

Fish habitat: more than meets the eye

GREATER UNDERSTANDING LEADING TO BETTER PRESERVATION



Photos - L. to r.: Freshwater activity (Fisheries and Oceans Canada, Gylaine Morrier); Yellow perch (Engbretson Underwater Photo); Redfish (Richard Larocque). Background: Marsh (Ducks Unlimited, Claudie Lessard).

No habitat, no fish!



Ministère des Ressources naturelles et de la Faune

Brook trout on a spawning ground

Fish, like all other animals, must have access to a habitat where they can feed, find shelter and reproduce. Each species has its own specific habitat requirements. In Quebec, streams, rivers, lakes, wetlands, estuaries, coastal waters and the St. Lawrence River offer a wide variety of fish habitat. In fact, from an ecological point of view, any environment where there is water, whether permanent or intermittent, is likely to provide a habitat for fish... as long, obviously, as this water is of suitable quality and quantity!

Adequate food sources

The growth and health of fish notably rely upon the quality and quantity of the food sources available in their habitat. Depending on the species, fish may feed on algae, microscopic animals, insects, worms, crustaceans, smaller fishes, amphibians, etc.

In a cool spot, sheltered from danger

Fish shelters offer protection from predators and allow fish to rest and enjoy cooler waters. Pools, riparian or aquatic plants, fallen branches and rocks can all provide shelter. Fish also use shelters where they lie in wait to ambush their prey.

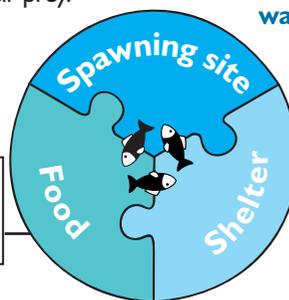
Spawning sites for the perpetuation of the species

A spawning site, where fish lay their eggs, is usually a substrate of sand or gravel, or even an area of vegetation. These same sites are often used by young fish in early stages of growth. Depending on the species and the spawning period, these sites might be used most of the year. For example, brook trout eggs are laid during the fall and only hatch the following spring. Any work carried out in an aquatic environment during this period can therefore have negative impacts on breeding success.

A sufficient quantity and quality of water

The various species of fish have specific habitat requirements, notably with regard to water quality, temperature and depth.

Fish must be able to move freely between the various sites within their habitat.



EVEN DRY LAND CAN BE FISH HABITAT

In springtime, water temporarily floods the upper portion of the littoral zone, which is also called the flood plain (Figure 1). This area is very important for a number of fish species, like northern pike: it is notably used for reproduction, growth, feeding and as shelter as well. Shores, less frequently flooded than the flood plain, can also be used by fish.

In an environment exposed to tides (Figure 2), the area located between the highest and the lowest tides forms the intertidal zone. Like the flood plain, the area, though exposed at low tide, is part of the fish habitat. It hosts mussels, soft shell clams, worms, and a vast number of other small organisms which will be a treat to fish when the area is again flooded.

Intermittent streams and ditches can also constitute a habitat for fish. For example, streams that dry up over the summer may contain enough water during the spring to allow several species of fish to feed or reproduce.



Fisheries and Oceans Canada, François Villeneuve

Flood plain

Spring water level (ordinary high water mark)

Summer water level

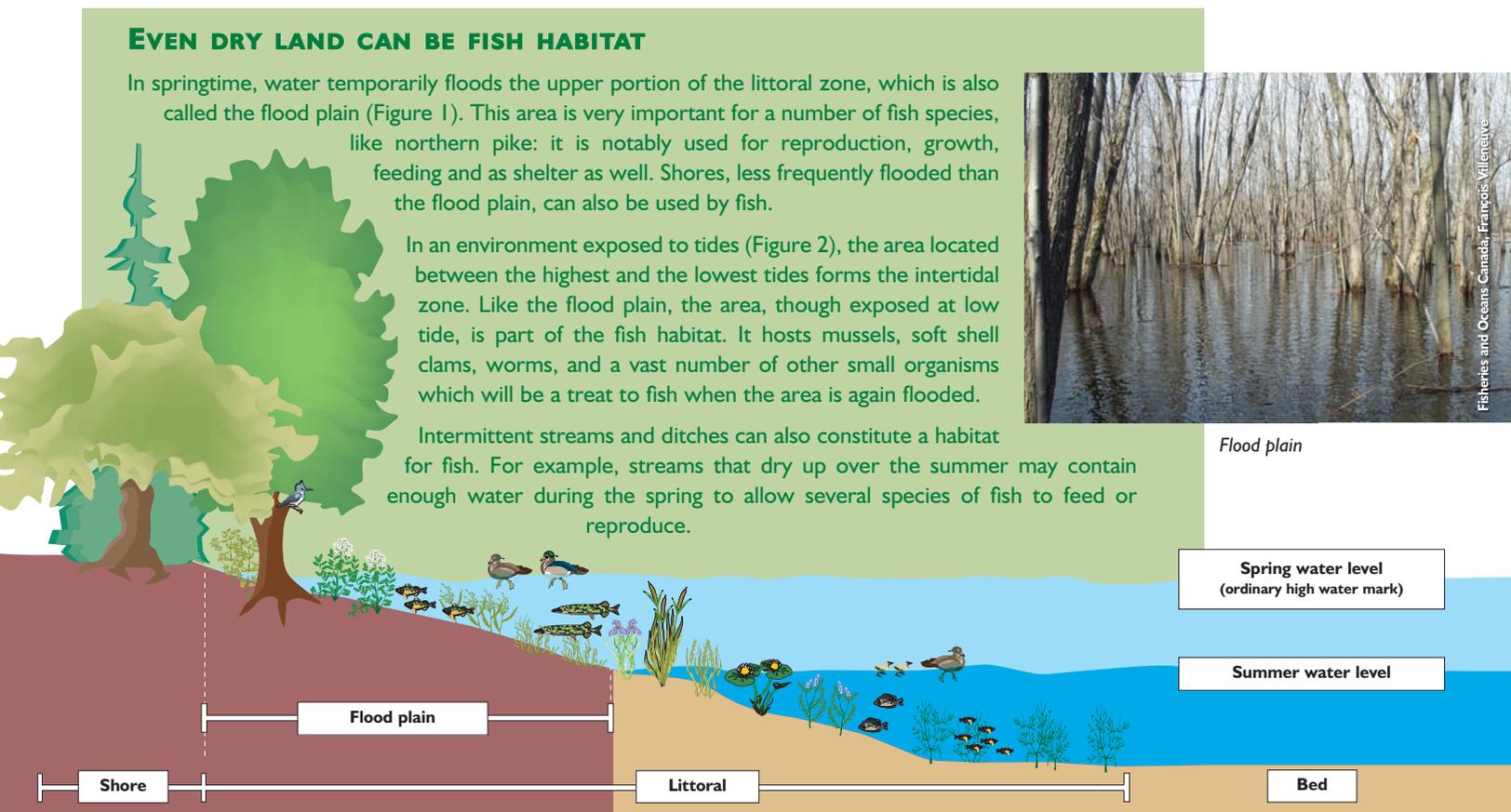


Figure 1: Freshwater fish habitat

Habitats in good condition, thanks to well-planned action!



Works carried out in or near the water may have significant impacts on fish habitat. Did you know that proper planning, adequate working methods and compliance with legislative requirements can help minimize these impacts? Remember, even minor work can cause serious damages to fish habitat. For example, in a lake, the accidental destruction of a spawning area can have a major impact on fishing activities, especially if there is no other spawning ground.

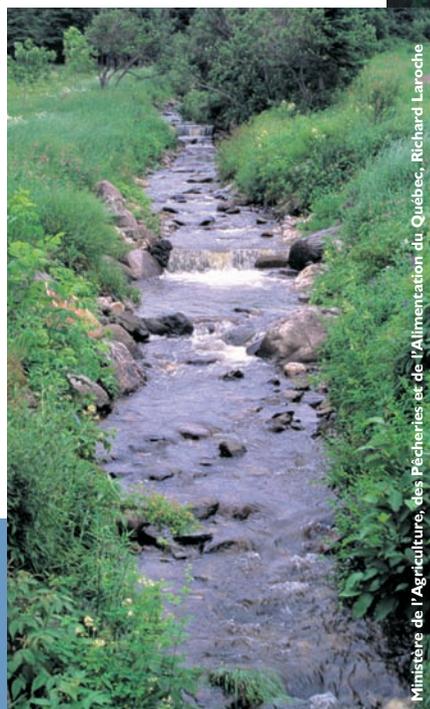
You're exploiting a woodlot?

- Use appropriate techniques to install culverts, *to allow for the free passage of fish.*
- Prevent oil or fuel spills in water bodies, and have a response kit for hydrocarbon spills available, *to avoid water pollution.*
- Maintain a forested buffer strip along the shores of water bodies, *to keep water cooler and prevent bank erosion.*
- Keep the bed of the water body intact, *to prevent stirring up fine sediment particles into the watercourse and spawning areas destruction.*
- Use good forestry practices such as small cutblocks or partial-cut harvesting, *to minimize the modification of flow on water runoff, the impact on water flow and fine particles transport in the water.*



Fisheries and Oceans Canada, Marc Fleury

Properly installed culvert



Ministère de l'Agriculture, des Pêcheries et de l'Alimentation du Québec, Richard Laroché

Natural banks

Deforested banks



Ministère des Ressources naturelles et de la Faune

Incorrectly installed culvert

FINE SEDIMENT PARTICLES IN SUSPENSION = PROBLEMS FOR FISH

Whether it is due to natural bank erosion or work carried out near or in the water, fine sediment particles transported in water may disturb fish and fish habitat. They may settle in spawning grounds and suffocate the eggs or even render spawning grounds unsuitable for breeding; they irritate the gills of fish and reduce water transparency, thereby hampering fish movement. Fine particles may also have fatal impacts on organisms that are food for fish.



Comité de bassin de la rivière Fouquette

Good agricultural practice – bank with shrubs



Ministère de l'Agriculture, des Pêcheries et de l'Alimentation du Québec, Richard Laroche

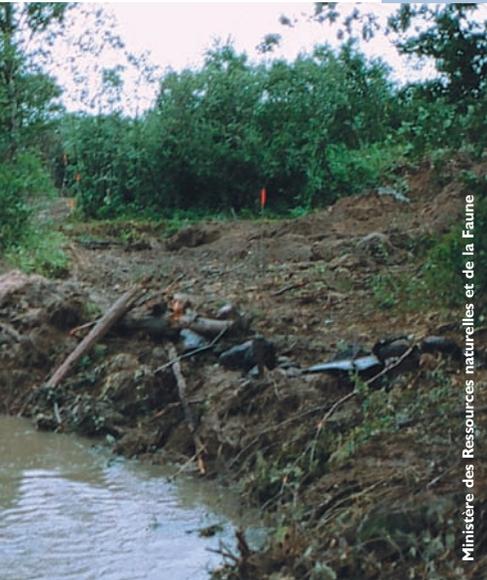
Poor agricultural practice – exposed bank

You live on, or often visit, the shores of the St. Lawrence River, a stream, a lake or a marsh?

- Don't do any landfilling: don't dump earth, sand or any other kind of material in the marine littoral, streams, lakes or marshes; conserve a natural buffer strip of riparian vegetation; stabilize eroded banks by favouring the use of plants, *to preserve fish habitat.*
- Don't build any dams in streams, *to maintain free movement of the fish and access to critical habitats.*
- Maintain your septic tank in proper condition, *to prevent the release of substances, such as phosphorus, which contribute to excessive aquatic plant and cyanobacteria (blue-green algae) growth. The decomposition of plants depletes the amount of oxygen available to fish, while also causing unpleasant odours.*

You're exploiting a farm?

- Avoid digging in streams or modifying their meanders, *to prevent an increase of flow velocity and bank erosion.*
- Conserve or plant a buffer strip of vegetation along the shores of lakes and streams, *to reduce erosion and the subsequent loss of crop land, to maintain cooler water temperatures and retain pesticides, fertilizers and soil particles.*
- Save topsoil in the fields through soil conservation practices, *to prevent it entering water bodies and smothering critical habitat.*
- Avoid spreading manure, fertilizers and pesticides near water bodies, *to reduce water pollution.*



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- Reduce your speed when boating and restrict boating activities generating strong waves near the shore, *to reduce the risk of erosion.*
- In a motor vehicle, stay clear of banks, water bodies and wetlands, *to avoid destroying vegetation, causing the suspension of soil particles and creating ruts altering the natural flow of water.*
- Install a dock or a boathouse that is floating or built on piles, *to avoid altering water currents, obstructing fish movement or destroying aquatic plants.*
- Use public boat launch ramps, *to preserve fish habitat.*

AVAILABLE TOOLS

You're planning to build a bridge or a culvert? Or to stabilize eroded banks in front of your property? Or to clean up a stream? A series of factsheets and documents are available with the ministère des Ressources naturelles et de la Faune (www.mrnf.gouv.qc.ca/faune/habitats-fauniques/index.jsp; in French) and Fisheries and Oceans Canada (www.dfo-mpo.gc.ca/habitat/habitat-eng.htm) and provide information on these activities.



Ministère des Ressources naturelles et de la Faune, Julie Royer

Preserved natural bank



Rappel – Estrie

Altered bank

YOU WANT TO DO MORE? IT'S POSSIBLE!

There are some financial assistance programs for fish habitat restoration projects. Visit the Fondation de la faune du Québec Website, under "Wildlife initiatives - Assistance programs" to check whether your project is eligible to one of these programs.

Highly valuable habitat... not only for fish!

Shores and littoral zones of water bodies are used by several animal and plant species, and so constitute critical environments for maintaining biodiversity. Did you know that these environments also contribute to the richness and quality of our social, economic and recreational well-being?

Environments that attract many visitors

Shallow waters contain habitat providing shelter, feeding and breeding sites for numerous species other than fish, including birds, frogs, turtles and snakes. Several mammals such as muskrat, mink and moose also use this vital environment.

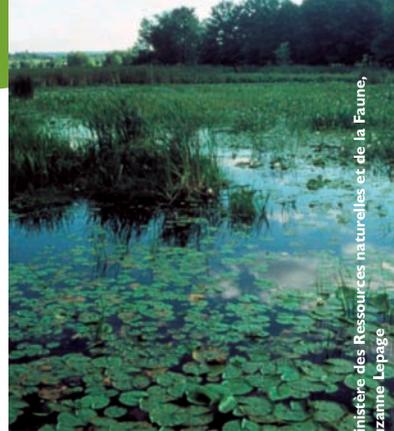
Essential environments for the health of our lakes and streams

Riparian and aquatic vegetation stabilizes the soil, prevents erosion and helps regulate water flow. This is particularly important as climate change may increase the frequency of exceptional flooding. Moreover, the riparian strip contributes to maintain good water quality, essential to aquatic life and recreational aquatic activities such as swimming and canoeing.

A more pleasant living environment... beneficial in many ways

Healthy riparian and aquatic environments contribute to the aesthetic beauty of our landscape and improve our quality of life. These environments can be developed for nature observation, hunting, trapping and fishing. Such activities offer sustainable

Fresh water wetland



Ministère des Ressources naturelles et de la Faune, Suzanne Lepage



Salt water wetland

Fisheries and Oceans Canada, Guy Michaud



Ministère des Ressources naturelles et de la Faune

River



Fisheries and Oceans Canada, Claude Tremblay

Fishing: a family activity

economic development potential in every region of Quebec.

Recreational fishing, a family activity!

What better than to cast a line out on the water, hoping to catch a fish! In 2005, over 650,000 Quebecers enjoyed recreational fishing. This activity generated economic spin-off of 1.7 billion dollars. Over 8,000 jobs in Quebec depend on recreational fishing.

Commercial fisheries in Quebec

Over fifty species of fish, shellfish and crustaceans are commercially harvested in Quebec waters. In 2007, the landed value reached 144.8 million dollars for marine species and 1.6 million for freshwater species.

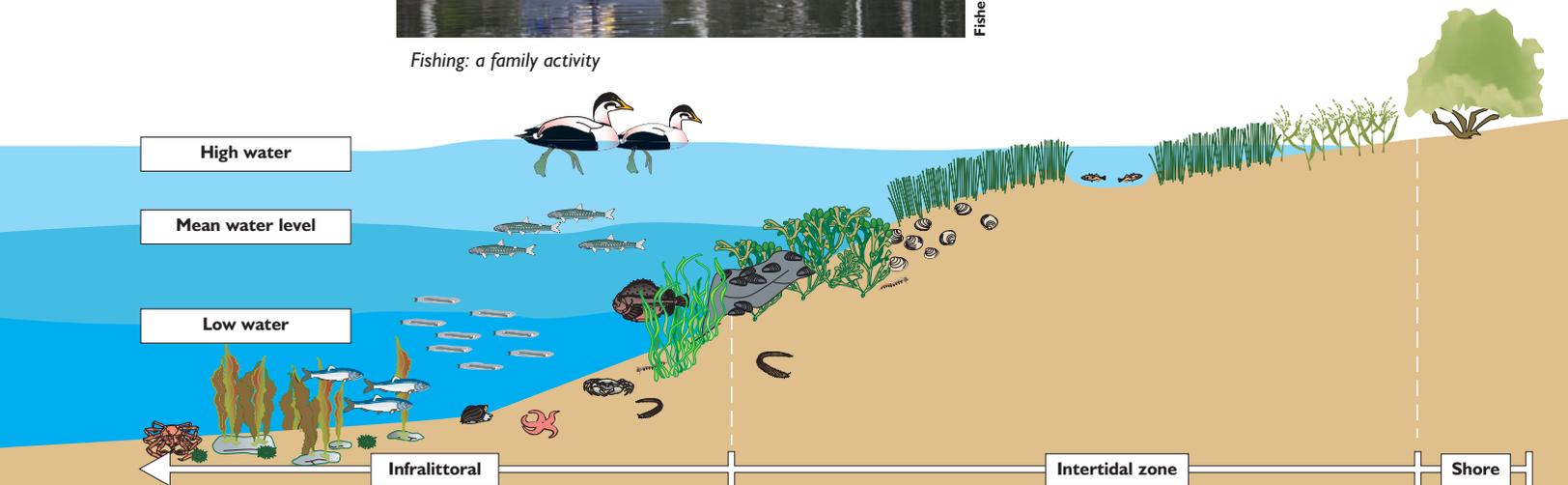


Figure 2: Salt water fish habitat

Ask questions before interfering in fish habitat

Remember: fish habitat is not just found in wilderness areas! Urban and agricultural areas also provide essential environments for supporting many species. In fact, any habitat where there is water, even sporadically (only at springtime for example), can be vital to fish. Be aware and exercise caution.

Fish habitat is part of our collective heritage, even when found on private land; it represents a natural, cultural and economic resource. Its preservation is guaranteed by An Act respecting the conservation and development of wildlife as well as the Regulation respecting wildlife habitats and the Fisheries Act, which apply to both salt water and freshwater. It is essential that these provisions be observed.

Before carrying out any activity that could alter fish habitat, whether on private or public land, make sure that you comply with applicable municipal, provincial and federal laws and regulations.

St. Lawrence Estuary



Ministère des Ressources naturelles et de la Faune / Hugues Tennier

A SHORT PHONE CALL COULD HELP YOU AVOID A COSTLY MISTAKE!

Remember that modifying fish habitat without authorization can be costly, not only for the natural environment, but also for the person who has committed the offence. This person may be subjected to injunction, legal proceedings, fines as well as court order to restore the premises, and might also be required to pay any expenses incurred for restoring the altered habitat. Better be safe than sorry. Contact us before taking action!

FOR MORE INFORMATION, CONTACT THE GENERAL OFFICE OF THE MINISTÈRE DES RESSOURCES NATURELLES ET DE LA FAUNE IN YOUR REGION AND FISHERIES AND OCEANS CANADA.

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