Kennebecasis Watershed Restoration Committee

RIPARIAN READS

Newsletter of the Kennebecasis Watershed Restoration Committee

Spring 2025

Photo by Ellen MacGillivray

Manager's Message

So far this spring the weather has been a bit unstable. Days with sun, warmth and hope, followed by days of snow, rain, and longing. For someone like me, and I'm sure many of you, this is a time of year where you are longing for time on the water and hoping for a warm evening sunset. You want to see the fireflies dancing over a hayfield as you sit and enjoy a bonfire after spending a few hours on the river casting a line hoping for that tug that indicates a fish has taken the hook.

Regardless of the weather, spring is here, and our team are planning some great activities to engage anglers this coming summer. From fly fishing workshops, angler socials, and youth angling day camps, we have a lot planned to help build our angling connection and community. However, building an angling community can only be done if we have adequate fish populations and healthy fish habitat.

We are the Kennebecasis Watershed *Restoration* Committee; restoration was intentionally placed in our name. For thirty years we have worked hard to restore habitat, and often talk about those efforts here. I want to discuss how we can all work to manage fish populations. Anglers will often lament the efforts of government and state that we don't do enough stocking and while that might be true, it is important to note that stocking really only benefits the angler. We want the angler to play his/her role in the ecosystem, too.

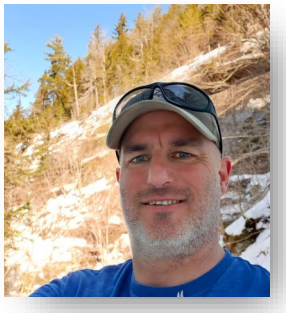
Catch and release (C&R) sections of the Kennebecasis River are in place and are important in helping our salmonid species (brook trout and Atlantic salmon) survive and find successful breeding habitat. The C&R sections were determined following a comprehensive habitat and fish population study that identified the reach above McCully Station Road as having some of the coldest waters with the most suitable habitat for all aspects of the salmonid life cycle. Through C&R, anglers are making sure the populations can continue to reproduce and thrive for years to come.

If you are heading out on the river to fish this season, make sure you know the rules for each stretch of water you fish. The provincial government has some great resources, and it is your responsibility to know the rules. Check out the 2025-26 Fish NB Guide here for more information. We would also love to learn what you catch, to help us understand which fish are in our watershed—fill out our Creel Census here! Don't worry, you won't have to share your secret spot with us.

Tight lines. See you in the woods or on the waters.

~ Ben Whalen

Project Manager



Zebra Mussels: An Ecological Emergency in New Brunswick

Zebra mussels encrust a boat propellor

Photo: Sam Stukel/South Dakota Game, Fish & Parks

Springtime brings sunshine and warmer weather; that means fishing season is just around the corner, and boating activities not long behind, which makes this an opportune time to talk about an ecological emergency: zebra mussels—because recreationists play a significant role in the spread or mitigation of these highly invasive bivalves. If you have not yet heard, zebra mussels have just been found for the first time in the main arm of the Wolastoq (Saint John River) in Mactaquac, near Fredericton, signaling the need for immediate collective action to prevent them from traveling further into our ecosystems. Zebra mussels became a tangible topic of concern when they were discovered close to us in Lac Témiscouata (Quebec) in 2022, then identified within New Brunswick borders for the first time in 2023. Now, the beloved Wolastoq faces potential degradation.

What are the impacts?

Zebra mussels are extremely prolific, outcompeting native species in numerous ways. They over-filter, decreasing nutrient availability in the water, and smother other organisms by attaching in crowds, literally suffocating our native mussels by inhibiting filter feeding. Any angler or person who spends time near the river has seen collections of emptied mussel shells along the shore from beavers or muskrats; it's not hard to understand how the ecosystem at large will be affected without that source of food. The entire food chain will feel these changes; benthic macroinvertebrates will find nutrients scarce, which will impact fish populations, which will affect birds of prey like osprey and bald eagles. I'm only scratching the surface; the New Brunswick Invasive Species Council (NBISC) outlines even more impacts of zebra mussels here. On the NBISC website you can also learn about quagga mussels, another invasive species that looks similar and has the same impacts.

If that's not enough to trigger an emotional response, you must understand that the impacts extend beyond ecosystem health: zebra mussels inhibit favourite water-related activities such as fishing, boating, and swimming. Because they accumulate on hard surfaces, they damage infrastructure such as water intake pipes and boat propellors; as mentioned, their presence in a waterbody affects fish populations; and their tiny shells are razor-sharp, creating a hazard for swimmers and waders, including pets. That *sucks*, to put it simply.

How do they spread?

Unlike many of our native mussels, zebra mussels don't require a host fish species to reproduce. They produce microscopic free-floating larvae called veligers that travel by current through the water column before settling on hard surfaces to develop into adulthood. Because these surfaces can include watercraft and equipment, recreationists are often unknowing vectors of dispersal for aquatic invasives. The young mussels accumulate unnoticed on a moored boat, which may be hauled to another waterbody for a weekend getaway. This is how easily zebra mussels can be introduced to a

new ecosystem, where they will reproduce without restraint and continue to spread downstream. That's why it is crucial that we collectively take responsibility in mitigating the spread—spreading awareness is another matter, and a major first step, but it *must* be paired with action to make an impact.

Sizes of invasive zebra & quagga mussels

Photo: Center for Invasive Species Research

What should *you* be doing?

The main thing is to educate yourself on local invasive species and take action accordingly. If you do happen to be an angler or boater, please follow the Clean Drain Dry protocol to avoid transporting unwanted hitchhikers. This campaign promotes cleaning your equipment, then draining and drying it on land. Young zebra mussels are much tinier than you expect, so a quick visual check won't cut it. Taking a few extra moments is far less annoying than losing your best fishing spot or watching the decline of a beloved ecosystem. Other aquatic invasives, such as Eurasian water-milfoil (EWM), already present in the Wolastoq system, also travel on watercraft and have similar impacts, growing dense mats that crowd out fish, native vegetation, boaters and swimmers. It also reproduces through fragmentation, so efforts to remove it can make matters worse. Prevention is key, so be sure to Clean Drain Dry your equipment!

If you do find zebra mussels, and you may have to look closely to find them, please snap a close-up photo and report your sighting to the NBISC, including the date and exact location, at report@nbinvasives.ca.

If you're not an angler or boater, you can still play a role in mitigating the spread of zebra mussels and other invasive species. Read up on local invasives, share your findings with friends and family, attend workshops, and keep your eyes open. Follow spread prevention campaigns such as Clean Drain Dry and Play Clean Go, the terrestrial counterpart that encourages a quick brushing-off of boots and bikes before you leave a site, in case of tiny seeds or fragments stuck in spokes and treads.

It is extremely helpful if landowners learn to identify local invasive species, as many can pop up on people's properties, brought there by birds, wildlife, or wind. The app iNaturalist is an excellent tool for identifying all kinds of organisms on-the-go, plus it's free! Give it a try in your own backyard and find out what's really growing there. On April 22nd, the KWRC is hosting an online Earth Day bioblitz contest using iNaturalist, which would be a great opportunity to give it a go. We will be posting some helpful how-to content to our social media leading up to the event, so be sure to follow on Instagram and Facebook.

~ Ellen MacGillivray

Education Outreach Coordinator

Partnering with Farmers to Implement Best Management Practices

The Kennebecasis Watershed is located in an area with a high percentage of agricultural land. Historically, farmers have been given a 'bad rap' when it comes to their environmental impact even though their work is vital to our survival as a society, especially during a global population explosion. Our farmers provide food to not only Canadians but to those across the world. Here at the KWRC we are working with farmers to help implement beneficial management practices to promote

on-farm sustainability, and support resilient ecosystems. Plus, we want to help change the public's perspective of farms: farmers have been some of our most cooperative partners in riparian restoration and we thank them for it!

Over the past 30 years the KWRC has worked closely with farmers to restore rivers and implement riparian setbacks that protect our water sources. More recently we have been working with partners such as Living Lab New Brunswick to monitor soil carbon sequestration and pollinator presence on farms. We would like to take the time to highlight one of our many generous farm partners who have been doing great work to reduce their environmental impact (stay tuned for a social media series highlighting many of the farmers in our watershed!)

The Bettle property along the Kennebecasis River

Don Bettle and his wife Geraldine are third-generation beef farmers in Bloomfield, New Brunswick. Their farm, Passekeag Holdings, has various properties along the Kennebecasis River where they graze cattle and hay. Since 2010 the KWRC has worked with Passekeag Holdings to implement beneficial management practices to help reduce their farm's environmental footprint and promote sustainability. Starting 15 years ago the KWRC conducted riparian enhancement on one of their hay fields that borders the Kennebecasis River in Bloomfield. In 2022 the KWRC team returned to Don's farm to tackle a new project that restricted cattle access from 7500 m^2 of riparian zone and 1.3 km of river. By restricting cattle access to the river, we were able to restore this area through tree planting and willow staking to enhance water quality. Since 2022 we have conducted soil carbon monitoring and pollinator monitoring on the property each summer.

The KWRC would also like to note the work that is being done by Living Lab New Brunswick on farms like Don's all over the province to research and promote collaborative efforts and beneficial management practices. Passekeag Holdings is one of 24 farms participating in this research with Living Lab. Additionally, Don and Geraldine have set aside 300 acres of wetland on their farm in collaboration with Ducks Unlimited Canada.

We would like to thank Don and Geraldine for their willingness to help protect the Kennebecasis River and implement best management practices on their farm. Passekeag Holdings is a farm that is paving the way for on-farm sustainability.

~ Laura Lavigne

Agricultural Stewardship Coordinator

2024 Restoration Recap

Installing barbed-wire fence to restrict cattle access to the river

I don't know about you, but I was fooled by the first fake spring of 2025. Nonetheless, this only gives us more time to prepare for the upcoming field season and we have a lot planned, which we would love to share in the upcoming months. However, in this article I am going to give a brief overview of the restoration activities we accomplished in 2024. This was my first field season working with the KWRC, and it was a memorable one. We worked on 8 restoration sites across 4 out of 6 subwatersheds to improve degraded riparian zones. Our work consisted of planting **9760 native trees**, staking **2439 willow** cuttings, installing **1900m of riparian fencing**, and **stabilizing 87m** of previously eroded streambank. In total, the KWRC enhanced 41 acres in our restoration efforts of 2024. Our largest site was Walkerville Farms in Wards Creek, where we installed riparian fencing (pictured left) and where half of the trees were planted. The KWRC enhanced 20 acres just

on Walkerville Farms in 2024, and we plan to complete fence maintenance and monitor our trees' survival at this site in 2025, spot-planting where necessary.

Staff and 2024 summer students at Walkerville Farms

I must give a huge thank you to our 2024 summer staff and volunteers, as well as to the Walker family. Your restoration efforts will be felt for years to come and the KWRC appreciates your contribution to our mission of enhancing the health and resiliency of the Kennebecasis River. Check out our website for more information about career and volunteer opportunities at the KWRC!

Speaking of which, we will be recruiting our summer staff very soon, so if you are a student interested in working outdoors as part of a team toward environmental health, consider us your perfect fit! Keep an eye on our socials for more information about how you can apply.

~ Annie McMullon
Restoration Coordinator

Choosing the KWRC for my Co-Op Placement

My name is Tate Baxter, and I live on a small beef farm just outside of Sussex. I love the outdoors and spend most of my free time hunting or fishing. I attend the Sussex Christian School, and I am spending my 2nd semester co-op placement at the Kennebecasis Watershed Restoration Committee until sometime in May.

Why I chose the KWRC

I chose the KWRC for my co-op program because the work they do relates to what I will be going to university for and what I want to ultimately do when I graduate. I think this experience will provide insight and work experience to help confirm my ideas about pursuing a career in the environmental sector.

Experiences I have had so far

During my short time at the KWRC so far, I have gained experience in the field, such as working on some of the fencing installed this summer and moving it to keep clear of our rivers during flood season. I have also helped maintain bird boxes and ensure they are ready homes for our wildlife for years to come. We have installed new duck boxes, and cleaned existing boxes to keep habitats available and safe. I have done some willow cutting, which we do so that we can stake the cuttings to stabilize our riverbanks and keep them strong.

Choose the KWRC for co-op

The KWRC is a great place to spend your co-op time because it provides a variety of experiences for you to build on if pursuing a similar discipline into university. It's also great to be outside a lot while learning about native wildlife, the natural environment, and what the organization is doing to protect it. If for some reason none of that matters to you, then you still get to discover places with a good view and secret swimming holes.

What you can expect at the KWRC

Expect to be outside a lot so bring extra clothes, just in case. You can also expect to see wildlife, so have your camera ready and make sure to use iNaturalist so we can understand our biodiversity better. Brush up on your tree species because you will be pop-quizzed on it. The days go by quickly when you maintain a good attitude. And be ready to learn constantly, whether it is about how and why we do a task or about valuable native species and their habitat.

~ Tate Baxter
Co-op Student

Helping Bank Swallows to Bounce Back


Photo: Blake Ross, iNaturalist

Spring is officially here, and so are the migratory birds! A migratory bird of interest here at the KWRC is the bank swallow, the smallest swallow species of North America, and the species most in need of help. Due to habitat loss (shoreline hardening and some riverbank stabilization techniques) and reduction of food source (insects) from pesticide use, these little brown birds have faced significant population declines, up to 99% in the Kennebecasis watershed.

The KWRC is partnering with Birds Canada and is part of the Atlantic Canada Bank Swallow Working Group to come up with solutions to locate and protect these unique birds.

We are also working hard to spread the word about protecting bank swallows. I created an informational guide about bank swallows, available on our website here, and spoke to CBC News about how to identify this bird and why we need to take action. Find the article and radio interview here. This outreach is crucially important to raise awareness about the population decline that bank swallows are facing. We need people to be on the look out for this species and know to alter activities accordingly where bank swallows are present.

Bank swallows nest in colonies on steep bank slopes, from ten breeding pairs to thousands. They burrow into the banks, excavating holes for their nests with their beaks and feet. Little is known about the exact whereabouts of bank swallow colonies in the Kennebecasis watershed, so to protect their habitat we must first find where they are nesting. That is why I have developed a monitoring protocol and survey plan for the upcoming bird breeding season. Using mapping tools and slope data, I have identified locations that may be suitable for bank swallow nests and four sub-watersheds of the Kennebecasis. The goal is to survey these locations this summer to monitor for the presence of bank swallows. If any colonies are found, the next step is to ensure that these areas are protected.

Bank swallows can be identified by their white throat and jaw, distinct brown band across their chest, and brown wings, tail, and back. They are often seen flying to and from their burrows, catching flying insects in the air. The calls they make sound like a buzzing, repeated “zzzzrt.”

If you find a bank swallow colony in the Kennebecasis watershed or suspect you have spotted the birds, please let us know at biodiversity@kennebecasisriver.org, and note your location. Using apps like eBird and iNaturalist are also a great way to report your bank swallow observations, though many people choose to keep the exact location of endangered species hidden. Happy birding!

~ Caitlyn Duncanson

(former) Biodiversity Coordinator

Monitoring Water Quality and Cyanobacteria

This winter just flew by, and now it won’t be long till we wrap up snow survey monitoring in April and begin our next tasks, such as deploying river temperature loggers, monitoring for cyanobacteria, and conducting monthly water quality sampling. This past season was my first time compiling and analyzing the monthly water quality data for the KWRC. In 2024, we had a total of 60 sets of sample results from 11 different sites over 5 months of data collection. It has been interesting to see the trends from year to year in parameters such as

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total nitrogen, total phosphorous, *E.coli* levels, and temperature. A few of these parameters have been high at some of the monthly quality sites. These parameters can influence water chemistry and the survival of many aquatic species. This data is valuable in helping our organization identify problems and determine which sites could use some restorative attention. Our restoration activities such as fencing and tree planting will help keep these parameters within the guidelines set by the Canadian Council of Ministers of the Environment (CCME). I can't wait to see how our restoration work impacts our water quality data this field season!

I was also introduced to cyanobacteria during the 2024 field season, seeing it up close for the first time and testing for cyanotoxins! Cyanobacteria are photosynthetic bacteria that have existed on Earth for billions of years and can naturally be found in waterbodies. Under the right conditions (temperature, nutrients, flow, and sunlight), however, they can increase in number quite quickly to form benthic mats and surface blooms. When this happens, the cyanobacteria can produce harmful cyanotoxins such as Microcystin and Anatoxin-a. Benthic mats are goopy growths on the bottom of rivers, lakes, and bays. They can be brown or dark green with tiny bubbles. Benthic mats may also lift off the bottom and float to shore, where they can become a hazard for dogs who like to ingest smelly things. Surface blooms can also appear in rivers, lakes, and bays as green or bluish-green scum, or paint streaks, or flecks suspended in the water. This form of bloom can also produce toxins, potentially irritating the skin and throat or causing harm if contaminated water is ingested. You can learn more about cyanobacteria from our partners at ACAPSJ or GNB, plus we go into more detail about what it looks like, with photos included, in our Fall 2024 newsletter available on our website.

~ Kate Vey

Monitoring Coordinator

Kennebecasis Watershed Restoration Committee

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Information is also available on our website at www.kennebecasisriver.org. We are currently working to make our newsletter available as a subscription. Thanks for your patience!

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