



How Can I Stabilize My Shoreline to Prevent Erosion?

LAKE HOME & CABIN KIT • SECOND EDITION

Shoreland Erosion

Minnesota has more shoreline than California, Florida, and Hawaii combined—that's a lot of shoreline to protect from erosion! If you live on a shoreland property that is exposed to wave and ice action or human traffic, or has a steep slope to the water, you may need to take extra steps to protect your property from erosion and keep soil from entering the lake or river you enjoy.

An Ounce of Prevention Is Worth an Expensive Cure

If your shoreland is undisturbed, leaving the native plants in place is often the best and least expensive protection against erosion. A healthy native plant community will protect the soil. The above-ground plant material will slow runoff, encouraging runoff to soak into the soil rather than pick up soil and carry it into lakes and rivers. Below ground, a fine network of plant roots hold soil particles in place while stout roots help stabilize steep slopes.

If you need to enhance a view or create an access to the water, first contact your county Soil and Water Conservation District (SWCD) for restrictions on shoreland vegetation removal. Plan to selectively trim a few branches and remove the smallest number of trees to address your needs, leaving enough native plants to protect your shoreland from erosion. See the "Tips for Purchasing and Building on Your Shoreland Property" fact sheet for more details on lake-friendly development.

Aquatic vegetation diminishes wave energy that might otherwise erode a shoreline. The extensive root systems of aquatic vegetation also protect the near-shore area from wave and ice action. If installing a dock, creating a swimming area, or clearing a channel from your dock through aquatic vegetation to open water, first consult with the Minnesota Department of Natural Resources (MN DNR) for current regulations on aquatic plant removal. Consider removing less aquatic vegetation than allowed by these regulations.

Protecting Your Shoreline from Erosion

Deep-rooted native plants growing in the water and the wet areas along the shore protect shorelines from wave and ice erosion. Many property owners attempt to maintain turf grass along their shoreline and remove aquatic vegetation for swimming and other water activities. Turf grass does not grow well in wet areas and its shallow root system will not protect shorelines. As mentioned above, once aquatic plants are removed, the exposed shoreline receives direct impact from waves and ice and may begin to erode. Restoring your shoreline with native plants that have deep, extensive root systems will minimize erosion damage to your shoreline and provide fish and wildlife habitat, too. See "How Do I Start Naturalizing My Shoreline?" fact sheet for details.

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shoreland & water quality

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Even with natural protection, certain conditions, such as high water, increased waves from boat traffic, and/or high wind can sometimes result in severe erosion. To give your shoreland additional protection, contact your county SWCD for assistance in selecting additional remedies such as:

- Use of bioengineering techniques;
- Installing rock gabions (rock enclosed in chain-link fencing); or
- Installing rock rip-rap (a protective layer of rock along a shoreline).

Plan to add native plants to these structures to create a natural appearance and provide wildlife habitat.

Protecting Steep Slopes

Steep slopes are especially vulnerable to erosion. Waves and river currents eroding the supporting soil at the bottom of the slope will result in large chunks of soil to “slump” or slide down the slope. Development of a property can also cause erosion. To maintain a stable slope, make sure you:

- Protect the bottom of the slope along the shoreline using the method(s) suggested above.
- Minimize paved areas above the slope that will increase runoff that can erode gullies in the slope.

Want to know more?

INFORMATION ON THE WEB

www.extension.umn.edu/environment

www.shorelandmanagement.org

www.dnr.state.mn.us/shorelandmgmt/apg/permits.html

- Divert runoff from hard surfaces and rain gutters away from the slope into rain gardens or other areas protected by vegetation. Excess moisture in the soil along the slope can trigger slumping.
- Maintain a protective layer of trees, shrubs and ground vegetation on the slope. Plant roots will both hold the soil in place and absorb excess moisture that can trigger slumping.
- Install septic systems and drainfields away from the slope.
- Don't put additional weight such as a pool, building, or storage shed near the slope's edge.
- Install elevated stairs that allow plants to grow under the steps, protecting the slope from erosion.
- Channel foot traffic down elevated stairs. Keep other foot and vehicle traffic off the slope because it can disturb the plants protecting the slope.

Regulations

- Projects that alter a lakebed or riverbed or involve removing or installing aquatic plants may require a permit from the MN DNR. Visit their website (listed below) or contact your local MN DNR office to obtain permit guidelines and application.
- Projects that alter the shoreline above the ordinary high water level may require additional permits from the county, township, watershed district, or city. Contact your County Planning and Zoning office to find out about additional permit requirements, and to get assistance in planning your shoreline project.

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