Biolink

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A Review of the 2022 ASFWB Spring Seminar in Sackville, NB

The Spring Seminar of the ASFWB took place at Mount Allison University in Sackville, New Brunswick on May 3rd 2022. The seminar was well attended by a mix of new and familiar faces! Approximately 30 folks were able to attend, following Covid-19 protocols. Thanks to the Executive for organizing the event and giving everyone a chance to get together to discuss all things invasive species!

The focus of this year's seminar was Invasive Species, and we hosted talks from many well versed professionals in the field of Invasive Species research and management.

In the morning, we heard presentations from Dr. Meghann Bruce (UNB), on Eurasian Water Milfoil's increased presence in the Wolastoq | Saint John River, Dr. Chris Edge (NRCAN) gave an engaging talk on the invasive Hemlock Wolly Adelgid, Daniel Bourque (DFO) then gave a presentation on the Aquatic Invasive Species National Core Program, and Kristen Noel (NS Invasive Species Council) updated us on the different initiatives that the Council is actively involved with before lunch. In the afternoon, we saw presentations from Roseanne MacFarlane (Dillon Consulting) on the implications of invasive aquatic species in PEI, then from Nathan Wilbur and Neville Crabbe (ASF) on the Smallmouth Bass project ongoing in the Miramichi, Suci Avlijas (DFO) presented on the lessons learned from fish invasions and risk assessments, and Cole Vail (NS Invasive Species Council) finished the day off with a presentation on the dog-strangling vine problem in Kings County, NS. We would like to thank everyone who attended and to all those who gave presentations.

We look forward to seeing you all at our Fall AGM hosted this year in Fredericton New Brunswick!

Eurasian watermilfoil (© D. St. Louis, 2022), Goldfish (© baltimorefishing1, 2021), Hemlock Woolly Adelgid (© J. MacIndewar, 2021).

We hope to see you at our Fall Annual General Meeting in October 2022!

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2021-2022 ASFWB Executive

President
Bruce Moore
bruce.moore@woodplc.com

Past President
Rosanne MacFarlane
remacfarlane@gov.pe.ca

Secretary/Treasurer
Ed Torenvliet
ed.torenvliet@gnb.ca

VP Membership
Andy Smith
andy.smith@forces.gc.ca

VP Programming
Joe Nocera
jnocera@unb.ca

VP Student Affairs
Courtney Baldo
Courtney.Baldo@novascotia.ca

Web Site Manager
Greg Johnson
greg.johnson@stantec.com

Newsletter Editor
Sarah Cusack
scusack@unb.ca

Social Media Coordinator
Hayley Banks
Hayley.banks@unb.ca

BioLink Information and Updates

The ASFWB Newsletter is published twice a year. Articles and opinions do not necessarily reflect the views of the Society or its members.

Thank you to all who contributed to this issue!

Do you have a research project, wildlife topic, upcoming event, photo, story, or anything else that you would like to see included in BioLink? If so, email one of our newsletter editors! We are always looking for content ideas and photos from our membership!

ASFWB Executive Committee

The majority of the executive committee continues to fulfil their roles and maintain their positions. Rosemary Curley has stepped down as VP Programming, and our Newsletter Editors, Danielle Horne, Julie-Lynn Zahavich, and Delaney Brooks have all moved on, we would like to thank them for their contributions and hard work over the years! We have welcomed Joe Nocera in the VP Programming role, and Hayley Banks as our Social Media Coordinator. Sarah Cusack has transitioned into the Newsletter Editor role.

Find Us Online at www.asfwb.ca

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Check out our website at www.asfwb.ca:

- register for upcoming events,
- read biographies of your executive committee members,
- download newsletters,
- find blog posts from scholarship winners,
- renew your membership
- and stay up to date on information for the **upcoming 2022 Fall Annual General Meeting**

Wolastoq (Saint John) River, © D. Galbraith 2022

Become an ASFWB Member

Regular Membership: $20/year
Student Membership: FREE!

To renew or become a new member, visit www.asfwb.ca or contact the Society's Treasurer, Ed Torenvliet (ed.torenvliet@gnb.ca) for other payment options.

Your membership supports:

- Hosting the Annual General Meeting,
- Disbursement of the ASFWB Research Grant,
- Scholarship Contributions

See you at our 2022 Fall AGM in Fredericton, New Brunswick!

ASFWB Fish and Wildlife Research Grant

The ASFWB Fish and Wildlife Research Grant was established in the fall of 1994 to assist members who are conducting or supervising wildlife or fisheries research in Atlantic Canada. The grant provides funding up to **$500 annually for research projects**. Any aspect of fish and wildlife research will be considered, but projects with applied management goals will receive priority. Applicants must be members of the ASFWB. Projects that are largely government sponsored or funded are not eligible for this award.

Applications are OPEN

For more information or **TO APPLY**, visit: http://asfwb.ca/the-asfwb-wall-of-fame/asfwb-fish-wildlife-research-grant/

Supporting Students in Atlantic Canada

ASFWB members have always been committed to helping advance the careers of Atlantic Canadian students in the field of biology. To this end, ASFWB has been integral in setting up scholarships that directly support top biology students at three universities in Atlantic Canada.

The David J. Cartwright Memorial Scholarship was established in 1991 at the University of New Brunswick, to honour David J. Cartwright who was a member and strong supporter of the ASFWB for many years and contributed to wildlife management in Atlantic Canada. The Cartwright scholarship is for students entering the final year of Forestry (Wildlife Option) or Science (Biology Option). The Donald G. Dodds Scholarship was established in 2010 at Acadia University with preference for graduate students in the Biology Department, though honours and undergraduate students are considered. Potential candidates for all scholarships should have combined scholastic ability with a demonstrated interest in biology and/or wildlife management. Disbursement is approximately $1000/ year.

Funds are currently being raised for the Gilbert R. Clements Scholarship at Holland College for graduating students entering the University of Prince Edward Island Wildlife Conservation Program. If you would like to support our students, consider making a donation – we're over halfway to our goal! Contact Holland College today! https://hollandcollege.com/foundation/how-to-make-a-gift.html

Below are the most recent recipients of the award and scholarships

DATE	STUDENT	AWARD/ SCHOLARSHIP
2021	Breagh Hogan	David J. Cartwright Memorial Scholarship
2021		ASFWB Donald G. Dodds Scholarship
n/a	**FUNDS BEING RAISED**	ASFWB Gilbert R. Clements Scholarship
2021		ASFWB Fish and Wildlife Research Grant

You can donate to our student scholarships online at **www.asfwb.ca**

Research Organization Feature: The Canadian Rivers Institute

Sandra Ellis, CRI Operations Coordinator

The Canadian Rivers Institute (CRI) was formed in 2001 with the vision of making every river a health river. Started as a local initiative of four founding members, the CRI has grown to include 30 aquatic science experts who research complex challenges, promote science-based decision making, provide scientific services, and support the training and development of the next generation of aquatic specialists.

The diverse knowledge base of the CRI network of experts is reflected through cross and multi-disciplinary research approaches. For example, the recent work "Considering Fish as Recipients of Ecosystem Services Provides a Framework to Formally Link Baseline, Development, and Post-operational Monitoring Programs and Improve Aquatic Impact Assessments for Large Scale Developments" published in the journal Environmental Management, co-authored by 2 CRI post-docs and 8 Science Fellows demonstrates the substantial collaborative nature within the CRI network. The paper explores the concept of Ecosystem Services (ES) which benefit humans, but links the framework of an environmental impact assessment (EIA) to critical ecosystem functions from the perspective of fish, which "highlights potential monitoring targets that relate to fish abundance, diversity, health, and habitat".

The cutting-edge research of CRI experts has also helped create tools to support government, conservation and environmental organizations, industry, communities, and academic researchers. The CRI has made data generated from the Collaboration for Atlantic Salmon Tomorrow (CAST) and the Mactaquac Aquatic Ecosystem Study (MAES) available in a publicly accessible online GIS-based repository. Through collaboration with Agricultural and Agri-Food Canada (AAFC), Environment and Climate Change Canada (ECCC), and the University of New Brunswick, CRI developed the Hydrology Tool Set that includes tools that can be used for understanding local and watershed scale hydrology to assess the impact of agricultural practices, urbanization, climate change, and other stressors on surface and groundwater.

The CRI network of research labs includes several that provide analytical services. The Stable Isotopes in Nature Lab (SINLAB) directed by Dr. Brian Hayden at the University of New Brunswick (Fredericton) is one of a few stable isotope labs in Canada focusing on ecological applications of stable isotope analysis. The SINLAB analyzes carbon, nitrogen, hydrogen, and oxygen stable isotopes in samples that can be used to study food webs and migration. In 2016 the CRI Genomics facility, led by Canada Research Chair Dr. Scott Pavey, opened with the aim to answer conservation and ecological questions using state-of-the-art genomics methods. This facility performs DNA isolation, prepares Next-Generation Sequencing (NGS) libraries, and performs bioinformatics that can be used to identify species, and to study phenotypes, adaptations, and environmental DNA. The CRI also includes a fish ageing lab, led by Dr. Tommi Linnansaari, which performs age analysis and digital imaging of scales and other structures. This data can be used to estimate fish growth rates, assess population structure, and analyze survival and mortality rates.

CRI recognizes the importance of knowledge transfer and skill building in the next generation of aquatic experts and has developed a robust training and development program for students and professionals. The cornerstone course of the CRI training and professional development program is the Canadian Aquatic Biomonitoring Network (CABIN) course, led and funded by ECCC. Through a partnership with ECCC, CRI designs and delivers the online components of this course to provide participants with skills and knowledge needed to conduct benthic invertebrate monitoring and assessment using a nationally acceptable standard. In 2022, CRI partnered with the Canadian Society of Hydrological Sciences to offer the course "Principles of hydrometric, temperature, and sediment monitoring in streams and rivers" for the first time, in Sacré-Coeur, QC. Annual course offerings also include backpack electrofishing and water quality assessment, analysis, and interpretation courses. In addition to specific training courses, CRI researchers supervise undergraduate and graduate students at institutions across Canada and internationally. CRI offers two scholarships, the HBN Hynes and Bud and Peggy Bird Scholarship, to help support its students.

Now in its 21st year, the CRI continues to foster a collegial and collaborative network through annual events, such as CRI Days and the HBN Hynes Lecture. The CRI posts regular updates, including job opportunities on its social media platforms and distributes a monthly e-newsletter that highlights CRI activities and events. To learn more about the CRI visit www.canadianriversinstitute.com or follow CRI on Facebook (@CanadianRiversInstitute), Twitter (@CRI_News), LinkedIn (@canadian-rivers-institute) and Instagram (@canadian_rivers_institute).

Research happening in Atlantic Canada

The Influence of Landscape Drivers on the Distribution of Yellow Lampmussel (*Lampsilis cariosa)* in New Brunswick, Canada

Sarah Cusack, Master's Candidate - UNBF

The population of Yellow Lampmussel (*Lampsilis cariosa*) in New Brunswick (NB) may represent an important global population for the species, as they are in decline across their already limited range in other parts of the world. Our understanding of this species and their habitat requirements underpins important managerial decisions, including efforts to anticipate changes to the population dynamics, identify vulnerable areas, and to protect critical habitat. Presently, we do not have a complete understanding as to why this species is found in abundance in certain regions but absent from others. The objective of my research is to better our understanding of variables influencing the species distribution in NB. This research will attempt to answer the following questions: (1) can landscape-scale variables that influence the distribution of suitable habitat (geology, topography, climate), explain, and predict the presence and absence of Yellow Lampmussel in NB?, and (2) which landscape variables are the most important in determining the distribution of Yellow Lampmussel? The objective of this research is to produce a scientifically defensible habitat distribution model for Yellow Lampmussel, through the culmination of traditional species distribution modelling practices and an informed conceptual framework of landscape drivers of suitable habitat. A complete understanding of the distribution of the Yellow Lampmussel, and its habitat, in relation to hydrogeological landscape variables is critical to improving our understanding of YLM and their long-term management.

Yellow Lampmussel (© *S. Cusack, 2021*)

The Ecology of Largemouth Bass (*Micropterus salmoides*) as an Invasive Species

Abigale Culberson, Mactaquac Aquatic Ecosystem Study

Invasive species are known for causing harm to local ecosystems to which they are not native . Popular freshwater sportfish are commonly moved to new waterbodies where they become invasives. Largemouth bass (*Micropterus salmoides*), a large bodied predatory fish, were first observed in the Wolastoq (Saint John) River in New Brunswick, Canada in 2014. Despite the potential for interactions with native and endemic species in the Wolastoq system, little is known about the movements and food-web interactions of this non-native species. This study aims to better understand the spatial and trophic ecology of the largemouth bass in the Wolastoq River during the invasion phase of the species. Spatial ecology will be studied using radio and acoustic telemetry. Radio telemetry will be used actively to identify movements and habitat use at a fine scale, such as home range of individual fish throughout the spring, summer, and fall months. Acoustic telemetry will be used to identify dispersal, seasonal movements, and winter habitat use. Carbon and nitrogen stable isotope samples will be taken from largemouth bass, along with potential competitors, prey items, and baseline, to better understand the role of largemouth in the Wolastoq food-web and identify potential for competition for shared resources with native species. Results are expected to provide a significant contribution to our understand of the impacts and dispersal of this recently introduced predatory fish, and thus contribute to the design of effective management policy.

Largemouth Bass *(© A. Culberson, 2022)*

Member Highlight: Rebecca Whiteway

My name is Rebecca Whiteway and I'm an amateur wildlife photographer based in New Brunswick. I recently achieved a BSc in Environmental Management with a minor in Biology from the University of New Brunswick. I am working as an Environmental Technologist at 5 CDSB Environmental Services Branch. My free time is spent observing and photographing wildlife in New Brunswick. I like to bring awareness to ethical birding practices and species at risk, through my photography and social media.

I began my photography journey in March 2021, photographing Chickadees in my yard. Since then, I've taken hundreds of photos of wildlife, focusing my interest in ornithology. Some of my favourite photos are displayed in the article.

I have learned so much through photography, such as the mating behaviours of birds while greatly expanding my bird identification. Spring is my favourite time of year to photograph as I get to witness migrants on their way up north and the return of warblers, waterfowl, the trees blooming and the young of the year explore their new world. What started as a COVID boardroom walk in the woods with an old camera, has grown into my biggest passion. I can't wait to keep expanding and sharing my knowledge with others!

Find me on Instagram **@biolensbybecca**

All photos were taken by **© Rebecca Whiteway**

Recent Literature

Heading to the field and need some reading material? Keep up to date with fish and wildlife research publications from Atlantic Canada and beyond. Paste the "doi" provided into your internet browser.

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Eastern black-legged tick , © iNaturalist, 2022.

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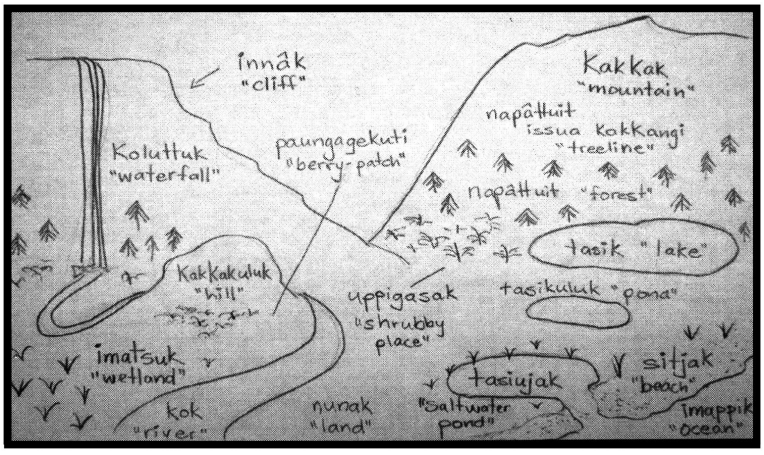

*****Nunatsiavut Graphical Abstract, © 2022.

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Salmon River, Chipman, NB, © S. Cusack, 2021.

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Little Brown Bat, © M. Smith , 2021.

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