

# Shoreline Woody Structure

Coarse woody structure is a best management practice in which woody habitat is retained or restored in lake nearshore areas. These partially or fully submerged trees and branches in nearshore areas serve many functions that protect lakeshore properties and property values, improve recreational opportunities, and promote lake health. Woody habitat, as well as diverse, native plant communities, and natural shorelines are all indicators of a healthy lake.

## ADVANTAGES of shoreline woody structure

### Erosion Control and Improved Water Clarity

Coarse woody structure can stabilize the shoreline and may prevent sediment suspension.

### Attract More Fish

Woody habitat can improve fishing by attracting fish and increasing the number of fish in an area.

### Wildlife Habitat

Coarse woody structure provides cover, feeding, nesting, and basking habitat for birds, turtles, and other wildlife.



Nearshore areas on a lake, such as this relatively pristine lake in northern Michigan, trees and branches enter the lake through methods such as wind, ice, waves, or beavers. This shoreline woody structure, as well as native shoreline vegetation, can stabilize the soil, slow runoff from upland areas, increase fish and wildlife habitat, improve water quality, and dissipate wave energy from wind and boats. Photo courtesy of Eric Calabro.

## DISADVANTAGES of no shoreline woody structure

### Erosion

Lack of shoreline woody structure leaves property unprotected and vulnerable to erosion.

### Turbid Water

Lack of shoreline woody structure can allow for the suspension of sediments, increasing the turbidity and lowering water quality of the lake.

### Habitat Elimination

Lack of shoreline woody structure eliminates habitat required for fish and wildlife feeding, nesting, and spawning.



In developed lakes, shoreline woody structure is often removed and shorelines are developed, leading to poor lakeshore habitat. On Michigan lakes in forested landscapes, we would expect one log approximately every 8 feet and on most Michigan lakes we see 3 to 17 percent of that. Poor biological health is three times more likely in lakes with poor lakeshore habitat. Forty percent of Michigan's inland lakes have poor lakeshore habitat. Photo courtesy of Michigan Natural Shoreline Partnership.

# INLAND LAKE FACT SHEET SERIES: SHORELINE WOODY STRUCTURE

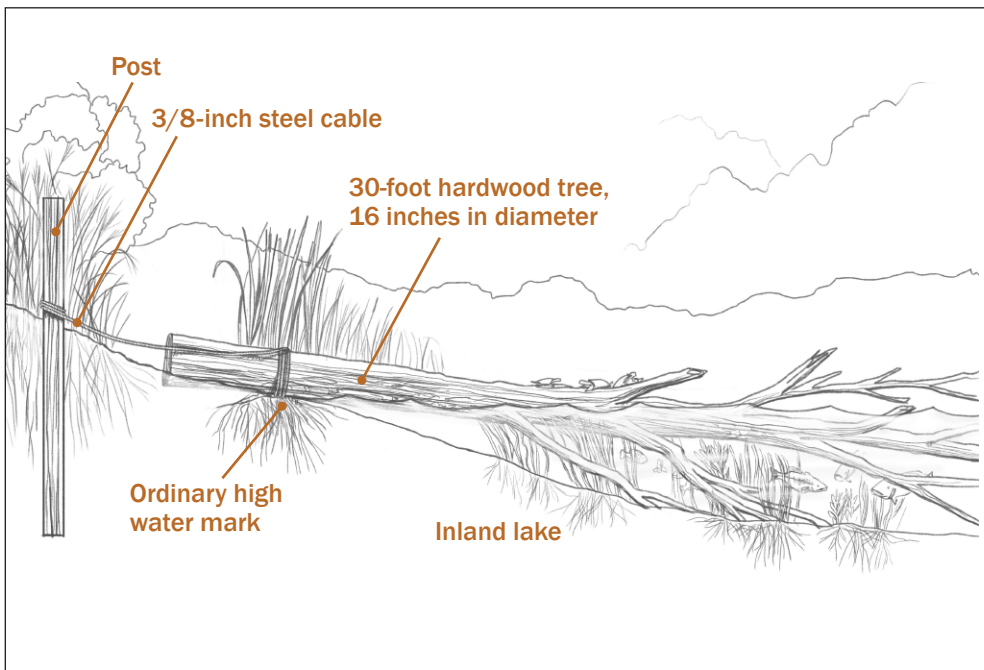
**Protect** trees and branches that naturally fall into the lake. Woody structure can be a critical part of an “aquatic garden” of native aquatic plants and habitat features within your riparian area.

**Minimize** shoreline development and impacts. Design shoreline projects to minimize removal of woody structure and native plants.

**Restore** shoreline woody structure to the nearshore area of your lake. Root wads, logs, and whole trees can be installed as shoreline woody structure, but don't use trees that are currently growing near the shoreline, because they are stabilizing it from erosion. It is best to use recently live trees. The structure must be securely anchored. EGLE recommends placing woody structure 100 feet away from docks, boat ramps, and designated swimming areas. Below is one installation strategy that uses posts and cable to anchor trees to the shoreline.



Coarse woody structure project installed as part of the Michigan Natural Shoreline Partnership Certified Natural Shoreline Professional (CNSP) Training. Photo courtesy of Michigan Natural Shoreline Partnership.



## Apply for a Permit

If you would like to build shoreline woody structure in your lake, a permit from EGLE is required. If your project meets the criteria in EGLE's Minor Project Categories or General Permit Categories it can be processed on a faster timeline and at a reduced fee. For more information, and to submit a permit application visit [Michigan.gov/JointPermit](https://Michigan.gov/JointPermit).

(Left) Example cross-section of a shoreline woody structure design.

## For More Information

EGLE Inland Lakes: [Michigan.gov/LakesAndStreams](https://Michigan.gov/LakesAndStreams)

Michigan Natural Shoreline Partnership: [MiShorelinePartnership.org](https://MiShorelinePartnership.org)

Michigan Inland Lakes Partnership: [Canr.msu.edu/MichiganLakes](https://Canr.msu.edu/MichiganLakes)

Michigan Shoreland Stewards: [MiShorelandStewards.org](https://MiShorelandStewards.org)



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