HAMILTON HARBOUR BARRIER MITIGATION PROJECT

PROJECT GOAL

The Hamilton Harbour watershed covers an area of approximately 500 km^{2}at the western edge of Lake Ontario. The watershed can be divided into four subwatersheds which drain into Hamilton Harbour and include: Spencer Creek, Grindstone Creek, North Shore, and Redhill Creek. Hamilton Harbour supports diverse fish communities and offers unique aquatic habitats to both migratory and resident fish species.

The Hamilton Harbour Watershed Barrier Assessment initiative was undertaken by the Ontario Ministry of Natural Resources and Forestry and Ontario Streams in 2006. Available barrier data was compiled from various sources to produce a list of all documented barriers (originally consisting of 140). The data was confirmed by site visits and the results were compiled for each subwatershed.

By 2008, 369 natural and human-made barriers within the Hamilton Harbour Watershed had been identified and assessed. The results of the study were presented at the 2009 Hamilton Harbour Watershed Monitoring and Research Workshop.

Once priority barriers within the watershed were recognized, Ontario Streams and our partners identified Spencer Creek as a priority for mitigation. This stream contained 9 barriers that were blocking the upstream passage of non-jumping fish species between Cootes Paradise and the Niagara Escarpment.

THE NEED

- Natural in-stream barriers are important in shaping fish communities in the watershed. Natural barriers can be beneficial to aquatic ecosystems by providing increased cover, encouraging habitat diversity, and promoting the formation of pool habitats.
- Unnatural in-stream barriers such as concrete dams, culverts, and hardened channels physically impede fish migration, while reservoirs and online ponds can act as thermal barriers to certain fish communities by altering downstream temperatures.

- Historically, greater than 96 fish species were found in Hamilton Harbour. Currently, 84 fish species are present, and only 71 of which are native to the region.
- The 2009 Hamilton Harbour Fisheries Management Plan (HHFMP) highlights the importance of protecting native populations, and emphasizes the need to improve access for migratory species into suitable spawning and nursery habitats. Mitigating barriers to reconnect fragmented populations is a key strategy of the Fisheries Management Plan.
- The 1997 Spencer Creek Watershed Plan also recommends the removal of barriers to fish passage to improve aquatic health.
- The Hamilton Harbour RAP has made several recommendations for delisting the Hamilton Harbour Area of Concern (AOC) by 2015. One of the key recommendations is the enhancement of fish and wildlife habitat, as well as restoring access for fish and wildlife in the area's tributaries.
- Without the in-stream barriers on Spencer Creek, fish would be allowed to move freely throughout the system, promoting natural recolonization in the upstream 7 km of Spencer Creek and Spring Creek (below the Escarpment).

ACCOMPLISHMENTS

Since 2006, the Hamilton Harbour Barrier Mitigation project has accomplished the following:

Concrete Lined Channel and Barrier

- An assessment and project report were finalized in 2009 on the barriers in the Hamilton Harbour watershed including recommendations for future priority barrier mitigation sites.
- A database was compiled consisting of all the barriers identified and assessed in the Hamilton Harbour watershed with measurements, site attributes, and photos.
- Digital maps were created identifying the location of each barrier by barrier type within each subwatershed.
- A CD was created with the project report, database, maps, and photos and was distributed to stakeholders working in the Hamilton Harbour watershed.
- The project was presented at the 2009 Hamilton Harbour Watershed Monitoring and Research Workshop.
- The first barrier on Spencer Creek at Osler Drive was mitigated through the notching of a concrete weir and completion of a rocky ramp structure.
- A study was started to develop mitigation options for the additional 8 barrier sites on Spencer Creek located upstream from the low-head weir at Osler Drive.

Barrier on Spencer Creek Before Mitigation

Barrier on Spencer Creek After Removal

PARTNERS

This project has been sponsored through funding provided by the Canada-Ontario Agreement and supported by MNRF – Aurora District, MNRF – Guelph District, Hamilton-Wentworth Stewardship Council, Hamilton Conservation Authority, and Conservation Halton.

Additional partners include Royal Botanical Gardens, Hamilton Harbour Remedial Action Plan, Environment and Climate Change Canada, Fisheries and Oceans Canada, Hamilton-Halton Watershed Stewardship Program, City of Hamilton, and Trout Unlimited.