

Rehabilitating and Restoring Unique Landscapes

June Newsletter



The Maritime Aboriginal Peoples Council's Five Watersheds Project will address areas of fish habitat concern in the **Chiganois, Debert, Folly, Great Village, and Portapique** Watersheds. Four of the five watersheds within the project scope are identified as critical habitat for the endangered inner Bay of Fundy (iBoF) Atlantic Salmon.

The Five Watersheds Project is funded by the Department of Fisheries and Oceans Canada, through the Oceans Protection Plan, under the Coastal Restoration Fund.

During the summer of 2018, the field technicians for the Five Watersheds Project conducted several assessments that were crucial for the development of the project. These included habitat assessments, culvert assessments, water quality analysis, redd surveys, fish surveys and assessments through the Canadian Aquatic Biomonitoring Network.

Based on these assessments along with traditional and local knowledge, a restoration plan was created. When adding a location to the restoration plan, many factors were taken into consideration. These factors include areas that will become accessible to fish species, suitability of the habitat above the potential restoration location, landowner cooperation, and of course, economic viability.

The Five Watersheds Project currently has two locations on the restoration plan.

The first restoration location was a wooden culvert located on a tributary of the Chiganois River, called Galloping Brook. Galloping Brook extends from the main channel of the Chiganois River to MacElmons pond, and continues further upstream with linear habitat. The total catchment area behind this culvert is 15.5km², with approximately 23.3km of linear upstream habitat, and

0.5km² of upstream lake habitat in MacElmons pond and beyond.

During initial survey work, a wooden culvert was discovered to be a height barrier preventing fish from passing the vertical height from pool to culvert. In the early summer of 2018, field technicians caught nearly 1000 Gaspereau in a pool with a beach seine just downstream of the culvert. Upstream through the culvert, there is optimal spawning habitat for Gaspereau in MacElmons Pond. This barrier to fish passage made it evident that this culvert would need restoration or replacement.

Although this theory has not been confirmed, it is suspected that this culvert was installed before the aboiteau that was constructed on the Chiganois River in 1955. Since the construction and joining of small aboiteaux along the Chiganois river, the water levels have dropped, making this culvert crossing a barrier for fish passage.

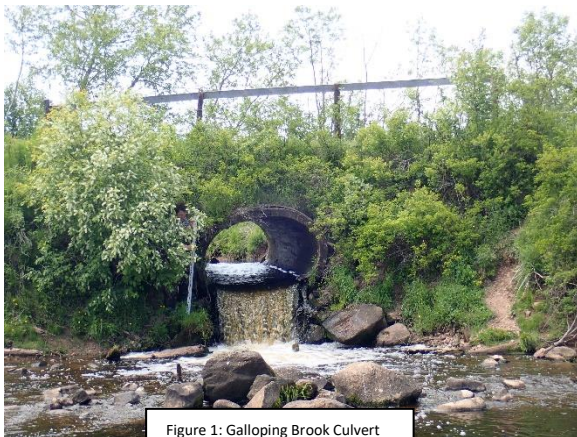


Figure 1: Galloping Brook Culvert

Additional technical survey assessments of the culvert and flow velocities was undertaken by the NSLC Adopt-A-Stream program. NSLC is a community-based watershed stewardship program supported by the Nova Scotia Salmon Association. Two technicians collected further data and measurements of the areas and the culvert and came up with two options. One option was to by-pass the culvert barrier to fish created by the old culvert.

To undertake an efficient and cost effective restoration project, the Maritime Aboriginal Peoples Council's Five Watersheds Project convened a meeting of the Advisory Board which is comprised of advisors, engineers, Department of Fisheries experts, representatives of the dyke lands commission, and community interests. The Maritime Aboriginal Peoples Council Five Watersheds Project, sought out sources of funds for the option to install a denil structure. The MAPC Watersheds Project was approved for additional funding in the amount of \$40,000.00 to help offset the cost of the restoration option.

Working with the NSLC Adopt-A-Stream program, and with the support of the MAPC Five Watersheds Advisory Board, the denil structure option was selected as a cost effective alternative to a complete culvert replacement which would be

a very costly option. A Denil Structure would be designed for the Galloping Brook location. A denil structure is designed and installed separately from an existing culvert. The structure has its own entrance and outlet, and is placed at an engineered location beside the fish barrier culvert.

The intent of structure is to reduce the velocity of the water flow by placing a series of baffles along the floor of the denil while accommodating a gradual upward slope for fish to swim through to the other side where the fish can continue on to their optimum spawning habitat. With a denil installed, fish are not stopped by an impassable culvert, nor are they forced to move through excessively fast rushing water.

With the landowners permission, and after securing the necessary permits, an experienced contractor was hired to begin work to install the denil structure in late March.

The usage and functioning success of the installed denil structure will be monitored. One monitoring exercise will be that of noting the passage of Gaspereau during their migration upwards into ponds and lakes.

Below is an image of the completed denil structure at Galloping Brook. Migratory fish are able to travel upstream and reach spawning grounds and reach other food sources.



Figure 2: Downstream of Newly Installed Steep Pass Denil Fishway

The second location that was added to the restoration plan, is an undersized culvert located on a tributary of the Folly River. The Folly River is considered critical habitat for the inner Bay of Fundy Atlantic Salmon. This culvert is made from corrugated steel pipe, and is approximately 32 meters in length.

When initially surveyed in the spring of 2018, it was evident that this culvert was extremely damaged.

Due to the height of the culvert from the water, and the depth of the water flowing through it and where the culvert is situated under approximately 10 feet of gravel from the road above, it was suggested that ice formation in a pond located upstream of the culvert, caused the metal to crack and bend upright (Figure 3). The wooden debris has been cleared since this photograph was taken.



On the downstream end, there is a vertical barrier making it nearly impossible for fish to travel through (Figure 4). Also, because of the water depth, the length of the culvert, and the limited burst speed of the fish, traveling through this culvert is very likely an impossible feat for fish.



After explaining concerns to the Department of Transportation and Infrastructure Renewal, it was

decided that there is an urgent need to have a temporary fix of the culvert. A fix is planned for the summer of 2019. Although no concrete plans have been prepared, a chute was suggested as a temporary fix. A chute would be attached to the culvert on the downstream end. This chute system will raise the water level in the culvert, making it possible for fish to pass through to the other side.

Fish passage will also be monitored through this culvert continuously during the remaining term of the Five Watersheds Project.

We are now entering our third year as an Oceans Protection Plan project and we are excited on what the future holds, and looking forward to many more restoration activities!

We are continuing to host community engagement sessions. No dates have been confirmed for this fiscal year.

For more information about the Five Watersheds Project and our work and how to become involved, please call us or e-mail us the number below and ask to speak to Chelsey.

This work could not be done without the help of the project partners, and stakeholders. We thank them for their time and support.

Please follow us on Social media for more updates about field work, and upcoming events.

  @ FiveWatershedsProject

For more information, or how to get involved Call: (902) 895-6899 or e-mail cwhalen@mapcorg.ca



Maritime Aboriginal Peoples Council

