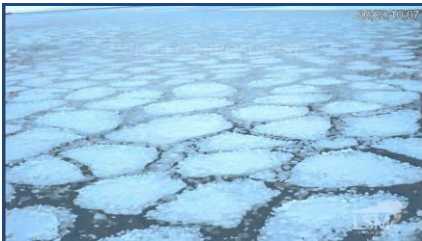


**TODAY'S WEATHER:**

[www.wunderground.com/us/mi/kewadin](http://www.wunderground.com/us/mi/kewadin)



Storm Central | Great Lakes Energy  
[www.gtlakes.com/storm-central/](http://www.gtlakes.com/storm-central/)

Map by Zip code

**PLEASE DONATE TO TNN**

Together we can advance local watershed prosperity; cleaner water and beaches, more natural GT Bay water levels, better roads, property values.

**TNN Leadership Has Broadened**

An iconic leader of community & farm and a distinguished U.S. Army veteran  
**Kids need the joy of shoreline critters**  
 Eradicate Quagga Mussels which kill aquatic life

**Don't Land Dispose Human Waste.**

End this practice in water-rich townships. Target septic leakers.

**Real Estate Values/Property Taxes**

TNN Tri-Township Fiscal Comparison

**Higher Water Shore Erosion**

Move dredged sand to eroded beaches

**TNN Donations are tax deductible**  
**\$50, \$75, \$100 or \$200 really help.**

**Any amount is welcome!**

Use the attached form or click

[www.townshipneighborsnetwork.com/donate](http://www.townshipneighborsnetwork.com/donate)

**Still Time to Prune Oaks**

The safest and most appropriate time to prune oaks is from late October to early March during freezing or near freezing conditions, transmission of oak wilt is near impossible. Pause during a winter thaw or risk oak wilt.

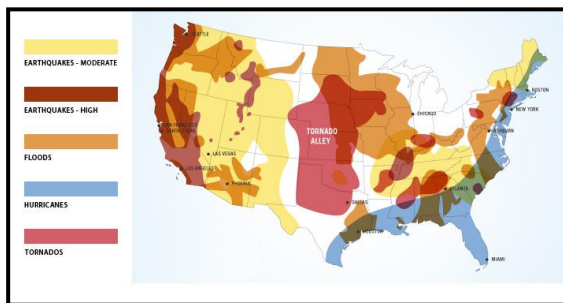
<https://treedoctor.msu.edu/pruning>

**GT BAY WATER LEVEL DROPS 8 INCHES BELOW LAST SUMMER**

But Lake M-H is trending up 5 to 7 inches each year because of higher precipitation and discharges from Lake Superior, which is down 9 inches from last year but is still high. With less than 20% ice cover, open water promotes lots of lake effect snow which removes water. But Bay waters pileup (seiches) with wind. Ice reefs are small – so less protection.



**COMPILED MAP OF NATURAL DISASTER RISKS – NONE IN MICHIGAN**



<http://alertsystemsgroup.com/earthquake-early-warning/informative-maps/>  
 Maps of Earthquakes, Floods, Tornadoes and Hurricanes.

The ASG Website provides detailed maps of each natural disaster risk, along with US Population Density breakdowns by counties. ASG hopes this

information will help you be more informed about the locations of high-risk Natural Disaster areas relating to your particular location and your future plans.

Alert Systems Group, LLC (ASG) is the **only** Earthquake, Hurricane, Tornado, and Tsunami Early Warning and automations solutions and technology provider **in the world**. ASG is partnered with state and local agencies, US Government partners, university researchers, broadcast stations, radio and dispatch manufacturers, and industry-leader Global Security Systems to bring the only Natural Disaster Automations hardware to work with no single points of failure.

**HOW TO STOP WOODPECKERS FROM PECKING ON YOUR HOUSE**

Source: Research-based information from America's land-grant universities enabled by [eXtension.org](http://eXtension.org) for extension professionals and the public they serve.



Woodpeckers can cause a great deal of property damage and sleepless mornings. But there are ways to control them.

**Why Woodpeckers Peck Your Home**

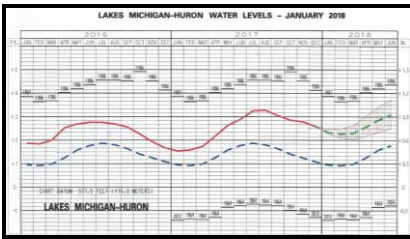
Woodpeckers damage homes for three reasons:

- Searching for insects
- Creating cavities for nesting and shelter
- Marking territory (Commonly called drumming). Primarily during the months of March/April/May).

In one study, birds stopped drumming on average within a few weeks whether homeowners acted or not.

**Laws:** Woodpeckers are federally protected under the North American Migratory Bird Act. Do not use lethal control on woodpeckers without contacting your Federal Wildlife Officer. You will need to institute non-lethal control before you will receive permission to implement lethal control. **(See Page 3 for information on non-lethal woodpecker control).**

**LAKE MICHIGAN WATER LEVEL  
HAS DROPPED – 8 INCHES  
Two inches Below Summer 2016**



**Lake Superior outflow is set by  
International Lake Superior  
Board of Control primarily for  
power generation & shipping.**

[http://ijc.org/en/\\_jlsbc/International\\_Lake\\_Superior\\_Board\\_of\\_Control](http://ijc.org/en/_jlsbc/International_Lake_Superior_Board_of_Control)

The Board of Control has set the Lake Superior outflow to 3,130 cubic meters per second per month. (About 3 inches monthly into Lake Michigan - Huron (M-H). Lake M-H shore-line erosion is not a major concern for the Board despite a population 25 times that of the Lake Superior watershed

LAKE	Watershed Population	Shore Miles	Surface sq. mi.
Michigan	12 Million	1640	22,300
Huron	3 Million	3830	23,000
<b>Total M-H</b>	<b>15 Million</b>	<b>5470</b>	<b>45,300</b>
Superior	607,000	2980	31,700

**LAKE M-H PRECIPITATION**

**Breaks 123 Year Record High**

Much of it rain after a mild winter last year. This year's ice cover is under 20%; that's why there is a lot of lake effect snow [https://www.ncdc.noaa.gov/temp-and-precip/us-maps/12/201712?products\[\]=statewidepcnrank#us-maps-select](https://www.ncdc.noaa.gov/temp-and-precip/us-maps/12/201712?products[]=statewidepcnrank#us-maps-select).

NOAA estimates precipitation monthly, seasonally, and annually for the nation, regions, states. The link above is for 12-months in 2017 with statewide rankings. There are several hundred rain gages across the state under the National Cooperative Gaging Program that are used to come up with these graphics.



**PLAN FOR PLANTING - Marram or Beach grass**

Adapted from *Guide to Great Lakes Coastal Plants*, by Ellen Elliott Weatherbee, University of Michigan Press.

*Latin Name: Ammophila breviligulata- Common Name: Marram or beach grass*

Smooth stems, about 20-40 inches tall. Leaves are smooth and about 1/8<sup>th</sup> to 3/8<sup>th</sup> wide. Scratchy on top. Flowers in early summer. Dense heads, about an inch wide.

**Native or Invasive:** Native perennial

**Characteristics:** Marram or beach grass is likely familiar to anyone who has visited a Great Lakes beach. It is a tall, smooth grass with dense, compact heads that grows in tight colonies on the beach. It can be found growing throughout the coastal areas of the Great Lakes region, along Lake Champlain and down the Atlantic coast as far south as North Carolina. Marram is one of several common grasses that grow in the upland area of the beach, providing a critical service: they bind blowing sand by stabilizing the soil with their many rhizomes (stem like roots). The rhizomes, which form large, underground mats, also serve as good habitats for plants that are not able to establish themselves as easily in the shifting sand.

**Habitat:** Dunes and dry sand.

**Fun Fact:** *The scientific name of the marram grass, ammophila, is Greek. It comes from the word ammos, meaning sand and philein meaning to love – literally meaning that it loves to grow in sand.*

**Plant Marram Beach Grass - for No Maintenance Landscaping**

Courtesy of Olde Path Inc. <http://www.mydunegrass.com/about-dune-grass/planting-advice/>



**Planting Time:** March thru May or Sept. thru Dec. while the plants are dormant

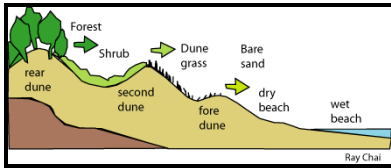
**Planting Method:** Plant the root 6-8 inches deep. Plants are dipped in a moisture retaining polymer; but, must not be allowed to dry out severely.

**Plant Spacing:** 6 inches for steep slopes. – 8 inches for medium slopes and visible sites – 12 inches for flat ground - 18 inches for economy

**Fertilizing:** Not necessary but can use 10-10-10

**Plant Growth:** 1<sup>st</sup> year, clumps of 5-6 shoots will form– 2<sup>nd</sup> year, dense stand of grass will cover.

**TYPICAL CROSS SECTION OF A L. MICHIGAN - GT BAY BEACH.**



**Dunes and Fore-dunes Primer**

Source: [E.A.S.T DRAFT Watershed Protection Plan](#). State protected 'critical' dunes lie only in Torch Lake and Banks Townships.

Forested residential areas along Bay beaches extend south from Norwood to Elk Rapids. This dune-like setting has beach ridges and large wetlands east of residential roads. A few wetlands lie between beach and bluff. Wetlands water fluctuates seasonally and yearly as Bay water level changes.

Inland dune ridges repeat; they might have started as a fore-dune that grew in height and stabilized by vegetation. Between these ridges lie large wetlands kept wet by upland farm creeks, surface run-off, rain and snow.

Inland dune ridges are older than the active fore-dune at the beach. A greater variety of vegetation shows that there has been time for tree species to move into dune areas first stabilized by beach grass.

Tree cores in cottonwoods and poplars on an inland dune ridge measure 25-40 years. Cores from hardwoods on a forested dune ridge measure ages of 50-150 years. The dune ridge is older than the ages of the trees on it.

Tip Of the Mitt Watershed Council [Understanding, Living With, & Controlling Shoreline Erosion - A Guidebook for Shoreline Property Owners - Third Edition](#)

[https://www.watershedcouncil.org/uploads/7/2/5/1/7251350/shoreline\\_erosion\\_3rd\\_edition.pdf](https://www.watershedcouncil.org/uploads/7/2/5/1/7251350/shoreline_erosion_3rd_edition.pdf)

**NON-LETHAL\* STRATEGIES TO CONTROL WOODPECKER DAMAGE**

There is no easy guaranteed solution but try these strategies. (From page 1)

Source: Research-based information from America's land-grant universities enabled by eXtension.org for extension professionals and the public they serve.

**Cover all holes as soon as possible.**

Place aluminum flashing over the areas where the woodpecker is pecking. It will stop the pecking at that spot because: 1) it is metal, 2) it changes the sound, and 3) woodpeckers don't like shiny objects. Make sure a woodpecker is not living in your home.

**Scare the woodpecker causing damage,**

Use several of these techniques. Hanging Mylar tape: Also try running Mylar tape (1-inch-wide strips) around the area where he is pecking. Woodpeckers don't like shiny objects. Or use tinfoil or small mirrors. No scare technique works all the time.

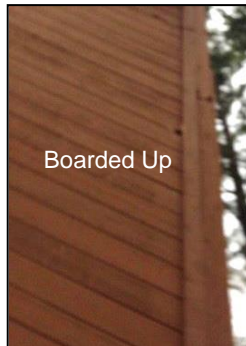
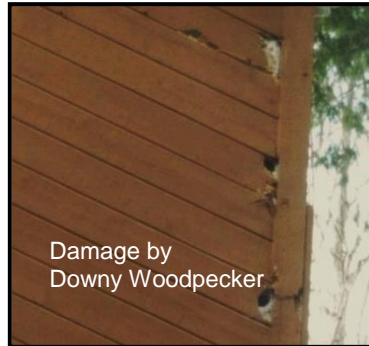
**? Distress sounds:**

Machines digitally recreate woodpecker distress calls. These are NOT ultrasonic devices, which do not work. The device spooks the woodpecker.

**? Scary eye balloons:** Mimic the look of an owl, which spooks woodpeckers; or owl effigies: which are only effective if moved daily. Will work only in the short term, if at all.

**? Exclusion:**

If woodpeckers damage siding under an eave, hang netting from the eave line to the ground extended away from the house wall. Some homes leave the hooks up year round and then hang netting as needed.



\*Lethal Control: These techniques require federal and sometimes state permits.

You will need to institute non-lethal control strategies before you will receive permission to implement lethal control.

[Woodpeckers Federal Depredation Permit Application](#)

If all else fails, contact local wildlife control offices or pest control firms with experience in discouraging pest birds can be a last resort to stop woodpecker house damage.

**BEACH EROSION**

[http://www.ozcoasts.gov.au/indicators/beach\\_erosion.jsp](http://www.ozcoasts.gov.au/indicators/beach_erosion.jsp)

Illustration: oceanic erosion – seasonal, 1-2 year storm and 100 year storm.

L. Michigan erosion is mainly by water levels trending higher from precipitation and Lake Superior discharges.

