

Beaver Dam Management Project 2012

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Introduction

Beavers can block off access to spawning areas by building large dams in brooks, culverts, or fish ladders. Beaver dams can impede Atlantic salmon upstream migrations to spawning habitat when water levels are low and salmon are unable to swim or jump over the impoundments. When their migrations are blocked, salmon will congregate below the dams and lay their eggs in redds; however, with so many females laying eggs in a small area, redds become crowded and overlapping with egg survivability reduced. Beavers also typically build dams on small streams and these areas generally contain: excellent juvenile salmon habitat quality, fewer numbers of large predators, and cooler stream temperatures. Low egg survivability and reduced habitat quality below the dams, as well as lack of spawning above the dams, results in these areas becoming devoid of juveniles. Lack on salmon juvenile production not only negatively impacts total salmon production on the river but also reduces prey availability for other wildlife (i.e. eagles, otters).

Beaver numbers, and consequently beaver dams and blockages, have recently increased due to the decrease in people trapping beaver. Historically, people trapped beaver to supplement their income; however, over the past few years beaver pelt prices have been at the lowest point since the 1993/1994 season resulting in lower annual beaver harvests over the past 5 years.

Beaver dam notching during the critical salmon run time period has had recent success as prior to 2006 few salmon fry were found on Betts Mills Brook near Doaktown NB despite the building of a new fish ladder near its mouth. In 2006, a major beaver dam that had been blocking the fish ladder was removed, as well as 21 additional beaver dams were notched or removed, and this resulted in adult salmon access to more than 50,000m² of spawning habitat. Electrofishing results by the DFO and MSA revealed the presence of fry in Betts Mills Brook the following year. Additionally, Porter Brook and Big Hole Brook each have high quality salmon habitat and when salmon were able to access spawning habitat upstream of their respective beaver dams, high densities of salmon fry were present during electrofishing.

Providing access to spawning habitat for adult Atlantic salmon will ensure that the Miramichi River maintains a strong juvenile output. High numbers of juvenile will hopefully increase adult salmon returns and provide the Miramichi outfitters, guides, and local fishermen the highest quality Atlantic salmon fishing in the province.

Methods

In the late-summer and fall of 2012, the Miramichi Salmon Association staff surveyed brooks on the Cains River and targeted brooks of the main Southwest Miramichi River. The MSA field crew was made up of Tyler Storey (MSA technician) and Tyler Coughlan. Many of the brooks are inaccessible by roads; therefore, the project

requires the field-crew to canoe downstream brooks to locate dams. Brooks that were surveyed throughout the summer in the main Southwest Miramichi River were: Porter Brook, Betts Mills Brook, and Big Hole Brook and in the Cains River were: McKenzie Brook, Six Mile Brook, Muzroll Brook, Salmon Brook, Little Otter Brook, Upper Cains River, and Sabbies River. During the mid-summer/early fall, beaver dams were removed and the GPS locations of these were given to a “nuisance wildlife trapper” to have the beavers removed. A nuisance trapper possesses a special permit to remove beavers out of season, since the furbearer season is from October 30 to January 1st, after the majority of salmon have spawned. Later in the fall (from Oct. 1- Oct. 26), while salmon were migrating upstream in brooks of the Cains River, the beaver dams were simply notched to provide access to the salmon spawning habitat.

Results

The 2012 beaver dam removal and notching project was commenced on September 24 and ran through October 26; although, two beaver dams at the mouth of McKenzie Brook had been identified, removed, and reported to a nuisance trapper earlier in the summer. From Sept 24-Sept 30, two beaver dams in Porter Brook, ten beaver dams in Betts Mills Brook, and six beaver dams in Big Hole Brook had been removed and the dam locations were reported to a nuisance trapper. However, during the beaver dam notching time period in the Cains River (Oct 1-26), the field-crew lost many days because of high water levels (Fig. 1). On days that the field-crew were able to canoe through the brooks, water levels had either washed-out many of the beaver dams or made the beaver dam difficult to locate due to high water. Nevertheless, on the days that the water levels were too high for canoeing, or when high water masked the presence of a dam, adult Atlantic salmon that would be migrating upstream in these brooks could potentially swim, or jump, over the beaver dams which would provide them access to upstream spawning habitat. Although only two dams on McKenzie Brook (Cains River) were cleared earlier in the summer, we were able to remove successfully 15 beaver from the watershed. It was hoped that more beaver dams would be trapped but due to uncooperative weather and time constraints we were unable to do so, although the high water levels likely allowed salmon to naturally access spawning habitat.

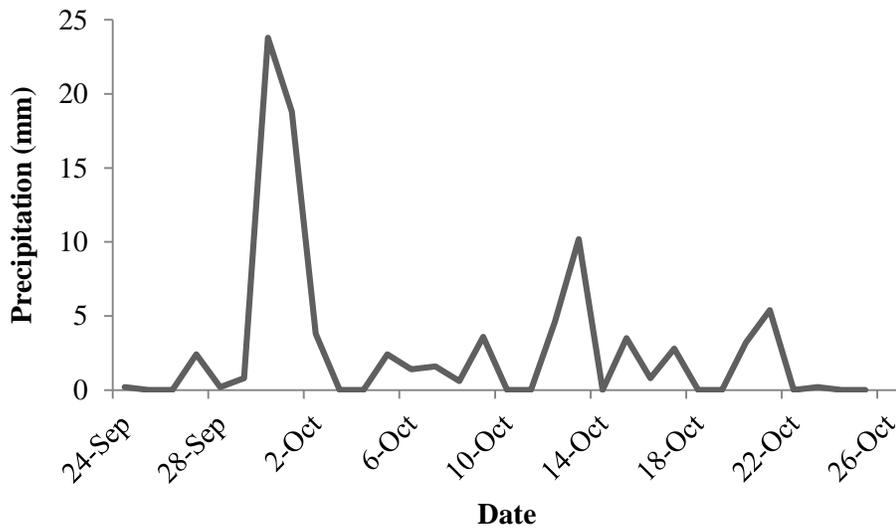
Acknowledgements

We would like to acknowledge the donations made by the MSA members for this project, without the donations this project would not have been possible.

Table 1: The river, brook, and GPS location of each beaver dam removed during the project, one beaver dam on the Upper Cains River was under water so it could not be notched.

River	Tributary	GPS	
Southwest Miramichi River	Porter Brook Dam 1	46.5018	-66.4501
Southwest Miramichi River	Porter Brook Dam 2	46.4975	-66.4533
Southwest Miramichi River	Big Hole Brook Dam 1	46.5584	-66.2710
Southwest Miramichi River	Big Hole Brook Dam 2	46.5561	-66.2297
Southwest Miramichi River	Big Hole Brook Dam 3	46.5566	-66.2266
Southwest Miramichi River	Big Hole Brook Dam 4	46.5572	-66.2201
Southwest Miramichi River	Big Hole Brook Dam 5	46.5609	-66.1996
Southwest Miramichi River	Big Hole Brook Dam 6	46.5545	-66.1868
Southwest Miramichi River	Bett's Mills Brook Dam 1	46.4963	-66.1964
Southwest Miramichi River	Bett's Mills Brook Dam 2	46.4974	-66.1937
Southwest Miramichi River	Bett's Mills Brook Dam 3	46.4982	-66.1924
Southwest Miramichi River	Bett's Mills Brook Dam 4	46.5002	-66.1897
Southwest Miramichi River	Bett's Mills Brook Dam 5	46.5086	-66.1916
Southwest Miramichi River	Bett's Mills Brook Dam 6	46.5115	-66.1927
Southwest Miramichi River	Bett's Mills Brook Dam 7	46.5288	-66.1795
Southwest Miramichi River	Bett's Mills Brook Dam 8	46.5343	-66.1826
Southwest Miramichi River	Bett's Mills Brook Dam 9	46.5389	-66.1845
Southwest Miramichi River	Bett's Mills Brook Dam 10	46.5389	-66.1845
Cains River	Upper Cains River (under water)	46.2801	-66.2940
Cains River	MacKenzie Brook1	46.4413	-66.0104
Cains River	MacKenzie Brook2	46.4419	-66.0155

A.



B.

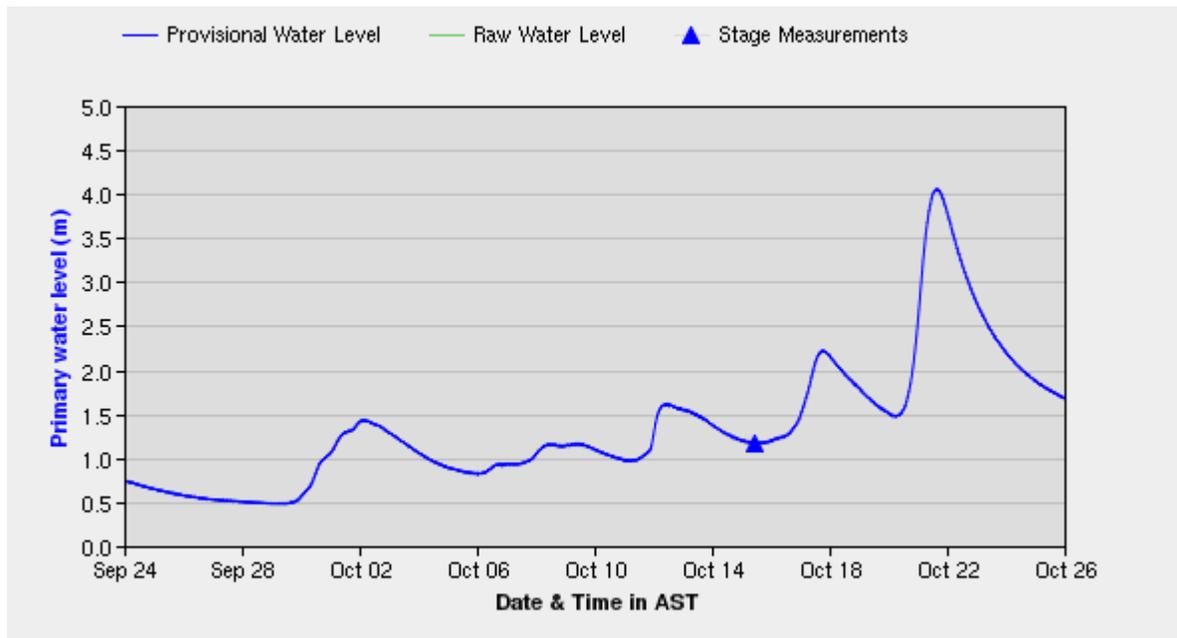


Figure 1: (A) Precipitation in Miramichi during the beaver dam removal time period, historical data accessed from www.farmzone.com (B) Rain resulted in high water levels in the main Southwest Miramichi River, and its tributaries, causing unsafe sampling conditions, beaver dam wash-outs, or dams to be concealed by water. Data for the SW Miramichi River at Blackville (01BO001) is accessible from www.wateroffice.gc.com.