

ATTACHMENT 1
GRANT QUARTERLY PROGRESS REPORT

Quarter: (circle one) 2015 1st 2015 2nd 2015 3rd 2015 4th

Grant Program, Number and Title: USFWS NA LCC, NA LCC 2015-05

“Developing a GIS-based freshwater classification for the Canadian portion of the North Atlantic Landscape Conservation Cooperative”

Organization: Nature Conservancy of Canada (NCC)

Project Leader: Margo Morrison (NCC), Arlene Olivero-Sheldon (TNC), William Millar (NCC)

Abstract: 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.

The overall goal of this project is to increase the knowledge and data available for freshwater ecosystems in the Canadian and cross-border portions of the North Atlantic Landscape Conservation Cooperative (NA LCC). Identifying portions of the aquatic network that have ecological similarities can help to more effectively protect and manage freshwater aquatic species resources. The objectives of this project are to 1) create a seamless classification of freshwater ecosystems based upon their distinct ecological characteristics within Eastern Quebec, New Brunswick, Nova Scotia and Prince Edward Island (the Canadian portion of the NA LCC), 2) agree upon common mapping and habitat definitions, and 3) provide a standardized approach to freshwater classification. The ecological characteristics being analyzed are stream size, slope (gradient), temperature, geologic buffering capacity and tidal influence. Progress to date includes the formation of a core team of freshwater experts in eastern Canada, and the compilation of necessary datasets. The core team consists of at least one representative from an NGO, an academic institution, and a department representative from each provincial government included in the Canadian portion of the NA LCC. The key datasets that have already been acquired are high resolution Digital Elevation Models (DEM's), national hydrographic networks (NHN's), surficial geology, bedrock geology, soils, and other variables associated with tidal influence. It is anticipated that all other necessary datasets, including stream temperature data and biotic data will be compiled by end of NA LCC's next quarter, and that some initial GIS analysis will be done by the end of March 2016 at the latest. It is anticipated that this project will be completed by May 2017.

Were planned goals/objectives achieved last quarter?

All planned goals/objectives were achieved last quarter (October- December 2015). During November and December 2015, we identified key partner organizations and invited representative experts to serve as advisors to the development of the classification. The core team consists of representatives from the World Wildlife Fund (WWF), the Wildlife Conservation Society (WCS), Quebec Ministry of Sustainable Development, Environment, and Fight Against Climate Change (MDDELCC), PEI Department of Agriculture and Fisheries, Island Nature Trust (INT), Nova Scotia Department of Inland Fisheries, the Department of Fisheries and Oceans (DFO): Gulf Region, the Atlantic Salmon Federation (ASF), New Brunswick Department of Environment and Local Government (ELG), the University of New Brunswick (UNB), Canadian Rivers

Institute (CRI), Memorial University (MUN), Dalhousie University, Trent University, River and Stream Ecology Lab, Ontario Ministry of Natural Resources (OMNR), and the Watershed Alliance. The core team members will provide a diverse range of local expertise, such as prior experience developing aquatic classification systems, detailed knowledge of hydrological and geological phenomena in their watersheds (i.e. abiotic data), expertise in Geographic Information Systems (GIS) and Geospatial Modelling, and specific knowledge of their watersheds freshwater biology (i.e. biotic data).

We held the first core team meeting via webex and conference call on December 16th, 2015. During this meeting, we reviewed the overall objectives and goals of the project, timeline, methods/classification variables used in the US aquatic classification, expectations of the core team, and suggestions for who should be on the advisory team. The core team members were excited about the project and were content with the list of variables used in the US classification. The team also reviewed and commented on the list of key datasets to ensure the most recent and best quality data sources are incorporated into the classification.

Progress Achieved: (For each Goal/Objective, list Planned and Actual Accomplishments)

1. Hire GIS analyst/project coordinator with experience in freshwater analysis
 - Planned: Hire and train a GIS analyst with experience in freshwater GIS analyses to coordinate the freshwater classification work for eastern Canada
 - Actual: William Millar was hired on October 21, 2015 to lead the GIS analysis needed to complete a freshwater classification for eastern Canada. William has a background in Aquatic Resources and Public Policy from St. Francis Xavier University and a GIS diploma from Sir Sandford Fleming College. Previous work experience with Watersheds Canada and the Ministry of the Environment and Climate Change (MOECC) have provided him with great experience that will prove invaluable for this project.
2. Form core team and identify advisory team; represent provinces.
 - Planned: Invite all core team members/organizations to participate in a conference call, ensure adequate provincial representation for all stakeholders, and ask for advisory team suggestions.
 - Actual: Invited all core team members to participate in the December 16th, 2015 webex/conference call (some organizations asked to have multiple members attend the first meeting). A separate meeting with three representatives from the Quebec Ministry of Sustainable Development, Environment and Fight against Climate Change was held on January 7th, 2016 to accommodate schedules. Prior to both core team meetings members were sent an agenda, a list of potential datasets we still needed, and a document explaining the project timeline, outlining our core team expectations and asking for advisory team suggestions. Confirmation of core team members was received via email and/or by letter.
3. Hold first core team meeting and review variables to be used in classification.
 - Planned: Provide introductory presentation on project goals/objectives, timeline, methods/classification variables used in the US classification. First core team meeting scheduled for December 15th/2015, with an alternate date of Dec 16th (in the event of a cancellation due to power outage)

- Actual: Held webex/conference call presentation on December 16th/2015. Almost all core team members were able to attend this alternative date, except for 3 individuals (held a separate presentation for them on December 17th, 2015). During this first meeting we discussed the project background, goals/objectives, methodology, and reviewed the classification variables used in the US classification. Arlene-Sheldon Olivero (TNC) gave a brief presentation on her experience when developing the classification for the U.S portion of the NA LCC, and discussed how her core team helped develop the freshwater classification. Generally, our core team members were content with the list of variables used in the US classification and their applicability to the Canadian portion of the NA LCC. The core team members were asked to help develop the Canadian portion of the classification by assisting in the compilation of relevant GIS data layers, and by providing insight when creating common ecosystem definitions, mapping scales and setting threshold values for ecological characteristics. A very detailed and enthusiastic conversation about potential datasets followed Arlene's presentation, with certain members who agreed to provide dataset and/or would provide useful contact information regarding where it could be found. The December 17th presentation to the absent core team members was also very productive, with a discussion on upstream temperature modelling and potential access to International Joint Commission (IJC) data.

4. Identify and acquire necessary datasets

- Planned: Identify all necessary datasets for the freshwater classification and begin data compilation
- Actual: All necessary datasets for the classification were identified through multiple discussions with Arlene-Sheldon Olivero and during the first core team meeting. Datasets were categorized by ecological characteristics.

Identified Datasets:

- i. Size
 1. Finest Level of Watershed Delineation
 2. River Discharge
- ii. Gradient
 1. National Hydrographic Network
 2. Digital Elevation Models (30m) *adequate for analysis
 3. Digital Elevation Models (10m) *ideal for analysis
- iii. Temperature
 1. Stream Temperature
 2. Air Temperature
- iv. Geologic Buffering Capacity
 1. Surficial Geology
 2. Bedrock Geology
 3. Soils (texture)
 4. Alkalinity
 5. pH
- v. Tidal influence
 1. Salinity
 2. Depth of exposure to open sea
- vi. Biological (Needed to Test/Calibrate Classification)
 1. Fish collection records

2. Benthic macroinvertebrate occurrences

Classification Variable:	Dataset:	Percentage Acquired:	Comments:
Size	Finest Level of Watershed Delineation	50%	All Tertiary Watersheds provided by GeoGratis/TNC Awaiting response from core team member(s) regarding Secondary Watersheds (QC,PEI,NS)
	River Discharge (m ³ /s)	50%	Provided by DFO (half raw & half modelled data). Will need to explore provincial monitoring stations data
Gradient	National Hydrographic Network (NHN)	100%	Provided by WWF
	Digital Elevation Models (30m)	100%	Provided by WCS/TNC
	Digital Elevation Models (10m)	0%	Data Sharing Agreements/Partnerships in Progress *30m resolution is adequate for gradient analysis, but 10m is ideal (esp. for Province of Prince Edward Island, due to size)
Temperature	Stream Temperature	50%	Provided by Institute National de la Recherche Scientifique (INRS) *This database only covers roughly 50% of the project study area. Will need to collect additional data from core and/or advisory team
	Air Temperature	0%	Pending response from core team member regarding access to climate/weather stations data
Geologic Buffering Capacity	Surficial Geology	100%	Provided by TNC
	Bedrock Geology	100%	Provided by TNC
	Soils (Texture)	75%	Provided by 2C1F *Pending response from core team member(s) regarding more detailed soils (depth) data for Quebec watersheds
	Alkalinity	0%	Pending response from core team member(s)
	pH	0%	Pending response from core team member(s)
Tidal Influence	Salinity	0%	Pending response from core team member(s)
	Depth of exposure to open sea	90%	Provided by DFO

Classification Variable:	Dataset:	Percentage Acquired:	Comments:
Biological	Fish Collection Records	0%	*This dataset is missing information for certain watersheds in Quebec Pending response from core team member(s)
	Benthic Macroinvertebrate Occurrences	0%	Pending response from core team member(s)

5. Review core team expectations and advisory team suggestions

- Planned: Review Terms of Reference document and discuss advisory team suggestions
- Actual: The core team expectations were clearly defined via a terms of reference document. Core team members agreed to send along suggestions/comments via e-mail, but this will be reviewed in more detail during the next call.

Difficulties Encountered:

The main difficulty encountered was a slow response time from potential core team members to do a webex call, but once we had our first core team meeting the interest and engagement of individuals/organizations drastically improved. A slight delay in a meeting with Quebec core team members was due to schedules. If at all possible, meetings will be combined in the future to ensure collaboration amongst all core team members. We have a couple of regional and organizational spots we would like to represent on the core team including, aboriginal groups and a Nova Scotian aquatic NGO. We will continue to pursue additional representatives to fill those spots. Data continues to be collected as inputs for each characteristics and it is anticipated there will be very few delays acquiring all data required.

Activities Anticipated Next Quarter:

Our future plans are to have our scheduled meeting with representatives from Quebec on January 7th/2016, in order to acquire potential datasets and engage Quebec NGO's and academic institutions. The 2nd core team meeting in early February 2016 will finalize the collection of necessary datasets, acquire biological datasets (i.e. fish and benthic macroinvertebrates data), review the ecological characteristics we are going to use to classify the stream network, and present initial results of our gradient analysis. We will be contacting an external statistician and continue to reach out to potential core team members next quarter and finalize the members. We will also be sending out invitation letters to potential project advisory team members, updating them about the projects progress and encouraging them to participate in the freshwater classification. It is anticipated that we will establish a data sharing agreement with the University of New Brunswick and the New Brunswick Department of Natural Resources in order to gain access to higher quality data. Time permitting, we hope to have the size analysis completed, and be able to begin our initial watershed delineations by the end of next quarter.

Expected End Date: May 31st/2017

Costs:

Total life to date expenses (include this quarter): \$10,232.95 USD

Total Approved Budgeted Funds: \$110,000 USD

Are you within the approved budget plan and categories? YES

Signature: Johney
Date: JAN 19, 2016

ATTACHMENT 2
GRANT QUARTERLY FINANCIAL REPORT

Quarter: (circle one) 2015 1st 2015 2nd 2015 3rd 2015 4th

Grant Program, Number and Title: NA LCC 2015-05

Billing Address: Nature Conservancy of Canada
 180-924 Prospect Street West
 Fredericton, NB E3B 2T9

A. Current Quarter Grant Eligible Cost Summary:

	GRANT FUNDS	MATCH*	TOTAL
<u>Personal Service Cost</u>			
Salaries and/or Wages	\$10,232.50	\$3,741.01	\$13,973.96
Fringe Benefits			
Personal Service Indirect Cost ___%			
<u>Non-personal Service Cost</u>			
Travel			
Equipment			
Supplies & Materials		\$1,398.40	\$1,398.40
Contractual Services			
Other			
Non-personal Indirect Cost ___%			
TOTAL	\$10,232.95	\$5,139.41*	\$15,372.36

*Match is a requirement of some grant programs; list matching funds if specified in contract.

* Private sources from Nature Conservancy of Canada

B. Cumulative Total Grant Eligible Costs Claimed from Beginning of Agreement up-to-and Including Current Quarter:

Total Life-to-Date Expenses	\$10,232.95
Less Previous Payments Processed	\$0
Total Amount Due Grantee Now:	\$10,232.95

