

# **Appendix F**

## **Curricula Vitae**

Nancy A. Harttrup B.Sc.

Fisheries Biologist / Project Manager



Nancy is a Fisheries Biologist and Project Manager with extensive experience collecting and analyzing data related to aquatic systems. Project experience includes aquatic impact assessments related to urban development, highway and pipeline construction, and aggregate extraction. Nancy has also managed environmental effects monitoring (EEM) programs for the mining and pulp and paper industries and has been involved in watershed studies, literature searches and analysis of benthic invertebrate and water quality data relative to environmental quality.

## EDUCATION

B.Sc. (Honours), Co-op Biology, University of Waterloo, Waterloo, Ontario, 1986

## PROJECT EXPERIENCE

### **Environmental Impact Assessments**

Assessment of the Benthic Invertebrate Community in the Saugeen River adjacent to the Hanover Landfill Site, Town of Hanover

Assessment of Wetland Pond Health and Downstream Water Quality at Chinguacousy Landfill

Fish and Fish Habitat Surveys along Highway 66 and 624 near Larder Lake; Rehabilitation of Highway 66 and 624, Ontario (Task Manager, Fisheries Assessment Specialist)

*As a part of a Detail Design study for the Rehabilitation of Highways 66 and 624 (District of Timiskaming) Nancy managed the field surveys and reporting for this project. Limited background data were available for the study area. Field data collection and reporting followed the 2006 MTO/DFO/OMNR Protocol and reporting included impact assessments for the numerous watercourses in the study area. Impact assessments were based the proposed work required at each culvert (eg. rehabilitation, replacement) which subsequently lead to the completion of appropriate forms and submissions to DFO.*

Fish and Fish Habitat Survey of the Mattawishkwia River; Highway 11 Replacement of the Mattawishkwia River Bridge at Hearst, Ontario (Task Manager, Fisheries Assessment Specialist)

*As a part of a Preliminary Design study for the replacement of the Mattawishkwia River bridge, Nancy managed field surveys and prepared an Impact Assessment Report for the project. The study involved the collection of background data, detailed habitat mapping and the collection of fish community data following the 2006 Protocol. Reporting included a preliminary assessment of aquatic habitat impacts based on the Preferred Plan, and mitigation measures to protect fish habitat in the river during construction.*

Fish and Fish Habitat Survey of watercourses near Highway 11; Highway 11 Access Review at High Falls Road/Holiday Park Drive near Bracebridge, Ontario (Task Manager, Fisheries Assessment Specialist)

*As a part of a Preliminary Design study for interchange improvements on Highway 11 at Bracebridge, Nancy is conducted field surveys and an existing conditions report for watercourses in the Study Area. The study involved the collection of background data, detailed habitat mapping and the collection of fish community data at locations potentially affected by the Preferred Plan. Data collection and reporting followed the requirements of the 2006 MTO/DFO/OMNR Fisheries Protocol Reporting included a preliminary assessment of aquatic habitat impacts, and a summary of recommended mitigation measures based on the Preferred Plan for highway access and service roads.*

Fish and Fish Habitat Survey of watercourses near Highway 11; Access Review on Highway 11 from Powassan to Callander, Ontario (Task Manager, Fisheries Assessment Specialist)

*As a part of a Preliminary Design study for access and interchange improvements along Highway 11 between Powassan and Callander, Nancy conducted field surveys and prepared an existing conditions report for watercourses that cross or are adjacent to the Highway 11 Study Area. The study involved the collection of background data, detailed habitat mapping and the collection of fish community data following the 2006 MTO/DFO/OMNR Fisheries Protocol. Reporting included a preliminary assessment of aquatic habitat impacts, and a summary of recommended mitigation measures based on the Preferred Plan for access improvements.*

\* denotes projects completed with other firms

# Nancy A. Harttrup B.Sc.

Fisheries Biologist / Project Manager

---

## Galt Country Club - Letter of Intent for DFO Authorization, Cambridge, Ontario (Task Manager/Biologist)

*The re-design of a golf course fairway at the Galt Country Club resulted in changes to fish habitat in a golf course pond located in the floodplain and connected to the Grand River. Information regarding available data on fish species in the Grand River and detailed plans regarding changes to the pond were prepared as a Letter of Intent (LOI) and submitted to DFO for authorization of the project. The LOI included details of the existing and proposed pond areas and depths, illustrating that the new pond would actually provide more potential fish habitat than before. Additional habitat enhancements were added to the plan to provide underwater structure to fish that utilized the new pond.*

## Fish and Fish Habitat Survey of four watercourses near Highway 11 near Allensville, Ontario - Evaluation of Highway 11 Access and Interchange Improvements, Huntsville, Ontario (Task Manager/Fisheries Assessment Specialist)

*As a part of a Preliminary Design study for access and interchange improvements along Highway 11 south of Huntsville, Nancy conducted field surveys and prepared an existing conditions report for four watercourses that cross or are adjacent to the Highway 11 Study Area. The study involved the collection of background data, detailed habitat mapping and the collection of fish community data. Reporting included a preliminary assessment of aquatic habitat impacts, and a summary of recommended mitigation measures based on the Preferred Plan for access improvements.*

## Fish and Fish Habitat Survey of four watercourses crossing Highway 401 near Cambridge, Ontario, Evaluation of Highway 401 and 8 Access and Interchange Improvements, Kitchener and Cambridge, Ontario (Task Manager, Field Crew Leader)

*As a part of a Preliminary Design study for interchange improvements along Highway 401 between the Grand River and Speed River, Nancy conducted field surveys and an existing conditions report for these watercourses and two other small watercourses that cross the Highway 401 in the Cambridge area. The final Preferred Plan only had changes proposed for the Highway 8 and 401 interchange, potentially affecting aquatic resources in the Grand River. The study involved the collection of background data, detailed habitat mapping and the collection of fish community data, however the Grand River site was not sampled as part of this project. Reporting included a preliminary assessment of aquatic habitat impacts, and a summary of recommended mitigation measures based on the Preferred Plan for highway widening.*

## Fish and Fish Habitat Surveys watercourses near Highway 26 at Camperdown, Camperdown, Ontario (Task Manager, Fisheries Assessment Specialist)

*As a part of a Preliminary Design study for intersection improvements along Highway 26 near Camperdown, Nancy conducted field surveys and prepared an existing conditions report for three watercourses that cross Highway 26 in the vicinity of Grey Road 40 and Camperdown Road. The study involved the collection of background data, detailed habitat mapping and the collection of fish community data. Reporting included a preliminary assessment of aquatic habitat impacts, and a summary of recommended mitigation measures based on the Preferred Plan for intersection improvements.*

## Fish and Fish Habitat Surveys watercourses along Highway 40 near Chatham, Chatham, Ontario (Task Manager, Fisheries Assessment Specialist)

*As a part of a Detail Design study for rehabilitation of Highway 40 south of Chatham, Nancy conducted field surveys and prepared an Impact Assessment Report for watercourses that cross Highway 40 between Highway 401 and the Thames River. The study involved the collection of background data, detailed habitat mapping and the collection of fish community data. Reporting included an assessment of aquatic habitat impacts, and mitigation measures to protect fish habitat in the watercourses during construction.*

## Summary of Habitat Survey and Bathymetry Mapping of Brant Mill Pond (Aquatic Biologist)

Wilmot Centre Trout Spawning Surveys, Hunsburger Creek near Wilmot Centre (2005 to 2008) - Wilmot Centre Well Field, Wilmot Centre, Ontario (Project Manager)

Benthic Invertebrate Community Survey in the Maitland River at Wingham, Wescast Industries Inc. (1998-present) (Project Manager)

Assessment of Impacts of Seepage from Caledon Landfill on Fisheries of the Credit River, Region of Peel (Aquatic Biologist)

\* denotes projects completed with other firms

# Nancy A. Harttrup B.Sc.

Fisheries Biologist / Project Manager

---

Fish Community Assessment and Habitat Inventory of Strasburg Creek near Doon Village Road, Kitchener, Ontario (Project Manager)

*An aquatic habitat survey was conducted in Strasburg creek, mapping physical features such as substrates, stream morphology, and instream and riparian cover. The data were required as part of the natural environment inventory for the future alignment of Doon Mills Road. Subsequent to the initial survey, fish community data were also collected in the area. During the construction phase, Nancy also participated in the fish transfer of fish from the creek to the temporary diversion channel, prior to creek realignment.*

## **Natural Sciences & Heritage Resources**

Letter of Intent for DFO Authorization, Galt Country Club, Cambridge, Ontario

Letter of Intent for DFO, Ninth Line Tributary, TACC Construction Ltd., Markham, Ontario

Long-term Monitoring and Reporting of Brown Trout Spawning Activity, Populations and Surface Water Quality in a Coldwater Stream Adjacent to an Active Gravel Pit (1993 to 2003) - Dufferin Aggregates (Project Manager)

Aquatic Habitat Survey of South Wabi Creek Near Halebury, Ontario, Adjacent to Proposed Ministry of Transportation Gravel Pit (Project Manager/Aquatic Biologist)

Fish habitat study for Kempenfelt Bay, Lake Simcoe, City of Barrie (Project Manager/Aquatic Biologist)

Aquatic Resources Survey in Two Small Lakes in Georgian Bay Islands National Park (Project Manager/Aquatic Biologist)

Aquatic Habitat Mapping in Fathom Five National Marine Park (Project Manager/Aquatic Biologist)

Numerous Aquatic Habitat Impact Assessments Related to Residential Development, Pipeline Construction, Road Construction and Alterations (Aquatic Biologist)

## **Aquatic Ecology**

Oxbow Lake Investigation at the New Hamburg Wastewater Treatment Plant, New Hamburg, Ontario (Aquatic Biologist)

*Collection and review of background fisheries data for tributary of the Nith River originating in an abandoned oxbow of the Nith River. Bi-weekly collection of surface water samples along the oxbow feature to determine if the existing oxbow provides additional treatment or can be modified to augment treatment. Region of Waterloo*

Mill Creek Surface Water Monitoring Program, Guelph, Ontario (Project Manager, Fisheries Biologist)

*To assess potential impacts on Mill Creek (a tributary to the Grand River), a long-term Surface Water Monitoring Program (SWMP) was initiated to monitor water quality, brown trout (*Salmo trutta*) populations, water levels and stream temperatures over time. During the 10-years involved in this project, Nancy's duties included project management, the coordination of annual spawning surveys, population surveys as well as water quality sampling. Annual reports included the compilation of annual fisheries data and the integration of fisheries data with groundwater and surface water data into a comprehensive monitoring report.*

Brant Mill Pond Fisheries Impact Assessment, Brant County, Ontario (Task Manager/Biologist)

*A bridge replacement was required on a road crossing the outlet of Brant Mill Pond. The mill pond dam was structurally tied to the bridge, therefore a method was needed to reduce water pressure on the dam prior to bridge removal and replacement. Various construction scenarios were considered, including draining or partially draining the mill pond. A bathymetric survey of a mill pond was conducted to provide an indicator of the amount of available fish habitat in the pond (by depth) and the dominant substrate types in the pond. A document summarizing fish habitat conditions in the pond and possible impacts to fish habitat based on the selected construction method was submitted to GRCA for review.*

Wilmot Centre Trout Spawning Surveys, Waterloo (Wilmot Centre), Ontario (Project Manager)

*Annual brook trout spawning surveys have been completed in a small coldwater creek in Wilmot Centre in the vicinity of groundwater wells that provide drinking water to the supply Regional Municipality of Waterloo. The program is part of the Wilmot Centre monitoring program and looks at annual brook trout spawning activity in the creek as an indicator of the quantity and quality of suitable habitat. Brook trout depend on areas of groundwater upwelling for spawning purposes therefore the health of the fishery is related to groundwater levels in the area.*

\* denotes projects completed with other firms

# Nancy A. Harttrup B.Sc.

Fisheries Biologist / Project Manager

---

## **Benthic Invertebrate Community Survey in the Maitland River at Wingham, Wingham, Ontario (Project Manager)**

*Since 1998, Nancy has been the Project Manager for an ongoing benthic invertebrate survey in the Maitland River in Wingham, Ontario. The monitoring is an annual program that involves the collection of benthic invertebrate samples from the river as an indicator of the quality of aquatic habitat in the river adjacent to a closed landfill site. Since 1999, Nancy has been responsible for Project Management of the survey, the coordination of data collection, data analysis and reporting.*

## **Receiver Biomonitoring in Canagagigue Creek, Elmira, Ontario (Project Manager)**

*Since 1998, Nancy has been the Project Manager for an ongoing Biomonitoring Program in Canagagigue Creek in Elmira, ON. The monitoring is now a biannual program that sees the collection of benthic invertebrate, sediment and fish community data in the creek. The program is a condition of the C of A for discharge of treated groundwater to the creek. Since 1999, Nancy has been responsible for Project Management of the survey, the coordination of data collection, data analysis and reporting.*

## **Letter of Intent for DFO Authorization, Strasburg Creek at Strasburg Road Extension, Kitchener, Ontario (Task Manager/Biologist)**

*The extension of Strasburg Road in the City of Kitchener required a new crossing of Strasburg Creek, which provides coldwater fish habitat. Detailed mapping of the creek was prepared and areas both upstream and downstream of the proposed crossing location were surveyed, documenting any locations that were blockages to fish migration or areas of high quality habitat. Additional data collected were a fish community inventory, summer water temperatures (hourly data by instream loggers) and a fall spawning survey. All fisheries and fish habitat data were summarized and used in the Letter of Intent (LOI) submitted to DFO for authorization of the project. The LOI included mitigation and compensation measures for the loss of fish habitat that resulted from the installation of the 40m long culvert.*

## **Letter of Intent for DFO Authorization, Tributary of Baden Creek, Baden, Ontario (Task Manager/Biologist)**

*A stormwater management pond outfall in a new subdivision in the town of Baden resulted in the loss of fish habitat in a small tributary of Baden Creek. Mapping of the location was prepared and a general survey of watercourse conditions was conducted for approximately 1km downstream. Together with available background data on the main channel of Baden Creek, fish habitat data were summarized and used in the Letter of Intent (LOI) submitted to DFO for authorization of the project. The LOI included mitigation and compensation measures for the loss of fish habitat that resulted from the SWM outfall.*

## **Wastewater**

### **Wastewater Treatment Plant Biomonitoring, Woodstock, Ontario (Senior Biologist / Project Manager)**

*Benthic macro-invertebrate sampling and a multi week in-situ water quality monitoring program. The program was designed to identify the potential impacts of the municipal wastewater treatment plant discharge on the biota and water quality of the Thames River.*

### **Middle-Grand River Assimilative Capacity Assessment, Kitchener, Ontario (Aquatic Biologist)**

*Collection, review and summary of background data with respect to downstream users; assessment of effluent and outflow structure changes to aquatic habitat. Peer review of Grand River Surface Water Quality Monitoring Report. Region of Waterloo*

**Cycle 1 Environmental Effects Monitoring: project management, field studies and data analysis, Domtar Packaging, Norampac Inc., Red Rock, Ontario (Aquatic Biologist / Project Manager)**

**Cycle 1 Environmental Effects Monitoring: Project Management, Field Studies and Data Analysis, Domtar Packaging, Trenton, Ontario (Aquatic Biologist)**

**Cycle 1, 2 and 3 Environmental Effects Monitoring: Project Management, Field Studies and Data Analysis, Domtar Fine Papers, Cornwall, Ontario (Aquatic Biologist)**

**Cycle 2 and 3 Environmental Effects Monitoring: Project Management and Data Analysis, Provincial Papers Inc., Cascades Fine Papers Group, Thunder Bay, Ontario (Project Manager)**

\* denotes projects completed with other firms

Katie Easterling is an Aquatic Ecologist with over 6 years of field experience in both the aquatic and terrestrial disciplines. Katie's experience includes fish habitat assessments, fish community sampling, fish salvages, REA water and water body assessments, trout spawning surveys, walleye spawning surveys, bass spawning surveys and baseline aquatic surveys for various pipeline, rail line, transportation, renewable energy and municipal projects. She also has experience conducting preliminary or baseline terrestrial habitat assessments and Species at Risk surveys. Katie's reporting skills include aquatic existing conditions reports, aquatic impact assessment reports, REA water assessment and water body reports, terrestrial existing conditions reports, Environmental Screening/Review Reports, Natural Heritage Evaluations (NHE) and Environmental Impact Statements (EIS). Katie has also consulted with First Nations, municipal, provincial and federal government agencies.

Katie is proficient in a variety of fish sampling techniques, including Fall Walleye Index Netting (FWIN), Near Shore Community Index Netting (NSCIN), fyke netting, seine netting, gill netting and boat and backpack electrofishing. She holds a certificate in radio telemetry and is certified in Ecological Land Classification (ELC). Her educational background focused on terrestrial, wildlife and aquatic biology, and includes a degree in Zoology and a Fish and Wildlife diploma. Prior to joining Stantec, Katie worked as an Ecological Research Assistant with Parks Canada, a Conservation Interpreter with the Long Point Region Conservation Authority and has worked as a Research Assistant and a Biologist.

## EDUCATION

Hon. B.Sc., University of Toronto / Major Zoology,  
Minor Biology, Toronto, Ontario, 2003

Diploma, Sir Sandford Fleming College / Fish and  
Wildlife Technician, Lindsay, Ontario, 2007

Stantec Consulting Ltd. / Class II Electrofishing Crew  
Leader Certification Course, Guelph, Ontario, 2012

Certificate, ROM / Fish Identification Course, Toronto,  
Ontario, 2011

Ministry of Natural Resources / MTO/DFO/MNR  
Fisheries Protocol Training Session for Fisheries  
Specialists, Toronto, Ontario, 2011

MNR / Renewable Energy Natural Heritage Assessment  
Training, Toronto, Ontario, 2011

Chrisolas Management Services / Certified Traffic  
Control Technician, Kitchener, Ontario, 2010

Birchdale Ecological, Ltd., Bats R Us Canada Div. / Bat  
Acoustic Analysis Course, Calgary, Alberta, 2008

Ministry of Natural Resources / Wetland Classification  
Certificate, Elgin, Ontario, 2006

Ministry of Natural Resources / Ecological Land  
Classification Certification, Elgin, Ontario, 2006

Sir Sandford Fleming College / Radio Telemetry  
Certificate, Lindsay, Ontario, 2006

Sir Sandford Fleming College / Pleasure Craft Operators  
Course, Lindsay, Ontario, 2006

CN Rail / Contractor Orientation Online Course,  
Kitchener, Ontario, 2012

## REGISTRATIONS

Canadian Environmental Practitioner-In-Training,  
Canadian Environmental Certification Approvals Board

## MEMBERSHIPS

Member, American Fisheries Society

## PROJECT EXPERIENCE

### **Municipal**

#### **Habitat Assessment, Regional Municipalities of Durham and York, Ontario (Terrestrial Project Biologist)**

*Multiple sites around the regions were assessed for wildlife usage, fisheries and ideal browse, nesting and cover habitat Recommendations for a preferred site were given based on a combination of these factors and how the potential loss of habitat through development would affect the local wildlife*

#### **Fish Sampling, Regional Municipality of Durham, Ontario (Aquatic Ecologist)**

*Various stations along Tooley Creek in Durham Region were electrofished to obtain composite samples of whole fish that were identified, weighed, measured and bagged for a metals analysis as part of a human health risk report for the proposed Durham-York Residual Waste Study*

#### **Baseline Aquatic Survey, Regional Municipality of York, Ontario (Aquatic Ecologist)**

*A baseline terrestrial and aquatic survey was conducted as a project component of an Environmental Assessment for the Fairy Lake Garden Pond Maintenance Project in the Town of Newmarket. Tasks included a visual assessment of water depth, aquatic vegetation, available cover, substrate and the presence of barriers to fish movement upstream or downstream of Garden Pond, which were used to assess the feature's function as fish habitat, both within the pond and the pond's function within the Fairy Lake/East Holland River watershed*

#### **Aquatic Habitat Surveys, Town of Ajax, Ontario (Aquatic Ecologist)**

*The Town of Ajax is committed to improving water quality along its Lake Ontario waterfront and in Duffins Creek and Duffins Marsh. As part of this, preliminary fieldwork was conducted to assess the existing conditions at each of the stormwater outfalls, including terrestrial and aquatic habitat. The assessment consisted of a visual assessment of water depth, aquatic and terrestrial vegetation, available cover, substrate and the presence of barriers to fish movement upstream or downstream*

#### **Trout Spawning Surveys for Municipal Road Expansion, Ontario (Aquatic Ecologist)**

*Conducted multiple trout spawning surveys along two coldwater creeks in the eastern region of the GTA for two municipal road expansion projects. Fieldwork involved surveying the creeks 50 m upstream and 100 m downstream to determine if Rainbow Trout were staging or spawning in the creek and within the vicinity of the bridge*

#### **Arnell Well Field Adaptive Management Plan, City of Guelph, Ontario (Aquatic Ecologist)**

*As part of a yearly monitoring program, fish habitat was assessed using the OSAP protocol at four monitoring stations outside the city of Guelph*

### **Natural Sciences & Heritage Resources**

#### **Forest and Wetland Classification, Parks Canada\*, Ontario (Ecological Research Assistant)**

*Performed rapid assessments of 400 m forest plots and 100 m wetland plots to evaluate and classify sites along the Trent-Severn Waterway from Rice Lake to Canal Lake. Classification was based on biological features such as flora and fauna present and physiological features such as soil and drainage. Data collected was used to create a mapping inventory of the Trent-Severn system for Parks Canada and the Ministry of Natural Resources*

#### **Soil Sampling Survey, Brampton Brick, Brampton, Ontario (Terrestrial Project Biologist)**

*Collected soil samples to assess the impact of emissions on the surrounding terrestrial environment as part of the phytotoxicology assessment of the Brampton Brick facility*

#### **Ecological Receptors of Concern Surveys, Various Clients, Ontario (Terrestrial Project Biologist)**

*Conducted biological surveys of flora and fauna on potentially contaminated sites to assess the current site conditions*

#### **Category B Class EA, Ontario Realty Corporation, Various Locations, Ontario (Terrestrial Project Biologist)**

*Conducted the background research and evaluation of existing natural heritage baseline conditions for multiple ORC properties situated across Ontario*

\* denotes projects completed with other firms

# Katie Easterling Hon. B.Sc., Dipl., CEPIT

## Biologist

---

### Preliminary Aquatic and Terrestrial Assessment, Canada Post, Various Locations, Ontario (Terrestrial Project Biologist)

*Preliminary aquatic and terrestrial assessments of various sites in Southern Ontario were conducted to establish the existing baseline conditions. Surveys involved recording bird species observed, vegetation cover species found on the site and assessing potential impacts on nearby Valued Ecosystem Components (VECs) and any aquatic systems*

### Fish Community Survey\*, Ontario (Fisheries Field Biologist)

*FWIN, NSCIN, gill netting and Seine netting techniques were used to perform a fish surveys on a lake and rivers in the Kawartha Lakes system. Processing of the sampled fish included weighing, measuring, sexing, determining gonadal condition, removing aging structures and aging*

### Benthic Invertebrate and Water Quality Sampling, Fox Meadows Estates, Ontario (Aquatic Ecologist)

*Benthic invertebrate sampling was conducted following the OBBN protocol and water quality samples were collected and submitted for testing. Results from the sampling effort were summarized and compared to previous years in an effort to gage and mitigate potential impacts from a residential development expansion*

### Box Grove, DFO Authorization for Works Affecting Fish and Fish Habitat No. BU-04-3082, Ontario (Aquatic Ecologist)

*This survey was conducted to satisfy conditions included in the Department of Fisheries and Oceans (DFO) Authorization for Works Affecting Fish and Fish Habitat (DFO Authorization No. BU-04-3082). Condition 4.2 of the Authorization is to enhance fish passage through the creation of a low flow channel following the removal of a 30 m long culvert. The culvert removal and new channel construction were completed in spring 2010. This survey was conducted as part of the post construction monitoring program required by the DFO Authorization*

### Piles Development (Keswick) Corporation, DFO Authorization PE 07-0957, Ontario (Aquatic Ecologist)

*An evaluation of fish habitat, fish passage and the fish community was conducted within the channel realignment to confirm the compensation measures and structures are functioning as designed and are providing fish habitat. Fish community sampling was conducted using a backpack electrofisher*

### Lake Gibson Angler Survey, Ontario Power Generation, Thorold, Ontario (Aquatic Ecologist)

*Lake Gibson is a hydro-electric reservoir owned and operated by Ontario Power Generation (OPG). As detailed in the OPG Risk Management Plan, OPG is required to monitor the persistence of sediment contamination and its expression in the environment within Lake Gibson. The program was designed to identify, quantify and compare the levels of contamination over time and the impact on sediments, water, benthic invertebrates, and fish in the system. Katie was involved as a field biologist interviewing anglers at Lake Gibson to assess the effectiveness of OPG's communication with the public regarding the contamination of Lake Gibson sediment and fishes*

### Phase 3 Environmental Effects Monitoring (EEM): Periodic Monitoring, Kirkland Lake, Ontario (Aquatic Ecologist)

*The EEM program began in 2010 (continuing through 2012) and involved the collection of water, sediment, fish and benthos to assess possible environmental effects caused by the mine and followed federal Metal Mining Effluent Regulation (MMER) guidelines. Fyke nets and a boat electrofisher were used to capture target small-bodied species. Fish dissection, gender determination, weighing of livers and gonads, and collection of eggs were performed*

### Oil and Gas Pipelines

#### Nesting Bird Surveys, TransCanada Pipelines Limited\*, Ontario (Terrestrial Project Biologist)

*Nesting bird surveys were performed at various remote locations throughout Northern Ontario, which included finding and identifying any active and inactive nests within and surrounding the proposed work area along a pipeline right-of-way*

\* denotes projects completed with other firms



# Katie Easterling Hon. B.Sc., Dipl., CEPIT

## Biologist

---

### Terrestrial Assessment, Enbridge Pipelines Inc., Ontario (Terrestrial Project Biologist)

*Preliminary aquatic and terrestrial assessments of various dig sites along a pipeline in Southern Ontario were conducted to establish the existing baseline conditions. Surveys involved recording bird species observed, vegetation cover species found at the dig site and assessing any aquatic habitat found on-site*

### Herptile Rescue, Enbridge Pipelines Inc., Ontario (Terrestrial Project Biologist)

*As part of a large pipeline maintenance project situated within a beaver pond located near the Ganooque River, a herptile rescue was performed to remove any snakes, turtles and frogs from the trench-box once in-filling was started. All species found within or immediately adjacent to the trench-box were removed and relocated within the beaver pond but outside of the work zone*

### Species at Risk Survey, TransCanada Pipelines Limited, Ontario (Terrestrial Project Biologist)

*Species at Risk surveys were conducted at four work areas along a pipeline right-of-way between Belleville and Brockville, Ontario. Surveys included looking for and assessing possible habitat conditions for Butternut, Henslow's Sparrow, Grey Fox, Blanding's Turtle, Eastern Milksnake and Eastern Ratsnake*

### Ecological Land Classification, TransCanada Pipelines Limited, Ontario (Terrestrial Project Biologist)

*Ecological Land Classification (ELC) surveys were conducted along the proposed pipeline expansion route, which documented the vegetation communities present*

### Baseline Aquatic Habitat Survey, TransCanada Pipelines Limited, Ontario (Aquatic Ecologist)

*As part of an Environmental Assessment for the proposed Thorold Sales Meter Station to connect the TransCanada Mainline to the Enbridge Gas Distribution pipeline, baseline aquatic conditions were assessed as part of the report*

### Fish Salvage and Construction Monitoring, Enbridge Pipelines, Ontario (Aquatic Ecologist)

*In-water construction work was monitored and fish salvages were conducted at various watercourses across Ontario as part of a pipeline maintenance or repair project. The fish collected were identified, measured and released downstream of the in-water work area*

### Baseline Aquatic Survey, Enbridge Gas Distribution Inc., Ontario (Aquatic Ecologist)

*As part of the Pipeline to Serve York Energy Centre LP Environmental Assessment, aquatic baseline conditions at all watercourse crossings were summarized as part of the preliminary assessment of reasonable routing opportunities for the proposed pipeline*

### Detailed Fish Habitat Assessment and Reporting, TransCanada Pipelines Limited, Ontario (Aquatic Ecologist)

*As part of a pipeline expansion project, a detailed fish habitat survey was conducted following MTO protocols at ten watercourse crossings. Methodology included detailed habitat mapping 50 m upstream and 100 m downstream. Fish habitat conditions were summarized and watercourse sensitivity determined according to the DFO matrix in the Fish and Fish Habitat Assessment Report as part of a CEEA Environmental Assessment*

### Detailed Fish Habitat Assessment and Reporting, NOVA Chemicals (Canada) Ltd., Ontario (Aquatic Ecologist)

*Fish habitat was assessed at nine proposed crossings for a pipeline route and existing conditions were summarized as part of an EA*

## Railroads

### Nesting Bird Surveys, Canadian National Railway, Ontario (Terrestrial Project Biologist)

*Nesting bird surveys were performed along various stretches of the client's right-of-way to find and identify any active or inactive nests within the proposed work area*

### Fish Habitat Surveys and Reporting, Canadian Pacific Railway, Ontario (Aquatic Ecologist)

*As part of a CEEA Environmental Screening Report, a fish habitat and aquatic baseline survey was conducted along a proposed rail siding within a wetland. The assessment consisted of a visual assessment of water depth, aquatic vegetation, available cover, substrate and the presence of barriers to fish movement within the area of the proposed siding*

\* denotes projects completed with other firms

# Katie Easterling Hon. B.Sc., Dipl., CEPIT

## Biologist

---

### Detailed Fish Community and Habitat Surveys and Reporting, Canadian National Railway, Ontario (Aquatic Ecologist)

*As part of a railway expansion project, detailed fish community and habitat surveys were conducted following MTO protocols at over 20 watercourse crossings. Methodology included detailed habitat mapping 50 m upstream and 100 m downstream, electrofishing to determine fish community present in the stream and water chemistry sampling. Fish community and habitat conditions were summarized and watercourse sensitivity determined according to the DFO matrix in the Fish and Fish Habitat Assessment Report as part of a CEAA Environmental Screening*

### Fish Salvage and Construction Monitoring, Canadian National Railway, Ontario (Aquatic Ecologist)

*As part of a railway expansion project, in-water construction work was monitored and multiple fish salvages were performed at various bridge and culvert construction locations*

### Post-Construction Fish Community and Fish Habitat Assessment, Canadian National Railway, Ontario (Aquatic Ecologist)

*As part of a railway expansion project, detailed post-construction fish community and habitat surveys were conducted following MTO protocols at approximately 20 watercourse crossings. Methodology included detailed habitat mapping 50 m upstream and 100 m downstream, electrofishing to determine fish community present in the stream and water chemistry sampling. The sites were assessed to confirm that potentially adverse effects on fish and fish habitat were effectively managed through mitigation measures proposed in the Environmental Screening Reports and approved in the Letters of Advice issued by DFO*

## Renewable Energy

### Winter Bird Surveys, Ontario (Terrestrial Project Biologist)

*As a requirement of O.Reg. 116, avian monitoring surveys were conducted to characterize the bird community of two sites in Southern Ontario during the over-wintering period*

### Post-Construction Bird and Bat Mortality Monitoring, Ontario (Terrestrial Project Biologist)

*Conducted post-construction bird and bat mortality monitoring, scavenger impact trials and searcher efficiency trials at the Ripley and Enbridge Ontario Wind Farms near Kincardine, Ontario as a requirement under O.Reg. 116*

### Pre-Construction Bat Monitoring Surveys, Ontario (Terrestrial Project Biologist)

*Under O.Reg. 116 AnaBat detectors were installed on MET towers and design/constructed/installed multiple ground AnaBat detector units at various wind farms in Southern Ontario. Monitored pre-construction bat activity and identified species using spectrogram analysis to report on the activity level surrounding the proposed wind farms*

### Fish Habitat Assessment, Ontario (Aquatic Ecologist)

*As part of a wind farm Environmental Assessment under O.Reg. 116, a fish habitat assessment was conducted to determine the baseline conditions and watercourse sensitivity according to the DFO matrix at each of the proposed watercourse crossings*

### Amherst Island REA Water Body Assessment, Ontario (Aquatic Ecologist)

*Conducted the REA water assessment and prepared the water body report for a renewable energy project on Amherst Island, which involved identifying and delineating water bodies and conducting fish community and fish habitat assessment at 39 locations across the Island*

### Napier Wind Project REA Water Body Assessment, Ontario (Aquatic Ecologist)

*Conducted the REA water assessment and prepared the water body report for a renewable energy project, which involved fish habitat assessments at three locations across the Study Area*

### Adelaide REA Water Body Assessment, Ontario (Aquatic Ecologist)

*Conducted the REA water assessment and prepared the water body report for a renewable energy project near Strathroy, which involved identifying and delineating water bodies and conducting fish community and fish habitat assessment at 41 locations*

\* denotes projects completed with other firms

# Katie Easterling Hon. B.Sc., Dipl., CEPIT

Biologist

---

## Cedar Point REA Water Body Assessment, Ontario (Aquatic Ecologist)

*Conducted the REA water assessment and prepared the water body report for a renewable energy project near Forest, which involved identifying and delineating water bodies and conducting fish community and fish habitat assessment at over 100 locations*

## Hydroelectric Facilities, Lock 24 and 25 Dams on the Trent-Severn Waterway, Ontario (Aquatic Ecologist)

*Conducted Walleye spawning surveys, benthic invertebrate sampling, small-bodied fish community sampling and Centrarchid spawning surveys at Locks 24 and 25 to establish baseline conditions within the proposed work area*

## Niagara Region Wind Corporation, Ontario (Aquatic Ecologist)

*Conducted the REA water assessment for a renewable energy project near Welland, Ontario, which involved identifying and delineating water bodies at over 30 locations*

## Bow Lake Wind Project, Ontario (Aquatic Ecologist)

*Conducted the REA water assessment for a renewable energy project near Sault Ste. Marie, Ontario, which involved identifying and delineating water bodies at over 20 locations*

## Roads and Highways

### Hwy 6 Fish Salvage, MTO Southwest Region, Ontario (Aquatic Ecologist)

*Conducted a fish salvage as part of an MTO highway widening project located along Hwy 6 near Varney, Ontario. Fish collected were identified, measured and released downstream of the in-water work area*

### Detail Design, Highway 3, 6 and 24 Fish Community and Fish Habitat Assessment at Various Locations, MTO Southwest Region, Ontario (Aquatic Ecologist)

*Conducted a detailed spring, summer and fall fish community and fish habitat assessment of 20 watercourse crossings for the rehabilitation/resurfacing of Highways 3, 6 and 24 surrounding the communities of Simcoe, Delhi and Port Dover (namely, GWP 31 15-09-00, GWP 3048-03-00 and GWP 362 98 00). Reporting tasks included the Aquatic Existing Conditions Report and Impact Assessment Report for each highway*

### Route Planning, Hwy 17 Sudbury to Markstay (GWP 5031-09-00), MTO Northeast Region, Ontario (Aquatic Ecologist)

*Prepared the Aquatic Existing Conditions Report as part of the preliminary route planning study for Highway 17 between Sudbury and Markstay*

### Route Planning, Highway 144 Bypass around Chelmsford (GWP 5023-03-00), MTO Northeast Region, Ontario (Aquatic Ecologist)

*Conducted fish habitat and fish community assessments at 63 locations in the area surrounding Hwy 144 near Chelmsford, Ontario. This involved using a backpack electrofisher or minnow traps (where applicable) to determine fish species and habitat present in order to assess the community structure and supplement watercourse sensitivity information provided by the MNR. Reporting tasks included the Aquatic Existing Conditions Report*

### Detail Design, Highway 7 Structural Culvert Replacement/Rehabilitation at Various Locations, MTO Eastern Region, Ontario (Aquatic Ecologist)

*Conducted fish habitat and fish community assessments at 2 locations in the area surrounding Hwy 7 outside Lindsay Ontario (namely, WP 4007-08-01/02 Mariposa Creek Structural Culvert Rehabilitation, Site 32-124BC and Mariposa Brook Structural Culvert Replacement, Site 32-161C). This involved using a backpack electrofisher or minnow traps (where applicable) to determine fish species and habitat present in order to assess the community structure and supplement watercourse sensitivity information provided by the MNR. Reporting tasks included the Aquatic Existing Conditions Report*

### Detail Design, Highway 35 Structural Culvert Replacement/Rehabilitation at Various Sites, MTO Eastern Region, Ontario (Aquatic Ecologist)

*Conducted fish habitat and fish community assessments at 3 locations in the area surrounding Hwy 35 outside Lindsay, Ontario (namely, WP 4166-09-01 Corben Creek Structural Culvert Replacement, Site 32-165C, WP 4165-09-01 Martin Creek Structural Culvert Rehabilitation, Site 32-063BC and WP 4075-09-01 South McLaren Creek Structural Culvert Rehabilitation, Site 32-072BC). This involved using a backpack electrofisher or minnow traps (where applicable) to determine fish species and habitat present in order to assess the community structure and supplement watercourse sensitivity information provided by the MNR. Reporting tasks included the Aquatic Existing Conditions Report*

\* denotes projects completed with other firms

**Katie Easterling** Hon. B.Sc., Dipl., CEPIT

Biologist

---

Detail Design, Highway 35, WP 102-99-01 Trent Canal  
Bridge Rehabilitation, Site 32-065 (Rosedale), MTO  
Eastern Region, Ontario (Aquatic Ecologist)

*Prepared the Aquatic Existing Conditions Report as part of the  
Detailed Design process for the Highway 35 site at the Trent  
Severn Waterway Bridge Rehabilitation*

Detail Design, Highway 6 & 10, GWP 3098-09-00  
Rehabilitation, MTO Southwest Region, Ontario (Aquatic  
Ecologist)

*Conducted fish habitat and fish community assessments at 11  
locations in the along Highway 6/10 between Chatsworth and  
Owen Sound, Ontario. This involved using a backpack  
electrofisher or minnow traps (where applicable) to determine  
fish species and habitat present in order to assess the  
community structure and supplement watercourse sensitivity  
information provided by the MNR. Reporting tasks included the  
Aquatic Existing Conditions Report*



Ryan has ten years of environmental consulting experience as an aquatic ecologist. He has worked for a variety of industry sectors including mining, aggregates, pulp and paper, hydro-electric, energy and development. Ryan has also worked with all levels of government (municipal, provincial and federal). His specific areas of expertise include Environmental Impact Studies (EIS), Environmental Effects Monitoring (EEM), fish and fish habitat, as well as during- and post-construction monitoring and *Fisheries Act* authorizations. He has designed and completed many monitoring programs across Canada. Several of the programs occurred in remote areas with sampling sites accessible only by helicopter. Ryan is an experienced field crew leader and has developed and completed several multi-year surface water, aquatic macro-invertebrate and fisheries monitoring programs. Ryan has completed the Royal Ontario Museum's *Identification of Ontario Fishes* workshop, and has gained several years of experience with the capture, handling and identification of freshwater fish. Ryan is knowledgeable in the *Fisheries Act* authorization process.

## EDUCATION

B.Sc. (Honors), University of Guelph / Ecology, Guelph, Ontario, 2001

Class 1 Electrofishing Certificate / Ministry of Natural Resources, Waterloo, Ontario, 2010

Ontario Freshwater Mussel Identification Workshop / Fisheries and Oceans Canada – Canada Centre for Inland Waters, Burlington, Ontario, 2007

Certificate, MTO, DFO, OMNR / Fisheries Specialist Protocol Training Course, Downsview, Ontario, 2006

Certificate, Ontario Fish Identification Workshop, Toronto, Ontario, 2003

## PROJECT EXPERIENCE

### Aggregate Services

Proposed Acton Quarry Extension, Dufferin Aggregates, Acton, Ontario (Aquatic Ecologist)

*Beginning in 2003, Ryan participated in design and delivery of a multi-year natural environment existing conditions program and report. The natural environment existing conditions report was included as a part of the ARA application for the proposed Acton Quarry expansion. The program included establishing appropriate sampling stations for baseline monitoring of fish, benthos, water, thermal conditions and discharge.*

Proposed Flamborough Quarry, Hamilton, Ontario (Aquatic Ecologist)

*From 2004 to 2007 Ryan assisted with a multi-year existing condition program for the proposed Flamborough quarry. The program involved water quality monitoring, benthic macro-invertebrate collections, fisheries surveys, fish habitat assessments and surface water monitoring. Ryan was pivotal in the selection and establishment of appropriate benthic macro invertebrate, water quality and surface water monitoring stations. He also conducted onsite monitoring during MOE pump tests to ensure sediment and erosion controls were properly secured to monitor for potential surface water drawdown impacts.*

Proposed Burlington Quarry Expansion, Nelson Aggregates, Burlington, Ontario (Aquatic Ecologist)

*From 2003 to 2006 Ryan participated in design and delivery of a multi-year natural environment existing conditions program and report. The report was included as a part of the ARA application for the proposed Burlington Quarry expansion. The program involved establishing appropriate sampling stations for baseline monitoring of fish, benthos, water, thermal conditions and discharge.*

### Natural Sciences & Heritage Resources

Mike's Auto Environmental Impact Study, Hamilton, Ontario (Project Manager)

*Coordinated and conducted environmental impact study, with oversight of permits and approvals relating to natural channel design, construction, and enhancements, as well as landscape planting plans for an existing auto recycling facility. Work is being done in support of onsite facility expansion.*

\* denotes projects completed with other firms

## Ryan D. Park B.Sc.

### Aquatic Ecologist

---

#### Mine and Mill Installations Inc. Environmental Impact Study, Hydrogeological Study and Stormwater Management Plan, Hamilton, Ontario (Project Manager)

*Development and completion of Environmental Impact Study and management of hydrogeological monitoring and stormwater management plans, in support of a land use zoning change application.*

#### Fisheries Management

##### Sewer Forcemain Crossing of the Credit River, Glen Williams, Ontario (Aquatic Ecologist)

*Ryan was successful in obtaining DFO authorization for a secondary crossing method of a forcemain sewer line under the Credit River. The project involved information collection/collation and reporting for environmental approvals.*

##### Canagagigue Creek Biomonitoring, Elmira, Ontario (Fisheries Biologist/Field Crew Leader)

*From 2002 until present Ryan has conducted and overseen the completion of several of the bi-annual sampling events in Canagagigue Creek as part of a surface water bio-monitoring program. The program involves fish community surveys, spawning surveys and benthic macro-invertebrate sampling. Ryan has been responsible for all aspects of the field program including the identification of fish species captured during the sampling events.*

##### Wateree River Fisheries Study, Lugoff, South Carolina (Fisheries Biologist/Field Crew Leader)

*Ryan oversaw and performed a 6 week fisheries study on the Wateree River in South Carolina as part of a hydro electric facility re-licensing. The fisheries study was designed to identify the densities, diversity and distribution of fish species with an emphasis on anadromous American shad and striped bass. The data collected during the program was used to determine appropriate sampling techniques and efforts needed to complete future monitoring programs related to the operation of the hydro-electric facility. Ryan was responsible for all aspects of the field program, data collection, fish identification, analysis, reporting and quality control.*

#### Mining

##### Environmental Effects Monitoring (EEM) Program: Focused Monitoring Phase, Hudson Bay Mining and Smelting, 2009, Flin Flon, Manitoba (Aquatic Ecologist / Field Crew Leader)

*Ryan assisted with the development of the study designs for four focused monitoring programs. These programs differed from the initial and periodic monitoring programs in their expanded scope and intent. The programs were designed to identify the geographic extent and magnitude of effects on the receiving environment. Sampling occurred within 11 different water bodies and included the collection of water, sediment, fish, benthos and live macro-invertebrates for metal analysis.*

##### Kirkland Lake Gold Environmental Effects Monitoring (EEM), 2009, Kirkland Lake, Ontario (Data Management)

*Ryan provided Quality Assurance and Quality Control for the data collected during the Kirkland Lake Gold EEM program. Additionally Ryan completed the electronic submission of data to the Environment Canada National Environmental Effects Monitoring Database.*

##### Les Mines Selbaie Post-remediation Biological Monitoring, BHP Billiton, 2007, Quebec (Aquatic Ecologist)

*The 2007 monitoring program at the closed Les Mines Selbaie was designed monitor the changes in magnitude and extent of contamination in two watersheds. Ryan completed benthological and fisheries community surveys and collected water and sediment samples for metals analysis. The Les Mines Selbaie was located in the remote James Bay Lowlands of northern Quebec. Due to limited access and difficult terrain, sampling was completed exclusively by helicopter and small watercraft access.*

\* denotes projects completed with other firms

## Ryan D. Park B.Sc.

### Aquatic Ecologist

---

#### Environmental Effects Monitoring (EEM) Program: Periodic Monitoring Phase, Hudson Bay Mining and Smelting, 2007, Flin Flon, Manitoba (Aquatic Ecologist)

*With his involvement in the initial monitoring phase, Ryan played a key role in the development of the study designs for the four periodic monitoring programs. The four programs were designed to monitor and confirm potential environmental effects associated with five mining related discharges. The programs included the collection of water, sediment, fish and benthos at various exposure and reference sites. Ryan played an integral role in report production for the four EEM programs. Ryan was the lead for data management and electronic submissions of data from the four programs to the Environment Canada National Environmental Effect Monitoring Database.*

#### Les Mines Selbaie Post-remediation Biological Monitoring, BHP Billiton, 2004, Quebec (Aquatic Ecologist)

*The 2004 monitoring program was designed to determine the magnitude and extent of contamination in two watersheds. Ryan completed benthological and fisheries community surveys and sample water and sediment for metals contamination. The site was located in the remote James Bay Lowlands of northern Quebec. Due to limited access and difficult terrain, sampling was completed exclusively by helicopter and small water craft access.*

#### Environmental Effects Monitoring (EEM) Program: Initial Phase, Hudson Bay Mining and Smelting, 2004, Flin Flon, Ontario (Field Crew Leader)

*Ryan assisted with the study design and was the field crew leader for the first Environmental Effects Monitoring (EEM) Program for Hudson Bay Mining and Smelting. The project included five separate studies to monitor potential environmental effects associated with six mining related discharges. These studies involved the collection of water, sediment, fish and benthos to assess possible environmental effects. The programs were designed to follow federal Metal Mining Effluent Regulation (MMER) guidelines. Ryan played an integral role in the completion of the field programs with efficiency and accuracy, while maintaining high levels of quality control. In addition to the field program Ryan was the lead for the data management and electronic submission of data from the five programs to the Environment Canada National Environmental Effect Monitoring Database.*

#### Transportation Planning

##### Bridge Street Bridge Restoration, Waterloo, Ontario (Aquatic Ecologist)

*Ryan participated with the Species at Risk relocation program that was required to permit the construction of a temporary crossing of the Grand River. The program involved the systematic screening, collection, labeling and relocating of fresh water mussels at risk (Wavy-rayed Lampmussel and Rainbow Mussel).*

##### Road Crossings of 14 Mile Creek, Environmental Impact Statement, Oakville, Ontario (Aquatic Ecologist)

*Preparation of an EIS and fish habitat impact assessment for internal subdivision road crossing of 14 Mile Creek. Involved in the preparation and completion of the during and post construction monitoring programs to ensure compliance with the Fisheries Act and protection of a Species at Risk (Redside Dace).*

#### Natural Sciences Reports Related to Highway Improvement Works, Various Sites, Ontario (Aquatic Ecologist)

*Collected fisheries and aquatic habitat data for the following MTO studies:*

*Future Highway 11/17 (North Bay)*

*Highway 11/17 (Thunder Bay)*

*Highway 17 (Sudbury)*

*Highway 21 (Bayfield)*

*Highway 21 (Grand Bend)*

*Highway 24 Interchange Improvements (Cambridge)*

*Highway 26 (Meaford)*

*Highway 26 (Woodford)*

*Highway 401 (Woodstock)*

#### Wastewater

##### Middle - Grand River WWTP Assimilative Capacity Study, Kitchener, Ontario (Aquatic Ecologist / Crew Leader)

*Ryan planned and implemented a field program to map aquatic vegetation and provide estimates of macrophyte biomass, used in the GRCA's GRSM Model in support of the ACS for the Kitchener plant. Ryan also conducted routine surface water sampling on the Grand River as part of this project.*

\* denotes projects completed with other firms

## Ryan D. Park B.Sc.

### Aquatic Ecologist

---

#### Wastewater Treatment Plant Monitoring, Woodstock, Ontario (Aquatic Ecologist/Field Crew Leader)

*Ryan was the field crew leader for this monitoring program which included benthic macro-invertebrate sampling and a multi week in-situ water quality monitoring program. He was the primary field technician on the project with the responsibility of selecting sampling locations as well as the installation and maintenance of water quality meters. The program was designed to identify the potential impacts of the municipal wastewater treatment plant discharge on the biota and water quality in the Thames River.*

#### Proposed Sewage Treatment Expansion, Port Rowan, Ontario (Lead Field Technician)

*Ryan was the primary field technician for this project, which included benthic macro-invertebrate sampling, in situ water quality measurement, fish community surveys, fish habitat assessments and the collection of water for analytical testing. The program was designed to identify the potential impacts a proposed sewage lagoon expansion.*

#### **Water Resources Management**

##### Lake Gibson Angler Survey, Ontario Power Generation, Thorold, Ontario (Aquatic Ecologist / Project Manager)

*Ryan planned and implemented the 2011 Lake Gibson Angler Survey. The survey was conducted for Ontario Power Generation (OPG) to assess the effectiveness of OPG's communication with the public regarding the contamination of Lake Gibson sediment and fishes.*

##### Lake Gibson Contaminant Monitoring Study, Ontario Power Generation, Thorold, Ontario (Aquatic Ecologist / Project Manager)

*Lake Gibson is a hydro-electric reservoir owned and operated by Ontario Power Generation (OPG). As detailed in the OPG Risk Management Plan, OPG is required to monitor the persistence of sediment contamination and its expression in the environment within Lake Gibson. The program was designed to identify, quantify and compare the levels of contamination over time and the impact on sediments, water, benthic invertebrates, and fish in the system. Ryan was involved in all aspects of the project including project management, reporting, analysis and field components.*

#### Manheim Weir Sediment Inspection, Region of Waterloo, Kitchener, Ontario (Aquatic Ecologist / Crew Leader)

*The Manheim Weir is a low head water intake structure on the Grand River for which excessive sedimentation behind the structure may pose a potential hazard. Stantec was contracted by the Region of Waterloo to investigate the size and scale of sedimentation and the risk it may or not have on the weir/intake structure. Ryan designed, supervised and completed the field investigation which included a comprehensive sediment depth survey with the collection of sediment at select locations for analysis.*

#### Hidden Valley Intake Protection Zone Study, Kitchener, Ontario (Field Crew Leader)

*Ryan was the field crew leader for the Hidden Valley Intake Protection Zone Study. The purpose of the project was to establish an Intake protection zone for the Hidden Valley water intake on the Grand River via a dye injection program. His responsibilities on the project included the mobilization of field equipment, calibration and maintenance of field meters, the collection of field data and the transferring of the data from the meters to a data base.*

#### Yellow Falls Hydroelectric Project, Smooth Rock Falls, Ontario (Aquatic Ecologist / Field Crew Leader)

*The Yellow Falls Hydroelectric Project was an intensive multi-season field inventory program used to develop and existing conditions report as part of a larger environmental assessment for a proposed hydroelectric facility. The program involved many extensive aquatic surveys including: non-lethal fish tissue mercury sampling, habitat mapping, habitat utilization, spawning surveys, fish community surveys and aquatic macroinvertebrate sampling. As a field crew leader Ryan was responsible for the safety and day-to-day operation of the field program. Ryan interpreted the collected data and prepared sections of the existing conditions report that was submitted as part of the larger Environmental Assessment for the proposed hydroelectric facility.*



Marc Faiella's experience has included industry and development sector projects. He has conducted field investigations, liaised with representatives of government agencies, regulators and worked with First Nations, synthesized data and produced reports. Marc's specific areas of expertise include Environmental Effects Monitoring (EEM), Environmental Impact Studies (EIS) and Fish Habitat Assessments. He has assessed potential impacts to aquatic habitats at a number of mining and development-related sites, such as metal mines, quarries, pulp and paper mills, subdivisions, city drainage systems and wind energy projects. Marc's technical experience has focused mainly on aquatic habitats. He has conducted fisheries inventories and Species at Risk project surveys based on provincial protocols, trout spawning surveys, collected benthic invertebrate samples, and collected water, sediment and non-lethal and lethal fish tissue samples for mercury. Marc has gained practical experience with all construction phases of DFO applied work sites. In addition, Marc has on-site experience at remote northern sites where access is gained via helicopter, ATV, boat and hiking.

## EDUCATION

Tech. Dipl., Sir Sanford Fleming College / Ecosystem Management, Lindsay, Ontario, 2005

Training Certificate, Royal Ontario Museum Fish Identification Workshop, Royal Ontario Museum, Ontario, 2006

Certificate, MTO/DFO/OMNR Protocol, Toronto, Ontario, 2006

Certificate, St. John Ambulance / First Aid and CPR, Guelph, Ontario, 2010

P.A.L. and Firearms, Brampton, Ontario, 2005

Sir Sanford Fleming College / Short Wave Radio, Lindsay, Ontario, 2004

Sir Sanford Fleming College / Chainsaw Operator, Lindsay, Ontario, 2004

Certificate, Pleasure Craft Operator, Toronto, Ontario, 2005

Training Certificate, Class 1 Electrofishing Certificate, MNR, Ministry of Natural Resources, Ontario, 2012

Fisheries and Oceans Canada / Ontario Freshwater Mussel Identification Workshop, Burlington, Ontario, 2011

## MEMBERSHIPS

Canadian Environmental Practitioner In Training (CEPIT),  
Canadian Environmental Certification Approvals Board

## PROJECT EXPERIENCE

### Environmental Assessments

Communal Irrigation Study, Township of Melancthon, Ontario (Crew Lead)

*Obtained appropriate licences to conduct presence / absence and fish utility surveys within the Pine and Noisy River watersheds. Served as crew lead, overseeing fish surveys that were conducted in 2008 and preparations for proposed surveys in the spring / summer of 2009. Responsible for assembling report figures, maps and analysis of collected fisheries data, in tandem with Stantec's in-house GIS / graphics department.*

Bruce to Milton Transmission Reinforcement Project, Multiple Sites, Ontario (Crew Lead)

*Key member of the study team for the proposed hydro corridor expansion from Bruce Nuclear to a Milton, Ontario. Liaised with several Ministry of Natural Resources offices to coordinate issuance of permits and processing of historical fisheries data requests. Worked directly with the project manager to complete a work plan to safely and efficiently complete spring and summer fisheries surveys along the approximate 180 km corridor. Led a 2-person crew to conduct stream cross section surveys used to determine appropriate sizing of culverts. Coordinated production of detailed mapping and figures upon completion of the surveys, in tandem with Stantec's in-house GIS / graphics department, and was key in production of the independent Class EA report.*

**Port Alma Wind Power Project, Port Alma, Ontario (Field Crew / Data Analyst)**

*Exclusively responsible for conducting background topography research. Performed tree measurements for entire survey area, identified and mapped tree species locations using aerial photo base. Constructed tests for future heights (software) and produced reports detailing results. These results had significant bearing on wind turbine selection and placement.*

**Brampton MESP, Phase I, Springdale Environmental Site Assessment, Brampton, Ontario (Habitat Assessor)**

*Responsible for obtaining background information and conducted field work to assess study area. Compiled field notes and detailed data using an air photo base. Prepared final technical memorandum for submission.*

**Environmental Site Management**

**Randall Drain Branch A Restoration, Environment Inspection and Post-construction Monitoring, Waterloo, Ontario (Environmental Inspector)**

*Responsible for overseeing that approved plans to remediate a damaged watercourse on the City of Waterloo's airport property, as outlined by The Department of Fisheries and Oceans, Grand River Conservation Authority and Stantec Consulting Ltd., were carried out accordingly. Works included properly diverting flow downstream, efficiently dewatering the damaged area and relocating any stranded aquatic species downstream. Worked closely with the construction crew to ensure all remediation phases met Fisheries Act requirements. Prepared final report.*

**Mining**

**Vale Technology Development - Hydrology and Aquatic Assessment, Sudbury, Ontario (Aquatic Technician)**

*Marc was part of a two person crew that conducted a fishery presence/absence survey in a number of lakes associated with mining practices. Fish were identified, measured and tissue samples were collected for laboratory analysis.*

**Environmental Effects Monitoring (EEM) Program: Periodic Monitoring Phase, Hudson Bay Mining and Smelting, 2007, Flin Flon, Manitoba (Aquatic Technician)**

*Participated in metal mine EEM Periodic Monitoring phase, involving fisheries and benthic invertebrate surveys. Collected benthic and water samples in the field as well as fish, using various collection techniques. Completed habitat assessments, plume measurements and fish necropsies. Upon completion of field work, performed data analysis and reporting for the EEM report.*

**Environmental Effects Monitoring (EEM) Program: Focused Monitoring Phase, Hudson Bay Mining and Smelting, 2009, Flin Flon, Manitoba (Aquatic Technician)**

*Participated in metal mine EEM Focused Monitoring phase, involving fisheries and benthic invertebrate surveys. Collected benthic and water samples in the field as well as fish, using various collection techniques. Completed habitat assessments, plume measurements and fish necropsies. Upon completion of field work, performed data analysis and reporting for the final EEM report.*

**Environmental Effects Monitoring (EEM) Program: Periodic Monitoring Phase, Hudson Bay Mining and Smelting, 2007, Snow Lake, Manitoba (Aquatic Technician)**

*One of a 2-person crew stationed in Snow Lake for metal mine EEM Periodic Monitoring phase, involving fisheries and benthic invertebrate surveys. Collected benthic and water samples in the field as well as fish, using various collection techniques. Completed habitat assessments, plume measurements and fish necropsies. Upon completion of field work, performed data analysis and reporting for the EEM report.*

**Environmental Effects Monitoring (EEM) Program: Focused Monitoring Phase, Hudson Bay Mining and Smelting, 2009, Snow Lake, Manitoba (Aquatic Technician)**

*One of a 2-person crew stationed in Snow Lake for metal mine EEM Focused Monitoring phase, involving fisheries and benthic invertebrate surveys. Collected benthic and water samples in the field as well as fish, using multiple collection techniques. Completed habitat assessments, plume measurements and fish necropsies. Upon completion of field work, performed data analysis and reporting for the final EEM report.*

**Natural Sciences & Heritage Resources**

**Hydro One Series Capacitor Station (Project Manager)**

*Responsible for a fisheries sampling survey to determine the presence or absence of fish species near a proposed capacitor station. Secured a Fish Collection Licence from OMNR, compiled maps to assist in field investigations, assembled field staff, initiated survey and prepared report for internal and external circulation.*

**Melancthon Wind Energy Project Tree Surveys,  
Melancthon, Ontario (Aquatic Technician)**

*Measured tree heights and the species identified with use of a laser-sighted measuring device. Performed a desktop exercise, whereby heights were projected over a 20 year period. These projections were then synthesized on aerial photos, showing potential hazards to turbines, thus assisting with selection of wind turbine placement and selection of site-appropriate turbine models.*

**Oil & Gas**

**Enbridge Pipeline Crossing, Sarnia, Ontario (Aquatic  
Construction Monitor)**

*Marc was responsible for monitoring the St. Clair River for "frack-outs" that may occur during the horizontal drilling and pipe line installation under the St. Clair River. Marc was also responsible for collecting water samples for laboratory analysis and recording current river conditions using a YSI water quality meter.*

**Power**

**Biological Monitoring for the Shekak-Nagagami  
Generating Station, Hearst, Ontario (Field Crew Lead)**

*Responsible for compiling appropriate field gear to complete the Year-13 monitoring study along the Shekak and Nagagami Rivers in the vicinity of a hydroelectric dam. Participated in surveys, which included: fish inventories through electrofishing, fish tissue collection via gillnets, benthic sampling and water quality and sediment quality collection through several collection techniques. Performed data analysis and completion of the report. Worked closely with Brookfield Power, the MNR and Hearst employees to obtain necessary information and data to complete the project.*

**Hydro One Series Capacitor Station, Huntsville, Ontario  
(Project Management / Crew Leader)**

*Undertook a fisheries sampling survey to determine the presence or absence of fish species near a proposed capacitor station. Duties included securing fisheries permits from related agencies, compilation of maps to assist with surveys, assembly of staff, planned and implemented the field program and prepare report for internal and external circulation.*

**Yellow Falls Hydroelectric Project, Smooth Rock Falls,  
Ontario (Aquatic Technician)**

*Crew member responsible for extensive fish, benthic, water and habitat surveys along the Matagami River. Fish surveys included setting and retrieving gillnets, electrofishing, identification of fish species, retrieving age indicators from fish, characteristic measurements and collecting non-lethal samples for mercury analysis. Collected benthic invertebrates using various sampling techniques for later sorting and identification. Collected water samples and substrate samples using various sampling techniques and equipment for lab testing. Worked closely with a First Nations crew member for the duration of the project and, upon completion of the field surveys, performed data analysis and report writing.*

**Roads and Highways**

**Highway 11 Access Improvements. Preliminary Design.  
MTO Northeastern Region, Huntsville, Ontario (Fisheries  
Specialist)**

*Marc conducted an inventory of aquatic resources adjacent to the existing highway. The fish and fish habitat investigations were completed on three watercourses in the Study Area, and were conducted in accordance with the 2006 MTO/DFO/OMNR Protocol*

**Highway 11 Access Improvements. Preliminary Design.  
MTO Northeastern Region, Huntsville, Ontario (Fisheries  
Specialist)**

*Marc conducted an inventory of aquatic resources adjacent to the existing highway. The fish and fish habitat investigations were completed on three watercourses in the Study Area, and were conducted in accordance with the 2006 MTO/DFO/OMNR Protocol*

**Highway 8 and Highway 401 Interchange  
Improvements. Preliminary Design. MTO Southwestern  
Region, Kitchener, Ontario (Fisheries Specialist)**

*Marc conducted an inventory of aquatic resources within the study area. The fish and fish habitat investigations were completed following the 2006 MTO/DFO/OMNR Protocol. An exception to this occurred at the Grand River, where fish inventories were not conducted in order to avoid disturbances to mussel Species at Risk that are known to occur in the area*

**Highway 3 Rehabilitation, Renton to Jarvis. Detail  
Design. MTO West Region, Ontario (Fisheries Specialist)**

*Marc participated in detailed Natural Heritage features assessments and a Fish Habitat Existing Conditions Report in accordance with the 2006 MTO/DFO/OMNR Protocol. Three major water crossings (Nanticoke Creek and two crossings of Black Creek) were assessed in addition to other smaller crossings*

Marc A. Faiella Tech. Dipl., CEPIT

Environmental Technician

---

**Wind Power**

White Pines Wind Energy, Prince Edward County,  
Ontario (Field Crew Lead)

*Marc conducted aquatic habitat assessments and a fisheries presence/absence surveys to determine aquatic features under REA (Renewable Energy Act). He also assisted in producing a photo log and figures that assisted in the application process for construction work permits.*

Fairview Wind Energy, Staynor, Ontario (Field Crew  
Lead)

*Marc conducted aquatic habitat assessment surveys to assess their designation under the REA (Renewable Energy Act). In addition, Marc conducted electrofishing surveys to assess the presence or absence of fish species and was also part responsible for producing a photo log and figures to assist in the application process for associated construction work permits.*

Port Dover Wind Energy, Port Dover, Ontario (Aquatic  
Technician)

*Marc conducted field surveys to assess aquatic features and to determine its designation under the REA (Renewable Energy Act). Marc was also part responsible for producing reports, photo logs and figures to aid in the application process to gain associated construction work permits.*

Amherst Island Wind Energy, Amherst, Ontario (Field  
Crew Lead)

*Responsible for collecting fisheries habitat characteristics along the proposed shoreline of Lake Ontario to aid in obtaining associated construction work permits. Marc was also responsible for conducting a presence/absence survey using several capture methods such as, gill nets, boat electrofishing, Fyke nets and minnow traps.*