



Protecting our Water: Adaptations for aquatic ecosystems

Aquatic systems, like lakes, rivers and wetlands, are vital resources. Not only are these rich environments home to many important species, they also provide freshwater, food, and other resources. Changes in climate are already making a mark of these ecosystems, with more change predicted to come. But there are actions we can take to help protect these important places and, hopefully, lessen the impact of climate related changes.

Monitoring

Monitoring allows us to gather information about the environment and the changes that are occurring. Monitoring activities can take many forms and be driven by community needs (community-based monitoring) with the work being done by various groups of people including environmental stewards, community members, citizen scientists and researchers. In aquatic systems, monitoring could include:

Water quality parameters

There is a lot that water can tell us about an aquatic system. Some qualities, like temperature, can be measured quite easily on site with a simple thermometer. Other properties, like pH, oxygen levels, and conductivity, can be measured on site with the help of a scientific instrument like a multiprobe. Other parameters, like amounts of metals, nutrients, and other components can be determined from water samples sent to qualified labs.



These probes can be used to measure water parameters like pH, oxygenation, and conductivity.

Systems trends

Water levels, freeze-up and break-up dates, and migration or spawning times are all examples of trends in aquatic systems that are likely to be impacted by climate change. Communities can decide what trends to monitor based on their specific interests and needs.

Species monitoring

There are many reasons you may want to monitor species in aquatic environments, and many different kinds of species that may be of interest. You may want to monitor because of an impact, like mining, or a concern about overfishing, or simply to get an idea of the current status of species. Monitoring might be aimed at fish, benthic invertebrates (bugs in the sediments), species at risk, or invasive species. Communities can decide what species to monitor based on their specific interests and concerns.

Identify Important Areas

Areas that are ecologically important or vulnerable to change are a good place to use your resources. These might include: wetlands, spawning grounds, cold water refuges for fish, migration routes, or habitat for vulnerable species. Plans of action for these areas might include restoration, enhancement, protection, or increased monitoring.



Manitoulin Streams Improvement Association is a grass-roots organization dedicated to the rehabilitation of important fish habitat that has been damaged due to human activity. Learn more about their work at www.manitoulinstreams.com





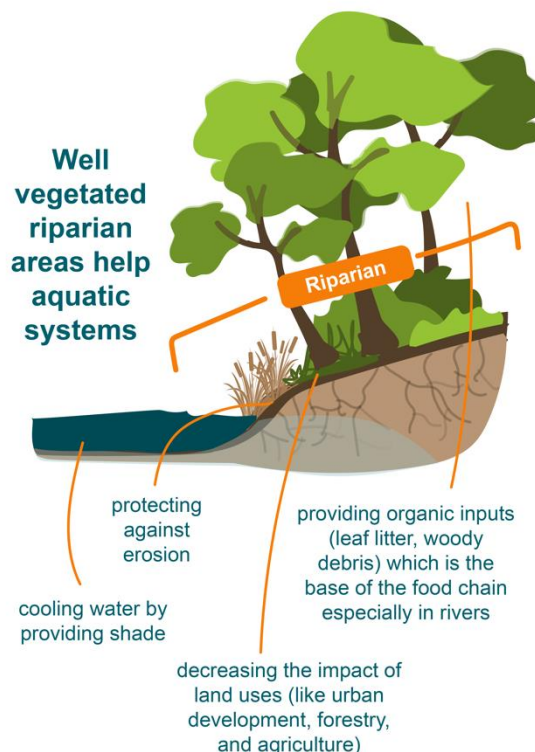
Improve System Health

A system that is already stressed or degraded may be more vulnerable to the impacts of climate change. It is important to protect the land as well as the water habitats. This, in turn, will protect water quality and the plants and animals that live there. Improve or rehabilitate habitats that have been damaged and decrease non-climate stressors on aquatic systems such as: pollution, deforestation, water extractions, over harvesting, and wetland destruction. Proper storm water drainage can help improve the quality of water entering aquatic systems. Adequately sized culverts, drainage ditches, and natural buffers help limit pollutants, nutrients, and sediments entering aquatic systems from surface water runoff.



Establish or increase vegetation in riparian zones

Riparian zones are the areas along the banks of waterbodies. The health of the water system greatly depends on this area. A well vegetated riparian zone with native trees, shrubs and grasses can greatly benefit aquatic environments by cooling water, limiting erosion, and providing important nutrients to the aquatic ecosystem in the form of leaves. Riparian areas that help protect a waterway from nearby land uses is sometimes called a buffer zone. Buffer zones help waterways by filtering surface runoff water and capturing sediment, nutrients, and pollutants.



Riparian area is most effective at shading narrow streams, keeping water cool for fish.



Water flows from the tributary into the main channel, providing cold water refuges in the larger river.



Youth learning about Aquatic environments in Fort Severn and Attawapiskat

Education and Outreach

Engage the community on water-related issues. Inform them of the challenges facing aquatic systems and encourage good stewardship. This is especially important for youth.

Our lakes, rivers and wetlands are facing important challenges. Help them by protecting them and the land around them, monitoring them and advocating for them.