

Options for your shore *cont.*:

- ★ Coconut or brush mats planted with native vegetation seed or plugs.



- ★ Coconut or wood fiber logs staked along from the shore and plant behind to the water line

Where applicable: Shallow slopes with some wave action



For additional information on how to bioengineer your shoreline visit:

Wisconsin DNR—Resources on Shoreland Restoration: <http://dnr.wi.gov/org/water/wm/dsfm/shore/restoration.htm>

US EPA—Green Landscaping Wild Ones Handbook: <http://www.epa.gov/greenacres/wildones/handbk/index.html>

IL EPA—Bioengineering Alternatives: <http://www.epa.state.il.us/water/conservation-2000/lake-notes/shoreline-stabilization/bioengineering-alternatives.html>

US Fish and Wildlife Service—Soil Bioengineering Guide: <http://www.fs.fed.us/publications/soil-bio-guide/>

Wisconsin DNR—The Water's Edge: <http://dnr.wi.gov/org/water/wm/dsfm/shore/documents/watersedge.pdf>

This pamphlet was produced by:

JFNew

**708 Roosevelt Road
Walkerton, Indiana 46574
(574) 586-3400**

If you have any questions regarding the study or pamphlet, please contact JFNew.



Lake Shore Protection and Restoration

Typical Erosion Control Measures:



Traditional shoreline protection has relied on "hard armor" measures such as concrete seawalls, sheet pile, and rip-rap. While effective at preventing shoreline erosion, these techniques can have several detrimental effects to a lake.

- ★ Hard armoring reduces the habitat available for invertebrates and thus the birds and fish that feed upon them.
- ★ Energy from waves shifts to adjacent areas of the shoreline causing erosion on your neighbors property.
- ★ Hard armor does not absorb wave energy, and can cause continuous rough water during periods of heavy use.

The Alternative—Bioengineering:

Bioengineering is any erosion control measure that incorporates engineering principles and biological components. Bioengineering techniques seek to mimic the natural ecosystem.

Bioengineering Advantages:

- ★ Provides excellent fish and wildlife habitat through the use of vegetation
- ★ Leads to better lake quality by filtering runoff from the land adjacent to the lake
- ★ Reduces wave energy
- ★ Prevents shoreline erosion
- ★ Adds color and variety to your yard.
- ★ Adsorbs and utilizes nutrients from the water that would otherwise feed algae in your lake.



Options For Your Shore:



★ A variety of erosion control blankets can be used directly on substrate that has been seeded.

Where applicable: Shallow slopes with little wave action

- ★ Glacial rock or limestone boulders set along the shore and planted with clusters of native vegetation (left)



- ★ Soil encapsulated lifts-rock toe (right)
Where applicable: Steep slopes-high energy

Where applicable: Steep slopes – high energy