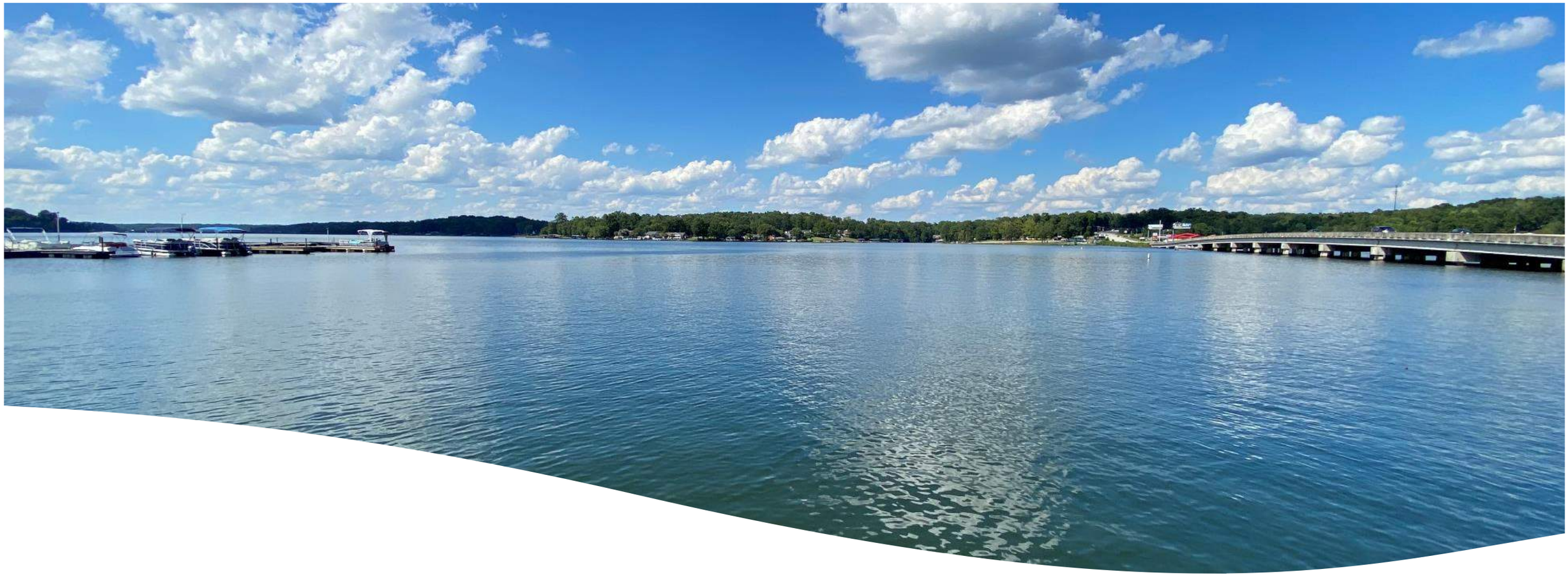


Review of April Meeting Highlights

Agenda Item 3

Proposal for Negotiations of Northbrook Hydroelectric Operations

It is proposed that the Saluda RBC seek to work with Northbrook Hydroelectric to obtain operations meeting the below criteria at its hydroelectric operation facilities at:

- Saluda Lake
- Holiday Dam
- Boyd Mill Pond

Criteria: A minimum release shall be maintained of the lesser of:

(1) instream flow to the operation (for example, at Saluda Lake, this would be incoming flow to Saluda Lake, less ECU withdrawals, lake evaporation, and any other withdrawals) to maintain lake level

(2) 30%* of MADF

*Note: the 30% value may be discussed

Proposal for Negotiations of Northbrook Hydroelectric Operations

It is requested that Northbrook add these facilities to its website at: http://carolinalakelevels.com including the following information:

(1) planned 3-day release schedule

(2) recent reservoir level

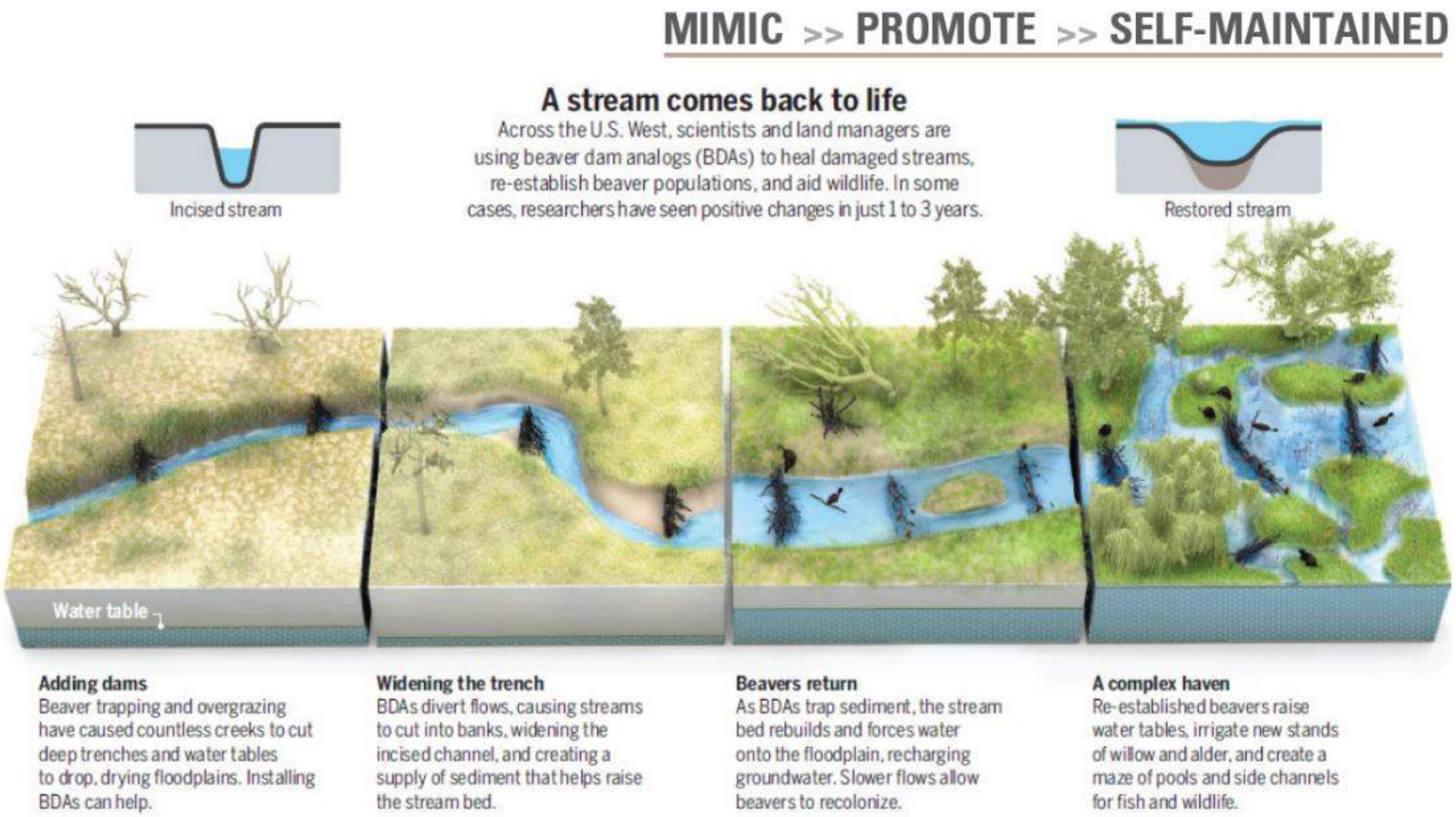
(3) recent release amounts

(4) 30-day** notice of planned lake level draw downs for maintenance

**Note: the 30-day value may be discussed. It may be reasonable to also allow a minimum release up to 20% less than the above criteria to allow the reservoir to return to its target level following a draw down in which proper public notice is given.

Low-Tech Process-Based Stream Restoration

Alex Pellett, SCDNR



An example from Goldfarb (2018) of achieving a self-sustaining condition where meals of beaver dam analogues (BDAs) mimic beaver dam activity, and then the maintenance and expansion of beaver dam activity is taken over by actual beaver and they maintain a complex system state. Figure © Science by V. Altounian

Upper Saluda Watershed Programs for Sediment

Melanie Ruhlman, RBC Member

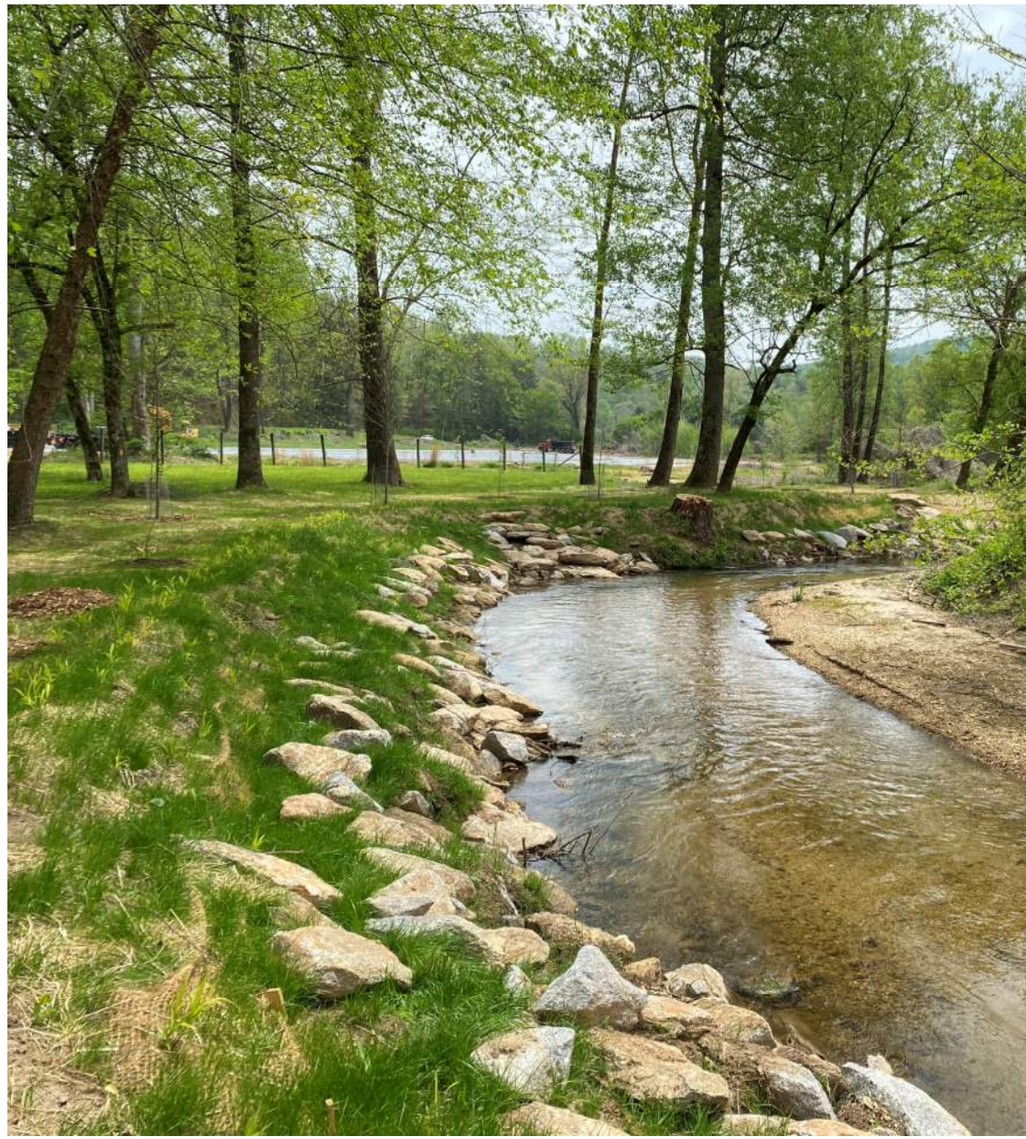
Saluda Lake Dredging

- $8,000,000+
- 366,000 yd^3 sediment removed
- Completed 2012
- Already filled in again

Sediment Impacts:

- Affects drinking water sources
- Loss of water supply storage
- Degrades aquatic habitat
- Effective pollutant carrier
- Impairs water quality
- Impacts recreation
- Loss of Land

Terry Creek Stream Restoration Sites

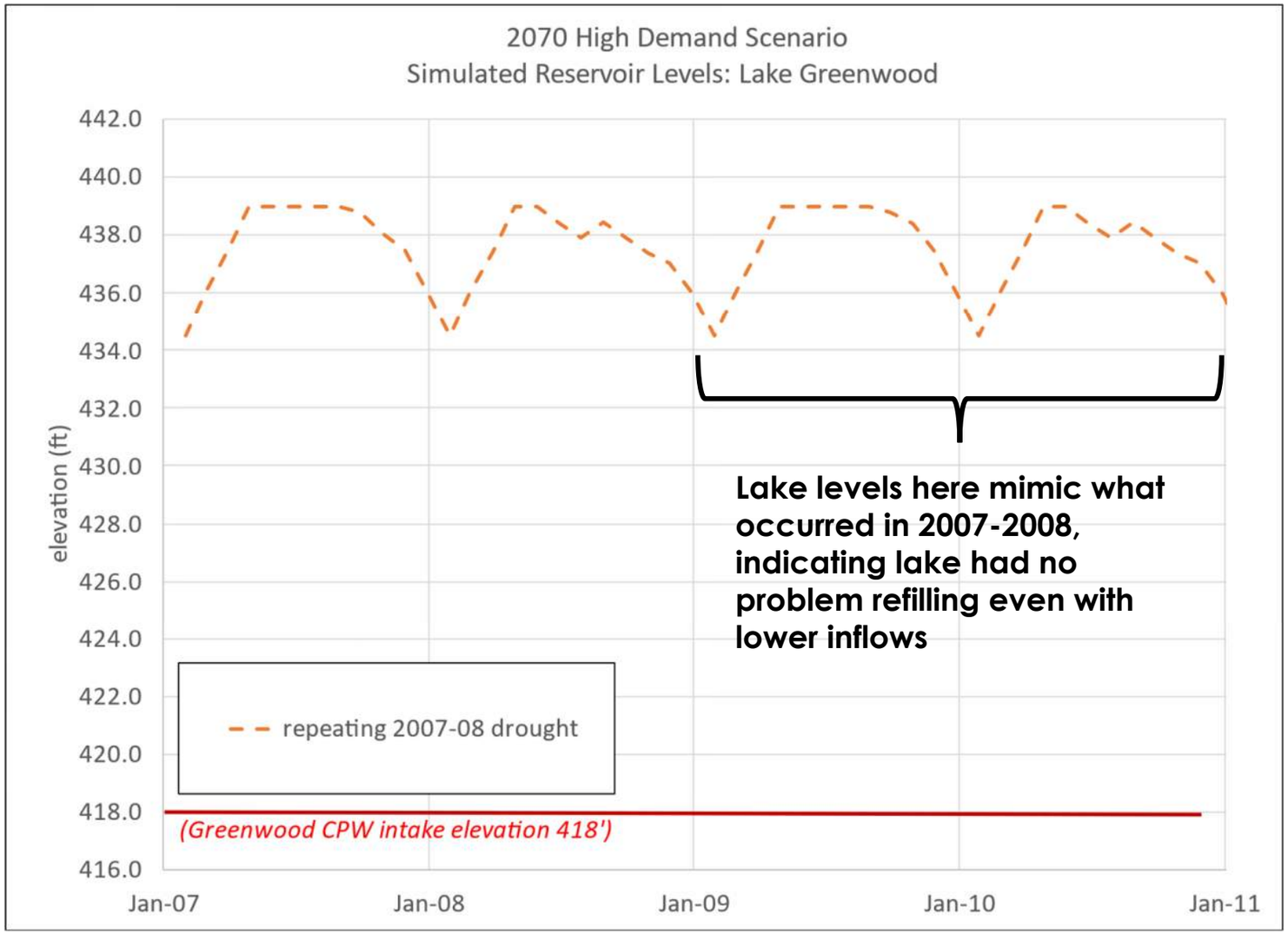


Bank Loss Examples

Terry Creek

North Saluda River

What is the impact to reservoirs if the drought of 2007-2008 were repeated?



Lake Greenwood levels repeating the hydrology of 2007-2008

(i.e., 2009-2010 hydrology was replaced with 2007-2008 hydrology)

2070 High Demand Scenario

Resequencing Historical Flows to Investigate Potential Future Droughts in the Upper Savannah Basin

Methods

Three (3) constructed scenarios:

1. Repeating 5-year drought constructed by splicing together the **five driest water years** in the hydrologic period of record with respect to mainstem total annual flow. These were **2001, 2008, 1981, 1988**, and **2017**.

2. **Repeating single year drought** corresponding to the **second driest water year (2008)** and identified as the critical single year drought with respect to Lake Thurmond water supply availability.

3. **Repeating synthetic drought year** constructed by splicing together the **twelve driest calendar month flows** in the hydrologic period of record.

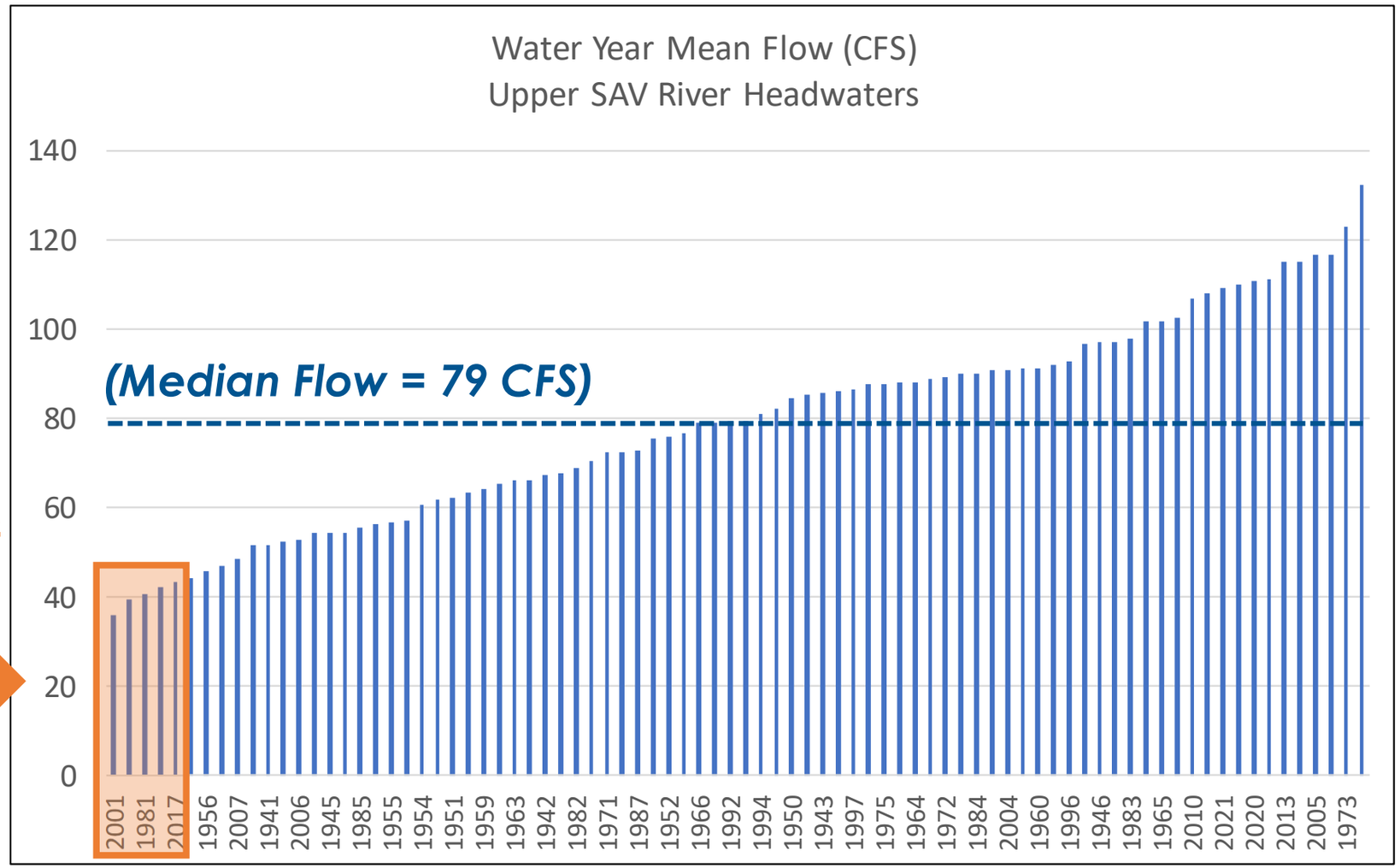
Resequencing Historical Flows to Investigate Potential Future Droughts

Methods

Ranked data based on mainstem headwater flows

5 Driest Years in terms of mainstem flow:

2001
2008
1981
1988
2017



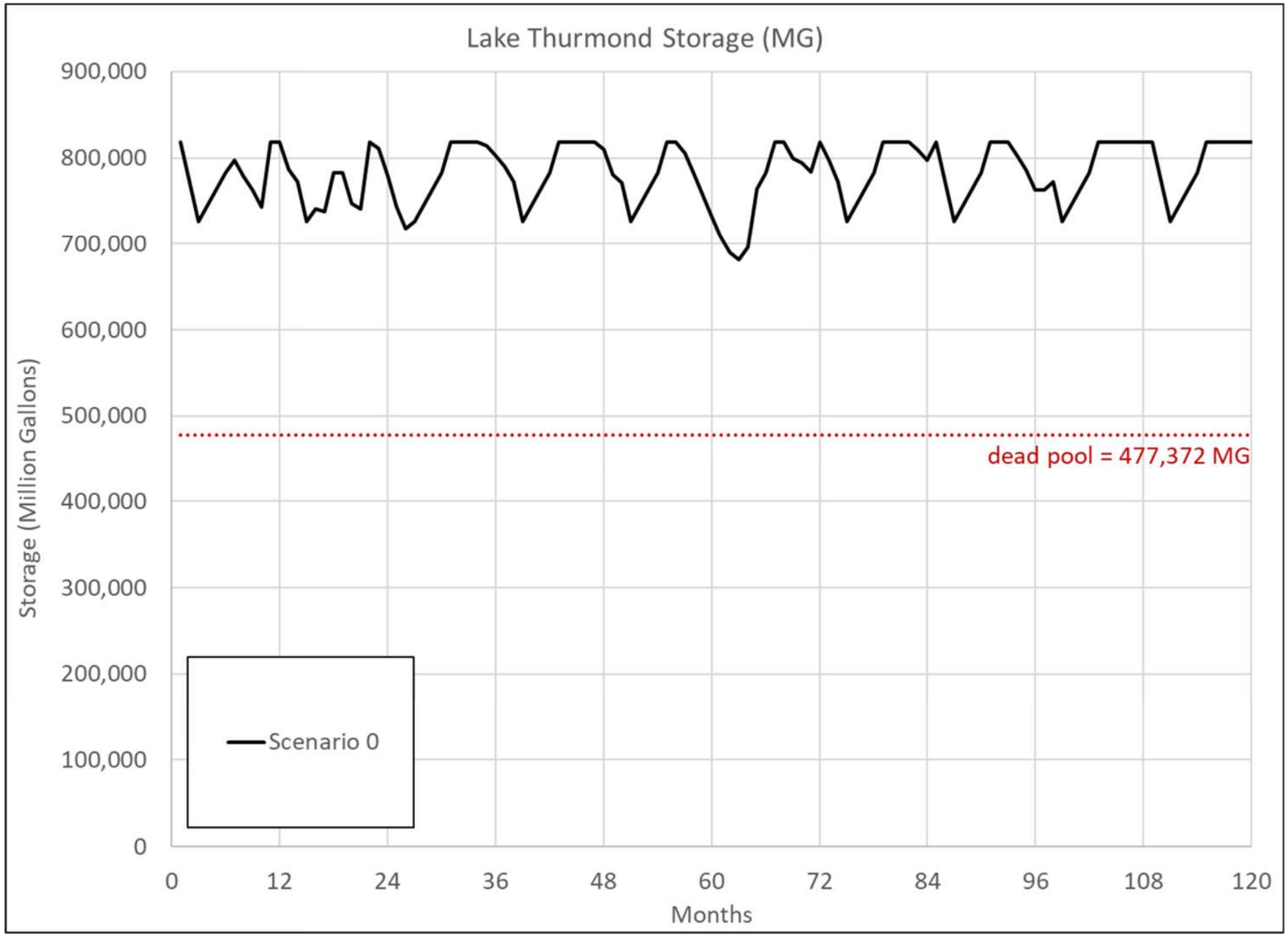
Resequencing Historical Flows to Investigate Potential Future Droughts

Methods

Scenario 3: 12 driest calendar months (Mainstem headwater flow)

Mean annual flow = 22.5 CFS

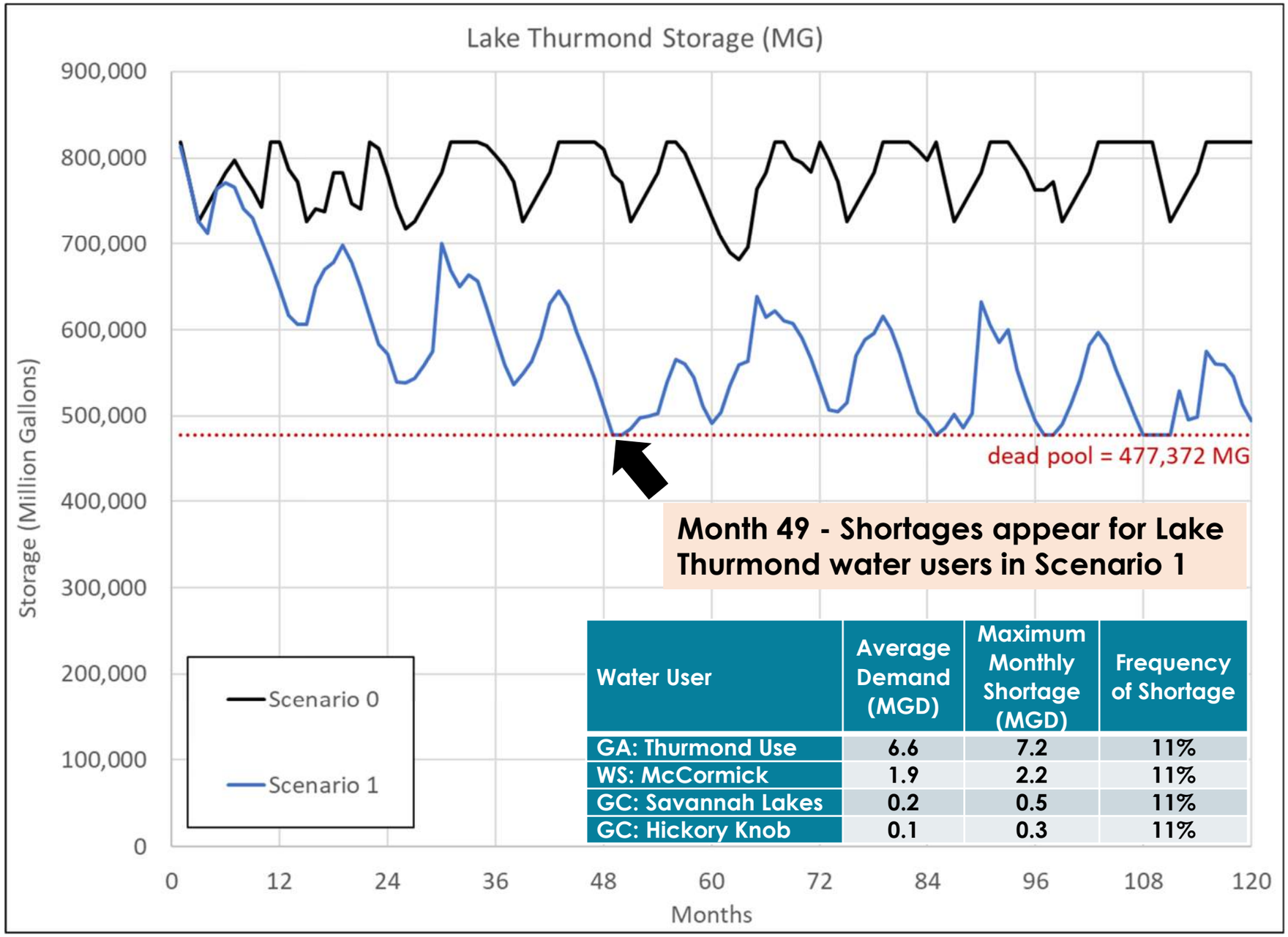
Jan	1956
Feb	2017
Mar	2017
Apr	1986
May	2001
Jun	2008
Jul	2008
Aug	2007
Sep	1954
Oct	1954
Nov	2016
Dec	1955



Resequencing Historical Flows to Investigate Potential Future Droughts

2070 High Demand Scenario is "Scenario 0"

Resequencing Historical Flows to Investigate Potential Future Droughts

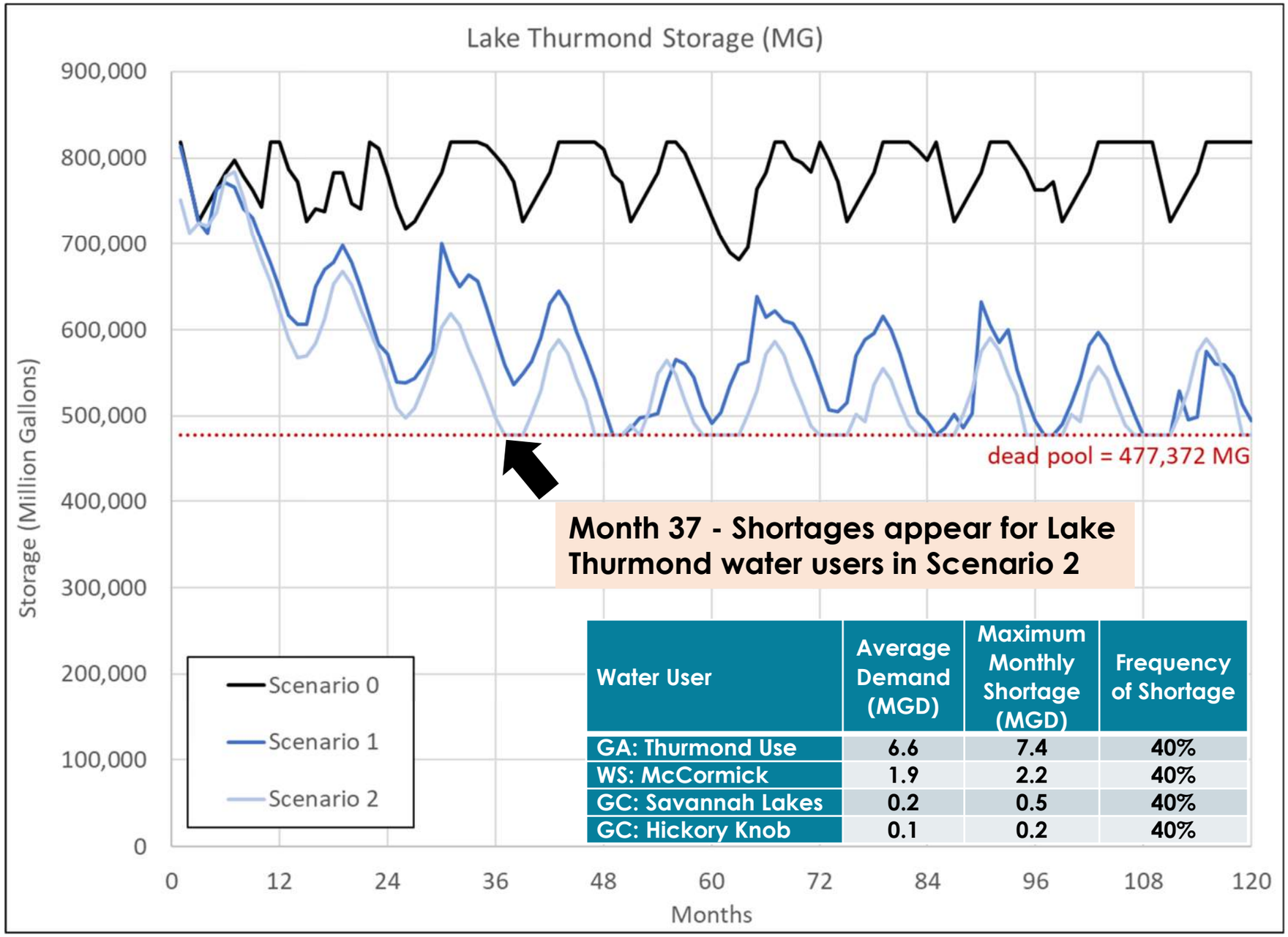


Month 49 - Shortages appear for Lake Thurmond water users in Scenario 1

Water User	Average Demand (MGD)	Maximum Monthly Shortage (MGD)	Frequency of Shortage
GA: Thurmond Use	6.6	7.2	11%
WS: McCormick	1.9	2.2	11%
GC: Savannah Lakes	0.2	0.5	11%
GC: Hickory Knob	0.1	0.3	11%

Scenario 1 Shortages

Resequencing Historical Flows to Investigate Potential Future Droughts

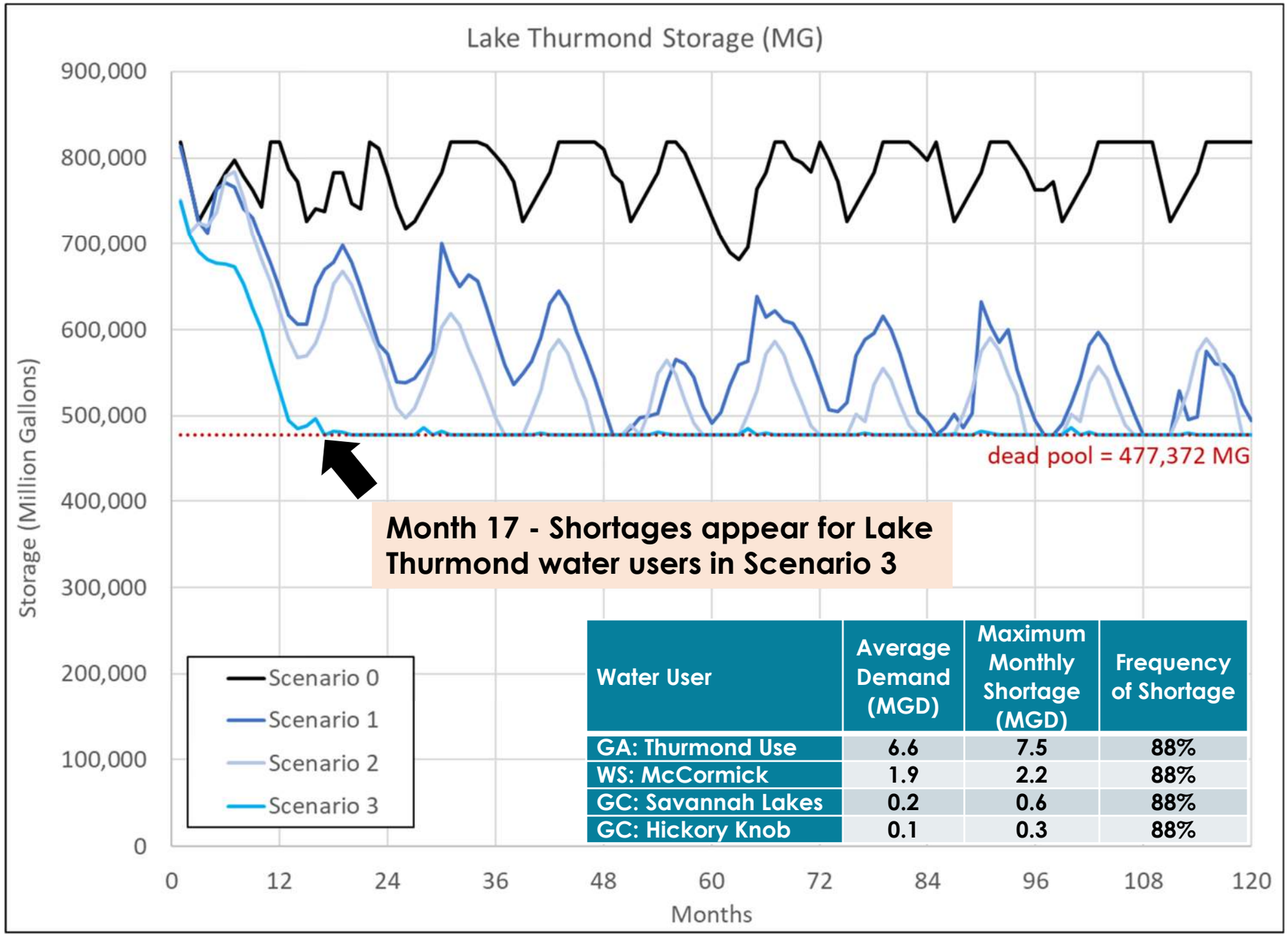


Month 37 - Shortages appear for Lake Thurmond water users in Scenario 2

Water User	Average Demand (MGD)	Maximum Monthly Shortage (MGD)	Frequency of Shortage
GA: Thurmond Use	6.6	7.4	40%
WS: McCormick	1.9	2.2	40%
GC: Savannah Lakes	0.2	0.5	40%
GC: Hickory Knob	0.1	0.2	40%

Scenario 2 Shortages

Resequencing Historical Flows to Investigate Potential Future Droughts



Month 17 - Shortages appear for Lake Thurmond water users in Scenario 3

Water User	Average Demand (MGD)	Maximum Monthly Shortage (MGD)	Frequency of Shortage
GA: Thurmond Use	6.6	7.5	88%
WS: McCormick	1.9	2.2	88%
GC: Savannah Lakes	0.2	0.6	88%
GC: Hickory Knob	0.1	0.3	88%

Scenario 3 Shortages