Water Resource Concerns in Michigan

Delta & Schoolcraft Conservation Districts

DELTA
CONSERVATION DISTRICT

SCHOOLCRAFT
CONSERVATION DISTRICT

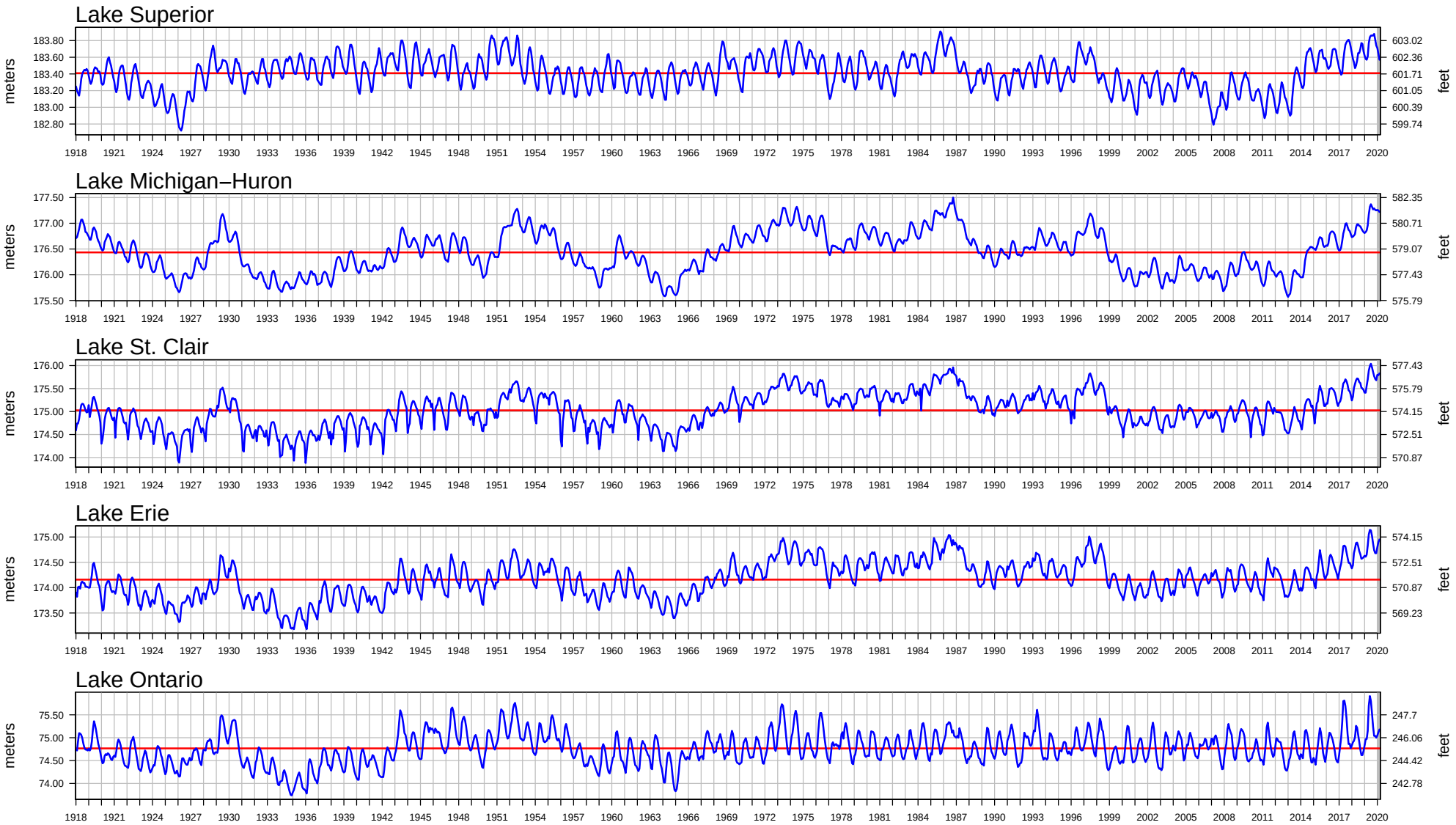
Waters/Shorelines in Michigan

- 4 Great Lakes
- 3,288 miles of Great Lakes shoreline
- 11,000 inland lakes
- 77,000 river miles
- 6.5 million acres of wetlands

Waters/Shorelines in Delta & Schoolcraft Counties

- 1 Great Lake (Lake Michigan)
- 187 miles of Great Lakes Shoreline
- 191 Inland lakes
- 1215 River Miles

Great Lakes Water Levels (1918–2020)



The monthly average levels are based on a network of water level gages located around the lakes.
Elevations are referenced to the International Great Lakes Datum (1985).

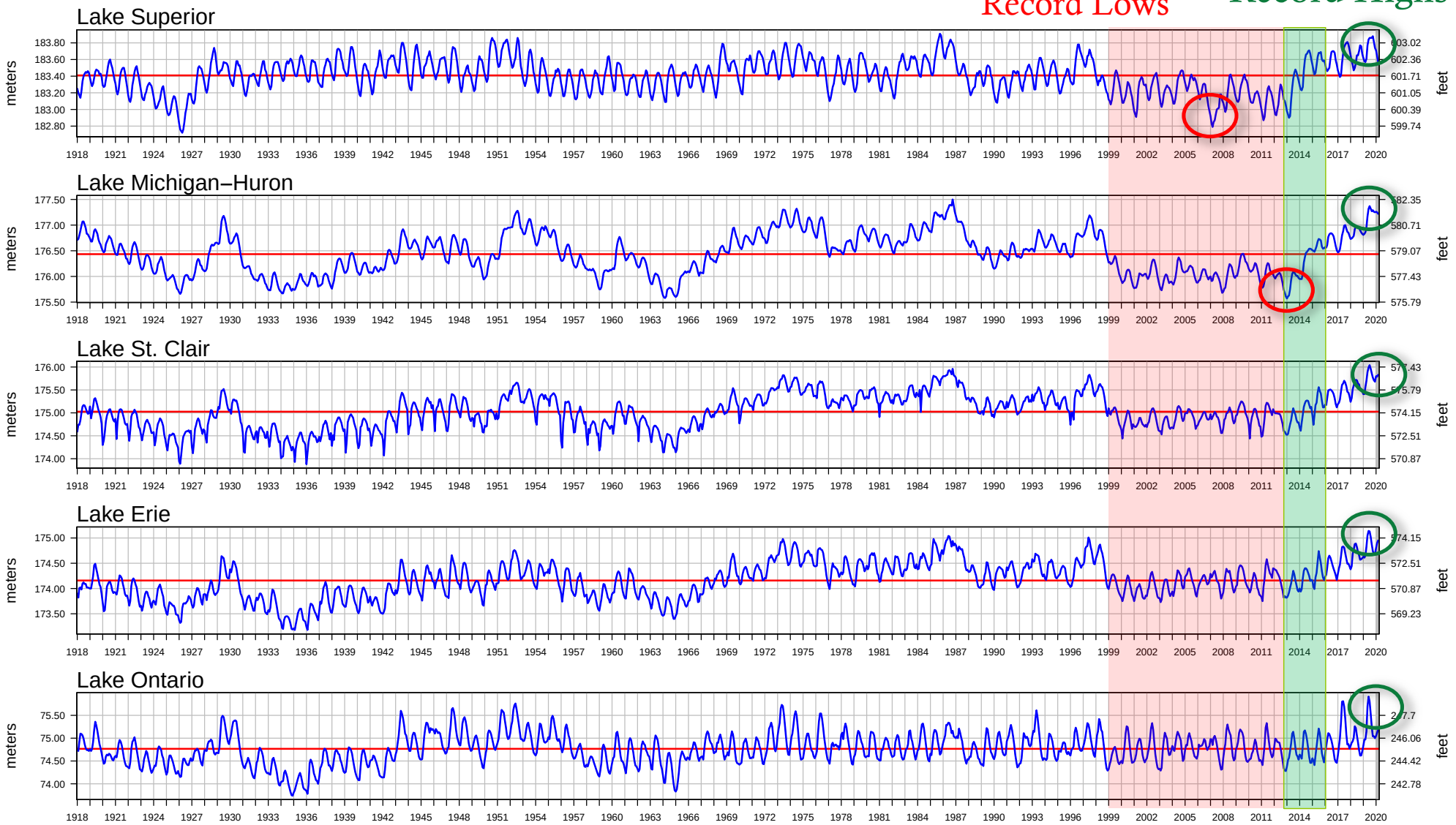
Water levels have been coordinated through 2019. Values highlighted in gray are provisional.

Great Lakes Water Levels (1918–2020)

Monthly Mean Level — Long Term Average Annual

Decade Plus of Low Water with Record Lows

Record Rise & Record Highs



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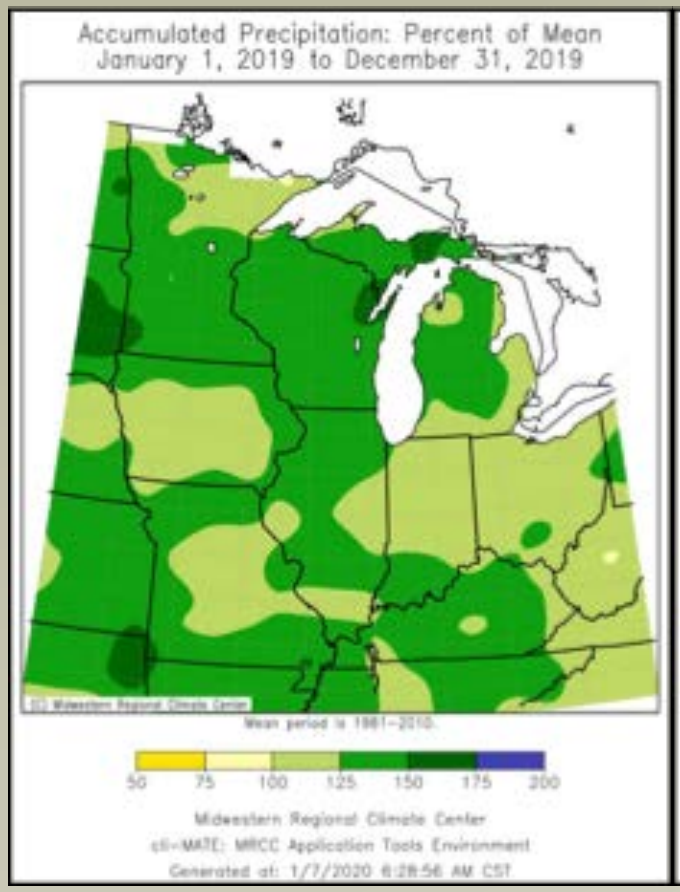
Water levels have been coordinated through 2019. Values highlighted in gray are provisional.

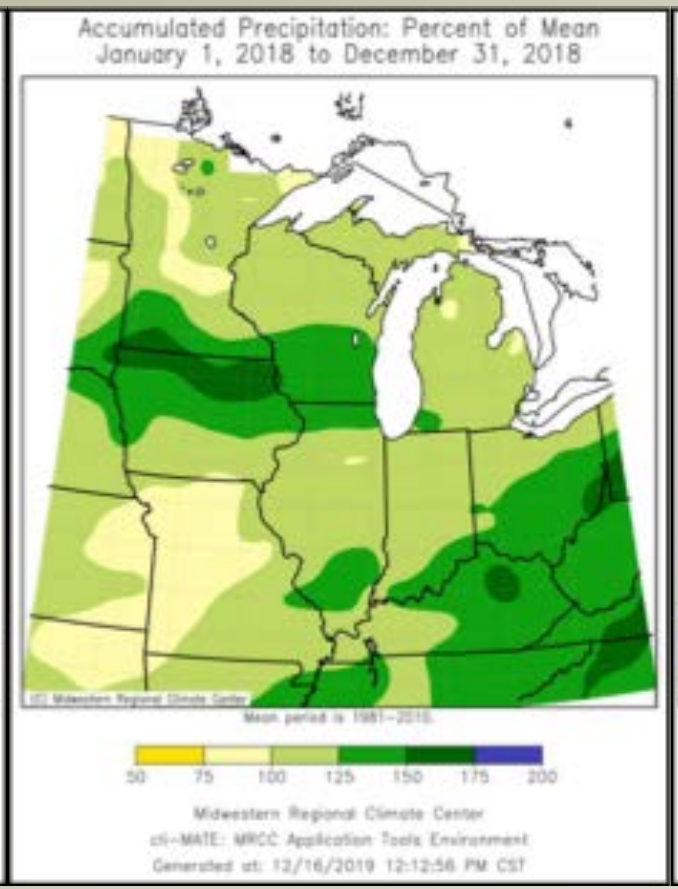
Why Is There So Much Water?

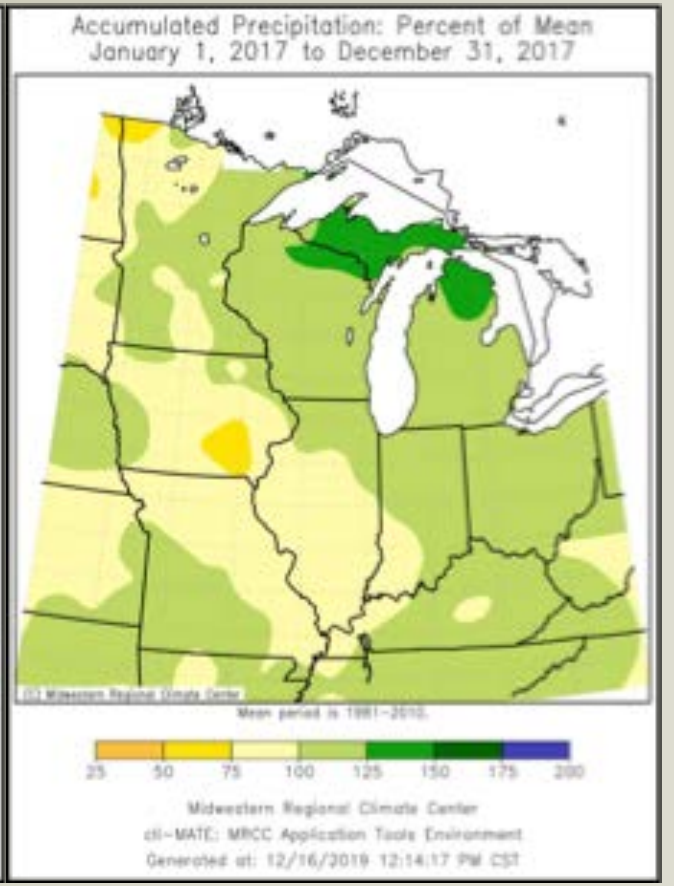
- Overall, the last 10 years have been MUCH wetter than normal across the Great Lakes states.

- As a whole, the state of Michigan is in the middle of the wettest 1-year period, 3-year period, and 5-year period since records began over 120 years ago.

It Has Been Wet Recently….

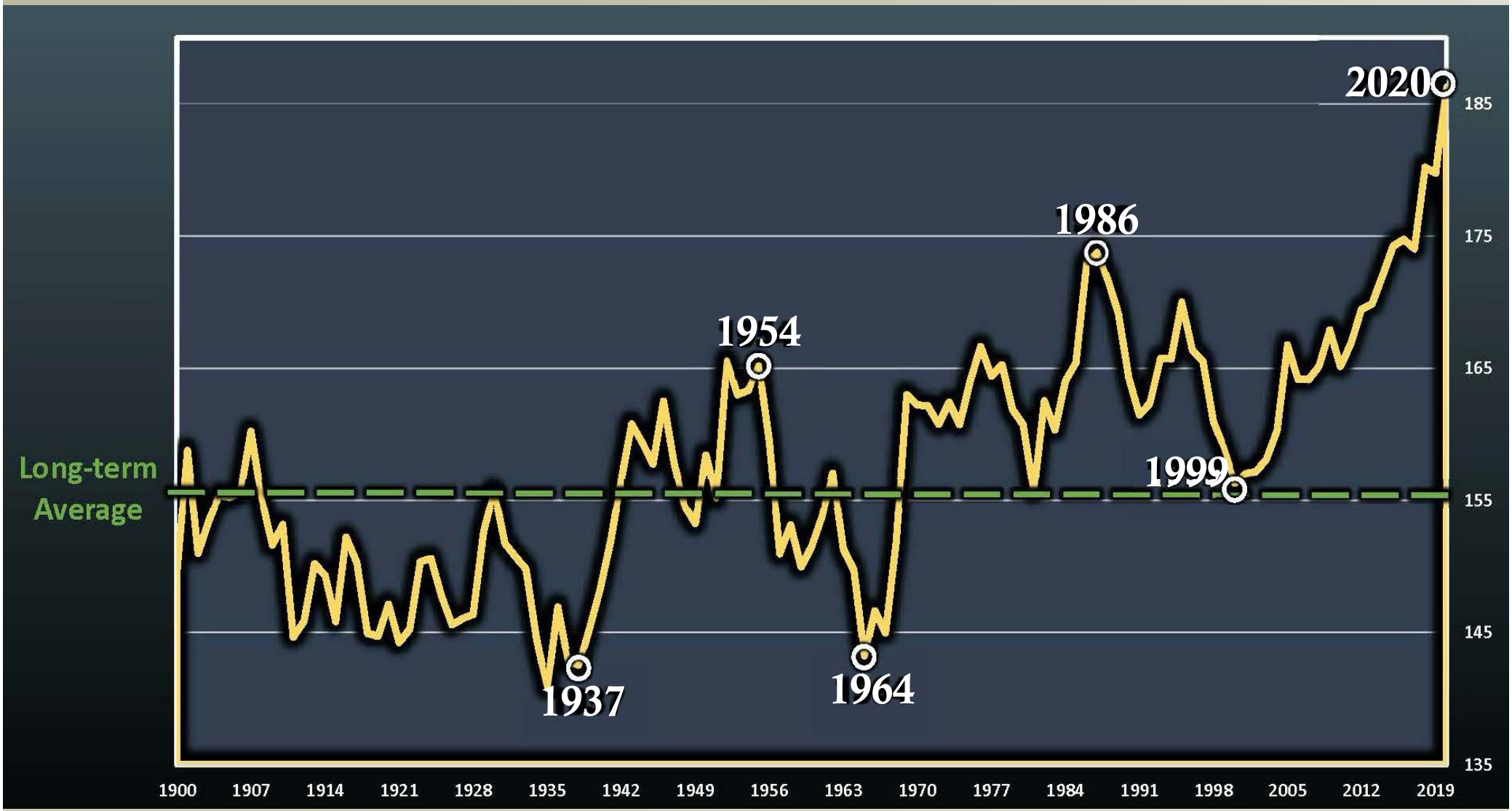




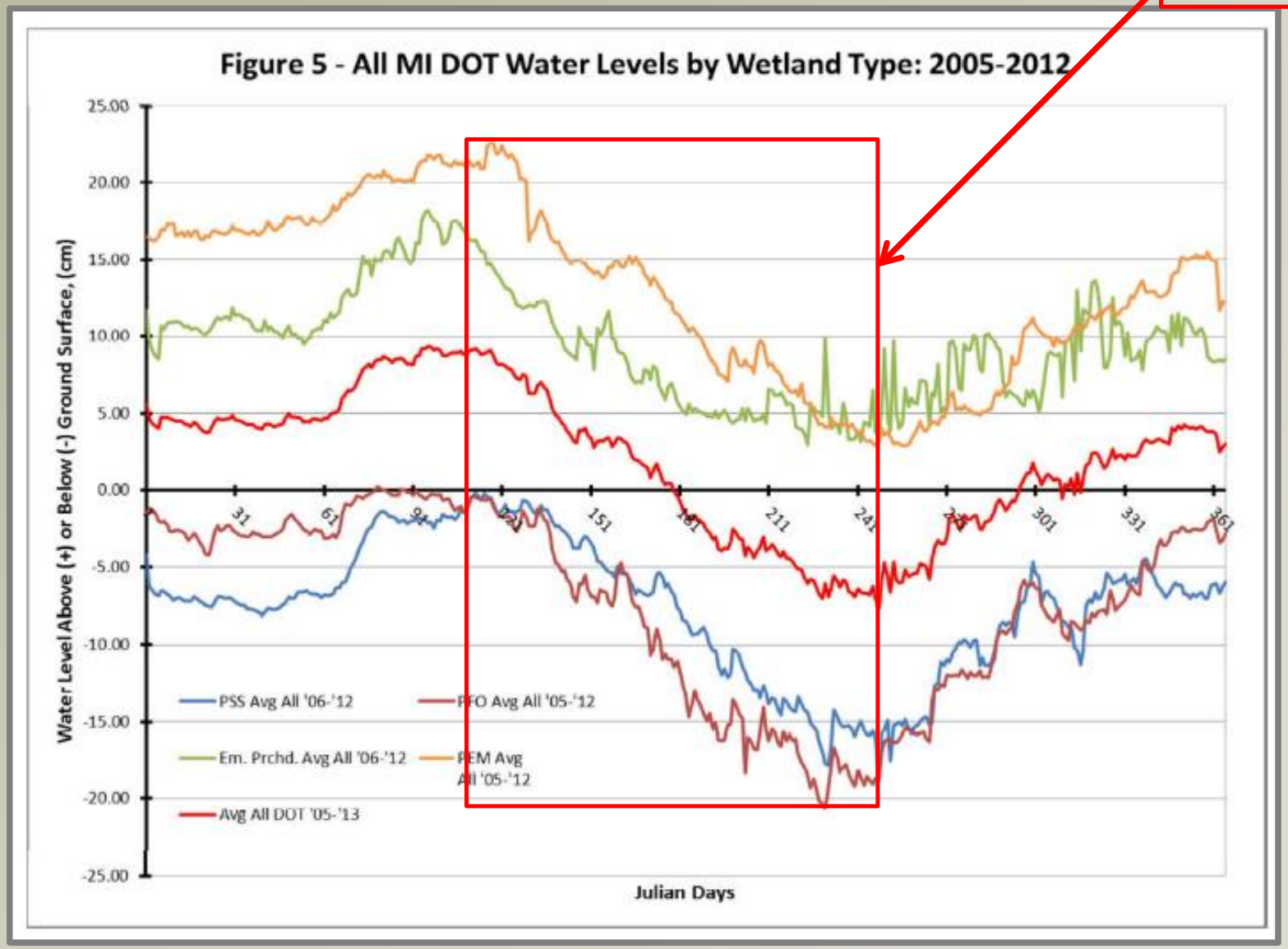


2019 2018 2017

Michigan 5-Year Rolling Total Precipitation



Seasonal Fluctuations of the Water Table



Precipitation Risk Factors

It is not possible this year to say what parts of Michigan are most likely to flood.

The Unusual Situation We are In Means Everyone is Vulnerable

Great Lakes Levels

Fall & Winter Weather

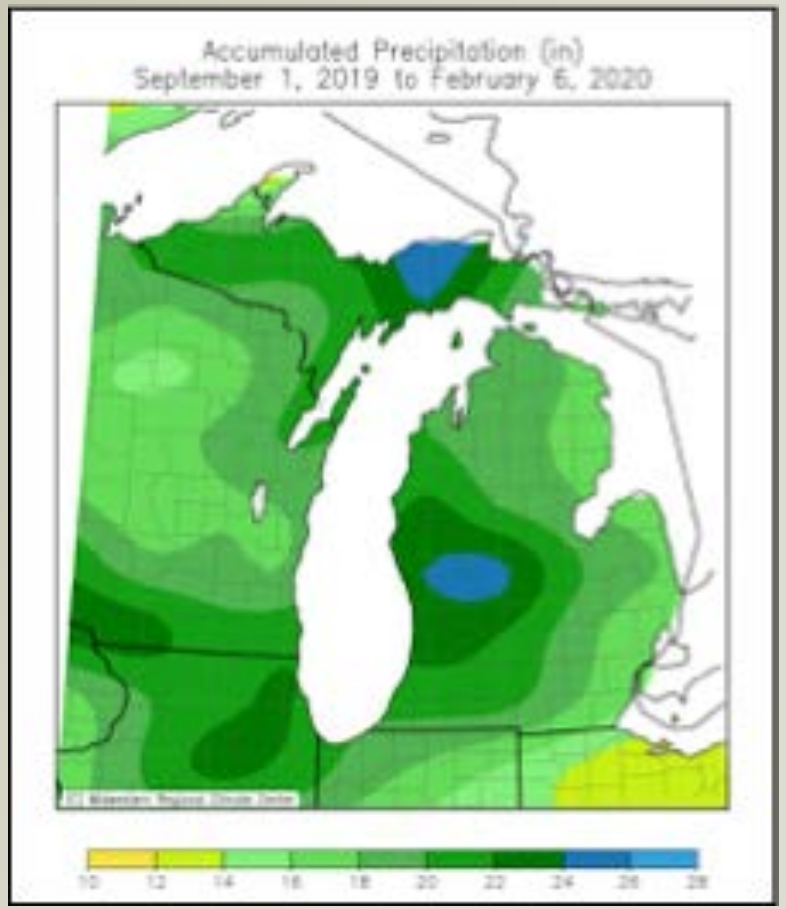
Winter Snowpack

Spring Weather

Great Lakes Levels

Precipitation Risk Factors

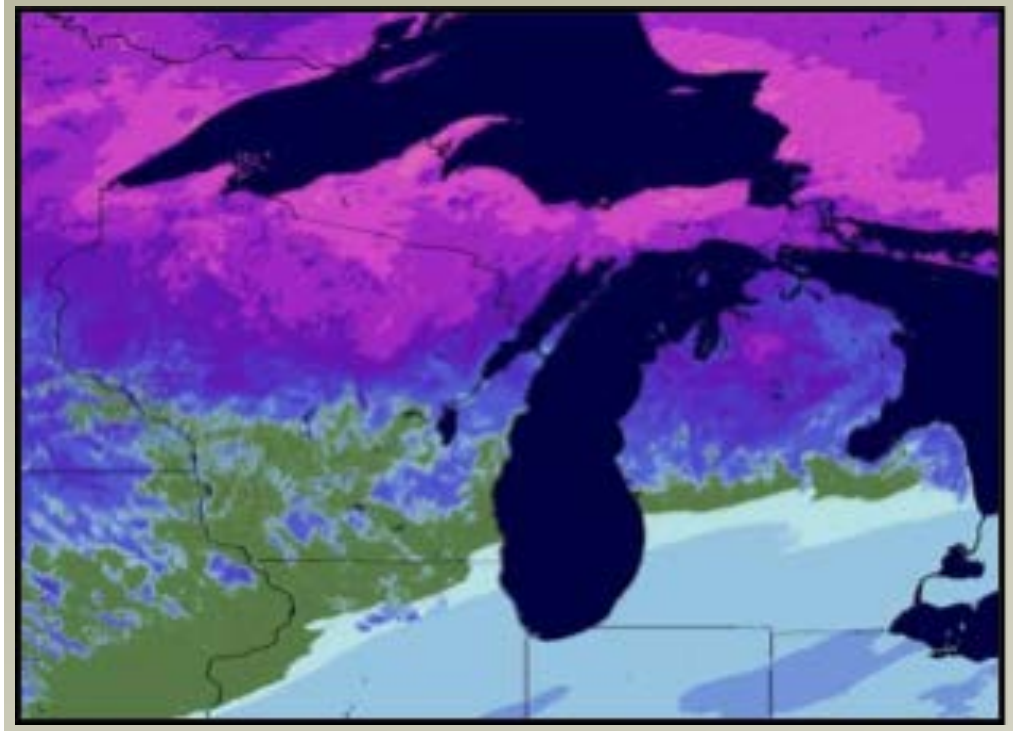
- Fall & Winter Weather
- Wettest September – December on Record for Michigan
- Soil Holding Much More Water Than Typical at this Point
  - Ground Absorption Will be Lower or None this Spring



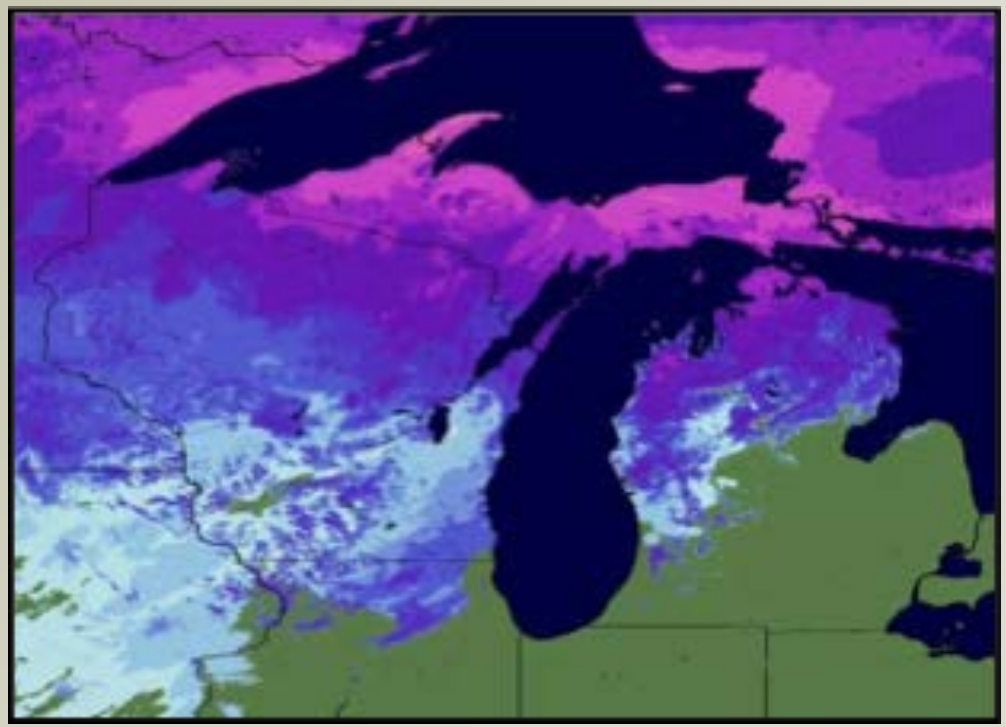
Snowfall Precipitation Risk Factor

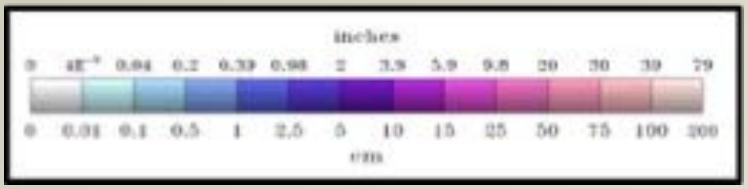
Winter Snowpack

February 6, 2020



February 6, 2019





Seasonal High Groundwater

Houghton Co.
Father's Day Storm

Rivers

- **Seasonal Runoff**
  - Precipitation Events
  - 100 Year Flood Event
  - Floodplains
  - Riverbank Erosion

Photo Credit Rich Beasley

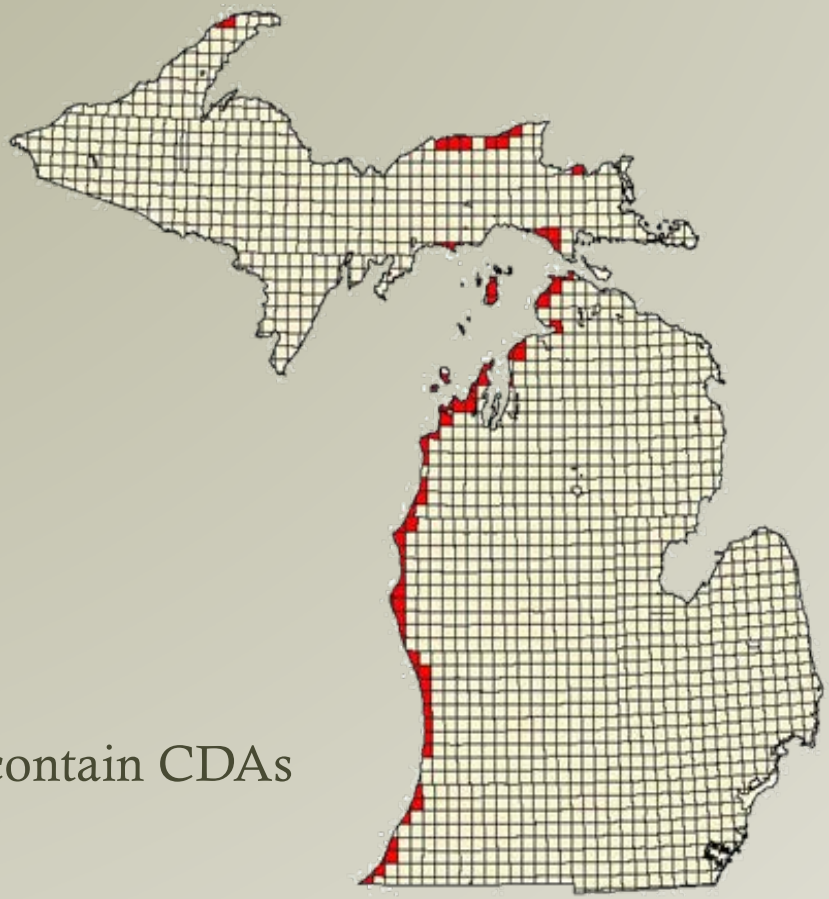

2016 9 2 10 43

Critical Dune Areas

- Protection of the dune resource in designated critical dune areas
  - Maintain stability
  - Not increase erosion due to a proposed use

Critical Dune Areas

Part 353, Sand Dunes Protection and Management, Natural Resource and Environmental Protection Act, 1994 PA 451, as amended



Townships in red contain CDAs

CDA Map – Wetlands Map Viewer Website

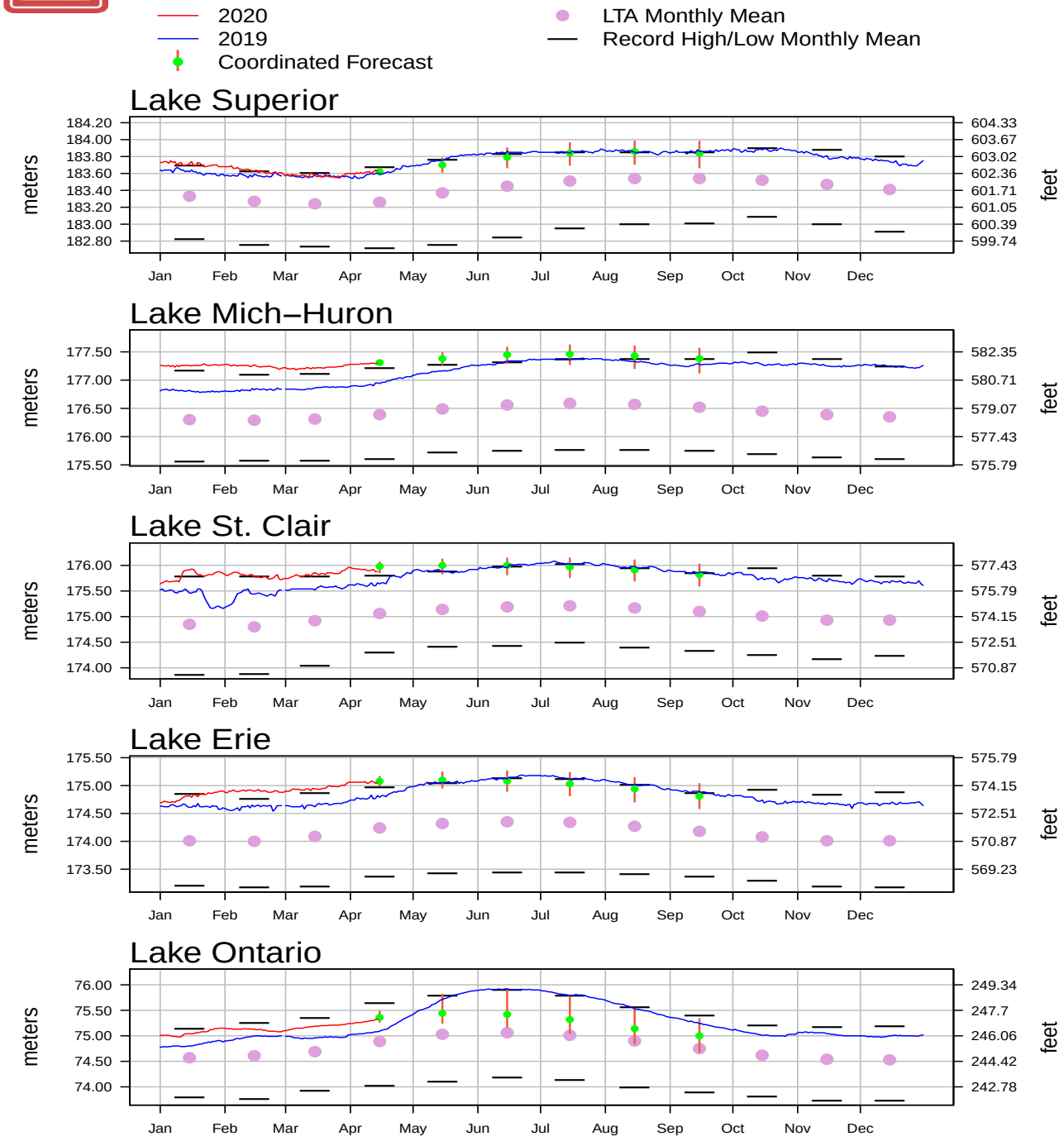
Regulated Activities

- Contour Changes and Uses (with few exemptions)
- Structures (houses, decks, pools, additions, garages, patios, retaining walls, parking areas, driveways, road widening, etc.)
- Septic systems and water wells
- Vegetation removal

Great Lakes Shoreline Erosion Issues

Photo by Brendon Thorne

Daily Great Lakes Water Levels

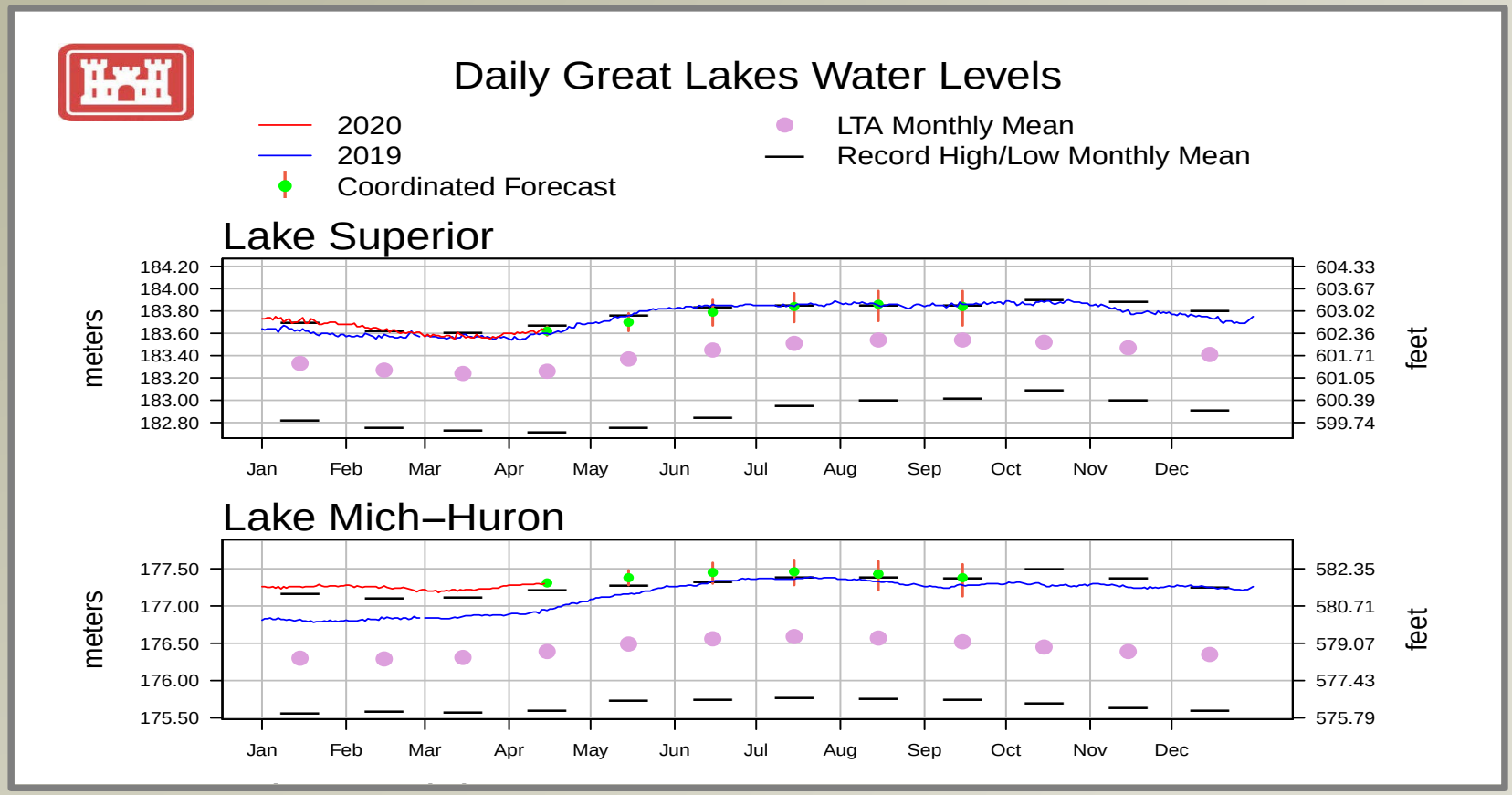


Lakewide average levels are based on a network of water level gages located around the lakes.
LTA and record levels are computed from a period of record of 1918 to 2019
Elevations are referenced to the International Great Lakes Datum (1985).

Updated 2020–04–15

Current High-Water Levels

The Great Lakes are experiencing the highest water levels since 1986. Water levels on the Great Lakes are cyclical with periods of low and high water. Each period may last for several years depending on the amount of precipitation, runoff, and evaporation that occurs.



Lake Level Information

USACE tracks and reports all Great Lakes water level information on their webpage at:

https://www.lre.usace.army.mil/Missions/Great-Lakes-Information/

Here you can find additional information including trends, record high and low elevation data as well as Great Lakes water level projections.

Storms 2019

- Weather systems typically get stronger and more frequent during the fall and winter months
- The first two impactful storm of the season occurred on **Oct 16** and **Oct 22**
- The October storms were NOT unusually strong
- The strongest storm of the year so far occurred on **Nov 27**
  - Stronger than "normal", but definitely not unprecedented

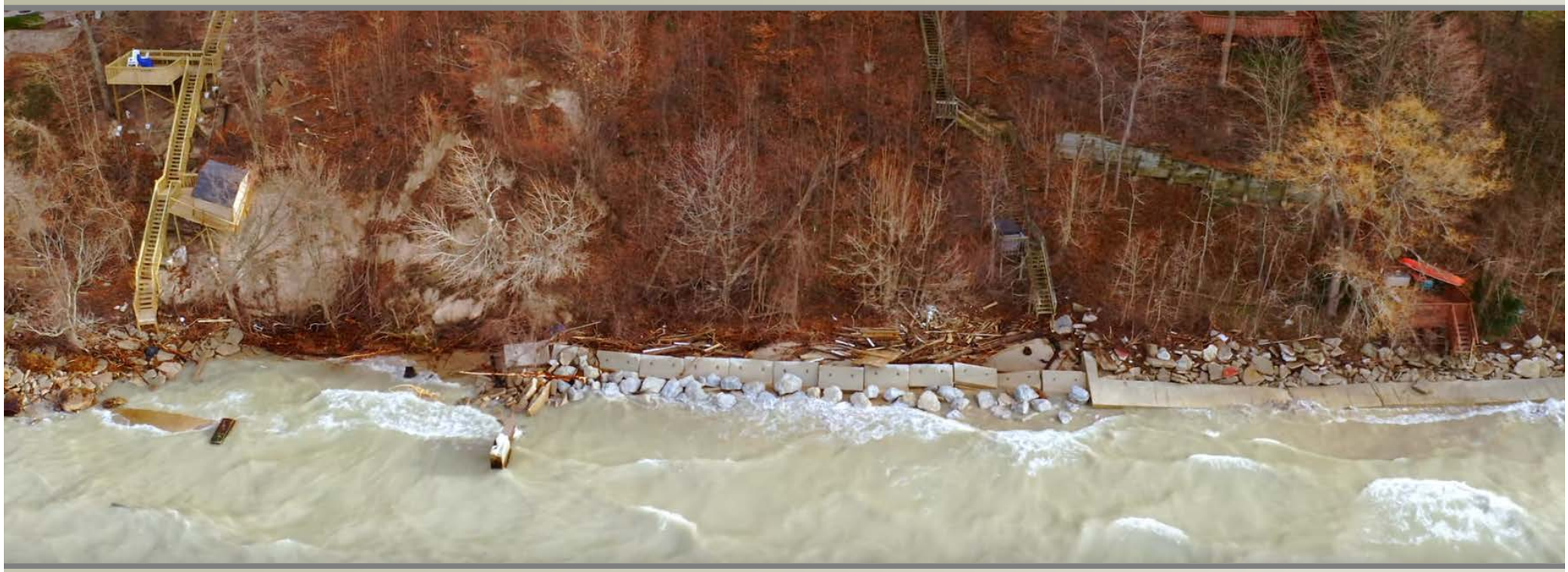
Storm Frequency

40 -60 MPH / 10ft Waves	60+ MPH / 15+ ft Waves
Usually 12-20 times during the fall/winter	Typically 0-2 per year
So far this year: 16+ Sep 3, Sep 27, **Oct 16**, **Oct 22**, Oct 31, Nov 21, Dec 1, Dec 7, Dec 12, Dec 17, Dec 30, Jan 5, Jan 7, Jan 15, Jan 18, Jan 21	So far this year: 1 **Nov 27**

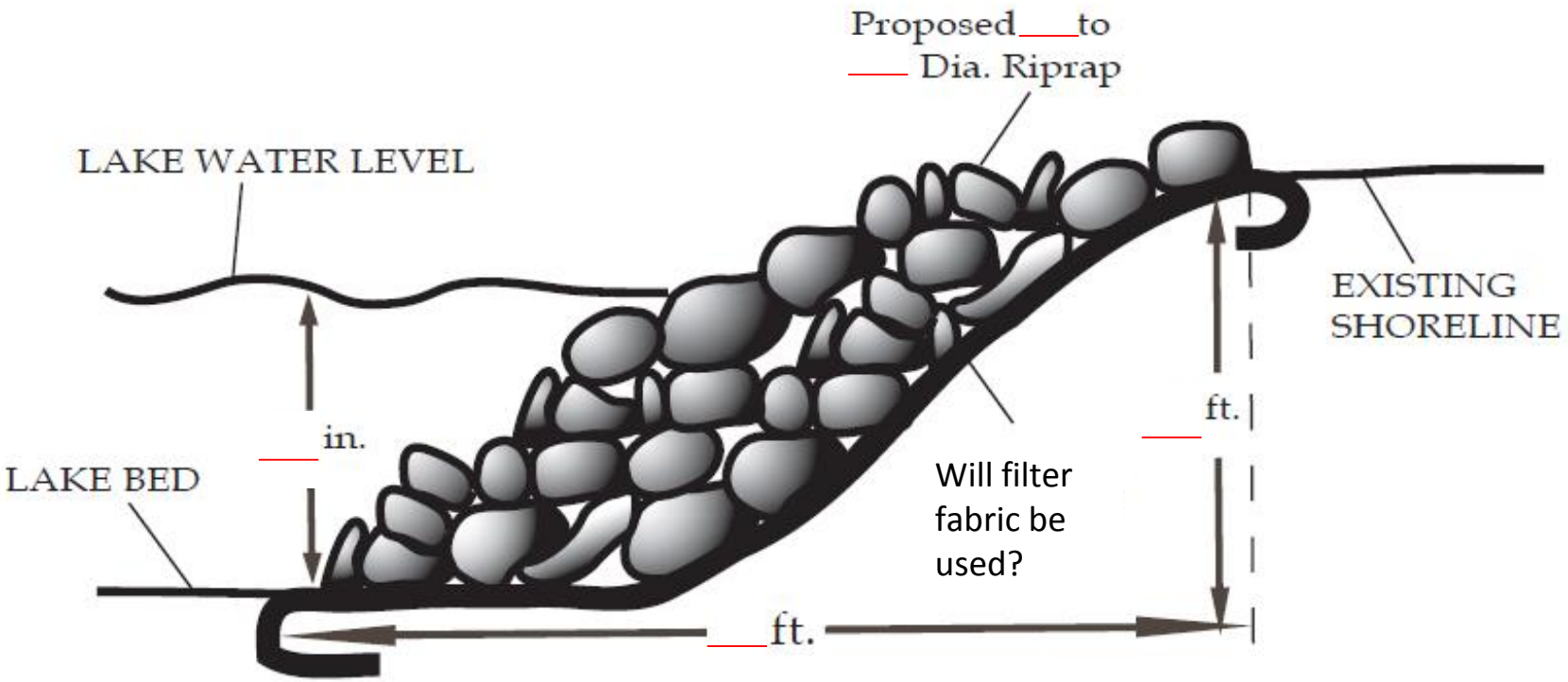
Storms This Winter Have Been Very Typical for Michigan


31
30


22



Sample Cross-Section
Riprap



Will toe stone be trenched in? If so, indicate the length, width, and depth of trench and the total cyd of toe stone.

Show the location of the Ordinary High Water Mark

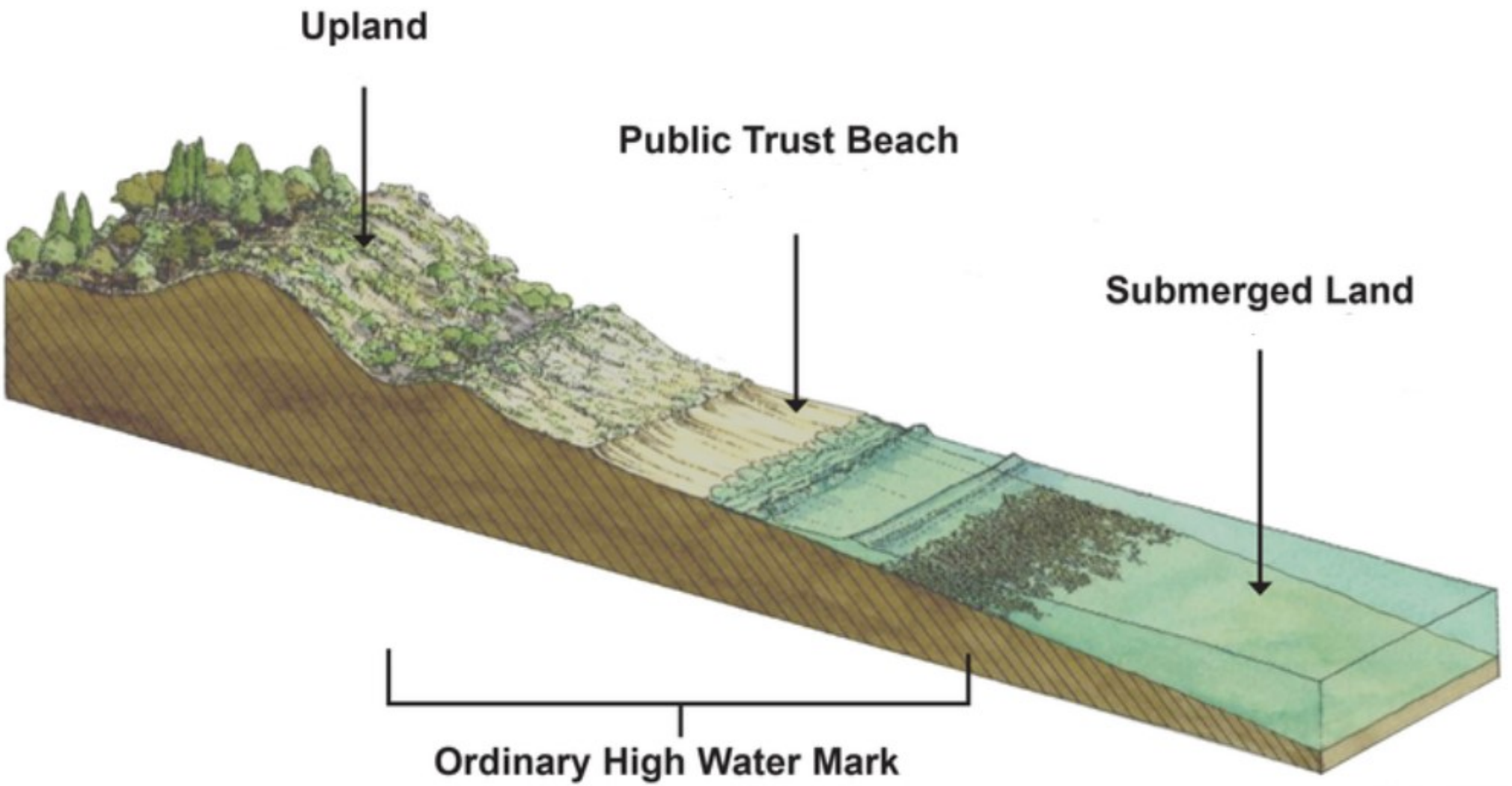

well pit

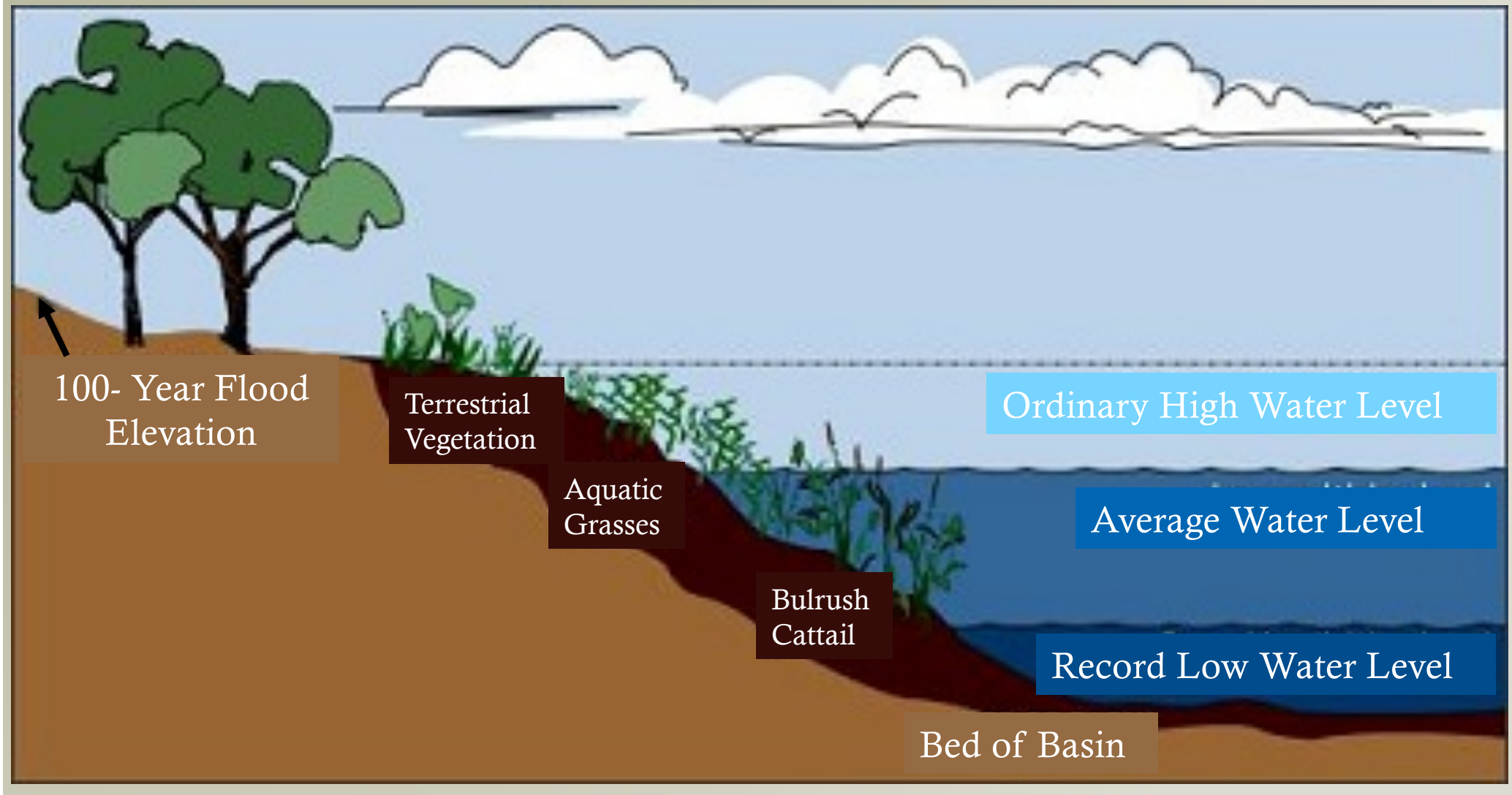
Great Lakes Bottomlands

Great Lakes are regulated waterward of their Ordinary High-Water Mark (OHWM).

The **OHWM** is the elevation along the shoreline where a construction permit under Part 325 is required for such activities as dredging, seawalls, rock revetments, permanent docks and other structures. The elevations are listed in Section 32502 of Part 325.

The **OHWM** for Lake Michigan/Huron as regualted by EGLE is 580.5’ IGLD 1985 and 581.5’ IGLD 1985 by the USACE.


Upland
Public Trust Beach
Submerged Land
Ordinary High Water Mark
GRAPHIC CREDIT:
UNIVERSITY OF MICHIGAN


100- Year Flood Elevation
Terrestrial Vegetation
Aquatic Grasses
Bulrush Cattail
Ordinary High Water Level
Average Water Level
Record Low Water Level
Bed of Basin

Site Visits are VERY Important

- Schedule a site visit as soon as possible
- START and KEEP a line of Communication open and ongoing.

How Should I Begin the Process?

1. Find an experienced shoreline protection professional or contractor.

2. Decide what type of shoreline solution is best for your site.

3. Complete the application and be ready to communicate and turn around information requests quickly

What is Regulated?

- Part 31 – Floodplains
- Part 301 - Inland Lakes and Streams
- Part 303 – Wetlands
- Part 323 – Shorelands (High Risk Erosion Areas)
- Part 325 - Great Lakes Submerged Lands
- Part 353 – Sand Dune Protection (Critical Dunes)
- Part 91- Soil, Erosion & Sediment Control (SESC)

What is Regulated?

Lakes and Streams

Areas waterward of the ordinary high water mark, floodplains, features that connect to an existing body of water, or some water retention features (such as a pond) within 500 feet of the OHWM.

Great Lakes

Areas waterward of the ordinary high water mark or any features that connect to a great lake (such as an inland boat well).

Shoreline Areas

Critical Dunes, High Risk Erosion Areas, and Designated Environmental Areas.

Wetlands

Contiguous to the Great Lakes, an inland lake, a stream, more than 5 acres in size, or if the department determines that protection is essential to the preservation of natural resources of the state.

What is Regulated?

Michigan's Part 91 Law covers erosion control permits for earthwork and building projects. If you are undertaking an earth change (any type of clearing, grubbing, bulldozing, excavating, grading, building, etc.) that will be over one acre (43,560 ft^2) and/or within 500 ft of a lake or stream, you are required to obtain an erosion control permit.

Part 31 of the NREPA- Storm Water Coverage. Storm water coverage is required for any earth change that disturbs one or more acres of land and has a point source discharge to the waters of the state. Storm water coverage is generally obtained through a Permit-By-Rule process which relies heavily on Part 91.

Fee Range: $125 - $450 for the First Acre based on project

Erosion Control
Permitting Process in Delta County :
Delta Conservation District
6822 Hwy 2, 41 & M35
Gladstone, MI 49837
(906) 553-7700
http://www.deltacd.org/soil-erosion.html

Erosion Control
Permitting Process in Schoolcraft County :
Schoolcraft Conservation District
300 Walnut St., Courthouse Rm 216
Manistique, MI 49854
(906) 341-8215
https://www.schoolcraftcd.org/soil-erosion-sesc.html

Online Joint Permit Application

One Application For:

- Wetlands
- Great Lakes
- High Risk Erosion
- Inland Lakes and Streams
- Critical Dunes
- Floodplains

To Apply:

Go to the MiWaters Homepage:
https://miwaters.deq.state.mi.us

Permitting Fees Structure

For projects along the Great Lakes shoreline and not in a critical dune area.

Proposed Project	Type of Permit	Fee	Resource
Replacement of an Existing Seawall, maximum of 200 feet, Minor Project 37	Minor Project	$100	Great Lakes
Riprap, a maximum of 300 feet, Minor Project 41	Minor Project	$100	Great Lakes
Temporary Sandbags, Minor Project 49	Minor Project	$100	Great Lakes
New seawalls, bulkheads or revetments, up to 500 feet	Individual Permit requiring a Public Notice	$500	Great Lakes
Seawalls, bulkheads or revetments of 500 feet or more	Individual Permit requiring a Public Notice	$2000	Great Lakes

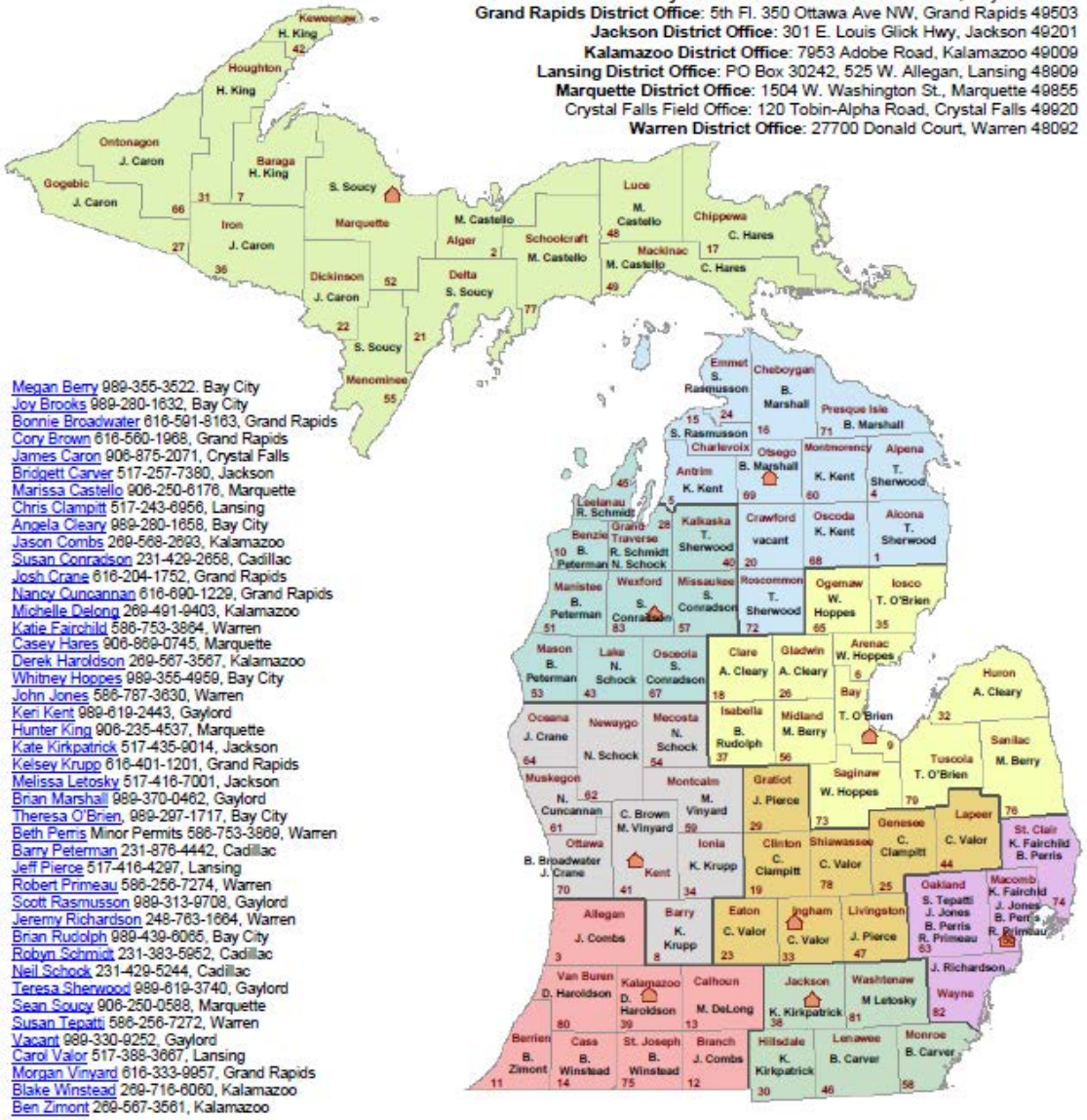
Delta Conservation District

Contact us at:
(906) 553-7700

Land/Water Interface Permitting Staff

www.mi.gov/jointpermit

Bay City District Office: 401 Ketchum Street, Suite B, Bay City 48708
Cadillac District Office: 120 W. Chapin St, Cadillac 49601
Gaylord District Office: 2100 West M-32, Gaylord 49735
Grand Rapids District Office: 5th Fl. 350 Ottawa Ave NW, Grand Rapids 49503
Jackson District Office: 301 E. Louis Glick Hwy, Jackson 49201
Kalamazoo District Office: 7953 Adobe Road, Kalamazoo 49009
Lansing District Office: PO Box 30242, 525 W. Allegan, Lansing 48909
Marquette District Office: 1504 W. Washington St., Marquette 49855
Crystal Falls Field Office: 120 Tobin-Alpha Road, Crystal Falls 49920
Warren District Office: 27700 Donald Court, Warren 48092



Megan Berry 989-355-3522, Bay City
Joy Brooks 989-280-1632, Bay City
Bonnie Broadwater 616-591-8163, Grand Rapids
Cory Brown 616-560-1968, Grand Rapids
James Caron 906-875-2071, Crystal Falls
Bridgett Carver 517-257-7380, Jackson
Marissa Castello 906-250-6176, Marquette
Chris Clampitt 517-243-6956, Lansing
Angela Cleary 989-280-1658, Bay City
Jason Combs 269-568-2693, Kalamazoo
Susan Conradson 231-429-2658, Cadillac
Josh Crane 616-204-1752, Grand Rapids
Nancy Cuncannan 616-690-1229, Grand Rapids
Michelle Delong 269-491-9403, Kalamazoo
Katie Fairchild 586-753-3864, Warren
Casey Hares 906-869-0745, Marquette
Derek Haroldson 269-567-3567, Kalamazoo
Whitney Hoppes 989-355-4959, Bay City
John Jones 586-787-3630, Warren
Keri Kent 989-619-2443, Gaylord
Hunter King 906-235-4537, Marquette
Kate Kirkpatrick 517-435-9014, Jackson
Kelsey Krupp 616-401-1201, Grand Rapids
Melissa Letosky 517-416-7001, Jackson
Brian Marshall 989-370-0462, Gaylord
Theresa O'Brien, 989-297-1717, Bay City
Beth Perris Minor Permits 586-753-3869, Warren
Barry Peterman 231-878-4442, Cadillac
Jeff Pierce 517-416-4297, Lansing
Robert Primeau 586-256-7274, Warren
Scott Rasmusson 989-313-9708, Gaylord
Jeremy Richardson 248-763-1664, Warren
Brian Rudolph 989-439-6065, Bay City
Robyn Schmidt 231-383-5952, Cadillac
Neil Schock 231-429-5244, Cadillac
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Sean Soucy 906-250-0588, Marquette
Susan Tepatti 586-256-7272, Warren
Vacant 989-330-9252, Gaylord
Carol Valor 517-388-3667, Lansing
Morgan Vinyard 616-333-9957, Grand Rapids
Blake Winstead 269-716-6060, Kalamazoo
Ben Zimont 269-567-3561, Kalamazoo

EGLE
MICHIGAN DEPARTMENT OF ENVIRONMENT, GREAT LAKES, AND ENERGY

Water Resources Division

www.michigan.gov/wrd ↔ 517-284-5567

10/28/2019