

Northern Bruce Peninsula Six Streams Ecosystem Restoration Project FINAL FUNDING REPORT

1) Summary of Project Activities and Accomplishments

The shoreline from Stokes Bay-Myles Bay area to Little Pike Bay along Lake Huron is a significant spawning and nursery habitat for Lake Huron's declining population of Lake Whitefish. This native species is not only an important component of this nearshore ecosystem but it is also a valuable commercial resource for the local community and First Nations. Within the Old Woman River-Stokes River watershed there are four streams and two municipal drains that flow into both Lake Huron and Georgian Bay¹ and all of which are impacted by adjacent agricultural practices and residential development. This Bruce Peninsula Biosphere Association project is intended to restore the ecological integrity and economic value of this watershed through active stewardship. Consequently, this project will require considerable support of landowners and farmers throughout the watershed.

Successful environmental stewardship projects require solid science to support them. Our multi-year project to restore the ecosystems of 6 inland streams on the Bruce Peninsula that flow into Lake Huron and into Georgian Bay requires a stream monitoring program to establish a baseline for water quality. This funding opportunity allowed us to get the start we needed. We have identified testing sites, gathered preliminary data involving citizens in its collection, started the CABIN training program, conducted stream walks, presented information to the farming community and the public and recruited and mentored the participation of 6 local high school students in the Cabin training who will participate in stream monitoring during the spring, summer and fall of 2013.

The results of the month-long benthic monitoring program indicate that the streams sampled were all found at least moderately sensitive to pollution and many sites highly sensitive to pollution. One site on Judge's Creek came up with no living organisms sampled but this was later rectified due to a correction in sampling technique. In general, there were no obvious 'hot spots' identified through this sampling but rigorous conclusions cannot be made due to the short sampling period (3 days in 30), the extremely dry summer which gave rise to low to no flow stream conditions. We have been able to use this sampling period to identify sites, practice a protocol, report preliminary findings to the community and begin the baseline data set.

This funding has helped us complete the first important steps toward the protection of northern Bruce Peninsula streams and the nearshore ecosystems of Lake Huron and Georgian Bay.

2) Project Outcomes (based on submitted Workplan)

We used this funding to begin the monitoring plan in the following specific ways:

A. Hired Project Coordinator (July 2012)

¹ These streams are Stokes River, Black Creek, Old Woman's River and Judges Creek. The drains are the Swan Lake Drain and the Fern Drain which empties the Little Pike Bay Watershed.

- B. Trained 9 volunteers through on line CABIN program
- C. Collected water quality data in study area
 - Project Coordinator identified appropriate sites, negotiated agreements for Ministry-funded PWQN testing on the Stokes River which included having to solicit letter from local municipal government supporting project
 - Investigated possible labs and associated costs of analysis for 5 other streams
 - Completed a benthic monitoring pilot study for the month of August
 - 12 test sites on 6 streams were identified and sampled 3 times over the month
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- D. Results were analysed and a map was prepared of visual inspections of the streams
 - Visual inspections of final two streams occurred in Sept. Photo records taken.
- E. Outreach to Agricultural and General Community Completed
 - Preliminary results were presented at a dinner of local farmers and conservationists
 - Published article in local paper to present results and raise awareness of the project (September 2012) and
 - information boards for use at public meetings such as the Association's 10th anniversary celebration were developed
- F. Priority Area for Remediation
 - a farmer that has the most visible example of cattle in a stream has been recruited to do remediation work on his farm on the Stokes River
- G. Grant Serves as a Basis for Future Funding
 - A Great Lakes Champion grant was submitted and referenced this work. A grant of \$25,000 was subsequently approved leading to funding for a cattle exclusion demo project and a full year of water testing in the six streams.
 - Using the information from this initial study, ECOAction and Trillium grant applications were submitted for \$200,000 to complete the first two years of this 5 year project.

3) Changes and Challenges

CABIN Course

We had anticipated having the Project Coordinator and Association Board members be able to complete the CABIN stream monitoring training program by the end of the year. Once a minimum of three online modules are completed, then an 18 hour field component must be completed. Unfortunately, the field training component is only offered once in the spring in Ontario so we will have to wait until May/June 2013 to finish the training and attain certification. Nonetheless 3 on line training modules will have been completed by 6 students and 3 community volunteers which will provide a solid theoretical foundation.

Water Testing

We worked with the local Municipality to arrange their sponsorship of two revived PWQN sites on the Stokes River but there was several weeks delay in receiving the necessary water sampling bottles. Thus only one sampling of the Stokes River was completed in late November

and sent to a Ministry lab. Due to sampling errors, we did not receive any results but it created a good learning experience at minimal expense to our program.

It was shock to learn the cost of the water quality analysis as we had been advised it would be in the order of \$100 per sample. Locating and then checking with several labs we determine that it is instead \$1000 per sample. We were able to identify and persuade an internationally regarded ecologist to work with us to revise the protocols to bring costs of analysis in line.

Dry Summer Affecting Benthic Measures

There was an unusual variation in the benthic macroinvertebrates sampled during August. This could be accounted for with a particularly dry summer with intermittent rainfall events between samplings. In other words, over the sampling month and three separate times, streams ranged from minimal flow into a stagnant pool to brisk flow. Stream life is obviously affected by these variations. Changing conditions were noted in the data sheets.

New Collaboration with Dr Pat Chow-Fraser

In October and November we began a conversation with Dr Pat Chow-Fraser of McMaster University who has a particular interest in stream bio-monitoring and assessment. She suggested that we reduce the number of parameters we tested for water quality and not try to mimic expensive PWQN tests. She recommended that we focus on a few key nutrients (e.g. P,N) and key parameters like turbidity that would be adversely affected by upstream agricultural activity. She also suggested that we use a storm-based approach to water quality sampling premised on the idea that 'problems' will show up when there is active drainage from the banks and surrounding land – not 48 or more hours later. Her advice is based on the growing success of her current project called URBAN – Urban-Rural Biomonitoring and Assessment Network. She also offered some laboratory services at McMaster where and when practicable potentially saving us further expenses in 2013.

4) Budget (*please see document ATTACHED*)

5) Lessons Learned

We had very ambitious timelines and to our credit, we achieved many of them. However, some of the timelines did not build in a buffer for unforeseen challenges such as delays due to summer vacations for example in receiving information on the CABIN training despite repeated follow ups and then the discovery that the field training for the CABIN course was only being offered once a year.

We were also hoping that the water testing could begin in 2012 even if in a preliminary way. After researching the cost of replicating PWQN testing on the 5 other streams, we found the cost prohibitive. We sought the advice of a number of water quality experts based in several Conservation Authorities as well as Dr. Pat Chow-Fraser. The advice has not only reshaped some of our thinking and practice around monitoring but also potentially saved us lots of money with testing unnecessary parameters.

Therefore we would recommend to other community groups to get written quotes for critical budget items such as in our case –water quality analysis and to confirm in detail the various requirements for project items such as the CABIN training.

6) Supporting Documents

Additional supporting documents are available on request from the Bruce Peninsula Biosphere Association to provide additional background relating to this report.

For additional information please contact:

C. Elizabeth Thorn

Chair

Bruce Peninsula Biosphere Association

(519) 377-5166

elizabeth@thorn.ca

Budget

Total Project Funds (Project Revenues)

Contributor	Expected		Actual	
	Cash	In-Kind	Cash	In-Kind
Environment Canada	1750		1750	
Province of Ontario - MOE	1750	2050	1750	2050
Bruce Peninsula Biosphere Association		3855	86	4500
Bruce Peninsula District High School		200		200
Bruce Peninsula National Park		200		200
Municipality of Northern Bruce Peninsula		500		500
Total	3500	6805	3586	7450

Total Project Expenditures

Expenditure Type	Expected		Actual	
	Cash	In-Kind	Cash	In-Kind
Salaries and Wages	2700	3855	2980	4000
Management and professional service expenditures				
Contractors				
Travel				
Material and supplies expenditures – waders, bottles		250		250
Purchase of capital assets				
Equipment rentals – benthic monitoring		200		200
Land acquisition, leases, easements, covenants, servitudes				
Overhead				
Printing, production, and distribution expenditures				
Vehicle rental and operation expenditures	100		106	
Other expenditures – Biomonitoring Training Fees	600		500	500
Laboratory/ Data Analysis		2000		2000
Meeting Room Rental	100	500		500
Total	3500	6805	3586	7450

Expenditure of Environment Canada Funds

Expenditure Type	Expected		Actual	
	Cash	In-Kind	Cash	In-Kind
Salaries and Wages				
Management and professional service expenditures				
Contractors	1350		1350	
Travel				
Material and supplies expenditures				
Purchase of capital assets				
Equipment rentals				
Land acquisition, leases, easements, covenants, servitudes				
Overhead				
Printing, production, and distribution expenditures				
Vehicle rental and operation expenditures				
Other expenditures – Biomonitoring Training Fees	300		400	
Meeting Room Rental	100			
Total	1750		1750	