

Glen Canyon Dam Adaptive Management Program

Technical Work Group (TWG) Meeting Summary

Dates: December 11, 2025

Note: Meeting Summary was produced by AI and subject to errors.

Welcome and Administrative

The TWG meeting was convened virtually by Chair Seth Shanahan, with participation from federal agencies, tribal representatives, state governments, NGOs, and other stakeholders. Seth Shanahan opened the meeting by confirming quorum. Seth conducted a roll call of TWG members and alternates, confirming representation from nearly all stakeholder groups, including federal agencies, tribes, states, Non-Governmental Organizations, and power contractors. He also confirmed the presence of the Designated Federal Officer (DFO), Kathleen Callister (Reclamation), which is required for the meeting to proceed. The meeting opened with administrative items, introductions, and a review of the agenda. The next TWG meeting was tentatively scheduled for February 3–5, 2026, in Phoenix, Arizona. The meeting began with a reading of the 2001 GCDAMP vision and mission statement, emphasizing stewardship, tribal trust responsibilities, and adaptive ecosystem management.

Hydrology, Glen Canyon Dam Operations, and Water Quality Conditions in Lake Powell and Below Glen Canyon Dam

Alex Pivarnik from Reclamation presented hydrology and operations updates. Lake Powell was at 28% capacity, with inflow forecasts significantly reduced due to dry conditions and revised soil moisture modeling. The Drought Response Operations Agreement (DROA) was triggered, prompting a shift in dam releases from winter to summer months to protect critical reservoir elevations. This shift raised concerns about warming trends in the river.

Alex Walker (Reclamation) followed with a water quality update, showing elevated temperatures and dissolved oxygen levels during summer 2025. Forecasts indicated that water temperatures could exceed 15.5°C in summer 2026, favorable for smallmouth bass spawning. Larry Stevens (GCWC) raised concerns about trans-basin diversions and requested future presentations on Upper Basin water use. Seth Shanahan noted the importance of base flows as indicators of runoff efficiency and suggested revisiting this in spring.

The TWG meeting highlighted key administrative updates and operational challenges. Reclamation announced temporary leadership roles and staffing changes. Staff reductions in water quality programs have increased workload for remaining personnel. Additionally, Ed Warner retired, and Bart Fleming is now Acting Western Colorado Area Office Manager.

Budget uncertainty persists under a continuing resolution through January, with only one-third of last year's appropriations available. Full-year funding depends on congressional action. Mark Anderson (GCMRC) reported that the recent 43-day government shutdown significantly disrupted monitoring activities, delaying trips and reducing data collection, which will increase uncertainty in resource assessments. Two river trips were impacted: the JCM trip lost one day of sampling, while the sediment beach trip resumed after initial suspension. Other monitoring efforts, including rainbow trout and Lake Powell surveys, were postponed but are now underway.

Cool mix flow monitoring was minimally affected by the shutdown, with further details scheduled for later presentations. Overall, the program faces challenges in maintaining timelines and data integrity due to funding and operational constraints.

LTEMP Experiments Updates

Bill Stewart spoke about the LTEMP experiments update that focused on recent and upcoming flow actions under the Glen Canyon Dam Adaptive Management Program. The plan aims to balance flexibility with targeted experiments to address changing resource conditions. Key activities include High Flow Experiments (HFEs) for sediment management and Cool Mix flows to mitigate smallmouth bass invasion by lowering river temperatures. In 2024, Cool Mix flows were implemented from July to November, while in 2025 they were adjusted to a shorter duration and different river mile target. Despite sufficient sediment for a fall HFE in 2025, operational constraints and a government shutdown prevented implementation. Current modeling suggests adequate sediment for a spring 2026 HFE, likely in May or June when higher release volumes and unit availability align.

Looking ahead, managers anticipate a challenging spring with multiple priorities: conducting a spring HFE, managing invasive species risks as warming trends accelerate, and adapting to uncertain hydrology and operational limits under DROA triggers. Stakeholders emphasized the ecological benefits of spring HFEs for native vegetation and recreational beaches, while noting the need to avoid negative impacts on trout spawning. Early planning and coordination will be critical as forecasts indicate potentially high temperatures by mid-June, requiring proactive decisions on Cool Mix flows and other adaptive measures.

Discussion of Findings from 2024 and 2025 Cool Mix Flows and Status of Other Actions that Support the Nonnative Fish Species Strategic Plan:

Jeremy Hammen (Reclamation) led a comprehensive review of the Cool Mix flow experiments in 2024 and 2025. The 2025 flow targeted River Mile 30 with a fixed off-ramp date, differing from the 2024 flow which targeted River Mile 61 and used temperature-based off-ramping. The 2025 flow was shorter and used less bypass volume, resulting in lower hydropower costs.

However, maintaining target temperatures was more difficult due to reservoir conditions and operational constraints. The modeling showed temperature variability and challenges in predicting dam release temperatures for 2025.

Drew Eppehimer (GCMRC) presented data on smallmouth bass and other non-native fish captures. In 2025, only 38 smallmouth bass were captured, compared to 254 in 2024. Most were juveniles, and no evidence of recruitment was found. Monitoring was reduced due to the government shutdown, which impacted data collection. Other non-native species such as green sunfish, brown trout, and walleye were also tracked, with overall lower catch rates in 2025.

Craig Ellsworth from WAPA provided a hydropower cost assessment, noting that bypass volume strongly correlates with replacement power costs. The 2025 Cool Mix flow cost approximately \$6.5 million, significantly less than the \$19 million cost in 2024. Emily Young (State of Arizona) summarized feedback from the Smallmouth Bass Ad Hoc Group (SBAHG), which emphasized the need for long-term strategies, better integration of science, and a potential workshop to address emerging concerns.

Emily Young summarized feedback from the Smallmouth Bass Ad Hoc Group (SBAHG), which emphasized the need for long-term strategies, better integration of science, and a potential workshop to address emerging concerns. Leslie James (CREDA) and others stressed the importance of revisiting the strategic plan and considering mid- and long-term actions. Charles Yackulic discussed modeling efforts to predict smallmouth bass spread and its potential impact on humpback chub populations, noting the difficulty of reversing invasions once established.

Trout Ad Hoc Group Update

David Rogowski from Arizona Game and Fish Department provided an update on the Trout Ad Hoc Group. The group used a structured decision-making approach to evaluate 39 issues affecting the Lees Ferry rainbow trout fishery. Options included stocking fingerlings, managing flows, and improving spawning habitat. The group is finalizing recommendations and plans to present them at the February TWG meeting. Seth Shanahan praised the group's engagement and process and requested clarity on member participation in the final recommendations.

Discussion on Program Evaluation and Workshop Planning

Bill Stewart (Reclamation) and Mark Anderson (GCMRC) introduced a proposal for a series of resource-specific workshops in 2026 to fulfill the 10-year program evaluation requirement outlined in the Long-Term Experimental and Management Plan (LTEMP) Record of Decision. These workshops would align with TWG meetings and cover sediment, fish, vegetation, cultural resources, and other topics. The goal is to synthesize scientific findings, identify data gaps, and

prepare for future planning, including potential LTEMP 2.0. Stakeholders emphasized the importance of integration across resources and the need for clear deliverables. Craig Ellsworth and others advocated for active participation by science advisors and a review of the program's adaptive management performance. Larry Stevens suggested casting a wider net to learn from other river management programs globally.

Dragon Bravo Fire Impacts

Sarah Haas, Hannah Chambliss, and Emily Omana from Grand Canyon National Park Service, along with David Topping from GCMRC, presented on the impacts of the Dragon Bravo Fire. The fire burned large portions of the North Rim, affecting infrastructure, trails, and natural resources. Flash flooding and ash deposition were observed in Bright Angel Creek and other tributaries. Monitoring systems were installed to track water quality and flood risks, including stream gauges, rain gauges, and remote cameras. Fish surveys indicated possible impacts to native species, and genetic studies are underway to assess entrainment risks. The National Park Service is coordinating with other agencies on recovery and long-term monitoring. Larry Stevens asked about coordination with the Forest Service, and Sarah Haas confirmed that landscape-level recovery planning was underway including several agencies.

Annual Reporting Meeting Planning

The group discussed the upcoming Annual Reporting Meeting (ARM) scheduled for February 2026. Members requested synthesis presentations for each resource goal, emphasizing integration and clarity. Mark Anderson proposed using poster-style metrics summaries and simplified annual reports to streamline communication. Helen Fairley (GCMRC) and others raised concerns about the feasibility of producing synthesis presentations given the government shutdown and limited staff time. Craig Ellsworth suggested revisiting the 2019 resource assessment format, and Kelly Burke (GCWC) emphasized the importance of understanding connections between resource goals. The Steering Committee Ad Hoc Group was tasked with helping shape the agenda and format.

Discussion of Emerging Issues, Updates on Items of Interest That Are in Consideration for Implementation Before Next TWG Meeting, and Request for Agenda Items for Next Meeting:

The final agenda items included a discussion of emerging issues and public comment. No major new issues were raised, but members reiterated the importance of continued monitoring, integration, and preparation for future planning. Larry Stevens asked about tributary debris flow

risks, and David Topping provided detailed modeling insights. No public comments were received.

Participants

TWG Members, Alternates, and Leadership

Ben Reeder (Grand Canyon River Guides)	Jakob Maase (Hopi Tribe)
Betsy Morgan (State of Utah)	Jeremy Hammen (Reclamation)
Bill Persons (TU)	Jerry Wilhite (WAPA)
Brent Powers (Navajo Nation)	Joe Duncan (State of Wyoming)
Brian Hines (Reclamation)	Kelly Burke (GCWC)
Buddy Fazio (NPS-GLCA)	Kurt Dongske (Pueblo of Zuni)
Carrie Cannon (Hualapai Tribe)	Larry Stevens (GCWC)
Noftsker, Christina (State of New Mexico)	Leslie James (CREDA)
Colleen Cunningham (State of New Mexico)	Marc Wicke (SRP)
Daniel Bulletts SPC (Unverified)	Mel Fegler (State of Wyoming)
Danielle Collins (State of Nevada)	Michelle Garrison (State of Colorado)
David Rogowski (AZGFD)	Rob Billerbeck (NPS-GLCA)
David Ward (USFWS)	Rudy Keedah (BIA)
Deb Williams (USFWS)	Ryan Mann, AZGFD (Unverified)
Ellsworth, Craig (External)	Seth Shanahan (TWG Chair)
Emily Omana (NPS-GRCA)	Shana Rapoport (State of California)
Emily Young (State of Arizona)	Sinjin Eberle (American Rivers)
Hannah Chambliss (NPS-GRCA)	

Other GCDAMP Members and Interested Persons

Abigail Winrich (NPS-GRCA)	Julie Stahli (USFWS)
Alex Pivarnik (Reclamation)	Kathy Callister (DFO-BOR)
Alex Walker (Reclamation)	Keegan Donovan (USGS)
Amanda Nicodemus	Kerri Pedersen (Reclamation)
Andrew Peters	Kim Dibble (GCMRC)
Ann-Marie Bringhurst, (GCMRC)	Kurt Shollenberger (NPS-GRCA)
Anya Metcalfe (USGS)	Lucas Bair (GCMRC)
Becki Bryant (Reclamation)	Mark Anderson (GCMRC)
Bill Stewart (Reclamation)	Matthew Boggie (USFWS)
Brian Healy (GCMRC)	Matt Kaplinski (GCMRC)
Cassandra Reed (NPS)	Matt O'Neill (Reclamation)
Charles Yackulic (GCMRC)	Meredith Hartwell (GCMRC)
Craig Dengel (WAPA)	Michael Callahan (USFWS)
David Dean (GCMRC)	Michael Pillow (USFWS)
David Topping (GCMRC)	Nicki Gibney (NPS)
Drew Eppheimer (GCMRC)	Paul Grams (GCMRC)
Edward Gerak	Pilar Rinker (USFWS)
Emily Palmquist (GCMRC)	Ron Kegerries (SWCA)
Ernest Rheaume (Reclamation)	Sarah Haas (NPS)
Helen Fairley (GCMRC)	Seth Cohen (Udall)
Jamie Macy (USGS)	Shaula Hedwall (USFWS)
Jane Balsom (NPS-GRCA)	Sheri Farag (SRP)
Jay Cederberg (USGS)	Susan Wood (NPS-GRCA)
Jeff Arnold (NPS-GLCA)	Stephanie Graham (SWCA)
Jen Pelz	Tara Ashby (Reclamation)
Jeremiah Maybee (NPS-GRCA)	Ted Kennedy (GCMRC)
Jessica Pope (Reclamation)	Ted Rampton (UMPA)
Jim Strogen (TU)	Thomas Gushue (GCMRC)
Joel Sankey (GCMRC)	Tildon Jones (USFWS)
Julie Carter (AZGFD)	