

At this month's Lunch and Learn Series, ESANS was pleased to host Fisheries and Oceans Canada's Craig Hominick to speak about the updated 'Guidelines for the design of fish passage for culverts in Nova Scotia'. This document provides a much anticipated revision of the previous guidelines, which were released in 2002 and were met with confusion by the industry. These new guidelines, as well as the 2002 edition, have been produced for use in any situation where a culvert is required, which is typically any water crossing with a drainage area that is less than 20 square kilometers. These guidelines were initially created to ensure that fish could migrate without any restrictions, as migration is an integral part of fish biology.

The 2002 guidelines received renewed attention after a 2013 DFO study found that the majority of culverts that have been installed in Nova Scotia are barriers to fish passage. Many culverts were put in incorrectly, have no baffles when baffles are required, or suffer from a myriad of other design and installation issues. On top of this, only 5 of 41 culverts studied by DFO were found to have properly designed energy dissipation pools (EDPs), which are one of the most important features for keeping the proper water level in the culvert.

These guidelines require that a biologist or technologist with adequate training and knowledge of fish habitat protection complete an evaluation to determine if fish passage is necessary. They also require that both an engineer design the culvert using this guideline and that a certified sizer or installer is present during culvert installation. DFO is offering a new version of their watercourse alteration training this spring. However, if you have taken the training program within the last 5 years, your training will be grandfathered into the new certification program for a term of at least 5 years. There will also be information sessions for those who have recently taken the program to bridge the gap between their knowledge and the new certification program's content.

These guidelines highlight the most important design criteria for culverts: water course (WC) slope. These guidelines specifically demonstrate how the WC slope is measured and require that any culverts with a WC slope greater than 0.5% have baffles installed. The length, slope, and diameter of the culvert are also outlined. The guidelines also go into great detail regarding the shape, size, dimensions, and depth of the EDP that is constructed downstream of the culvert. This energy dissipation pool must have a minimum depth of 1 meter and be constructed without filter fabric. The length and width of this 1 meter deep section of the pool are directly proportional to the diameter of the culvert, while the slope of the pool must not exceed 1:2.

These new guidelines have a few limitations to their scope of application. The culverts must be at least 4 meters in diameter, feed drainage areas of less than 20 square kilometers, and have less than an 8% WC slope. The guidelines also apply to repairs of existing culverts that do not adequately allow for fish passage. However, culverts feeding tidal areas, situations involving multiple culverts, engineered channels constructed for water control and water courses that do not support valued fish are exempt from these guidelines.

ESANS would once again like to thank Craig Hominick for taking the time to present and discuss the Guidelines for the design of fish passage for culverts in Nova Scotia' with us. We would also like to thank CBCL for hosting the Lunch n' Learn series in the conference room of their Hollis St. office. If you have any questions regarding Environment Canada's Fisheries Protection Program or these guidelines, you can reach Craig at hominick@mar.dfo-mpo.gc.ca or by phone at 902-426-1631. You can also find a copy of the December 2014 release of the guideline at <http://www.dfo-mpo.gc.ca/Library/353873.pdf>. A revised copy will be made publicly available in the coming weeks.