



Annual Report 2023

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Introduction

Trout River Environmental Committee (TREC) kept busy in 2023 taking on many new and exciting projects as well as tackling damage caused by Post-tropical Storm Fiona. This year we had 8 staff: Executive Director Andrew Lush retired in March of 2023 and remained on the board of directors, Shayla Steinhoff took on the new role of Executive Director previously holding the Project Manager position, Sarah Wray was hired as Project Manager in May, David MacLeod returned for his third summer with the new role of Field Supervisor as well as 4 new Field Technicians Paige Campbell, Chris Levesque, Marilyn Sheen and Vijeta Chatterjee.

Our field season started on May 8th with our field crew ending on August 18th our Field Supervisor finishing on August 25th and our Executive Director and Project Manager continuing full time.

In 2023, 2,109 native trees and shrubs were planted in suitable locations by crew members and volunteers, and as part of our Annual Tree Drive. Surveys and restoration work began at two saltmarsh sites as part of a Nature Smart Climate Solutions Fund project, with restoration and enhancement work beginning early fall. The crew completed 13 shoreline cleanups throughout the season removing over 1,290kg of debris from our shorelines, wetlands, and estuaries. In early summer 26 new Tree Swallow nesting boxes were installed within the watershed with over half being used by wildlife this year. 31 water quality sites were surveyed bi-weekly and estuary watch occurred weekly. The TREC Community Garden made its debut with one planter box providing fresh produce to the community. The crew cleared 2km of stream blockages on Trout River. Our parks were given an update and some much needed repairs with new guard rails installed, educational signage, restoration to parts of the Trout River Park trail, moving the bridge back with new footing and replacing the lookout point using the Active Transportation Fund. We completed wildlife surveys, REDD surveys, dirt road surveys, riparian health assessments, saltmarsh plant surveys, amphibian board surveys, fish ladder surveys, stream blockage surveys, tree swallow nesting box surveys and bat surveys.

We are very proud of all the work we were able to accomplish this year that is showcased in the rest of our Annual Report. TREC was supported this year by the federal and provincial government, private and corporate funders, memberships, neighboring watershed groups, volunteers, in-kind donations, supply donations, in kind technical support from experts, training opportunities and community support. All of the work that we do in improving the ecological integrity of our watershed wouldn't be possible without the amazing community we find ourselves within.

This *Annual Report* is a general report prepared for the public and will go over work completed by TREC in 2023. If you are interested in learning more about our work, donating, or becoming a member, please visit our website at troutriverrec.ca or our social media @TREC on Facebook or Instagram. If you have any questions about our work, please send us a message on social media or email us using the contact information on our website.

Meet our Staff



Shayla Steinhoff: *Executive Director*



Sarah Wray: *Project Manager*



David MacLeod: *Field Supervisor*



Paige Campbell: *Field Technician*



Marilyn Sheen: *Field Technician*



Vijeta Chatterjee: *Field Technician*



Chris Levesque: *Field Technician*

Field Work

Tree Planting

This summer TREC planted 1,739 native trees and shrubs around the watershed with an additional 370 being given away at our Annual Tree Drive to community members. We planted 25 different species (Table 1) which will go a long way in increasing species diversity at our planting sites and the sites chosen by community members. Increasing species diversity improves ecosystem health, provides more sources of food and shelter for native wildlife and provides a wide variety of other ecosystem services.

This year we tree planted at 18 different sites (Figure 1) focusing on riparian areas as well as hedgerows and areas impacted by Fiona. Hedgerows help protect against soil erosion by offering a buffer against wind and rain. They also prevent run-off from entering our watercourses and provide good windbreaks for crops, buildings, and wildlife.

Planting native trees and shrubs in riparian areas helps improve riparian health by providing canopy cover, keeping stream temperature low, providing habitat and food for fish and other wildlife, carbon capture and retention, increased biodiversity, bank stabilization, erosion and runoff prevention.

Trees were received from the J. Frank Gaudet Tree Nursery, as well as some generous donations from community members.

We also held a volunteer tree planting day on November 15th at Trout River Community Park to replace trees lost during post-tropical storm Fiona.

Thank you to all our community members who allowed us to plant on your properties this year, volunteered and donated to us!

Table 1. Native Tree and Shrub Species planted by TREC in 2023

Native Tree and Shrub Species 2023	
Spirea	Aronia M
Winterberry	Aronia P
Cedar	Balsam Fir
Black Spruce	Yellow Birch
White Spruce	Bayberry
Eastern Hemlock	Eastern Larch
Red Elderberry	Willow
White Pine	Red Maple
Red Osier Dogwood	Sugar Maple
Swamp Milkweed	White Birch
Wild Rose	American Mountain Ash
Red Oak	Common Elderberry
White Ash	

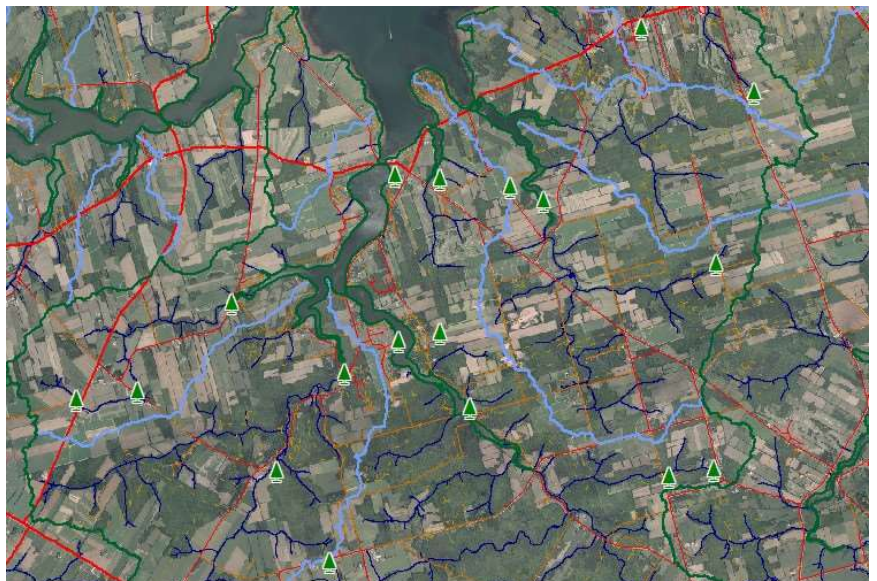


Figure 1. Locations of 1,739 native trees and shrubs planted in 2023.

Stream Clearing

Stream clearing this year was largely impacted by Post-Tropical Storm Fiona that created large blockages throughout the watershed. Post-tropical Storm Fiona hit Prince Edward Island on September 24th, 2022 which brought heavy rain, winds of over 150km/h, large waves and a very powerful storm surge. As a result, many trees came down causing stream blockages.

The field crew did an amazing job this year tackling very difficult blockages found throughout a 2km stretch of Trout River located between New Orleans and Millvale Road (Figure 2).

Large woody debris and other blockages can impede fish passage, collecting sediment and other debris, creating even larger blockages over time. Aquatic species such as Brook Trout must migrate through waters in order to spawn, grow, find suitable habitat, feed, and complete other life processes. This is part of the reason clearing blockages within streams and watercourses is so important

in order to restore habitat and improve stream health for fish and other wildlife. Blockages can also cause bank erosion, sediment buildup and disrupt stream meander pattern. In Figure 3 you can see a big blockage removed by the field crew that was impacting fish passage and stream meander pattern. Once the blockage was removed the stream quickly started flowing back to its natural pattern.



Figure 2. 2023 Stream Clearing of Trout River by TREC



Figure 3. Before and after photo of a large blockage removed by field crew in 2023.

Brush Mats

Installing brush mats helps to restore stream meander pattern and flow, stabilizing streambanks by allowing sediment to build up within the brush mat and vegetation to grow overtop, narrowing steams, increasing flow as well as cooling water temperature. Brush mats provide erosion control while also providing good fish and wildlife habitat.

TREC built 10 new brush mats this season and topped up 2 that had been built the previous year. 8 Brush mats were built on Trout River off of New Orleans Rd with the topped-up brush mats and 2 newly built brush mats being on the stretch of Trout River on the opposite side of the road (Figure 4). The Trout River tributary on both sides of New Orleans Rd. is experiencing deep sedimentation and a straightening meander pattern, likely due to the road crossing, as well as damming downstream. This area, although in need of restoration work, is home to many large Brook Trout, Muskrats, Great Blue Heron, amphibians, waterfowl and other wildlife, that will now have improved



Figure 5. Brush mat built in 2023 by field crew on Trout River off of New Orleans Rd.

habitat through a reduction in sedimentation and restored stream meander pattern. This year TREC was able to use brush collected from trees downed from post-tropical storm Fiona. Spruce or Alder bows were placed into the bank then staked in place and tied using a triangular tying formation to keep the mat together. In Figure 5 we can see an example of a brush mat made this year using this methodology.



Figure 4. 10 new brush mats installed along Trout River and 2 topped up brush mats in the 2023 field season

habitat through a reduction in sedimentation and restored stream meander pattern.

This year TREC was able to use brush collected from trees downed from post-tropical storm Fiona. Spruce or Alder

Patch Cuts

TREC created 8 new patch cuts along Hope River and cleared 6 old patch cuts that had been made in previous years in the same area. This area is primarily dominated by Alders which can provide good summer shade, but as they grow, they can collapse into the water and erode banks. Patch cutting is used to encourage regeneration of other species and create a mixed-age stand which promotes a healthier forest community. By clearing old patch cuts we are able to ensure previously planted trees continue to have enough space to grow and don't get crowded out by the Alders (Figure 6).

Patch cuts were placed diagonally from each other on opposite sides of the stream and then planted with native trees and shrubs to increase species diversity.



Figure 6. Before and after photos of TREC clearing an old patch cut where trees had previously been planted

Invasive Species

Over our years as an organization, TREC has been identifying, tracking, and managing the spread of invasive species within our watershed. Prominent invasive species that were managed in 2023 were Glossy Buckthorn, Japanese Knotweed, Wild Cucumber and Bittersweet Nightshade. TREC has worked to locate where these invasives are spreading, finding large and small patches where seeds and roots may spread and removing them. If you spot any invasives within the TREC watershed area please contact us or the PEI Invasive Species Council (PEIISC) to report, or use the EDDMapS app to report from phone, which will then be checked and added to the PEIISC database.

Glossy Buckthorn

This year we primarily tackled Glossy Buckthorn in the Devil's Punchbowl with the help of the PEI Invasive Species Council (Figure 7). We used an Extractigator to pull up the Glossy Buckthorn by its roots. If the plant was seeding, we clipped and bagged the berries so that they wouldn't spread.

One technique we use to remove Glossy Buckthorn is called girdling where we remove a two-inch-wide ring of bark from near the base of the tree. In order to be effective, one must remove the outer bark and green cambium layer. This method is used on large Glossy Buckthorn plants that can't be removed with the Extractigator. The goal of girdling is to weaken and kill the Glossy Buckthorn plant above the girdle. We also removed and girdled many glossy Buckthorn plants along the bank of the North Granville Community Centre where our office is located.



Figure 7. TREC and the PEI Invasive Species Council after removing glossy buckthorn from the Devil's Punchbowl

Garlic Mustard

This year we were invited by Parks Canada to assist in pulling Garlic Mustard at Cavendish Beach National Park. We hand-pulled Garlic Mustard alongside the Parks Canada team and Hunter-Clyde Watershed Group. Together we managed to pull out 474.5 lbs of Garlic Mustard (Figure 8)!

Garlic Mustard is named after its garlic sent that is released when crushing its leaves. It's a very aggressive invasive species with a two-year cycle. In the first year a rosette will form and in the second a flowering plant with white flowers will form. Each plant can produce between 200-800 seeds. Garlic Mustard dominates the ground layer while also interfering with soil competition making it more difficult for other plants to grow around it. It is often dispersed by people's boots, clothes, pets and equipment so brushing everything off whenever going to a different area is a great way to reduce the spread of this invasive and many others.



Figure 8. TREC pulling out Garlic mustard at Cavendish Beach National Park

Japanese Knotweed

Japanese knotweed was removed along Hazel Grove Road and at the TREC office. Japanese Knotweed is a herbaceous plant resembling bamboo shoots and must be removed by cutting shoots and placing in bags to dry out and be disposed of properly at a waste management facility. Japanese Knotweed spreads through its roots, meaning pulling it will only spread the invasive further. In addition, it can root through any leaf or stem that is left over, so it is important to remove all traces of the invasive from the area.

Wild Cucumber

We have noticed Wild Cucumber spreading into more areas of the watershed. Volunteers from the PEI Watershed Alliance Team came out and helped us in removing Wild Cucumber along a 1.2km stretch of private stream (Figure 9). We also removed Wild Cucumber at various other locations throughout the season and documented its spread. Wild Cucumber was removed by hand-pulling the vines and hanging them up to dry before seeds can spread if seeds are present, they must be bagged and properly disposed of.

Founds River is a problem area for invasives. TREC walks this stream each field season, removing Wild Cucumber, Morning Glory and Bittersweet Nightshade, which are all invasive climbing vines that can choke out native vegetation. The Kensington North Watershed Association came out again to help this year and together we removed invasives on 7km of Founds River.

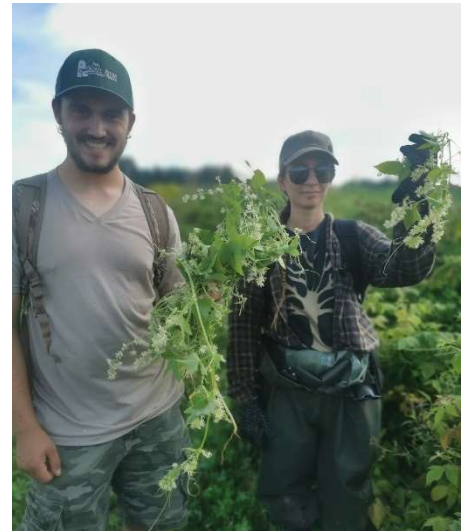


Figure 9. TREC and Volunteers from the PEI Watershed Alliance Team removing Wild Cucumber

Monitoring and Surveys

Dirt Road Surveys

In late spring, our Field Supervisor, David MacLeod conducted our annual Dirt Road Surveys, collecting data on diversion ditches, check dams, crossings, sediment traps and other infrastructure Transportation has installed to reduce sedimentation in streams. Runoff from dirt roads can be a major cause of sedimentation in streams, and if preventative infrastructure is not properly maintained, the issue can be exasperated during heavy rain events.

TREC collects data on this preventative infrastructure, noting if sediment traps/diversion ditches/check dams need to be emptied, where runoff is occurring and other issues with dirt roads that may impact stream health or public safety. This data is then relayed to The Department of Transportation and Infrastructure, so work may begin to prevent runoff from entering watercourses and wetlands.

Headwater Surveys

TREC conducted headwater surveys for our third year at 10 locations this spring throughout the watershed (Figure 10). The team collected data from each headwater noting changes in flow, status of springs, impacted areas, fish passage, canopy cover and stream temperature.

It is important to gather information on the health of our headwaters so we can determine which streams are at risk of running dry due to climate change or other impacts, the seasonal fluctuation in water flow and headwater locations, and assess water connectivity within the watershed. Identification of stream flow fluctuations will allow future work to target at risk streams and to focus on remediation.

In order to conduct headwater surveys, it is necessary that it has not rained more than 5mm in the three days prior to conducting the surveys. Unfortunately, due to how wet it was this fall, fall headwater surveys were unable to be conducted.

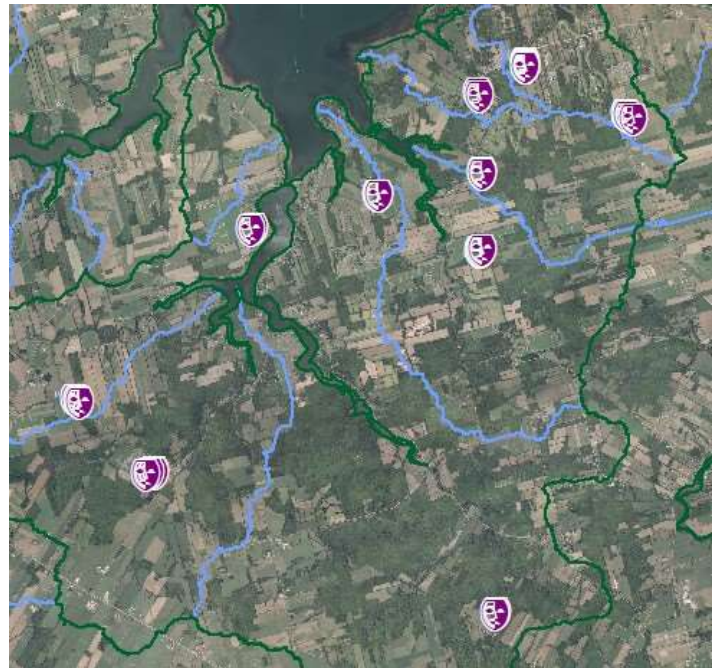


Figure 10. 2023 Headwater survey locations are shown as faces (heads) on the map.

Amphibian Surveys

TREC conducted Amphibian Board Surveys at 6 locations this year having added an additional location at the Devil's Punchbowl (Figure 11).

These were areas that would likely house amphibian species such as Wood Frog, Spring Peeper, Leopard Frog, Green Frog, American Toad, Red-backed Salamander, Yellow-spotted Salamander, Blue-spotted Salamander and the Eastern Newt.

Board surveys use 1 meter squared of untreated wood, as chemicals from treated wood could hurt the amphibian, which are labeled with TREC as well as a contact number. Boards were checked 2-3 times throughout the summer field season. 2 of 6 boards had amphibians present while the other had

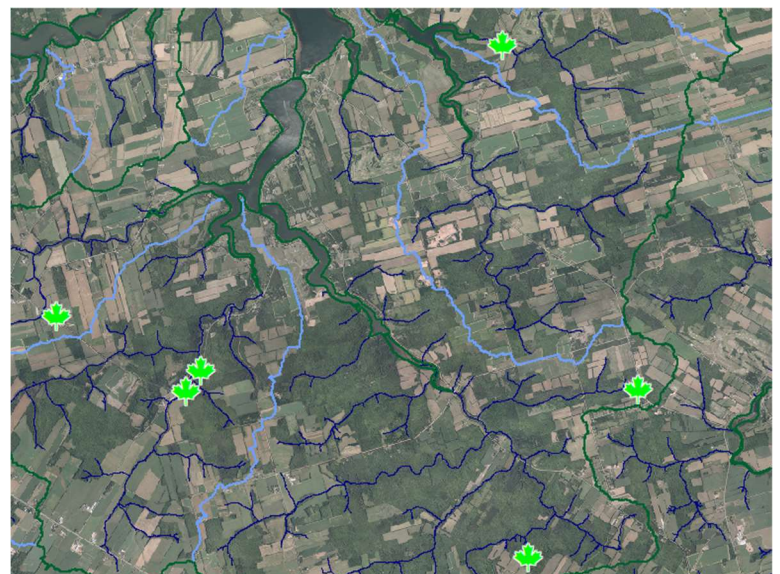


Figure 11. Amphibian Board Locations 2023

no amphibians present when checked. For the successful boards TREC found Spotted Salamanders and an Eastern Red-backed salamander (Figure 12). Boards are lifted by 1 crew member while another records video to ensure all species spotted are caught and identified later, field data entry is completed including site, time and date, weather, species sightings and other notes.



Figure 12. Spotted Salamanders and Eastern Red-backed Salamander found during 2023 board surveys.

Bat Monitoring

As part of the Habitat Stewardship Program, the PEI Watershed Alliance has been working with Watershed Groups to monitor bat populations on PEI following the NABat framework. This project spans three years, with a primary focus on bat detection. The introduction of the fungus causing white nose syndrome in North America has led to significant declines in bat populations along the eastern coast. This syndrome disrupts the natural hibernation cycles of bats, pushing them to seek food and water prematurely and often leading to starvation and dehydration. The NABat framework aims to standardize bat monitoring efforts continent-wide by establishing best practices and monitoring grids. TREC has been tasked with monitoring a grid for bat activity for the 2023 field season for the 3rd year in a row. Utilizing acoustic monitors to detect bats' high-frequency echolocation calls, we aim to determine bat presence or absence.

Bat Boxes

This past field season TREC installed 5 new bat boxes in suitable locations (Figure 13). Bat boxes are used during roosting season and the design can hold 50-150 bats in one box. Bat boxes are a great way to provide habitat for a declining population that is experiencing a loss of natural roosting locations and can also help decrease the number of insects on your property. If you are interested in installing your own bat box on your property, contact us and we may be able to provide one.

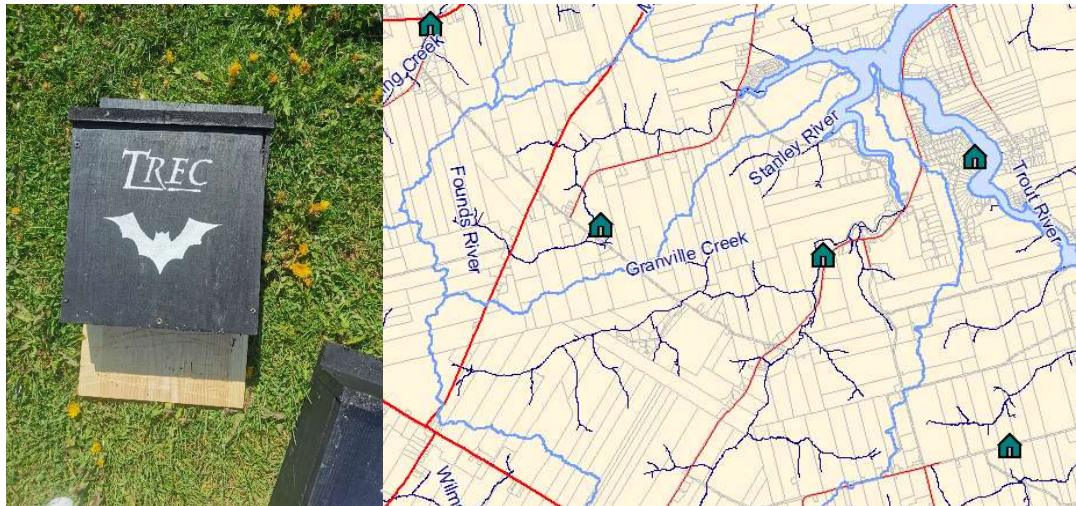


Figure 13. Location of 5 bat boxes installed in 2023 and a photo of said bat boxes

Emergence Survey

In 2023, the TREC team conducted three emergence surveys at two different locations. These surveys, carried out at dusk, involve watching bats as they leave their roosts. Team members stationed at each corner of a building count the bats until no activity is observed for at least 10 minutes (Figure 14). At one location, bats were observed emerging from a building and bat box on 2 nights with one survey being led by TREC and the second involving a TREC crew member Marilyn Sheen and 2 volunteers. Conversely, at the other location, no bats were observed emerging from a bat house. Data was also collected using a Walkabout Bat Monitor which helped identify species types. These surveys play a crucial role in tracking bat populations and assessing the impact of white nose syndrome.

Figure 14. Field Technician Paige Campbell conducting emergence survey



Stationary Monitors

In 2023, five stationary monitors were strategically placed in various habitat types (forest, open field, wetland, stream) across the watershed during peak roosting season (Figure 15).

Operational for one week, these monitors capture data on bat species presence. Data analysis, facilitated by the Kaleidoscope program, supports bat population tracking efforts led by the NA Bat Program and the Canadian Wildlife Health Cooperative.



Figure 15. Executive Director Shayla Steinhoff installing stationary monitors

Mobile Transects

Each year, mobile transects are conducted by driving at a slow pace along a designated route with a bat monitor attached to a vehicle. Driven at 32 km/hr, slightly faster than bat flight speed, this approach minimizes the likelihood of double-counting bats. Such surveys, conducted in 2023, enable the detection of relative bat abundance within our watershed.

Bat Wells

Recent discoveries reveal that hand-dug wells on PEI serve as hibernation sites for bats. TREC closely monitors these wells during winter to evaluate their suitability and occupancy by bats installing bat detectors at the well and a control further down the property. Data collection includes recording bat calls to identify species. To safeguard these wells and mitigate accidents, crew members installed metal powder-coated covers with funding from the Wildlife Conservation Fund in 2022 (Figure 16). These covers feature 6-inch gaps to facilitate bat passage.



Figure 16. Bat Well

Fish Trap

The fish trap located on top of Parsons Pond fish ladder was checked every morning during the field season beginning on June 14th. Fish were identified and measured to provide data on what species are present as well as what size fish are able to make it up the fish ladder (Figure 17).

In addition to checking the fish trap each morning and removing for weekends, the team also cleared the ladder of any debris or plant life that could impede fish passage or reduce water quality through decay. The trap was removed August 17th, 2023, at the end of the summer field season.

In total, 205 fish were found in the fish trap which was comprised of 197 Brook Trout, 5 Gaspereau, 2 White Perch and 1 Three Spined Stickleback.



Figure 17. A large Brook Trout found in the Fish Trap

Riparian Health Assessments

The team continued to conduct Riparian Health Assessments (RHA's) of our watershed to determine stream health, noting where blockages occurred, erosion and runoff, invasives, canopy cover percentage and other factors determining riparian health. The team surveyed 2km of stream in 2023 at the following locations along Andersons Creek and Hope River (Figure 18).



Figure 18. 2km of stream surveyed during Riparian Health Assessments in 2023

REDD Surveys

Female Brook Trout will create a REDD by digging in gravel to excavate a nest and deposit eggs which are then fertilized by males. By counting and mapping REDDs we can learn more about brook trout populations and spawning habitat. In Prince Edward Island, REDD surveys are conducted for, generally, two key species: (i) the Atlantic Salmon and (ii) Brook Trout. Atlantic

Salmon spawn between October and November each year in freshwater streams (note that these times can vary depending on the stream). Brook trout also spawn within this window, but their spawning behaviour is typically over a longer window. Both species tend to favour graveled areas. However, the spawning ability of both these fish is limited by obstacles within the stream that impede passage from the estuaries to the headwaters.

The Hope-Stanley watershed complex is dominated by Brook Trout species. Thus, continued identification, surveying, and mapping the number and distribution of REDD presence within the region can answer key questions about the trout populations and spawning habitat within our watersheds. Gaining this information can have important implications for protecting and funding restoration projects in these stream reaches: for funding, regulations, and the restoration plans in this region. For example, mapping REDD distribution can help to identify vital spawning grounds as well as locations that do not support trout reproduction currently (due to erosion, silt accumulation, and poor water quality). This knowledge can help our teams to prioritize work sites and protect key spawning sites within our region.

Our goal is to determine (i) which streams have access issues (how far the sea-run trout can move upstream to spawn), (ii) which streams have the appropriate habitat available for parr survival, (iii) which habitats trout are using for REDD creation, and (iv) locating key sites for fish monitoring (electrofishing sites, CAMP sites, etc.) for future monitoring. Identification of barriers to fish passage from the headwaters will allow future work to target barrier removal to allow spawning sea-run trout to move further upstream (increasing access to important spawning habitats). Furthermore, identifying the location of trout spawning can allow the team to avoid restoration work in these areas while fish are especially vulnerable.

Our Executive Director and Project Manager Shayla Steinhoff and Sarah Wray completed 4km of REDD Surveys this fall along Trout River and Granville Creek (Figure 19). These surveys provided good data on what areas are providing good spawning habitat for Brook Trout. It will help inform stream clearing and other restoration activities in future years to know which areas could be blocking fish migration and spawning.

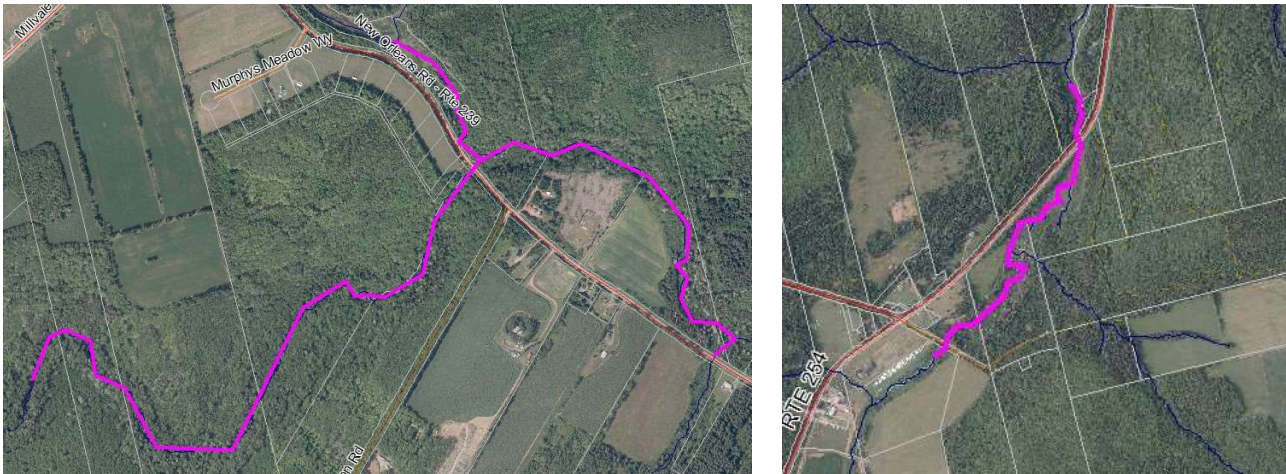


Figure 19. 4km of REDD surveys completed in 2023 along Trout River and Granville Creek.

Water Quality Monitoring

TREC has continued to conduct Water Quality Monitoring in the 2023 field season. 31 sites across 9 watersheds were monitored bi-weekly over the course of 4 months using a YSI from the PEIWA. Additionally, bottle samples were taken from these 31 sites every other monitoring day and tested at Bedeque Bay Environmental Management Association for nitrates.

Every other week, the team recorded stream characteristics (width, depth, sediment depth and flow) as well as its physical and chemical characteristics using a YSI (temperature, pH, turbidity, conductivity, dissolved oxygen, TDS/TSS, nitrogen content, specific conductance, and salinity) (Figure 20). We do this to have an up to date reading of water quality for this area to compare to past and future data and track the health of our streams.

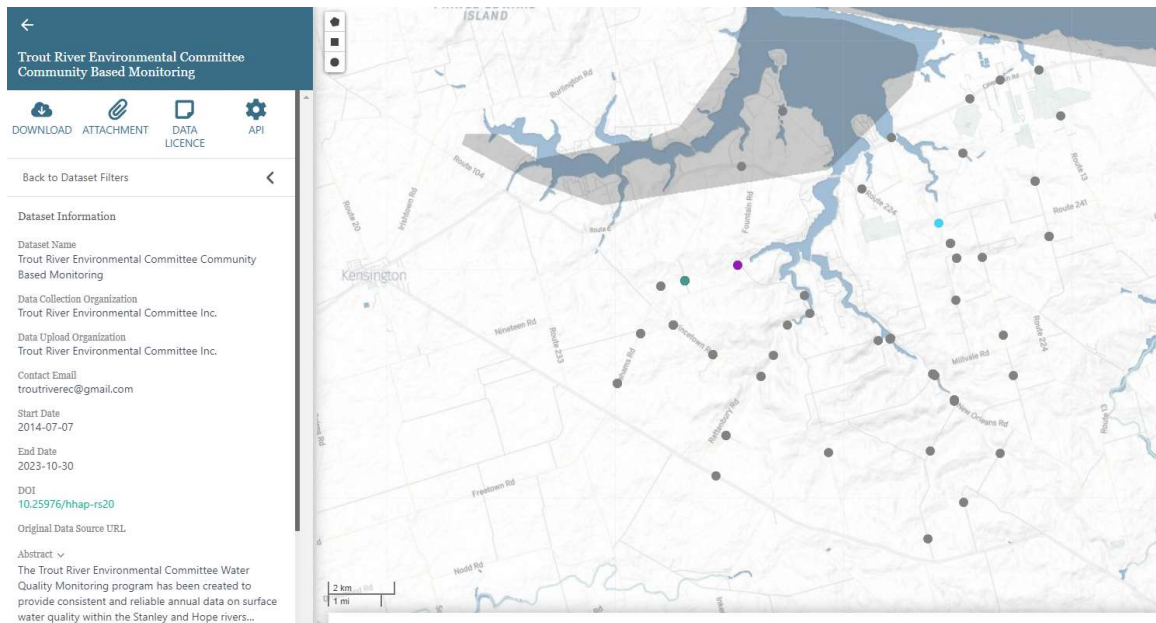
We also continued to collect data from our 6 temperature loggers to track yearly and seasonal temperature changes that may be influenced by climate change, land use, or infrastructure such as dams. Four of these loggers are located above and below dams containing fish ladders in order to see if these dams have an influence on temperature change. Two other loggers are located in estuaries along with dissolved oxygen loggers. All of our Water Quality Monitoring Data is uploaded to Atlantic DataStream at the end



Figure 20. Marilyn Sheen conducting water quality monitoring with the YSI

of the year. Atlantic DataStream is an open access platform for sharing information on freshwater health. If you are interested in viewing our data, head to Atlantic DataStream and type in Trout River Environmental Committee to find our monitoring data since 2014 (Figure 21). It's a great way to find out about the health of waterways near you.

Figure 21. Trout River Environmental Committee Community Based Monitoring Data located on Atlantic DataStream.



We also participated in the Estuary Watch program which is used to track anoxic events, estuary watch protocol and booklet is a standardized program used across the province. TREC conducted these assessments Monday afternoon for estuaries within Hope River, Trout River, Granville Creek, Founds River and Anderson Creek. At the end of the monitoring period, we relay all data to the provincial government, who collects data Island wide on anoxic events. Knowing where anoxic events are happening and the duration of these events in our estuaries provides valuable data to us and the Department of Environment, Energy and Climate Action.

Projects

Landowner Guide

In early 2023, TREC launched our Landowner Information Guide a new web page that contains a wealth of information on the environment and what you as an individual can do to help, as well as the programs and services out there to help you.

This web page contains information from many sources including the provincial and federal government, the

Canadian Wildlife Health Cooperative, Island Nature Trust, Ducks Unlimited and Nature PEI. TREC gratefully acknowledges that much of the work on this guide was funded by the PEI Wildlife Conservation Fund.

Visit our new Landowner Information Guide webpage today <https://troutriverec.ca/landowner-information/> or find it later on our “Resources” page.



Carr's Wildlife Centre Signs

At the beginning of 2023 TREC worked with Carr's Wildlife Centre on a project funded by the Wildlife Conservation Fund to create educational signage for over 30 birds that are native to PEI as part of a new exhibit.

This display focused on birds which rely on saltmarshes for food, breeding, nesting, and highlighted the importance of conserving saltmarsh and other natural habitats. You can visit these exhibits at the newly renovated Carr's Wildlife Centre in Stanley Bridge (Figure 22).

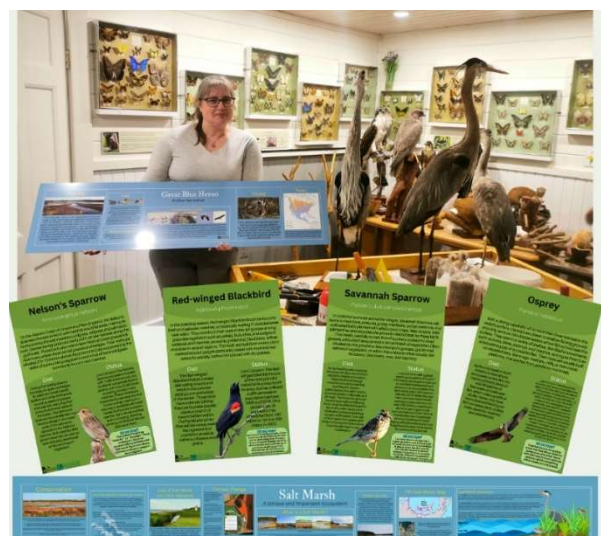


Figure 22. Signage developed for Carr's Wildlife Centre

Active Transportation Fund

Our parks were looking a bit worse for wear post-Fiona, but with the help of the PEI Active Transportation Fund we were able to give them some much needed repairs and additions.

With this project we were able to restore the lower Trout River Park trail and move the foot bridge back into place, replace our well-loved lookout point that was unfortunately taken by Fiona (Figure 23), replace guard rails, add a bench at the Devil's Punchbowl along the Devil's Punchbowl Trail, add educational signage and 2 invasive species boot brush stations to both the Trout River Community Park and the Devil's Punchbowl Trail.



Figure 23. The new lookout point at Trout River Park

Boot Brush Stations will help prevent the spread of invasive species. When walking along trails the seeds from invasive plant species can get stuck in the grooves of your shoes. By using these stations to clean off your shoes before and after using the trail you can make sure that you do not carry any unwanted hitchhikers with you on your next adventure (Figure 24). We will continue to restore and improve the Trout River Community Park and the Devil's Punchbowl Trail in the 2024 season.



Figure 24. The boot brush station and wildlife signs installed in 2023.

Shoreline Cleanups

In the aftermath of Post-Tropical Storm Fiona, the PEI Aquaculture Alliance partnered with the PEI Watershed Alliance to coordinate efforts to clean up our beautiful shoreline. With the support from the Department of Fisheries and Ocean's Ghost Gear Program and the Government of PEI, we enhanced cleanup activities for a cleaner, safer environment.

Through the PEI Watershed Alliance watershed groups conducted shoreline cleanups as part of this partnership. Trout River Environmental Committee (TREC) is proud to have been a part of this project having conducted 13 shoreline cleanups removing over 1,290kg of debris from our shorelines, wetlands and streams.

The majority of our cleanups were around the Stanley Bridge area, particularly targeting The Hebrides community that was hit particularly hard during post-tropical storm Fiona. We removed 680kgs of debris from the Hebrides area alone during three cleanups, one of which we partnered with Kensington North Watersheds Association (KNWSA) to cover area spanning both our watershed boundaries (Figure 25).



Figure 25. TREC and KNWSA at the end of a shoreline cleanup at the Hebrides.

Separately from this initiative we also completed two other shoreline cleanups. One with Ducks Unlimited (Figure 26) and the other with Bedeque Bay Environmental Management Association. These cleanups took place at Mackey's Pond and Kellie Ln. During cleanups you really get to see the impact Fiona had on our community first-hand and we are proud of the part we played in helping the community recover from Post-tropical Storm Fiona.



Figure 26. Shoreline Cleanup with Ducks Unlimited at Mackey's Pond

Nesting Boxes

As part of a spring Wildlife Conservation Fund Project TREC installed 20 Tree Swallow nesting boxes on poles around the watershed (Figure 27). An additional 6 boxes were constructed throughout the field season and installed in the fall.

In the fall, the 20 nesting boxes were surveyed to check for occupancy and to clean them out. It is important to clean out nesting boxes so that they don't become filled with old material which decreases the chances of wildlife using them in the future or makes them more vulnerable to predators when their nest is closer to the entrance hole.

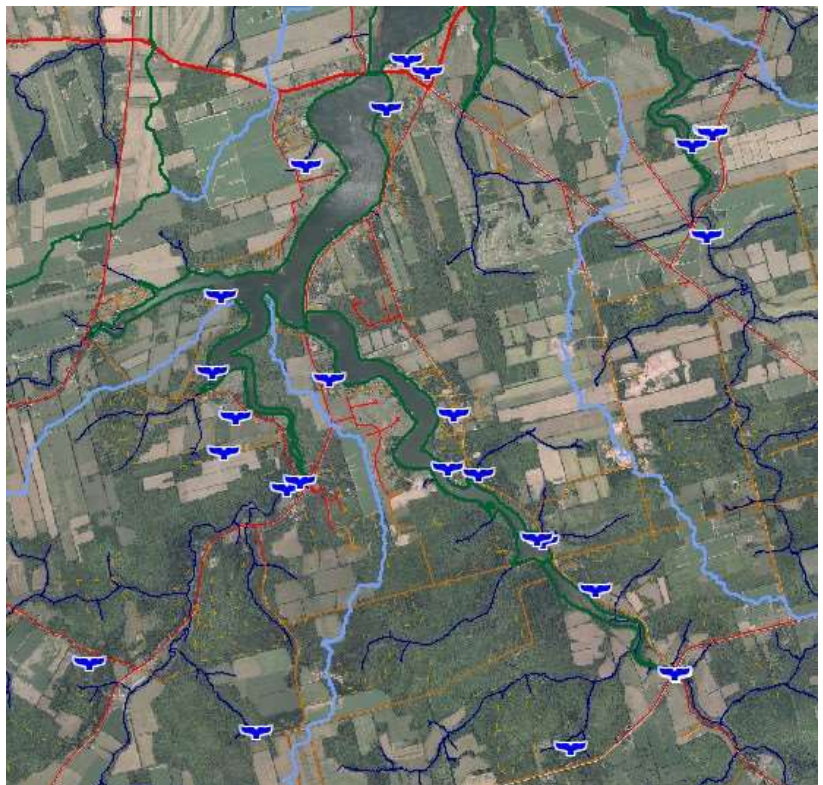


Figure 27. Tree Swallow Nesting Box locations as indicated by blue birds

Here are the results of our 2023 nesting box surveys:

11/20 used by wildlife
4/20 used by Tree Swallows
2/20 used by other birds
2/20 incomplete nests by birds
1/20 used by Red Squirrel
2/10 inconclusive species nests

Nesting boxes were installed on poles rather than trees as a way to avoid unwanted guests such as Red Squirrels or Eastern Chipmunks (Figure 28).

As part of this project funded by the Wildlife Conservation Fund, we wanted to capture footage of the Tree Swallow nesting process, but a Chickadee decided to move into our nesting box instead! We were able to capture the nesting process from egg to nestling to full feathered Chickadee and condense the process into a 3-minute video so you can all watch too. You can view this video any time by visiting our website troutriverrec.ca and searching under Resources.

Chickadees nest once a year between April and July laying anywhere between 1 and 13 eggs in a clutch but on average will lay around 6-7. The nest can take around 4 days to 2 weeks to construct depending on the location and materials available. The Chickadee will then lay one egg a day, typically in the morning. The eggs are white with brown dots and the incubation period takes about 12-13 days and then an additional 12-16 days between hatching for the chicks to leave the nest.

Stream Blockage and Shoreline Surveys

As part of an Atlantic Canada Opportunities Agency project facilitated by the PEI Watershed Alliance Trout River Environmental committee is conducting stream blockage and shoreline assessment surveys to gain a better understanding of Fiona impacts to inform our 2024 field season. This project is taking place between November 2023 – March 2024. So far in 2023 Shayla Steinhoff and Sarah Wray have surveyed 10.4 km of stream categorizing blockages into low, medium and high priority (Figure 29). The goal is to survey 20km of stream along the main branches of Trout River, Granville Creek and Hope River as well as 10-20km of shoreline surveys.



Figure 28. Field Supervisor, David MacLeod installing a Tree Swallow Nesting Box on a pole

Stream blockages are assessed based on their ability to impede fish passage. These surveys are helping us have a better understanding of current watershed conditions as well as the scale and location of current blockages.

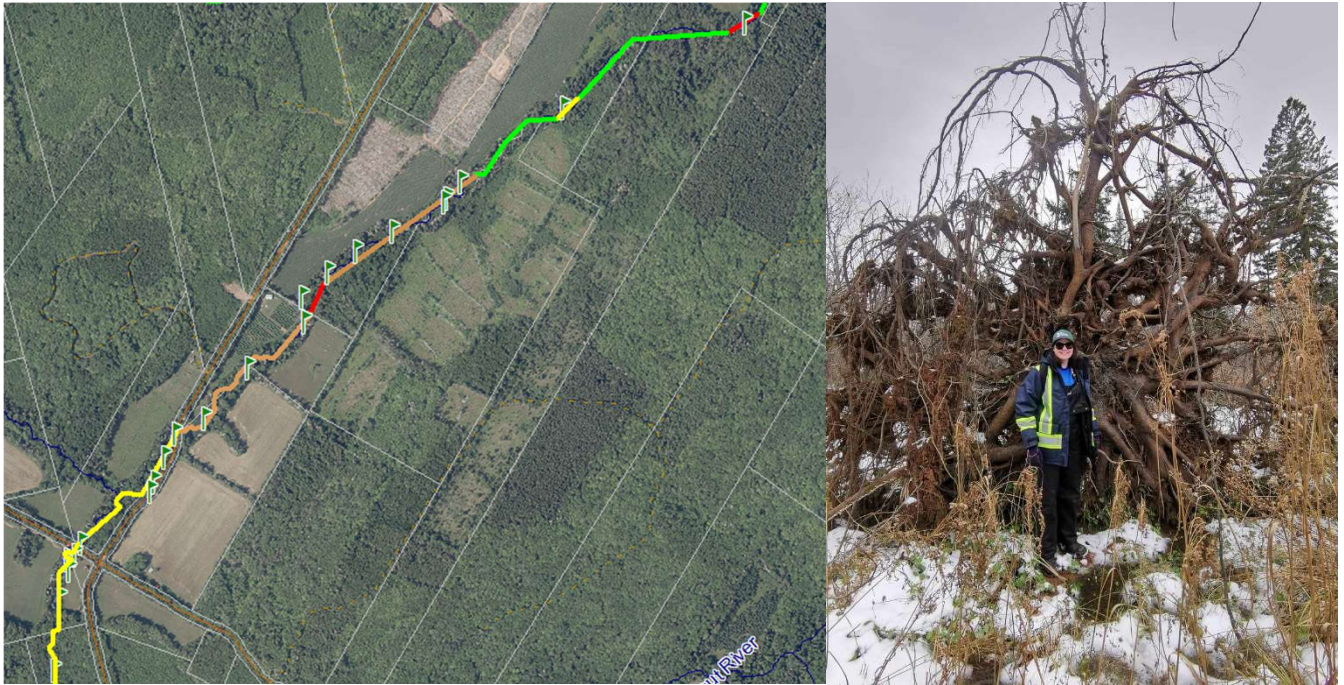


Figure 29. Stream blockage surveys conducted along Trout River categorizing stretches into low (yellow), medium (orange) and high (red) priority. Green stretches represent areas where no blockages are present. As well as a photo of Project Manager Sarah Wray standing beside a downed tree.

TREC Community Garden

This year marked the debut of the TREC Community Garden. The garden was funded through the Island Community Food Security Initiative. The garden is located at our office at the North Granville Community Centre and is free and open to community use with the goal of providing fresh local produce in an area with little access to local grocers and give those who may not be able to garden themselves the opportunity to do so.

Two rain barrels were purchased from Bedeque Bay Environmental Management Association which were installed at the front of the building in order capture storm water runoff and water our garden. The soil was generously donated by the Stanley Bridge Women's Institute and the box was built by TREC volunteer Dave Searle.

This year we planted two varieties of tomatoes, yellow beans, salad greens, basil, zucchini, and eggplant (Figure 30).



Figure 30. Trout River Community Garden planted with fresh produce.

The box was beautifully painted in August with native wildflowers by Field Technician Marilyn Sheen (Figure 31). We had a lot of positive feedback from community members about the garden and are hoping to expand it further in the years to come!



Figure 31. TREC Community Garden box painted with native wildflowers by Marilyn Sheen.

Saltmarsh Restoration and Enhancement

As part of our Nature Smart Climate Solutions Fund project, Trout River Environmental Committee is working to improve the health and carbon capture capacity of saltmarshes within the watershed. This year we focused on two saltmarshes within the Stanley Bridge area (Figure 32) digging runnels (30cm deep by 30cm wide channels) to improve water flow and vegetation

within the marsh as well as placing and staking coir logs to encourage sediment holding and establishment of vegetation in addition to reducing erosion within the marsh (Figure33). 14 coir logs were installed this season as well as one runnel to restore connectivity that was disrupted due to post-tropical storm Fiona. We are incredibly grateful to Belfast Area Watershed Group and volunteers for helping to install the coir logs!



Figure 32. Two saltmarshes within the Stanley Bridge area where TREC engaged in restoration and enhancement work in 2023. Drone photos provided by Kent Sheen.



Figure 33. Executive Director Shayla Steinhoff digging runnels and installing coir

The TREC crew also completed wildlife surveys at four salt marshes throughout the season to gain data on species presence, abundance and diversity. UPEI as well as Kent Sheen provided drone footage of saltmarsh sites within the watershed to help inform project management. Carbon sampling was also done at both sites by CBWES with TREC completing vegetation surveys beforehand. We are thrilled to see all this hard work improving the ecological integrity of our watershed's saltmarshes.

Outreach

TREC Annual Tree Drive

TREC's annual Tree Drive was held on July 21st, 2023 with over 75 people coming out. We had 36 new memberships and raised over \$3,000 from memberships and donations. Community members took over 300 native trees and shrubs to plant on their properties.

TREC set up an educational table that went over the work we do as a watershed group as well as a table with planting information about all the native trees and shrubs we had on offer. We are so incredibly grateful for the amazing support we get from the community year after year at the tree drive.

Volunteer Tree Planting

On November 15th, we held a volunteer tree planting day at Trout River Community Park to replace trees lost during post-tropical storm Fiona. Together, Executive Director Shayla Steinhoff, Project Manager Sarah Wray and 6 volunteers planted 124 native trees and shrubs during the session (Figure 34). Thank you so much to every one that came out to help!



Figure 34. Volunteer Tree planting day November 15th, 2023.

Riverbank Heritage Day

TREC hosted Riverbank Heritage Day for its second year an event to celebrate PEI's rivers, an important ecological, economic, and cultural characteristic of the Island, in honor of Canadian Rivers Day. This one-day event included kayak tours, watershed groups and other environmental organizations as presenters and exhibitors, arts and crafts as well as local cuisine. Riverbank Heritage Day also involved the grand opening of Carr's Wildlife Centre, a beautiful space for Islanders to learn about wildlife.

The event was held on Saturday, June 10th from 11am-3pm outside Carr's Wildlife Centre with over 300 people in attendance and 9 environmental groups, 2 food vendors, 1 crafter and 1 youth exhibitor (Figure 35).



Figure 35: Riverbank Heritage Day 2023 exhibitors

Guests gained knowledge of the importance of watercourses, how they are being impacted, and how this effects all life including wildlife, humans, economic and cultural impacts and much more. This knowledge was gained through the lens of many different organizations and topics related to rivers and watercourse such as invasive species, conservation and restoration, policy, recreation, and arts. Attendees learned what they can do to make a positive difference in the protection and restoration of PEI watersheds and engaged in meaningful conversation with exhibitors and presenters.

We are incredibly grateful to the Community Celebration Fund for helping to fund Riverbank Heritage Day!

River Clyde Pageant

TREC along with the Wheatley River Improvement Group and Hunter-Clyde Watershed Group set up an educational booth about watershed work on 2 nights of the River Clyde Pageant. We covered information on bat boxes and nesting boxes, wildlife, watershed work and other interesting environmental information.

Swim For the South Shore

TREC hosted an educational booth at South Shore Watershed Association's Swim for the South Shore fundraising event on August 19th, 2023 (Figure 36). Swim for the South Shore celebrates clean, healthy water and involves participants swimming 1km with a kayaker into the bay at Victoria by the sea.



Figure 36. Shayla Steinhoff hosting a TREC educational booth at Swim for the South Shore

Kensington North Watershed Association Grade 6 Day

Kensington North Watershed Association hosts an annual grade 6 event where students from Queen Elizabeth Elementary School are divided into small groups and rotate through series of educational stations. This year TREC hosted one of these stations focusing on the topic of habitat loss.

Cavendish Beach Hut

TREC attended Cavendish Beach Hut select Tuesdays throughout the summer from July 11th to August 15th, along with WRIG, HCWG and members of Cavendish National Park. We set up educational tables on the following topics: water quality monitoring, watershed restoration, bats, invasive species and fish passage and Fish ID.

River Days

TREC attended River Days at Carr's Wildlife Centre on August 26th. TREC set up an educational booth with information on watershed restoration, bird and bat boxes, bat monitoring, watershed characteristics, invasive species and the work we do as a watershed group (Figure37).



Figure 37. Project Manager Sarah Wray beside TREC's educational booth for River Days.

Christmas in the Wild

TREC assisted Museum Curator Jen Stenhouse at Carr's Wildlife Centre in creating the scavenger hunt for Christmas in the Wild on December 2nd and had an educational booth up at the event going over our watershed work (Figure 38). TREC was dressed in festive attire and had a lot of fun assisting with the scavenger hunts.

Christmas is for the Birds

TREC attended the Christmas is for the Birds event on December 10th hosted by Carss Wildlife Centre where participants were able to create their very own birdfeeders. TREC put up an educational booth and provided information on best practices for bird feeders and feeding in the winter.



Figure 38. Shayla Steinhoff and Sarah Wray at the Christmas in the Wild event

Other Projects

Goose Banding

TREC participated in banding Canadian Geese at Cavendish National Park and on farmland on June 28th. Geese are carefully corralled into a fence station using kayaks and then banded and tested (Figure 39) Experts banded, and sexed geese, noting previously banded geese and swabbing for avian influenza. This is done during molting, where blood fills the tips of the wings and geese are unable to fly. Banding geese helps to track populations within PEI and migratory populations.



Figure 39. Experts and volunteers corraling and swabbing Canadian Geese at Cavendish National Park.

AgriWatershed Partnership

TREC partnered with the PEI AgriWatershed Partnership to install a grassed waterway in order to reduce in-stream sedimentation from soil erosion. Executive Director Shayla Steinhoff and Project Manager Sarah Wray went assisted in installing the jute erosion mat on September 15th (Figure 40). Berms were also built to divert flow towards the grassed waterway and energy dissipators were put in place to slow flowing waters before entering the stream. This project will work to reduce agricultural runoff and keep topsoil on the field, improving surface water and soil health.

It is important to use a jute erosion mat to protect your structures and keep them functioning properly, this jute will eventually degrade leaving a functional grassed waterway. Thank you to the AgriWatershed Partnership and the landowners for working to create an overall healthier watershed!

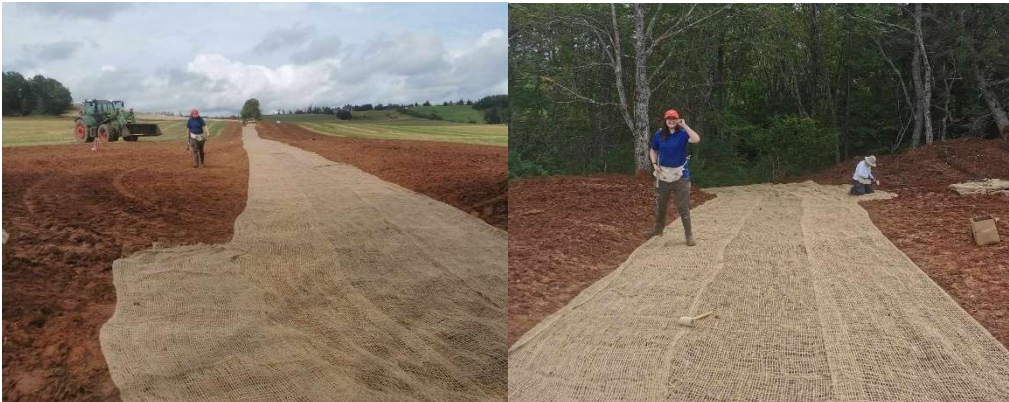


Figure 40. TREC helping to install a jute erosion mat on September 15th as part of an AgriWatershed Partnership grassed waterway project.

Fiona Provincial Funding

Using the Fiona Provincial Funding, this fall, we were able to remove hung up and leaning trees along the trails at both the Trout River Community Park and the Devil's Punchbowl Trail. A professional chainsaw operator was hired while Sarah Wray and Shayla Steinhoff cleared the brush.

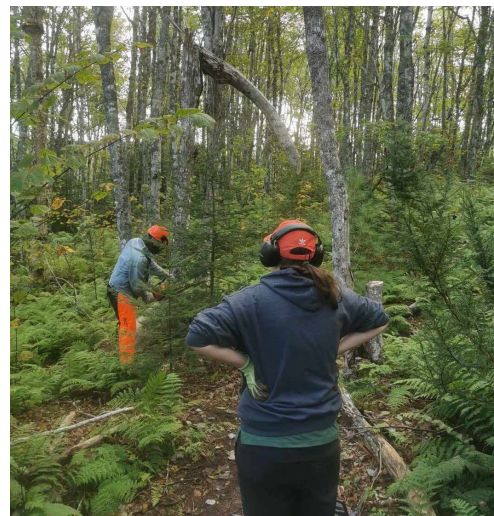


Figure 41. David Searle and Sarah Wray clearing hung up trees in the Devil's Punchbowl

Air Layering

Air layering is a method of propagating new trees and shrubs from stems still attached to the parent plant. This summer TREC air layered plants around the Devil's Punchbowl to see whether this would be a viable method going forward.

Air layering requires a moist environment for roots to form. Peat was mixed with water and root growth hormones and wrapped tightly around the branch. The chosen branch has the bark peeled back and the peat mixture placed on the area then wrapped with a plastic coat (Figure 42).

Air layering is a process that can occur naturally in the wild when a low branch or stem touches the ground and takes root. The air layer attempts will be checked next season to see whether roots have formed.



Figure 42. Chris Levesque beside an air layering attempt

The Impacts of Road Salt on Watersheds: A Report

On January 6th, 2023, TREC and The Wheatley River Improvement Group released a report in order to raise awareness of the impacts of road salt on Prince Edward Island watersheds, in hopes of spurring meaningful change, and a shift in de-icing practices.

PEI has more than 250 watersheds; these areas provide drinking water for the province, as well as water for agricultural and commercial uses. Road salt can directly or indirectly impact a wide variety of plants & animals within a watershed throughout the year, with the most significant impacts possibly not appearing for several years, to decades, and then lasting for decades to come. Drinking water, ground water, and surface waters such as streams and rivers are continuously being impacted by road salt pollution, this in turn impacts all living things within the polluted area. Amphibians are among the most impacted organisms by road salt pollution; fish, birds and mammals are also impacted in varying capacities such as: stunted growth, deformities, changes in population dispersal, and increased mortality rates.

If we were to stop using road salt entirely today, the positive impacts would not be felt for decades. It is important for all to know the impacts of road salt, so we may then work to build better de-icing management practices, to prevent ecosystems from becoming impacted and to restore ecosystems that may already be impacted. This article can be found on our website troutriverec.ca under "Resources".

Training

Wetland Ecosystem Services Protocol (WESP)

In October of 2023 Executive Director, Shayla Steinhoff attended Wetland Ecosystem Services Protocol course for Atlantic Canada training in Amherst Nova Scotia along with coordinators from Belfast Area Watershed Group, South Shore Watershed Association, and Tignish Watershed Management Group (Figure 43).

Using WESP (Wetland Ecosystem Services Protocol) creates a scoring system to determine the functions and benefits of our wetlands from hydrology to core soil, invasive plant species to rare beneficial species, wildlife and aquatic life habitat. With this information, we can now provide a detailed overview of how a wetland is functioning in all categories and proceed accordingly.

This training was funded in part by the PEI Watershed Alliance through the Nature Smart Climate Solutions Fund.



Figure 43. groups being instructed on WESP before assessing a wetland, photo credit Dawn McInnis, Tignish Area Watershed Group

First Aid

All TREC crew members are first aid certified, and we make sure to keep this certification up to date as an important safety measure in and out of the field. Field Crew members Paige Campbell, Marilyn Sheen and Vijeta Chatterjee all attended first aid training on July 4th at the Hunter River Community Hall.

Beach Cleanup Protocols Training

The TREC team attended a Beach Clean Up Protocols training session with Island Nature Trust in June set up by the PEI Watershed Alliance ahead of the beach clean ups TREC would be conducting as part of the Shoreline Clean-up project by the PEI Aquaculture Alliance and PEI Watershed Alliance.

PEI Watershed Alliance Training Sessions

All team members attended watershed workers training, instructed by Mary Finch, Watershed Ecologist with the province. In this training session watershed groups learned about restoration methods, watershed ecology and general watershed facts in the classroom, as well as visiting a restoration site within the Central Queens Wildlife Federation watershed area (Figure 44). In the field, the team learned about proper brush mat building, digger logs and other restoration methods to restore stream meander and flow.

Shayla Steinhoff and Sarah Wray also attended multiple training sessions offered by the PEI Watershed alliance. These sessions covered topics on safety, lessons learned from other storms, assessing & planning, rehabilitation techniques and river hydrology, farming on PEI and more. TREC also received YSI training with Rebecca Ramose the Watershed Alliance Equipment Manager.



Figure 44. TREC Field crew attending Watershed Workers Training learning about restoration techniques

WGIS Training Course

Project Manager, Sarah Wray attended a training course by Andrew Lush to learn how to effectively utilise the Watershed Geographic Information System (WGIS) an important tool used by watershed groups for mapping and project planning.

Wet Pro Certifications

Our Project Manager, Sarah Wray completed Wet Pro certification courses on Water Monitoring Fundamentals and Water Data Management.

Living Shorelines

Project Manager Sarah Wray attended a volunteer event with Ellen's Creek Watershed group to winterize the living shoreline beside the Queen Elizabeth Hospital (Figure 45). This event was a great way to learn about living shorelines and how these types of projects are implemented as well as consult with professionals from CBWES and other watershed groups about restoration techniques. TREC is hoping to do living shorelines projects going forward.



Figure 45. Volunteers work on preparing the living shoreline for the fall and winter storm season. Photo Credit: Shane Hennessey/CBC Figure 46.

Chainsaw Training

Field Crew member, Paige Campbell attended chainsaw training in June to receive her chainsaw operator's certification.

“Workshop Workshop”: Safe Use of Power Tools

TREC members attended a workshop by a professional carpenter to go over proper tool usage and techniques for making nesting boxes and bat boxes. Each crew member had a chance to cut a piece of lumber for the nesting box and practice safe use of tools (Figure 47).

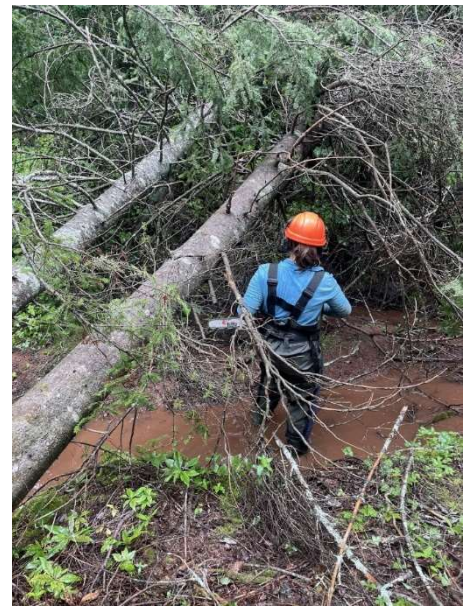


Figure 46. Paige Campbell Certified Chainsaw Operator

Figure 47: Field Technician Vee learning proper power tool usage and techniques while building nesting boxes.

Acknowledgements

We would like to thank our funders from the Provincial Government through the Watershed Management Fund, the PEI Wildlife Conservation Fund, the Community Celebration Fund, the AgriWatershed Partnership, Island Community Food Security Initiative, Fiona Provincial Funding, Skills PEI, and the PEI Active Transportation Fund. Also, thanks to our Federal Government funders Atlantic Canada Opportunities Agency (ACOA) Disaster Relief Funding, Green Jobs, and Canada Summer Jobs. We would also like to thank our funders from the Aquaculture Alliance for partially funding shoreline cleanups. As well as the Sterling Women's Institution and Carr's Wildlife Centre for their support this season. Lastly, we would like to thank the Watershed Alliance for your continued support, as well as other neighboring watershed groups and environmental organisations which we work so closely with.

We are also incredibly grateful to our volunteers and community members who have helped out and supported us on many occasions through attending volunteer days, attending events, allowing us to work on or survey their properties and so much more. We had over 200 people and businesses donate or purchase memberships! We have achieved so much this season and it wouldn't be possible without the support of our community, partners and funders.

