Margaree Salmon Association

NEWSLETTER

WINTER 2025

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Margaree Salmon Museum Hours
Open 5 days a week (Seasonal)
Wednesday to Sunday from 9AM to 4PM
OPERATED BY THE MARGAREE ANGLERS ASSOCIATION

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President's Message

Pjila'si-Bienvenue-Failte - Welcome to our Winter 2025 newsletter. Last summer, extremely low water levels and high temperatures resulted in our earliest and longest angling closures for areas 1 and 2 on the Margaree. Although we had to restrict angling over the summer we did manage to accomplish some major projects in the watershed. Low water levels allowed us to complete 2 armour rock projects, one at the Swimming Hole Pool and the other on the Southwest branch of the Margaree.

2024 will go down as a turning point for our association. We are fortunate to have partnered with a large number of groups to help us deliver our programs including the Nova Scotia Salmon Association (NSSA), Atlantic Salmon Federation (ASF), Dalhousie University, University of Windsor, Aquatic Coastal Action Program, Inverness County and Unama'ki Institute of Natural Resources (UINR). As a result, our watershed monitoring program was given a tremendous boost. Temperature monitoring which has been done for a number of years has been expanded to more tributaries and locations on the main river to help identify cold water refugia. As was done last year we completed eDNA sampling throughout the watershed to help us identify the presence of invasive species. At the same time researchers from the University of Windsor began a program to tag and monitor the presence of smallmouth bass in the Southwest Branch of the Margaree. Invasive species have become a major concern for your association. At our AGM in October, we announced that we have formed a committee within MSA to focus on the issues surrounding invasive species like smallmouth bass and brown trout. We recently supported a change by Nova Scotia Department of Inland Fisheries to announce a MANDATORY RETENTION for all smallmouth bass caught in the Margaree watershed.

Invasive species were not the only issue we've had to address in the past year. As I'm sure most of you realize, Mi'kmaq fishers are the only individuals allowed to retain salmon for food, social and ceremonial purposes. Unfortunately, over the past year we've had a couple of incidents reported to us about fishers being challenged about their rights. MSA supports the rights of Mi'kmaq fishers. In past newsletters, at private and public meetings, we've expressed our support. We have shared information outlining First Nation's commitment to conserving Atlantic Salmon stocks and their participation in habitat restoration. What some people may not realize is that Mi'kmaq rights are not governed by the same rules as the recreational angler, meaning they can still harvest during closures due to warm water or through the night.

Once again in October we held our annual general meeting and dinner auction, our dinner was completely sold out and everyone was very generous in helping us raise over $6,000.00 for the work we do in the watershed. Special thanks to the people from St Patrick's Church who put on a fabulous meal for all to enjoy.

2025 will begin with MSA hiring a new coordinator, Aaron Allen who worked with us for more than 2 years has accepted a new position. I wish to thank Aaron for the great work he did with us. He built critical relationships for MSA and guided us to achieve a higher level and more varied scientific activities. Our monitoring programs are well underway, and the work started with outside partners will continue.

We've had a lot of snow in the highlands over the past month and we all hope this is a sign of lots of cold water for the river this spring.

– *Yours in Conservation*
Paul MacNeil, President
The Margaree Salmon Association

Perspectives on aquatic invasive species management in the Margaree Valley

– Sinead Addis / Hannah Harrison

In 2024, mandatory retention of small-mouth bass was implemented in the Margaree River watershed, a move intended to help mitigate the impacts of this aquatic invasive species (AIS) on an iconic salmon river. But, what are the impacts of this new policy? Are anglers adhering to this new rule? Do watershed users perceive the rule to be effective in managing AIS? What do they do with the retained bass? These and other questions are at the heart of a new project that will be taking place in the Margaree River watershed this summer.

Sinead Addis, a current Master of Marine Management student at Dalhousie University, will be interning with the Margaree Salmon Association (MSA) this summer to explore these very questions. Under the supervision of Dr. Hannah Harrison, who has previously worked with the MSA to understand the role of salmon enhancement on the Margaree, Sinead will conduct interviews with anglers, conservationists, and others interested in the management of small-mouth bass in the Margaree area throughout the coming summer. These interviews will provide insight into public perceptions and beliefs about the small-mouth bass retention strategy, its impact on bass, salmon, and other species, and how these fish are being utilized once retained. Initiated by interest from the MSA, this project is one of the first human dimensions projects for the Association, meaning research will be focused not just on the fish, but also on the people who catch, eat, or manage them.

In the aquatic environment, small-mouth bass are apex predators that outcompete native fish species for prey resources, ultimately disrupting natural food web systems. Preventing the spread of small-mouth bass and other AIS is important to protecting species biodiversity, and by working closely with the MSA we hope the results of this study can provide insight into future effective AIS management strategies.

Sinead is excited to head back out into the field while interning with MSA. During her undergraduate studies, Sinead worked with a conservation organization where she collected and identified benthic invertebrates. Benthic species are used to assess the health of streams, and this data contributed to the organization's goal of long-term stream monitoring.

This summer, you will likely find Sinead conducting interviews along the river. She is looking forward to spending time in Cape Breton and hopes this project will shed light on the important role human dimensions research can play in AIS management.

Ally's Shrimp (Modified) *– Bill Haley*

Tag & Ribs Gold oval tinsel.
Tail Orange deer tail hair.
Body Red floss, followed by black floss.
Wing Grey squirrel tail hair, followed by golden pheasant tippet.
Collar hackle Orange feather.
Head Red.

Ally's Shrimp (Modified)

Margaree Watershed Bioblitz Revisited – *Greg Lovely*

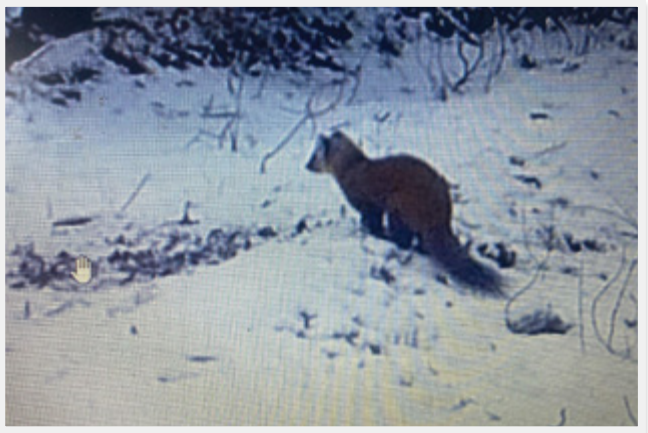
Winter scene at Cape Clear – Cape Breton Highlands

It has been awhile since we have updated you on our project to identify some of the wonderful biodiversity found in the Margaree Watershed. It is the end of 2024, and in the few years since our project began, there have been 3816 observations of many birds, plants, animals, insects, amphibians, reptiles, fungi, fish and more. 1041 different species have been identified by 889 identifiers, and submitted by 313 different observers.

Recently, we have had a few sightings of one of our rarest (species at risk) animals found in our watershed. A Pine marten (American Marten,martes americana). This beautiful animal has been spotted over the past few months and our extremely lucky observer obtained some nice photographic evidence.

Visit our iNaturalist page for more. (See page 4)

October 2024 Trail Cam – Courtesy of Byron Fraser



December 2024 Trail Cam – Courtesy of Byron Fraser

Margaree Aquatic Team Update – *Kristen Cyr*

After a busy summer in the field, the Margaree Aquatic Research Team is back in the Predictive Ecology Lab in Windsor, analyzing data to better understand how stressors like rising water temperatures and invasive smallmouth bass are impacting Atlantic salmon and their habitat in the SW Margaree. (For more background, see our previous summary in the MSA Summer 2024 newsletter!).

Here's where things stand: The acoustic telemetry array that was tracking cold-water refugia use has identified 33 of 90 tagged fish (Atlantic salmon and brown trout) using these important habitats. However, we're not celebrating just yet — Kristen Cyr is manually reviewing the data to ensure accuracy, which could reduce the total number of fish that were truly detected using cold-water refugia. Meanwhile, Isabelle Tormasi is still waiting to retrieve movement data from the acoustic telemetry array monitoring smallmouth bass distribution across the Margaree mainstem. Unfortunately, high water levels have delayed gear retrieval, but we're hoping for safer conditions by May. In the meantime, Izzy has compiled all the environmental data collected at receiver deployment sites which she will later use to help explain drivers of bass movement. Underwater camera footage from the cold-water refugia is also being reviewed by two new lab technicians, who have already spotted Atlantic salmon parr, brook trout, white suckers, and brown trout. In the lab, Kristen and Holly Mosco recently completed growth analyses of Atlantic salmon parr by measuring circuli on fish scales with a high-powered microscope. Preliminary observations from this work suggest that fish in upstream regions may grow faster and achieve larger body sizes (both weight and length) compared to those downstream. However, it's important to note that these are not definitive results—there are many factors still to consider, and additional data from this summer's fieldwork will be critical to understanding the full picture. Lastly, Holly, who began her Master's research this January, is also busy processing the mucus and gill samples from Atlantic salmon parr. This involves extracting genetic markers from the sample – which will take time and patience. But this work will help her explore the early indicators of stress experienced by Atlantic salmon parr in the Margaree.

As we're gearing up for another field season, we look forward to sharing more updates. For more background info on this research program, and to stay connected follow us on Instagram or Facebook @margareeaquaticteam.

Radio Telemetry Dalhousie University – *Josh Roland*

2024 Salmon Tracking: Progress & Insights
Our team from Dalhousie University, led by Josh Roland (MSc candidate) has been working with MSA for the past year to design and implement a new study in the Margaree River focused on the movement ecology of adult salmon. The work was generously supported by the Fisheries and Oceans Canada - Canada Nature Fund for Aquatic Species at Risk from the Gulf Region. In 2024, we successfully deployed 20 radio transmitters on Atlantic salmon between July and October. While our initial goal was 70, warm temperatures and low water levels throughout the fishing season limited our ability to tag all planned fish. Of the 20 tagged salmon, 17 were tracked between October and January. The remaining three tagged fish were likely not found due to early spawning followed by migration out of the river.

Spawning Behavior
During the spawning season, we observed a widespread distribution of salmon throughout the watershed. Some of the salmon traveled far upriver into the Margaree Highlands sanctuary, and we found salmon in both the Northeast and Southwest branches of the watershed. While almost every fish had interesting movements, I'll briefly discuss a few examples.

We tracked two fish in Ingram Brook during spawning. To our best knowledge, they likely spent up to nearly two weeks within the tributary. One of the fish that entered Ingram Brook was hatchery-raised (based on adipose fin clip) and spawned in close proximity to the hatchery facilities, suggesting some level of homing behavior to its natal tributary.

Summer grilse being tagged during one of the few days with high water in July 2024

One of the first tagged fish being released (Angler: Aaron Krick). This fish ended up migrating into the sanctuary and has been holding in the lower river as a kelt as of January 3rd, 2025

Four of the 17 tracked fish entered the sanctuary area. We had predicted higher numbers of fish would have migrated up to this section, but the extensive drought conditions and our limited sample size likely influenced these results. Additionally, most of the salmon were tagged in the fall, and would have fewer opportunities to enter the sanctuary compared to spring and summer salmon. Nevertheless, this offers an intriguing point of comparison for the next round of tracking (fingers crossed for better conditions this year!). The fish that entered the sanctuary were some of the largest in our sample. For example, the farthest migrating fish, an 85 cm male salmon, swam over 55 km upstream (from the estuary) into the sanctuary, passing Cape Clear by approximately 10 km to spawn in Three Brook Pool.

Two of the tagged fish were found in the Southwest Margaree during spawning. Interestingly, the two fish were both the smallest and the largest fish that were tagged (55 cm male grilse and 95 cm female). The female spawned nearly 10 km higher than the grilse near Mount Pleasant.

We also observed synchronized movement among the fish. During the week of November 16, most fish were located upstream of Forks Pool, with only one remaining in the main river branch. By November 20, six fish had moved into the main branch and lower sections, while five others entered the lower Northeast Margaree and were later tracked in the main river. In one particularly interesting case, two fish were detected entering and leaving the sanctuary around the same time and were later found holding together in Sky Lodge Pool for several weeks.

Members of the Lennox Lab (Oscar Notman-Grobler and Josh Roland) angling at Wash Pool. No fish were caught, but the fall colors more than made up for the lack of fish

Winter Tracking and Kelts

As of January 3rd, eight fish remained in the lower watershed. We believe the rest have already departed. Efforts are underway to redeploy the lower watershed stationary receiver to capture future data on fish departure times. Preliminary observations indicate that fish tagged in the summer tend to stay in the watercourse longer than those tagged in the fall, suggesting potential behavioral differences between runs. However, more data is needed to confirm these patterns.

Three Brooks Pool, located far into the interior of the Cape Breton Highlands

Forks Pool – January 3rd, 2025

Mackenzie Pool – January 3rd, 2025

Plans for 2025

Although we faced challenges this year, we gained invaluable insights that will improve our tracking efforts moving forward. In 2025, we plan to deploy the remaining 50 transmitters and potentially expand our network of stationary receivers to better track fish in areas of interest, including throughout the Southwest and Northeast branches, Lake Ainslie, the sanctuary, and various tributaries.

Gratitude

We extend our heartfelt gratitude to the anglers and the folks with the Margaree Salmon Association (MSA) for their invaluable support in conducting this study. Several people went above and beyond to help us out, Joel Robinson, Aaron Allen, Andrew Haley, and Bill Haley. Without their immense contribution and help, our efforts to learn more about Margaree salmon would not be remotely possible. While this year presented its challenges, there is still an exciting year to come in 2025. We are optimistic that the results from this study will help us learn and inform conservation efforts for this treasured population of Atlantic salmon.

Field Work Wrap-Up *– Aaron Allen*

The Margaree Salmon Association (MSA) field season turned out to be a great success. We had planned a busy season filled with habitat suitability assessments, temperature monitoring, digger log installations, and swim throughs, but with the hiring of a second field technician in 2024 and our growing partnerships with our researchers we were able to accomplish much more this season than expected.

The early season in May was spent readying our monitoring equipment and training our field technicians on the Nova Scotia Salmon Association's (NSSA) Habitat Suitability Protocol which is where our technicians spent much of their time during the field season. Meanwhile we helped out Kristen Cyr's team from the University of Windsor with equipment set-up on the Southwest Margaree where they're looking for relationships between cold water refugia, Atlantic salmon, and invasive species. They're also using acoustic telemetry to understand the movement of smallmouth bass that have been noticed more frequently down the SW and lower river of the Margaree.

In June, Josh Roland of the Lennox lab at Dalhousie University began angling for adult salmon to tag with radio transmitters for tracking into the tributaries of the highlands during spawning season. With the water levels being as low or lower than anyone had ever seen (confirmed by hundreds of riverside chats) the fishing was slow, but my techs and I certainly weren't complaining about the long days on the river hoping to feel a tug.

July and August proved to not be any better for water levels or temperature in the Margaree. With the partial river closure due to the warm water protocol our researchers were spending their time moving equipment because the low water kept exposing kit that needs to be below water to function, re-thinking their research questions, and working on extensions of funding, because conditions didn't allow for appropriate numbers of tagged fish. Best laid plans. Our techs shifted focus to assessing the structures that have been installed in our watershed, prepping for a last minute eDNA study (awaiting lab results), as well as snorkelling pools to get an idea of how many salmon have entered the river. It was eye opening to swim pools during this time; Conditions weren't favourable for movement of salmon throughout the river and we were able to learn the salmon by name, or at least by their scars.

MSA partnered with the Cheticamp River Salmon Association to purchase electrofishing kit and had a successful season of sampling rivers and tributaries between the Mabou, Margaree and Cheticamp. With this year being the first time we went out with our own gear, we were really pleased to collaborate with neighbouring watershed groups and get out for shared field days on the river.

The fall brought cooler temperatures, but not a whole lot more water. Happy anglers were able to capitalize on a splash or two of rain here and there, but it wasn't until the first week of November, when we ended up getting consistent rain to bring the levels up. MSA techs spent the last of the season helping the hatchery collect brood stock, radio-tracking salmon we helped tag earlier in the year, retrieving equipment with researchers, and began to plan for 2025.

This being my last MSA newsletter it's really nice to look back on the season and realize how much time I was able to spend outside in my favourite place in the world, working with a bunch of great folks; being the coordinator for the Margaree Salmon Association was an incredible experience. I have moved on to a new gig with the Ocean Tracking Network, but am hoping that MSA will hire me again when I retire and move my life back to Margaree.

– See you on the river.
Aaron

River Memories – *MSA*

Support the Margaree Salmon Association

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Print and send the completed form to:
The Margaree Salmon Association
P.O. Box 108, Margaree Centre
Nova Scotia, Canada. B0E1Z0

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by visiting us online at:
www.margareesalmon.ca/membership/

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Margaree Salmon Association

Established in 1982, the Margaree Salmon Association is a volunteer, non-profit organization, dedicated to the conservation, protection and enhancement of Atlantic salmon, trout and their habitat.

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COVER PHOTO: VIEW OF THE MARGAREE RIVER FROM THE BOAR'S BACK – MARGAREE, NOVA SCOTIA.