

APPENDIX P  
QUALIFICATIONS OF LEAD TECHNICAL FIELD  
PROFESSIONALS

Studies carried out on the Valued Environmental Components (VECs) associated with the Westchester Wind Project were conducted by qualified scientists and technical professionals. **Table P-1**, below, lists the studies conducted for each VEC and the lead technical professional(s) for those studies. The qualifications for each lead technical professional are laid out the CVs that follow this table.

**Table P-1: Field Studies for VECs and Lead Personnel.**

<b>Valued Component</b>	<b>Study Type</b>	<b>Lead Technical Professional</b>
<b>Physical VECs</b>		
<b>Atmospheric Environment</b>	Sound level impact assessment	<b>Jillian Byrne</b>
<b>Physical Environment</b>	Desktop studies on the geology, surface water and groundwater within existing environmental	<b>Kelly Regan Brennan Gourley</b>
<b>Visual Environment</b>	Visual assessment	<b>Jillian Byrne</b>
<b>Biophysical VECs</b>		
<b>Vegetation (including Species at Risk)</b>	Vascular plant surveys (common and rare plants)	<b>Christopher Pepper</b>
<b>Terrestrial Wildlife (Excluding Birds and Bats)</b>	Desktop screening of potential wildlife and habitat. Observations of wildlife were documented as part of other biophysical VEC assessments.	<b>Christopher Kennedy</b>
	Mainland Moose Survey	<b>Noah Booth Christopher Kennedy</b>
<b>Wetlands</b>	Wetland assessments	<b>Chris Kennedy Julie Ellsworth</b>
<b>Aquatic Habitat</b>	Fish habitat suitability assessment	<b>Chris Kennedy Christopher Pepper Julie Ellsworth</b>
	Turtle Habitat Suitability Assessment	<b>Chris Kennedy Christopher Pepper</b>
<b>Species at Risk</b>	Desktop screening of potential SAR/SoCC and habitat. Field assessments for SAR were included in other biophysical VEC assessments.	<b>Kelly Regan</b>
<b>Birds and Bird Habitat</b>	<ul style="list-style-type: none"> <li>• Winter breeding bird surveys;</li> <li>• Spring migratory transect-based point counts for migratory birds;</li> <li>• Spring diurnal watch counts;</li> <li>• Breeding nocturnal owl survey;</li> <li>• Summer transect-based point counts for breeding birds;</li> </ul>	<b>Christopher Kennedy Christopher Pepper</b>

<b>Valued Component</b>	<b>Study Type</b>	<b>Lead Technical Professional</b>
	<ul style="list-style-type: none"> <li>• Summer breeding Common Nighthawk survey;</li> <li>• Fall transect-based point counts for migratory birds; and,</li> <li>• Fall diurnal watch counts</li> </ul>	
<b>Birds and Bats</b>	Radar and Acoustic Monitoring	<b>Phil Taylor</b>
<b>Bats and Bat Habitat</b>	Acoustic bat surveys	<b>Daniel Bourassa</b>
<b>Socioeconomic VECs</b>		
<b>Economy Land Use and Value Transportation, Recreation and Tourism Human Health</b>	Desktop studies on the existing socioeconomic environment with respect to economy, land use and value, transportation, recreation and tourism and human health.	<b>Kelly Regan Kristin Banks</b>
<b>Land Use and Value</b>	Radiocommunication System Impact Study	<b>Keith MacNeil</b>
<b>Heritage and Archaeological Resources</b>	Archaeological Resource Impact Assessment (ARIA) was conducted by Cultural Resource Management (CRM) Group Limited.	<b>Kyle Cigolotti</b>
<b>Review</b>		
<b>Environment Assessment Registration Document</b>		<b>Kristin Banks Meg Morris Megan MacIsaac Amy Pellerin Kelly Regan</b>

# Kristin D. Banks, B.Sc.Eng., P.Eng.

PARTNER

kbanks@dillon.ca

## PERSONAL PROFILE

Kristin is an environmental engineer with over 15 years of experience in environmental site assessment, contaminated site assessment, groundwater assessments and consultations. Kristin has been the lead environmental assessor for several environmental effects evaluations, environmental impact assessments, and large scale environmental programs including impact assessment, risk management, and remediation.

## EDUCATION

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B.Sc.Eng. (Geological Engineering), University of New Brunswick, 2005

## REGISTRATIONS/LICENCES

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Association of Professional Engineers and Geoscientists of New Brunswick (Licensed Member)

Atlantic PIRI Partnership in Risk Based Corrective Action (Site Professional)

## RELEVANT EXPERIENCE

### ENVIRONMENTAL IMPACT ASSESSOR

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**Project Manager and Environmental Engineer, Environmental Assessment for Westchester 40 MW Wind Farm, Natural Forces, Westchester, Nova Scotia**

Project Manager responsible for the completion of an Environmental Assessment for the 20 MW energy project which involved coordinating all required biophysical assessments, leading public engagement efforts and supporting on consultation. Specific components assessed in the biophysical assessment included; bats, birds, vegetation, wetlands, aquatic habitats, terrestrial wildlife, items of cultural significance, land form assessment and species at risk (mainland moose and wood turtle). Responsible for client communication, evaluation of potential interactions between VECs and co-authoring the registration document.

**Project Manager and Environmental Engineer, Environmental Assessment for Benjamin Mills 80 MW Wind Farm, Natural Forces, Benjamin Mills, Nova Scotia**

Project Manager responsible for the completion of an Environmental Assessment for the wind energy project which involved coordinating required biophysical assessments (utilizing habitat style methodology), leading public engagement efforts and supporting on consultation. Specific components assessed in the biophysical assessment included; bats, birds, vegetation, wetlands, aquatic habitats, terrestrial wildlife, items of cultural significance, land form assessment and species at risk (lichen and wood turtle). Responsible for client communication, evaluation of potential interactions between VECs and co-authoring the registration document.

**Project Manager and Environmental Engineer, Environmental Assessment for Wocawson 20 MW Wind Farm, Natural Forces and Tobique First Nation, Sussex, New Brunswick**

Project Manager responsible for biophysical assessments required for the completion of an Environmental Impact Assessment for the 20 MW energy project. Specific components assessed in the biophysical assessment included; bats, birds, vegetation, wetlands, aquatic habitats, terrestrial wildlife, items of cultural significance, and species at risk. Responsible for client communication, evaluation of potential interactions between VECs and co-authoring the registration document.

**Project Manager and Technical Specialist, Post Construction Monitoring at the Oinpegitjoig (Richibucto) Energy Project, Natural Forces, Richibucto, New Brunswick**

Project Manager for the first year of post construction monitoring at the Oinpegitjoig (Richibucto) Wind Project and technical advisor for the subsequent year. Responsible for coordinating monitoring events and communicating methodology, results and annual findings to regulatory authorities. Despite occurring in 2020, travel implications due to Covid 19 were managed and no comments were received from the regulator.

#### Environmental Lead, Port Saint John Expansion, Port Saint John, Saint John, NB

Environmental lead for the modernization of the West Side Terminals for Port Saint John. Project includes environmental impact assessment of the extension the current wharf (including a capital dredging programs in several areas of the harbor) and evaluation of disposal options for contaminated sediments. Responsibilities include; leading the team in conducting an environmental effects evaluation of the biophysical and socioeconomic environment (components include: fish and fish habitat assessment, Species at Risk, noise and atmospheric environment, etc.), applying federal guidelines and applying regulations to all aspects of the project.

#### Environmental Impact Assessor, Environmental Assessments, Kingsclear First Nations, Kingsclear, NB

Project professional responsible for coordinating biophysical assessments for several projects for the Kingsclear First Nation including for a waste water treatment plant, proposed quarry and roadway, new industrial facility, rehabilitation of existing buildings and a proposed commercial development. Work included compilation of data and presentation in a format that met applicable regulatory requirements.

#### Engagement Lead and Environmental Assessment Lead, Streambank Restoration Project, Oromocto First Nation, NB

Community engagement and environmental assessment lead for a streambank restoration project for Oromocto First Nation. To develop a more complete understanding of the potential impacts for the project, and evaluate western science along with traditional knowledge, a two-phase engagement strategy was used. An initial open-house style workshop was held within the community followed by a second session with community elders. From there all field biophysical (species at risk, aquatic habitat, wetland, vegetation and terrestrial) assessments were conducted alongside community members to facilitate capacity building.

#### Project Manager and Environmental Engineer, Environmental Assessment for Upgrades to the Plaster Rock Solid Waste Management System, Village of Plaster Rock, Plaster Rock

Project Manager responsible for leading the environmental impact assessment for the proposed project, which involved coordinating required biophysical assessments, leading public engagement efforts and supporting on consultation. Specific components assessed in the biophysical assessment included; birds, vegetation, wetlands, aquatic habitats, terrestrial wildlife, archaeology, and species at risk. Responsible for client communication, evaluation of potential interactions between VECs and co-authoring the registration document.

#### Project Professional, Social Impact Comparative Review, NB Power, New Brunswick

Project professional responsible for presenting the findings of a social impact comparative review for the proposed project at the Mactaquac Generating Station to the public through public consultation events. Ms. Banks attended regular meetings with the client to adjust the scope of the assessment based on information provided by the client as the project evolved.

#### Engagement Lead and Environmental Assessment Lead, Woodstock Water Supply Project, Town of Woodstock, NB

Led provincial environmental assessment of the project was completed to evaluate the potential environmental effects. Following the identification of a significant pre-contact archaeological site within a project footprint, Kristin led a communication/consultation strategy on behalf of the proponent with the local First Nation which has been referred to as the best example of consultation efforts in the province to-date.

#### Environmental Impact Assessor, CEAA Environmental Screening, Public Works and Government Service of Canada, Wasauksing First Nation, Parry Island, Ontario

Project manager responsible for conducting an environmental screening for the subsequent remediation of four contaminated sites across the Wasauksing First Nation community lands. Responsibilities included coordinating review of available public information, conducting interviews with knowledgeable community members and elders, arranging preliminary biophysical assessments. Information was compiled and presentation in a format that met applicable regulatory requirements.

# Daniel Bourassa, B.Sc

SENIOR ENVIRONMENTAL SCIENTIST

dbourassa@dillon.ca

## EDUCATION

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B.SC (Honours) Environmental Sciences, Trent University, 2010  
Diploma, Environmental Technologist, Sir Sanford Flemming, 2008  
Diploma, Environmental Technician, Sir Sanford Flemming, 2007

## RELEVANT EXPERIENCE

### ENVIRONMENTAL MONITORING AND SURVEYS

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Environmental Scientist and Lead Biologist, Grand Renewable Wind - Environmental Effects Monitoring Program, Samsung Renewable Energy Inc., Haldimand County, Ontario.

Undertook mortality monitoring for birds and bats (three years), disturbance effects monitoring to woodland breeding birds, migrating birds and wetland/woodland hydrology including data analysis. 2018 (completed).

Environmental Scientist and Lead Biologist, Talbot Wind Farm, Mortality Monitoring, Enbridge Pipelines Inc., Bruce County, Ontario.

Developed/implemented a multi-year post-construction monitoring plan for bird and bat mortality at a 98.9 MW facility, Ontario. 2017 (completed).

Environmental Scientist, 9 Wing Gander Biophysical Inventory, DND/DCC, Atlantic Provinces

Completed bat data analysis for biophysical inventories and updated natural resource management plans for five 9 Wing Gander properties. 2017(completed).

Environmental Scientist and Lead Biologist, East Lake St. Clair Wind Farm, GDF SUEZ Canada Inc., Chatham-Kent, Ontario, and Greenwich Wind Farm Mortality Monitoring, Enbridge Pipelines Inc., Thunder Bay, Ontario.

Implemented a bird and bat post-construction follow-up plans, including bat data analysis. 2017 (completed).

Environmental Scientist and Lead Biologist, Talbot Bat Activity and Habitat, Enbridge Inc./ Renewable Energy Systems Canada, Kincardine, Ontario.

Implemented bat activity and habitat use research design focusing further research and bat mortality. 2016 (completed).

Environmental Scientist and Lead Biologist, Raleigh Avian Study, Invenergy Wind Canada ULC, Chatham-Kent, Ontario.

Developed and implemented a three-year post-construction monitoring plan to determine bird and bat mortality at a 52 MW facility. Possible displacement effects of turbines on Tundra Swan, shorebirds and breeding Bald Eagles were investigated. 2012 (completed).

Environmental Scientist and Lead Biologist, Greenwich Wind Farm, Enbridge Renewables/Renewable Energy Systems Canada, Dorion, Ontario.

Completed a post-construction follow-up plan (PFCP) for the wind farm consisting of two years of post-construction mortality monitoring to form the general framework of the Bird and Bat Monitoring. 2013 (completed).

## SPECIES AT RISK ASSESSMENTS AND SURVEYS

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Environmental Scientist, Greenwood, Nova Scotia

Providing bat expertise for 14 Wing Greenwood satellite SAR surveys. (On-going).

Environmental Scientist, Species at Risk Assessment, Coptic Orthodox Patriarchate, Mississauga, Ontario.

Completed species at risk (SAR) habitat assessments. SAR included Barn Swallow, Chimney Swift, Little Brown Myotis and Eastern Small-footed Bat. 2015 (completed).

Environmental Scientist and Lead Biologist, Species at Risk Survey, Defence Construction Canada, Canadian Forces Base Shilo, Manitoba.

Completed a survey of 24 possible species at risk in Range Area 9. 2014 (completed).

# Julie Ellsworth, EPT

## ENVIRONMENTAL SCIENTIST

JEllsworth@dillon.ca

### PERSONAL PROFILE

Julie is an environmental scientist with five years of experience in environmental consulting. Her project experience includes conducting field technical work in the areas of natural resource management, water quality, hazardous materials surveys, phased Environmental Site Assessments (ESA), Underground Storage Tank (UST) removals, air quality investigations, and environmental monitoring programs. She has completed various Phase One ESAs at commercial properties, single family and multi-unit residential properties, vacant sites and sites currently under development. Julie is proficient in collecting air, soil, slate, water, asbestos, and paint samples, ensures proper sample collection and preservation protocol, maintains chain-of-custody for sample submission to accredited laboratories, tabulates data in comparison with applicable guidelines and regulations, and drafts reports for senior review. She also is experienced in conducting training for new employees and managing field programs independently.

### EDUCATION

B.Sc., Agriculture,  
Dalhousie University, 2017

### RELEVANT EXPERIENCE

#### NATURAL RESOURCES MANAGEMENT

Technician, Environmental Assessment for Benjamin Mills 80 MW Wind Farm, Natural Forces Developments LP, Hants County, Nova Scotia

Completed an EA for a wind energy project involving coordination of required biophysical assessments (utilizing habitat style methodology), public engagement efforts and supporting consultation. Specific components assessed in the biophysical assessment included bats, birds, vegetation, wetlands, aquatic habitats, terrestrial wildlife, items of cultural significance, land form assessment and species at risk (lichen and wood turtle). Specific works included operation and collection of data from bat meters that were located on the site for an extended period of time, as well as wetland delineations and watercourse assessments (ongoing).

Technician, Environmental Assessment for Westchester 40 MW Wind Farm, Cumberland County, Nova Scotia

Completed an EA for the 40 MW energy project involving coordination of all required biophysical assessments, public engagement efforts and supporting consultation. Specific components assessed in the biophysical assessment included bats, birds, vegetation, wetlands, aquatic habitats, terrestrial wildlife, items of cultural significance, land form assessment and species at risk (mainland moose and wood turtle). Specific works included operation and collection of data from bat meters that were located on the site for an extended period of time, as well as wetland delineations and watercourse assessments (ongoing).

Technician, Proposed Subdivision Development, Private Client, Sydney, Nova Scotia



Accompanying a senior biologist, Julie conducted wetland delineation services for a parcel of land that was proposed for development of a subdivision (ongoing).

**Technician, Wetland Delineation Program, Nova Scotia Transportation and Infrastructure Renewal, Bridgewater, Nova Scotia**

Conducted a field program identifying and delineating wetlands on a parcel of land that was proposed to be an extension of the business park in Bridgewater, as well as a new exit off highway 103. Julie was responsible for assisting senior field staff with describing soil conditions and identifying species within the wetlands, as well as flagging and using a Trimble GPS for mapping purposes. 2019 (completed).

**Technician, Wetland Monitoring Program, West Bedford Holdings, Halifax, Nova Scotia**

Conducted a monitoring plan to assess wetland that will remain at the site following wetland alterations. The undisturbed areas of the wetland will be monitored to document if construction activities at the site affect the hydrology of the remaining wetland. Specific works included conducting the field work which included delineating wetlands on the subject property, collecting water levels, collecting soil samples, and assessing vegetation. 2019 (completed).

**Technician, Wetland Monitoring Program, Clayton Developments, Lantz, Nova Scotia**

Conducted a monitoring program to assess wetland that will remain on site following wetland alteration activities as a term and condition of NSE. Specific works included delineation of wetlands on the subject property and assess vegetation and soil types. 2019 (completed).

**Technician, Wetland Monitoring Program, Port Wallace Holdings, Port Wallace, Nova Scotia**

Conducted a monitoring plan to assess wetland that will remain at the site following wetland alterations. The undisturbed areas of the wetland will be monitored to document if construction activities at the site affect the hydrology of the remaining wetland. Specific works included conducting field work which included delineating wetland on the subject property, collecting water levels, collecting soil samples, and assessing vegetation. 2018 (completed).

## EMPLOYMENT HISTORY

### DILLON CONSULTING LIMITED

2020 – Present Environmental Scientist

### ENGBLOBE CORPORATION

2017 – 2020 Environmental Professional

## PROFESSIONAL DEVELOPMENT

Wetland Delineation Specialist Training, Fredericton, New Brunswick, 2020

Remote First Aid CPR/AED level C, 2021-2024

Confined Space Awareness Training, 2021

Respirator Fit Test (PAPR), Hazmasters Inc., 2020-2022.

Workplace Hazardous Materials, Information System (WHMIS)

Excavation Safety, Construction Safety, Nova Scotia, 2017.

Pleasure Craft Operators, 2015.

**CHRIS KENNEDY, M.Sc.**

Biologist

Dillon Consulting Limited

**Designated Role: Key Personnel: SENIOR ENVIRONMENTAL SCIENTIST****Years of Experience: 11****Years with Firm: 5****Education:**

M.Sc. (Biogeography), Memorial University, 2011

**Professional Accreditations:**

NSE Wetland Ecosystem Services Protocol for Atlantic Canada Training (WESPAC), NSE/DFO Erosion Prevention and Sediment Control Certification, Electrofishing Certification, Restricted Operator's Certificate Nova Scotia Wetland Delineation.

**Proposed Role and Responsibilities:**

**Environmental Scientist:** Key senior personnel with expertise to assist with completion of natural resources services. Experienced with field acoustic and playback migratory and breeding bird assessment, species at risk plant assessment, acoustic and maternity bat habitat surveys, wetland delineation and functional assessment and fish population and habitat assessment including electrofishing. Senior input for federal Environmental Assessment pursuant to the *Canadian Impact Assessment Act* (IAA); natural resource inventories; Species at Risk (SAR) and Species of Conservation Concern assessments; and associated monitoring/management program development, and digital data management. Mr. Kennedy is an experienced field biologist with an understanding of Defence Construction Canada (DCC) / Department of National Defence (DND) requirements under a Source List (SL) including work at ranges and training areas, airfields and naval bases and marine training areas.

**Experience on Comparable Projects***Ongoing, Wind Turbine Facilities Environmental Studies, Natural Forces, Nova Scotia*

**Environmental Scientist** providing senior direction and leading field work for baseline biological studies including breeding and migratory birds, wetland delineation and functional assessment, species at risk (SAR) studies and aquatic habitat and fish studies.

*2018- Ongoing, Highway 107 Environmental Approvals, Nova Scotia Department of Transportation and Active Transit*

**Environmental Scientist** that oversaw NS provincial and joint federal *Canadian Environmental Assessment Act (CEAA)* EAs for four highway twinning projects and three new highway right-of-ways. Conducted reporting, intergovernmental and public consultations including public open houses and regulatory consultation and stakeholder meetings. Subsequent to EA approval contributed to Environmental Protection Plans and prepared wetland and watercourse permit applications.

*2012 – Ongoing, Nova Scotia Highway Bridges and Structures Environmental Assessments and Habitat Studies, Nova Scotia Department of Transportation and Active Transit, NS*

**Intermediate Environmental Scientist** responsible for Environmental Effects Determination reports, site specific habitat surveys, including wetland identification, fish habitat assessment and rare plant and terrestrial habitat assessment, and submission of permit applications.

*2021 – Ongoing, Range and Training Area Management Plan Update for a DND Rifle Range and Antenna Facility, NS*

**Intermediate Environmental Scientist** responsible for SAR assessments habitat studies and natural resource inventory, and for development of a SAR management and monitoring program and Range and Training Area Natural Resources Management Plan (RTAMP) update. Three season field surveys utilizing GPS and federal protocols included acoustic bat surveys, breeding and migratory bird surveys, turtle surveys, fish inventory and habitat assessment, vegetation/rare plant inventory, wetland assessments, and assessment of SAR and Species of Concern. Work under DCC SL.

*2020 – 2021, SAR Survey and Monitoring, 14 Wing Greenwood Satellite Properties, DCC/DND, NS*

**Intermediate Environmental Scientist** responsible for SAR assessments habitat studies and natural resource inventory, and for development of a SAR management and monitoring program. Four season field survey data collection and mapping utilizing GPS and DND's GIS schema, and federal protocols included acoustic bat surveys, breeding and migratory bird surveys, turtle surveys, fish inventory and fish habitat assessment, vegetation inventory including lichens and mosses, wetland assessments, and assessment of SAR and Species of Conservation Concern. Work under DCC SL.

*2020 – 2021, Natural Resource Inventory and Management Plan / SAR Surveys, 12 Wing Shearwater DCC/DND, NS*

**Intermediate Environmental Scientist** responsible for SAR surveys, natural resource inventory and habitat assessment to update Natural Resource Management Plan for an active airfield (with extensive undeveloped forest and natural areas). Three season field surveys utilizing GPS and federal protocols included migratory bird surveys, fish inventory

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and fish habitat assessment, rare plant and invasive plant inventory, wetland assessments, and assessment of SAR and Species of Conservation Concern. Evaluations included use of GPS/GIS mapping and completion of a digital database of wetland features and SAR findings and habitat. Work under DCC SL and includes meeting enhanced security requirements.

*2020 – 2021, Mill Cove Wetland Assessment and Compensation Development, DCC/DND, NS*

**Intermediate Environmental Scientist** responsible for wetland assessment and compensation development and monitoring plan in relation to a proposed maintenance road. Work under DCC SL.

*2019 – 2020, Redd Atlantic Salmon Habitat Surveys, 5th Canadian Division Support Base (5CDSB) Gagetown, DCC/DND, Oromocto, New Brunswick*

**Intermediate Environmental Scientist**, conducting fish inventory and fish habitat assessment, in relation to Atlantic salmon (SAR). Work included statistical analysis of fish population data. Work under DCC SL.

*2017-2020, 9 Wing Gander – Wetland Remediation, Evaluation and Restoration Project, Defence Construction Canada, Gander, Newfoundland and Labrador.*

**Intermediate Environmental Scientist** responsible for development of wetland and associated pond restoration at a former waste disposal site at 9 Wing Gander.

*2019, Federal Park Coastal Sensitive Area Assessment, PWGSC, NB*

**Environmental Scientist** responsible for wetland assessment, Species at Risk surveys, rare plant and bird field surveys.

*2018- 2019, Effluent Treatment Facility Environmental Assessment, Northern Pulp NS*

**Environmental Scientist** for wetland, amphibian and reptile, breeding bird and migratory bird assessments for proposed effluent treatment facility. Designed and conducted field surveys, interpreted results and design mitigation for the project in relation to biological components.

*2015, Marine Grounding Facility Vegetation Survey, Maritime Link, NS and NL*

**Intermediate Environmental Scientist** for coastal vegetation surveys for a marine grounding facility. Work included field surveys under federal protocols, data management and reporting including GPS digital data management.

*2014, Hartlen Point Radar Facility Assessment, NS*

**Intermediate Environmental Scientist** conducting a year-long bird mortality monitoring study. Work included field surveys under federal protocols, data management and reporting including GPS digital data management.

*2013, Wind Farm Environmental Assessments, NS*

**Intermediate Environmental Scientist** conducting spring and fall migratory bird surveys and breeding bird surveys. Work included field surveys, data management and reporting including GPS digital data management.

*2012, SAR Assessments/ Natural Resource Management Plans, Multiple MARLANT Properties, NS*

**Junior Environmental Scientist** responsible for conducting biological inventories, forest inventory, SAR assessments, and development of natural resource management plans for Bedford, Sydney and Debert Rifle Ranges and Mill Cove Antenna Facility. Field data collection including wetland delineation and functional assessments and rare plant assessments. Work under DCC SL.

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# Chris Pepper

BIOLOGICAL FIELD SPECIALIST

[cpepper@ymail.com](mailto:cpepper@ymail.com)

## PERSONAL PROFILE

Chris is an environmental consultant experienced in bird identification, wetland delineation, plant identification, and rare lichen assessments

## RELEVANT EXPERIENCE

### ENVIRONMENTAL SURVEYS AND ASSESSMENTS

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#### Lichen Surveys, Various, NS

Contracted for lichen surveys by various organizations including Stantec, McCallum Environmental, Strum Environmental, Mersey Tobeatic Research Institute, Northern Pulp, Port Hawkesbury Paper, Osprey Gold, Aureus Minerals inc, Parks Canada, Nature Conservancy of Canada, Nova Scotia Nature Trust, Canadian Museum of Nature and others.

#### Rare Plant Surveys, Various, NS

Conducted rare plant surveys for various developments.

#### Avian Assessments, Various, NS, NFLD, NL, AB

Involved in avian assessment surveys in Nova Scotia, Newfoundland, New Brunswick and Alberta. Worked for various companies including Strum Environmental, McCallum Environmental, WSP Ltd, Stantec, Englobe, CBCL Ltd, Port Hawkesbury Paper, Nature Conservancy of Canada, Nova Scotia Nature Trust, Parks Canada and Canadian Wildlife Service.

#### Wood Turtle Survey, CWS-Environment Canada, NS

Conducted Wood Turtle surveys on various rivers in Nova Scotia

#### Tern and Seabird Surveys, CWS-Environment Canada, NS

Conducted Tern and Seabird surveys on offshore islands.

#### Tern and Seabird Surveys

Conducted Mainland Moose surveys for various developments.

#### Wetland Assessments

#### Wetland Assessments, Various, NS

Wetland surveys for various companies including McCallum Environmental, Strum Environmental and others.

## VOLUNTEER HISTORY

### NOVA SCOTIA NATURE TRUST

Surveyed several offshore islands on the eastern shore for birds, plants and lichens regarding the 100 Wild Islands project.

### MERSEY TOBEATIC RESEARCH CENTER

Conducted surveys for the endangered Boreal Felt Lichen and other lichens.

### NOVA SCOTIA BIRD SOCIETY

2009 – 2018 Director

### **VOLUNTEER FOR VARIOUS SURVEY PROJECTS**

2009 – Present Volunteer Biologist, Maritime Nocturnal Owl Survey

2008 – Present Volunteer Biologist, Christmas Bird Counts

2010-2016 Provincial Coordinator, Nova Scotia Migration Count

2009 – 2010 Volunteer Biologist, Maritime Breeding Bird Atlas, 2009-2010

### **PROFESSIONAL DEVELOPMENT**

#### **TRAINING AND COURSES**

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Wetland Plant Adaptation and Identification, Fern Hill Institute, NS, July 2012

Wetland Delineation, Fern Hill Institute, NS, July 2012

St. John Ambulance Emergency First Aid CPR "A" and AED, St, John Ambulance

#### **OTHER**

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ATV Operator Course, Canada Safety Council

Hold valid Pleasure Craft Operator card

**KELLY REGAN M.SC.****Designated Role: INTERMEDIATE ENVIRONMENTAL SCIENTIST**

Biologist

Dillon Consulting Limited

**Years of Experience:** 8**Years with Firm:** 7**Education:**

M.Sc., Biology, University of Guelph, 2010  
Environmental Engineering Technology-Water Resources, NSCC, 2014  
B.Sc., Biology Honours, Mount Allison University, 2008

**Professional Accreditations:**

N/A

**Training:**

Wetland Delineation Specialist Training, Fredericton, New Brunswick, 2018  
Backpack Electrofishing, Canadian Rivers Institute and UNB Extended Learning, 2015  
Shoreline Cleanup and Assessment Technique (SCAT), 2015

**Role and Responsibilities:**

**Intermediate Environmental Scientist:** Key personnel to assist with completion of natural resources inventories and management plans, federal and provincial environmental assessments (EA), species at risk assessments and management plans, habitat studies and field survey data collection, permit applications and training program development. Experienced with preparation of reports federal, provincial, and departmental (Department of National Defence – DND) EAs, Environmental Impact Assessments (EIA), and environmental effects determinations.

**Relevant Managerial and/or Technical Experience:**

*2021, Bedford Rifle Range RTAMP 2021, Department of National Defence/Defence Construction Canada, Atlantic Provinces*

**Biologist** responsible for conducting a Range and Training Area Management Plan Update for a DND Rifle Range and Antenna facility, Nova Scotia (NS). Responsible for SAR assessments habitat studies and natural resource inventory, and for development of a SAR management and monitoring program. Three season field surveys utilizing GPS and federal protocols included acoustic bat surveys, breeding and migratory bird surveys, turtle surveys, fish inventory and habitat assessment, vegetation inventory, wetland assessments, and assessment of SAR and Species of Concern.

*2021, Masstown Receiver Site SAR Assessment, Department of National Defence/Defence Construction Canada, Atlantic Provinces*

**Biologist** for the Natural Resource Inventory and Management Plan / SAR Surveys, Masstown Receiver Site, NS. Responsible for SAR surveys and habitat assessment to update Natural Resource Management Plan for an active airfield. Three season field surveys utilizing GPS and federal protocols included migratory bird surveys, fish inventory and fish habitat assessment, vegetation inventory, wetland assessments, and assessment of SAR and Species of Conservation Concern. Work under DCC AE16SLNR.

*2021, SAR Survey and Monitoring Plan, Department of National Defence/Defence Construction Canada, Atlantic Provinces*

**Biologist** for SAR Survey and Monitoring, 14 Wing Greenwood Satellite Properties, DCC/DND, NS. Responsible for SAR assessments habitat studies and natural resource inventory, and for development of a SAR management and monitoring program. Four season field surveys utilizing GPS and federal protocols included acoustic bat surveys, breeding and migratory bird surveys, turtle surveys, fish inventory and fish habitat assessment, vegetation inventory, wetland assessments, and assessment of SAR and Species of Concern. Work under DCC AE16SLNR.

*2021, 12 Wing Shearwater SAR Assessment, Department of National Defence/Defence Construction Canada, Atlantic Provinces*

**Biologist** for the Natural Resource Inventory and Management Plan / SAR Surveys, 12 Wing Shearwater DCC/DND, NS. Responsible for SAR surveys and habitat assessment to update Natural Resource Management Plan for an active airfield. Three season field surveys utilizing GPS and federal protocols included migratory bird surveys, fish inventory and fish habitat assessment, vegetation inventory, wetland assessments, and assessment of SAR and Species of Conservation Concern. Work under DCC AE16SLNR.

*2021, Biophysical Surveys and Soil Sampling in Support of Explosive Ordnance Disposal Operation, Chebogue Point, Yarmouth, Nova Scotia, DCC, NS*

**Biologist** that developed a list of species for birds, fish, lichen, plants, and mammals based on a compilation of listed species from available references, such as but not limited to, the Atlantic Canada Conservation Data Centre (ACCDC), topographical maps, google earth, provincial landscape viewer, Species at Risk recovery strategies, management plans and residence descriptions.

*2018, Marine EED, Department of National Defence/Defence Construction Canada, Atlantic Provinces*

**Biologist** for the MARLANT MARLOAs Environmental Effect Determinations in the East Coast of Canada. Responsible for EEDs for MARLOAs East Coast Navy routine activities and a specific multinational exercise. Due diligence Environmental Assessment under IAA. Work under DCC AE16SLNR.

*2017, 9 Wing Gander Biophysical Inventory, Department of National Defence/Defence Construction Canada, Atlantic Provinces*

**Biologist** for the Natural Resource Inventory and Management Plan, Five Properties 9 Wing Gander, DCC/DND, Various Towns, Newfoundland. Responsible for habitat studies and natural resource inventory, and for development of a SAR management and monitoring program. Three season field surveys utilizing GPS and federal protocols included acoustic bat surveys, breeding and migratory bird surveys, fish inventory and fish habitat assessment, vegetation inventory, wetland assessments, update of forest inventory, and assessment of SAR and Species of Concern. Work under DCC AE16SLNR.

*2018, 14 Wing Greenwood Wildlife Control Study, Department of National Defence/Defence Construction Canada, Atlantic Provinces*

**Biologist** for the Wildlife Control Study and Recommendations, 14 Wing Greenwood, DCC/DND, Greenwood, NS. Responsible for senior direction and ecological assessment to evaluate mitigation related to aircraft interactions. A yearlong wildlife study is being conducted focusing on breeding and migratory birds. The work includes evaluation of bird species populations present at the property, potential for interaction with aircraft, and, recommendation for control measures/ mitigation. Also includes review of the grass hopper (entomological) management program. Work under DCC SL and includes meeting enhanced security requirements.

*2016, 12 Wing Shearwater Natural Resource Inventory, Department of National Defence/Defence Construction Canada, Atlantic Provinces*

**Biologist** for the Natural Resource Inventory at 12 Wing Shearwater and a Naval Test Range, DCC/DND, Halifax Regional Municipality, NS. Responsible for biological inventory update and habitat assessments at an active DND airfield (with extensive undeveloped forest and natural areas) and secure range test site. Conducted and led field surveys using federal protocols over three seasons targeting of freshwater fish and riparian habitat, bats, breeding and migratory birds, wetland delineation and functional assessment and vegetation inventory, as well as evaluating potential SAR and Species of Concern habitat. The vegetation inventory also included assessment of invasive/noxious plant species such as giant hogweed and provided recommendations for managing and monitoring these plants. Freshwater aquatic assessments at the airfield included fish inventory and assessments using electrofishing techniques and federal Fisheries and Oceans protocols for habitat evaluation. Directed bird and SAR assessors. Evaluations included use of GPS/GIS mapping and completion of a digital database of wetland features and SAR findings and habitat. Work under DCC SL and includes meeting enhanced security requirements.

*2016, Natural Resources Update and SAR Assessment for Osborne Head, MARLANT, Department of National Defence/Defence Construction Canada, Atlantic Provinces*

**Biologist** that conducted field work, analysis and reporting for an inventory and habitat assessment at an antenna field DND property in Nova Scotia which includes coastal habitat. Assisted with field surveys over three seasons of riparian habitat, watercourses, bats, migratory birds, wetland assessment and vegetation inventory, as well as SAR. Directed specialist bird and SAR assessors. Vegetation inventory was expanded to include lichens and mosses. Evaluations included use of GPS/ GIS mapping and completion of a digital database of wetland features based on provincial NSE delineation methodology and federal functional assessment.

# Noah Booth, B.Sc., P.Geo

## PROFESSIONAL GEOSCIENTIST

nbooth@dillon.ca

### PERSONAL PROFILE

Noah is a Professional Geoscientist licensed in the province of Nova Scotia with over eight years of experience in the assessment, characterization and remediation of contaminated sites across Canada. His project responsibilities have included the development of Remedial Option Analysis (ROAs), Remedial Action Plan/Risk Management Plans (RAP/RMP), the development of remedial designs documents, and the implementation of remediation programs. Noah has contributed to the implementation of over 50 remediation programs that have involved a variety of in-situ and ex-situ designs that were tailored to meet unique remedial objectives and site considerations.

### RELEVANT EXPERIENCE

*Field Personnel, Environmental Assessment Studies and EA Registration Document, Natural Forces, Westchester/Benjamins Mill, Nova Scotia*

Completed a moose survey for two proposed Wind Energy Sites. The survey involved following a pre-determined 20 km cross section through potential moose habitat and recording observations through field notes, photos and GPS. (2021)

*Field Personnel, Redd Survey, DND, Gagetown, New Brunswick Natural Forces, Westchester/Benjamins Mill, Nova Scotia*

Completed an Atlantic salmon red survey on several watercourses through Gagetown. The survey involved paddling down-river through potential salmon nesting grounds and recording observations through field notes, photos and GPS. (2019)

*Field Personnel, Environmental Assessment Program, Nova Scotia Lands, Port Wallace, Nova Scotia*

Responsibilities included the collection, identification and preparation of a variety of fish species which were used for fish tissue analysis. Responsibilities also included navigating a canoe with field gear and sampling equipment to pre-determined sample locations to collect surface water and sediment samples for bioaccessibility testing. (2019)

*Field Personnel, Environmental Assessment Program, Confidential Oil and Gas Client, Nova Scotia*

Responsibilities included site visits to individual properties to identify, through visual observations, evidence of actual or potential sources of environmental impacts from current or

### EDUCATION

B.Sc., Environmental Sciences,  
University of Guelph, 2013

### REGISTRATIONS/LICENCES

Association of Professional  
Engineers and Geoscientists of  
Nova Scotia (Licensed Member)



historical land use. Activities included identifying stressed vegetation, environmentally sensitive areas, watercourses, ditches, and standing water. (*on-going*)

*Field Personnel, Otter Lake Residual Material Disposal Facility Monitoring, MIRROR Nova Scotia, Halifax Nova Scotia*

Conducted surface water and groundwater measurements and monitoring programs. Responsibilities included surface and groundwater sampling at remote locations, preparation of reports, and discussions with client. (2019)

*Field Personnel, Highway 107 Environmental Assessment, Burnside to Bedford, Transportation and Public Works, Bedford, Nova Scotia*

Completed field survey activities as part of the proposed ~8 km new 100-series right-of-way and 1.5 km of road widening. The project assessed the environmental impacts of highway construction and operation on species at risk/flora and fauna of special concern; fish and aquatic habitat; wetlands; migratory birds; surface water; noise; and heritage/archeological resources through respective field habitat studies and biophysical inventory. (*on-going*)

*Field Personnel, PFAS Groundwater and Surface Water Sampling Program, Halifax International Airport Authority, Nova Scotia.*

Conducted a sampling program for poly- and perfluoroalkylated substances (PFAS) in groundwater and surface water at a former quarry located within the Halifax Stanfield International Airport (HSIA) property. The sampling program was undertaken to determine whether PFAS may be present in groundwater and/or surface water as a result of application of aqueous film forming foam (AFFF) at the site during an emergency response conducted in 2004. (2019)

*Intermediate Project Professional, Groundwater Monitoring and LNAPL Conceptual Site Model Update at Otter Creek Tank Farm, Defence Construction Canada, Goose Bay, Labrador.*

Updated the light non-aqueous phase liquid (LNAPL) conceptual site model and implemented a management framework for the LNAPL impacted site. Specific work included groundwater data collection and interpretation using multiple lines of evidence which included LNAPL mobility/recoverability and plume stability analyses using theoretical and empirical methods. (2018)

*Intermediate Project Professional, In-Situ Remediation Program, Aski Geosciences, Lac Brochet, Manitoba.*

Completed in-situ treatment of impacted soil and groundwater on a First Nations Reserve in Northern Manitoba. Specific work included logistics, remedial design, optimization of the remedial system and training First Nations personnel in the operation and maintenance of the system. (2016)

## **EMPLOYMENT HISTORY**

### **DILLON CONSULTING LIMITED**

2018 – Present Professional Geoscientist

### **VERTEX ENVIRONMENTAL INC.**

2013 – 2018 Specialized Contractor (Remediation Specialist), Geoscientist-in-Training

# Brennan Gourley, P. Eng.

ASSOCIATE, ENVIRONMENTAL ENGINEER

bgourley@dillon.ca

## EDUCATION

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B.Sc., Civil Engineering, University of New Brunswick, 2013

## AFFILIATIONS

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Engineers Nova Scotia

## BIOGRAPHY

Brennan is an intermediate environmental engineer with over seven years of experience in environmental consulting. His background includes field, technical, and project management experience relating to: groundwater modelling, hydrogeological assessments, water supply sources assessments, phased environmental site assessments, contaminated sites management, remedial action plans, and human health risk assessments.

## RELEVANT EXPERIENCE

### *Groundwater Modeler, Hydrogeological Assessment, Mosaic Transit Group, Toronto, Ontario*

Lead groundwater modeller on an assignment for the Finch West Station Light Rail Transit construction project in Toronto, Ontario. This entailed the development of a conceptual hydrogeological model and numerical three-dimensional groundwater flow model using FEFLOW™. The models were then used to assess recommended depths of installation for excavation shoring components and to estimate water table drawdown introduced to aquifers as a result of the construction and de-watering activities. Development of the models included the compilation, analysis, and presentation of a variety of data sources including construction design drawings, hydrological and hydrogeological data, and stratigraphic information. *September 2018 – August 2020 (completed).*

### *Groundwater Modeler, Hydrogeological Assessment, City of Ottawa, Ottawa, Ontario*

Lead groundwater modeller for an assignment at a landfill facility near Ottawa, Ontario. A three-dimensional geological model of the project area was developed using Leapfrog™ and was then used to develop a numerical groundwater flow model. The groundwater model was used to estimate hydrogeological/hydrological changes related to nearby residential developments and changes in drainage conditions. Development of the models included the compilation, analysis, and presentation of a variety of data sources including construction design drawings, hydrological and hydrogeological data, and stratigraphic information. *January 2020 – February 2021 (completed).*

### *Intermediate Project Professional, Environmental/Hydrogeological Support Services, Bermuda Electric Light and Power (BELCO), Bermuda*

Completed detailed data analysis and quantification/modeling (using Surfer™) to evaluate aerial extent and volume of a free-phase product plume in a limestone aquifer under a power plant facility footprint. Assisted with a hydrogeological study, completed aquifer characteristic estimation through the analysis of injection test data (using AquiferTestPro™). *January 2020 – July 2020 (completed).*

*Intermediate Project Professional, Hydrogeological Assessment, Nutrien, Sussex, New Brunswick*

Team member during a hydrogeological assessment at a former potash mine near Sussex, New Brunswick. The assessment was completed in order to assess for the presence/absence of hydrogeological/hydrogeochemical changes related to mine decommissioning activities. Based on the observations made, adaptations to the ongoing monitoring programs were recommended. Responsibilities included data analysis and technical report writing. *September 2019 – June 2020 (completed).*

*Intermediate Project Professional, Phase 2 Environmental Site Assessment and Chlorinated Solvent Plume Stability Analysis, Confidential Manufacturing Client, Nova Scotia*

Intermediate project professional during a Phase 2 ESA and Chlorinated Solvent Plume Stability Analysis completed at a manufacturing facility in Nova Scotia. Chlorinated volatile organic compounds (VOCs) are the contaminants of concern at the facility, and have migrated through a complex network of fractures in bedrock. Results were compared to the NS Tier 1 EQS and Health Canada guidelines. The assessment was completed as a means to facilitate regulatory file closure, and entailed a detailed, multiple lines of evidence approach towards closure. The plume stability analysis component included the compilation, analysis, and presentation of nearly 20 years of water quality data and also entailed detailed statistical analyses (e.g., linear trend regression, isopleth and 3D conceptual site model development using Voxler™, Mann-Kendall, and Ricker's Method). Due to site constraints (e.g., shallow bedrock geology, proposed well depth) an air rotary drill rig was used for the monitoring well installation program. Field work responsibilities included coordination of a pumping test, contractor supervision during the monitoring well installation program and groundwater monitoring. *August 2018 – March 2019 (completed).*

*Intermediate Project Professional, Water Supply Source Assessment (WSSA), Metepenagiag Mi'kmaq Nation, New Brunswick*

Completed a WSSA at a First Nations community in Northern New Brunswick. The assessment was completed to investigate inconsistencies with the current water supply, and establish a new sustainable water source for the community in order to improve water quantity and quality. The project included geological data review and processing, exploratory test well drilling, production well drilling, and a 72 hour pumping test (including a step test). Specific responsibilities included water data analysis, pumping test data review and hydrogeological modelling using AquiferTestPro™ to estimate aquifer characteristics. *April 2018 – August 2018 (completed).*

## **EMPLOYMENT HISTORY**

### **DILLON CONSULTING LIMITED**

2013 - Present Associate, Environmental Engineer

## **PUBLICATIONS**

### **CONFERENCE PRESENTATIONS**

Gourley, B., Arnott, P. Saltwater Intrusion Risk Evaluation for Municipal Water Supplies. Presented at the 2016 ACWWA Conference in Moncton, NB.



## JILLIAN BYRNE - RESUMÉ

Profession: Renewable Energy Development Officer  
Specialization: Environmental Compliance and Predictive Modelling  
Position in Firm: Development Officer  
Years of Experience: 2  
Year Joined Firm: 2020  
Languages: English

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### PROFESSIONAL QUALIFICATIONS

- Bachelor of Engineering and Applied Sciences, Civil Engineering - 2020, Memorial University of Newfoundland, St. John's, Canada
  - Engineer in Training Certification - 2020, Engineers Nova Scotia, Halifax, Canada
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### KEY EXPERIENCE AND RESPONSIBILITIES

- Currently managing compliance commitments for approx. 12 utility scale wind and solar projects across Canada
  - Worked as part of the development team in the successful deployment of 6 wind and solar energy projects throughout Nova Scotia, New Brunswick, Saskatchewan, and British Columbia
  - Expertise in environmental permitting, predictive modelling, and site finding
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### WORK HISTORY

<b>Development Officer 2020-present</b>	<b>Natural Forces Services Inc. (Halifax, Canada)</b>
<ul style="list-style-type: none"><li>• Drafting, review and editing of an Environmental Assessment for a wind project in Labrador</li><li>• Auditing of commitments to regulators throughout the Environmental Assessment process and tangential permitting for projects in Nova Scotia, New Brunswick, British Columbia, and Saskatchewan</li><li>• Coordination with operation and construction teams to uphold commitments made through environmental permitting process</li><li>• Identified new large scale wind project locations using GIS software as well as field studies</li><li>• Development of matrices for ranking of prospective projects</li><li>• Completed noise and shadow flicker impact assessments for a wide range of projects with varying sizes and constraints</li><li>• Completed zone of visual influence assessments for wind projects</li><li>• Completion of photomontage modelling for projects in Nova Scotia</li></ul>	

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- Operated GIS software and used wind atlases to assess areas for suitable wind energy development
  - Installation of wind data measurement instrumentation, specifically Lidars
  - Identified landowners of potential project sites
  - Performed high level desktop assessments of potential project sites
  - Produced numerous maps and documents required for securing land and permit applications

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**Co-op Student  
2017-2019****SNC Lavalin-Dragados-Pennecon General Partnership  
(Argentina, Canada)**

- Implementation and verification of quality control activities and requirements
  - Collection of field data. Including data from monitoring systems, mapping of deficiencies, and verification of construction requirements in field
  - Review and preparation of turnover dossiers and associated records as per the client's request
  - Materials testing including casting, prepping, and compressive strength testing of concrete and grout specimens, soils testing, and review of testing results
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## CHIARA FERRERO-WONG - RESUMÉ

Profession: Renewable Energy Project Developer  
Specialization: GIS, Permitting, Consultation  
Position in Firm: Development Officer  
Years of Experience: 1 year  
Year Joined Firm: 2021  
Languages: English

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### PROFESSIONAL QUALIFICATIONS

- Bachelor of Environmental Science and English - 2021, Dalhousie University, Halifax, Canada
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### KEY EXPERIENCE AND RESPONSIBILITIES

- Worked as an intern at Natural Forces from April - August 2019 as part of the development team
  - Currently contributing towards the development portfolios for utility scale wind and solar projects across Canada as part of the development team with a focus on the Nova Scotia projects
  - Gaining experience in permitting, real property negotiations and contracts, stakeholder and rightsholder consultation, and site-finding
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### WORK HISTORY

<b>Development Officer 2021- present</b>	<b>Natural Forces Services Inc. (Halifax, Canada)</b>
<ul style="list-style-type: none"><li>• Managed applications for various environmental, municipal, provincial and federal permits</li><li>• Assisted in the interconnection applications with utility companies</li><li>• Identified new large scale wind project and solar project locations using GIS software</li><li>• Assisted with the drafting, review, and editing of Environmental Assessments for large scale wind projects in Nova Scotia</li><li>• Completed radiocommunication impact studies for large scale wind projects in Nova Scotia using GIS software following regulator guidance documentation</li><li>• Produced numerous maps for various permit applications, securing land, and public consultation</li><li>• Assisted in public consultation events including open houses and project launches by answering questions from the community and engaging with them on the project</li></ul>	

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**Development Officer (internship)  
2019****Natural Forces Services Inc.  
(Halifax, Canada)**

- Operated GIS software and used wind atlases to assess areas for suitable wind energy development.
  - Identified and assisted with approaching landowners of potential project sites
  - Performed high level desktop assessments of potential project sites
  - Produced numerous maps and documents required for securing land and permit applications
  - Wrote newsletters with project updates for landowners as part of the public consultation process
  - Updated and maintained individual project websites
  - Produced the first draft of the technical proposal for a utility scale solar project in Saskatchewan
-



## MEG MORRIS - RESUMÉ

Profession: Renewable Energy Project Developer  
Specialisation: Permitting, Consultation, Land Use Planning, Wind Resource  
Position in Firm: Development Manager  
Years of Experience: 3  
Year Joined Firm: 2019  
Languages: English

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### PROFESSIONAL QUALIFICATIONS

- Master's of Planning – 2018, Queen's University, Kingston, Ontario
    - Specialization: Environmental Services
  - Bachelor of Science, Physics – 2016, Mount Allison University, Sackville, New Brunswick
    - Minors: Environmental Science and Mathematics
- 

### KEY EXPERIENCE AND RESPONSIBILITIES

- Managing development, environmental assessment, and permitting activities for new utility scale wind projects in Atlantic Canada
  - Coordinating engagement with the relevant Indigenous peoples for renewable energy projects across Canada
  - Negotiating and applying for land contracts with private landowners and provincial Crown land regulators
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### WORK HISTORY

Development Manager 2020 - present	Natural Forces Services Inc. (Halifax, Canada)
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- Manage development activities for new utility scale wind projects in Atlantic Canada
  - Lead the drafting, review, and editing of environmental assessment documentation for wind projects in Nova Scotia
  - Manage engagement with the relevant Indigenous peoples for renewable energy projects across Canada
  - Assist in identifying and determining feasibility of new large scale wind projects using GIS software and field studies
  - Assist in micro-siting new wind project infrastructure based on the information gathered during the feasibility stage
  - Manage the completion of wind resource assessments for new wind projects by third party engineering firms
  - Negotiated and revised real property contracts with both individual and corporate landowners
  - Assist with public and stakeholder consultation by carrying out presentations,
-



participating in open houses and meetings, answering individual questions and concerns, and preparing the relevant materials

- Complete and manage interconnection applications with utility companies
- Manage and assist with applications for various municipal, provincial, and federal permits and funding sources, including those associated with the use of Crown land
- Work with municipal staff and councils to advise on new land use policies
- Contract and manage consultant field work programs

Development Officer  
2019-2020

Natural Forces Services Inc.  
(Halifax, Canada)

- Completed sound level and shadow flicker impact assessments for a wide range of projects with varying sizes and constraints
- Carried out radiocommunication impact studies in alignment with guidance documents from regulators and the Canadian Wind Energy Association
- Assisted with public consultation for several wind and solar projects across Canada
- Completed and managed interconnection applications with utility companies
- Managed and assisted with applications for various municipal, provincial and federal permits, including those associated with the use of Crown land
- Operated GIS software and used wind atlases to assess areas for suitable wind energy development
- Organized the installation and wind data measurement instrumentation such as meteorological towers, and LiDAR and SoDAR devices
- Identified and assisted with approaching landowners of potential project sites and preparing the land contracts
- Performed high level desktop assessments of potential project sites
- Assisted with data logging and instrumentation troubleshooting for meteorological masts throughout Nova Scotia
- Produced numerous maps and documents required for securing land and permit applications

Research Assistant  
2017-2019

Queen's University  
(Kingston, Ontario)

- Assisted with the work of the Planning with Indigenous Peoples research group
- Developed and managed an individual research project on the importance of including Indigenous peoples in environmental planning
- Carried out interviews with Indigenous representatives, and municipal and provincial government officials



## MEGAN MACISAAC - RESUMÉ

Profession: Renewable Energy Project Developer  
Specialisation: Permitting, Consultation, Environmental Science  
Position in Firm: Development Officer  
Years of Experience: 2  
Year Joined Firm: 2020  
Languages: English, French

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### PROFESSIONAL QUALIFICATIONS

- Bachelor of Science with Honours (Environmental Science) - 2019, Acadia University, Wolfville, Canada
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### KEY EXPERIENCE AND RESPONSIBILITIES

- Currently coordinating environmental studies and assessments for utility scale energy projects across Canada in various stages of development, construction, and operation
  - Worked as part of the development team in the successful deployment of 6 wind and solar energy projects throughout Nova Scotia, New Brunswick, Saskatchewan and British Columbia
  - Expertise in permitting, stakeholder and rightsholder consultation, and environmental science
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### WORK HISTORY

Development Officer 2020 - present	Natural Forces Services Inc. (Halifax, Canada)
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- Assist with the drafting, review and editing of several Environmental Assessments for large scale wind projects in Nova Scotia and New Brunswick
- Assist in drafting, review and editing of a Technical Proposal for a utility scale solar project in Saskatchewan
- Contract and coordinate consultant field work programs in New Brunswick, Nova Scotia, and British Columbia
- Manage applications for various environmental permits
- Assist in consultation for several wind farm projects throughout Nova Scotia and New Brunswick
- Produce numerous maps and documents required for regulators and stakeholders
- Conduct site constraint analysis and micro-sited wind projects, wind turbines and solar projects based on the results of the analysis
- Complete noise and shadow flicker impact assessments for a wide range of projects with varying sizes and constraints

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Global Change Research Technician  
2019

Saint Mary's University  
(Halifax, Canada)

- Review literature and extract data in order to analyze effects of invasive species on soil biodiversity
- Assisted with the drafting, review and editing of scientific papers for academic collaborators

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Solid Waste Resource Analyst  
2019

Nova Scotia Environment and Climate Change  
(Halifax, Canada)

- Researched novel programs, plans, initiatives and developments in solid waste resource management
  - Compiled and analyzed data to inform decision making
-



## AMY PELLERIN - RESUMÉ

Profession: Renewable Energy Project Developer  
 Specialisation: Project Management, Permitting, Consultation  
 Position in Firm: Director – Canadian Development  
 Years of Experience: 10  
 Year Joined Firm: 2012  
 Languages: English, French

### PROFESSIONAL QUALIFICATIONS

- Bachelor of Environmental Engineering - 2012, Dalhousie University, Halifax, Canada
- Professional Engineer Certification - 2015, Engineers Nova Scotia, Halifax, Canada

### KEY EXPERIENCE AND RESPONSIBILITIES

- Currently managing development portfolios for approx. 12 utility scale wind and solar projects across Canada
- Worked as part of the development team in the successful deployment of 13 wind and solar energy projects throughout Nova Scotia, New Brunswick, Saskatchewan and British Columbia
- Expertise in permitting, real property negotiations and contracts, stakeholder and rightsholder consultation, project financing, and financial due diligence

### WORK HISTORY

Director – Canadian Development 2021- present	Natural Forces Services Inc. (Halifax, Canada)
<ul style="list-style-type: none"> <li>• Manages the development portfolio for utility scale energy projects across Canada</li> <li>• Leads Natural Forces’ development team through all development relevant tasks</li> <li>• Prepares budgets, schedules, and development plans for all projects from coast to coast to coast</li> </ul>	
Senior Development Manager 2019 - 2021	Natural Forces Services Inc. (Halifax, Canada)
<ul style="list-style-type: none"> <li>• Managed the development portfolio for utility scale energy projects across Canada</li> <li>• Lead the Canadian development team through all development relevant tasks starting with site finding through to construction and further in construction and operations as environmental manager</li> <li>• Lead a team of consultants working on the development of several projects from coast to coast to coast</li> <li>• Trained new team members on all development tasks</li> </ul>	
Development Engineer	Natural Forces Services Inc.

2012-2019

(Halifax, Canada)

- Assisted with the drafting, review and editing of many Environmental Assessments for large scale wind projects in Nova Scotia and New Brunswick
- Assisting in drafting, review and editing of three Development Plans for large scale wind projects in British Columbia - environmental permitting process in British Columbia for wind projects <50MW
- Identified new large scale wind project and solar project locations using GIS software as well as field studies
- Conducted site constraint analysis and micro-sited wind projects, wind turbines and solar projects based on the results of the analysis
- Negotiated and developed real property contracts with individual landowners as well as contractors
- Completed noise and shadow flicker impact assessments for a wide range of projects with varying sizes and constraints
- Managed public and First Nation consultation for several wind farm projects throughout Nova Scotia, New Brunswick and British Columbia
- Co-managed opposition group consultation using methods such as group discussions and consultation liaison committees
- Contracted and managed consultant field work programs
- Completed and managed interconnection applications with utility companies
- Managed applications for various environmental, municipal, provincial and federal permits

Development Officer (internship)  
2011-2012

Wind Prospect Inc.  
(Halifax, Canada)

- Operated GIS software and used wind atlases to assess areas for suitable wind energy development.
- Organized the installation and wind data measurement instrumentation such as meteorological towers, and SoDAR devices
- Identified and assisted with approaching landowners of potential project sites
- Performed high level desktop assessments of potential project sites
- Assisted with data logging and instrumentation troubleshooting for meteorological masts throughout Nova Scotia
- Produced numerous maps and documents required for securing land and permit applications

PHILIP D. TAYLOR

Department of Biology, Acadia University  
Wolfville, NS, B0P 1X0

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e-mail tabanid@gmail.com

### **Education**

Doctor of Philosophy (Biology), Carleton University, Ottawa, Ontario. October 1993. Thesis: *Responses of a forest damselfly to differences in landscape structure arising from habitat fragmentation.*

Master of Science (Biology), University of Waterloo, Waterloo, Ontario. 1987. Thesis: *Aggregation and mating behaviors of three species of Tabanidae (Diptera).*

Bachelor of Environmental Studies (Man-Environment Studies), University of Waterloo, Waterloo, Ontario. 1984.

### **Research Positions**

July 2006 - present

- Professor, Department of Biology, Acadia University, Wolfville, NS.

Jan 2010 – Aug 2019

- Bird Studies Canada Chair of Ornithology, Acadia University, Wolfville, NS.

Nov 2007 – Dec 2009

- Chief Scientist, Bird Studies Canada, Port Rowan, ON.
- On leave from Acadia University.

July 2000 – June 2006

- Associate Professor, Department of Biology, Acadia University, Wolfville, NS.

January 1995 – June 2000

- Assistant Professor, Department of Biology, Acadia University, Wolfville, NS.

January 1995 – 2008

- Chair, Atlantic Cooperative Wildlife Ecology Research Network

October 1993 - December 1994

- Postdoctoral fellow - Department of Zoology, University of Alberta, Edmonton, AB.

December 1989 - April 1990

- Researcher - World Wildlife Fund/ICBP - Taï Forest Project - Côte d'Ivoire, West Africa

June 1987 - October 1993

- Ecological Consultant - self employed

September 1987 - November 1989

- Researcher - Department of Biology, University of Waterloo

September 1987 - November 1989

- Researcher - Department of Environment and Resource Studies, University of Waterloo.

### Refereed publications

- TL Imlay, HAR Mann, PD Taylor. 2021. Autumn migratory timing and pace are driven by breeding season carryover effects. *Animal Behaviour* 177, 207-214
- Bégin-Marchand, C. A Desrochers, PD Taylor, JA Tremblay, L Berrigan. 2021. Spatial structure in migration routes maintained despite regional convergence among eastern populations of Swainson's Thrushes. *Movement ecology* 9 (1), 1-11
- Walker J. & PD Taylor. 2020. Evaluating the efficacy of eBird data for modeling historical population trajectories of North American birds and for monitoring populations of boreal and Arctic breeding species *Avian Conservation and Ecology* 15 (2).
- Imlay, TL & PD Taylor. 2020. Diurnal and crepuscular activity during fall migration for four species of aerial foragers. *The Wilson Journal of Ornithology* 132 (1), 159-164
- Bayly, NJ, DR Norris, PD Taylor, KA Hobson, A Morales-Rozo. 2020. There's no place like home: tropical overwintering sites may have a fundamental role in shaping migratory strategies *Animal Behaviour* 162, 95-104
- Imlay, TL, S Saldanha, P Taylor. 2020. The fall migratory movements of Bank Swallows, *Riparia riparia*: fly-and-forage migration? *Avian Conservation and Ecology* 15 (1)
- Saldanha, S., P Taylor, T Imlay, M Leonard. 2020. Biological and environmental factors related to communal roosting behavior of breeding Bank Swallow (*Riparia riparia*). *Avian Conservation Ecology* 14(2).
- KM Covino, S. Morris, P Taylor. 2020. Spring migration of blackpoll warblers across North America. *Avian Conservation and Ecology*.
- Cormier, D. & P.D. Taylor.. 2019. Contrasting patterns of post-fledging movements of two sympatric warbler species with different life-history strategies" *Journal of Avian Biology*.
- KM Covino, S. Morris, P Taylor. 2020. Spring migration of blackpoll warblers across North America. *Avian Conservation and Ecology*
- Griffin, A. + ~15 authors, P.D. Taylor. 2019. A large-scale automated radio telemetry network for monitoring movements of terrestrial wildlife in Australia. *Australian Zoologist* 40 (3), 379-391.
- DeLuca, WV, BK Woodworth, SA Mackenzie, AEM Newman, HA Cooke, LM Phillips, NE Freeman, AO Sutton, L Tauzer, C McIntyre, IJ Stenhouse, S Weidensaul, PD Taylor, DR Norris. 2019. A boreal songbird's 20,000 km migration across North America and the Atlantic Ocean. *Ecology*, e02651
- Craig, C, MJ Mazerolle, PD Taylor, JA Tremblay, MA Villard. 2019. Predictors of habitat use and nesting success for two sympatric species of boreal woodpeckers in an unburned, managed forest landscape. *Forest Ecology and Management* 438, 134-141.
- Müller, Florian; Eikenaar, Cas; Crysler, Zoe; Taylor, Philip; Schmaljohann, Heiko. 2018. Do distance and nature of the migration route affect the nocturnal departure timing in a migratory songbird? Accepted: *Journal of Animal Ecology*.
- Loring, P., R. Ronconi, I. Welch, M. Mallory & P.D. Taylor. 2017. Post-breeding dispersal and staging of Common and Arctic terns throughout the western North Atlantic. Accepted., *Avian Conservation and Ecology*.
- Morbey, Y.L., C.G. Guglielmo, P.D. Taylor, I. Maggini, J. Deakin, S. A. Mackenzie, J. M. Brown, L. Zhao. 2017. An evaluation of sex differences in the stopover behavior and post-departure movements of migratory wood-warblers. *Behavioral Ecology* 29 (1), 117-127.
- Smetzer, JR, DI King, PD Taylor. 2017. Fall migratory departure decisions and routes of blackpoll warblers *Setophaga striata* and red-eyed vireos *Vireo olivaceus* at a coastal barrier in the Gulf of Maine. *Journal of Avian Biology* 48 (11), 1451-1461.

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#### **Invited talks and conference presentations**

- SCO Conference: Quebec City; August 2019. Motus talk.
- The Motus Wildlife Tracking System: A collaborative approach to wildlife telemetry. BirdMove conference: Berlin, October 2018.
- The Motus Wildlife Telemetry system. Symposium speaker, International Ornithological Congress. Vancouver, BC. August 2018.
- Motus wildlife tracking in Australia. Dec 2016 (presentation and participation via skype).
- Invited speaker. The Motus Wildlife Tracking Network. 29 May - 2 June 2016. Minerva Center for Movement Ecology, The Hebrew University of Jerusalem.
- Invited speaker. Forum on Automated Radiotelemetry in Europe. 15–16 June 2016. Center for animal movement research, Lund University, Lund, Sweden
- Tracking songbirds at regional and continental scales. November 2015, Institute of Avian Research, Wilhelmshaven, Germany; Max Planck Institute of Ornithology, Radolfzell, Germany, Swiss Ornithological Institute, Sempach, Switzerland.
- Invited speaker. 10th Student Colloquium at the Institute of Ecology A.C. (INECOL), Xalapa, Veracruz, Mexico. 30 September 2015.
- The Motus Wildlife Telemetry Array; Simon Fraser University; Environment Canada Delta (Vancouver BC). January 2015.
- Invited speaker (with C. Guglielmo). August 2014. Nocturnal departure decisions of individuals at ecological barriers. Invited symposium keynote address. International Congress of Ornithology, Tokyo, Japan.
- Frontiers in Tracking Technology. NSF Workshop, Arlington, VA. October 2014.
- Using the Motus wildlife tracking system. Workshop at SERC, Acadia National park. With Jenny Smetzer and Pam Loring. June 2014.
- Using automated telemetry for tracking regional movements of migrating animals. SERC Science Symposium, Schoodic, Maine. 22 October 2013. (Cancelled due to government shutdown).
- University of Maine, Orono. Biology/Wildlife Ecology Seminar Series. 13 April 2012. Dilemmas faced by songbirds at the Gulf of Maine SERC, Acadia National Park, ME. 11 April 2012. Songbirds crossing the Gulf of Maine. Public lecture.
- American Ornithologists Union Annual Meeting. Jacksonville, FL, July 2011. Scale and habitat use by boreal forest passerines during the post-fledging period. Symposium on habitat use of migrant birds.

World Odonatological Congress. July 2005. Damselflies in Landscapes.  
Plenary, Canadian Entomological Society, PEI, 15 October 2004.  
Taylor, P.D. Conservation Ecology and the Resilience Alliance, Opportunities and Challenges. Invited Presentation to the Pew Fellows Annual Meeting, Pew Charitable Trust. October 2002.  
Taylor, P.D. Multi-scale analyses of damselfly movements: Implications for population structure. Spatial Ecology Conference, Helsinki, Finland, Sept. 1999.  
Taylor, P.D. Cross-scale dynamics of insect movements - What is the role of landscape structure? International Association for Landscape Ecology (UK Region) Annual Meeting. Coleraine, Northern Ireland, 9-11 September 1997.  
Taylor, P.D. Putting the pieces together: fine-scale movements and large-scale distribution of a forest damselfly in an agricultural landscape. Symposium on Interchanges of Insects between agricultural and surrounding landscapes. XX International Congress of Entomology, Florence, Italy. 25-31 August 1996.  
Roland, J. and P.D. Taylor. Effects of forest fragmentation on insect population dynamics. Invited Presentation, 18th Symposium of the Royal Entomological Society, Forests and Insects, 13-15 Sept. 1995.  
Roland, J. and P.D. Taylor. Comparison of regional herbivore-natural enemy dynamics in fragmented and continuous forests. Symposium: Understanding population stability and outbreaks: New approaches from the study of phytophagous insects, 79th Annual Meeting, Ecological Society of America, Knoxville, Tennessee, 7-11 August 1994.

#### **Invited seminars, lectures, meetings, and workshops**

Motus wildlife tracking in Australia. Dec 2016 (presentation and participation via skype).  
Tracking songbirds at regional and continental scales. November 2015, Institute of Avian Research, Willhelmshaven, Germany; Max Planck Institute of Ornithology, Radolfzell, Germany, Swiss Ornithological Institute, Sempach, Switzerland.  
The Motus Wildlife Telemetry Array; Simon Fraser University; Environment Canada Delta (Vancouver BC). January 2015.  
Frontiers in Tracking Technology. NSF Workshop, Arlington, VA. October 2014.  
Using the Motus wildlife tracking system. Workshop at SERC, Acadia National park. With Jenny Smetzer and Pam Loring. June 2014.  
IOC - 2014  
SERC, Acadia National Park, ME. 11 April 2012. Songbirds crossing the Gulf of Maine. Public lecture. University of Maine, Orono. Biology/Wildlife Ecology Seminar Series. 13 April 2012. Dilemmas faced by songbirds at the Gulf of Maine.  
Songbird migration. University of Western Ontario. Fall 2007  
Landscape Connectivity. Lecture at Yunnan Normal University, Kunming, PR China. 20 March 2007.  
Landscape Connectivity – Public Forum. Corner Brook, NL. 9 June 2004.  
TIEE Workshop – Teaching in Ecology and Evolution, Arizona State University, November, 2003  
CIAR Workshop – An Ecology program, Montreal– August, 2003  
Dalhousie University – Biology Seminar Series – Halifax, March 2003.  
SYNERGIES Symposium – Vancouver, BC. March 2003.  
Pew Charitable Trust – Program for Marine Conservation – October 2002.  
Canadian Institute for Advanced Research ecology workshop – November 2002.  
DNR Connectivity Workshop – May 2002.  
CIAR ecology workshop – May 2002

Selected other presentations (not updated)

Francis, C.M., P.D. Taylor, Z. Crysler. Motus Wildlife Tracking System  
A novel approach for tracking small birds. British Ornithologist's Union Conference, Fall 2014, selected Abstracts.

- C.M. Francis<sup>1</sup>, P.D. Taylor<sup>2</sup>, J. Brzustowski<sup>2</sup>, and J.R. Zimmerling<sup>1</sup> Use of Marine Radar to Evaluate Collision Risk of Migrants with Wind Turbines.
- Mills, A., B. Thurber, S. Mackenzie, & P. Taylor. 2009. Using automated multiple-tower telemetry to monitor nocturnal activity of passerines during migration stopovers. Oral presentation given at the joint meeting of the Wilson Ornithological Society and Association of Field Ornithologists, Pittsburgh PA, April 8-12.
- Calvert, A.M., Jonsen, I.D., Taylor, P.D. and Walde, S. 2007, 2008. Dealing with complex variability in demographic traits using hierarchical Bayesian multi-state mark-recapture models. Oral presentation given at the International Statistical Ecology Conference, July 2008, St Andrews, Scotland and at the Society of Canadian Ornithologists meeting, October 2007, Lake Opinicon, Ontario.
- Matkovich, C. and J. Brzustowski. 2007. Automated detection, recording and processing of birds and other biological targets using marine radar and open-source software. International Conference on Radar Ornithology and Entomology, Helgoland, DE.
- Nocera, J.J., P.D. Taylor, and L.M. Ratcliffe. 2007. Migrating birds inspect mobs as sources of predator information. Oral presentation to the International Ethological Conference, 15-23 August 2007, Halifax, NS, Canada.
- Mitchell, G.W., P.D. Taylor, and I.G. Warkentin. 2006. Juvenile Songbird Movement in the Boreal Forest. IV North American Ornithological Conference, Vera Cruz, Mexico, October 2006.
- Dalley, K.L., P.D. Taylor, and D. Shutler. 2006. Breeding success of migratory songbirds in boreal forests of Newfoundland, Canada. IV North American Ornithological Conference, Vera Cruz, Mexico. October 2006.
- Whitaker, D.M., P.D. Taylor, and I.G. Warkentin. 2006. Breeding dispersal by migratory boreal forest songbirds. IV North American Ornithological Conference, Veracruz, Mexico. October 2006.
- Leonard, Tina, D., P.D. Taylor and I.G. Warkentin. 2006. Landscape Connectivity and Movement Behavior of Breeding Neotropical Migrants in Response to Forest Harvesting. IV North American Ornithological Conference, Veracruz, Mexico. October 2006.
- Calvert, A.M., Taylor, P.D. and Walde, S. 2005. How does weather affect the migratory decisions of songbirds in Atlantic Canada? A preliminary assessment. Oral presentation given as part of the Citizen Science Symposium, Society of Canadian Ornithologists Meeting, October 2005, Halifax, Nova Scotia.
- Nocera, J.J., Fitzgerald, T.M., and Taylor, P.D. 2005. Reaction to familiar and foreign alarm calls in neotropical and temperate passerines. Oral Presentation, Society of Canadian Ornithologists Conference. Halifax, NS. 20-22 October 2005.
- Peckford, M.L. and Taylor P.D. 2005. Integrating radar as a tool for monitoring passerine migration. 24<sup>th</sup> annual meeting of the Society of Canadian Ornithologists, Halifax, Nova Scotia.
- Peckford, M.L. 2004. Patterns of Nocturnal Avian Migration in Atlantic Canada. Canadian Society of Zoologists 43<sup>rd</sup> annual meeting, Wolfville, Nova Scotia.
- Fitzgerald, T.M., Taylor, P.D. 2004. Juvenile Yellow-rumped Warblers can correct migratory orientations mid-course. Oral Presentation, American Ornithologists' Union / Society of Canadian Ornithologists Conference. Quebec City, QC. 16 - 21 Aug. 2004.

#### **Scientific reports/book chapters, non-refereed**

Crysler, Z, T. Crewe and P.D. Taylor. R-Motus book. Published on-line at: [www.motus.org](http://www.motus.org).

Stewart RLM, Bredin KA, Couturier AR, Horn AG, Lepage D, Makepeace S, Taylor PD, Villard MA, Whittam RM (eds). 2016. Second Atlas of Breeding Birds of the Maritime Provinces. Bird Studies Canada, Environment Canada, Natural History Society of Prince Edward Island, Nature New Brunswick, New Brunswick Department of Natural Resources, Nova Scotia Bird Society, Nova Scotia Department of Natural Resources and Prince Edward Island Department of Agriculture and Forestry. Sackville, 528 + 28 pp.

Taylor, P.D, D. Lepage, M. Campbell and A. Couturier. 2016. Assessing abundance and change. Chapter 4 in: Stewart et al. (Eds). 2016. Second Atlas of Breeding Birds of the Maritime Provinces. Bird Studies Canada, Environment Canada, Natural History Society of Prince Edward Island, Nature New Brunswick, New Brunswick

Department of Natural Resources, Nova Scotia Bird Society, Nova Scotia Department of Natural Resources and Prince Edward Island Department of Agriculture and Forestry. Sackville, 528 + 28 pp.

Campbell, M. M.J. Colwell, C. Craig, H. Lightfoot, S. Makepeace, R. Stewart, P.D. Taylor & B. Woodworth. 2016. Maritimes-specific Species-habitat associations. Chapter 5 in: Stewart et al. (Eds). 2016. Second Atlas of Breeding Birds of the Maritime Provinces. Bird Studies Canada, Environment Canada, Natural History Society of Prince Edward Island, Nature New Brunswick, New Brunswick Department of Natural Resources, Nova Scotia Bird Society, Nova Scotia Department of Natural Resources and Prince Edward Island Department of Agriculture and Forestry. Sackville, 528 + 28 pp.

Crewe, T., J.D. McCracken, P.D. Taylor, D. Lepage & A. E. Heagy. 2008. The Canadian Migration Monitoring Network – Ten year report on monitoring landbird population change. CMMN-RCSM Technical report #1, Bird Studies Canada.

Taylor, P.D. & C. Matkovich. Consulting report. Analysis of bird movements using radar at a proposed wind farm. Prepared for Golder Consulting, Nov. 2007.

Fitzgerald, T. M & P.D. Taylor. 2006. Long-term monitoring of *Listera australis* at a proposed White Rock quartz mine in Yarmouth, Nova Scotia. Unpublished report prepared for Black Bull Resources Ltd.

Taylor, P.D. and M. McPherson. 2005. Long-term monitoring of *Listera australis* at a proposed White Rock quartz mine in Yarmouth, Nova Scotia. Unpublished report prepared for Black Bull Resources Ltd.

Teichert, S. & P.D. Taylor. 2000. Spatial and temporal patterns of harvested bobcats (*Lynx rufus*) in Nova Scotia. Technical report prepared for NS-Dept. of Natural Resources, March 2000.

Gartshore, M.E., P.D. Taylor and I. Francis. 1995. Forest birds in Côte d'Ivoire: A survey of Taï National Park and other forests and forestry plantations, 1989-1991. Study report #58, Birdlife International, Cambridge, UK.

Taylor, P.D. and G. Merriam. 1994. Movement behaviors of a forest damselfly in fragmented landscapes. Report to Wildlife Habitat Canada, Ottawa, ON.

Taylor, P.D. and S.H. Montonen. 1993. Manual of endangered species on Department of National Defence land. Contract: Department of National Defence, Ottawa, ON.

Fairey, D.T., L.P. Lefkovitch and P.D. Taylor. 1993. Producing Alfalfa seed more efficiently: A computer program for farmers. Alberta Alfalfa Seed Producers Association, Beaverlodge, AB.

Balsler, D.A., S.H. Montonen, and P.D. Taylor. 1989. Volunteer Natural History Projects in Ontario. Pamphlet, The Natural History Research Group, University of Waterloo.

Taylor, P.D. and S.M. Smith. 1987. Multi-species clusters of Birds in southern Ontario. In: Cadman, M.D., P.F.J. Eagles, and F.M. Helleiner. Atlas of the Breeding Birds of Ontario. University of Waterloo Press: Waterloo.

Taylor, P.D. 1987. Rough-winged Swallow, Cliff Swallow, Purple Martin. Species accounts in: Cadman, M.D., P.F.J. Eagles, and F.M. Helleiner. Atlas of the Breeding Birds of Ontario. University of Waterloo Press: Waterloo.

### **MSc. Students in progress**

Cardy Hallet-Saunders

David Bell

Celine Gauthreau (with John Brazner, DNR)

### **PhD. Students in progress**

Jake Walker (Dalhousie)

Andrew Beauchamps (Western)

### **PDF in progress**

Sergio Cabrera

### **Theses**

Bliss, Sydney.

Berrigan, Lucas. 2017

Cormier, Dominic. 2017

Brown, Morgan. 2016.

Saldhana, Sarah. 2016. (Dalhousie).

Crewe, Tara. 2015 (UWO; PhD).

Crysler, Zoe. 2015

Woodworth, Brad. 2012

Lightfoot, Holly. 2012

Craig, Catherine. 2010

Matkovich, C. 2010. Radar Aeroecology: Mesoscale nocturnal avian migration and using radar cross section to distinguish among target types.

McKenzie, S.A. 2010. A scale-dependent examination of stopover decisions in migratory passerines at Long Point, Ontario. University of Western Ontario.

Thurber, B. 2010. Daily flight timing and movement strategies of migrating landbirds: importance of local wind patterns. University of Western Ontario.

Calvert, A.M. 2009. Modeling variation in stopover behavior by migratory songbirds: temporal patterns and implications of climate change. Dalhousie University. PhD.

Jeppeson, R. 2009. Reintroduction of Marten in Nova Scotia.

Mitchell, G. 2007. Juvenile songbird movement and habitat use in harvested boreal forest landscapes of western Newfoundland.

Leonard, T.L. 2007. Songbird space use and movement in heterogeneous landscapes vary with landscape structure and spatial scale.

Daley, K.D. 2007. Nest site characteristics and the influence of clear-cutting at multiple scales on breeding success of migratory songbirds in boreal forests of Newfoundland, Canada.

Chin, K.S. 2006. Within peatland spatial structuring and the influence of the matrix on between peatland movement of the dragonfly, *Leucorrhinia hudsonica* in western Newfoundland.

Peckford, M. 2006. Wind Drift and the use of radar, acoustics, and Canadian Migration Monitoring Network methods for monitoring nocturnal passerine migration.

McPherson, A. M. 2005. Between-patch movements of a peatland dragonfly (*Leucorrhinia hudsonica*) and the influence of landscape structure on its distribution and abundance in western Newfoundland.

Powell, K.G. 2005. Songbird movement, relative abundance and species composition in natural and managed forest landscapes in western Newfoundland.

Fitzgerald, T. 2004. Orientation behaviour of the Yellow-rumped Warbler (*Dendroica coronata*)

Potter, D.A. 2002. Modelling Fisher (*Martes pennanti*) habitat associations in Nova Scotia.

Holder, M.2001.The influence of habitat structure on peatland Odonata at local and landscape spatial scales.

Krawchuk, M.2001. Movement and distribution of three species of inquiline insects in boreal boglands: process and pattern at multiple spatial scales.

#### **Scientific Appointments, Editorships and reviews**

- Executive Director – The Resilience Alliance (a US non-profit society)
- Bird Studies Canada – National Science Advisory Council (2004-2005; Chair: 2005-2019)
- Vice-Chair, Science Advisory Board – The Atlantic Conservation Data Center (2005)
- Maritimes Breeding Bird Atlas (2005-2016); Chair, Technical committee, Vice-chair, Steering committee
- Subject editor, *Ecology & Society* (1997- present)
- Subject editor, *Avian Conservation and Ecology* (2005-present)

#### **Support currently held**



- P.D. Taylor – NSERC Discovery grant – Movement/Birds – \$28K/ann. – 2020-2026
- P.D. Taylor + 5 others – NSESRC CRD grant – bird migration in Atlantic Canada – \$1.7M -- 2020-2024
  - Includes support from 3 windfarm companies in NB

### Support previously held

- Guglielmo + 8 others; CFI led by Western University (with Guelph and Acadia)-- \$3M – 2014-2020
- Various contracts/grants for Tara Imlay swallow work – 2019-2021 (NBWTF etc.)
- P.D. Taylor – NSERC Discovery grant – Movement/Birds – \$28K/ann. – 2014-2019
- P.D. Taylor – Impacts of windfarms on birds (Environment Canada) – \$67K - 2007-2010
- P.D. Taylor – movement of passerine birds in SW Nova Scotia – (NSHCF) – 20K – 2010
- P.D. Taylor – Contract with Amherst Wind Farm -- \$75K. 2014.
- P.D. Taylor. NSERC CRD with Encana Corporation. ~450K; 2010-2013
- P.D. Taylor – NSERC Discovery grant – Movement/Birds – \$25.6K/ann. – 2007-2011
- P.D. Taylor – Core ACWERN (NSERC/CWS) funding – \$100K/ann – 2007-2009
- P.D. Taylor – Resilience Alliance – Regional Resilience (Packard/Christensen Foundation) – \$100K - 2007/2008
- P.D. Taylor – NSERC Discovery grant – Movement/Pitcher Plants – \$22.5K/ann. – 2002-2006
- P.D. Taylor – Climate Change Action Fund – \$120K - 2004-2005
- P.D. Taylor – Core ACWERN (NSERC/CWS) funding – \$66K/ann.
- P.D. Taylor – Corner-Brook Pulp and Paper – Landscape Connectivity -\$45K/ann. - 2003-2005
- P.D. Taylor – NSERC CRD – Landscape Connectivity - \$80K/ann. - 2003-2005
- P.D. Taylor – Gros Morne NP – Landscape Connectivity – \$45K/ann. - since 1998
- P.D. Taylor – Atlantic Bird Observatory – Environment Canada – \$9K - 1997-2010
- P.D. Taylor—DNR – meso-carnivore studies – \$20K - 2004
- P.D. Taylor – Population Dynamics of *Listera australis* – Black Bull– \$24K - 2004-2005
- P.D. Taylor – Science Horizons – \$9K – 2004

### Teaching

2001-present

- Population Biology 3<sup>rd</sup> year. Acadia University (until 2003/04)
- Advanced Ecology (2004-2006) (Block course, 2005, 2006)
- Ecology (2011-present, x+lab)
- Graduate Course (2002, 2004 x 2, 2005-2009 x2, 2011-2021)
- Belize Field Course (2002-2007, 2009)

1999-2000

- Population Biology 3<sup>rd</sup> year. Acadia University (½ course; Winter 2000)
- Core Graduate Course (with SBN) (Fall/Winter 200)

1998-1999

- Population Biology 3<sup>rd</sup> year. Acadia University (½ course; Winter 1999)
- Graduate seminar in Ecology (Fall/Winter 1999)
- Core Graduate Course (with SBN) (Fall/Winter 1999)

1997-1998

- Terrestrial Ecology – 3<sup>rd</sup> year. Acadia University (½ course)
- Graduate seminar in Ecology (Fall/Winter 1998)

1996-1997

- Population Biology – 3<sup>rd</sup> year. Acadia University (½ course)
- Introductory Ecology – 2<sup>nd</sup> year. Acadia University (½ course)
- Advanced Methods in Ecology (2 terms)- Graduate course. Acadia University
- Special Problems – Jeff Franklin, Jason Pither, Ian Jonsen. Acadia University
- Guest Lectures: Animal Behavior

1995-1996

- Population Biology – 3<sup>rd</sup> year. Acadia University (½ course)
- Advanced Methods in Ecology (2 terms) – Graduate course. Acadia University
- Special Problems – Trish Turliuk. Acadia University
- Guest Lectures: Entomology, Ornithology, Conservation Biology

September 1994 - December 1994

- Statistical Ecology (Graduate Course), Dept. Biological Sciences, University of Alberta

February 1988 - April 1988

- Lecturer, Department of Biology, University of Waterloo - Population Ecology

### **Public Presentations**

- Blomidon Naturalists Society – 2002
- Nova Scotia Bird Society, Birds as indicators of change – September 1998
- Blomidon Naturalist Society – The biology of horse flies – April 1997
- Annapolis Valley Naturalist Society – Climate change – October 1997

### **Graduate students -- completed**

- Jason Pither - MSc. - defended – May 1997. Nominated, Governor General's Award
- Nicole Nadorozny - MSc. - defended – August 1997
- Ian Jonsen - MSc. – defended – January 1998. Nominated, Governor General's Award
- Samara Eaton MSc. – defended – May 1999
- Joseph J. Nocera MSc. – defended – May 1999
- Matthew Holder – MSc. – defended fall 2002
- Meg Krawchuk – MSc. – defended fall 2002
- Derek Potter – MSc. – defended spring 2003
- Michelle McPherson – MSc. – defended fall 2003 (NSERC)
- Kurtis Trczinsky – Ph.D. (co-supervised with Sandra Walde, Dalhousie) – defended 2003
- Trina Fitzgerald – MSc. – defended spring 2004
- Kristin Powell – MSc. – defended spring 2005 (NSERC IRF)
- Krista Chin – MSc. – defended fall 2005
- Mike Peckford – defended spring 2006
- Jenny Berlo – defended fall 2006
- Tina Leonard – defended spring 2007 (NSERC)
- Katie Dalley – defended spring 2007
- Greg Mitchell – defended fall 2007
- Anna Calvert (PhD)– NSERC PGSB; Killam PhD – Dalhousie – defended spring 2009
- Rebecca Jeppeson – defended 2009

- Stuart MacKenzie – defended 2010
- Bethany Thurber – defended 2010
- Carolyn Matkovich – started 2005 (NSERC)
- Bradley Woodworth – started 2010
- Holly Lightfoot – started 2010
- Tara Crewe (Western) started 2009
- Zoe Crysler
- Dominic Cormier
- Morgan Brown
- Bryant Dossman (Ohio State)
- Lucas Berrigan
- Sydney Bliss

### **Honours students**

- Samara Eaton – 1996
- Phil Montford – 1996
- Blair Sangster – 1997
- Nicole Humble – 1997
- Jennifer Miner – 1998
- Andrea Marshall – 1998
- Jenn Baltzer – 2000
- Renée Cormier – 2000
- James Churchill – 2000
- Alison Keen – 2002
- Katie Marshall – 2007
- Brad Woodworth – 2009

### **Academic and University Committees**

- Executive committee (founding member) -- *Conservation Ecology* (Ecology & Society)- 1993-present
- Science and Management of Protected Areas Association (SAMPAA) – Board – 1998 -2007
- Atlantic Conservation Data Center -- Vice-Chair, Scientific Advisory Board -- 1999-2005; Executive Committee (Treasurer; 2004-2005)
- Nova Scotia Herpetofaunal Atlas -- Steering Committee -- 1999 – 2005
- University Pension Committee (2002-present)
- University Review Committee (Tenure/Promotion) – 2002-2005
- Representative to University Senate, Faculty of Pure and Applied Science, elected: 1998-2003
- Copyrights and Patents committee – Ninth Collective Agreement, Acadia University, 1998.
- Bon Portage Island Steering committee – Acadia University – April 1996 – present.
- Fundraising committee -- *Conservation Ecology* - 1995-2004
- Wildlife Habitat Canada - Research Awards Selection Committee – 1996-2001
- Graduate student co-coordinator – Acadia University- September 1996 – 2005

**Keith MacNeil, P. Eng.**  
**Telecommunications Engineer**  
*MacNeil Telecom Inc.*

**Qualifications/Education:**

Association of Professional Engineers of Nova Scotia (APENS) – P. Eng. accredited in May 1994  
Lakehead University, B. Electrical Engineering – 1992 Graduate

**Work Experience/Projects:**

**Radio Communications Engineer & Project Manager - MacNeil Telecom Inc.  
(2011-Present)**

*Nova Scotia Power*

Design and manage various types of telecommunication projects: Hydro plant radio systems upgrades, radio shelter design/retrofit, manage the installation & maintenance of radio antenna systems, radio site development;

*Province of Nova Scotia*

Design and install a province wide 4.9GHz microwave radio network (60 links);

*Natural Forces Wind Farms, NS*

RF studies related to the development of several wind projects in Nova Scotia and New Brunswick;

*Don Fisher Construction Ltd.*

Project management and technical support for the construction of radio communication towers, civil works and RF system installations (cellular 800/1900 HSPA & 2100/2600/700LTE, microwave radio) for Bell Mobility, Rogers, Eastlink, NS Power, PNS Government. Specification review, bid preparation, material orders, project scheduling, sub-contractor management, RF review, antenna testing, ACAD drafting, as-built documentation;

**Consulting Telecommunications Engineer – Oldham Engineers Inc.  
(1992-2011)**

*Regional Municipality of Wood Buffalo, Fort McMurray, Alberta (2007-2011)*

Design/build region-wide 10 site UHF simulcast land mobile radio (LMR) system, wide area network and microwave radio backbone. System design, equipment selection/purchasing, system integration, installation and commissioning, coverage testing of multi-vendor communication systems.

*KSLO/SNC Lavalin, Halifax (2001-2006)*

ExxonMobil Sable Island Offshore Projects: Alma Platform, South Venture Platforms, Thebaud Tie-Ins & Compression Platform. Design of natural gas platform telecommunication systems, multi-discipline interface, specification preparation, vendor proposal & design reviews, management during installation and commissioning phases. Microwave radio links, PA&A system, platform radio communications (aeronautical, marine, UHF), safety systems (GMDSS), metrological, LAN and telephone system;

*Maritime Electric Company Ltd. (1999-2001)*

Design & construction of a province-wide 7GHz/900MHz microwave radio system;

*Public Safety Radio Communication Systems (1991-1999)*

*Various Regions & Municipalities in Ontario and Atlantic Canada.* RF coverage studies (800/UHF/VHF), microwave radio system design, interference analysis, Pathloss predictions, traffic predictions, Industry Canada licensing, site engineering, bid preparations/reviews, various project studies in support of 800MHz trunked radio systems, microwave radio systems, etc.;

*Transmission (Microwave) Engineering (1993-1996)*

RF design of microwave radio systems for Rogers Communications (Ontario Build), Telus (Ontario-Montreal Build), Rhode Island State Police.

**Kyle G. Cigolotti, BA**  
**Managing Partner & Archaeologist**

Cultural Resource Management Group Limited

Ten Mile House  
1519 Bedford Highway  
Bedford, Nova Scotia  
B4A 1E3

Phone: (902) 453-4972  
E-mail: [kcigolotti@crmgroup.ca](mailto:kcigolotti@crmgroup.ca)  
Website: [www.crmgroup.ca](http://www.crmgroup.ca)



**Education**

Bachelor of Arts – Anthropology, Saint Mary’s University (2009)  
▶ Placide Rivette Family Archaeology Award, 2009

**Affiliations**

Nova Scotia Archaeology Society  
▶ Member, 2012-present; Board of Directors, 2016-2018; Treasurer, 2018-present  
Ontario Archaeology Society  
▶ Member, 2017-present  
Canadian Archaeological Association  
▶ Member, 2012-present; Conference Chairperson  
Ontario Archaeological Research License Holder  
▶ R1281  
Nova Scotia Special Places Program Heritage Research Permit Holder, in good standing

**Certifications**

Red Cross Standard First Aid  
▶ CPR Level C  
CCOHS Hazard Identification, Assessment, & Control  
▶ Accident Investigation  
WHMIS 2015

**Employment History**

Cultural Resource Management Group Limited  
▶ 2012-Present  
Saint Mary’s University  
▶ 2011

**Select Representative Experience**

<b>2022</b>	<b>Permit Holder</b> Englobe – Monitoring phase of Archaeological Resource Impact Assessment during infrastructure directional drilling project.
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	<p><b>Permit Holder</b> Nova Scotia Department of Agriculture – Monitoring phase of Archaeological Resource Impact Assessment during saltmarsh infrastructure reinforcement project.</p>
2021	<p><b>Co-Permit Holder</b> Nova Scotia Lands – Reconnaissance phase of Archaeological Resource Impact Assessment during vessel decommissioning project.</p> <p><b>Licensed Field Director</b> Windsor Essex Community Housing Commission – Stage 2 Archaeological Assessment during residential development project.</p> <p><b>Permit Holder</b> Nova Scotia Department of Agriculture – Monitoring phase of Archaeological Resource Impact Assessment during saltmarsh geotechnical testing project.</p> <p><b>Permit Holder</b> Arguson – Monitoring phase of Archaeological Resource Impact Assessment during commercial development project.</p> <p><b>Co-Permit Holder</b> Halifax Regional Municipality – Subsurface Testing phase of Archaeological Resource Impact Assessment during municipal park development project.</p> <p><b>Licensed Field Director</b> AMD Construction Group Inc. – Stage 2 Archaeological Assessment during residential development project.</p> <p><b>Permit Holder</b> Maple Reinders Constructors Ltd. – Screening and Reconnaissance phase of Archaeological Resource Impact Assessment during municipal waste development project.</p> <p><b>Licensed Field Director</b> AMICO – Stage 4 Archaeological Assessment during residential development project.</p> <p><b>Permit Holder</b> Castle Grove – Screening and Reconnaissance and Monitoring phases of Archaeological Resource Impact Assessment during residential development project.</p> <p><b>Co-Permit Holder</b> Municipality of Argyle – Subsurface Testing phase of Archaeological Resource Impact Assessment during municipal park development project.</p> <p><b>Permit Holder</b> Atlantic Mining Nova Scotia Inc. – Screening and Reconnaissance and Subsurface Testing phases of Archaeological Resource Impact Assessment during natural resource development project.</p> <p><b>Permit Holder</b> Dillon Consulting Ltd. – Screening and Reconnaissance phase of Archaeological Resource Impact Assessment during wind energy development project.</p> <p><b>Permit Holder</b> Bell Multi Construction – Monitoring phase of Archaeological Resource Impact Assessment during Canadian Forces Housing Authority infrastructure development project.</p>

	<p><b>Permit Holder</b> GHD – Screening and Reconnaissance phase of Archaeological Resource Impact Assessment during aggregate development project.</p> <p><b>Permit Holder</b> Nova Scotia Public Works – Monitoring phase of Archaeological Resource Impact Assessment during provincial infrastructure development project.</p>
2020	<p><b>Permit Holder</b> Atlantic Mining Nova Scotia Inc. – Subsurface Testing phase of Archaeological Resource Impact Assessment during natural resource development project.</p> <p><b>Permit Holder</b> Nova Scotia Department of Agriculture – Screening and Reconnaissance phase of Archaeological Resource Impact Assessment during multiple saltmarsh infrastructure upgrade projects.</p> <p><b>Licensed Field Director</b> Dillon Consulting Ltd. – Stage 3 Archaeological Assessment during residential development project.</p>
2019	<p><b>Permit Holder</b> Halifax Regional Municipality – Monitoring phase of Archaeological Resource Impact Assessment during municipal infrastructure upgrade project.</p> <p><b>Permit Holder</b> Dexter – Screening and Reconnaissance phase of Archaeological Resource Impact Assessment during aggregate development project.</p> <p><b>Permit Holder</b> GHD – Screening and Reconnaissance phase of Archaeological Resource Impact Assessment during aggregate development project.</p> <p><b>Permit Holder</b> Nova Scotia Department of Agriculture – Screening and Reconnaissance phase of Archaeological Resource Impact Assessment during multiple saltmarsh infrastructure upgrade projects.</p> <p><b>Licensed Field Director</b> Dillon Consulting Ltd. – Stage 3 Archaeological Assessment during residential development project.</p> <p><b>Permit Holder</b> Atlantic Mining Nova Scotia Inc. – Screening and Reconnaissance phase of Archaeological Resource Impact Assessment during multiple natural resource development projects.</p> <p><b>Permit Holder</b> Halifax Regional Municipality – Monitoring phase of Archaeological Resource Impact Assessment during municipal infrastructure development project.</p>
2018	<p><b>Permit Holder</b> Halifax Regional Municipality – Monitoring phase of Archaeological Resource Impact Assessment during municipal park development project.</p> <p><b>Permit Holder</b></p>



	<p>Halifax Regional Municipality – Monitoring phase of Archaeological Resource Impact Assessment during municipal infrastructure upgrade project.</p> <p><b>Permit Holder</b> Halifax Regional Municipality – Screening and Reconnaissance phase of Archaeological Resource Impact Assessment during municipal infrastructure development project.</p> <p><b>Permit Holder</b> McCallum Environmental – Screening and Reconnaissance phase of Archaeological Resource Impact Assessment during multiple natural resource development projects.</p>
2017	<p><b>Permit Holder</b> Dillon Consulting Ltd. – Screening and Reconnaissance phase of Archaeological Resource Impact Assessment during municipal wastewater upgrade project.</p> <p><b>Permit Holder</b> Halifax Regional Municipality – Monitoring phase of Archaeological Resource Impact Assessment during municipal park development project.</p> <p><b>Permit Holder</b> Halifax Regional Municipality – Monitoring phase of Archaeological Resource Impact Assessment during municipal infrastructure upgrade project.</p> <p><b>Permit Holder</b> GHD – Screening and Reconnaissance phase of Archaeological Resource Impact Assessment during aggregate development project.</p> <p><b>Permit Holder</b> Shubenacadie Watershed Environmental Protection Society – Subsurface Testing phase of Archaeological Resource Impact Assessment during public-use trail development project.</p>
2016	<p><b>Permit Holder</b> GHD – Screening and Reconnaissance phase of Archaeological Resource Impact Assessment during aggregate development project.</p> <p><b>Permit Holder</b> Municipal Enterprises Ltd. – Screening and Reconnaissance phase of Archaeological Resource Impact Assessment during aggregate development project.</p>
2015	<p><b>Supervisor</b> Government of New Brunswick – Subsurface Testing phase of Archaeological Impact Assessment during natural resource development project.</p> <p><b>Supervisor</b> Municipality of Colchester – Subsurface Testing phase of Archaeological Impact Assessment during municipal development project.</p>
2014	<p><b>Field Archaeologist</b> Municipality of Colchester – Subsurface Testing phase of Archaeological Impact Assessment during municipal development project.</p> <p><b>Field Archaeologist</b> Halifax Regional Municipality – Monitoring phase of Archaeological Resource Impact Assessment during municipal park upgrade project.</p> <p><b>Field Archaeologist</b> WSP – Screening and Reconnaissance phase of Archaeological Resource Impact Assessment during residential development project.</p>

	<b>2013</b>	<p><b>Lab Technician</b> Nova Scotia Power Inc. – Laboratory duties resulting from the Mitigative Excavation phase of Archaeological Resource Impact Assessment during power generation project.</p> <p><b>Field Archaeologist</b> EMERA – Subsurface Testing phase of Archaeological Resource Impact Assessment during linear infrastructure development project.</p>
	<b>2012</b>	<p><b>Field Archaeologist</b> Nova Scotia Power Inc. – Mitigative Excavation phase of Archaeological Resource Impact Assessment during power generation project.</p>
	<b>2011</b>	<p><b>Lab Technician</b> Saint Mary’s University – Laboratory duties resulting from the San Felice Field School in Gravina, Italy.</p>
	<b>2010</b>	<p><b>Field Archaeologist</b> Mount Allison University – Mitigative Excavation during the San Felice Field School in Gravina, Italy.</p>
	<b>2009</b>	<p><b>Lab Technician</b> Saint Mary’s University – Laboratory duties resulting from Mitigative Excavation during the Grand Pré Field School in Wolfville, Nova Scotia.</p> <p><b>Field Archaeologist</b> Saint Mary’s University – Mitigative Excavation during the Grand Pré Field School in Wolfville, Nova Scotia.</p>