LTEMP Experiments Update

AMWG Meeting August 20, 2025

LTEMP Experiments

"The overall approach attempts to strike a balance between identifying specific experiments and providing flexibility to implement those experiments when resource conditions are appropriate."

"...rather than proposing a prescriptive approach to experimentation, an adaptive management-based approach that is responsive and flexible will be used to adapt to changing environmental and resource conditions..."

--2016 LTEMP ROD, p. B-9

LTEMP Process for Experiments

- Annual Reporting and TWG meetings
- Notification and Consultation to Tribes & PA Parties
- Implementation / Planning Team Recommendation
- DOI decision

1.4 COMMUNICATION AND CONSULTATION PROCESS FOR ALTERNATIVE D

To determine whether conditions are suitable for implementing or discontinuing experimental treatments or management actions, the DOI will schedule implementation/planning meetings or calls with the DOI bureaus (USGS, NPS, FWS, BIA, and Reclamation), WAPA, AZGFD, and one liaison from each Basin State and from the UCRC, as needed or requested by the participants. The implementation/planning group will strive to develop a consensus recommendation to bring forth to the DOI regarding resource issues as detailed at the beginning of this section, as well as including WAPA's assessment of the status of the Basin Fund. The Secretary of the Interior will consider the consensus recommendations of the implementation/planning group, but retains sole discretion to decide how best to accomplish operations and experiments in any given year pursuant to the ROD and other binding obligations.

Potential LTEMP Flow Experiments

- Sediment (High Flow Experiments)
  - Spring HFE
  - Proactive spring HFE
  - Fall HFE
  - Fall HFE extended duration (up to 250 hr)

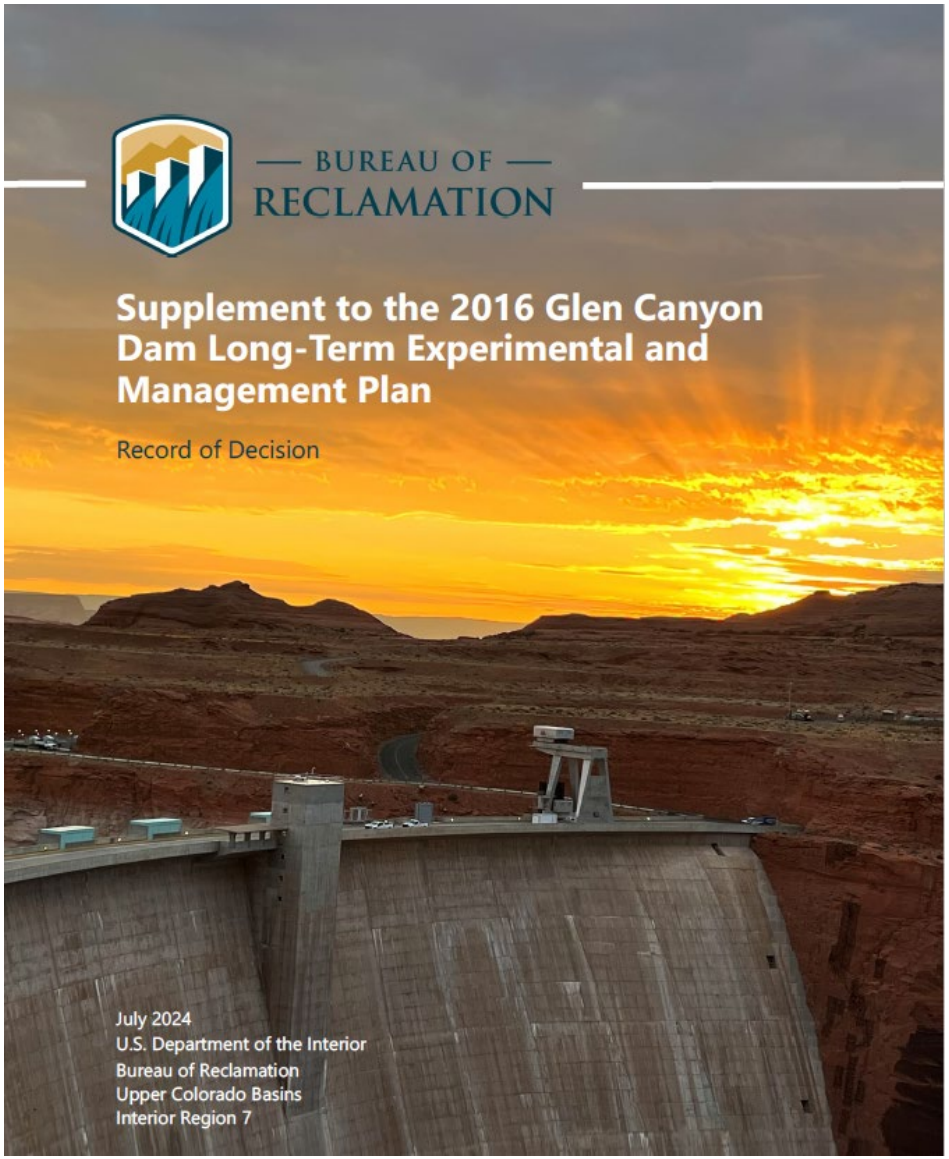
- Aquatic Resource
  - Macroinvertebrate Flow
  - Trout Management Flows
  - Low summer flows (2nd ten years of LTEMP)

- LTEMP SEIS
  - Smallmouth Bass Flows
  - HFE protocol revision

Smallmouth Bass Flows

Record of Decision

- Operational Flows (2024-2027)
  - Cool mix is the preferred alternative for 2024
  - Cool Mix Alternative and the other alternatives possible in 2025-2027 (if needed).



Smallmouth Bass Flows 2024

- 15.5 C down to River Mile 61
- 133 days of bypass (7/9-11/18)
- Avoided bypass during peak hydropower demand hours
- 29 days temps exceed 15.5 C (14 occurred after cool mix started)
- Estimated hydropower cost = ~$18.9 million
- No Young of year smallmouth bass observed

2025 Smallmouth Bass Flow Timeline

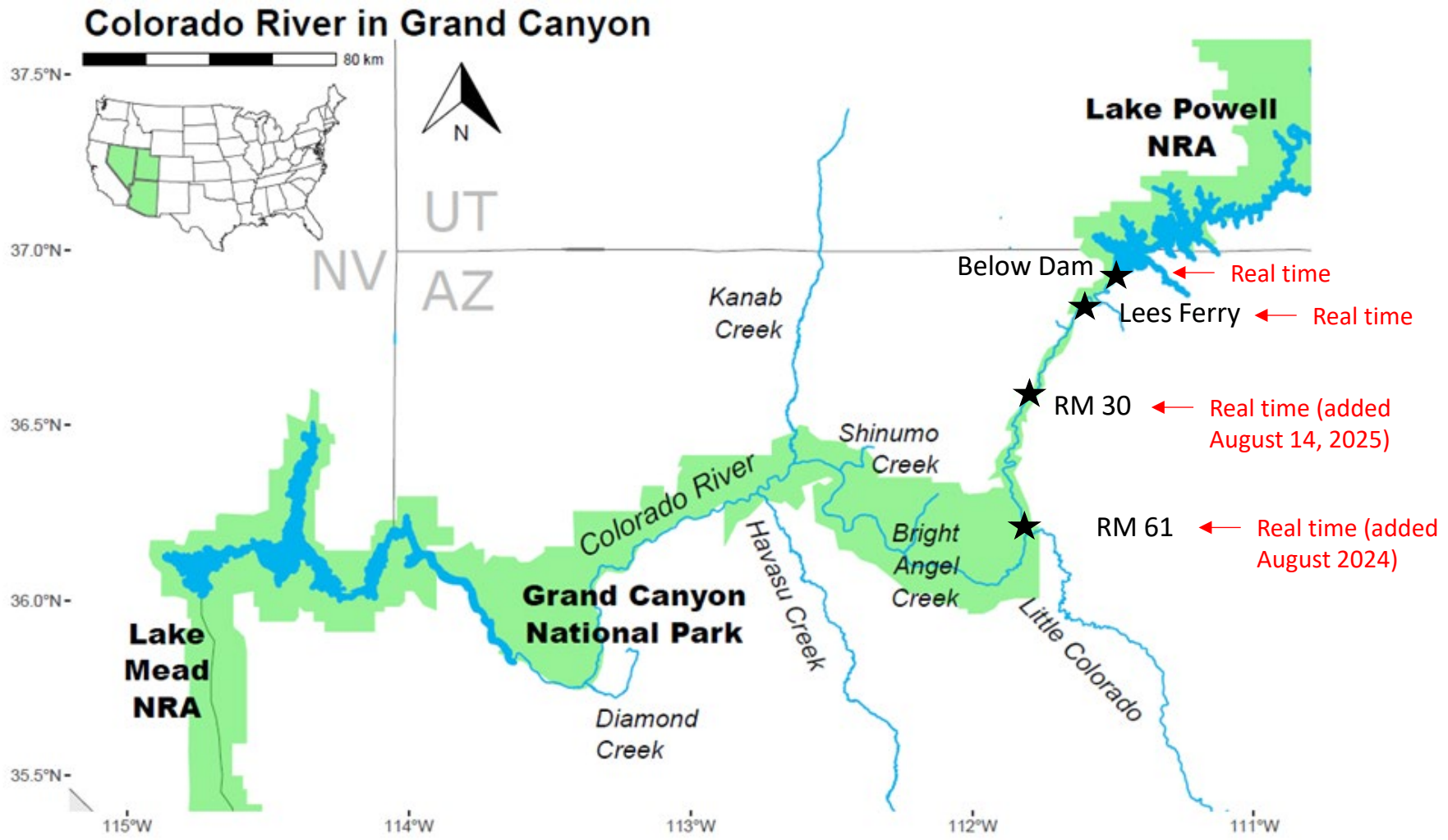
- MARCH-APRIL: Technical team met weekly
  - Considered a range of flow options
  - GCMRC developed screening tool
- MAY: PI leadership team recommended (92% support) “cool mix” with RM30 as the target location ending no later than October 20.
- JULY 3,2025 - DOI decision to Implement

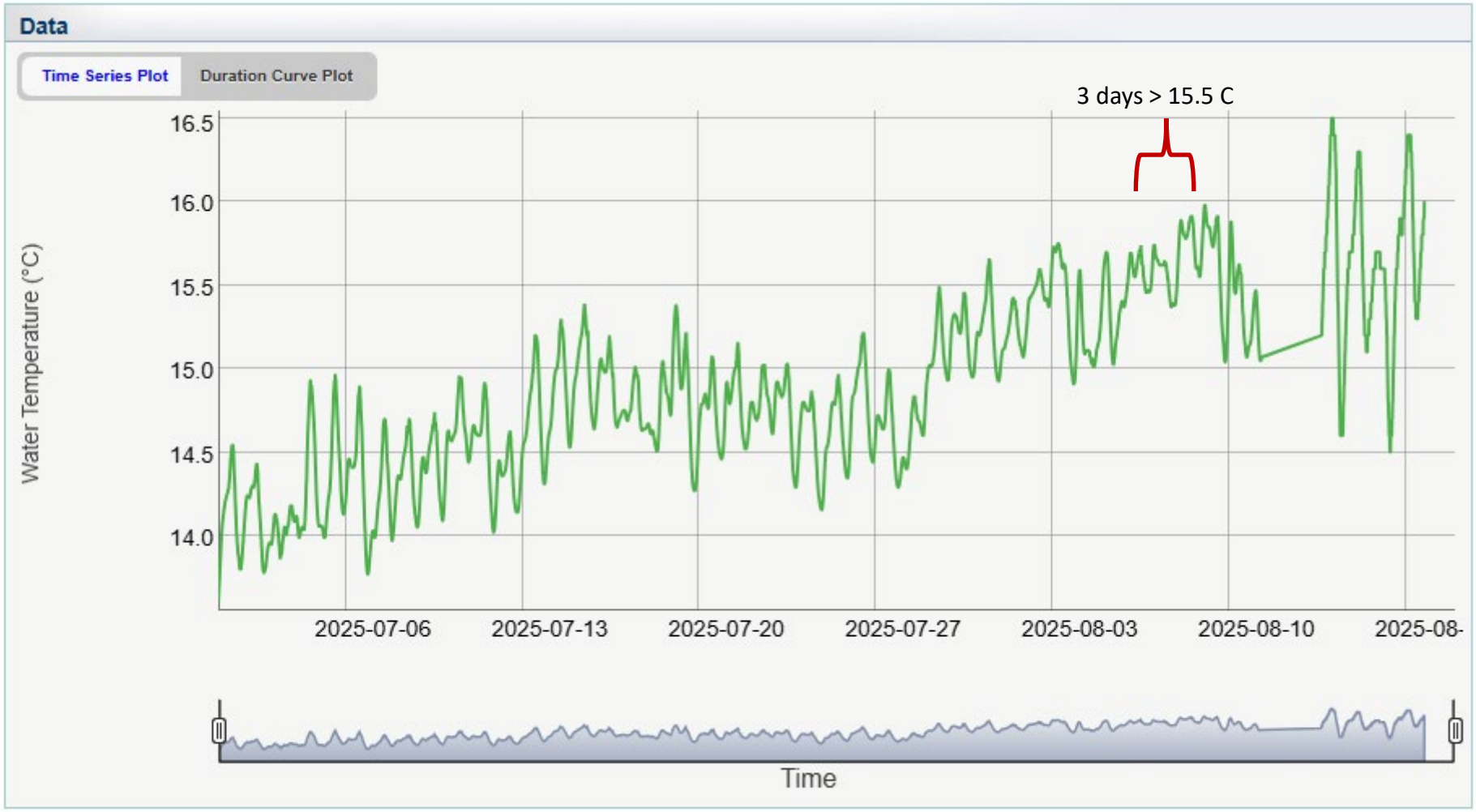
Implementation

Temperatures

The cold-water alternatives have been modeled for cooling effects at river miles 15 and 61. Modeling these locations provides a representation of potential effects on resources at different river reaches. The trigger for implementation would be when observed temperatures exceed 15.5°C (60°F) for 3 consecutive days. Currently real time temperature data exists below Glen Canyon Dam and at Lees Ferry (river mile 0). There are additional gauges at river mile 30 and river mile 61, however these gages do not provide real time data, but can be downloaded remotely. For locations that do not have real time temperature data, the best available models would be used to determine trigger timing. The trigger location for the 15.5°C (60°F) threshold could be anywhere upstream of river mile 61, depending on the smallmouth bass distribution and size class, frequency and efficacy of sampling, or other considerations as determined through the planning and implementation process. Smallmouth

*LTEMP SEIS ROD (page 3)


Colorado River in Grand Canyon
80 km
N
37.5°N
37.0°N
36.5°N
36.0°N
35.5°N
115°W
114°W
113°W
112°W
111°W
UT
NV
AZ
Lake Powell NRA
Below Dam
Real time
Lees Ferry
Real time
RM 30
Real time (added August 14, 2025)
RM 61
Real time (added August 2024)
Kanab Creek
Shinumo Creek
Colorado River
Bright Angel Creek
Havasu Creek
Little Colorado
Grand Canyon National Park
Lake Mead NRA
Diamond Creek

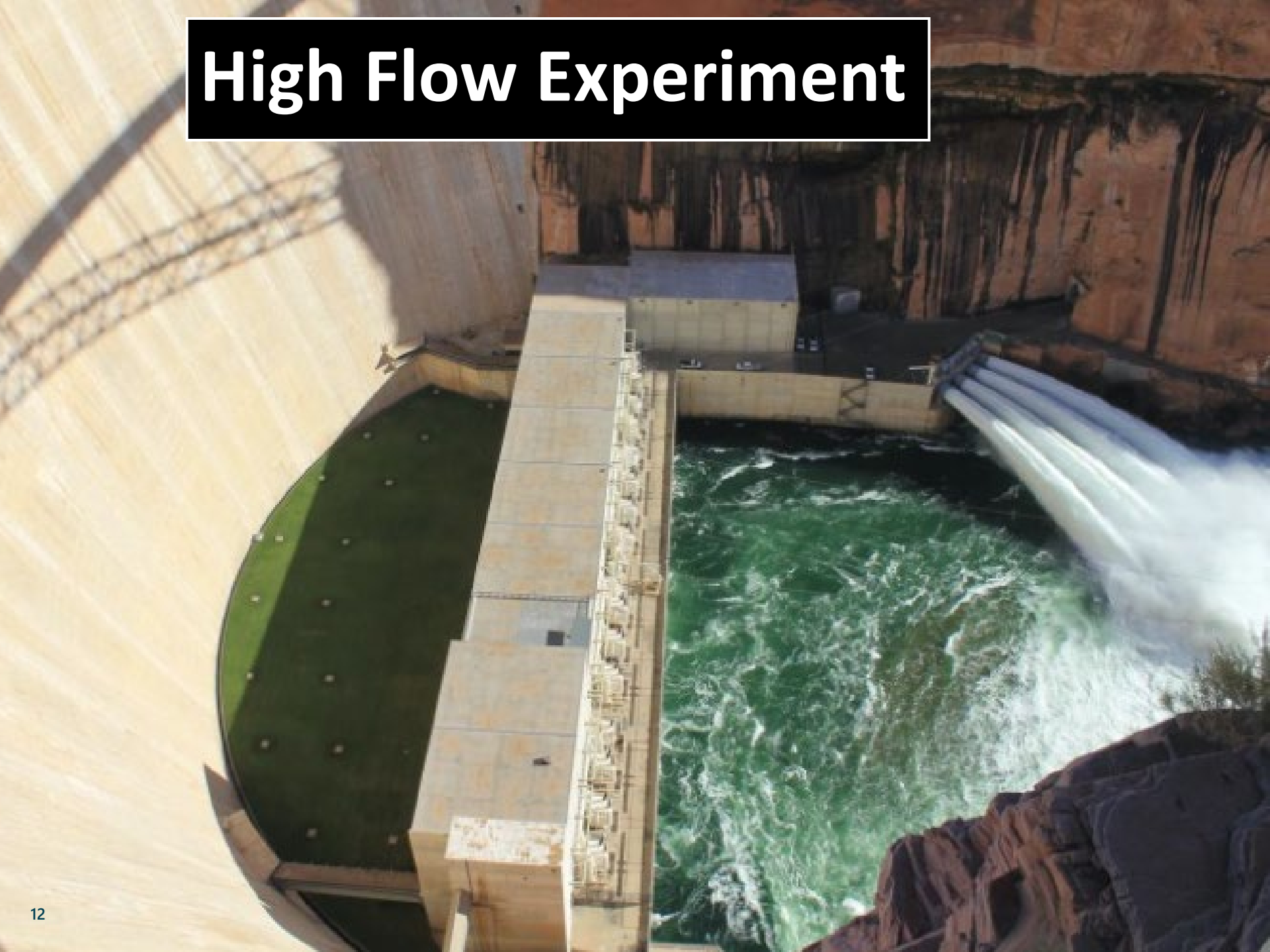


- August 3 - Cool mix initiated based on modeling
- August 5 - GCMRC data download showed observed temperatures just under target and flows were paused
- August 12 - flows resumed based 3 consecutive days observe above 15.5 (Aug 6-8)

Next steps

- After AMWG – PI team will begin meeting
- Continue flows until:
  - October 20 or dam release temperatures drop below 15.5 C (whichever comes first)
  - PI team could recommend adjustments to this based on new information

High Flow Experiment



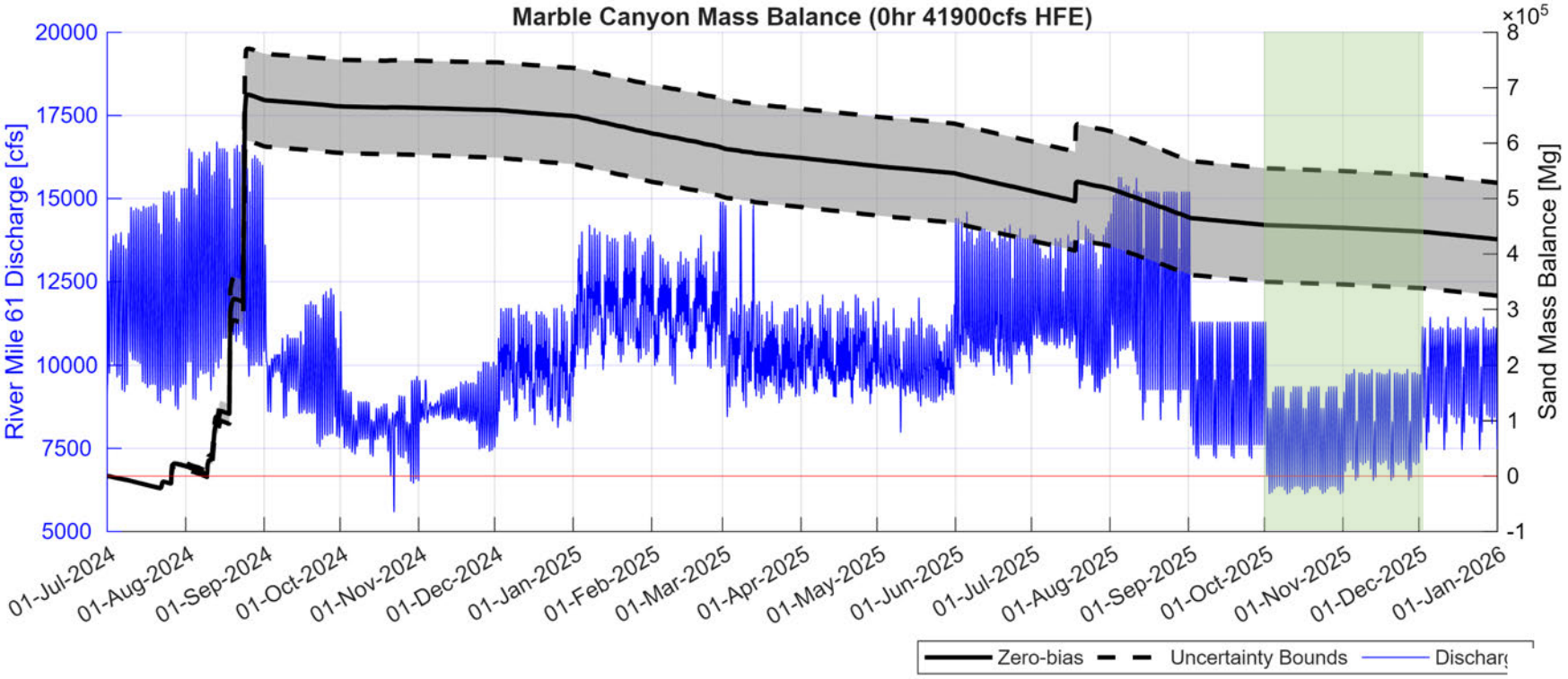
LTEMP SEIS ROD Language

- "Planning for HFE releases will follow the planning and implementation process described in Section 7 of the 2016 LTEMP ROD, including close monitoring of all experimental treatments for unacceptable adverse impacts on important resources. Sand budget models will be run throughout the fall to determine whether sufficient sediment is available to conduct an HFE release. If sufficient sediment is available in the fall, the planning and implementation team may recommend conducting the fall HFE release or deferring implementation to the spring implementation window. Prior to the spring implementation window, the planning and implementation process will again be used to provide a recommendation on the duration, magnitude, and timing of the spring HFE release. If the HFE release is conducted, sediment accounting will restart on July 1. If, through the planning and implementation process, the recommendation is not to conduct an HFE release despite sufficient sediment, the remaining mass balance at the end of June will be carried into the new accounting period."

2024 - 2025 HFE Timeline

- Fall 2024 Trigger Met and PI team recommended deferment
- 50 kaf of volume moved from March into June in anticipation of Spring HFE
- Spring 2025 Modelling
  - 60-hr at 41,900 cfs
  - 96-hr at 25,000 cfs
  - No HFE (522,000 mt rollover)
- PI team recommended not to conduct and HFE due to ongoing slough modification at the time

Where are we now?



~425,000 tons +/- 100,000 tons

Historical HFEs

TABLE 1 | High-flow experiments (HFEs) implemented from March 1996 to April 2023.

Start date of HFE peak at Lees Ferry	Peak discharge[a] (ft^3/s)	Duration[a] (h)	Marble Canyon sand mass balance[b] (Mg)			Paria River sand input[b] (Mg)
March 26, 1996	45,000	182	—		—	3,80,000
November 4, 1997	30,800	40	—		—	1,700,000
May 2, 2000	30,500	72	—		—	920,000
September 5, 2000	31,000	72	—		—	3700
November 21, 2004	41,700	79	570,000	±	130,000	620,000
March 6, 2008	42,800	80	480,000	±	170,000	860,000
November 19, 2012	44,500	85	710,000	±	120,000	690,000
November 11, 2013	37,000	99	2,000,000	±	320,000	1,900,000
November 10, 2014	38,000	104	1,300,000	±	200,000	1,200,000
November 7, 2016	36,500	99	640,000	±	160,000	840,000
November 5, 2018	39,500	65	560,000	±	150,000	750,000
April 24, 2023	40,000	78	1,700,000	±	290,000	1,700,000

[a]Duration computed as period of discharge at or above power plant capacity (this is the period at the indicated peak discharge for the 1997 and 2000 events and the period above 892 m^3/s for all other events). Peak discharge and duration for Lees Ferry gage from U.S. Geological Survey (2024a).
[b]The mass balance and Paria River sand inputs reflect the sand supplied to Marble Canyon during the preceding thunderstorm season and are computed for the period from July 1 to the beginning of the ramp up to the HFE peak (1–2 days before the start of the HFE peak at Lees Ferry). Marble Canyon sand mass balance and Paria River sand input from U.S. Geological Survey (2024a) and for 1996 only, from Topping et al. (2010).

Grams, Paul E., et al. "Implementation of controlled floods for sediment management on the Colorado River in Grand Canyon under aridification." *River Research and Applications* 41.2 (2025): 334-348.

Next Steps

- After AMWG - PI tech team will begin regular calls after AMWG meeting
- Tribal notification letters will go out
- Current maintenance schedule has all available units after the first week of November

Questions?