

# **Appendix F**

## **Curricula Vitae**

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., EPT

## Biologist

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### **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

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## Biologist

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### 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

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## Biologist

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### 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

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Biologist

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## 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., EPT

Biologist

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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*

\* denotes projects completed with other firms

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

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## 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

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## 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

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## **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