

Preface



We are a civilization that has relied on the health of rivers and streams in this country for over two centuries. During the growth of this nation, many of these water resources have become damaged or lifeless. In recent times, countless community groups and their volunteers have adopted an interest in bringing health back to their neighborhood river. Prime examples are in St. John's, Newfoundland where children can gaze through an aquarium window into the aquatic realm of Rennie's River and its reclamation through community action; or in Toronto, Ontario, where classrooms take part in re-creating a marsh in the floodplain of the Don River. The notion that people can contribute to the rehabilitation of our waterways continues to grow; the strongest area of growth is with our youngest generations.

This manual has been produced for the benefit of people who value the rivers and streams of Ontario. We hope that everyone who reads this manual will be able to understand how streams work and recognize when they need to be rehabilitated. It is meant to complement our understanding of how rivers and streams arrived at their existing state, why we need to help those that are unhealthy and to recognize who has been before us, with hopes of learning from their experiences. This manual also emphasizes the changes in our relationship with public agencies and the need to seek cooperative partnerships with them. By providing sound project planning principles, up-to-date rehabilitation techniques, and a catalogue of demonstration projects, the purpose of this manual is to encourage classrooms, community groups, government and non-government agencies to work together in:

- determining the health of their local stream,
- adopting it,
- applying protection and rehabilitation techniques with the understanding that they are insuring its health for the enjoyment of future generations.

The first stream rehabilitation manual for Ontario was produced in 1984 by the Ministry of Natural Resources for the Community Fisheries Involvement Program. It focused on trout and their habitats with rehabilitation techniques that created overhead cover, spawning habitat and improved water quality. Since 1984, the watershed perspective, environmentally conscious land-use planning and new information on streams and their management has come to light. Rehabilitation projects now start with an understanding of the watershed where we first consider surface water runoff and groundwater infiltration from adjacent tablelands as being the primary influences on the water quality and quantity in our streams. Watershed management plans, subwatershed plans, official plans, secondary plans and plans of subdivision are designed with the intent to protect the watershed by limiting development and mitigating impacts through innovative stormwater management practices. Rather than

traditional hard engineering or in some cases the trial and error approach, we have learned that watercourses have a variety of physical characteristics which, if properly assessed, can tell us what types of protection, mitigation and rehabilitation techniques will work. It has been only in the last decade that we see protection of stream corridors, bioengineering and natural channel design principles being applied.

In this manual, the recommended rehabilitation process first considers the physical tendencies of rivers and streams in the context of watershed management and natural channel processes. Simple project management skills are introduced that allow the reader to flow into assessing and evaluating the physical, biological, and social characteristics of the adopted stream or river. Once these project fundamentals are in place, we can develop a plan from a basic understanding of the causes of the stream problems. Implementation of this plan relies heavily on the personal commitment and enthusiasm of volunteers as well as the confidence and support of the project partners.

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