

# EXTENSION NOTES

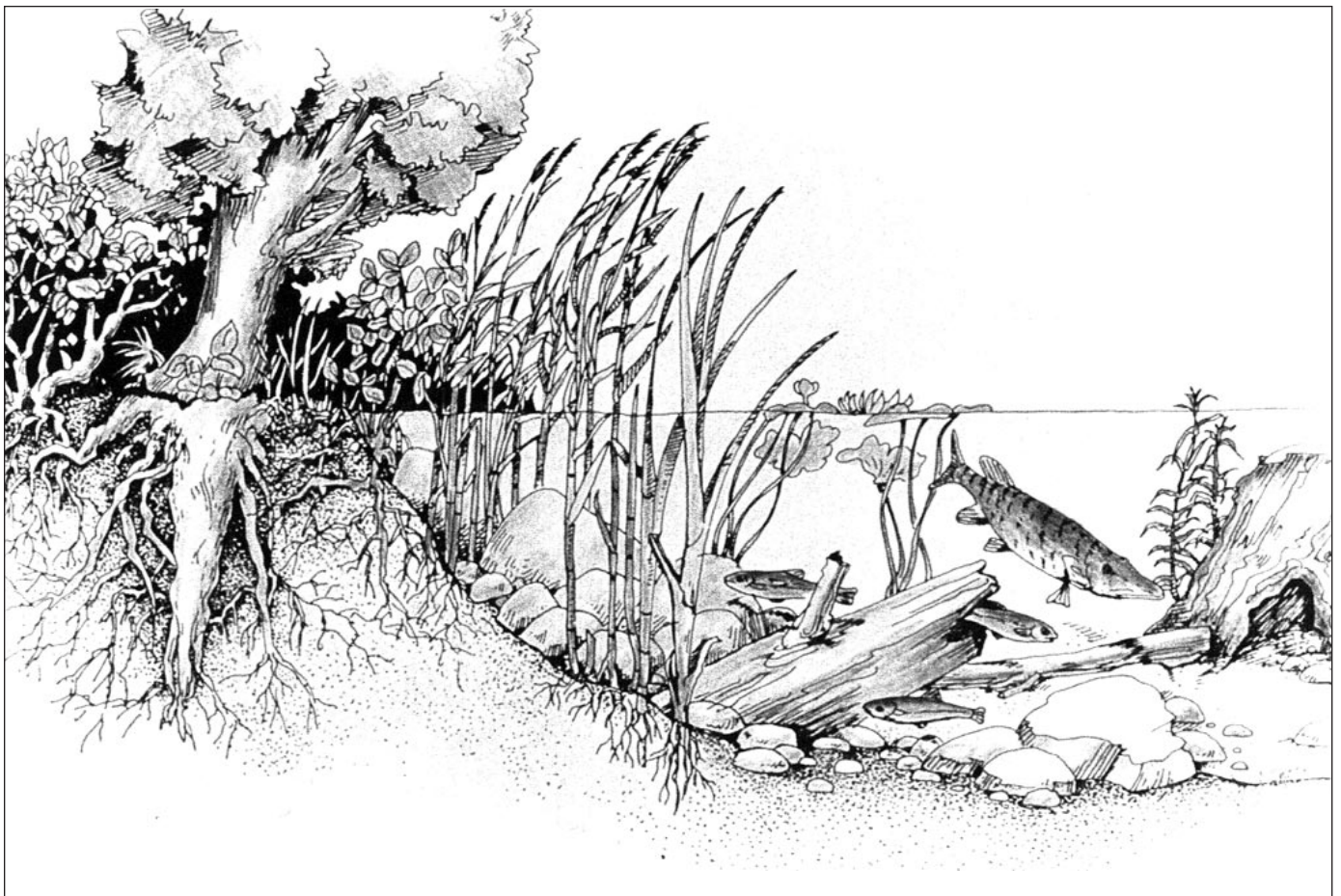


## PROTECTING FISH HABITAT

Fish can be found in just about every natural body of water on the planet. It's only when the aquatic environment becomes unhealthy that fish populations dwindle or disappear altogether.

Unfortunately, human activities are most often to blame for the destruction of fish habitat. Many people, for

example, choose to live near a lake or stream. They build cottages, boathouses and docks, dredge river bottoms and pour sand on shorelines — all of which can damage fish habitat and reduce fish populations. There are, however, ways to reduce the damaging effects of human activity. This Extension Note explains how to avoid harming fish habitat when working in or around the water.



Well vegetated, shady shorelines are ideal for fish habitat.

## WHAT IS FISH HABITAT?

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The *Fisheries Act* defines fish habitat as “spawning grounds and nursery, rearing, food supply and migration

routes on which fish depend directly or indirectly in order to carry out their life processes.”

## BEFORE YOU START

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Preserving fish habitat is often just a matter of proper planning and following a few simple rules as you carry out projects along your shoreline. Before starting any type of work, be sure to discuss the project with your local conservation authority and Ministry of Natural Resources office. A broad range of permits may be required. Familiarize yourself with application procedures and guidelines that apply to your specific project and site.

In Canada, fish habitat is protected under the federal *Fisheries Act*. Under this Act, projects must not alter, disrupt and/or destroy any compartment of fish habitat. The key is to design and undertake your project so that it will not harm fish habitat.

## GETTING STARTED

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Preserving fish habitat is often just a matter of planning ahead and then following a few simple rules as you carry out any projects along your shoreline. Here are a few things to keep in mind when you're getting started:

### 1. DREDGING

Lakes and rivers are commonly dredged to create channels for boats and areas for swimming. Dredging can destroy habitat by changing the nature of the lake or river bottom, releasing contaminants from bottom sediments and altering spawning, nursery and food-production areas.

#### Tips for Dredging

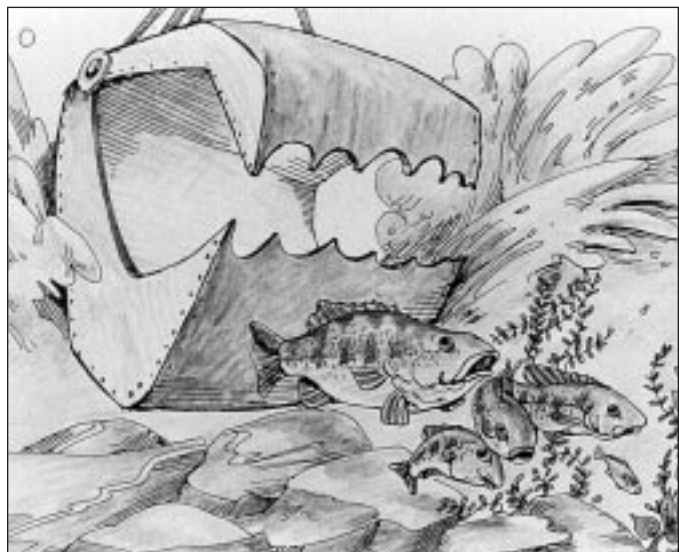
- Retain logs, stumps and boulders. They are used as cover by many fish species.
- Limit single boat channels to a width of six metres. When possible, construct a common or “community” boat channel that’s not more than eight metres wide.
- Ensure that the proposed area for dredging is far away from sensitive fish habitat.
- Dispose of dredged materials above the high-water mark on shore.
- Dredge on calm days so that sediment is not carried to adjacent areas.
- Use a silt curtain to contain suspended sediments.

### 2. AQUATIC-PLANT CONTROL

Aquatic plants play an important role in keeping lakes and rivers healthy. Fish use them for spawning sites, cover and food. The removal or control of aquatic vegetation can have a detrimental effect on fish habitat and fish populations.

#### Tips for Controlling Aquatic Vegetation

- Never remove rare, threatened or endangered plant species.
- When removing vegetation, take only what’s required. In lakes with extensive plant growth, regulations permit removal of vegetation from a 15-metre strip of frontage and up to 30 metres out from shore. In most cases, you may also clear a boat channel when necessary.
- Time your activities to avoid spawning and early rearing periods of fish species in your area.
- Remove plants by mechanical means. Avoid the use of chemicals.



Human activities along the shoreline can alter or even destroy valuable fish habitat.

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### 3. KNOW YOUR LITTORAL ZONE

The littoral zone is the area near shore where the light penetrates to the waterbody's floor. It is also the area most often affected by human activity. The littoral zone is the most productive area in a lake or river. Light serves as an energy source for the growth of algae and aquatic plants. The littoral zone also serves as a spawning and nursery area for many fish species.

### 4. DOCKS AND BOATHOUSES

Docks and boathouses can prevent sunshine from reaching the littoral zone. These structures can also destroy productive fish habitat and restrict both water circulation and fish movements.

#### Tips for Building Docks and Boathouses

- Construct your boathouse above the high-water mark. If you can't, make sure it has minimal contact with the littoral zone.
- Locate docks and boathouses away from fish spawning and nursery areas.
- Use dock designs that don't obstruct water circulation or disturb the lake or stream bed. Cantilever docks, floating docks or docks constructed on stilts are recommended. Don't build solid docks or docks with more than 50 per cent of the surface area supported by cribs.
- Consider using a marine railroad rather than a boat ramp

### 5. BEACH CONSTRUCTION

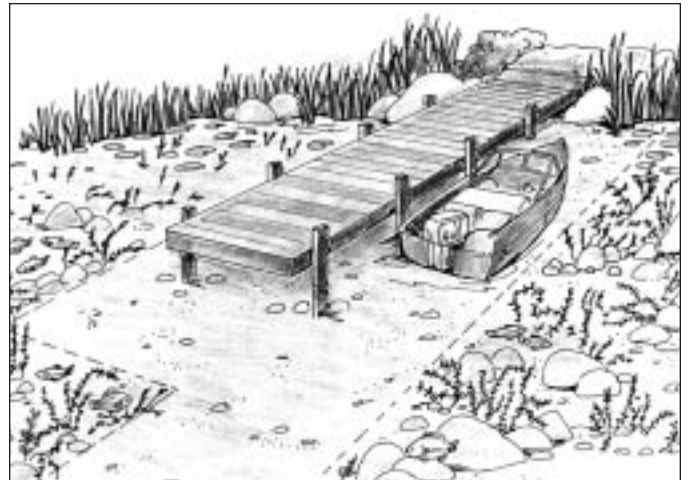
Many people try to enhance or build a beach front by adding sand. In most cases, however, the sand is soon moved elsewhere by waves and water currents. Sand and beach materials can also cover important fish habitat.

#### Tips for Beach Construction

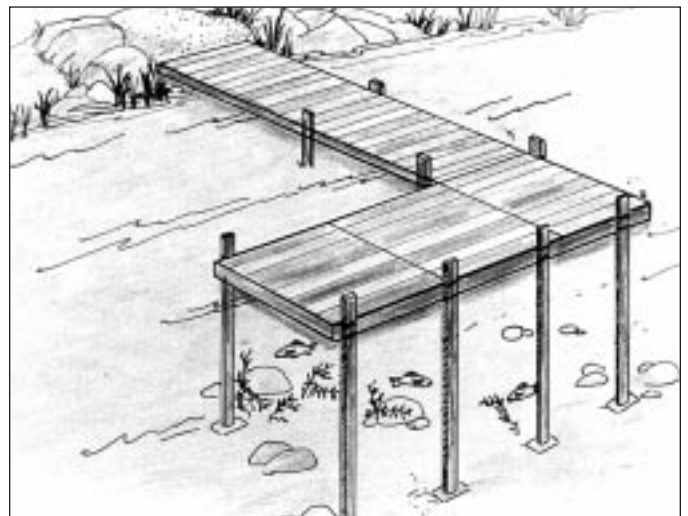
- Place sand for a new beach above the high-water mark.
- Consider beach alternatives, such as an off-shore swimming platform.
- Use pea gravel or cobble material instead of sand.
- Limit beach creation to 10 per cent of your shoreline frontage or a maximum of 20 square metres.
- Locate your proposed beach away from sensitive fish habitat.

### 6. SHORELINE STABILIZATION AND EROSION CONTROL

Shoreline erosion-control projects often involve straightening and hardening shorelines, which can affect the littoral zone of the lake or river. Sheet steel



Remove aquatic plants only where necessary, such as in this boat channel.



Docks on stilts don't obstruct water flow or fish movement and are easily installed.



A small beach with an off-shore swimming platform is a good compromise when mixing human activities with ideal fish habitat.



pilings or poured concrete retaining walls can also increase suspended sediment, reducing water quality. When properly constructed, however, erosion-control structures can actually enhance fish habitat.

#### Tips for Shoreline Stabilization and Erosion Control

- Don't use solid steel or concrete shorewalls, breakwalls or groynes.
- Use rip-rap or armour stone imported from dry land and underlay it with filter cloth.
- Build erosion-control structures above the high-water mark whenever possible.
- Conform to the contour of the natural shoreline.
- Use aquatic vegetation and terrestrial trees, shrubs and plants as buffers.
- Immediately seed, mulch or sod exposed soil near the shoreline.

#### 7. BUILDING MATERIALS

Building materials that contain wood preservatives can impair water quality. In general, concrete, polystyrene and plastics are less harmful.

#### Tips for Choosing Building Materials

- Use untreated woods, such as cedar, for structures exposed to water.

- Use clean washed rock and armour stone for shoreline-stabilization projects.
- Do not use asphalt in or near the water.
- Do not use old car parts or metal drums in or around water.
- Never use wood preservatives near water.

#### 8. AGRICULTURAL PRACTICES

Agricultural practices can damage fish habitat. Pesticides, liquid manure and silage liquids can kill fish if they reach waterways. Also, livestock can trample and erode shorelines, which reduces water quality and habitat.

#### Tips for Agriculture

- Keep livestock away from shorelines by limiting access to one stable site or by providing alternative water sources.
- Install sediment traps in agricultural drains.
- Use grassed waterways to carry surface water across farmland.
- Practice conservation tillage techniques.
- Prevent runoff from feedlots and manure piles.
- Clean and maintain drains.
- Avoid driving machinery across small streams.

## FURTHER READING

- Agriculture Canada and the Ontario Ministry of Agriculture and Food. 1993. *Farm Forestry and Habitat Management*. 41 p.
- Agriculture Canada and the Ontario Ministry of Agriculture and Food. 1994. *Best Management Practices: Water Management*. 93 p.
- Ontario Ministry of the Environment and Energy. 1995. *Guidelines for Evaluating Construction Activities on Water Resources*. 55 p.
- Ontario Ministry of Natural Resources. 1991. *Working Around Water? What You Should Know About Fish Habitat*. Fact Sheet.
- Ontario Ministry of Natural Resources. 1993. *Fisheries Guidelines for the Review of Agricultural Drain Maintenance Proposals*. 29 p.
- Ontario Ministry of Natural Resources. 1994. *Fish*

- *Habitat Guidelines for Developing Areas*. 81 p.
- Ontario Ministry of Natural Resources and Department of Fisheries and Oceans. 1994. *Ontario Guidelines for Aquatic Plant Control*. Canadian Manuscript Report 2236. 25 p.

The following Extension Notes are a good source of information on shorelines:

- *Preserving and Restoring Natural Shorelines*
- *Restoring Shorelines with Willows*

For more information contact:

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