

## Fish - Riparian Life of Another Type

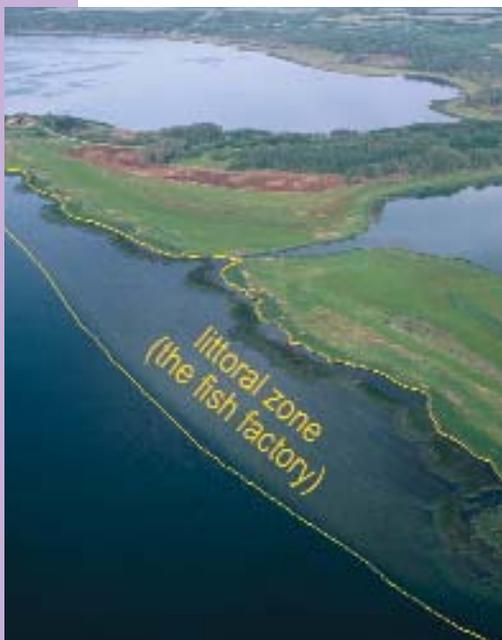
Fish and other aquatic creatures have a unique relationship with riparian areas. One of the reasons riparian zones are under a microscope is the effect that unmanaged livestock grazing and other land uses can have on fish habitat. Here are some useful things to know about the relationship between fish, other aquatic animals and the riparian area:

- ◆ Streambanks and shorelines provide habitat "edge" with high diversity. Fish live on the edge of streams and make more use of the edge than the middle of the channel. In lakes, the shallow water zone where sunlight can penetrate to the substrate is the area of highest productivity and the area used most by fish. In emergent and submerged vegetation fish find cover, food and places to spawn and rear. Instream cover, especially big wood, helps control water velocities so fish don't constantly fight the current.
- ◆ Fish habitat can include intermittent drainages that have water in the channel or over the shoreline for a short time during spring runoff. Some fish species use these riparian areas for spawning; the eggs incubate and hatch before water levels drop.
- ◆ The vegetation canopy on banks and over stream channels shades water in the summer and reduces the temperature. In winter the canopy insulates streams, reduces ice build-up and provides better overwinter survival of fish.

- ◆ Vegetation captures and binds sediment that otherwise would settle on food producing areas, fish spawning and rearing sites or in pools, reducing winter survival space. Riparian vegetation also traps nutrients which can be too much of a good thing. High nutrient loads lead to algae blooms which peak and quickly crash, using up dissolved oxygen. Fish kills often follow.
- ◆ A healthy riparian area collects, stores and releases water to maintain stream flow and lake levels. It's a simple formula; no water - no fish.
- ◆ Fish are indicators of the degree of health in their world and ours. Trout have the highest requirements for water temperature, dissolved oxygen and physical habitat. They have low tolerance for changes, especially in temperature and sediment. If trout are replaced by northern pike, or pike by white suckers, it suggests a dramatic change in habitat. If the trend continues, white suckers, one of the most tolerant fish of degraded habitat, will disappear. It may be very difficult to restore fish populations in some systems until we take a watershed approach to resolving issues around riparian health, water quality and water quantity.

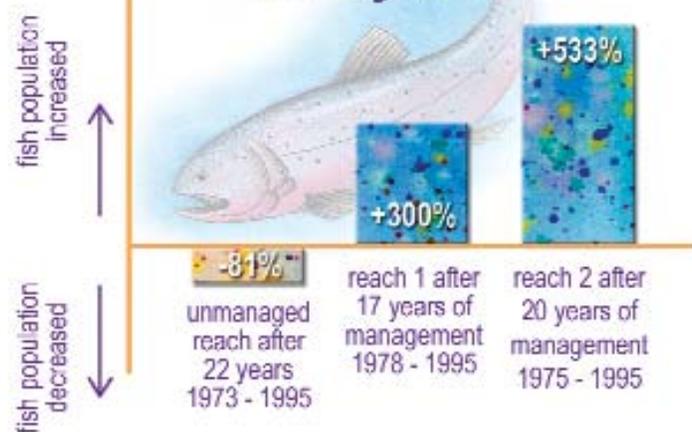


*Sediment is a normal product of erosion but many land uses greatly accelerate the amount of sediment delivered to the aquatic system. Healthy riparian areas can buffer the impacts of sediment on aquatic inhabitants.*



*The shallow water area where sunlight penetrates to the lake bottom, is called the "littoral" zone and is the "fish factory".*

### Trout Population Changes



*When riparian areas on the North Raven River were protected and managed, trout populations responded to habitat opportunities. Reaches of the stream that are not managed show substantial declines in fish populations from 1973 to 1995. Healthy riparian areas produce habitat for fish.*