

NORTHEAST REGIONAL CONSERVATION NEEDS GRANT 2012 ABSTRACT

Quarter: (circle one) 2012 1st 2012 2nd 2012 3rd 2012 4th

Grant Number and Title: RCN Grant #2010-2 In-stream Flow Recommendations for the Great Lakes Basin of New York and Pennsylvania

Grant Receipt/Organization: The Nature Conservancy

Grant Project Leader: David Klein

Please provide a short (1-2 paragraphs) abstract that addresses EACH of the following: the objectives of your project, accomplishments to date, future plans and timelines with an estimate for when the project will be completed.

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.

During the third quarter, we wrote a detailed summary of this project's second expert workshop, and distributed this summary to all participants and to other agency staff. This step completed task 5 in our project narrative. One of the accomplishments of the second workshop was formulation of hypotheses of ecological response to hydrologic alteration, and we have focused during the 3rd quarter on a structured approach to the scientific literature to test these hypotheses, in fulfillment of task 6 in the narrative. This comprehensive approach to a massive scientific literature is still underway in preparation for the third and final expert workshop, scheduled for Dec. 6, 2012.

In the 4th quarter, we will prepare a format for developing flow recommendations at the third workshop, hold the workshop, and prepare a detailed summary. We will prepare materials for a WebEx discussion with the technical advisory team to finalize flow recommendations, and write major sections of the final report. We will request a no-cost extension of our project, and will complete our final report with flow recommendations by March 31, 2013.

NORTHEAST REGIONAL CONSERVATION NEED GRANT

2012 PROGRESS REPORT

Quarter: (circle one) 2012 1st 2012 2nd 2012 3rd 2012 4th

Grant Number and Title: 2010-02

Grant Receipt/Organization: In-stream Flow Recommendations for the Great Lakes Basin of New York and Pennsylvania

Grant Project Leader: David Klein

Were planned goals/objectives achieved last quarter? During the previous quarter, we wrote a detailed summary of this project's second expert workshop, and distributed this summary to all participants and to other agency staff. This step completed task 5 in our project narrative. One of the accomplishments of the second workshop was formulation of hypotheses of ecological response to hydrologic alteration, and we have focused during the 3rd quarter on a structured approach to the scientific literature to test these hypotheses, in fulfillment of task 6 in the narrative. This comprehensive approach to a massive scientific literature is still underway in preparation for the third and final expert workshop, scheduled for Dec. 6, 2012.

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

Progress Achieved: During the third quarter of 2012, our activities focused on step 6 in our project narrative:

Step 6: Conduct testing to refine specific hypotheses of ecological response to hydrologic alteration, with existing data sets, by September 2012. As mentioned above, the major outcome of the second expert workshop was formulation of hypotheses of biotic responses to different degrees and types of alterations in hydrology. In preparation for the third workshop on Dec. 6, Dr. Jason Taylor is employing Causal Criteria analysis, a literature-based approach to hypothesis testing, to measure the degree of scientific support for each of the hypotheses framed during the second workshop. These hypotheses will be aggregated by timing, flow component, and flow-sensitive life stages or ecosystem processes into a set of consolidated flow needs. For example, during the post-processing of breakout session notes, we identified 24 hypotheses generated for fish that have been consolidated into a set of 10 flow needs. These seasonal flow needs will form the ecological basis for recommending policies. Thus, building support for associations between ecological needs and flow components is an important step in preparation for the 3rd workshop.

Causal Criteria Analysis involves:

1. Identifying relevant cause-effect hypotheses (outcomes of the 2nd workshop), and
2. Searching and reviewing literature, and extracting evidence through a 3 step process.
 - a. Assess relevance of each study
 - b. Weight each study based on its design
 - c. Tally results that support or refute hypotheses to make conclusions of support for a particular flow hypotheses

This approach will be used to test concurrently a set of flow needs including hypotheses from other ELOHA projects currently completed or being conducted with the goal of developing a set of supported flow-ecology needs for the Great Lakes watershed in New York and Pennsylvania.

Summary of Progress: (Provide a paragraph describing progress, work to come, and timelines)

We are now completing task 6 in our project narrative, and will prepare draft flow recommendations for consideration during the 3rd workshop (task 7) in the coming month. The workshop scheduled for Dec. 6 will partially fulfill task 8. We expect that completion of task 8 – the final project report, with final flow recommendations vetted by the technical advisory group – will take an additional 2.5 months beyond the current project completion date (January 15, 2013). As a follow-up to the third workshop, we plan to schedule a WebEx discussion with the advisory team in early January. This WebEx discussion will enable us to consult with the advisory team on final flow recommendations and on our summary of the outcomes of the 3rd workshop. For several reasons (a delay in completion of our contract with RCN until April 2011; a longer-than-expected search for the post-doctoral Research Associate; and a delay in the completion of our contract with Cornell University and the New York Cooperative Fish and Wildlife Research Unit), this project got a late start. We expect that we will ask for a no-cost extension to the grant period of 2.5 months, and will file a formal request this month.

Difficulties Encountered: Our previous report noted the difficulty of comparing unaltered and altered flows for streams and stream segments within the Great Lakes. The AFINCH modeling of stream flows, which simulates the unaltered flows of streams and stream segments, apparently is not appropriate for simulating current, altered flows for the same streams. The extensive review and analysis of voluminous scientific literature now being completed by Dr. Taylor, and the testing of our hypotheses through Causal Criteria Analysis, provide alternate means of assessing how degree of alteration affects aquatic organisms.

Activities Anticipated Next Quarter: We will prepare a format for developing flow recommendations at the third workshop, hold the workshop, and prepare a detailed summary. We will prepare materials for a WebEx discussion with the technical advisory team to finalize flow recommendations, and write major sections of the final report.

Expected End Date: If the no-cost extension is approved, this project is scheduled to conclude in March 2013 with flow recommendations for the streams of different types in the Great Lakes basin of NY and PA.

Costs:

Funds Expended to Previous to this Report:	\$38,970.90
Amount of RCN Funds Requested within this Report:	\$13,516.04
Total Approved Budgeted RCN Funds:	\$100,000.00
Are you within the approved budget plan?	Yes
Are you within approved budget categories?	Yes

Signature:



Date: November 8, 2012