

STONEWALL JACKSON LAKE WATER CONTROL MANUAL

Public Meeting

May 3, 2012

Weston, WV



US Army Corps of Engineers
BUILDING STRONG



Agenda

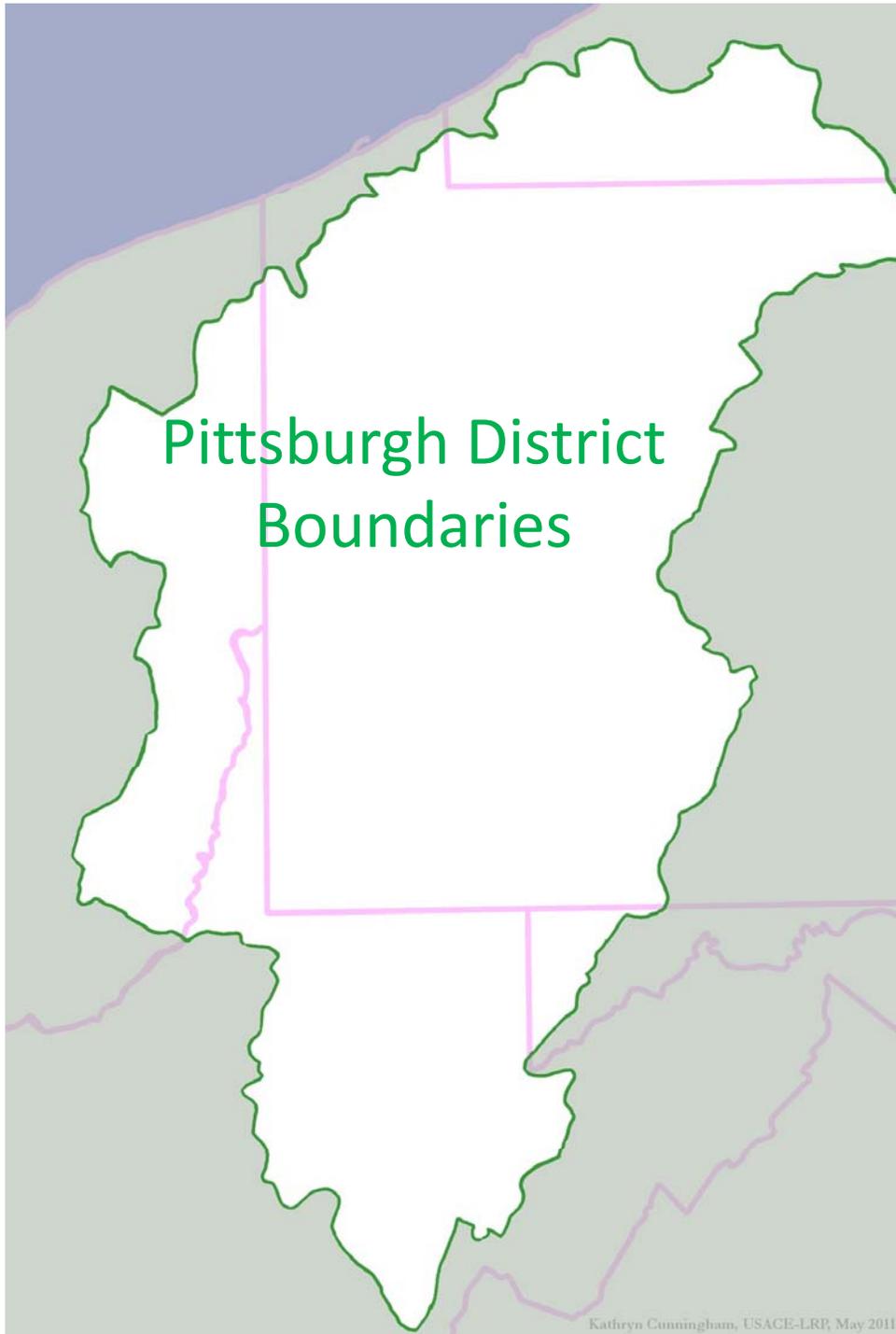
1. Pittsburgh District Overview
2. Stonewall Jackson Lake's water control plan & water control manual
3. Public's Role
4. Q&A session



What does the
U.S. Army Corps of Engineers
Pittsburgh District
do?



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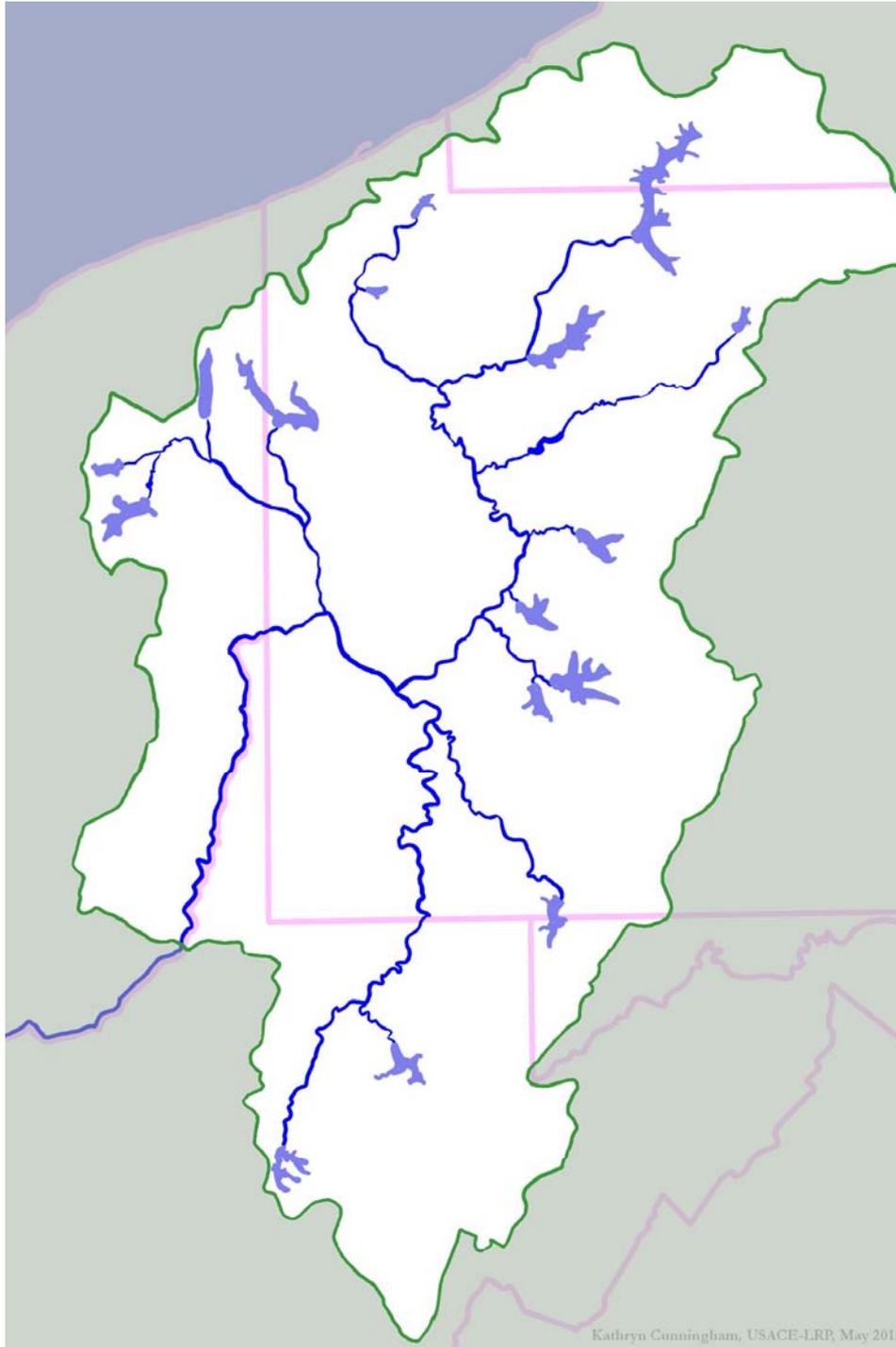


Upper Ohio River Basin

- 26,000 Square Miles in 5 States
- 10 Significant River Systems
- 328 Miles of Navigable Waterways
- 23 Navigation Locks and Dams
- 16 Multi-Purpose Flood Risk Management Projects
- 80 Local Flood Risk Management Projects
- Serving 5.5 Million People



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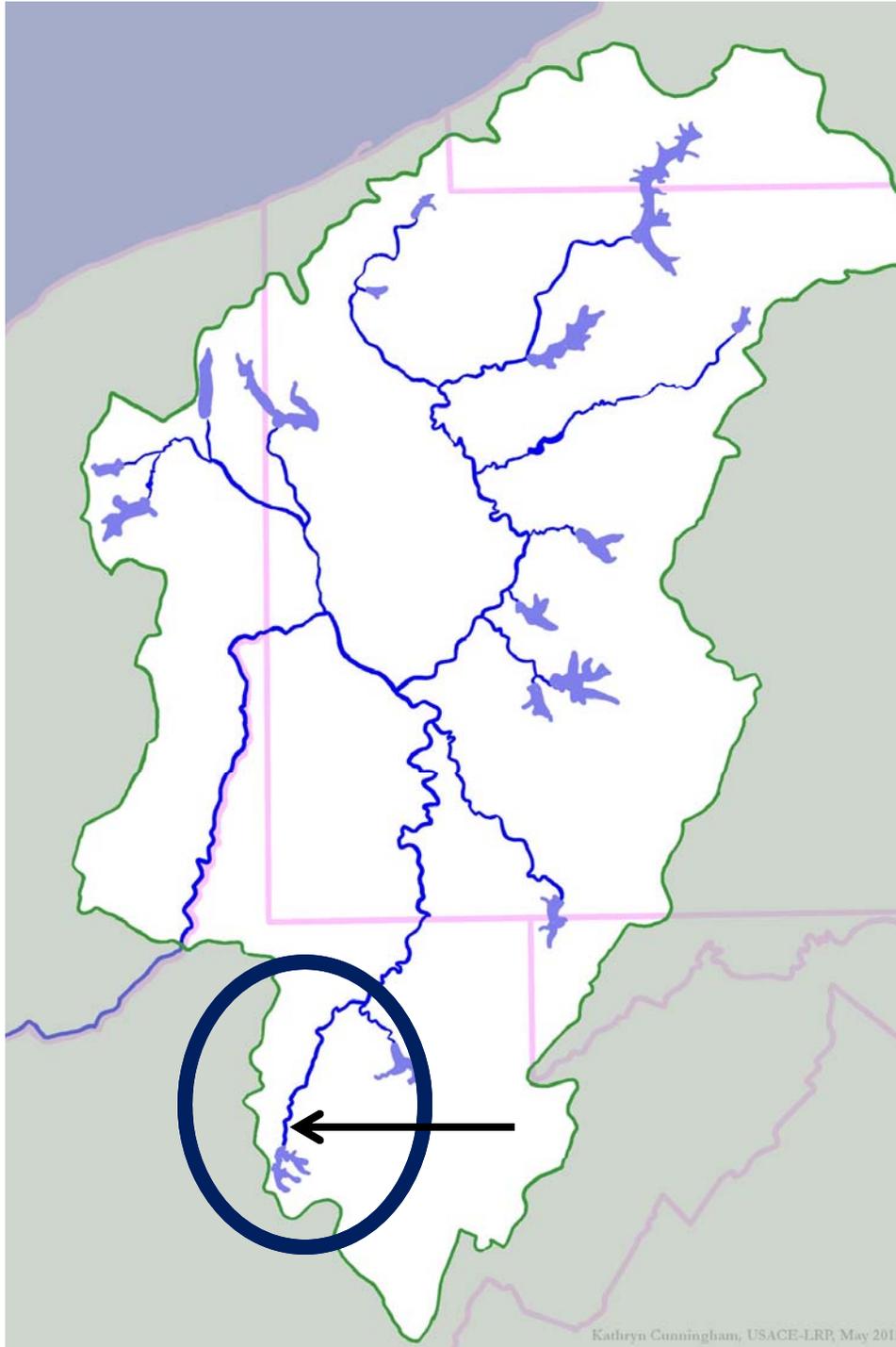
Kathryn Cunningham, USACE-LRP, May 2011

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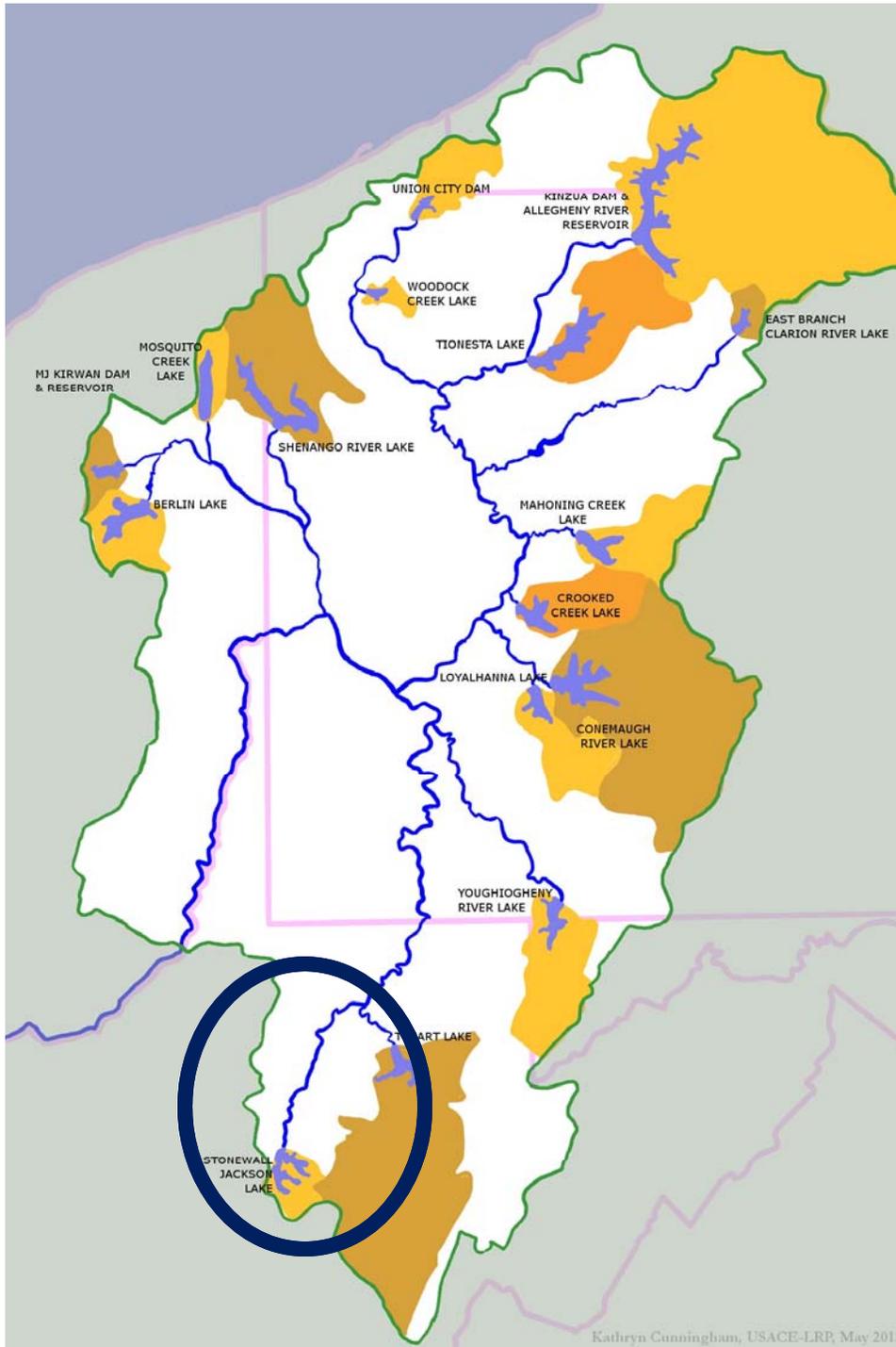


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Shenango River Lake
FY2011 – \$10,423,000
Since 1965 - \$171,126,000

Woodcock Creek Lake
FY2011 – \$192,000
Since 1973- \$33,723,000

Union City Dam
FY2011 – \$3,396,000
Since 1971- \$80,084,000

Kinzua Dam/Allegheny River Reservoir
FY2011 – \$46,535,000
Since 1965- \$1,266,049,000

Mosquito Creek Lake
FY2011 – \$135,097,000
Since 1944- \$415,009,000

East Branch Clarion River Lake
FY2011 – \$4,340,000
Since 1952- \$91,042,000

Michael J. Kirwan Lake
FY2011 – \$111,810,000
Since 1944- \$749,301,000

Tionesta Lake
FY2011 – \$22,200,000
Since 1940- \$70,521,000

Berlin Lake
FY2011 – \$292,099,000
Since 1943- \$1,685,295,000

Mahoning Creek Lake
FY2011 – \$12,578,000
Since 1941- \$686,441,000

**Pittsburgh District
Flood Damages Prevented**
FY2011 – \$745,553,000
Project Lifetime - \$11,026,156,000

Crooked Creek Lake
FY2011 – \$6,860,000
Since 1940- \$548,302,000

Conemaugh River Lake
FY2011 – \$49,278,000
Since 1952- \$2,223,540,000

Loyalhanna Lake
FY2011 – \$7,050,000
Since 1951- \$529,045,000

Stonewall Jackson Lake
FY2011 – \$11,027,000
Since 1990- \$221,581,000

Tygart Lake
FY2011 – \$19,362,000
Since 1938- \$1,187,374,000

Youghiogheny River Lake
FY2011 – \$11,306,000
Since 1943- \$567,723,000

How does the Corps operate Stonewall Jackson Lake?



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WATER CONTROL MANUAL:

- Water control plan (how we operate)
- History of project
- Watershed information
- Legislative background
- Hydrologic data
- Downstream & upstream effects of our dam
- Coordinating agencies



WHY WAS STONEWALL BUILT?

- West Fork River prone to flooding
- Had very poor water quality



Photo of
Clarksburg, WV in
“Election Day
Flood” of 1985



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WHY WAS STONEWALL BUILT?

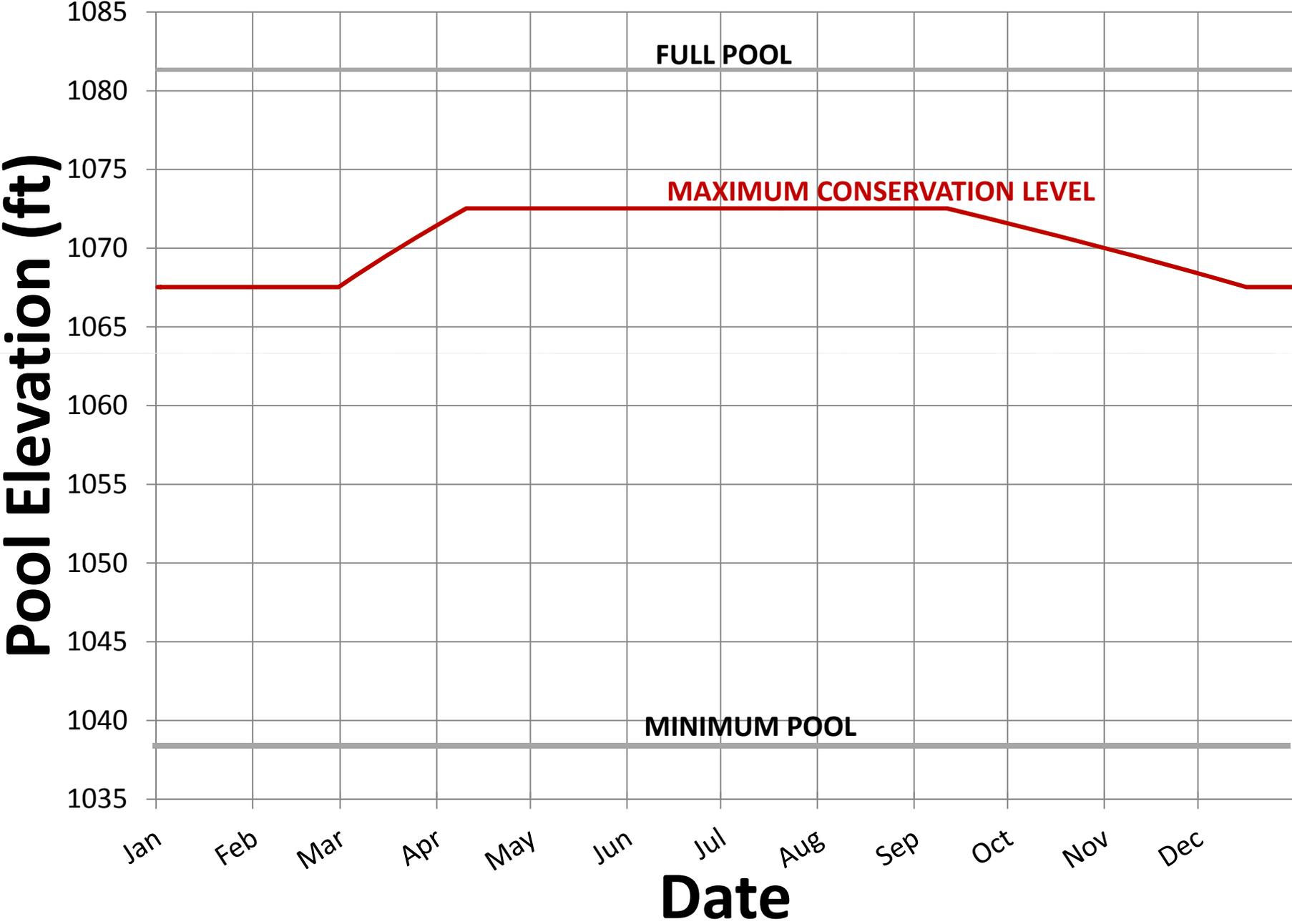
Five authorized purposes from Congress:

- Flood Control
- Water Quality
- Water Supply
- Recreation
- Fish & Wildlife Enhancement

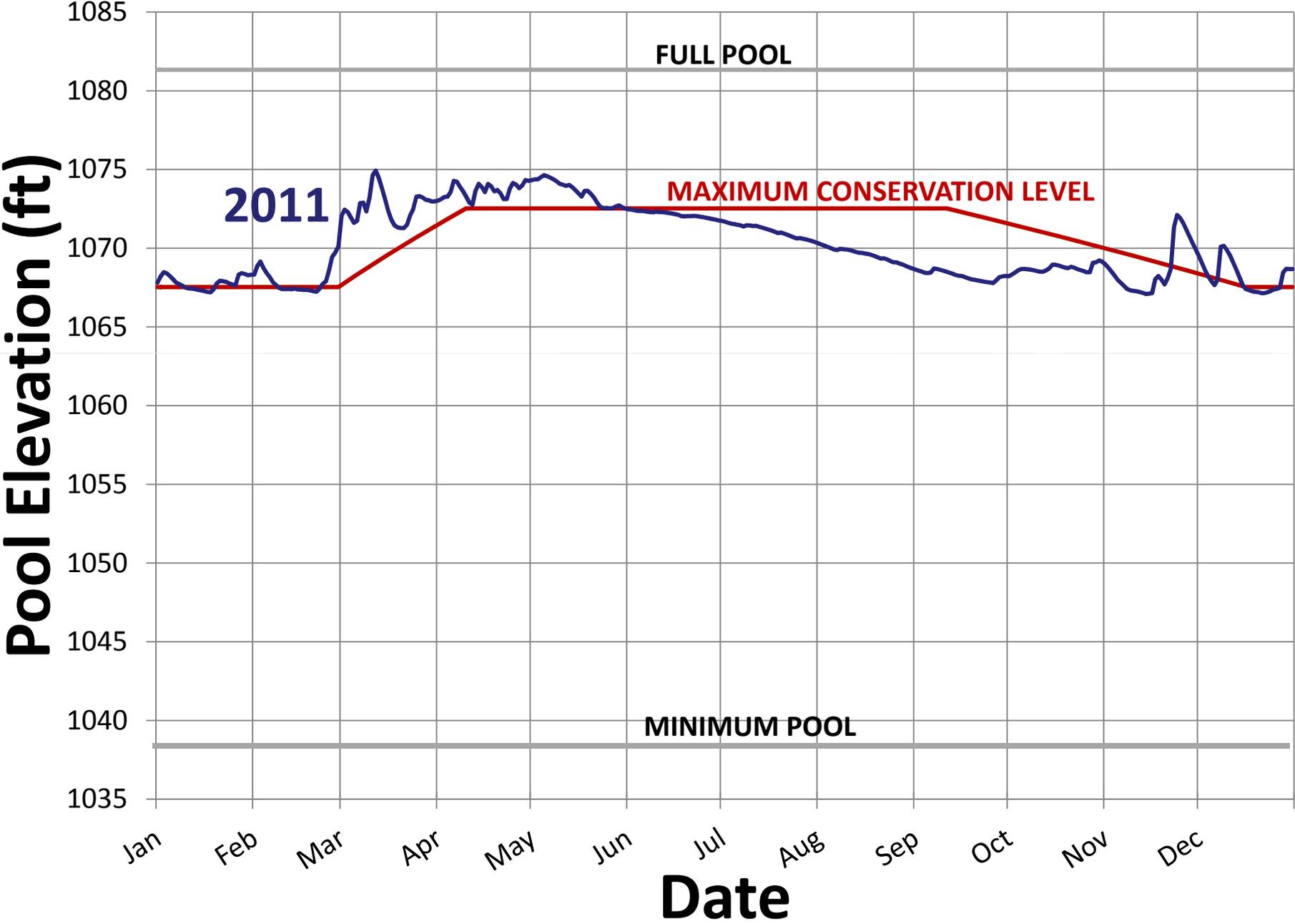


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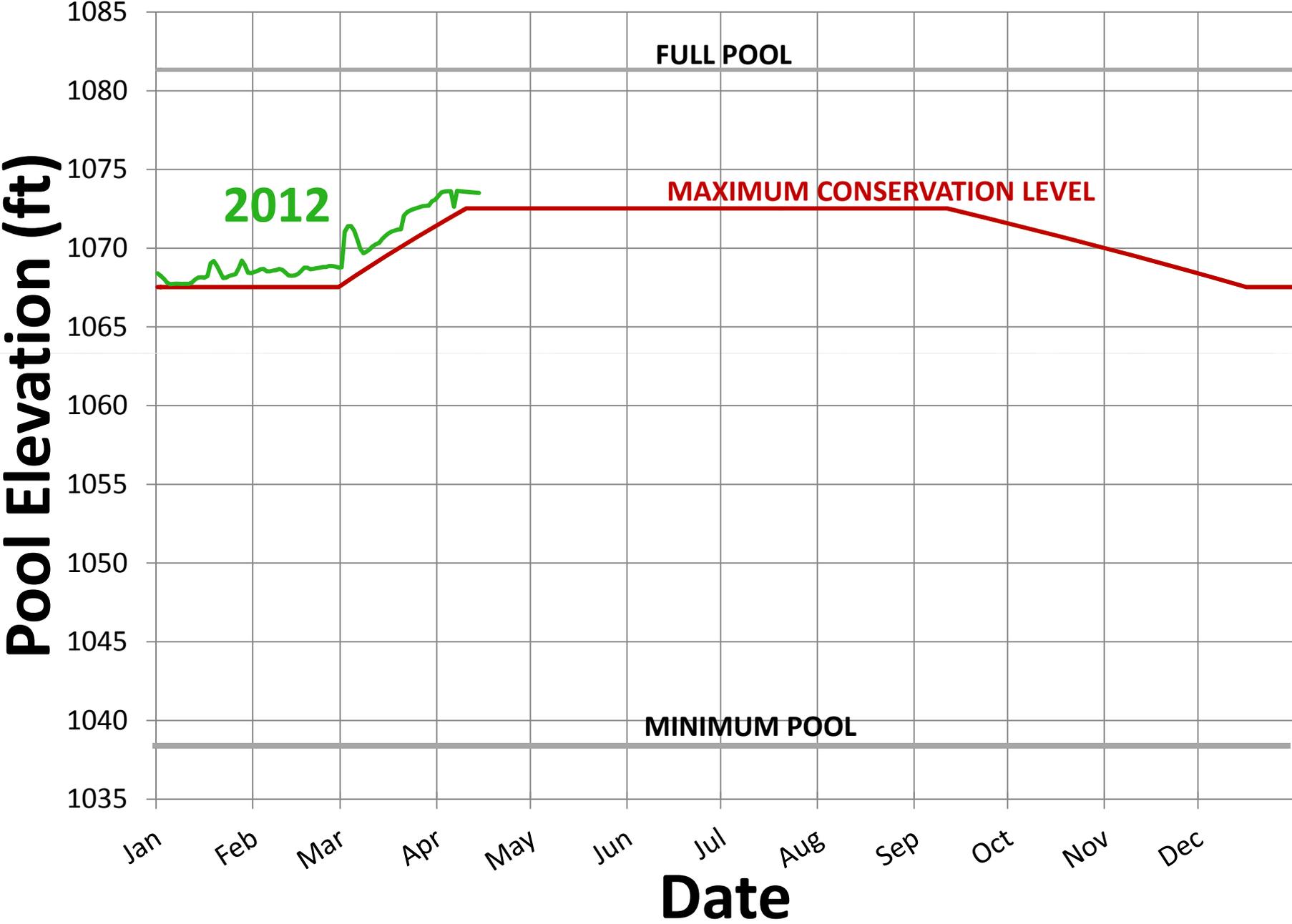
Stonewall Jackson Lake



Stonewall Jackson Lake



Stonewall Jackson Lake

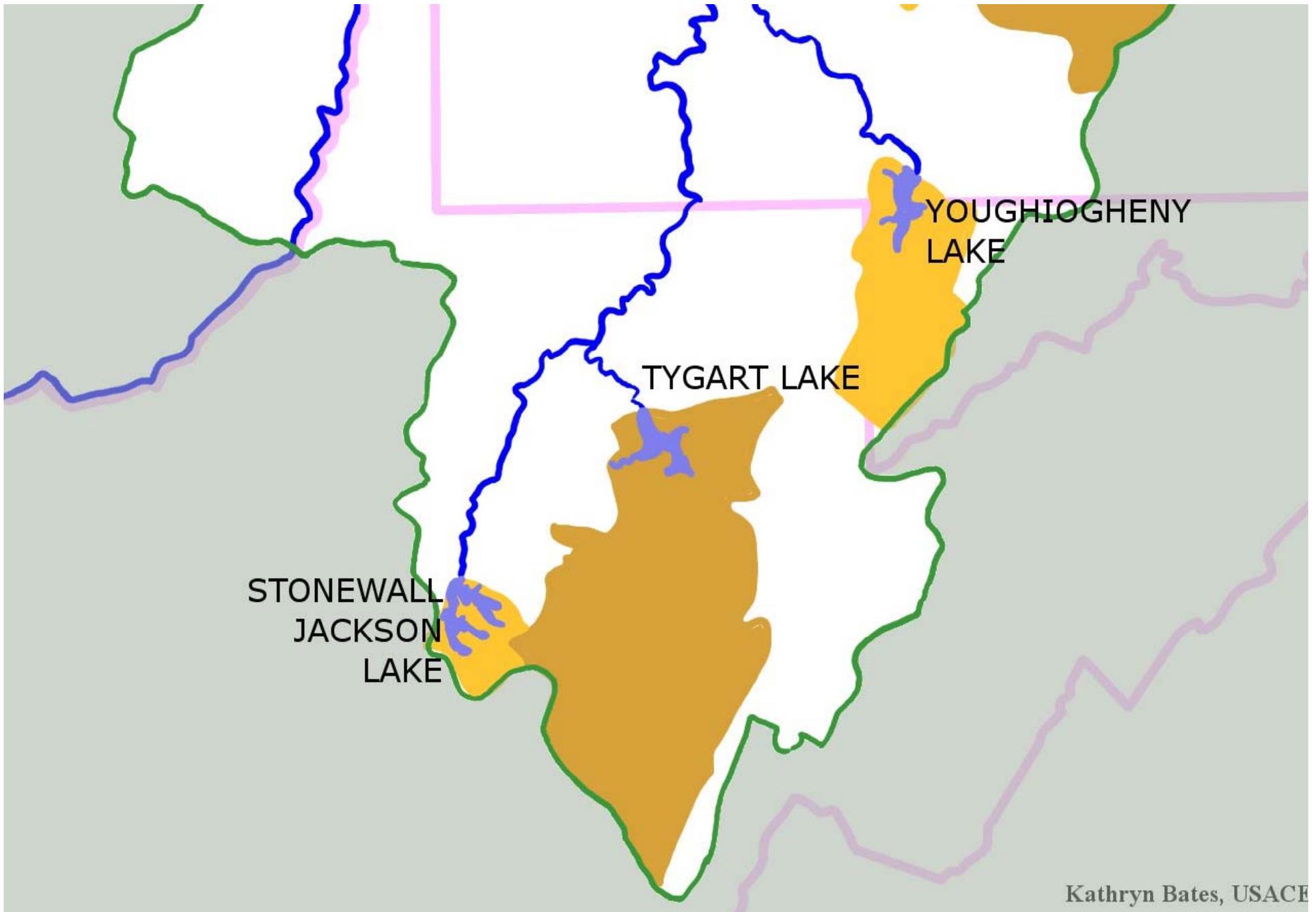


- Flood Control
- Water Quality
- Water Supply
- Recreation
- Fish & Wildlife

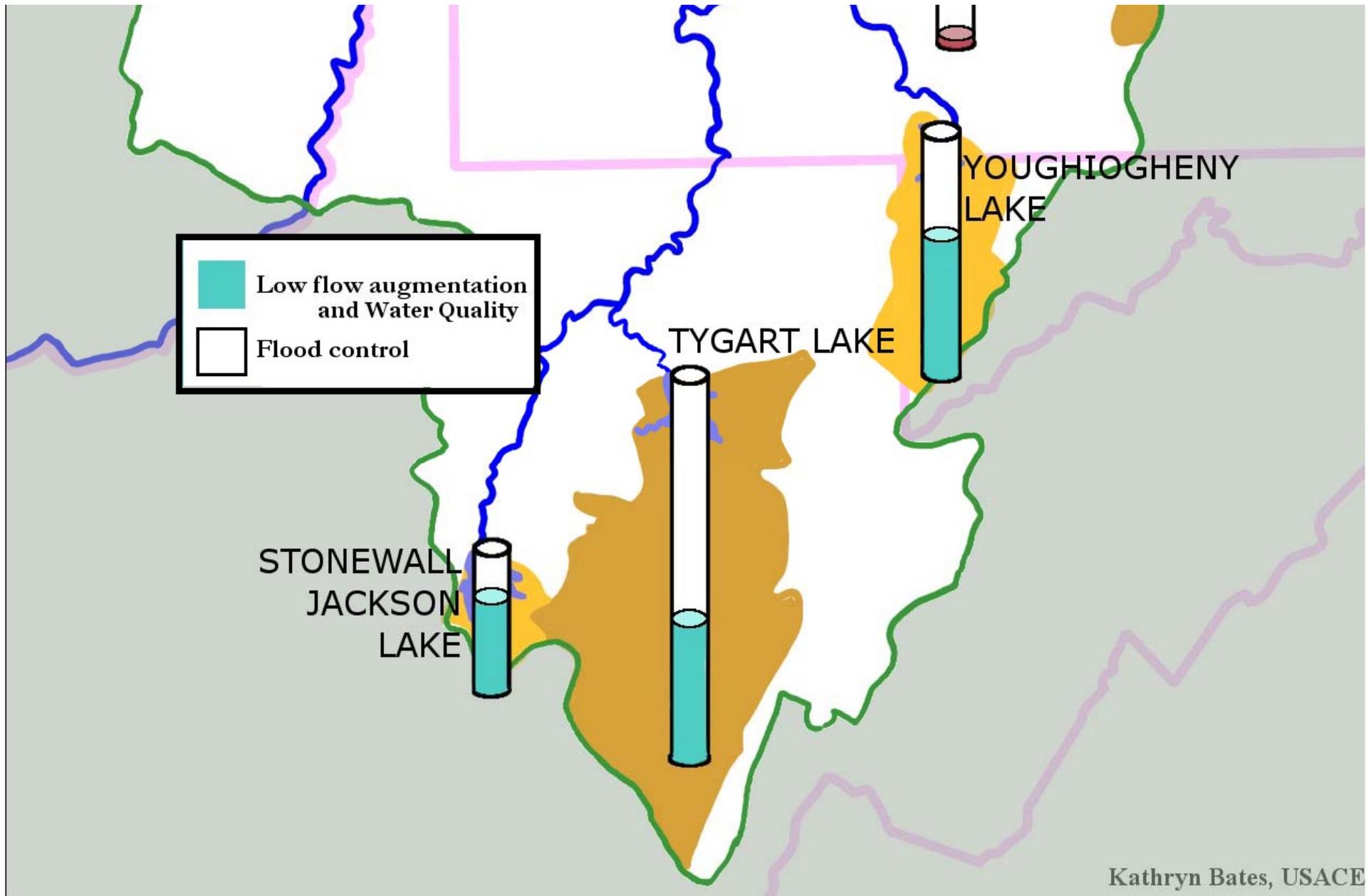


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Watersheds: An area of land that drains to one point.



Flood control works like a bucket. The empty space holds the rain until the rivers aren't flooding anymore.

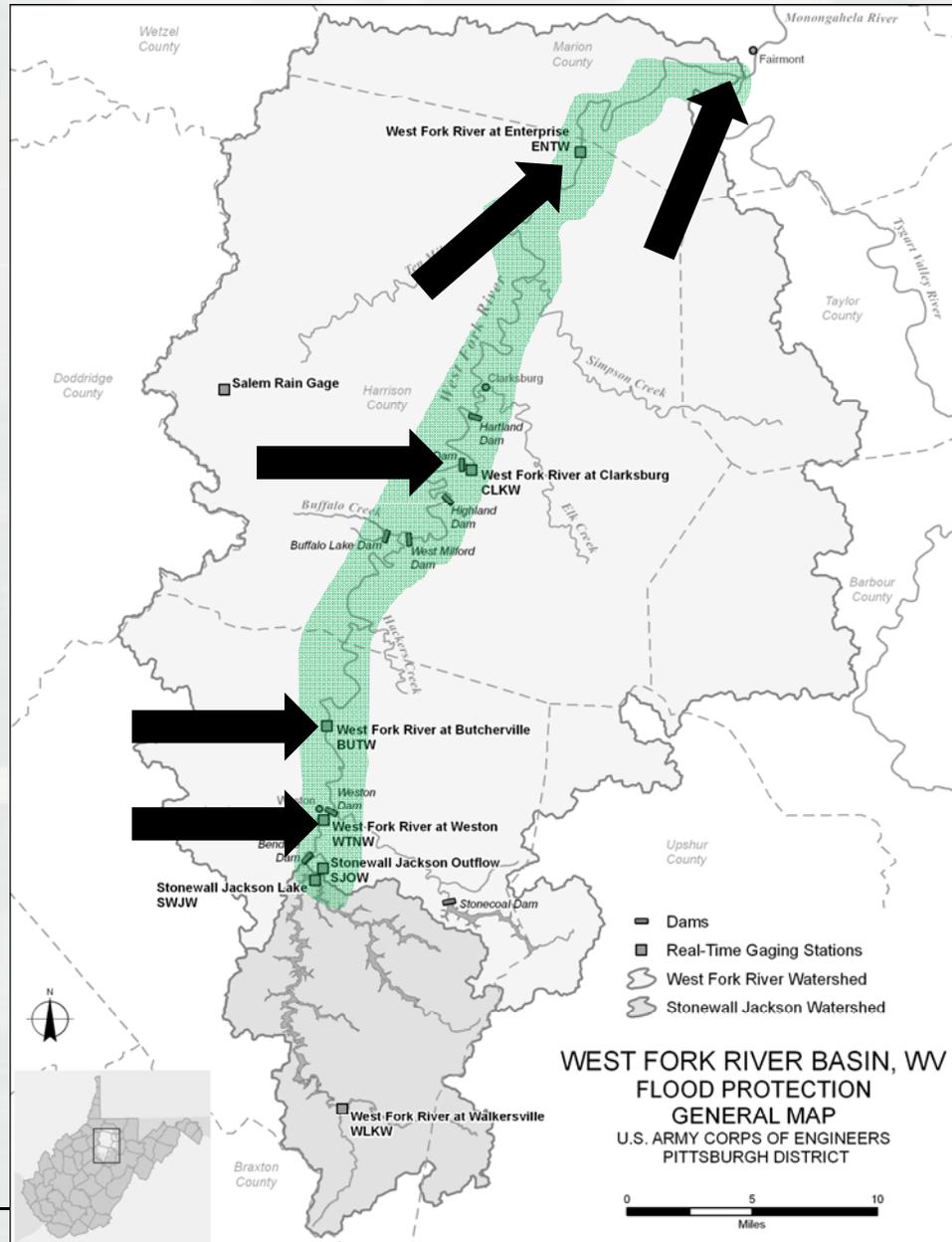


FLOOD OPERATION GUIDELINES

1. Minimize gate opening; store stormwater
2. When downstream conditions allow, we begin releasing excess stormwater
3. Don't exceed channel capacity
4. Maintain good water quality as much as possible
5. Target change in river level: less than 1 ft/hour



Floods are measured at five points downstream of Stonewall Jackson Dam.



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- Flood Control
- Water Quality**
- Water Supply
- Recreation
- Fish & Wildlife

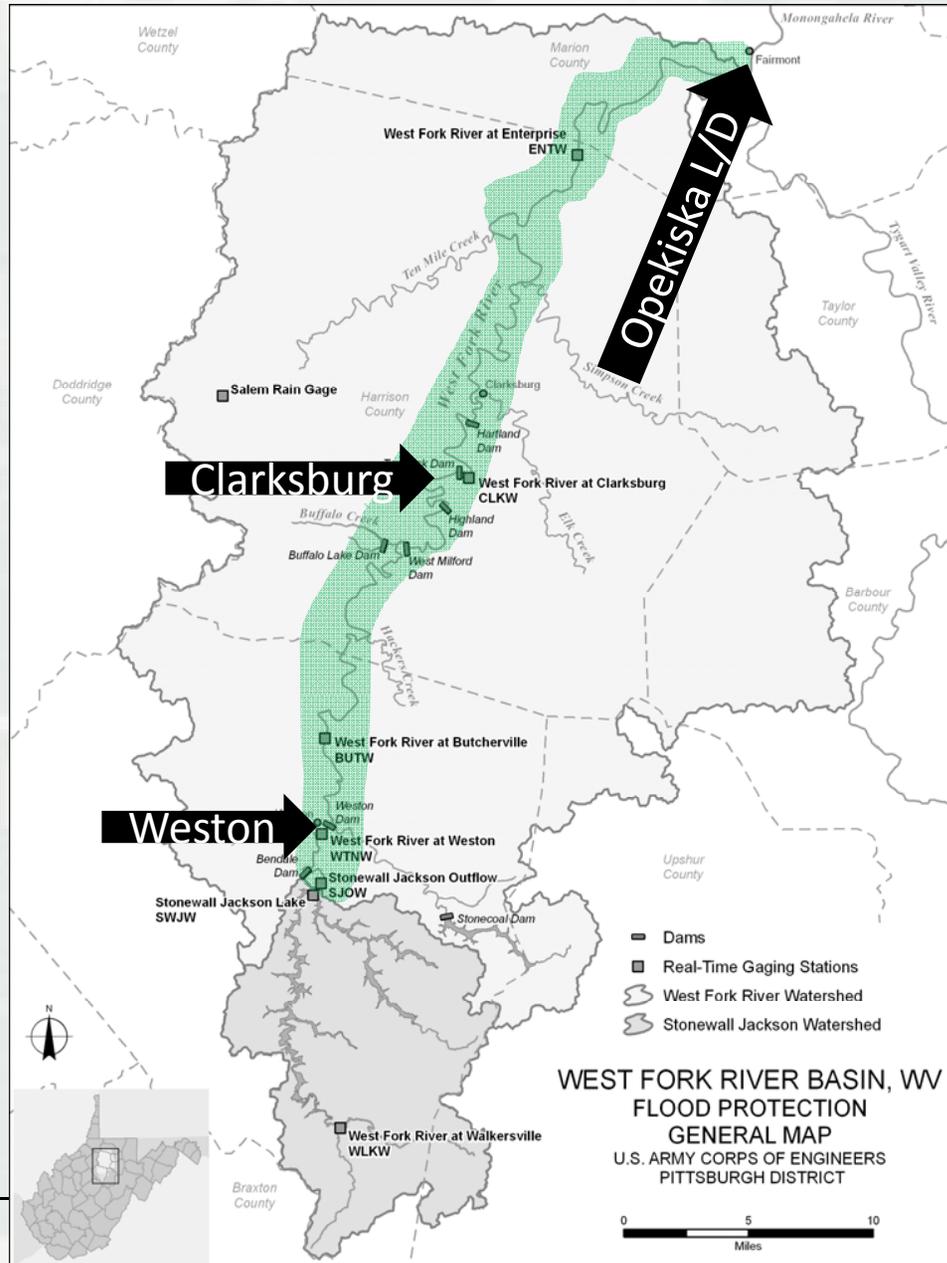


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1. Follow water schedule for Weston
2. Follow water schedule for Clarksburg
3. Follow water schedule for Opekiska Lock & Dam (near Fairmont, WV)
4. Maintain outflow temperature: No higher than 72° F
5. Maintain sustainable dissolved oxygen levels

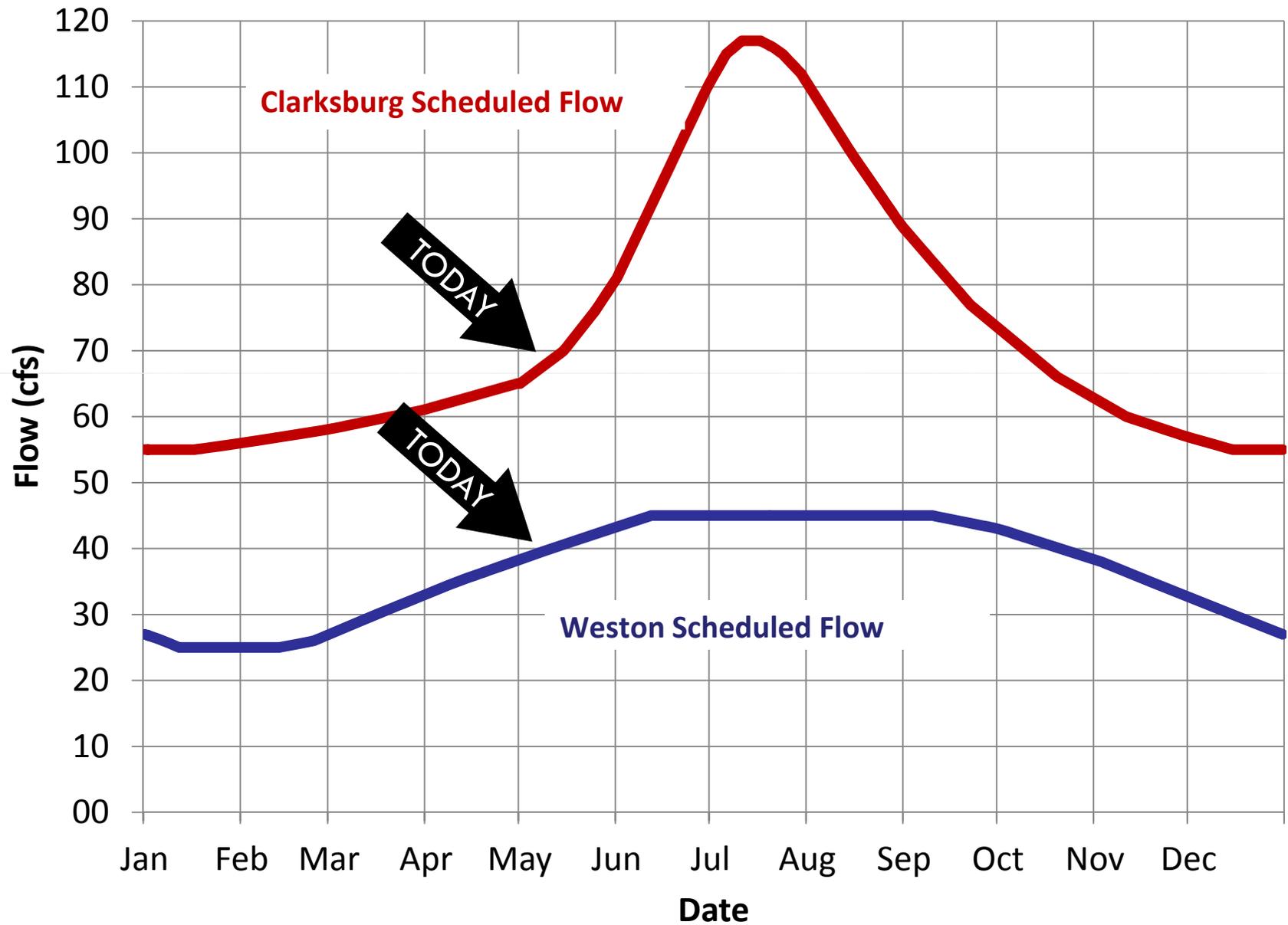


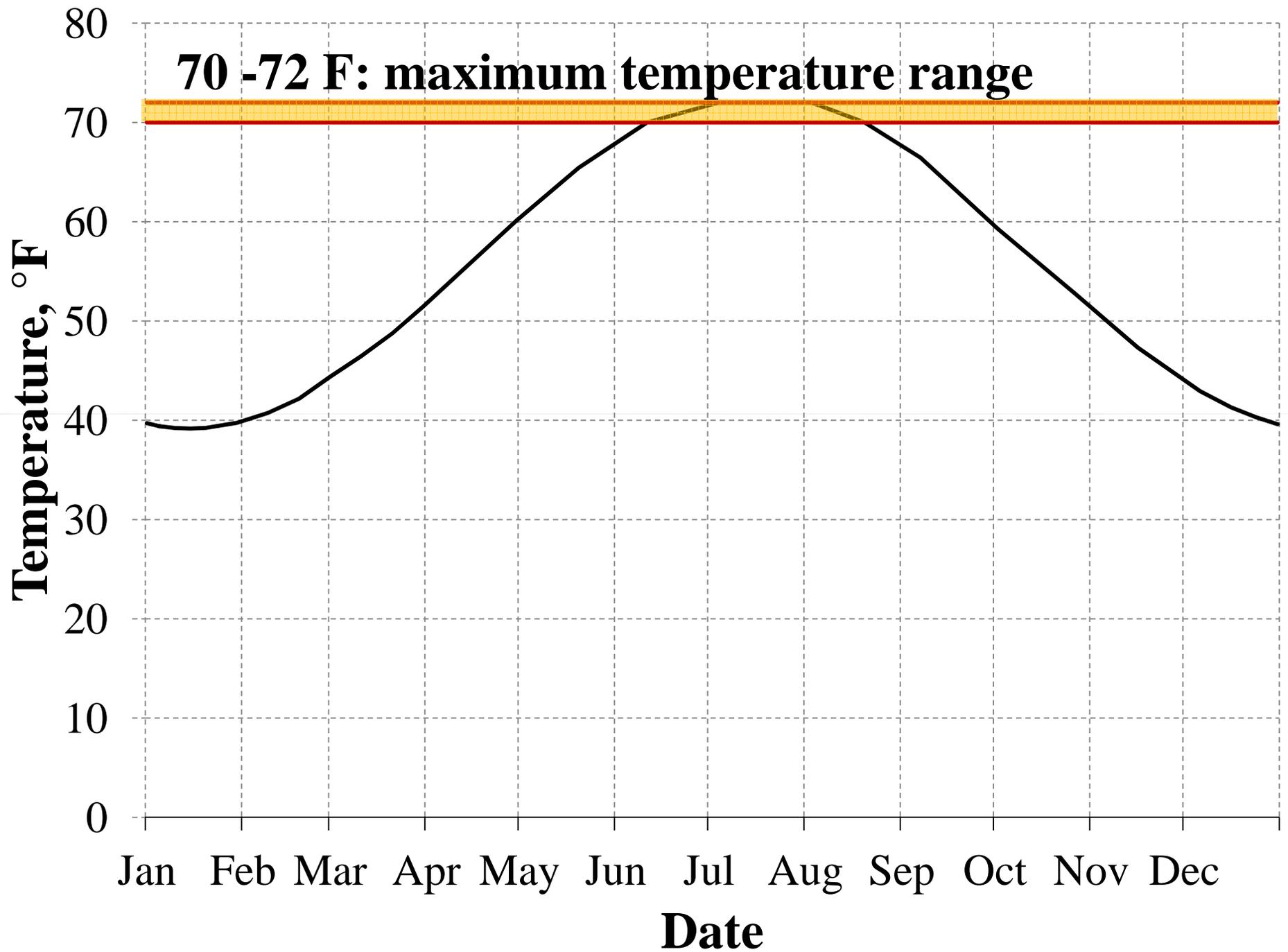
Water quality is measured (by volume & speed) at three points.



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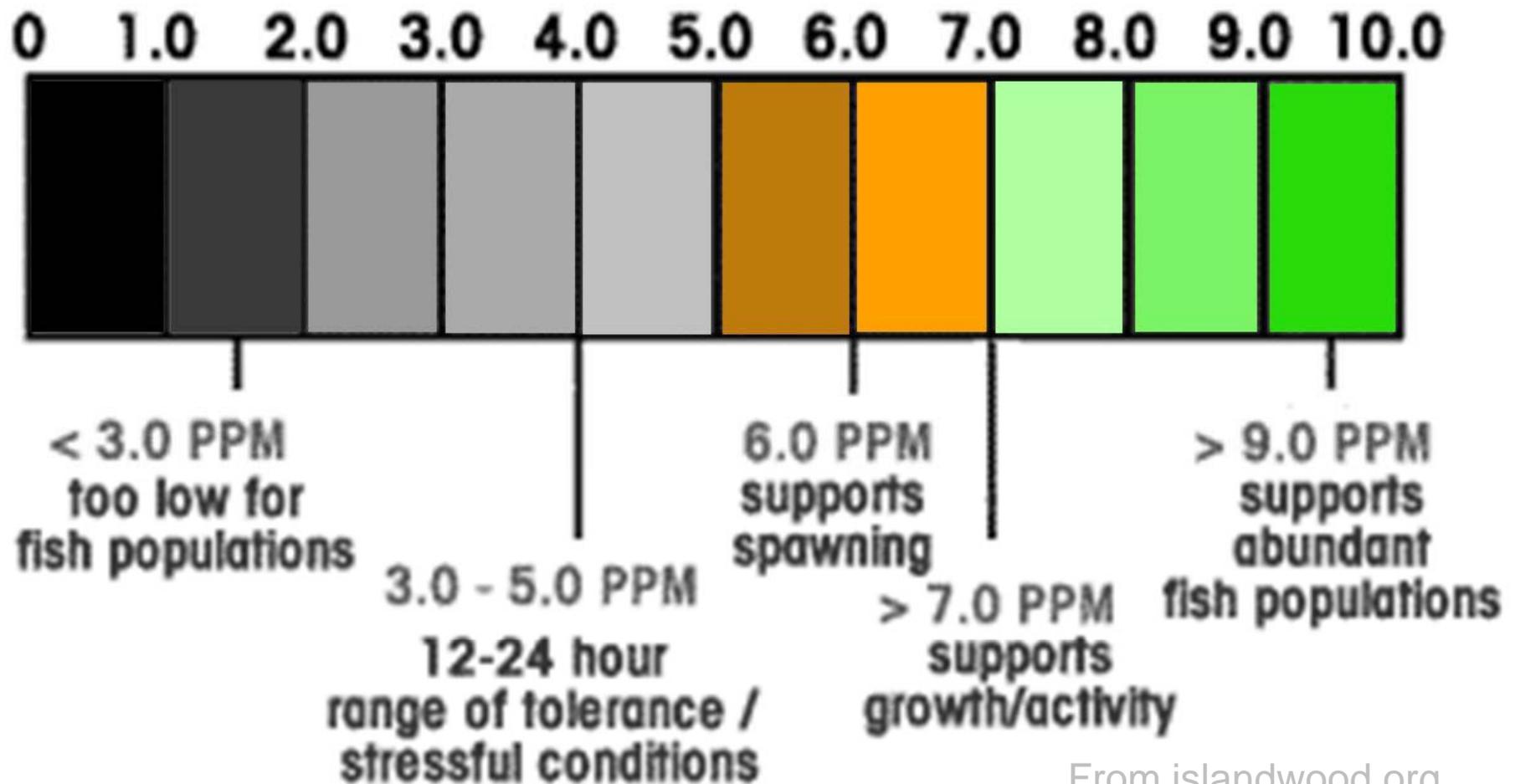
Water quality goals vary seasonally at Clarksburg and Weston.





RANGE OF TOLERANCE FOR DISSOLVED OXYGEN IN FISH

PARTS PER MILLION (PPM)
DISSOLVED OXYGEN



From islandwood.org

- Flood Control
- Water Quality
- **Water Supply**
- Recreation
- Fish & Wildlife



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- Storage exists for water supply
- Agreement can only be made with public entity
- Water supply: no agreements currently in place



- Flood Control
- Water Quality
- Water Supply
- Recreation**
- Fish & Wildlife



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From Flood Control Act of 1944

The Chief of Engineers is authorized to construct, maintain and operate public park and recreational facilities in reservoir areas under the control of the War Department....

... The water areas of all such reservoirs shall be open to public use generally, without charge....

...ready access to and exit from such water areas along the shores of such reservoirs shall be maintained for general public use, when such use is determined by the Secretary of War not to be contrary to the public interest....



WHAT DOES THIS MEAN?

Recreation allowed at all lakes

Not included in authorization:

Storage of water just for recreation

Prioritizing recreation over other benefits

Keeping the lake steady for recreation at all projects would sacrifice water quality, fish & wildlife enhancement, navigation, flood control storage, water supply



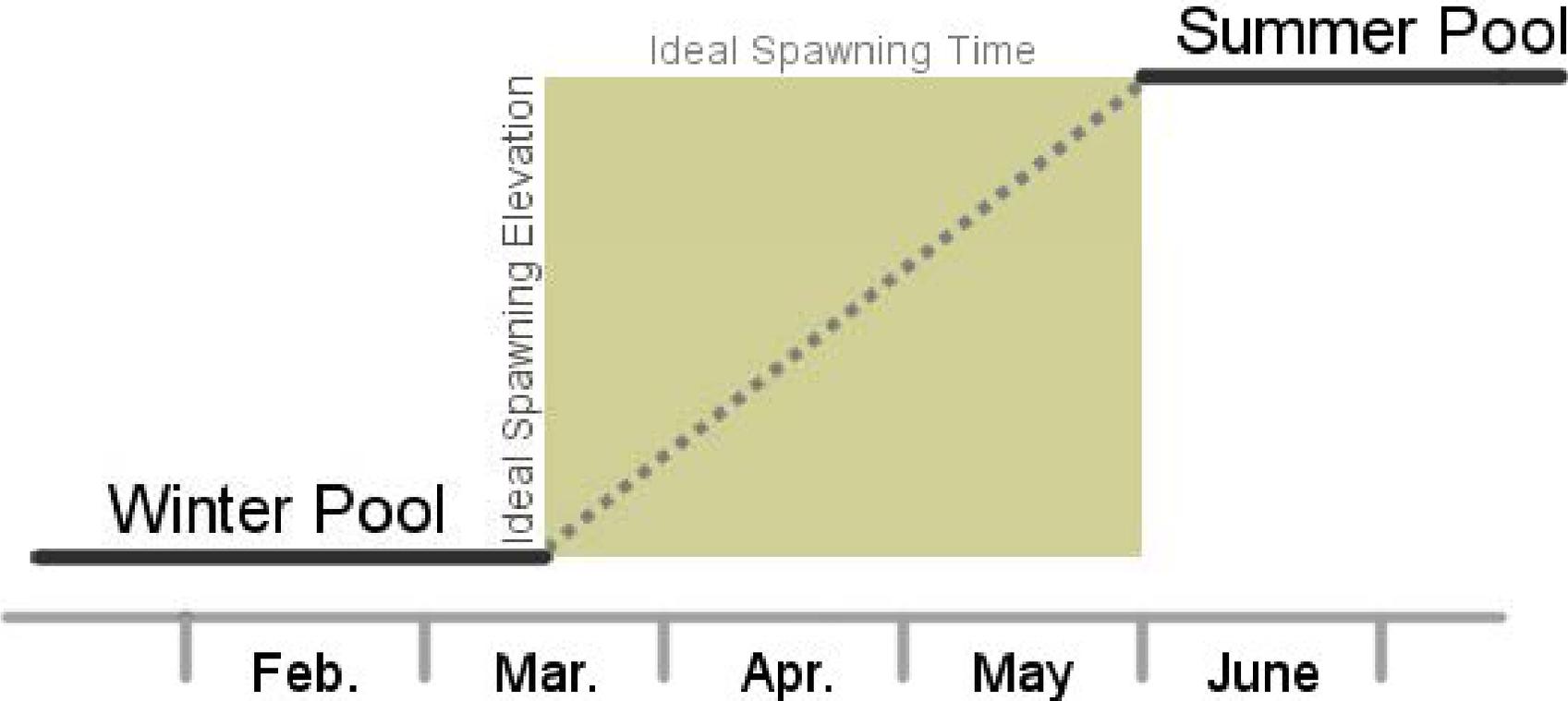
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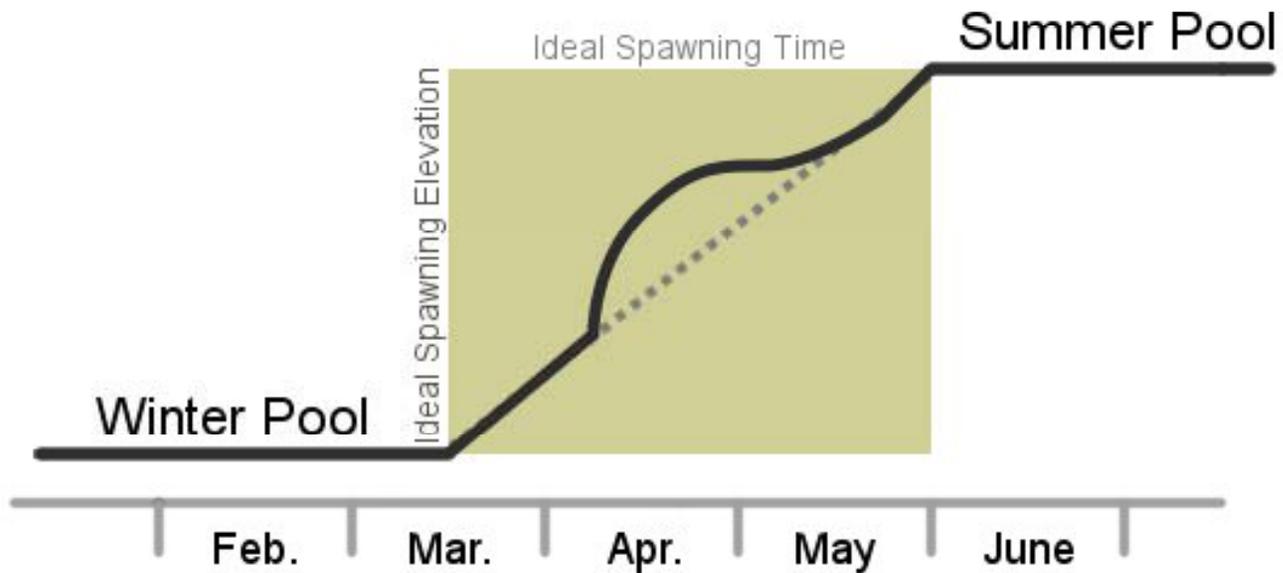
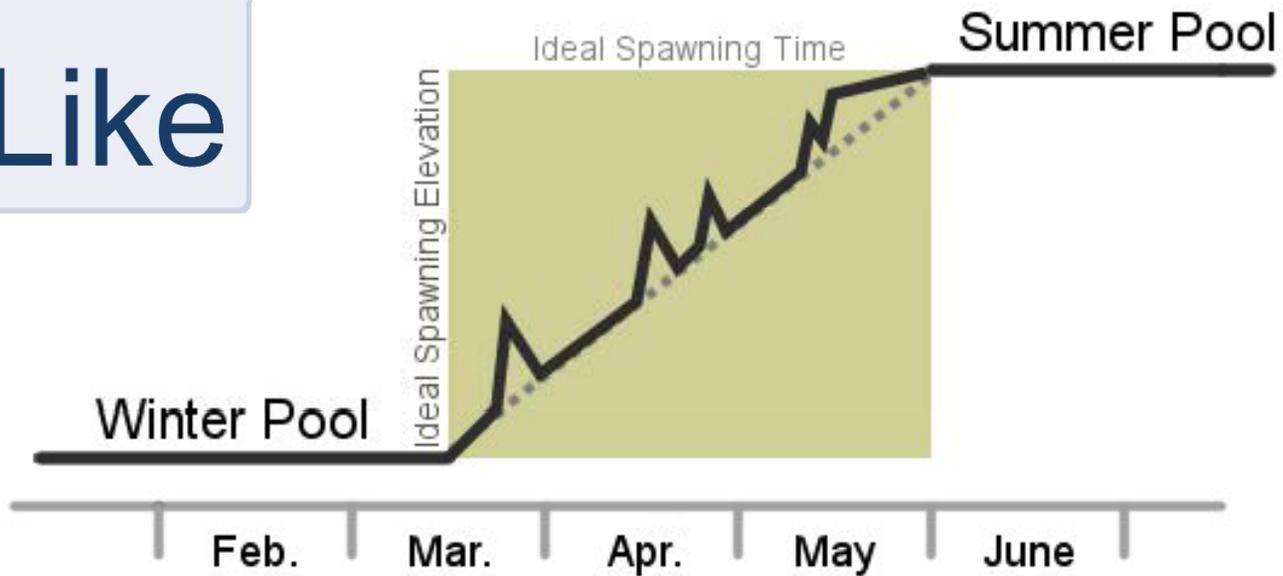


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To spawn in the lake, fish need two conditions (that we can control): a steadily rising pool, and a pool that stays below the treeline.



Short, small drops in pool are OK, and a big rise is OK as long as there's not a big drop-off afterwards.



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Operations Affecting All Purposes



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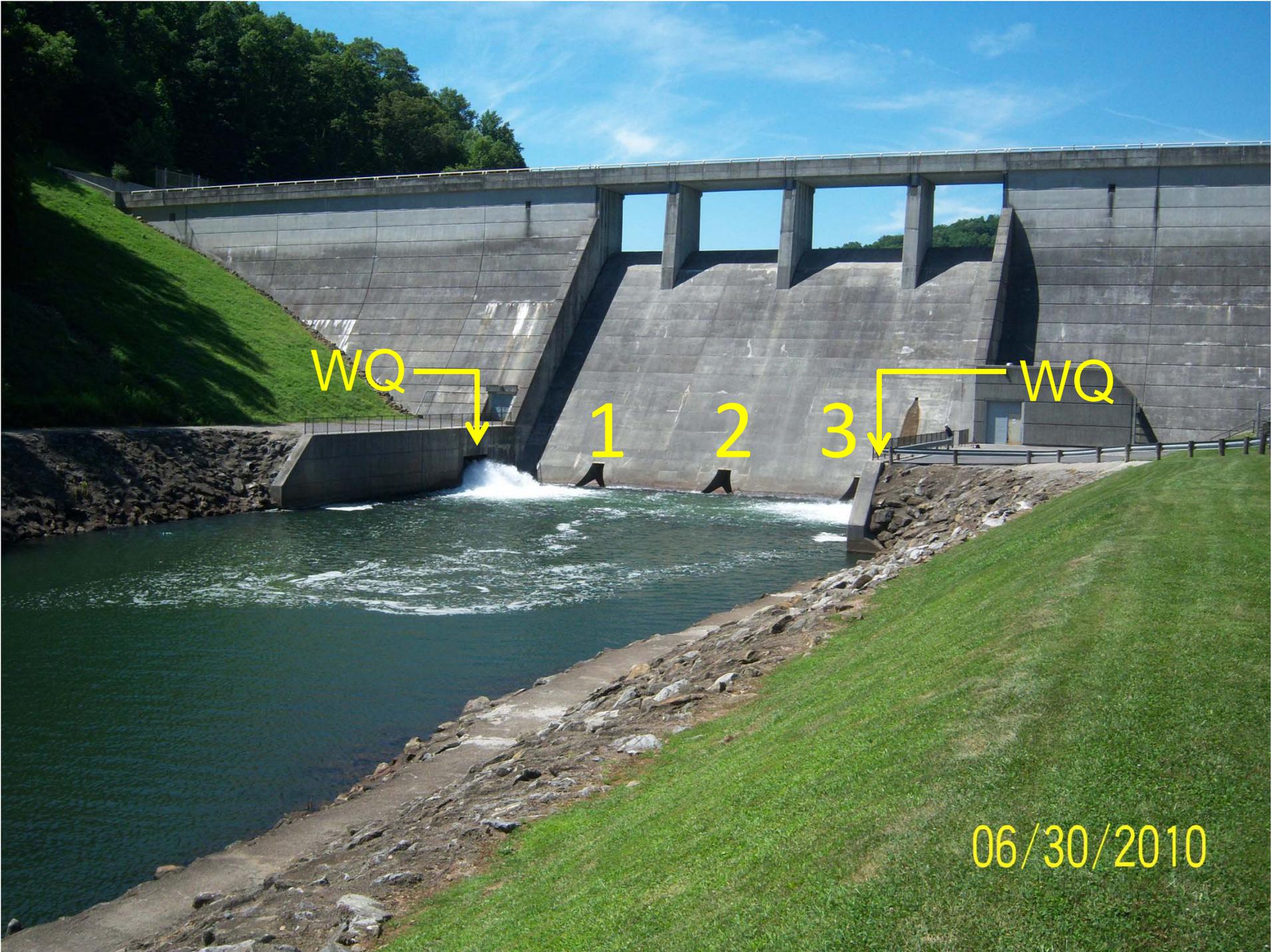
OTHER CONSIDERATIONS:

- Size & capacity of each gate
- Size & capacity of downstream riverbeds
- Hydropower station
- Emergency Action Plans
- Instructions to Damtender during loss of communication
- Drought





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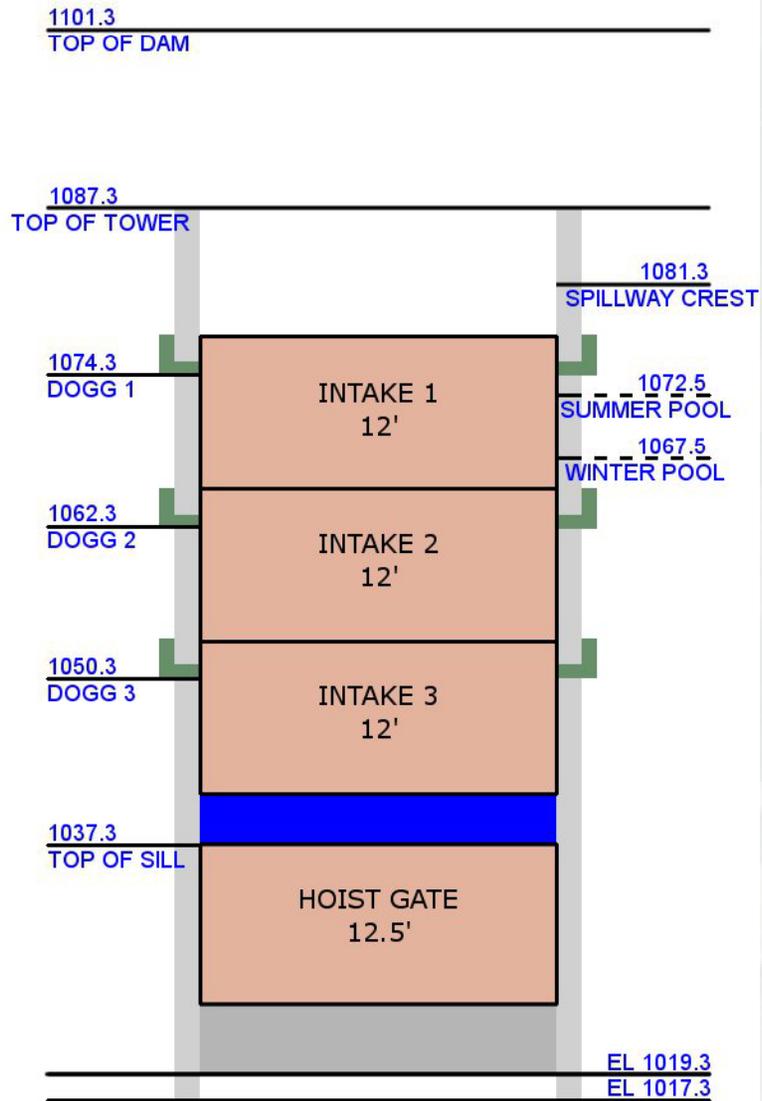


06/30/2010



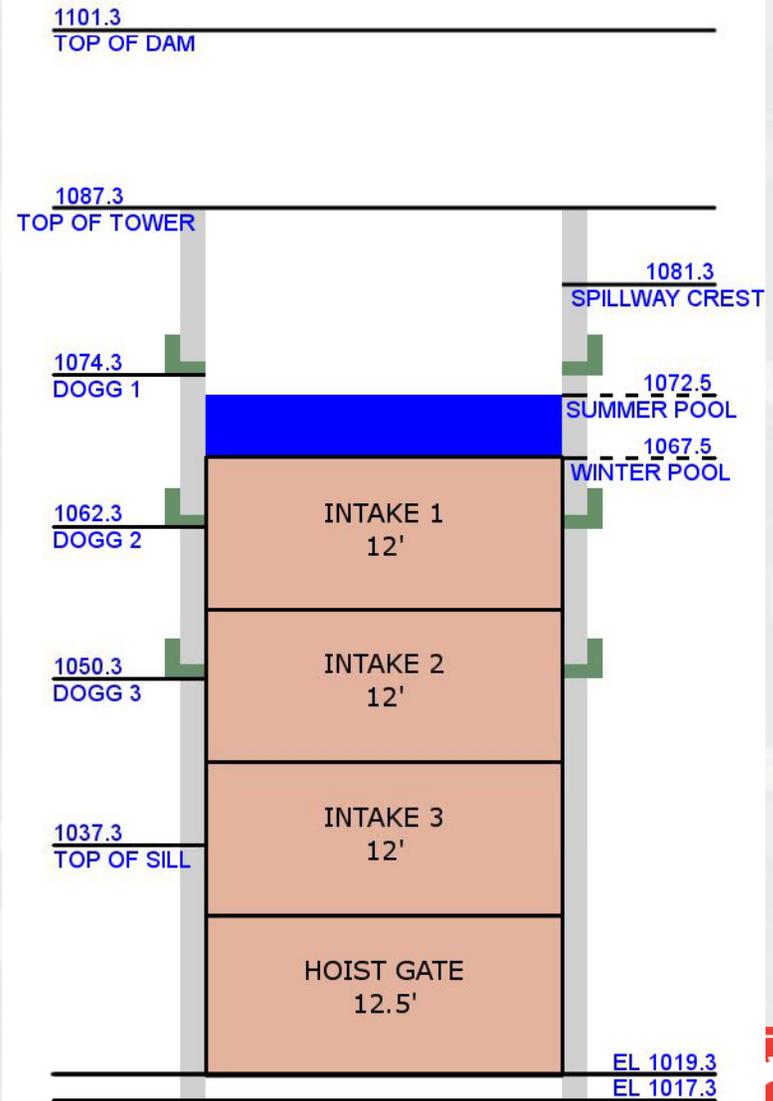
24/04/2007

Pulling cold water from lake bottom



Elevations in NAVD88

Pulling warm water from top of lake



Elevations in NAVD88



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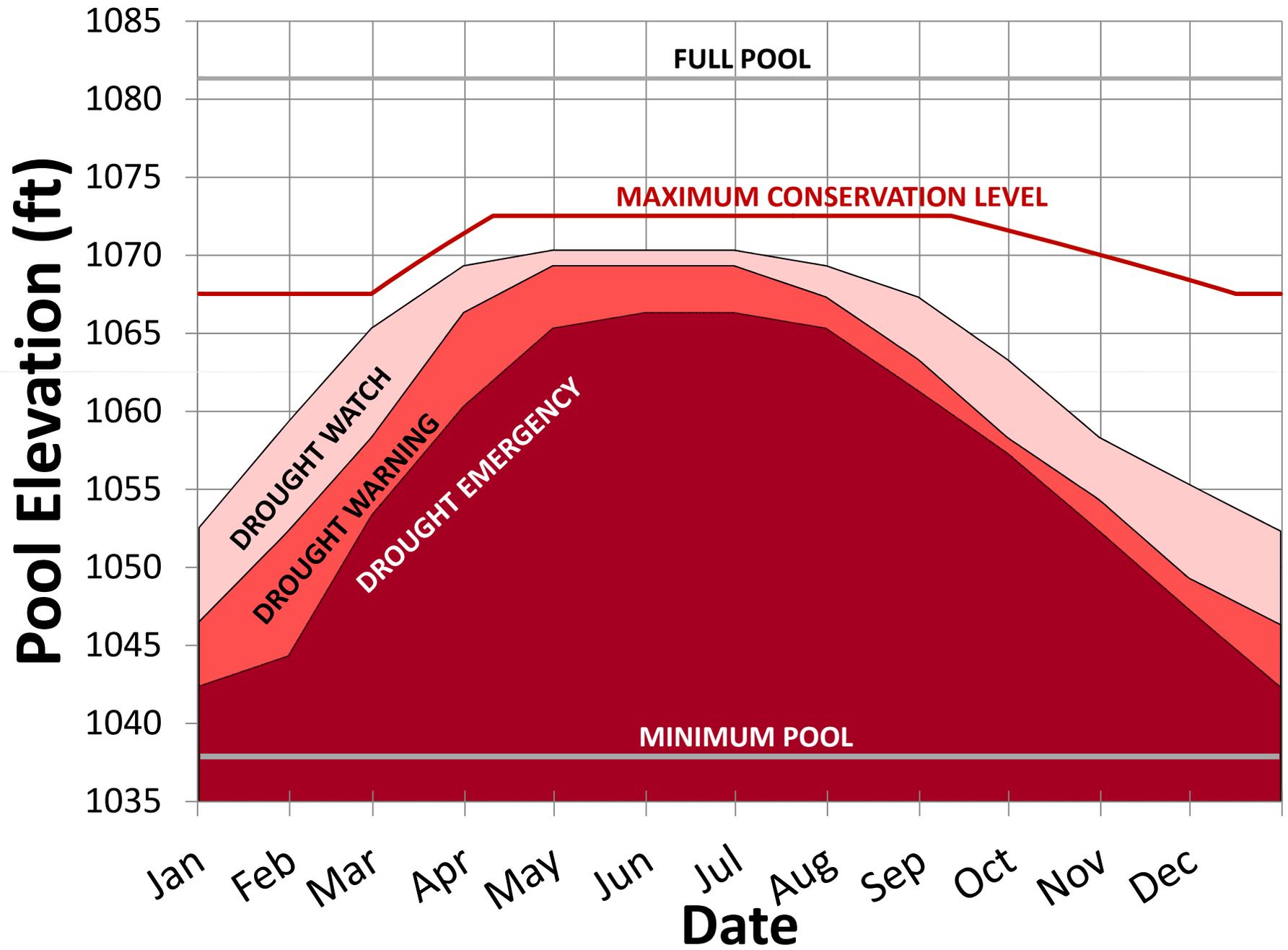
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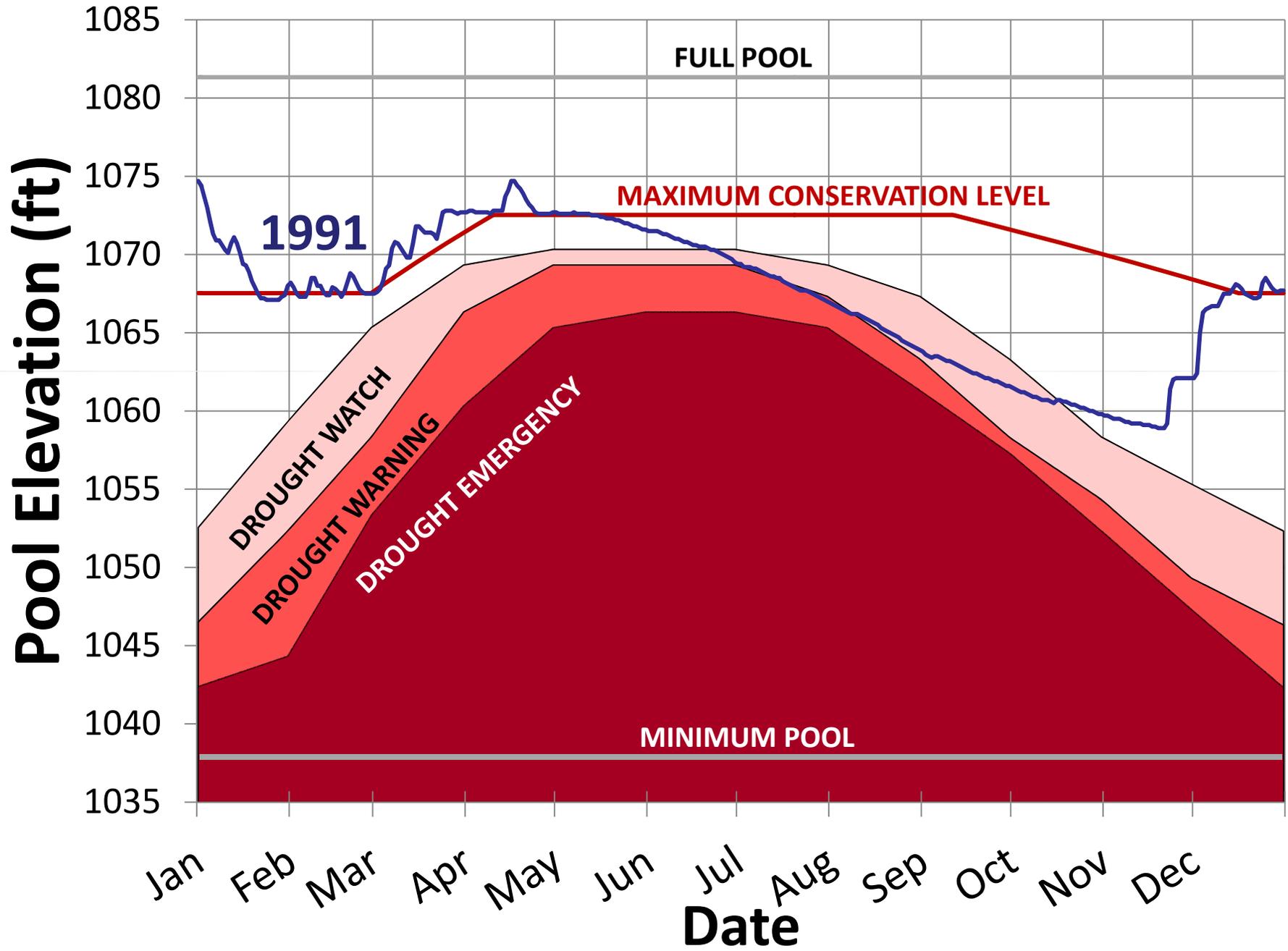
	Response Action	Drought Induced Impact
Drought Watch	Follow Zone guidance of Storage and Release Schedule.	Some recreational activities
Drought Warning	Follow Zone guidance of Storage and Release Schedule. Develop Alternative Operation Schedule.	Recreational activities, water quality, fish and wildlife; and aesthetics and water supply
Drought Emergency	Follow Zone guidance of Storage and Release Schedule or implement coordinated Alternative Operation Schedule.	Recreational activities, water quality, fish and wildlife; water supply, navigation, hydroelectric plant operation and aesthetics



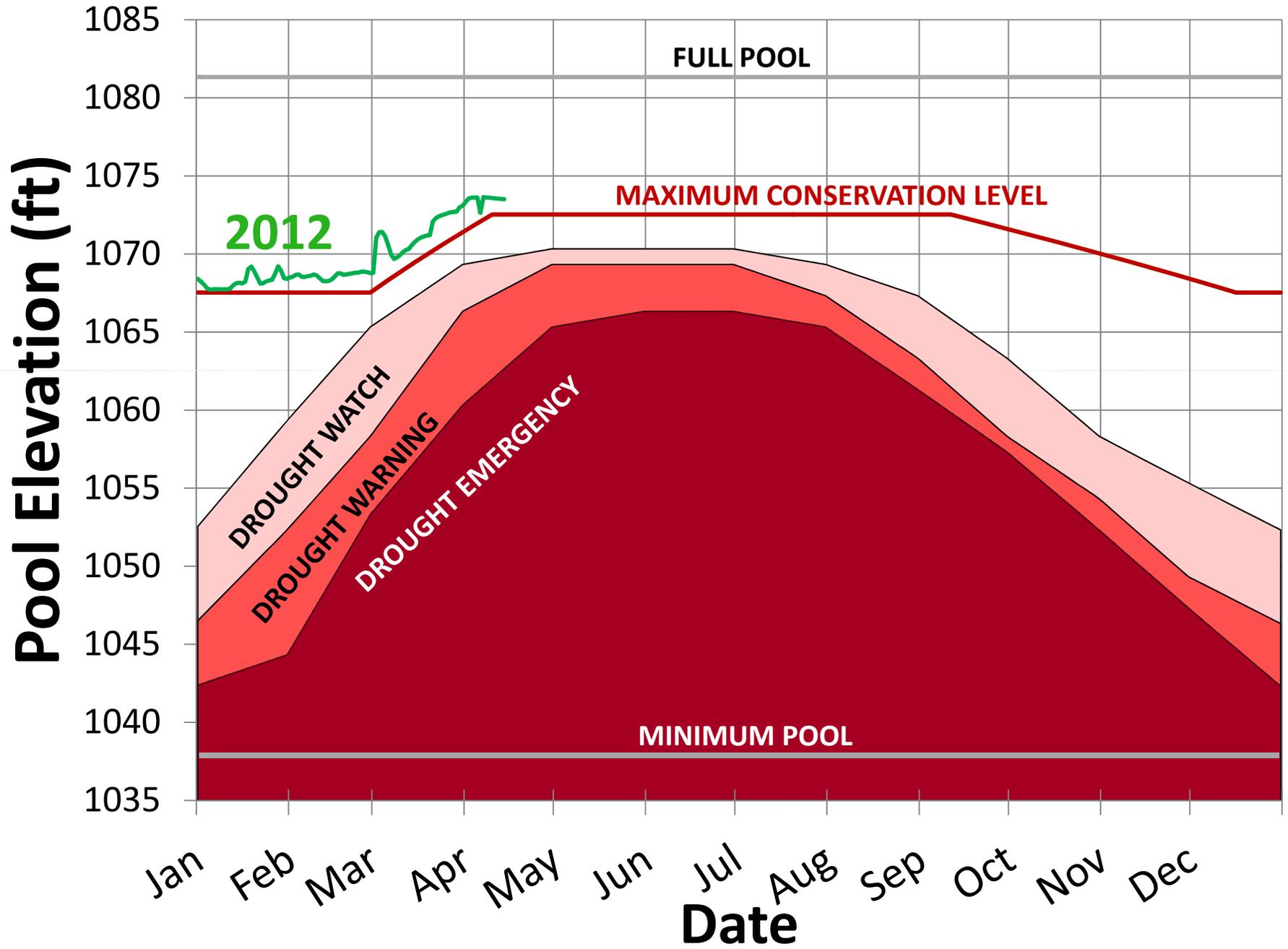
Stonewall Jackson Lake



Stonewall Jackson Lake



Stonewall Jackson Lake



What is your role in this?



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YOUR ROLE:

Water control manual not complete
Seeking public comment

-Comment cards

-Email: water.control.manual@usace.army.mil

-Website: <http://www.lrp.usace.army.mil/wm/WCM.html>

-Facebook: <https://www.facebook.com/StonewallJacksonLake>



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1. Stonewall Jackson Lake has many purposes
2. The Corps balances purposes & operates Stonewall from the water control manual
3. Your input ensures this is most complete manual possible



CONTACT INFORMATION

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Dan Jones, Media / Public Affairs

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Daniel.W.Jones@usace.army.mil



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DISCUSSION / QUESTIONS

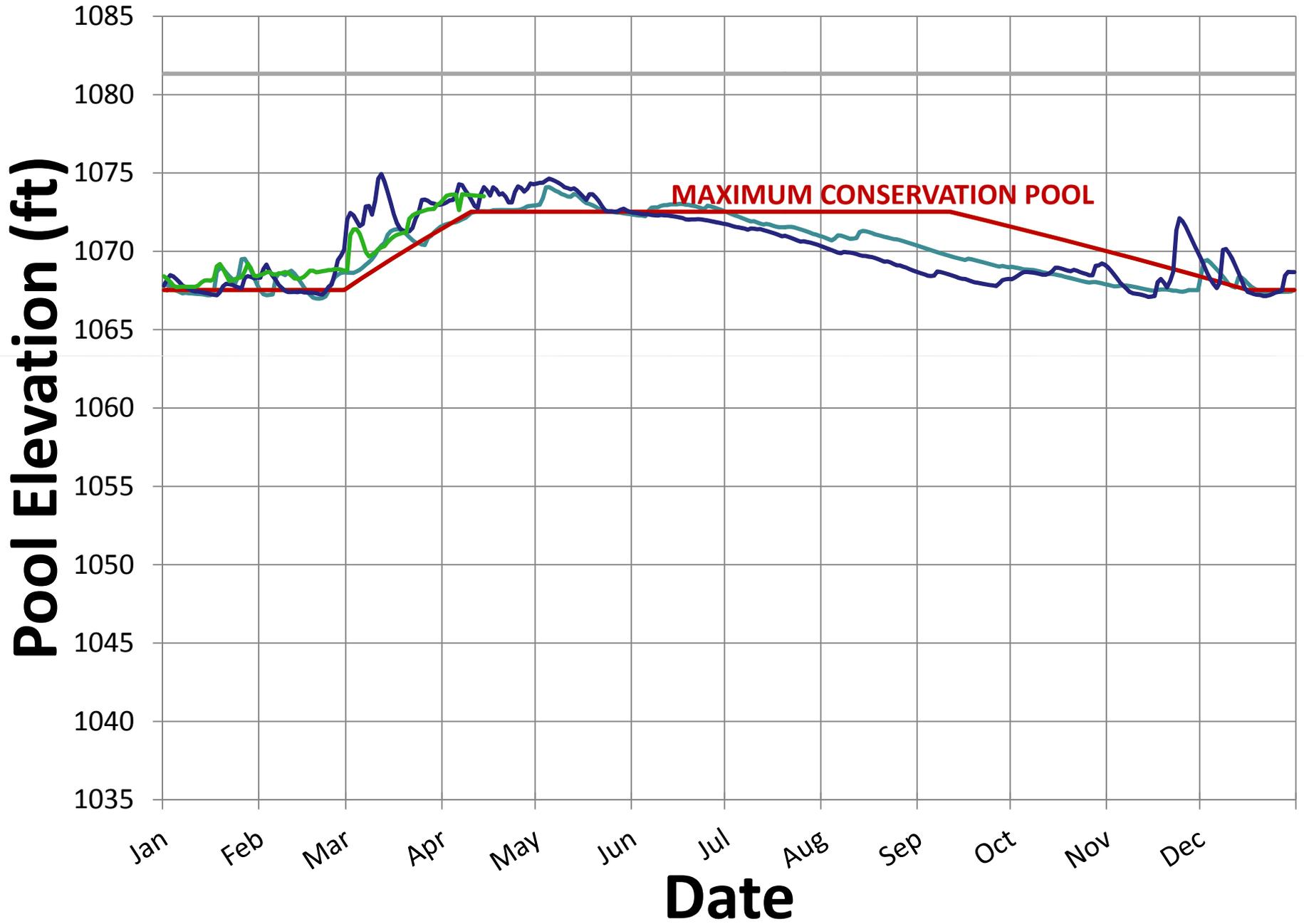


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Stonewall Jackson Lake - Rule Curves



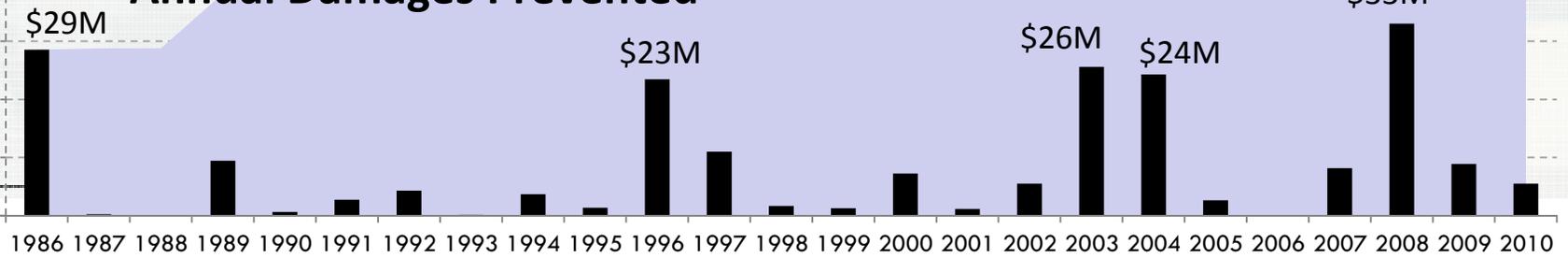
Damages Prevented by Stonewall Jackson Dam

2010 Cumulative total: \$210 Million

\$200,000,000
\$150,000,000
\$100,000,000
\$50,000,000
\$0

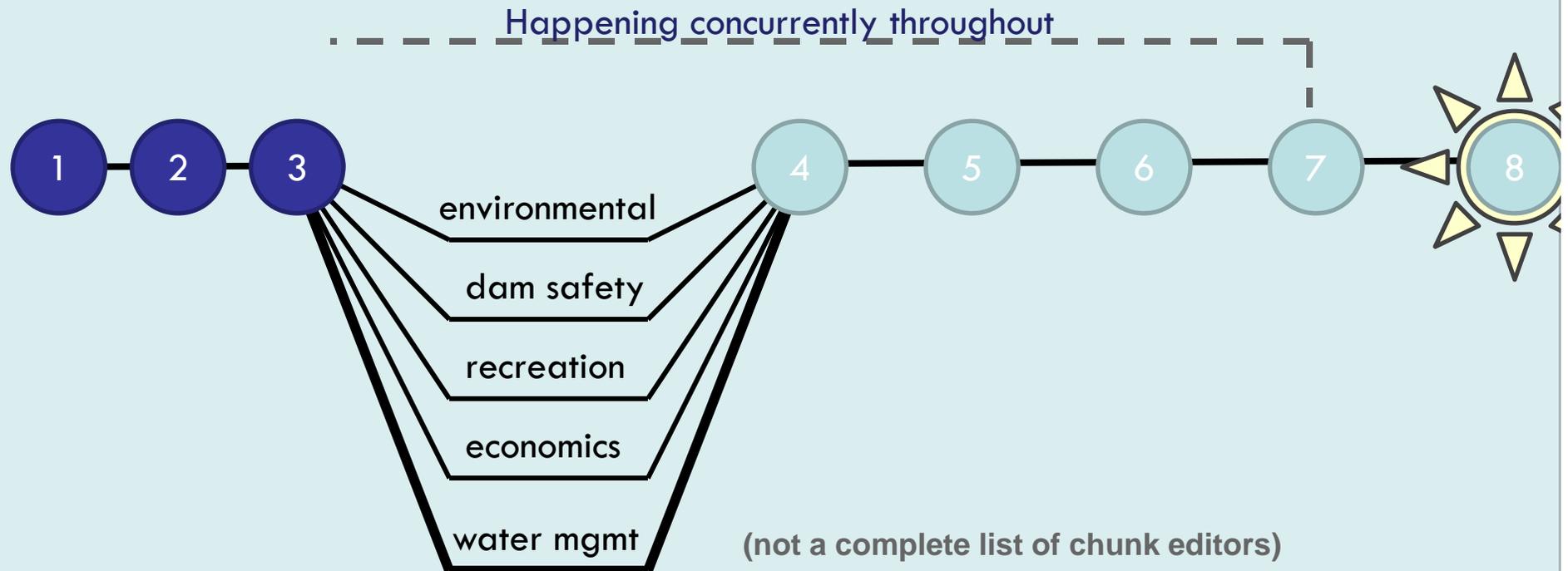
Cumulative Total Prevention

Annual Damages Prevented



1. Convert old manuals to a digital version (2009-2010)
2. Organize team, define what's needed, collect members (June 2011)
3. Begin editing- split up manual into chunks, assign chunks to different sections (July 26, 2011)
4. Collect chunks, reassemble, polish the manual draft
5. Review of draft by District-level Water Management
6. Division-level Water Management reviews draft
7. Public comments made, incorporated as appropriate
8. Final Water Control Manual

WCM TIMELINE



SUMMARY OF TABLE OF CONTENTS

Water Control Plan

Flood control

Recreation operations

Water quality

Water supply

Hydroelectric power

Navigation

Droughts

Flood emergency action plans

The effects of our operations on all of the above categories

Outline of water control management – responsibilities, coordination

Project purposes

Historic events

Authorization

Physical components

History of project

Construction, modification, regulation

Watershed characteristics

Geology, topography, climate, extreme events, water

quality, channel and runoff characteristics, downstream data

Economic impacts

Explains how we collect data

Explains forecasting methods



REALLOCATION

1. Initial appraisal
2. Reconnaissance study
3. Feasibility

