



# Rainy River/Rainy Lake Basin Spring 2023 High Water

Wednesday May 24, 2023 Briefing

**This information will be updated as needed, with no future updates scheduled due to a mostly dry forecast.**

Recent Past Weather	Forecast Weather Next 6-10 Days	River and Lake Levels - Current and Future	Impacts (Damage) Observed So Far	Key Messages to stakeholders and the public
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# Basin Overview - What are we focusing on?





# Recent Past Weather



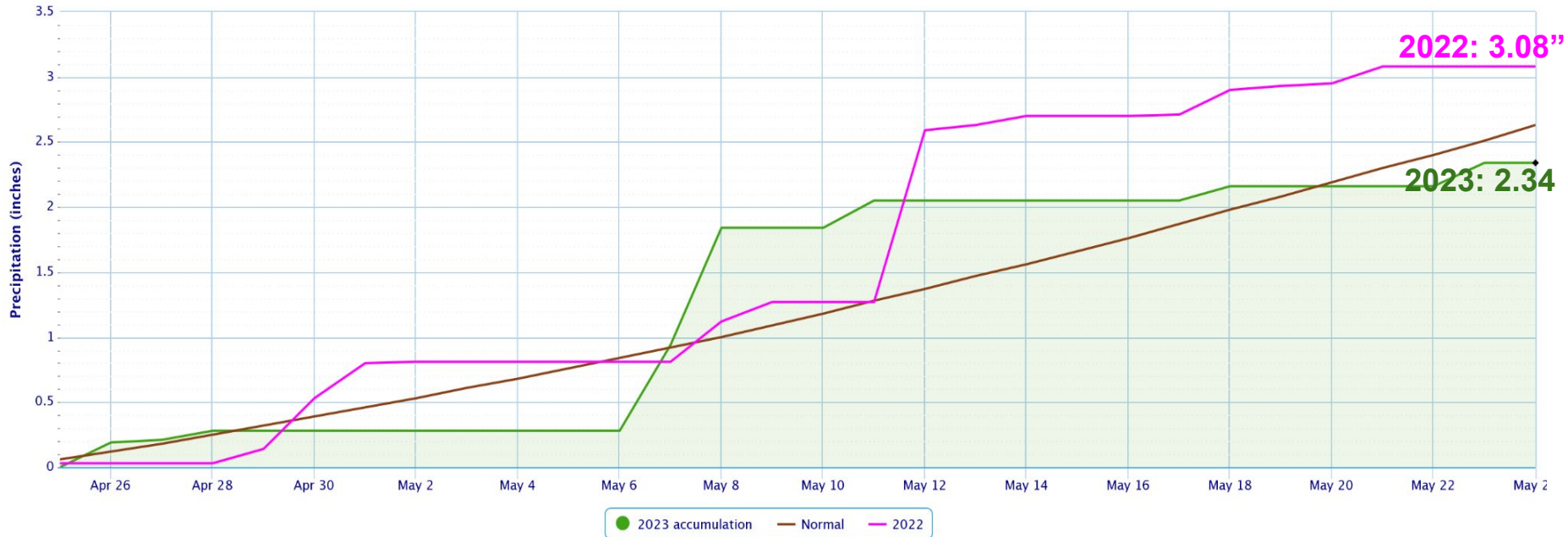


# Recent Past Weather

Rainfall Last 30 Days At International Falls (Since April 25) **2023**, **2022**, and **Normal**

Accumulated Precipitation – International Falls Area, MN (ThreadEx)

Click and drag to zoom to a shorter time interval; green/black diamonds represent subsequent/missing values



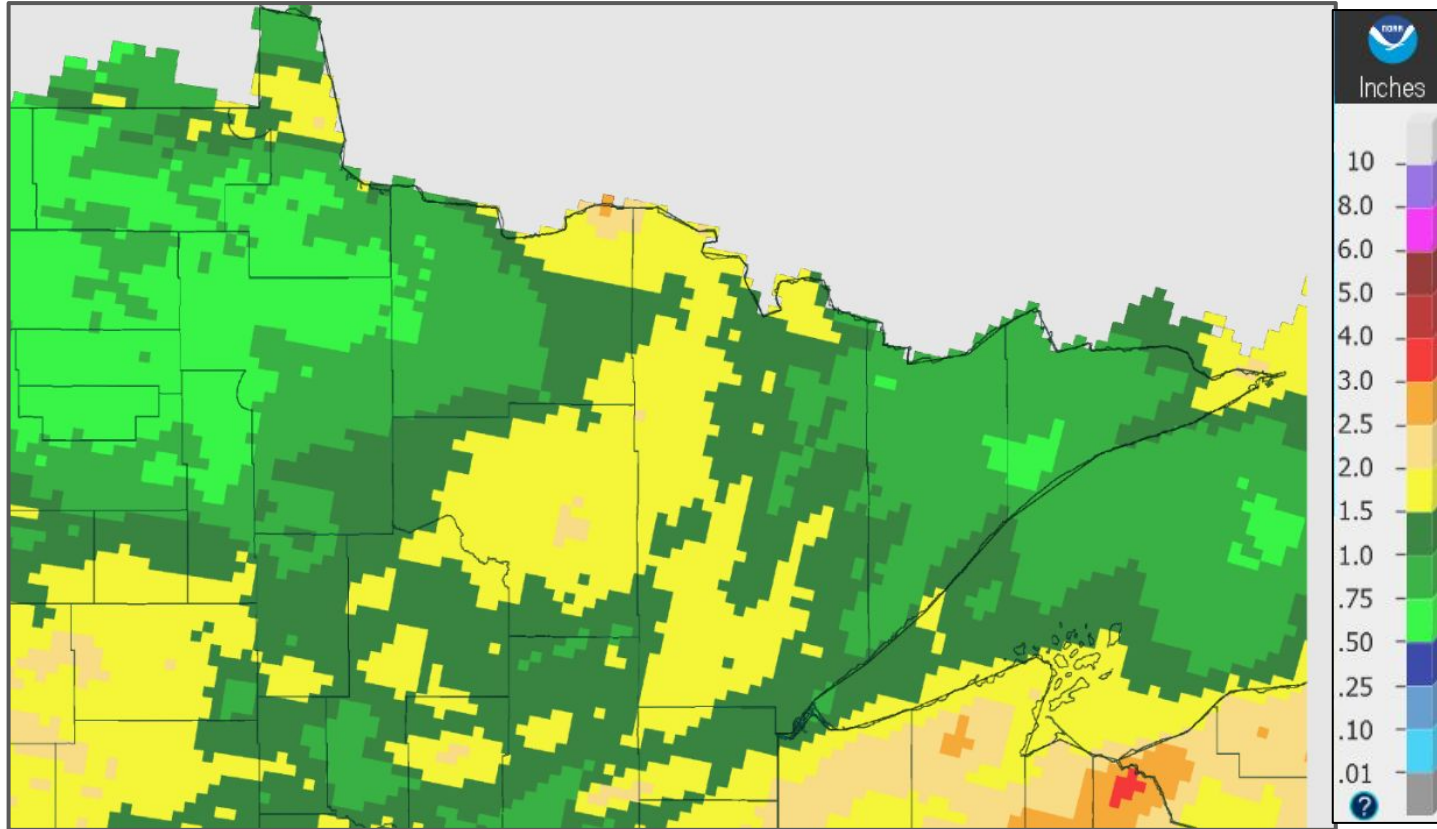
Powered by ACIS





# Recent Past Weather/

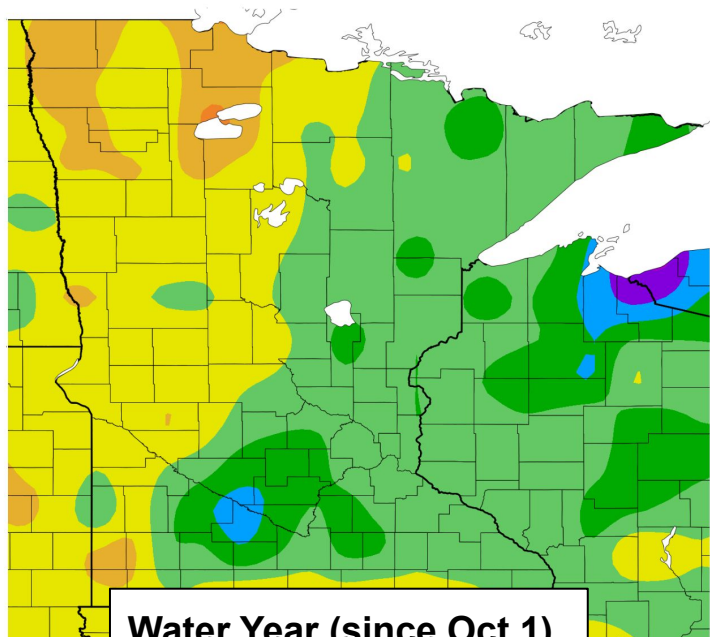
Last 24 Hours (Ending Wednesday Morning, May 24)





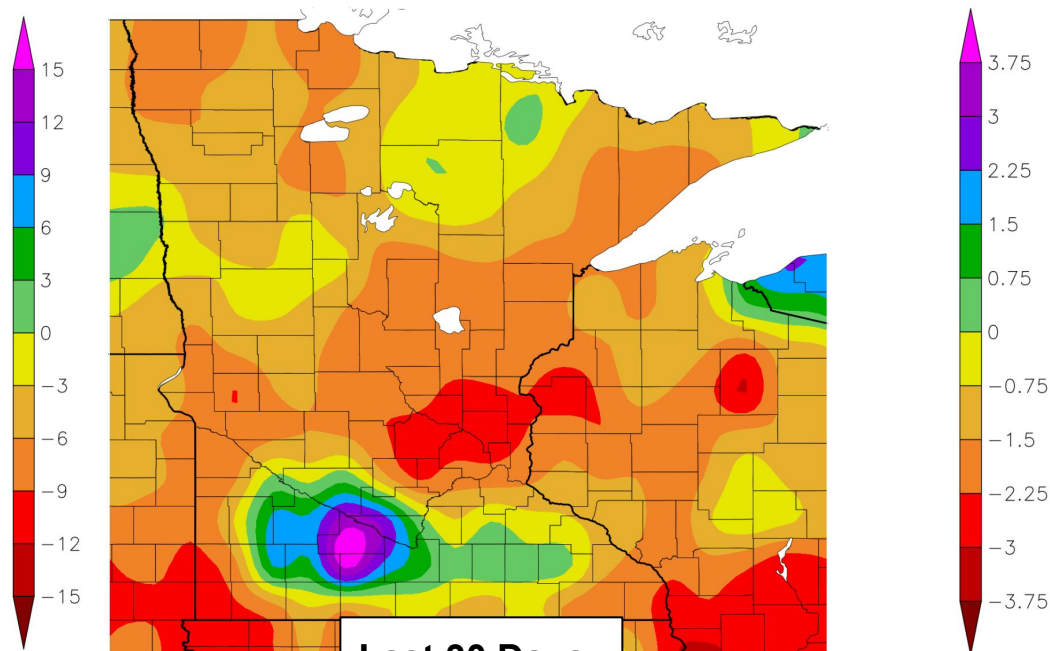
# Precipitation Departure from Normal

Departure from Normal Precipitation (in)  
10/1/2022 – 5/23/2023



**Water Year (since Oct 1)**

Departure from Normal Precipitation (in)  
4/24/2023 – 5/23/2023



**Last 30 Days**



# Forecast Weather

Next 6-10 Days

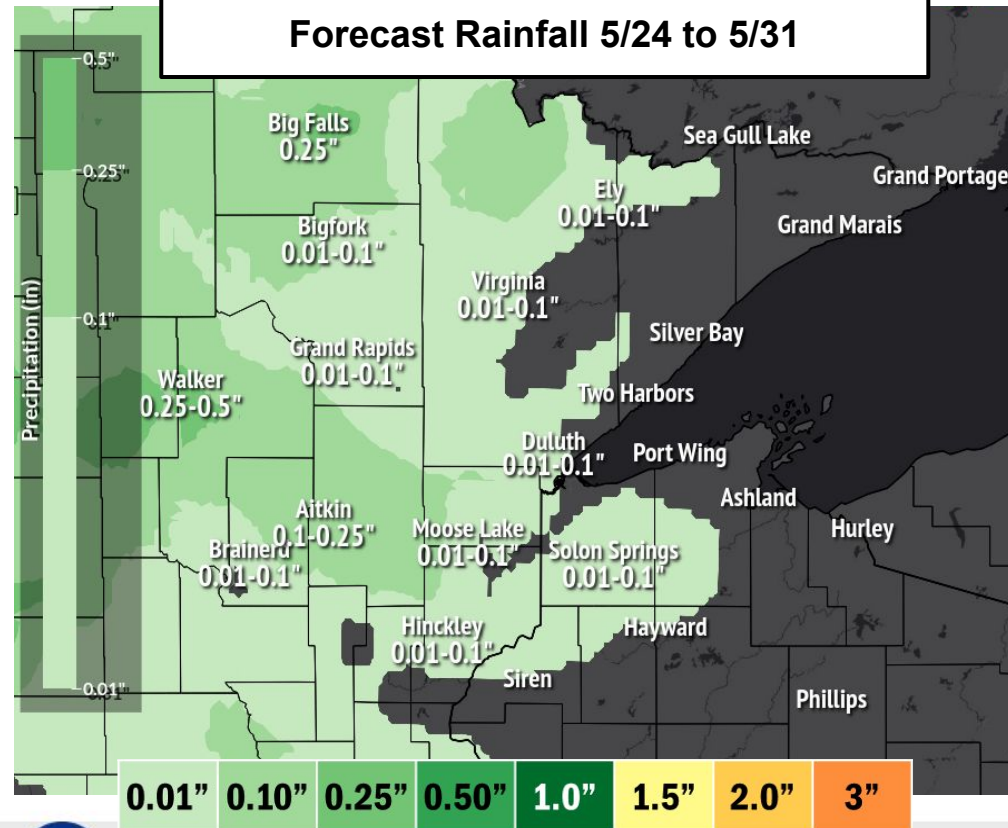




# Precipitation Forecast - Current NWS Forecast

Basin Average Precipitation

## Forecast Rainfall 5/24 to 5/31



→ Mostly **dry** through the next 7 days.

→ Low confidence for some light precipitation mid to late next week.



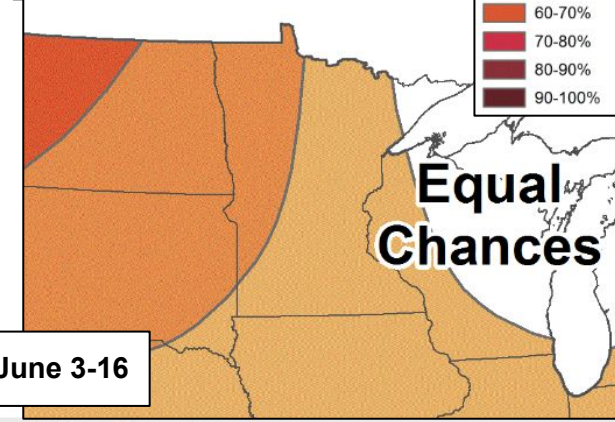
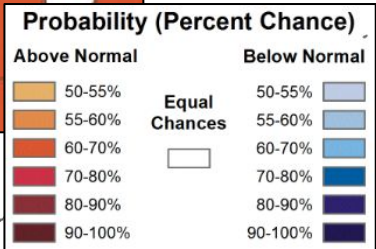
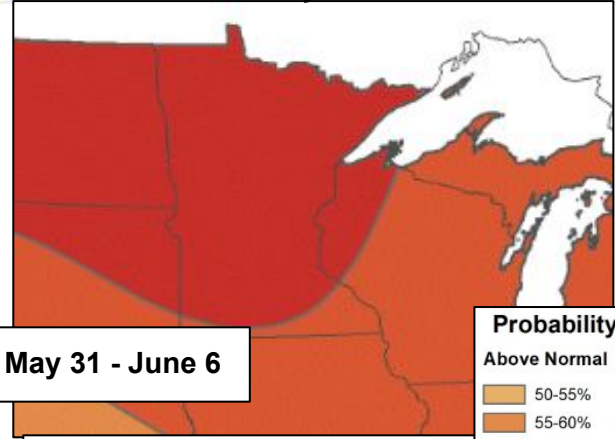




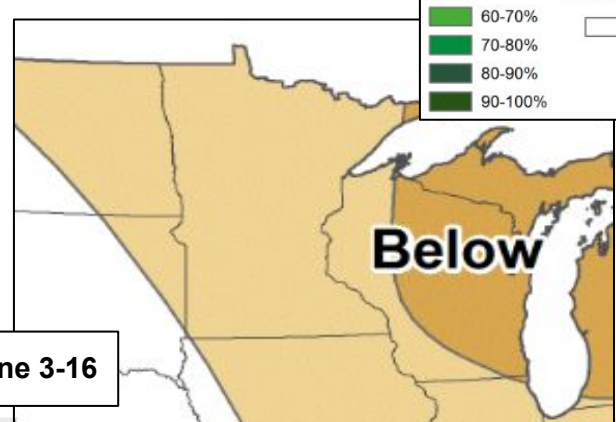
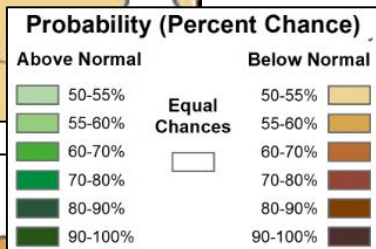
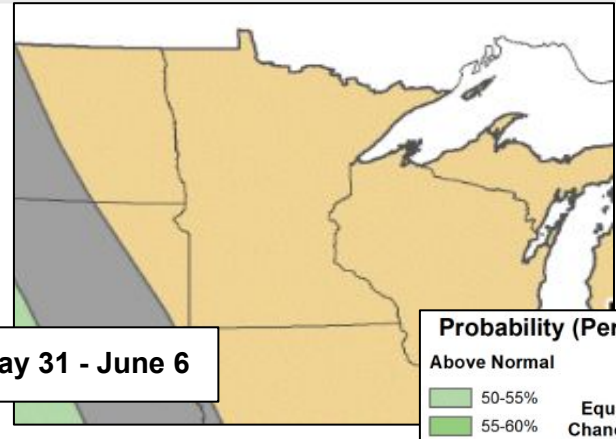
# Temperature and Precipitation Outlooks

## Warm and Dry Pattern Continues

Temperature Outlooks



Precipitation Outlooks





# Wind Forecast for Rainy/Namakan/Kabetogama Area

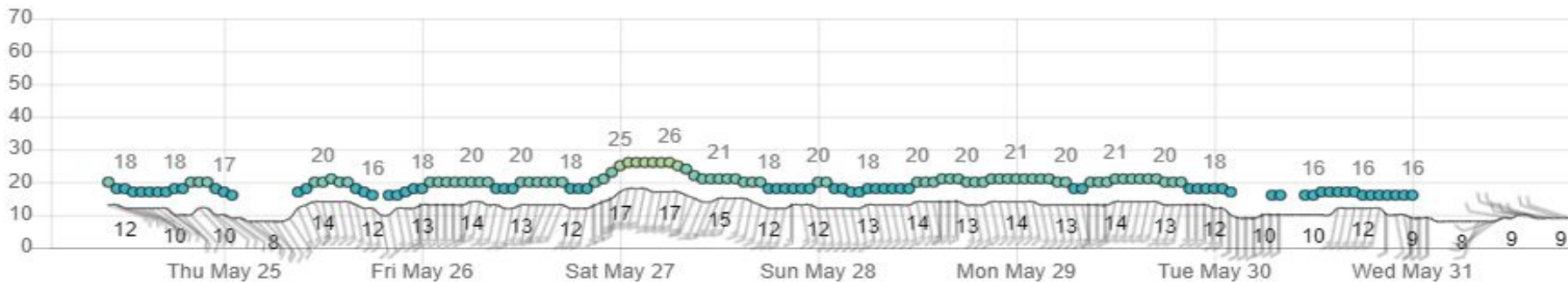
## Wind Speed & Gust Forecast (mph)

Arrows indicate direction and speed of winds, dots represent wind gusts of 15 mph or more.

**\*\*Does not take include any thunderstorm-driven wind gusts\*\***

For latest hourly weather forecast, visit [weather.gov/forecastpoints](https://www.weather.gov/forecastpoints)

### Wind Speed/Direction/Gust, mph



**Direction:** Southeast S S S S S S S S S S W

NWS Grand Forks Wave Forecast for Lake of the Woods: [https://www.weather.gov/fgf/lake\\_info](https://www.weather.gov/fgf/lake_info)



# Current & Expected River/Lake Levels

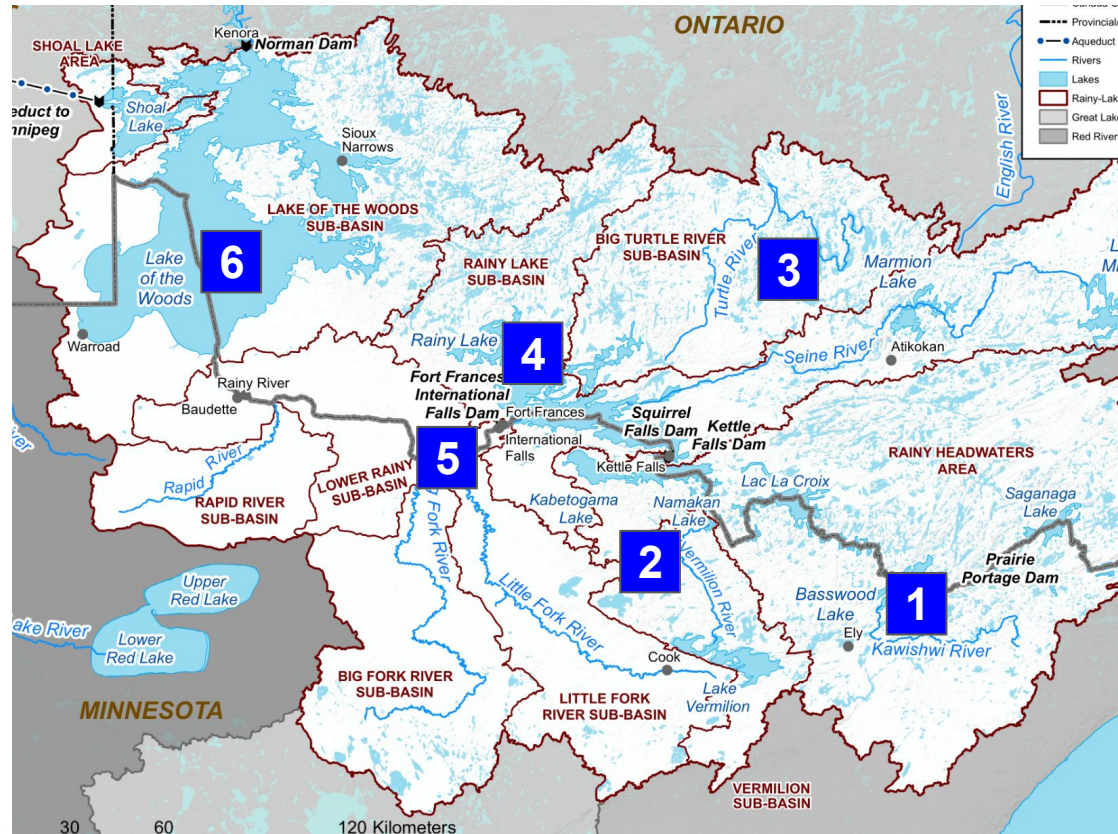
Next 6-10 Days and Beyond





# Going through the basin (roughly upstream to downstream)

1. Basswood near Ely
2. Vermilion River/Crane Lake/Namakan
3. Canada - Turtle River  
Seine River
4. Rainy Lake
5. Rainy River past  
International Falls  
(Little/Big Fork)
6. Lake of the Woods





# Rainy Headwaters

## South Kawishiwi River near Ely

### HEFS - 10 Day River Level Probabilities

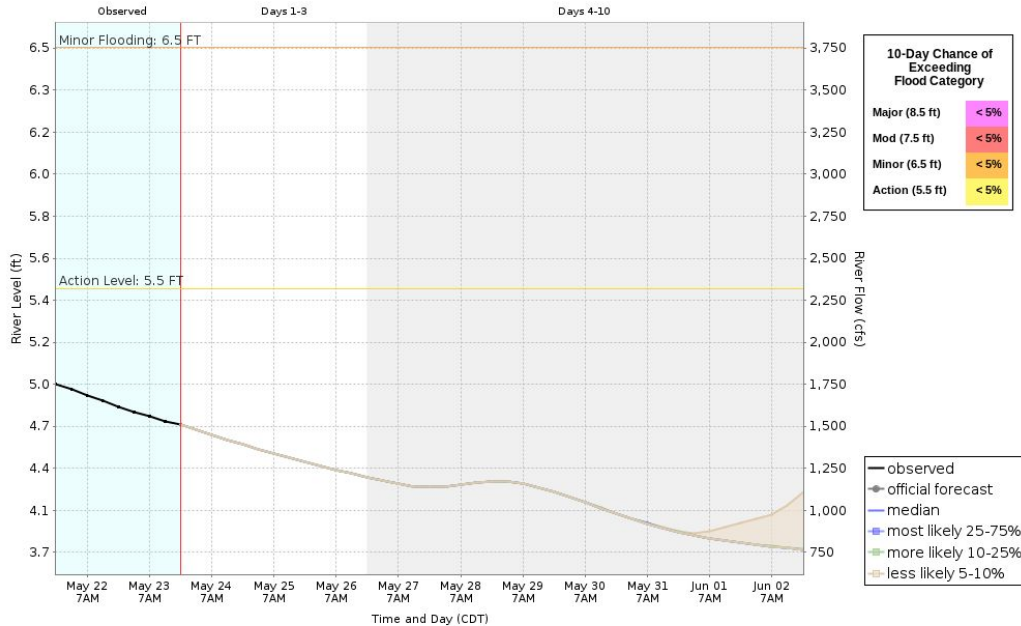
Based on Hydrologic Ensemble Forecast Service Model Simulations Used to Estimate the Range of Possible River Levels

### Ensemble Forecast for South Kawishiwi near Ely

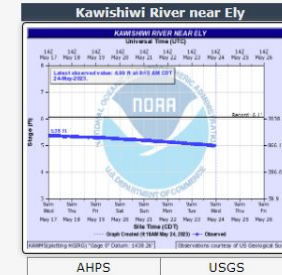
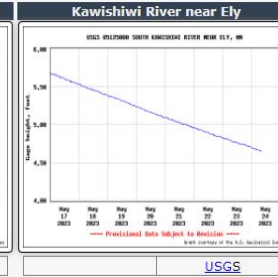
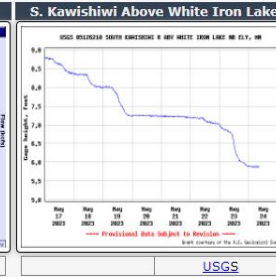
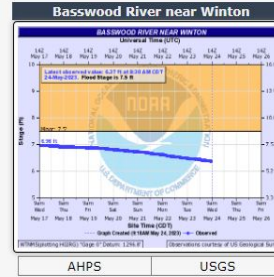


May 24 - Jun 03, 2023

#### South Kawishiwi River at Ely 9SE (SKRM5)



Model runtime: 07:00 PM CDT May 23 2023  
North Central River Forecast Center



- Declining levels in the headwaters rivers after being high during spring snow melt.





# Vermillion River near Crane Lake

[Click here for hydrograph](#)

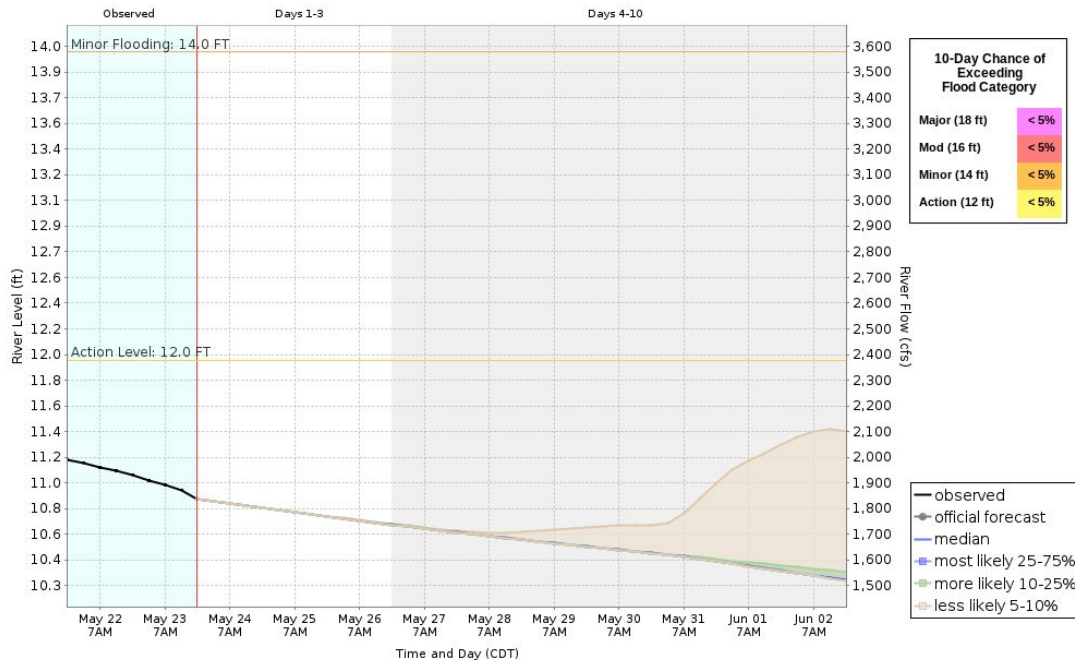
## HEFS - 10 Day River Level Probabilities

Based on Hydrologic Ensemble Forecast Service Model Simulations  
Used to Estimate the Range of Possible River Levels



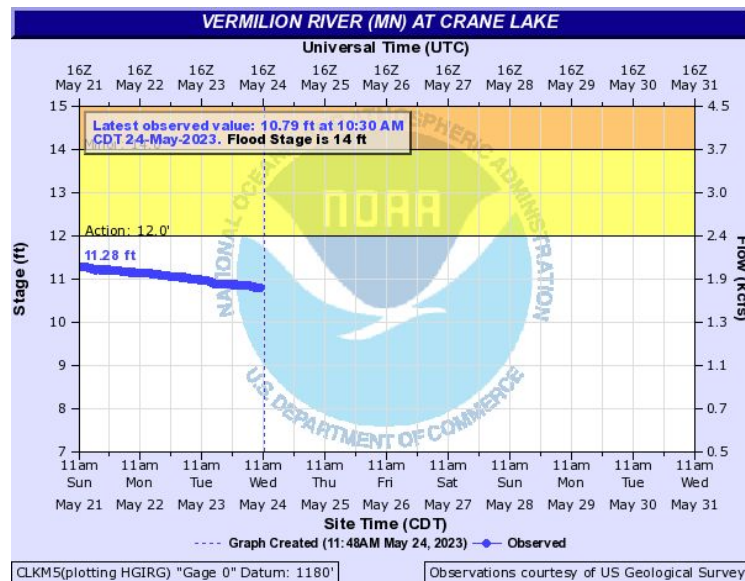
May 24 - Jun 03, 2023

### Vermillion River at Crane Lake 4W (CLKM5)



Model runtime: 07:00 PM CDT May 23 2023  
North Central River Forecast Center

On the decrease,  
expected to continue  
to go down.



CLKM5(plotting HGIRG) "Gage 0" Datum: 1180' | Observations courtesy of US Geological Survey





# Namakan Lake (and Kabetogama Lake)

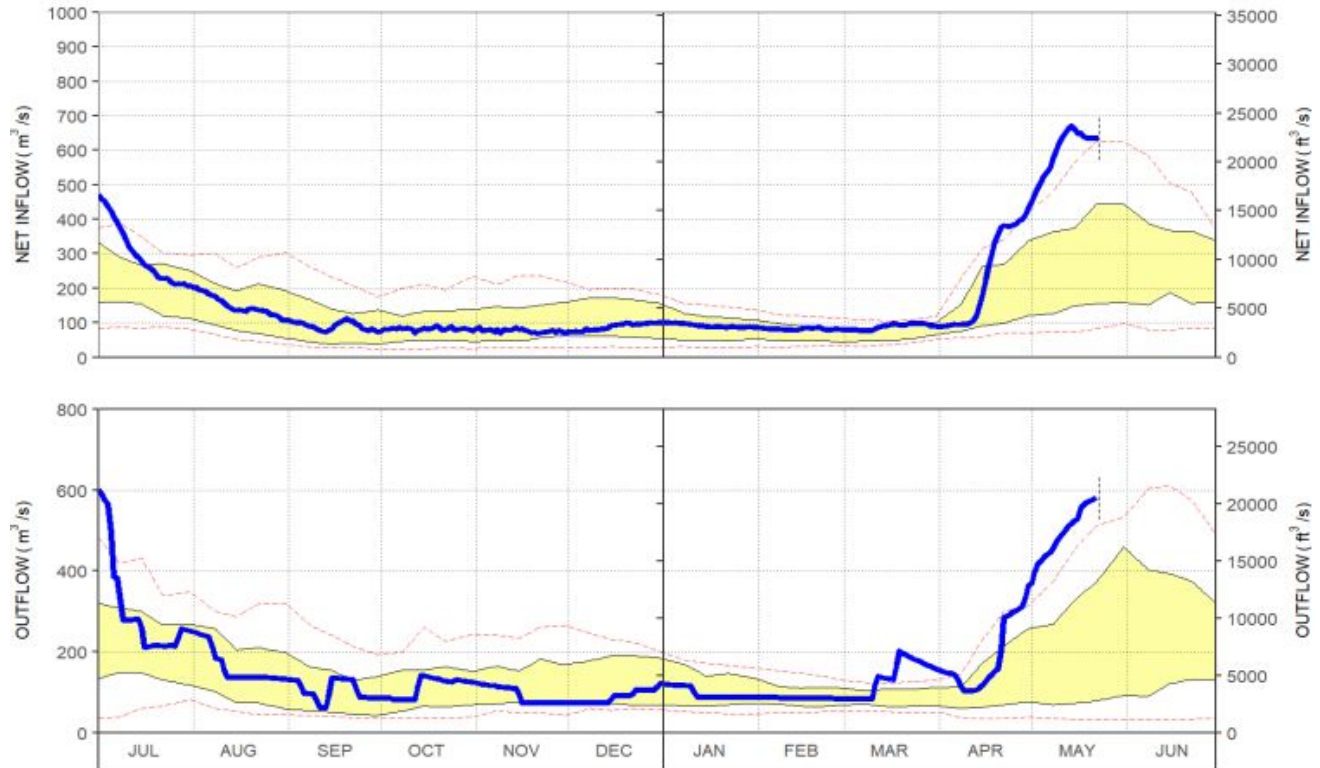
## Namakan Lake Inflow / Outflow

### Inflow

Appears to have crested - however, is still **greater than outflow by ~2,000 cfs** as of 5/24 - this difference has been *decreasing*.

### Outflow

Just barely short of meeting the inflow rates - *will continue to rise as long as inflow exceeds outflow rates*



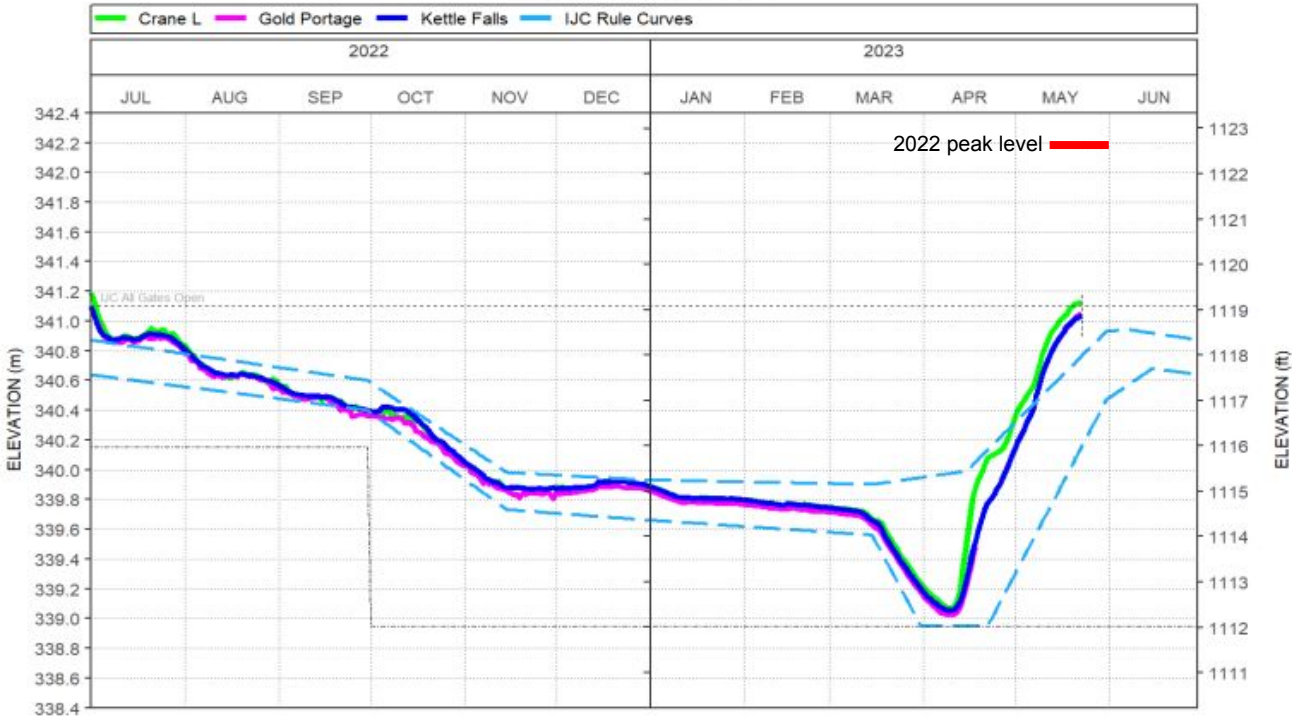


# Namakan Lake (& Kabetogama Lake)



ISSUED: 2023-05-23  
Provisional Data

## NAMAKAN LAKE



High water likely to continue, with only minor rises.

Inflow is still greater than outflow, which will keep levels going up, but by small amounts.

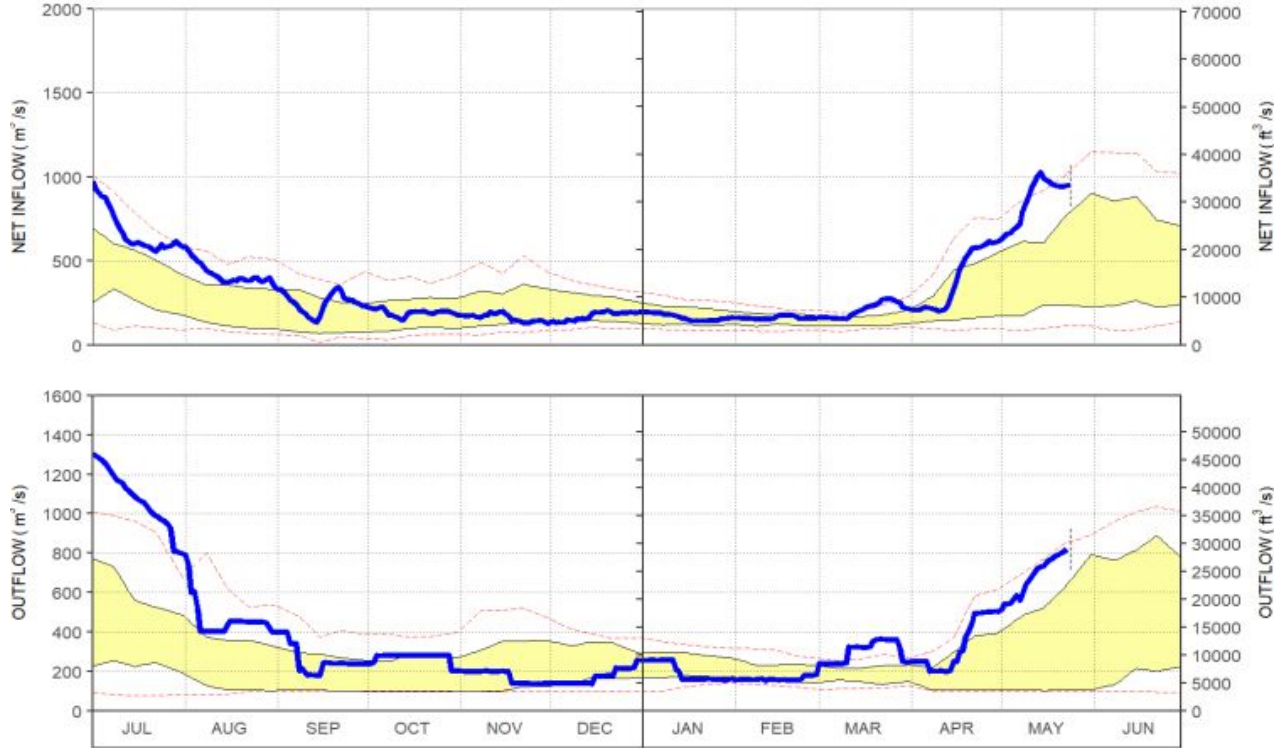
Water moves slowly through this system, and levels will remain high into early June.







# Rainy Lake Inflow / Outflow



Inflows greater than outflow by ~ 4,000 CFS 5/24



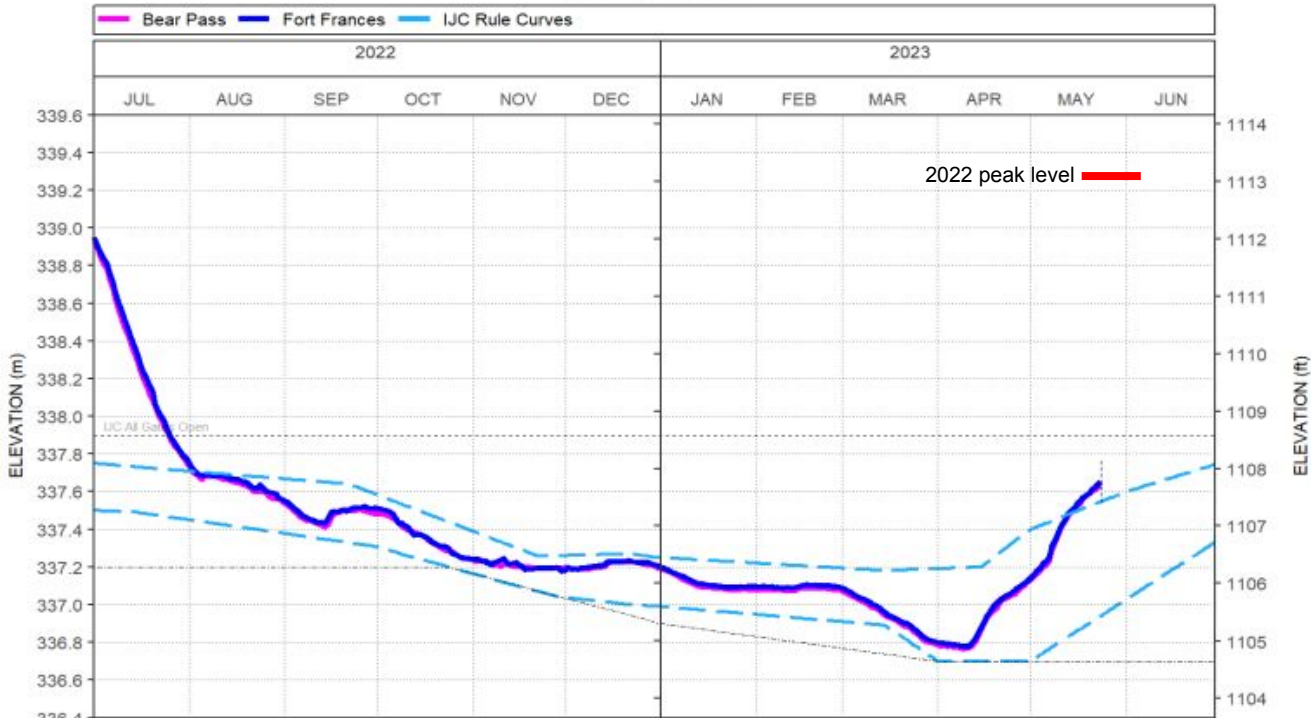


# Rainy Lake Level Forecast



ISSUED: 2023-05-24  
Provisional Data

## RAINY LAKE



Anticipating slight rises yet, lagging behind a peak on Namakan Lake.

Inflow is still greater than outflow, **which will keep levels slowly going up.**

Water moves slowly through this system, **so levels will remain at their current high level through early June.**

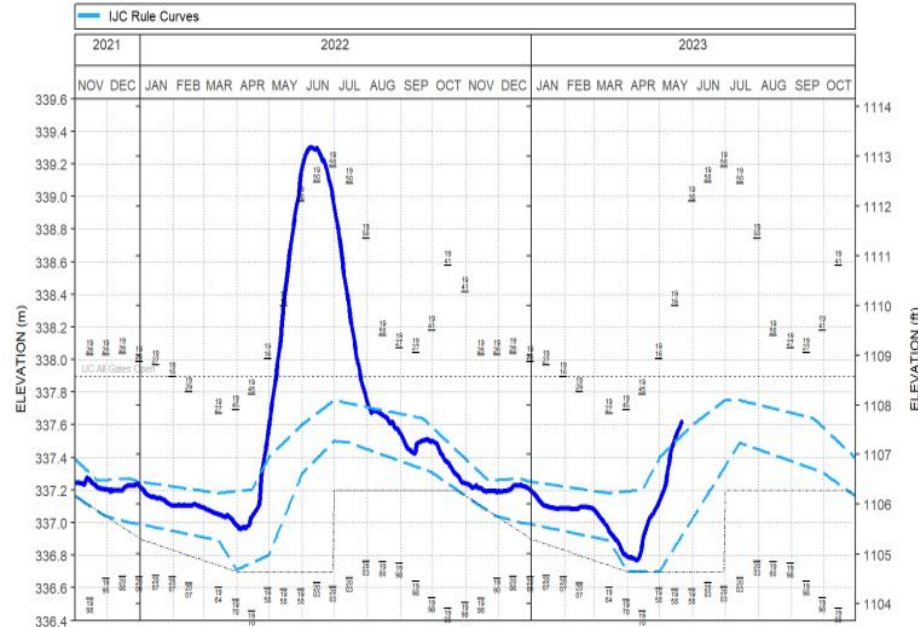




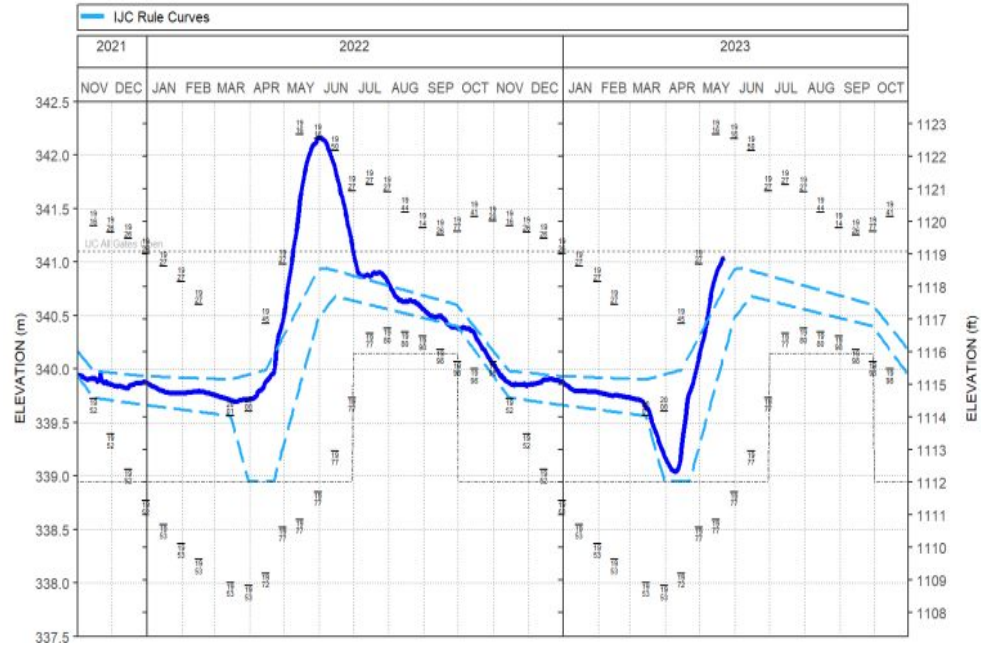
# Big Picture - Rainy and Namakan Last Two Years

As of 5/24

### RAINY LAKE



### NAMAKAN LAKE



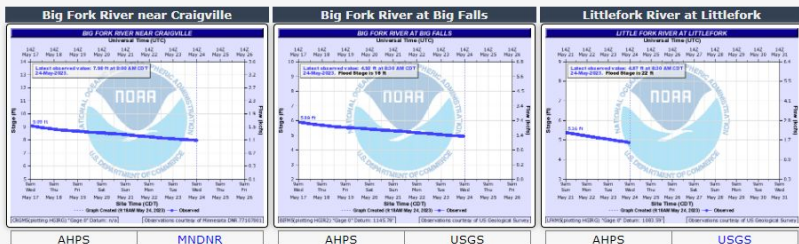
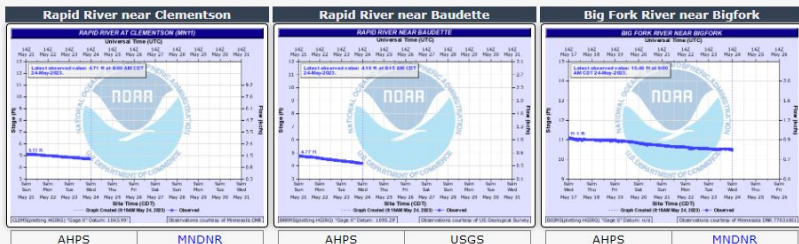
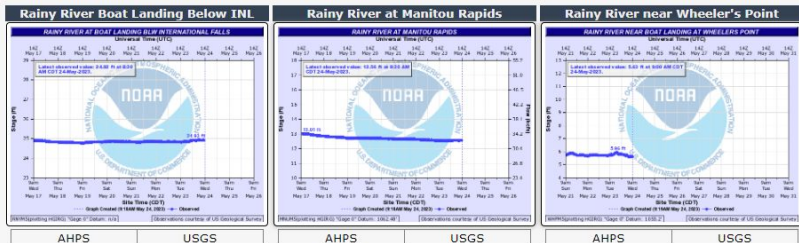


# Rainy River Below International Falls Dam

## Decreasing and Staying Low

### Current Data - Last few days

# Littlefork River at Littlefork



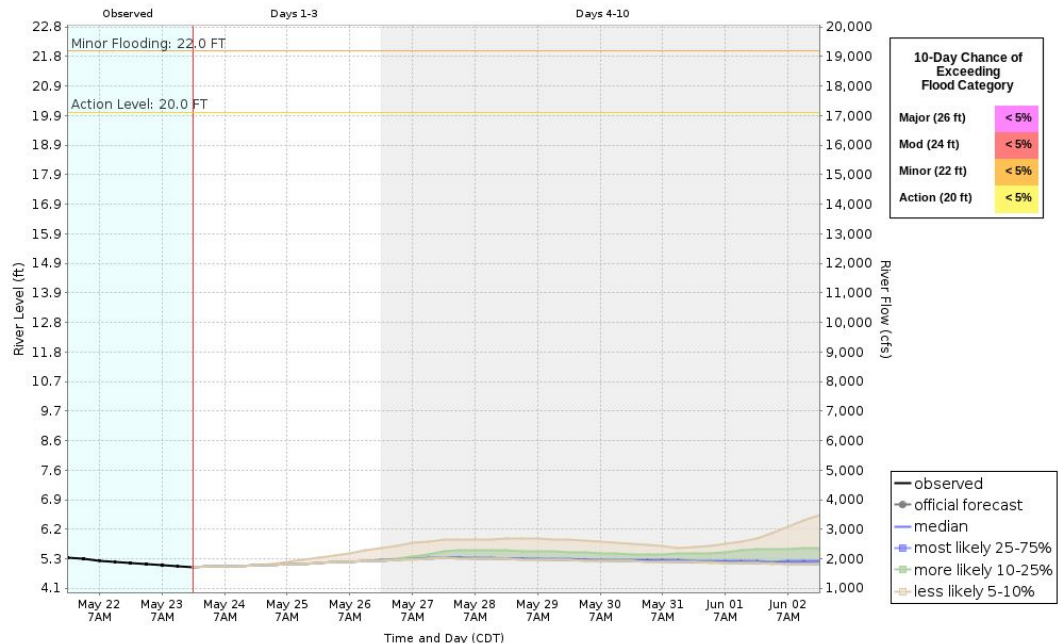
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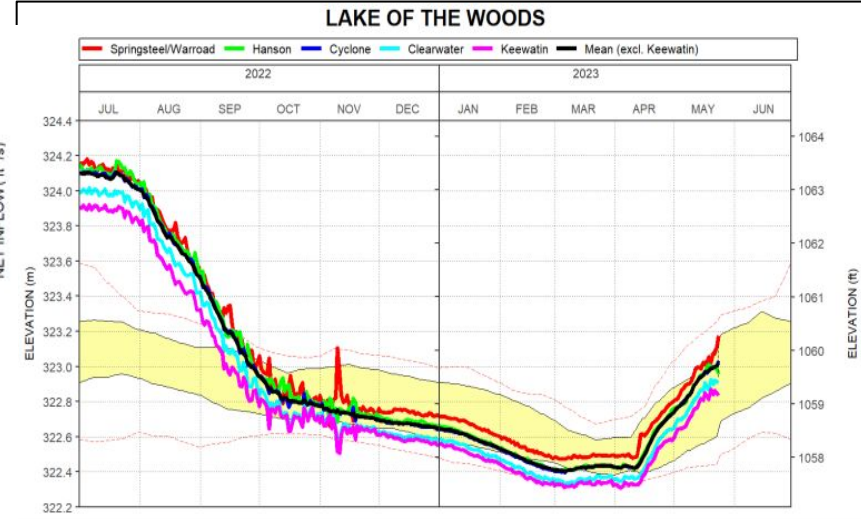
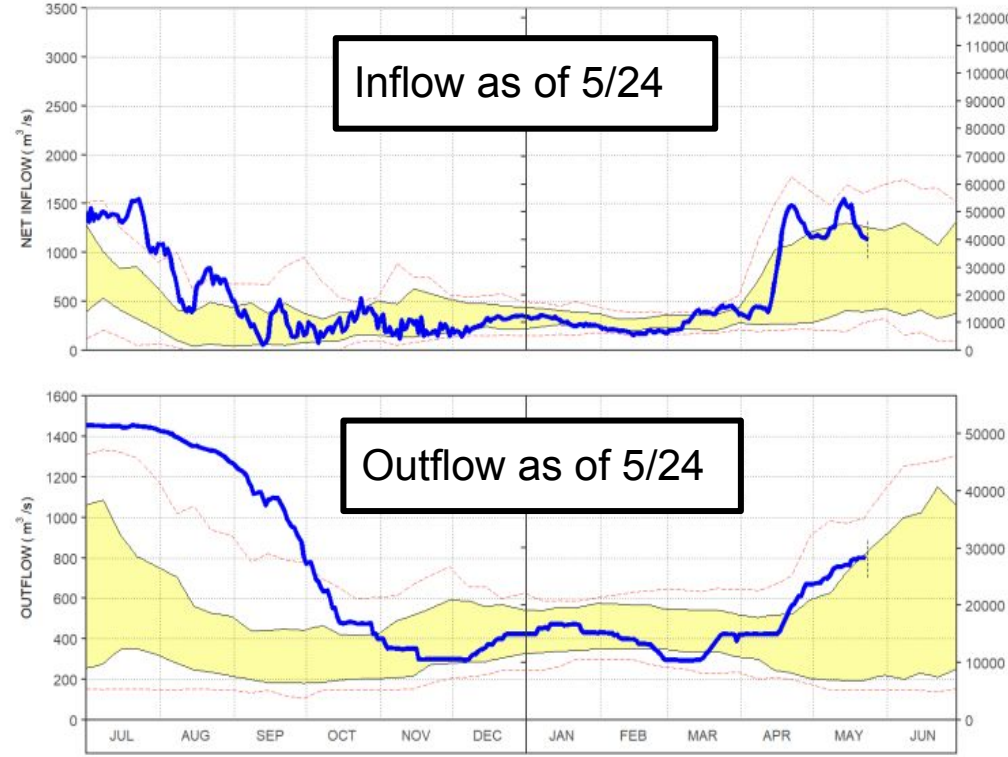
### Little Fork River at Little Fork 10SW & Rvr (LFKM5)





# Lake of the Woods

## Observed Inflow/Outflow and Levels



Inflows decreasing but still greater than outflow by ~ 10,000 CFS





# Anticipated Impacts

Report your impacts to NWS Duluth!

- **Lake levels will likely stay high into June** with some slight increases still expected. Rates of rise are fairly mild but **water moves slowly through the system and will be slow to come back down.**
  - Water levels are currently around where they were late April/Early May last year.
- Hazards on lakes that are normally visible **may be hidden due to high water.**
- **River flows are still high** across Rainy River headwaters.

Find more information at <https://www.weather.gov/dlh/rainyriverbasin>

**Report any impacts to NWS Duluth!**



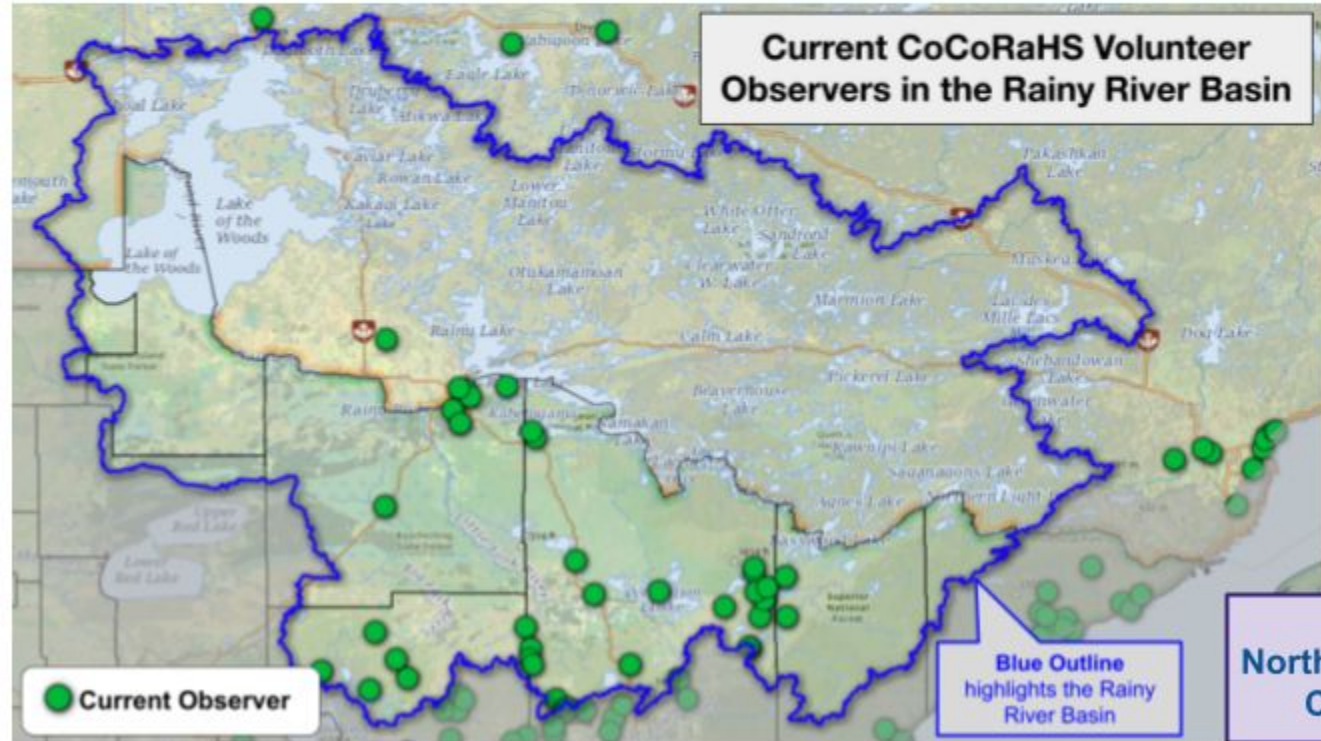


# Help Predict Future Flooding

**YOUR REPORTS** can help NWS better predict flooding!

Please help us fill in the gaps on the map below!

## Current CoCoRaHS Volunteer Observers in the Rainy River Basin



## Interested?



1. Sign up at [cocorahs.org](http://cocorahs.org)
2. Purchase an official CoCoRaHS rain gauge (OR, if you just want to report snowfall/snow depth, you just need a good yardstick!)
3. Report rain, snow, and snow depth (snowpack depth) \*daily using the CoCoRaHS website or app daily each morning

*\*Reporting only when you can such as after major storms is OK - but daily observations are best!*

### Have Questions?

Northeast MN: [ketzel.levens@noaa.gov](mailto:ketzel.levens@noaa.gov)

Canada: [canada@cocorahs.org](mailto:canada@cocorahs.org)



National Oceanic and Atmospheric Administration  
U.S. Department of Commerce

National Weather Service  
Duluth, MN & North Central River Forecast Center