



Mille Lacs Lake Watershed
Management Group

635 2nd Street SE, Milaca, MN 56353
www.millelacswatershed.org 320-983-2160

March Topic of the Month

Avoiding the Tumble of Rip-Rap

It's finally spring, and one look at your lakeshore shows how hard the winter was. The push of ice followed by the spring melt can wreak havoc on a shoreline. How do you fix this? Is a pile of rock going to protect you? Is rip-rap really the answer? Before you answer that question, take a moment to get a better understanding of why rip-rap isn't always the best choice and what other options are available.



Unfortunately, rip-rap has numerous negative effects on a waterbody. It decreases biodiversity and increases nutrient runoff into a waterbody. It can increase the temperature of the lake, pushing out cold water organisms; and it often focuses erosion to areas where there is no protection. Also, some counties have ordinances restricting the placement of rip-rap. Rocks are not alive, and while they may slow erosion, they cannot grow to combat it. However, plants can do just that!

Plants provide food and shelter for ducks, songbirds, and other animals living in the buffer zone along a waterbody. They slow the force of rainwater and absorb nutrients and pesticides before they get into the lake. Protecting the water and the animals living in it. A mix of flowers, grasses, sedges, trees and shrubs can provide the very best root structure for long-term erosion control. Sometimes more than just a



planting is needed to stabilize a shoreline. For example, the placement of rolled-coconut-fiber coir logs can protect your plants until they become well established. New plants will grow into the coir logs and create an extremely strong root system that can hold against most erosive forces. In extreme situations, some rip-rap placed in conjunction with coir logs can be used to hold the base of a slope.

What if you already have rip-rap?

Sometimes, existing rip-rap is doing a fair job of holding the earth in place, but is not as effective or as attractive as it could be. One solution that meets both objectives is to plant within the rip-rap rather than remove it. A technique known as joint planting is one great method of planting within rip-rap. Live stakes of readily sprouting native species such as willow or dogwood are tamped into openings between the rock. A second method uses a steel rod to create a pilot hole and then the live stake is tamped into the hole.

The live stakes, 1.5" or larger in diameter, must be cut and placed while they are dormant. The strong roots of these plants will reinforce the soil and dissipate energy from waves or stream flow.



Other plants can be placed in soil between the rocks. A trowel-full of soil placed between rocks in the upper part of the rip-rap (above water) will provide an excellent substrate for planting. This technique should not be used during high water conditions where soil may erode rapidly into the lake. Size, density and age of the rocks determines whether the rip-rap is conducive to planting. In some cases, rip-rap can even be seeded effectively with a mixture of grasses and wildflowers.

The edge of our lakes doesn't have to be a barren expanse of rock to protect the shoreline from erosion. It can instead be a vibrant strong ecosystem that plays a key role in keeping the waters of our state clean. You get to decide.