Fish passage in Canada – State of the science with particular reference to lake sturgeon

\*S.J. Cooke1, J. Thiem1, C. Hatry1, D. Zhu2, J. Dawson1, K. Smokorowski3, K. Clarke3, C. Katopodis4, P. Dumont5, D. Hatin5, A. Haro6, T. Castro-Santos6, R. Wilson7, and A. Gleiss7.

NSERC HydroNet – 1Carleton University (steven\_cooke@carleton.ca); 2University of Alberta; 3DFO; 4Katopodis Ecohydraulics Ltd.; 5Ministère des Ressources naturelles et de la Faune; 6Conte Lab, USGS; 7Swansea University.

Abstract

Since the NSERC workshop on fish and hydropower interactions and the development of the NSERC HydroNet proposal, there have been a number of advances in our understanding of fishway science in Canada and beyond. For example, in Canada the CanFishPass database now exists and serves as a repository of geo-referenced biological and engineering information on over 200 fishways in Canada. There have also been several syntheses and meta-analyses that provide insight into the ways in which fishways have been studied and information on their effectiveness. A notable pattern is that few studies adopt an interdisciplinary approach. Through HydroNet, our team of biologists and engineers have been working collaboratively to explore fish passage issues for lake sturgeon. Combining fields as disparate as functional morphology, endocrinology, hydraulic engineering, and behavioural ecology our team has improved our knowledge of fish passage for sturgeon (including information on when it may not be needed). Many questions remain to be answered with respect to fish passage in Canada and we are confident that the knowledge and approaches used as part of our HydroNet project will inform future studies and improve fish passage science and practice.