

**Sarah Thomasen, M.Sc.
Aquatic Ecologist
SNC-Lavalin**

**Application for inclusion in Internal Roster for Ontario Waterpower Association
Species Expertise – Regulation 242/08 – *Endangered Species Act***

Mollusks

Sarah Thomasen has been working with freshwater invertebrates in Ontario since 2007. They were the main subject of her master's thesis, which she completed in 2011 at McMaster University. Ms. Thomasen recently completed a Freshwater Mussel Identification course in June 2013 to refine her mussel identification and sampling skills, focusing on Species at Risk. This two-day course is run by leading experts in North America, through Fisheries and Oceans Canada. Ms. Thomasen achieved top marks in the course. She regularly applies her mussel identification skills during aquatic ecological surveys with SNC-Lavalin.

Mitigation, Effects Monitoring, Effectiveness Monitoring Plans

Ms. Thomasen has been involved in a variety of mitigation planning, implementation and inspection for work around watercourses for construction projects throughout southern Ontario. She has completed inspections for effects and effectiveness monitoring plans, evaluating their effectiveness in implementation and making recommendations for improvements. She has also designed and implemented a number of research studies in aquatic environments, focusing on evaluating the effects of mitigation measures.

Hydroelectric Sector

Ms. Thomasen contributed to an environmental assessment of a run-of-the-river hydroelectric dam in northern Ontario in 2012/2013. During her master's degree she studied the effects of barriers and connectedness on aquatic communities and habitats, focusing on freshwater invertebrates. She has participated in multiple round-table discussions focusing on mitigating the effects of dams and other barriers on watercourses.



Aquatic Ecology

EDUCATION:

- ◆ M.Sc. Aquatic Ecology, McMaster University, Ontario
- ◆ B.Sc. Honours Biology, Specialization Biodiversity, McMaster University, Ontario

PUBLICATIONS AND PRESENTATIONS:

- ◆ “Wave Exposure and Hydrologic Connectivity Create Diversity in Habitat and Zooplankton Assemblages at Nearshore Long Point Bay, Lake Erie” *Journal of Great Lakes Research*, 2013
- ◆ “Detecting Changes in Ecosystem Quality Following Long-Term Restoration Efforts in Cootes Paradise Marsh” in *Ecological Indicators*, 2012
- ◆ “Response of the Zooplankton Community to Microhabitat Variations in Long Point Marsh, Lake Erie” at the Canadian Conference for Fisheries Research in 2011
- ◆ “Effectiveness of ecological indices in detecting changes to ecosystem health at Cootes Paradise Marsh” at International Association for Great Lakes Research Conference in 2010

Ms. Thomasen is an Aquatic Ecologist with the Environment and Water Division, SNC-Lavalin. She has 6 years experience working in wetlands, streams and lakes throughout Ontario completing assessments of aquatic habitats, including surveys of invertebrates, fish, aquatic vegetation, and water-quality sampling. She has presented her work through various technical reports, peer-reviewed papers, and oral and poster presentations at conferences and workshops.

EXPERIENCE:

1. For Muskrat Dam First Nation (*ongoing*), assisted in preparation of the technical report documenting baseline conditions for a proposed hydroelectric project on Windigo River. Preparing Environmental Study Report in support of the *Class Environmental Assessment for Waterpower Projects*. Initiating impact analysis for the aquatic habitat.
2. For Highway 407 East Extension (*ongoing*), completed aquatic assessments of 38 sites in four watersheds. Currently completing removals of aquatic biota for in-water construction work at all affected sites.
3. For Advanced Works of the Highway 407 East Extension, conducted field assessments of watercourses using modified Ontario Stream Assessment Protocol (OSAP) and Ministry of Transportation protocol, confirming existing conditions.
4. For McMaster University, planned and conducted field work and analysis for research on fish and fish habitat in wetlands of the Great Lakes. Field work involved assessments of macro and micro invertebrates, fish, aquatic vegetation, wetland birds, hydrology, mapping, sediment and water-quality. Completed inventory of Great Lakes wetlands, multivariate analyses and GIS analysis. Followed the Ontario Wetland Evaluation System (OWES) and conducted Species-at-Risk surveys.
5. For Fisheries and Oceans Canada. Sample Archive Technician, created an inventory, cataloguing and archiving all lower trophic samples, dating to the 1960s. Delivered a technical report summarizing findings and making recommendations for future actions.
6. For the Hurontario-Main Street Light Rail Transit (LRT) project (*ongoing*), City of Mississauga and City of Brampton, conducted field assessments of existing aquatic conditions and prepared technical report for the Environmental Study Report, in compliance with the Transit Project Assessment Process. Assisted in preparation of the terrestrial existing conditions report.
7. For Phase 1 of the Highway 407 East Extension, prepared aquatic component of the Construction Environmental Management Plan for approval under the *Canadian Environmental Assessment Agency* (CEAA).

