

Problems Continue Along our Shorelines

By Darrell Schwalm, Watershed Stewardship Committee

Our shoreline erosion and alteration problems on Mullett Lake have not taken a Covid break, and the lake continues to have issues. At the same time, fewer requests have been received from lake front property owners by MAPS for information and/or help with erosion, greenbelt, and stormwater runoff problems.



It's been two years since MAPS has had a shoreline cost-share greenbelt project. There have also been fewer requests for information. I would like to review what MAPS has to offer property owners in addressing problems.

Lake Shore Property Alterations -- Our catch line has been "can we rethink what our shoreline should look like?" Remember the seasonal cottages with many trees, natural growth, and minimal landscaping that provided the "up north cottage look"? Contrast this with our larger, year-round houses with "suburban type" open and grass front yards.

This conversion has created a large area of impervious rooftops and driveways. Impervious ground without native vegetation means storm water runoff. This assaults our shorelines from the landside causing erosion and introducing silt and nutrient pollutants.

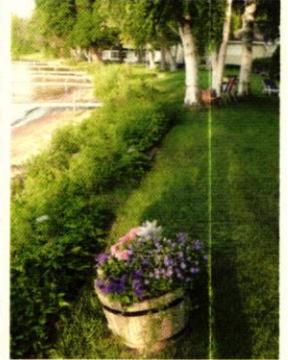
Ice Damage -- The most common concern of Mullett Lake property owner regarding the shoreline is the destructive impact of winter ice. Ice can exert 10-12 tons per square feet of pressure and can move large rocks, push over small trees, and take out large hunks of a shoreline bank. It's an important factor that MAPS considers when talking to cottage owners about shoreline erosion and greenbelts problems.

There are three basic factors to consider in protecting shorelines from ice.

- **Slope** – A gentle sloped, shoreline bank with a 3 to 1 (horizontal to vertical) ratio or flatter that is armored with fieldstones is best. This type of slope is called a "revetment," it utilizes "bioengineering principals," and consists of relatively small fieldstones. This design acts like "a **wedge** that assists ice up and over the shoreline rather than pushing directly into it."
Fieldstone Shape, Size and Composition – This "wedge" is constructed with larger (9-12" diameter)

fieldstones as a base that are covered with smaller (4") diameter fieldstones as a "top-dressing." Fieldstones are used because they are round and act like "ball bearings" over which the ice can flow. The stones should be placed to provide an even surface, and hand-placement is "encouraged."

- **Plants** – The most important part of any stable shoreline are the plants that grow in the rocks. "Deep-rooting native plants help knit together the soils" in between the rocks, and hold them in place. These plants also provide "food, shelter, and structure for countless birds, insects, and other shoreline-dependent species."



- **Permits** – Any shoreline bank construction and alteration requires a Soil Erosion Control Permit from the Cheboygan County Planning and Zoning Department. This is to ensure that the lake is protected from soil pollution runoff into the lake. The property owner must have a permit for any soil disruption activity/project within 500 feet of the shoreline. Permits must be posted on the road-side of the property. Search under "Planning & Zoning -- Applications and Forms," Soil and Sediment Permit Application (www.cheboygancounty.net/applications-forms-112). The county has authority to issue fines and order remediation for violations. Confidential inquiries about ongoing projects can be made to their office to Charlie Collins at 627-8827. An initial visit to the county office (an appointment is recommended) with a preliminary site plan and pictures is recommended for help to complete the application. The site also provides information on soil erosion control practices. More information on shoreline erosion control is provided in Tip of the Mitt Watershed Council's Understanding, Living With, and Controlling Shoreline Erosion publication at www.watershedcouncil.org under "News and Resources - Watershed Protection Publications".

Cost-share Demonstration Properties-- MAPS has earmarked funds in our annual budget to assist property owners who have problems to participate in a cost-share demonstration project. Under this initiative, MAPS and TOMWC has helped property owners develop a landscape design plan to protect their shoreline with a greenbelt, identify a landscape company, and help pay for needed plants.

Tip of the Mitt Watershed Council is a science-minded organization dedicated to protecting Northern Michigan's freshwater resources in partnership with the brilliant, dedicated folks at MAPS. The MAPS board, members, volunteer monitors, and homeowners play a huge part in keeping the water clean and healthy. Together, we can preserve the waters you love for now and for the future generations. Support our work by becoming a member. Visit our website at www.watershedcouncil.org/donate, call 231-347-1181, or email us at info@watershedcouncil.org.

Herm Boatin, MAPS president stated "the hard working staff of the Watershed Council provides technical and educational support that enables MAPS to follow the science



From "Preservation" to "Sustainability"

By Herm Boatin MAPS Board President

Preserve -- To keep in perfect or unaltered condition; maintain in unchanged form."

Sustain -- To keep in existence, maintain; prolong; to supply with necessities."

Historically, MAPS's mission has been one of preservation. We have casted ourselves as the watch dogs of Mullett Lake; keeping an eye on anything that threatens the lake's quality and health, it's fishery, and it's recreational opportunities. Our goal is to preserve and pass it down from generation to generation unscathed. We have supported and worked successfully with Tip of the Mitt Watershed Council, other regional watershed conservation groups, state water quality and fisheries officials, and local marine patrol officials in pursuing this goal. We have sponsored lake and tributary monitoring projects; and organized greenbelt demonstration projects, river revetment projects in the Maple River, and invasive species control events. The State of Mullett Lake under our watch is basically very good.

Changes -- We have not, however, been able to "preserve" Mullett Lake. We have all seen changes that have altered our lake. MAPS has documented changes with two shoreline survey reports on the status of our shoreline-lake interface. We have also commissioned two invasive species surveys to identify affected areas of the lake; have data on our major tributaries -- Pigeon River and Mullett Creek. Each of these studies and reports include lists of observations, analyses, conclusions, and recommendations based on the alterations found.

Affect -- The alterations that have occurred are largely caused by two things: (1) each successive generations of Mullett Lakers have different values, needs, and wants; and (2) the number of Mullett Lakers increase with each generation. The effect is reflected in the changes to our lake front properties -- summer cottages torn down and replaced with large year-around homes with garages and asphalt

driveways, trees and natural habitat replaced with grass lawns, and longer docks and more boats that have altered our nearshore waters.

Stewardship -- In response to these affects, the state and watershed organizations have developed educational initiatives focused on good stewardship practices for individual property owners. We have the MI Natural Shoreline Partnership and the MI Shoreland Stewards Program that asked property owners to rethink what their shoreline should look like, and to make good stewardship choices that that will restore the health of our Michigan lakes. MAPS has been promoting these programs, and has added a cost-share incentives to create demonstration greenbelts and rain gardens that protect our shoreline and nearshore waters, and provide wildlife and fishery habitat. Regrettably, the response by Mullett Lakers to these stewardship programs has been weak at best.

Change -- We know that change will continue, and it will include warmer temperatures. An article in the TOMWC Fall/Winter 2018 newsletter titled: "What Difference Does a Degree Make?" included the following:

Hotter weather will have varied impacts on our water resources, which are the foundation of our local economy. At the most basic level, higher air temperatures mean warmer water. This could lead to lower levels of dissolved oxygen in the water, which means more stress on fish, insects, and other aquatic organisms . . . Another expected change . . . is more frequent and more intense precipitation. This will lead to increase runoff . . . we can expect more nonpoint source pollutants, including sediment, nutrients, bacteria, and chlorides to be carried by stormwater into our waterways. This increased pollution loads in lakes and streams could mean dramatic consequences, such as harmful or nuisance algal blooms.

This article is reprinted from a prior MAPS Newsletter."