



Rehabilitating and Restoring Unique Landscapes

December 2021 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.

Hello, project partners and community members, since the release of our last newsletter, nearly two years ago, the Five Watersheds staff have made great progress on the project. The pandemic has influenced how project deliverables

were being met, and in some cases, milestones were modified.

Unfortunately, we have been unable to host any community engagement sessions. These community sessions are important to gather community knowledge of our watersheds, and for us to share field work and restoration work. Despite being unavailable in person, we have been trying to share more of our field work activities on our social media accounts. Follow us on Instagram and Facebook for more frequent project updates. (@Fivewatershedsproject).

Fish Passage and River Connectivity

A large component of our project is to identify barriers to fish passage. Using a computer mapping system called ArcGIS Pro, the Nova Scotia

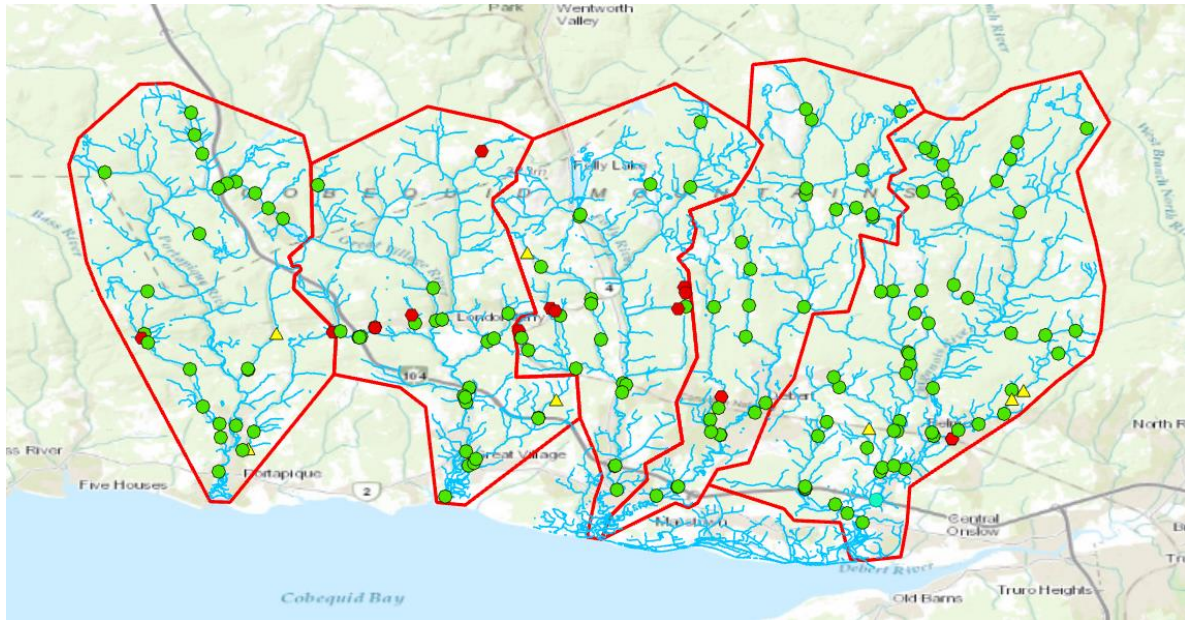


Figure 1: Five Watersheds Project Boundary with Potential Barriers to Fish Passage (red and yellow icons)

road layer, and the provincial watershed layer, all water crossings within the entire watersheds were mapped to assess habitat connectivity and fish passage. Habitat connectivity is the degree to which a watercourse facilitates complete movement of living organisms and stream material. Nearly 500 crossings were identified on the mapping system. However, in the interest of time and resources only the crossings on the main rivers and named tributaries were visited. Pleasantly, to our surprise, a large majority of the crossings were bridges, or properly installed culverts with fish passage. Although, there are approximately 20 road crossings that pose a threat to river connectivity and fish passage. If time allows, the Five Watersheds team aims to complete culvert assessments for

those culverts identified as a threat to fish passage and confirm or deny if they are barriers.

Coastal Erosion

To monitor coastline erosion, the Five Watersheds staff used the Stake Siting method at the mouth of every river. Over time, staff are able to measure the amount of coastline lost to erosion from the profiles they create. A profile is created by placing a series of two wooden survey stakes (in some cases, a permanent structure can be used) into the ground adjacent to the coastline. One stake is installed a certain distance back from the edge, and the other is installed a distance away from the first stake, in line with a particular compass bearing. The team measures the distance between the stakes, and the distance of the stakes to the

coastline. The stakes will be checked every few months to estimate the amount of coastline being lost to erosion.



Figure 2: Field Technician Installing a profile at the mouth of the Chiganois River.

Debert (Pine Brook) Culvert Update

In 2019, the Five Watersheds staff identified a severely damaged culvert on a tributary to the Debert River, named Pine Brook, which is identified as critical habitat to endangered inner Bay of Fundy Atlantic salmon. The culvert had deterioration along the bottom which caused the water to begin to flow under the culvert. It was also a hung culvert, meaning that there was a vertical barrier for fish from the water to the culvert (see figure 3). The Five Watersheds team contacted the owner of the culvert, the Department of Transportation and Infrastructure Renewal (TIR) to see if they were aware of the issues associated with the culvert. Unfortunately, they were not aware of the condition of the culvert, and didn't have any plans to repair the damage. However,

because an endangered species (salmon) are present in the river system, they must have the ability to pass through the culvert to spawn and access prime habitat.



Figure 3: Outflow Before Restoration Activities at Pine Brook

To remediate the culvert, TIR consulted their engineer, and river restoration expert to develop a plan to re-establish fish passage and repair the damaged culvert bottom.

First, TIR diverted the water with large pumps through the culvert so they were able to use an all-natural spray foam to fill the under, and alongside of the culvert. With the bottom of the culvert sealed with foam, the water was able to flow through the culvert properly.



Figure 4: Outflow After Restoration Activities

Although the water was flowing through the culvert, TIR's engineer and the restoration expert still needed to raise the tailwater control to backwater the culvert to allow for fish passage. To raise the water level to backwater the culvert (or raise the tailwater control), TIR and the restoration expert designed a series of rock weirs to build up the river gradually. Using an excavator, smaller rocks were brought down to the stream side where 2 rock weirs were created (Figure 5/6). These gradually raised the level of the river and the water level of the pool to backwater the culvert.

The Five Watersheds team will be monitoring this location closely for migration salmon, and hope to complete redd surveys in the fall to identify spawning grounds.



Figure 5: 1st Rock Weir installed at tailwater control to raise water level to inside the culvert



Figure 6: 2nd Rock Weir installed at the crest of the riffle downstream of culvert

Sign Installation

One of the milestones for the fifth and final year of the Five Watersheds project, is to install permanent signage in each one of the watershed areas. The signs will be in English, French and Mi'kmaq and will educate people about the project, the importance of fish passage and the effects of negative river connectivity. The signs will be placed in high traffic areas that are important to our project area. A lot of work and

planning has gone into the signs, and they will be installed by the end of the fall in their permanent places.



Figure 7: Sign Placement Location for the Folly River

Thank for your interest in the project, if you have any further questions regarding any of the topics discussed in the news letter, please call our office (902) 895-6899. Or, check out the website for more information on the Five Watersheds Project, or any of MAPC's other current projects 😊

<https://mapcorg.ca/>