

Protecting your shoreline from erratic lake levels

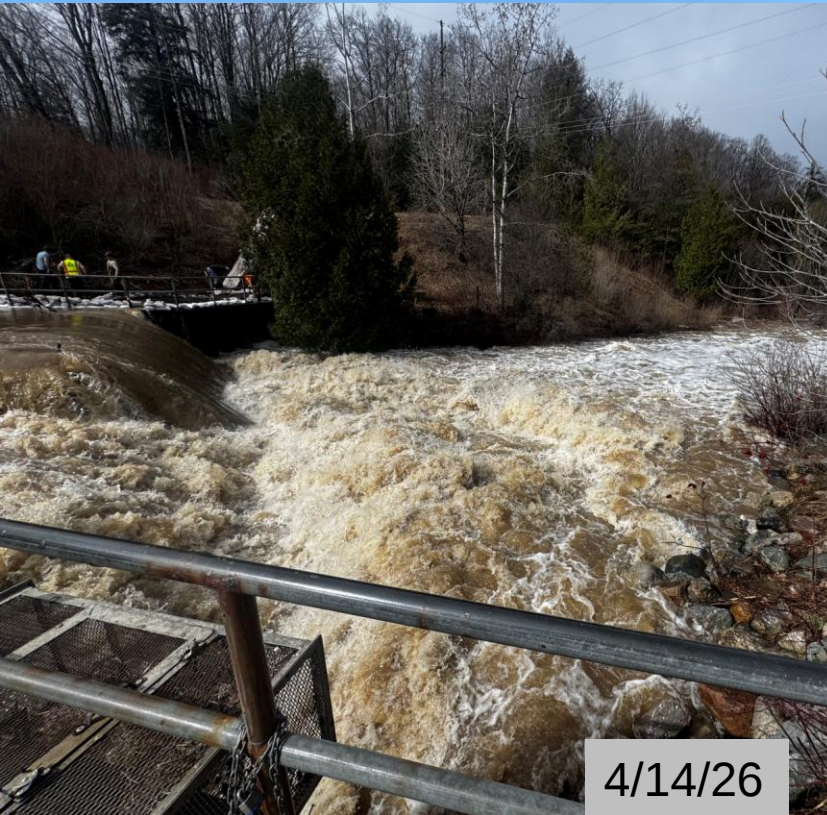
Crystal Lake Watershed Association
Annual Meeting 2026

John Ransom

Outlet Levels: early season challenges



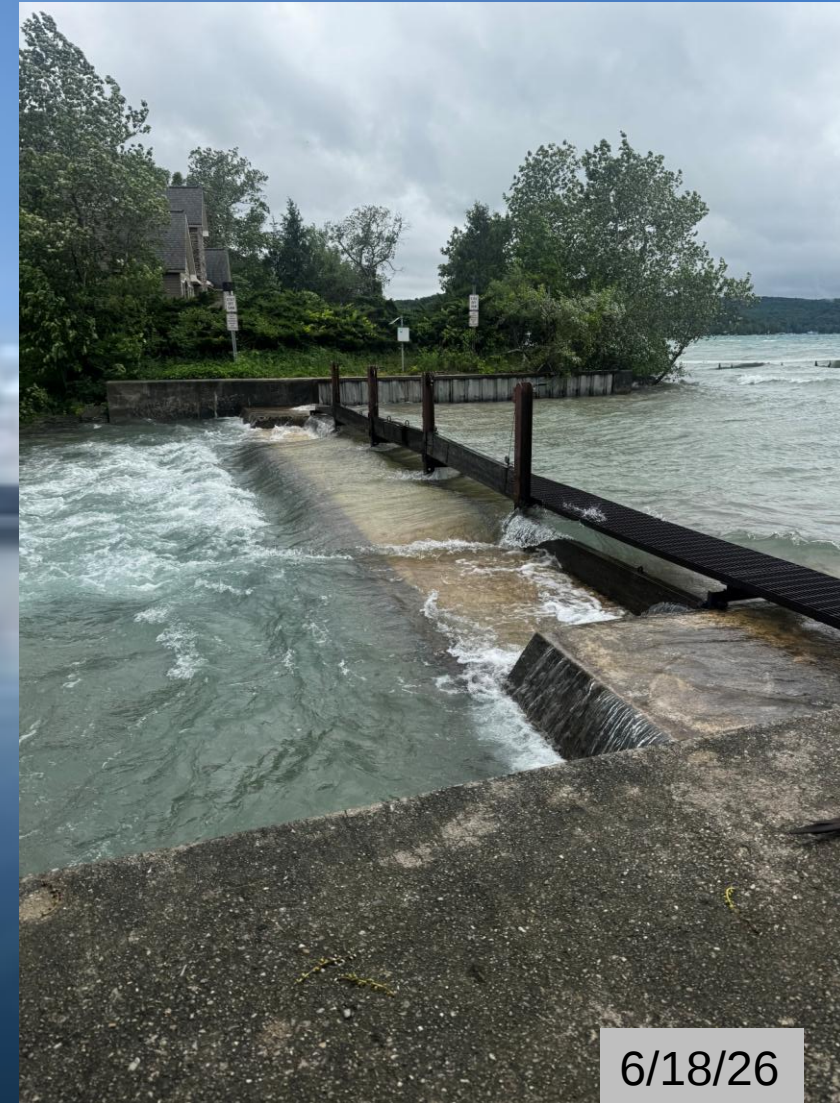
Outlet Levels: early season challenges



4/14/26



4/14/26

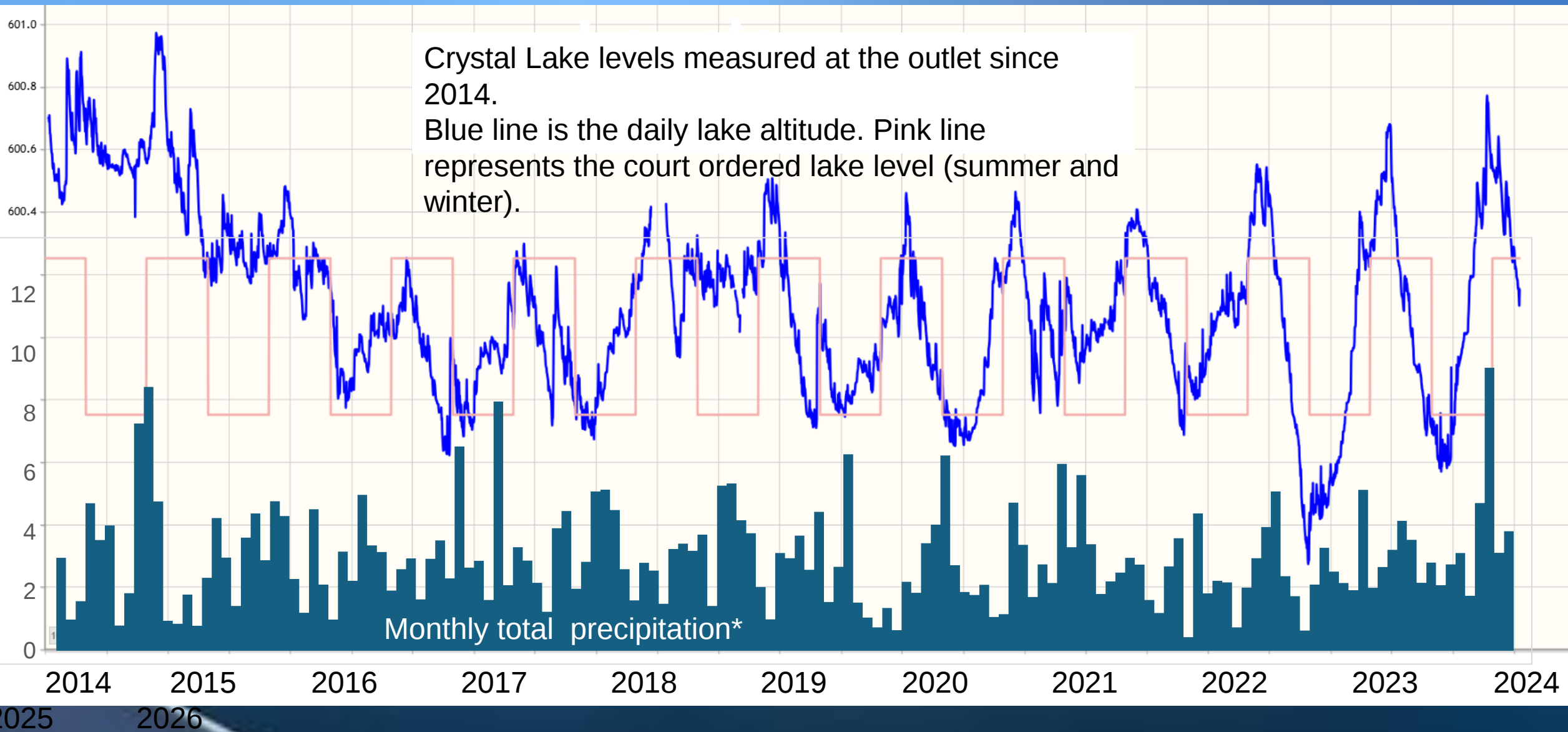


6/18/26

Outlet

Crystal Lake levels measured at the outlet since 2014.

Blue line is the daily lake altitude. Pink line represents the court ordered lake level (summer and winter).



* National Weather Service <https://www.weather.gov/wrh/Climate?wfo=apx>

Shoreline

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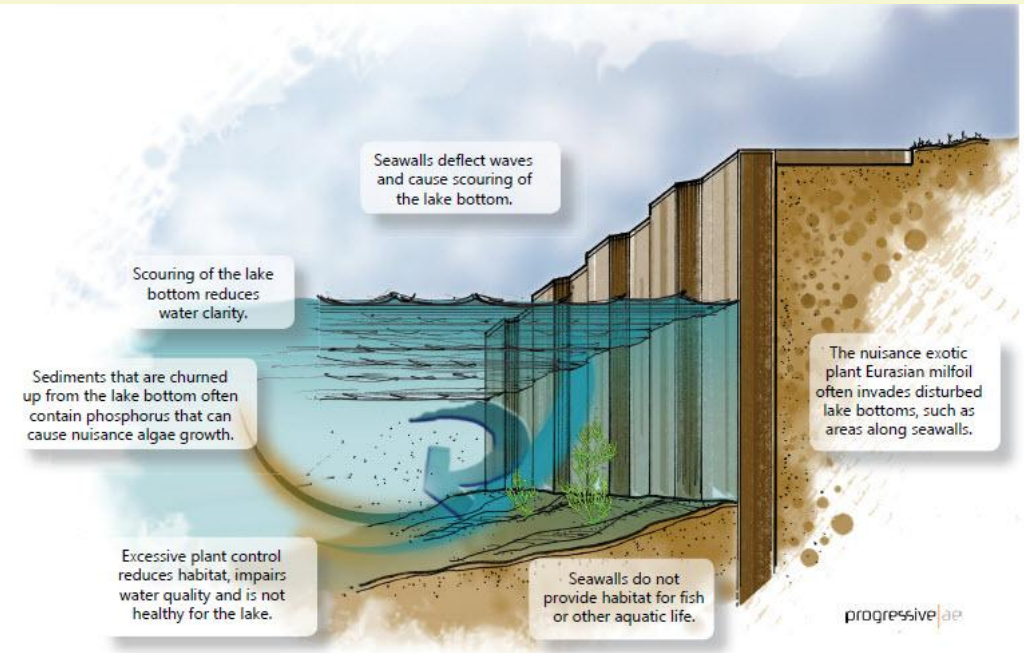
2026 shoreline erosion

issues

Main Causes of Erosion

There are many causes of accelerated erosion but the two most destructive causes are:

- 1) *Native vegetation removal - land and aquatic.*
- 2) *Hardening of the shoreline (example: seawalls).*



Shoreline

Resources

<https://www.shorelinepartnership.org/>

<https://www.michigan.gov/egle/about/organization/water-resources/inland-lakes-and-streams/shoreline-protection>

HOME

SHORELINES

EROSION AT THE SHORELINE

Michigan Natural Shoreline Partnership



BASICS OF EROSION CONTROL

SHORELAND STEWARDS

FIND NATIVE PLANTS

TRAINING

FIND A SHORELINE CONTRACTOR

SHORELINE PERMITTING INFORMATION

LIBRARY

SITE EXAMPLES

Inland Lake Shoreline
Protection

EGLE

Shoreline Assessment

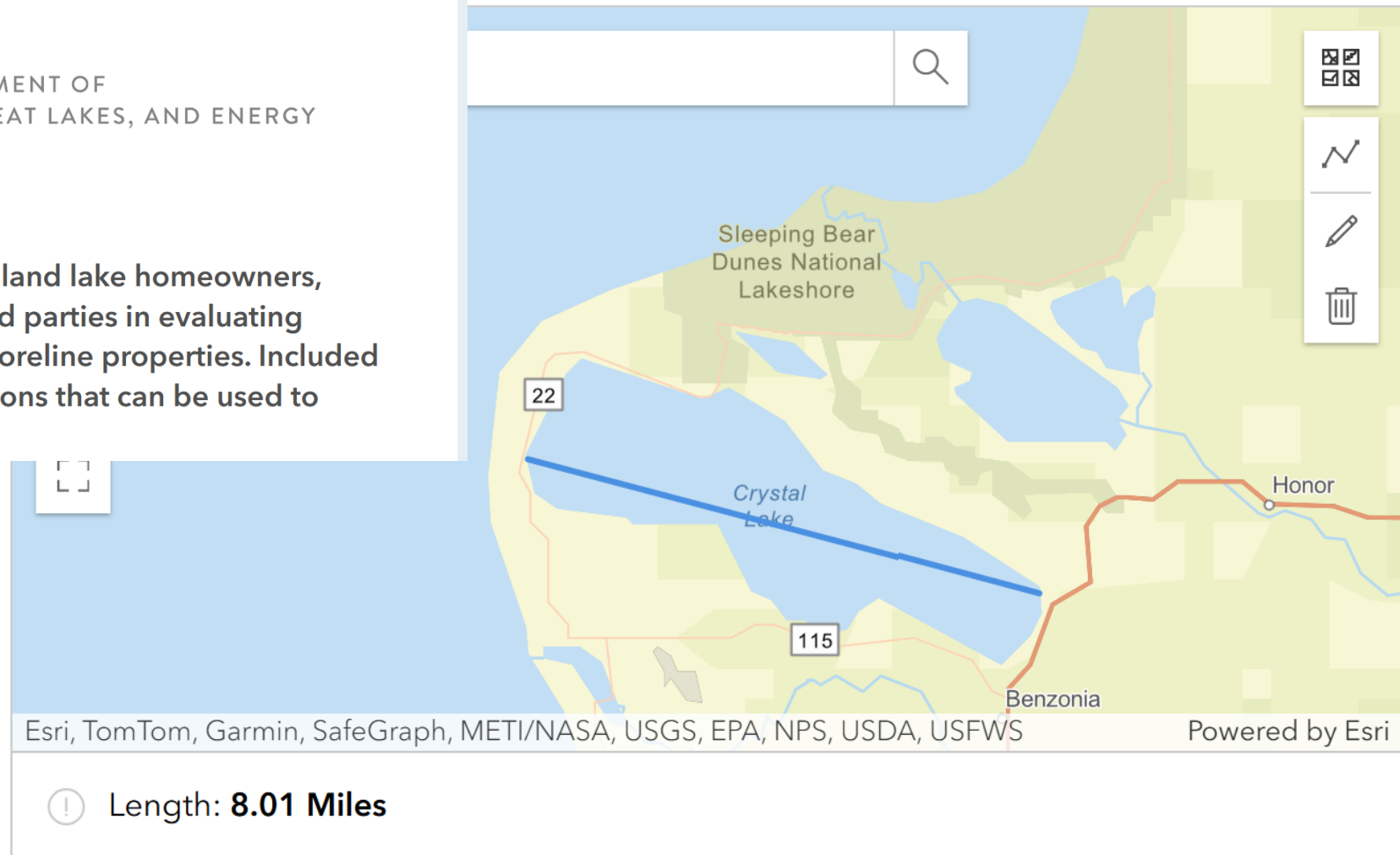
Inland Lake Shoreline Energy Assessment



MICHIGAN DEPARTMENT OF
ENVIRONMENT, GREAT LAKES, AND ENERGY

This shoreline assessment was built to aid inland lake homeowners, contractors, consultants, and other interested parties in evaluating shoreline energy potential on inland lake shoreline properties. Included in the shoreline assessment are some questions that can be used to inform shoreline protection design.

<https://survey123.arcgis.com/share/c4883782054644ec8e7e43d42d32b57f>



Shoreline Resources



SEAWALL REPLACEMENT WITH NATIVE-PLANTED
BUFFER STRIP BEST MANAGEMENT PRACTICE



HIGHER ENERGY BIOENGINEERING

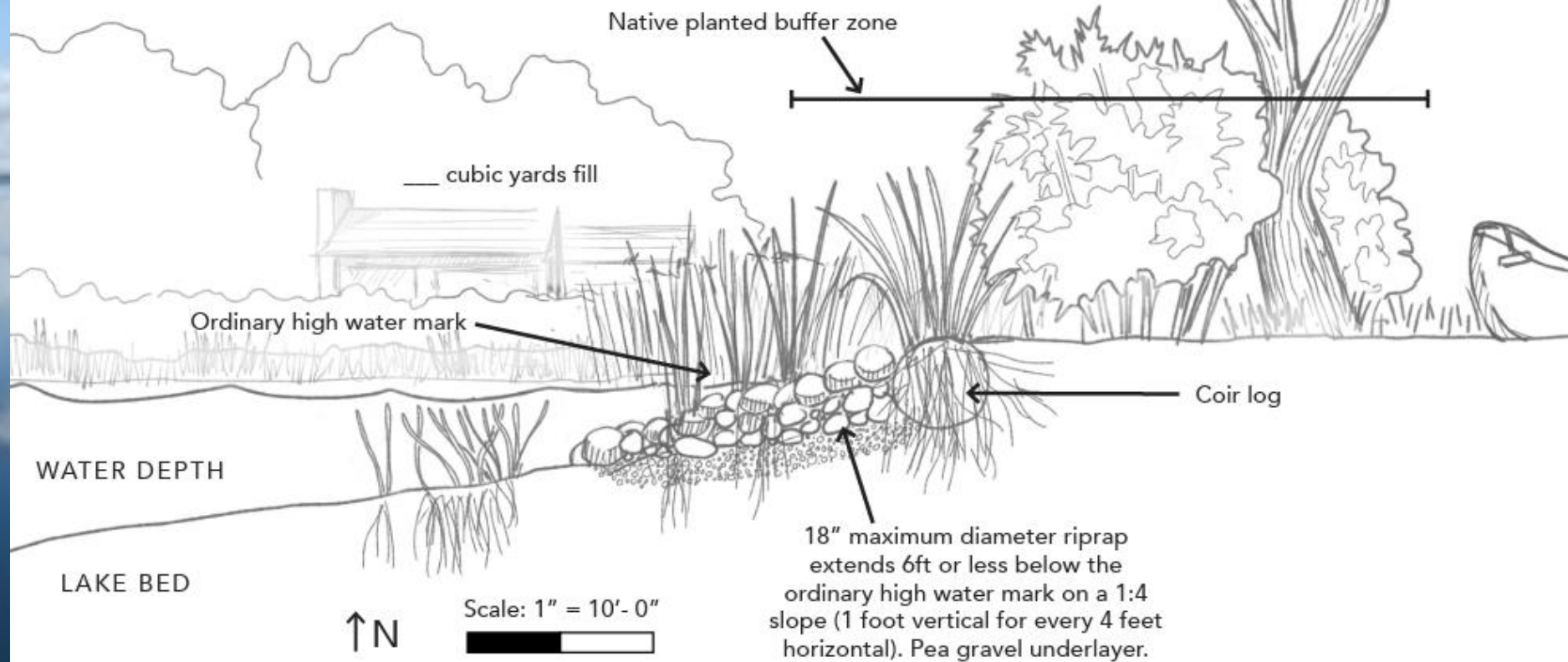
Shoreline

Resource

This project can be processed on a quicker timeline and at a lower fee if it meets the criteria of the Minor Project Category.

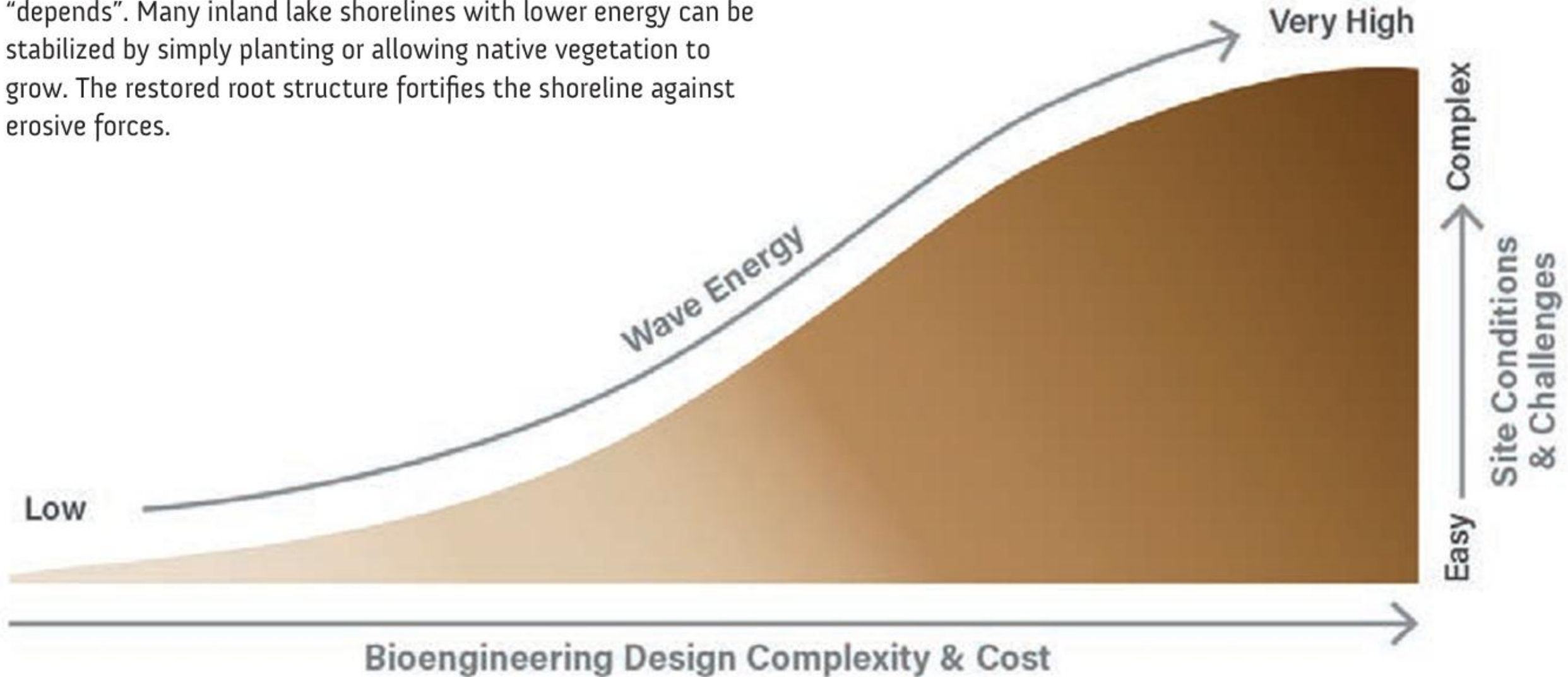
Minor Project categories can be viewed at the following website:

Michigan.gov/-/media/Project/Websites/egle/Documents/Programs/WRD/Wetlands/Minor-Project-Categories.pdf



Shoreline

There is not a “one size fits all” solution; there are a lot of “depends”. Many inland lake shorelines with lower energy can be stabilized by simply planting or allowing native vegetation to grow. The restored root structure fortifies the shoreline against erosive forces.



Shoreline Complexity

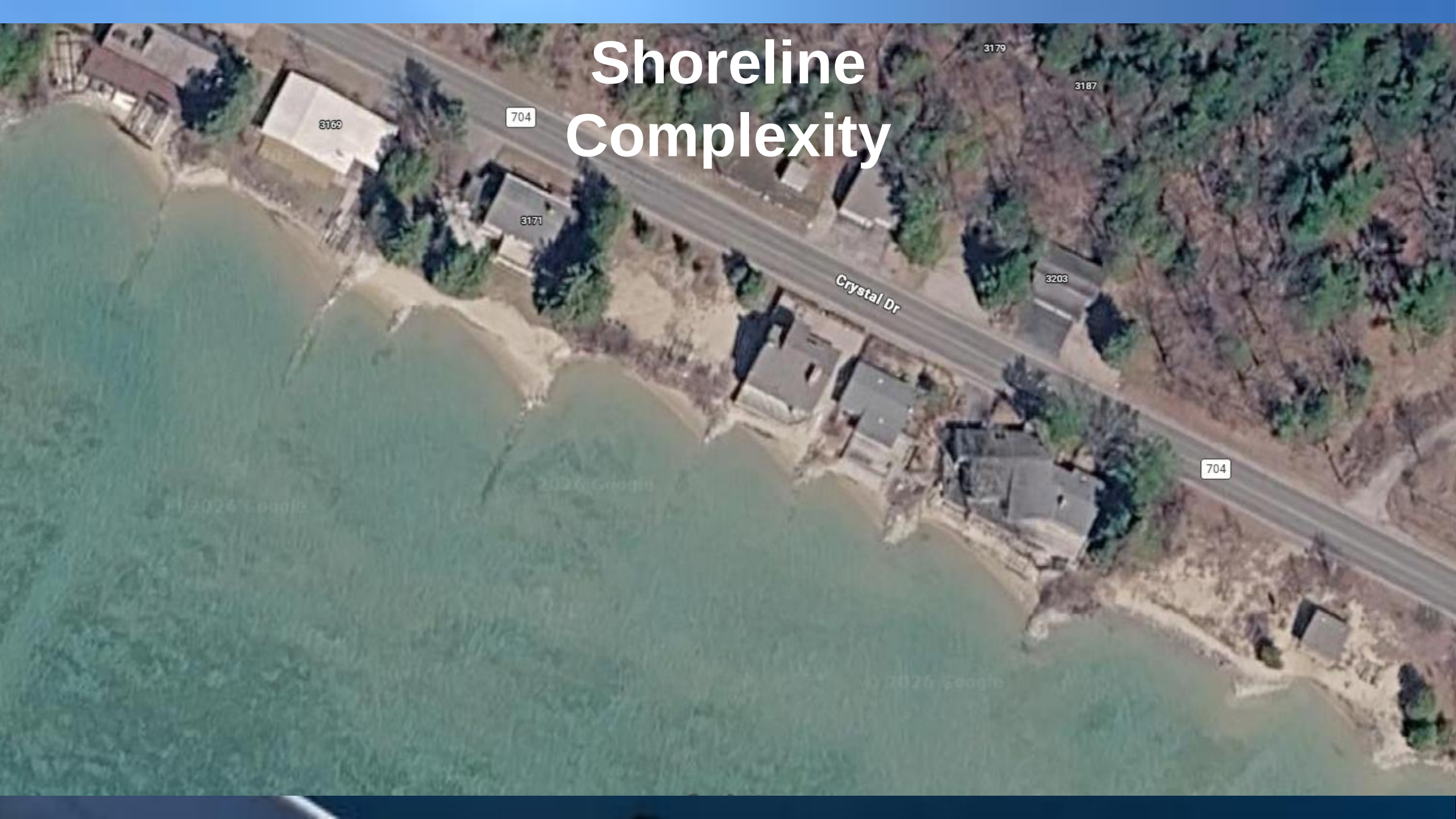
Shoreline without jetties



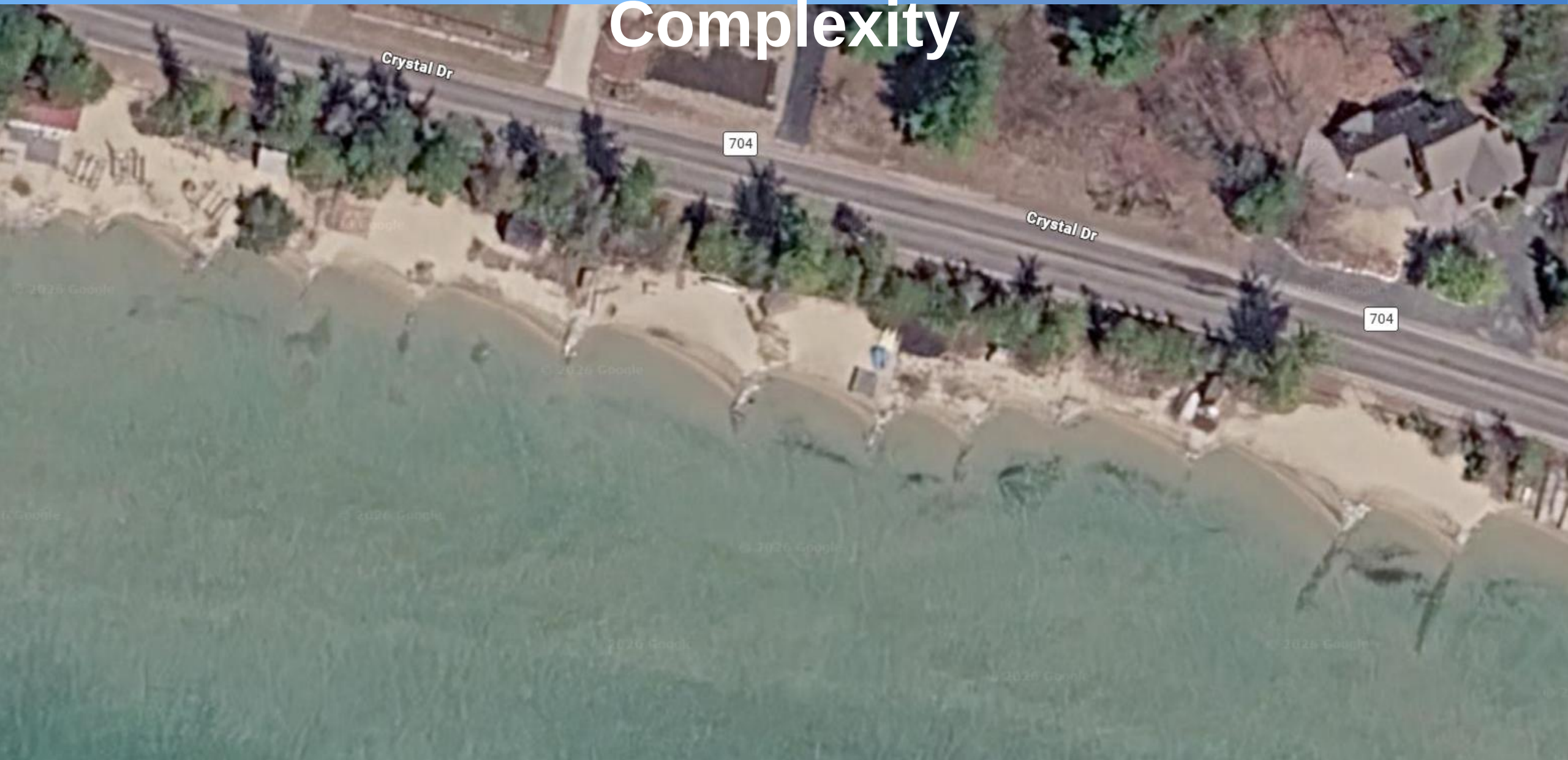
Shoreline with jetties



Shoreline Complexity



Shoreline Complexity



Shoreline Complexity



Shoreline Complexity

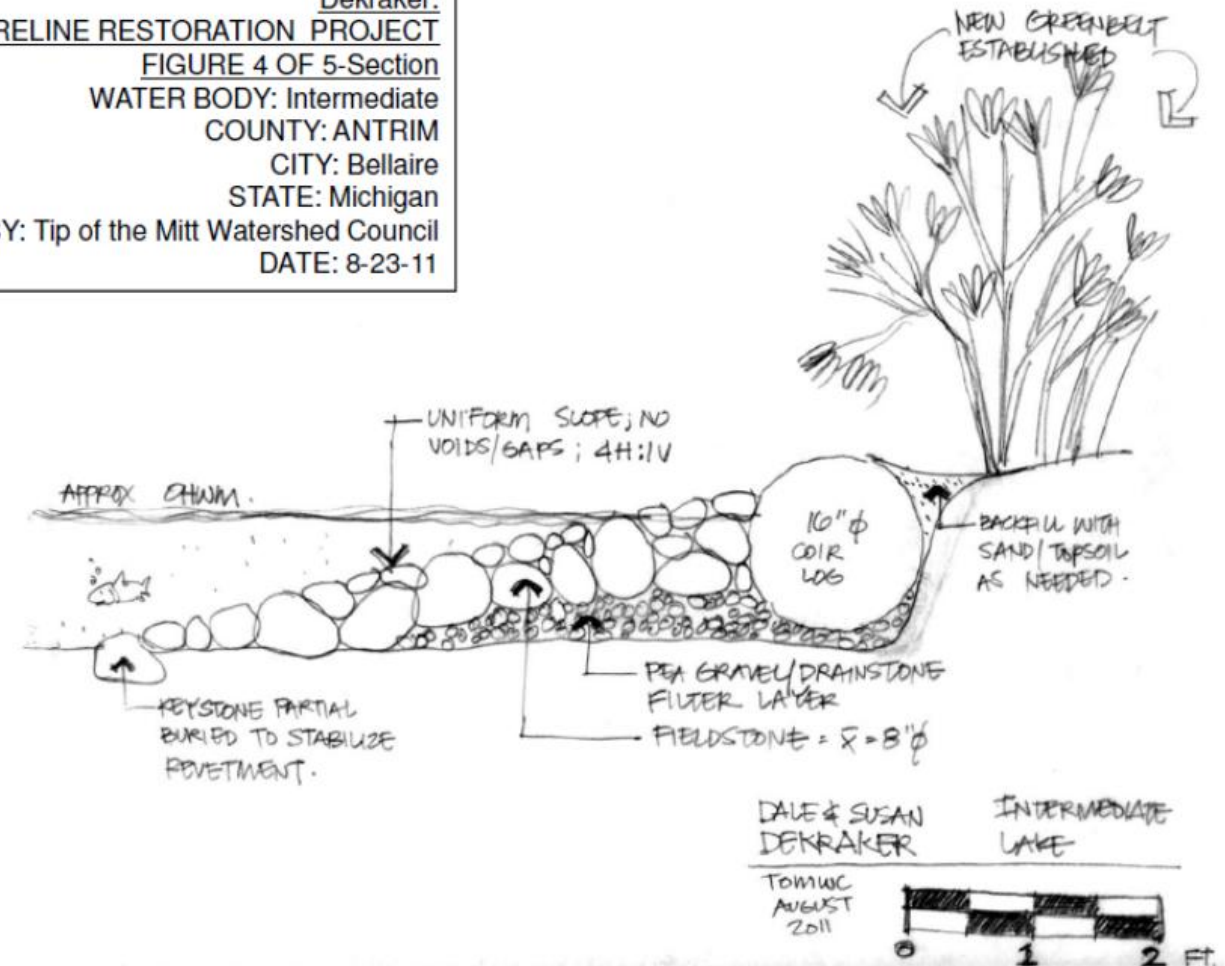


Best Shoreline Restoration Best Management Examples

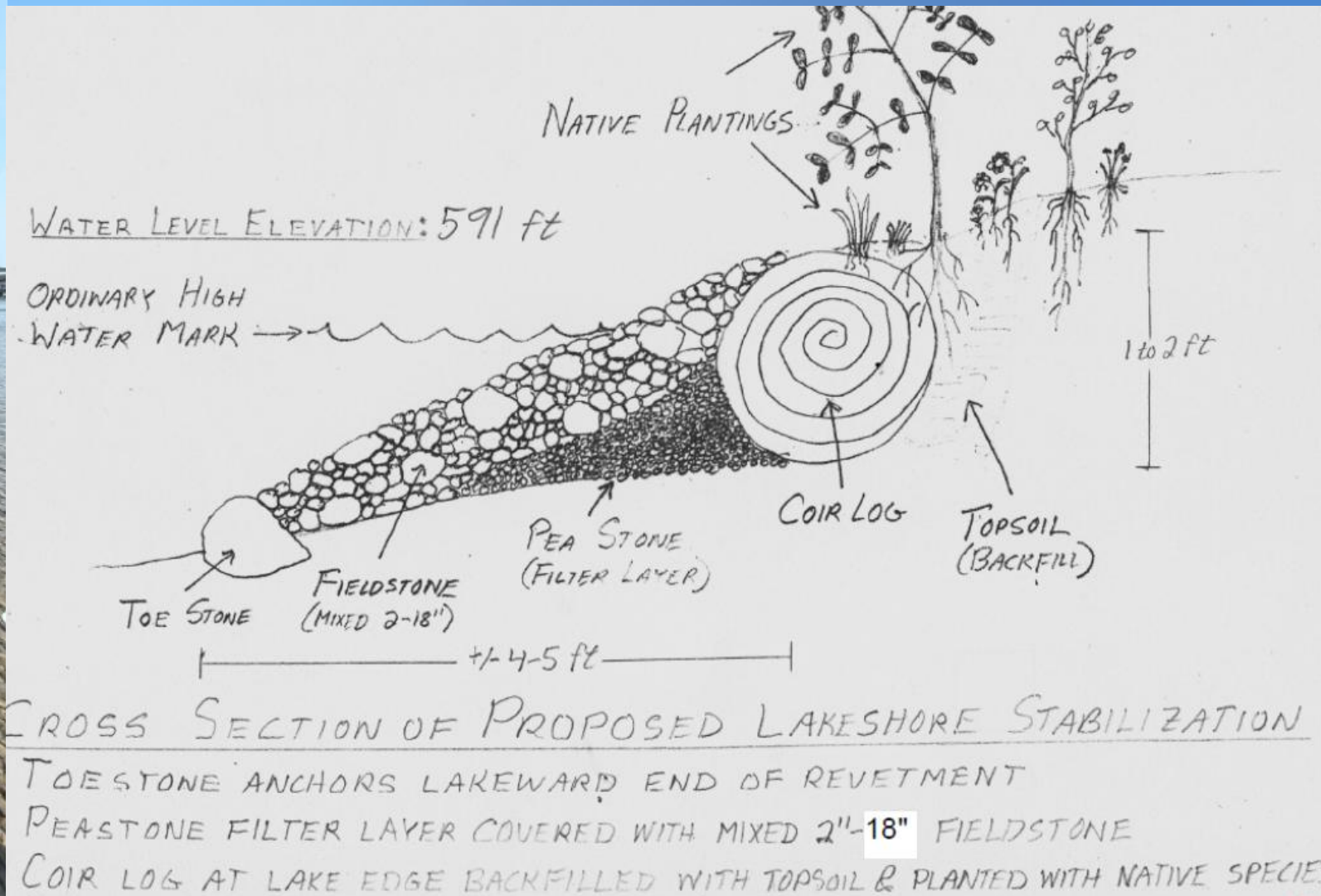


Best Shoreline Restoration Best Management Examples

Dekraker:
SHORELINE RESTORATION PROJECT
FIGURE 4 OF 5-Section
WATER BODY: Intermediate
COUNTY: ANTRIM
CITY: Bellaire
STATE: Michigan
APPLICATION BY: Tip of the Mitt Watershed Council
DATE: 8-23-11



Shoreline Examples



What you can do

- Best practices benefit you!
- Assess your shoreline
 - Energy
 - Slope
 - Infrastructure
 - Neighbor's practices
- Hire a trained professional
- Get a permit!
 - Local and state regulations

- Plant native plants
 - Less maintenance
 - More ecosystem benefits
- Stop or reduce fertilizers
 - Expensive
 - Causes algae growth on shorelines
- Slow down stormwater erosion
 - Plant a rain garden
- Maintain your septic system!