March 2011

BCAF

# LRWP 2010 SUMMARY Report

An Update on the Various Components of the LRWP | Andy Breen & Brooke Nodding

# LaHave River Watershed Project

## 2010 Summary Report

## An Update on the Various Components of the LRWP

by:

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&

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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. 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.

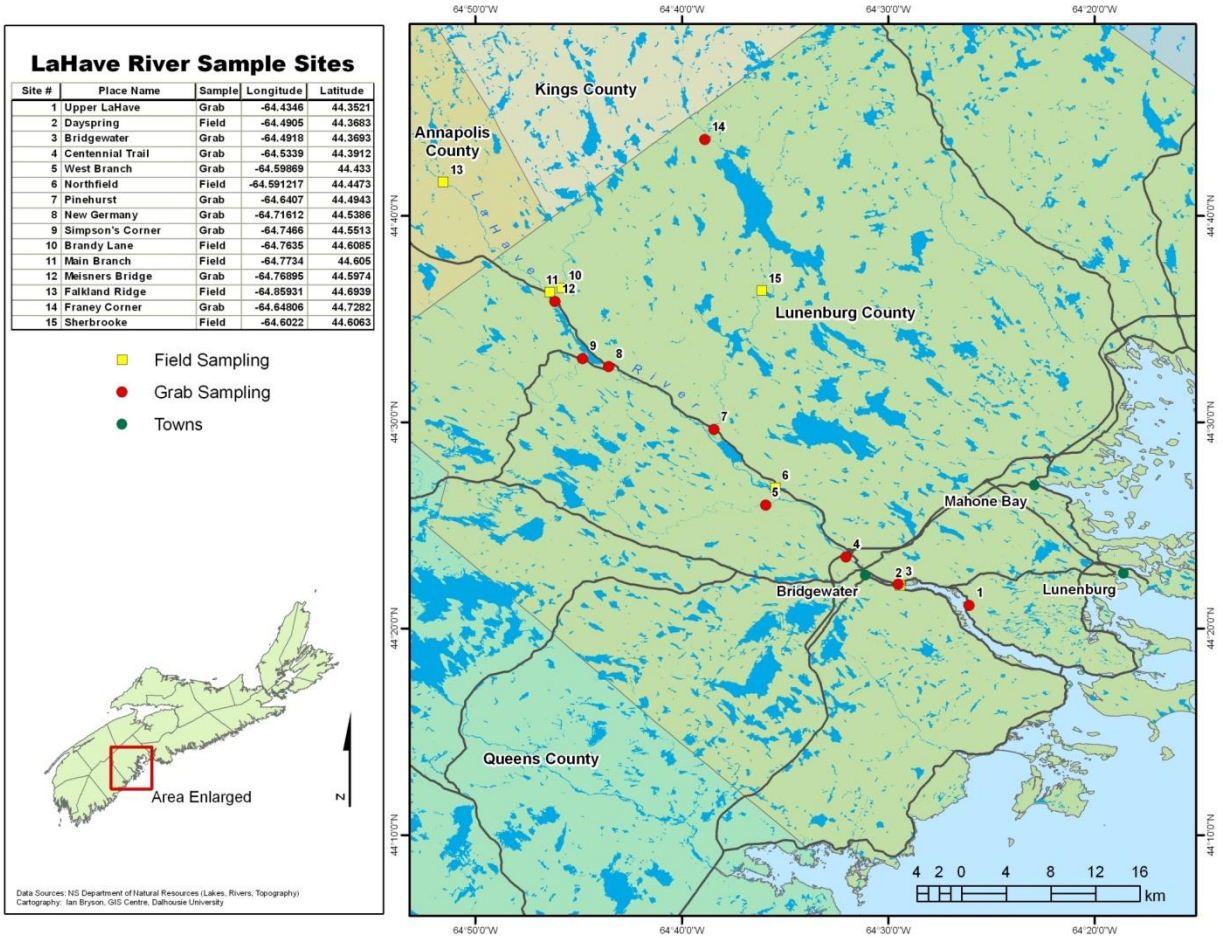
**Figure 1.** Scene from LaHave River watershed.

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 2010-11 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) riparian health assessments within the LaHave River watershed, and (4) watershed outreach and education opportunities. This Summary Report briefly describes the accomplishments of the LRWP based on these four main components.

**Left (Figure 2)**: BCAF staff collecting monthly grab samples for analysis at Maxxam Analytics. **Right (Figure 3)**: BCAF staff and volunteers conducting fencing activities on farmlands as part of the riparian restoration efforts with local farmers.

**(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 the Maxxam Analytics, a certified lab in Bedford where they are tested for phosphorous, total nitrogen, nitrates/nitrites, ammonia, fecal coliform, chloride, bio-chemical oxygen demand, total suspended solids, and total dissolved 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.




| Site # | Place Name | Sample | Longitude | Latitude |
|---|---|---|---|---|
| 1 | Upper LaHave | Grab | -64.4346 | 44.3521 |
| 2 | Dayspring | Field | -64.4905 | 44.3683 |
| 3 | Bridgewater | Grab | -64.4918 | 44.3693 |
| 4 | Centennial Trail | Grab | -64.5339 | 44.3912 |
| 5 | West Branch | Grab | -64.59869 | 44.433 |
| 6 | Northfield | Field | -64.591217 | 44.4473 |
| 7 | Pinehurst | Grab | -64.6407 | 44.4943 |
| 8 | New Germany | Grab | -64.71612 | 44.5386 |
| 9 | Simpson's Corner | Grab | -64.7466 | 44.5513 |
| 10 | Brandy Lane | Field | -64.7635 | 44.6085 |
| 11 | Main Branch | Field | -64.7734 | 44.605 |
| 12 | Meisners Bridge | Grab | -64.76895 | 44.5974 |
| 13 | Falkland Ridge | Field | -64.85931 | 44.6939 |
| 14 | Franey Corner | Grab | -64.64806 | 44.7282 |
| 15 | Sherbrooke | Field | -64.6022 | 44.6063 |

**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 2010 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

#### Blair Zinck's Farm

The riparian fencing project, initially started in 2009, made excellent progress during the 2010 field season. In May work commenced at Blair Zinck's Farm in West Northfield. Originally, Mr. Zinck's cattle had access to the entire woodlot and pasture, which included access to a large section of the Rhodenizer Brook. The first section of fence that was installed focused on the back pasture; this area was extensively use by the cattle. A two wire, 12-gauge

electric fence was constructed. A solar energizer was used to power the electric fence at this location due to the remoteness of the field (Figure 5).

**Figure 5.** Solar energizer used to power the electric fence installed at the Zinck Farm.

The fence now restricted cattle access to the stream; therefore, an alternative water source was required. A cattle-powered nose pump was installed in the pasture, pumping water from the stream (Figure 6).


**Figure 6**: Nose pump installed on Blair Zinck's farm.

This first fence was estimated to be 150 meters long, using approximately 46 fence posts and creating an estimated 1,750 square meters of new riparian area.

Work continued at the Zinck Farm with a second section of fence being constructed. This section of fencing ran along the road that was used to access the back pasture. This fence connected to the circular shaped fence in the pasture and was powered by the same solar fencer (Figure 7 – red lines). This section of fence used 49 new fence posts and was estimated to be 200 meters long, creating 4,050 square meters of new riparian area.

During the 2010 field season, a total of 95 new fence posts were used and approximately 350 meters of fencing was installed, resulting in 5,800 square meters of riparian area created on Mr. Zinck's farm. Future plans for the Zinck Farm are to extend the line of fence that continues up the road. This would completely fence the cattle out of the stream in the back part of the pasture.

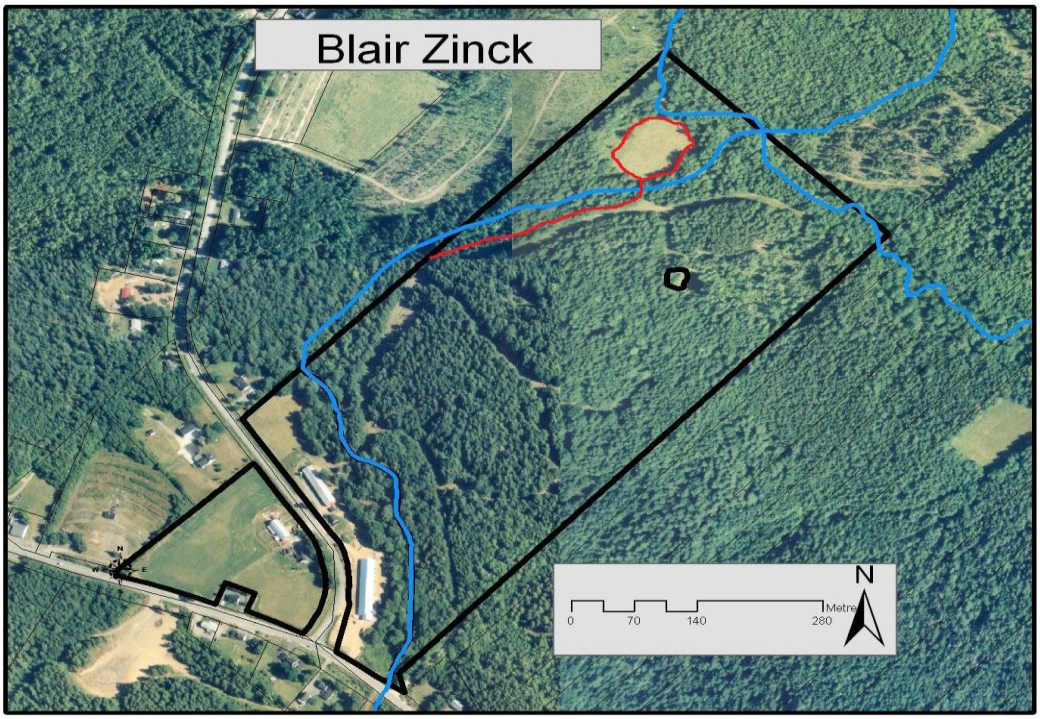



**Figure 7**: Aerial photo showing Blair Zinck's farm. Red lines indicate fencing, black lines are property boundaries, and the blue lines indicate waterways present on the property.

### Wayne Silver's Farm

In addition to the two fencing projects at the Zinck Farm, BCAF staff worked with Wayne Silver on another fencing project at his farm on the Watford Road near Barss Corner. There were a number of different sections of fencing that were completed on Mr. Silver's farm to improve the health of the riparian area on Crooked Brook. New fences

were constructed and other fences were moved to increase the buffer zone area between the fence and the stream. By constructing these permanent fences that restrict cattle from the stream, BCAF has expanded Mr. Silver's farm so he is able to use pastures for grazing that were previously only used for haying purposes. A total of 193 fence posts were used on the Silver Farm. This resulted in the construction of approximately 800 meters of fence and created 10,500 square meters of new riparian area. In one of the back pastures on Mr. Silver's farm, the fencing project removed the watering source for the cattle so a solar-powered watering system was designed by BCAF staff (Figure 8). This new solar-powered system pumped water from a man-made pond in a nearby pasture (Figure 9).

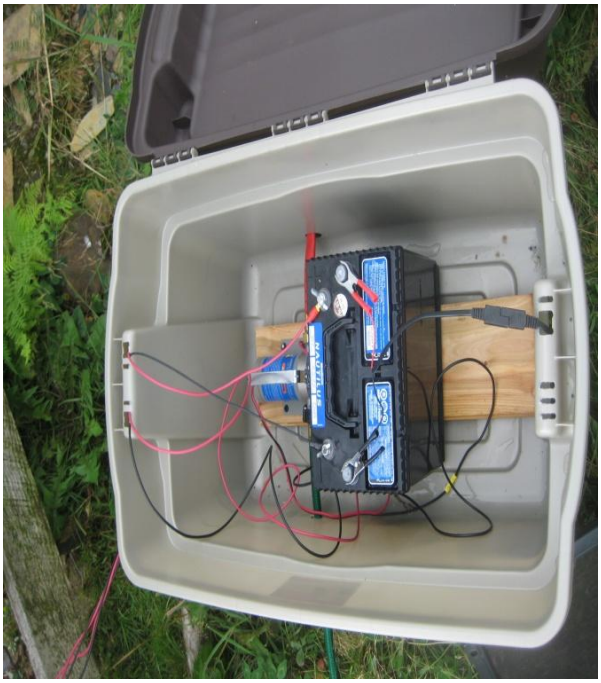


**Figure 8**: Solar-power construction for new pump installed on Wayne Silver's farm.

**Figure 9**: Man-made pond from which water is pumped for new watering source on Silver's Farm.

### Fencing Projects – Total Numbers

During the 2010 field season, a total of 288 fence posts were used, 1,150 meters of fencing was installed, and approximately 14,100 square meters of riparian area was created on both the Zinck and Silver Farms.

**(3) Riparian Health Assessments**

Riparian health assessments within the LaHave River watershed were also continued during the 2010 field season. A number of brooks and streams were assessed; the majority of these waterways being in the New Germany and West Northfield areas. Approximately 140km of riparian area were assessed.


**Figure 10**: GPS unit used in conducting the riparian health assessment surveys.

**Table 1**: Results from riparian health assessments conducted during the 2010 field season.

| WATERWAY | Distance Assessed (km) | Starting Way Point | Ending Way Point |
|---|---|---|---|
| **Shingle Mill Brook** | 15 | 64 45.439738201W | 64 43.216368084W |
| | | 44 34.621524181N | 44 35.326776092N |
| **Indian Brook** | 31 | 64 41.935221511W | 64 43.293658281W |
| | | 44 31.928676959N | 44 38.190685796N |
| **Johnson Brook** | 3.5 | 64 39.686291001W | 64 39.677383079W |
| | | 44 36.006227355N | 44 36.000530391N |
| **Solomon Brook** | 4 | 64 39.677383079W | 64 39.677383079W |
| | | 44.36000530391N | 44.36000530391N |
| **Lake William Brook** | 5 | 64 39.677383079W | 64 39.677383079W |
| | | 44 36.000530391N | 44 36.000530391N |
| **Little Wiles Lake Brook** | 4 | 64 37.356870482W | 64 37.356870482W |
| | | 44 25.047628089N | 44 25.047628089N |
| **Ross Brook** | 7 | 64 41.328202356W | 64 41.328202356W |
| | | 44 32.401275138N | 44 32.401275138N |
| **Crooked Brook** | 7.5 | 64 40.457926743W | 64 40.473450366W |
| | | 44 31.670328837N | 44 32.366333484N |
| **North Branch** | 24 | 64 38.538041905W | 64 36.527584348W |
| | | 44 29.830303045N | 44 36.462234153N |
| **Manning Brook** | 9 | 64 42.906070275W | 64 42.906070275W |
| | | 44 31.514895001N | 44 31.514895001N |
| **Rhodenizer Brook** | 8 | 64 34.755504192W | 64 34.755504192W |
| | | 44 27.276897757N | 44 27.276897757N |
| **West Branch** | 26 | 64 35.668561781W | 64 39.104792654W |
| | | 44 25.200489240N | 44 24.791947299N |
| **TOTAL** | **144 km** | | |

**(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. During the 2010-11 LRWP, BCAF committed to increased public education and outreach efforts within the LaHave River community, as well as developing more youth friendly materials to be delivered at school presentations and local festivals / events.

BCAF staff attended the following public events where the LRWP was showcased and project outreach / education materials handed out.

- Bridgewater Children's Fair
- BCAF Annual General Meeting
- White Point Beach Resort Summer Family Programming Activities and March Break Programming Activities
- Bridgewater Sustainability Festival
- Lunenburg Farmers Market
- Bridgewater Farmers Market


**Figure 11.** BCAF display set up at Lunenburg Farmers Market.

LRWP presentations were made to the following groups during the 2010-11 fiscal year:

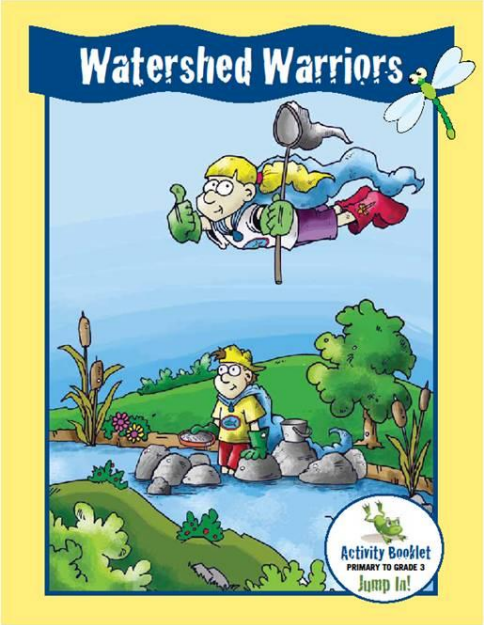
- Bridgewater Public Service Commission monthly meeting
- BCAF Board of Directors
- LaHave River Salmon Association monthly meetings
- NS Federation of Agriculture meeting
- Municipality of the District of Lunenburg's Wastewater Committee monthly meeting
- Town of Bridgewater Bi-weekly Council Meetings (televised on Eastlink Cable 10)
- Sherbrooke Lake Resident Associations meetings
- NSCC – Lunenburg Campus Natural Resources and Environmental Technology Program

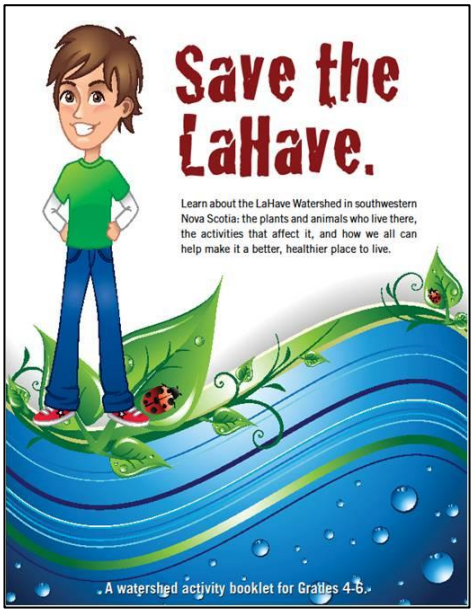
LRWP news articles were written for the following publications:

- Municipality of the District of Lunenburg's Municipal Matters newsletter
- Kingsburg Coastal Conservancy membership newsletter
- Chester Clipper on-line publication

Other public outreach / education efforts included:

- Updated project information on the BCAF website
- Riparian restoration information disseminated to local farmers
- New project display panels
- Booth set up at Bridgewater Mall for World Water Day (March 22nd)




**Figures 12&13.** BCAF's newly designed LRWP Activity Booklets for Grades P-3 and Grades 4-6.

**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, Paul Fogarty
- 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 – Anthony Heggelin
- Nova Scotia Agriculture – Brian MacCulloch
- Nova Scotia Natural Resources – Reg Newell
- Abitibi Bowater – Allan Smith
- Dalhousie University – James Boxall
- Concerned Watershed Residents – David Maxwell, Barrie Clarke
- South Shore Chapter, Council of Canadians – Richard McBride, Marion Moore
- Native Council of NS – Cory Francis

Thank you to all our 2010-11 LWRP funding partners, making it possible to complete all the activities outlined in this report. Funders include:

- LaHave River Salmon Association
- NS Adopt-A-Stream Program
- Environment Canada's Science Linkages Program
- Municipality of the District of Lunenburg
- Town of Bridgewater
- NS Student Career Skills Development Program
- Donations from residents/volunteers

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.

**Figures 14 & 15.** Pictures of LRWP volunteers.