

**ONTARIO WATERPOWER  
ASSOCIATION – REQUEST FOR  
QUALIFICATIONS**

SPECIES EXPERTISE  
REGULATION 242/08

*Endangered Species Act*



September 30, 2013

## ONTARIO WATERPOWER ASSOCIATION – REQUEST FOR QUALIFICATIONS

### Species Expertise – Regulation 242/08 – Endangered Species Act

September 30, 2013

Joel L. Keene B.Sc., M.Sc. (Aqua), Senior Aquatic Ecologist / Benthic Taxonomist			
Species name	Individual Name	Contact Information	Member of Waterpower Association
American Eel <i>Anguilla rostrata</i>	Joe Keene <a href="mailto:joe.keene@stantec.com">joe.keene@stantec.com</a>	Stantec Consulting Ltd 70 Southgate Drive, Suite #1 Guelph ON N1G 4P5 Phone: (519) 836-6966 Fax: (519) 836-2493	✓
Lake Sturgeon <i>Acipenser fulvescens</i>			
Mollusks (e.g. Wavy-rayed Lampmussel, <i>Lampsilis fasciola</i> )			
Description of Expertise & Experience			
<p><b>Relevant Species / Grouping of Species for which they seek to be recognized as a subject matter expert (max 100 words)</b></p> <p>Lake Sturgeon (<i>Acipenser fulvescens</i>) – Joe has worked on several hydroelectric projects designed to assess potential impacts on Lake Sturgeon populations. He has conducted field surveys (population surveys) and laboratory analyses. Joe conducted stomach content analysis to determine diet and resource use within a hydroelectric impoundment (Little Long Headpond, Mattagami River). He also took part in a proximate analysis study of Lake Sturgeon tissue collected from several hydroelectric impoundments from the James Bay watershed in northern Ontario to assess sturgeon tissue energetics.</p> <p>American Eel (<i>Anguilla rostrata</i>) – On behalf of the New York Power Authority, Joe participated in an American Eel mark-recapture study within a 50 km reach of the St. Lawrence River. The study was designed to distinguish between resident and migrating eels. Joe collected eels using hoop nets and boat electrofishers. He performed eel morphological analysis of external characteristics and detailed necropsies, including the collection of otoliths, blood, ovary and eel muscle tissues. Joe also conducted histological analysis of ovary tissue, focusing on oocyte developmental stage and diameters.</p> <p>Mollusks – Joe has considerable experience with freshwater mussels, including Wavyrayed Lampmussel (<i>Lampsilis fasciola</i>), Kidneyshell (<i>Ptychobranchus fasciolaris</i>), Rainbow (<i>Villosa iris</i>), Rayed Bean (<i>Villosa fabale</i>), Mapleleaf (<i>Quadrula quadrula</i>), and Round Pigtoe (<i>Pluerobema sintoxia</i>). His experience includes the acquisition of permits under the <i>Endangered Species Act</i> for mussel relocations, and the coordination and completion of mussel moves for five projects involving mussel species at risk in Ontario. Joe’s training includes DFO’s Ontario Freshwater Mussel Identification workshop, which focuses on mussel species at risk.</p>			
<p><b>Development and implementation of mitigation, effects monitoring and effectiveness monitoring plans (max 100 words)</b></p> <p>Joe has acquired permits under Ontario Regulation 242/08 of the <i>Endangered Species Act</i> and implemented the “Protocol for the detection and relocation of freshwater mussel species at risk in Ontario-Great Lakes Area”. He has coordinated and participated in five projects involving surveys and/or relocation of mussel species at risk. Joe has assisted and developed aquatic biomonitoring programs for a range of projects including environmental effects monitoring for the mining and pulp and paper industries. Joe conducted proximate analysis on hydroelectric reservoir sturgeon for Dr. F.W.H. Beamish at the University of Guelph.</p>			
<p><b>Hydroelectric Sector (max 100 words)</b></p> <p>Joe has participated in numerous aquatic monitoring studies for the hydroelectric sector throughout Ontario. He has worked on a range of projects from baseline data collection to post-construction monitoring. Several of the projects include rivers with Lake Sturgeon populations. Specific project experience includes sites on the Shekak/Nagagami River, Mattagami River, Otonabee River, Twelve Mile Creek/Welland Canal, and the St. Lawrence River.</p>			

\* denotes projects completed with other firms

Joel Keene has 19 years of extensive marine and freshwater experience, including mark recapture studies and species inventory projects investigating fish population stability, species identification, measurement and marking of fish collected. He has processed over 11,000 benthic samples from over 400 freshwater and marine projects, both in Canada and internationally. He has also performed gut content analyses on both large and small-bodied fish. Joe has performed fecundity analysis on several fish species and marine mussels. In addition, Joe is experienced with morphological and histological analysis, as well as detailed necropsies and dissection. He has been involved with a number of projects involving freshwater mussel species at risk (SAR) in Ontario and is familiar with both provincial and federal approvals processes for surveys and moves related to these organisms.

## EDUCATION

M.Sc.(Aqua), University of Guelph, Aquaculture, Guelph, Ontario, 1997

B.Sc., University of Guelph, Marine Biology, Guelph, Ontario, 1994

Ontario Freshwater Mussel Identification Workshop / Fisheries and Oceans Canada - Canada Centre for Inland Waters, Burlington, Ontario, 2008

Certificate, Royal Ontario Museum / Fish Identification, Toronto, Ontario, 2001

## PROJECT EXPERIENCE

### Species at Risk Experience

American Eel (*Anguilla rostrata*) downstream migration and discrimination study for New York Power Authority\*, New York

Lake Sturgeon (*Acipenser fulvescens*) Energetics and Proximate Analysis Study, University of Guelph\*.

Little Long Headpond Lake Sturgeon Population Assessment, Kapuskasing, Ontario

Freshwater Mussel Detection and Relocation in Medway Creek and the Grand River, London, Ontario

Bridge Street Bridge Rehabilitation, Kitchener, Ontario

Detroit Windsor Truck Ferry Improvements (Contract Administration) (WP 3071-06-00), Windsor, Ontario

Replacement of Coutts Line Bridge over Baptiste Creek, Tilbury, Ontario

Extensive Benthic Invertebrate Taxonomy Experience, 1999-2013

### Hydroelectric Power Projects

Biological Monitoring Study for the Shekak-Nagagami Generating Station, Hearst, Ontario

Lake Gibson Angler Survey, Ontario Power Generation, Thorold, Ontario

Lake Gibson Contaminant Monitoring Study, Ontario Power Generation, Thorold, Ontario

Little Long Headpond Lake Sturgeon Population Assessment, Kapuskasing, Ontario

Georgia-Pacific Cycle 5 Environmental Effects Monitoring - Investigation of Cause, Thorold, Ontario (Aquatic Ecologist/Field Crew Leader)

Yellow Falls Hydroelectric Project, Smooth Rock Falls, Ontario

Locks 24 and 25 – VLH Turbine Installation, Canadian Hydropower, Lakefield, Ontario

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