

Setting Standards for the Design of Stream Rehabilitation Project Evaluations: Updated Guidance from 10 Years of Monitoring in the Greater Toronto Area

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To further advance the practice of stream rehabilitation we must learn from both our successes and shortcomings. Project evaluations typically involve short-term field monitoring, but approaches to study design, selection of monitoring parameters, and timing and frequency of sampling can vary widely depending on regulatory requirements and professional opinions. Building consensus on standards for the design of stream rehabilitation monitoring programs will help ensure that conclusions about outcomes are based on sound science and comparable across Canada.

In 2005 Toronto and Region Conservation's "Natural Channel Design Monitoring Program" was initiated with a ten (10) year implementation time frame and the following objectives:

1. Develop guidance on the design of effectiveness monitoring programs for stream rehabilitation projects including what components and parameters to examine, how frequent monitoring activities should be performed, and what standard data collection protocols to use;
2. Design and implement programs for ten (10) project sites around the Greater Toronto Area to examine conditions and evaluate if design objectives are being achieved in the 5 to 15 years post-construction time frame; and
3. Adapt the monitoring program design guidance where warranted, based on the findings and experiences gained from program implementation.

From ten years of program implementation, many valuable lessons were learned relating to evaluation timeframes, monitoring parameters, sampling frequencies, and data analysis techniques. Drawing upon these experiences and a review of recent literature, updated guidance on the design of stream restoration project monitoring programs has been developed that can be adapted to suit a wide range of project contexts, scales and objectives.

The stream rehabilitation monitoring program design standards include three main components: Fluvial Geomorphology (rapid assessment, aerial and fixed point photographic, long-profile, cross-sectional, and substrate surveys); Aquatic System (fish, benthic macroinvertebrates and habitat surveys); Terrestrial System (vegetation community, flora, breeding bird, amphibian and beaver surveys).

Biography

For the past sixteen years Dean has worked for Toronto and Region Conservation. He is currently a Project Manager with the Sustainable Technologies Evaluation Program where his work focuses on evaluating the effectiveness of innovative water management technologies and developing knowledge transfer tools to overcome barriers to widespread implementation. His most recent work focuses on the evaluation of natural stream corridor rehabilitation projects in the Greater Toronto Area and the development of guidance on monitoring and evaluation program design.