

# NORTHEAST REGIONAL CONSERVATION NEED GRANT QUARTERLY REPORT

Grant Number: 2010-02

Grant Title: Instream Flow Recommendations for the Great Lakes Basin of New York and Pennsylvania

Grant Receipt: The Nature Conservancy

Grant Contact Name: David Klein

Report #- 2 – July 1, 2011 – September 30, 2011

Were planned goals/objectives achieved last quarter? Goals for this quarter were achieved, including the arrival of Jason Taylor, the post-doctoral associate hired by Cornell University's New York Cooperative Fish and Wildlife Research Unit to focus full-time on this project. A summary of Jason's initial activities is included below. In addition, we completed a detailed summary of the orientation meeting with the project's technical advisory team, which was held on June 29, 2011, during the previous quarter.

Regional Conservation Need Addressed: This project will provide the information necessary to develop and implement science-based instream flow standards for managing the Great Lakes surface and ground-waters on New York and Pennsylvania under the terms of the Great Lakes Compact.

Progress Achieved: (For each Goal/Objective, list Planned and Actual Accomplishments)  
The principal objectives for the 3<sup>rd</sup> quarter were to begin work on tasks that are to be completed during the 4<sup>th</sup> and future quarters. A summary of Jason Taylor's progress follows.

Summary of Progress: (Provide a paragraph describing progress, work to come, and timelines)  
Jason Taylor has made significant progress on one of the major objectives for the current quarter (1), and will complete the second step listed below (2) by focusing first on the stream classification (3), an objective that was originally planned for the 2<sup>nd</sup> quarter of 2012. A summary of Jason's report on his progress is attached:

- 1) *Document flow requirements of sensitive aquatic organisms, natural communities, and key abiotic processes within the Great Lakes basin tributaries of NY and PA.* I have reviewed examples from other ELOHA projects, particularly those with overlapping species targets, and focused compiling information on target groups identified by our expert panel that were not included in other ELOHA projects (example: pikes, anadromous sport fish). I have acquired and begun organizing fish sampling records for the State of NY.
- 2) *Formulate hypotheses of ecological response to flow alteration by flow-sensitive species, communities, and ecological processes.* I plan to return to this step after finishing the classification so we can formulate conceptual models around distinct hydrologic types with appropriate targets.
- 3) *Classify streams in the GL basin of NY and PA by size, hydrologic pattern, gradient, geology, geomorphology, ecological and other factors.* I have identified 138 stream gauges that represent least-altered hydrology for the northeastern U.S. and calculated 171 hydrologic indices for each gauge using the hydrologic index tool (HIT). I have performed multivariate analyses at a large scale (NE) and am currently working on a NY state scale classification to reduce the number of indices and differentiate streams into classes that can be used to stratify

targets when developing flow ecology hypotheses. The next step is to assess the validity of these classifications, integrate final hydrologic classification into existing stream habitat classifications, and develop models that predict hydrologic type for un-gauged streams.

Difficulties Encountered: This project is on schedule.

Activities Anticipated Next Quarter: We will focus on tasks (1) and (3) above.

Expected End Date: This project is scheduled to conclude with flow recommendations for the streams of different types in the Great Lakes basin of NY and PA by January 2013.

Costs: We have attached the required Expenditure Reporting Form to this report.

Funds Expended to Previous to this Report:	0.00
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Amount of RCN Funds Requested within this Report:	0.00
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Total Approved Budgeted RCN Funds:	100,000.00
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Are you within the approved budget plan?	N/A
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Are you within approved budget categories?	N/A
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Signature: 

Date: 10/31/11.

# **Instream Flow Recommendations for the Great Lakes Basin of New York and Pennsylvania**

## **RCN Grant # 2010-2 2011 3<sup>rd</sup> Quarter Abstract**

This project will employ the Ecological Limits of Hydrologic Alteration (ELOHA) framework in the Great Lakes drainage of New York and Pennsylvania to develop an objective, spatially explicit process for evaluating the ecological impacts of new withdrawals of water from the tributaries of Lakes Erie, Ontario, and the Upper St. Lawrence River. The goal is to provide the scientific information necessary to support development and implementation of in-stream flow standards for managing the Great Lakes surface and ground-waters of New York and Pennsylvania under the terms of the Great Lakes Compact.

Milestones for the third quarter of 2011 were achieved, including the arrival of the post-doctoral associate hired by Cornell University's New York Cooperative Fish and Wildlife Research Unit to focus full-time on this project. The post-doctoral associate has made significant progress on the milestones for the 4<sup>th</sup> quarter, including documentation of the flow requirements of sensitive aquatic organisms, and classification of streams to facilitate hypotheses of ecological response to flow alteration and extrapolation of flow statistics across streams of the same class. In addition, we completed a detailed summary of the orientation meeting with the project's technical advisory team, which was held on June 29, 2011, during the previous quarter. This project is on schedule to complete a final report in January 2013.