

Drinking Water in the DC Area: Past, Present, and Future

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Potomac Watershed Roundtable
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Contamination of DC's Drinking Water & Willie Lincoln's Death by Typhoid Fever

DC's Drinking Water Once Came from Several Springs Throughout the City



Contamination of White House Water Source in Franklin Square in Civil War

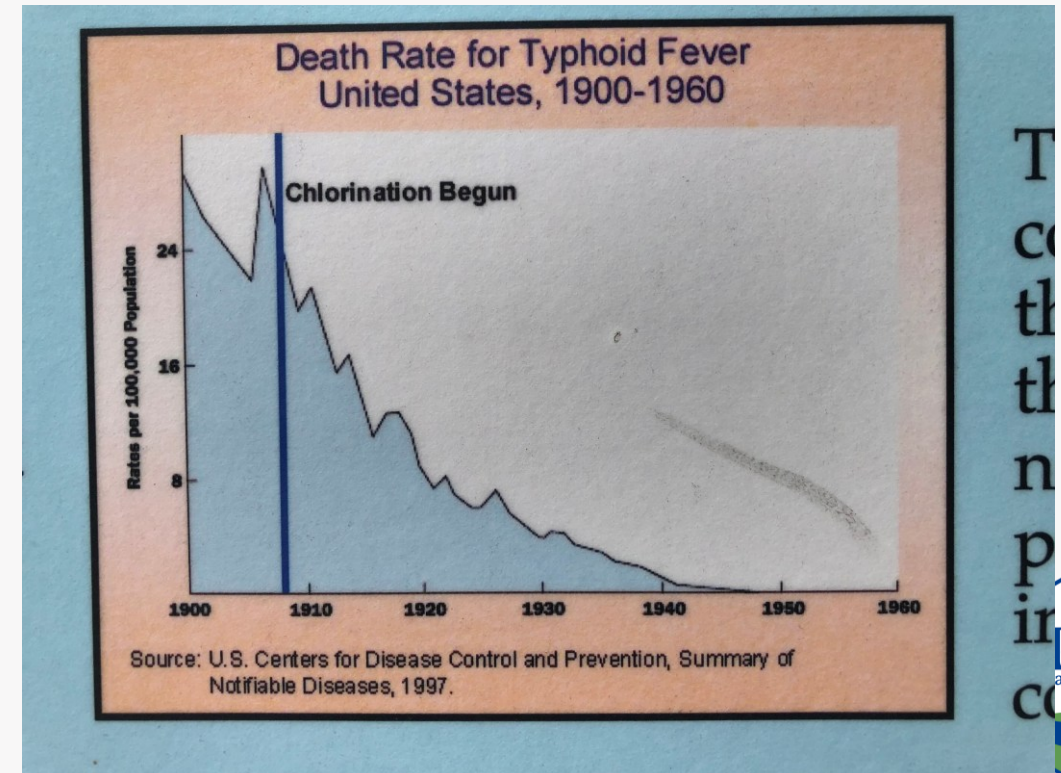


The “Chlorine Revolution” Reduces Deaths From Water-Borne Diseases Throughout the U.S.

Dr. John Leal’s Testimony at Jersey City Trials (1906-1908)



Chlorination of Drinking Water Lowers Typhoid Fever Deaths



ICPRB: Who We Are

- Approved by Congress in 1940 as an Interstate Compact for “the purpose of regulating, controlling, preventing, or otherwise rendering unobjectionable and harmless the pollution of the waters of said Potomac drainage area by sewage and industrial and other wastes.”
- 1970 - Water supply added to ICPRB compact
- Signatory Jurisdictions: Maryland, Virginia, West Virginia, Pennsylvania, and the District of Columbia but not the United States



ICPRB: Who We Are

- The five jurisdictions and the federal government appoint three Commissioners each.
- The Compact establishes the Commission as an agency of each signatory jurisdiction.
- **No regulatory authority**



Drivers for the Current Water Supply System

- 1851 Library of Congress Fire
- USACE Builds Washington Aqueduct

Severe historical droughts

- 1930 Dust Bowl era
- 1966 Lowest recorded river flow
- 2002 Minor Drought

1960s -1970s

- Rising regional water demand
- Federal interest in Washington Aqueduct supply
- “Last straws” in the river
- Critical federal facilities



Occoquan Reservoir, 1966

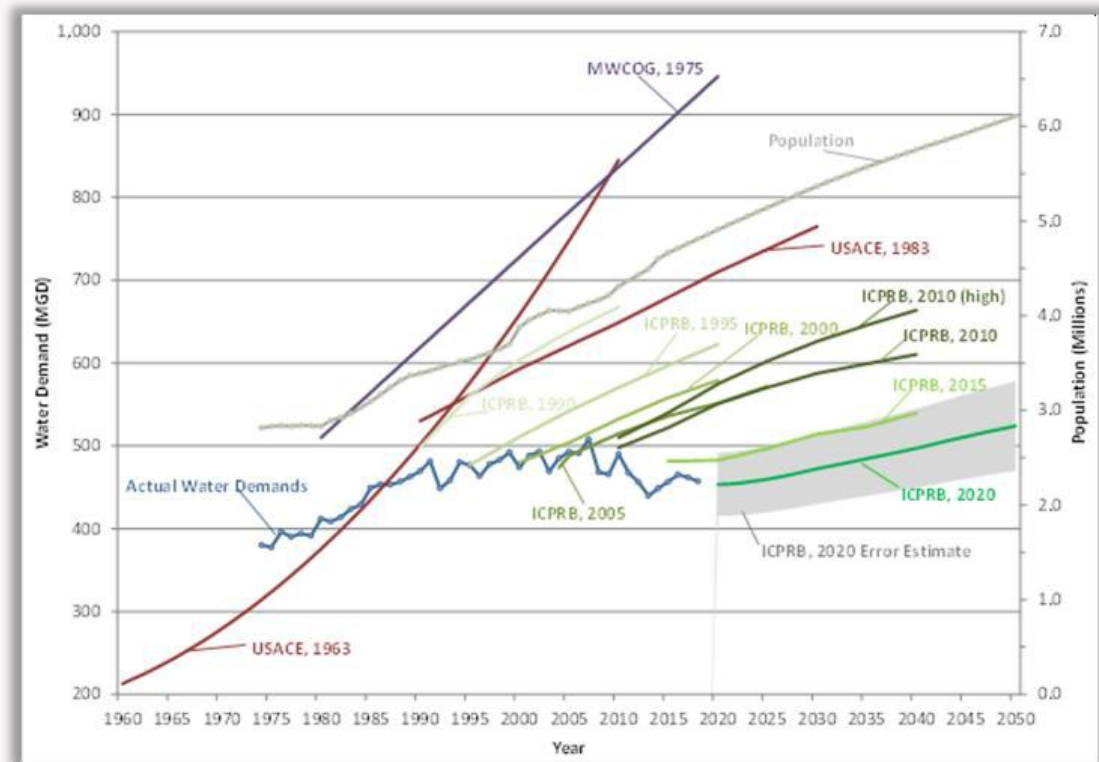
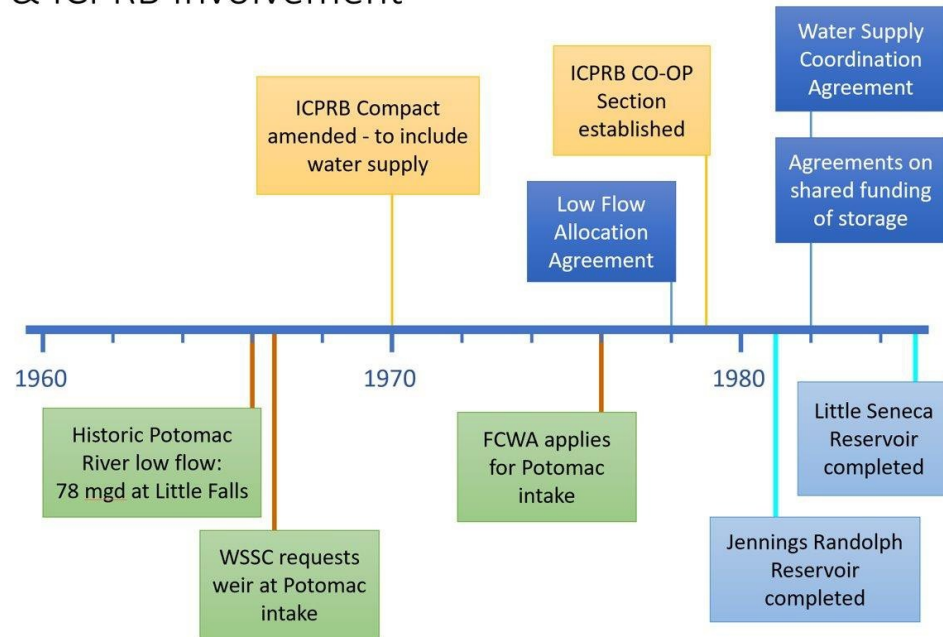
Regional Water Supply Coordination

- Drinking Water in the News: Western Droughts
- Importance of the Potomac River Here
- Extreme weather, acute threats
- What happened, challenges, and next steps
- Resiliency investment
- Water Supply Resiliency
- Agreements and governance



CO-OP Formed as a Response to 1966 Drought

Timeline of Agreements & ICPRB Involvement



Regional Cooperative Water Supply System

Suppliers

- Fairfax Water
- WSSC Water
- Washington Aqueduct*

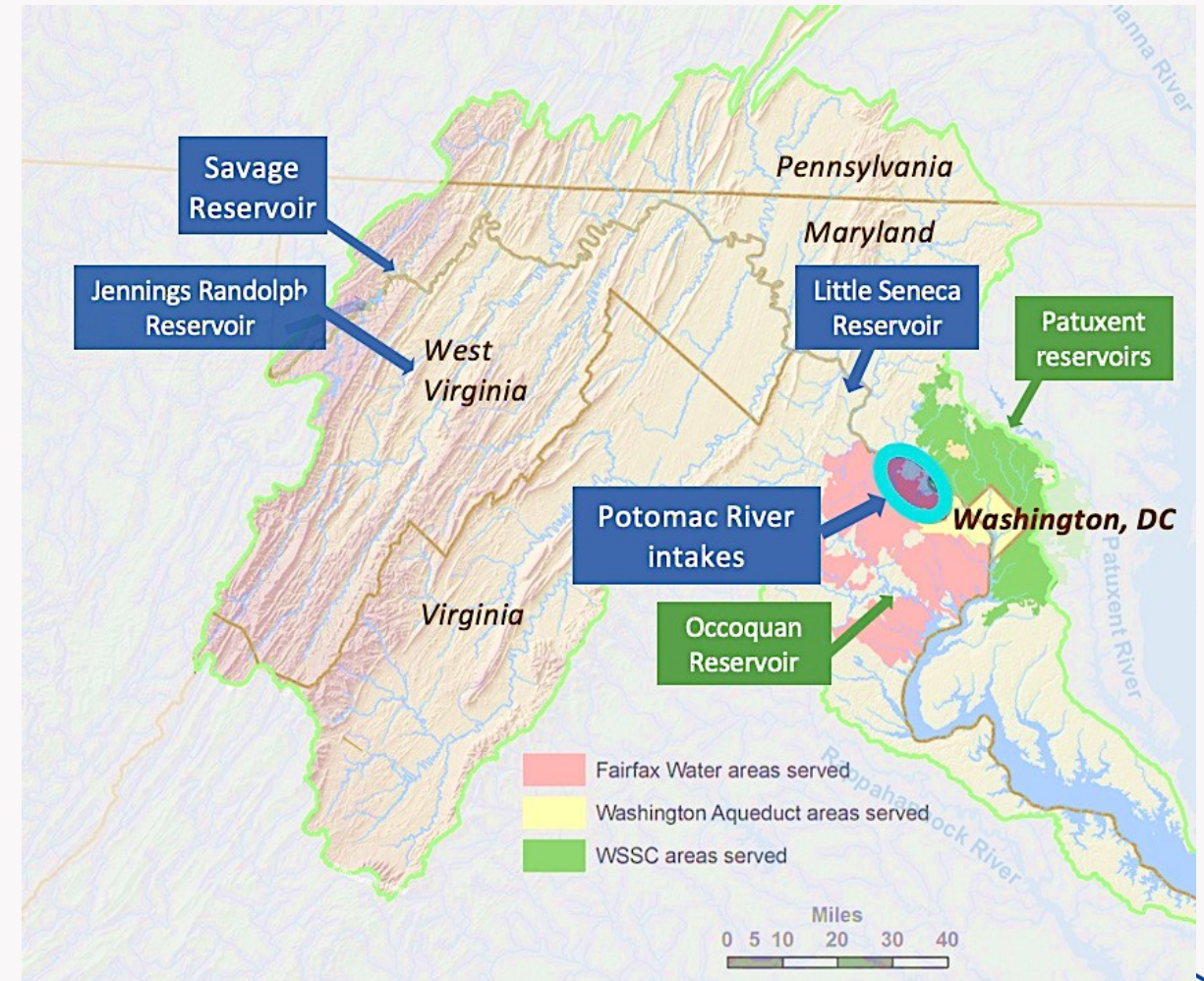
Off-Potomac Sources

- Fairfax Water: Occoquan
- WSSC Water: Patuxent

Shared Reservoirs

- Jennings Randolph
- Little Seneca
- Savage

*A Division of the US Army Corps of Engineers



Regional Water System Operations

The Potomac River is the primary supply

- Provides 78% of water to the region
- Provides 100% of water to the District of Columbia and Arlington County (via the Washington Aqueduct)

Water suppliers share costs of upstream reservoirs

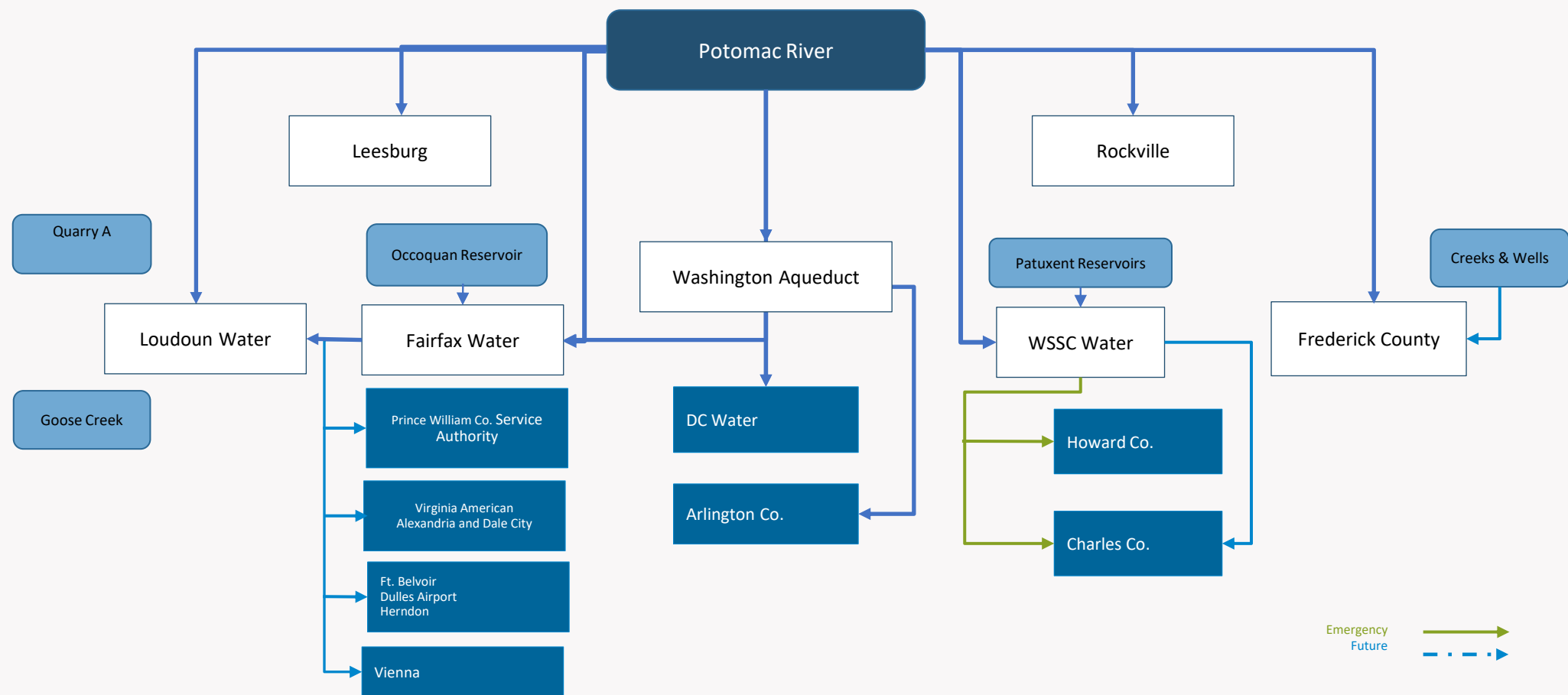
- Upstream reservoir releases during droughts increase Potomac River flow and benefit all
- The District of Columbia and Arlington County do not have any off-Potomac reservoir storage

The three largest suppliers participate in the cooperative system

- Drought planning & drought operations are cooperative
- Costs of upstream reservoirs are shared by the three suppliers
- New shared multi-purpose infrastructure may require complex new agreements



Potomac River Drinking Water Supplies the Region



History of Regional Cooperation

- 1970 - Water supply added to ICPRB compact
- 1978 - Low Flow Allocation Agreement (LFAA)
- 1982 - Water Supply Coordination Agreement (WSCA)
- 1982 - Reservoir cost-share agreements
- 1994/04/09 - Water Supply Emergency Plan
- 2000 - Water Supply & Drought Response Plan
- 2004 - Potomac Drinking Water Source Protection Partnership
- 2007 - MWCOG Regional Redundancy Study
- 2008 - NCR Water/Wastewater Agency Response Network
- 2016 - MWCOG regional water system redundancy study
- 2017 - ICPRB Washington metro area water supply alternatives study



WSCA Signing

Multi-Jurisdictional/Regional Water Management

Water Supply Coordination Agreement (WSCA), 1982

- Coordinated drought operations via ICRPB's CO-OP section and an Operations Committee
- Shared upstream reservoirs plus new resources when need arises
- Forecasts of water demand and availability every 5 years

Metropolitan Washington Water Supply and Drought Awareness Response Plan, MWCOG, 2001

- Provides drought stages for water use restrictions

Low Flow Allocation Agreement (LFAA), 1978

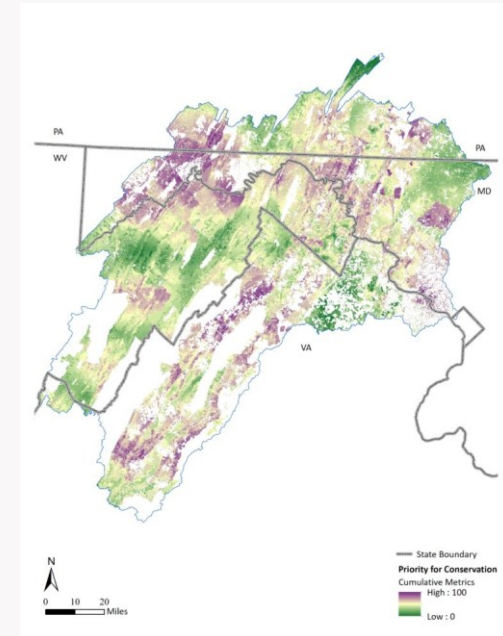
- Governs allocation in case of emergency shortage



Potomac River Basin Source Water Protection Partnership

Water utilities and government agencies working together to protect our drinking water

- Land Prioritization Mapping for Protecting Drinking Water Quality
- Regional collaboration for watershed monitoring PFAS
- Coordinated emergency response/communication

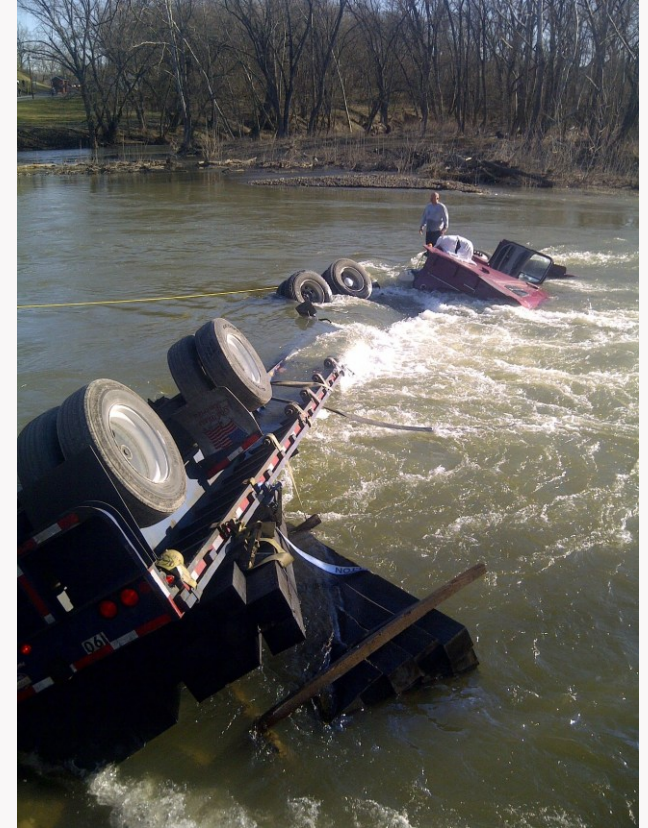


Land prioritization map

21st Century Resiliency Planning

Two primary considerations

- Spill releases into river
- Unprecedented drought due to extreme weather



Risk of Spill Events

- 1993 Colonial pipeline
- 2015 Latex release
- 2016 Oil sheen
- 2018 Discharge from research facility
- 2021 Three spills



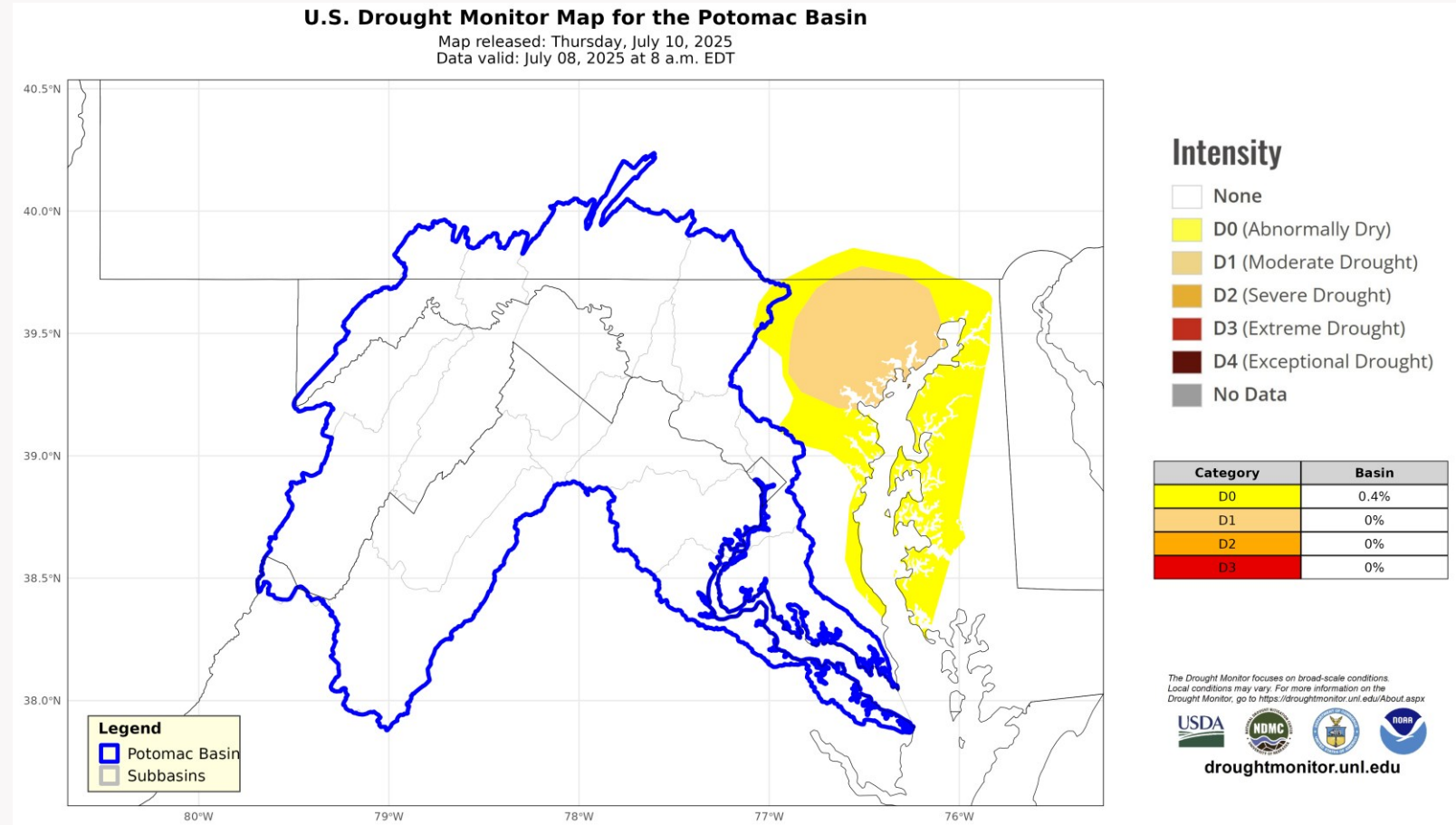
Photo # 3
Boat Ramp South of Dickerson
Outbound Flight



Risk of Severe Drought

Potomac Basin

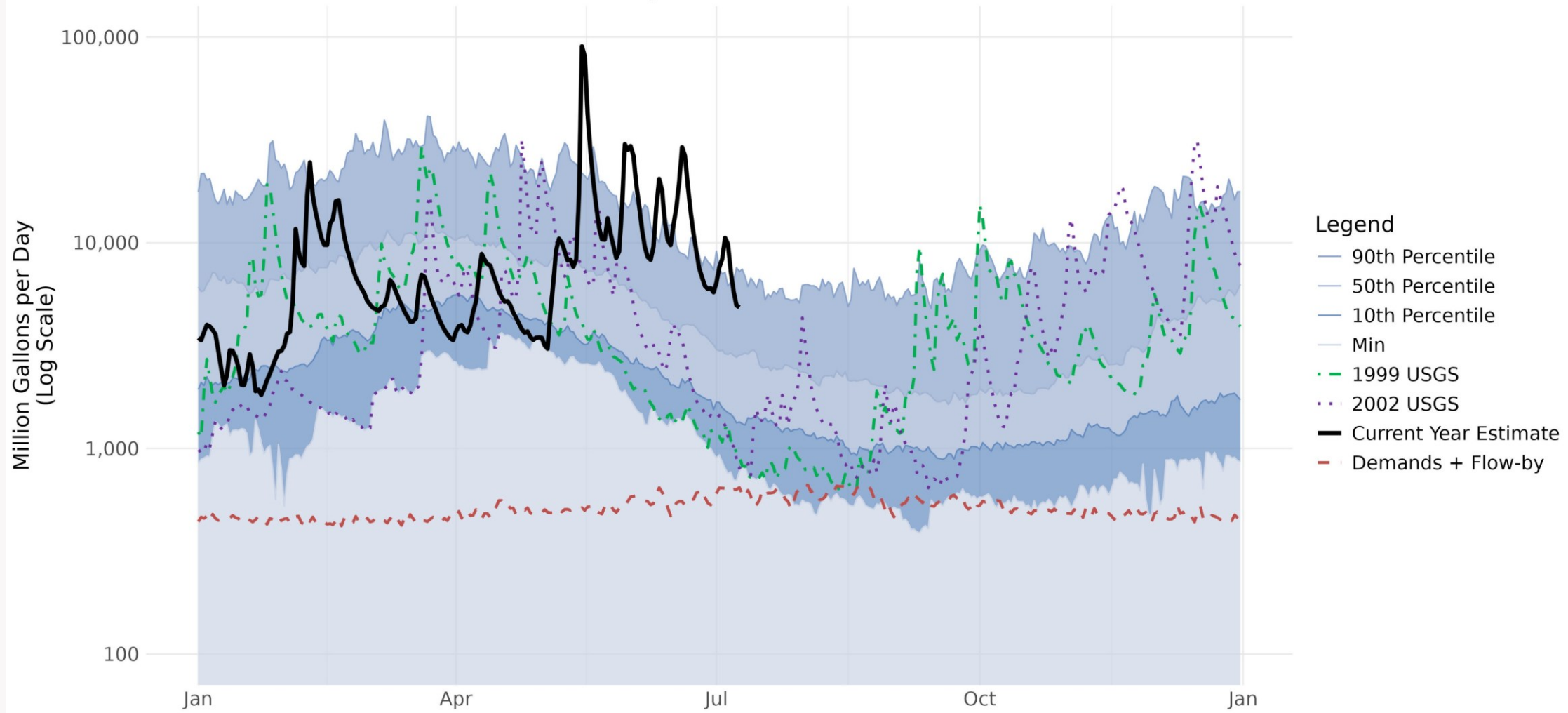
- Increased variability in weather patterns
- Weather projections point to wetter wet years but deeper droughts
- Long-range river flow forecasts



Adjusted Daily Flow at Little Falls for 2025, 1999, and 2002

Daily Adjusted Flow Percentiles for 1930-2024 Data and Drought Year (2002) Demands plus Flow-by

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Adjusted flow represents the natural flow that would occur in the absence of major withdrawals. The USGS publishes adjusted flow data for Little Falls based on actual withdrawals reported by the CO-OP utilities and Loudoun Water. However, the USGS data may not always be available in time for the outlook. In such cases, ICPRB estimates the adjusted flow using a 20-day rolling average of past withdrawal data or observed data collected from the utilities.

Regional Water Supply Emergency Planning

- Regional Water Supply Emergency Plan Update
- Flushing Protocols
- Contaminant Monitoring Systems
- Source Water Assessment
- Laboratory Capabilities
- Coordinated Messaging
- Public Health Collaboration



Beginning the Effort

- ICPRB lead the education and outreach to Congress on the risks to regional water supply, need for water storage and federal funding.
- Neal Augenstein of WTOP News has reported on this vulnerability for several years.
- Fairfax Supervisor Penny Gross has spoken and written about this issue.
- On September 14, 2022, MWCOG passed a Resolution urging the Congress to authorize and appropriate funds for a feasibility study to develop solutions to this problem.



Current Actions

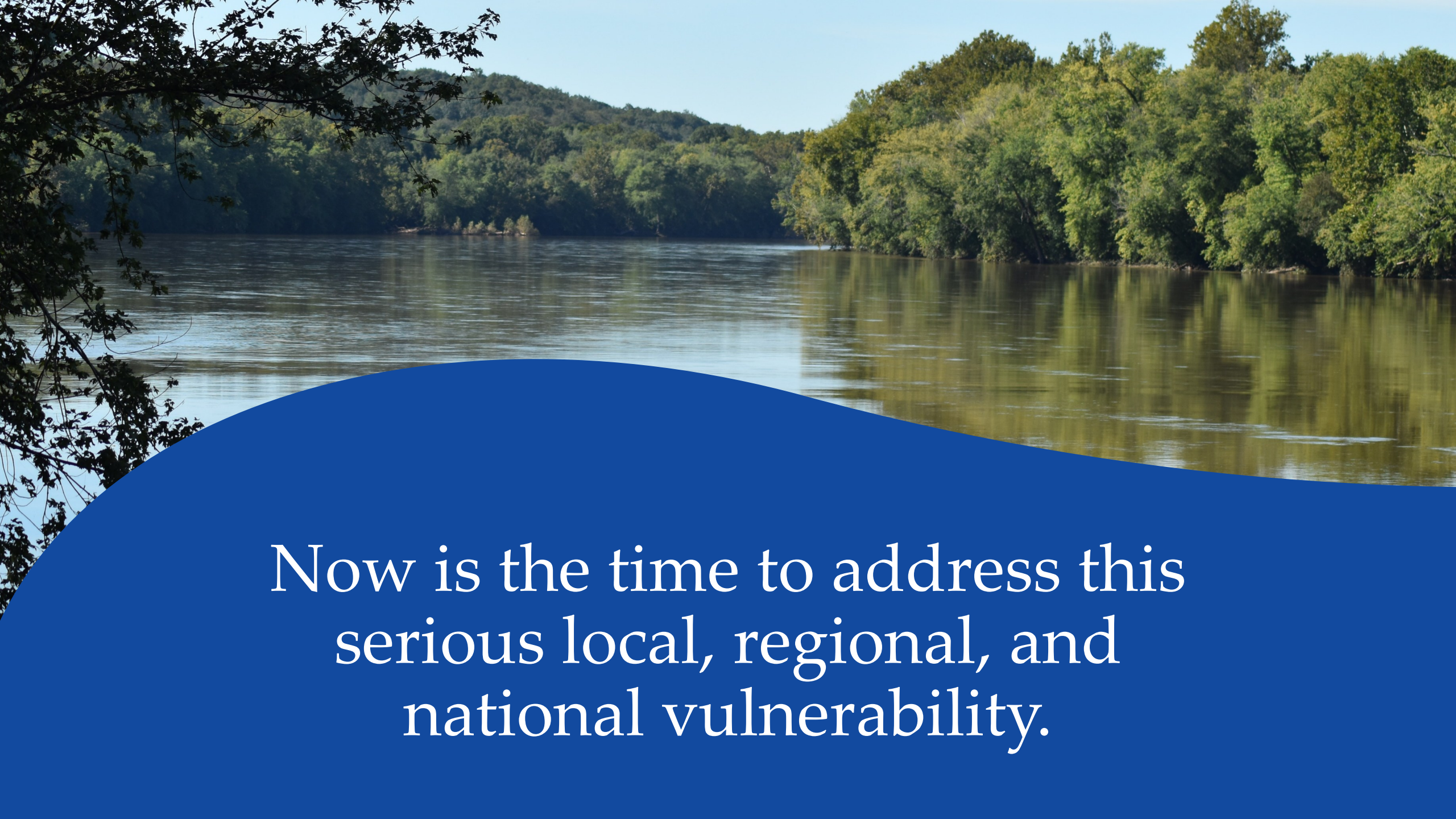
ICPRB, COG, and our water utilities are collaborating on a Congressional initiative to:

- Authorize the regional feasibility study in WRDA
- Appropriate the funds for the Study
- Brief public and elected officials across the region
- Have support from regional Congressional delegation and committee staff
- Develop messages to communicate urgency, role for federal funding

Status

In December 2022, Congress passed the Water Resources Development Act authorizing a regional water supply study, including the identifying a secondary water source and additional water storage capability in the National Capital Region. Congress appropriated \$500,000 for the Study. USACE launched Study in September 2024 with MWCOG as the primary non-federal partner. “Alternative Milestone Meeting” held on June 12, 20025. This feasibility Study originally estimated to take 3 years and cost \$3 million may cost as much as \$8 million.





Now is the time to address this
serious local, regional, and
national vulnerability.

Fairfax Water Overview

- Fairfax Water serves 2 million people with a daily average of 167 million gallons of treated water from the Potomac River and the Occoquan Reservoir.
- Water from the Washington Aqueduct supplies Fairfax County east of the Beltway and north of Arlington Boulevard.
- The rest of the County receives treated water from two water treatment plants: Corbalis & Griffith (shown).
- The U.S. Supreme Court ruled that Fairfax Water may build a structure to divert water from the Potomac River for use in Virginia without being subject to regulation by Maryland, even though the river lies entirely within Maryland. Virginia v. Maryland, 124 S. Ct. 598 (2003).



Other Challenges

In addition to drought and contamination events, providing clean, safe and abundant drinking water still faces many new challenges, such as:

- Salt in our waterways caused by excessive use of salt on roadways and sidewalks;
- PFAS (“Forever Chemicals”) from years of use in a variety of household products (Teflon) and firefighting foam;
- Harmful Algal Blooms caused by excessive nutrients from runoff;
- Impact of Water Usage to Cool Data Centers.



PROTECTING AND PRESERVING THE POTOMAC THROUGH SCIENCE AND COOPERATION



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Thank you to coalition members:
Arlington County, DC Water, Fairfax Water, WSSC Water,
and Metropolitan Washington Council of Governments



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