



River Restoration 2025 Final Report

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Introduction

Sackville Rivers Association's River Restoration 2025 project had provided fish habitat restoration and other work on Drain Lake Brook in the Sackville River watershed – in the community of Middle Sackville (Indigo Shores).

This project was a continuation of past projects within the Sackville River watershed and involved the installation of habitat restoration activities/structures at 30 sites, as well as other restorative work, resulting in approximately 650 square meters of restored habitat. The project also involved improving fish passage on Drain Lake Brook and throughout the Little Sackville River (the most important tributary to the main Sackville River), as well as on many other tributaries throughout the Sackville River watershed. Other activities related to this project included annual maintenance on past restoration projects, as well as continued cleanup from the historic flood event that occurred in July of 2023 (debris removals, pool cleaning, fish passage improvements, etc.).

The purpose of this project was to support directly the population of the Atlantic salmon (and indirectly the other 12 species in the Sackville River watershed), which on Nova Scotia's Atlantic coast (Southern Uplands) is a species considered endangered, through restoration of its habitat. At this point every salmon is crucial, as is every square meter of accessible habitat (which is one of the limiting factors to salmon's success in this watershed). Due to this, SRA strives to restore and protect every watercourse known to carry Atlantic salmon currently in the Sackville River watershed, as well as those which would have carried salmon in the past before development and other land use had impacted this critical habitat.

This project's purpose was to increase habitat, improve fish passage, and increase the flow of water through channel definition, flow consolidation, and debris dam removal, in Drain Lake Brook. All of these activities will assist in the recovery of the Atlantic salmon, while also indirectly supporting populations of Brook trout, gaspereau, and to a lesser extent American eel.

The continued success of the project will be determined through inspections of the installed structures for the years to come as part of our annual inspection and maintenance activities.

Background

Drain Lake Brook is one of the larger tributaries to McCabe Lake, which also includes Thompson Run and Tomahawk Run (past SRA restoration projects), and is identified as among the more important feeder brooks to the main Sackville River, flowing through McCabe Lake. In fact, McCabe Lake and near-by Webber Lake, are the first destinations for salmon once passing through our fishway/fish counter on the Sackville River (Webber and McCabe Lakes are the first and second lakes in the Sackville River system that salmon encounter on their way upriver), and the feeder brooks on both of these lakes are their likely destinations for salmon in the suburban/rural upper parts of the watershed. And with development both occurring and being planned on both Webber and McCabe Lakes, it is ever more important to make sure that fish habitat among these developments are protected and made resilient to development-related impacts (such as silt runoff and increased flow from stormwater runoff).

Project Overview

Drain Lake Brook

55 Structures in total were installed in Drain Lake Brook (30 rocksills, 23 deflectors, 2 side-channel blockages) at 30 sites as part of our River Restoration 2025 project. This work in a reach of approximately 342m of brook, where further work was completed (such as pool enhancement, thalweg definition, debris dam removal, etc.), restored approximately 650m² of salmon habitat.

This project will benefit the entire Sackville River watershed by increasing the overall productivity of the watershed. All of the work planned was outlined in the SRA Sackville River Watershed Restoration Plan (SRWRP). The SRWRP is the SRA's current guiding plan for restoration work on tributaries on the Sackville River watershed. The work was done using the established methods and practices in the Nova Scotia Adopt-A-Stream manual.

Project Challenges

The River Restoration 2025 project had experienced extreme drought/low flow on Drain Lake Brook and throughout the watershed – a persistent state of low water had dominated flow conditions through the summer and fall of 2025. The habitat restoration activities became difficult due to the low water conditions throughout the project, as the brook dried up completely in sections for much of the project. Such a condition is not critical to the work, but it does make it difficult to judge regular water levels and to install such structures at an effective elevation to maximize turbulent water generated from the rocksills. However, with diligent oversight and sticking to our plan and design, once flow had returned to the brook later in October, it was noted that the structures were all working as designed, with pools digging at each structure as expected.

The lack of water in the brook for this project, particularly in July and August, as well as a woods travel ban implemented by the Province for most of August, meant that we were unable to electrofish at the 2025 reach, and were unable to electrofish at our previous project reaches and our control sites as well, so no fish population data was collected for this project for 2025.

Project Benefits – Drain Lake Brook

To mitigate past and current impacts on this watercourse, as well as to reduce the impact of future events, we had performed the following actions on Drain Lake Brook:

- installation of instream habitat restoration structures – rocksills and deflectors
- clearing of debris jams
- definition of channels (thalweg creation/improvement)
- pool creation/enhancement

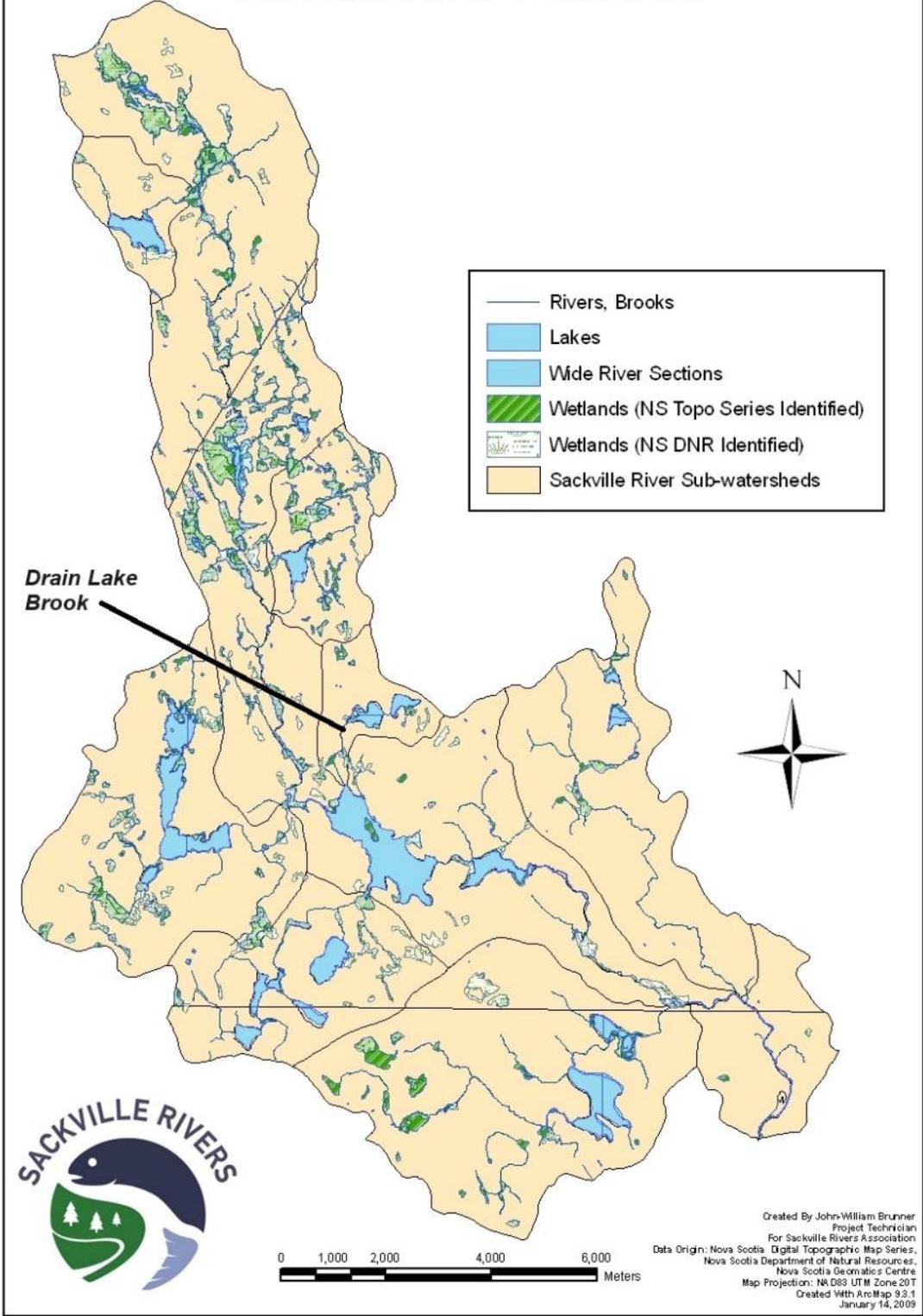
This work is generally for the improvement of fish habitat, but will improve the overall health of the river systems and everything in it. Our main species of concern are salmonids.

55 In-Stream Habitat Restoration Structures (rockills with deflectors, side-channel blockage) and channel work:

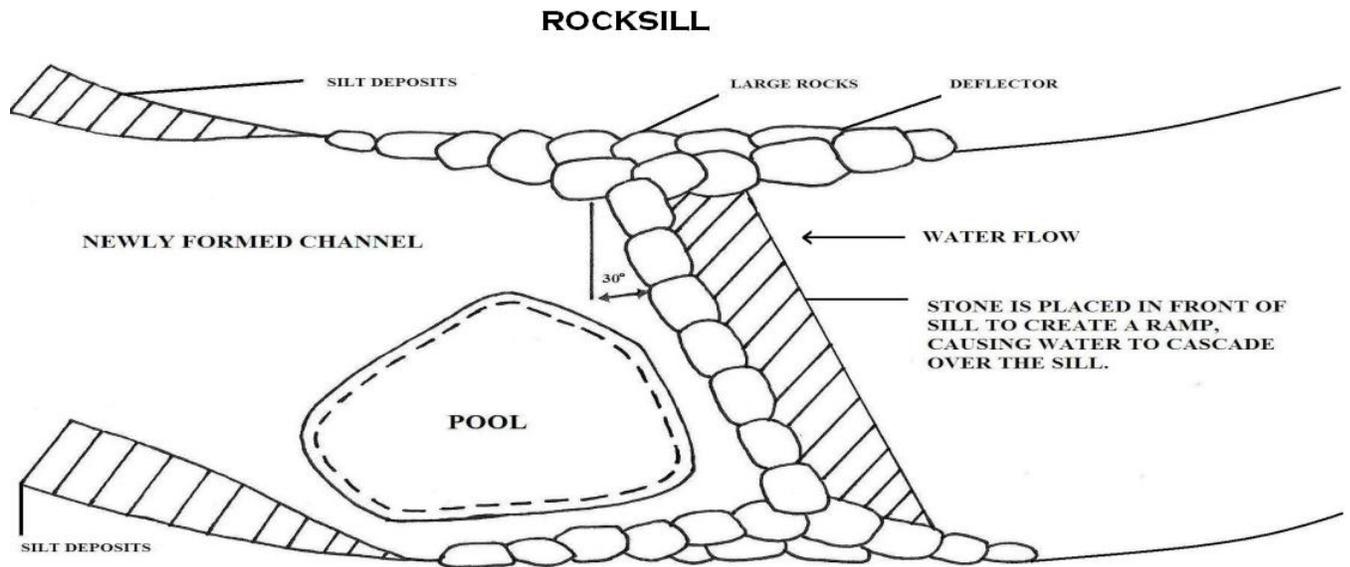
- Direct new restoration of 650m² of aquatic habitat.
- Increased population of Atlantic salmon, Brook trout, Gaspereau and other fish species
- Increased dissolved oxygen levels
- Decreased water temperature
- Decrease in suspended silt in watercourse
- Reduced bank erosion
- Pool creation (spawning area, protection from predators, refuge from winter ice)
- Increased habitat connectivity
- Decreased ice scouring of riverbed
- Reduction of suspended sediments - improve the water quality in Drain Lake Brook
- Increased and enhanced spawning and rearing habitat in the Drain Lake Brook will improve overall rearing productivity for the entire Sackville River watershed for Atlantic salmon, Brook trout and other fish species.

This project was very important for the various communities of the Sackville River watershed as it will show how suburban and urban streams, if restored and protected, can be healthy and can support viable populations of Atlantic salmon.

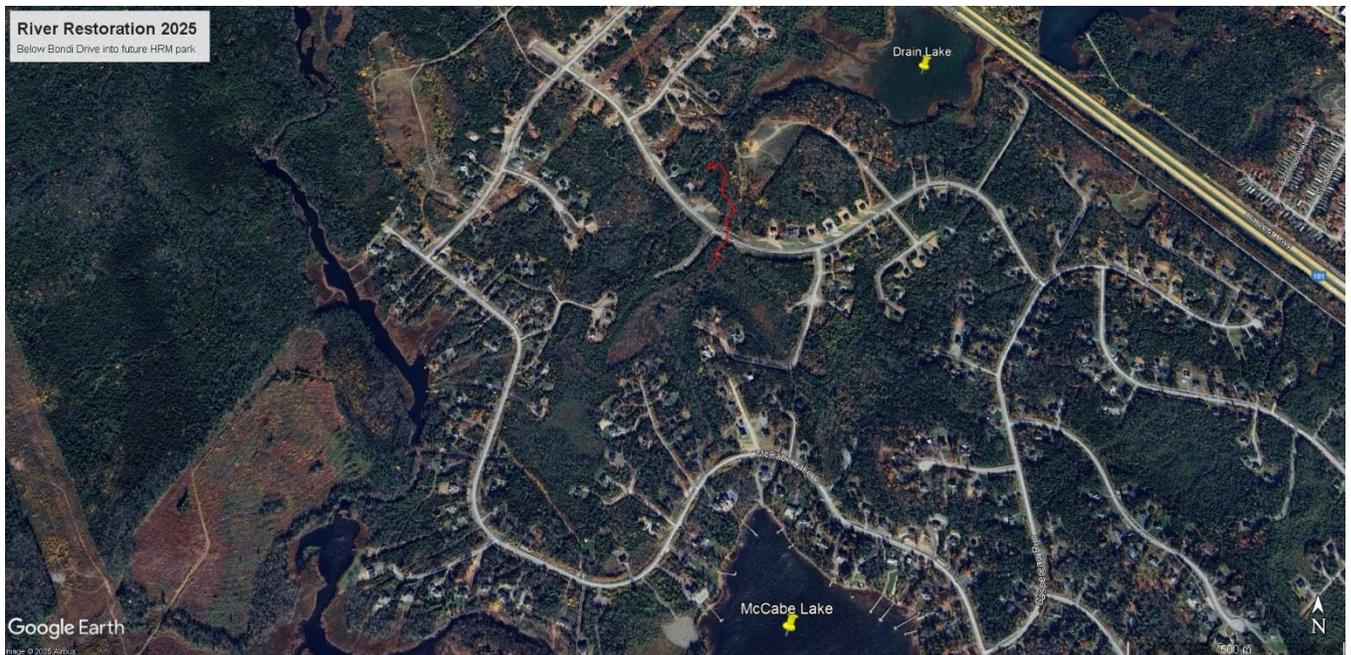
Sackville River Watershed



Drain Lake Brook in watershed context



General rock sill specification



River Restoration 2025 – Drain Lake Brook project reach (top center in red)



River Restoration 2025 – Drain Lake Brook project reach (in red)



River Restoration 2025 – Drain Lake Brook habitat restoration installations (sites 1 through 12 – 12 rock sills and 10 deflectors, with 2 side channel blockages).



River Restoration 2025 – Drain Lake Brook habitat restoration installations (sites 13 through 20) – 8 rock sills (2 were adjustments of existing rock formations) and 3 deflectors).



River Restoration 2025 – Drain Lake Brook habitat restoration installations (sites 21 through 30) – 10 rock sills (1 was adjustment of an existing rock formation) and 10 deflectors).

What follows are selections of the 30 River Restoration 2025 project habitat restoration structure installation sites – the before pictures are from higher water in June (with several from low water in July), and the after pictures are from October after a rainfall that finally helped end drought conditions (though the flow at this point is still fairly low).



Site 1 – Rock sill with deflector - before (above) and after (below)





Site 3 – Rock sill with deflector - before (above) and after (below)





Site 5 – Rocksill with deflector - before (above) and after (below)





Site 7 – Rocksill with deflector and channel block (left) - before (above) and after (below)





Site 10 – Rocksill with deflector - before (above) and after (below)





Site 13 – Rocksill with deflector - before (above) and after (below)





Site 29 – Rock sill with deflector - before (above) and after (below)





Debris jam prior to clearing on Drain Lake Brook