attend, we're breaking the BioBlitz up into 4 parts: Birds on June 23rd, Insects on July 21st, Plants on August 18th, and Fungi & Lichen on September 15th.

Not only is this fun (anyone else do this in their spare time?), but it helps to build reliable databases for environmental organizations such as ourselves to track invasive species spread. More information on this series on our Facebook Event page. Come out if you can!

There are many ways you can contribute to the work we do, like participating in programs such as Play, Clean, Go and Clean, Drain, Dry to prevent the spread of invasive species. We also encourage you to sharpen your own observational skills: take pictures and notes. If you're an angler you can tell us what you caught through our Creel Census.

Happy explorations, we hope to see you around!

~ Ellen MacGillivray

Education Outreach Coordinator

Matching Game Answers: **A** Japanese knotweed, **B** Garlic mustard, **C** Woodland angelica, **D** Manitoba maple **E** Glossy Buckthorn, **F** EWM, **G** EAB, **H** Dame's rocket, **I** Wild parsnip

Kennebecasis Watershed Restoration Committee

Follow us!

@kennriverrestoration

@kennebecasisriver

@Kennebecasis Watershed

For questions regarding content and operations, contact us at (506) 433-4394, info@kennebecasisriver.org, or write 5 Moffett Avenue, Unit E, Sussex, NB, E4E 1E9.

Information is also available on our website at www.kennebecasisriver.org. Want to receive issues of Riparian Reads electronically? Visit our website to subscribe!

Thanks to Our Sponsors

Canada

New Nouveau Brunswick
Your Environmental Trust Fund at Work

THE ATLANTIC SALMON CONSERVATION FOUNDATION

NB Wildlife Trust Fund
Fonds de Fiducie de la Faune du N.-B.

Moncton Fish & Game Association

WWF

Nutrien™