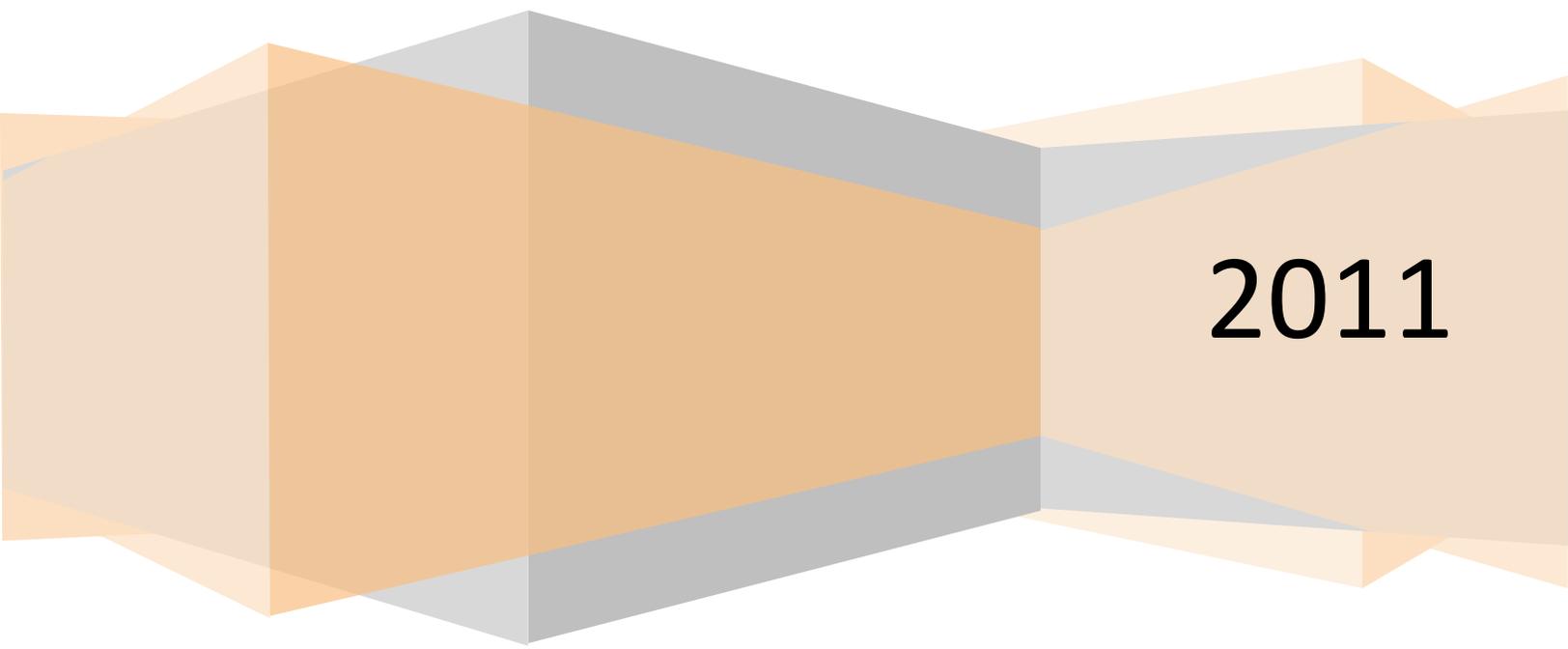


Bluenose Coastal Action Foundation

LaHave River Watershed Project

2011 Summary Report

Andrew Breen & Brooke Nodding



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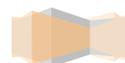


by:

Andrew Breen, Fisheries Technician

&

Brooke Nodding, Executive Director



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PROJECT STAFF

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Project Description / Background

The LaHave River watershed encompasses an area of approximately 1700 square kilometres, and provides a diversity of habitats for both freshwater and anadromous fish species as well as an array of other aquatic and terrestrial species. The watershed hosts a high level of residential, industrial, and recreational activity. Tourism, forestry, farming, and fishing (both recreational and commercial) are all common throughout the LaHave system. There are also avid boaters, cottagers, hunters, and anglers who use the LaHave system on a regular basis. These pressures have taken their toll on the watershed and the communities are starting to realize and recognize their own harmful impacts.



Figure 1. Scene from LaHave River watershed.

In response to these concerns, BCAF, with help from their partners, initiated a long term water quality monitoring plan for the LaHave River to determine the health of the system and identify areas of concern. An advisory committee was formed with representatives from all levels of government, the private sector, academia, non-profit organizations, and local residents in an effort to create a project that would benefit all stakeholders. Monitoring and water sampling began in August 2007, and has been extremely successful in terms of creating a record of the river's health, forming networks, and engaging the local community. Although the LaHave River Watershed Project (LRWP) is centered around long term water quality monitoring, the main idea is to address environmental impacts on the system by providing a long term record of the river's health and proactively reducing stressors / harmful aquatic impacts by enhancing watershed education in the local community. During the 2011-12 project, the LRWP focused on four main components: (1) bi-weekly water quality monitoring at the 15 selected sites, (2) riparian restoration work with local farmers, (3) the development of agricultural biodiversity assessments for LaHave River Valley farmers, and (4) watershed outreach and education opportunities. This Summary Report briefly describes the accomplishments of the LRWP based on these four main components.



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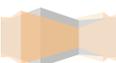
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Left (Figure 2) Patrick Englehardt (BCAF Summer student) installing fence posts around a wetland on Dave Moore’s Farm, Upper Northfield. **Right (Figure 3)** Erika Cross (BCAF) collecting a water quality sample on the LaHave River.

(1) Water Quality Monitoring

The goal of this project component is to monitor and analyze the water quality of the LaHave River watershed through the bi-weekly sampling of 15 sites located at strategic locations throughout the LaHave system. BCAF staff first implemented this sampling regime in August 2007, when a water quality monitoring program was established to obtain data, identify trends from that data, and provide a warning of potential problem areas. Fifteen sample sites were carefully chosen to provide an accurate reflection of the entire watershed. Careful planning was used for the site selection concentrating on year round accessibility, confluences of major tributaries and the main river, as well as the outflows of the three sewage treatment plants located on the river. On a bi-weekly basis these 15 sites are sampled using an YSI 600QS water quality sonde. The sonde measures parameters such as temperature, conductivity, pH, dissolved oxygen, total dissolved solids, and salinity. On a monthly basis, water quality grab samples are taken from 10 of these 15 sites. The samples are transferred to Maxxam Analytics, a certified lab in Bedford where they are tested for phosphorous, total nitrogen, nitrates/nitrites, fecal coliform, chloride, and total suspended solids. Furthermore, every six months, to coincide with high and low river water levels, a metals test is carried out checking for 25 parameters including uranium, lead, cadmium, arsenic, and aluminum.



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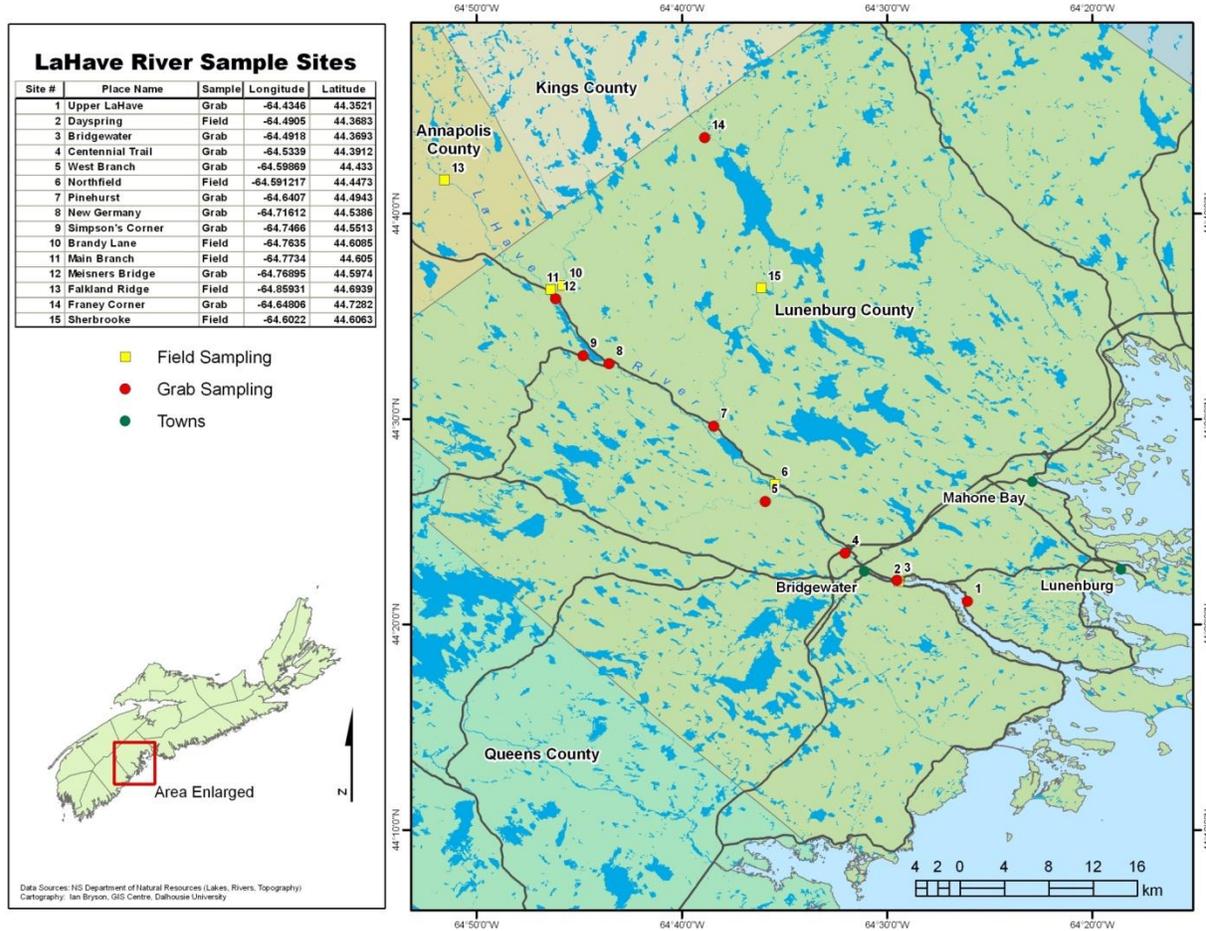


Figure 4. Map showing the location of the 15 sample sites along the LaHave River.

A complete fully detailed water quality report will be available for the 2011 calendar year shortly. As soon as this report is finalized, copies will be provided to all project partners.

(2) Riparian Restoration Projects with Local Farmers

Dave Moore's Farm

This year's project focused on Dave Moore's Farm in the Upper Northfield area. The project commenced on Monday, June 6th and was completed by Friday, June 24th. The main focus of the riparian restoration projects is to protect agricultural riparian zones from further damage caused by livestock accessing the stream channel.



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This issue is present on many farms in Nova Scotia where livestock is allowed direct access to drinking water from streams and brooks running through the farm during the summer months. Unfortunately, many of the effects of this practice are experienced downstream, such as high nutrient levels and siltation problems. The riparian fencing project protects this sensitive area, thus promoting biodiversity, improved water quality, as well as providing wildlife corridors. The project on Dave Moore's farm is a continuation of the Riparian Restoration with LaHave River Farmers project which commenced in 2009 and has so far restricted cattle access to streams on four farms.

As in previous years, BCAF had help from volunteers with the LaHave River Salmon Association with the installation of fence posts and the attachment of electric wire. In total, over 550m of electric wire fencing was installed, creating a protected riparian area over 8000m². In addition funds from the NSLC – Adopt-A-Stream Program were used to provide an alternative water source, a 250 gallon stock tank was purchased and fitted with an automatic supply valve and associated pipework.



Figure 5. Plan view of Dave Moore's Farm, Upper Northfield, Lunenburg County, NS.

To complete the project on Dave Moore's Farm, BCAF staff used the following supplies and equipment: 130x6' cedar fence posts, 6x8' cedar fence posts, 2 spools of 2000' 14 gauge high tensile wire, 10 bags of W clips, 5 bags of S clips, sledge hammer, breaker bar, vice grips, 400 screws, gates, and wire tighteners. Fence posts were installed using a sledge hammer and in some cases a tractor. Cedar posts were used exclusively due to the toxic properties contained in treated fence posts.



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Figure 6. Andy Breen planting trees within the riparian area on Dave Moore's Farm.



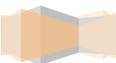
Figure 7. Representatives from the LRSA helping out with the fence installation at Dave Moore's Farm.

Over 300 trees were planted in the newly protected riparian area on Dave Moore's Farm.

(3) Agricultural Biodiversity Conservation Plans

Agricultural Biodiversity Conservation Plans (ABC Plans) can be an important tool for farmers to identify Best Management Practices (BMP's) that promote the maintenance or enhancement of biodiversity on their farms. The general intent of ABC Plans is to recognize current biodiversity conservation activities on the farm and to provide farmers with realistic and specifically tailored land use options that support biodiversity and conservation planning. This is mutually beneficial for wildlife and the farm, since increased biodiversity will promote the complex interrelationships between species (predator/prey, seed dispersal, pollination, etc.) that are necessary to create highly stable and high-functioning ecosystems. This will result in more productive croplands, fewer insect pests, improved forage for livestock, and better water quality.

BCAF staff have approached three local farmers to be involved in the development of the ABC Plans on their farms during the 2011-12 fiscal year. All three of these farmers have been previously involved with and have indicated an interest in BCAF's LaHave River Watershed Project. Over the next few months BCAF staff will assess the current and potential biodiversity that presently exist on these three farms. The farmers will be provided with ideas and recommendations on how to increase biodiversity and encourage beneficial species, such as the local Mason Bees, on their properties. In addition, any streams in the vicinity of the farms will be assessed using the Nova Scotia Riparian Stream Health Assessment Protocols. Finally, the farmers will be provided with information regarding potential funding sources to increase biodiversity and how to obtain expertise in implementing proposed (BMP's) on their farms.



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Figure 8. Northern Leopard Frog found on a participating farmer's property during the inventory phase of the ABC Plan development.

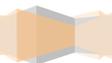


Figure 9. ABC Plan development participating farmer's property.

(4) Outreach & Education Activities

Public outreach and community education efforts are an extremely important component of the LRWP. Watershed residents must become stewards for the river in order to ensure continued aquatic health and positive water quality results throughout the LaHave River watershed. BCAF staff attended the following public events where the LRWP was showcased and project outreach / education materials handed out.

- Bridgewater Children's Fair
- Michelin Health & Safety Fair
- NSCC – Lunenburg Campus Green Week Activities
- Maplewood – Parkdale Maple Syrup Festival
- MARC Youth Fishing Derby
- BCAF Annual General Meeting
- White Point Beach Resort March Break Programming Activities
- Bridgewater Sustainability Festival
- Mahone Bay Regatta & Pirate Days
- Lunenburg Farmers Market
- Bridgewater Farmers Market



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Figure 10. BCAF project display set up at the MARC Youth Fishing Derby.

LRWP presentations were made to the following groups during the 2011-12 fiscal year:

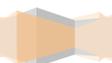
- BCAF Board of Directors
- LaHave River Salmon Association monthly meetings
- Sherbrooke Lake Resident Associations meetings
- NSCC – Lunenburg Campus Natural Resources and Environmental Technology Program

LRWP news articles were written for the following publications:

- Municipality of the District of Lunenburg's Municipal Matters newsletter

Other public outreach / education efforts included:

- Updated project information on the BCAF website
- Riparian restoration information disseminated to local farmers
- New project display panels



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Project Partners

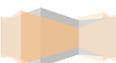
BCAF would like to acknowledge and thank our many LRWP partners and supporters. Without the generous contributions of these groups and individuals, BCAF would not be able to deliver all the various components of the LaHave River Watershed Project.

A special thanks to the dedicated members of the LRWP Advisory Committee who help guide the project through their combined knowledge, expertise, and advise; as well as brainstorm new ideas for future project components and funding opportunities. Committee members include:

- LaHave River Salmon Association – Carroll Randall, Lowell Demond
- Nova Scotia Salmon Association – Amy Weston
- Lunenburg/Queens Federation of Agriculture – Peter Morine
- South Shore Naturalists – Catherine Pross
- Municipality of the District of Lunenburg – Doug Reid
- Town of Bridgewater – Greg Ritcey
- Environment Canada – Denis Parent, Todd Smith
- Fisheries and Oceans Canada – Mike Wambolt, Thomas Wheaton
- Nova Scotia Environment – Mike MacDonald
- Nova Scotia Fisheries and Aquaculture – Cathy Munro
- Nova Scotia Agriculture – Brian MacCulloch
- Nova Scotia Natural Resources – Reg Newell
- Abitibi Bowater – Allan Smith
- Michelin – Jeremy Hopkins
- Concerned Watershed Residents – David Maxwell, Barrie Clarke
- South Shore Chapter, Council of Canadians – Merydie Ross, Marion Moore
- Native Council of NS – Cory Francis

Thank you to all our 2011-12 LWRP funding partners, making it possible to complete all the activities outlined in this report. Funders include:

- LaHave River Salmon Association
- NSLC Adopt-A-Stream Program
- Environment Canada's Science Linkages Program
- Environment Canada's EcoAction Community Funding Program
- Municipality of the District of Lunenburg
- Town of Bridgewater
- Donations from residents/volunteers



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BCAF would also like to thank all the many volunteers and in-kind partners for their generous support throughout the duration of the project. Your hard work and generosity does not go unnoticed or underappreciated. The list is too long to include in this report; however, you know who you are and BCAF thanks you.



Figure 11. NSCC Natural Resources & Environmental Technology student, Sarah Crnec, volunteered with BCAF for 6 weeks in the Spring of 2011.



Figure 12. Members of the LRSA, Bob Zinck and Paul Fogarty, have been helping out with the fencing projects since the project started in 2009.

