



Fish Habitat Enhancement TOOLKIT GUIDE

Prepared by Lanark County Stewardship
Council & Watersheds Canada

Fish Habitat Enhancement Toolkit: Fish Habitat Project Guide

Healthy fish populations depend on many factors, including food availability and structural habitat. These factors are often largely impacted by human activities. Alterations and development along shorelines can damage fish habitat and reduce fish populations. There are many things that people can do to enhance and restore these habitats and improve their local fisheries.

This Fish Habitat Project Guide introduces different types of enhancement projects and provides additional resources in order to complete them. Once you have identified your objectives and type of project you are interested in, you can then refer to the Fish Habitat Enhancement Protocols created by the Lanark County Stewardship Council and Watersheds Canada. These will go into further detail and lay out the steps needed to complete a successful fish habitat enhancement project.

Steps to Plan Your Project

- Gather available information on your local fishery from landowners, government and other agencies to determine if your waterbody might benefit from rehabilitation.
- Consult key stakeholders (Ministry of Natural Resources & Forestry, Conservation Authorities, Fisheries and Oceans Canada, Watersheds Canada, Stewardship Councils, Fish & Game Clubs, Lake Associations, Indigenous groups, local residents) and obtain permission from landowners.
- Determine your objectives (species requirements).
- Choose your project site.
- Plan your project (materials & equipment).
- Obtain official permits (Conservation Authority, Ministry of Natural Resources & Forestry, Parks Canada, Fisheries & Oceans Canada).
- Fund your project (budget, locate/apply for funding).
- Communicate your project plan (press releases, social media).

Fish Habitat Enhancement Projects

Addition of Woody Debris In-Water Structures – Brush Bundles

Underwater structures give fish a place to rest, hide, feed and spawn. Sunken logs, trees, and branches, provide excellent habitat for wildlife, including fish, turtles, birds, and invertebrates. Beaver activity, wind, erosion, or water inflows from rivers or creeks naturally deposit such woody debris into a lake.

Human activity and development have significantly reduced the amount of natural woody debris in lakes. Communities can improve this important habitat by simply creating and anchoring brush bundles in strategic areas. Adding these structures to water bodies can be a simple and effective way to enhance fish habitat. Contact your local authority to determine if this project is beneficial to your lake.

Refer to the In-Water Structure – Brush Bundle Protocols and video for more information at watersheds.ca.



Walleye Spawning Bed Restoration & Enhancement

Walleye spawn in the spring for one to two weeks, depending on water temperatures, and return to the same spawning site each year. Walleye spawn in both river rapids and on lake shoals, and their choice of spawning habitat may be genetically determined. Therefore, enhancing existing spawning beds is encouraged.

Walleye are not very strong swimmers: they don't negotiate fish ladders, and don't pass through culverts or narrows where stream velocities exceed three feet per second. In fast water, they swim in bursts, and hide and rest behind larger stones or boulders.

Walleye require cobble-rubble in fast-flowing streams or wind-exposed shoals of lakes. Adding washed river stone (diameters of 10-30cm) will enhance the spawning beds. This can take place in late summer and fall using barges or during late winter during safe ice conditions. Stone can be placed on ice and will fall into place during spring melt on lakes with low current.

In addition to enhancing or enlarging spawning beds, you can improve habitat by cleaning silt, debris and algae away from existing sites. Hoses with high-pressure pumps are effective in cleaning spawning shoals for walleye, but require permission and guidance from local authorities.

Permits are required for any spawning bed restoration project and must also meet the management plans of local authorities.

Refer to Walleye Spawning Bed Enhancement Protocols and video for more information at watersheds.ca.



Cold-Water Creek Enhancement

Cold-water streams and creeks provide optimal habitat for species such as brook trout but are in rapid decline often due to changes in land use. Helping to protect and enhance these headwater, spring-fed creeks will aid in improving brook trout populations, as well as, other cold-water fish species who rely on this habitat for survival.

Project Objectives:

- To increase and naturalize shoreline riparian zones, plant large native tree species that will provide overhanging shade and soil stabilization. Their deep root systems will help prevent erosion and increased silting of creek beds, and overhanging branches will help keep water temperatures cooler.
- Placing coconut fiber mats and paper around the base of the trees, will help reduce competition with grasses.
- Caging and staking planted trees will decrease predation from deer and beaver browse; adjust the height of the cages as needed. Note: remove cages once the tree is established (2-5 years).
- Clear obstructions from the waterbody to increase flow while still allowing for shelter and resting habitat.
- Permits may be required for cold-water creek restoration projects and must also meet the management plans of local authorities.

Refer to Cold-Water Creek Enhancement Protocols and video for more information watersheds.ca.



Naturalizing Shorelines

Erosion from unstable shorelines can release silt and nutrients in the water, choking nearby aquatic habitats. Preventing and controlling shoreline erosion can help improve water quality and fish habitat.

Some strategies include:

- Install fencing or cattle guards to keep livestock away from shorelines.
- Plant native trees and shrubs along the shoreline (creating a riparian zone of 10-15 meters). The roots will hold soil and stabilize the shoreline while the vegetation will provide shade and food production areas. To see what native trees and shrubs can be used for shoreline restoration projects in your area, and to learn more about the Natural Edge Program, please visit: naturaledge.watersheds.ca.

For additional information on Fish Habitat Projects, please refer to Watersheds Canada's Fish Habitat Enhancement Toolkit. This resource was created specifically for lake associations, fish & game clubs, and local residents who want to get involved, and includes:

- Easy to follow written guidelines for planning and implementing different types of fish habitat enhancement projects: walleye spawning bed enhancements, brush bundles (adding woody debris - in-water structures), and cold-water creek enhancements; and
- Individual videos demonstrating each type of fish habitat enhancement projects.



Acknowledgements

Partners:

Thank you to the many partners who contributed to this project:

- Lanark County Stewardship Council
- Lanark and District Fish & Game Conservation Club
- Mississippi Valley Conservation Authority
- Ministry of Natural Resources and Forestry
- Watersheds Canada

Additional Contributors:

- Cabela's Canada Outdoor Fund
- Ferguson Tree Nursery
- Joff Côté, Ministry of Natural Resources and Forestry – Kemptville District
- Kelly Stiles, Mississippi Valley Conservation Authority
- Lanark Highlands Township
- Ontario Federation of Anglers and Hunters – Zone F
- Pinegrove Productions

Funding:

This project was undertaken with the generous financial support of the Ontario Trillium Foundation and LUSH Canada Charity Pot.



Ontario Trillium Foundation



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