



# RIPARIAN READS

Newsletter of the Kennebecasis Watershed Restoration Committee

Fall 2022



*Forest floor fungi  
Photo by Ellen MacGillivray*

## Manager's Message

We have had a great field season this year, and it isn't over yet! We've been working and collaborating on some fantastic projects, and as usual we've been busy with monitoring, restoration, and educational programs that have kept us hopping across the watershed and beyond.

One of our key projects this year is the improvement of climate resilience in Trout Creek and other areas of concern in the Kennebecasis watershed. We have worked with 8 landowners across Trout Creek and 3 additional landowners in the watershed to improve floodplain habitats so that they are more resilient to changing flow conditions. This included moving large woody debris jams using a team of professionals who use horses to minimize environmental impact, adjusting two gravel bars, installing more than 500m of riparian fencing, and planting more than 7000 trees to date.

Building on our climate resilience focus, we established our Carbon Capture Collective in partnership with the Hammond River Angling Association and

Belleisle Watershed Coalition, which monitors carbon sequestration in the restoration sites of our respective watersheds. This partnership is supported by the World Wildlife Foundation's Nature and Climate Grant program. This project supports our ongoing riparian enhancement work, but soil sampling is a new aspect of our work that allows us to understand carbon sequestration at our restoration sites. Our hope is that in the future, we can state with quantitative data that riparian restoration is a component in the battle against climate change.

Another fun project we explored this field season was our BioBlitz series, where we hosted 4 bioblitz events at our demonstration site in Millstream. Though the events were not heavily attended, those who did attend agreed that if you weren't there, you were missing out! We found lots of great bugs, birds, plants, and fungi which helps us to build a biodiversity database for our demo site as well as contribute to the information pool of the identification app iNaturalist. This is a project I'm confident our staff will want to see continued.



This September 30th marks the national day for Truth and Reconciliation, and we want to acknowledge that the land on which we conduct our work is the traditional unceded territory of the Wolastoqiyik Wampanoag (Maliseet), Wabanaki and Mi'kmaq Peoples. As an organization committed to restoring the Kennebecasis to a sustainable ecosystem, we do our best to work humbly within nature and prioritize the overall health of the waterways and surrounding habitats for the many species that mean so much to all people.

Thanks for continuing to wade into it with us.

See you on the water!

~ Ben Whalen

Project Manager



## Soil Carbon Monitoring in Passekeag



*Reese, one of our summer students this year, cranks the auger while Abby stands by, ready to measure the depth of the hole.*

This summer the KWRC took on a new monitoring project to assess carbon sequestration at sites where we've done restoration work. The project is funded by WWF Canada's Nature and Climate Grant, and bears the title Carbon Capture Collective: A Multi-Partner Approach to Riparian Restoration and Carbon Sequestration, our partners being the Hammond River Angling Association (HRAA) and the Belleisle Watershed Coalition (BWC). In early July, we met with our partners at a plot on the beautiful Belleisle Bay for a group demonstration, where HRAA, who have had some experience in soil sampling, shared with us the techniques which have worked for them. This outing kickstarted our own soil sampling endeavours for the summer.

Taking on this project has broadened our repertoire of hands-on experience and helped us to understand the health of our restored riparian areas through the concept of carbon sequestration. Carbon sequestration is the process in which carbon dioxide (CO<sub>2</sub>) is removed from the

atmosphere and stored as carbon underground. Plants are the primary means of carbon sequestration. Through photosynthesis, plants convert atmospheric CO<sub>2</sub> to carbon which they store in their tissues and roots, where it is also transferred to underground networks of mycorrhizal fungi and finds its way into the soil. This carbon can be lost during processes such as erosion. We want to monitor carbon content at our restored riparian zones so that we can assess whether our bank stabilization tactics have allowed for better carbon sequestration.

So how do we do this? We chose one of our restoration sites in Passekeag located on the Kennebecasis river to collect our samples. Once a month for three months, we returned to the same site where we set up the sampling grid, a large plot divided into sections using string. We used a random number generator to determine which section of the grid we would take each soil sample. The samples are extracted as a soil core using an auger, which compacts the sample into an air-tight metal tube. For every sampling session we take four of the upper layer of soil and four of a lower layer. Each are labelled and then taken to the lab in Fredericton for analysis. To learn more about this project and how it's done, check out our weekly Watershed Walk videos on this topic:

<https://www.youtube.com/watch?v=LdNZaJ9T2x8>

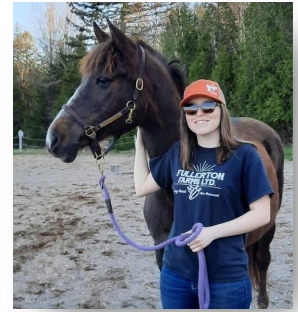
<https://www.youtube.com/watch?v=9ru4R4z1iA0>



Wednesday, September 1st, was both Zero Emissions Day and National Tree Day. This is a time where people are encouraged to recognize their carbon footprint and substantially reduce their carbon emissions in an effort to reach net zero emissions and mitigate the climate crisis; we should also recognize the role trees have in fighting climate change. Carbon sequestration, largely conducted by trees, is only one component toward reaching net zero emissions, but it's an important one. Other ways we can help to reduce carbon emissions as individuals are walking/biking instead of taking a car whenever possible, turning off your lights and unplugging electronics when not in use, etc.

We recently collaborated on a series of posts with our Carbon Capture Collective partners that aim to inform about carbon sequestration and CO<sub>2</sub> reduction: find them on our Facebook and Instagram pages.

~ Abby Lamrock  
Habitat Technician



## Grand Lake Invasive Plant Patrol Workshop

Here at the Kennebecasis Watershed Restoration Committee, we never say no to an opportunity that can add another tool to our 'toolbox'. When we were invited to participate in an Invasive Plant Patrol (IPP) Program workshop hosted by the New Brunswick Invasive Species Council, we jumped on the chance.



*Kristen from NBISC trains participating groups in native milfoil and invasive Eurasian water-milfoil identification at the Invasive Plant Patrol workshop held on Grand Lake.*

IPP is a program which provides volunteers and organizations such as ourselves with the skills, knowledge and resources needed to complete early detection monitoring of aquatic invasive species. The program is designed to help reduce the spread of invasive species and increase the general knowledge surrounding absence or presence of species within New Brunswick's lakes.

This workshop was held along the shores of Grand Lake. The morning portion was spent on invasive and native species identification, how to conduct an IPP survey and what materials are needed. An especially important identification skill to have is differentiating between the subtle differences of native milfoil and the invasive Eurasian water-milfoil. For other native species, we focused mainly on narrowing the identification down to genus. For example, we learned how to identify pondweeds as a general group.

After lunch we hit the water in our kayaks, dividing into two teams to explore Dykeman Cove, specifically within the littoral zone close to shore, where the majority of plant life is able to grow. We collected samples of aquatic plants and reconvened on shore, where we then sorted our findings and worked together to identify them with NBISC's guidance. Within the cove we found three different pondweeds, native milfoil, Eurasian water-milfoil, coontail, and spatterdock.

Completing an IPP survey is easy when you plan accordingly. This method of monitoring is most effective when completed in teams of two or more. Compiling in-depth data from the outing is essential: a standardized



IPP documentation is filled out and once completed, should be sent to the New Brunswick Invasive Species Council. While on the water during an IPP survey however, the materials needed include a GPS unit or other method of recording locations, a map, a viewing scope, an ID guide, scissors, buoys (optional), and containers or bags to store samples.

Overall, this workshop was extremely educational. Our team can utilize these new skills and hopefully be able to implement the IPP monitoring approach for invasive species. It has also allowed our organization to network with surrounding lake associations who could be potential partners in future IPP surveys. Regardless, these skills will be useful for early invasive species identification within our local lakes and waterways moving forward.

One of our recent Watershed Walk videos covers the workshop—check it out on our YouTube channel!

<https://www.youtube.com/watch?v=x2-EhCjI7Jg>

~ Laura Lavigne  
Invasive Species  
and Biodiversity  
Project Coordinator



## Restoration Updates:

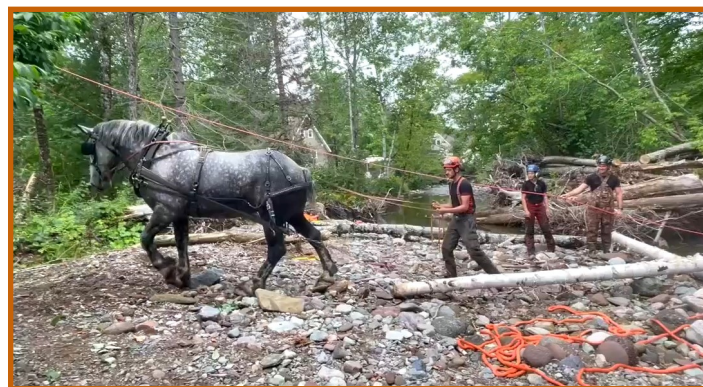
### Riparian Adjustments on Trout Creek

This summer the KWRC has been working hard to restore many riparian areas throughout our watershed. Our staff have staked 5549 willows and planted 2025 trees. We've been working on new restoration sites along the main stem of the Kennebecasis and Trout Creek where we've been doing the majority of this work. We have also been working to maintain previous restoration sites by planting additional trees and staking more willow.

A significant restoration project we undertook this year was on the banks of Trout Creek in Waterford. This area had an abundance of debris along the river causing a disturbance in natural flow pattern, which can exacerbate erosion and worsen flooding. A tall gravel bar formed by flood events had the potential to cause further issues with river flow and land loss, and further upstream, a largely eroded bank would continue to break away into the water. The KWRC could not have tackled such a project on its own: amazing partnerships with Bad-Axe Tree Experts and McFarlane Heavy Equipment and Construction allowed us to create the positive change needed for this area.

Bad-Axe Tree Experts were able to move large debris from the river through the process of wenchers and real horsepower. They attached huge logs to ropes which were suspended in the air; this allowed them to move the logs across the river without damage to the stream. One of their staff then used a draft horse to drag the logs along a

narrow path cleared of brush to the road. This process had considerably lower environmental impact than if we had used machinery. After the job was done, the path to the road was seeded with grass and planted with trees to re-establish the vegetation.



*Bad-Axe Tree Experts living up to their name*

Where we were to move the gravel bar, we needed the help of McFarlane Heavy Equipment and Construction. Using an excavator we were able to partially remove the bar to ensure the river reverts back to its natural flow. The gravel was relocated to a different section of the bank. Silt fences were installed to reduce sediment in the river. A fresh layer of topsoil and grass seed were used to naturalize the track made by the excavator, and willow was staked along the

bank of the new gravel location. We anticipate the willow will do well there and help to prevent further erosion.

We also staked willow and planted silver maple trees where the bank has been eroding. The willow root systems will hold the soil in place; the roots of the silver maple will help to do the same, as they can grow in a variety of soil types and can withstand flooding, making these trees ideal in a riparian zone.

We are pleased to say these sites along Trout Creek have been properly restored to more resilient riparian areas. We would like to thank the landowners for their cooperation and willingness to see these adjustments. We would also like to thank Bad-Axe Tree Experts and McFarlane Heavy Equipment and Construction for their time and dedication to this project. Of course, the work is never done—the KWRC will be continuing with additional restoration projects this Fall.

## Curbing Plastic Waste in the Watershed

We have been assessing and reducing plastics in the watershed since last Fall. Our goal for this year is to assess 50 kilometers of watercourses in order to determine the ‘problem’ areas and which types of plastic are most prominent. In the Spring we started an agricultural plastic disposal program in partnership with the Regional Service Commission 8 to aid farmers in the community with proper plastic disposal. This program has been extended once again, and is now open until February 27th. We have also been working with a recycling company in hopes to have agricultural plastic recycling available in the area. The KWRC has made many positive strides forward in this project over 2022.

### Agricultural Plastic Disposal Program

Thanks to our partnership with the Regional Service Commission 8, we have been offering a free agricultural plastic disposal program for farmers since April 4th of this year. The program was supposed to end in June but was extended until the end of October. However, we are once again extending the program until the end of February. Farmers can register on our website; drop off is free of charge on Mondays at RSC8. To date, over 19 tons of agricultural plastic has been properly disposed of through this program. This Fall, more plastic is expected to be dropped off as farmers will have a need for silage. Over the summer months, lesser amounts of plastic were brought in as farmers had their cows grazing and did not need to unwrap silage as often. We thank our 20 farmers currently registered for the program and many have said they would like to see it continued.

### Plastic Assessments

Monitoring of plastics has been successful with our summer staff to aid in assessments this season. 42.9 kilometers of watercourses have been assessed so far. Staff will complete the remaining distance this Fall. Our main focus for these assessments are the smaller tributaries of the watershed as the larger ones were assessed the previous year.



*Plastic/garbage buildup in a tributary, found on an assessment*

### Garbage Bins

This Spring we installed 5 garbage bins along the rivers in Sussex to reduce plastics in the waterways. These cans are checked twice weekly. Nauwigewauk Community Club has partnered with us to have a 6th one available there where their volunteers will check and maintain it. As for the 5 that the KWRC is monitoring, we’ve been collecting data on how full the cans are, as well as the weight of the garbage when it is collected, and whether it has helped to reduce waste in the surrounding area.

~ Brooklynne King

Waste Diversion  
Project Coordinator





## Opportunities for Outreach and Educational Events

If you saw our calendar, you might feel some bewilderment as to how our small group here at the KWRC can accomplish so much. After a jam-packed summer of various monitoring tasks, new projects, big moves in restoration, and community collaboration, somehow, we still have much to do: every day of September and October on our whiteboard calendar is filled with dry-erase notes. It has been non-stop this summer, and it doesn't look like our work is about to slow down!

There is something joyous in the action of checking a task off the list, not because it's over with, but because our team here shares the appreciation that every step forward is toward the betterment of our watershed: its water quality, habitats, ecosystems, climate resilience, and community. The work is meaningful, and that's why education and outreach is such an important part of our mission. We could go about our work and keep it under wraps, but then we would be keeping our impact confined. Environmental issues caused by human activity and climate change are huge beasts and can hardly be fought by one non-profit or even several; this is why fueling environmental stewardship and familiarity with nature in our communities is so significant, whether our outreach instills a sense of passion in people or simply spreads awareness of an issue folks may not have heard about otherwise. Regardless, we made efforts to book our summer with educational opportunities and we plan to continue our outreach momentum into the Fall as much as possible.

### ***Our outreach over the Summer season***

We have often engaged with the youth of local schools, especially Sussex Elementary School, where the kids meet us along Trout Creek for an educational walk or presentation. A new collaboration we explored this summer was with the Sussex CLASS after-school program, where we met with the kids weekly for a period of time and each week taught them about a different aspect of the work we do. The topics included what a watershed is and how it connects to the larger picture, invasive species and their impact, plastics and proper waste disposal, insects and 'bioblitz' practice, and finally catch and release principles. We also took some time at the end of each session for nature journaling practice as a way to fuel familiarity and build interest in observing the environment around us.

Another outreach project we began this season and hope to continue is our BioBlitz Invasion series. Bioblitzes have gained popularity in recent years and have become important gateways into nature for many people. The concept of citizen science is gaining traction, and we want to encourage that while providing yet another opportunity for people to learn and familiarize themselves with the environment around them.

We hosted a total of four BioBlitz Invasion events this summer, dividing each into a manageable category. In June we observed and identified birds, in July it was insects and bugs, in August we identified plants, and this September we had our fungi & lichen bioblitz. We asked local experts to act as guides at these events to generate interest and provide a more educational aspect. Although our primary aim was to document the biodiversity at our demo site and teach participants to use the app iNaturalist (to help with documentation but also to encourage citizen science on their own time), we had an unexpected amount of fun exploring the site with like-minded people, and learned a lot ourselves!

This is a project we hope to continue in the future, both to provide a continuous educational opportunity for the community but also to strengthen and expand on the biodiversity data we collected.



*Gathering around a mushroom at our most recent BioBlitz*

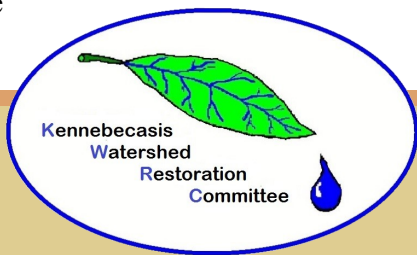
A recurring event in our educational mission is a beginner's fly fishing workshop, which focuses on technique and proper etiquette before putting both into hands-on practice. This year we posted the registration call for the workshop, and spaces filled within a couple of days!

Due to the high demand and limited space, we hope to find an avenue in the future for restructuring our fly fishing workshop whether that's to allow more attendees or host multiple per year. Regardless, we're happy to play a role in getting people outdoors in an immersive practice with nature.

We had multiple market appearances this season, twice at the Lupin eco-market in Hampton and twice at the Sussex Farmers market. We enjoy chatting with visitors at our booth about the issues that require more awareness.

### ***Our outreach for the Fall season***

Coming up is our Shoreline Cleanup taking place at Burton Park in Sussex on October 15th. Join us in cleaning up the riparian area to reduce waste and improve water quality! We also have upcoming presentations at local schools, including a duck-box building workshop where we can engage kids in hands-on work and talk about why the Habitat-in-a-Box program continues to be a part of our work here at the KWRC.



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We have partnered with local groups to help us in our other projects, such as restoration and monitoring. To be more specific, the 4-H Club here in Sussex will be assisting us to plant trees at one of our restoration sites, and a wood-working group at St. Augustine's has agreed to help us build bat boxes to be installed in the springtime as part of our bat-monitoring project.

As always, our Youth Angling Day Camp course is online at our website for those interested in learning about angling and fish species in the watershed.

We do our best to provide a variety of educational opportunities, but they wouldn't be possible without the community's involvement.

Thanks to those who continue to keep up with us!

~ Ellen MacGillivray

Education Outreach  
Coordinator



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