

Mark has 13 years experience with fisheries habitat and impact assessments, encompassing numerous habitat types including lakes, ponds, large rivers, warmwater and coldwater streams. Past employment with the Department of Fisheries and Oceans (DFO), Grand River Conservation Authority and St. Clair Region Conservation Authority contributes to Mark's extensive working experience with regulatory and approvals processes related to the Fisheries, Conservation Authorities and Drainage Acts. Mark has developed and implemented monitoring, mitigation, compensation and inventory processes. He has also been involved in several projects in a construction monitoring and inspection capacity, where he has resolved various issues related to Fisheries Act approvals and Species at Risk. He has also coordinated many large field sampling programs where data for a large number of varied parameters (such as water quality, fish habitat and community, sediment and benthos) were collected.

## EDUCATION

Honours B.Sc. (Agriculture), University of Guelph /  
Natural Resources Management, Guelph, Ontario, 2000

Fisheries Assessment Specialist and Fisheries Contracts  
Specialist, MTO/DFO/OMNR Fisheries Protocol Course,  
Downsview, Ontario, 2006

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

## PROJECT EXPERIENCE

### Environmental Assessments

Pier 22 Environmental Assessment, Hamilton, Ontario  
(Aquatic Biologist)

*Negotiated Fisheries Act approvals for improvements to Pier 22 lands. Improvement works included infill of watercourse reaches on the property. Additionally, contributed relevant input to federal environmental assessment process.*

Bruce to Milton, Various, Ontario (Fisheries Biologist)

*Planned, coordinated and assisted with execution of large-scale fisheries field program to assess potential impacts of proposed hydroelectric corridor reinforcement project and provided relevant input to the provincial environmental assessment process as well as the Fisheries Act and Conservation Authorities Act permitting processes. Managed data entry, analysis and completed reporting of aquatic resources sections. Coordination of multi-disciplinary team and regulatory agencies for acquisition of appropriate permits and approvals.*

Yellow Falls Hydroelectric Project, Smooth Rock Falls,  
Ontario (Aquatic Biologist)

*Planned, coordinated and assisted with execution of fisheries field program to assess potential impacts of proposed hydroelectric dam project. Facilitated acquisition of permits and approvals from relevant agencies. Assisted with fish, benthos, habitat, water and sediment sampling. Authored significant portions of the technical appendix related to aquatic study results.*

### Environmental Impact Assessments

Georgia Pacific Thorold Cycle 4 EEM, Thorold, Ontario  
(Aquatic Ecologist)

*Assisted in field sampling of fish, benthos, water and sediment for federally regulated pulp and paper environmental effects monitoring.*

Spruce Falls Cycle 4 EEM, Kapuskasing, Ontario  
(Aquatic Ecologist)

*Assisted in field sampling of fish, benthos, water and sediment for federally regulated pulp and paper environmental effects monitoring.*

Smooth Rock Falls Cycle 4 EEM, Smooth Rock Falls,  
Ontario (Aquatic Ecologist)

*Assisted in field sampling of fish, benthos, water and sediment for federally regulated pulp and paper environmental effects monitoring.*

### Highway and Transportation

Detroit Windsor Truck Ferry Improvements (Design)  
(GWP 3071-06-00), Windsor, ON (Fisheries Biologist)

*Provided aquatic community and habitat assessment services as well as input regarding project design, construction staging and silt and sediment control planning. Acquired approvals under Fisheries Act and Conservation Authorities Act related to fish habitat.*

# Mark C. Pomeroy B.Sc.

Fisheries Biologist

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## Highway 24 Intersection Improvements, Cambridge, ON (Fisheries Biologist)

*Provided fish rescue services. Performed environmental inspection duties related to implementation of the Fisheries Act compensation plan and resolution of onsite issues related to construction.*

## Detroit Windsor Truck Ferry Improvements (Contract Administration) (WP 3071-06-00), Windsor, ON (Fisheries Biologist)

*Construction monitoring services related to Fisheries Act implications (fish removals, species at risk identification training for contract staff, staging and implementation design review), provision of advice regarding alternative staging/construction operations to prevent impacts to aquatic habitat/organisms.*

## Natural Resource Services

### Municipal Drain Classification Program\*, Various, Ontario (Drain Assessment Technician)

*Planned and implemented large scale sampling protocol designed by DFO to assess the sensitivity of various municipal drains to disturbance. Sampling program encompassed all drains within the Grand River watershed and consisted of habitat, thermal and fish community characterization based on extensive field sampling. Analyzed substantial quantities of field data, summarized results and produced interim and final reports.*

### Fish Habitat Study\*, Strathroy, Ontario (Biological Technician)

*Planned and implemented field program to sample fish community in reservoirs managed by the St. Clair Region Conservation Authority. Responsible for writing final report concerning existing fish habitat status and providing recommendations based on field data. Participated in water quality and benthic community field sampling programs.*

### Various Environmental Assessments\*, Sarnia, Ontario (Fish Habitat Biologist)

*Assessed project proposals for impacts to fish habitat as defined in the Fisheries Act. Carried out screening level environmental assessments of proposed projects under the Canadian Environmental Assessment Act. Participated in outreach programs and inter-agency work groups regarding Species at Risk recovery.*

## Urban Land

### Berczy Dam Removal, Markham, Ontario (Fisheries Biologist)

*Provided fish rescue services, including resolution of issues related to Species at Risk.*

## Medway Sanitary Trunk Sewer Extension, London, Ontario (Fisheries Biologist)

*Assisted with approvals application to DFO, MNR regarding pipeline crossing of Medway Creek and assessing potential impact to Species at Risk and fish habitat.*

## Fox Hollow Subdivision, London, Ontario (Fisheries Biologist)

*Facilitated acquisition of approvals from DFO for the realignment of the Heard Drain/Snake Creek and the installation of a stormwater management pond in relation to construction of the Fox Hollow Subdivision. Performed construction inspection services, resolved onsite implementation issues related to the Fisheries Act.*

## Fanshawe Park Road Widening, London, Ontario (Fisheries Biologist)

*Facilitated acquisition of approvals from DFO for the realignment of Heard Drain/Snake creek during the expansion of Fanshawe Park Road. Performed construction inspection services, resolved onsite implementation issues related to the Fisheries Act.*

\* denotes projects completed with other firms

Edward is a Biologist with Stantec's Environmental Management group with a background in fisheries science, environmental management, and impact assessments. Ed has experience in conducting environmental effects monitoring (EEM), environmental impact studies (EIS), ecological risk assessments, environmental baseline studies and statistical analysis of biological data.

Edward's academic background includes a graduate thesis in stream fish ecology. His experience is focused in fish biology in lentic and lotic systems, with extensive experience in fish inventories and habitat assessments in urban and remote environments. Ed is experienced in Fisheries Act Authorization process, as well as permitting requirements of other federal, provincial (particularly Ontario), and regional agencies for altering watercourses as they relate to the *Fisheries Act*, the *Conservation Authority Act*, the *Public Lands Act*, the *Lakes and Rivers Improvement Act*, *Navigable Waters Protection Act*, and the *National Parks Act*.

## EDUCATION

B.Sc., North Carolina State University / Specialization in Fisheries and Wildlife Science, Raleigh, North Carolina, 2003

M.Sc., North Carolina State University / Specialization in Fisheries and Wildlife Science: Minor in Statistics, Raleigh, North Carolina, 2006

Training Certificate, United States Fish and Wildlife Service / Electrofishing Certification, Raleigh, North Carolina, 2005

Training Certificate, Fisheries Specialist, MTO, DFO, MNR / Protocol for Protecting Fish Habitat on Provincial Transportation Undertakings, Downsview, Ontario, 2006

Training Certificate, MNR / Class 2 Electrofishing Certification (Crew Leader), Guelph, Ontario, 2009

Training Certificate, Royal Ontario Museum / Fish Identification Workshop, Toronto, Ontario, 2008

## PROFESSIONAL ASSOCIATIONS

Member, American Fisheries Society.

## PROJECT EXPERIENCE

### Environmental Assessments

Chesterville Waterfront Development, Chesterville, Ontario (Fisheries Biologist)

*Collected existing information on the natural environment, provided design input to minimize impacts to fish and fish habitat, and consulted with federal, provincial, regional, and local agencies to coordinate and expedite approvals process.*

Chippewa Creek Culvert Removal, North Bay, Ontario (Fisheries Biologist)

*Completed assessment of anticipated impacts to cool water fish and fish habitat related to the removal a rail line culvert crossing and associated pedestrian pathway. Provided significant input towards compensation plan development related impacts of the culvert removal impacts on a National and Provincial Species of Special Concern.*

TransCanada Pipelines Limited Petawawa Sales Meter Station, Petawawa, Ontario (Fisheries Biologist)

*Completed environmental impact assessment for proposed metering station in Petawawa, Ontario.*

### Mining

Cycle 3 Environmental Effects Monitoring (EEM) Program for Hudson Bay Mining & Smelting Co. Ltd., Flin Flon, Manitoba (Fisheries Biologist)

*Conducted remote fish community inventories and collected benthic invertebrate, sediment, and water quality samples, as well as lethal and non-lethal fish tissue samples for mercury analysis, according to Environment Canada protocols. Also statistically analyzed and reported results on fisheries data to determine whether the mine effluent was responsible for a fish community level effect.*

# Edward G. Malindzak M.Sc.

## Fisheries Biologist

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### Cycle 2 Environmental Effects Monitoring (EEM) Program for Hudson Bay Mining & Smelting Co. Ltd., Flin Flon, Manitoba (Fisheries Biologist)

Conducted remote fish community inventories and collected benthic invertebrate, sediment, and water quality samples, as well as lethal and non-lethal fish tissue samples for mercury analysis, according to Environment Canada biological monitoring protocols. Also statistically analyzed and reported results on fisheries data to determine whether the mine effluent was responsible for a fish community level effect.

### Environmental Effects Monitoring (EEM) Program for Kirkland Lake Gold Inc., Kirkland Lake, Ontario (Fisheries Biologist)

Statistically analyzed and reported on fisheries data, according to Environment Canada biological monitoring protocols, to determine whether mine effluent was responsible for a fish community level effect. Incorporated fisheries, benthic, and water quality investigation findings into the final long-term monitoring report.

### INCO Junction Creek Environmental Effects Monitoring Confirmatory Study Design, Sudbury, Ontario (Fisheries Biologist)

Produced confirmatory study design conforming to Environment Canada biological protocols for an Environmental Effects Monitoring program related to INCO's Junction Creek mining operation.

### Natural Resource Services

#### Island Falls Hydroelectric Project, Smooth Rock Falls, Ontario (Fisheries Biologist)

Biological and hydrological assessment of proposed dam construction and anticipated impacts to fish, fish habitat, and upstream passage in preparation for compensation negotiations with Fisheries and Oceans Canada and Ontario Ministry of Natural Resources.

### Environmental Impact Studies for Power Projects, Various Sites, Ontario (Fisheries Biologist)

Assessed potential environmental impacts from power development proposals. Conducted fish community inventories in watercourses and prepared reports providing summaries of existing fish communities, likely sensitivities, mitigation solutions to minimize impacts to the natural environment and net effects analyses. EIS experience includes:

- Bruce to Milton Transmission Reinforcement Project, Multiple Sites, Ontario
- Ostrander Point Wind Energy Park, Near Picton, ON
- TransCanada Pipelines Limited Sales Meter Station, Petawawa, ON

### Environmental Impact Studies for Land Development, Various Sites, Ontario (Fisheries Biologist)

Assessed potential environmental impacts from land development proposals. Conducted fish community inventories in watercourses, and prepared habitat and impact assessments providing summaries of existing fish communities, sensitivities of fish and fish habitat, mitigation solutions to minimize impacts to the natural environment, and net effects analyses. EIS experience includes:

- Ashcroft East Urban Lands, Ottawa, ON
- La Cité collégiale, Ottawa, ON
- Oxford Village Residential Development, Kemptville, ON
- Richcraft Homes Residential Development, Stittsville, ON
- U88 Climatic Chamber Facilities Extension, Ottawa, ON
- Upper Feedmill Creek Development, Stittsville, ON
- Valcartier Water Park, Limoges, ON

### Barrhaven South Development, Ottawa, Ontario (Fisheries Biologist)

Completed impact assessment and compensation plan related to the decommissioning of four municipal drains south of the Jock River within the City of Ottawa. Benefits of the proposed compensation measures to fish and fish habitat included an overall net gain in fish habitat quality and quantity due, in part, to habitat improvements at the mouths of the four drains. Additional gains in habitat were realized through the channel realignment and natural channel design principles coupled with extensive re-vegetation and the creation suitable fish habitats (i.e. pool/riffle sequences and linear wetlands). New fish habitat was created in a constructed pond with a total volume of 6500 m<sup>3</sup>. The construction of this pond and the proposed channel re-alignments increased the productive capacity of these waters, with the potential to increase fish biomass up to 10 times.

### Melfa Crescent Bank Stabilization Project, Ottawa, Ontario (Fisheries Biologist)

Collected, compiled, and reported existing aquatic and terrestrial conditions in support of bank stabilization work on the Rideau River within the City of Ottawa.

### Hazeldean Tributary Realignment, Ottawa, Ontario (Fisheries Biologist)

Completed assessment of anticipated impacts to fish and fish habitat related to a tributary realignment, developed comprehensive mitigation plan, coordinated submissions and negotiated mitigation to avoid compensation with associated conservation authority, Fisheries and Oceans Canada and Ontario Ministry of Natural Resources.

\* denotes projects completed with other firms

# Edward G. Malindzak M.Sc.

Fisheries Biologist

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## Research

### Literature Search and Summary of Habitat Needs of Canadian Amphibian Species (Aquatic Ecologist)

*Researched, compiled, and evaluated relevant literature for on water bodies that provide amphibian habitat. Literature included grey and white papers identified through internet and library database searches. Additionally, data was collected from prominent amphibian researchers.*

### Review of Ammonia Toxicity to Fish in the Marine Environment (Aquatic Ecologist)

*Researched, compiled, and summarized peer-reviewed scientific literature related to the toxicity of ammonia in the marine environment. Completed an assessment of the potential impacts associated with a marine discharge for INCO Limited.*

### Literature Search and Evaluation for Future Development of Canadian Water Quality Guidelines for Agricultural Uses (Aquatic Ecologist)

*Researched, compiled, critically evaluated and summarized peer-reviewed scientific literature since the derivation of the current guideline describing physical and chemical properties, production, uses, sources, environmental fate, behaviour, toxicology and effects and environmental levels of copper, manganese, boron, cadmium and E. coli as they relate to irrigation for Environment Canada.*

### Development of Nutrient Standards for Streams Draining Agricultural Land Uses (Aquatic Ecologist)

*Performed statistical analysis of the nutrient data contained in the NAESI Freshwater Nutrient Database to explore relationships between nutrient concentrations and biological conditions (algal biomass) in rivers in agricultural areas. The purpose was to assist Environment Canada in the development of performance standards for nutrients in surface waters in Canadian agricultural regions.*

### Case Study Analysis for Impacted, Flowing Water Bodies for the CCME National Water Quality Index (Fisheries Biologist)

*Developed case studies to provide a comparison between the various statistical approaches to be used to determine site-specific natural background concentrations for impacted flowing water bodies, as applied in the context of the Canadian Water Quality Index.*

## Transportation Planning

### Meadow Creek Bridge Replacement (GWP 181-92-00), Iroquois Falls, Ontario (Fisheries Biologist)

*Collected aquatic habitat data and produced an impact assessment report outlining likely temporary and permanent impacts to aquatic habitat, provided mitigation recommendations and provided input during detail design to minimize impacts to fish habitat related to a bridge replacement. Consulted and negotiated with regulatory agencies and submitted Form 1 "No HADD" and supporting documentation in support of the replacement of the Meadow Creek Bridge for the Ontario Ministry of Transportation.*

### Key River Bridge Replacement (GWP 87-96-00), Parry Sound, Ontario (Fisheries Biologist)

*Collected aquatic habitat data and produced an impact assessment report outlining likely temporary and permanent impacts to aquatic habitat, provided mitigation recommendations and provided input during detail design to minimize impacts to fish habitat related to a bridge replacement. Consulted and negotiated with regulatory agencies and submitted Form 1 "No HADD" and supporting documentation in support of the replacement of the Key River Bridge for the Ontario Ministry of Transportation.*

### Highway 69 Patrol Yard Site Selection (GWP-5094-06-00), Parry Sound / Sudbury, Ontario (Fisheries Biologist)

*Collected aquatic habitat data and produced existing conditions report outlining potential impacts to aquatic habitat and mitigation recommendations for proposed works. Provided input during the site selection process during preliminary design to minimize impacts to fish habitat related to of three new highway maintenance patrol yards for the Ontario Ministry of Transportation.*

### Highway 11 Access Review at the South Entrance to Powassan (GWP 323-00-00), Powassan, Ontario (Fisheries Biologist)

*Collected aquatic habitat data and produced existing conditions report outlining potential impacts to aquatic habitat and mitigation recommendations for proposed works. Provided design input during preliminary design of a new highway interchange to minimize impacts to fish habitat related to a new highway interchange for the Ontario Ministry of Transportation.*

### Road Improvement Projects, Various Sites, Ontario (Fisheries Biologist)

*Collected aquatic habitat field data and produced numerous existing conditions and habitat assessment reports related to roadway improvement works. Where required, Fisheries Act Authorization was obtained and Fish Habitat Compensation Plans were developed. Potential impacts to aquatic habitat were described for the following studies:*

\* denotes projects completed with other firms

# Edward G. Malindzak M.Sc.

Fisheries Biologist

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- City of Ottawa, Cumberland Transitway (Phase 1)
- City of Ottawa, West Transitway
- Township of Horton, Garden of Eden Road Widening
- Defense Construction Canada, Re-alignment of Leirim Road, Ottawa, ON
- Defense Construction Canada, Roadside Drain Improvements, Farnham, QC

## City of Ottawa Light Rail Project, Ottawa, Ontario (Fisheries Biologist)

Assessment of 17 cool and warmwater watercourse crossings associated with the proposed rail project. Crossings included CSP culverts of various diameters, concrete box culverts (box and open bottom), and large bridge spans. Specific tasks included: collection of existing and archival fish and fish habitat data, development of a comprehensive fisheries compensation plan to facilitate Department of Fisheries and Oceans permitting, coordination of federal, provincial, and regional permit applications for watercourse crossings as they related to various Regulatory Acts.

## Water Resources Management

### Environmental Effects Monitoring (EEM) Program for Spruce Falls Inc., Kapuskasing, Ontario (Fisheries Biologist)

Statistically analyzed and reported on fisheries data, according to Environment Canada biological monitoring protocols, to determine whether the mill effluent was responsible for a fish community level effect.

### Shekak River Post Impoundment Environmental Monitoring for the Shekak-Nagagami Hydroelectric Development, Hearst, Ontario (Fisheries Biologist)

Statistically analyzed and reported on fish mercury concentrations, according to Environment Canada biological monitoring protocols, to determine whether the impoundment has contributed to a fish community-level effect.

### Year Ten Environmental Monitoring Program, Cochrane, Ontario (Fisheries Biologist)

Conducted remote environmental monitoring program to evaluate existing environmental conditions including fish and benthic invertebrate communities, sediment and water quality, and mercury accumulation in fish (lethal and non-lethal fish tissue sampling) to determine potential impacts ten years since impoundment for hydroelectric power facility. Collected and statistically analyzed data using Environment Canada biological protocols.

### Stream Fish Sampling Project\*, Utuado, Puerto Rico (Research Technician)

Collection of data directed at cataloguing native and introduced fish species richness, distribution, population sizes and habitat utilization in the remote central mountain region of Puerto Rico.

### Indian Creek Fishway Project\*, Roebuck, Ontario (Fisheries Technician)

Designed and constructed an offline fishway in an intermittent stream to provide spawning fish upstream access to traditional spawning grounds. Completed hydrologic modeling and field surveys to assess existing habitat conditions, developed fishway design criteria, and monitored and maintained sediment and erosion control measures.

\* denotes projects completed with other firms



Edward G. Malindzak M.Sc.

Fisheries Biologist

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## PUBLICATIONS

Cope, W.G., R.M. Heltsley, D. Shea, R.B. Bringolf, T.J. Kwak and E.G. Malindzak. Development of novel, non-lethal sampling techniques to assess organic contaminants in fish. *Annual Meeting of the North Carolina Chapter of the American Fisheries Society. Greensboro, North Carolina. January 31-February 1, 2006.*

Kwak, T.J., E.G. Malindzak and J.R. Brewster. Catfish Ecology and Management Symposium. Invited speaker, introduced flathead catfish, dam removal and endangered species. *Annual Meeting of the Southern Division of the American Fisheries Society. San Antonio, Texas. February 8-12, 2006.*

Heltsley, R.M., W.G. Cope, D. Shea, R.B. Bringolf, T.J. Kwak and E.G. Malindzak. Assessing Organic Contaminants in Fish: Comparison of a Non-lethal Tissue Sampling Technique to Mobile and Stationary Passive Sampling Devices. *Environmental Science & Technology. 39:7601-7608, 2005.*

Malindzak, E.G. and T.J. Kwak. Movement and habitat use of introduced riverine flathead catfish: implications for imperiled fishes and dam removal. *135th Meeting of the American Fisheries Society. Anchorage, Alaska. September, 2005.*

Kathleen's experience is focused in aquatic biology, including stream, lake and wetland assessments, benthic macroinvertebrate identification and biomonitoring, and fisheries habitat studies. She has experience conducting environmental impact studies, environmental effects monitoring programs, baseline studies and watershed plans. Using ecosystem based approaches, typical multidisciplinary project involvement includes Class EAs and infrastructure siting/routing studies, evaluating alternative design concepts and developing mitigative solutions to minimize impacts to the natural environment.

Kathleen has acquired an understanding of federal and provincial legislation, policies and procedures for natural heritage features, particularly regarding working in and around fish habitat in Ontario. She is experienced in the Fisheries Act Authorization process, including evaluating the effects of development on aquatic habitat, designing fish habitat mitigation measures, and negotiating Fisheries Compensation Strategies. In addition, Kathleen serves as a team leader for aquatic science staff in Ontario, including professionals in the fields of fisheries biology, fluvial geomorphology, and aquatic invertebrate taxonomy.

## EDUCATION

M.Sc., Watershed Ecosystems, Trent University,  
Peterborough, Ontario, 2003

B.Sc. (Env.), Environmental Sciences, University of  
Guelph, Guelph, Ontario, 1997

Certified in the Ecological Land Classification (ELC)  
System for Southern Ontario, Ontario Ministry of Natural  
Resources, Turkey Point, Ontario, 2000

Qualified Southern and Northern Ontario Wetlands  
Evaluator, Ontario Ministry of Natural Resources, North  
Bay, Ontario, 2000

Fisheries Assessment Specialist and Fisheries Contracts  
Specialist, MTO/DFO/OMNR Fisheries Protocol Course,  
Downsview, Ontario, 2006

Ontario Freshwater Mussel Identification Workshop /  
Fisheries and Oceans Canada, Burlington, Ontario,  
2008

Qualified Electrofishing Operator (Class 2), Ontario  
Ministry of Natural Resources, Guelph, Ontario, 2010

## PROFESSIONAL ASSOCIATIONS

Member, North American Benthological Society

## PROJECT EXPERIENCE

### Environmental Assessment

Northwest Area Planning and Servicing Review,  
Welland, Ontario\* (Environmental Scientist)

*Conducted a review of natural heritage features and identified development-related constraints in a newly designated urban area.*

Willoughby Lands Golf Course Facility, Niagara Region,  
Ontario\* (Aquatic Ecologist)

*Obtained Fisheries Act Authorization for development of a golf course facility. Supervised an underwater dive investigation to survey aquatic habitat along a series of alternative Niagara River water intake pipe alignments. The study lands also support habitat for a rare aquatic plant and an extensive program was proposed to ensure its protection. Environmental monitoring during construction was conducted.*

Municipal Water and Wastewater EAs, Various Sites,  
Ontario\* (Aquatic Ecologist)

*Evaluated natural heritage features in terms of ecological sensitivity and watermain and/or trunk sewer construction feasibility options (tunnel vs. open cut). Aquatic habitat conditions were assessed at all potential watercourse crossings and recommendations were provided regarding Fisheries Act requirements, construction mitigation measures and timing restrictions on in-water works. Also responsible for siting a chlorine booster station, surface water treatment plants and pumping stations, and mitigating impacts from emergency overflow of chlorinated water into adjacent watercourses.*

*Water and wastewater experience includes:*

- City of Barrie, Surface Water Treatment Plant Class EA & Impact Assessment
- Region of Niagara (Point Abino), Water Supply Class EA
- Region of Peel (Brampton), West Brampton Reservoir, Pumping Station & Watermain Class EA

\* denotes projects completed with other firms



# Kathleen R. O. Todd M.Sc.

## Senior Aquatic Ecologist

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- Region of York (Etobicoke), Steeles Avenue West Forcemain Class EA
- Region of York (Markham), Southeast Collector Trunk Sewer Class EA

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

#### **Environmental Impact Studies for Land Development, Various Sites, Ontario (Project Manager)**

Assessed potential environmental impacts from land development proposals. Conducted ecological community inventories in watercourses, wetlands and woodlots. Prepared Environmental Management Plans providing net effects analyses, mitigation solutions to minimize impacts to the natural environment, buffer zone recommendations, and re-vegetation and restoration activities. Participated in consultation to address agency concerns. EIS experience includes:

- Block 34 East Landowners Group Inc., Block 34 East Natural Environment Report, Vaughan, Ontario
- Block 41-28W Development Group Inc., Block 41 Natural Environment Report, Vaughan, Ontario
- Boca East Investments Limited, Block 64 Master Environmental Servicing Plan (Natural Environment Chapter), Vaughan, Ontario
- Georgian International Land Corp., Buffalo Springs Development Environment Report, Township of Oro-Medonte
- Keirland Developments Inc., Meadows of Bear Creek Subdivision Phases 2 & 3 EIS, Barrie, Ontario
- Kleinburg Heights Holdings Inc., Kleinburg Heights Natural Environment Report, Vaughan, Ontario

#### **Environmental Impact Studies for Land Development, Various Sites, Ontario\* (Project Manager)**

Assessed potential environmental impacts from land development proposals. Conducted ecological community inventories in watercourses, wetlands and woodlots. Prepared Environmental Management Plans providing net effects analyses, mitigation solutions to minimize impacts to the natural environment, buffer zone recommendations, re-vegetation and restoration activities, proposed trail routes and community stewardship programs. Participated in public open houses to address the concerns of local residents. Where required, environmental monitoring during construction was conducted. EIS experience includes:

- City of London, Dearness Home for Seniors Redevelopment EIS, London, Ontario
- Fieldgate Developments, Tresstown Subdivision EIS, Stouffville, Ontario
- Grey Gables School, Proposed Private School Site, Ecological Assessment, St. Catharines
- Lebovic-Fieldgate Developments, Functional Servicing Plan, Ecological Component, Stouffville, Ontario
- Norwest Land Corp., Kains Road East Development EIS, London, Ontario

- Quinte's Isle Campark, Scoped EIS, Prince Edward County, Ontario
- Sifton Properties Ltd., Equestrian Condominium Communities, Development Assessment Reports, Township of Middlesex Centre & Municipality of West Middlesex
- Sifton Properties Ltd., River Bend Community Phases 1&2 EIS, London, Ontario
- St. Joseph's Health Care Centre, Parkwood Hospital Scoped EIS, London, Ontario
- Westhill Redevelopment Company Limited, Aurora Golf Course Community EIS, Aurora, Ontario

#### **River Bend Community Phases 1 & 2, Environmental Monitoring Protocol & Baseline Study\*, London, Ontario (Environmental Scientist)**

Established baseline aquatic, terrestrial and soils conditions in the vicinity of a golf course community. Subsequently, the Environmental Monitoring Program - Year 1 and, later, Year 3, were submitted to document any potential impacts.

#### **Ecological Risk Assessment of Residual Heavy Oil in a Wetland\*, Drumbo, Ontario (Environmental Scientist)**

Analyzed stream and wetland data to determine potential aquatic food chain impacts of a historical heavy oil release. Analyzed invertebrate community structure and identified exposure pathways and community end-points. Considered site remediation options on the basis of these data.

#### **Dufferin Aggregates Acton Quarry Extension, Acton, Ontario (Aquatic Ecologist / Project Manager)**

The extension of the existing Acton Quarry is proposed to meet the need for additional close-to-market aggregate resources of high quality Amabel Dolostone. The area of focus encompasses approximately 615 ha, across two Conservation Authority watersheds within the Regional Municipality of Halton Hills. Kathleen has participated in extensive ecological field work, including aquatic species surveys and habitat assessments, inventories for potential Species at Risk habitat, and aquatic rehabilitation planning. She has co-authored technical reports produced in accordance with the PPS and ARA application requirements, as well as participated in interdisciplinary consultation with agencies and agency-appointed committees.

#### **Otonabee Landfill Site Biological Assessment Study\*, Peterborough, Ontario (Wetlands Ecologist)**

Prepared a 'Surface Water Quality Study' to address background water quality and aquatic habitat conditions and a 'Natural Environment Report' to identify baseline wetland and terrestrial environment conditions. The study was designed to identify potential impacts from existing landfill operations and to predict future impacts from proposed landfill site expansion.

\* denotes projects completed with other firms

# Kathleen R. O. Todd M.Sc.

Senior Aquatic Ecologist

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## Forest City Industrial Lands, Wetland Evaluation & Environmental Assessment\*, London, Ontario (Wetlands Ecologist)

*Evaluated a locally significant wetland according to the Ontario Wetland Evaluation System and revised the existing boundaries of a provincially significant wetland in cooperation with MNR.*

## West Nile Virus Information Package, Ballantrae, Ontario (Environmental Scientist)

*Designed a pamphlet to educate residents and golfers regarding West Nile virus, the status of the virus in York Region, and the client's proactive mosquito monitoring program.*

## Confidential Client, Environmental Baseline and Feasibility Study for a Decommissioned Gold Mine\*, Northern, Ontario (Environmental Scientist)

*Conducted aquatic and terrestrial habitat inventories to determine the environmental feasibility of re-opening a gold mine. Assessed streams, wetlands and woodlots. Conducted invertebrate and fish collections, avifauna and wildlife surveys, and vegetation community inventories.*

## Transportation Planning

### MTO Aquatic and Terrestrial Biology Retainer Services, Southwestern Ontario (Project Manager / Fisheries Specialist)

*Under the terms of two 2-year Retainer Agreements (2004-2006, 2007-2009) eleven individual assignments were completed, involving: characterizing existing ecological conditions, assessing site sensitivities and impacts related to proposed bridge/culvert repairs and highway improvements, recommending environmental mitigation measures, and conducting during/post-construction monitoring. Value added components included: fluvial geomorphological services, design and implementation of bio-engineered slope stabilization solutions, Permit to Take Water applications, and site rehabilitation and Planting Plans. Extensive agency liaison was required with staff from numerous Conservation Authority, MNR and DFO offices.*

### Municipal Road Improvement Projects, Various Sites, Ontario (Environmental Scientist)

*Collected aquatic and terrestrial habitat field data, conducted environmental impact assessments, and obtained required agency approvals related to municipal transportation projects, including:*

- City of Hamilton, Bridge & Culvert Master Plan\*
- City of London, Airport Road Widening\*
- City of London, Bradley Avenue Extension
- City of London, Western Road Widening
- Town of Markham, Woodbine Avenue By-Pass\*
- Township of Wilmot, Haysville Bridge Replacement\*

### Natural Sciences Reports Related to MTO Highway Improvement Works, Various Sites, Ontario (Fisheries Specialist)

*Produced numerous Natural Sciences reports related to highway improvement works. Where required, Fisheries Act Authorization was obtained and Fish Habitat Compensation Plans were developed. Potential impacts to aquatic habitat, terrestrial vegetation, wetlands and wildlife were described for the following studies:*

- Highway 6 (Flamborough)\*
- Highway 6 (Guelph)
- Highway 6 By-Pass (Caledonia)\*
- Highway 7 (Marmora)\*
- Highway 7 (Peterborough)\*
- Highway 7A/28/115 (Peterborough)\*
- Highway 8 (Dublin)\*
- Highways 11/17 (North Bay)
- Highways 11/17 (Thunder Bay)
- Highways 11/101 (Matheson)
- Highway 17 (Stonecliffe)\*
- Highway 17/Municipal Road 55 (Sudbury)
- Highway 17 Southwest By-Pass (Sudbury)
- Highways 17/531 (North Bay)\*
- Highway 21 (Bluewater)
- Highway 21 (Grand Bend)
- Highway 23 (Palmerston)
- Highway 24 Interchange Improvements (Cambridge)
- Highway 26 (Meaford)
- Highway 26 (Owen Sound)
- Highway 63 (Bancroft)\*
- Highway 63 (North Bay)\*
- Highway 401/403 (Woodstock)
- Highway 401/County Road 41 (Napaneer)\*
- Highway 518 (Orrville)\*

### West Nile Virus Surveillance Program, Various Sites, Central Ontario (Aquatic Ecologist)

*Evaluating the potential for MTO owned/managed properties (e.g. stormwater ponds) to be mosquito breeding habitats, and recommended suitable strategies to curtail mosquito breeding success.*

### Bridge Widening, CN Rail Mile 119.6\*, Kingston, Ontario (Aquatic Ecologist)

*Procured federal Fisheries Act Authorization related to a rail line widening project over a warmwater creek. Conducted a post-construction monitoring program to confirm the viability of the habitat compensation measures.*

\* denotes projects completed with other firms

# Kathleen R. O. Todd M.Sc.

Senior Aquatic Ecologist

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**Environmental Data Collection, CN Rail Corridor\***, Toronto to Hornepayne, Ontario (Environmental Scientist)  
*Identified, collected and assessed secondary source natural heritage data for a study area that followed the CNR corridor from Toronto to Hornepayne. The data were then transferred to a GIS database, to be used during emergency planning.*

## **Water Resources Management**

**Minnow Lake Restoration\***, Sudbury, Ontario (Aquatic Ecologist)

*Coordinated a lake-wide monitoring program to evaluate the degree of water pollution resulting from stormwater discharge to an urban lake. Participated in frequent public consultation to liaise with residents of the Minnow Lake Restoration Group.*

**Fort Creek Restoration\***, Sault Ste. Marie, Ontario (Aquatic Ecologist)

*In consultation with DFO, completed a restoration plan for an urban creek that outlets to Lake Huron and provides salmon spawning habitat. Habitat enhancement involved the removal of in-stream debris, channel stabilization, riparian plantings, substrate enhancement, and creation of refuge areas. Fisheries Act Authorization was obtained, and environmental monitoring during construction was conducted.*

**Environmental Effects Monitoring Programs for Mining Sector Clients, Various Sites, Canada (Benthic Ecologist)**

*Contributed benthic ecology chapter to numerous EEM reports for Canadian metal mines. Analyzed and reported on invertebrate data to determine whether the respective mine effluent was responsible for an aquatic community level effect. EEM experience includes:*

- Hudson Bay Mining & Smelting Co. Ltd., Chisel North Mine, Snow Lake, Manitoba
- Hudson Bay Mining & Smelting Co. Ltd., Snow Lake Mill / Anderson Tailings, Snow Lake, Manitoba
- Hudson Bay Mining & Smelting Co. Ltd., Flin Flon Tailings Impoundment System and Trout Lake Mine, Flin Flon, Manitoba
- Hudson Bay Mining & Smelting Co. Ltd., Ruttan Mine, Leaf Rapids, Manitoba
- Hudson Bay Mining & Smelting Co. Ltd., Konuto Lake Mine, Denare Beach, Saskatchewan
- SMC (Canada) Ltd., McAlpine Mill, Cobalt, Ontario

**Environmental Effects Monitoring Programs for Pulp and Paper Sector Clients, Various Sites, Canada (Benthic Ecologist)**

*Contributed the benthic ecology chapter to numerous EEM reports for Canadian pulp and paper mills. Statistically analyzed and reported on invertebrate data, according to Environment Canada biological monitoring protocols, to determine whether the respective mill effluent was responsible for an aquatic community level effect. EEM project experience includes:*

- Cascades Fine Papers Group Thunder Bay Inc., Lake Superior, Thunder Bay, Ontario
- Georgia-Pacific Canada Inc., Lake Gibson, Thorold, Ontario
- Kimberly-Clark Incorporated, Lake Superior, Terrace Bay, Ontario
- Marathon Pulp Inc., Lake Superior, Marathon, Ontario
- Nexfor Fraser Papers, Saint John River, Edmunston, New Brunswick
- Norampac Inc., Lake Superior, Red Rock, Ontario
- Spruce Falls Inc., Kapuskasing River, Kapuskasing, Ontario
- Stora Enso Port Hawkesbury Limited, Strait of Canso, Port Hawkesbury, Nova Scotia
- Tembec Industries Inc., Mattagami River, Smooth Rock Falls, Ontario

**Watershed Based Biomonitoring Program for Urban Development, Oakville, Ontario (Benthic Ecologist)**

*Sampled and analyzed the Fourteen Mile Creek invertebrate community to establish baseline conditions, prior to the development of a housing subdivision. Six subsequent years of during-construction monitoring were conducted.*

**North and South Meade Creeks Subwatershed Plan\***, Peterborough, Ontario (Aquatic Ecologist)

*Conducted fish collections and population analyses, invertebrate sampling and identification, and collected and analyzed water chemistry samples. The information was used to predict the ecological sensitivity of Meade Creek and to provide recommendations regarding the extent and type of future development permitted in the watershed.*

**Pike River Aquatic Impact Assessment\***, Field, Ontario (Benthic Ecologist)

*Sampled fish, invertebrates and benthic sediments within the vicinity of a chlorinated discharge zone to determine the extent of chlorine related effects to the aquatic environment.*

**Biological Impact Assessment of a Closed Landfill on the Maitland River, Wingham, Ontario (Benthic Ecologist)**

*Analyzed Maitland River invertebrate community data within the vicinity of a closed landfill to determine the potential impact of landfill leachate.*

\* denotes projects completed with other firms

Kathleen R. O. Todd M.Sc.

Senior Aquatic Ecologist

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**Receiver Biomonitoring Program, Elmira, Ontario  
(Benthic Ecologist)**

*Analyzed invertebrate community data to determine the viability of an industrial contaminated groundwater collection and treatment system which discharges treated water to Canagagigue Creek.*

**Shekak River Post Impoundment Environmental  
Monitoring for the Shekak-Nagagami Hydroelectric  
Development, Hearst, Ontario (Aquatic Ecologist)**

*Addressed agency concerns regarding environmental monitoring in the headpond area of a river impoundment. Evaluated shoreline erosion and the viability of fish habitat compensation measures, including a walleye spawning shoal and aquatic invertebrate enhancement works.*

**Environmental Effects Monitoring Program for the  
Antamina Mine & Port Facility, Peru (Benthic Ecologist)**

*Analyzed biological (metal concentrations in fish and shellfish tissues, fish health, benthic invertebrate community structure) and physical (water and sediment chemistry) data collected in the vicinity of both an inland mine (freshwater environment) and a coastal mining port facility (marine environment) to determine if the local ecosystems were being adversely affected by mining/shipping operations.*

**Benthic Invertebrate Monitoring Program\*, Caledonia,  
Ontario (Benthic Ecologist)**

*Assessed the Fox Creek invertebrate community to determine if the stream habitat was being adversely affected by adjacent mining effluent discharge.*

\* denotes projects completed with other firms

Kathleen R. O. Todd M.Sc.

Senior Aquatic Ecologist

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## PUBLICATIONS

Todd, K.R.O., M.G. Fox and D.C. Lasenby. Presented at the 52nd Annual Meeting of the North American Benthological Society. Seasonal influence of riparian vegetation on stream macroinvertebrate community structure. *North American Benthological Society, Vancouver, B.C. (June 6-10), 2004.*

Todd, K.R.O. The Influence of Deciduous and Coniferous Riparian Vegetation on Aquatic Macroinvertebrate Community Structure in Low Order Streams of South Central Ontario. *M.Sc. Thesis, Trent University, 2003.*