# Aquatic environments

## Streams - Rivers - Lakes - Ponds - Riparian environments

### DEFINITION

**Aquatic environments** are hydric ecosystems. They may include:

- **Watercourses**: rivers, streams (even the smallest ones that stop flowing for part of the year).
- **Water bodies**: lakes, ponds.
- The **riparian areas** that border them (also called "lakeshores", "riverbanks" or "riparian strips").
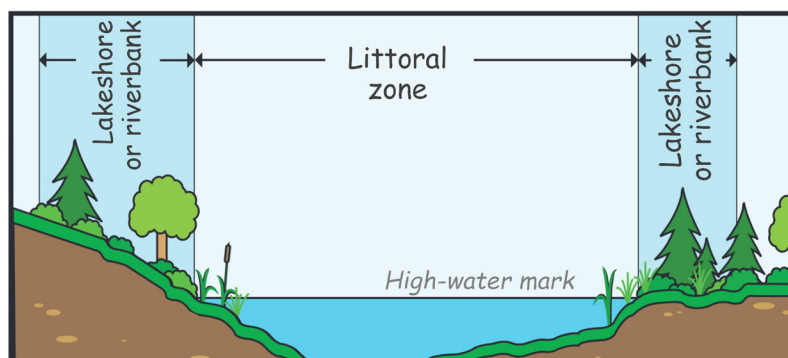
### ROLES

- They provide habitats and corridors for aquatic and terrestrial flora and fauna.
- They are sources of drinking water.
- They contribute to replenishing the groundwater.
- They help regulate the climate.
- They provide recreational activities and contribute to the aesthetics of the landscape.

### COMPONENTS

- **Littoral**: the lake or watercourse itself, i.e.: the area between the center of the body of water and the limit of the littoral zone*.
- **Lakeshores or riverbanks**: the strip of land bordering lakes and watercourses (regulatory width often 10 to 15 meters, depending on topography, measured from the limit of the littoral zone*).

*\* Limit of the littoral zone (or high-water mark): the limit separating the littoral zone from the lakeshores or riverbanks, i.e. separating the area where aquatic plants predominate from that where terrestrial plants predominate.*



CRE Laurentides (modified by AFM)

## AQUATIC ENVIRONMENTS AND FORESTRY OPERATIONS

### MAIN THREATS

- The passage of **heavy machinery** and the construction and maintenance of **forest roads** can disturb the soil and cause **sedimentation** in water bodies.
- Watercourse crossings cause sediment transport and tend to destabilise the streambank or lakeshore.
- The felling of riparian trees carried out without moderation and care, can cause the water to warm up and destroy riparian vegetation and its filtering effect.

### Main concern : Sedimentation, causing:

- Turbidity (clouding) of water.
- Reduced oxygen availability for fish andamphibians;
- Siltation (sediment accumulation) in watercourses and waterbodies.
- Clogging of fish spawning beds.

## MANAGING YOUR FOREST TO PROTECT AQUATIC ENVIRONMENTS

Your forest contributes to the protection of hydric ecosystems, water quality, and the habitats of the species that inhabit them. It is often preferable to avoid forest operations near these sensitive sites. However, when forest management is necessary, the following precautions should be taken around these sensitive environments:

### STEP 1: LOCATE AQUATIC ENVIRONMENTS

On the ground, make sure you know the location of all aquatic environments and identify all streambeds, including intermittent streams.

### STEP 2: AVOID CROSSING WATERCOURSES

For occasional needs, use a temporary crossing instead of fording. For recurring needs, install a culvert or build a bridge according to best management practices.

### STEP 3: AVOID MAJOR DISTURBANCES WITHIN 60 M* OR THE LITTORAL

ø Forest road construction
ø Landing (wood piling) areas

*30 m in the case of intermittent streams*

### STEP 4: ADAPT FORESTRY PRATICES TO PREVENT EROSION AND SEDIMENTATION

**Maintain a forested riverbank or lakeshore**.
This will prevent erosion and maintain the rain filtration and shade that keep the water cool.
**Avoid using heavy machinery within 10 m of the shoreline.**

**Limit topsoil stripping.**
Schedule forest road work for short periods of time, outside of wet or rainy seasons.
Where necessary, use geotextile or straw bales to filter sediments. After logging, sow seeds of herbaceous plants to stabilize bare soil (ex.: clover, millet, etc.).

**Avoid sedimentation of watercourses**.
At least 20 m. upstream, divert runoff away from watercourses to vegetation that will filter sediments. Alternatively, dig sedimentation basins at least 10 meters away from watercourses.

**Avoid altering drainage patterns and creating ruts**.
Plan work to take place when the soil is at its greatest carrying capacity, such as when the ground is frozen or during dry periods. If deep ruts are created, level the ground after logging operations.

*Inform forest workers and machinery operators of the protective measures to be taken!*

Check applicable laws and regulations and make sure you have the necessary permits before doing any work on the shoreline, lakeshore, or riverbank.

References