



Northern Minnesota has long been known as a destination for fishermen. For as long as we can remember our family photos have boasted stringers full of lunkers! But we need to understand that the clean lakes we enjoy, teeming with fish, are a direct result of thriving forests filled with trees.

As lakeshore is developed and as trees are removed, we are seeing increased storm water runoff, sediment displacement, nutrient overloads from yard fertilizers, and more. These factors are playing a role in algae blooms, decreased oxygen levels in lakes, and a host of other environmental factors that are consequently effecting fish populations in our lakes.

Healthy forests near bodies of water equal stronger fisheries. This applies around lakes, rivers, tributaries and along trout streams. Where large tracts of native vegetation are present, the ecological chain thrives. When native vegetation is removed, water quality dwindles and the fishery suffers.

## Fish are a forest product

*Lakes teeming with fish are a result of forests filled with trees*




# Threats to our resources

We have seen examples of water quality decline in many urban and agricultural areas in the southern parts of Minnesota. Water quality has suffered greatly in lakes with overdeveloped lakeshore properties and in areas where proper wetland buffers have not been maintained in agricultural lands.

Untreated runoff from lakeshore properties carries algae-feeding phosphorus and other pollutants into lakes. Nutrient-loading within a lake threatens many fish species such as Walleye, Pike, Crappie, and Trout. Fish in our northern climate thrive in cold water with abundant oxygen levels. Decomposing algae on the lake bottom depletes cold water oxygen supplies.

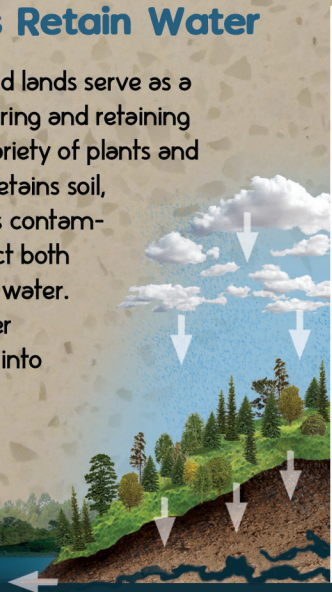
**Phosphorus** is a nutrient found in manure, leaves, soil, and fertilizer. Under natural conditions phosphorus is typically scarce in water. Human activities, however, have resulted in excessive phosphorus loading into our lakes. Phosphorus triggers harmful algae blooms.



1 pound of phosphorus = 500 pound of algae

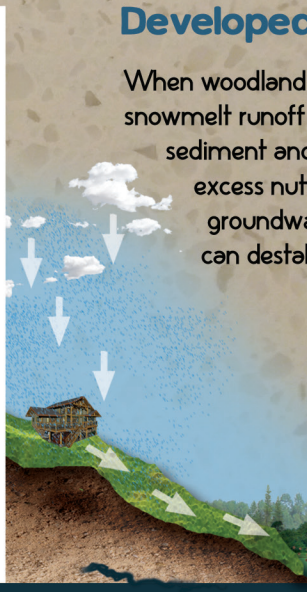
## Forested Lands Retain Water

Forests and well vegetated lands serve as a giant natural sponge, filtering and retaining stormwater. A healthy variety of plants and their deep root systems retains soil, soaks up water and filters contaminants. Woodlands protect both groundwater and surface water. Native cover allows proper infiltration of stormwater into underground aquifers.



## Developed Lands Shed Water

When woodlands are converted to other uses, rain and snowmelt runoff increases. Increased runoff carries more sediment and contaminants like chemicals and excess nutrients to surface water. Infiltration and groundwater recharge is reduced. Increased flows can destabilize streams and decrease water quality.





## Protecting the resource

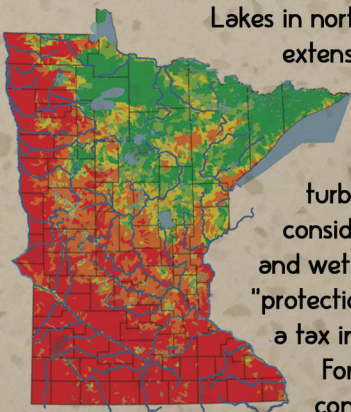
Protection of our forested lands is essential to preserving our fishing legacy. Strong fisheries mean big dollars for our recreational fishing industry, resort owners, and property values for cabin owners/buyers.

### The magic number is 25%

Watershed land cover was analyzed for over 1,200 fishing lakes in Minnesota. Increased runoff brings excess phosphorus to lakes, which cause harmful algae blooms.

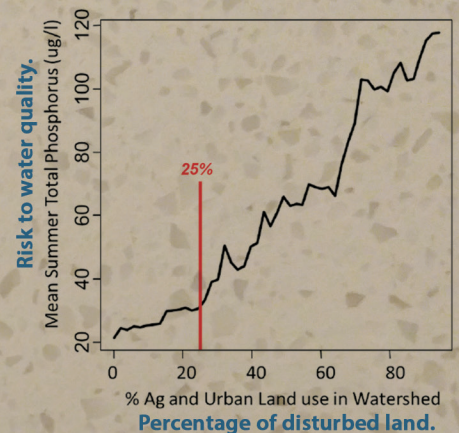
### The goal is to protect 75%

The goal is to protect at least 75% of a watershed. Some lands (shown in Dark Green on the chart) are well protected. Other lands (Red & Orange) are past the magic 25% number, while in between (Light Green & Yellow) are lands that are at a tipping point.



Lakes in northern Minnesota benefit from having extensive public lands in their watersheds.

Public lands generally have abundant forest land cover and are not at risk for conversion to other "disturbed" land use types. These lands are considered "protected" as are lakes, streams, and wetlands. Private landowners can add "protection" to their watershed by enrolling in a tax incentive program like the Sustainable Forest Incentive Act (SFIA) or placing a conservation easement on their property.



### Forests = Clean Water

Clean water is a by-product of healthy forests. Water quality is directly connected to our forests and woods, which act as a giant sponge. The water that leaves the forest is clean, with few pollutants. This is very important for a state where waters begin!





## Giftting big fish to our kids

**What we are really trying to protect  
is our fishing legacy. . .  
Our Minnesota way of life!**

Clean cool northern Minnesota lakes hold memories in many forms. Like the crispy panfish that we fry up at night when we are at our cabins, or the "Big one" that we just know is still lurking out along the weed edge. It's important that future generations get to enjoy these same memories. Let's be sure to ensure that they can.

Your local SWCD can assist you with a host of conservation practices that will keep our precious lakes and rivers clean, and producing stringers full of fish tales!



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