



# Lake Level Management

Kevin Connors

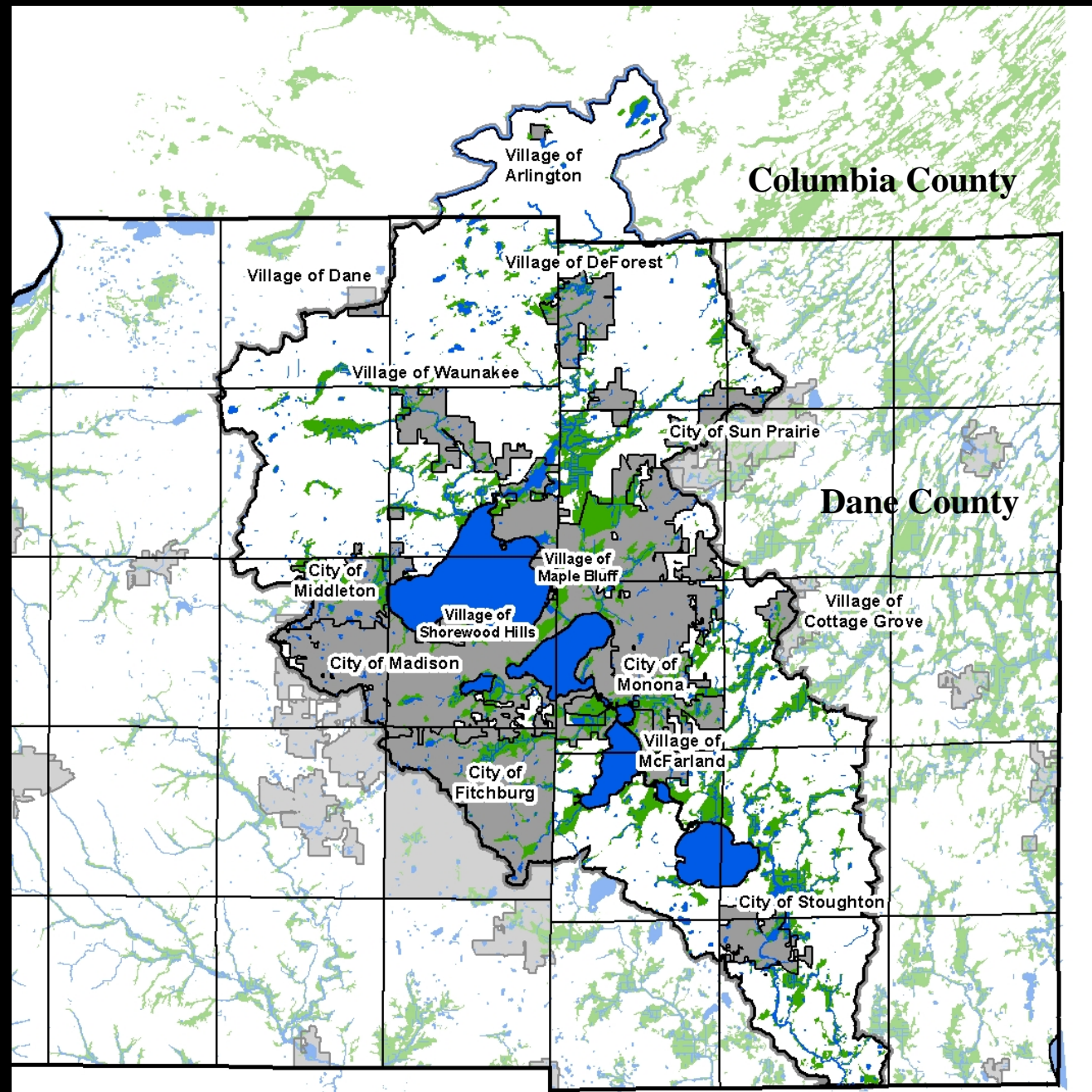
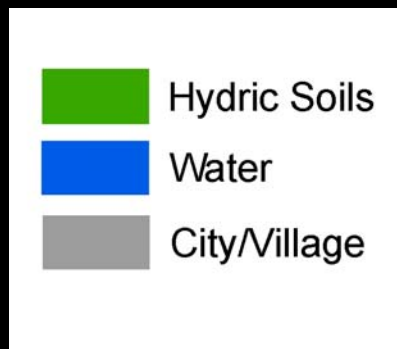
*Dane County Land & Water Resources Department*

April 2011

# **Outline**

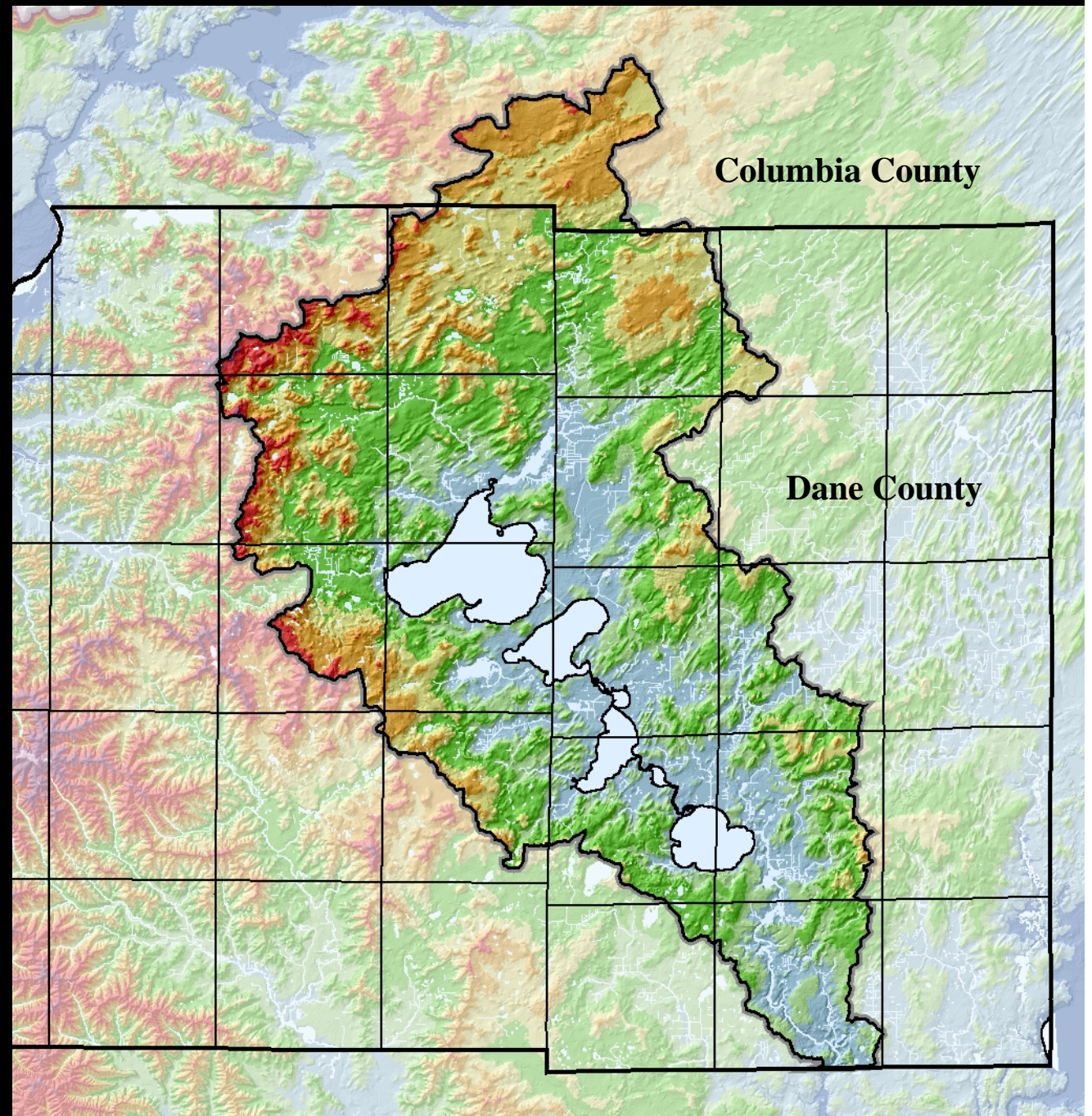
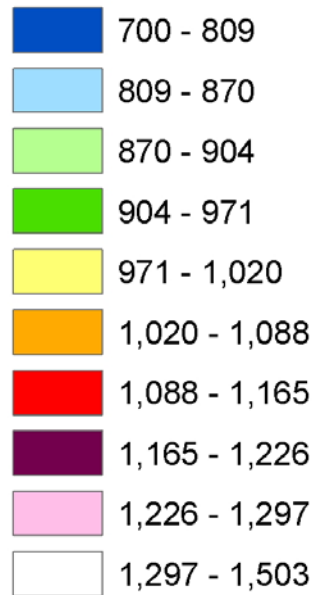
- **Yahara River Watershed Background**
- **Lake Level Management Orders**
- **Weather: Fall 2007 - 2008**
- **Future Management Plans**

# Yahara River Watershed Municipalities and Hydric Soils

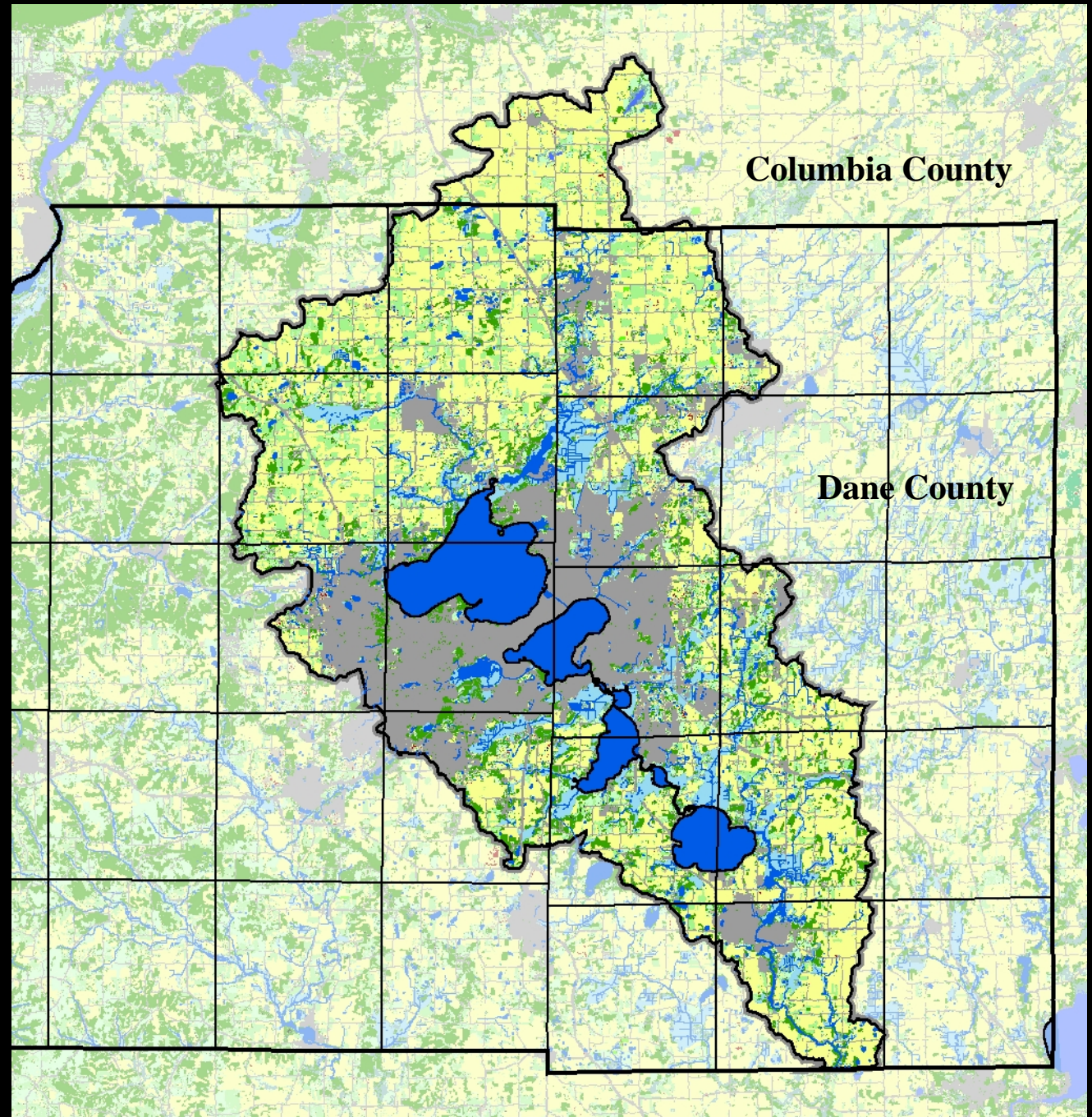


# Yahara River Watershed Shaded Relief

Elevation (feet)



# Yahara River Watershed Land Cover



# Lake Level Management Orders

The lake levels for the Yahara Chain of Lakes, (Mendota, Monona, Waubesa and Kegonsa) are managed by Dane County in accordance with Wisconsin Department of Natural Resources (WDNR) Lake Level orders developed in 1979.

These lake level orders are in the “interest of public rights in navigable waters, and will promote safety and will protect life, health and property.” The orders require lake level coordination of the entire chain of lakes as a system, as well as with the City of Stoughton Dam.

# **Lake Mendota - Water Level Orders**

## **Established January 18, 1979**

- 1. Maximum = 850.1 ft**
- 2. Summer Minimum: First Spring runoff after March 1<sup>st</sup> to Oct. 30<sup>th</sup> = 849.6 ft**
- 3. Winter Minimum:  
Nov. 1<sup>st</sup> to first Spring runoff = 848.2 ft**
- 4. April 1<sup>st</sup> to May 15<sup>th</sup>: one taintor gate open 0.3 ft**
- 5. During normal and low flows, hold 4.9 ft difference between Mendota and Monona**
- 6. Hold as close as possible**

# **Lake Monona - Water Level Orders**

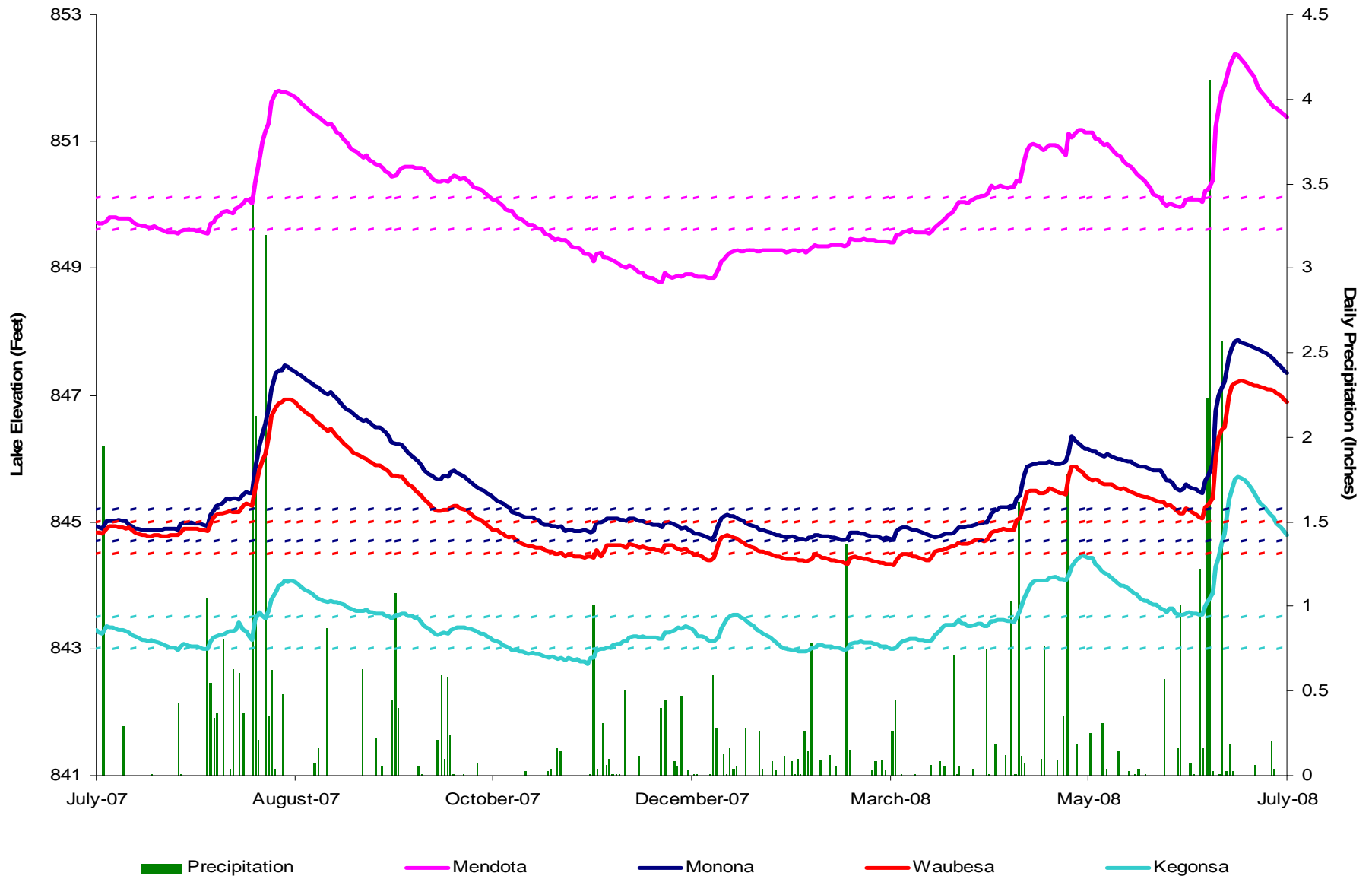
## **Established January 18, 1979**

- 1. Maximum = 845.2 ft**
- 2. Summer Minimum: First Spring runoff after March 1<sup>st</sup> to Oct. 30<sup>th</sup> = 844.7 ft**
- 3. Winter Minimum:  
Nov. 1<sup>st</sup> to first Spring runoff = 842.2 ft**
- 4. Minimum discharge = 50 cfs at dam between April 1<sup>st</sup> and May 15<sup>th</sup>; all other times at 10 cfs**
- 5. Hold as close as possible**



# Yahara Lakes Water Elevations

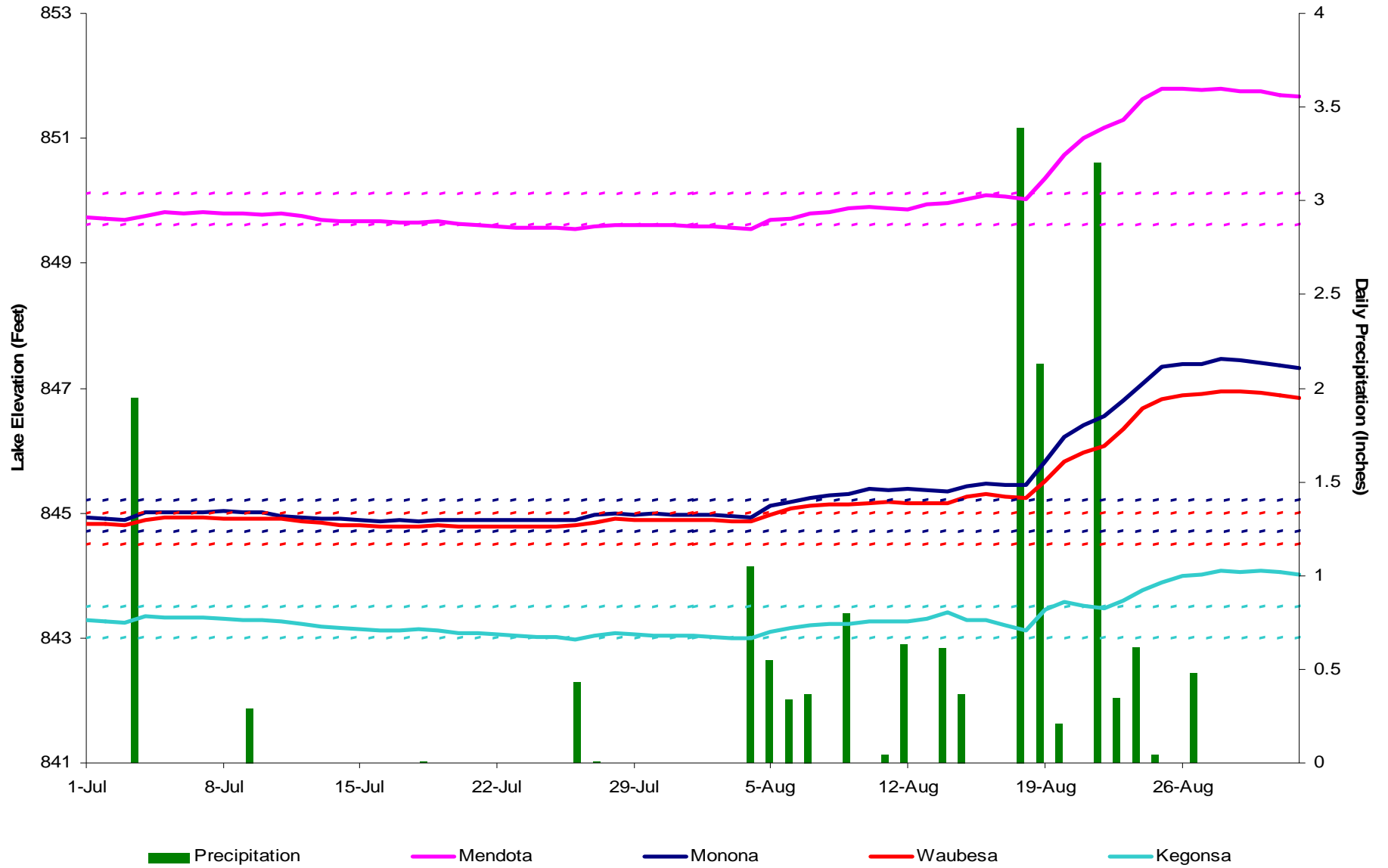
July 2007 to July 2008



Dashed Lines Represent Summer Minimum and Maximum Lake Level Orders

# Yahara Lakes Water Elevations

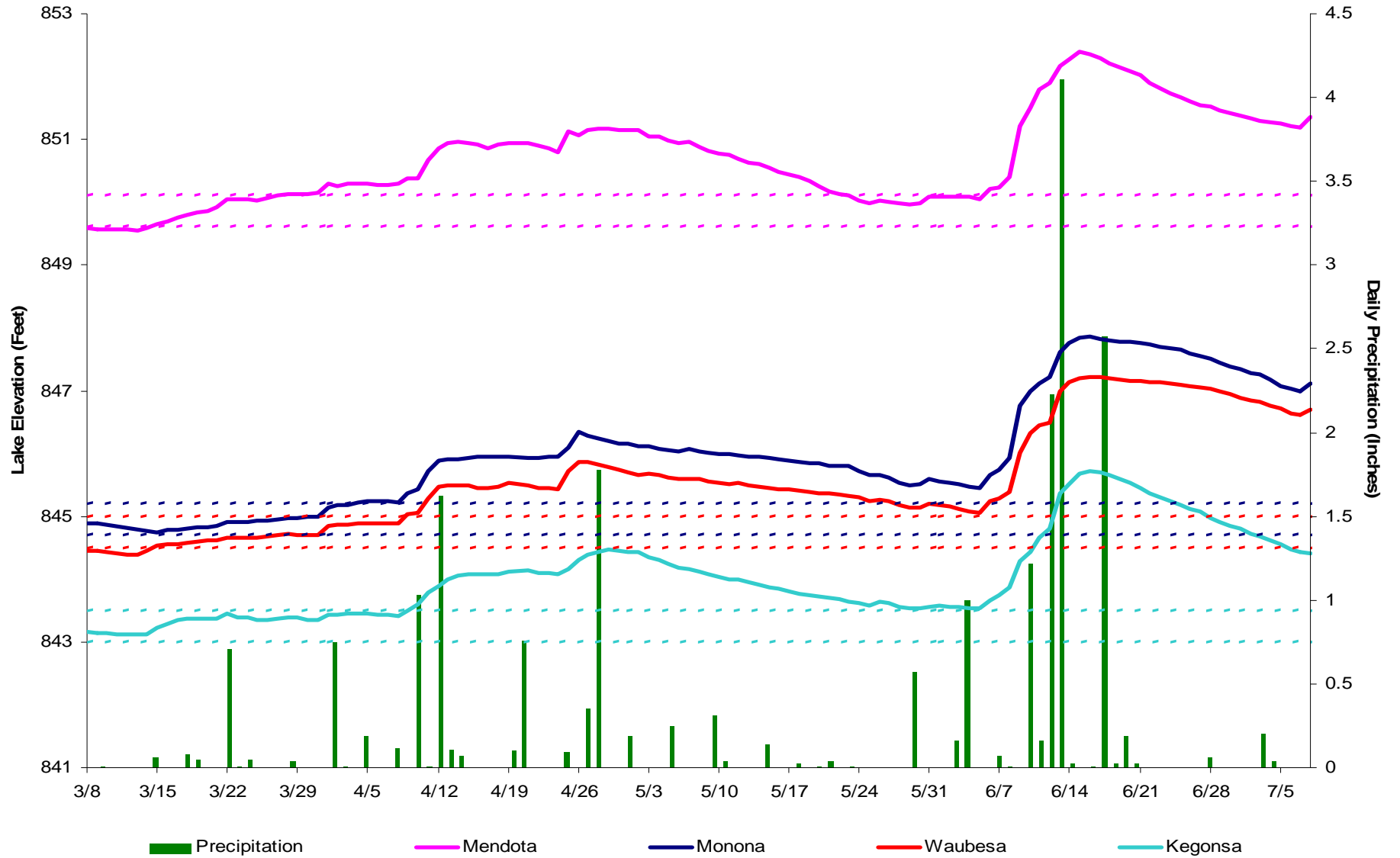
## July 1 to September 1, 2007



Dashed Lines Represent Summer Minimum and Maximum Lake Level Orders

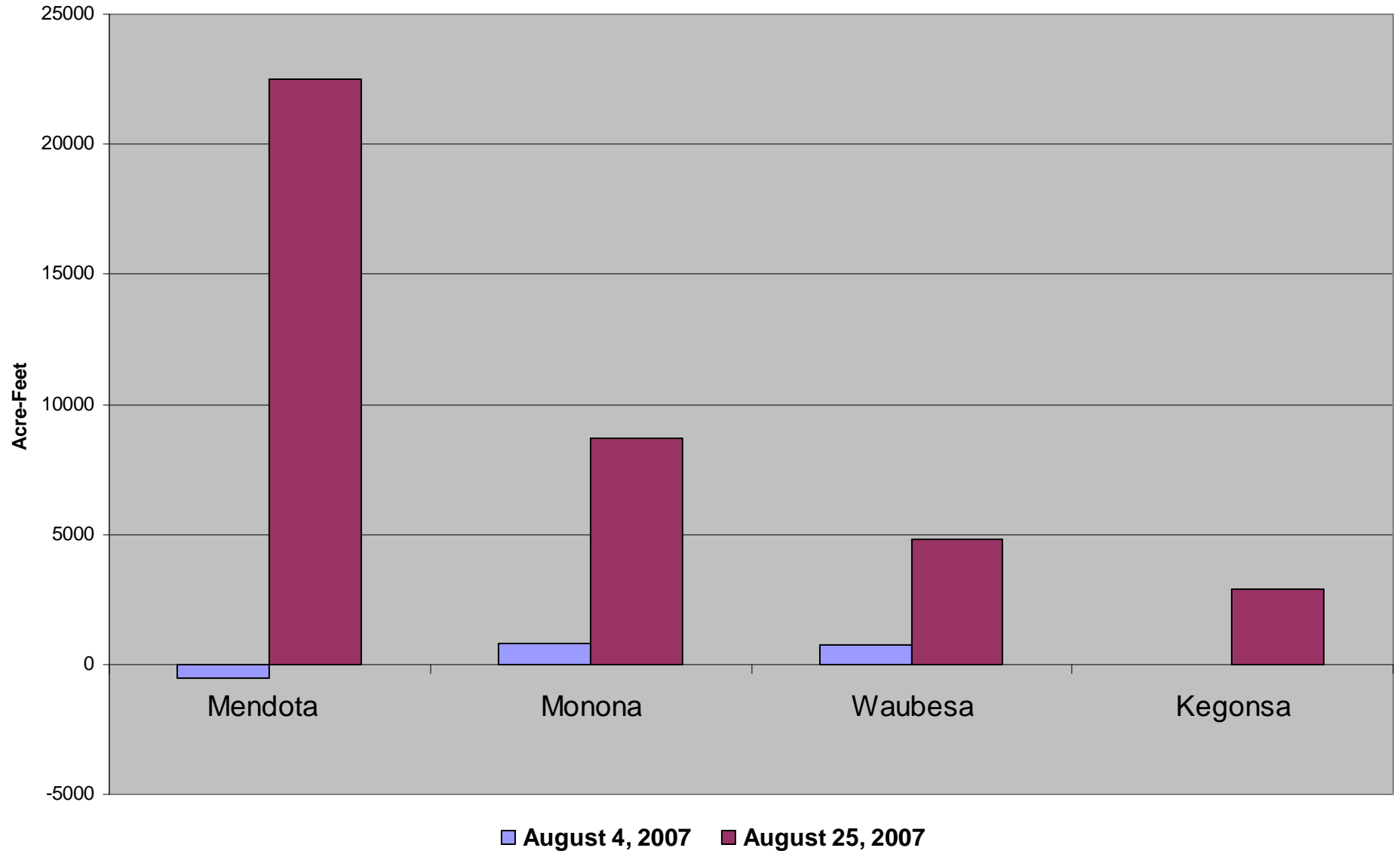
# Yahara Lakes Water Elevations

March 8 to July 8, 2008



Dashed Lines Represent Summer Minimum and Maximum Lake Level Orders

## Volume Above Summer Minimum Level



# Weather: Fall 2007 - 2008



**Heavy  
Snow**



**Heavy  
Rain**

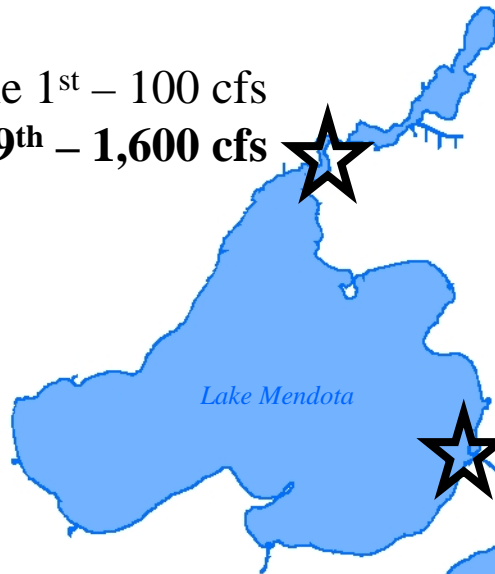
**Precipitation Stats.**  
**August 2007 – June 2008**  
**52.62 inches**  
**Normal: 28.89 inches**

**August 2007: 15.14 inches**  
**June 2008: 10.93 inches**

# Water Flow

## June 2008

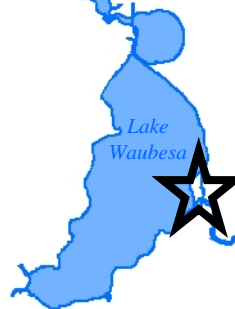
June 1<sup>st</sup> – 100 cfs  
June 9<sup>th</sup> – 1,600 cfs



June 1<sup>st</sup> – 240 cfs  
June 9<sup>th</sup> – 324 cfs  
June 15<sup>th</sup> – 640 cfs



June 1<sup>st</sup> – 408 cfs  
June 9<sup>th</sup> – 836 cfs  
June 14<sup>th</sup> – 1,000 cfs

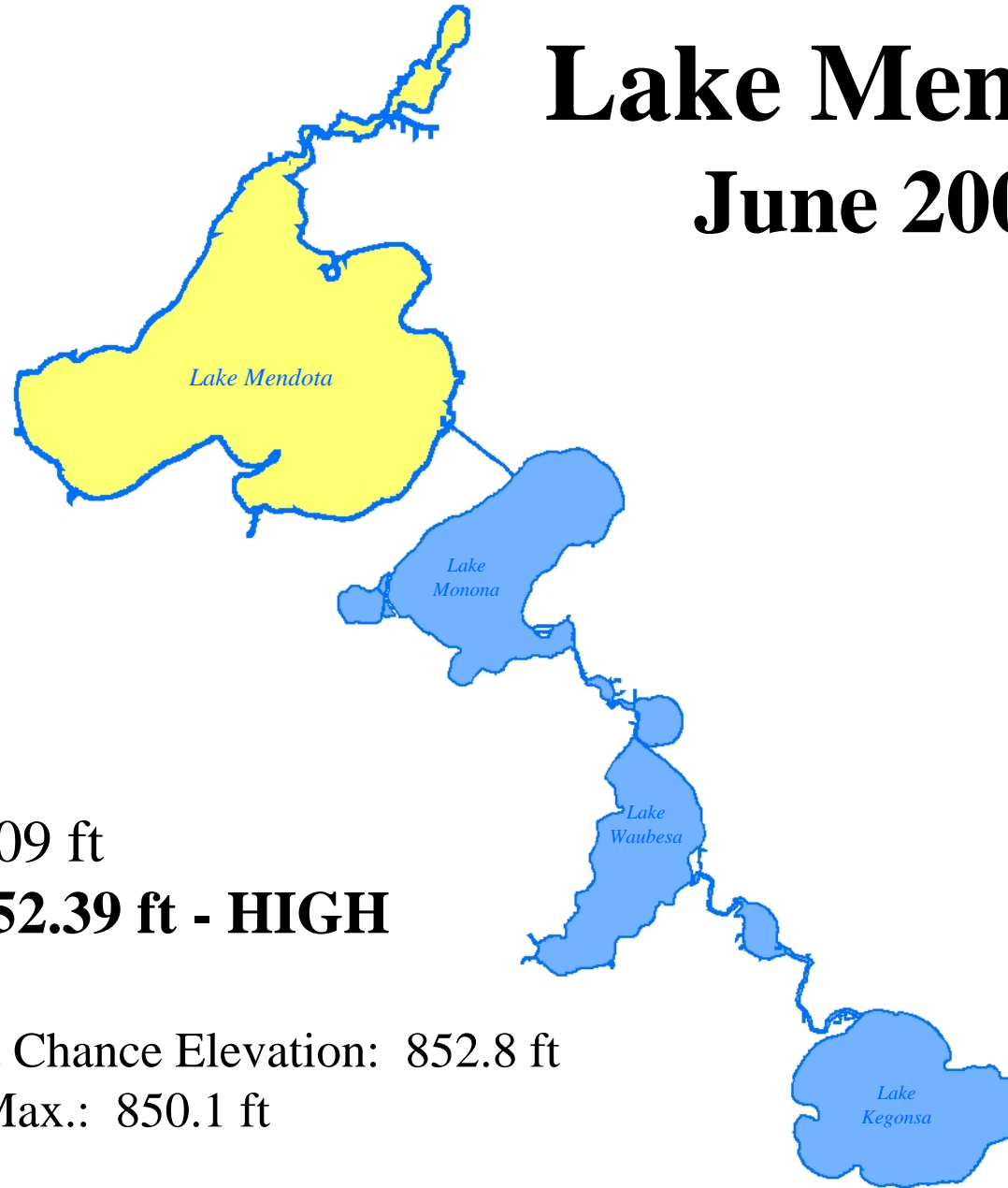


June 1<sup>st</sup> – 525 cfs  
June 9<sup>th</sup> – 1,000 cfs  
June 13<sup>th</sup> – 1,300 cfs



# Lake Mendota

## June 2008



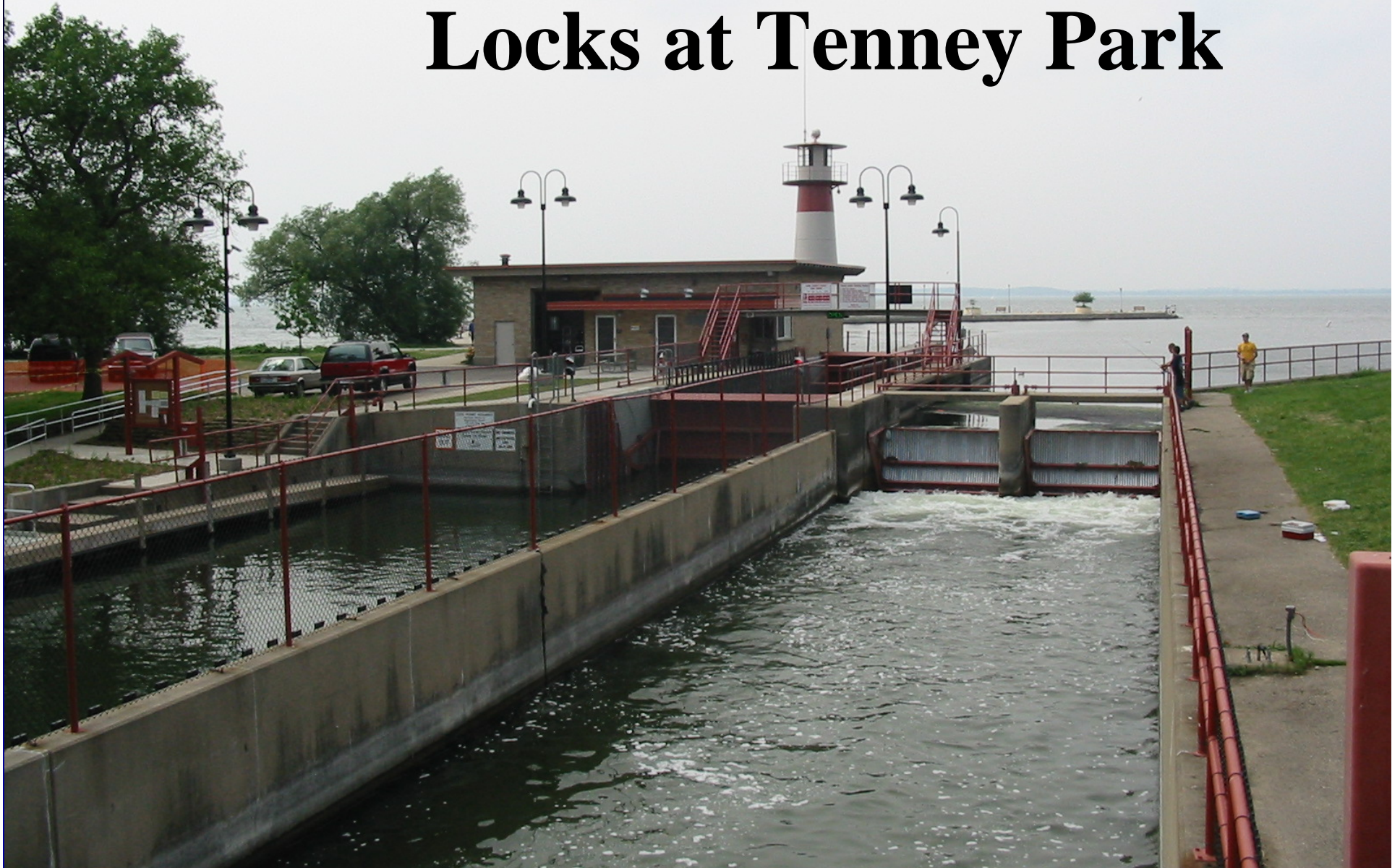
June 1<sup>st</sup> – 850.09 ft

**June 15<sup>th</sup> – 852.39 ft - HIGH**

1% Annual Flood Chance Elevation: 852.8 ft

Summer Permit Max.: 850.1 ft

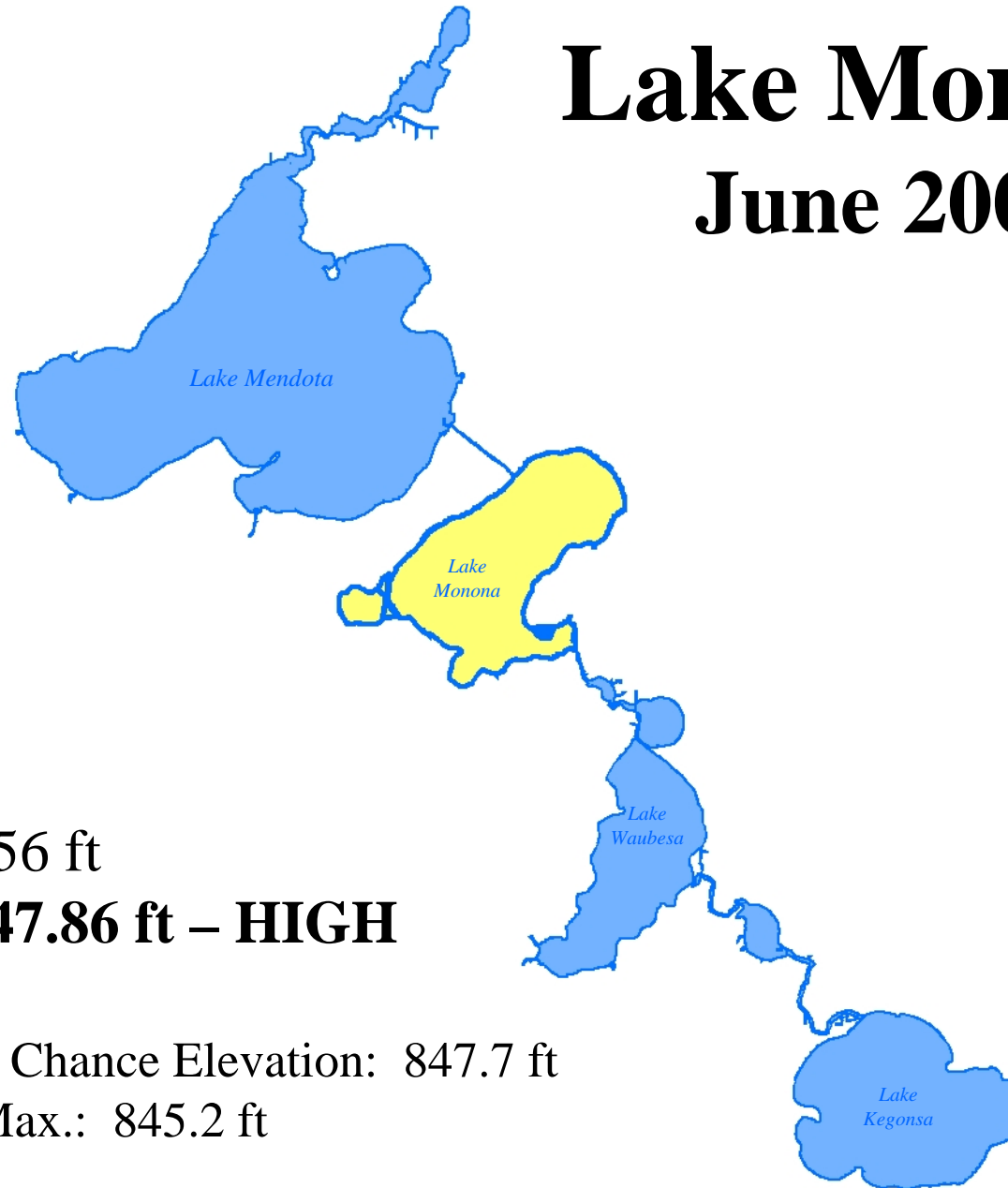
# Lake Mendota – Locks at Tenney Park





# Lake Monona

## June 2008



June 1<sup>st</sup> – 845.56 ft

**June 16th – 847.86 ft – HIGH**

1% Annual Flood Chance Elevation: 847.7 ft

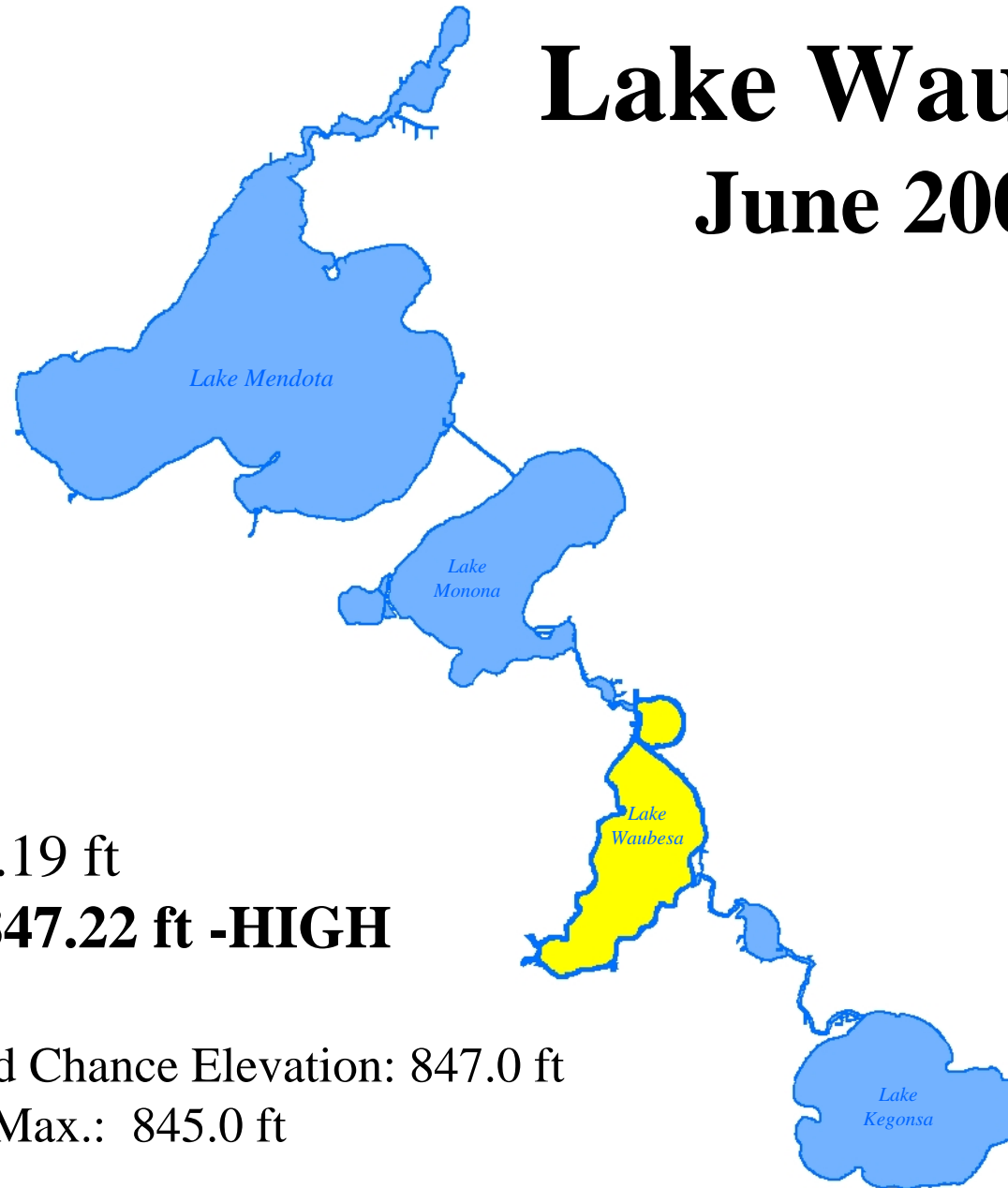
Summer Permit Max.: 845.2 ft



**Lake Monona/  
Mud Lake –  
Railroad Trestle**

# Lake Waubesa

## June 2008

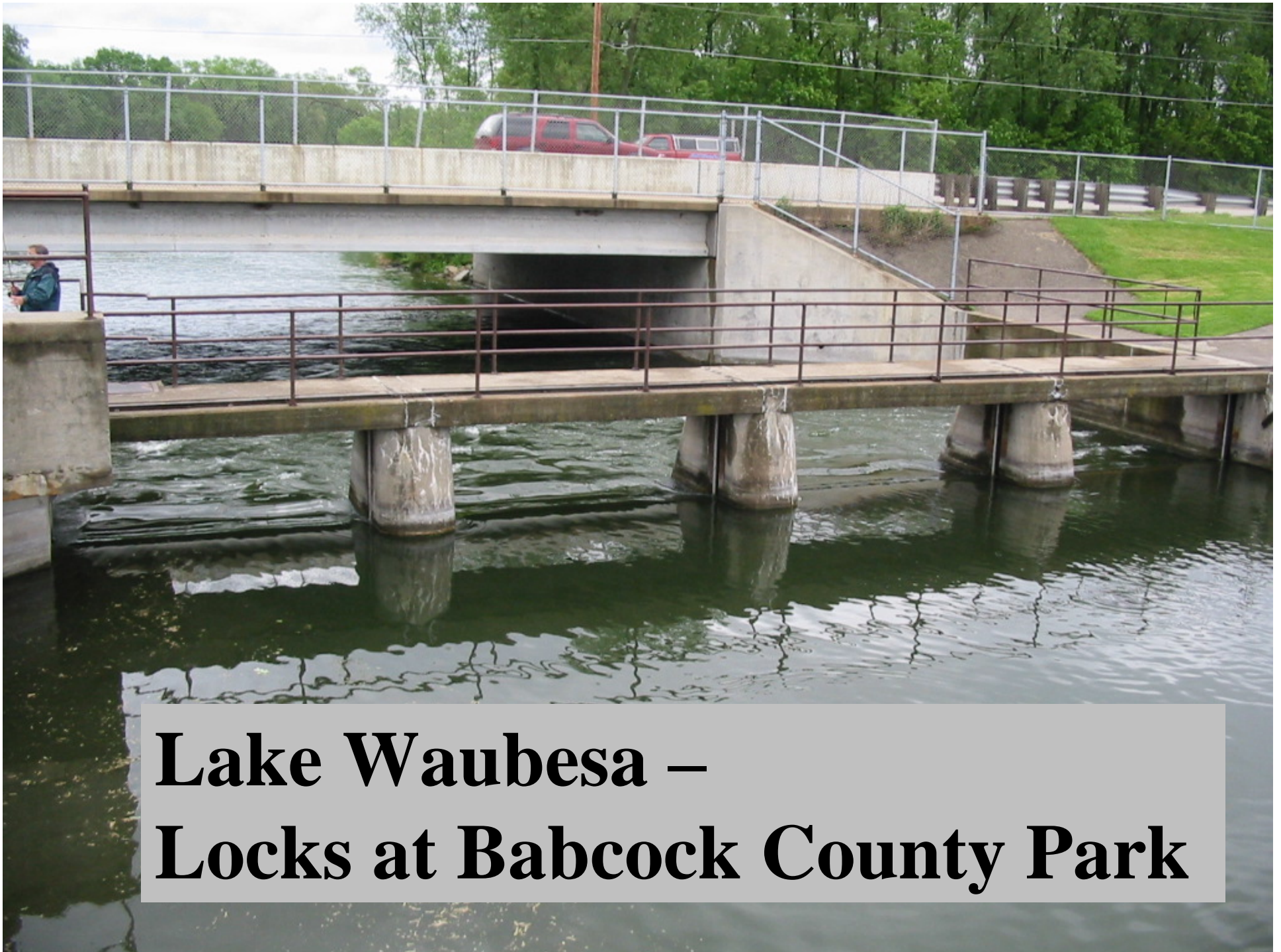


June 1<sup>st</sup> – 845.19 ft

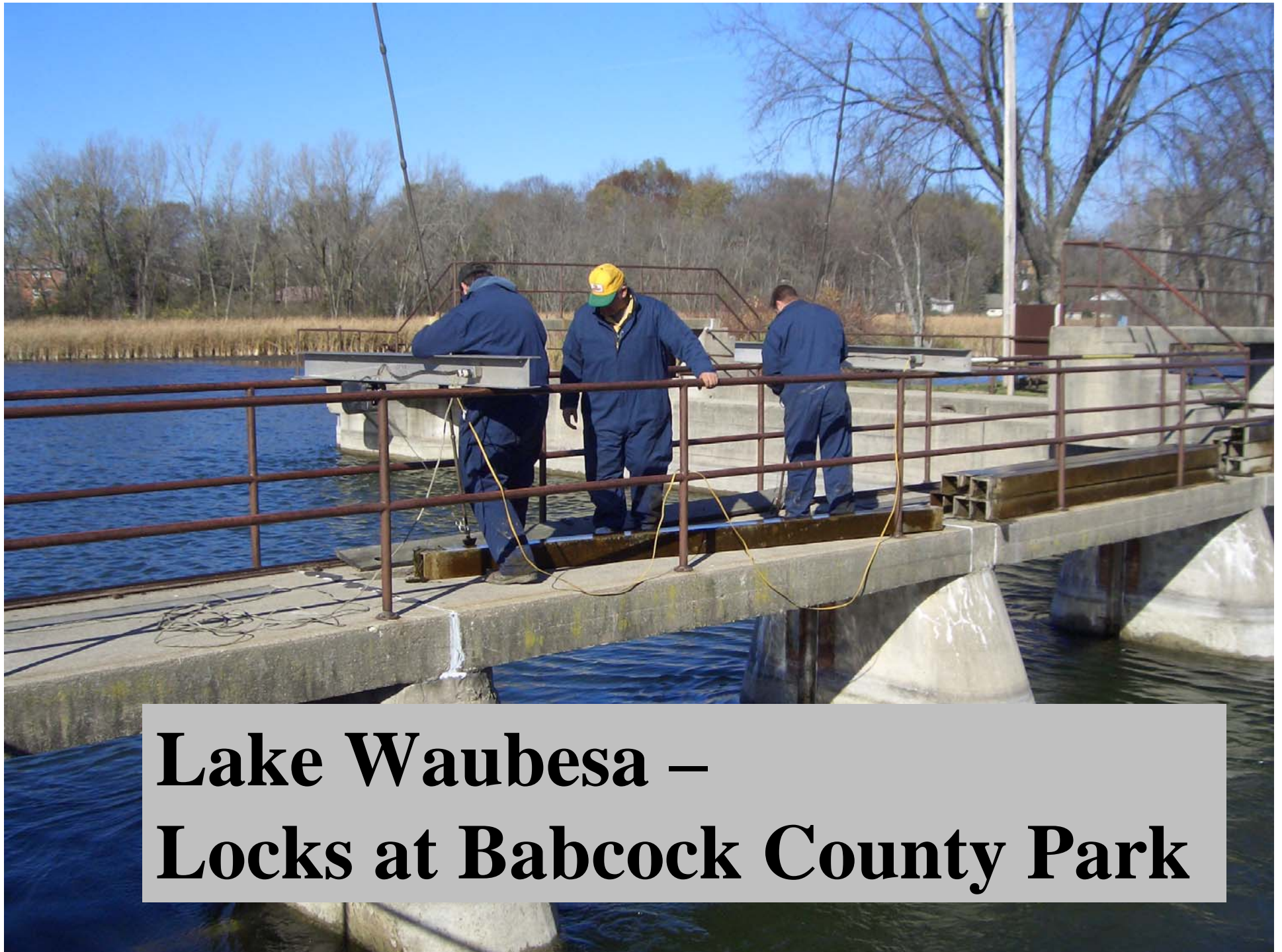
**June 17th – 847.22 ft -HIGH**

1% Annual Flood Chance Elevation: 847.0 ft

Summer Permit Max.: 845.0 ft



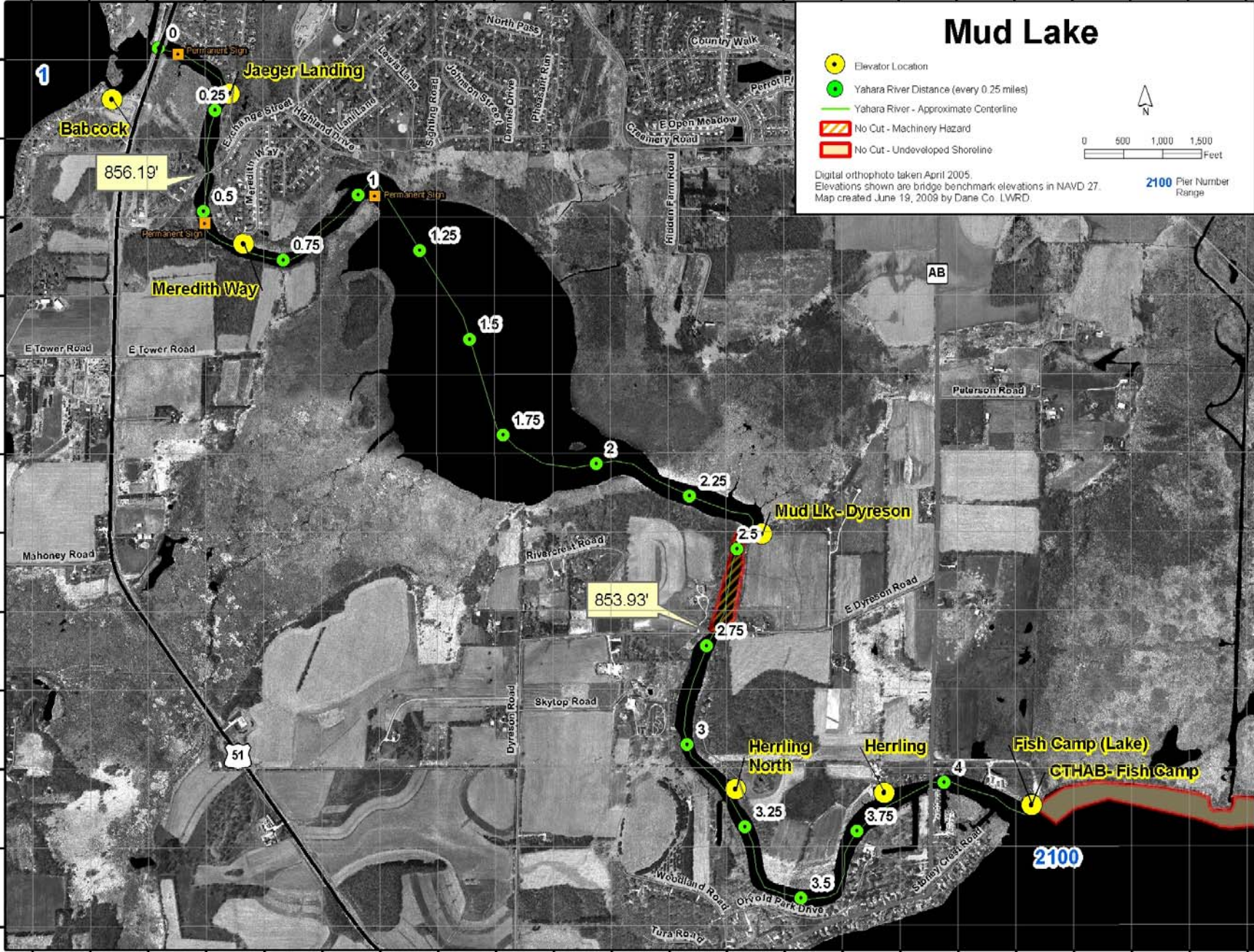
**Lake Waubesa –  
Locks at Babcock County Park**



**Lake Waubesa –  
Locks at Babcock County Park**

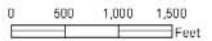
89°18'40"W 89°18'20"W 89°18'0"W 89°17'40"W 89°17'20"W 89°17'0"W 89°16'40"W 89°16'20"W 89°16'0"W 89°15'40"W 89°15'20"W

43°0'30" N  
43°0'20" N  
43°0'10" N  
43°0'0" N  
42°59'50" N  
42°59'40" N  
42°59'30" N  
42°59'20" N  
42°59'10" N  
42°59'0" N  
42°58'50" N  
42°58'40" N



# Mud Lake

- Elevator Location
- Yahara River Distance (every 0.25 miles)
- Yahara River - Approximate Centerline
- No Cut - Machinery Hazard
- No Cut - Undeveloped Shoreline



Digital orthophoto taken April 2005.  
Elevations shown are bridge benchmark elevations in NAVD 27.  
Map created June 19, 2009 by Dana Co. LWRD.

**2100** Pier Number Range

43°0'30" N  
43°0'20" N  
43°0'10" N  
43°0'0" N  
42°59'50" N  
42°59'40" N  
42°59'30" N  
42°59'20" N  
42°59'10" N  
42°59'0" N  
42°58'50" N  
42°58'40" N

89°18'40"W 89°18'20"W 89°18'0"W 89°17'40"W 89°17'20"W 89°17'0"W 89°16'40"W 89°16'20"W 89°16'0"W 89°15'40"W 89°15'20"W

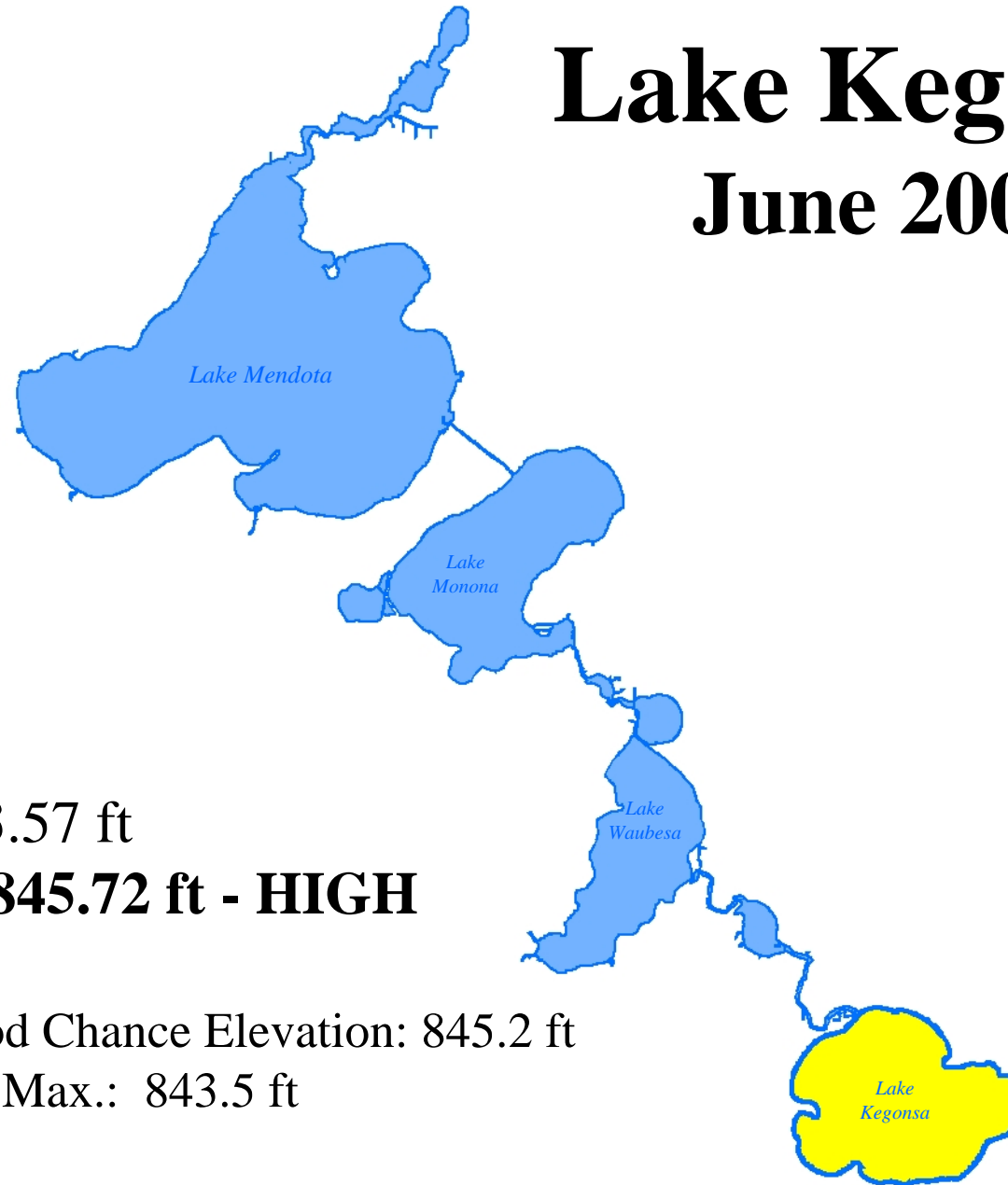






# Lake Kegonsa

## June 2008



June 1<sup>st</sup> – 843.57 ft

**June 16<sup>th</sup> – 845.72 ft - HIGH**

1% Annual Flood Chance Elevation: 845.2 ft

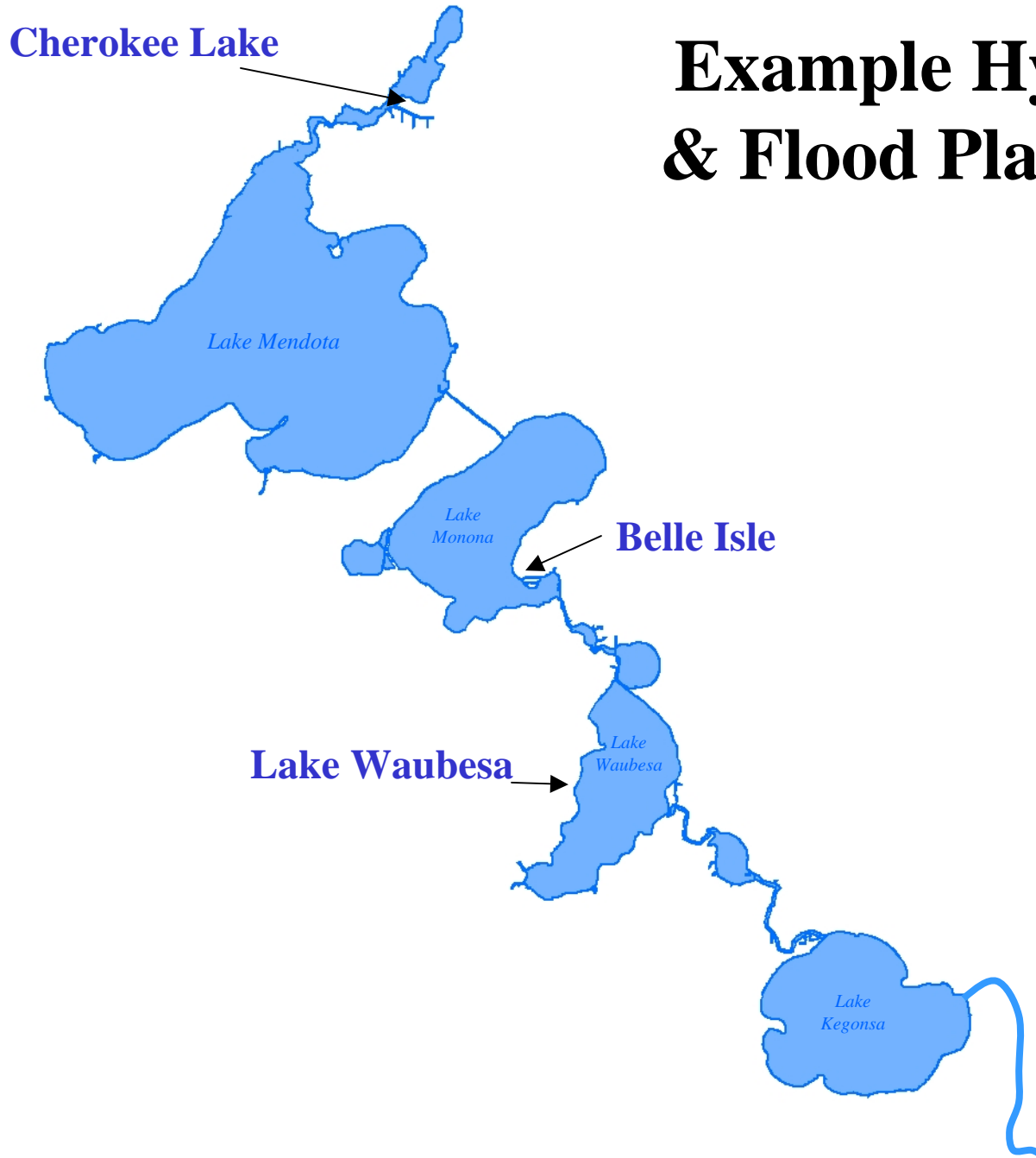
Summer Permit Max.: 843.5 ft



**Lake Kegonsa –  
Locks at LaFollette County Park**



# Example Hydric Soil & Flood Plain Images



# Cherokee Lake





Hydric Soils



1% Annual Flood Chance



# Belle Isle

-  Hydric Soils
-  1% Annual Flood Chance



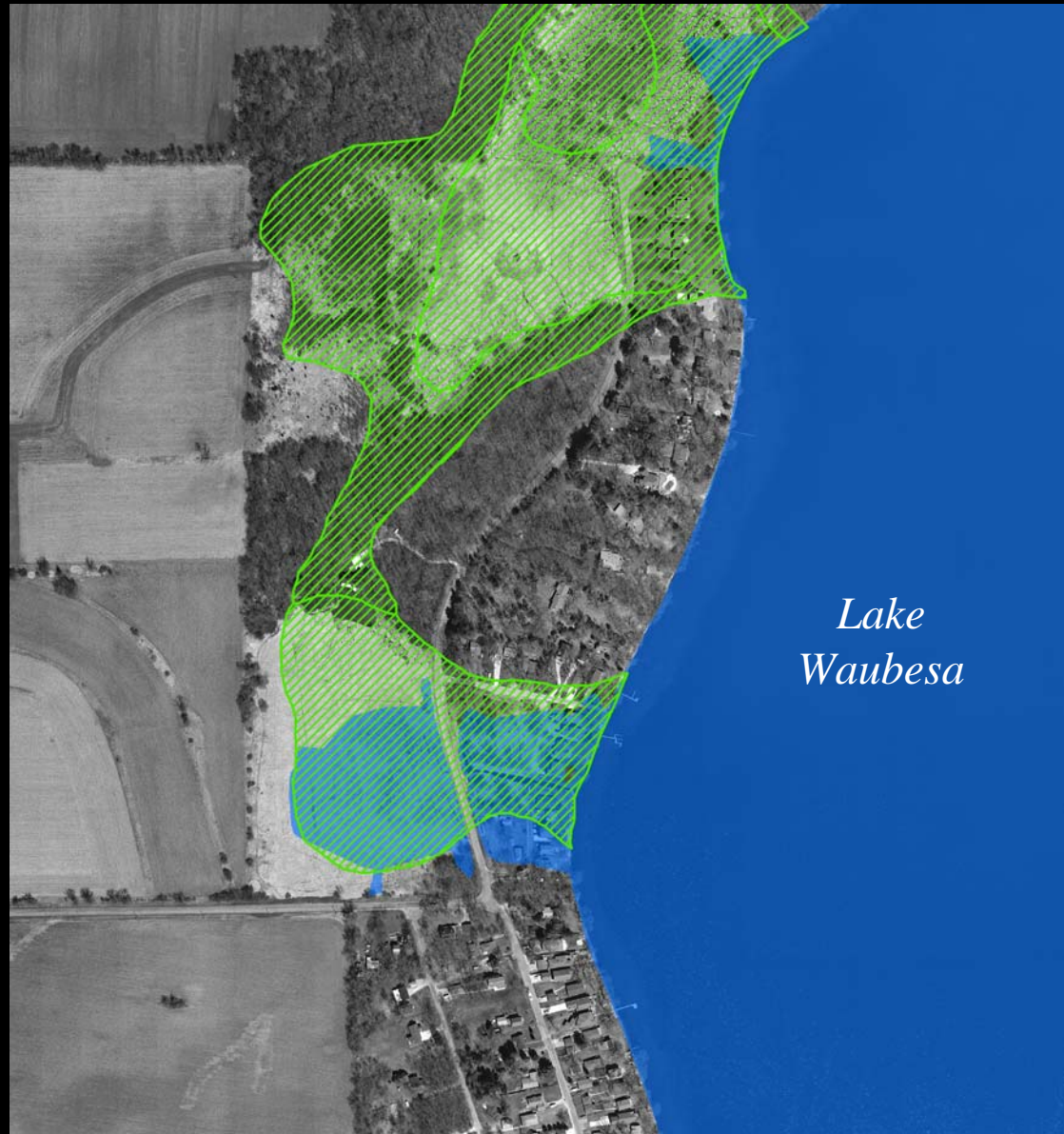
# Lake Waubesa



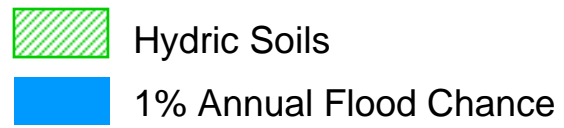
Hydric Soils



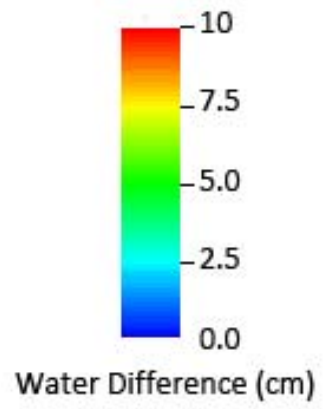
1% Annual Flood Chance



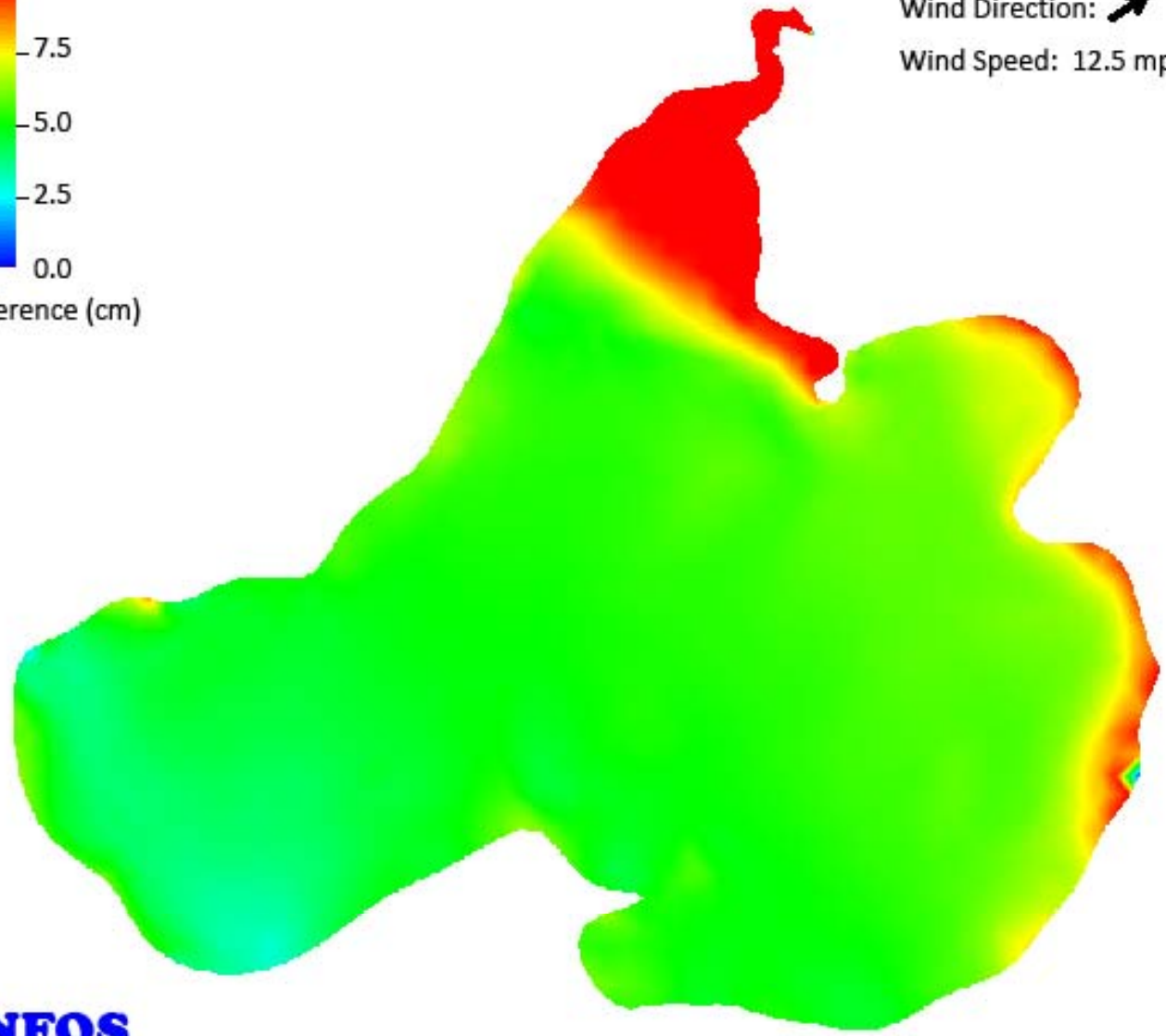
# Lake Kegonsa



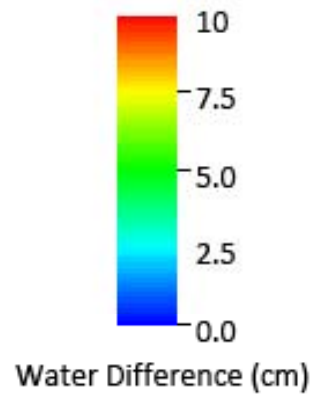




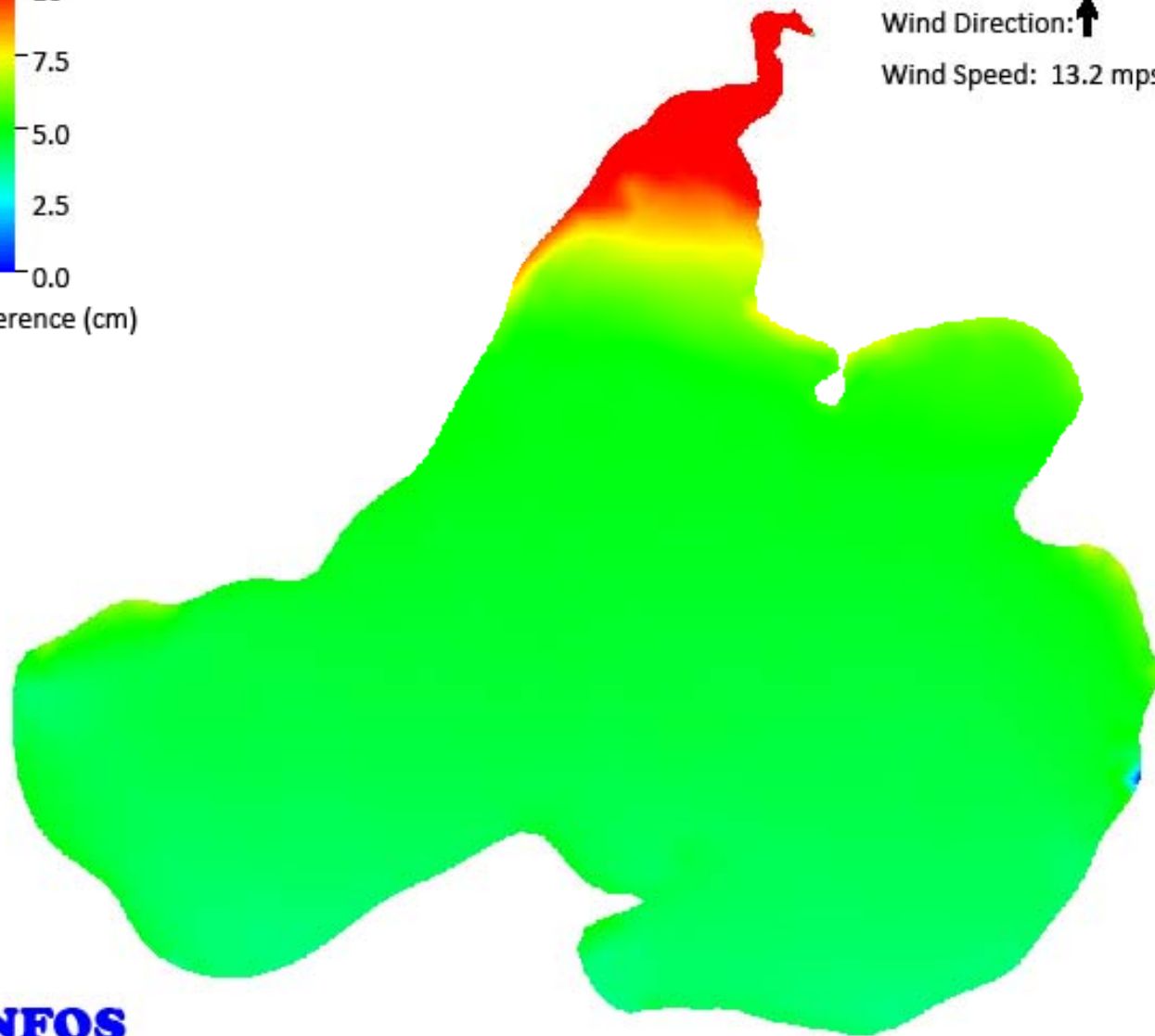
Wind Direction: ↗  
Wind Speed: 12.5 mps



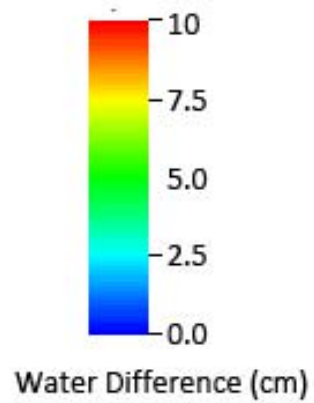
**INFOS**




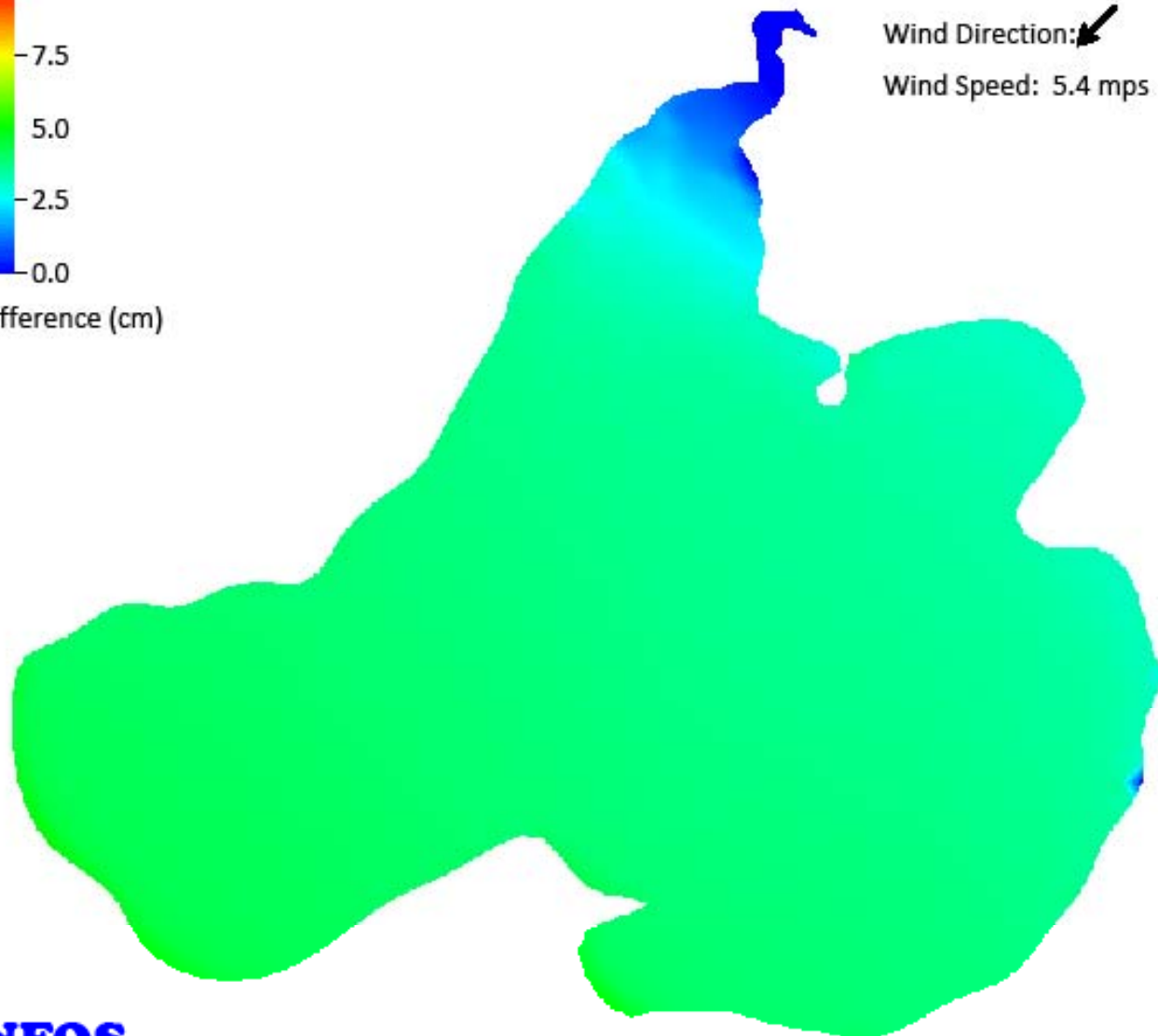
Wind Direction: ↑  
Wind Speed: 13.2 mps



**INFOS**



Wind Direction:   
Wind Speed: 5.4 mps



**INFOS**

# Lake Level Data on the Web

<http://www.countyofdane.com/lwr/landconservation/lakelevelpg.aspx>

- Lake Level Data
- Lake Management Updates
- Lake Level Management Guide
- YLAG 2 (coming soon)

**Lake Level Data - Land Conservation Division - Government of Dane County, Wisconsin - Windows Internet Explorer**

http://www.countyofdane.com/lwr/landconservation/lakelevelpg.aspx

File Edit View Favorites Tools Help

Lake Level Data - Land Conservation Division - Gover...

**Land & Water Resources**

Dane County → Land & Water Resources → Land Conservation Division → Lake Level Data

**Lake Level Data**

The Land & Water Resources Department is responsible for maintaining lake levels for the four major lakes. For additional information, please visit the [Dane County Water Resources](#) page.

**Lake Management Updates**

March 4, 2011  
The lock and dam structures at both Babcock County Park (Lake Waubesa) and LaFollette County Park (Lake Kegonsa) are in full-flow operation (wide open) in order to pass runoff through the system.

Please see the [slow-no-wake page](#) for information and updates regarding slow-no-wake requirements.

[Dane County Lake Level Management Guide for the Yahara Chain of Lakes](#) (1.86 MB PDF)  
[Lake Level Management on the Yahara Chain of Lakes](#) (7.3 MB PDF)

**Lake Locations and Current and Target Lake Levels\***

Lake	Date	Summer Minimum	Target max	100-Year**
Mendota	4/15/2011	850.07	849.60	850.10
				852.8
Monona	4/15/2011	845.02	844.70	845.20
				847.7
Waubesa	4/15/2011	844.61	844.50	845.00
				847.0
Kegonsa	4/15/2011	843.05	843.00	843.50
				845.2

Readings are updated daily from the [United States Geological Survey \(USGS\)](#) and are expressed in feet above sea level. For additional information, see the USGS web site [Real-Time Data for Wisconsin, Yahara River and Lakes](#) or the Wisconsin Department of Natural Resources booklet [Understanding Lake Data](#).

# **Future Management Plans**

- **Yahara Lakes Advisory Group  
Recommendations**
- **Yahara CLEAN**
- **Lock & Dam Rehabilitation (Babcock &  
LaFollette)**
- **INFOS**



