# Evaluating the Effect of Natural Channel Design on Fish and Benthic Macroinvertebrate Communities

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Just a few decades ago, stream channels were often channelized (straightened and/or hardened) as means to remove water from the land as fast as possible under the guise of flood control. This objective was usually achieved but it drastically altered the habitat available for fish and other biota. Natural Channel Design (NCD), the reconstruction of stream channels to restore geomorphic form and function, is a common management approach used within the Toronto and Region Conservation Authority's (TRCA) jurisdiction. The primary goal of NCD stream reconstruction is to achieve channel stability and the inherent stability of any natural channel is dependent on an appropriate dimension, pattern, and profile of the bankfull channel and associated floodplain. In most cases, improvements to the aquatic ecosystems are assumed to occur "naturally" once channel equilibrium is restored.

TRCA monitored the aquatic community (fish, benthic macroinvertebrates) and habitat for over 10 years from the early 2000s to the mid-2010s at several sites throughout the Greater Toronto area as part of the "*Natural Channel Design Monitoring Program*". The aquatic communities within NCD restored reaches as well as at reference sites were monitored during several time periods post construction. In addition, aquatic ecology data both pre and post restoration was monitored at some sites. Through the use of specific case studies, we will discuss the findings from this study with respect to aquatic ecology as well as lessons learned from a monitoring perspective.