

Please call **1-800-565-2224** or
the Halifax Regional Police or RCMP detachment at
902-490-5020

to report illegal activities in our watershed areas.

Volume 14 Issue 1

Lake Major Watershed Newsletter

To learn more about
Halifax Water's Source Water Protection Program
please visit: halifaxwater.ca/protected-water-areas or
call our Customer Care Centre at **902-420-9287**.

Summer 2022 *SPECIAL* Edition

Lake Major Dam Fishway



New Lake Major Dam and Fishway

The fishway at the new Lake Major Dam was completed and opened for fish passage in the summer of 2019. To meet part of the reporting process requirements to the Government of Canada's Department of Fisheries and Oceans (DFO), monitoring of fish passage through the fishway was carried out by an environmental team from EnviroSphere Consultants using underwater video cameras positioned in the stream near the fishway entrance, in the fishway, and at the exit into the lake.

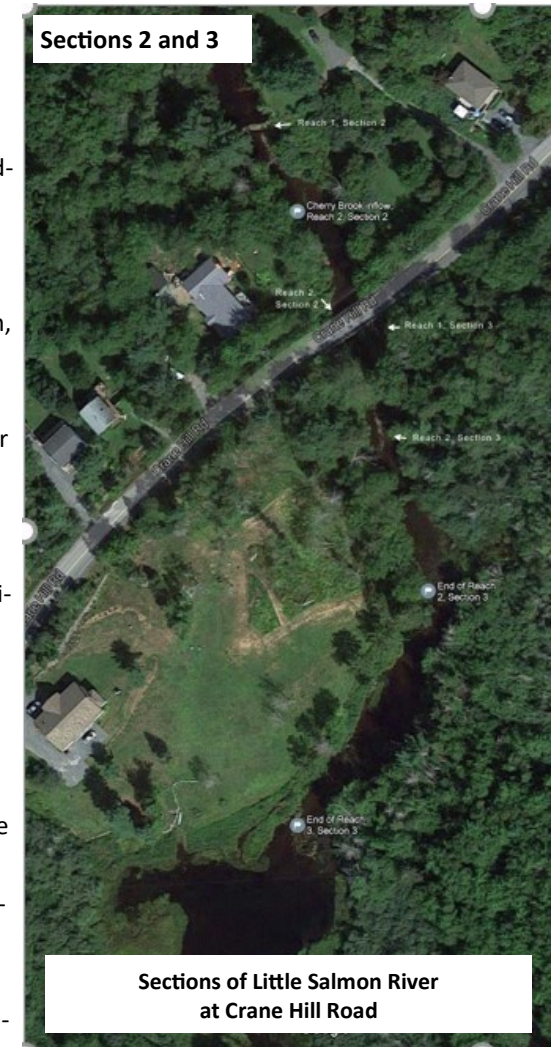
As part of the environmental approvals for construction of the new Lake Major Dam, fish habitat enhancement compensation (e.g., stream restoration) was required. A number of options were examined for providing this compensation; one criterion was that it be within HRM since this is Halifax Water's jurisdiction. The Little Salmon River below the new dam was chosen as the most appropriate compensation area.

Stream Improvements in Little Salmon River and Cherry Brook

DFO determined approximately 6,800 m² was the appropriate amount of compensation for the shoreline area displaced by the new dam. All the required compensation can be obtained in the Little Salmon River below the dam.

Compensation activities in this area will likely involve sandwanding, which involves removing fine sediments from the stream substrate, and restoring the stream bottom to more productive conditions. This will improve the aquatic habitat for insect life as well as water flow for survival of eggs after spawning. In addition, structures can be placed in the stream to return the stream to more original widths with more pools and riffles and some narrower sections. In some areas, material is added to provide cover along the stream edge. An assortment of actions can be taken depending on the section of stream involved. The stream near Crane Hill Road is of particular interest. This work will require design and approval by both the Nova Scotia Department of Environment and Climate Change and DFO. Time is of the essence to meet the requirement for most of the work to be completed in 2022.

As part of the design process, EnviroSphere Consultants will be talking to residents to get historical information, approval for access to the stream via their property and to ensure that people support the program. Areas likely to be involved in this work will be within about 4 km of the dam, including Cherry Brook. EnviroSphere Consultants hope to be in the field by mid-July but it is dependent on approval by the federal and provincial governments. The applications to both have now been filed. They anticipate they will need to stop work at the end of September both because of water flow increases in the fall and permit requirements. If you have any questions, please contact Jonathan MacDonald at Halifax Water at (902) 818-0913.



Sections of Little Salmon River
at Crane Hill Road

Fishway Mechanics and Observations

The figure on the right shows an overhead view of the fishway. At the bottom of the dam (see opposite page), the fishway entrance is located adjacent to the sluice gates. The fishway has a single turn pool and an extended exit pool at the top, leading into the lake. The final exit weir provided a good overhead view of fish leaving the fishway and was used to tally fish passage numbers.

Some modifications were made to entrance conditions in 2021 and these improvements were noted in the 2022 monitoring,

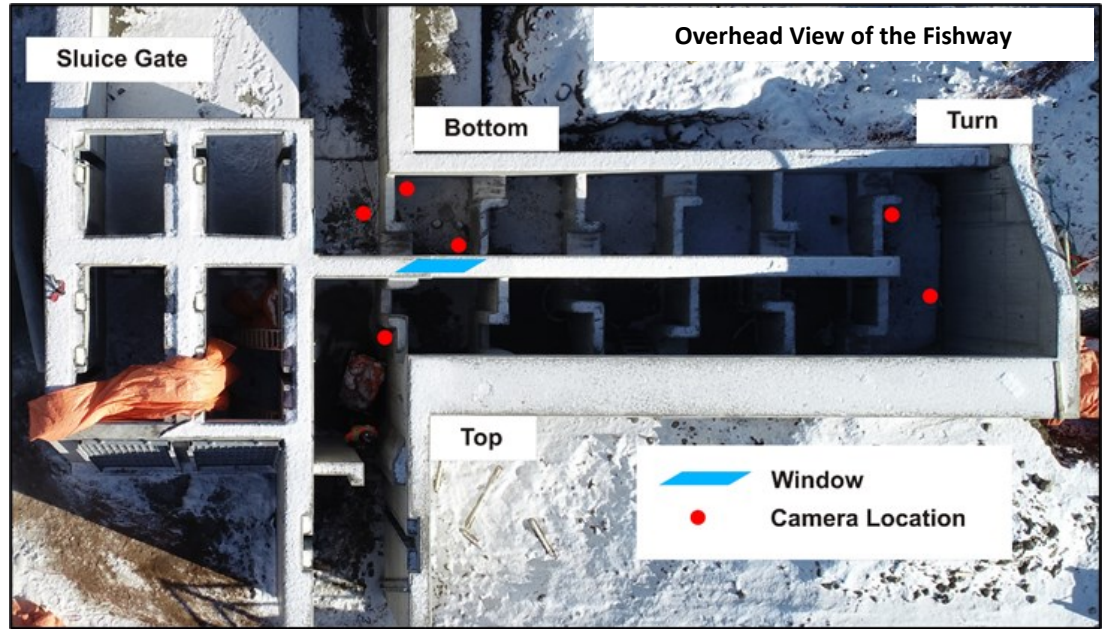


Sea Trout Entering the Fishway

which showed that the current fishway is performing well.

Record numbers of gaspereau and blueback herring were documented passing through the fishway in 2020 and

2021. Estimates of total numbers of gaspereau and blueback herring passing through the fishway ranged between 70,000 to 110,000 fish from May - June 21, 2020. Trout were also shown to pass up into the lake (see photo above), but in smaller numbers.



Thousands of Blue Back Herring Circling Above the Dam

Opening of the new fishway corresponded to increased runs of blueback herring, which are closely related to the gaspereau. The blueback herring run was in large numbers over a short period of time and some unusual behaviours were observed, including thousands of blueback herring circling above the dam in front of the fishway exit. The fish dispersed for spawning relatively quickly but the circling phenomenon had not been witnessed in Lake Major before.