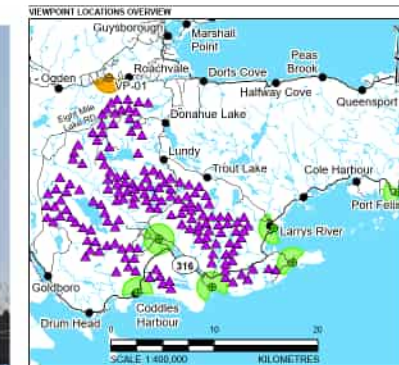


APPENDIX P
WSP VISUAL SIMULATIONS

VIEWPOINT SIMULATION



BASELINE PHOTO



- LEGEND**
- HIGHWAY
 - LOCAL ROAD
 - ▲ TURBINE LOCATION
 - CURRENT VIEWPOINT
 - VIEWPOINT
 - CURRENT VIEWPOINT FIELD OF VIEW
 - OTHER VIEWPOINT FIELD OF VIEW

VIEWPOINT INFORMATION

VIEWPOINT NUMBER:	VP-01	WEATHER:	REPRESENTED AS BLUE SKY
EASTING:	611787 m	DIRECTION:	SOUTH
NORTHING:	903282 m	FOCAL LENGTH:	80m
ELEVATION:	47 m	FIELD OF VIEW:	~150°
DATE:	3 MARCH 2025	CAMERA HEIGHT ABOVE GROUND:	1.7m

NOTES AND REFERENCES
 SOME TURBINES MIGHT BE PARTIALLY OBSERVED BY VEGETATION IN CLOSE PROXIMITY TO THE VIEWPOINT. TURBINES SHOWN ARE A REPRESENTATION OF THE GOLDWIND 102-8.8 MW HUB HEIGHT: 130 M ROTOR DIAMETER: 162.4 M TYP HEIGHT: 221.7 M
 DIGITAL BASE DATA OBTAINED FROM CENOVATIIS © DEPARTMENT OF NATURAL RESOURCES CANADA. ALL RIGHTS RESERVED.
 DATUM: NAD83 PROJECTION: UTM ZONE 20

CLIENT:
EVERWIND

PROJECT:
WIND FARM 2

TITLE:
VISUAL SIMULATION VIEWPOINT 01 - ROACHVALE - RIVER LAKE ROAD

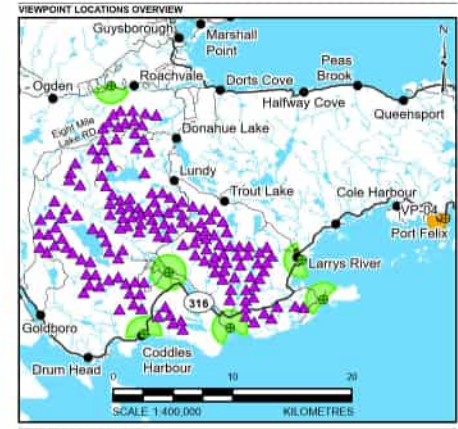
DATE:	YYYYMMDD	2025-03-30
DESIGNED:	PT	
PREPARED:	PT	
REVIEWED:	MLH	
APPROVED:	KBJ	
PROJECT NO:	CONTROL:	REV:
CA0066766.3659	3000	0

PHOTO: EVERWIND PHOTOGRAPHY © 2025. ALL RIGHTS RESERVED. THIS DOCUMENT IS UNCLASSIFIED AND NOT FOR DISTRIBUTION OUTSIDE THE PROJECT TEAM.

VIEWPOINT SIMULATION



BASELINE PHOTO



LEGEND

- HIGHWAY
- LOCAL ROAD
- ▲ TURBINE LOCATION
- CURRENT VIEWPOINT
- VIEWPOINT
- CURRENT VIEWPOINT FIELD OF VIEW
- OTHER VIEWPOINT FIELD OF VIEW

VIEWPOINT INFORMATION

VIEWPOINT NUMBER:	VP-06	WEATHER:	OVERCAST
EASTING:	638815 m	DIRECTION:	SOUTHWEST
NORTHING:	501205 m	FOCAL LENGTH:	50mm
ELEVATION:	33 m	FIELD OF VIEW:	~20°
DATE:	3 MARCH 2008	CAMERA HEIGHT ABOVE GROUND:	1.7m

NOTES AND REFERENCES
 SOME TURBINES MIGHT BE (PARTIALLY) OBSCURED BY VEGETATION IN CLOSE PROXIMITY TO THE VIEWPOINT. TURBINES SHOWN ARE A REPRESENTATION OF THE GOLDWIND 102 # 0 MW. HUB HEIGHT: 130 M. ROTOR DIAMETER: 63.4 M. TIP HEIGHT: 221.7 M. DIGITAL BASE DATA OBTAINED FROM GEOGRATIS, © DEPARTMENT OF NATURAL RESOURCES CANADA. ALL RIGHTS RESERVED. DATUM: NAD83 PROJECTION: UTM ZONE 20

CLIENT
EVERWIND

PROJECT
WIND FARM 2

TITLE
VISUAL SIMULATION VIEWPOINT 04 - PORT FELIX

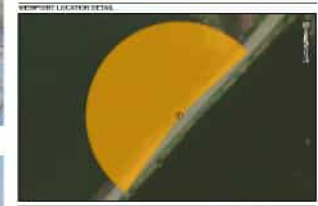
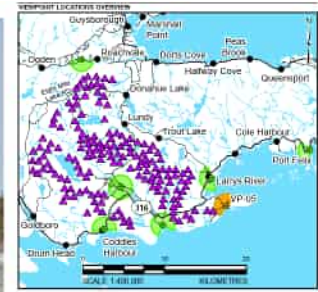
CONSULTANT	YYYYMM DD	2008-03-31
	DESIGNED	PT
	PREPARED	PT
	REVIEWED	MLH
	APPROVED	KD

PROJECT NO.	CONTROL	REV	FIGURE
CA0066766.3659	3000	0	4

VIEWPOINT SIMULATION



BASELINE PHOTO



LEGEND

- HIGHWAY
- LOCAL ROAD
- ▲ TURNING LOCATION
- CURRENT VIEWPOINT
- VIEWPOINT
- CURRENT VIEWPOINT FIELD OF VIEW
- OTHER VIEWPOINT FIELD OF VIEW

VIEWPOINT INFORMATION

VIEWPOINT NUMBER	WPT ID	HEIGHTR	ORIENTED AS WIND
00505	00505	DIRECTION	NORTHWEST
SORTING	00505	FOCAL LENGTH	8mm
ELEVATION	2m	FIELD OF VIEW	118°
DATE	1 2024 2024	CANADA HEIGHT ABOVE SEA LEVEL	1.7m

NOTES AND REFERENCES

SCENE PLACEMENT SHOULD BE PARTIALLY OBTAINED BY VISUALIZATION IN CLOSE PROXIMITY TO THE VIEWPOINT TURNING INCLUDING REPRESENTATION OF THE WINDMILL NO. 1 & 2. DIGITAL DATA IS OBTAINED FROM CANADA'S DEPARTMENT OF NATURAL RESOURCES CANADA. FOR MORE INFORMATION, CONTACT THE DEPARTMENT OF NATURAL RESOURCES CANADA. PROJECT NUMBER: 1742024-01

PROJECT: EVERWIND

PROJECT: WIND FARM 2

TITLE: VISUAL SIMULATION VIEWPOINT 05 - TOR BAY - BEACH ROAD

DATE	DATE	DATE
2024-08-08	2024-08-08	2024-08-08
2024-08-08	2024-08-08	2024-08-08
2024-08-08	2024-08-08	2024-08-08
2024-08-08	2024-08-08	2024-08-08
2024-08-08	2024-08-08	2024-08-08

PROJECT NO: CAD060786.3650

CUSTOMER: 3009

REV: 0

PAGE: 5

APPENDIX Q
NSCCTH HERITAGE RESEARCH PERMIT



Heritage Research Permit (Archaeology)

Office Use Only
Permit Number:

A2026NS044

Special Places Protection Act 1989

(Original becomes Permit when approved by
Communities, Culture, Tourism and Heritage)

<i>Greyed out fields will be made publically available. Please choose your project name accordingly</i>	
Surname Petersen	First Name Roderick
Project Name Wind Farm 2 Project Archaeological Resource Impact Assessment Archaeological Potential Modelling 2026 Guysborough County	
Name of Organization Cultural Resource Management Group Limited	
Representing (if applicable) EverWind Fuels	
Permit Start Date 26 March 2026	Permit End Date 31 December 2026
General Location: The Study Area extends over a large, irregularly shaped swath of Crown land in Guysborough County and is roughly bounded by the communities of Goldboro and Issacs Harbour on the south and west, and around New Harbour in the south, Tor Bay and Larry's River on the east, and Salmon River on the north	
Specific Location: <i>(cite Borden numbers and UTM designations where appropriate and as described separately in accordance with the attached Project Description. Please refer to the appropriate Archaeological Heritage Research Permit Guidelines for the appropriate Project Description format)</i>	
Centrepoin 616616.00 mE 5011869.00 mN North Extent 616616.00 mE 5022015.00 mN East Extent 628321.00 mE 5011869.00 mN South Extent 616616.00 mE 5001723.00 mN West Extent 604911.00 mE 5011869.00 mN	
Permit Category: Please choose one <input type="checkbox"/> Category A – Archaeological Reconnaissance <input type="checkbox"/> Category B – Archaeological Research <input checked="" type="checkbox"/> Category C – Archaeological Resource Impact Assessment	
<input checked="" type="checkbox"/> I certify that I understand my responsibilities as a Heritage Research Permit holder under the Nova Scotia Special Places Protection Act and that I have read, understand, and will abide by the requirements outlined in the Heritage Research Permit Guidelines for the above noted category. <input checked="" type="checkbox"/> I certify that I will adhere to all required timelines for submitting permit reports, MARI forms, and collections. I acknowledge that failure to do so may prevent or delay me from receiving an approved permit in the future.	
Signature of Applicant: <i>Rod Petersen</i>	Date: 19 March 2026
Approved by Director	Beth Lewis Digitally signed by Beth Lewis Date: 2026.03.26 08:07:51 -03'00'

APPENDIX R
STRUM PROJECT TEAM CVs

AREAS OF SPECIALIZATION

- Project Management
- Environmental Assessment
- Ecological Assessment
- Habitat Assessment
- Regulatory Permitting, Monitoring, and Compliance Assessments
- Environmental Protection Plans
- Wetland/Watercourse Alterations
- Wetland and Fish Habitat Compensation

RELEVANT EXPERIENCE

Ms. Smith is the Vice President of Environmental Assessments and Approvals. She has a strong background in a variety of environmental program and policy areas. Ms. Smith has extensive experience leading teams, as well as building relationships and communicating with the public, regulators, the Mi'kmaq of Nova Scotia, clients, experts, and other stakeholders.

Prior to her appointment as Vice President of Environmental Assessments and Approvals at Strum, Ms. Smith held a Team Lead position with the Impact Assessment Agency of Canada. That role included the following:

- Led a team of professionals in completing federal environmental and impact assessments to support the Minister in decision making.
- Managed all aspects of assembling project teams, executing priorities, performance, deliverables, and overall quality.
- Supported the team in conducting Indigenous consultation, coordinating with federal and provincial departments, communicating with proponents, and engaging with stakeholders.
- Supported the team in the technical review of regulatory submissions under the *Canadian Environmental Assessment Act, 2022* and the *Impact Assessment Act*.
- Advised senior Agency officials on complex regulatory considerations.

Ms. Smith also held multiple roles with Nova Scotia Environment which included the following responsibilities:

- Led the development, management, and implementation of the Risk-Based Audit Project. The purpose of this corporate priority project was to modernize inspection services by using risk to maximize the allocation of limited resources while fulfilling the Department's mandate.
- Conducted extensive cross-sector collaboration within the Department, including all regions, inspectorates, divisions, and staff levels to ensure the project met the needs of working level staff and the goals of senior management.
- Provided strategic policy support and analysis for departmental programs and policies using the Regulatory Management Process.
- Conducted focus group sessions, coordinated stakeholder consultation, and provided recommendations to senior management.
- Completed inspections, responded to complaints, reviewed applications, and generated approvals related to the protection and sustainable use of air, land, and water resources in NS.

At Strum, Ms. Smith previously held progressive management roles including acting as the Team Lead during a long-term secondment of a senior manager and managed all aspects of a variety of projects within the Environment Group, including environmental assessments, watercourse alteration applications, wetland alteration applications, wetland

EDUCATION

- MES, Dalhousie University, Halifax, NS (2004)
- BSc. (Honours), Environmental Science, Acadia University, Wolfville, NS (2001)

TRAINING

- GBA+ Micro-learning Series (2022)
- Cultural Safety (2021)
- Unconscious Bias (2021)
- Emergency First Aid (2021)
- Management Development Program (2019)
- Advanced Training, *Impact Assessment Act* (2019)
- Introduction to CEEA 2012 (November 2012)
- Water Management & Wetland Restoration Training Course, University of Guelph (2010)

compensation, environmental protection plans, environmental monitoring, and ecological assessments. This also included successfully and simultaneously managing multiple provincial Environmental Assessments. Ms. Smith also has extensive experience creating budgets, schedules, staff resourcing and supervision, deliverables, and client communication. She has presented at public open houses, community liaison committee meetings, public hearings, and testified at a UARB hearing.

REPRESENTATIVE PROJECTS AND ROLES

Strum Consulting (current)

Wind Power Environmental Assessments, 2022-Present – Senior Reviewer: Providing senior review and management on several 100 MW+ wind farms in Nova Scotia.

Post-Approval Work, EverWind Point Tupper Green Hydrogen/Ammonia Project Phase 1, NS, 2023 – Senior Reviewer: On-going post-approval work (following approval of the EA Registration Document) including the development of environmental management and monitoring plans. These plans are developed to avoid/mitigate potential impacts to nearby environmental and residential receptors throughout the lifespan of the Project.

Environmental Assessment EverWind Point Tupper Green Hydrogen/Ammonia Project - Phase 1, NS, 2022 – Senior Reviewer: Completed senior review of field studies and key reporting requirements for the submission of an EA Registration Document for a green ammonia/hydrogen facility located in Cape Breton, NS. This was the first green ammonia/hydrogen facility to be approved in both Nova Scotia and Canada.

Impact Assessment Agency

Boat Harbour Remediation Project, 2018-2022 – Team Lead: Team Lead for the Agency's technical review of this project, as well as associated consultation with the Mi'kmaq of Nova Scotia and public engagement. This project conducted the Agency's first external technical review as part of the process.

Beaver Dam Mine Project, Fifteen Mile Stream Project, 2017-2022– Team Lead: Team Lead for the Agency's technical review of these gold mining projects, as well as associated consultation with the Mi'kmaq of Nova Scotia and public engagement.

Canso Space Port, Northern Pulp Replacement Effluent Treatment System, Touquoy Mine Expansion, Goldboro Gold Mine, 2017-2021 – Team Lead: Team Lead for requests to the Minister for these projects to be subject to the *Impact Assessment Act*. Review and analysis involved input from federal departments and a decision package to the Minister.

Howse Property Iron Mine Project, 2018– Team Lead: Team Lead for the Minister's decision package for the Howse Property Iron Mine.

Strum Consulting (past)

Wind Power Environmental Assessments, 2011-2014 – Project Manager/Team Lead: Project managed and coordinated all aspects of the provincial EA process for seven wind power projects ranging in size from 4 MW to 10 MW. Project components included wetlands, watercourses, wildlife, avifauna, bats, sound, shadow flicker, visual aesthetics, socio-economic conditions, and effects assessment. Also highly involved in public engagement activities including participation at several municipal planning meetings and project open houses, as well as the preparation of presentation materials (e.g. posters, handouts, etc.).

South Canoe Wind Project, 2011-2013 – Project Manager/Team Lead: Project managed and coordinated the completion of numerous desktop and field studies in support of a 100 MW wind power project. Studies included exclusion mapping; a desktop review of site habitat, species at risk (including flora, fauna, and avian species), and archaeological resources; a sound and shadow flicker assessment; a visual impact assessment; and field assessment for wetlands, watercourses, wildlife, and avian species. Managed the launch of the project website and completed the effects assessment for the biophysical components of the provincial environmental assessment registration document. Also developed presentation materials for and attended three public open houses and delivered multiple technical presentations to the Community Liaison Committee and as part of the Development Agreement Public Hearing process.

AREAS OF SPECIALIZATION

- Field Program Design and Logistics Coordination
- Environmental Assessment
- Renewable Energy
- Marine near-shore and Water Quality Monitoring
- Regulatory and Public Engagement

RELEVANT EXPERIENCE

Mr. Doane joined the Strum team in 2020 as an Environmental Intern, while working towards his Master of Resource and Environmental Management degree at Dalhousie. While studying at Dalhousie, Angus specialized in natural resource management in Nova Scotia, especially in the coastal zone. Angus obtained his Bachelor of Science degree in 2019 from Mount Allison University, where he specialized in Environmental Chemistry and Microbiology. His primary focus with the Environmental Assessments & Approvals team at Strum is project management, where he applies his depth of knowledge in field studies and coordination to guide projects through the regulatory processes required for development.

Angus is active in leading environmental assessments, biophysical component studies, and completing radar and wildlife surveys, and other ecological studies. He has planned and coordinated multi-team fieldwork across large projects throughout Nova Scotia, New Brunswick and Newfoundland. He is knowledgeable in provincial and federal approvals and permitting processes and works closely with all staff to prepare and review reports and regulatory submissions, as well as prepare materials for, and participate in, public and regulator consultation and engagement activities for Environmental Assessments. He serves on the Joint Occupational Health and Safety committee as a group and regional representative for Antigonish.

Angus held a previous position with Environment and Climate Change Canada (ECCC) as a water quality technician. He conducted water sampling in many bays, harbours, and estuaries around Nova Scotia from Pubnico to Cape North, dealing with all matters of leading a field crew on a day-to-day basis. This included trailering, launch and recover practices, regular boat, motor, trailer and vehicle maintenance, as well as training and aiding new staff. Processing of samples was also completed daily using the modified A1 method in a level 3 CALA certified microbiology lab.

REPRESENTATIVE PROJECTS AND ROLES

Wind Power Environmental Assessments, NS, NB, NL 2020-Present – Environmental Scientist/Project Manager: Providing project management, coordination and field work on several 100 MW+ wind farms in Nova Scotia. Coordinated and completed all aspects of field surveys for environmental assessments, including wetland, watercourse, fish & fish habitat, avian, avian radar, bat, wildlife, flora, and lichen surveys. Preparing, reviewing, and organizing field data using several methods of

EDUCATION

- Master of Resource and Environmental Management (MREM) - Dalhousie University, Halifax, NS (2021)
- Bachelor of Science (Hons.) - Mount Allison University, Sackville, NB (2019)

TRAINING

- Wetland Ecosystem Service Protocol – Atlantic Canada (WESP-AC) – Maritime College of Forest Technology (2021)
- Wetland Delineation Training – Maritime College of Forest Technology (2020)
- Small Vessel Operator Proficiency “SVOP” and Marine Emergency Duties “MED A3” - Survival Systems Training Limited (2017)
- Wilderness First Aid - St. John’s Ambulance (2022)
- Backpack Electrofishing – Canadian Rivers Institute (2021)
- VHF Radio Restricted Operators Certificate – Industry Canada (2017)

collection. Preparing materials for and leading public engagement activities, as well as aiding in the preparation of materials for public outreach. Leading regulatory meetings to brief provincial and federal agencies on project activities. Preparing EA related documents, including methodologies, effects assessments, and desktop reviews.

Melford Atlantic Gateway Terminal Project, NS, 2020-Present – Environmental Scientist: Completed comprehensive research as partial fulfillment of the wetland compensation requirement for the Melford Terminal's wetland alteration. This included a comprehensive search of potential sites across Antigonish and Guysborough counties based on the precedence of other wetland compensation projects, as well as aiding in the design and implementation of the engineered wetlands to be created. Supported regulatory consultation for watercourse alteration applications and impacts to fish and fish habitat, especially salmonid species.

Hydroelectric System regulatory upkeep and Monitoring, NS, 2021-Present - Project Coordinator/ Environmental Scientist: Completed swallow nesting/monitoring surveys during the fall migration period. Designed, coordinated, and conducted a wetland and wetland fish & fish habitat monitoring program considering wetland fish habitat functions.

Environmental Management Plan Development for Mining, NS, 2023-Present – Project Manager: Overseeing the development of Environmental Management Plan documents for an industrial scale export-focused mining operation in the Strait Area. Aiding Junior staff in the development of plan documents and reviewing plans prior to submission to regulators.

Avian Radar Studies for Wind Development, NL, 2022-2024 – Environmental Scientist – Aided in the design and construction of avian radar monitoring systems for four season deployment in harsh coastal and inland environments in Newfoundland, including siting and remote monitoring.

Environmental Assessment EverWind Point Tupper Green Hydrogen/Ammonia Project - Phase 1, NS, 2022 – Environmental Scientist: Completed field studies and key reporting requirements for the submission of the EA Registration Document for a green ammonia/hydrogen facility located in Cape Breton, NS. This was the first green ammonia/hydrogen facility to be approved in Canada.

Transmission Line Project, NS, 2020-2023 – Environmental Scientist/Field Coordinator: Planned, coordinated and completed Wetland and watercourse assessments, wildlife surveys, and rare plant and lichen surveys, along the linear corridor spanning 100 km. These surveys involved preparing desktop and safety tools for field staff, as well as preparing reports respective to each of the surveys.

Boat Harbor Remediation Project, NS, 2021, Environmental Scientist – Monitored water quality through seasonal tide cycles, before aiding in the research and installation of mitigations to improve water quality and reduce fish mortalities at the Boat Harbor remediation site.

Watercourse Alteration Approval and Fish Surveys, NS, 2021 – Environmental Scientist: Conducted electrofishing / fish salvage for an emergency watercourse alteration along a section of railway. This involved the capture, identification, documentation, and release of fish from the impacted section of the watercourse. Conducted further watercourse assessments to aid in the alteration approval process.

Canadian Shellfish Sanitation Plan – Shellfish Water Classification Program, NS, 2017-2019 – Water Quality Technician: Completed three summers of fecal coliform testing of coastal waters around the province of Nova Scotia to aid in the classification of areas for shellfish harvesting. This involved extensive travel, sample collection, processing and overall upkeep of field equipment across a fleet of boats, vehicles, and associated gear. Lab and sample processing work included QA and QC procedures, sample reading, media production, waste management, and sample inoculation.

Strengths and Weaknesses of Avian Radar for Management and Monitoring Applications, 2020 – MREM Final Research Project: As a final project for the Master of Resource and Environmental Management program, an extensive research project on the topic of marine radar for avian applications was undertaken. This included literature research across all jurisdictions for information regarding the use of radar of tracking birds, either for monitoring or other applications. On top of the literature research, there was extensive discussion with industry users on the advantages and disadvantages of the technology, data processing techniques, and overall limitations. The findings of this project were paired directly with Radar Assessments undertaken with Strum Consulting.

AREAS OF SPECIALIZATION

- Environmental Assessments
- Flora and Fauna Surveys
- Species at Risk Assessments
- Field Implementation
- Technical Review
- Project Management
- Project Design
- Staff Training

RELEVANT EXPERIENCE

Mr. MacDonald a Senior Project Manager and Terrestrial Lead. He has a strong terrestrial survey design and oversight background and extensive experience in avian and botanical studies. Mark provides survey design and oversees the drafting of terrestrial baseline reports and effects assessments for many projects. He has consulted regularly with provincial regulatory agencies, local landowners, and other stakeholder groups.

Mark is a versatile, conservation-focused ecologist with over 18 years in adaptive project management in challenging environments. He is a dedicated learner with a proven record of quickly developing new skills and an excellent writer for both a technical and general audience. He is diplomatic and capable when navigating differing values of multiple stakeholders.

REPRESENTATIVE PROJECTS AND ROLES

Environmental Baseline Surveys, NS, 2022-Present – Project Manager: Completion of environmental baseline surveys for multiple provincial environmental assessments for various wind power projects and quarries. This involves detailed desktop and constraints analyses to determine required field assessments, implementation of all field programs, interpretation and reporting of results, across multiple taxa and habitat types.

Environmental Assessment, Various Projects, 2022-Present – Project Manager: Lead terrestrial baseline reporting and environmental effects chapters for various mine, quarry, and wind projects, as well as other development projects across the maritime provinces (e.g., Walden Quarry Expansion, Six Mile Brook Quarry Expansion, Rhodena Wind Project, Wedgeport Wind Project, Caribou and Wood Islands Ferry Terminal Expansion Projects).

Botanical Surveys, NS, 2022-2024 – Project Manager: Planned and developed botanical survey programs, including species at risk and habitat assessments, for various mine, quarry, solar, and wind projects, as well as other development projects across the maritime provinces (e.g., Walden Quarry Expansion, Six Mile Brook Quarry Expansion, Shaw Sand Pit, Wedgeport Wind Project, Clydesdale Wind Project, Rhodena Wind Project, Wejipek Wind Project, Apitamkiejit Wind Project, Upper Afton Wind Project, New Prospect Wind Project, White Cedar Wind Project, Port Malcolm Solar Project, Caribou and Wood Islands Ferry Terminal Expansion Projects, Sungro Horticulture Peat Harvesting Projects, etc.).

Avian Survey Design and Completion, 2022-2024 – Project Manager: Planned and developed avian survey programs, including species at risk, coastal, migration, nocturnal owl surveys, breeding, and raptor/diurnal watch count surveys, for various mine, quarry, solar, and wind projects, as well as other development projects across the maritime provinces (e.g., Walden Quarry Expansion, Six Mile Brook Quarry Expansion, Shaw Sand Pit, Wedgeport Wind Project, Clydesdale Wind Project, Rhodena Wind Project, Wejipek Wind Project, Apitamkiejit Wind Project, Upper Afton Wind Project, New Prospect Wind Project, White Cedar Wind Project, Port Malcolm Solar Project, Caribou and Wood Islands Ferry Terminal Expansion Projects, Sungro Horticulture Peat Harvesting Projects, etc.).

EDUCATION

- Masters of Science in Forestry, University of New Brunswick, Fredericton, NB (2012)
- Bachelor of Science in Forestry (Major in Forest Management, Minor in Wildlife Ecology), University of New Brunswick, Fredericton, NB (2004)

TRAINING

- Emergency First Response & CPR (2022)
- Wilderness First Responder (2014)

AREAS OF SPECIALIZATION

- Environmental Assessments
- Fish community & habitat assessments
- Fish rescues
- Wetland delineation and functional assessment
- Species at Risk Evaluation
- Flora and Fauna surveys
- Avian surveys
- Public Consultation

RELEVANT EXPERIENCE

Ms. Juurlink is a Senior Environmental Scientist, with the role of Project Manager and the Ecology Lead of Environmental Assessments & Approvals. She is highly skilled at completing ecological habitat assessments via geospatial desktop review (GIS) and implementation of field studies. She has an in-depth knowledge of NS flora and fauna which has provided her with the tools to determine habitat uniqueness and ecological sensitivity.

Before joining Strum, Melanie was the Senior Ecologist at McCallum Environmental Ltd., in NS. In that role, Melanie coordinated all McCallum field biologists required to complete all environmental baseline and ecological inventory programs for Provincial and Federal Environmental Assessment registration. She has been responsible for the implementation of environmental baseline programs in mining, quarry development, and energy sector development projects in advance of environmental assessment registration. In addition, Melanie has been responsible for communicating the results of baseline environmental conditions to industry and project-related stakeholders. Her effective communication skills, broad technical knowledge, and personability have furthered her involvement in public consultation sessions and community engagement.

Melanie held previous positions as the Environmental Specialist and Area Environmental Lead for the Shell/Albian Sands Expansion and the Regulatory and Environmental Specialist for the Canadian Natural Resources, Ltd. both in Fort McMurray, AB. Melanie is a volunteer hike leader and trail steward in the Blue Mountain Birch Cove Lakes Wilderness Area.

REPRESENTATIVE PROJECTS

Environmental Assessment, Clydesdale Ridge Wind Project, NS, 2024 – Project Manager: Completed environmental baseline surveys and Environmental Assessment Registration Document for the Clydesdale Wind Project, consisting of a proposed 18 wind turbine generators and all associated infrastructure. As the Project Manager, Strum implemented all of the field programs, and prepared the EARD for submission to NSECC in August 2024.

EDUCATION

- Masters of Resource and Environmental Management, Dalhousie University, Halifax, NS (2011)
- Bachelor of Science (Advanced Major in Biology & Interdisciplinary Studies in Aquatic Resources), St. Francis Xavier University, Antigonish, NS (2005)

TRAINING

- Standard First Aid, AED, CPR (A) (2023)
- Joint Occupational Health and Safety Committee Level 1 (2023)
- Avian Nest Sweeps & Monitoring (2021)
- Fish Habitat Restoration, In-stream Techniques (2021)
- Fish Habitat Assessments (2019)
- eDNA Methods (2019)
- Freshwater & Diadromous Fishes of New England (2019)
- Field Hike Leader Certification, Basic and Winter Modules, Outdoor Council of Canada (2015 & 2018)
- Wetland Ecosystem Services Protocol (WESP-AC) (2017)
- WHMIS (2017)
- Electrofishing Crew Leader (2015)
- Wetland Delineation Certification (2013)
- Small Vessel Operator Proficiency & Marine Emergency Duties A3 Certified (2006)

Environmental Impact Statement, Wejipek Wind Project, PEI, 2024 – Project Manager: Completed environmental baseline surveys and Environmental Impact Statement document for the Clydesdale Wind Project, consisting of a proposed three wind turbine generators and all associated infrastructure. As the Project Manager, Strum implemented all of the field programs, and prepared the EIS for submission to PEI Energy, Environment and Climate Action.

WESP-AC Functional Assessment Training, MCFT, NS, 2023-2024 – Trainer: Invited by the Maritime College of Forest Technology (MCFT) to lead the Wetland Ecosystem Services Protocol for Atlantic Canada (WESP-AC) training in Amherst, Nova Scotia. Provided training to a multi-disciplinary group of practitioners from all four maritime provinces. Provided training on WESP-AC internally to McCallum Environmental Ltd. and Strum personnel since 2018 as well.

Fish Rescues, NS, 2020-2024 – Project Manager: Completed more than 75 fish rescues in the past four years to support various transportation projects throughout Nova Scotia. Acted as both field crew and Project Manager, depending on the specific Project.

Fish & Fish Habitat Assessment, NS, 2019-2024 – Project Manager: Completed detailed evaluation of effects to fish and fish habitat to support application for Harmful Alteration, Disruption, and Destruction of Fish Habitat for one provincially approved gold project. This involved detailed fish habitat assessment, fish community structure evaluation, effects assessment based on direct impact and flow reduction, and compensation for residual effects.

Herpetology Field Programs – 2015-2024 – Environmental Scientist & Project Manager: Developed and implemented multiple targeted surveys for herpetofauna, specifically wood turtle, bandings turtle, and ribbonsnake, for EAS and development related permitting projects. Completed field programs and regulatory consultation to clearly communicate Project implications of rare species and their habitats.

Environmental Baseline Surveys, NS, 2013-2024 – Project Manager and Environmental Scientist: Completion of environmental baseline surveys for multiple provincial environmental assessments for various wind power projects and quarries. This involves detailed desktop and constraints analyses to determine required field assessments, implementation of all field programs, interpretation and reporting of results, across multiple taxa and habitat types.

Avian Surveys, NS, 2012-2024 – Environmental Scientist: Completion of avian surveys, including baseline studies, post-construction studies and pre-construction nest searches for over ten projects, such as mines, quarries, wind power projects and residential development. Implemented and completed avian surveys from 2015-2018. From 2018-2024, guided implementation of programs and interpretation of results.

Wetland Delineation, Functional Assessments, NS, 2011-2024 – Environmental Scientist & Trainer: Completed wetland delineation and functional assessment for over 1000 wetlands in support of multiple development projects in both permitting and environmental assessments. Instructed wetland delineation training with Fern Hills institute, and internally within both McCallum Environmental Ltd. and Strum Consulting. Wetland delineation and instruction includes teaching botany identification and habitat association, soil ecology, and hydrology.

Lighthouse Trail Re-Route – Botanical Survey – 2023 – Project Manager: Liaised with the prime consultant, Parks Canada, and our field biologists to safely execute a botanical assessment along a proposed re-route of the Lighthouse Trail in Louisbourg, Nova Scotia. The re-route was required due to extensive damage from Hurricane Fiona. Our team provided a report to Parks Canada identifying results of a botanical survey to be used to advise trail re-route design and construction.

Environmental Baseline Surveys, Mining, NS, 2016-2023 – Environmental Scientist & Project Manger: Completion of environmental baseline surveys for the federal and provincial environmental assessment process for proposed development of four separate gold mines in eastern Nova Scotia. This involved collection of baseline data and effects assessment for terrestrial habitats (flora and fauna), avifauna, wetlands, fish and fish habitats, including completion of the Cumulative Effects Assessments for those projects within the federal process.

Baseline Studies, WESP-AC Calibration Study, NS, 2018 – Environmental Scientist: Completed baseline studies on 125 wetlands across the province to implement a new wetland functional assessment technique (WESP-AC) to the Nova Scotian regulatory landscape.

PROFESSIONAL ASSOCIATIONS

- PADI Professional

AREAS OF SPECIALIZATION

- Fish and Fish Habitat
- Fish Rescue
- Freshwater Mussels
- Environmental Monitoring

RELEVANT EXPERIENCE

Ms. Ferrari has been in the environmental consulting industry since June 2020. She primarily specializes in fish and fish habitat sciences. Ms. Ferrari has a range of experience in the planning and implementation of aquatic field programs, as well as experience in regulatory permitting. She has worked as a field biologist responsible for conducting a variety of biophysical assessments including wetland delineation, watercourse delineation, fish habitat surveys, fish collection, benthic invertebrate sampling, periphyton sampling, sediment sampling, fish rescues, turtle surveys, snorkel surveys, water quality sampling, flow monitoring, and brook floater surveys.

EDUCATION

- Bachelor of Science (Biology), Saint Francis Xavier University, Antigonish, NS (2019)

TRAINING

- Intermediate Workplace First Aid Level C CPR & AED (2023)
- WHMIS Certificate (2023)
- PADI Open Water Scuba Diving Instructor (2022)
- Backpack Electrofishing Certificate (2020)
- Pleasure Craft Operator (2020)

REPRESENTATIVE PROJECTS AND ROLES

Fisheries Act Authorization, Elmsdale, NS, 2025 – Aquatic Disciple Lead: Fisheries disciple lead and main author of the Fisheries Act Authorization (FAA).

Fisheries Act Authorization and Request for Review, Upper Fox Island, NS, 2024-2025 – Field Lead and Aquatic Disciple Lead: Acted as a field lead for the submission of both the Request for Review (RfR) and FAA. Ms. Ferrari was the primary author for both the RfR and the FAA.

Fisheries Act Authorization, Fishermans Harbor, NS, 2024 – Field Lead and Aquatic Disciple Lead: Acted as a field lead for a shoreline assessment to prevent erosion during large storm events. Ms. Ferrari was the primary author for the FAA.

Federal Environmental Assessment, Trafalgar, NS, 2024 – Field Technician: Acted as a field technician for a gold mine federal EA in Trafalgar, NS. The scope of work included fish collection, periphyton sampling, eDNA, benthic invertebrate sampling, geomorphological surveys, water quality sampling, moose surveys, flow monitoring, and detailed fish habitat assessment. Ms. Ferrari was the primary author of the baseline report submitted in 2024.

Environmental Assessment, Cook Brook, NS, 2023 – Field Lead: Acted as a field lead for a biophysical and provincial gypsum mine Environmental Assessment. The scope of work included a preliminary bank survey and habitat assessment for brook floaters, detailed habitat assessment, wetland delineation, and fish collection. Ms. Ferrari was the primary author for the biophysical report submitted in 2023.

Biophysical Assessment, Cooks Brook, NS, 2023 – Technician: Acted as a technician for a biophysical report in Cooks Brook, NS. The scope of work included a preliminary bank survey and instream brook floater survey along a portion of the Gays River to identify brook floaters or their habitat.

Federal Environmental Assessment, Sherbrooke, NS, 2023 – Field Technician: Acted as a field technician for a gold mine federal Environmental Assessment in Sherbrooke, NS. The scope of work included fish collection, periphyton sampling, benthic invertebrate sampling, water quality sampling, flow monitoring, and detailed fish habitat assessment. Ms. Ferrari was the primary author of the baseline report submitted within 2023.

Highway Twinning Project, New Glasgow to Antigonish, NS, 2021-2023 – Field Technician: Acted as a field technician for a highway twinning project along Highway 104 from New Glasgow to Antigonish. The scope of work included completing various sized fish rescues, detailed fish habitat assessment, and turtle surveys. Ms. Ferrari was also the primary author of various fish rescue reports.

Environmental Assessment, Goldboro, NS, 2021-2023– Field Technician: Completed field work for a provincial gold mine Environmental Assessment in Goldboro, NS. The scope of work included detailed fish habitat assessment, eDNA, redd surveys, benthic surveys, and fish collection. Ms. Ferrari was the primary author of various baseline reports and supported the submission of the EARD, FAA, Aquatic Effectiveness Monitoring Plan (AEMP), and Offsetting Plan.

Environmental Monitoring, Pickle Lake, ON, 2020-2023 – Environmental Monitor: Acted as an environmental monitor for a 1300 km transmission line project. Completed regulatory advising, spill response, erosion/sediment control, wildlife monitoring, water quality monitoring, and reporting on construction activity.

Fisheries and Oceans Canada (DFO) Request for Review, Halifax, NS, 2022 – Field Technician: Acted as field technician for DFO Request for Review (RfR) to upgrade a boat ramp within the Halifax Harbour. The scope of work included fish collection, shoreline assessment and water quality. Ms. Ferrari was the primary author.

Federal Environmental Assessment, Marinette, NS, 2020– Field Technician: Acted as a field technician for a gold mine federal Environmental Assessment in Marinette, NS. The scope of work included fish collection, eDNA sampling, water quality sampling, flow monitoring, and detailed fish habitat assessment.

AREAS OF SPECIALIZATION

- Statistical and spatial analysis
- Biophysical survey design
- Impacts of climate change on natural systems
- Species conservation
- Effects of disturbance on plant communities

RELEVANT EXPERIENCE

Dr. Emma Davis is a landscape ecologist with an interest in the effects of disturbance and climate change on plant community dynamics. Emma has completed several research projects aimed at understanding how interactions between human impacts and natural processes influence forest systems, particularly as it relates to rare and sensitive plant species and communities.

Emma completed her PhD at the University of Guelph in 2018 studying the long-term impacts of climate change on the distribution of alpine treelines in Canada's Rocky Mountain region. Her research involved combining data from a series of field experiments with greenhouse studies and dendrochronology to understand how soil characteristics, herbivory, and climate variables determine the ability of trees to establish at the edges of their distributional range.

Following the completion of her PhD, Emma held Postdoctoral Fellowships at the University of Guelph Arboretum and the University of Waterloo, where she worked with a multidisciplinary team of researchers and conservation practitioners to develop skills in conservation planning, remote sensing and spatial modelling. From 2022 to 2023, Emma held a position with the Government of Newfoundland and Labrador Wildlife Division as an Ecosystem Management Ecologist where she was responsible for drafting species recovery documents and coordinating species at risk recovery teams. Throughout her academic and professional career, Emma has enjoyed opportunities to collaborate with individuals from diverse backgrounds and areas of expertise while maintaining a strong record of publication in peer-reviewed journals.

REPRESENTATIVE PROJECTS AND ROLES

Renewable Energy and Infrastructure Environmental Assessments, NS (2025-Ongoing) – Project Coordinator and Technical Specialist: Provided writing and editorial support during the preparation of several environmental assessment documents for proposed renewable energy projects and associated infrastructure.

Quality Control/Quality Assurance for Biophysical Field Data Collection, NS (2025-Ongoing) – Project Coordinator and Technical Specialist: Coordinated timely reviews of incoming data from wetland and watercourse field programs to ensure the collection of complete and accurate data.

EDUCATION

- Doctor of Philosophy, Department of Geography, Environment & Geomatics, University of Guelph, Guelph, ON (2018). Thesis: An evaluation of constraints to treeline advance across multiple scales in the Canadian Rocky Mountains.
- Master of Science, Department of Geography, Carleton University, Ottawa, ON (2014) Thesis: The influence of vegetation and climate on wildfires in Jasper, Alberta, over the last ~3,500 years.
- Bachelor of Science, Environmental Science (Honours), Mount Allison University, Sackville, NB (2012). Thesis: Dendrochronology in the Canadian Prairies: Evaluating the Usefulness of Shelterbelt Species Now and in the Future.

TRAINING

- St. John's Ambulance First Aid & CPR/AED Level C (2025)

AREAS OF SPECIALIZATION

- Wetland and Watercourse Assessment
- Old Growth Scoring
- Wildlife Surveying and Assessment
- Bat Call Spectrogram Analysis
- Environmental Data Collection, Analysis, and Reporting

RELEVANT EXPERIENCE

Leah Riehl joined the Strum team in 2023 as an Environmental Scientist with a specialization in environmental data collection and analysis. While studying at Saint Mary's University (SMU), Leah majored in environmental science and gained experience in a wide variety of academic disciplines including geology, geography, physics, chemistry, and biology. She is an experienced field scientist and has an in-depth knowledge of various on the ground field protocols.

Leah completed her Bachelor of Science at Saint Mary's University in 2023. During her studies, Leah specialized in environmental management, conservation, and remediation. Through completion of academic assignments throughout her degree, Leah has designed a watershed management plan for a local watershed, a remediation plan for an urban park in Halifax, and a habitat model for an endangered lichen species. She also became familiar with ArcGIS, QGIS, and the Forest Ecosystem Classification system, and gained baseline knowledge of species identification with a focus on plants and herpetofauna of Nova Scotia.

Leah also completed the Cooperative Education program during her undergraduate degree at SMU, gaining professional experience through three summer work placements at the Discovery Centre, the Mersey Tobeatic Research Institute (MTRI), and Nature Conservancy Canada (NCC), respectively. Through these placements, Leah gained experience in environmental education, species at risk research and management, protected areas management, and invasive species management.

At MTRI, Leah planned and participated in field surveys for species at risk including Blanding's turtles, Eastern ribbonsnakes, and various bat species. Leah became experienced with turtle nesting surveys, snake and turtle visual surveys, bat roost surveys, radio tracking, and acoustic monitoring. At NCC, Leah gained experience writing reports summarizing conditions of conserved areas and using ArcGIS to create maps of protected areas. She also gained further experience with species surveys by conducting surveys for both invasive and at risk species.

At Strum, Leah is active in conducting field work to support environmental assessments, including but not limited to wetland delineations, watercourse assessments, old growth scoring, rare plant surveys, bird surveys, acoustic monitoring, pellet group inventory assessments, and wildlife surveys. She is also experienced in data compilation, data analysis, and report preparation and is trained in the operation of utility vehicles, trailer towing, and WESPAC assessment. She has participated in work across large projects and works closely with senior staff to prepare reports and regulatory submissions.

EDUCATION

- Bachelor of Science, Major in Environmental Science, Saint Mary's University, Halifax, NS (2023)

TRAINING

- Pleasure Craft Operator License, Transport Canada (2021)
- WHIMIS (2023)
- Bear Awareness Training, Worksite Safety (2023)
- Wetland Ecosystem Services Protocol for Atlantic Canada (WESPAC), Maritime College of Forest Technology (2023)
- Trailer/Towing Training (2023)
- Utility Vehicle Training, Canada Safety Council (2023)
- Emergency First Aid & CPR/AED Level C, Canadian Red Cross (2026)

REPRESENTATIVE PROJECTS AND ROLES

Wind Power Environmental Assessments, 2023- Present: Conducted field work and data compilation and analysis to support environmental assessments for a number of 100MW+ wind farms across Nova Scotia including but not limited to wetland and watercourse assessments, old growth scoring, avian and bat acoustic monitoring, rare plant surveys, and specialized species surveys. Prepared, interpreted, and organized field data. Prepared various environmental assessment documents, including desktop reviews, field methodologies, and effects assessments.

Post-Approval Work, NS, 2023-Present – Junior Environmental Scientist: Conducted data compilation and reports for various wind farm projects to fulfill post-approval conditions such as additional wetland and watercourse data collection and post-approval bat monitoring.

AREAS OF SPECIALIZATION

- Environmental Assessment
- Environmental Approvals & Permitting
- Industrial Approvals
- Management & Monitoring Planning
- Wildlife, Wetland, & Watercourse Assessments
- Bat Assessments

RELEVANT EXPERIENCE

Ms. Eichinger has worked across a variety of roles, from field intern to project manager, focusing on energy projects within Western and Atlantic Canada. She is active in the development and coordination of environmental assessments/evaluations, industrial approvals, environmental approvals/permitting, along with baseline and monitoring programs. Lyndsay has valued experience with and knowledge of provincial and federal regulations, allowing her to provide advisory services for various projects across jurisdictions. She is also responsible for post-approval regulatory compliance and associated management and monitoring planning for both small-scale and large-scale projects.

In addition, Lyndsay has over five years of experience conducting, analyzing, and administering bat assessments and field programs, most notably associated with wind development. Her expertise includes acoustic monitoring, habitat assessments, and mortality monitoring planning for projects across Atlantic Canada. She brings value through the characterization of project risks in relation to bats and advises on mitigation strategies and regulatory requirements.

Ms. Eichinger first joined the Strum team in 2020 as an Environmental Intern, while working towards her Masters of Resource and Environmental Management degree at Dalhousie. While studying at Dalhousie, Lyndsay specialized in remediation, environmental assessment, and natural resource management. Lyndsay also obtained her Bachelor of Science degree in 2019 from the University of British Columbia where she specialized in Earth and Environmental Science with a minor in Economics.

During her graduate studies, Lyndsay researched the Boat Harbor Remediation Project, producing a technical review paper evaluating the cost-effectiveness of the different remedial components and technologies considered by the project. This paper has since been published in the journal Remediation titled: Review of remedial options for the Boat Harbour remediation project in Nova Scotia, Canada.

Lyndsay held a previous position with RAM Environmental Response as a HAZMAT Responder based in the BC interior. Her role was fast-paced and multidisciplinary, working in tandem with senior management on emergency response planning and remediation teams on site. Lyndsay has responded to an array of emergency situations involving dangerous goods, such as train derailments and fuel spills, all requiring coordination between clients, contractors, first responders, and government parties. She has a strong background in safety protocols, erosion control implementation, response tactics, and emergency remediation measures for a variety of contaminants. Lyndsay is well practiced in remote travel along with ATV, snowmobile, and 4x4 use.

EDUCATION

- Masters of Resource and Environmental Management (MREM) - Dalhousie University, Halifax, NS (2021)
- Bachelor of Science - University of British Columbia (2019)

TRAINING

- Standard First Aid (2025)
- ATV Certification (2022)
- RPAS Pilot Certification (2022)
- BICO – Search and Rescue Program (2022)
- Wetland Delineation Certification (2022)
- Electrofishing Certification (2021)
- Stream Gauging Training from UBC (2019).
- Environmental Impact Assessment Certificate received from the Centre for Environmental Assessment Research at UBC (2019).
- Derailment Response - CP Railway (2018)
- Railway Safety Training (2018)

REPRESENTATIVE PROJECTS AND ROLES

Federal Initial Project Description, Flipi Gas-Fired Generation Project, AB, 2025 – Project Manager, Environmental Scientist: Led the development and submission of a federal Initial Project Description to the Impact Assessment Agency of Canada. Coordinated with multidisciplinary teams, clients, and liaised with regulators to streamline submission process.

Environmental Evaluation, Various Natural Gas Power Plants, AB, 2025 – Project Manager, Environmental Scientist: Led provincial environmental evaluations for multiple natural gas power facilities across Alberta, overseeing baseline studies, impact assessments, and subsequent environmental permitting. Delivered comprehensive reports aligned with provincial regulatory frameworks and facilitated successful project permitting.

Industrial Approval Applications, Various Natural Gas Power Plants, AB, 2025 – Project Manager, Environmental Scientist: Managed the preparation and submission of industrial approval applications for several natural gas power plants, ensuring compliance with Alberta Environment and Protected Areas requirements. Coordinated multidisciplinary teams and liaised with regulators to streamline approval timelines.

Industrial Approval Application, Pyrolysis Facility, AB, 2025 – Project Manager, Environmental Scientist: Directed the regulatory strategy and industrial approval application for a pyrolysis facility in Alberta. Coordinated with teams on air emissions modeling, waste management planning, and regulatory engagement.

Environmental Assessment, Nova Sustainable Fuels Renewable Energy Park Project, NS, 2025 – Project Manager, Environmental Scientist: Completed reporting requirements and environmental assessments for the submission of an EA Registration Document for a sustainable aviation fuel facility located in Goldboro, NS. This was the first sustainable aviation facility to be submitted in Nova Scotia.

Environmental Evaluation, Various Solar Projects, AB, 2024 & 2025 – Project Manager, Environmental Scientist: Oversaw environmental evaluations for multiple solar energy developments across Alberta, including site selection, wildlife and vegetation assessments, and regulatory screening. Delivered tailored mitigation strategies and coordinated with provincial agencies to support efficient permitting and sustainable project design.

Post-Approval Work, EverWind Point Tupper Green Hydrogen/Ammonia Project Phase 1, NS, 2023-2025 – Project Manager, Environmental Scientist: On-going post-approval work (following approval of the EA Registration Document) including the development of an industrial approval, environmental management planning, and monitoring plans. These plans are developed to avoid/mitigate potential impacts to nearby environmental and residential receptors throughout the lifespan of the Project.

Environmental Assessment, EverWind Point Tupper Green Hydrogen/Ammonia Project - Phase 1, NS, 2022 – Environmental Scientist: Completed field studies and key reporting requirements for the submission of an EA Registration Document for a green ammonia/hydrogen facility located in Cape Breton, NS. This was the first green ammonia/hydrogen facility to be approved in both Nova Scotia and Canada.

Post-Approval Work, Various Wind Developments, 2023-2025 – Project Manager, Environmental Scientist: On-going post-approval work for various wind projects (following approval of the EA Registration Document) including the development of environmental management and monitoring plans. These plans are developed to avoid/mitigate potential impacts to nearby environmental and residential receptors throughout the lifespan of the Project.

Environmental Assessment, Various Wind Developments, 2022-2025 – Project Manager, Environmental Scientist: Providing project coordination and report writing on several 100 MW+ wind farms in Nova Scotia.

Environmental Permitting, Melford Atlantic Gateway Project, NS, 2020-2025 – Project Manager, Environmental Scientist: Completed various key reporting, permitting, and research requirements for the marine terminal and associated railway located in Guysborough, Nova Scotia.

Environmental Assessment Registration, Transmission Line, NL, 2022 – Junior Environmental Professional: Completed reporting requirements for the submission of an EA Registration Document and associated Environmental Protection Plan for a transmission line decommissioning project located in Newfoundland and Labrador.

Watercourse Alteration Approval and Fish Surveys, NS, 2021 – Junior Environmental Professional: Conducted electrofishing / fish salvage for an emergency watercourse alteration along a section of railway. This involved the capture, identification, documentation, and release of fish from the impacted section of the watercourse.

PROFESSIONAL ASSOCIATIONS

- Association of Professional Engineers of Nova Scotia

AREAS OF SPECIALIZATION

- Industrial Approvals
- Environmental Approvals
- Hydrology/Hydrogeology
- Water Treatment
- Climate Change and GHG Assessments
- Dangerous Goods Assessments

RELEVANT EXPERIENCE

Mr. Gascon joined the Strum team in 2021 and leads a team with the Environmental Assessment and Approvals Group. Mr. Gascon is experienced in project management, engineering design, environmental monitoring, groundwater assessments, hazard assessments, environmental assessments, project reporting, and regulatory compliance.

Mr. Gascon has worked in various roles, from field technician to project manager, on numerous projects throughout Atlantic Canada, including various Industrial Approval applications, renewals, and amendments, dangerous goods permitting, and environmental monitoring. Additionally, he has valuable experience developing potable groundwater supplies, evaluating and treating water quality issues, and reviewing factors contributing to groundwater resource degradation at residential sites. His responsibilities lie in managing and coordinating these projects, completing various field programs, collecting, compiling, and analyzing data, developing mitigative measures/plans, and preparing reports and related regulatory paperwork.

More recently, Mr. Gascon has been developing and implementing Environmental Management Plans for a variety of small- and large-scale projects, including environmental monitoring and compliance components for groundwater, surface water, air quality, soil quality, erosion and sedimentation controls, vegetation/wildlife management, hazardous and non-hazardous waste management, spill response, remediation, and decommissioning works.

Mr. Gascon previously worked as a Research Assistant with the Centre for Water Resources Studies. His role involved researching the management and disposal options for municipal drinking water treatment plant waste residuals in the Northwest Territories.

Prior to completing his bachelor's degree, Mr. Gascon was a Mechanical Designer, developing and designing 3D renderings for heavy-duty industrial enclosures. Tasks included designing structures with computer-aided design software, formatting designs compatible with the water jet cutter, configuring assembly plans, and inspecting units for fabrication and assembly deficiencies.

REPRESENTATIVE PROJECTS AND ROLES

Environmental Assessment, Simply Blue Group's Green Hydrogen to SAF Project, NS, 2024-Present –

Environmental Engineer: On-going environmental assessment work (development of the EA Registration Document), including the development of technical and environmental component studies. Involved in coordinating the environmental considerations for the Pre-FEED.

Post-Approval Work, EverWind Point Tupper Green Hydrogen/Ammonia Project Phase 1, NS, 2023-Present –

Environmental Engineer: On-going post-approval work (following approval of the EA Registration Document), including the development of environmental management and monitoring plans. These plans are developed to avoid/mitigate potential impacts to nearby environmental and residential receptors throughout the project lifespan.

EDUCATION

- Bachelor of Engineering (Environmental), Dalhousie University, Halifax, NS (2020)
- Civil/Mining Technician, Collège Boréal, Sudbury, ON (2010)

TRAINING

- Wilderness First Aid (2022)
- Standard First Aid & CPR (2021)
- WHMIS (2021)
- Confined Spaces (2021)
- Excavation and Trenching (2020)
- Pleasure Craft Operator License (2002)

Greenhouse Gas Assessments, NS and NL, 2022-Present – Environmental Engineer – Complete a greenhouse gas inventory for various projects across the Atlantic provinces. Quantifying the GHG generation/sinking potential of a project is becoming a requirement for regulatory, financial, and incentivized institutions. Understanding the GHG contributions from projects increases the requirements to offset and adapt to meet federal and provincial net-zero goals.

Waste Transfer Station Permitting, NS, 2022-Present – Intermediate Engineer: Complete regulatory outreach for the permitting of new waste transfer stations. The permitting process requires detailed engineering plans and specifications, contingency planning, air quality, noise, surface water, and groundwater management and monitoring.

Pyrolysis and Biochar Facilities, NS, 2021-Present – Intermediate Engineer: Complete field studies and key reporting requirements for Environmental Assessment and Industrial Approvals. The permitting process requires detailed engineering plans and specifications, contingency planning, air quality and dispersion modelling, and surface water and groundwater management and monitoring.

Compost Facility Environmental Monitoring Program, NS, 2021-Present – Intermediate Engineer: Monitoring groundwater and surface water sampling, data compilation, data analysis, and regulatory reporting. Prepared various approval amendment applications for submission to NSECC, direct correspondence with NSECC, and streamlined the monitoring and reporting program.

Wind Power Environmental Assessments, NS, 2021-Present – Intermediate Engineer: Conducted watercourse, wetland, fish/fish habitat, wildlife and avian assessments required, and environmental assessment reporting. Developed greenhouse gas and climate change assessment criteria for quantifying the effects or impacts of the Projects on the environment and climate change on the Projects.

Groundwater Geothermal Heating and Cooling System Review and Permitting, NS, 2021-Present – Intermediate Engineer: Withdrawal flow monitoring, water level monitoring, equipment inspection, water quality sampling, data compilation, data analysis, and regulatory reporting.

Municipal Compost Facility Leachate Handling System, NS, 2021-Present – Intermediate Engineer: Design, specification, and industrial approval amendment.

Level I and II Groundwater Assessments, NS, 2021-Present – Intermediate Engineer: Supervise well installation, pump testing (i.e., step and constant), sampling, analysis of aquifer characteristics, groundwater modelling, and regulatory reporting.

Groundwater Geothermal Cooling Systems, NS, 2021-Present – Intermediate Engineer: Withdrawal flow monitoring, water level monitoring, equipment inspection, water quality sampling, data compilation, data analysis, and regulatory reporting.

Environmental Assessment, EverWind Point Tupper Green Hydrogen/Ammonia Project, NS – Phase 1, NS, 2022 – Environmental Engineer: Completed field studies and key reporting requirements for the submission of an EA Registration Document for a green ammonia/hydrogen facility. This was the first green ammonia/hydrogen facility to be approved in both Nova Scotia and Canada.

Production Field Centre Hazardous Materials Assessment, NS, 2021 – Junior Engineer: Hazardous Materials inventory, coordinate sampling, data analysis, and reporting.

Greenhouse Gas Inventory Audit, NS, 2021 – Junior Engineer: Greenhouse Gas auditing for Fisheries and Oceans Canada (DFO) application.

Air Quality Improvement Design, Labrador, NL, 2021 – Junior Engineer: Design, specification, stack testing, data analysis, and construction of ventilation improvements.

Drinking and Wastewater Treatment Plant System Assessments, NS, 2021 – Junior Engineer: Assess water and wastewater infrastructure, establish an asset inventory, and reporting.

Municipal Groundwater Withdrawal Compliance, NS, 2021 – Junior Engineer: Review pumping rates and withdrawal volumes, spatial interferences, sustainability concerns, data analysis, and regulatory compliance.

Registered Potable Groundwater Supply Assessment, NS, 2021 – Junior Engineer: Review design specifications, well logs, water quality, data compilation, data analysis, and regulatory compliance.

PROFESSIONAL ASSOCIATIONS

- Association of Professional Geoscientists of Nova Scotia (member-in-training)
- Eco Canada (Environmental Professional in-training)

AREAS OF SPECIALIZATION

- Wetland and Watercourse Assessment and Delineations
- Wildlife Surveys
- Surface and Groundwater
- Climate Change and GHG Assessments
- Industrial Approvals
- Environmental Approvals

RELEVANT EXPERIENCE

Mr. Scott joined the Strum team in 2022 and is working as a Junior Environmental Scientist with the Environmental Assessment and Approvals Group. Mr. Scott is

experienced in many components of Environmental Assessments, including field surveys, delineations, avian radar analysis, wildlife acoustic analysis, and GHG quantification. In an industrial setting, Mr. Scott has experience managing projects and ensuring regulatory compliance and successful approvals. Mr. Scott is experienced in groundwater monitoring, groundwater development, sampling, and conducting aquifer testing and interpreting results.

Mr. Scott has completed fieldwork and report writing to support wetland permitting, Environmental Management Plans and Environmental Assessments for numerous projects across Nova Scotia. Additionally, Mr. Scott has been involved in fieldwork, report writing, and analysis concerning projects throughout the province relating to Level I/II Groundwater Assessments for Subdivisions, groundwater withdrawal approvals, and groundwater monitoring plan programs.

REPRESENTATIVE PROJECTS AND ROLES

Municipal Groundwater Supply Assessment, NS, 2023 – Junior Environmental Scientist: Worked with a team of groundwater experts to analyze well logs, available pump tests and well chemistry data to inform municipal planning around groundwater supply development. This assessment involved determining the depth and stratification of sediments, yields and water quality to understand the yield and safety of a potential groundwater supply.

Groundwater Monitoring Program, Canso, NS, 2023 – Junior Environmental Scientist: Ongoing groundwater monitoring work (following approval of the groundwater monitoring plan), including developing groundwater wells, groundwater sampling, aquifer testing and analysis. The purpose of the monitoring plan is to avoid/mitigate potential impacts to nearby environmental receptors throughout the lifespan of the Project.

Greenhouse Gas Inventories, NS, 2023 – Present – Junior Environmental Scientist: Experienced in conducting direct and indirect GHG emission inventories to quantify large-scale industrial impacts and identify areas for mitigation.

Post-Approval Work, Point Tupper Green Hydrogen/Ammonia Project, NS – Phase 1, NS, 2023 – Junior Environmental Scientist: Development of the groundwater monitoring plan for the hydrogen/ammonia industrial facility as required following the EA approval. Completed fieldwork to support surface water monitoring.

EDUCATION

- Bachelor of Science (Environmental Science), Saint Mary's University, Halifax, NS (2022)

TRAINING

- Wetland Delineation and Classification Training (2023) – Fern Hill Institution of Plant Classification
- Wetland Ecosystem Services Protocol Atlantic Canada (WESP-AC) Training (2023) – Maritime College of Forestry Technology
- Backpack Electrofishing Training (2023) – Maritime College of Forestry Technology
- Standard First Aid Level C CPR & AED (2022) – St John's Ambulance
- ATV Training Course (2022) – Canadian Safety Council
- Pilot Certificate – Small Remotely Piloted Aircraft System (RPAS), Visual line-of-sight (VLOS) (2022) – Transports Canada

Wetland Carbon Sequestration, NS, 2023 – Present – Junior Environmental Scientist: Designing methods and procedures for fieldwork and subsequent analysis to quantify carbon stored in wetland soils.

Wetland Delineation and Permitting, NS, 2023 – Present – Junior Environmental Scientist: Completed wetland delineations, functional assessments, and permitting applications for pre-construction wetland alterations.

Groundwater Geothermal Heating and Cooling Systems Review and Permitting, NS, 2023 – Present – Junior Environmental Scientist: Withdrawal flow monitoring, water level monitoring, equipment inspection, water quality sampling, data compilation, data analysis, and regulatory reporting.

Nesting Bird Searches, NS, 2023 – Junior Environmental Scientist: Surveyed areas pre-construction for the presence of nesting bird activity. Collected field data related to observations and flagged off buffer areas surrounding nesting bird species.

Wind Power Environmental Assessments, NS, 2022 – Present – Junior Environmental Scientist: Conducted watercourse, wetland, fish/fish habitat, wildlife and avian assessments, and environmental assessment reporting. Quantified greenhouse gas and climate change impacts of the projects on the environment.

Level I/II Groundwater Assessments, NS, 2022—Present—Junior Environmental Scientist: Completed desktop assessments to determine the viability of sustainable groundwater withdrawals. Conducted drilling and pump test supervision. Sampled water to compare with drinking water guidelines and analyzed aquifer test data to determine adequate safe yields for groundwater users.

Radar and Avian Acoustic Assessments NS, 2022 – Present – Junior Environmental Scientist: Built and ran remote radar and acoustic monitor assemblies to record the passage of avian migrant species. The radar and acoustic data were processed and analyzed to determine the patterns of avian migration. The acoustics were analyzed with machine-learning software and manually verified for accuracy.

Various Management and Leadership Roles, NS, 2018- 2022 – Self-Employed: Competed internationally for Canada in Sprint Kayaking. This required creating sponsorship proposals, developing relationships with sponsors and stakeholders, and managing travel and shipping logistics. Part of this role required public speaking engagements, client receptions, and providing mentorship.

AREAS OF SPECIALIZATION

- Data Management & Analysis
- Environmental Assessment
- Environmental Reporting
- Task Coordination & Management

RELEVANT EXPERIENCE

Ms. Nguyen joined the Strum team in 2023 as a Junior Environmental Scientist upon completing her coursework for her Resource and Environmental Management degree at Dalhousie University. While at Dalhousie, Ms. Nguyen engaged in a variety of interdisciplinary areas of natural resource management, including nature-based solutions, socio-ecological studies, and environmental impact assessment. Her diverse professional and academic experiences demonstrate strong adaptability to different fields and a wide breadth of skill sets.

During her graduate studies, Polly focused on improving her strengths in socio-ecological studies while fostering her interests in natural resources management and field-based assessment. She worked as a Knowledge Mobilization Assistant for the Natural Sciences and Engineering Research Council (NSERC) – ResNet organization where she participated in researching and drafting policy briefs on climate sustainability and resiliency within the landscape of the Bay of Fundy dykelands. She engaged in various academic opportunities to build upon her experiences in natural resource management and assessment, such as drafting a policy commentary on the lack of diverse socio-economic factors within the environmental impact assessment and collaborating with multidisciplinary teams to contribute to local issues. As a culmination of her strengths and interests, Polly researched on the interconnected relationship between intersectionality and mental health in influencing environmental participation in the climate movement within Nova Scotia for her final MREM Research Project.

To further build her field-based experiences, Polly worked as a teaching assistant for introductory and advanced environmental science courses, including Field Methods in Environmental Science where Polly led field programs and guided university students with scientific field notes and report writing. Polly also completed an intensive field course during her Master's degree where she conducted forestry composition surveys, CABIN protocols, avian surveys, benthic invertebrates surveys, herpetofauna surveys, nocturnal invertebrates surveys, data analysis, and report writing. Alongside her MREM internship with NSERC ResNet, Polly collaborated with natural sciences scholars on the completion of a decadal review of natural resources and social sciences for the International Association for Society and Natural Resources (IASNR) where she liaised with editors on chapters completion and compiled qualitative data on trends within social and natural resources for the introductory chapter. Through these experiences, Polly has gained experience in adapting her skills to a diverse range of experiences and further improving her skill sets.

Polly is active in conducting environmental assessments, wetland delineations, watercourse assessments, old-growth forest surveys, avian surveys, and other ecological studies. She has experience in utilization of specialized monitoring equipment and data analysis, such as avian acoustic monitor, trail cameras, and ambient noise monitors. She is knowledgeable with provincial and federal regulations and works closely with senior staff and field leads in conducting significant fieldwork and preparing reports.

EDUCATION

- Master of Resource and Environmental Management (MREM) - Dalhousie University, Halifax, NS (2023)
- Bachelor of Arts, Major in International Relations and Economics – Boston University (2021)

TRAINING

- UTV Certification – Canada Safety Council (2023)
- Workplace First Aid & CPR/AED – (2023)
- WHMIS (2023)
- Trailer training (2023)
- Bear Awareness (2023)
- Wetland Ecosystem Services Protocol for Atlantic Canada Training (2024)
- Wetland Delineation Training (2024)

REPRESENTATIVE PROJECTS AND ROLES

Wind Power Environmental Assessments, NS, 2023-Present – Environmental Scientist: Conduct field work on several 100 MW+ wind farms in Nova Scotia, including wetland, watercourse, fish and fish habitat, old-growth, avian, avian radar, bat, wildlife, flora, and lichen surveys. Prepared, reviewed, and organized field data using several methods of collection. Inventoried and configured specialized monitoring gears, such as trail cameras and acoustic monitors, and regularly performed maintenance checks. Prepared EA related documents, including methodologies, effects assessments, and desktop reviews.

Radar and Acoustic Assessment, NS, 2023-Present – Environmental Scientist: Conduct radar analysis on a specialized program to collect avifauna presence on project sites. Conducted quantitative analysis on processed radar and acoustic data to support technical reports on avifauna presence and remote sensing. Lead report coordination and completion of these technical reports for wind projects and other relevant projects.

Post-Approval Works, NS, 2023-Present – Junior Environmental Scientist: Conduct data compilation and reports for various wind farm projects, such as Goose Harbour Lake Wind Farm, Mersey Wind Farm, and Weavers Wind Farm, to fulfill post-approval conditions, such as the creation of Wildlife Management Plans, Contingency Plans, Baseline Noise Monitoring, and Watercourse Alteration applications.

Environmental Noise Measurement, NS, 2023-Present – Junior Environmental Scientist: Configure noise monitors with correct data collection settings prior to field deployment. Initiated noise monitoring deployment for various projects, including the Mersey Wind Farm Project and EverWind Point Tupper Green Hydrogen/Ammonia Project, and compiled data for data analysis and completion of noise monitoring plans. Initiated proposals for baseline noise monitoring programs with appropriate field schedules, required equipment, and budget calculations. Complete a standard operating procedure for deployment procedures, data analysis, and report compilation.

Avian Surveys, NS, 2023-Present – Junior Environmental Scientist: Conducted diurnal watch counts, breeding bird surveys and nightjar surveys for various wind projects, including Mersey Wind Farm Project and Goose Harbour Lake Wind Farm Project.

Orbital Marine Tidal Project, NS, 2023 – Junior Environmental Scientist: Completed desktop reviews and analysis on ambient noise and environmental effects of tidal turbines on marine species within the Minas Passage of the Bay of Fundy. Helped completed a supplemental information report to be sent to relevant regulatory agencies.

Urban Nature and Infrastructure in the Face of Increasing Storm Events 2022 – MREM Tri-course Project: Worked on a multi-disciplinary team to address the biophysical, environmental law and policy, and sociopolitical challenges of urban planning and the incorporation of urban nature in the face of increasing severe storms in Nova Scotia. This involved research into the interconnected relationship between urban trees and utility infrastructure, relevant regulatory bodies and policies, and recommendations into establishing nature-based solutions and smart urban forest management within HRM and the province.

AREAS OF SPECIALIZATION

- Forest management and characterization
- Environmental and carbon modelling
- Urban forest assessment
- Stakeholder engagement
- Hydrologic assessment and modelling

RELEVANT EXPERIENCE

Dr. Foster is an environmental scientist with a special interest in forests, their management, and how people relate to them. More broadly, he is interested in natural resource management and how resources can be utilized sustainably. He has experience in a variety of fieldwork and teaches field work planning, methods, and reporting to undergraduate students at Saint Mary's University.

Dr. Foster completed his PhD in 2024, researching the relationship between forest management and water treatability for potable water supplies. Specifically, his research examined how timber harvesting can be used to reduce watershed dissolved organic carbon (DOC) production to reduce the chemical and financial cost of water treatment in the face of continual and concerning increases in DOC. This study resulted in academic publications on its findings, and forest management recommendations to the region's water utility.

Before this research, David worked for two years as a research associate at Dalhousie University, studying various urban forest and non-urban forest matters. In addition to a contracted characterization of Halifax Regional Municipality's (HRM), urban forest, during this time, he also served as research associate for Prof. William Lahey during the Nova Scotia Independent Review of Forest Practices. He contributed research services, assisted with logistics, and provided writing input, including a report on the history of forest practices review. During this process, he had the opportunity to hear a diverse range of perspectives from stakeholders with contrasting perspectives on natural resource usage, helping to develop an understanding of what is at stake in the management of the natural environment.

REPRESENTATIVE PROJECTS AND ROLES

Wind Power and Infrastructure Environmental Assessments, NS (2024-Ongoing) – Environmental Scientist:

Supporting writing and editing several sections of a variety of environmental assessment for proposed wind farms and associated infrastructure. Contributions in several biophysical and socioeconomic sections, demonstrating a breadth in competencies related to communicating the findings of environmental assessment. Includes writing the terrestrial flora, fauna, and habitat sections of the recently approved Rhodena Wind Project in Cape Breton, NS, and the same sections plus human health effects and effects of the environment on the undertaking for the recently approved Melvin Lake Wind Project in Halifax Regional Municipality and East Hants, NS.

Navigating the Social Acceptability of Forest Biomass Utilization, NS (2024-ongoing) – Environmental Scientist:

Working with a client in the forest biomass utilization industry to help understand the aspects that contribute to the social acceptability of forest biomass usage in an evolving economy and modern society. Collaborating to help establish a roadmap for future entrants into the market to better understand the landscape and plan for successful development of projects that contribute an economy that makes sustainable use of Nova Scotia's natural resources.

EDUCATION

- Doctor of Philosophy, Interdisciplinary PhD Program, Dalhousie University, Halifax, NS (2024). Thesis: Mitigating forested water supply carbon loading through timber harvesting.
- Master of Resource and Environmental Management, Dalhousie University, Halifax, NS (2016). Report: Location matters: the importance of tree placement to urban forest values.
- Bachelor of Science, Combined Honours in Biology and Sustainability, Dalhousie University, Halifax, NS (2014). Thesis: Strategic environmental assessment of changes in Bill C-45 to the Navigable Waters Protection Act and potential effects of environmental protection in Canada.

TRAINING

- Forest Ecosystem Classification qualified (NS, 2024)
- St. John's Ambulance First Aid & CPR/AED Level C (2024)
- Environmental Impact Assessment certificate (2014)

Crown Land Forest Stakeholder Engagement, NS (2023-Ongoing) – Chair/Facilitator: Work with the NS Natural Resources and Renewables as Chair of the Nova Scotia Western Region Crown Land Stakeholder Interaction Committee (WRSIC). This committee is comprised of diverse stakeholders that come together to learn about and contribute to the management of public forests in Nova Scotia. Stakeholders include representatives from industry (mills and silvicultural contractors), Indigenous groups with a specific environmental mandate, NGOs including recreationalist and research groups, elected members of local government, private forest landowners, and more. The group meets at least twice a year to receive updates and provide input on public forest management policy and practice, and to review harvest proposals.

Pockwock Watershed Carbon Loading Study, NS (2018-2024) – PhD Candidate/Lead Researcher: Completed extensive study of the Pockwock watershed, source of water for more than 1/5th of Nova Scotians. Led three summers of fieldwork with research assistants to characterize forest composition, determine hydrologic carbon export, and model watershed hydrology. Wrote custom forest management model and novel implementation of Natural Resources Canada's Carbon Budget Model of the Canadian Forest Sector (CBM-CFS3) for use in a programming environment (R). Research was conducted in partnership through a pan-Canadian research network (the forWater network) including other researchers, forest regulators, the regional water utility, forest managers, forestry contractors, ENGOs, and more. He coordinated with diverse stakeholders to ensure that forest management within the watershed during the study period met research objectives and was properly implemented and characterized and met the research goals of the network.

Community Greening Program, NS (2013-2017) – Coordinator: Developed and implemented a program of urban green space appreciation, education, and improvement. Creating a program of the Sierra Club Canada Foundation Atlantic Canada Chapter focused on urban green spaces, worked with a diverse range of stakeholders to plan, fund, and carry out urban greening initiatives in HRM, including numerous tree plantings. This required working with local government to obtain permission and support for initiatives, members of the public to gain support and to solicit for participation in local events, and business and organizations to find and otherwise support initiatives. These efforts led to planting over 2,700 trees in HRM and establishing the municipality's first publicly hosted community urban orchard.

AREAS OF SPECIALIZATION

- Environmental Approvals
- Wetland and Watercourse Assessment and Delineations
- Wildlife Surveys
- Geospatial Data Analysis
- Wetland Permitting

RELEVANT EXPERIENCE

Emma Posluns is a Project Manager with the Environmental Assessment & Approvals Group, bringing nine years of experience in the field of environmental science. Her expertise spans proposal development, client engagement, field program coordination and execution. She has led and conducted a variety of wildlife surveys including wetland and watercourse surveys, winter transect surveys, avifauna assessments, botanical surveys, and species at risk surveys. Emma also has strong proficiency in geospatial data management and analysis.

In her career, Ms. Posluns has overseen the writing and submission of wetland permitting documentation, Environmental Management Plans, and provincial Environmental Assessments. She plays a key role in leading both terrestrial and aquatic biophysical component studies. She has planned and coordinated multi-team fieldwork across large projects and is knowledgeable in municipal, provincial and federal permitting and approvals processes.

REPRESENTATIVE PROJECTS AND ROLES

Wind Power Environmental Assessments, Multiple Locations, NS, 2025-Present – Project Manager: Providing project management, coordination of field work on several 100 MW+ wind farms. Coordinating the completion of field work, communicating with clients, reviewing and organizing field data. Ensuring the smooth transition from environmental assessment to project completion.

Antrim Gypsum Mine, Antrim, NS, 2022-Present – Project Coordinator: Coordinated multiple teams of field crew to conduct terrestrial and aquatic programs, including wetlands, watercourses, fishing, avifauna, lichenology, botany and habitat studies. Communicated with the client about timelines, project tasks, team safety, budgets, and field results. Answered questions and provided information to the public at a project open house. Organized the compilation and writing of four Environmental Assessment Registration Document (EARD) chapters by staff members. Supported the successful completion of an EARD. Continual support for the management of Species at Risk on the site, regulator communication, and evolving project activities.

Greenwood Wood Turtle Assessment, Greenwood, NS, 2024 – Project Manager: Facilitated a wood turtle assessment at the army base in Greenwood, requiring coordinating safety and background checks for all staff. Ensured safety and efficiency during a multi-week field assessment project. Communicated field results and updates to all stakeholders.

Six Mile Brook Pit Expansion EA Project, Pictou County, NS, 2023 – Project Manager: Coordinated multi-crew field work for various biophysical studies including wetlands, watercourses, fish and fish habitat, lichens, botany, and terrestrial habitat. Lead the compilation and writing of five reports to support the successful submission of an EARD. Successfully communicated with the client and provincial government to ensure environmental regulations followed.

EDUCATION

- Master of Science (Environmental Science), Memorial University of Newfoundland and Labrador (2013)
- Bachelor of Science (Geography), University of Victoria, Victoria, BC (2009)

TRAINING

- Watercourse Identification (2019)
- Technical Writing (2019)
- Backpack Electrofishing Certification (2018)
- At-Risk Landbird Identification Workshop (2018)
- Standard First Aid Level C CPR & AED – St John's Ambulance (2023)
- Wildlife Awareness Training (2015)
- WHMIS (2015)
- Geographic Information System (GIS) Training ESRI (2013)
- Facilitation Skills for Technical Professionals, Dalhousie University (2017)

Environmental Assessment, Shaw Sandpit, Middleton, NS, 2023 – Project Manager: Coordinated multi-crew field work for various biophysical studies including wetlands, watercourses, fish and fish habitat, lichens, botany, and terrestrial habitat. Lead the compilation and writing of five chapters to support the successful submission of an EARD. Successfully communicated with the client and provincial government to ensure environmental regulations followed.

Geomatics Data Analysis, Mining Projects, NS, 2023-2024 – Data Coordinator: Coordinated data organization, dissemination, and interpretation for client. Completed data analysis and map making for a mining project, sharing data and ensuring accuracy and precision of geospatial information.

Wetland Alteration Approvals, Various Locations, NS, 2023 – Project Manager: Managed the field data collection, data compilation, and reporting for over 30 wetland alteration permit submissions. Coordinated with Nova Scotia Environment and Climate Change on behalf of clients, communicated with the clients to ensure they were in compliance with government regulations. In-depth understanding of municipal and provincial environmental regulations and able to communicate that understanding to clients to help them meet their goals. Facilitated wetland compensation with clients to ensure no net loss of wetland habitat in the province.

Goldboro Gold Mine Environmental Assessments, Goldboro, NS 2020 - 2021 – Environmental Scientist: Coordinated and completed terrestrial field surveys, including wetland, watercourse, fish and fish habitat, avifauna, and habitat surveys. Arranged field crew logistics and communicated with client and project manager. Completed data QA/QC and compilation.

Environmental Baseline Surveys, Quarries and Mining, NS, 2018 - 2023 – Environmental Scientist: Completion and coordination of biophysical baseline data collection, reporting, and effects assessments for multiple gold mine environmental assessment projects (provincial and federal), including surveys of flora, fauna, habitat, avifauna, winter tracking, wetlands, fish and fish habitat.

AREAS OF SPECIALIZATION

- Environmental Assessment
- Flora and Fauna Surveys
- Species at Risk Assessment and Monitoring
- Field Program Planning and Survey Design
- Data Management & Analysis
- Report Writing

RELEVANT EXPERIENCE

Renee MacQuarrie joined the Strum team in 2023 as a Junior Environmental Scientist upon graduating from Dalhousie University's Bachelor of Environmental Science program.

Between her studies at Dalhousie, Renee worked for a number of environmental Non-Profit Organizations throughout Nova Scotia, focusing on Species at Risk Conservation. She has a strong skill set in many areas of environment field work, data analysis, and report writing.

During her undergraduate studies, Renee worked on the Species-at-Risk team at the Unama'ki Institute of Natural Resources, where she monitored Wood Turtle populations, conducted bumble bee research, and assisted with surveying efforts for birds and bats. She later worked as a Field Technician for Birds Canada, conducting surveying and nest monitoring for Chimney Swifts and Bank Swallows. She has also worked as a Research Assistant for Cape Breton Environmental Association, where she focused on marine debris and derelict fishing gear, and for Dalhousie University, where she used GIS software to assess access to green space on school grounds across Canada. Renee is an avid birder and naturalist with strong identification skills across a wide range of taxa and has experience conducting field work in remote and difficult to access areas.

Since joining Strum, Renee has focused primarily on avian field surveys, avian acoustic analysis, and botany surveys. She also holds strong skills in lichen surveys, old growth forest assessment, wetland and watercourse assessment, winter tracking, and various other biophysical survey methods. She has worked on a wide range of different projects throughout Atlantic Canada, including wind energy, transmission lines, green hydrogen/ammonia, solar energy, mines, quarries, and housing development.

REPRESENTATIVE PROJECTS AND ROLES

Environmental Assessments, Various Projects, 2023-Present – Environmental Scientist: Conducts field work, data analysis, and reporting for various projects in Nova Scotia, New Brunswick, and Prince Edward Island. Field work includes avian surveys, botany and lichen surveys, old-growth assessment, wetland and watercourse assessment, winter tracking, pellet group inventory (PGI), and field equipment deployment and maintenance. Completion of desktop review, survey planning, data analysis, budgeting, and writing for Environmental Assessments and other technical reports. Projects include the Goose Harbour Lake Wind Farm Project, Weavers Mountain Wind Energy Project, Ellershouse Wind Farm Project, Melvin Lake Wind Project, Windy Ridge Wind Power Project, KmtnuK Wind Power Project, Bear Lake Wind Power Project, Mersey River Wind Farm, Higgins Mountain Wind Farm Project, Rhodena Wind Project, Setapuktuk Wind Project, NS-NB Reliability Intertie Project, EverWind Point Tupper Green Hydrogen/Ammonia Project, EverWind Strait Crossing Transmission Line Project, Nova Sustainable Fuels Renewable Energy Park Project, Goldboro Gold Project, and Black Point Quarry Project.

Avian Field Surveys, Various Projects, 2023-Present – Environmental Scientist: Conducts avian field surveys (i.e. point count surveys, area searches, diurnal watch count surveys, nightjar surveys, owl surveys, nest sweeps) for various projects in Nova Scotia, New Brunswick, and Prince Edward Island. Projects include the Goose Harbour Lake Wind Farm Project, Weavers Mountain Wind Energy Project, Ellershouse Wind Farm Project, EverWind Point Tupper Green

EDUCATION

- Bachelor of Science, Major in Environmental Science – Dalhousie University (2022)

TRAINING

- Wetland Ecosystem Services Protocol for Atlantic Canada (WESP-AC) Training (2024)
- Wetland Delineation Training (2024)
- UTV Certification – Canada Safety Council (2023)
- Standard First Aid & CPR/AED – (2025)
- WHMIS (2023)
- Bear Aware Training (2023)

Hydrogen/Ammonia Project, EverWind Strait Crossing Transmission Line Project, Nova Sustainable Fuels Renewable Energy Park Project, and Black Point Quarry Project. Conducts desktop review, scoping, and survey design for avian field programs.

Avian Acoustic Monitoring, Various Projects, 2023-Present – Environmental Scientist: Conducts avian acoustic analysis using a variety of specialized software programs to assess avifauna presence on project sites. Analyses avian nocturnal flight calls to assess nocturnal migratory activity over project sites. Deploys and maintains acoustic monitoring devices. Prepares related technical reports and Environmental Assessment report sections.

Botany and Lichen Surveys, Various Projects, 2023-Present – Environmental Scientist: Conducts botany surveys focused on the identification of Species at Risk and/or Species of Conservation Interest flora. Keeps a full inventory of all plant species encountered during surveys. Optimizes survey transect locations based on habitat characteristics likely to support rare or unique flora. Conducts targeted surveys for Species at Risk lichens. Conducts monitoring and health assessments for Blue Felt Lichen and has experience conducting Blue Felt Lichen translocation.

AREAS OF SPECIALIZATION

- Project Management
- Team Building
- Geographic Information Systems (GIS)
- LiDAR and Remote Sensing
- Natural Resource Management
- Marine Hydrographic Surveys
- Clearance Surveys
- Marine Benthic and Water Sampling
- Underwater Video

COMPUTER EXPERIENCE

- Operating Systems: Windows, OSX, Linux
- Survey Software: HYPACK
- Seismic Software: SonarWiz, Coda
- GPS Software: Trimble Office, Waypoint GPS Processing, GravNav and GravNet
- GIS Software: ArcGIS, GRASS GIS, QGIS
- CAD Software: AutoCAD Civil 3D
- Image Processing: Surfer, CARIS HIPS and SIPS
- Misc. Software: Grapher, Microsoft Office, Global Mapper, SonarPro

EQUIPMENT EXPERIENCE

- GPS Equipment: Assorted Trimble and equipment for autonomous, differential, static, and RTK surveying (Pro XR, 4600, 4800, 5700/5800), Leica RTK, differential static and total stations
- Surveying Equipment: Knudsen BP320 echosounder, SSS Klein 595 and 3000, Teledyne Reson T20P multibeam, Teledyne Reson 7125 multibeam, Odom MB1 and MB2, Integrated Marine Acoustic Profiling System, Magnetometer, and various GPR equipment.
- Misc. Equipment: RBR XR620 CTD Probe and Tide Gauge, Eckman and Van Veen Grab Samplers, Underwater Camera, CNAV 0183 NMEA GPS receivers

RELEVANT EXPERIENCE

Mr. Savelle is the Group Manager of our Geomatics team and with over 15 years' experience. Matt has extensive knowledge of digital modelling, visual renderings, and managing extensive data sets associated with large projects. The Geomatics group is responsible but not limited to wind feasibility studies, constraints analysis, visual simulations, electromagnetic interference, shadow flicker, and noise modelling relating to wind turbine projects. Matt is skilled at producing graphical representations of this data for consumption by members of the public as well as regulatory reviewers. He has consulted regularly with provincial regulatory agencies and other stakeholder groups. Matt is a versatile, conservation-focused with over 15 years in adaptive project management in challenging environments. As Manager of the Geomatics Group, Matt oversees the collection and organization of field data.

His area of speciality is in Marine Geomatics and conducting bathymetric and topographic surveys. He has extensive experience in surveying marine benthic surfaces and shorelines, obtaining overlapping hydrographic (multibeam, single beam and side scan sonar) data, data collection, positioning and navigation, data processing and compilation, plotting and reporting of results. Matt also has experience collecting conventional total station data, RTK and static GPS data, and has been responsible for project set up, establishing GPS control points, and boat mobilization.

EDUCATION

- Centre of Geographic Sciences (COGS), Lawrencetown, Nova Scotia Advanced Diploma in Marine Geomatics (2010)
- Saint Mary's University, Halifax, Nova Scotia Bachelor of Science Degree (BSc) (2009), major in Biology and Minor in Geography

TRAINING

- Marine Basic First Aid
- St. John Ambulance, Level A CPR
- St. John Ambulance, Canadian East Coast Offshore Fitness Certificate
- Med A1 Offshore Survival Systems,
- WHMIS

REPRESENTATIVE PROJECTS AND ROLES

EverWind Fuels Green Hydrogen Project, NS, 2022 - Present - Geomatics Specialist: Project work includes geospatial analysis, supporting external inquiries, and integrating environmental and socioeconomic factors into the assessments.

Wind Farm Projects, NS, 2022 - Present - Geomatics Specialist: Project work includes streamlining field data collection, developing in house habitat modelling, tracking applications, and performing geospatial data analysis.

Marine Survey for Offshore Oil & Gas Support Facilities, Sheet Harbour, NS, 2020 – Detailed marine surveys were conducted as part of the planning and permitting process for a marine facility used to support the offshore oil and gas industry. Bathymetric and multibeam sonar surveys were completed to provide a detailed bottom profile and water depths in areas of Sheet Harbour that will be used for large vessel movements. This information will be used to determine proper clearances for vessels and to determine if additional dredging is required. In addition to collecting this survey information, digital video was captured to document the types of marine habitat in the area to support applications for federal approvals.

Chedabucto Bay Marine Surveys for Aquaculture Facilities, NS, 2020 – As part of the detailed siting of marine aquaculture facilities, bathymetric and single beam sonar surveys were completed to provide a detailed bottom profile and water depths in multiple areas of Chedabucto. In addition to collecting this survey information, digital video was captured along predetermined transects to document marine habitats, and benthic sediment samples were collected with a Van Veen grab for analysis. Marine survey data was processed to generate detailed digital bottom profiles.

St. Marys Bay Marine Surveys for Aquaculture Facilities, NS, 2019-2020 – As part of the detailed siting of marine aquaculture facilities, bathymetric and single beam sonar surveys were completed to provide a detailed bottom profile and water depths in multiple areas of St. Marys Bay. In addition to collecting this survey information, digital video was captured along predetermined transects to document marine habitats, and benthic sediment samples were collected with a Van Veen grab for analysis. Marine survey data was processed to generate detailed digital bottom profiles.

Fundy Isles Cable Route Survey, 2018 – Completed multibeam, sidescan sonar acquisition, processing, and reporting for selecting a cable route from NB to Grand Manan. Reported on impacts to benthic habitat throughout the proposed cable route.

Lake Erie Connector Cable Route Survey, 2014 - Carried out multibeam, sidescan sonar, acquisition, processing, and reporting for selecting a cable route from Canada to USA. Reported on impacts to benthic habitat throughout the proposed cable route.

Canso Causeway Marine Geophysical Survey, 2013 - Carried out multibeam, sidescan sonar, acquisition, processing, and reporting for a stability of the causeway survey. Data was collected to ensure that no rock failures present in the causeway.

Country Harbour SOEP Pipeline Survey, 2011 - Carried out multibeam, sidescan sonar, magnetometer and singlebeam acquisition, processing, and reporting for a pipeline survey. Data was collected to ensure that no pipe was exposed.

Beaufort and Chukchi Sea Ice Scour Mapping Program, 2010-2018 - The primary objectives of the survey were to resurvey specific corridors across the Beaufort and Chukchi Shelf using high resolution geophysical instrumentation to identify and document new scour events. This included the collection of geophysical data such as side scan sonar, microprofiler, and sub-bottom data over various lines and survey sites

St. Clair River Geophysical Survey, 2010 - The objectives of the survey were to identify pipelines in the St. Clair River. Magnetometer and side scan sonar were deployed to search for buried pipe and to classify targets on the river floor. This survey was executed in order to establish safe drilling locations in the river. There were three sites that were surveyed in the St. Clair River. Two of the sites revealed pipelines beneath the river floor. The deliverables included a GIS database (ArcGIS) along with a final written report to the clients' specifications.

AREAS OF SPECIALIZATION

- Remote Sensing
- Geographic Information Systems (GIS)
- LiDAR
- Photogrammetry
- Location, spatial, and data analytics
- Geoprocessing, Model Building, and automation
- Database management
- Geomorphology
- Hydrologic Modelling

COMPUTER EXPERIENCE

- Operating Systems: Windows, macOS
- GPS Software: Garmin BaseCamp, Trimble Geospatial
- GIS Software: ArcGIS Suite, QGIS, Global Mapper
- Remote Sensing Data Processing: DJI Terra, ArcGIS Pro, Trimble Inpho, POSpac MMS, LAStools
- Other Software: CorelDRAW X7
- Scripting: Python 2 & 3, SQL

RELEVANT EXPERIENCE

Mr. Opra is a GIS Specialist with Strum working in our Environmental Assessments and Approvals group. Mr. Opra specializes in Geomatics analysis and automation. He has extensive experience in implementing workflows for data analysis and processing. This experience includes trajectory processing, processing single and dual channel LiDAR data, photogrammetry, and automation of geospatial data analysis with both vector and raster data. In addition, Mr. Opra is experienced in operating a RPAS for data collection.

During his graduate studies, Mr. Opra focused on the application of remote sensing technologies in exploration geology. He investigated LiDAR as an effective means to visualize topography and in further detail, geomorphological features such as folds and glacial structures. He explored the advantages of both RPAS and airplane-acquired LiDAR while reviewing various software for processing and analysis. Mr. Opra helped support the project's RPAS surveys in Trafalgar, Nova Scotia and processed the data to produce high resolution terrain models.

Prior to and following his research contribution, Mr. Opra worked in academia as an advisor, then in the industry as a Geospatial Data Analyst and as a Remote Sensing Analyst. In academia, he assisted with an Honours thesis in developing a geospatial model to automatically detect sinkholes based on LiDAR data. He also assisted in a Master's thesis by mapping legacy gold mine tailings, and developing a survey grid for sampling. As a geospatial data analyst, he helped create new data products using multispectral imagery for precision agriculture. Through working on various LiDAR and Photogrammetry projects based throughout the Caribbean, USA, and Canada, Mr. Opra was able to apply automation to photogrammetry procedures and LiDAR processing. His commitment to data quality assurance and control allowed him to develop a deeper understanding of how data is affected by environmental and human factors. His experience in both geology and environmental science allows him to have a strategic approach for geospatial analysis in environmental consulting.

Due to the multidisciplinary nature of Geomatics, Mr. Opra developed the ability to anticipate, identify, and solve diverse geospatial problems. Mr. Opra continues to research advancements in technology to build on and develop efficient procedures for data analysis and collection.

EDUCATION

- Master of Science in Applied Geomatics, Acadia University, Wolfville, NS (2021)
- Advanced Diploma in Geographic Information Systems (GIS), Centre of Geographic Sciences (COGS), Lawrencetown, NS (2020)
- Bachelor of Science, Major in Geology Saint Mary's University, Halifax, NS (2019)

TRAINING

- Standard First Aid and WHMIS (2022)
- RPAS Pilot Certification (2021)
- Over 200 hours ESRI Academy Training (2019 – Present)

REPRESENTATIVE PROJECTS AND ROLES

Environmental Constraint Analysis, NB, NS, NL, 2023-Present – Remote Sensing Scientist: Land cover, landform, and hydro analysis for projects throughout the Maritimes. Using remotely sensed baseline data to create geospatial data products.

Hydrologic Modelling, NB, NS, NL, 2023-Present – Remote Sensing Scientist: Identifying stream networks and creating geospatial data products to guide project designs. Geospatial products that are created but are not limited to, Depth to Water, potential wetlands, potential watercourses, and catchment areas for various scale projects. High resolution remotely sensed data (e.g., LiDAR and Multispectral Imagery) is used to gain insights about complex hydrology.

EverWind Fuels Green Hydrogen Project, NS, 2022-Present – Geomatics Specialist: Spearheaded geospatial analysis, supported external inquiries, and integrated environmental and socioeconomic factors in the assessments.

Wind Farm Projects, NS, 2022-Present – Geomatics Specialist: Streamlining field data collection, developed in house habitat modelling, tracking applications, and performing geospatial data analysis.

Sinkhole Delineation Automation, NS, 2021-2022 – Advisor: Assisted in the development of a model within ArcGIS Pro for automating detection and delineation of sinkholes in the Karst prone areas.

LiDAR and Orthoimagery Data Production, Caribbean, USA, and Canada, 2021-2022 – Remote Sensing Analyst: Trajectory processing, LiDAR processing, automation, and creation of data products from inception to delivery.

Multispectral Vineyard Imagery Data Production, California, USA, 2020 – Geospatial Data Analyst: Assisted with the development of new proprietary geospatial products for precision agriculture.

Epiphytic Lichens as Spatial Biomonitors of Airbourne Mercury and Arsenic, 2019 – Research Intern: Used GPS to map historical mining sites, and designed survey grids for Lichen collection.

Provenance and Diagenesis of Sandstones in the Deep Wells Annapolis G-24, Balvenie B-79, Crimson F-81, Weymouth A-45, and Newburn H-23, Scotian Basin, offshore NS, 2017-2018 – Research Assistant: Creation of graphic models and diagrams using data captured by a scanning electron microscope (SEM) to further research efforts in understanding the geology of the Scotian Basin.

Petrography of Bedrock and Ice-rafted Granules, Flemish Cap, offshore Newfoundland and Labrador, 2017 – Research Assistant: Determining petrographic information of the samples using a scanning electron microscope (SEM). Energy dispersive spectroscopy (EDS) was used to determine mineral composition and backscattered electron images (BSE) where used to identify textures. Graphic design software was used to aggregate the images captured from the SEM.

AREAS OF SPECIALIZATION

- Geographic Information Systems (GIS)
- Field Studies
- Avian Radar Analysis
- Wind Turbine Risk Assessment (Shadow Flicker, Noise Modelling & Visual Simulations)

RELEVANT EXPERIENCE

Mr. Johnson first joined Strum in 2021 as an Environmental Field Technician working in our Environmental Science Group. His area of speciality is in Geographic Information Systems and Remote Sensing. He has extensive experience in data collection in the field, installation of monitoring equipment such as groundwater wells, bird and bat monitoring systems, and working with avian radar datasets and wind turbine analysis software. He is responsible for producing concise and accurate mapping products and incorporating them into the environmental assessment.

More recently, Mr. Johnson has been responsible for the predictive modelling of multiple wind farm projects around the province. This includes the shadow flicker and noise assessment impact on receptors in nearby communities, and photo-simulations visualizing turbines in each study area.

REPRESENTATIVE PROJECTS AND ROLES

Wind Farm Projects, NS, 2021-Present – Geomatics Technician: Responsible for the collection of field data, analysis, and production of accurate GIS mapping products to be used in the reporting process. Avian radar systems were installed and used in various locations of the study area for the purpose of tracking bird activity. Detailed wind turbine risk assessment was conducted for the study area, including noise level and shadow flicker assessments, and photo-simulations visualizing turbines in each potential location.

Transmission Line Moose Tracking Surveys, NS, 2022 – Geomatics Technician: Participated in field assessments for winter wildlife, with a focus on mainland moose and other species at risk. This involved walking predetermined transects through various habitats to identify and document evidence of wildlife such as tracks, scat, and browsing. Additionally, responsible for the post-processing of field data and production of accurate GIS mapping products to be used in the reporting process.

Various Wetland and Watercourse Delineation Projects, NS, 2021 – Present - Geomatics Technician: Responsible for the post-processing of field data and production of accurate GIS mapping products to be used in the reporting process.

EDUCATION

- Centre of Geographic Sciences (COGS), Lawrencetown, Nova Scotia Advanced Diploma in Geographic Information Systems (2020)
- Saint Mary's University, Halifax, Nova Scotia Bachelor of Science Degree (BSc) (2017), major in Geography

TRAINING

- Canadian Drone Pilot Certificate (Basic)
- WHMIS
- ATV Training Course

AREAS OF SPECIALIZATION

- Geographic Information Systems (GIS)
- Spatial data analytics
- Database management
- Data processing and quality control

COMPUTER EXPERIENCE

- GIS software: ESRI Suite, QGIS, PCI Geomatica/Catalyst, GPS-H, TRX, PPP Direct
- Programming: Arcade, SQL, PL/SQL, Python, JavaScript, HTML, CSS
- Database management: PostgreSQL, Microsoft Office Suite, Power Automate

RELEVANT EXPERIENCE

Ms. Partridge has been working as a GIS Specialist with Strum Consulting since early 2023. As a part of the Environmental Assessment & Approvals team, she has assisted with various projects concerning wind farm development, wetland and watercourse management, and telecommunications analysis.

Ms. Partridge received a Bachelor of Environmental Studies from Saint Mary's University in 2015 and went on to receive an Advanced Diploma in Geographic Information Systems (GIS) with Honours from the Centre of Geographic Sciences in 2022. During her post graduate studies, Ms. Partridge conducted an analysis of GPS data in relation to the protection of an endangered aquatic species. This involved the restoration of missing or faulty GPS data by processing and analyzing environmental, topographical, and behavioural data to determine the accurate locations. She provided clarity on data errors, outlying species behaviours, and key habitat areas to directly aid in the protection of the species.

Since joining the team at Strum, Ms. Partridge has been involved in a wide range of environmental and industrial assessment projects. This has provided her experience working within both provincial and federal regulations across various governmental bodies and allowed her to gain in-depth knowledge of specialized environmental considerations.

Ms. Partridge has also utilized the ESRI suite of programs to implement and maintain numerous public-facing web mapping applications to facilitate client updates and external communication, as well as continuously develop and improve internal field data collection and management procedures. This has provided the opportunity to become familiar with a wide range of spatial and environmental data management processes and software capabilities.

REPRESENTATIVE PROJECTS AND ROLES

Environmental Assessments and Approvals (2023 – Present) – GIS Specialist: Developed field data collection procedures, data processing and analysis, and provided map products to support projects across numerous departments.

Telecommunications Interference Analysis of Wind Projects within Nova Scotia (2023 - Present) – GIS Specialist: Compiled and processed provincial telecommunications data to analyze the spatial relationships of wind farms in Nova Scotia and surrounding telecommunication towers to identify potential electromagnetic interference (EMI).

Wetland Research Compensation Project (2023 – 2024) – GIS Specialist: Facilitated data collection and compilation related to wet area prediction and protection. Assisted with data analysis to provide summaries of findings to be used in various applications.

EDUCATION

- Advanced Diploma in Geographic Information Systems (GIS), Centre of Geographic Sciences (COGS), Lawrencetown, NS (2022)
- Bachelor of Environmental Studies, Saint Mary's University, Halifax, NS (2015)

TRAINING

- Over 75 hours ESRI Academy Training (2021 – Present)
- Emergency First Aid CPR Level "C" & AED (2023)
- WHMIS (2023)

AREAS OF SPECIALIZATION

- Geographic Information Systems (GIS)
- Location, Spatial, and Data Analytics
- Database Management
- Geoprocessing, Model Building
- Civic Addressing

COMPUTER EXPERIENCE

- GIS Software: ArcGIS Suite, QGIS
- Other Software: CorelDRAW X7
- Scripting: SQL, Python 2 & 3

RELEVANT EXPERIENCE

Ms. Wallace is a GIS Technician working in the Environmental Assessments and Approvals group. She joined the team in early 2023 and has been helping the GIS team with data analysis and creating mapping products for environmental assessments and other projects.

Ms. Wallace received her Bachelor of Science with Honours in Geology at Saint Mary's University in 2019. While studying at Saint Mary's, Ms. Wallace was a research assistant, and was able to use a variety of tools to aid in the analysis of minerals and in their identification process. Ms. Wallace then went on to receive an Advanced Diploma in Geographic Information Systems at the Centre of Geographic Sciences in 2020.

Before joining Strum, Ms. Wallace worked for the Province of Nova Scotia as part of the Civic Addressing team, where she was able to continue to use GIS and was involved in the emergency management operations during Hurricane Fiona where she analysed data and created a dashboard to help the team with their planning going forward.

REPRESENTATIVE PROJECTS AND ROLES

Wind Farm Projects, NS, 2023 - Present - Geomatics Technician: Compiled and checked collected field data, performed geospatial data analysis, and completed numerous drawings as a visual aid in environmental assessments and other reports.

Detrital Mineral Provenance Analyses from the Cretaceous McMurray Formation, Alberta and the Holocene Portneuf River Delta, North Shore of Quebec (2021) – Research Assistant: Used a scanning electron microscope to determine mineral composition and to identify mineral assemblages in different offshore wells in the Scotian Basin. Supplementary graphs were created to aid in demonstrating mineral assemblages and chemical composition.

Sedimentary Petrology of the Upper Cree Member in the Cohasset A-52 Well, Scotian Basin, Offshore Nova Scotia (2020) – Research Assistant: Used a scanning electron microscope to determine mineral composition and to identify mineral assemblages in different offshore wells in the Scotian Basin. Supplementary graphs were created to aid in demonstrating mineral assemblages and chemical composition.

Electron Microprobe and Scanning Electron Microscope Mineral Analyses of Diagenetic Minerals from Lower Cretaceous Reservoir Sandstone, Scotian Basin, Offshore Nova Scotia (2019) – Research Assistant: Computer software was used to combine all backscattered electron images captured from a scanning electron microscope.

EDUCATION

- Advanced Diploma in Geographic Information Systems (GIS), Centre of Geographic Sciences (COGS), Lawrencetown, NS (2020) ‘
- Bachelor of Science with Honours, Major in Geology, Saint Mary's University, Halifax, NS (2019)

TRAINING

- Emergency First Aid CPR Level "C" & AED (2021)
- WHMIS (2023)
- Over 100 hours ESRI Academy Training (2019 – Present)

Detrital Petrology and Provenance of the Logan Canyon Formation Sandstones, Scotian Basin (2019) –

Research Assistant: Analyzed petrographic information from samples using a scanning electron microscope, where mineral composition was determined using Energy dispersive spectroscopy and identification was helped with backscattered electron images using texture and brightness as a guide. Heavy mineral separation and identification was used to determine mineral assemblages and understand origins.

AREAS OF SPECIALIZATION

- Geographic information systems (GIS)
- Data collection and processing
- Aerial surveys
- Marine surveys
- Remote sensing
- Stratigraphic modeling

COMPUTER EXPERIENCE

- GIS Software: ArcGIS Suite, QGIS
- Remote Sensing Data Processing: DJI Terra, ArcGIS Pro
- Other Software: OpenFlow Software Suite, CorelDRAW X3, X7, X8; Grapher, ReefMaster, LogPlot, Microsoft Office 365 Suite, and MinPet

EDUCATION

- Master of Science in Applied Science (Geology), Saint Mary's University, Halifax, Nova Scotia (2020)
- Bachelor of Science Degree (BSc) with Honours, Major in Geology and Minor in Business, Saint Mary's University, Halifax, Nova Scotia (2018)

TRAINING

- Intermediate Workplace First Aid – CPR C and AED
- RPAS Pilot Certification
- WHMIS

RELEVANT EXPERIENCE

Mr. Nagle is a Geomatics Field Technician working in the Environmental Assessments and Approvals Group. He joined the team in early 2024 and has been helping the team with aerial and marine data collection, data management, and various projects involved with wind farm development.

During his graduate studies. Mr. Nagle focused on a multidisciplinary approach to stratigraphic modeling and sediment distribution. This involved data collection, environmental understanding, GIS analysis, and interfacing with industry professionals. He published two peer-reviewed papers from this time, which focused on how different data (or lack thereof) influenced our understanding of sediment distribution in deep-water environments.

While studying for his undergrad at Saint Mary's University, Mr. Nagle worked as a research assistant at the Geological Survey of Canada and Saint Mary's University, performing data collection, analysis, report writing, figure creation, and presentations.

Since joining the team at Strum, Mr. Nagle put his interest in aerial and marine data collection and applying stratigraphic modeling techniques to deep learning model products. This has provided the opportunity to understand a wide range of spatial data products as they relate to the Environmental Assessments and Approvals Group, as well as understand the capabilities and limitations of geospatial software.

REPRESENTATIVE PROJECTS AND ROLES

Environmental Constraint Analysis, AB, NS (2024-2025) – Geomatics Field Technician: Created various constraint map products to aid in environmental assessments. Constructed provincial-wide constraint maps that can be used by Project Management and staff to visually understand the different constraints in their project area.

Aerial and Marine Surveys, NS (2024) – Geomatics Field Technician: Planned and conducted detailed aerial and marine surveys in order to support remote sensing and planning and permitting processes. Spearheaded the setup and operation of the uncrewed surface vessel (USV) and boat for marine surveys.

Wind Farm Projects, NS, NB (2024) – Geomatics Field Technician: Compiled and checked field collected data, collected aerial multispectral data, used various data products to create a deep learning model that can locate potential wet areas, performed geospatial data analysis, and created map products to be included in reports.

Jurassic deep-water reservoirs at a transfer-transform offset: modeling the mixed carbonate-siliciclastic Shelburne subbasin, NS (2020-2024) – Geology Research Assistant: Collected and compiled data from M.Sc. to investigate the role of bathymetry on modeled environments and sediment distribution, and how the model differs from the reference case model proposed in M.Sc. Results were published in AAPG Bulletin and presented to the Nova Scotia Department of Natural Resources and Renewables.

How is stratigraphic modeling in frontier basins dependant on data: A case study of on the Shelburne subbasin, NS (2020-2021) – Geology Research Assistant: Collected and compiled data from M.Sc. to investigate the influence of data on the modeling process. Results were published in Marine and Petroleum Geology.

Stratigraphic Modeling of the Shelburne Subbasin, NS (2018-2020) – Geology Internship and M.Sc.: Compiled and collected geologic data and applied a multidisciplinary approach to modeling the evolution and sediment distribution of the Shelburne Subbasin from the Middle Jurassic (163Ma) to the Late Jurassic (150Ma). The results of this project were used to de-risk oil & gas exploration offshore southern Nova Scotia and show the potential for sandstone reservoirs in deep-water environments.

Petrography and Trace Element Mobility in Rutile, NS, (2017-2020) – Geology Research Assistant: Used a variety of scientific instruments (SEM-EDS, ICP-MS, Ramen Spectroscopy, optical microscopy) to analyze titanium minerals from Clarke Head, NS, to determine mineral formation and how trace elements mobilized through titanium minerals. Compiled results into figures, tables, graphs and reports in order to be used in published papers.

Deltaic Evolution of the Sept Îles Delta, NS, (2018-2019) – Research Assistant: Collected and compiled geologic data to model the deltaic evolution of the Sept Îles Deltaic complex since the last glacial maximum. Aggregated results into a Geological Survey of Canada Open File report.

Marine Sediment Analysis, NS, (2018) – Research Assistant: Collected and analyzed geological data from piston core and box core samples from offshore Nova Scotia using Multi-Sensor Core Logging techniques (magnetic susceptibility, velocity, bulk density, spectrography, digital photography and X-radiography).