Restoration in Mill Creek





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Association des pêcheurs récréatifs du sud-est (APRSE)/ Southeastern Anglers Association (SAA)

Cocagne, New Brunswick Report 2016-2017



INTRODUCTION

Between 1997 and 2000, the Southeastern Anglers Association (SAA) restored parts of the riparian zones and aquatic habitat on the Mill Creek tributary in the Bouctouche watershed. This watershed is an important watercourse for the Atlantic salmon (*Salmo salar*) and brook trout (*Salvelinus fontinalis*) in southeastern New Brunswick. After restoration activities, fish habitat was improved almost instantly. However, in recent years, other issues have surfaced such as fragmented habitat, bank degradation, increased sedimentation due to cattle grazing and fording activities, and the ineffectiveness and need for repairs of some restoration structures. Newer restoration techniques will help improve the fish habitat on Mill Creek tributary. On April 17 and 18, 2014, an important rain event caused a culvert on Mill Creek to break and washout, causing important damage to fish habitat.

The principal objective of this project is to restore and stabilize eroded river banks upstream and downstream of the culvert area and reconstruct the stream morphology closest to its state before the washout event. The restoration efforts will recreate a healthier fish habitat favoring Atlantic salmon and brook trout productivity.

PROJECT DESCRIPTION

The whole restoration project will be carried out over three years. This document describes the work done during the first year (2016-2017). The SAA staff is working with Parish Aquatic Services (PAS), who act as consultants, and the New Brunswick Department of Transportation and Infrastructure (DTI). For the first year of the project, PAS has conducted a geomorphic and habitat survey on Mill Creek. The objectives of the survey were to identify key habitat features and to prioritize locations for restoration of Atlantic salmon habitat. A key focus of the project was to develop a design that ensures efficient use of resources available for restoration and to maximize the long-term efficacy of the restoration efforts. The survey was conducted on approximately 1.35 km of stream affected by the culvert blowout. PAS has made recommendations on which erosion control techniques should be used to reduce sedimentation coming from a nearby secondary road and on habitat restoration techniques to be used to improve fish habitat. During the first year of the project, after the initial survey was completed, a few problem areas were found spread across the watercourse. PAS recommended that we focus the restoration work on removing old fish habitat restoration structures that were causing erosion, which should help improve the fish habitat and ensure fish passage. The structures were old digger logs, wing deflectors, cribbing and gabion baskets that had been installed over 15 years ago. Many of them were now no longer effective while others were causing more harm to the river, causing it to widen. Most of the restoration work is set to take place during the second and third years of the project, the first year being mainly the planning phase.

RESULTS

As stated in the previous section, the amount of restoration work done in 2016-2017 was minimal. In total, 8 structures were removed by SAA staff, with the help of volunteers and supervised by a PAS technician. Before and after pictures of the old structures' removal are annexed to this report (along with site coordinates) and some are also in PAS's report. Furthermore, PAS's report contains details on the structures' locations and why they were removed. No other restoration work has been done. Results from the geomorphic and habitat survey have also been annexed.

SAA had also planned to stabilize and restore the river banks in the immediate area around where the washed out culvert used to be. However, DTI proceeded with their plan to install the new culvert. They stabilized some of the surrounding area but more work will be needed in the following years. Since some of the restoration work they did was situated in an area we had planned to restore, their work was therefore considered in-kind support to our efforts.

Signs explaining SAA's accomplished restoration work will be placed at three locations surrounding the site: one near the culvert (N 46,27,11.8971 W 064,49,53.3158); one downstream of the culvert, crossing a seasonal access road (N 46,26,44.0879 W 064,49,36.1887); and one upstream of the culvert, crossing Route 495 (N 46,26,23.4072 W 064,53,9.4541). The signs will also mention the different funding programs that supported the project. Pictures of the signs will be added to this document once the signs have been printed and installed. Installment had been delayed due to winter weather conditions, a missing sign posts and a DTI contractor running over a sign from a previous project on Mill Creek with a bulldozer.

CONCLUSION

Some old structures were removed and a plan to add some new ones is being prepared by PAS. The first thing to do for the second year of the project will be to reassess the areas where the old structures were removed to ensure that the river flow has not been modified in a negative way. We will then follow Parish Aquatic Services' recommendations on which restoration techniques to use.

ACKNOWLEGEMENTS

The Southeastern Anglers Association wants to thank the New Brunswick Wildlife Trust Fund (NBWTF) and DFO's Recreational Fisheries Conservation Partnerships Program (RFCPP) for their financial support, without which this project would not be possible. It is thanks to these funds that SAA can help protect river habitat health. We also want to thank the team at Parish Aquatic Services and the New Brunswick Department of Transportation and Infrastructure for their contribution, in time and resources, to this project. Furthermore, we want to thank everyone in the river conservation team here at the Southeastern Anglers Association (especially the field team 2016: Darlene Elward, Ronnie Robichaud, Jonathan Chevarie and André Luc Cormier) and the members of the board of directors for their great work. Finally, we want to thank all the volunteers who helped us remove the old structures, notably members of the Groupe de Développement Durable du Pays de Cocagne (GDDPC) and of the Shediac Bay Association (SBA).

ANNEX A: REMOVAL OF OLD STRUCTURES (PICTURES AND SITE COORDINATES)

N 46,27,1.6014 W 064,49,49.7828 Site 1: Before





Site 1: During



Site 1: After



N 46,27,0.3263 W 064,49,47.9322 Site 2: Before



Site 2: During



Site 2: After



N 46,26,59.3747 W 064,49,46.6069 Site 3: Before



Site 3: During



Site 3: After



N 46,26,56.0922 W 064,49,48.1507 Site 4: Before



Site 4: During



Site 4: After



N 46,26,51.0478 W 064,49,52.7241 Site 5: Before



Site 5: During



Site 5: After





N 46,26,50.8560 W 064,49,52.2787 Site 6: Before



Site 6: During



Site 6: After



Some netting that was attached to the log was removed but the log has been left in place.

N 46,26,47.0567 W 064,49,44.0079 Site 7: Before





Site 7: During





Site 7: After





N 46,26,46.9037 W 064,49,42.2075 Site 8: Before



Site 8: During



Site 8: After



ANNEX B: GEOMORPHIC AND HABITAT SURVEY RESULTS









ANNEX C: PARISH AQUATIC SERVICES' REPORT

See PAS's report: "MILL CREEK SUMMARY OF INSTREAM WORK COMPLETED SEPTEMBER 2016"

ANNEX D: WATERCOURSE AND WETLAND ALTERATION PERMIT

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		Bru	nswick				
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moval of man-made obst is provisional permit allor pellnes, fridge, cars, etc.) i l equipment is operated is	Juctions and alterat ws for the removal o in or over a waterco 1 isolation of the str	ions of structures and d urse/wetland, excl eam flow and that	labris too large to luding man-made t all components	be removed man structures design of the structure of	rually (e.g. bridges, o red to impound wate in be removed with a	uiverts, st, provided that elf-propeiled	
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DOCUMENT "A" Attached to ALT 40869'16 Original

(Regulations 90-80 under the Clean Water Act Chapter C-6.1, Act of New Brunowick 1989)

Conditions

Removal of man-made obstructions and alterations

1 The project, including site stabilization, shall be carried out between June 1st and September 30th only.

- A copy of this permit, including the "Conditions of Approval", shall be kept at the alteration site throughout the duration of the project, and such copy shall be produced upon the request of an inspector designated to act on behalf of the Minister of Environment and Local Government, or an employee of Fisheries and Occans Canada.
- When self-propelled equipment is being used, an appropriate emergency spill kit shall be kept on-site and be readily deployable. Any spill, regardless of quantity, must be reported by contacting the Department of Environment and Local Government during business hours or the Canadian Coast Guard Environmental Emergency number (1-800-565-1633) after hours.
- 4 The equipment used to fulfill the project shall be in good working order and must not be leaking any fuel, lubricants, or hydraulic fluid.
- 5 The permittee/agent carrying out the work shall take whatever steps are necessary to prevent noticeable suspended sadimant from reaching a watercourse/wetland as a result of the alterations covered by this permit.
- 6 Self-propelled equipment used to fulfill the project shall be stationed outside of the wetland and/or the wetled portion of the watercourse. Fill shall not be added or new structures shall not be constructed to facilitate this project.
- 7 The removal of structures/debris in or over water shall be carried out during low stream flow/water level.
- 8 All spoil, structural components, and/or debris being removed shall be prevented from washing downstream. These matarials shall be entirely captured and disposed of outside a regulated area, in a manner acceptable to the Department of Environment and Local Government.
- 9 A culvert and any associated cover material shall be removed, and the channel restored to the cross-section immediately upstream and downstream of the crossing, in isolation of the stream flow.
- ³⁰ If you are unable to remove a crossing involving more than one culvert by pumping the stream flow around the work site, the culverts shall be removed during low flow conditions in accordance with the following sequence a) First, the culvert on the far side of the channel (the side opposite from where the self-propella equipment approaches the project), shall be removed in isolation of the stream flow. b) The bank of the watercourse adjacent to this culvert shall be restored to the cross-section immediately upstream and downstream of the crossing and permanently stabilized against erosion while all the flow is furnelled through the culvert closest to the other bank. c) As the project prograsses toward the near bank, the reclaimed channel shall be restored to the cross-section immediately upstream and downstream of the crossing and permanently stabilized against erosion, while all the flow is furnelled through the cross-section immediately upstream and downstream of the crossing and permanently stabilized against erosion, while all the less culvert is being restored to the cross-section immediately upstream and downstream of the crossing and permanently stabilized against erosion, the work shall be isolated from the stream flow with a cofferdam that constricts the flow to the other side of the watercourse.
- 11 The removal of structures or embedded debris along the bank of a watercourse requiring the excavation of unconsolidated material shall be isolated from the stream flow and any suspended sediment generated shall be prevented from causing downstream sedimentation by installing a cofferdam or deploying a silt curtain around the work area, that is weighted throughout the bottom (e.g. a chain threaded through it).

12 The cofferdam or silt curtain shall not be removed until all suspended sediment has settled onto the bed of the watercourse.

23 The approaches to a crossing that has been removed shall be blocked off to discourage fording and/or destabilization of the bed and banks of the watercourse by all-terrain traffic.

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- Ongulations 90-80 under the Clean Water Act Chapter C-61, Act of New Roussvick 1989
 The altered area shall be restored to its natural grades and/or the channel restored to the cross-section immediately upstream and
 downstream of the altered area.
- 35 Woody vagetation removed/cut shall be limited to those that are required to facilitate the removal of the structure/large debris.
- 26 Any vegetation destroyed in order to fulfil the project shall be replaced with non-invasive perennial vegetation netwer to the area. The species and density of woody vegetation planted shall be similar to that which existed in the area before the project took place.
- 17 Throughout the project, all exposed erodible soil shall be temporarily stabilized with mulch, erosion control blankets or other davices designed to prevent erosion and the runoff of suspended sediment into a watercourse/wetland, prior to each forecasted rain event.
- 39 Upon final grades being achieved, all exposed soil shall be permanently stabilized with non-invasive periential vegetation native to the area and blanketed with mulch or blanketed with an engineered arakien control product designed to prevant the generation of suspended sediment due to rain or overland runoff events.

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(Regulations 90-80 under the Cican Water Act Chapter C-6.1, Act of New Brunswick 1989)

Disclaimers

Approval from the Department of Natural Resources, Crown Lands Branch, may be required for any proposed work or activities adjacent to, or within, inland or tidal waters. It is your responsibility to contact the Crown Lands Information Line at 1-888-312-5600, prior to the commencement of the project.

Responsibility for any action arising from any watercourse, and wetland alteration shall be borne by the Permittee and no liability shall be incurred by the Minister or the Department of Environment and Local Government. This permit does not exempt or exclude the Permittee from the provisions of any Act of the Legislature of New Brunswick or of Canada to serve as a legal defense to any action commenced by landowners who are adversely affected by the alteration(s).

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