



Advancing inland lake stewardship through shoreline best management practices

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Photo: Kip Cronk



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Photo: Theresa Custodio

ACTIVITIES REQUIRING A PERMIT UNDER PART 301:
(NOT A COMPLETE LIST)

- Swimming area
- Navigational Aid
- Permanent Boat Hoist
- Ponds
- Utility Crossing
- Dam
- Removing a structure
- Drawdown
- Dry Fire Hydrant

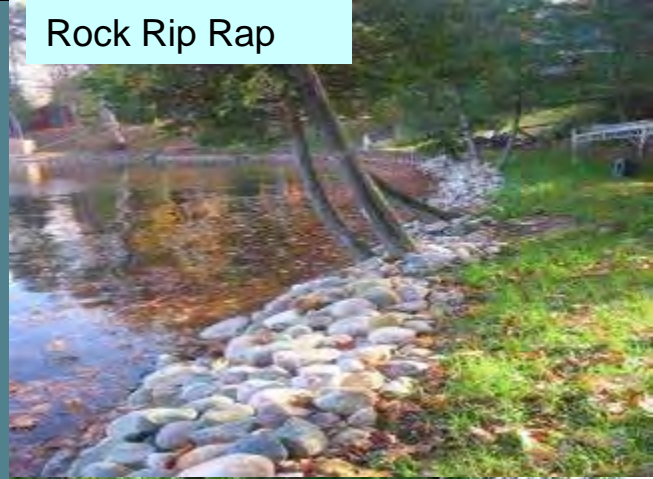


Photo: Erick Elgin



Photo: Shawn McKenney



Some vegetation control activities

NATURAL SHORELINES PROVIDE IMPORTANT FUNCTIONS AND VALUES!

Stabilize sediments
Reduce turbidity
Absorbs wave energy
Mitigates shoreline erosion

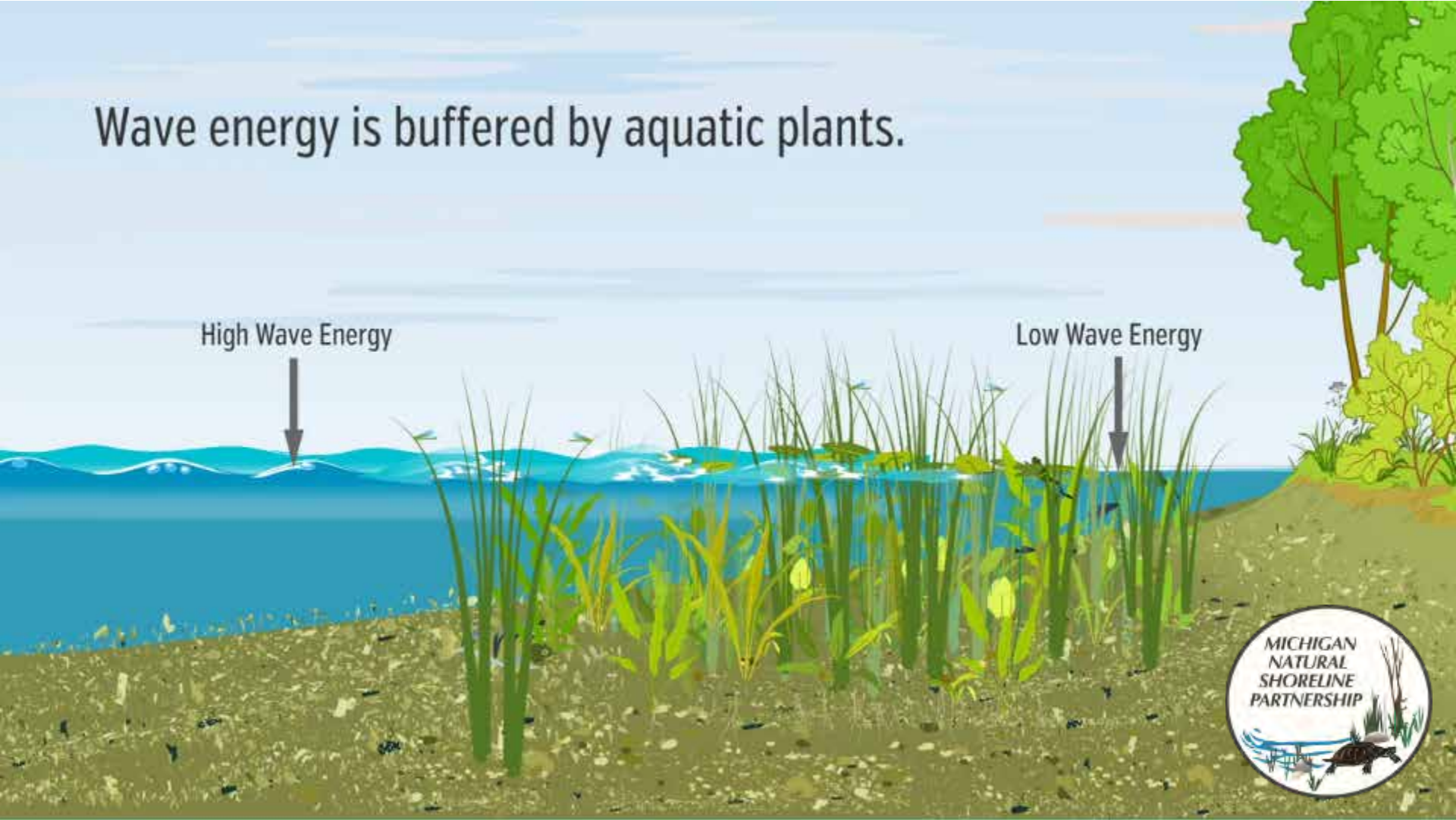
Valuable habitat
Spawning and nursery areas
Refuge
Oxygenate lake

Garrison et al. 2005, Krull 1970, Manis et al. 2015, Newbrey et al. 2005, Savino and Stein 1982, Strayer and Findlay 2010

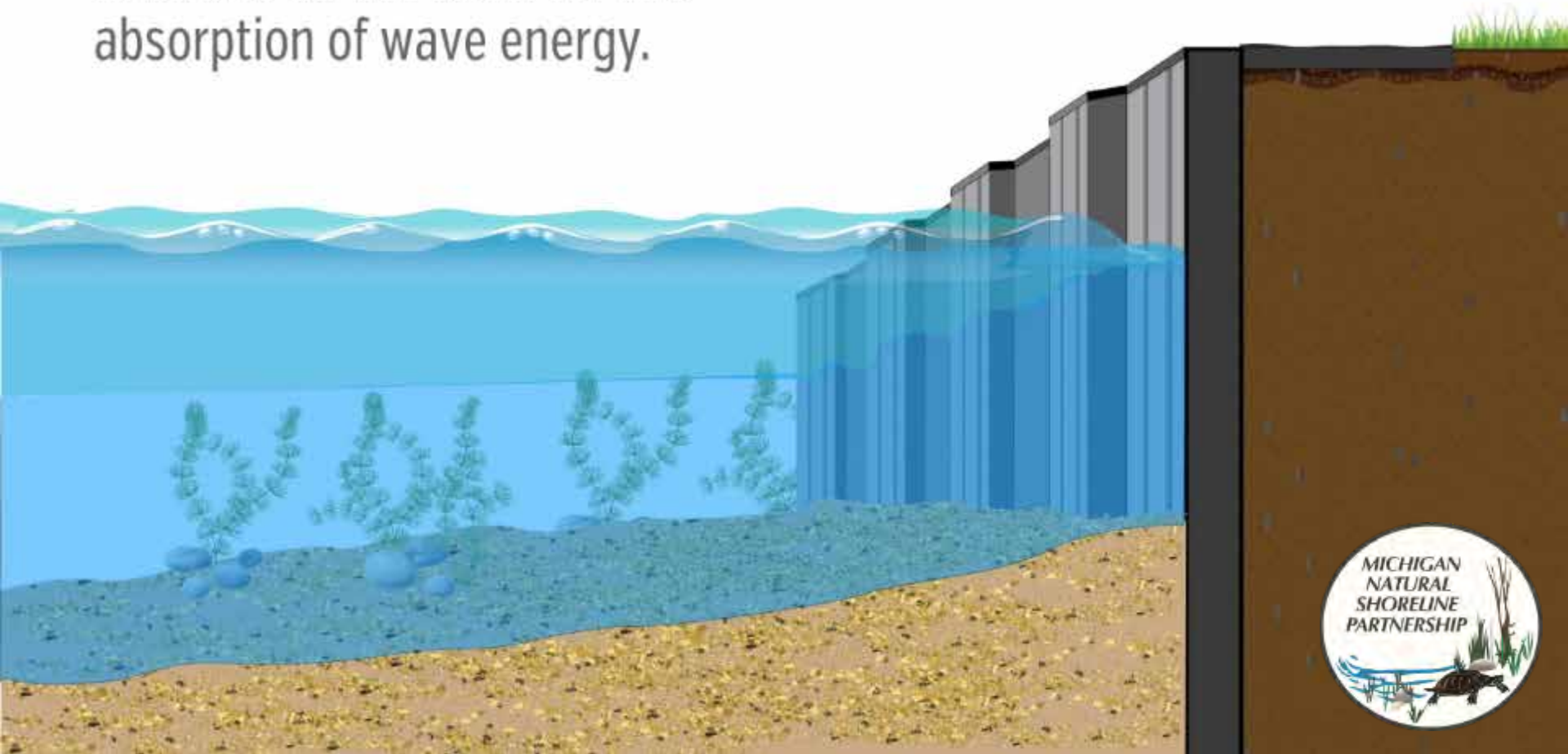
Flood protection
Erosion protection
Water Quality
Nutrient breakdown

Habitat
Fishing
Snorkeling
Swimming

Wave energy is buffered by aquatic plants.



Seawalls do not allow for the absorption of wave energy.





Video taken by Julia Kirkwood, EGLE, MNSP

Intermediate Lake, Antrim Co.

Maximum fetch = 2.25 miles

Maximum wave height = 1.53

Turbid, phytoplankton-dominated lakes result in a loss of biodiversity and low water quality which impairs peoples' use and enjoyment of the water.

Hunt et al. 2006, Cross and Jacobson 2013, Scheffer et al. 1993, Scheffer and van Nes 2007, Hilt et al. 2017

Loss of functions and values



EGLE

MICHIGAN DEPARTMENT OF
ENVIRONMENT, GREAT LAKES, AND ENERGY

Ionia County

Developed lake shorelines have

- Less woody structure
- Less emergent and floating-leaf vegetation cover, density, and complexity than undeveloped shorelines (Radomski and Goeman 2001, Elias and Meyer 2003, Jennings et al. 2003, Wherly 2012).

- Scouring of the lake bottom and erosion of neighboring properties
- Sediment suspension, nutrient suspension lowers water quality
- Doesn't support aquatic plant growth and natural shoreline vegetation
- No habitat complexity for fish and wildlife
- Create barrier for animal movement
- Remove natural energy dissipating capacity of sloped shoreline and natural vegetation

Cumulative impacts!

Seawalls deflect waves and cause scouring of the lake bottom.

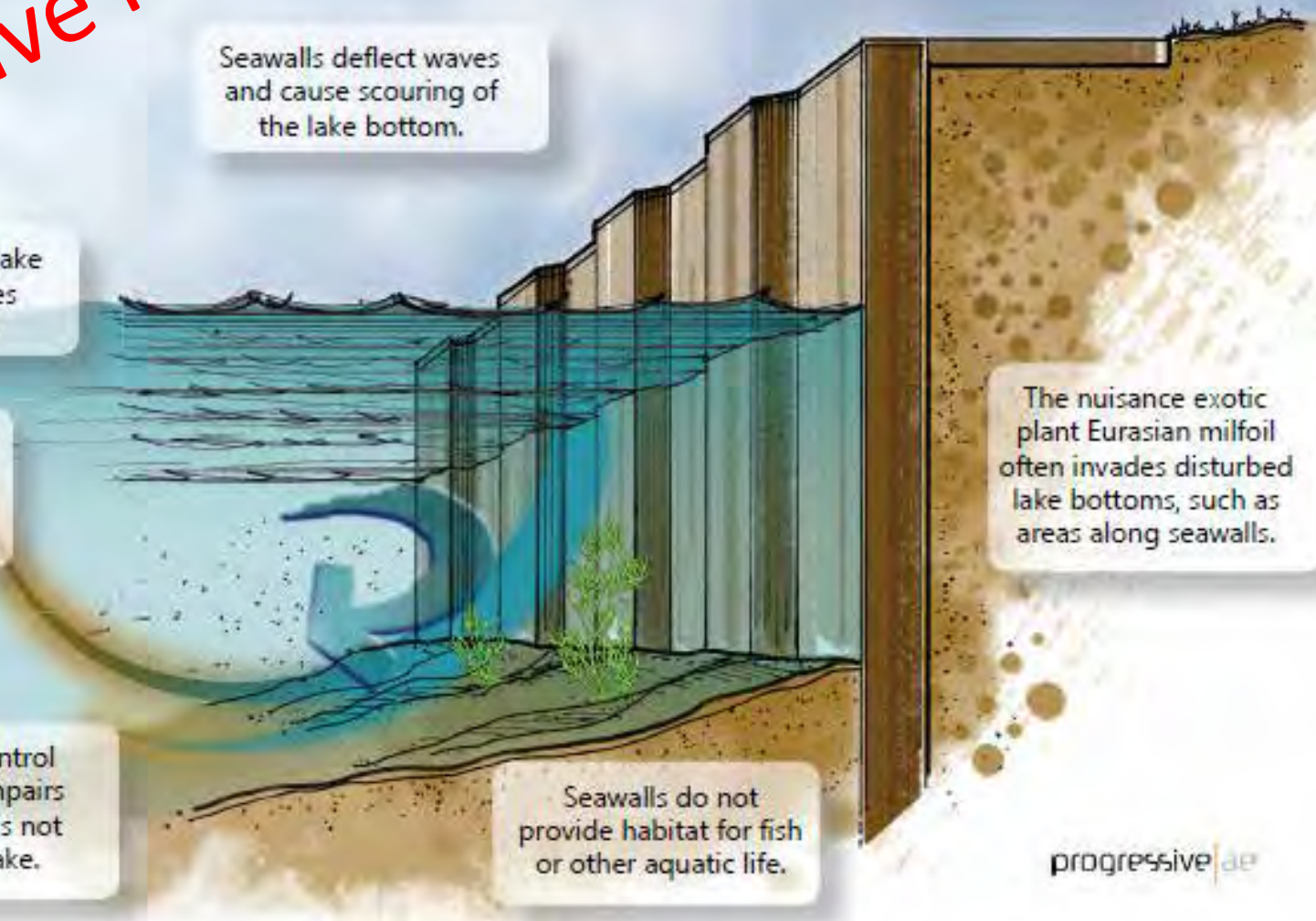
Scouring of the lake bottom reduces water clarity.

Sediments that are churned up from the lake bottom often contain phosphorus that can cause nuisance algae growth.

Excessive plant control reduces habitat, impairs water quality and is not healthy for the lake.

Seawalls do not provide habitat for fish or other aquatic life.

The nuisance exotic plant Eurasian milfoil often invades disturbed lake bottoms, such as areas along seawalls.



Cumulative impacts of seawalls

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Seawalls in Michigan history

- Well over 150 years
- We've visually seen our inland lakes change over time (see previous swipe slides)
- We've collected data and scientifically documented our lakes changing (See NLA slide)
- The changes and impacts from seawalls are widely supported by peer-reviewed science in Michigan, Midwest, and Nationwide (see previous citation slide)



MICHIGAN NATURAL SHORELINE PARTNERSHIP

Promoting Natural Shoreline Landscaping to Protect Michigan's Inland Lakes

MISSION:

PROTECTING MICHIGAN LAKES THROUGH THE CONSERVATION AND RESTORATION OF NATURAL SHORELINES

CONTRACTOR TRAINING

HOMEOWNER EDUCATION

STATE AND LOCAL POLICY

RESEARCH AND
DEMONSTRATION

www.mishorelinepartnership.org

Functions of Seawalls

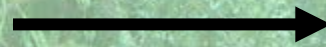
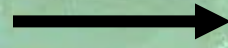
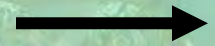
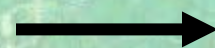
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Functions of BMPs

Absorbs wave energy

Stabilizes sediment

Supports aquatic plants

Complex microhabitats

Improves land/water connectivity

Allow for energy dissipation