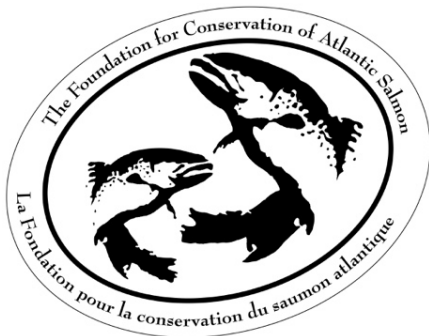


Implementing Atlantic Salmon Conservation Strategies for the Tabusintac Watershed

NB-2025-23



Tabusintac River

NB-2025-23-Implementing Atlantic Salmon Conservation Strategies for the Tabusintac Watershed

2025

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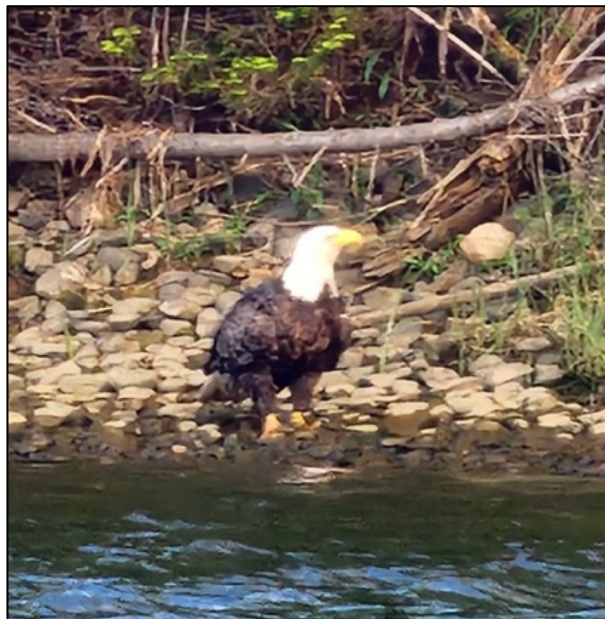
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December 2025

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TWA volunteers, Reid Wishart, Dean Strang, Donnie Robertson, Weldon Harding, James Strang, Liam MacEachern, and Samantha Robichaud, are recognized for their contribution to field work and guidance. TWA also appreciates the expertise and support received from community members from Bayshore and within the Municipality of Alnwick, Tabusintac Riverside Cemetery Inc., Tabusintac Club Ltd., Tabusintac Lodge Inc., Tabusintac Marina Inc., MacEachern Harbour Authority Inc., Tabusintac Old Home Week Committee, Royal Canadian Legion Branch 47, Miramichi River Environmental Assessment Committee, Department of Environment and Local Government, Fisheries and Oceans Canada, Department of Natural Resources and Energy Development, and Esgenoôpetitj Fish Guardians.



Bald eagle foraging along the Tabusintac River in 2025

- Photo on cover page: Atlantic salmon caught and released on the Tabusintac River (left) and looking upstream at Tabusintac Hill site on the Tabusintac River (right).

Please note TWA's office and Tabusintac watershed is located within Mi'kam'ki- the traditional territories of the Wabanaki peoples. They are the original caretakers of this land in which we are all responsible for upholding the Peace and Friendship Treaty.

Executive Summary

With support from The Foundation for Conservation of Atlantic Salmon (FCAS), the Tabusintac Watershed Association (TWA) was able to advance its conservation and stewardship efforts through this project- *Implementing Atlantic Salmon Conservation Strategies for the Tabusintac Watershed*.

This comprehensive effort focused on assessing current conditions within the watershed, identifying key threats to wild Atlantic salmon populations, and engaging a broad range of stakeholders—including community members, First Nations, government agencies, academia, and partner organizations—through collaborative meetings and consultations.

Over recent years, the Tabusintac watershed has experienced significant changes in land uses, such as the expansion of wild blueberry farming, peat harvesting, aquaculture, residential development, and recreational boating, all of which have introduced new pressures on aquatic habitats and contributed to the decline of Atlantic salmon populations.

The report presents a thorough analysis of both natural and human-induced limiting factors impacting Atlantic salmon production and survival in the Tabusintac River. Where feasible, restoration strategies and management recommendations are outlined, with an emphasis on actions that can help restore and preserve critical habitats. The report acknowledges that some natural constraints are beyond the scope of intervention and highlights the importance of protecting existing ecological values that support Atlantic salmon and other native fish species. Continued environmental monitoring is recommended to improve the understanding of critical habitats, population sizes, and inform adaptive management approaches with partners, different government agencies, academia, youth and elders, Esngenôpetitj First Nation peoples, stakeholders, and community members.

The findings and recommendations in this report are intended to guide ongoing conservation and stewardship by the TWA and its partners, strengthen initiatives throughout eastern New Brunswick, and foster a collaborative framework for the sustainable management of the Tabusintac watershed's aquatic resources. By prioritizing habitat protection, adaptive management, and engagement with all stakeholders and rightsholders, the strategy aims to ensure the long-term viability of wild Atlantic salmon within the region.

Table of Contents

Acknowledgements.....	iii
Executive Summary.....	iii
1.0 Introduction.....	7
2.0 Project Objectives for 2025 Field season.....	9
3.0 Conclusion.....	29
Appendix A.....	31

Table of Figures

FIGURE 1 TABUSINTAC RIVER DRAINAGE BASIN GEOGRAPHICAL LOCATION	8
FIGURE 2 WATER TEMPERATURE PROFILE FOR FCAS SITE "BIG ESKEDELLOC OFF HWY 8"	10
FIGURE 3 WATER TEMPERATURE PROFILE FOR FCAS SITE "TABUSINTAC RIVER AT TABUSINTAC HILL OFF HWY 8"	11
FIGURE 4 WATER TEMPERATURE PROFILE FOR FCAS SITE "TABUSINTAC RIVER AT CURVE POOL"	11
FIGURE 5 WATER TEMPERATURE PROFILE FOR FCAS SITE "TABUSINTAC RIVER OFF CAMP-DALE/LAMBERT"	12
FIGURE 6 WATER TEMPERATURE PROFILE FOR FCAS SITE "TABUSINTAC RIVER OFF MARINA"	13
FIGURE 7 WATER TEMPERATURE PROFILE FOR FCAS SITE "TABUSINTAC BAY OFF BAYSHORE".....	13
FIGURE 8 LOCATION OF WATER SENSORS AND WATER LEVEL LOGGER FOR 2025 FIELD SEASON	14
FIGURE 9 PRECIPITATION AT TABUSINTAC RAIN GAUGE FOR 2025 FIELD SEASON	16
FIGURE 10 PRECIPITATION COMPARISON AT MIRAMICHI STATION AND TABUSINTAC RAIN GAUGE	17
FIGURE 11 WATER LEVEL LOGGERS DATA PLACED ON THE TABUSINTAC RIVER D/S BIG HOLE BROOK FOR 2025	18
FIGURE 12 LOW WATER FLOW AND SEDIMENTATION OCCURRING AT TABUSINTAC HILL SITE ON TABUSINTAC RIVER IN THE FALL OF 2025	19
FIGURE 13 WOOD TURTLE TRACKS ALONG THE TABUSINTAC RIVER 2025	19
FIGURE 14 ATLANTIC STURGEON BYCATCH WITH SHARK BITE IN 2025.....	20
FIGURE 15 BROOK TROUT AT SITE THROUGHOUT FIELD SEASON OF 2025	20
FIGURE 16 TIRE TRACKS AT FORD CROSSING ON THE TABUSINTAC RIVER IN 2025	21
FIGURE 17 WILD BLUEBERRY OPERATIONS IN DIFFERENT PROCESSES IN 2025- CRATES USED TO HOLD WILD BLUEBERRIES THAT WILL BE HARVESTED (TOP LEFT); IMPACTS TO AIR QUALITY AND SETTLING OF DUST DURING WILD BLUEBERRY OPERATIONS (TOP RIGHT), AND DISPLAYS ONE OF PHASES OF APPLYING PESTICIDES AND COMPACTING SOILS FOR WILD BLUEBERRY AGRICULTURE	22
FIGURE 18 NEWLY HARVESTED AREA TO START WILD BLUEBERRY OPERATIONS ON THE TABUSINTAC RIVER U/S TABUSINTAC HILL AND ADJACENT TO TWO COLD-WATER TRIBUTARIES	23
FIGURE 19 BEAVER DAM THAT WAS NOTCHED IN THE FALL OF 2025	23
FIGURE 20 WHITE OUTLINE SHOWS ADDITIONAL ATLANTIC SALMON HABITAT AFTER BEAVER NOTCHING IN THE FALL OF 2025 .	24
FIGURE 21 DOUBLE-CRESTED CORMORANT FEEDING WITHIN THE UPPER STRETCHES THE TABUSINTAC RIVER IN 2025.....	24
FIGURE 22 RECREATIONAL USAGES ON THE TABUSINTAC RIVER	25
FIGURE 23 STATISTICS ON OUTREACH CAMPAIGN	26
FIGURE 24 SIGNAGE USED TO PROMOTE INITIATIVES FOR THE TABUSINTAC RIVER	26
FIGURE 25 TWA'S SUMMER STUDENTS HELPING AT A NEW ESTABLISHED LIVING SHORELINE SITE 2.....	27
FIGURE 26 TWA MEMBERS INSTALLING DAY TARGETS ON THE TABUSINTAC RIVER IN 2025.....	27
FIGURE 27 SIGNAGE USED TO PROMOTE AWARENESS AND ENCOURAGE STEWARDSHIP	28
FIGURE 28 VARIOUS OF OUTREACH CAMPAIGNS FOR ATLANTIC SALMON CONSERVATION. SUMMER STUDENTS AT A FARMER'S MARKET (TOP LEFT); POSTERS ADVERTISING UPCOMING EVENTS (TOP MIDDLE AND TOP RIGHT); AND MEMBERS OF TWA (FATHER AND SON) SHARING TRADITIONAL KNOWLEDGE AND BMPs TO OTHERS TO MINIMIZE IMPACTS ON ATLANTIC SALMON AND THEIR HABITATS.	29

1.0 Introduction

The Tabusintac Watershed Association (TWA) received support from The Foundation for Conservation of Atlantic Salmon (FCAS) to advance initiatives aimed at mitigating impacts on wild Atlantic salmon habitats and populations. This project, *Implementing Atlantic Salmon Conservation Strategies for the Tabusintac Watershed* for the 2025 field season, draws its framework from the tailored *Atlantic Salmon Conservation Strategy- Tabusintac River* developed in 2023.

Located in northeastern New Brunswick, the Tabusintac River watershed encompasses five major tributaries: the Tabusintac River, Little Eskedelloc River, Big Eskedelloc River, Trout Brook, Big Hole Brook, and Cowassaget Stream, as well as several other smaller tributaries that flow into the main stem. The headwaters of the Tabusintac River are sustained by groundwater sources, wetlands, and springs originating west of Highway 8 and flowing eastward into the Southern Gulf of St. Lawrence. The main river measures approximately 43 kilometres from its source to the head-of-tide, covering an overall watershed area of 780.83 km² (Figure 1). While historically recognised for supporting a sustainable Atlantic salmon population, there is limited current information regarding population size or viability; the last comprehensive survey was conducted in 2000 by the Department of Fisheries and Oceans (DFO).

Limiting factors identified in the conservation strategy recommendations for the Tabusintac River were systematically addressed to further identify and mitigate stressors affecting wild Atlantic salmon survival within the watershed. The importance of outreach was emphasised in the *Atlantic Salmon Conservation Strategy- Tabusintac River* along with Beneficial Management Practices (BMPs) disseminated by government agencies and partners to be offered to a range of stakeholders including recreational fishers, watercraft operators, all-terrain vehicle users, local industries, community members, Municipality of Alnwick, and members from the Esgenoôpetitj First Nations. Consultations among the different government agencies, partners, stakeholders, advisory groups, community

members, and rightsholders were conducted to improve and protect wild Atlantic salmon habitats and populations. Outreach was delivered through social media campaigns, kiosks, website, presentations, meetings, posters, on-site case studies, and consultations.

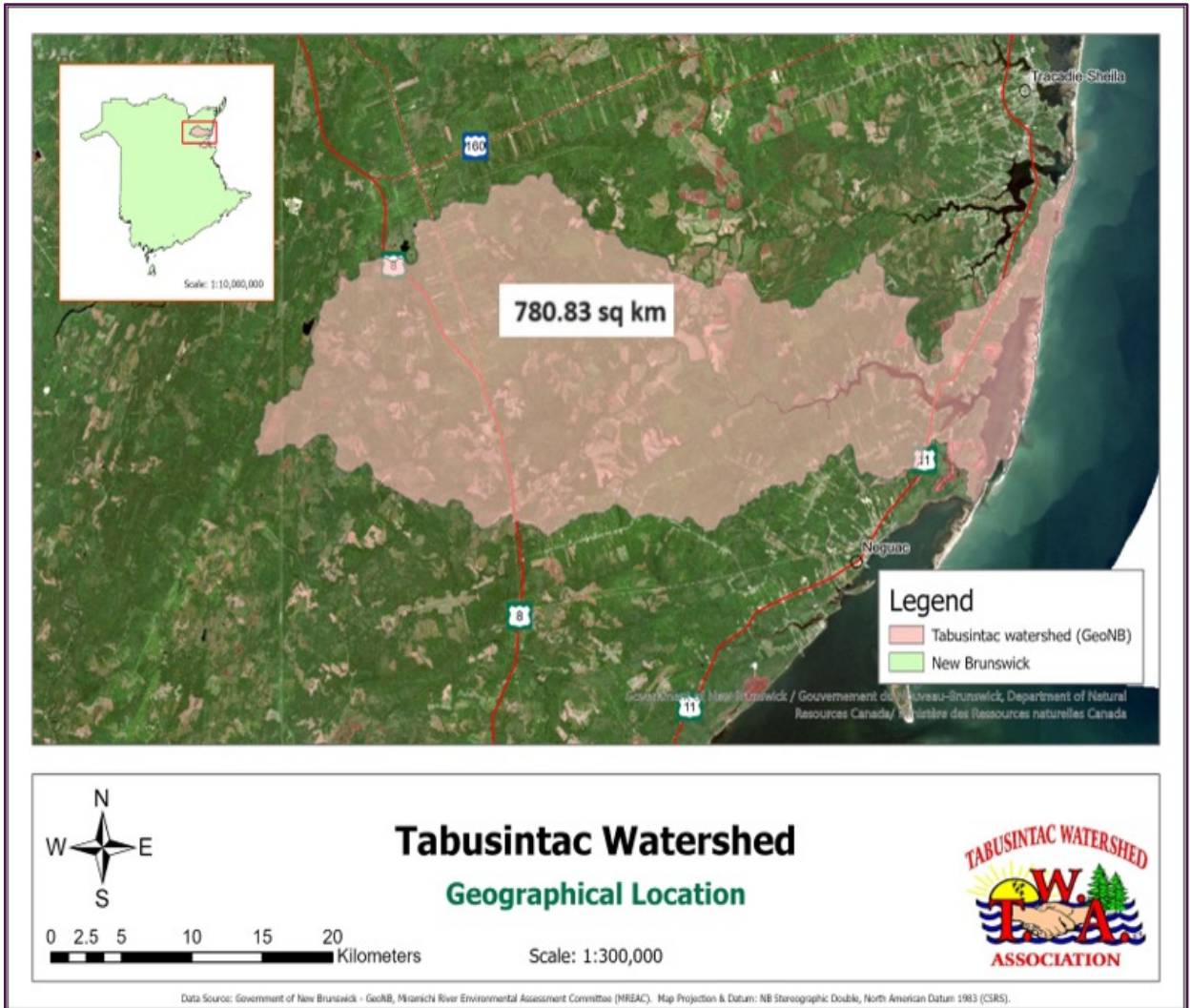


Figure 1 Tabusintac River Drainage Basin Geographical Location

Collectively, TWA and its collaborators addressed eight strategic priorities identified in the working report of the *Atlantic Salmon Conservation Strategy- Tabusintac River* created in 2023 aiming to enhance Atlantic salmon habitats and populations by completing six objectives outlined in this project. Regular monitoring of water temperature, parametres, and pH were conducted throughout the watershed from spring through to the autumn in 2025. In-situ water sensors were deployed within the Tabusintac River, Big Eskedelloc, and

Tabusintac Bay to collect long-term trend data. Comprehensive analyses for water chemistry, bacterial presence, and metal concentrations were performed in the spring and fall season within the Tabusintac River and primary tributaries. Habitat assessments were carried out during the early fall to evaluate potential threats to the upcoming spawning season, as well as surveys to capture data of insufficient riparian buffer zones, invasive species, biodiversity, habitat fragmentation, cold-water refuge, and beaver dam activity. A wildfire near the Tabusintac watershed started on August 6, 2025, and kept burning into the beginning of September that prevented the number of habitat assessments that could be completed. Initiatives as *Living Shoreline* and *Navigate With Care; Protect What's There*, were introduced and outreach events to share resources to improve and minimize impacts on Atlantic salmon. Project efforts included documenting and compiling water quality parameters to integrate with existing background data from partners, academia, and government agencies.

2.0 Project Objectives for 2025 Field season

For the 2025 field season, six key project objectives were established to address eight of the seventeen recommendations outlined in the *Atlantic Salmon Conservation Strategy-Tabusintac River*. These objectives were designed to strategically target and mitigate specific challenges affecting wild Atlantic salmon within the watershed. The objectives are as follows:

1. Implement water temperature profiles on main branch and tributaries.
2. Conduct comprehensive monitoring and data collection for water quality.
3. Implement formal habitat assessment and habitat conditions across selected tributaries and main stem sites.
4. Assess and address habitat threats, including riparian buffer adequacy, invasive species, habitat fragmentation, cold-water refuge, and beaver dam activity.
5. Engage stakeholders and rightsholders through outreach and dissemination of Beneficial Management Practices (BMPs) to promote stewardship and collaborative conservation efforts.

- Document and report on project outcomes, ensuring transparency and accountability in advancing Atlantic salmon conservation and stewardship within the Tabusintac watershed.

Objective 2.1: Water Temperature Profiles

Water temperature profiles were completed at six sites- Big Eskedelloc River, and Tabusintac Hill off Hwy 8, Curve Pool, Dale/Lambert Camp, and Marina within the main stem. All were recovered successfully except for one sensor on the Little Eskedelloc River.

A water sensor was deployed in-situ at the *Big Eskedelloc* site on June 9, 2025, and retrieved on August 24, 2025. The average water temperatures recorded for June, July, and August were 13.9°C, 16.7°C, and 15.7°C, respectively which are below the water temperature threshold of 20°C recommend from Fisheries and Oceans Canada (DFO) for optimal habitat for salmonid species¹. Water temperatures were above 20°C near the end of June, and again in beginning of July, mid-July, and the end of July. Water temperatures exceeded guidelines on August 10 to August 12, 2025.

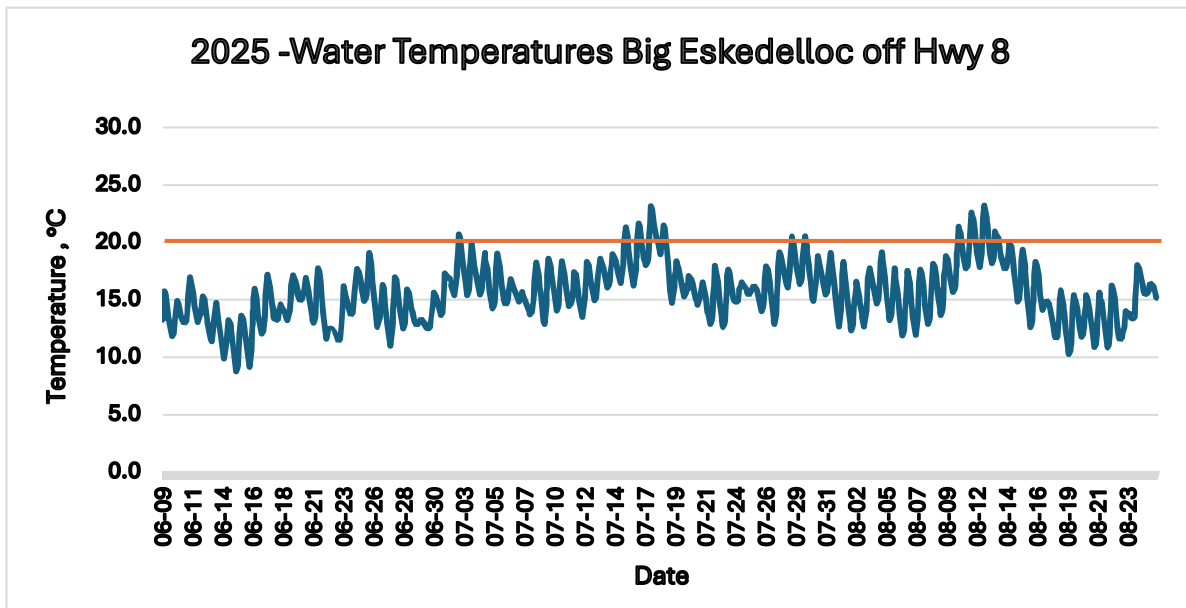


Figure 2 Water temperature profile for FCAS site "Big Eskedelloc off Hwy 8"

¹ DFO. 2012. Temperature threshold to define management strategies for Atlantic salmon (*Salmo salar*) fisheries under environmentally stressful conditions. DFO Can. Sci. Advis. Sec. Sci. Advis. Rep. 2012/019.

A water sensor was deployed in-situ at the *Tabusintac Hill* site on the main stem of the Tabusintac River on June 9, 2025, and retrieved on October 12, 2025. The average water temperatures recorded for June, July, August, September, and October were 15.2°C, 18.2°C, 16.7°C, 12.9°C, 8.6°C, respectively. Water temperatures did exceed the recommendations from DFO in the beginning of July with spikes in mid-July, the end of July, and mid-August of 2025. It was noted that abnormal warmer air temperatures in mid-October 2025 increased water temperatures reflected in mid-October.

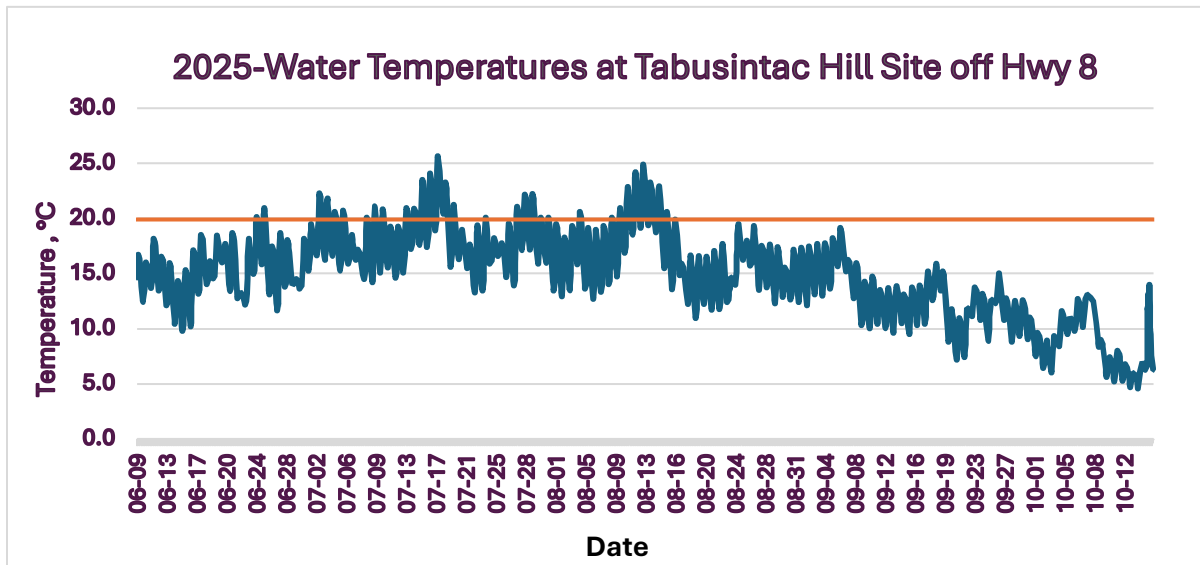


Figure 3 Water temperature profile for FCAS site "Tabusintac River at Tabusintac Hill off Hwy 8"

A water sensor was deployed in-situ at the *Curve Pool* site on the Tabusintac River on June 9, 2025, and retrieved on October 12, 2025. The average water temperatures recorded for

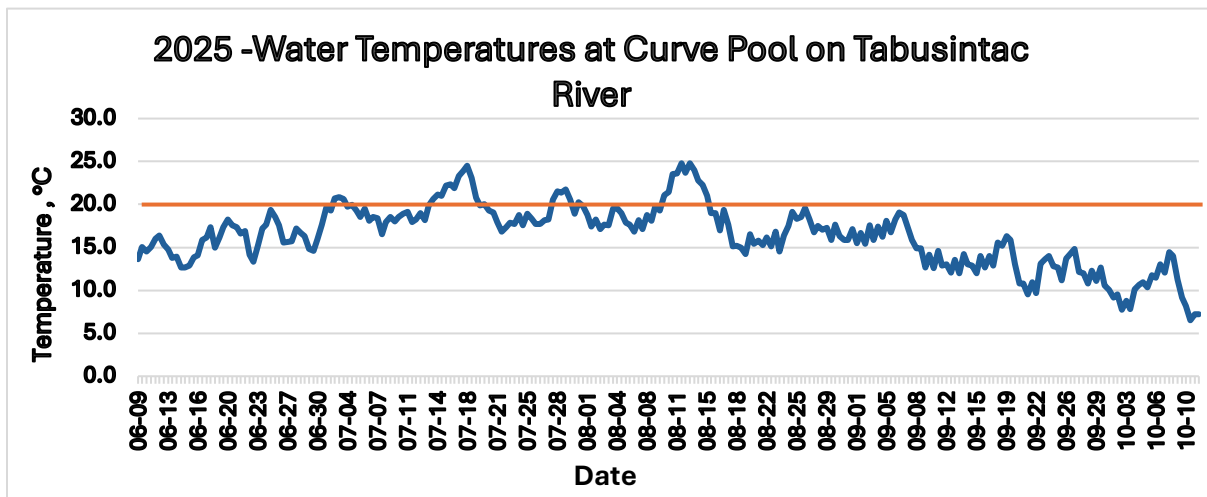


Figure 4 Water temperature profile for FCAS site "Tabusintac River at Curve Pool"

June, July, August, September, and October were 19.4°C, 23.3°C, 23.1°C, 19.2°C, 13.3°C, respectively. These temperatures are very concerning but are most likely due to extreme warm temperatures that brought drought conditions to the region that resulted in very low water flows. This factor would have raised water temperatures further.

A water sensor was deployed in-situ at the *Dale/Lambert* site on the Tabusintac River on June 21, 2025, and retrieved on October 20, 2025. The average water temperatures recorded for the end of June, July, August, September, and October were 19.4°C, 23.3°C, 23.1°C, 19.2°C, and 13.3°C respectively as shown in Figure 5. Water flows were so low that

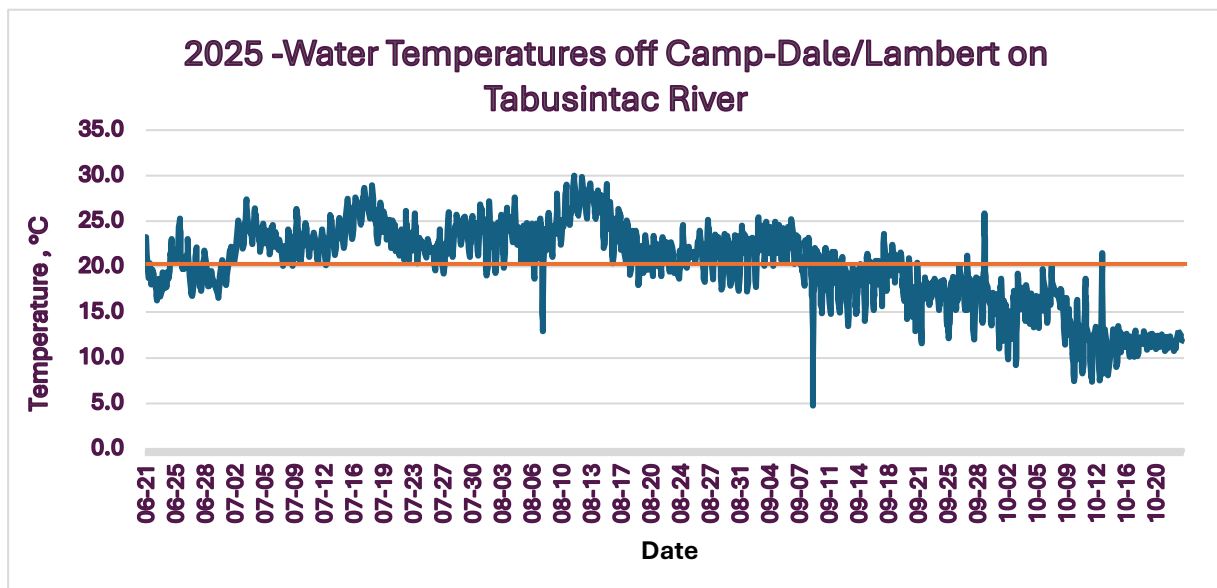


Figure 5 Water temperature profile for FCAS site "Tabusintac River off Camp-Dale/Lambert"

the sensor was nearly exposed on August 7, September 9, September 29, and October 13 and reflected air temperatures recorded at the Miramichi Weather Station operated by ECCC.

A water sensor was deployed in-situ at *Tabusintac Marina on the Tabusintac River* on June 21, 2025, and retrieved on October 20, 2025, as seen in Figure 6. The average water temperatures recorded for the end of June, July, August, September, October, and beginning of November were 19.5°C, 22.5°C, 21.8°C, °C, 17.8°C, 5.2 °C and 8.1°C respectively.

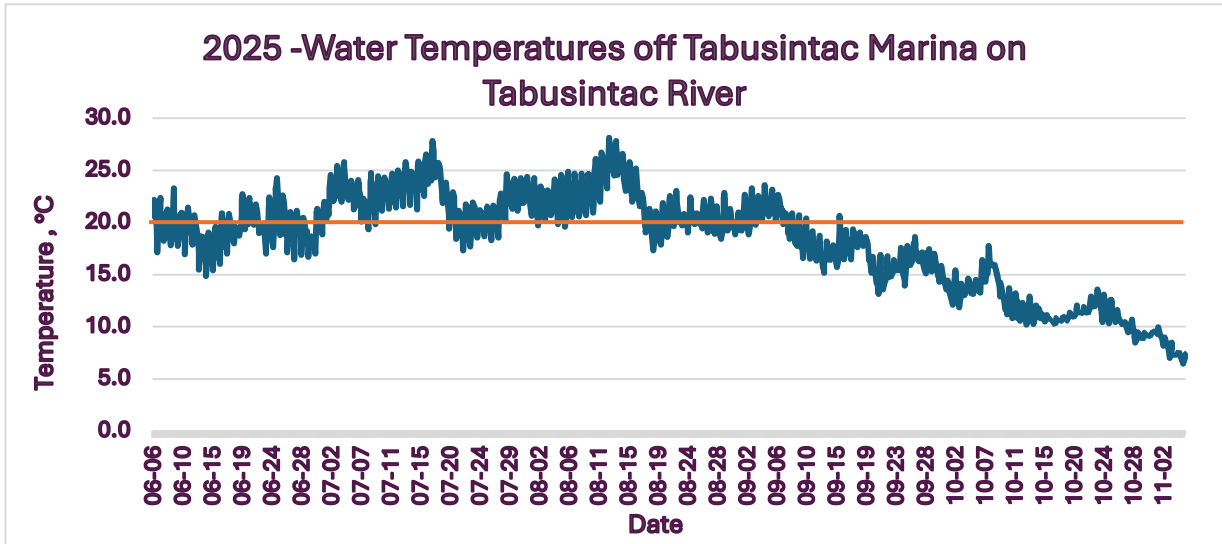


Figure 6 Water temperature profile for FCAS site "Tabusintac River off marina"

A water sensor was deployed in-situ off Bayshore within the Tabusintac Bay on June 5, 2025, and was retrieved on November 3, 2025, as shown below in Figure 7. The sensor was placed within an eelgrass meadow that salmonid species would use to migrate, food, and shelter. The average water temperatures recorded for the end of June, July, August, September, October, and beginning of November were 19.6°C, 22.6°C, 21.7°C, 18.0°C, 11.9°C and 8.8°C respectively.

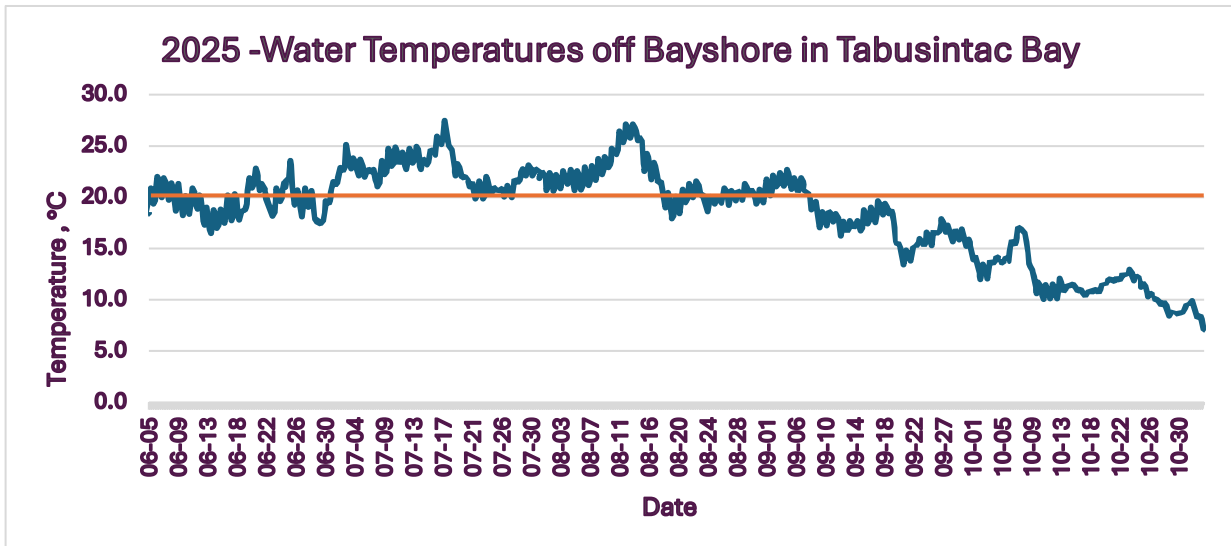


Figure 7 Water temperature profile for FCAS site "Tabusintac Bay off Bayshore"

The TWA exceeded at meeting its objective of four profiles to collect water temperature profiles; in which, six water temperature profiles were completed. It was noted that the average water temperatures are increasing earlier in the season when compared to historical data. Water temperatures did reach above the recommendation guidelines for Atlantic salmon to become stressed when water temperatures are near and above 20°C proposed by DFO. Water temperatures were within optimal range for salmonid species after August 16 for the 2025 field season within the headwaters. Stress on the parr populations is unknown during the very warm temperatures that were received. Temperatures are increasing due to impacts from anthropogenic and from climate shifts. By the end of the project, it would be recognized that water temperatures would be the second biggest threat for Atlantic salmon with water quantity being the first threat.

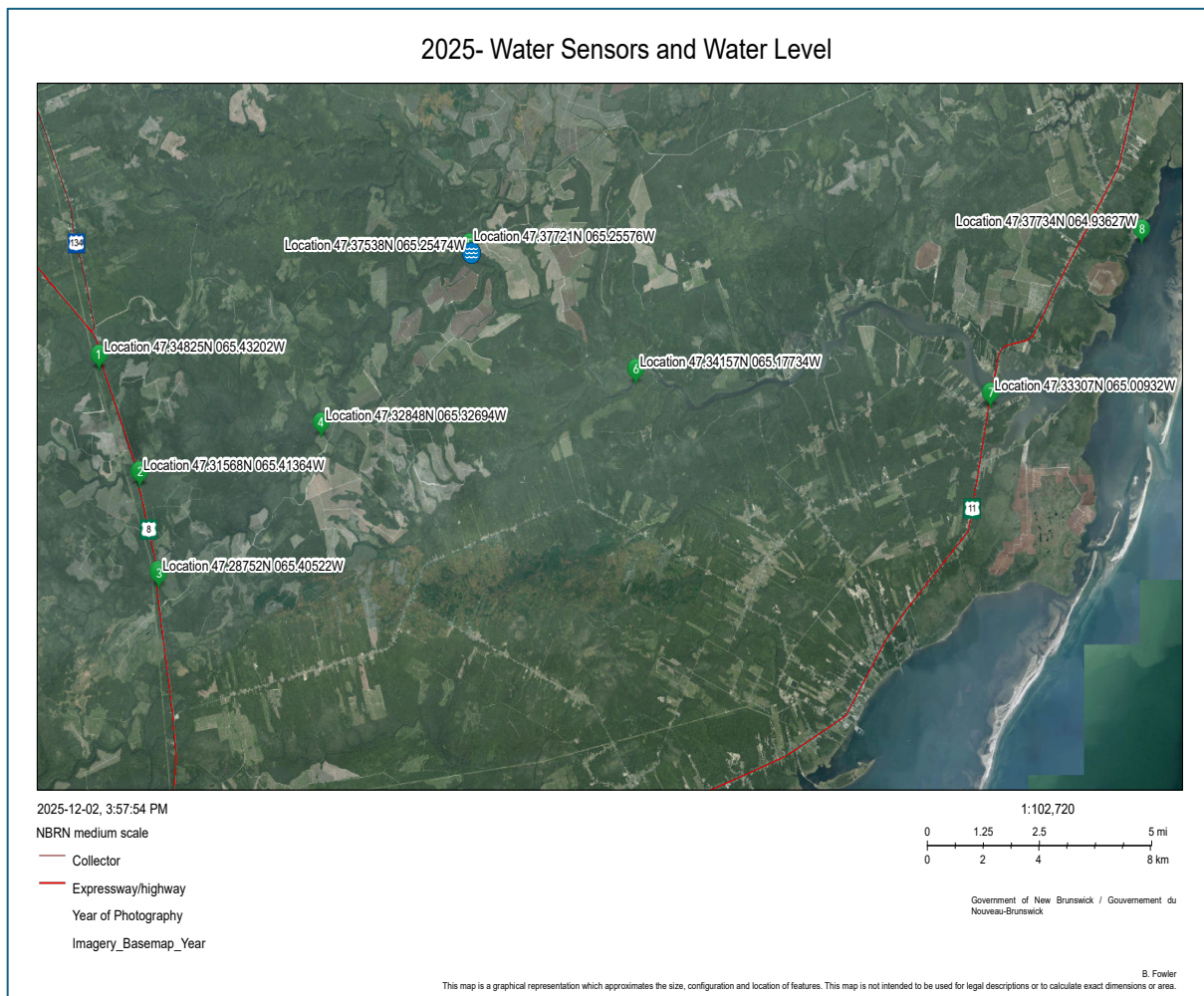


Figure 8 Location of water sensors and water level logger for 2025 field season

Objective 2.2: Water Quality and Quantity

Water quality samples from Tabusintac Hill off Tabusintac River, Little Eskedelloc River, Big Eskedelloc River, Tabusintac River upstream of Big Hole Brook, Tabusintac River upstream of Cain's Point Bridge were taken in June and at end of September and were sent to an accredited lab- RPC Science and Engineering, to be analyzed for chemical and biological parameters. Chemical parameters as pH and dissolved oxygen were taken with a calibrated hand-held YSI metre throughout the field season to identify threats and to increase background data. Physical parameters as water temperatures, colour, odour, total dissolved solids, and conductivity were documented at each site using New Brunswick Department of Environment and Local Government (DELG) field sheets. Field sheets are stored digitally, and physical copies can be accessed at the TWA's office.

Water chemistry and bacteria levels were found to be within the recommended guidelines when compared to Canadian Council of Ministers of the Environment, Department of Fisheries and Oceans, and Department of Environment and Local Government for the 2025 field season.

Water and soil samples were collected at two sites in the summer and fall months of 2025; however, to due budget restraints, four soil samples were sent to an accredited lab at the University of Guelph to detect presence of pesticides within the aquatic habitats.

Screening of pesticides included: 3-MPPA, AMPA, bialaphos, chlorate, cyanuric acid, ethephon, Fosetyl-Al, glufosinate, glyphosate, HEPA, maleic-hydrazine, N-acetyl AMPA, N-acetyl Glufosinate, N-acetyl glyphosate, and perchlorate.

Sample sites were located at Tabusintac Hill site and Main Crossing site on the Tabusintac River. No detection of pesticides was present on July 21 sampling run. On October 7 sampling run, Tabusintac Hill site had no detection; however, the Main Crossing site had detection of pesticides within the soil sample. With further analysis it was determined to be glufosinate. The amount of glufosinate found within the sediment sample resulted in *the less than the minimum detection limit* (Appendix A). Glufosinate is a herbicide that is

used for glyphosate resistant weeds in wild blueberry agriculture. Glufosinate is highly water-soluble allowing it to migrate easily from agricultural soils to surface waters. Glufosinate use carries significant impacts on human health, pollinator insects, and aquatic species including benthic, molluscs, plants, and fishes². With detections of pesticides within the Tabusintac River, more pesticide monitoring of water and sediment will be needed in order to determine the extent and areas of contaminations.

A physical parametre that was identified that impacted Atlantic salmon were the very warm water temperatures within the tributaries and the main stem of the Tabusintac River in June, July, and August of 2025.

Water quantity within the Tabusintac watershed resulted in very low water flows that lead to drought conditions for northeastern New Brunswick. Little rainfall was received during the 2025 field season. Nearest weather station to the Tabusintac watershed would be located in Miramchi, NB.

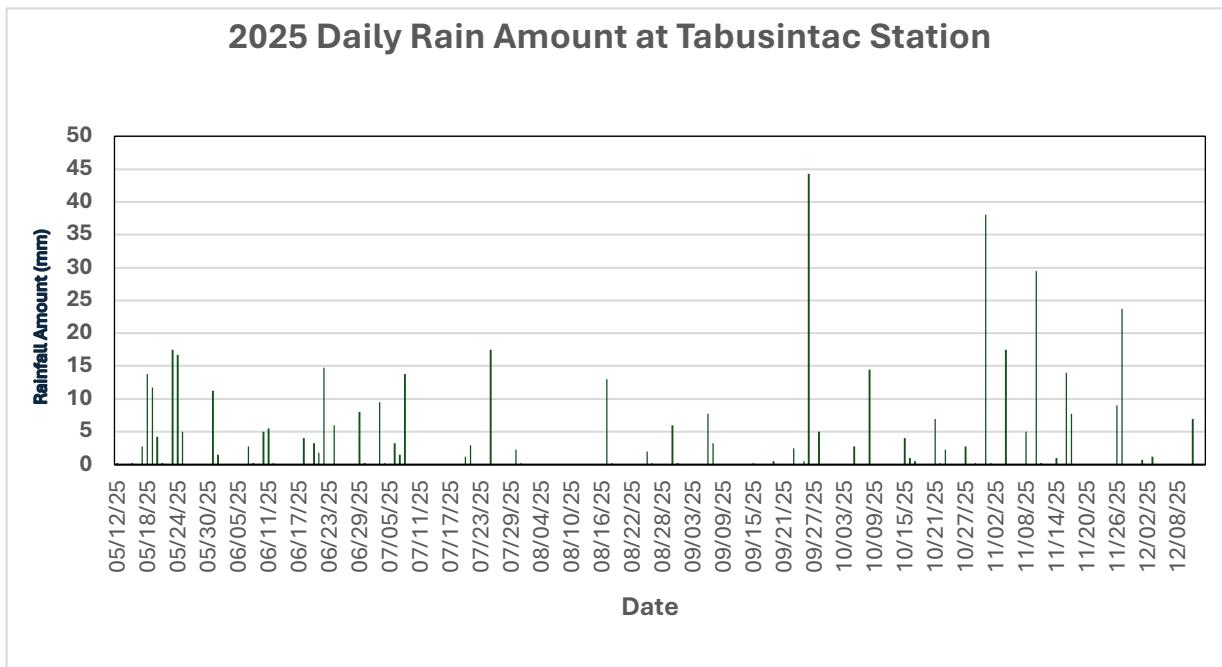


Figure 9 Precipitation at Tabusintac rain gauge for 2025 field season

² Pesticides and You. Chemical Watch Factsheet-Glufosinate-Ammonium, 2016. A Beyond Pesticides Factsheet. Retrieved on December 3, 2025 <https://www.beyondpesticides.org/assets/media/documents/GlufosinateChemWatch.pdf>

Miramichi is located farther inland than the Tabusintac estuary which can result in different weather due to its vicinity to the Gulf of St. Lawrence. Rainfall events in late September and early November provided enough recharge for the river and tributaries for the water levels to rise and increase flows to allow for Atlantic salmon to migrate upstream to traditional spawning areas in late October into the month of November.

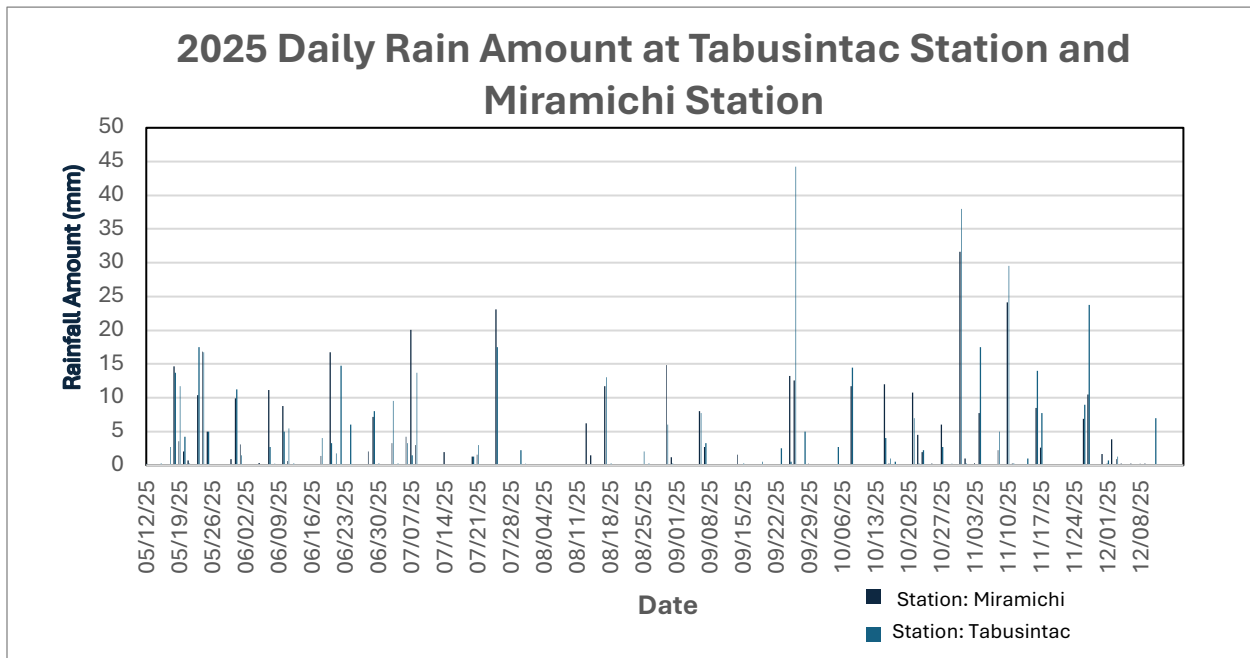


Figure 10 Precipitation comparison at Miramichi station and Tabusintac rain gauge

Water level loggers were installed in mid-September 2025 on the Tabusintac River downstream of Big Hole Brook and retrieved on November 13, 2025. In-water and air pressures were both recorded at the site to ensure accuracy of barometric pressures and correlations between the two. Water levels were extremely low in mid-September due to little precipitation received within the watershed that supports the data from the Tabusintac rain gauge and Miramichi Weather Station. Water depth was 0.75 cm where level loggers were placed on September 16, 2025 with a barometric pressure reading of 105.243 kPa at time of placement.

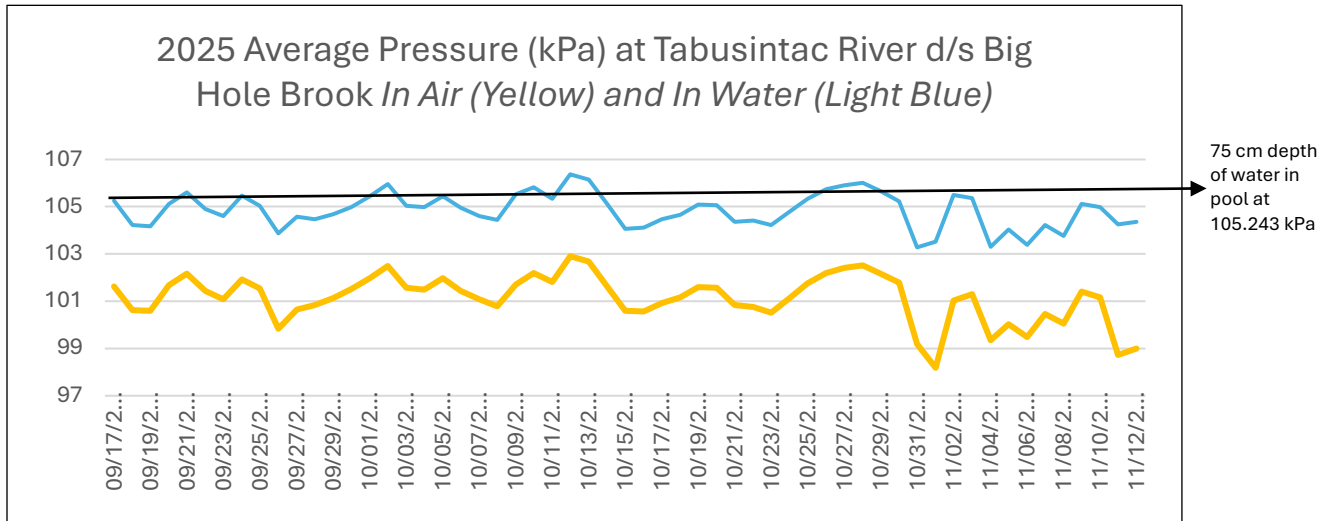


Figure 11 Water level loggers data placed on the Tabusintac River d/s Big Hole Brook for 2025

It was noted that salmonid species were restricted to specific pools from June throughout to November due to the low water levels within the Tabusintac watershed.

Objective 2.3: Formal Habitat Assessments

Project objectives were to complete two DNRE/DFO-NB Stream Habitat inventories. The Tabusintac Watershed had wildfires and poor air quality during the 2025 field season and limited the number of formal habitat assessments that could be completed.

TWA used field sheets from NBDELG and DFO to complete a less detailed habitat assessments but were still beneficial to identify areas of concern, threats, and risks for salmon habitat along with surveys for invasive species and Species at Risk (SARs).

Water quantity was the biggest threat identified in 2025 field season at all sites with little rain resulting in extremely low water levels. Other threats identified at sites were extreme warm water temperatures, barriers for migration- beaver dams, riparian zone buffer adequacy, increase of algae on substrate and vegetation at Little and Big Eskedelloc River, some rate of sedimentation at each site, along with increase of turbidity.

Objective 2.4: Summary of Assessments and Address Habitat Threats

TWA collected and analysed data to identify habitat threats in the Tabusintac watershed for 2025 that included riparian buffer adequacy, invasive species, habitat fragmentation, cold-water refuge, beaver dams blocking migration, and improve access to spawning areas.

The biggest habitat threat identified in 2025 were the low water levels that contributed to additional stress that increased habitat fragmentation and reduced cold-water refugia areas resulting from the impacts of the climate shifts and increase intensity of wild blueberry operations.



Figure 12 Low water flow and sedimentation occurring at Tabusintac Hill site on Tabusintac River in the fall of 2025

Invasive species that are occurring within our region, Eurasian water milfoil, purple loosestrife, European green crab, and zebra mussels, were part of the site assessments and visits. Extreme warm water events along with more fishing and watercrafts on the river increased concerns of introductions of invasive species. No invasive species were documented for 2025 and no concerns from community members, First Nations, stakeholders, government agencies, and partners were noted. DFO's "Clean, Drain, Dry" initiative was shared in BMPs among community members, First Nations, watercraft users, fisherpeople, partners, government agencies during outreach events, presentations, and meetings.

Species at Risk (SAR) along with their critical habitats are known to be throughout the Tabusintac watershed and were surveyed



Figure 13 Wood turtle tracks along the Tabusintac River 2025

during site assessments during the 2025 field season. Two SARs, Wood turtles and Atlantic sturgeons, were confirmed during the 2025 field season. Wood turtle tracks, as seen in Figure 13 on the previous page, were confirmed on June 24, 2025, within the vicinity of the site *Tabusintac River upstream Big Hole Brook*. It is known from local indigenous knowledge that Atlantic sturgeons are known to inhabit the waters near the coastlines and in the Tabusintac River for millennium. There are no current studies into stock and populations numbers for Atlantic sturgeon for the Tabusintac watershed but presence of Atlantic sturgeons was confirmed during food fisheries as bycatch in the fall of 2025. Picture was shared by a community member of an Atlantic sturgeon bitten by a shark that was caught in a net within the Tabusintac River.



Figure 14 Atlantic sturgeon bycatch with shark bite in 2025

Habitat fragmentation from low water flows, ford crossings, recreational watercraft usages, aquaculture impacts from downstream, and beaver dams were recorded in the late summer and fall months of 2025. Schools of salmonids were noted within the same pools throughout the field season. The larger fish were more restricted due to its size to swim upstream over the riffles with low water levels along with extreme warm water temperatures. Misplaced or aged culverts were noted to limit the larger salmonid species to move upstream at the Little Eskedelloc site. The larger size fish stocks had additional stress with restricted access

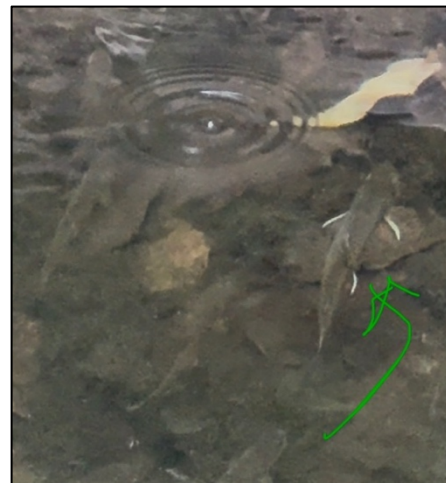


Figure 15 Brook trout at site throughout field season of 2025

and lower water levels that allowed for them to become prey for the local American eagles and hawks. Blow outs of beaver dams after the spring fresh-it contributed to sedimentation at the Tabusintac Hill site and Main Crossing site on the Tabusintac River. Ford crossing at the Main Crossing site also contributes to sedimentation downstream from the run-off from the road and all-terrain vehicles and four by four trucks passing from one side of the Tabusintac River to the

other. Evidence of tire tracks crossing the ford were recorded by drone footage October 7, 2025.



Figure 16 Tire tracks at ford crossing on the Tabusintac River in 2025

Riparian buffer adequacy was looked at near Atlantic salmon habitat sites. Most sites that were selected were located on or near crownland that has been leased out for timber harvesting then these parcels are transferred into leases for a 20-year term for wild blueberry operations. A 30-metre buffer zone has been established through regulations to protect wetlands and watercourses for new operations; however, during the timber harvesting, work within forested wetlands can remove all timber and 30 % of merchantable trees near watercourses and non-forested wetlands can be removed- with the understanding that machinery is not permitted within 15 metres; therefore, most riparian buffer zones are at 15 metres. The scale of operations for wild blueberry agriculture within the Tabusintac watershed is occurring at a rate in which negatively impacts the aquatic and terrestrial ecosystems. Additional concerns include that the ecosystems will not be able to remain sustainability for future generations if the rate of current practices continue at this pace.



Figure 17 Wild blueberry operations in different processes in 2025- crates used to hold wild blueberries that will be harvested (top left); impacts to air quality and settling of dust during wild blueberry operations (top right), and displays one of phases of applying pesticides and compacting soils for wild blueberry agriculture

Method of measuring riparian buffer zones have been ongoing conversations throughout the years with TWA, community members, First Nations, stakeholders, and among different government agencies. Concerns that were addressed for establishing the buffer zones were how they were measured out. Many buffer zones were measured on a vertical plane and not incorporating the entirety of the horizontal plane (slope) near all springs, tributaries, and wetlands that provide crucial cold-water habitats for Atlantic salmon. Buffer zones should indicate if they have been ground-truthed and could be shared on GeoNB- an open information portal for the province; similarity to how the Government of New Brunswick updates the wetlands and watercourses data. Buffer zones can be established from mapping applications such as Google maps and GeoNB, or in the field work where ground-truthing takes place to incorporate measuring equipment, field surveys for hydrology, botany, and soils along with slope measurements.

Riparian buffer zones areas face additional stress after timber harvesting because the vegetation that was protecting the buffer zone are no longer there. The newly exposed vegetation and trees are blown over and uprooted during storm events. This starts a chain reaction that changes the ecology within the buffer zone including



Figure 18 Newly harvested area to start wild blueberry operations on the Tabusintac River u/s Tabusintac Hill and adjacent to two cold-water tributaries

competition for habitats. This impacts aquatic habitats in many ways; one of them being the ability to filter out sediments and contaminants (pesticides from wild blueberry operations) resulting in the increases of risk of sedimentation and contaminants entering the aquatic systems. Lack of roots from vegetation and trees are impacting bank stability and reducing canopy coverage that provides shelter from warm temperatures and lack of camouflage from predators. Increased sedimentation within the Tabusintac River smothers Atlantic salmon eggs, limits traditional spawning habitats, and smothers Atlantic salmon populations when silts and sands are lodged in the gills of the fishes. Pesticides than can bioaccumulate within salmonid species and spread to others when eaten.



Figure 19 Beaver dam that was notched in the fall of 2025

TWA collaborated with Tabusintac Club Ltd to notch beaver dams off the Bathurst Highway 8

to allow for the fall migration to have access to additional 257,188 m² of habitat. One dam was located downstream of Tabusintac Hill site and the other was located downstream of Big Eskedelloc River. The additional habitat is identified in Figure 18, outlined in white, that would be opened up to additional spawning areas. TWA used drones to look at potential upstream and downstream threats for fall migration.

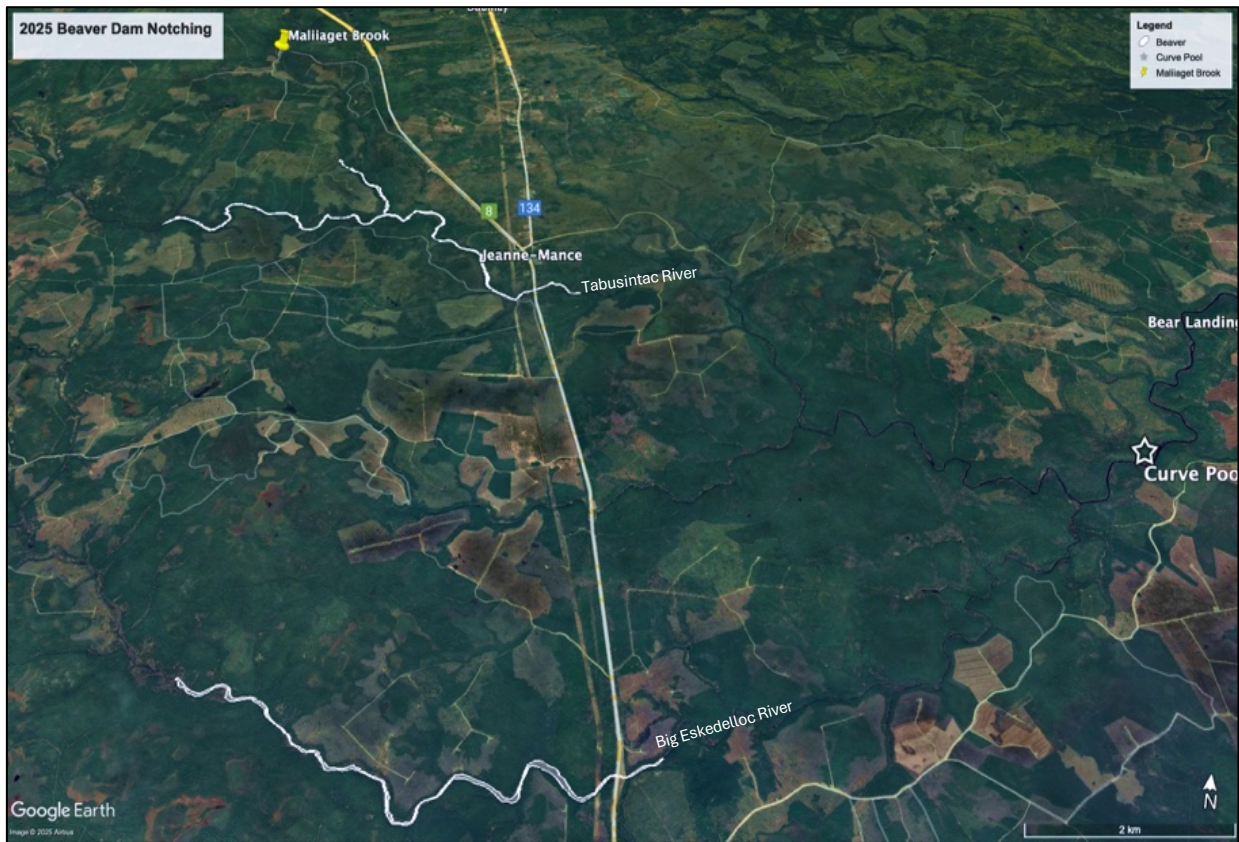


Figure 20 White outline shows additional Atlantic salmon habitat after beaver notching in the fall of 2025

Additional threats that were noted in the 2025 field season were the increase of Double-crested cormorants that were feeding on fish migrations runs that were returning out to the sea or feeding within the lower sections of Tabusintac River in the spring of 2025. There is an increase of sedimentation and fragmentation within Tabusintac river and tributaries because of the yearly increase of recreational users and boaters.

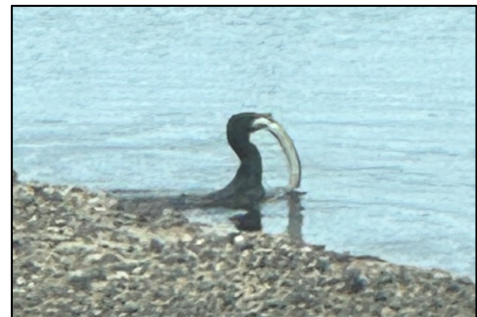


Figure 21 Double-crested cormorant feeding within the upper stretches the Tabusintac River in 2025

Objective 2.5: Consultations and Outreach Events

Consultations and outreach events are among one of the most important strategies that was implemented within the Tabusintac watershed and local regions for the conservation and stewardship of Atlantic salmon.

Education, Beneficial Management Practices (BMPs), feedback, and expertise from the communities, research, and regulations all have the same goal to protect Atlantic salmon stocks, populations, and habitat for future generations- at least for



Figure 22 Recreational usages on the Tabusintac River

the next seven generations from the perspective of the Mi'gmaq people. TWA acts as a forum to bring this information together to share it among community members, First Nations, partners, government entities, academia, and stakeholders to implement conservation practices and to continue to research to improve methods for the conservation and stewardship of Atlantic salmon.

The first milestone for the spring of 2025 was a meeting with the local Conservation Officers with DFO, Department of Natural Resources and Energy Development (NRED), Esgenoôpetitj Fish Guardians, and TWA on April 3, 2025. The outcome was very positive and a start to build rapport among the government entities, First Nation people of Esgenoôpetitj, and the TWA.

Misinformation among the different parties were cleared up; for example, as who and where has the jurisdiction on the Tabusintac River to provide enforcement, number of Atlantic salmon that is allowed for food, social, and ceremonial purposes, what type of gear and number of nets that are allowed within Esgenoôpetitj fishing practices, and number of hooks allowed and gear in the different stretches of the Tabusintac River as part of the regulations. All parties agreed to continue to work together to protect Atlantic salmon stocks and populations. It was agreed upon outreach to recreational watercrafts users on how to mitigate impacts to Atlantic salmon habitat

is needed and exchanged phone numbers to continue to work together.

TWA attended meetings and consultations as part as the Recreational Inland and Coastal Fisheries Advisory Committee, Municipality of Alnwick and the New Brunswick Shellfish Working Group.

Social media was an avenue TWA implemented to share BMPs, regulations, education, and initiatives. One media campaign was to promote TWA’s initiate “Navigating with Care; Protect What’s There” that helps to reduce sedimentation, erosion, and to protect critical habitat. The campaign reached 5256 members and visited by 35, 736 in the month of July 2025.

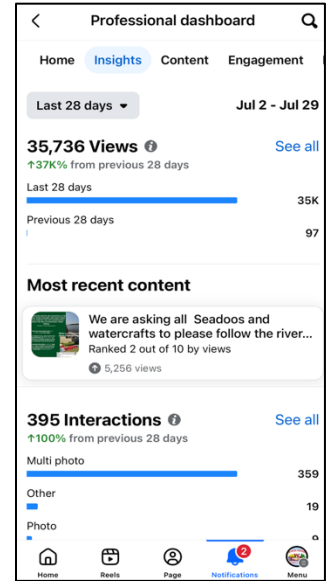


Figure 23 Statistics on outreach campaign

Signage promoting BMPs were utilized to mitigate impacts on Atlantic salmon stock and habitat. Signage placed at boat mooring areas within the Tabusintac River encouraged users to follow the natural channel and day targets to



Figure 24 Signage used to promote initiatives for the Tabusintac River

mitigate impacts on water quality, reduce sedimentation, reduce wave action from the watercrafts that acts as a catalyst for erosion, and to protect critical habitat. The feedback from the community, government agencies, partners, and First Nations had phenomenal amount of positive feedback recognizing the benefits of this initiative “Navigate with Care, Protect What’s There” with hopes this initiative will continue in the future and to expand the area to be marked by day targets.

This initiative also reduces the risk of damaging propellers on watercrafts and the motors that can lead to thousands of dollars in repairs. TWA shared this knowledge at community events, presentations, consultations, and meetings to add as an additional incentive to implement

“Navigate with Care, Protect What’s There” initiative. Results were immediate with reduction of sedimentation within the water columns as well as the regrowth of eelgrass beds in the lower sections of the Tabusintac River after only a month.

Signage to implement nature-based initiatives as “Living Shorelines” were used at two case study sites. The signage displayed QR codes that members advised TWA to incorporate so that additional information could be shared. Living Shoreline initiative incorporates using native vegetation to reduce

excessive erosion and prevents sedimentation in the Tabusintac River and local tributaries.

Living Shoreline initiative can be implemented along riverbanks and shorelines that do not have an established riparian buffer zone, restore unhealthy riparian zones, or where excessive erosion

is occurring. The benefits of Living Shoreline initiative not only benefit the aquatic environments but provides ecological services as terrestrial habitat and protection from flooding events. Community members, First Nations, government agencies, stakeholders, and academia were invited to the Living Shoreline sites that created a forum to allow for questions for conservation, sharing of indigenous and traditional knowledge, BMPs, feedback to improve initiatives, and allowed for hands-on experience at the Living Shoreline sites so that community members, government agencies, First Nations, academia, and partners could share their experiences and knowledge throughout Atlantic

Canada that could be utilized in the future for private, crownland, and First Nation’s Reservation lands that lack a healthy riparian zone.



Figure 26 TWA members installing day targets on the Tabusintac River in 2025



Figure 25 TWA's summer students helping at a new established Living Shoreline Site 2

Signage to bring awareness of the need to dispose of garbage particularly lead and line from recreational fisheries. This was addressed as well as provided a solution by incorporating an initiative from Miramichi River Environmental Assessment Committee (MREAC). MREAC has implemented a long-standing initiative in which they install signage at popular fishing areas showing the impacts on wildlife and aquatic systems when lead and line are not properly disposed of. Additionally, to the sign there is an area where fisherpeople can dispose of their lead and line waste when they return to shore. This sign not only brings awareness but an immediate solution that can be implemented as well as promote stewardship.



Figure 27 Signage used to promote awareness and encourage stewardship

Outreach events for the public were held within various of settings from community farmer markets, info and case study events at sites, and joining other partners at their events to reach out to a broader audience. Tabusintac Marina Inc., Maritime Fisherman’s Union, Tabusintac Harbour Authority, Tabusintac Club Ltd., Dalhousie University, Université du Québec à Rimouski, Niskamoon Corporation, Nature Confederacy of Canada, Nature NB, Department of Environment and Local Government (DELG), Canadian Parks and Wilderness Society, DFO, along with FCAS helped with outreach by providing up-to-date resources and to build capacity at the events to share Atlantic salmon initiatives, strategies, and outreach campaigns that were tailored to specific audiences.

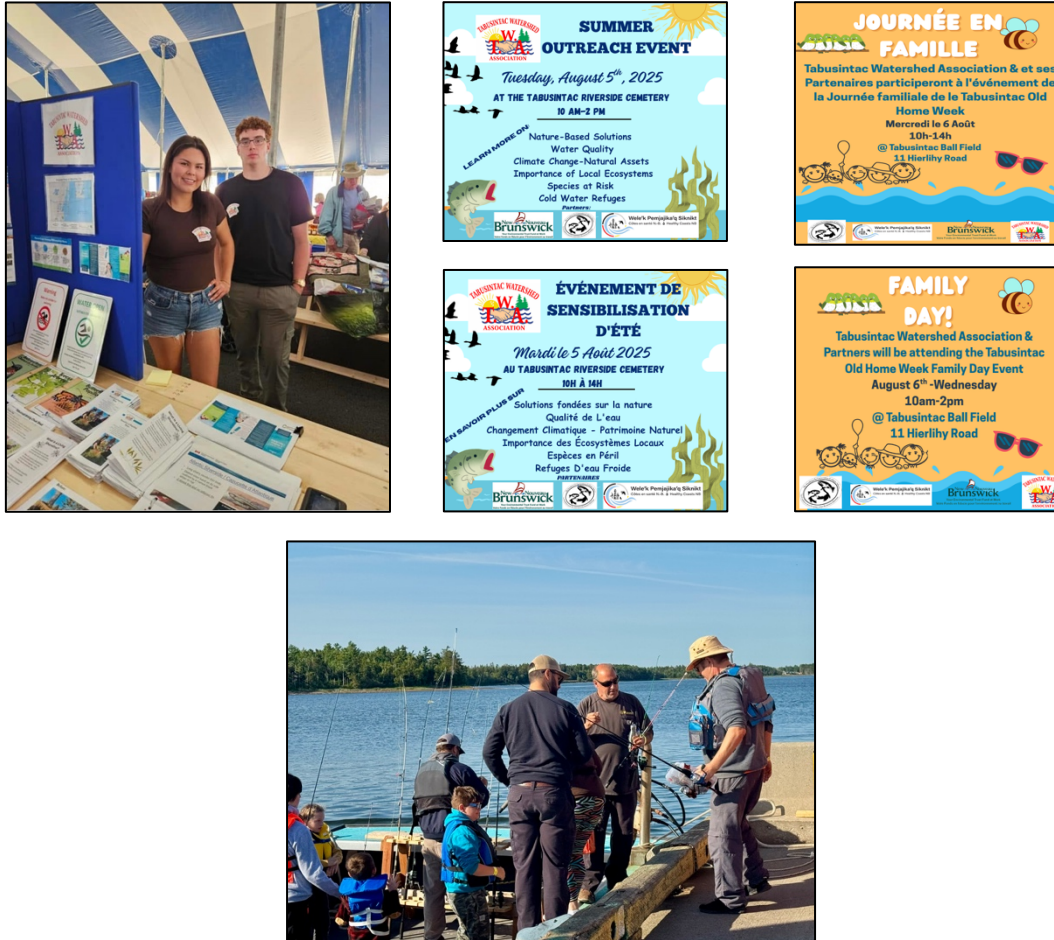


Figure 28 Various of outreach campaigns for Atlantic salmon conservation. Summer students at a Farmer's Market (top left); posters advertising upcoming events (top middle and top right); and members of TWA (father and son) sharing traditional knowledge and BMPs to others to minimize impacts on Atlantic salmon and their habitats.

Objective 2.6 Documentation and Reporting to Advance Atlantic Salmon Conservation

TWA with the help of partners, government agencies, First Nations (incorporating two-eye seeing approach), stakeholders, academia, and community members have implemented methodologies that utilizes DELG field sheets to record water parameters, has photocopies and digital files for back-up, and followed same methodologies as our partners or recommendations so data can be compared.

Individual field sheets and water quality results are available upon request from TWA. TWA shares relative data with DFO, DNRD, NBDELG, Centre of Coastal Studies, Nature NB, Canadian

Wildlife Service, Municipality of Alnwick, and partners to fill in any information gaps, build baseline data, and for the results and data to be incorporate in future research and projects.

This report and outreach materials will be used as a guidance tool to implement and update strategies from the *Atlantic Salmon Conservation Strategy for the Tabusintac River* to be shared and improve BMPs, regulations, bylaws, and initiatives for future work.

Conclusion

The Tabusintac Watershed Association (TWA), with support from the Foundation for Conservation of Atlantic Salmon (FCAS), successfully advanced conservation initiatives throughout the 2025 field season, guided by *the Atlantic Salmon Conservation Strategy* tailored for the Tabusintac River. Collaborative efforts with government agencies, First Nations, stakeholders, and community members addressed critical stressors impacting wild Atlantic salmon populations and their habitats. Strategic objectives, ranging from water temperature profiling and comprehensive water quality monitoring to formal habitat assessments and outreach, were met through rigorous fieldwork and engagement activities.

Key findings highlight the increasing challenge posed by elevated water temperatures and persistently low water flows, both exacerbated by anthropogenic influences and climate shifts. Water quantity emerged as the most significant threat, then very warm water temperatures, while habitat fragmentation, inadequate riparian buffer zones, risk of invasive species introduction, and sedimentation further stressed salmonid populations. The detection of glufosinate in sediment samples underscores the importance of ongoing monitoring and mitigation of wild blueberry agricultural impacts.


Outreach and education initiatives, including the "Navigate with Care, Protect What's There" campaign and "Living Shoreline" case studies, fostered stewardship and community involvement. Positive feedback and immediate improvements in habitat conditions demonstrate the value of collaborative conservation approaches.


Documentation and transparent reporting ensured that project outcomes contribute meaningfully to future research, conservation planning, and the continuous refinement of Beneficial Management Practices (BMPs).

Moving forward, it is essential to maintain comprehensive monitoring, enhance habitat assessments, incorporate land-use practices, address emerging threats, and strengthen partnerships with all stakeholders and rightsholders. The Tabusintac watershed retains optimal salmonid habitat during late spring and early fall, but persistent low water levels and warming trends require adaptive management and sustained commitment. The strategies and lessons learned in 2025 will guide ongoing efforts to protect and restore Atlantic salmon populations for the benefit of current and future generations.

APPENDIX A

Appendix A: Lab results from pesticide screens of sediment within the Tabusintac River.





AGRICULTURE & FOOD LABORATORY

LABORATORY SERVICES DIVISION

FINAL Report

Submission# **25-107931**

Reported: 2025-Dec-18

Submitted By: **Client ID: 1795112**
TABUSINTAC WATERSHED ASSOCIATION
 BILLIE-JOE FOWLER
 1-4689 ROUTE 11
 TABUSINTAC, NB E9H 1H6

Phone: 506 778-0378
 Sampling Date: 2025-Oct-07
 Received Date: 2025-Dec-08

Owner:
BILLIE-JOE FOWLER

Polar Pesticides Screen - A
 Method ID: CHEM-334
 Date Authorized: 2025-Dec-18 09:48

Sample ID	Client Sample ID	Specimen type	Sampling date / time	Test	Result	Units	Note
0001	TABU MAIN CROSSING	Sediment	2025-Jul-21 13:10	Polar Screen A	Not Detected		
0002	TABU HILL	Sediment	2025-Jul-21 12:15	Polar Screen A	Not Detected		
0003	TABU HILL	Sediment	2025-Oct-07 10:55	Polar Screen A	Not Detected		
0004	TABU MAIN CROSSING	Sediment	2025-Oct-07 12:00	Polar Screen A	Detected		
0004	TABU MAIN CROSSING	Sediment	2025-Oct-07 12:00	glufosinate	<MDL		

Comments:

All samples were analyzed on the LC-MS/MS. Only positive results are listed. If the tested analyte does not appear for a sample, it was not detected in that sample.

<MQL = Less than the minimum quantification limit.
 <MDL = Less than the minimum detection limit.
 Presence of the compound confirmed by LC-MS/MS but at less than the defined quantification or detection limit for that compound using this method.

Manager: Cassandra Schoen MSc, Agriculture and Food Laboratory 519 823 -1268 x57232 cpatters@uoguelph.ca

These test results pertain only to the specimen(s) or sample(s) received and tested.
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Agriculture and Food Laboratory - 95 Stone Rd West, Guelph, ON N1G 2Z4 - www.guelphlabservices.com

Page 1 of 1
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