March 8, 2016

House Natural Resources Committee
Lansing, Michigan

Re: SB 363 – Discount Leases for Breakwalls on Great Lakes Bottomlands

Dear Representatives,

The Michigan Environmental Council is a coalition of over 65 environmental, conservation and faith-based groups located across the state of Michigan. Many of these groups spend the vast majority of their efforts trying to restore or improve water quality in Michigan.

The Michigan Environmental Council opposes SB 363 as a step in the wrong direction. Breakwalls have been documents by scientists as having a number of negative impacts on water quality and fish spawning habitat including wave reflection off vertical walls causes bottom scour to occur, increased water turbidity, and impacts to spawning areas and aquatic vegetation. Attached to this testimony is an example of steps other jurisdictions are taking to discourage the use of hardened shoreline structures.

The bottomlands of the Great Lakes are held in trust by the State of Michigan for the benefit of all residents. This legislation provides a subsidy to lake front property owners for taking actions which is detrimental to the lakes. We see this legislation as a failure of the legislature to undertake its duty to protect the lakes for all the residents of Michigan.

We urge a no vote on the legislation.

Sincerely,

James Clift, Policy Director

602 W. Ionia Street • Lansing, MI 48933 • (517) 487-9539 • info@environmentalcouncil.org • www.environmentalcouncil.org

Other Tips for a Healthy Shoreline and Water Body

Avoid using fertilizers, herbicides and pesticides on your property. Rain will transport these harmful chemicals into the water, impairing water quality and adversely a: tcting aquatic organisms. In addition, fertilizers increase the nutrient input, which increases algae and aquatic plant growth. When the plants die, the decay process uses up dissolved oxygen in the water, reducing the amount available to f ish.

Use soaps and detergents that are phosphorus/ phosphate free. Excessive phosphorus levels cause increased growth of aquatic plants and algae. "One pound of phosphorus equals 300 to 500 lbs. of algae."

Make sure the septic system is maintained and the tank is pumped out regularly. Maintain shrubs or trees in the area between the septic system and the water. Plants help capture some of the nutrients that pass through the septic system.

DEC Permits Required

• Protection of Waters (ECL Article 15, Title 5) applies to disturbance to bed or banks of streams classi ed as C(T) or higher and excavation or placement of ll below the mean high-water level of navigable waters of the state (including wetlands that are adjacent to and contiguous at any point to any navigable water of the state).

• Freshwater Wetlands (ECL Article 24) applies to NYSDEC regulated freshwater wetlands (i.e., outside the Adirondack Park).

Printed on recycled paper

Basis for Permit Issuance

1. i e proposal must be reasonable and NECESSARY (i.e., it will resolve a problem).

2. It must not endanger the health, safety or welfare of the people of the State of New York.

3. It must not cause unreasonable, uncontrolled or unnecessary damage to the natural resources of the state, including soil, forests, water, f sh, shellfish, crustaceans and the aquatic and land-related environment.

For Assistance

Contact the appropriate regional DEC Environmental Permits oi ce, based on the county where the project is located. A listing of regional o ices can be found at http://www.dec.ny.gov/about/39381.html on DEC's website.

Permits also may be required from other agencies, including but not limited to:

Adirondack Park Agency (APA) 518-891-4050
U.S. Army Corps of Engineers 518-266-6350

Shoreline work should be proposed only when a problem exists (i.e., to stabilize identi ed erosion areas), not to decorate, landscape or reclaim land.

New York State
Department of Environmental Conservation

Shoreline Stabilization

is document was developed to increase awarenes of the ecological importance of natural shorelines and to promote more enlightened approaches to shoreline stabilization. By protecting the natural shoreline, you can help protect the key functions and values provided by this essential ecological transition zone.

Natural shorelines—undeveloped fringe areas along the edge of a water body—connect the shallow aquatic portion of the water body with adjacent upland. i ese riparian areas provide important environmental functions, such as regulating water quality (including temperature, clarity, nutrients and contaminants) and sustaining critical habitat for a variety of aquatic and terrestrial organisms (including invertebrates, f sh, amphibians, reptiles, shorebirds, waterfowl and mammals).

Changes or disruptions to riparian areas can threaten the survival of many species that rely on this kind of habitat during their various life stages. i ey depend on these areas for breeding, spawning, nesting, feeding, growing and escaping from predators. Protecting such critical habitat is important, especially on lake shores that are experiencing development pressure and on over-developed lake shores that have limited natural shorelines remaining.

Shoreline Erosion is a natural process caused by wind, frost action and gravity, as well as precipitation and wave and ice action. i is natural wearing away of soil and rock can result in bene ts such as creation and replenishment of natural beaches. However, it also can cause negative e ects such as structural damage, degraded water quality and loss of property and habitat.

Human activities, such as those listed below, often contribute to or accelerate the natural shoreline erosion process, exacerbating its negative e ects. With thought and planning, however, activities can be modi ed to avoid or reduce those e ects.

Clearing natural vegetation, often done by landowners to expand views or increase recreational areas, destroys the roots of plants that provide signi cant shoreline stabilization.

Construction or development uphill of a shoreline can result in increased stormwater runo , increasing sediment loads to the water body.

Impervious surfaces and structures, such as pavement, buildings, roofs and drainage ditches, increase the amount, velocity and energy of storm water, resulting in more runo being routed to streams and lakes (and less into the ground) and increasing shoreline erosion.

Agricultural practices can modify the rate of erosion and increase levels of nutrients in streams and lakes. i e e ects are greatest in the spring when snow is melting, the soil is saturated and water runo is highest.

Shoreline projects (e.g., erecting walls) reduce habitat and commonly a ect property elsewhere due to redirection of waves away from the area in which the wall was installed. Such projects also can change the natural "drift" of loose material.

Shoreline Stabilization Methods

For decades, "traditional" shoreline stabilization methods have centered on "hard" construction approaches such as vertical concrete, metal or wood break-walls, gabions (stone-filled wire baskets) and rip rap (loose rocks or stones). Biologists and engineers now realize that in addition to creating a physical barrier, these hardened vertical or near-vertical structures reflect wave energy rather than absorb it, thereby worsening turbulence and increasing erosion in front of, under and adjacent to the "fix."

The effects of turbulence and erosion are not as severe when rip rap is used because it absorbs some of the energy from moving water. However, depending on its size and placement, rip rap still can create a barrier to many wildlife species, and, as with solid structures, it reduces vegetated habitat.

The adverse effects of traditional shoreline stabilization methods can be significant, as hard erosion-control solutions do not provide the water quality or habitat benefits of a natural or restored vegetated shoreline.

Adverse changes to natural resources include the following:

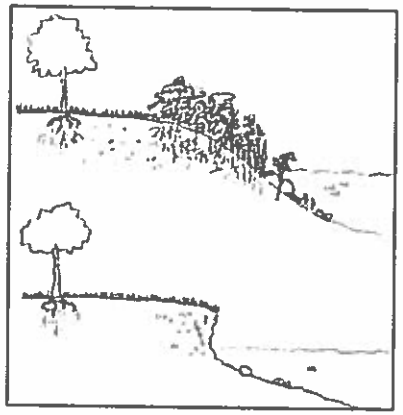
- Reduced or degraded habitat for breeding, spawning, nesting, feeding, growing and escaping and thermoregulation and/or "loafing" for a variety of fish and wildlife species
- Impaired movement of organisms between aquatic and terrestrial habitat
- Altered physical structure of the water's edge, with resultant changes to hydrology
- Increased infestation of invasive plants (e.g., Eurasian water milfoil) due to wave action against the hard structure, causing increased fragmentation and dispersal of plants and "re-seeding" of the water body
- Local changes in water quality, including changes to temperature and increases in turbidity, nutrients and contaminants
- Increased erosion of the adjacent natural shorelines and scouring in front of the structure.

Preferred Methods

Soft or natural approaches to shoreline stabilization are recognized now as being more environmentally effective. When shoreline repair or stabilization becomes necessary, these methods should be considered first. Natural approaches seek to restore hydrological and ecological balance by using methods that are structurally sound as well as economically feasible and ecologically sustainable. While there are many ways to protect an existing shoreline or restore an eroded one, choosing appropriate materials and design is important. Soft methods may include planting native, deep-rooting vegetation, as well as bioengineering. In all cases, the proposed stabilization method should follow the natural contour of the shoreline.

Preserving the Natural Shoreline

Shoreline stabilization can be as simple as not mowing the grass or not cutting the trees and shrubs along the shoreline. It allows natural vegetation to grow or become re-established. A naturally vegetated shoreline has many benefits. It prevents contaminants or excess nutrients from entering the water; it prevents erosion caused by rain, wind, wave and ice action, and it provides food, shade and protective cover for fish and wildlife. If some vegetation must be removed, limit the amount. Try to prune trees and shrubs back instead of removing them altogether.

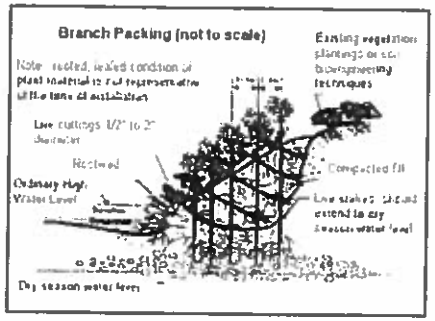


Planting Along the Shoreline

Planting native, deep-rooting species (check with your local soil and water conservation service for suggestions) will help accelerate shoreline stabilization. Many low-growing species are available that will not block waterfront views. Some species of common shrubs have roots that extend deep into the soil, helping to keep the soil and shoreline together. When damage does occur to a natural shoreline, native plants can easily re-establish.

Bioengineering (Soft Structures)

Where planting is not sufficient to stop erosion, a bioengineering approach may be more appropriate. Bioengineering incorporates plants in combination with



natural materials such as logs, live stakes (e.g., cuttings from species like willow) and brush bundles (i.e., branches from live woody plants), creating a natural appearance and habitat for fish and wildlife. Bioengineering designs can lead to long-term stabilization of a shoreline, reducing the need for future work.

Less-Preferred Methods

Hard approaches should be considered only where erosive forces are severe, and softer approaches would not be effective structurally. When a site requires the use of "harder" structures, steps should be taken to reduce potential adverse effects by limiting the project area to the smallest possible footprint necessary; by protecting the toe or base of vertical structures with rip rap or stone; and, if appropriate, by incorporating passage areas to facilitate movement of wildlife to and from the water. The "fix" should follow the natural contour of the shoreline to the greatest extent possible.

Rip Rap

Rip rap stabilization designs should include appropriate bank slope and rock size to protect from wave and current action and to prolong the life of the embankment. A final slope ratio of at least 1:2 (vertical to horizontal) is recommended; a more stable 1:3 slope should be used where possible.

A layer of gravel, small stone or filter cloth placed under and/or behind the rock helps prevent failure. It also prevents the release of sediment—which can be harmful to fish, their eggs and their food supply—into the water body.

In many cases, only the toe of the slope may need rock reinforcement; the remainder can be planted with native vegetation. The rock must be clean, free of silts and organic debris and must not come from the water body, as this would affect aquatic habitat. Vegetation, especially deep-rooting species planted above and immediately behind the rock, will greatly increase the stability of the slope and provide additional habitat, food supply and hiding spaces for a greater variety of species.

Gabion Baskets

Gabion baskets provide marginal habitat, and, when exposed to the elements, their durability is questionable. Consequently, their use is not encouraged.

Retaining Walls

Retaining walls are not encouraged and generally are not approved. These structures (typically sheet steel, concrete, wood or large armor stone) produce a sterile, vertical, flat-faced object which is of little use to aquatic organisms and other wildlife. They also tend to reflect wave energy rather than dissipate it, usually resulting in erosion problems in front of the "fix" and elsewhere.

However, when erosive forces are severe, existing building foundations or structures are threatened and softer stabilization approaches would not be effective, a new or replacement retaining wall may be warranted. In these cases, rock should be placed at the toe to reduce the adverse effects of reflected wave energy.

Whenever possible, replacement structures should be installed above the mean high-water elevation or behind or on the same footprint as the existing structure, not by encroaching into the water. The existing structure and all fill in the intervening areas should be removed and the exposed bed restored.