



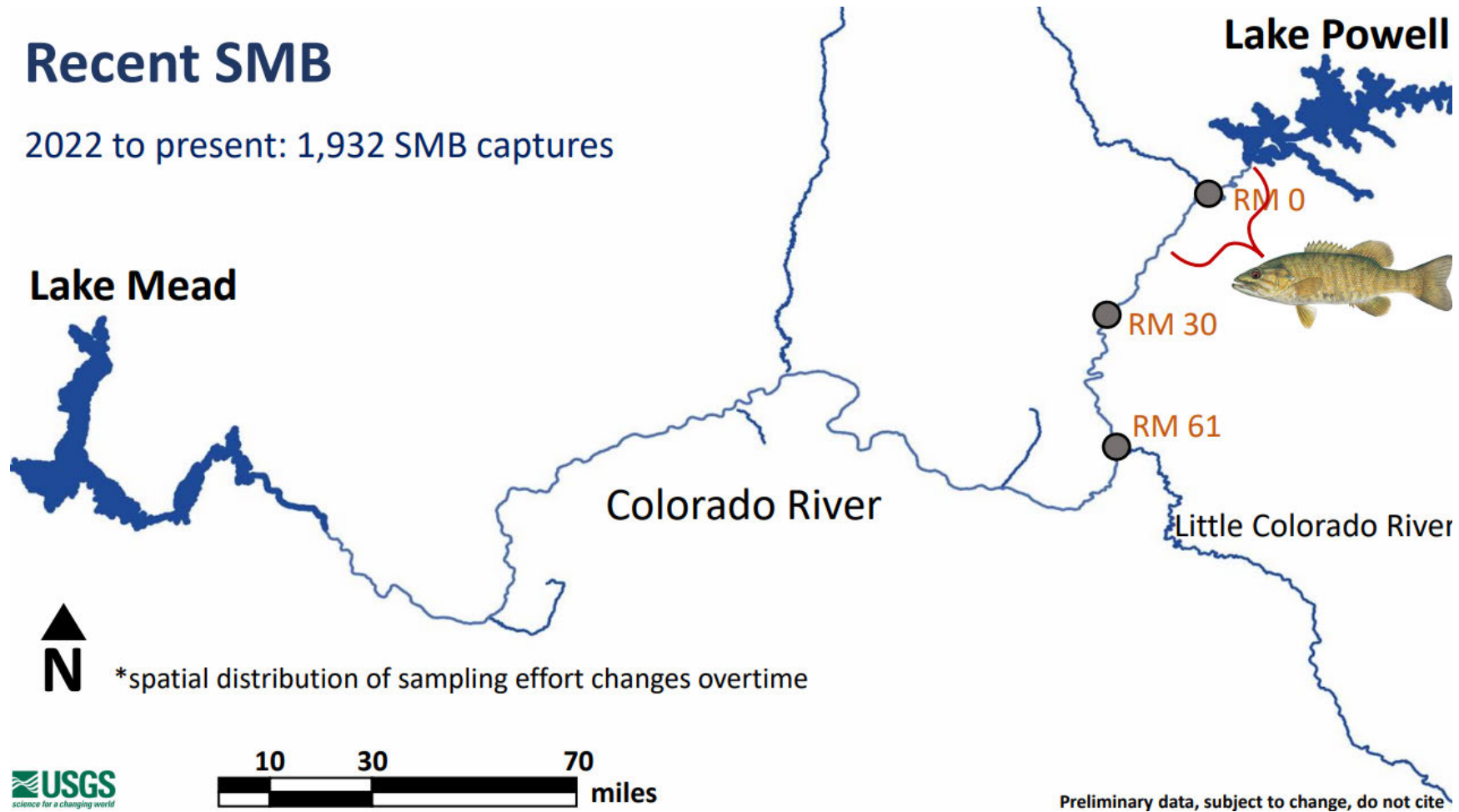
# **Glen Canyon Dam Adaptive Management Program – Nonnative Fish Strategic Plan**

**Bureau of Reclamation**



## Recent SMB

2022 to present: 1,932 SMB captures



\*spatial distribution of sampling effort changes overtime



Preliminary data, subject to change, do not cite



## Farthest Downstream SMB Captures

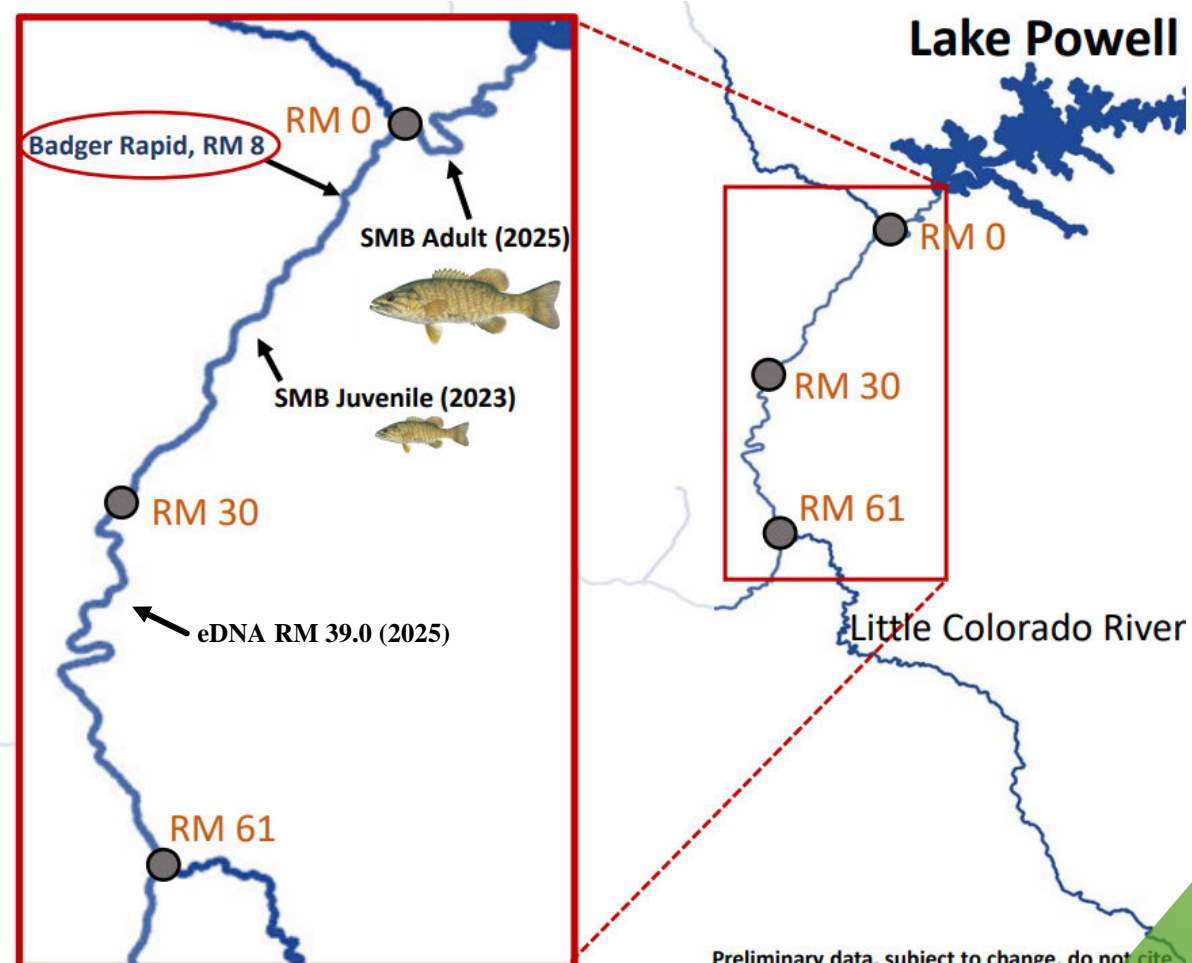
2022 – present

Juvenile: RM 16.38 (2023)

Adult: RM -3.49 (2025)



\*sampling effort changes

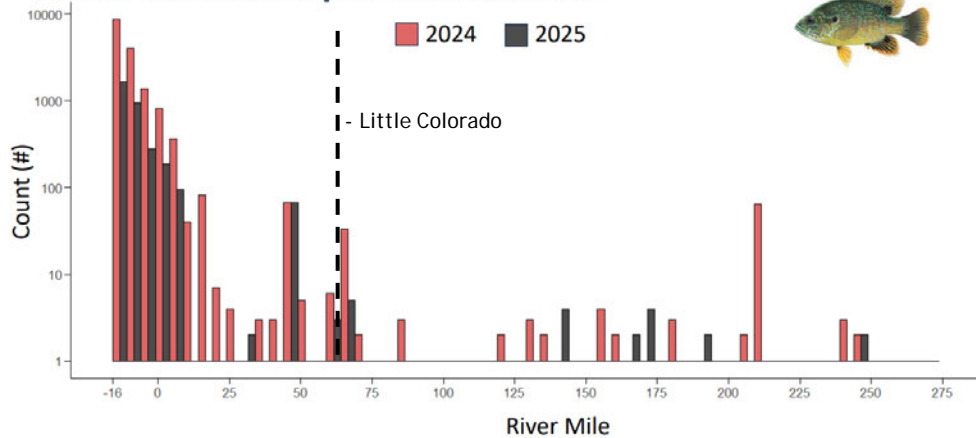


Preliminary data. subject to change. do not cite



# AMWG February 25-26, 2026

## Green Sunfish Captures: Location

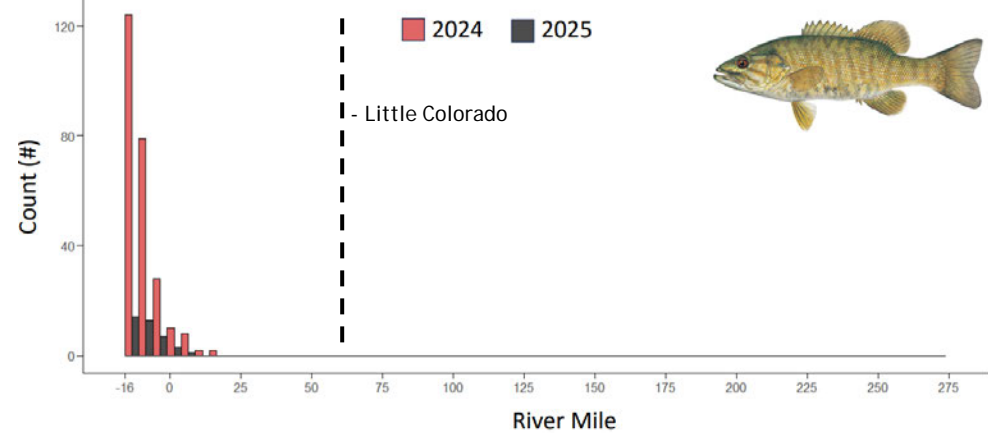


Preliminary data, subject to change, do not cite

\*Spatial distribution of effort differs through time

## Smallmouth Bass Captures: Location

(Full calendar year)



Preliminary data, subject to change, do not cite

\*Spatial distribution of effort differs through time

No YOY in 2024 or 2025 suspected

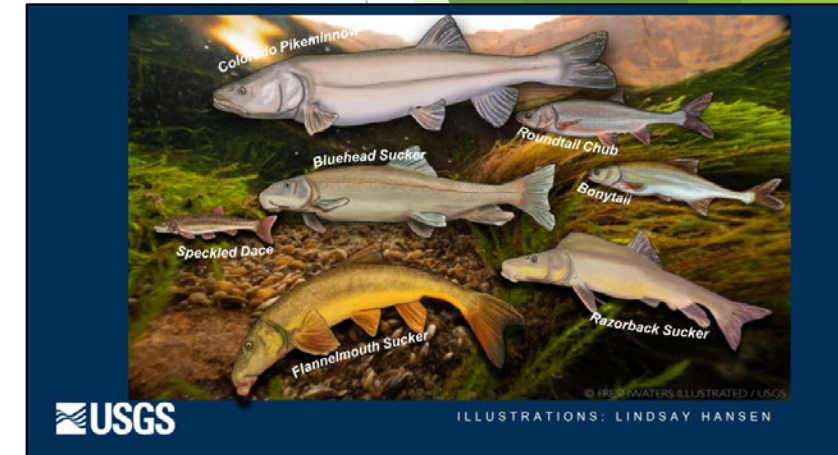


# Nonnative Strategic Plan Overview

## Invasive Fish Species Below Glen Canyon Dam: A Strategic Plan to Prevent, Detect and Respond

*Developed by the Smallmouth Bass Ad Hoc Group, through the Technical Work Group of the Glen Canyon Dam Adaptive Management Program in partnership with the Grand Canyon Monitoring and Research Center and the Bureau of Reclamation*

Presented to the Glen Canyon Dam Adaptive Management Group Technical Work Group on January 26, 2023, and accepted by the Adaptive Management Work Group on February 16, 2023.

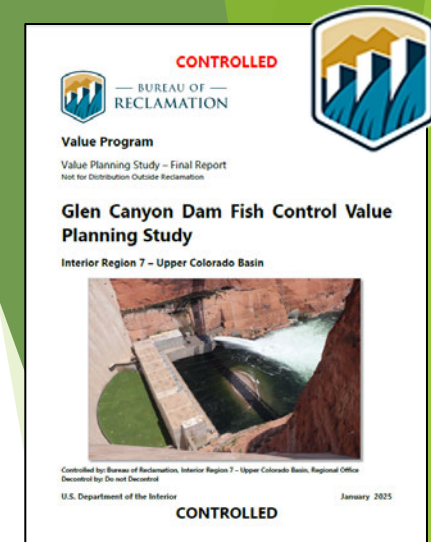
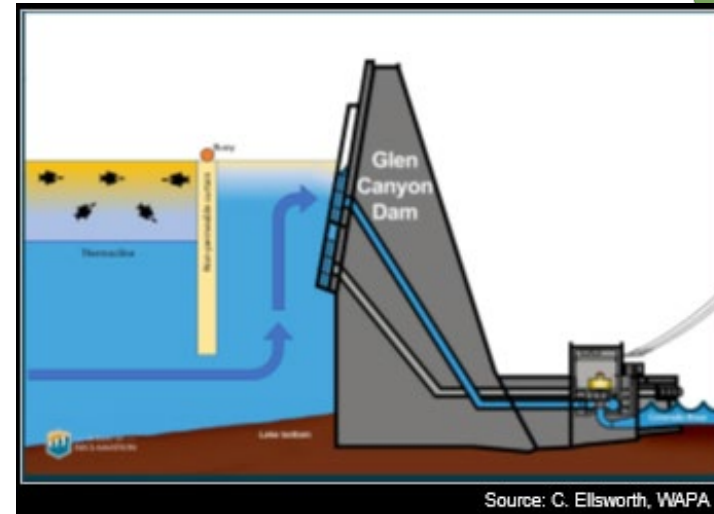


- ▶ Directive from DOI in May-2022, Finished in Winter-2023
- ▶ Key Takeaways from Stakeholders:
  - ▶ (1) Long-term prevention will require limiting fish entrainment into GCD.
  - ▶ (2) Mid-term flow actions are intended to prevent successful spawning of smallmouth bass below GCD.
  - ▶ (3) Short-term rapid response actions may be needed to address newly detected smallmouth bass and other invasive fishes if proposed actions are determined to have a high likelihood of success.



# Long-Term - History

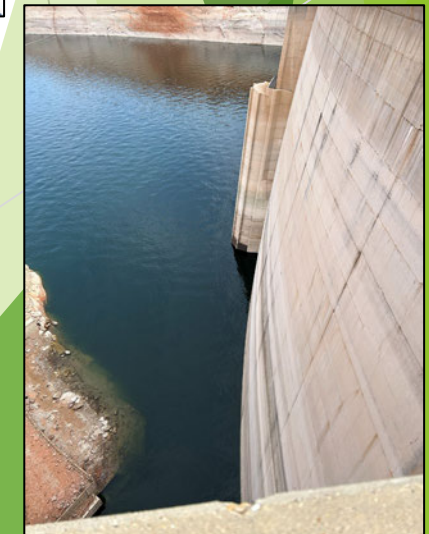
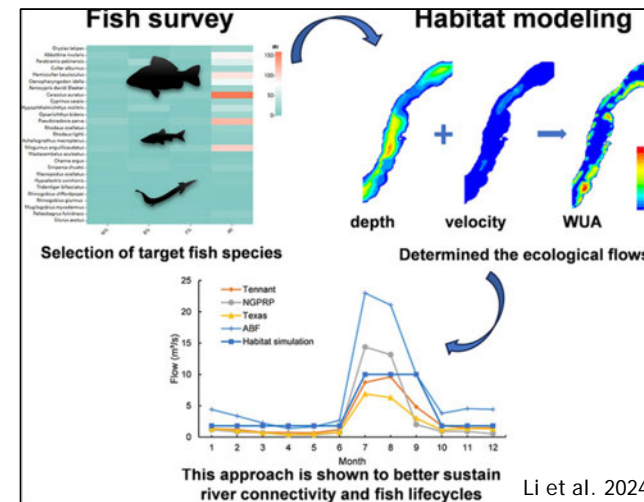
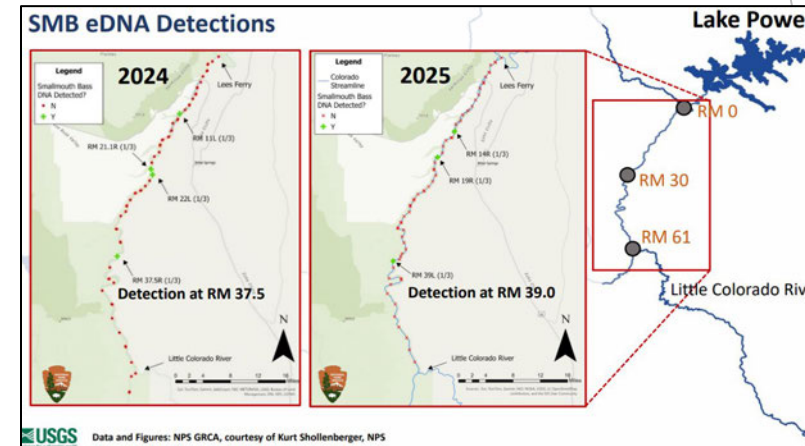
- ▶ Fish Escapement Options - Sept. 2022
- ▶ Nonnative Fish Strategic Plan - Feb. 2023
- ▶ Assessment of Fish Entrainment Study - Dec. 2023
- ▶ TSC Knowledge Search and 30% Design - June 2024
- ▶ Thermal curtain - Biofouling study in progress
- ▶ Non-Native Fish Control Lit. Review - May 2025
- ▶ Value Planning Study - July 2025
- ▶ Entrainment Deterrent Study - Investigating- 2026
- ▶ Hydroacoustic Entrainment Modeling - Planning Stage - 2026
- ▶ Temperature Control Device - Working on next steps



# Mid-Term - History



- ▶ LTEMP SEIS Flow EA - Feb. 2023
- ▶ LTEMP SEIS Flow EIS - July 2024
- ▶ Cool-Mix Flow - Implemented summer 2024
- ▶ -12 Mile Slough - Completed June 2025
- ▶ Cool-Mix Flow - Implemented summer 2025
- ▶ Cool-Mix Flow - Under consideration for 2026
- ▶ Dam Operations - Entrainment vary by penstock?
- ▶ Habitat near forebay modification - In Discussion
- ▶ Hotspot mapping and habitat modification potential above (already done) and below Lees Ferry



# Slough Update



- ▶ Construction completed June 2025, NPS replanting continues
- ▶ Considering LIDAR survey
- ▶ Considering minor cleaning of upper channel
- ▶ Designed to meet 1ft/s water velocity at ~12k CFS to push bass of nest. Summer flows expected to be ~9k CFS or less.
- ▶ Nest creation at 0.5ft/s and anticipated to meet that this summer
- ▶ Anticipate water temperature equalization with mainstem





# Short-Term - 2026 Plan

- ▶ Rapid Response – Monitoring/removal via electrofishing, netting, visual surveys, artificial nests, sonar
  - ▶ Emphasized in workshop to continue these efforts and be ready to increase and learn from uncertainties this year
  - ▶ Glen Canyon and Grand Canyon monitoring by the National Park Service was updated for 2026 and details can be found in the Rapid Response Plan sent out with the Rapid Response meeting notes
  - ▶ Types of sampling/monitoring
    - ▶ Electrofishing – River and Backwaters
    - ▶ Netting – Fyke and Hoop
    - ▶ Snorkeling Survey
    - ▶ Temperature Monitoring
    - ▶ Artificial Spawning Substrate monitoring
    - ▶ eDNA sampling – throughout the entire river
    - ▶ Rotenone – on standby and working on getting all permits in place. Only use if needed!
    - ▶ Sampling in forebay of dam but focus remains below dam
    - ▶ **REMAIN FLEXIBLE AND ADAPTABLE!!!!**



GLCA NRA

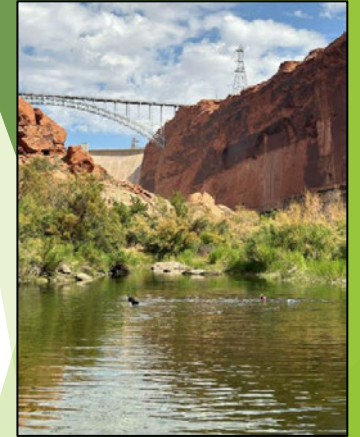


Photo: Ben Goldfarb



Photo: Kim Dibble, USGS

## Rapid Response

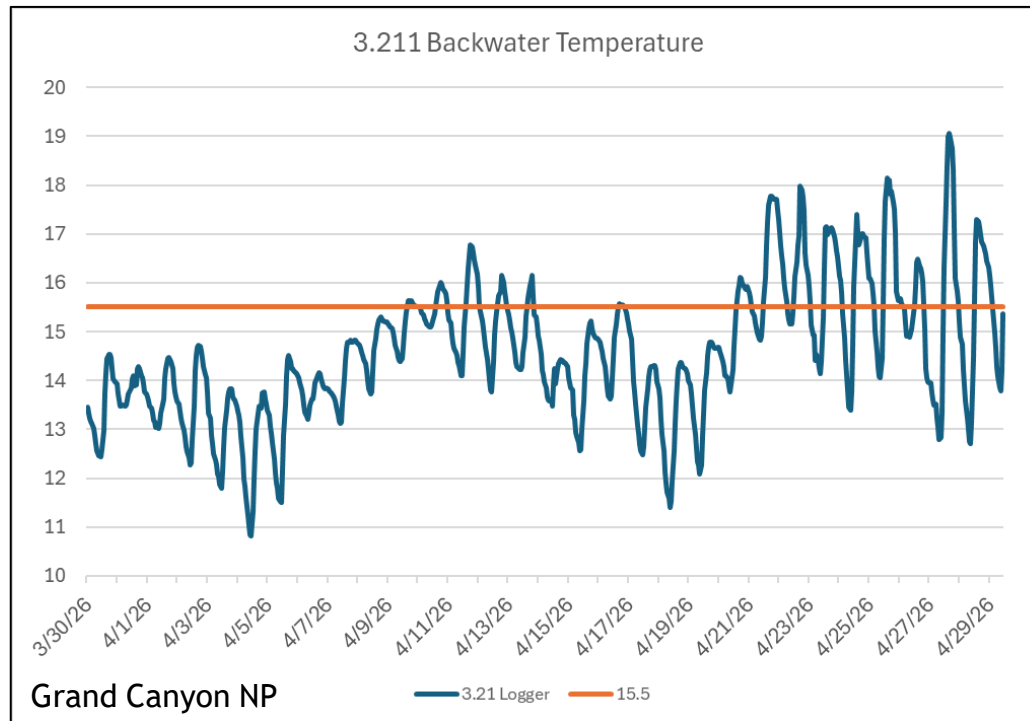


GLCA and GRCA NPS

# Where are we in 2026?



- Day/Nights of sampling/monitoring - > 20 days since March (Both GLCA and GRCA)
- Smallmouth Bass this spring - 5 (100-300mm)
- Green Sunfish and Bluegill upstream of Lees Ferry observed in abundance
  - Likely not spawning in mainstem of river (10-11°C not ideal temperatures)
  - Hypotheses are:
    - 1) Warm fall and winter allowed spawn and survival
    - 2) Could be entrainment occurring due to higher water temperatures in Lake Powell
    - 3) May have spawned in early spring when backwaters were warming up
- Low flow concerns at the slough





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