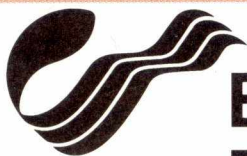


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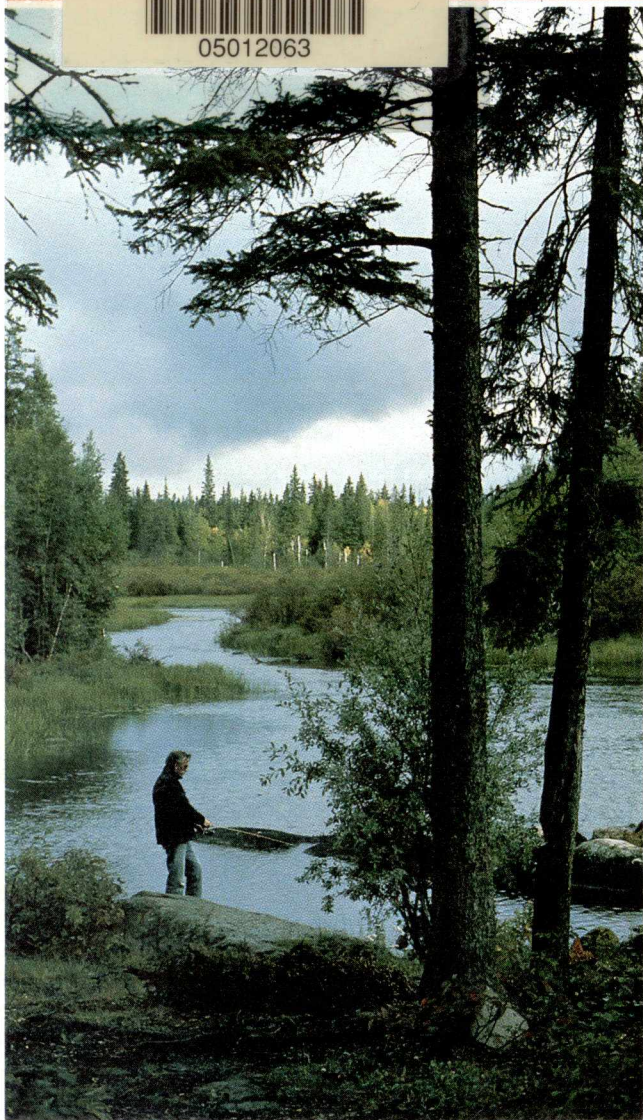
Enhancing Fish Habitat in the Prairie Provinces

Getting Involved

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Why Habitat Enhancement?

Fish habitat – living space for fish – has declined in most areas since the breaking of the prairies in the last century. Many land-use activities have damaged or destroyed habitat by blanketing spawning sites with silt and clay, polluting water with chemicals and wastes, or blocking fish movements.

Habitat enhancement seeks to reverse the trend by opening up new habitat or repairing and improving what we already have. It takes many forms, from installing shoreline fencing and building instream cover, to creating fish ponds and aerating lakes for over-wintering fish.

Enhancement applies to lakes and streams, rivers and ponds, even hay meadows and sloughs – any place that offers the basic elements of food, shelter, and water that fish need at some time during their life cycle.

With the realization that government can't do it all, groups and individuals across Canada are lending a hand with their own community fisheries projects. Their efforts are supported by provincial and federal programs that provide funding and technical expertise.



These volunteers constructed a rock weir to enhance flows for downstream walleye spawning habitat. Building community spirit and increasing public awareness of the importance of fish habitat are among the intangible benefits of habitat enhancement projects.

Success Stories From the Prairies

Alberta

Allison Creek Trout Enhancement

Allison Creek is a small, fast-flowing stream that enters the Crowsnest River near the Town of Coleman. Its lower reaches are thought to have supported a good population of bull trout before channel alterations, bank instability, and a series of low-flow years combined to reduce the quality of fish habitat in the creek.

In the fall of 1986, Trout Unlimited volunteers working along a 2-kilometre stretch of the creek above Highway 3 installed a log V and two rock ledges to create riffles and pools. They placed logs along the shore to provide bank stability, cover, and shading.

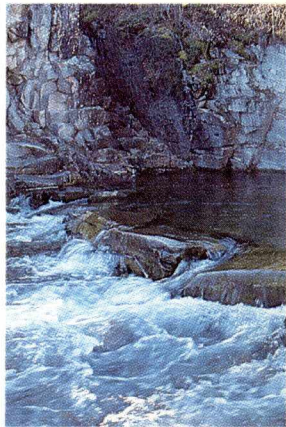
Aside from improving fish habitat, the project showed volunteers a range of habitat enhancement techniques and the varying conditions under which they can be applied.



Flat Creek Waterfalls Fish Passage

Two waterfalls on Flat Creek were preventing Bow River brook trout from migrating to a 3-kilometre stretch of good spawning habitat above the falls. Volunteers built and installed a rock sill in the plunge pools below each waterfall to raise water levels up to 1 metre, giving trout a higher jumping-off point for leaping into the falls.

For four days in August 1986, volunteers from Trout Unlimited selected boulders to build the sills, positioned them in the falls with the help of a crane, and placed rocks around them to maintain water levels and prevent scour underneath.



They returned a week later to secure the sills by stringing galvanized cable through eyebolts in the boulders and anchoring the cable ends to bolts set into bedrock on the streambanks. Brook trout now run freely up Flat Creek to spawn, increasing local populations and improving fishing!

Here are some representative examples of habitat enhancement projects on the prairies to give an overview of efforts and encourage individuals, clubs, and private organizations to get involved.

Saskatchewan

Hay Meadow Creek Stream Improvements

Studies of Hay Meadow Creek in south-central Saskatchewan showed that the creek could be improved to support trout even though there is no trout fishing in the surrounding area. The project, conducted in 1990, proved to be a showcase for several trout habitat enhancement techniques.

Volunteers from the Rockglen Wildlife Federation helped install check dams and enlarge and deepen ponds to provide over-wintering habitat for trout. They fenced a 1-kilometre stretch of the creek to keep livestock from trampling banks and adding silt to the water. They planted alder, willow, and dogwood to provide stream cover, and built small log weirs to create waterfalls and plunge pools. They also helped stock the creek with brook trout fingerlings to establish the fishery.



The creek now attracts so many anglers that special harvest limits will need to be imposed!

Van Patten's Creek Rearing Pond

In 1984, fisheries staff and volunteers from the Kuroki Wildlife Federation equipped a marsh on Van Patten's Creek with a dam and control structure. The dam keeps water levels high, improving spawning habitat and creating a rearing pond for pike. When the pike fry grow to the fingerling stage, they are collected and transported to the lake.



Before the marsh was improved, pike could reach it in spring to spawn, but by early summer water levels had dropped to such an extent that fingerlings could not get back to Fishing Lake.

The creek has produced an average of nearly 70 000 pike fry over the past seven years. Since Fishing Lake requires only about 40 000 fry each season, the surplus fingerlings are used to stock other nearby lakes.

Manitoba

Hamilton Creek Improved Flow Control

Hamilton Creek in southeastern Manitoba was the site of an earlier project for walleye spawning enhancement in 1985. Follow-up monitoring showed that the creek could be even more productive if flows were augmented in dry years from the creek's headwaters in Edgar Lake.

In 1990, a high-school graduation committee and members of the SnoMan Association, a snowmobile club, loaded sleds with rock and towed them to the enhancement site. They used the rock to build a fixed-crest weir, with control gate, at the outlet of Edgar Lake. The weir stores water for later release to the creek when water levels are low. The additional water will provide spawning habitat in years that might not otherwise have been productive.



North Pine River Stream Meanders

North Pine River is one of a handful of sites in Manitoba where stocked rainbow trout have taken hold. Local anglers have enjoyed good rainbow trout fishing in the river for years, but wondered if there was still room for habitat improvements.

Acting on an enhancement request from the Swan Valley Sportfishing Enhancement group, Manitoba Fisheries asked local anglers to record habitat conditions where they were catching rainbows. The feedback helped in the design of stream improvements.

Late in 1990, meanders were constructed in straight, fast-flowing reaches of the river to create habitat. Volunteers built riffles with rock, and used logs to form instream cover, shade, and rest areas. They replanted banks with erosion-resistant grasses as well as spruce and balsam fir.

These measures appear to be working. Several anglers at the new sites have reported catching trout, one of them weighing nearly 2 kilograms!





The Dominion City dam on the Roseau River, site of an upcoming habitat enhancement project designed to restore fish passage and improve walleye spawning habitat.

Project Phases

Fish habitat enhancement projects usually follow a series of phases, from identifying the problem to monitoring the solution. Here's how the phases look for a current project to give some idea of a typical sequence of events.

Problem. Members of the Southeast Border Wildlife Association and Franklin and District Wildlife Association were concerned that the Dominion City dam on the Roseau River was keeping fish from reaching good upstream habitat.

Proposal. The associations submitted a funding proposal to Manitoba Natural Resources and the Environmental Partners Fund to build a series of rock weirs below the dam. The weirs would form a series of "steps" up to the dam, making it possible for fish to swim past Dominion City once again.

Review. Manitoba Fisheries reviewed the proposal in light of funding criteria and technical and economic feasibility. It conducted a reconnaissance survey and used the results to refine the associations' design so that the rock weirs would also serve as good walleye spawning habitat. Specifications for materials, erosion protection, and sediment control were added to the original proposal.

Construction. The weirs will be built in the fall when water levels are low and fish generally suffer the least disturbance. Local field stone will be used where possible – a low-cost source of stone that most farmers are happy to offer. Volunteers have met with fisheries staff to coordinate effort, equipment, and scheduling. A biologist will be on site to lend a hand and offer guidance for minimizing the impact on fish habitat of sediment released during construction.

Evaluation. In the spring of 1993, volunteers plan to evaluate their efforts by monitoring the number of fish that make it over the dam during peak spawning migrations. Their work will be complemented by fisheries staff who will collect and count walleye eggs in the riffles created by the rock weirs.



Volunteers helping install a bridge as part of a trout enhancement project in a prairie stream. People from local associations and groups do a great job of expanding and developing enhancement programs that cannot always be handled by provincial fisheries staff alone.

You Can Make a Difference

On the prairies, volunteers have added or enhanced thousands of hectares of fish habitat. They have planted buffer strips of trees and shrubs along streambanks to help anchor soils, shade the water, and harbour insect life that fish eat. They have installed log cribbing and shoreline deflectors to protect banks from erosion and keep soil and sediment out of streams. They have placed boulders and built rock ledges in streams and lakes to provide smaller fish with shelter for resting and feeding. They have built weirs to create habitat, to help fish jump dams, and to enhance flows for downstream spawning areas.

Consider joining volunteers in these and other projects to enhance and protect fish habitat in your area. If the hands-on approach doesn't appeal to you, you might be interested in participating in public reviews of developments that affect fish habitat. Either way you'll be helping protect or restore fish habitat and safeguarding the environment.

This is one of a series of brochures designed to foster understanding and awareness of the importance of fish habitat in the prairie provinces. Other brochures in the series are:

Fish Habitat in the Prairie Provinces

What It Is, Why It's Important, How to Help

Living Near Water

Guide to Protecting Fish Habitat in the Prairie Provinces

Troubled Waters

Threats to Fish Habitat in the Prairie Provinces

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