

Lake Winnebago Regulation Meeting

USACE Detroit District

October 23, 2012



Agenda

- **Basin Overview**
- **Major Stakeholders**
- **Maintenance and Repair Work**
- **Weather Conditions**
- **2011-2012 Water Level Explanation**
- **2012-2013 Water Level Strategy**
- **Questions**



Fox-Wolf River Basin



Drainage Area

Basin = 6,430 mi²
Lake Winnebago = 206 mi²



Lake Winnebago Controls

Little Lake Butte Des Morts

Menasha Dam
6 Tainter Gates

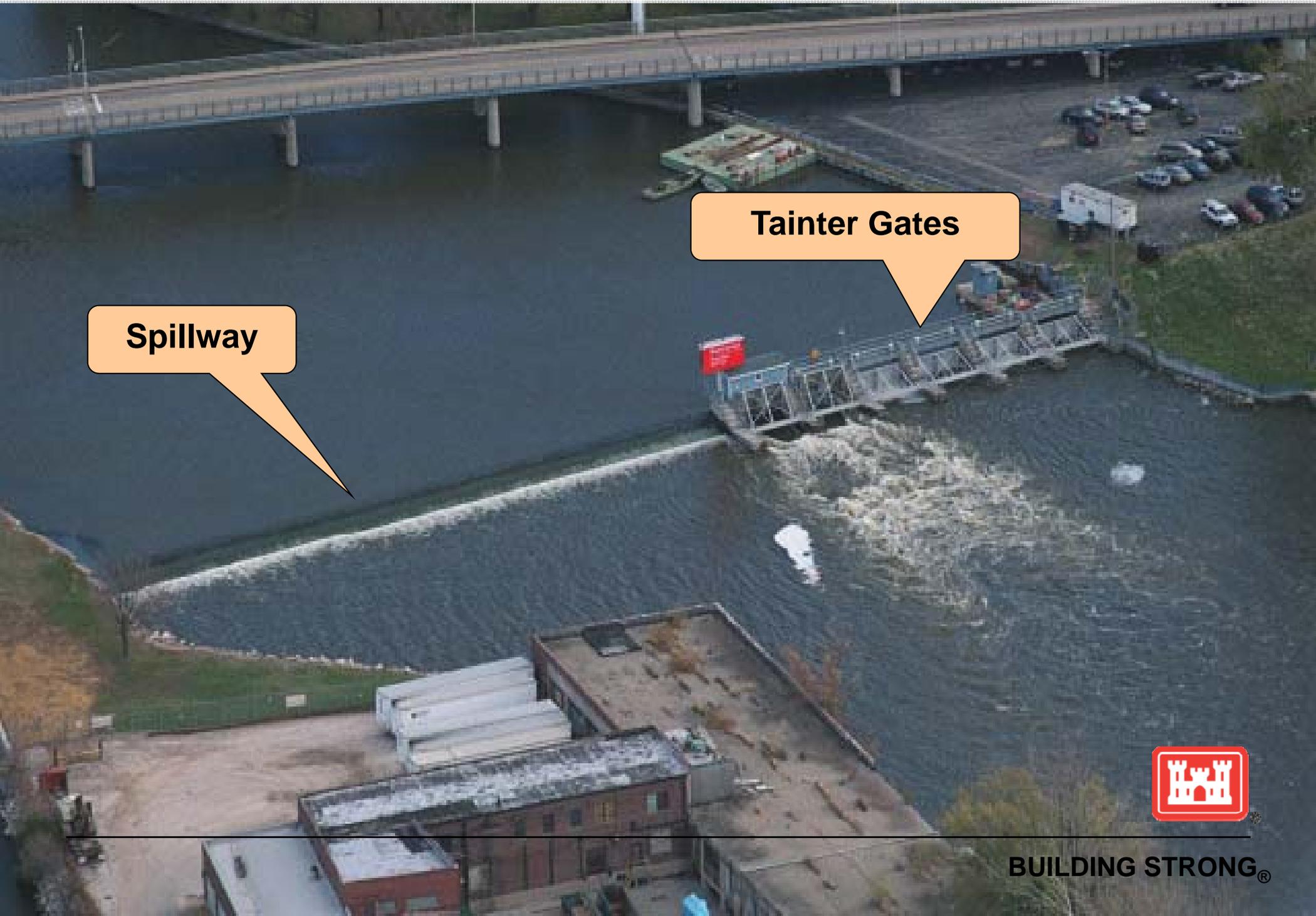
Neenah Dam
9 Needle Gates
5 Tainter Gates

Lake Winnebago



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Menasha Dam



Spillway

Tainter Gates



Neenah Dam

Spillway

Tainter Gates

Needle Gates



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Major Stakeholders

Upstream Lakes

Wolf River

Lake Poygan

Winneconne

Lake Butte
des Morts

Upper Fox River

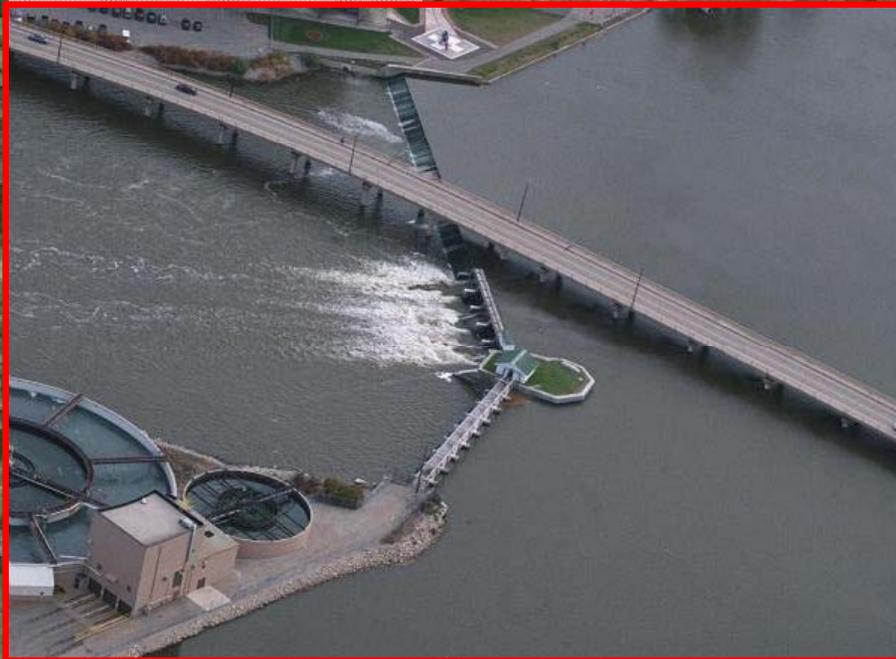
Oshkosh

Lake Winnebago

- Environmental Impacts
 - Wisconsin DNR
 - USFWS
- Hunting and Fishing
- Recreational Boating
- Property Owners

Major Stakeholders

Neenah Pool



Menasha Pool



- Neenah Water Treatment Plant
- Neenah-Menasha Wastewater Treatment Plant
- Kimberly-Clark Neenah Paper Division
- Menasha Water Treatment Plant
- Menasha Utilities
- SCA Tissue North America
- Sonoco U.S. Paper Mills, Inc.

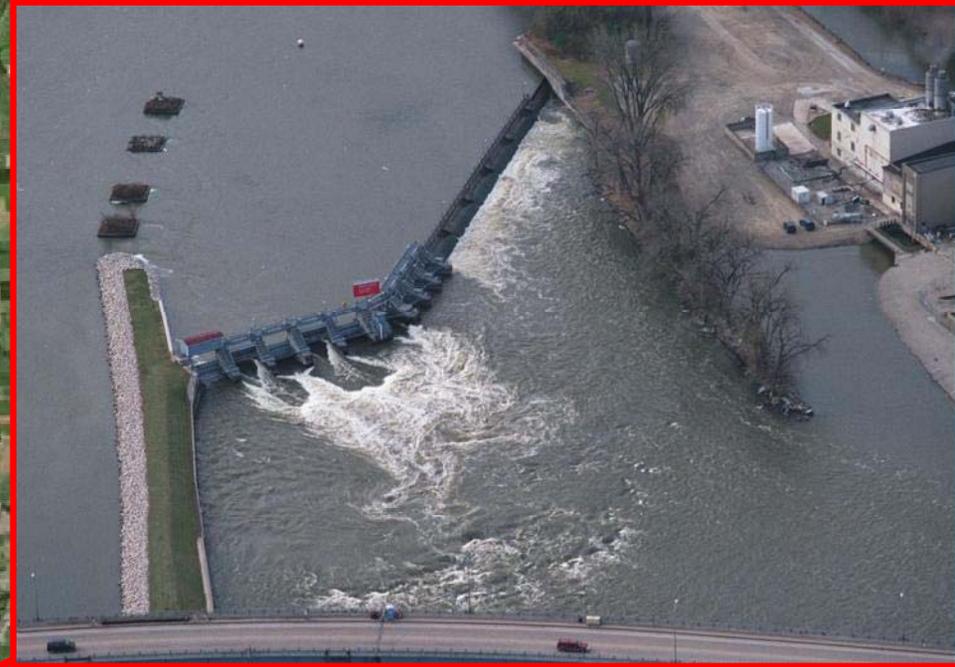
- George A. Whiting Paper Co.
- Environmental Impacts
- Hunting and Fishing
- Property Owner Impacts
- Recreational Boating
 - Neenah Boat and Dock Club
 - Neenah Nodaway Yacht Club
 - South Side Ice Yacht Club
 - Fond du Lac Yacht Club

Major Stakeholders of the Fox River

Upper Appleton Pool



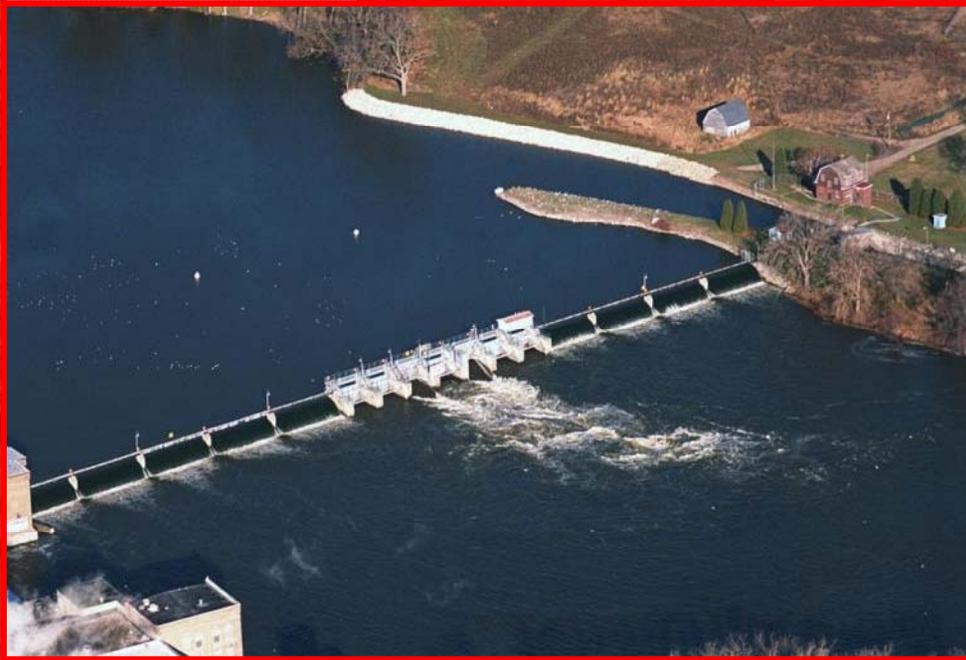
Lower Appleton Pool



- We Energies
- Neenah Paper
- North American Hydro
- Kaukauna Utilities
- Badger State Games
- Recreational Boating
- Appleton Yacht Club

Major Stakeholders of the Fox River

Cedars Pool



- Appleton Wastewater Treatment Plant
- Kaukauna Utilities



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44°21'18.81" N 88°13'48.61" W elev 0 ft

Eye alt 27.20 mi

Imagery Date: 7/24/2011

Major Stakeholders of the Fox River

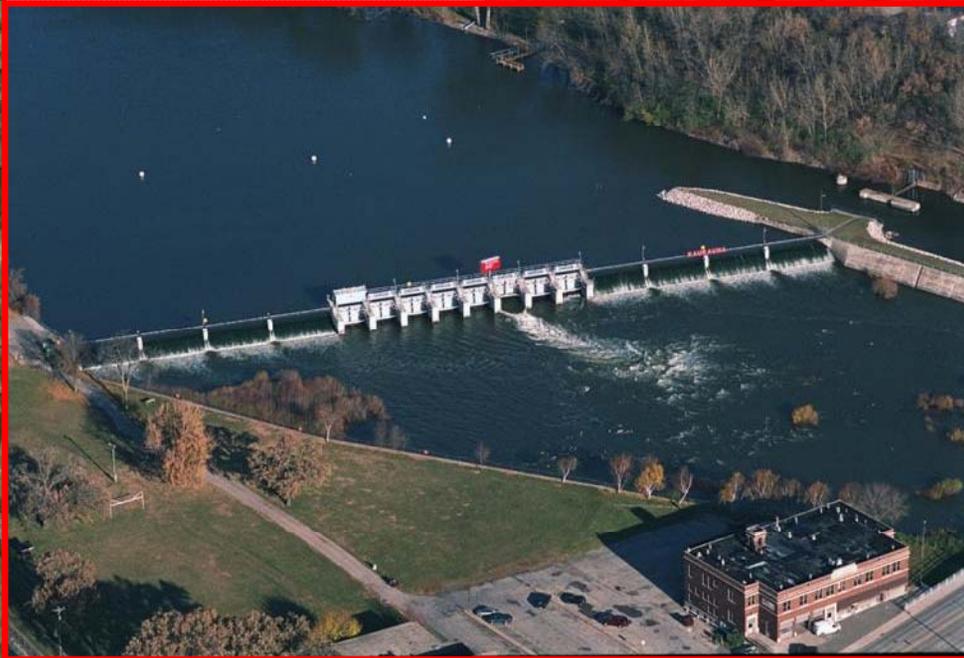
Little Chute Pool



- Kaukauna Utilities
- Wisconsin DOT
- Village of Little Chute

Major Stakeholders of the Fox River

Kaukauna Pool

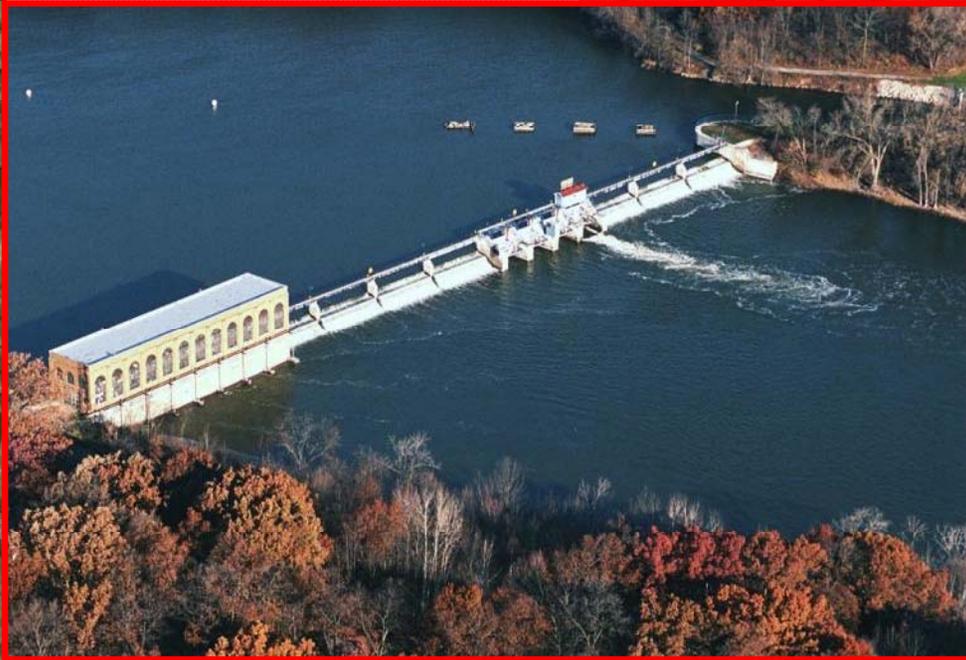


- Heart of the Valley Metropolitan Sewerage Commission
- Thilmany Papers Kaukauna
- Kaukauna Utilities
 - Kayaking Interests
 - Walleye Spawning



Major Stakeholders of the Fox River

Rapide Croche Pool



- Kaukauna Utilities
- Thilmany Papers (Kaukauna)

Major Stakeholders of the Fox River

Little Kaukauna Pool



- Wrightstown Wastewater Treatment Plant
- Bass Spawning (USFWS)
- Duck Hunting
- Recreational Boating
- Water Board Warriors

Major Stakeholders of the Fox River

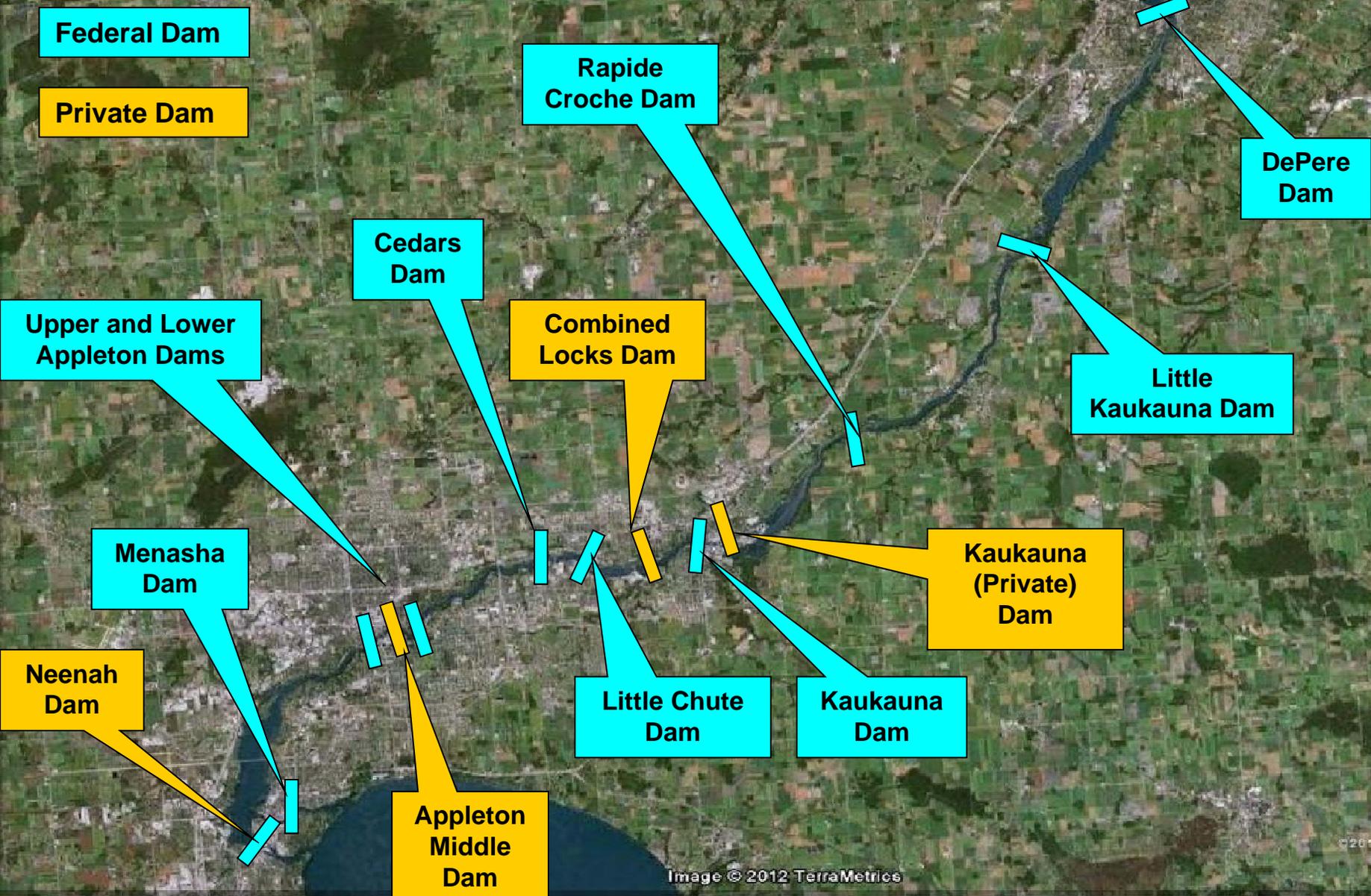
De Pere Pool



- Sturgeon Spawning
- USFWS
- Thilmany Papers De Pere
- Recreational Boating
- City of De Pere

Major Stakeholders of the Fox River

Dams on the Lower Fox River



Major Stakeholders of the Fox River

Locks on the Lower Fox River

Closed

Restoration Completed

Rapide Croche Boat Lift

De Pere Lock

Cedars Lock

Combined Locks Lock

Little Kaukauna Lock

Appleton Locks (4)

Menasha Lock

Kaukauna Locks
1 open
4 closed

Little Chute Lock

Google

Image © 2012 TerraMetrics

Imagery Date: 7/24/2011

44°21'18.81" N 88°13'48.61" W elev 0 ft

Eye alt 27.20 mi

Maintenance and Repair Work

Kaukauna Utilities Hydropower Improvements



Neenah Paper Hydropower Improvements



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Little Chute Before



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Little Chute After



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Work at De Pere Completed!



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Walkway Replacement



Cedars Dam



Little Kaukauna Dam



Ice Shoves



Picture taken in Oshkosh
January 24, 2012





As shown on Fox11 WLUK Green Bay on March 9, 2012



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Algae Blooms



Above Neenah Dam



Harvester Above Neenah Dam



Algae Blooms

Immediately upstream
of Neenah Dam



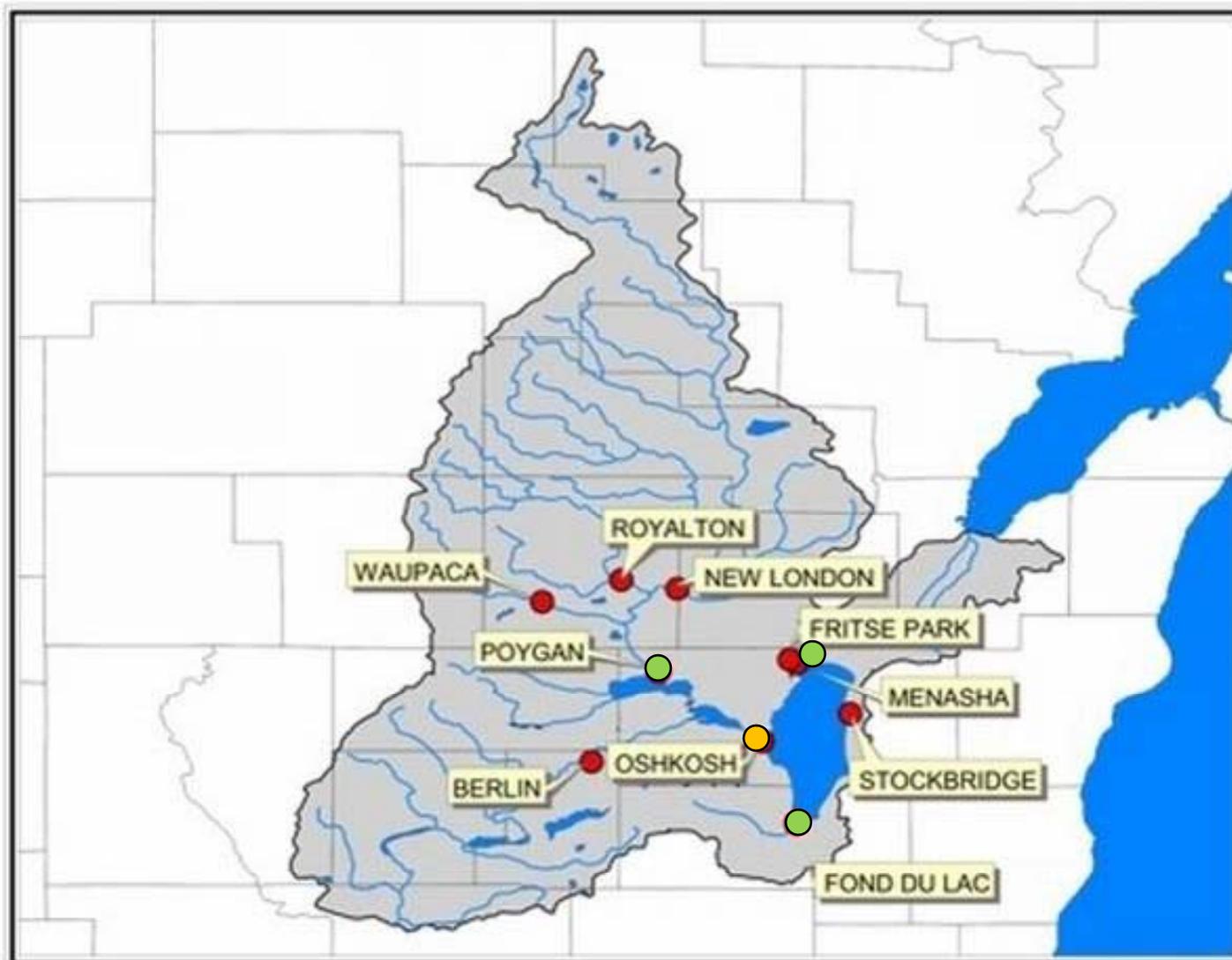
Slough Above
Menasha Dam



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Gage Maintenance & Verification

Data Collection Sites



- Water level and precipitation
- Water level, precipitation and water temperature
- Water level, precipitation, water temperature and weather data

20 0 20 40 Miles

Scale



2011-2012 Weather



Fall (Sep, Oct, Nov)

Warmer than average

Wet – 26% above average precip

Spring (Mar, Apr, May)

Warmest spring on record

Wet - 28% above average precip

Flooding reported in May (Oshkosh, Berlin were hit hardest)

Winter (Dec, Jan, Feb)

2nd **warm**est winter on record

Dry – Well below average snow, little to no snow pack

Ice cover formed and melted several times

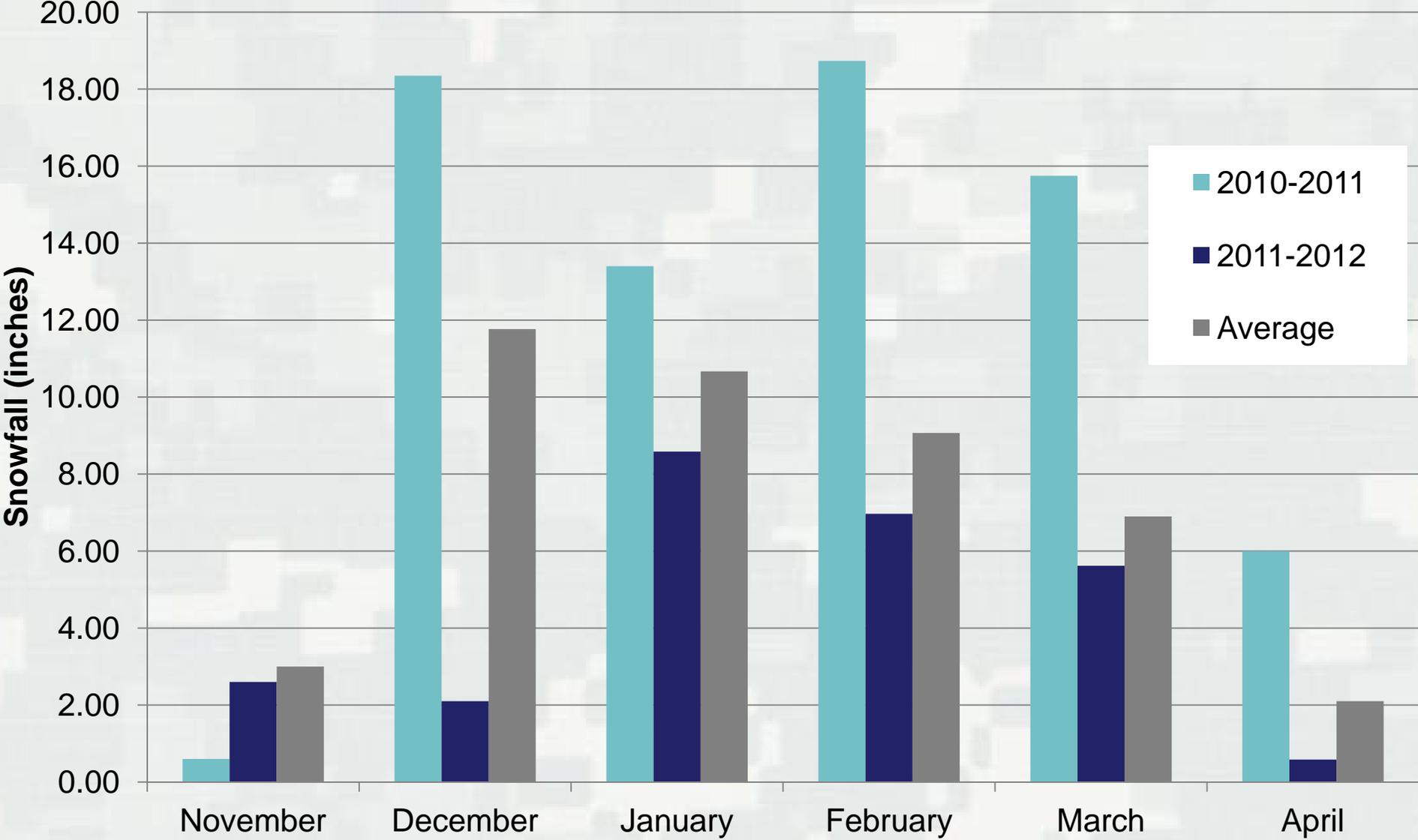
Summer (Jun, Jul, Aug)

3rd **warm**est summer on record

Dry - 30% below average precip



Lake Winnebago Basin Snowfall



Lake Winnebago Ice Out

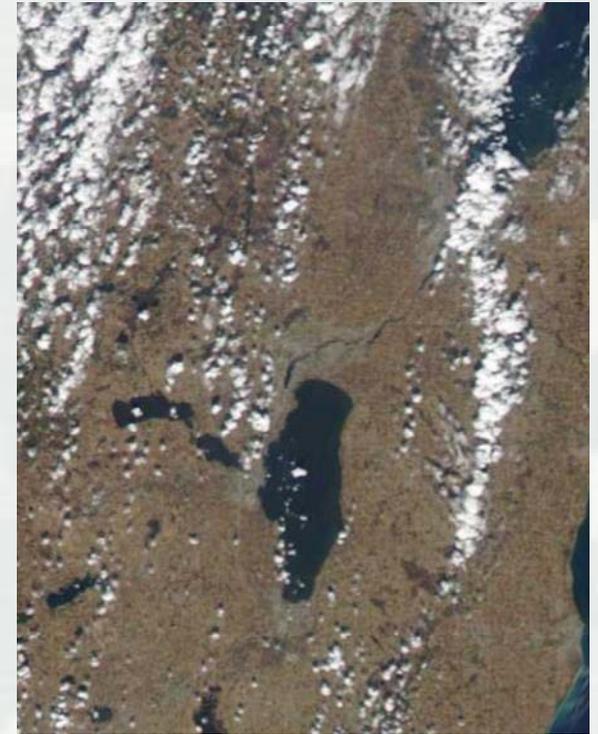
March 6, 2012



March 11, 2012

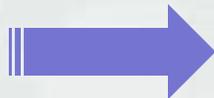


March 18, 2012



Previous Ice Out dates:

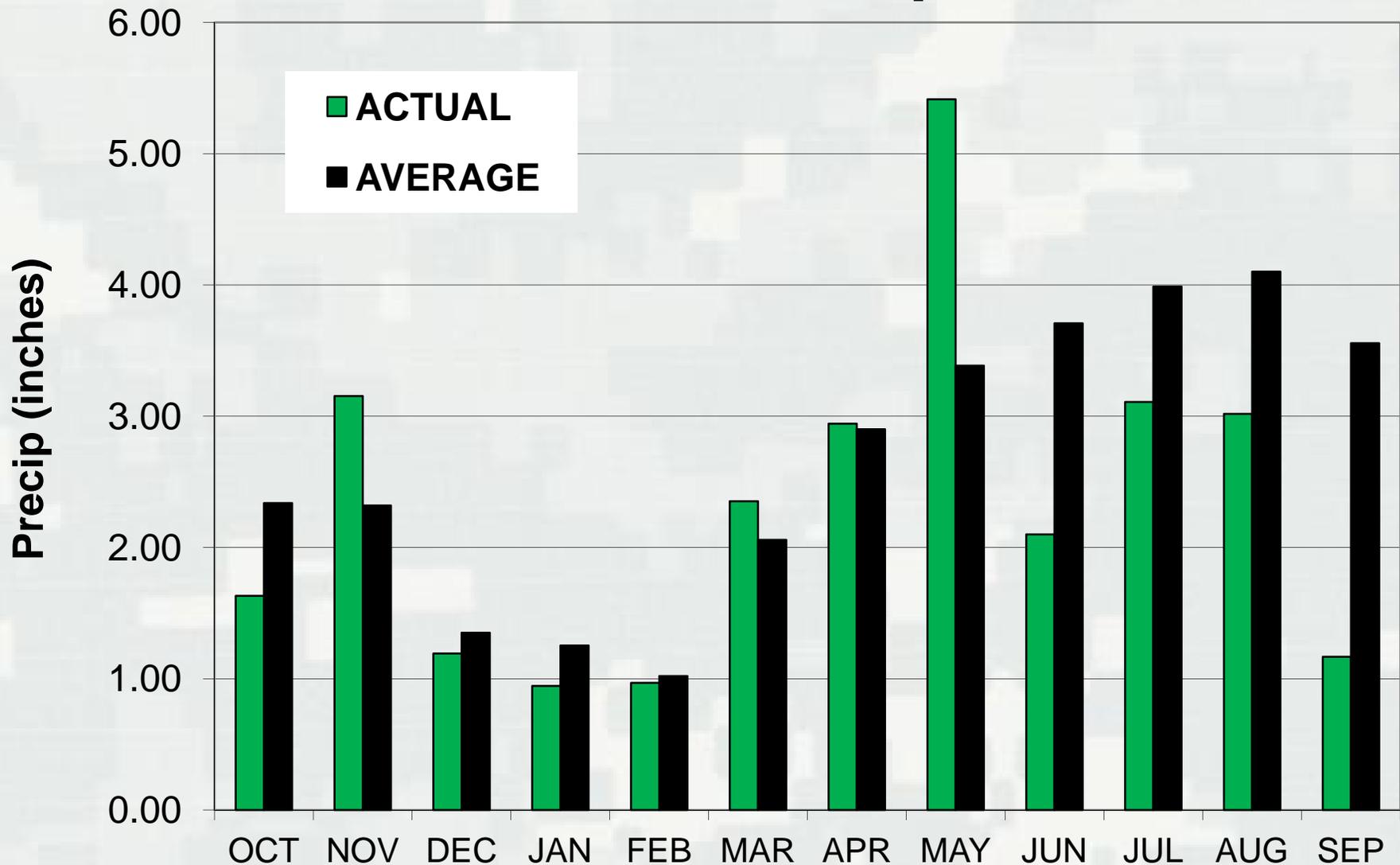
- April 17, 2011
- March 29, 2010
- April 11, 2009
- April 14, 2008
- March 29, 2007
- March 30, 2006



2012 had the earliest ice out in recent years

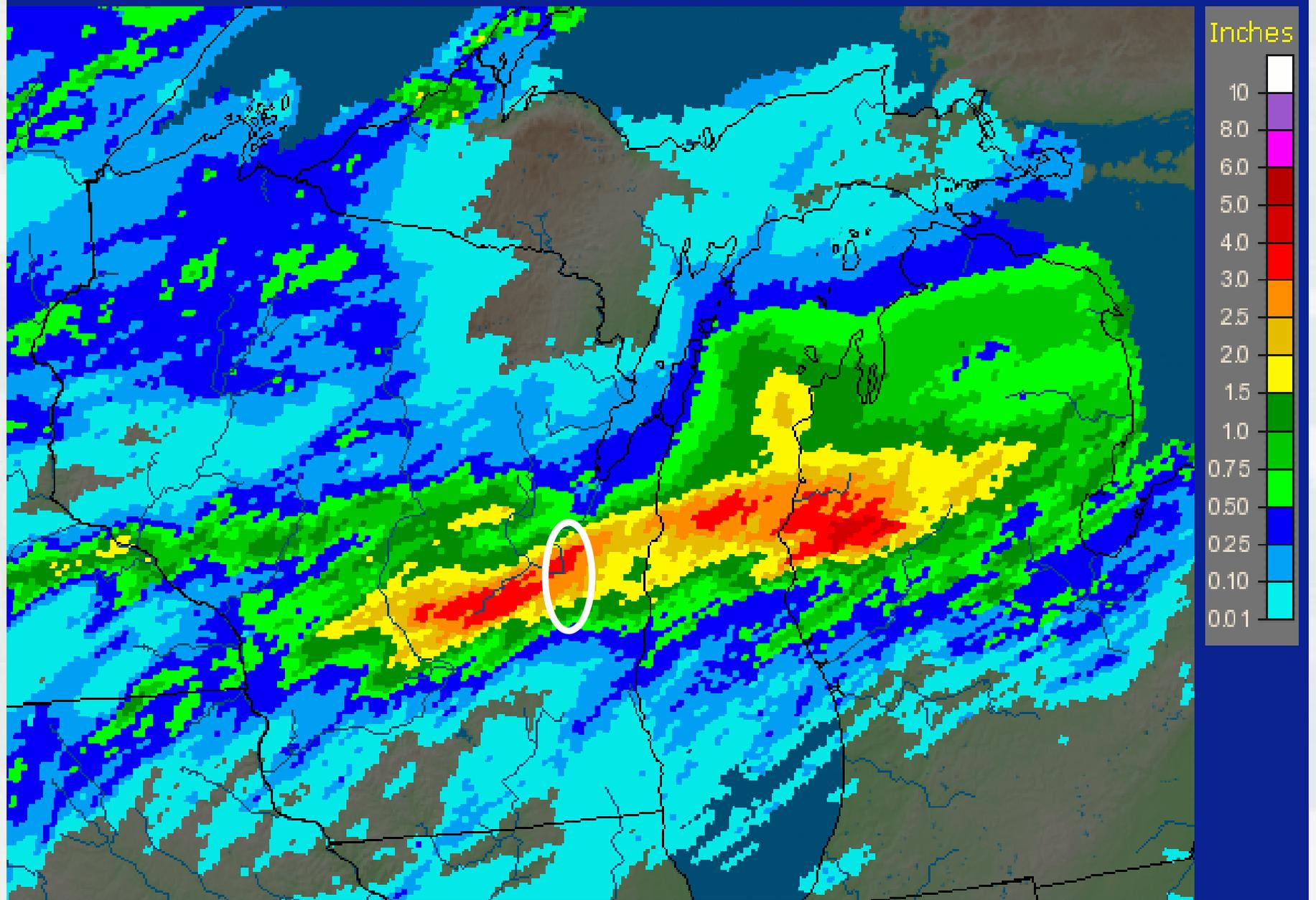


2011-2012 Lake Winnebago Basin-Wide Precipitation



May 3rd Rain Event

ed Precipitation
ed 5/5/12 23:30 UTC



May 3rd Rain Impacts

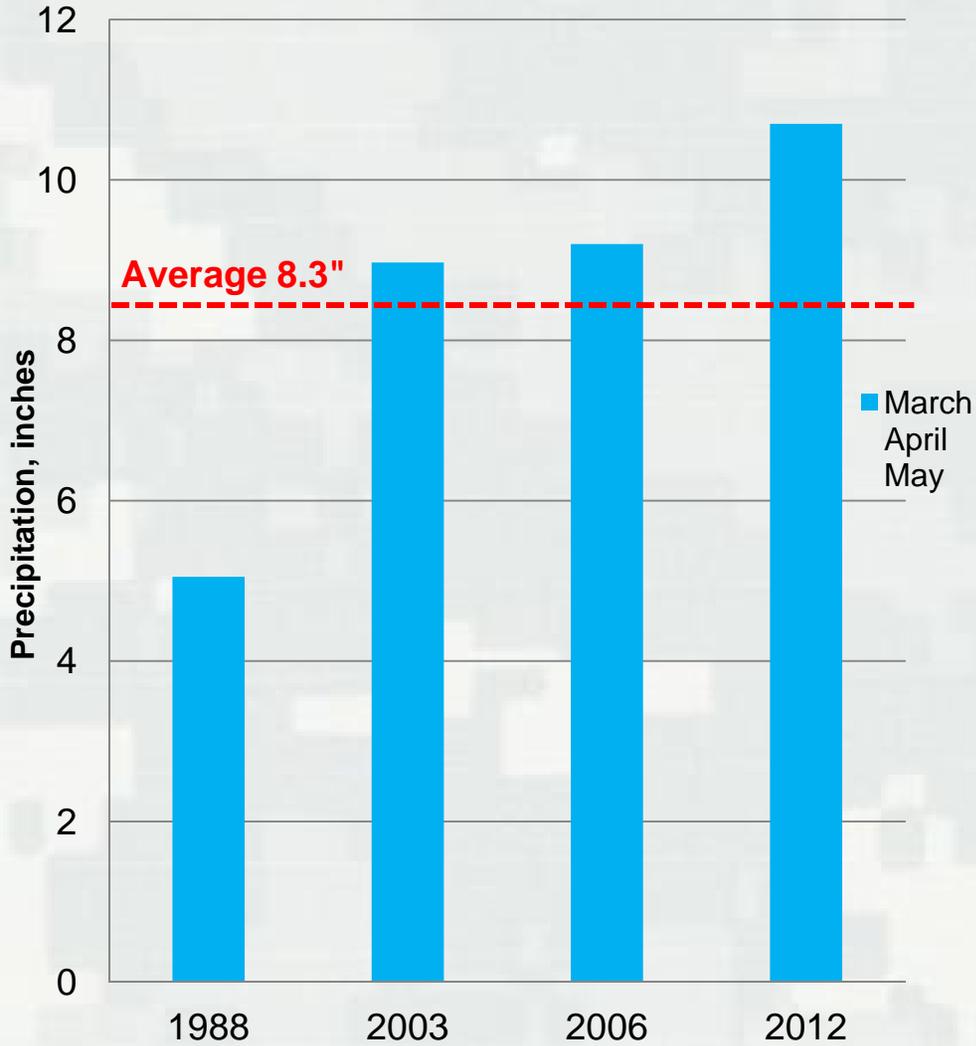
- Minor flooding reported in Oshkosh and Berlin where over 4" of rain fell in 24 hours
- Storm drains overwhelmed
- Upper Fox River at Berlin above minor flood stage for 15 days - crested at 14.3 ft which is 1.3 ft above minor flood stage
- Most flooding occurred in parks and streets
- Lake Winnebago rose over 7 inches in 8 days; peaked at 3.42 ft on May 9
- Lake Poygan peaked at 4.43 ft on May 9; typical level is in the low 3's.



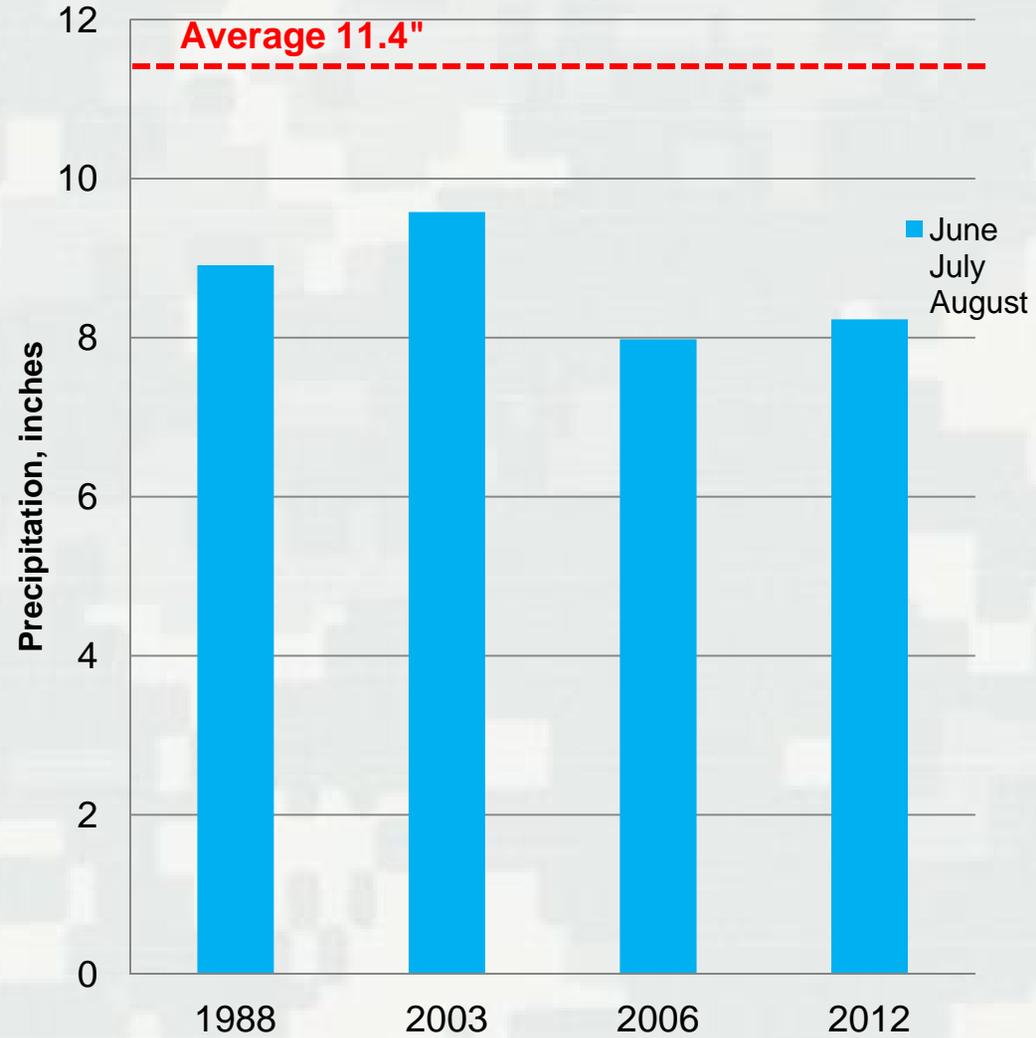
Wet Spring and Dry Summer

(Previous Years with Similar Conditions)

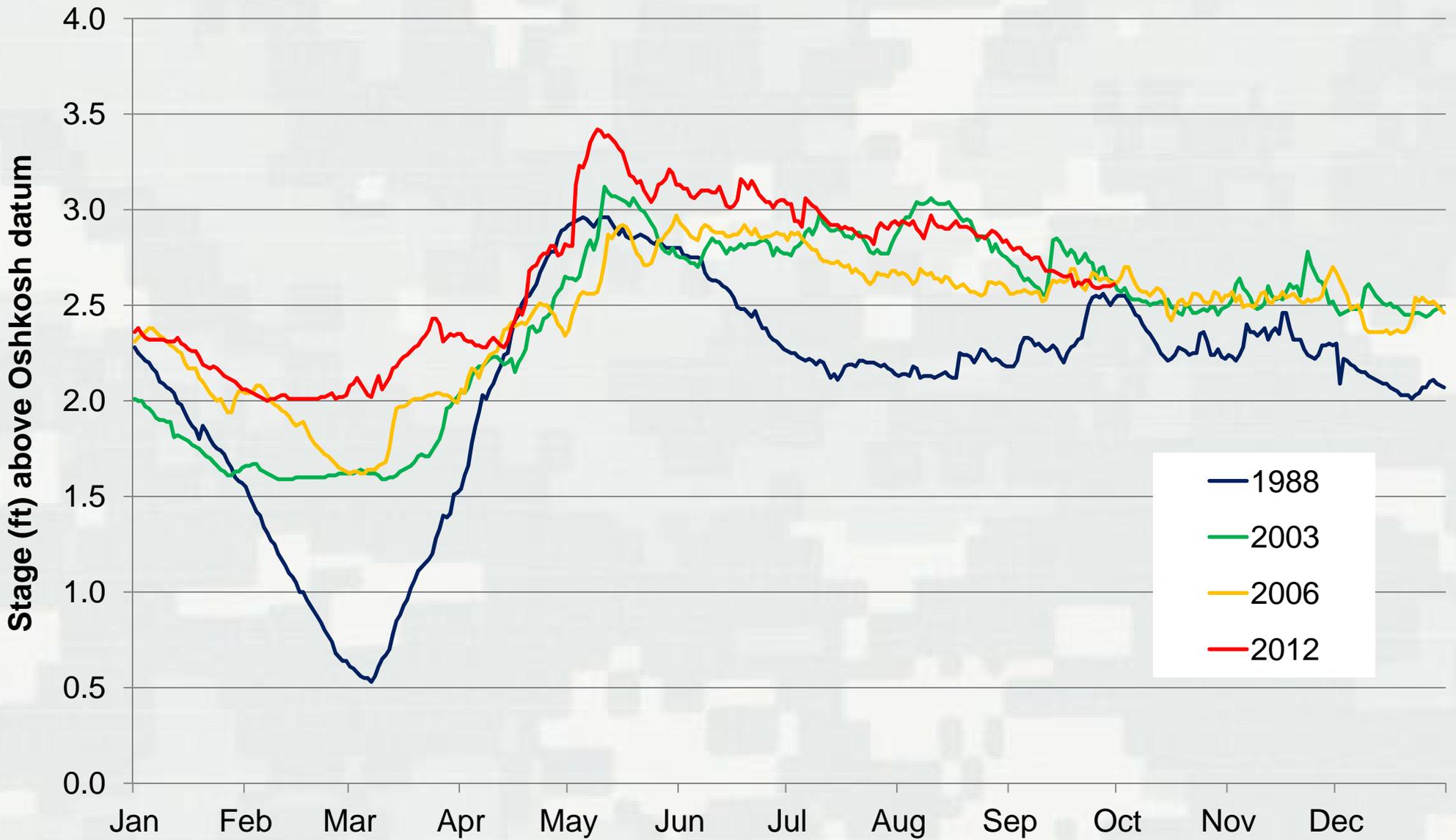
Spring Precipitation



Summer Precipitation



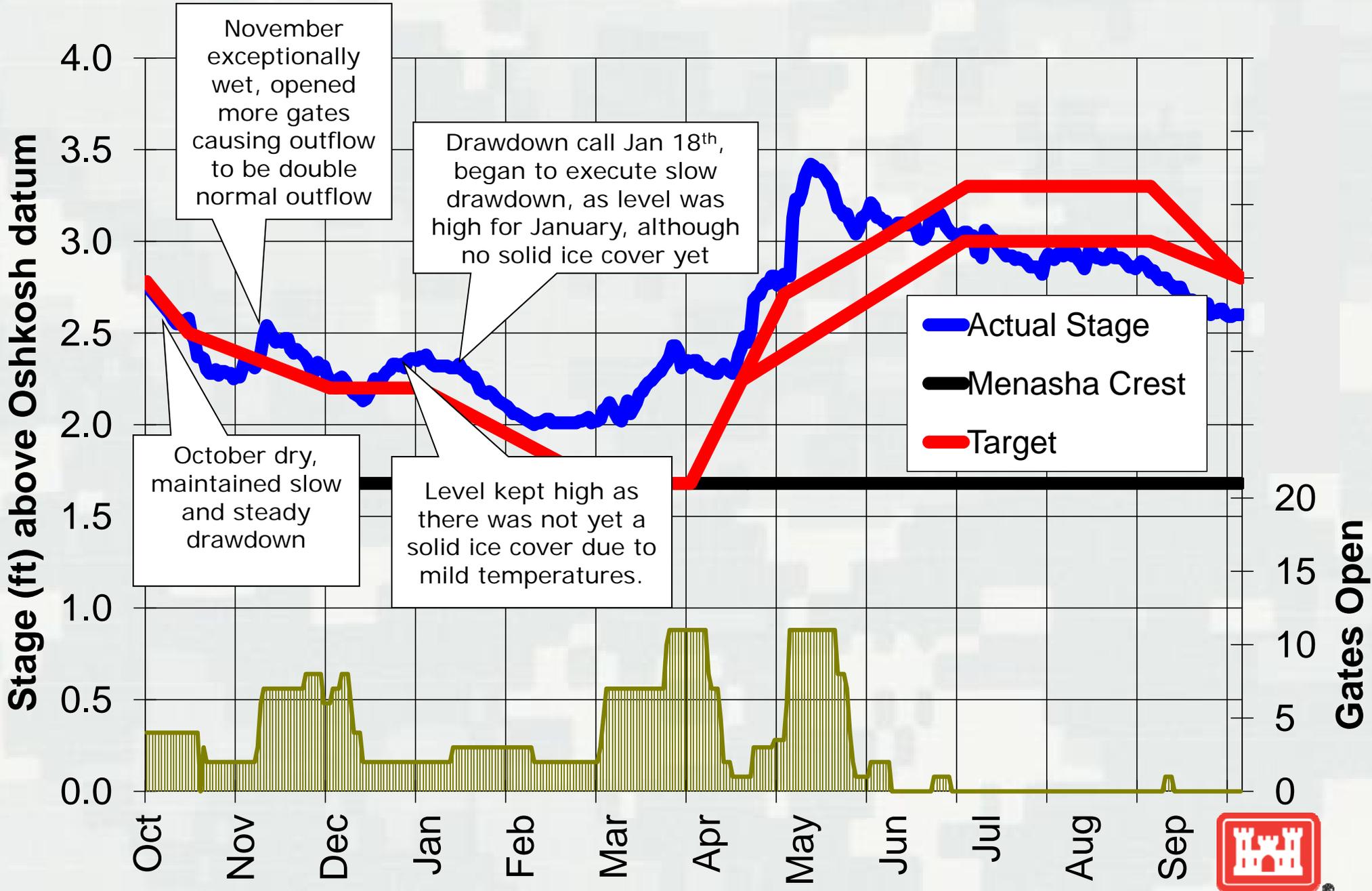
Historic Water Levels



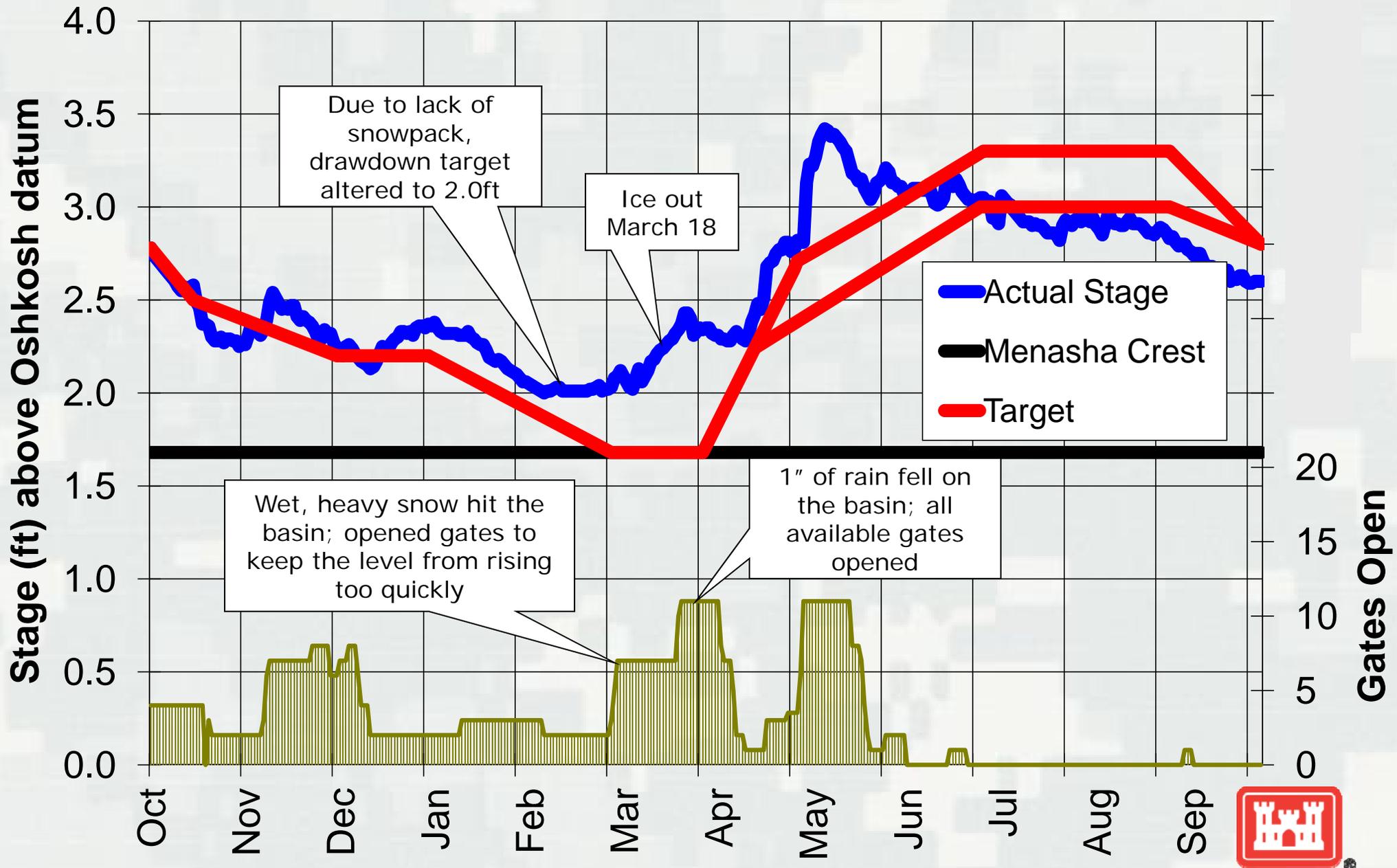
1988 is the drought of record, note the impact on water levels



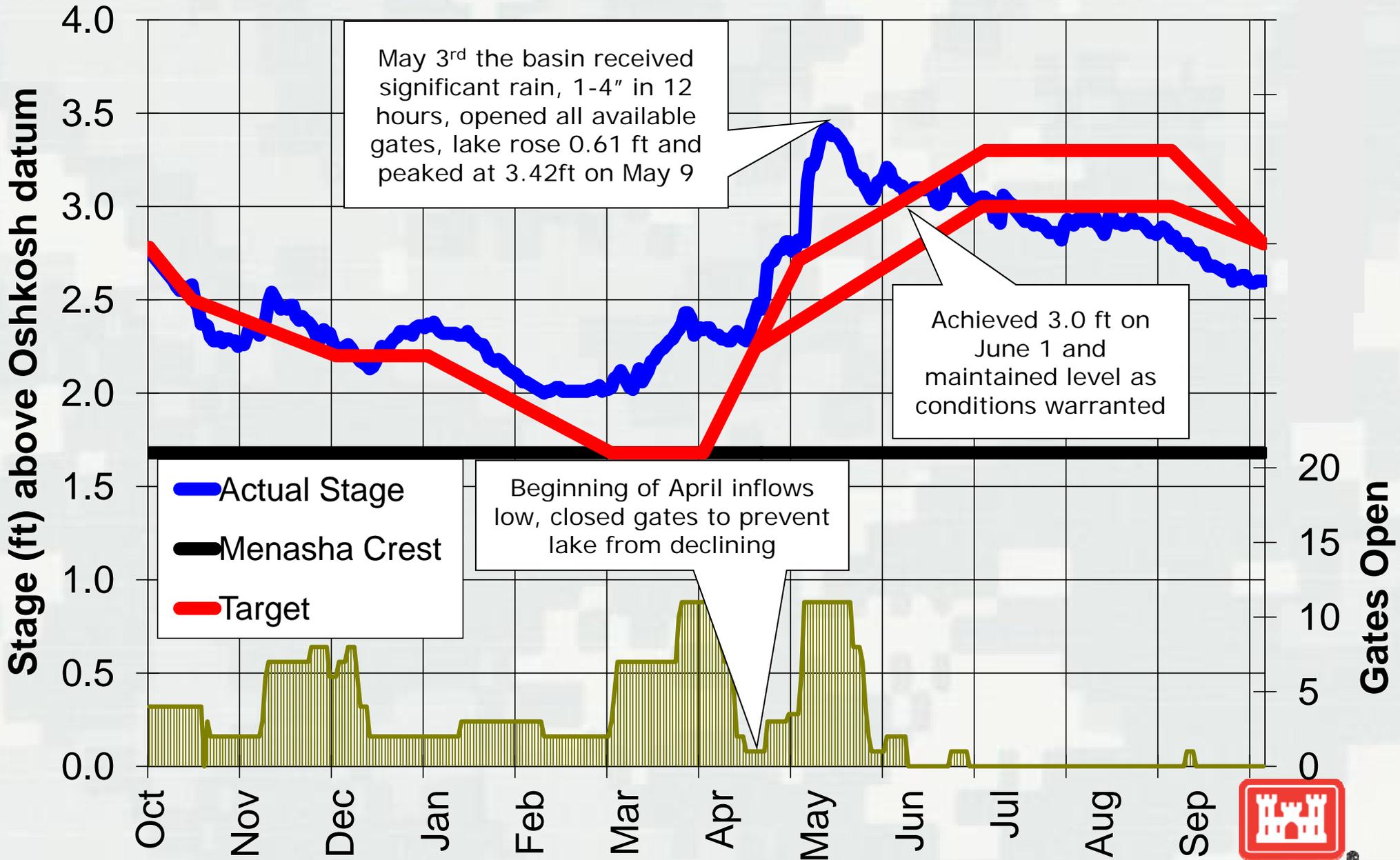
2011-2012 Stage with # of Open Gates



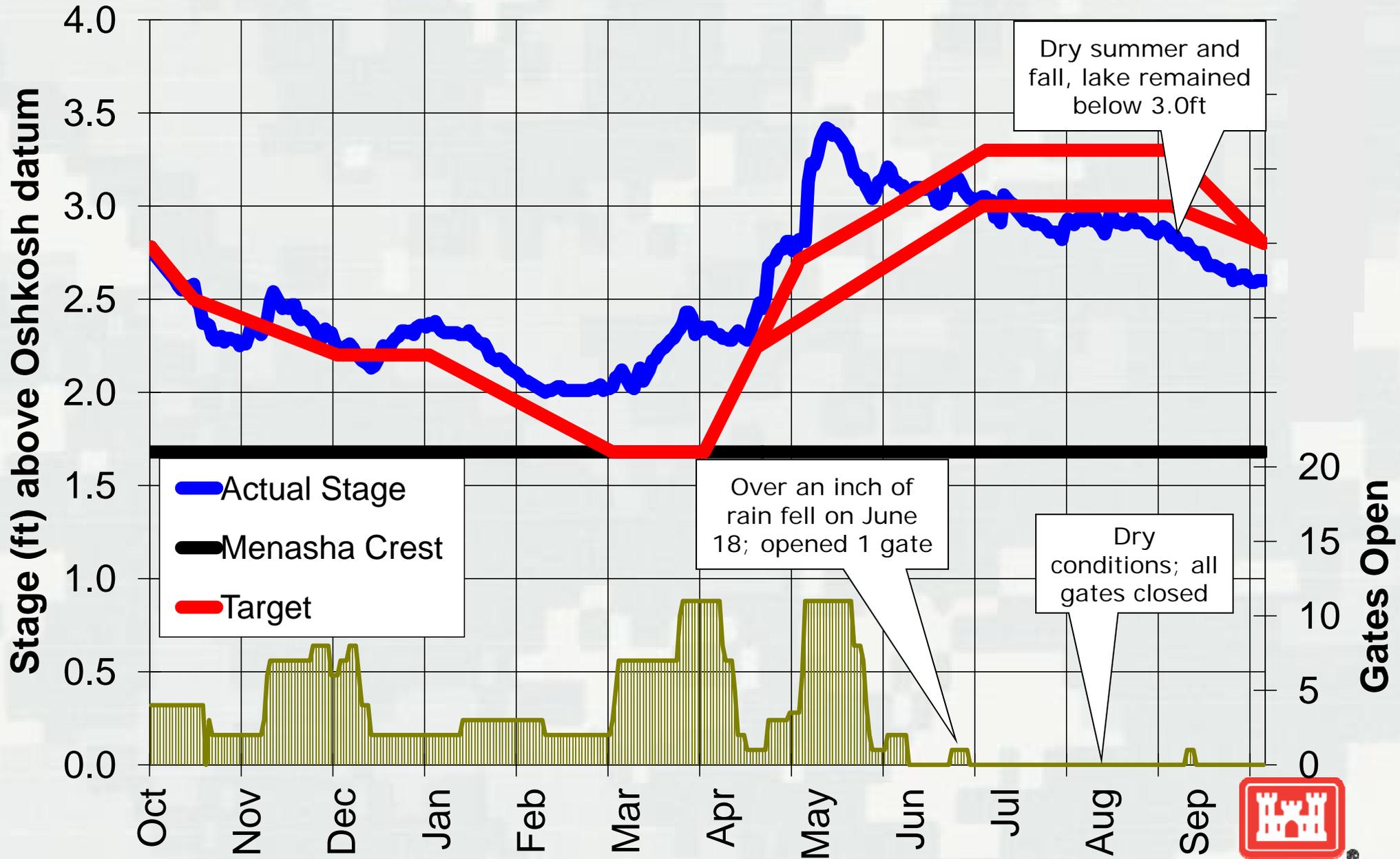
2011-2012 Stage with # of Open Gates



2011-2012 Stage with # of Open Gates



2011-2012 Stage with # of Open Gates

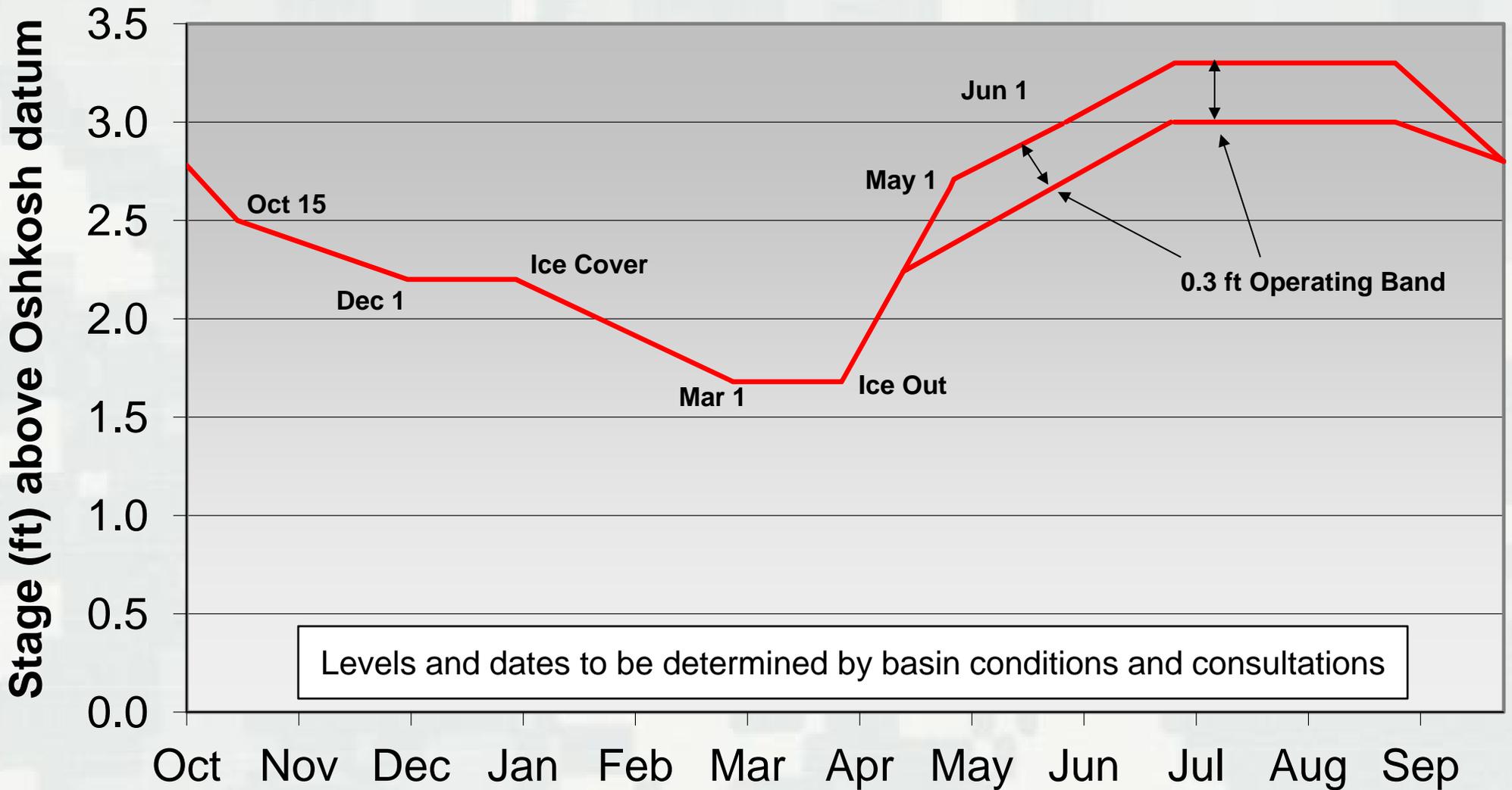


Current Conditions

Lake Winnebago	
Level	2.39 ft
Next Target	2.20 ft , Dec 1
Gate Setting	4 Menasha, 0 Neenah
Inflows	4,400 cfs
Outflows	5,200 cfs



Proposed 2012-2013 Target Water Levels





US Army Corps of Engineers Detroit District

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Lake Winnebago

Important Notices

- [Current Conditions](#)
- [2012 Regulation Meeting Invitation](#)
- [2012 Lake Winnebago Spring Refill Conference Call Minutes](#)
- [REVISED Lake Winnebago Facts Book](#)

Lake Winnebago Levels and Flows

Levels and Flows	
Today's Hourly Data	Yesterday's Hourly Data
This Month's Daily Data	Last Months Daily Data

Historical Data	
Tributary Inflows	Outflows
Water Levels for the Last 2 Months	River Stages for the Last 2 Days
Query of Historic Water Levels	30 Day Graphical Summary of Levels and Flows

Lower Fox River Pool Elevations

Elevation Summaries	
Graphic of Current Pool Elevations	Table of Today's Data

Individual Pool Elevations (Last 4 Hours)	
Appleton Upper - Graph or Table	Appleton Lower - Graph or Table
Cedars - Graph or Table	Little Chute - Graph or Table
Kaukauna - Graph or Table	Rapide Croche - Graph or Table
Little Kaukauna - Graph or Table	DePere - Graph or Table

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QUESTIONS?



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