ROCK RIVER FLOODPLAIN WORKING GROUP

Watertown – Ixonia – Ashippun – Lebanon – Hustisford - Horicon

Meeting of April 9, 2025

Room 302, Dodge County Administration Building
Juneau, WI

Agenda p1 Additions or Corrections?

1. Introductions
2. Update on winter 2024-2025 flows, water levels and gate operations
3. Discussion of all the objectives and constraints on water level management to be considered in a future multi-structure gate operation plan
4. Discussion of watershed storage options
5. Introduction of the UW-Madison Rural Partnerships Institute team
    a. What is the Rural Partnerships Institute?
    b. Introductions of UW-Madison personnel research background
    c. Discussion of possible research objectives
    d. Timeline and coordination for RPI work

Agenda p2 Additions or Corrections?

6. Action plan for 2025
    a. Combined gate operations for 2025-2026 – meeting schedule
    b. Gate operations this spring and summer
    c. Options and planning for increased watershed storage
    d. Corridor management
    e. UW research program and coordination
7. Next meeting

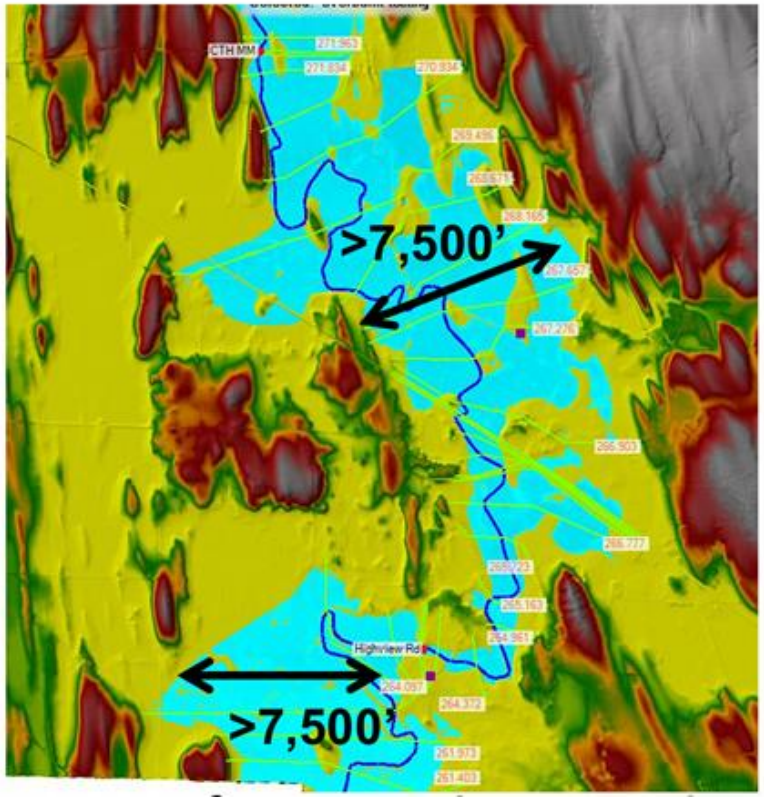
1. Introductions

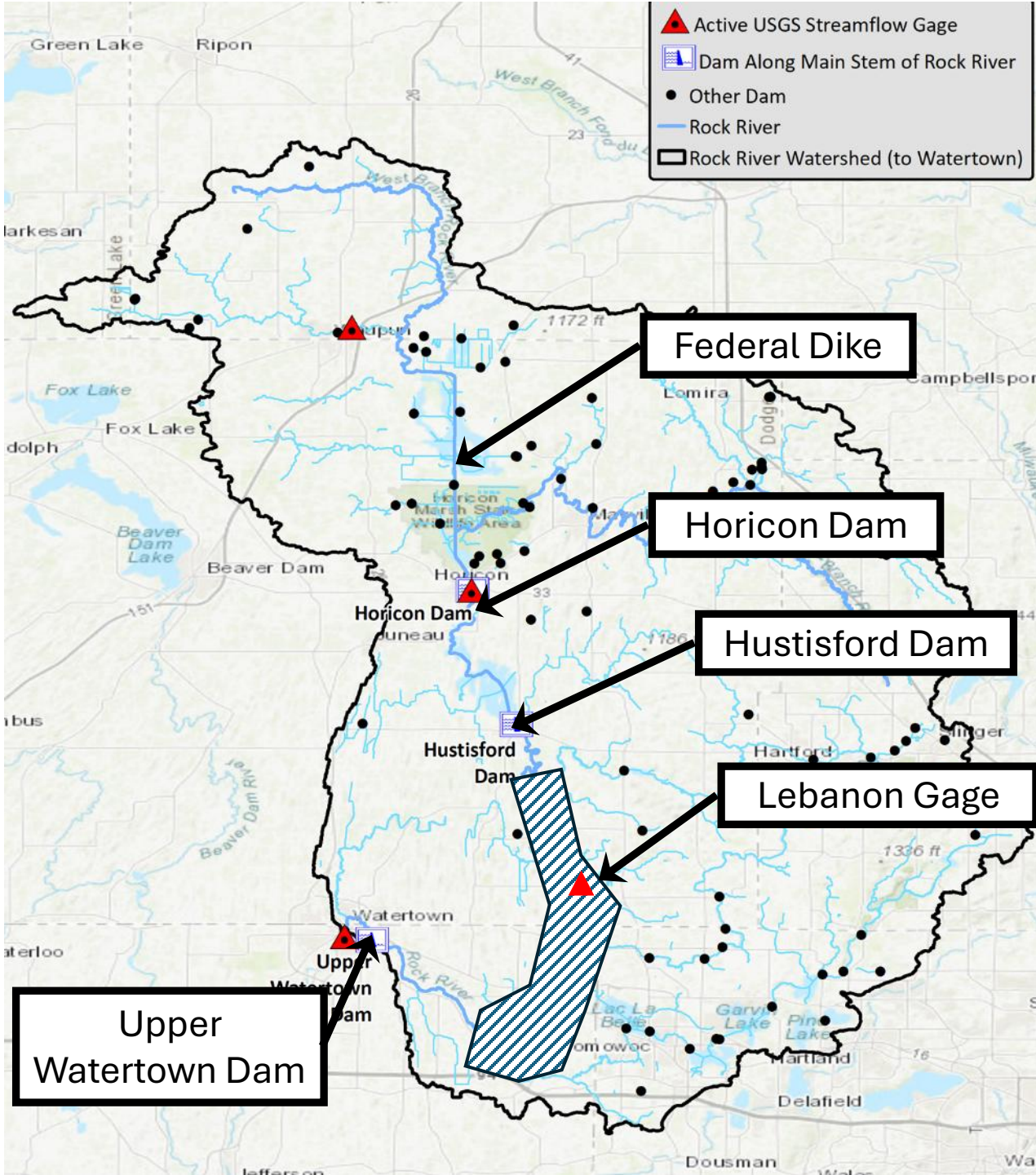
- Any new attendees?

- Meeting recorder?

Reach with increased flooding impact

- Flooding begins in Lebanon and Ixonia for flows above 500 cfs
- Extensive out-of-bank flooding at 1250 cfs

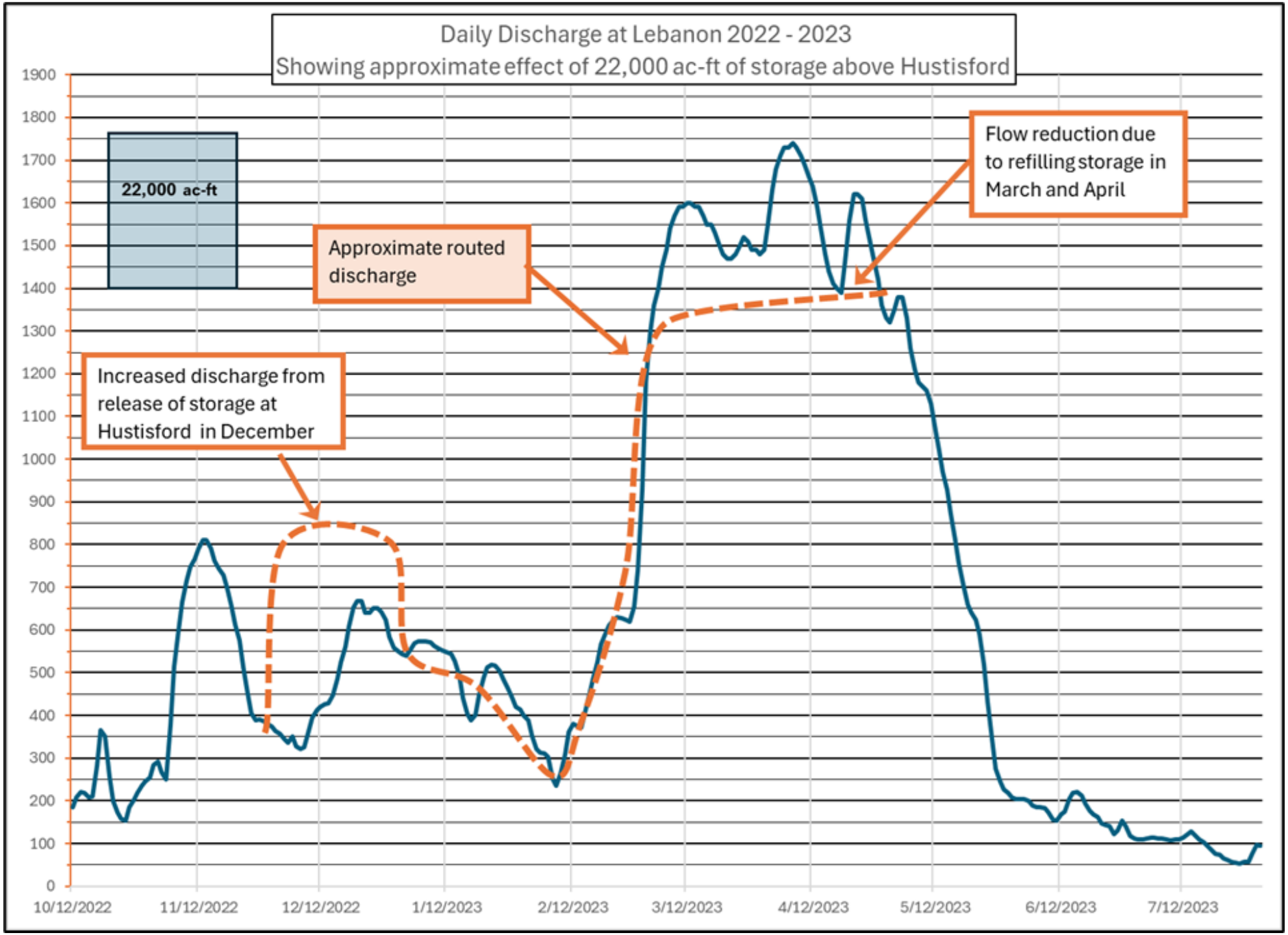




Progress in 2024 -

1. Identified measures to address flooding:
   a. Draw down water levels in Sinissippi and Horicon Marsh during the winter to provide storage for spring floods
   b. Identify opportunities for creating or enhancing water storage in the watershed
   c. Identify opportunities for river corridor management
2. Reached agreement with US F&W, DNR, Village of Hustisford for trial drawdown over winter of 2024-2025

- Idea: test the concept of drawdown in Sinissippi and Horicon Marsh during the winter to provide storage for spring floods

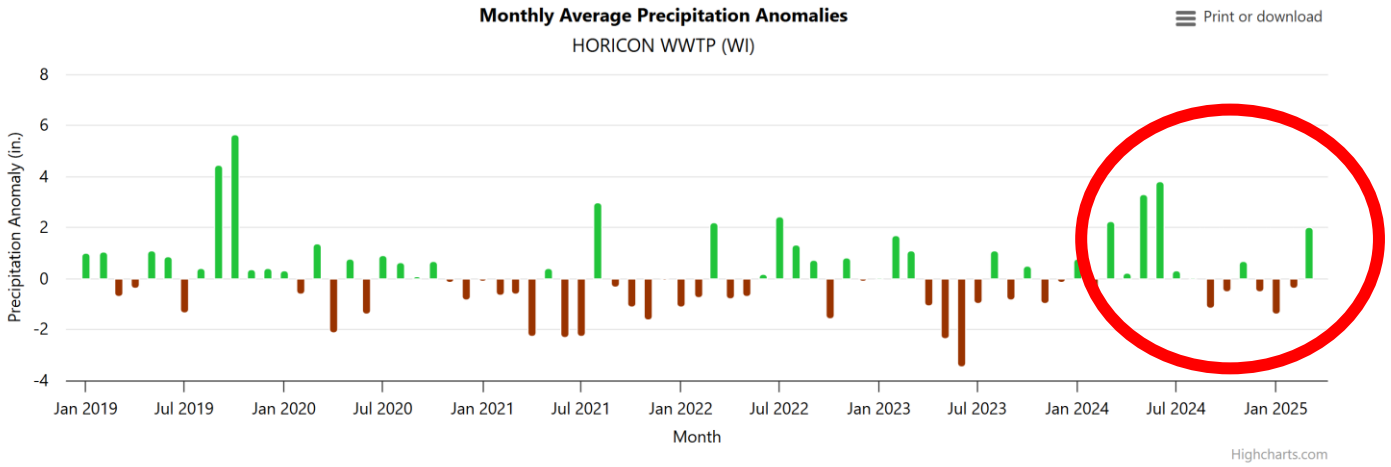


2. Winter 2024 – 2025 operations

- Watershed Conditions
- Flow and stage records
- Gate operations
- Observations

Watershed conditions

Heavy rain May/June
Little rainfall last winter



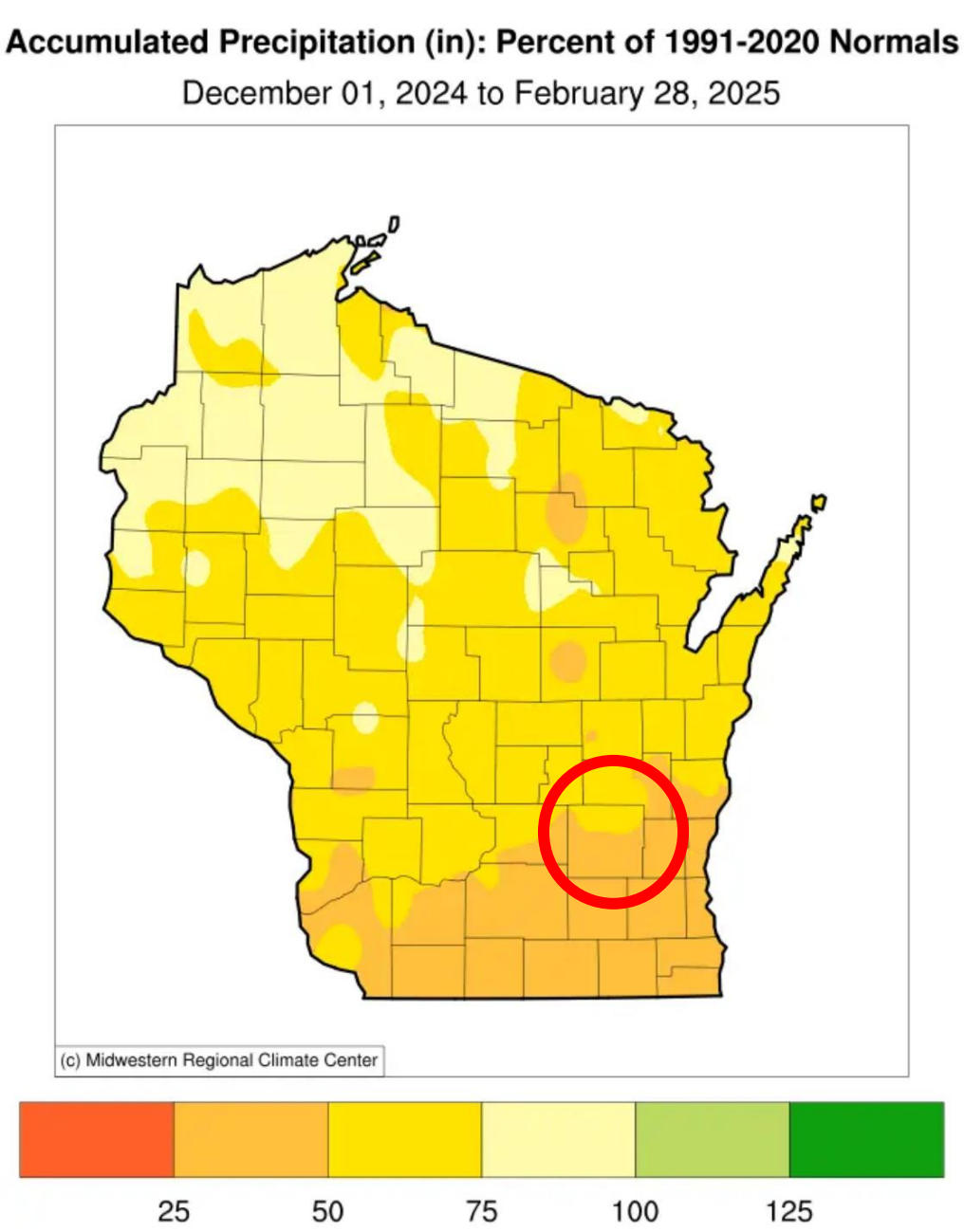
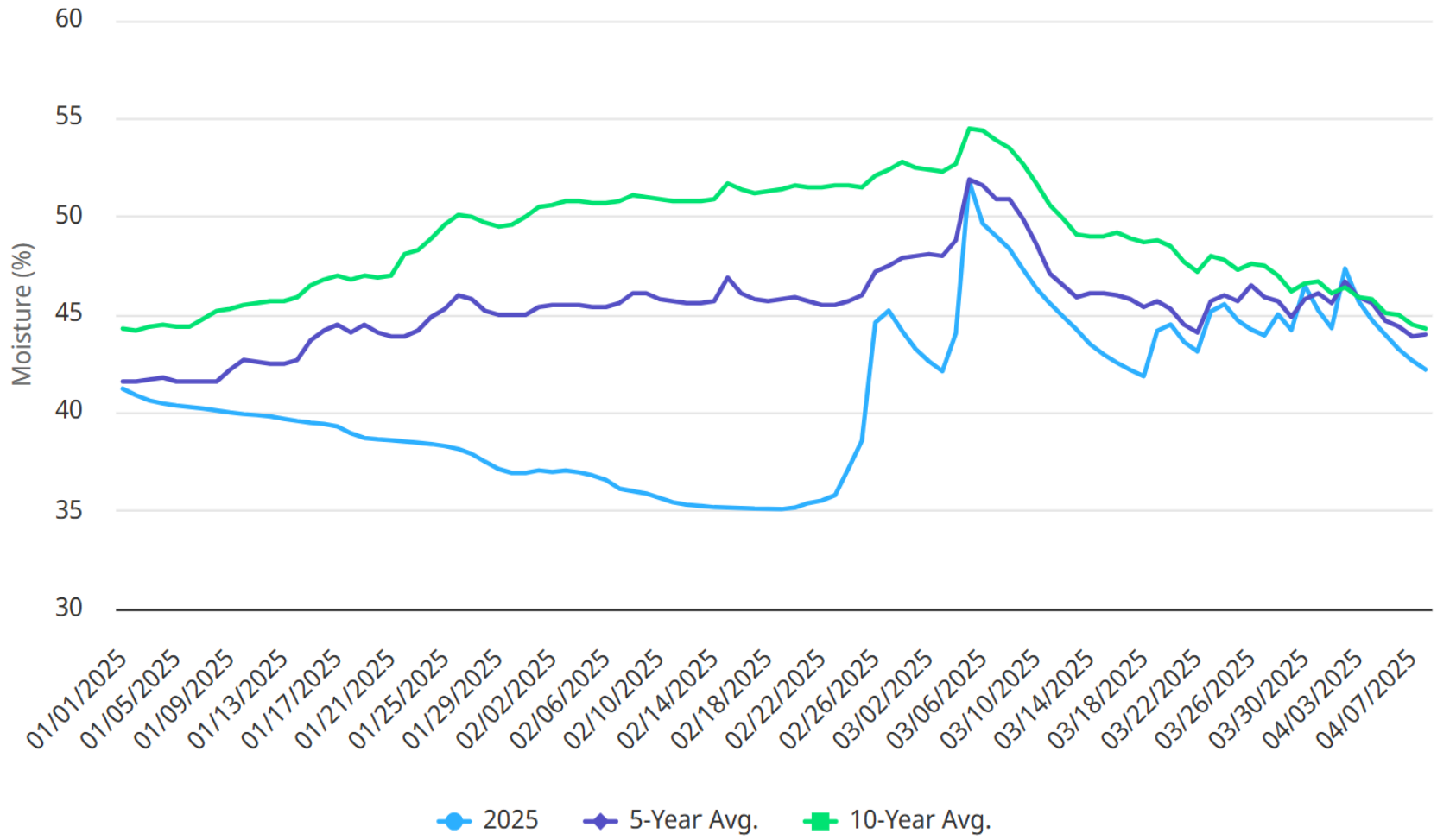
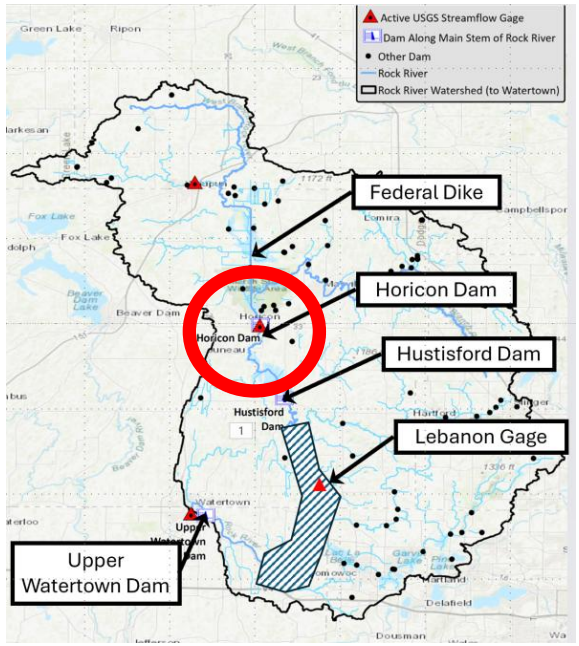


Figure 6 (continued). Total winter precipitation departure from normal in inches.

Average Soil Moisture in Horicon, WI

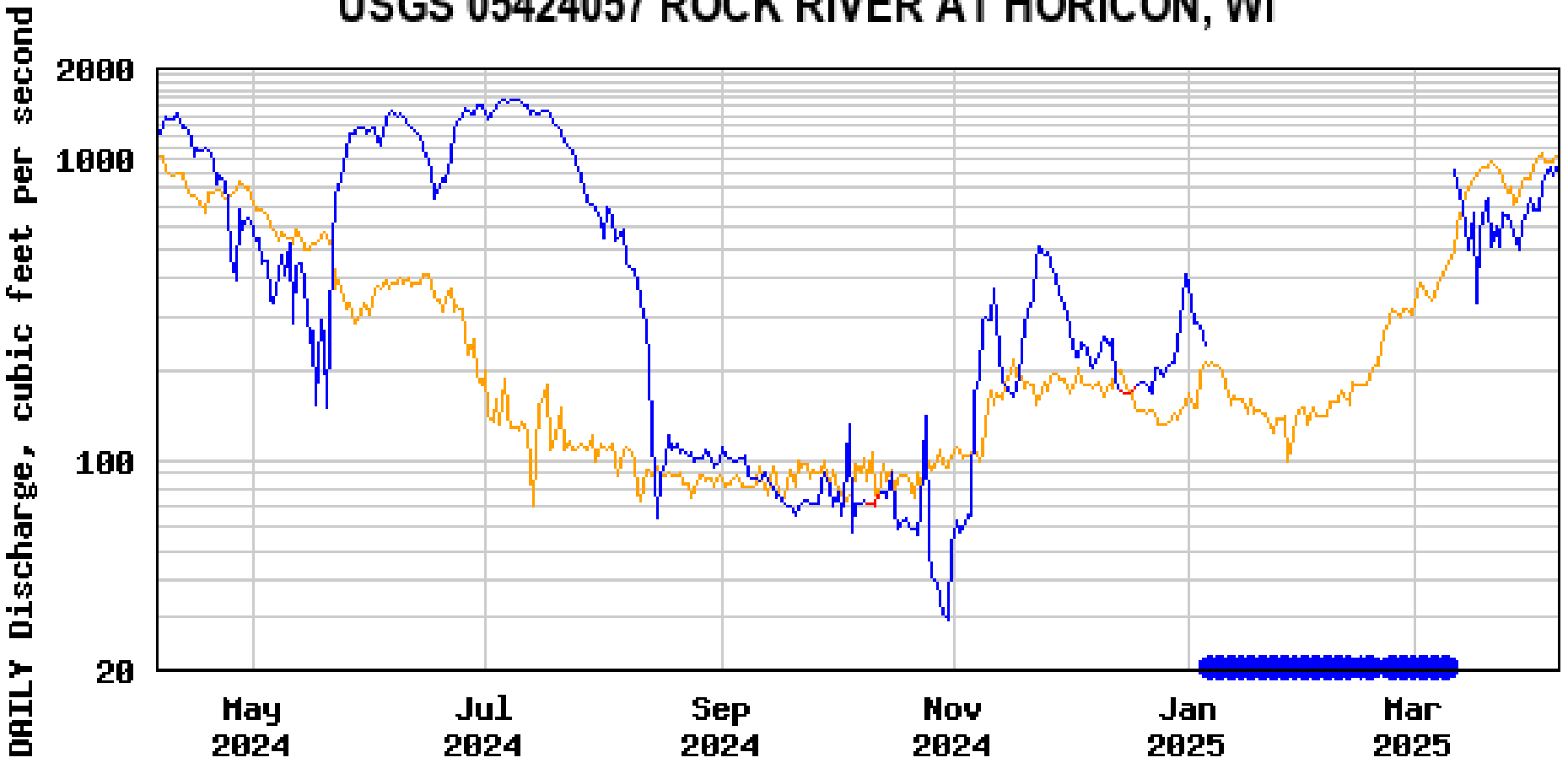
01/01/2025 - 04/08/2025





USGS

USGS 05424057 ROCK RIVER AT HORICON, WI



---- Provisional Data Subject to Revision ----

Median daily statistic (24 years)

Daily mean discharge

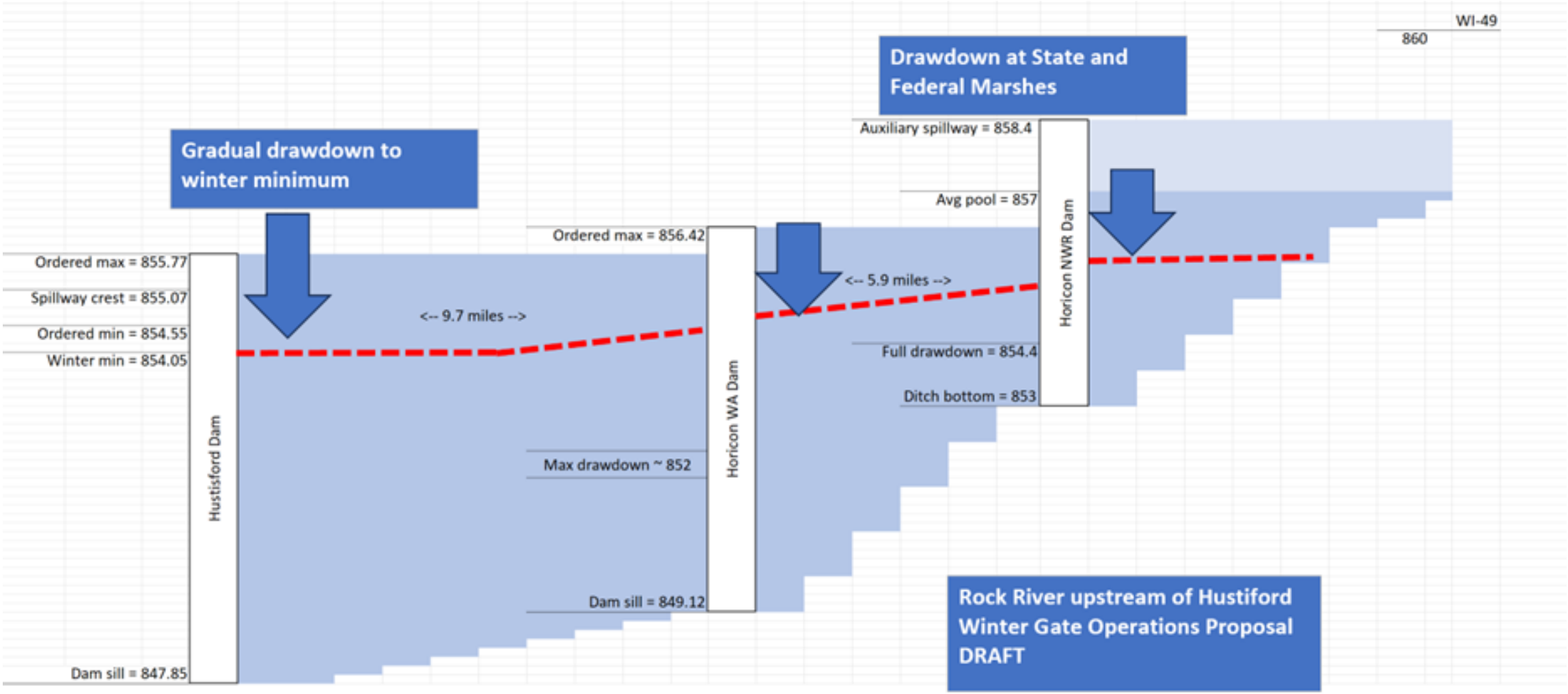
Estimated daily mean discharge

Value is affected by ice at the measurement site.

Trial drawdown 2024-2025

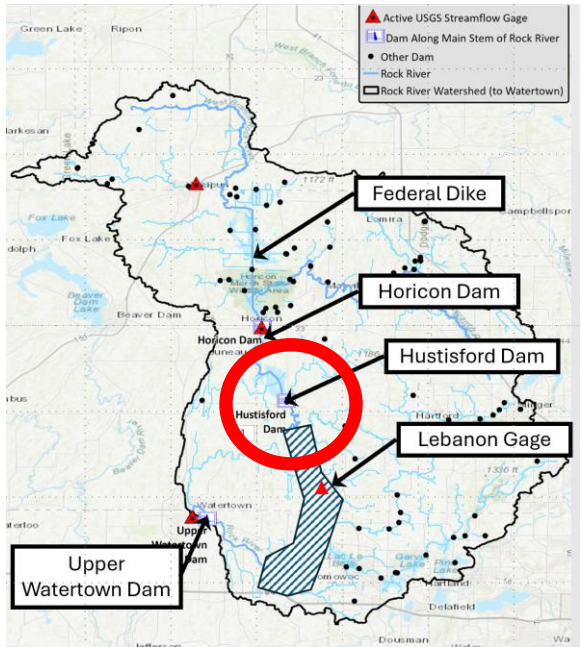
- Lower water levels upstream of Hustisford in conformance with Hustisford Dam operating order

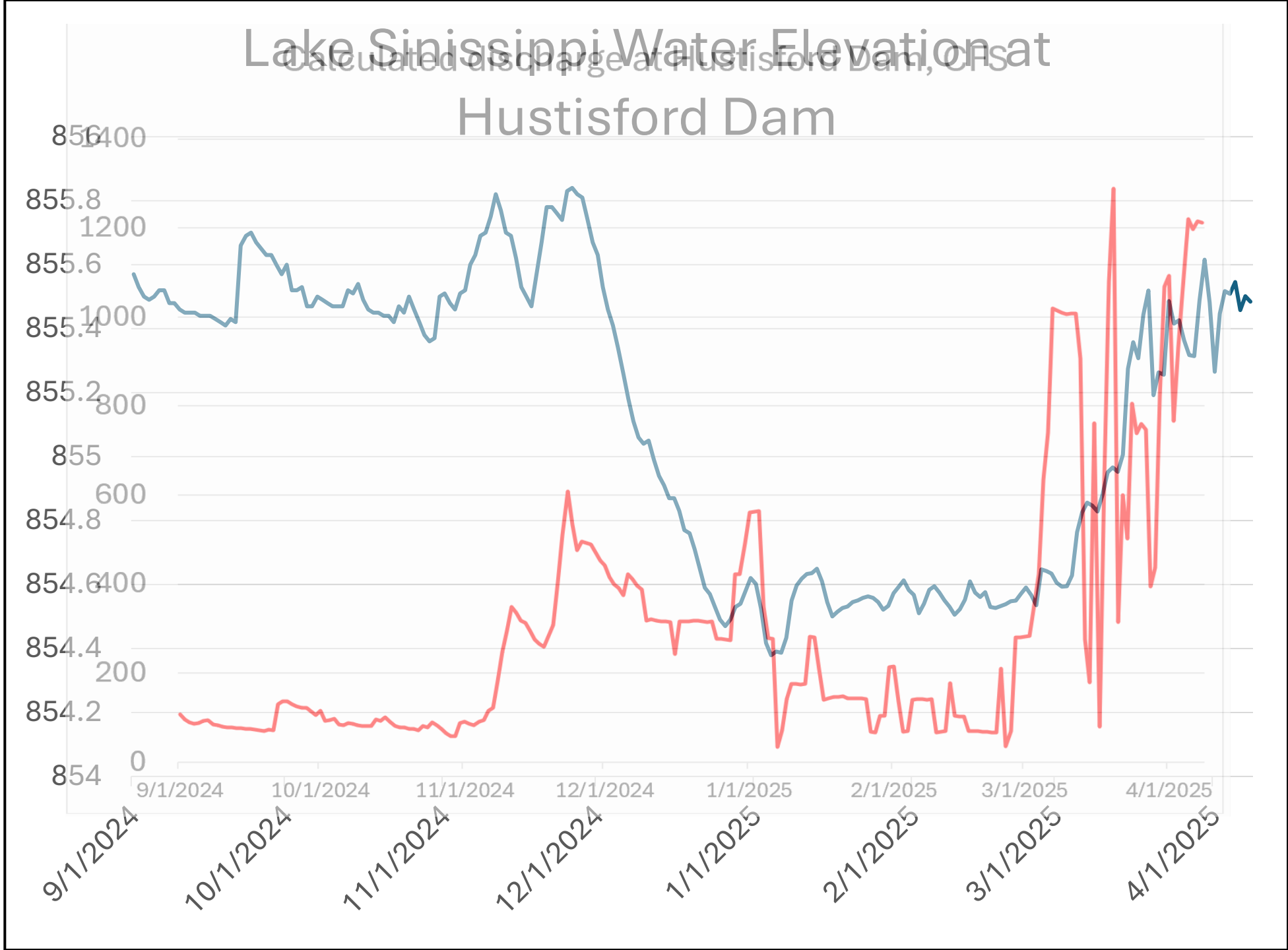
Trial 2024-2025 Drawdown



Water Level at Hustisford Sept 2024-March 2025

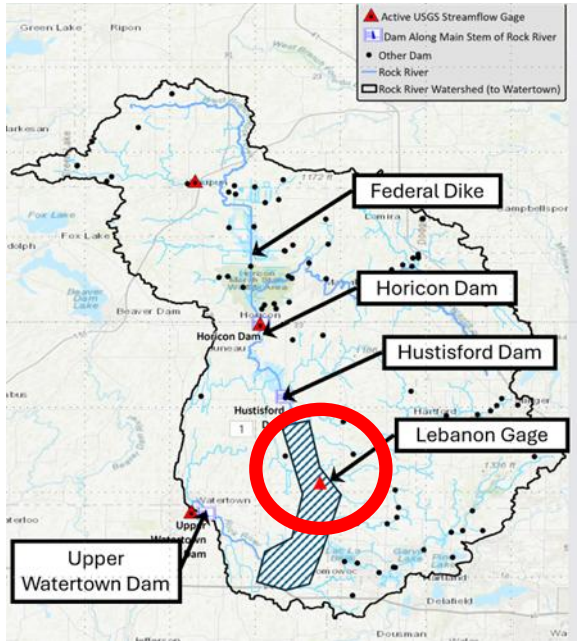
Discharge at Hustisford Sept 2024-March 2025





What happened Downstream?

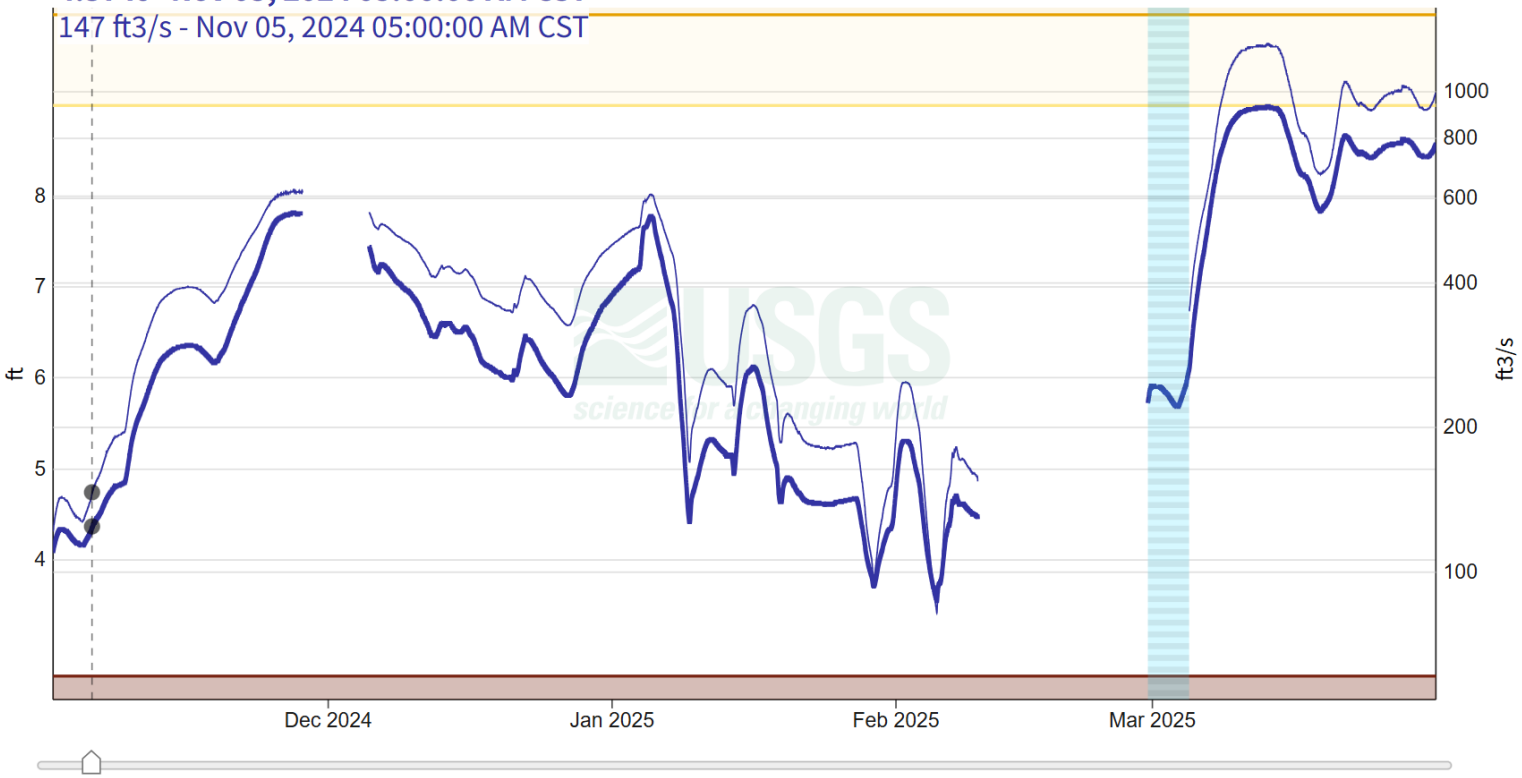
Flows and stage, USGS Lebanon gage



Rock River Near Lebanon, WI - 05424157 Subscribe to WaterAlert

- using custom time span
November 1, 2024 - March 31, 2025
Gage height, feet
Discharge, cubic feet per second

4.37 ft - Nov 05, 2024 05:00:00 AM CST
147 ft3/s - Nov 05, 2024 05:00:00 AM CST



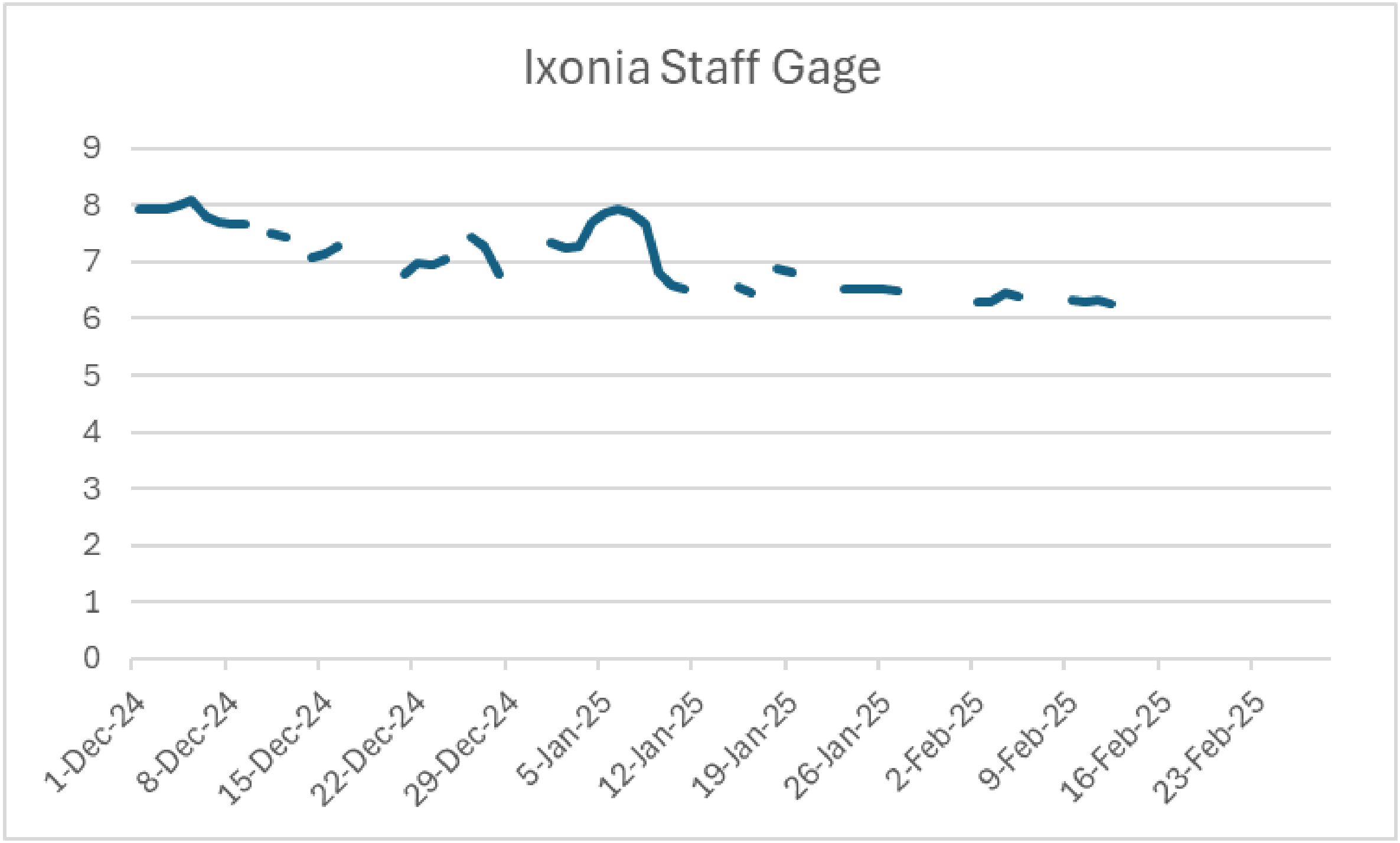
IMPORTANT Data may be provisional

Hide legend

Gage height, feet
Recorded
Discharge, cubic feet per second
Recorded
Ice affected

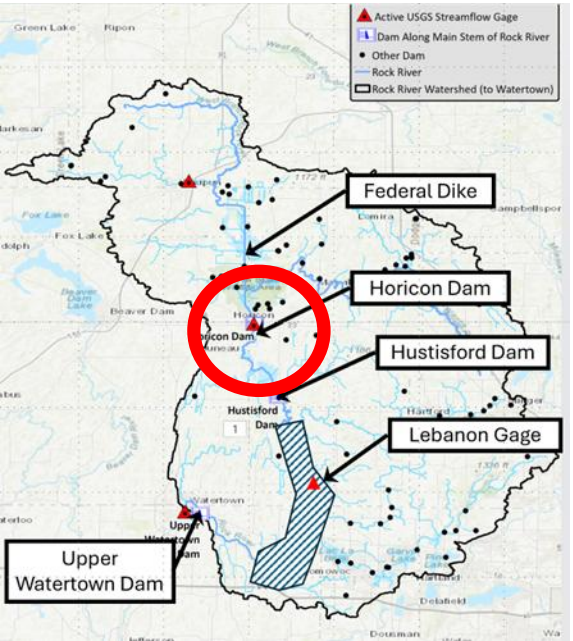
Flood stages in ft

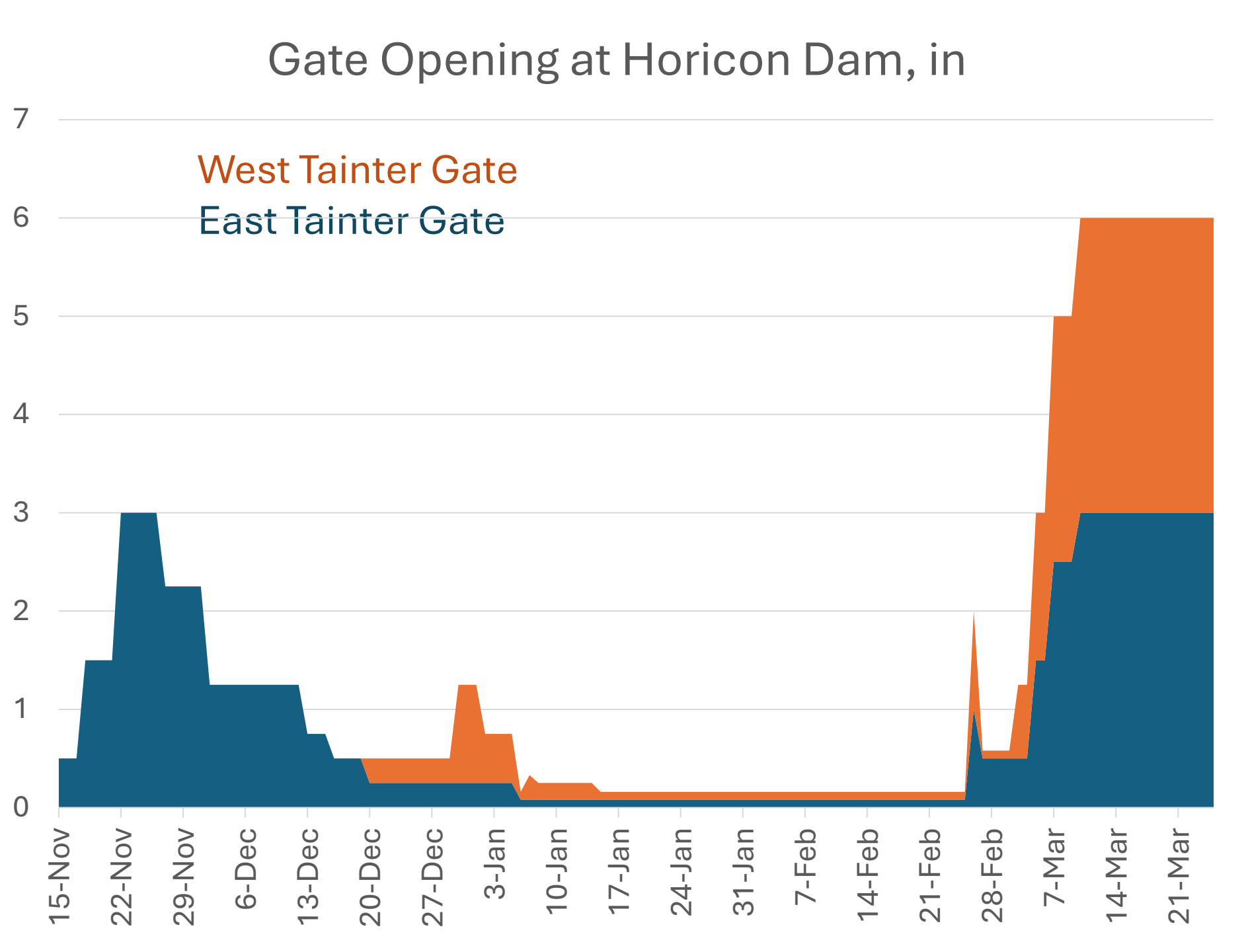
9	10	11.5	13
Action stage	Minor flood stage	Moderate flood stage	Major flood stage


Ixonia Staff Gage
9
8
7
6
5
4
3
2
1
0
1-Dec-24
8-Dec-24
15-Dec-24
22-Dec-24
29-Dec-24
5-Jan-25
12-Jan-25
19-Jan-25
26-Jan-25
2-Feb-25
9-Feb-25
16-Feb-25
23-Feb-25

What happened upstream?

DNR Horicon Dam





Rock River at Horicon, WI - 05424057

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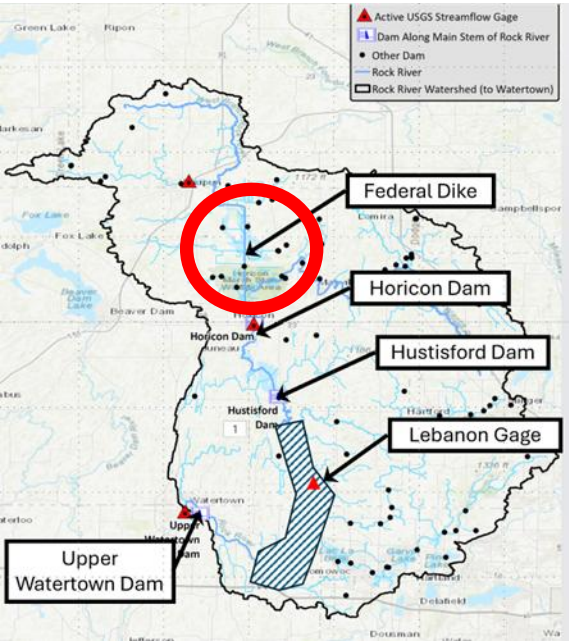
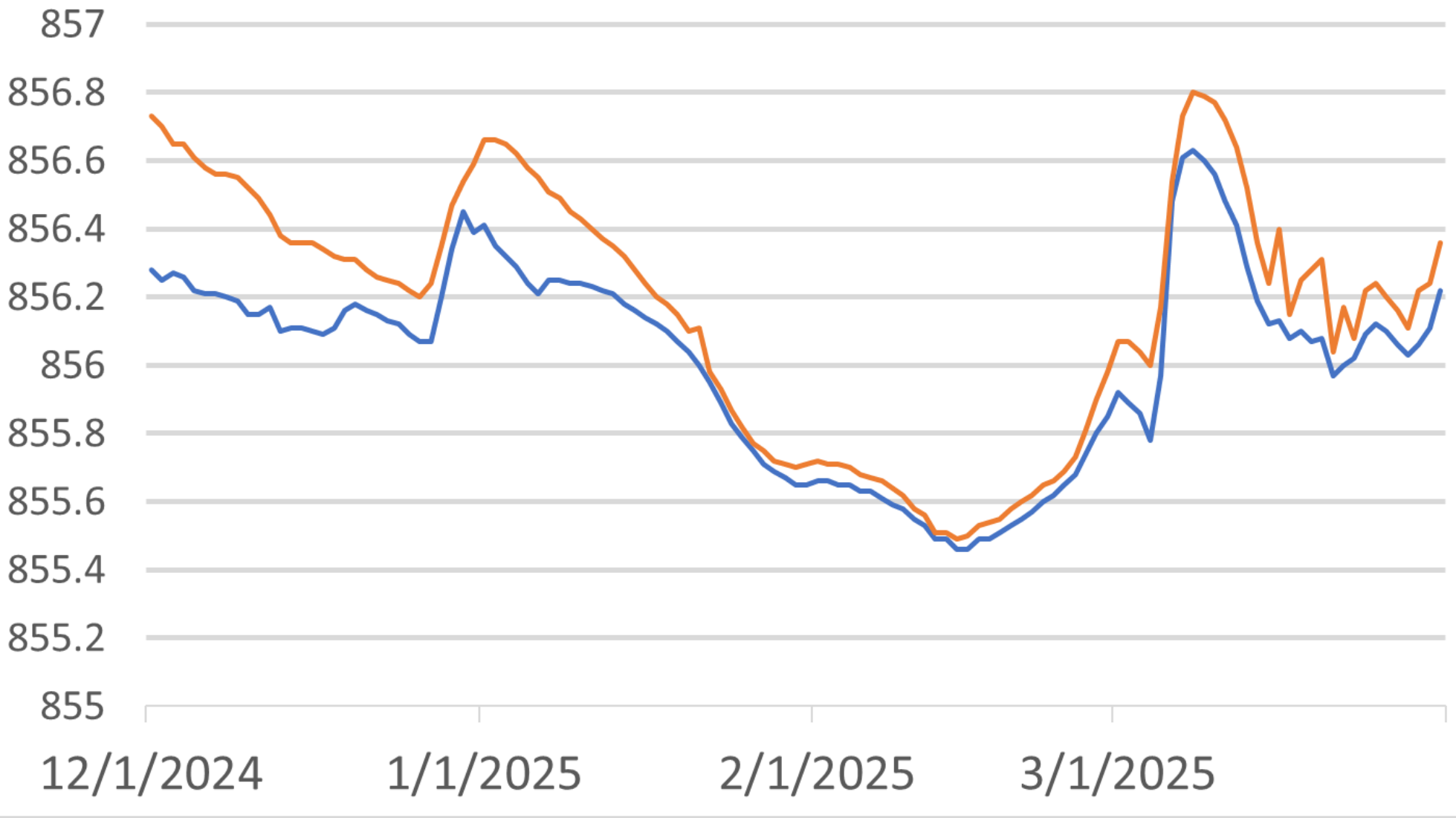


Federal Dike Water Level
Upstream and Downstream
Dec 2024 - March 2025



3. Objectives and constraints

- Every structure currently operates independently
- Objective of coordinated gate operations:
  - Communicate and coordinate to reduce avoidable negative impacts
  - Produce water level fluctuations in Horicon Marsh and Lake Sinissippi more like predevelopment conditions- low water in Fall, high water in Spring
  - Reduce flood discharge downstream of Hustisford by filling up Horicon and Sinissippi storage in the spring
- BUT, lots of considerations, let's list and discuss

US F&W Horicon Marsh National Wildlife Refuge

HORICON NATIONAL WILDLIFE REFUGE

The Horicon NWR is managed to provide critical habitat for migratory birds during migration while also conserving native species and their habitats (Migratory Birds Conservation Act of 1941)

Refuge Users include birders, hikers, photographers, hunters, trappers

- 434,000 recreational visits contribute to the economies of Dodge and Fond du Lac Counties.
- Non-consumptive recreation accounted for about 428,000 of those visits
- Residents comprise 41% of visitation.
- Contribute $6.5 million to the local economy, with non-residents accounting for $5.1 million or 78% of those expenditures.

Caudill, James and Erin Carver. 2019. Banking on Nature 2017: The Economic Contributions of National Wildlife Refuge Recreational Visitation to Local Communities. U.S. Fish and Wildlife Service, Falls Church, Virginia.

Control Structure on Federal Dike

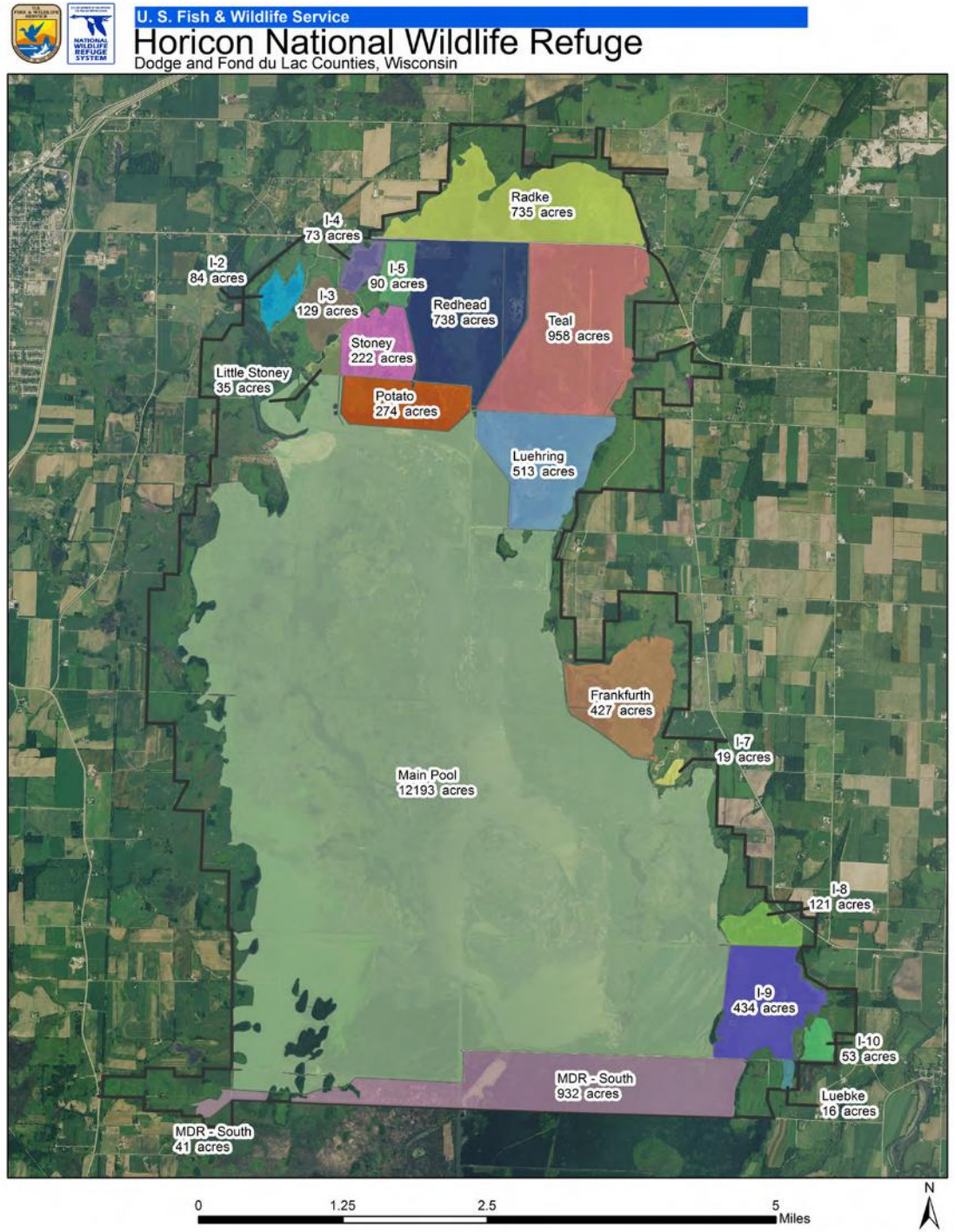
Water Management Strategies and Objectives

Seasonal dynamics – wildlife/wetland management timed to meet the needs of breeding, stopover, and wintering habitat

- Adjust water levels at optimum migration times
- Minimize water fluctuations during the nesting season
- Avoid winter drawdowns to protect overwintering wildlife
- Avoid drawdowns and expose mudflats during July-August to prevent cattail expansion and reduce the risk of wildlife disease outbreaks

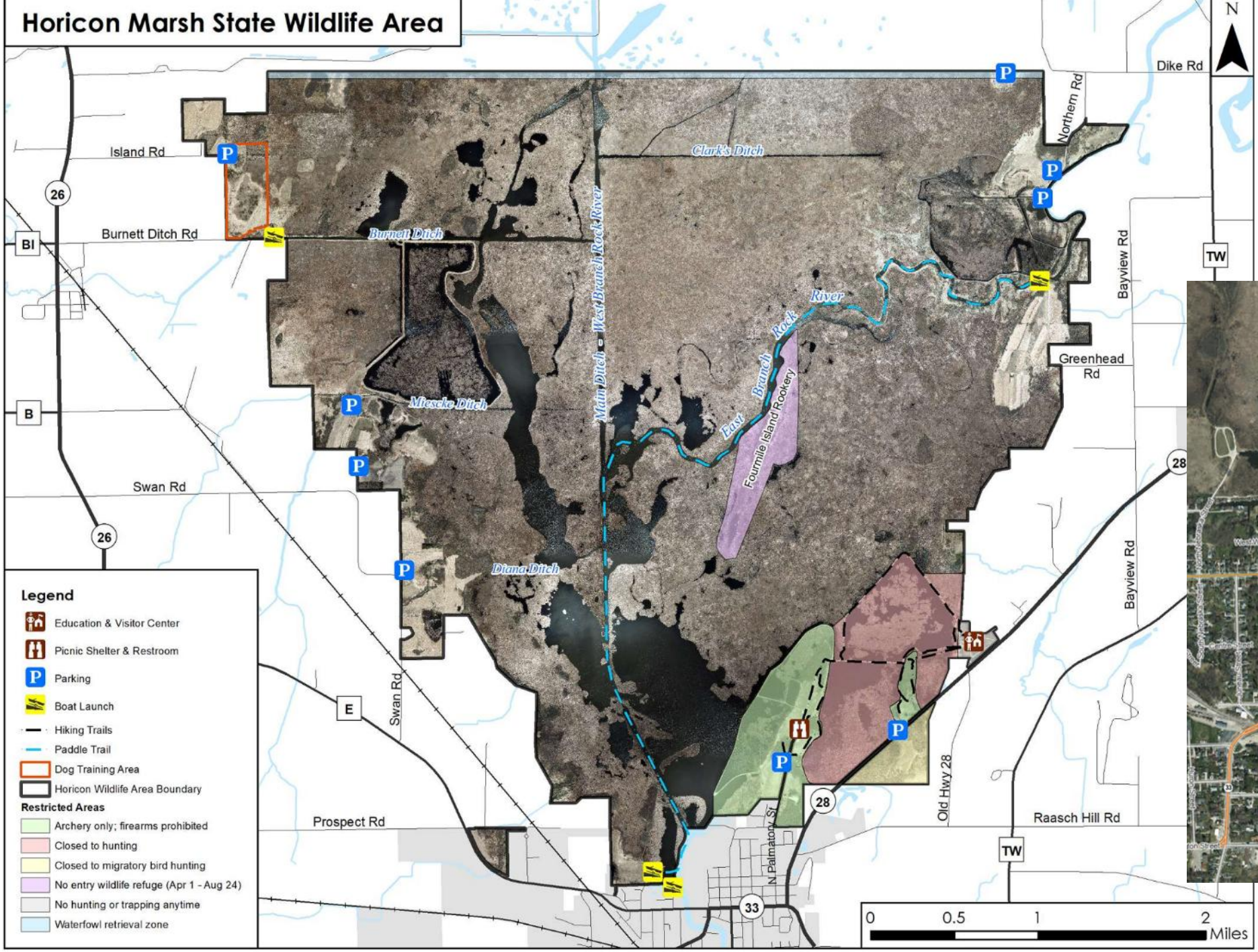
Challenges

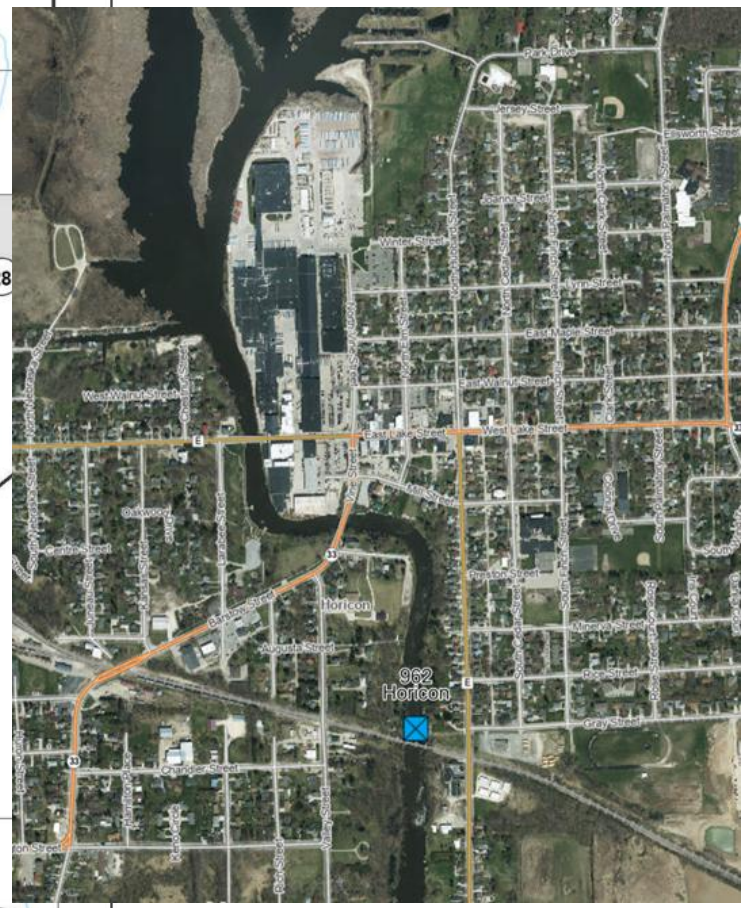
- Year-to-year changes in water management strategies are common because surface runoff, groundwater inflow, precipitation, and temperature vary greatly. We can't be prescriptive.
- Stabilized water favors invasive cattail, particularly when nutrient and sediment inputs are elevated
- Extreme landscape challenges, including sedimentation, drainage from surrounding lands
- Flash flooding (heavy rains, flashier conditions),longer ice-free season, earlier spring runoff



State of Wisconsin
Horicon Marsh Wildlife Area

Horicon Marsh State Wildlife Area





Horicon Dam

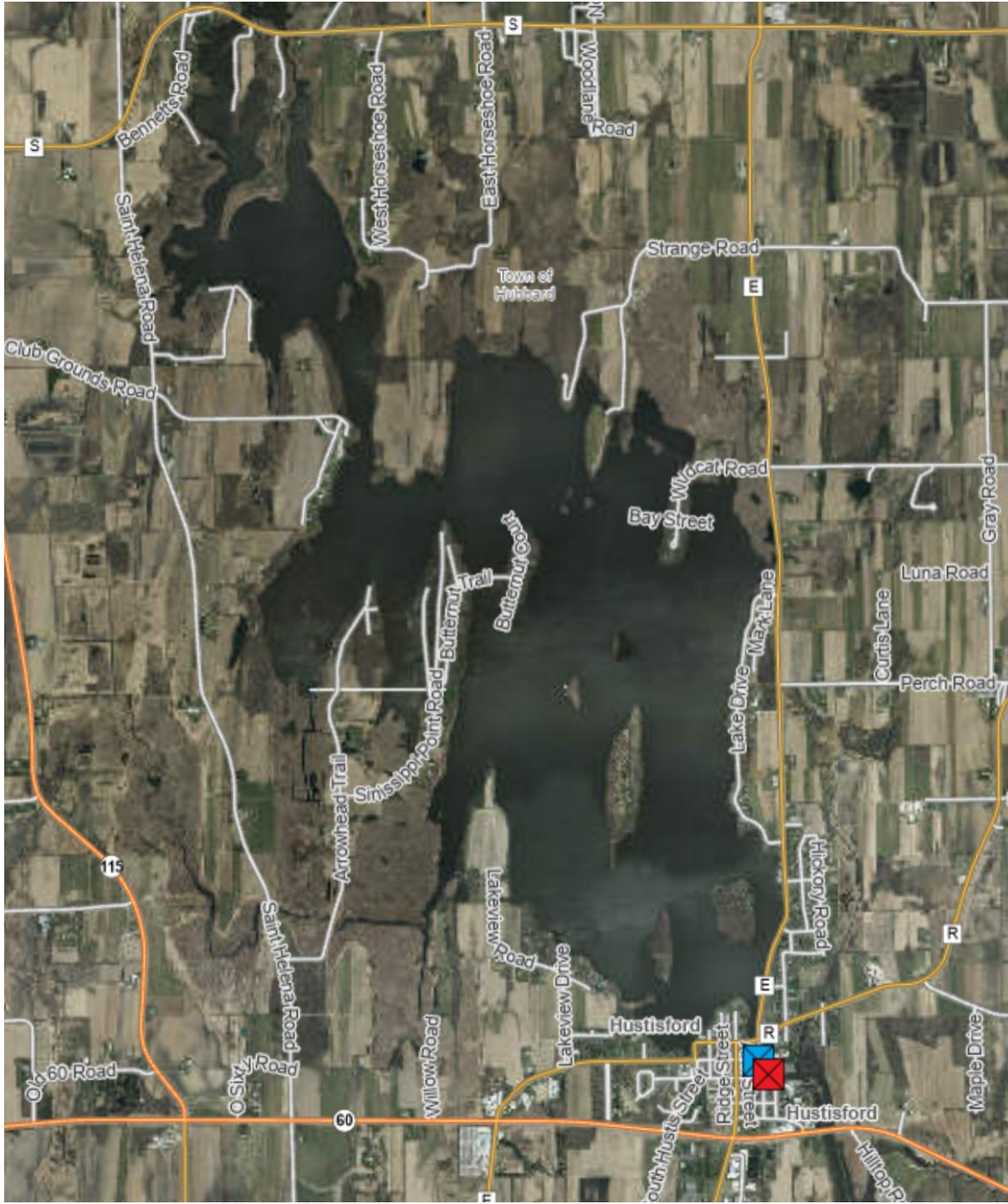
State of Wisconsin
Horicon Marsh Wildlife Area

- Objectives

- Constraints
  - Operating Order

Village of Hustisford
Hustisford Dam & Lake Sinissippi

Village of Hustisford
Hustisford Dam & Lake Sinissippi



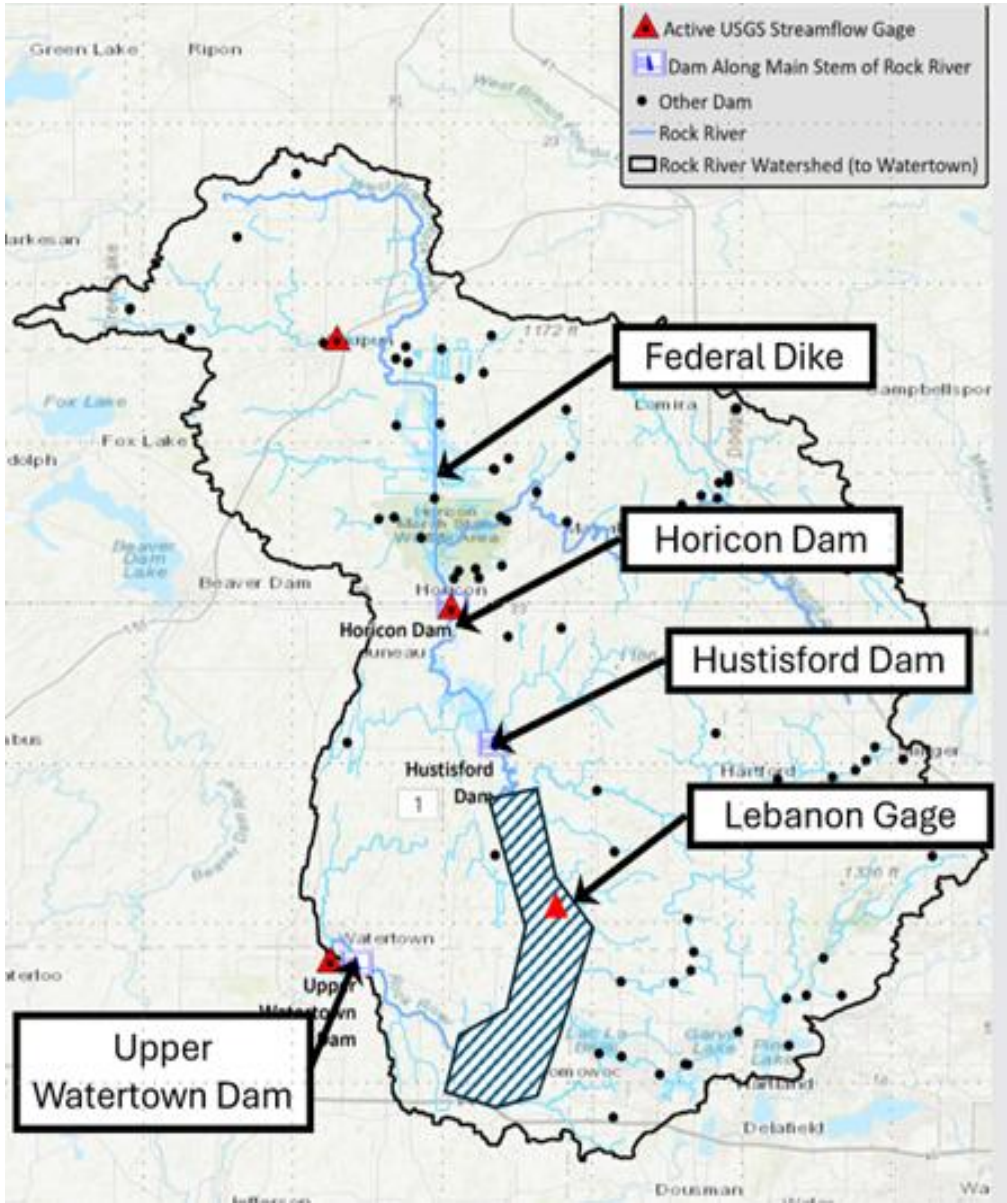
Hustisford Dam & Lake Sinissippi

- Objectives

- Constraints
  - Operating Order

4. Discussion of Watershed Storage

- Restoring floodplain or upland area floodwater storage could reduce peak discharge in the Rock River
- Could produce wildlife benefits as well as water storage
- Examples from other areas of WI

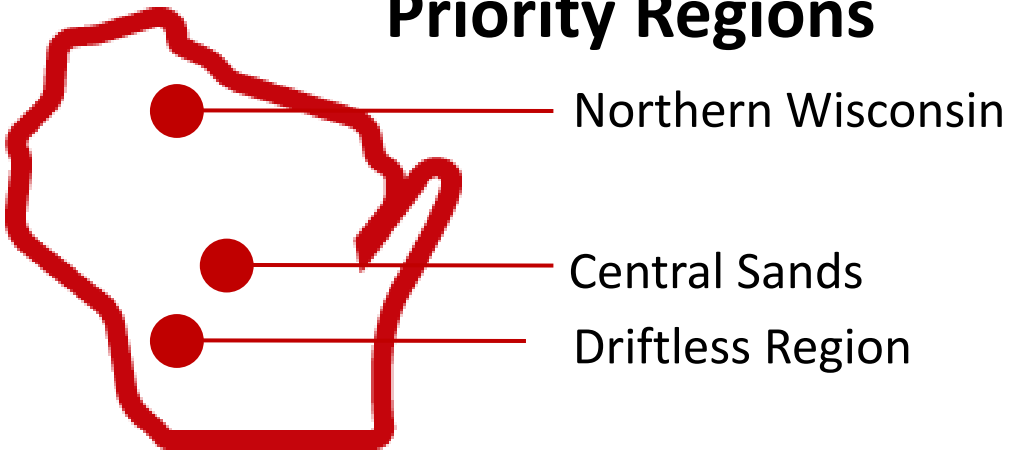


5. UW-Madison
Rural Partnerships Institute

The Rural Partnerships Institute

Preparing Wisconsin's Rural Communities for Amplified Weather Extremes in a Changing Climate

Priority Regions



Priority Sectors

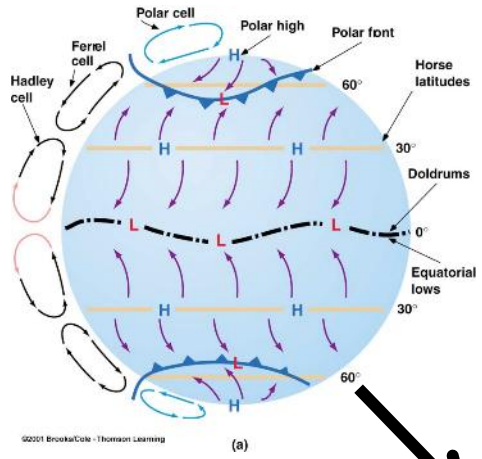
- Emergency Management, Hazard Planners, and Public Health
- Schools & Rural Youth
- Farmers and Agricultural Advisors

Objectives

1. ***Engage*** to understand immediate and long-term hazards of concern
2. ***Identify*** resources, tools, data being used to plan for extreme weather hazards
3. ***Co-produce*** improved climate information and tools tailored to local needs
4. ***Build*** local capacity to leverage tools for local climate hazard planning capacity

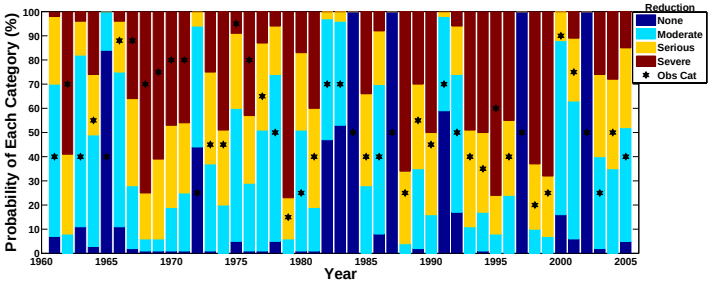
Water Systems & Society Research Group

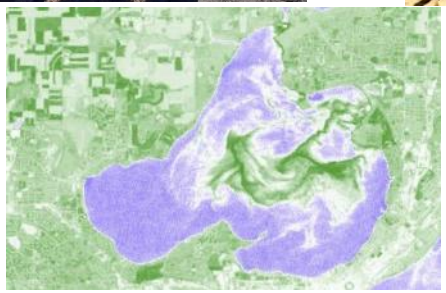
Linking Climate + Water + Society



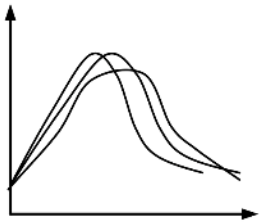
Extremes

Resilience Strategies





Sectoral Management



RPI Involvement in the Rock River project

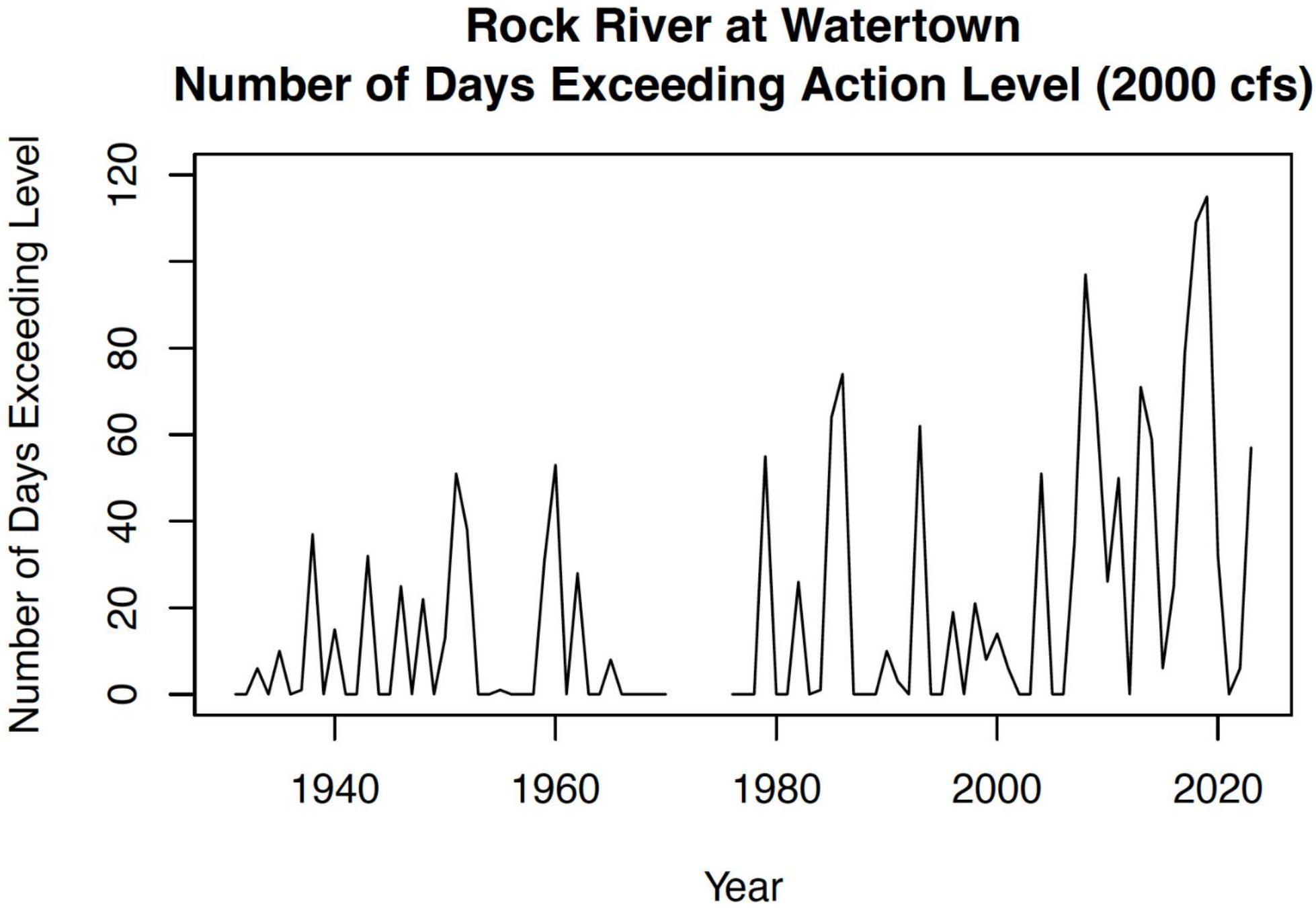
- Faculty Leads: Ken Genskow (PLA + Extension); Steve Vavrus (SCO); Paul Block (CEE)

- RPI Team for Rock River project:
  - State Climatology Office: Steve Vavrus, Paul Buchmann
  - Civil and Environmental Engineering: Paul Block, Felix Boeing
  - Landscape Architecture: Ken Genskow

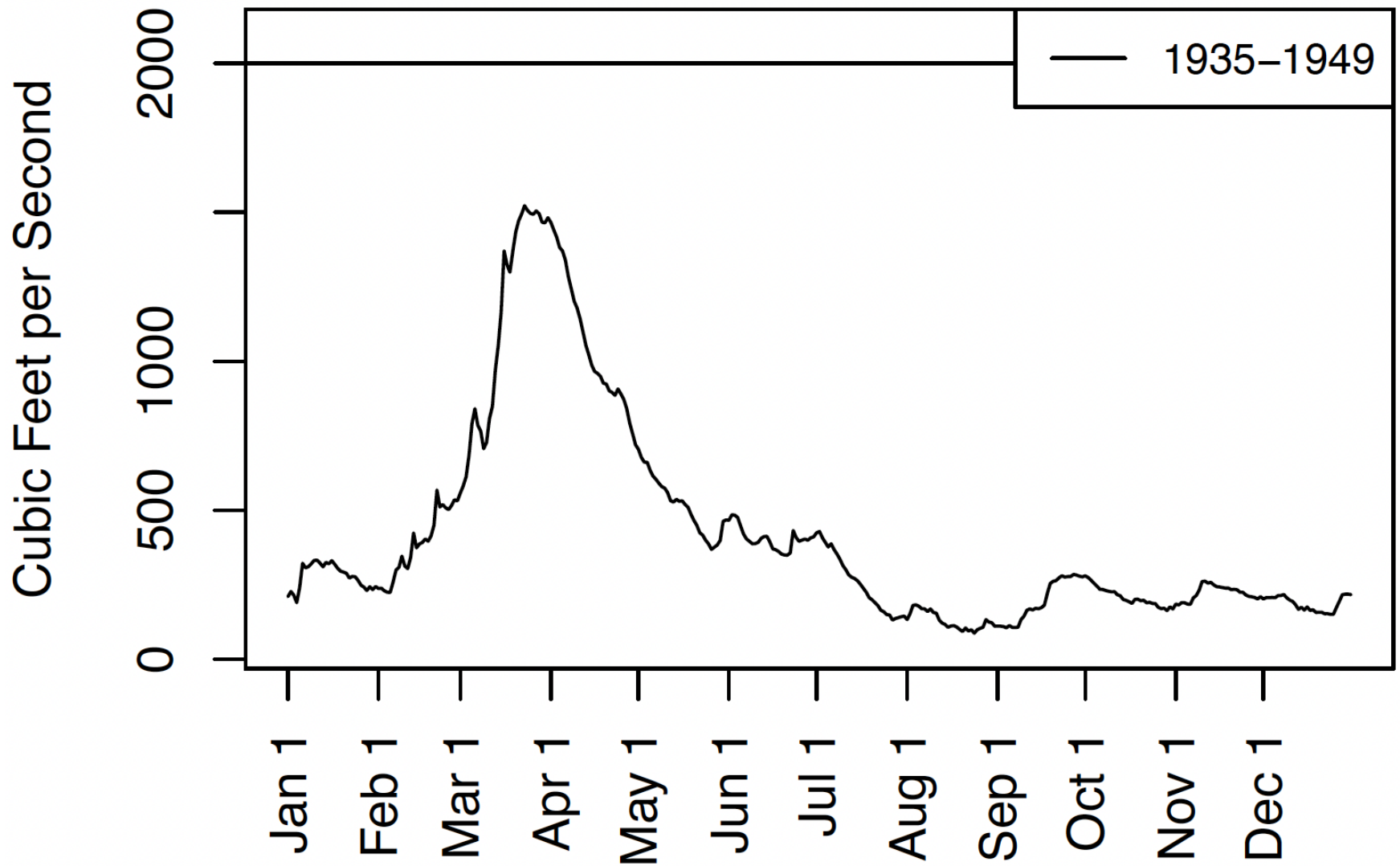
- Timeline: through 2027

Some observation on trends in flow on the Rock River

- USGS Gage at Watertown, record 1931-present
- Action level for flood response: 4 ft, ~2000cfs Minor lowland flooding in rural areas around Watertown
- How to quantify how the river is changing?
- Use “Action Levels” describing flooding conditions
- Changes in seasons of high flow through the decades


Rock River at Watertown
Number of Days Exceeding Action Level (2000 cfs)
Number of Days Exceeding Level
0
20
40
60
80
120
1940
1960
1980
2000
2020
Year

Rock River at Watertown
Average Daily Flow recalculated every 15 years



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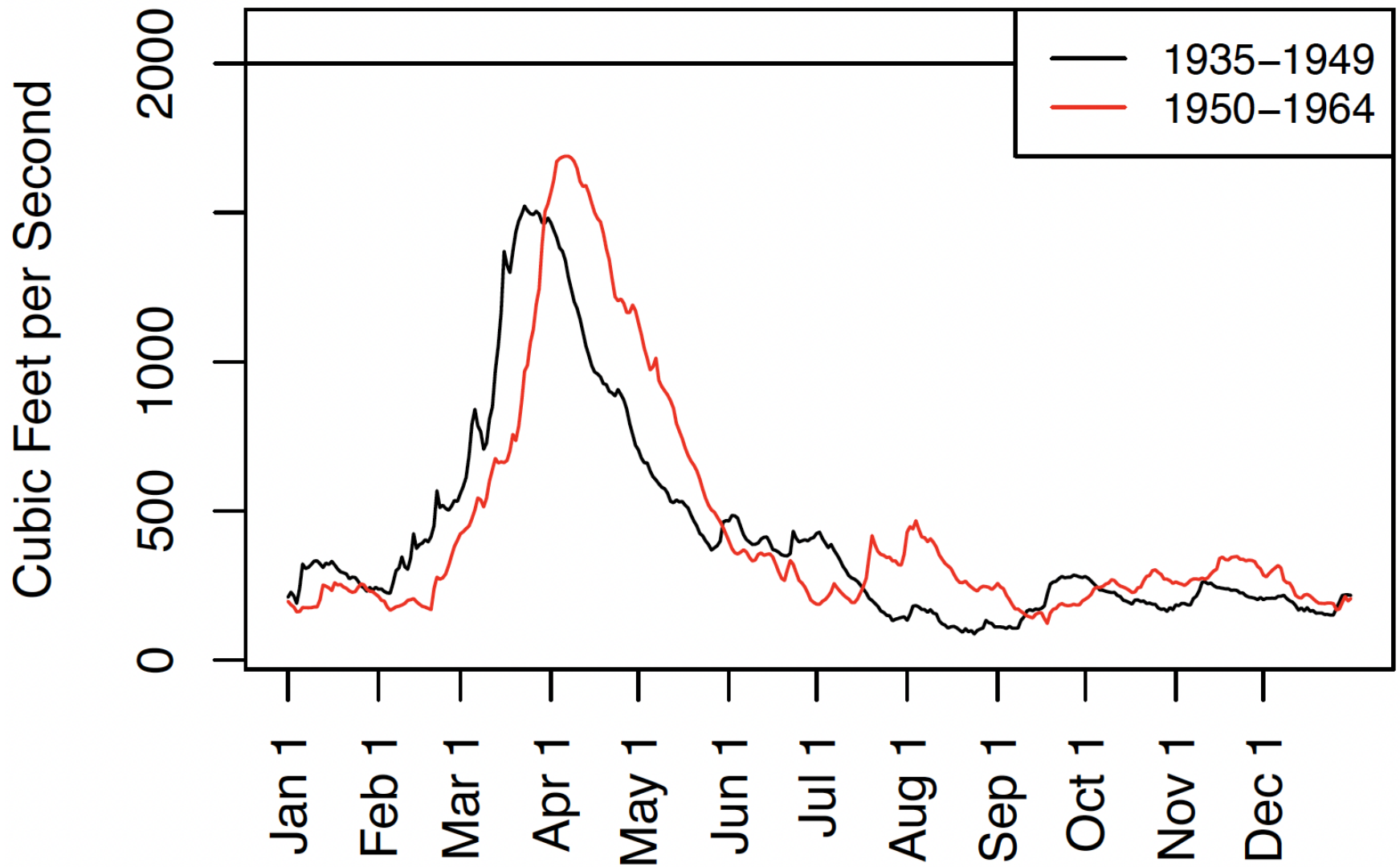
Average Daily Flow recalculated every 15 years



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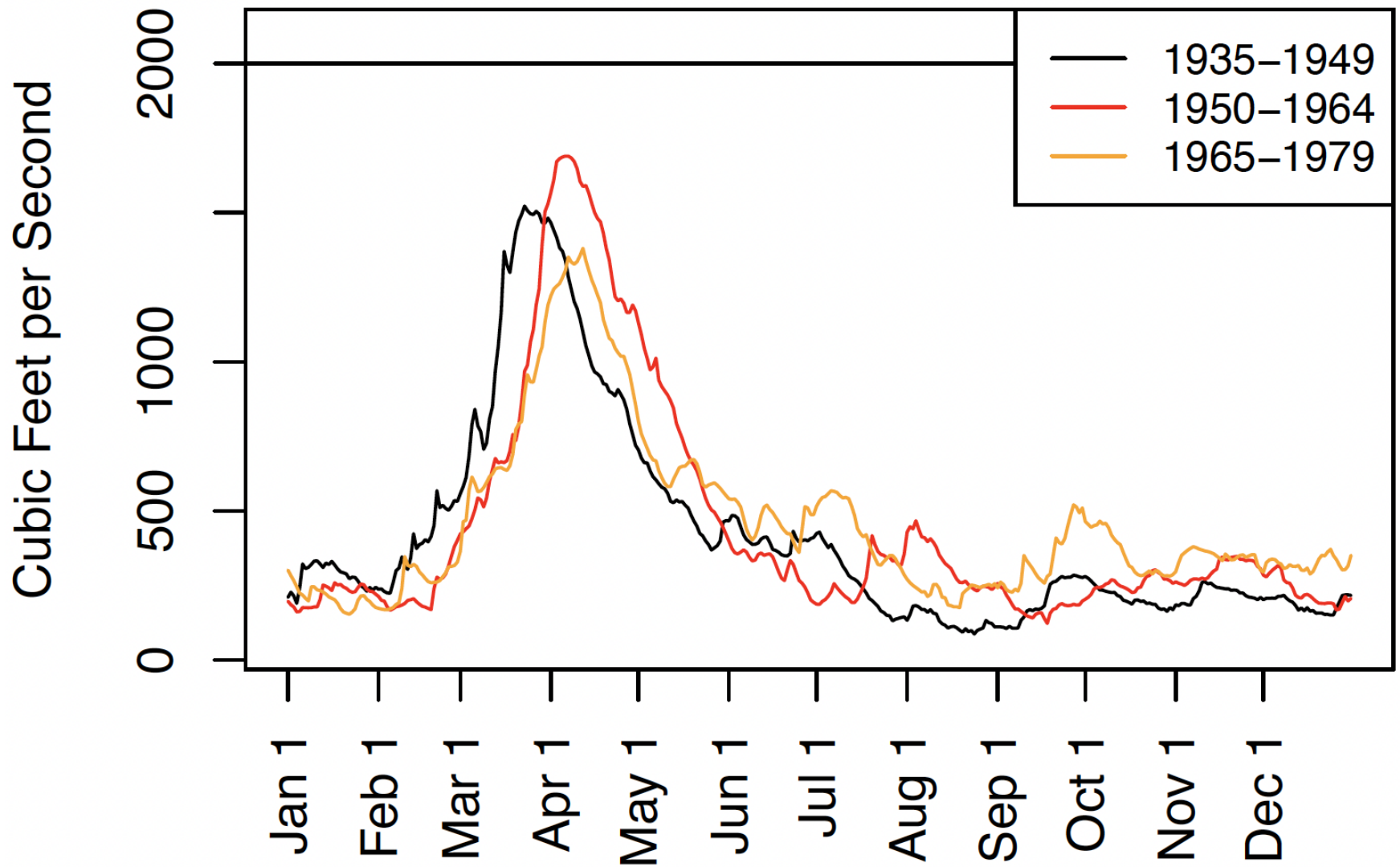

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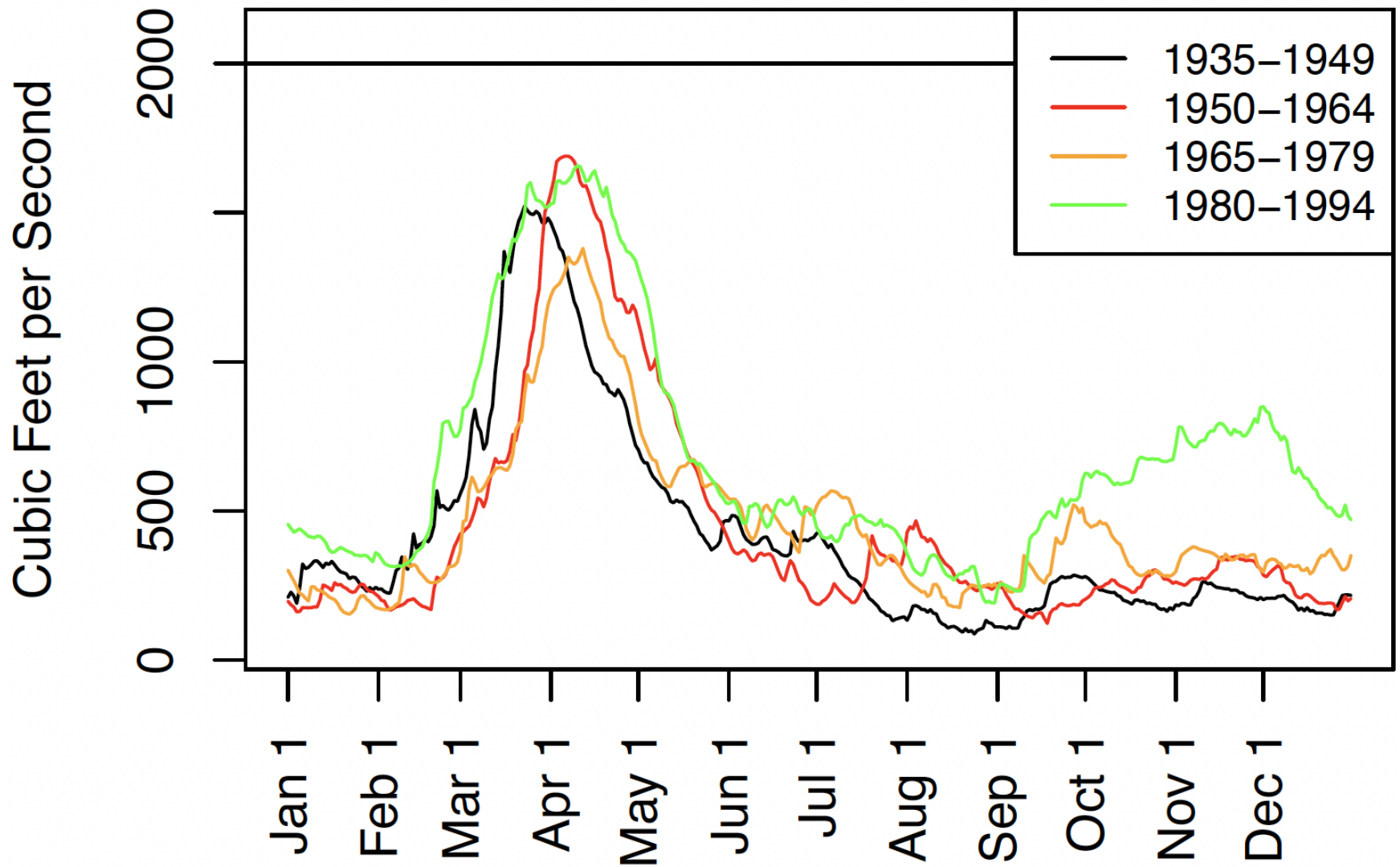

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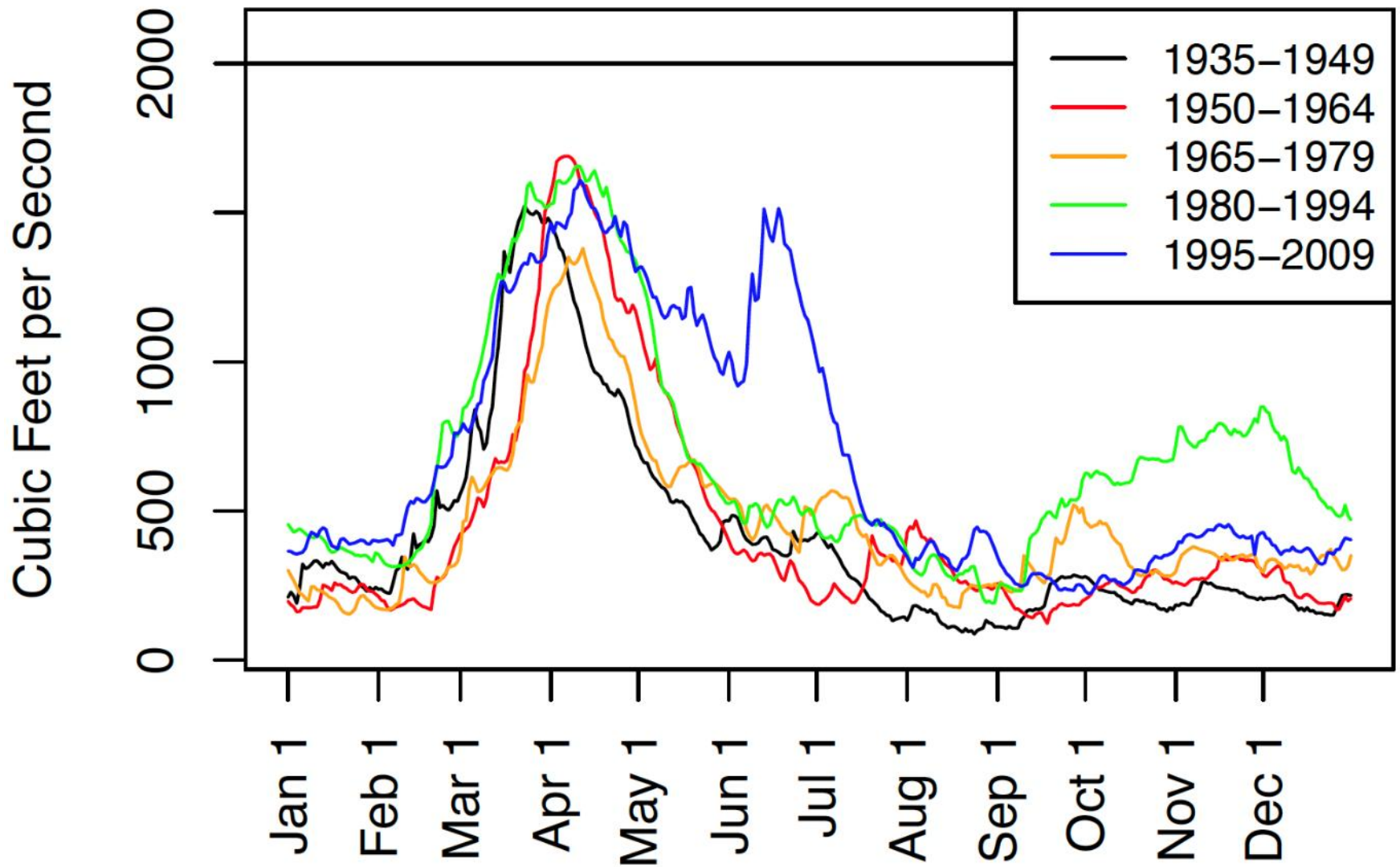

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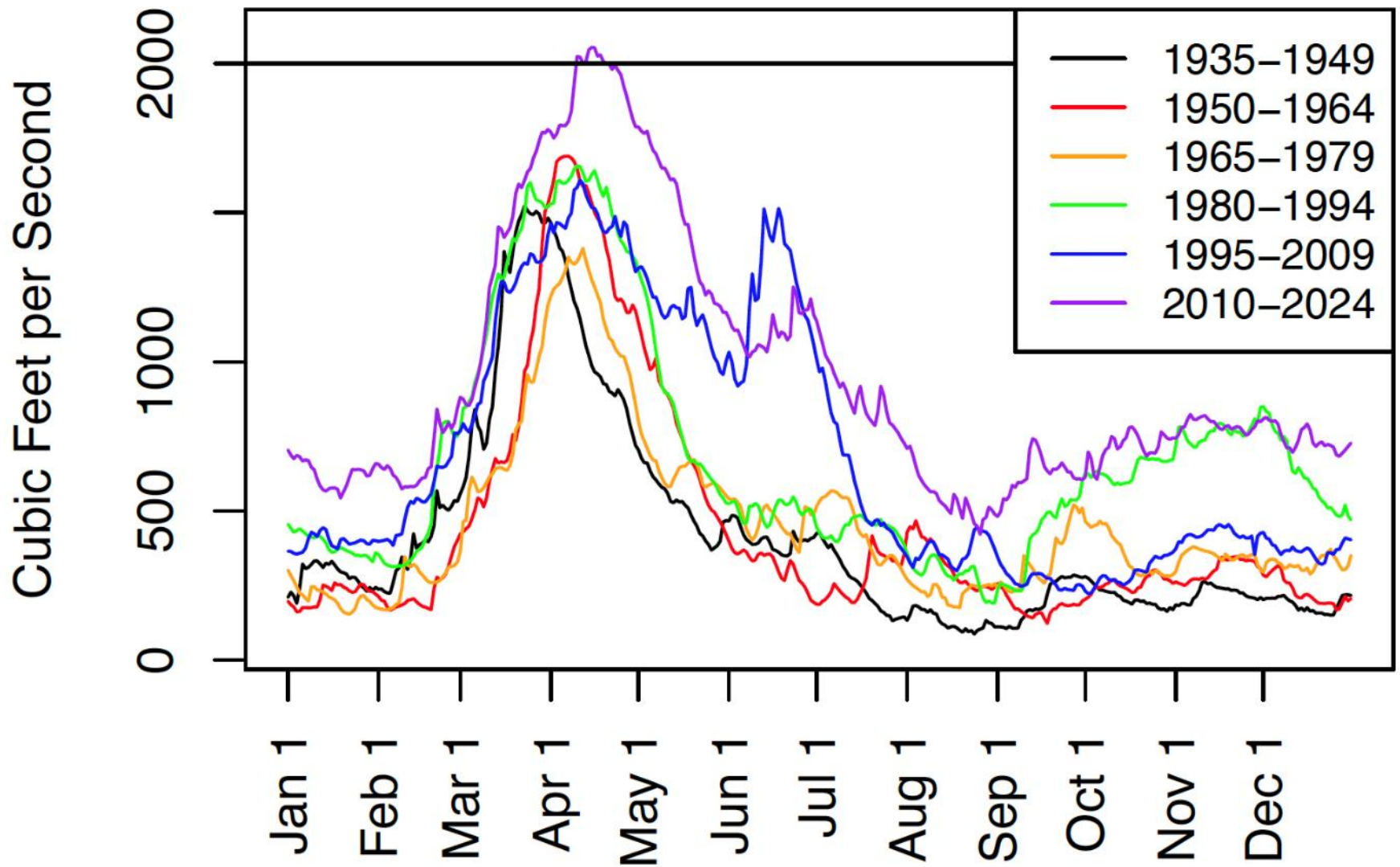
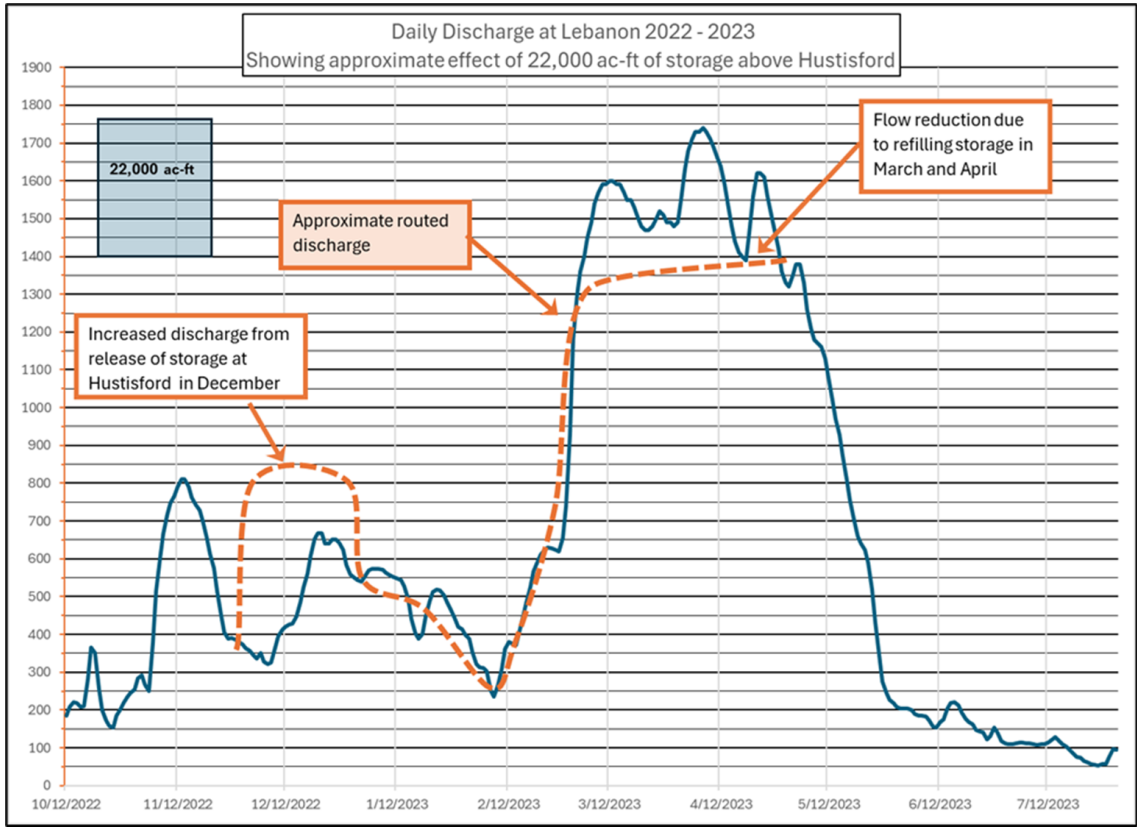


Possible Research Questions

- Why has there been an increase in flooding?
- How might the flooding change in the future?
- How reliable are precipitation forecasts
  - Weeks ahead?
  - Up to a season ahead?
- Could observations and predictions be used to inform management decisions?



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b. Gate operations this spring and summer

c. Options and planning for increased watershed storage

d. Corridor management

e. UW research program and coordination

- Coordination group members
- Meetings

7. Next Meeting

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