

In the Winnebago System, many of the natural features of shoreland have been permanently altered or lost, and no longer provide large stretches of contiguous habitat for birds and mammals.

Off-shore wetlands and aquatic plant beds are lost each year to ice shoves, heavy waves and seasonally high water levels. These areas are no longer able to provide spawning, feeding and shelter for fish and other aquatic species.

Vegetation Restoration Strategies

Protection

Protection of natural shorelines is the best strategy. Property that has not been developed should be protected to remain as intact as possible. Other ways to protect natural shoreline vegetation include:

- ☞ Selective pruning of trees and shrubs rather than complete removal, to create viewshed
- ☞ Protecting areas from disturbances
- ☞ Creating “no-touch” zones

Restoration

Another strategy to improve the Winnebago system is to restore shoreland buffers (see Fact Sheet #1). Shoreland buffers include both the upland and the aquatic strip of land adjacent to the water’s edge. Restoration can occur in two ways: “natural” recovery and “accelerated” recovery.

Natural recovery means letting the shoreland restore itself. This method can take more time, but it takes advantage of the fact that native plant species are present in the area. The best way to allow natural recovery to occur on land is to stop mowing in these areas:

- ☞ where turf grass is not established
- ☞ on lower ground
- ☞ in shady areas
- ☞ near existing native vegetation and/or seed source
- ☞ in wet or soggy areas in the lawn nearest the water’s edge
- ☞ in areas protected from disturbance

To allow natural recovery of aquatic plants, reduce the area of disturbance caused by boat or jetski traffic by following no-wake restrictions and avoid motoring through existing aquatic plant beds. If you have significant wave energies near your shore work with local restoration experts on the best way to re-establish natural vegetation.

This fact sheet describes two ways to improve the water quality and ecology of the Lake Winnebago System: 1) improving habitat and filtering functions by protecting or re-establishing the natural shoreland vegetation buffer zones and 2) reducing soil erosion into the lake.

The Natural Recovery method is not recommended for sites that have a well established lawn or have little native vegetation remaining near the water’s edge or adjacent to the site. This method can be used landward of seawalls and riprap if enough native plants are present in the area.

Accelerated recovery means helping the restoration process by removing lawn, and replacing it with native shoreland vegetation.

This method works best in these areas:

- ☞ upland of seawalls and rock riprap
- ☞ on sites that experience heavy traffic or disturbance
- ☞ where soil has been exposed or on steep slopes
- ☞ in areas with well-established lawns

Essentially you will be planting a shoreland buffer strip. Its not necessary to do the entire area at once. Start small - plant only a ten foot-wide strip, or just a corner of your property for starters. Each year a buffer can be widened and expanded. A 35-foot-wide buffer is a standard recommendation for restoration; however many counties require wider buffers. When restoring buffers aim for the greatest width possible that will also suit your needs.



Third in a series of 3 fact sheets on shorelands and the Winnebago System

Erosion Control Strategies

Many Winnebago System shorelands experience highly erosive conditions, such as ice shoves, heavy wave action, and seasonally high water levels. In order to protect and improve water quality and habitat shoreland, erosion needs to be controlled. Erosion control strategies include rock riprap, bioengineering, and seawall replacement.

Rock Riprap

For decades rock riprap has been the primary method to help prevent shore and streambank erosion and to protect vulnerable wetlands in the Lake Winnebago System.

Riprap can be used to prevent erosion in basically two situations:

- ∞ Along shorelines directly on the bank, and
- ∞ Along the edges of wetlands or areas of aquatic vegetation

Along shorelines, a layer of quarry blasted rock is placed along the bank to protect it. In wetland situations, the rock riprap structure is constructed on the bottom of the lake directly in front of the vulnerable vegetation. In some instances, these lakebed structures have been placed some distance away from the edge of wetland out in open water. Before the use of this technique is expanded into the Lake Winnebago system, scientists are evaluating the placement of these structures for their impacts on fish, wildlife and aquatic habitat.

In many cases, rock riprap provides certain benefits for some fish. For example, in certain reaches of the Fox and Wolf Rivers, Lake Sturgeon use riprap for spawning areas. For other fish, such as smallmouth bass, riprap provides habitat for the animals they eat, such as crayfish. In such cases, habitat is typically enhanced when riprap is used as compared to similar shoreline areas that have seawalls.

A property owner needs to consider maintenance of erosion control structures. Although rock riprap is the most permanent erosion control practice used, it does require long-term maintenance. This may include adding rock as it settles, or changing rock position as it falls into the water.

Bioengineering

Bioengineering is simply the use of natural materials, such as bundles of willow branches or rolls of coconut fibers for erosion control. Bioengineering might be very effective in certain locations in the Winnebago System such as boat channels or shoreline stretches that are protected from strong winds and waves. Bioengineering has been used successfully in other areas of the state. In view of the historical and widely recognized problems associated with ice shoves and heavy wave action, the use of bioengineering as an effective erosion control practice on the Winnebago System has not been widely tested. However, there is an initiative underway to look at alternative erosion control methods, such as bio-engineering, and evaluate how suitable they are in the Winnebago System.

Replacing Degraded Seawalls

In the past, thousands of feet of seawalls were installed on the system to prevent further loss of shoreline and streambank. Through the years many have deteriorated to such a point that they are beginning to fail and need replacement. Although seawalls stop

shoreline erosion, they provide very little, if any, habitat for aquatic life and serve as an obstacle to many amphibians, reptiles and birds. Landowners may choose to replace old seawalls with rock riprap or use bioengineering to provide a more environmentally friendly shoreline. These techniques will be more cost effective than installing another seawall in most cases.

Permitting

It's important to remember that all erosion control methods will require a permit from the Department of Natural Resources. Permit decisions for erosion control structures are evaluated on a case by case basis. Contact the appropriate DNR Water Regulations and Zoning Specialist (see phone number below) as soon as you start thinking of addressing your shoreline erosion problems.

Erosion Control Challenges

There are challenges with any method of erosion control. Cost and long-term maintenance are certainly factors for any method selected. However, the biggest challenge lies in selecting the appropriate erosion control method for the conditions of your site. In many cases, a combination of methods may be appropriate.

When looking at erosion control techniques it is important to recognize that there is a continuum of habitat values that each method provides. While riprap provides more wildlife and aquatic habitat than seawalls, bio-engineered and natural shorelines usually provide better habitat than ones that have been riprapped. The challenge for the property owner and erosion control specialist is to determine whether a shoreline has the right conditions for bioengineering to be effective. Using bioengineering techniques on a shoreline might not be effective under highly erosive conditions. A property owner who uses bioengineering under the wrong conditions might be faced with the need to install riprap several years later.

By stabilizing the shoreline and planting an upland vegetative buffer, property owners can provide the most environmentally friendly shoreline protection possible. Water quality is enhanced through the decreased flow of sediment and nutrients into the system. Turtles, frogs, fish and other critters are provided with habitat that would otherwise not have been available. The right combination of shrubs and plants can provide an aesthetically appealing shoreline for the property owner and an inviting and healthy habitat for fish and wildlife.

In Winnebago County, to obtain a list of native plant species, landscapers and nurseries that specialize in native plants and restoration, and restoration guidelines, please contact:

UW-Extension (920) 232-1970
Land and Water Conservation Dept. (920) 232-1950
DNR (permitting) (920) 424-7885