

# How the National Weather Service Warns for Lakeshore Flooding

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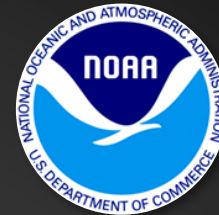


NATIONAL WEATHER SERVICE **DULUTH, MN**

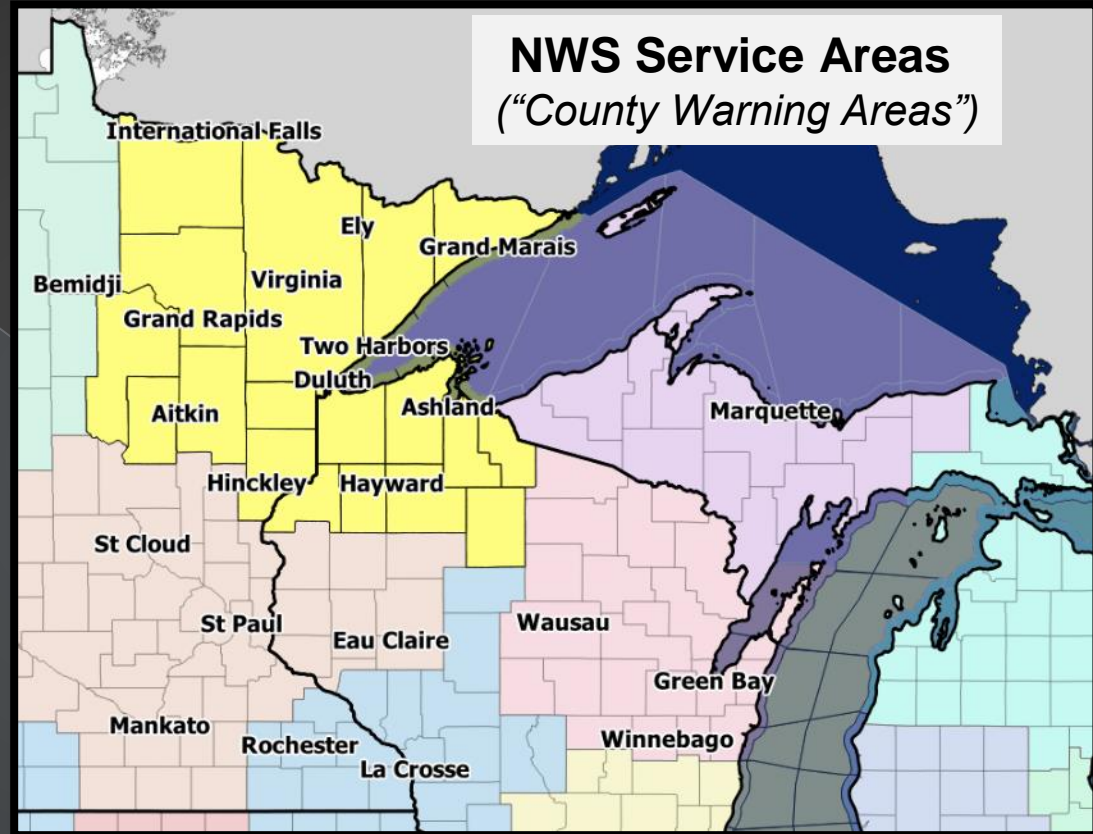
[weather.gov/duluth](https://weather.gov/duluth)



# About NWS Duluth



- One of 122 NWS local forecast offices
- Issue routine forecasts, watches, and warnings for northeast Minnesota, northwest Wisconsin, and the waters of western Lake Superior
- Open 24/7
- Support diverse range of customers – land managers, government officials, aviation, marine, public, etc.



***Mission: Provide weather, water, and climate data, forecasts and warnings for the protection of life and property and enhancement of the national economy.***

# Predicting Weather on the Lake

# Observations



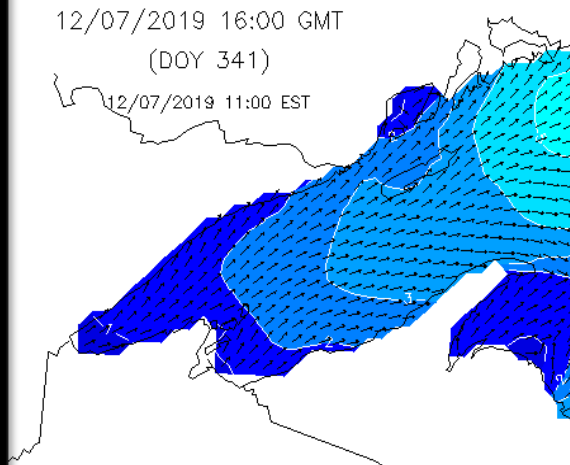
# NOAA Great Lakes Models

# Models

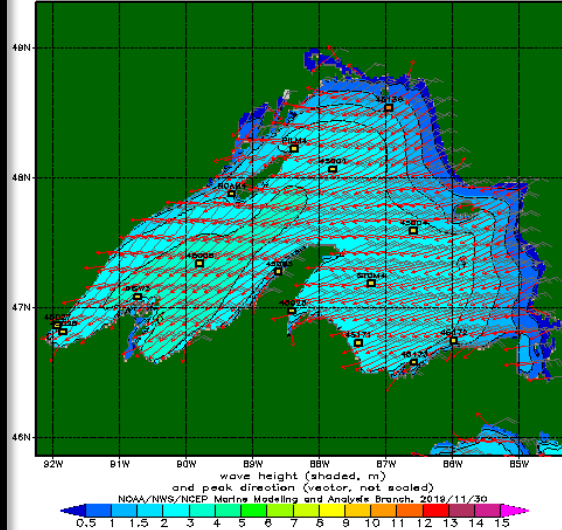
12/07/2019 16:00 GMT

(DOY 341)

12/07/2019 11:00 EST



GLW-Unstructured 20191130 t05z 35h forecast  
NDFD driven Great Lakes model valid 2019/12/01 16:



# Humans





# Challenges in Lakeshore Flood Prediction

1. Limited experience
2. Limited reports of flooding/damage
3. Limited tools

**2018**



**2001**

2018-10-10 15:01:10

# Initial Local Research

## Duluth Water Level Observation Data

Nov 26-27, 2001 – “Lakewalk Damaged” → 602.6’

Oct 27, 2017 – “Storm #1” → 604.36’

Apr 13-15, 2018 – “Storm #2” → 603.14’

Oct 10-11, 2018 – “Storm #3” → 604.24’

Apr 11, 2019 – “Almost Storm #4” → 603.77’

Oct 21, 2019 – “Storm #5” → 604.75’

**April 11, 2019 (Courtesy WDIO)**



**Park Point Beach**



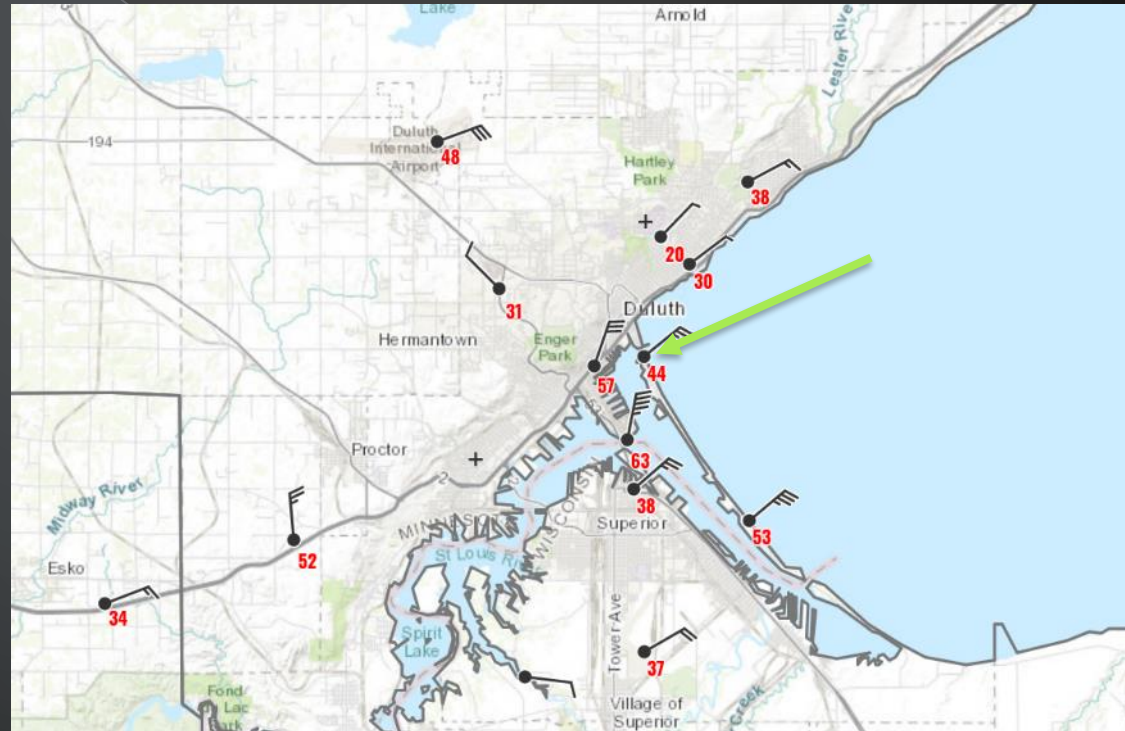


# Initial Local Research

## Duluth Water Level Observation Data

- Anecdotally, it seems like 604' almost always produces damage
- There is a duration factor in winds/waves, but we're still learning!

Duluth Water Level Station  
("DULM5")



# Lakeshore Flooding Products

## Lakeshore Flood WATCH

Lakeshore flooding that **may have significant impacts**  
(12-48 hours in advance)

## Lakeshore Flood WARNING

Lakeshore flooding which poses a **serious threat to life and property** is occurring, imminent, or highly likely (12-24 hours in advance)

## Lakeshore Flood Advisory

**Minor** flooding is occurring or is possible (12-24 hours in advance)

# Thank you!

We appreciate any and all reports of flooding/damage (past and present)

We are happy to help with or collaborate on research – don't hesitate to reach out for weather data!

Joe Moore

NWS Duluth

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