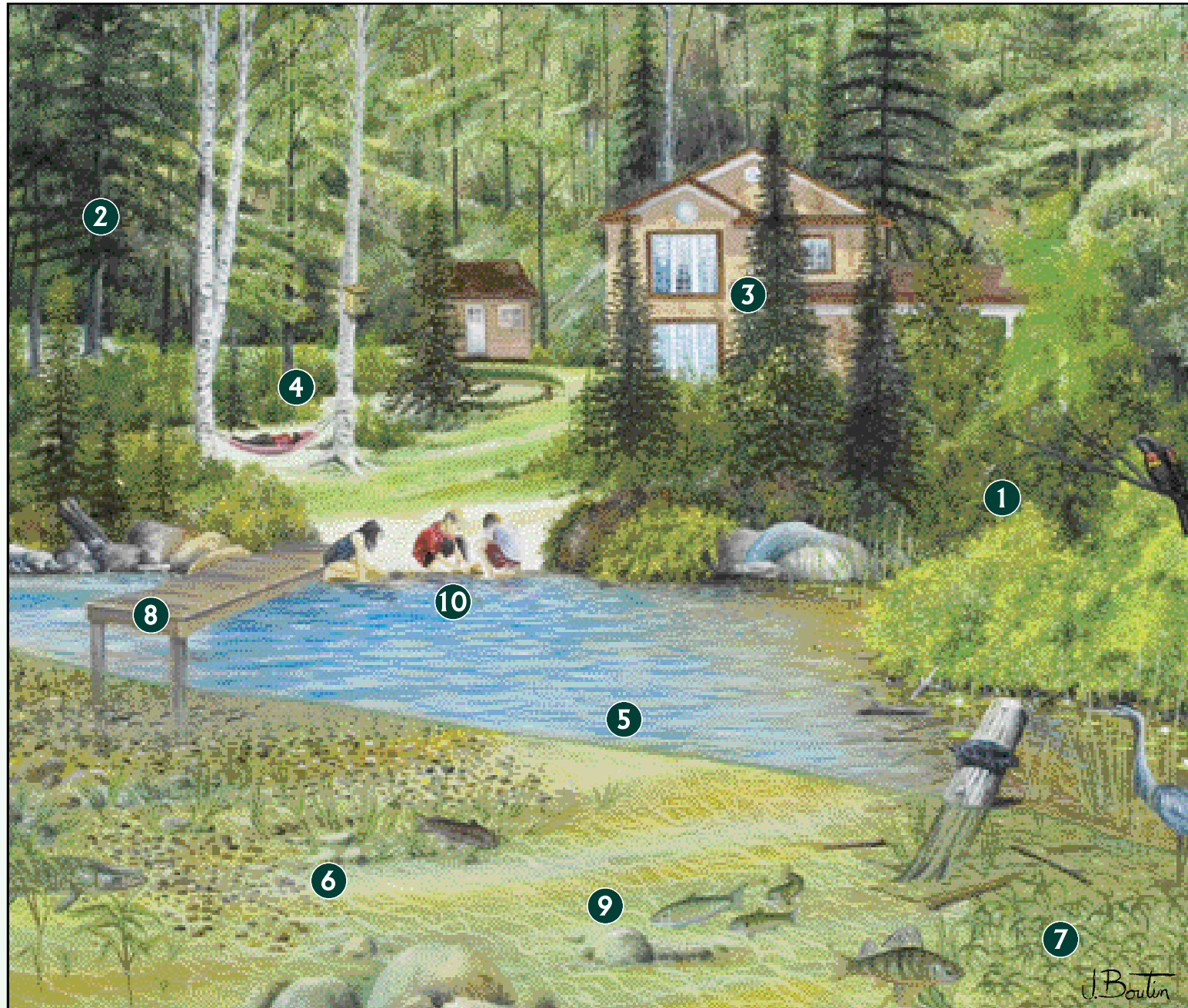




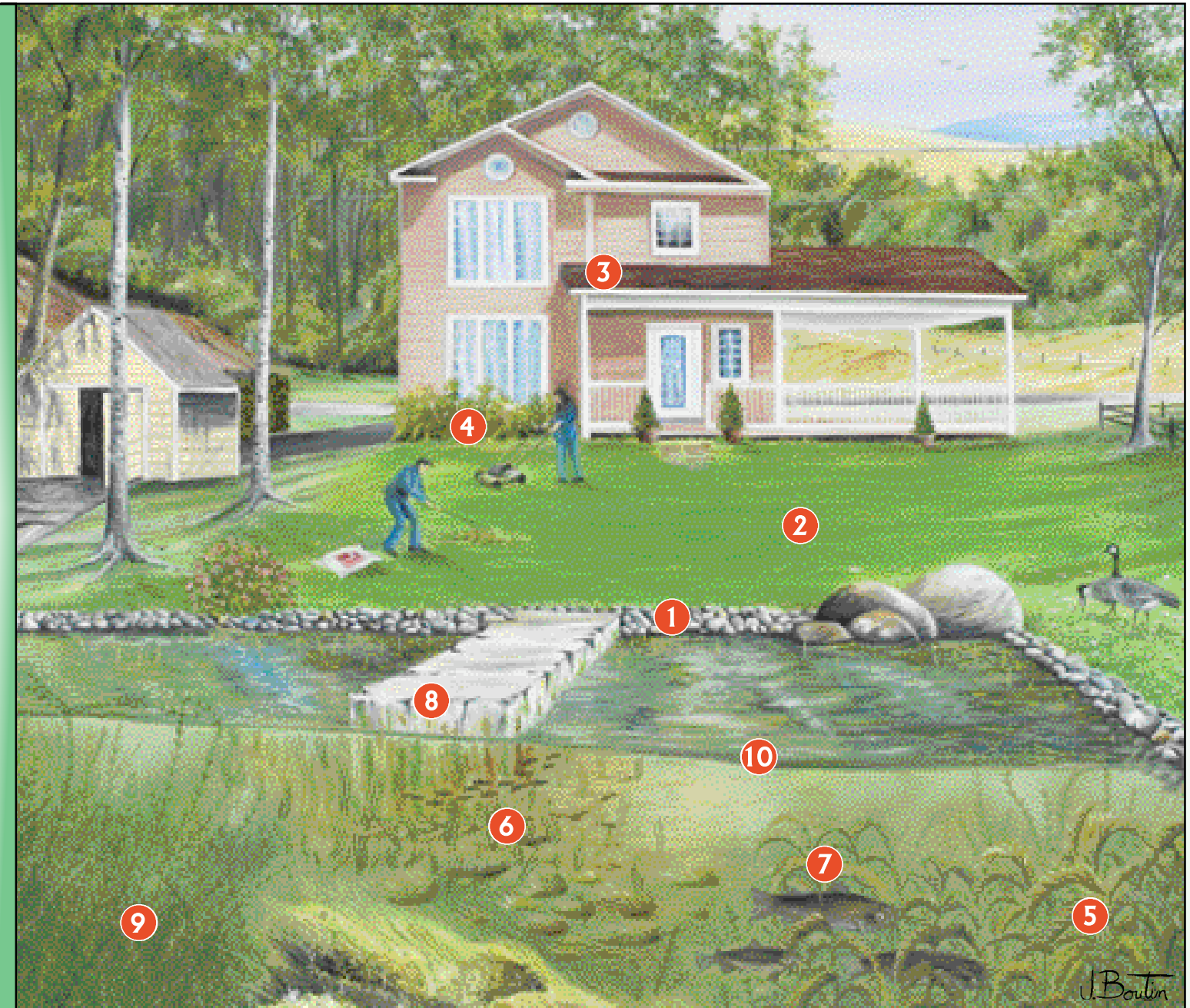
Nature-friendly landscaping

THE SHORE

1. Riparian vegetation is preserved; it provides important habitat for fauna and protects the shore against erosion.
2. Over 50% of the vegetation cover is preserved, slowing runoff and maintaining natural cooling for the property.
3. Light pruning of trees creates discreet views of the water and surroundings.
4. A natural landscape requires little maintenance, leaving more time for relaxation and communing with nature.

THE LITTORAL ZONE

5. The littoral zone, or shallow water zone, is a productive natural habitat with diverse plant and animal life.
6. The bottom substrates provide suitable spawning sites for various fish species.
7. The aquatic grass beds, comprising a variety of plant species, provide shelter, feeding and spawning areas for fish.
8. A pile dock permits the free movement of water and aquatic animals.
9. A healthy littoral zone is one in which natural features have been preserved.
10. Clean, high quality water supports recreational activities such as swimming.



Urban-style landscaping

THE SHORE

1. Riparian vegetation has been replaced by a manicured lawn and riprap; wildlife habitats have disappeared; and the shore is vulnerable to erosion.
2. The vegetation cover, which has been reduced to grass, does not slow runoff; hence, fine sediments and fertilizer nutrients accumulate in the water.
3. All of the trees have been cleared from the natural landscape to make way for the vacation house and artificial elements.
4. Urban-style landscaping is costly and requires a lot of maintenance, leaving less time for leisure activities and relaxation.

THE LITTORAL ZONE

5. The landscaping approach has degraded the shoreline; biological diversity is reduced because some aquatic plant species have displaced others.
6. As plants in this dense aquatic community die, their remains accumulate and the bottom becomes covered by a thick layer of organic matter (mud).
7. The overabundant vegetation reduces oxygen levels in the water; sensitive species disappear and are replaced by more tolerant ones.
8. A solid dock prevents the free movement of water and aquatic animals, causing sediments to be deposited and aquatic plants and algae to proliferate.
9. The degraded littoral zone accelerates the aging process of the body of water.
10. The quality of the water and the bottom have deteriorated, putting a damper on recreational activities such as swimming and sport fishing.

Living at the water's edge

Living beside a lake or river is a privilege that more and more people are seeking because of the tranquil atmosphere and the opportunities for connecting with nature. The beautiful landscapes, the clean water, the opportunity to fish and the feeling of harmony with the natural environment are some of the amenities that draw people to the waterside. The challenge that waterfront property owners face is to build a cottage and modify the landscape in ways that preserve the health of the lake or river and the surrounding environment.

The impact that humans have on lakes and rivers is appreciable. All too often, when people decide to build on the water, they bring their urban lifestyle and habits to their new environment and, through their actions, they unwittingly contribute to the degradation of the water body. Small, densely populated lakes are especially vulnerable and can deteriorate rapidly, even to the point that they are no longer suitable for water-based activities such as swimming. Through our actions, we can unintentionally cause changes to the environment that will upset the natural balance of the water body and its general health.

One environmentally harmful practice consists in removing too many trees and, more broadly, applying an urban-style landscaping approach. This typically results in natural forest and ground covers being replaced by lawns, hedges, flower beds and lampposts. To make it easier to mow the lawn, the land is backfilled with earth and graded. Shoreline vegetation is pulled up to make way for a retaining wall, which is actually less durable, less stable and, especially, less effective at protecting against erosion than natural vegetation. All of these artificial approaches trigger a never-ending procession of landscaping work including fertilizer and pesticide treatments.

Over time, the original beach is transformed, the shoreline is eroded and trees topple under the continuous assault of water and waves. Fine sediments and fertilizer nutrients accumulate in the water and on the bottom, promoting the growth of aquatic plants that invade the littoral zone. The water, once clear, becomes cloudy and degraded, causing some fish species to disappear. Meanwhile, ducks and geese are attracted to the lawn and deposit their droppings there. The end result is that a balanced natural ecosystem has been replaced by an urban-style environment.

The littoral zone, A WITNESS TO HUMAN ACTIVITY

This poster compares two approaches to developing and landscaping a lake or riverside property. One approach is more compatible with the natural surroundings and has fewer negative impacts on the water body. The other approach and associated methods can have severe impacts on the quality of the aquatic environment. You can live in harmony with your lake or river by taking the necessary steps to protect the natural environment. The precautionary principle holds that we should refrain from taking actions in situations where uncertainty exists about the environmental effects. The impacts that our actions have on shoreline areas are not always apparent, since it is often the water itself that is affected.

GETTING to KNOW your SHORELINE

The shore

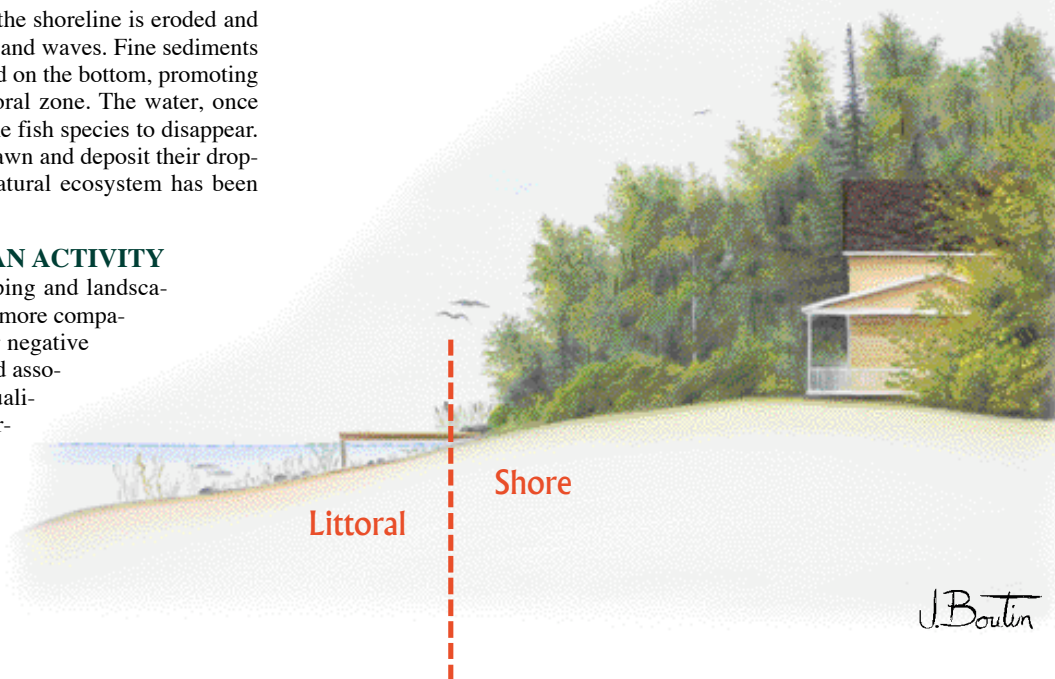
The shore is the strip of land that borders lakes and rivers. It marks the transition between land and water, and begins where the littoral zone ends. The shore is characterized by the presence of riparian vegetation—trees, shrubs and herbaceous plants—all of which play a crucial role in protecting the water body.

The littoral zone

The littoral zone extends from the edge of the shore toward the centre of the lake or river. It begins at the high water mark, which is the level reached during flooding. This shallow water zone is penetrated by sunlight, which allows aquatic plants to grow. Littoral zones, with their rich diversity of plant and animal life, are considered to be among the most productive environments on the planet. Insects, molluscs, amphibians and fish find shelter, food and breeding sites among the aquatic grasses, plant debris and rocks. By keeping the shore in a natural state, we are protecting the littoral zone—an area that is teeming with life and is viewed as the nursery of a lake.

A HEALTHY SHORE:

- **Retains sediments and fertilizer nutrients and keeps them from entering the water. Water quality is preserved, allowing people to take part in recreational activities in a healthy body of water.**
- **Prevents shoreline erosion. The roots of riparian plants form a closely woven mesh offering strong mechanical resistance to erosion caused by waves and ice. A healthy shoreline is much more effective at preventing erosion than are artificial barriers such as riprap and wood or concrete retaining walls.**
- **Provides shade, helping to cool the shallow water in the littoral zone. Water that is too warm induces excessive growth of algae and causes heat-sensitive fish species to go elsewhere.**
- **Provides excellent habitat for plants and animals. Instead of spending all your time and money on landscaping, why not invest in field guides and binoculars so you can better enjoy and protect your natural surroundings!**

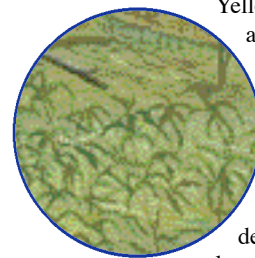


FISH and THEIR HABITAT



Some fish species, such as brook trout, live only in cold, oxygen-rich waters. Others, such as northern pike and yellow perch, can tolerate warmer waters. Bullhead species, as well as certain minnows, are able to tolerate very warm, oxygen-depleted and even polluted waters. These are often the only species to survive in a highly degraded environment. However, all fish, regardless of their tolerance level, need places to hide, feed and spawn. Healthy lakes and rivers generally provide a variety of habitats that enable many different species to co-exist.

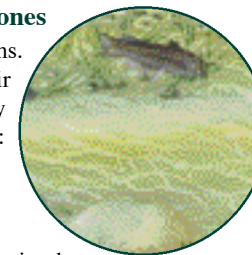
Aquatic grass beds



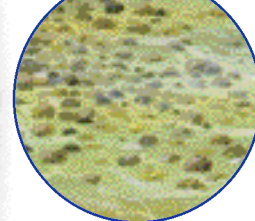
Yellow perch and northern pike are frequent visitors to aquatic plant communities, which provide an abundance of small fish and insects for them to feed on. They also spawn there, and their eggs adhere to the vegetation. Why then are pike and perch harder to find in water bodies that are overgrown with vegetation? The reason is that these fish species require well-oxygenated bodies of water. The decomposition of dense masses of aquatic plants uses a lot of oxygen, leaving less oxygen for the fish.

Sandy zones

Bullheads love to laze on sandy or muddy bottoms. They dig shallow nests in which they lay their eggs. Bullheads are not picky eaters. In fact; they are bottom feeders and will eat almost anything: worms, molluscs, debris, algae, insects, etc.



Gravel zones



Brook trout dig a nest in the gravel bottom, deposit their eggs and cover them with gravel. During their development, the eggs capture oxygen from the water flowing through the gravel layer. If the gravel becomes covered with fine sediments, the eggs will suffocate and die.

Rocks and woody debris

Rocks and woody debris are ideal shelters for fish that want to avoid being eaten. They also provide habitat for tasty aquatic insects that are eaten by fish and other animals. A pile dock can also serve as a shelter. Just look underneath; you are sure to find a few fish hiding there.



Has your shoreline been cleared of its natural vegetation? Let nature take its course and you will soon have a rich diversity of plants. Well-adapted native species will quickly become established, provided they remain out of the reach of your lawnmower blades!

THE SHORE and THE LITTORAL: PROTECTED ZONES

These environments are essential to the health of bodies of water. That is why they are protected by federal and provincial acts and regulations as well as by municipal by-laws.

As a rule, tree clearing and construction are not permitted on the shore, nor are retaining walls, backfilling operations or dredging of the littoral zone. Crib docks and concrete piers are also prohibited.

You should contact your municipality and the government departments concerned to make sure you have all the required authorizations before doing any construction or other work near or in the water.

CHECK BEFORE YOU ACT!

Whether you are planning to do some landscaping or to restore part of your property, you should arm yourself with information before you act. Several federal and provincial departments as well as local organizations put out publications that are helpful for planning many types of projects. These best practice guides provide information on methods and techniques that you can use to carry out work without damaging the natural environment. Call your municipality to obtain contact information for local organizations that can give you advice, such as watershed organizations, lake associations and other environmental groups. Prevention is the best approach for protecting your lake or river!

This poster is an initiative of the **RAPPEL** group (Regroupement des associations pour la protection de l'environnement des lacs et des cours d'eau de l'Estrie et du haut-bassin de la rivière Saint-François).

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REQUESTS FOR INFORMATION

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For information about the conservation and protection of fish habitat, go to the following Fisheries and Oceans Canada website and click on «Infocentre»

www.dfo-mpo.gc.ca/canwaters-eauxcan

Aussi disponible en français

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