



Coastal Permitting Factsheet

STATE OF WISCONSIN DEPARTMENT OF NATURAL RESOURCES

DATE CREATED: JUNE 2016

Factsheet for Landowners: Great Lakes Permitting for Placing Permanent Erosion Control Structures

The Great Lakes coast is a very dynamic environment. Water levels on Lake Michigan have been below average since the late 1990's. The recent increase in water levels raises the potential for shoreline erosion and bluff failure.

The Department understands landowner and municipality concerns about structures that may be at risk from bluff erosion on the Great Lakes and recognizes the large investments residents have in their homes. Shore protection projects are a significant investment and have the potential to impact neighboring properties. Landowners should be aware of considerations to invest wisely and protect the Great Lakes environment.

State law requires any material that is placed in the Great Lakes be authorized by the Department. Furthermore, additional State permits may also be needed to:

- Authorize earth-moving (grading) activities on the shoreline needed to stabilize the slope of a bank.
- Authorize removal of material below the Ordinary High Water Mark[♦] (dredging), in order to properly install material to stabilize the base of the slope.

The Great Lakes near shore environment plays an important role for fish and wildlife habitat. The wave energy, longshore currents, and sediment dynamics combine to support beaches and to create unique environmental conditions characteristic of few freshwater ecosystems.

Erosion control must be done in a way to minimize the amount of lakebed fill and minimize impacts to near shore areas and adjacent shoreline properties. The Department reviews project proposals to balance the right of a property owner to protect their shoreline while ensuring that the cumulative impacts of filling lakebed are minimized.

Designing shore protection in the Great Lakes can be complex. Considerations include engineering analysis of water level changes, wave heights, and storm surges. In addition, geotechnical analysis of the lake bed contours, sediments, and potential impacts to neighboring properties should be considered.

[♦]"Ordinary high water mark" or "OHWM" means the point on the bank or shore up to which the presence and action of water is so continuous as to leave a distinct mark either by erosion, destruction of terrestrial vegetation or other easily recognized characteristic.

The *type* of material used can impact longevity of a shore protection structure. Material should be large enough to be stable and should not crack and fragment. Demolition debris like cinder blocks, concrete rubble and dirt are not acceptable since they can break apart easily. Multi-faceted boulders with round surfaces can work well. Flat surfaces do not work well because they can bounce waves and undercut the bluff.

Proper installation is key. Dumping demolition debris from the top onto the bluff face may further destabilize the bluff. A safer way to place material near the bottom of the bluff is to keep weight away from the top edge by either creating an access road, using a crane, or a barge.

The Department encourages landowners to seek experienced coastal engineering professionals to assist with your project. Coastal engineering professionals have the expertise necessary to influence the success of a shoreline project, including:

- assessing the impacts of the planned project on adjacent properties,
- minimizing construction and maintenance costs,
- managing the performance and longevity of the project, and
- preparing state and federal permit applications.

An investment in the services of experienced professionals is the best way to ensure the long-term success of a shore protection project and minimize costs during ownership.

The Department has a permit application checklist for Great Lakes shoreline projects to assist you and the professional you choose in planning and designing your project so that your project can be reviewed efficiently through the permitting process.

ADDITIONAL RESOURCES

LIVING ON THE COAST <http://aqua.wisc.edu/publications/ProductDetails.aspx?productID=439>

WORKING WITH CONTRACTORS <http://aqua.wisc.edu/publications/ProductDetails.aspx?ProductID=478>

STABILIZING COASTAL SLOPES <http://aqua.wisc.edu/publications/ProductDetails.aspx?ProductID=479>

TYPES OF SHORE STRUCTURES <http://coastal.ohiodnr.gov/shorestructures>

COASTAL DESIGN MANUAL <http://coastal.ohiodnr.gov/design>

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Visit the Wisconsin DNR
on the Web at <http://www.dnr.wi.gov>
Information about applying for permits:
<http://dnr.wi.gov/topic/waterways>