Shoreline and Shallows

Restoring Resiliency to Shorelines

2025

MICHIGAN NATURAL SHORELINE PARTNERSHIP

Housekeeping Tidbits

Lunch
Food: Room 106
Eating: Lincoln Room

2025 Sponsors

McNALMS
Michigan Chapter of the North American Lake Management Society

MLSA
Michigan Lakes and Streams Association

Shoreline & Shallows 2025 Planning Team

Julia Kirkwood, Water Resources Division, EGLE
Eric Calabro, EGLE
Dave Schuberg, EGLE

Lois Wolfson, Retired Institute of Water Research, MSU
Jeremy Hartsock, Institute of Water Research MSU

Erick Elgin, MSU Extension
Paige Filice, MSU Extension

Melissa DeSimone, Michigan Lakes and Streams Association

EVALUATION

Mission

Since 2008

Protecting Michigan lakes through the conservation and restoration of natural shorelines

EGLE
Michigan Department of Environment, Great Lakes, and Energy

Michigan State University Extension

Institute of Water Research
Michigan State University

MLSA
Michigan Lakes and Streams Association

GEI Consultants

wildtype
native plants • ecological services

Huron River Watershed Council

MNLA

Tip of the Mitt Watershed Council

Department of Natural Resources
DNR
Michigan

Van Buren Conservation District

Red Twig

Washtenaw County Water Resources Commissioner

pointblue
Environmental & Natural Resources

Current MNSP Partners

Four Interconnected Objectives

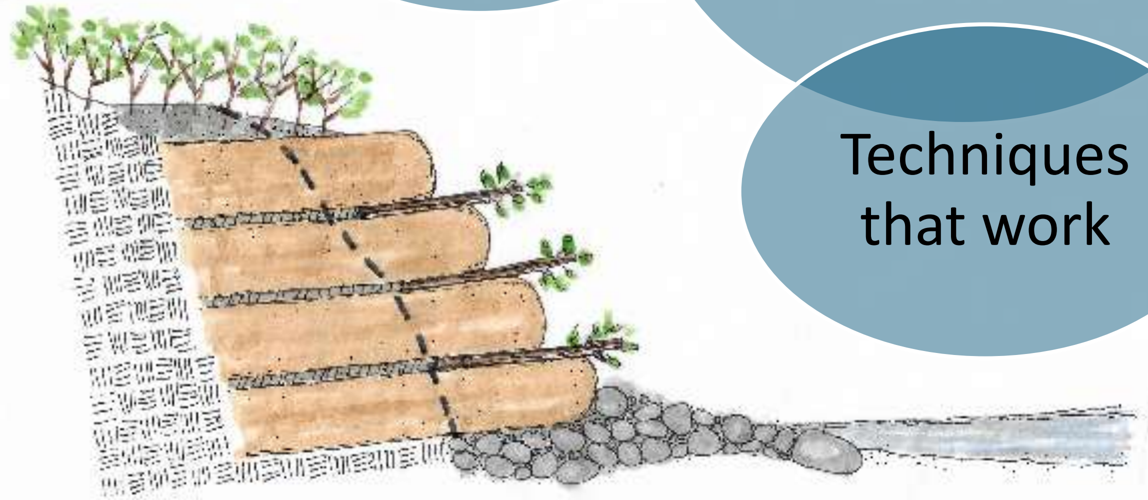
Informed Contractors

Policy Changes

Healthier Shorelines

Interested Property Owners

Techniques that work



Graphic: J. Buchanan Redtwig Environmental

Photo: J. Kirkwood

Four Interconnected Objectives

Informed Contractors

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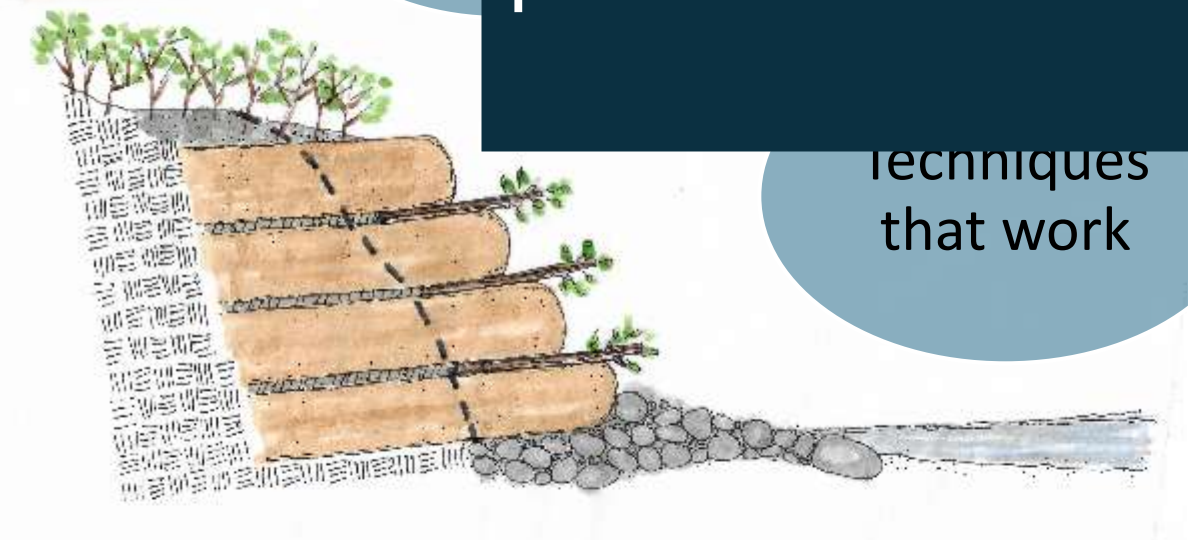
Techniques that work

2025

the most bioengineering permits since we started!



Graphic: J. Buchanan Redtwig Environmental

Photo: J. Kirkwood

Shoreline Contractor Training

First Classes 2010

Current
2 days of classroom
1 field day
Exam

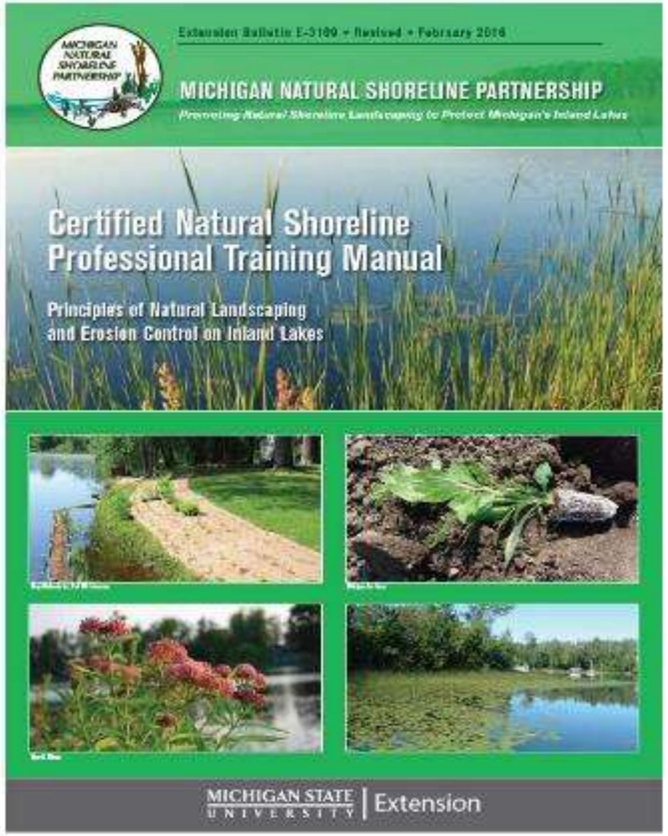
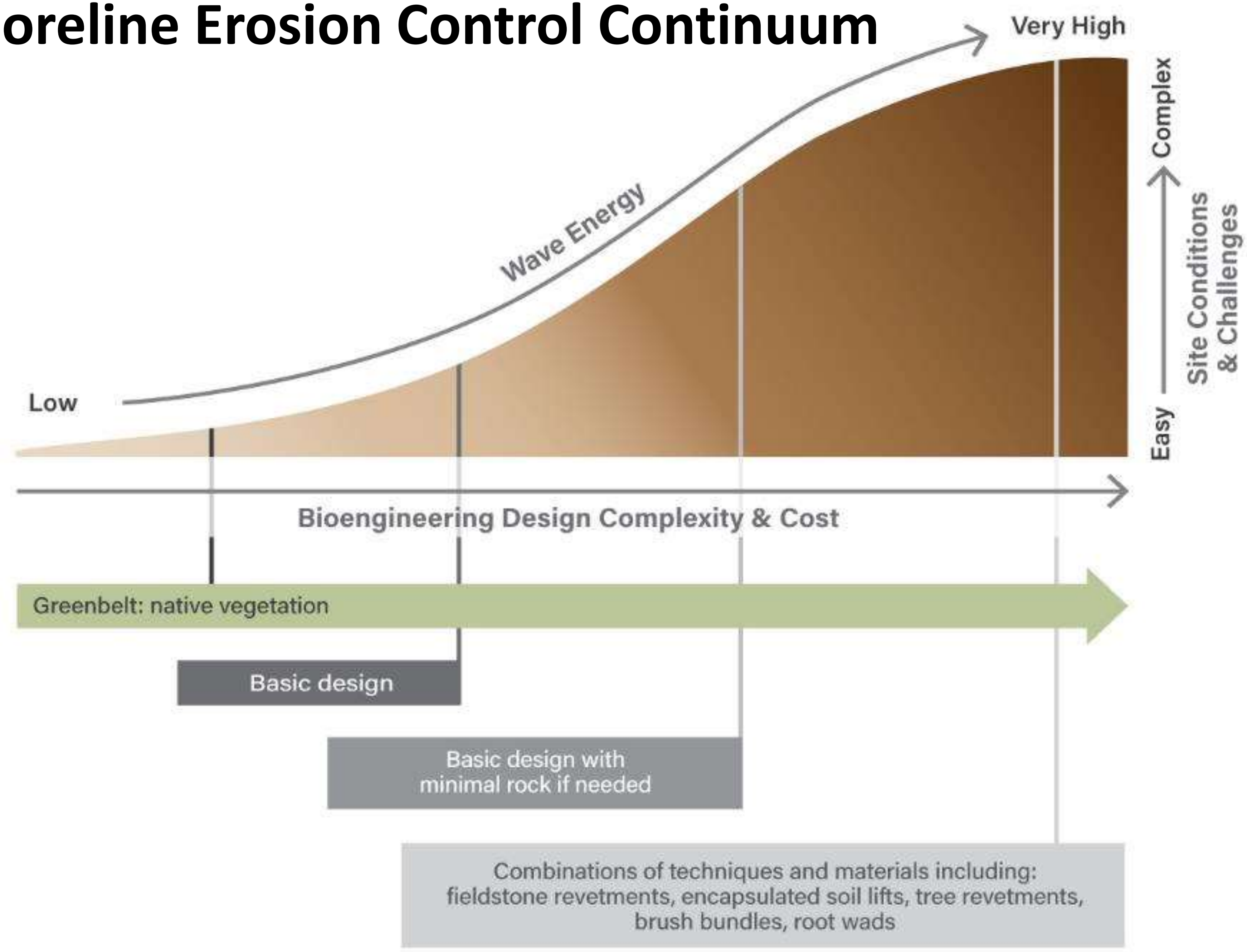
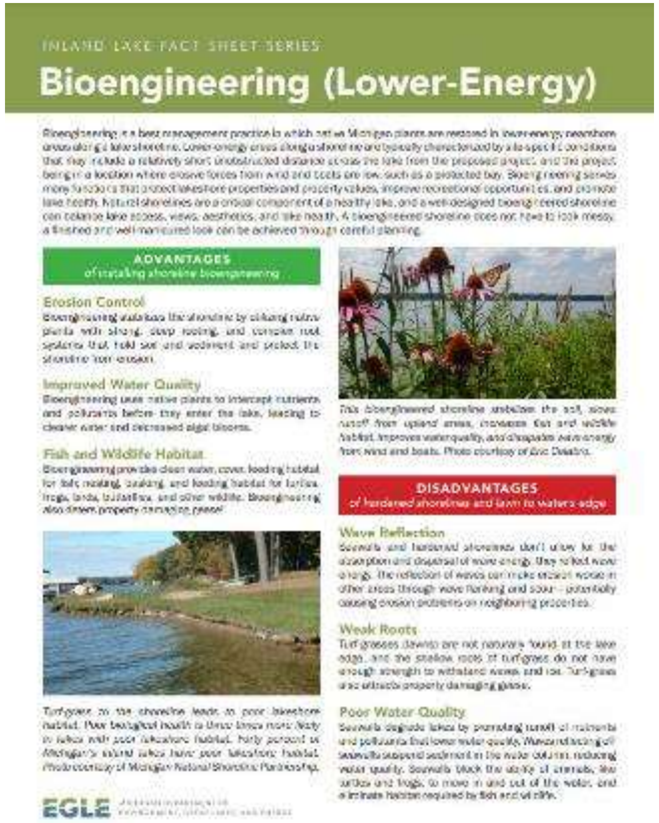


Photo: J. Herbert

Photo: J. Herbert

Natural Shoreline Erosion Control Continuum





INLAND LAKE FACT SHEET SERIES

Bioengineering (Lower-Energy)

ADVANTAGES of installing shoreline bioengineering

Erosion Control

Improved Water Quality

Fish and Wildlife Habitat

DISADVANTAGES of hardened shorelines and lawn to water's edge

Wave Reflection

Weak Roots

Poor Water Quality

EGLE

INLAND LAKE FACT SHEET SERIES

Biotechnical Erosion Control (Higher-Energy)

ADVANTAGES of installing shoreline bioengineering

Erosion Control

Improved Water Quality

Fish and Wildlife Habitat

DISADVANTAGES of hardened shorelines and lawn to water's edge

Wave Reflection

Weak Roots

Poor Water Quality

EGLE

INLAND LAKE FACT SHEET SERIES

Encapsulated Soil Lifts

ADVANTAGES of installing encapsulated soil lifts

Erosion Control

Improved Water Quality

Fish and Wildlife Habitat

DISADVANTAGES of hardened shorelines and lawn to water's edge

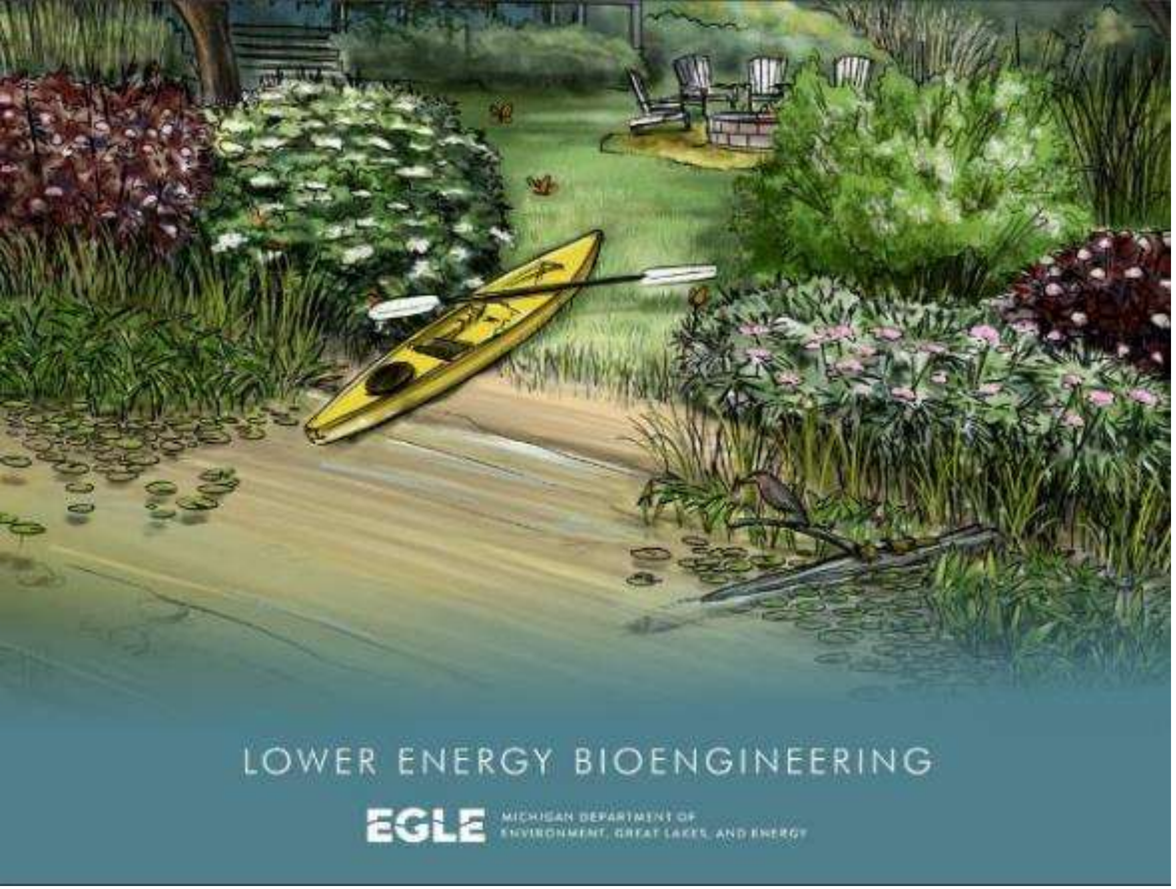
Habitat Elimination

Degraded Water Quality

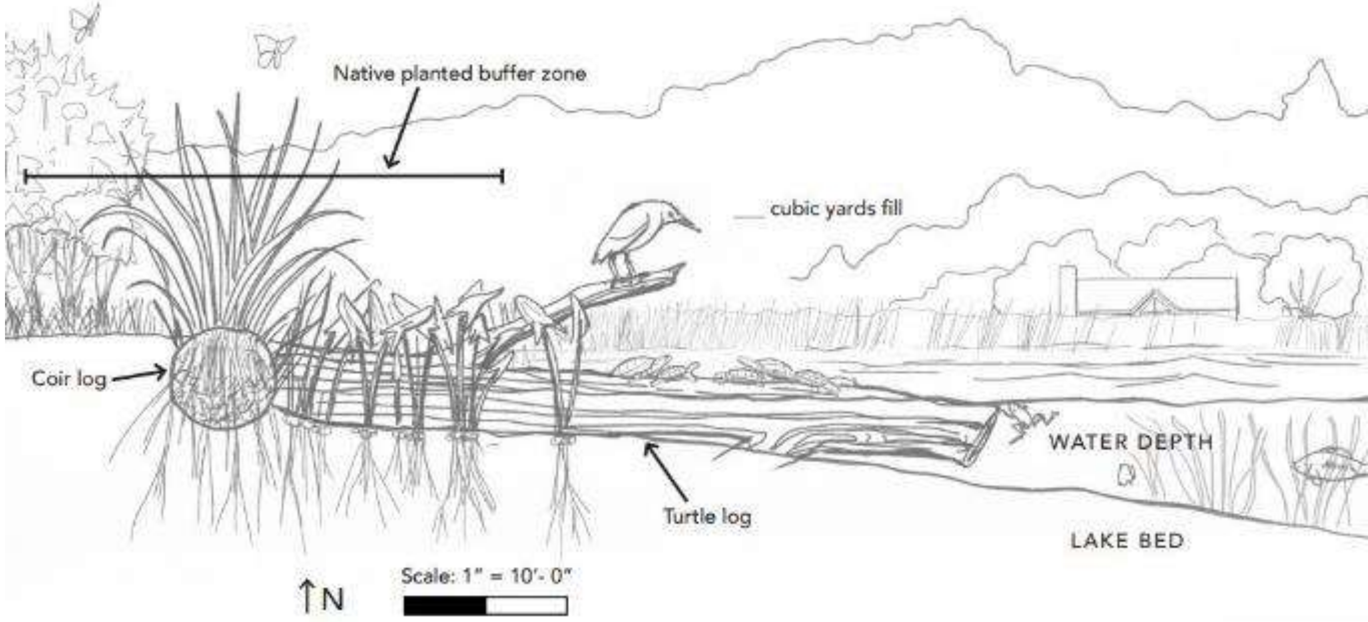
Cumulative Impacts

EGLE

Fact Sheets for Basic Techniques



This project can be processed on a quicker timeline and at a lower fee if it meets the criteria of the Minor Project Category. Minor Project categories can be viewed at the following website: Michigan.gov/documents/egle/WRD-Minor-Project-Categories_733320_7.pdf



EGLE MICHIGAN DEPARTMENT OF ENVIRONMENT, GREAT LAKES, AND ENERGY

800-662-9278 | Michigan.gov/EGLE

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To request this material in an alternative format, contact EGLE-Accessibility@Michigan.gov or call 800-662-9278).

03/2022

www.Michigan.gov/LakesAndStreams

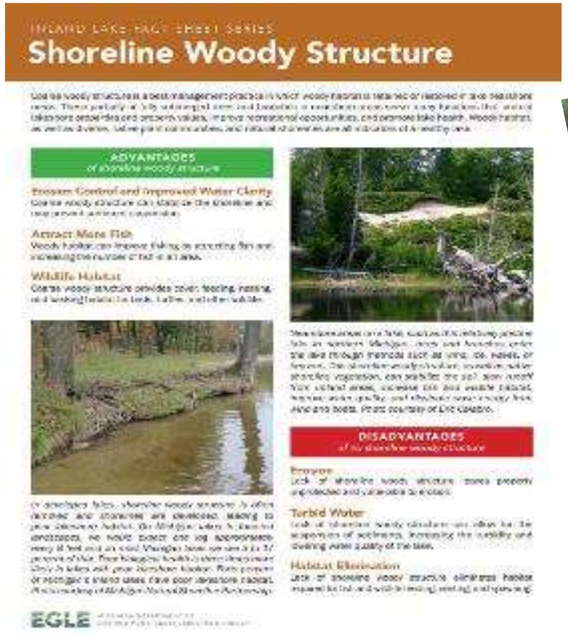
It Folds!

It Flips!

It Fits!

(in a glove box)

Supporting Shoreline Woody Habitat for Erosion Control and Fish and Wildlife


INLAND LAKE FACT SHEET SERIES

Shoreline Woody Structure

ADVANTAGES of shoreline woody structure

Erosion Control and Improved Water Clarity

Attract More Fish

Wildlife Habitat

DISADVANTAGES of no shoreline woody structure

Erosion

Turbid Water

Habitat Elimination

EGLE

Crockery Lake
CNSP Demo Site

Photo: E. Calabro

Portage Lake
Large "Fish Sticks" Installation

Photo: Natural Shorelines Forever (C. Kivi)

Fish Sticks: Lessons Learned from 13+Years of Implementation

Scott Toshner

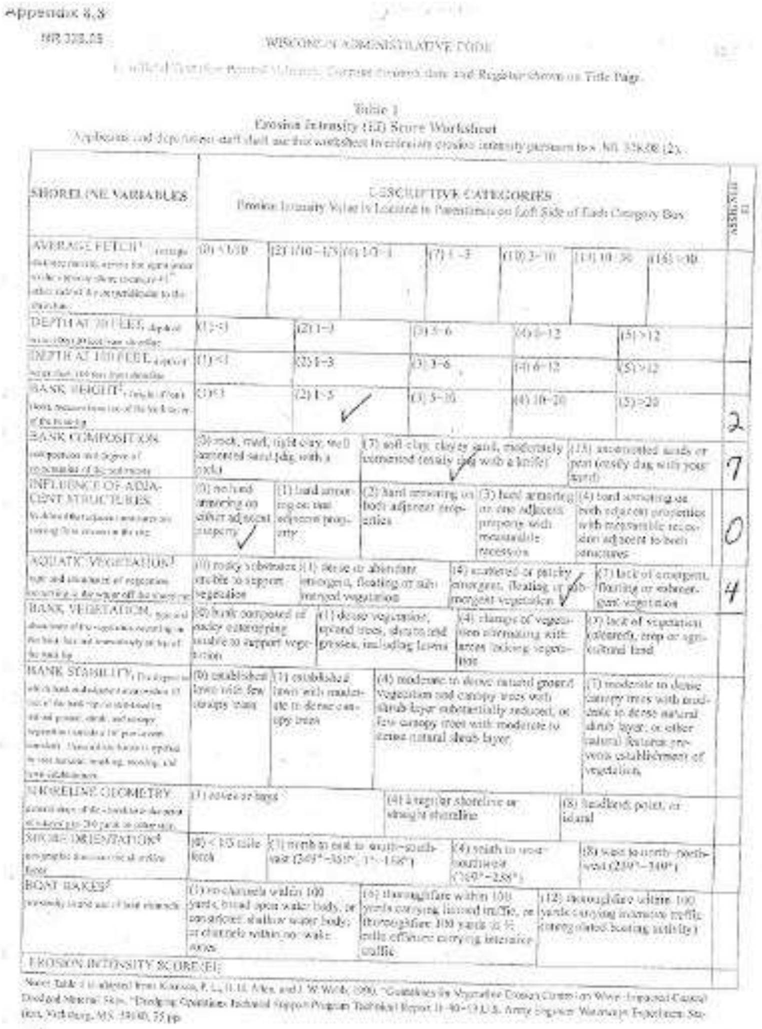
Wisconsin Department of Natural Resources

fish_sticks_wi_dnr_toshner.pdf
Download File

Photo by Mark Bugnaski

Storm Wave Height Calculator/Shoreline Energy

Paper Version



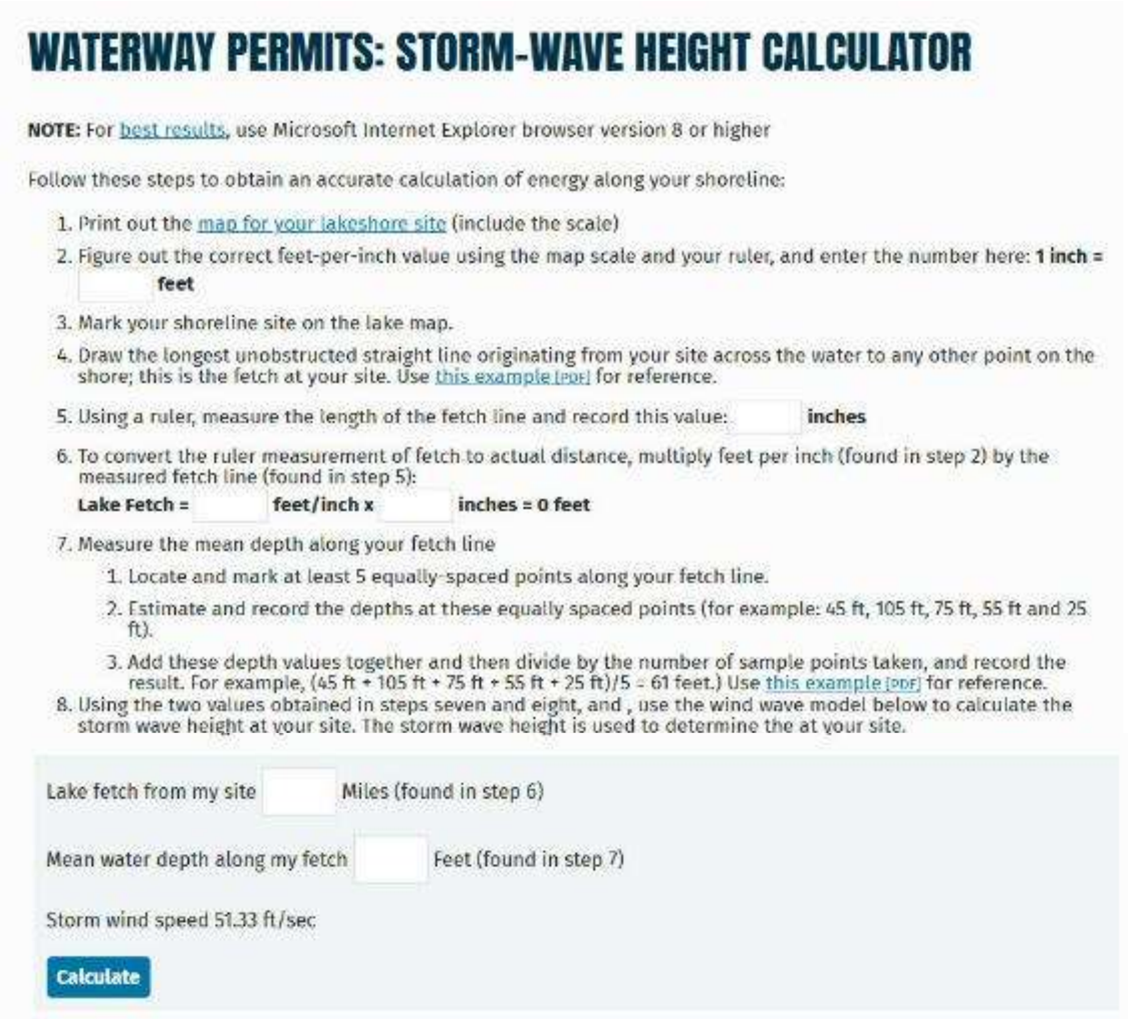
Appendix 4.3

NR 328.08 WISCONSIN ADMINISTRATIVE CODE

Table 1
Erosion Intensity (EI) Score Worksheet

SHORELINE VARIABLES	DESCRIPTIVE CATEGORIES	
AVERAGE FETCH		
DEPTH AT 30 FEET		
DEPTH AT 100 FEET		
BANK HEIGHT		2
BANK COMPOSITION		7
INFLUENCE OF ADJACENT STRUCTURES		0
AQUATIC VEGETATION		4
BANK VEGETATION		
BANK STABILITY		
SHORELINE GEOMETRY		
SHORE ORIENTATION		
BOAT WAKES		
EROSION INTENSITY SCORE (EI)		

Wisconsin Online – Quick version



WATERWAY PERMITS: STORM-WAVE HEIGHT CALCULATOR

NOTE: For best results, use Microsoft Internet Explorer browser version 8 or higher

Follow these steps to obtain an accurate calculation of energy along your shoreline:

1. Print out the map for your lakeshore site (include the scale)
2. Figure out the correct feet-per-inch value using the map scale and your ruler, and enter the number here: **1 inch =** **feet**
3. Mark your shoreline site on the lake map.
4. Draw the longest unobstructed straight line originating from your site across the water to any other point on the shore; this is the fetch at your site. Use this example [PDF] for reference.
5. Using a ruler, measure the length of the fetch line and record this value: **inches**
6. To convert the ruler measurement of fetch to actual distance, multiply feet per inch (found in step 2) by the measured fetch line (found in step 5):
   Lake Fetch = **feet/inch x** **inches = 0 feet**
7. Measure the mean depth along your fetch line
   1. Locate and mark at least 5 equally-spaced points along your fetch line.
   2. Estimate and record the depths at these equally spaced points (for example: 45 ft, 105 ft, 75 ft, 55 ft and 25 ft).
   3. Add these depth values together and then divide by the number of sample points taken, and record the result. For example, (45 ft + 105 ft + 75 ft + 55 ft + 25 ft)/5 = 61 feet.) Use this example [PDF] for reference.
8. Using the two values obtained in steps seven and eight, and , use the wind wave model below to calculate the storm wave height at your site. The storm wave height is used to determine the at your site.

Lake fetch from my site Miles (found in step 6)

Mean water depth along my fetch Feet (found in step 7)

Storm wind speed 51.33 ft/sec

Calculate

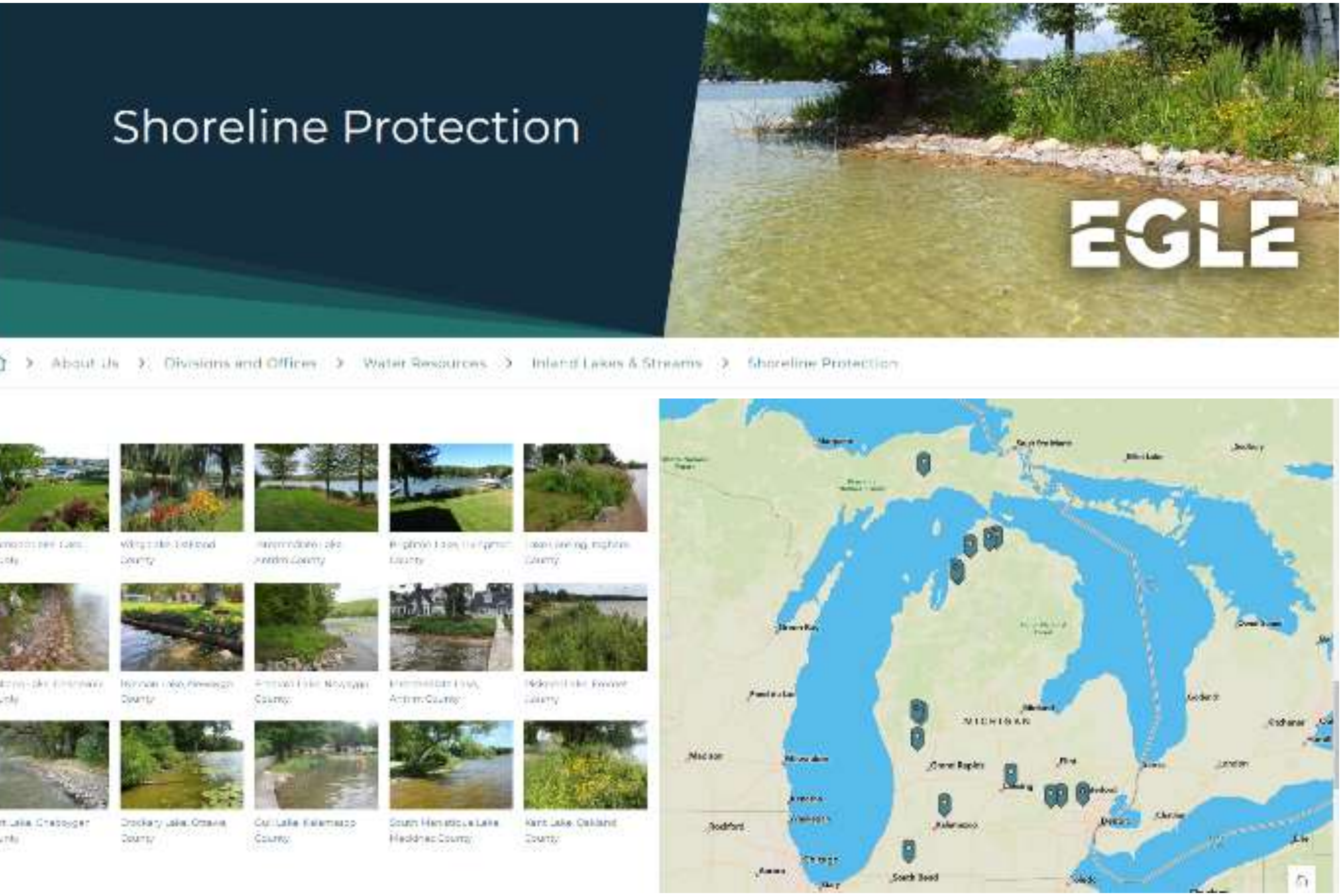
Inland Lake Shoreline Energy Assessment Instructions

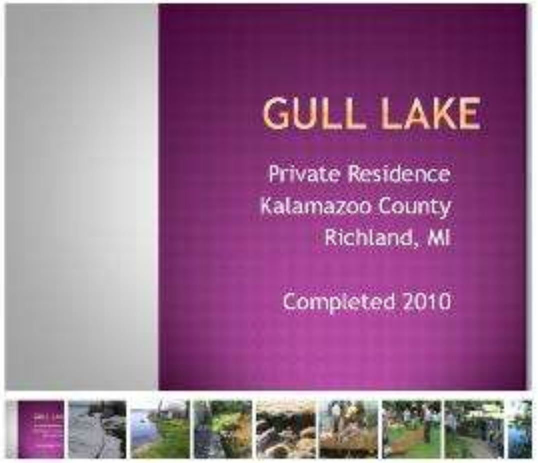
This manual provides instructions and explanation on the Inland Lake Shoreline Energy Assessment Tool

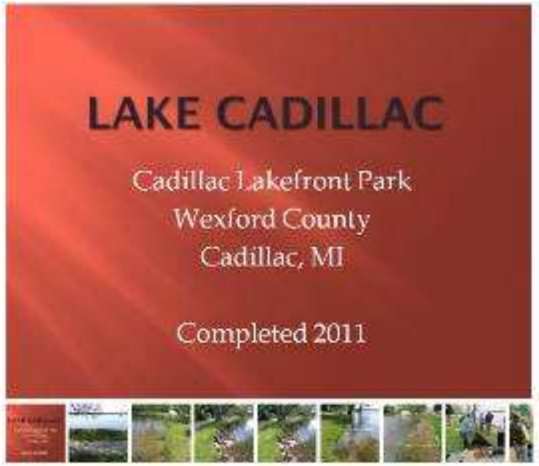
EGLE MICHIGAN DEPARTMENT OF ENVIRONMENT, GREAT LAKES, AND ENERGY

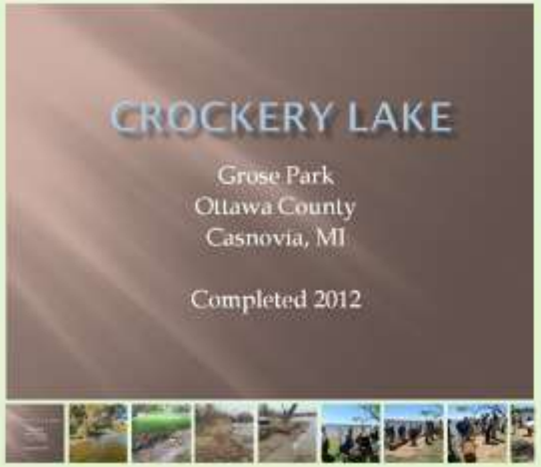
Inland Lake Shoreline Energy Analysis Submission Report

EGLE Story Map









MNSP Website Slide Shows of many CNSP sites

Watch a bio-engineering installation training day!

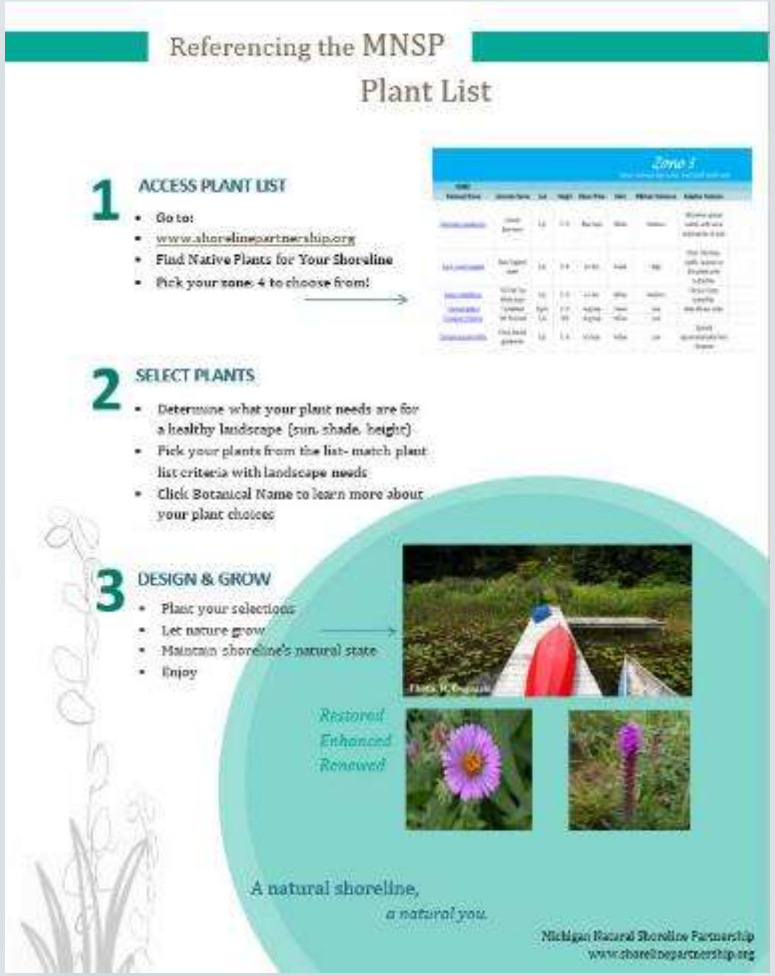
A basic design on the left and encapsulated soil lifts on the right.

Graphic: J. Buchanan Redtwig Environmental

Lunch

Photo: M. Bugnaski Photography

What plants?



Referencing the MNSP Plant List

1 ACCESS PLANT LIST

- Go to:
- www.shorelinepartnership.org
- Find Native Plants for Your Shoreline
- Pick your zone: 4 to choose from!

2 SELECT PLANTS

- Determine what your plant needs are for a healthy landscape (sun, shade, height)
- Pick your plants from the list- match plant list criteria with landscape needs
- Click Botanical Name to learn more about your plant choices

3 DESIGN & GROW

- Plant your selections
- Let nature grow
- Maintain shoreline's natural state
- Enjoy

Restored
Enhanced
Renewed

A natural shoreline,
a natural you.

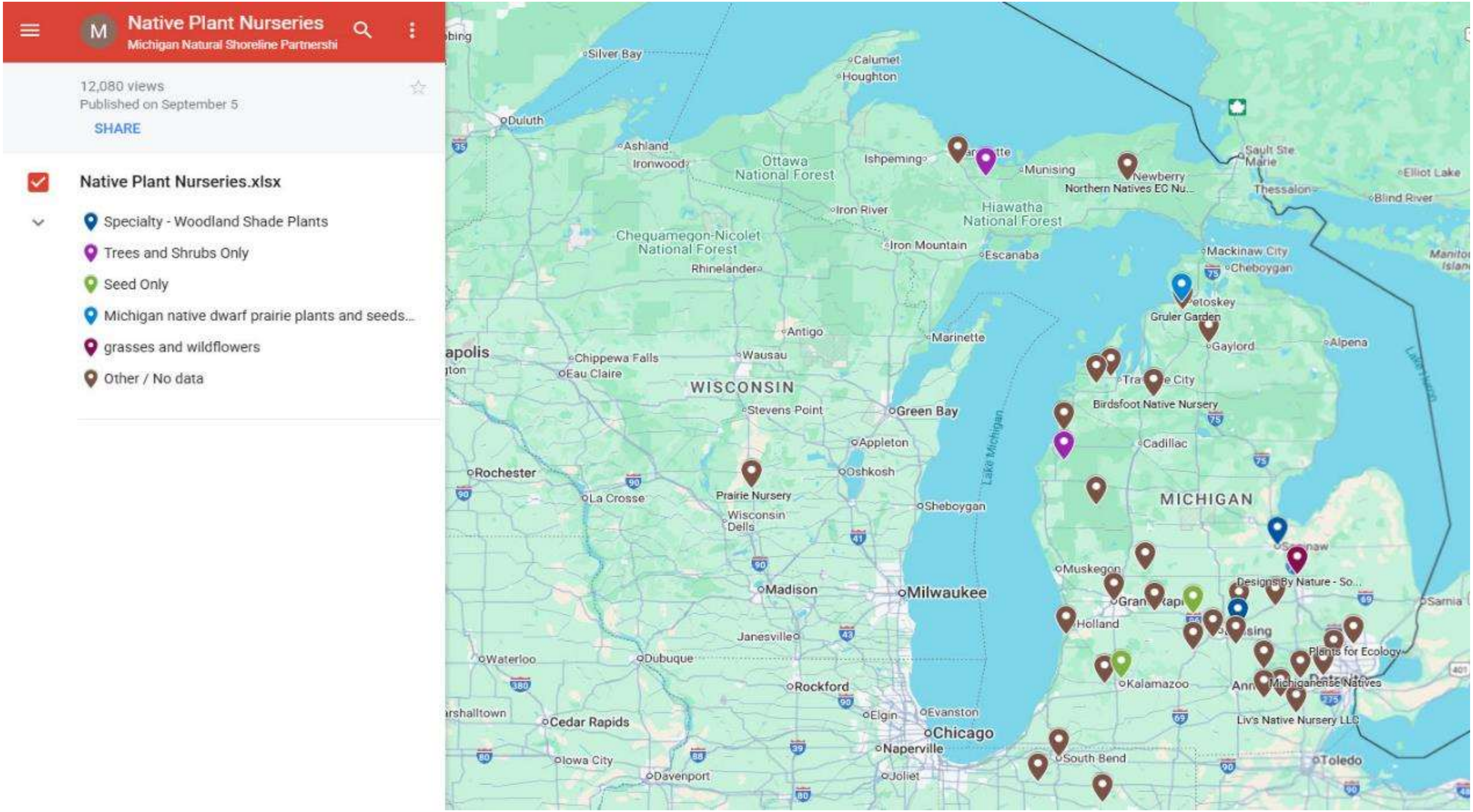
Michigan Natural Shoreline Partnership
www.shorelinepartnership.org

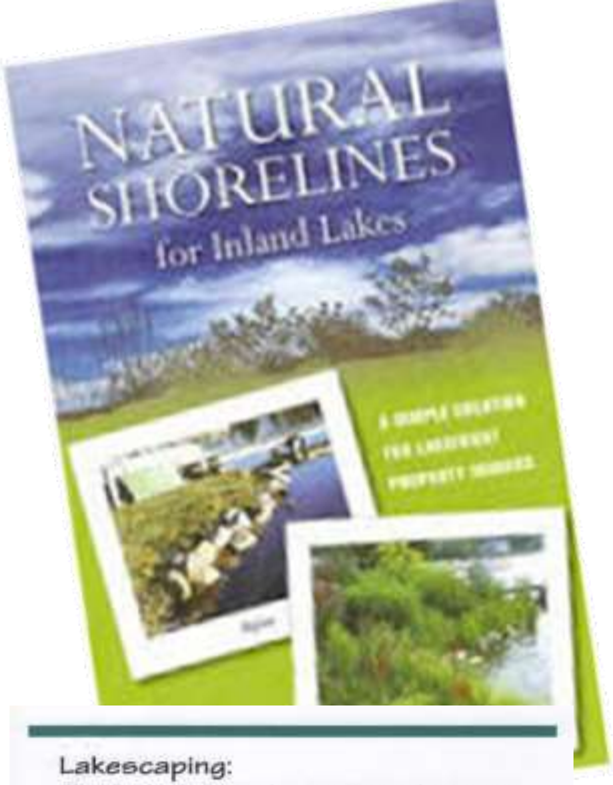
Zone 1

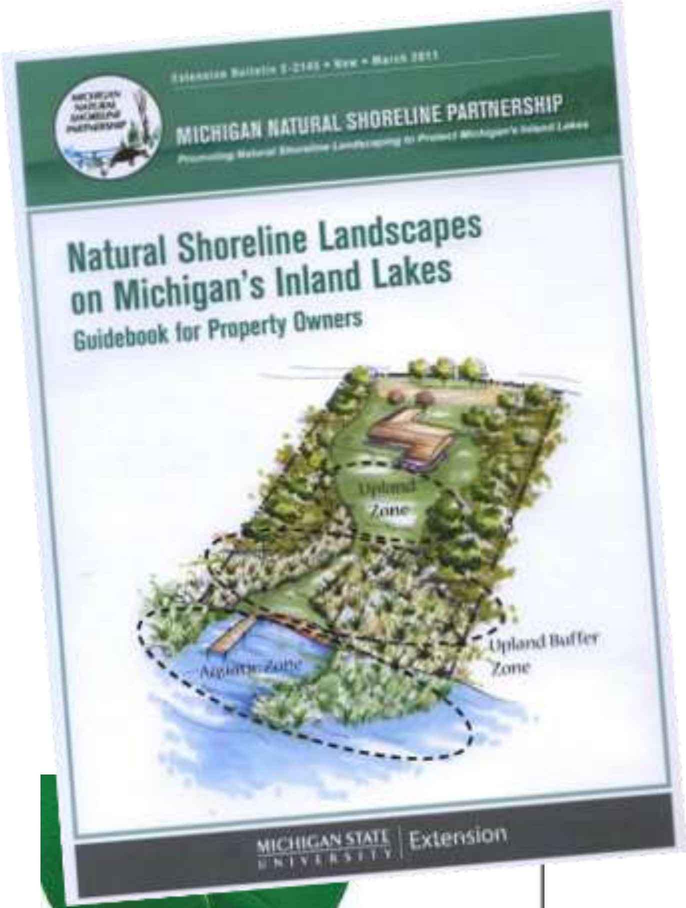
Below the Water Line (In the lake)

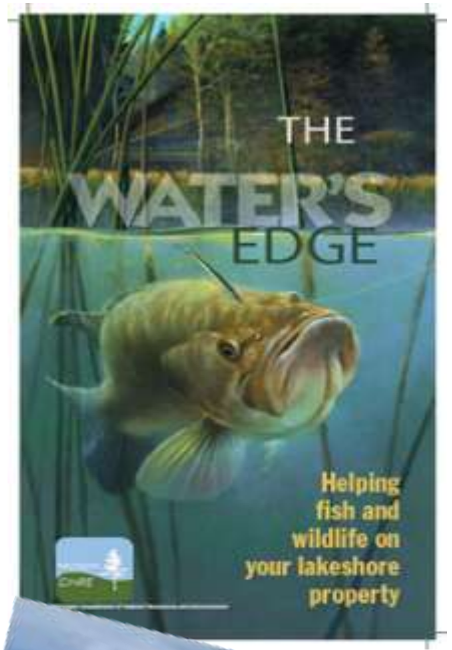
FORBS

Botanical Name	Common Nam	Sun	Heigh	Bloom Tim	Color	Siltation Toleranc	Adaptive Features
Acorus americanus	Sweet-Flag	f/p	1'-4'	May-Jun	Green	Low	Prefers stable water levels and will decrease in abundance with flood depth inceases; Will tolerate dry periods; Aromatic leaves, clump forming; wildlife food and cover; Avoid flooding of newly established plants
Alisma subcordatum-trivale	Water-Plantain	f	2'-4'	Jul-Sept	White	High	Shallow quiet slow moving water in mud of marshes, ponds, lakes, streams and ditches; Tolerates water fluctuation: wildlife food and cover
Iris versicolor	Wild Blue Flag (Wild Iris)	f/p	2-3'	May-Jul	Blue	Medium	Can tolerate regular inundation, but young shoots should not be inundated; Tuberous roots send out fibrous masses
Iris virginica	Southern Blue Flag (Wild Iris)	f/p/s	2'-3'	May-Jul	Purpl e	Medium	Tuberous roots send out fibrous masses
Nuphar advena	Yellow Pond-Lily	f/p	1'	May-Sept	Yellow	High	Breaks up wave action; Deep water plant
Nymphaea odorata	Sweet-Scented Waterlily	f/p	1'	May-Sept	White	High	Breaks up wave action; Deep water plant; Flowers open in early morning and close about noon
Peltandra virginica	Arrow-Arum	f/p/s	2'-5'	June-July	Green	High	Massive root system; Forms clumps; Breaks up wave action
Pontederia cordata	Pickerel-Weed	f/p	1'-3'	June-Sept	Violet	Med. high	Tolerates regular flooding; Slow-moving areas; Thick, spreading rhizomes, forms colonies
Sagittaria latifolia	Common Arrowhead	f/p	1'-4'	June-Sept	White	Med	Will tolerate regular inundation and withstand periods of drought; Wildlife food and cover - protect new plants especially from Canada geese
Sagittaria rigida	Stiff Arrowhead	f/p	1-3'	July-Sept	White	Med. high	Wildlife food and cover

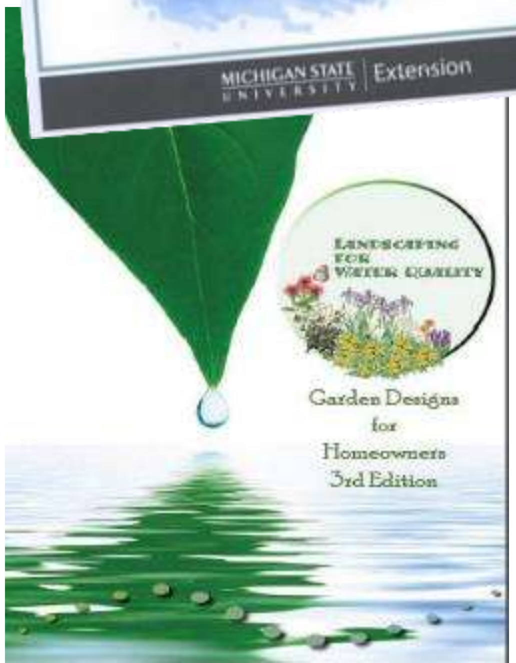

Native Plant Nurseries
Michigan Natural Shoreline Partnershi
12,080 views
Published on September 5
SHARE
Native Plant Nurseries.xlsx
Specialty - Woodland Shade Plants
Trees and Shrubs Only
Seed Only
Michigan native dwarf prairie plants and seeds...
grasses and wildflowers
Other / No data
Northern Natives EC Nu...
Gruler Garden
Birdsfoot Native Nursery
Prairie Nursery
Designs By Nature - So...
Plants for Ecology
Michiganense Natives
Liv's Native Nursery LLC
WISCONSIN
MICHIGAN
Lake Michigan
Ottawa National Forest
Hiawatha National Forest
Chequamegon-Nicolet National Forest
Duluth
Silver Bay
Calumet
Houghton
Ashland
Ironwood
Ishpeming
Munising
Newberry
Sault Ste Marie
Thessalon
Elliot Lake
Blind River
Iron River
Iron Mountain
Escanaba
Rhinelander
Mackinaw City
Cheboygan
Gaylord
Alpena
Antigo
Marinette
Chippewa Falls
Wausau
Eau Claire
Stevens Point
Green Bay
Cadillac
Appleton
Oshkosh
Rochester
La Crosse
Sheboygan
Wisconsin Dells
Muskegon
Madison
Milwaukee
Holland
Janesville
Kalamazoo
Waterloo
Dubuque
Rockford
Elgin
Evanston
Cedar Rapids
Chicago
Naperville
South Bend
Iowa City
Davenport
Joliet
Toledo
Sarnia


NATURAL SHORELINES
for Inland Lakes


MICHIGAN NATURAL SHORELINE PARTNERSHIP
Natural Shoreline Landscapes on Michigan's Inland Lakes
Guidebook for Property Owners
Upland Zone
Upland Buffer Zone
MICHIGAN STATE UNIVERSITY
Extension


THE WATER'S EDGE
Helping fish and wildlife on your lakeshore property


Lakescaping:
Shoreline landscaping that restores and preserves natural shorelines for today and future generations.
MICHIGAN STATE UNIVERSITY EXTENSION
Answers to Homeowner Questions about Lakescaping
For more resources and information, please visit:
www.shoreline.msu.edu

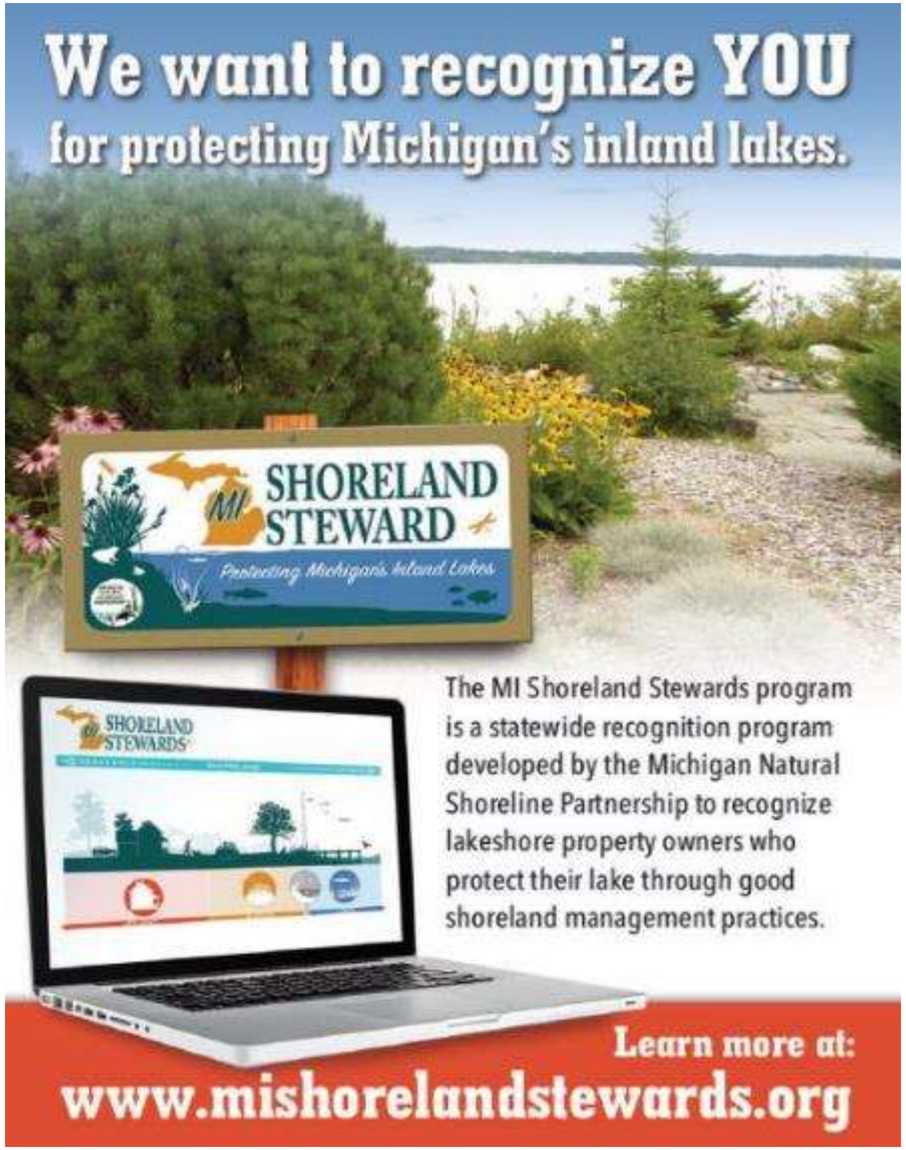

Landscaping for Water Quality
Garden Designs for Homeowners 3rd Edition


NATURAL SHORELINES
YOUR INLAND LAKE NATURAL SHORELINE:
GO NATURAL!
www.mishorelinepartnership.org


PROTECTING INLAND LAKES THROUGH NATURAL SHORELINES
An Introductory Guide to Bioengineering Techniques

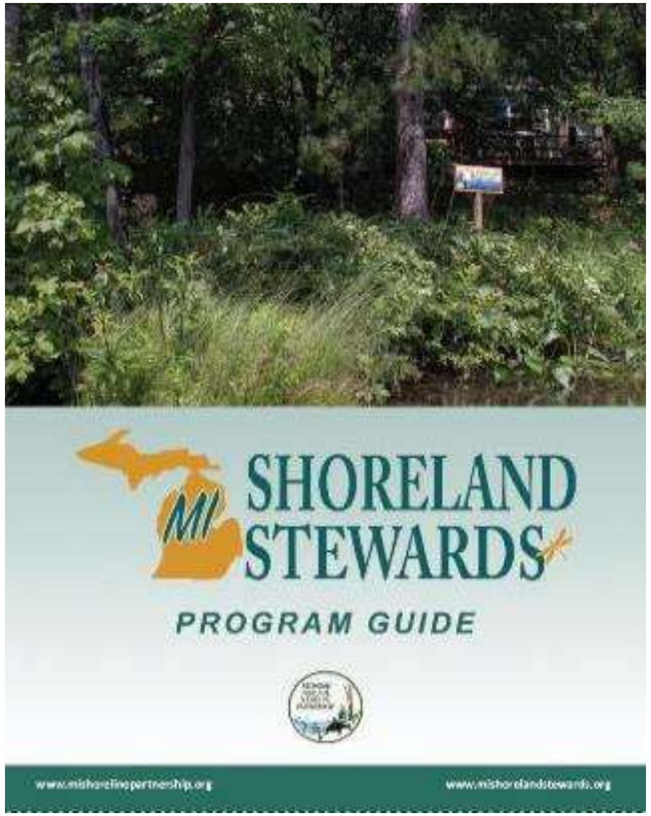
Michigan Shoreland Stewards Program

www.mishorelandstewards.org



How does your property rate?

Take the survey!



Shoreland Stewards Program Video Series

Shoreland Stewards

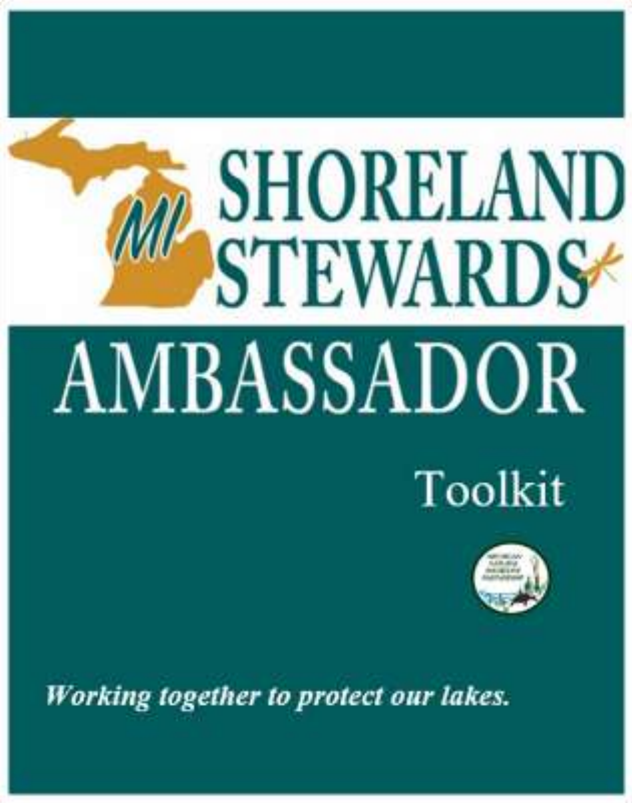
- Total Respondents: 1,895   Additional: 53 Out of State and 113 Rivers and Great Lakes
- 68% of Respondents Achieved Shoreland Steward Status
- 300,000+ linear feet

Participants from 500+ different lakes

- 207 Signs Distributed
  - 2025: 27 signs (MLSA offers for free now)

MICHIGAN NATURAL SHORELINE PARTNERSHIP

The MI Shoreland Stewards Program was developed as part of the MNSP's "Interested Property Owners" Objective

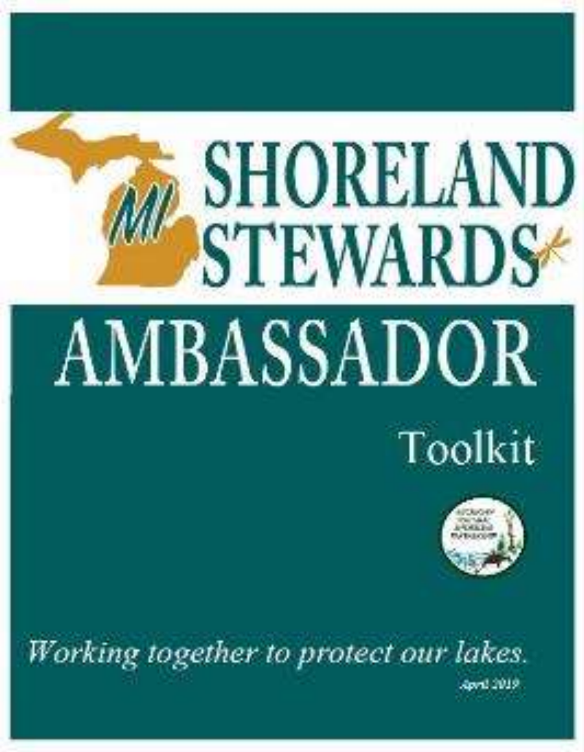


MI SHORELAND STEWARDS

The Ambassador component was developed to increase connectedness and knowledge at the local level to help protect our lakes.

MI SHORELAND STEWARDS AMBASSADOR

MI Shoreland Stewards Ambassador Self-Directed Online Training!



https://www.shorelinepartnership.org/become-an-ambassador.html


Photo: J. Latimore

One shoreline, one property owner, one policy change at time!

Not everyone can do everything,
but everyone can do something!

www.shorelinepartnership.org www.mishorelandstewards.org

MICHIGAN NATURAL SHORELINE PARTNERSHIP

SHORELAND STEWARD

EVALUATION