

Executive Summary

Bowmanville/Soper Creek Watershed Aquatic Resource Management Plan

Through an analysis of past and present fish communities, biological water quality and the physical conditions of the watershed affecting these aquatic resources, an understanding of their present health and sensitivity has been gained.

Overall the Bowmanville/Soper Creek is in excellent health. The water quality is unimpaired, the temperatures range from coldwater to coolwater throughout much of its length, and healthy, functioning aquatic communities are present.

The priority for this watershed is therefore the maintenance of this healthy system.

This can be achieved through co-operative approaches of public and private interests directed at the protection of this system through policy and planning and land acquisition. This includes:

- ◆ The application of the habitat classification of "Type 1" (critical habitats) for the entire system. This implies that the highest standards for stormwater management will be applied.
- ◆ Ensuring that the natural hydrological characteristics and particularly groundwater functions are maintained to protect baseflow that serves to cool water temperatures (Oak Ridges Moraine, the Outwash Plain and the Iroquois Beach)
- ◆ Preserving vegetated riparian corridors to regulate thermal impacts (minimum 30 m width on both banks)
- ◆ Preserving and enhancing existing wetlands within the watershed
- ◆ Minimizing sediment input
- ◆ Considering predicted stresses on the aquatic system of climate change, specifically to coldwater inputs and baseflow
- ◆ Participating in any review of proposals regarding the environmental assessment and design of proposed future extensions of Highway #407 within the watershed.
- ◆ The regulation and monitoring of watertakings be undertaken on a watershed level to ensure that impacts to the system can be minimized.
- ◆ Ensure design of new creek crossings include consideration of sediment transport
- ◆ The use of bioengineering as an alternative to hard armouring be encouraged for the purposes of bank stabilization and erosion control
- ◆ The construction of on-line ponds continue to be discouraged
- ◆ That bottom draw outlets continue to be encouraged for all ponds
- ◆ That off-line pond applications continue to be reviewed to address the implications to fish and fish habitat including groundwater interference and thermal warming
- ◆ All proponents be encouraged to use consistent data collection protocols (BioMAP, Ontario Stream Assessment Protocol) to ensure compatibility of results.

Further, there are issues that have been identified that are presently preventing the system from achieving its optimal potential. This includes impacts from such things as the loss of riparian cover, alteration to sediment transport, loss of forests and wetlands within the watershed, and impacts from past development and present land care practices.

These impacts can be reduced through a combination of restorative projects, and ongoing stewardship initiatives within the watershed such as:

- ◆ Creation/enhancement of wetland areas
- ◆ Planting of riparian areas
- ◆ Watershed reforestation
- ◆ Proper maintenance of septic systems, tile drains and sewer systems
- ◆ Livestock fencing
- ◆ Bioengineering
- ◆ Dam maintenance or removal
- ◆ Installation or retrofitting of bottom draw outlet structures for existing on and off-line ponds
- ◆ Retrofitting of existing development areas with stormwater management
- ◆ In-stream fish habitat improvements
- ◆ Education and Information
- ◆ Promotion of various stewardship publications
- ◆ Promotion of funding opportunities
- ◆ Communications with stakeholders

The fish communities of the watershed have also been analyzed and conclusions and issues regarding future management include:

- ◆ Atlantic salmon reintroduction
- ◆ Installation of sea lamprey barriers in the vicinity of Baseline Road
- ◆ Maintenance of isolated brook trout populations
- ◆ Promotion of current and proposed fishing regulations
- ◆ The maintenance of effective fishways
- ◆ Barrier removal
- ◆ Recognition of seasonal sensitivity of Bowmanville Marsh

Finally, recommendations for future research and ongoing monitoring are provided. Further information is required regarding:

- ◆ An inventory and assessment of the fishery above the Enfield Dam
- ◆ A more detailed inventory and assessment of the fishery within the Soper "D" (North) Branch
- ◆ Fish passage through the Goodyear Dam fish ladder
- ◆ An updated inventory of point and non-point sources of contaminants affecting water quality
- ◆ Genetic typing of brook trout populations above the Tyrone Dam and Woodley Dam
- ◆ The impact on the fishery of the possible removal of the Durham Weir
- ◆ Thermal studies within tributaries not explored during the ARMP field study and in relation to recharge/discharge areas
- ◆ The impacts of constructed barriers on aquatic habitat
- ◆ the presence and spawning success of rainbow trout on the Soper "A" (East) Branch
- ◆ The theory of juvenile rainbow trout as a forage fish within the watershed
- ◆ the status of the pike, longnose gar, pink salmon and tiger trout within the watershed
- ◆ The correlation of Eastern White Cedar forests to benthic macroinvertebrate communities and biological water quality
- ◆ Potential natural gradient barriers
- ◆ Spring and summer assessments of Bowmanville Marsh

While the results of this study will be of immediate benefit, the recommendations call for action to be taken over a period of time. In this regard, an Implementation Strategy will be developed. This strategy will outline a plan for actioning the recommendations of this project including such things as policies for implementation in the Official Plans of the Region of Durham and the Municipality of Clarington and CLOCA development review process, research priorities and opportunities, stewardship opportunities and fisheries management considerations.