

Glen Canyon Dam Adaptive Management Program

Technical Work Group (TWG) Meeting Summary

Dates: April 9, 2026

Start Time: 8:54am (Mountain Standard Time)

End Time: 5:24pm (Mountain Standard Time)

Location: Flagstaff, AZ

Designated Federal Officer: Wayne Pullan

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

Welcome and Administrative

The meeting began with a welcoming address from the Seth Shanahan (Chairperson), who set the tone for a collaborative and respectful session. The Seth reminded participants of the group's protocol, which allows only one representative per agency at the table unless space permits alternates, a rule designed to ensure fairness and manage logistics. Wayne Pullan (Reclamation), the Designated Federal Officer (DFO), offered opening remarks, emphasizing a hands-off approach to let the group's process unfold organically, but also made it clear that they were available to clarify any procedural or economic questions that might arise. Attendance was carefully recorded, both for those present in the room and those joining virtually, ensuring that all key stakeholders were accounted for and that the group had a quorum for any votes or decisions.

Before delving into substantive topics, the group reviewed and corrected the agenda. Three changes were made: first, the purpose listed under the Drought Response Operations Agreement (DROA) item was incorrect and should be disregarded; second, the terminology "Cool-Mix flows" was replaced with "LTEMP Experiments", though there was some debate about which term best captured the intent and scope of the flows; and third, the order of the LTEMP experiments and budget items was swapped to accommodate the schedules of key presenters. The chair also previewed upcoming meetings, including the next TWG meeting and a knowledge workshop that would cover Cultural and Archaeological, Recreation (Whitewater), Sediment, Vegetation Workshop. There was a robust discussion about whether to extend the workshop to three or more days, possibly using a hybrid in-person/virtual format, and the group was mindful of the heavy workload on GCMRC staff, who are responsible for preparing and presenting much of the technical content.

Administrative updates included a review of ad hoc group participation, with members encouraged to check and update their involvement. The Trout Ad Hoc Group reported that they were nearing completion of their recommendations, while the Smallmouth Bass Ad Hoc Group had no current tasks but would conduct an annual review of the strategic plan. The Steering Committee Ad Hoc Group continues to play a vital role in coordinating meeting agendas and

ensuring that all relevant topics are addressed. The group also reviewed ongoing and completed action items, such as proactive planning, input to the Glen Canyon Dam report to Congress, reviewing the non-native strategic plan, and monitoring metrics. Some items were marked as ongoing, others as completed, and some as needing further discussion or feedback.

A significant portion of the administrative discussion focused on the logistics and challenges of volunteer participation in field trips. The group discussed the complexities of background checks, agency liability, and the need for a volunteer coordinator to streamline the process. Members were encouraged to express interest in volunteering early, and a process was proposed for matching volunteers to trips based on needs and physical requirements. The discussion highlighted the importance of clear communication, advance planning, and the need to balance the desire for stakeholder involvement with the realities of federal policies and resource constraints.

Fish Workshop Discussion

The Fish Workshop Discussion was a central agenda item, providing an opportunity for the group to reflect on the outcomes of the preceding fish knowledge assessment workshop that occurred on April 7-8, and to chart a path forward. The discussion was intentionally open and freeform, guided by questions and “parking lot” items that had emerged during the workshop. Participants were encouraged to share their perspectives on what actions should be prioritized, both in the short term and over the longer horizon.

A major theme was the integration of tribal perspectives and cultural values into fish management. Tribal representatives and other participants emphasized the importance of respecting cultural connections to native fish and the river, and the need for management actions to be sensitive to these values. The group also discussed the prioritization of management actions and goals, particularly in relation to hot spots and rapid response needs. There was a consensus that immediate strategies were needed for monitoring and treating hot spots, especially given the anticipated low flows and limited capacity of staff and resources.

Temperature control, specifically through the use of Cool Mix flows, was identified as the most effective tool currently available for managing non-native fish, particularly smallmouth bass. However, participants acknowledged that reliance on Cool Mix alone was risky, given the potential for operational or hydrologic constraints to make it unfeasible in the future. It was emphasized that a long-term management tool (e.g., Temperature Control Device, Entrainment deterrent) is needed. As a result, there was a strong call for the development of alternative strategies, including rapid response plans that could involve the use of rotenone and mechanical removal in hot spots in the short-term.

The group also discussed the need for a science review panel to assess risk factors such as turbidity and temperature for smallmouth bass establishment, drawing on expertise from other river systems. There was an emphasis on not reinventing the wheel, with participants advocating for the use of existing strategic plans and ad hoc groups to move forward. The importance of clear definitions for short-, mid-, and long-term actions was highlighted, as outlined in the strategic plan, and the group recognized the necessity of being prepared for scenarios where recommended flows or experiments are not approved or possible.

Throughout the discussion, participants stressed the need for more nimble, proactive management and better integration of monitoring, research, and management actions. Action items emerging from the discussion included initiating a science review panel on smallmouth bass risk factors, re-engaging the Smallmouth Bass Ad Hoc Group for immediate and mid-term action planning, developing a short-term action plan for hot spot monitoring and treatment, and continuing to refine and update the strategic plan based on new knowledge and changing conditions.

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

This agenda item featured in-depth presentations on the current state of hydrology, dam operations, and water quality conditions in Lake Powell and downstream. Amanda Becker (Reclamation) provided a comprehensive update on reservoir status, noting that Fontanelle was at 49% capacity, Flaming Gorge at 82%, Blue Mesa at 49%, Navajo at 62%, and Powell at 25% full (5.73 MAF, elevation 3528), with total Upper Colorado storage at 10.46 MAF. She explained that precipitation and snowpack were below average, with snow water equivalent (SWE) at only 26% of median and significant early melt already observed. All upper basin reservoirs were forecasted to receive well below average inflows, and Powell's forecast had dropped by 900,000 AF since the previous month, now at just 22% of average.

Release projections for 2026 were set at 7.48 MAF, dropping to lower in 2027 under most scenarios. Amanda highlighted that the reservoir was projected to fall below key elevations (3525 ft, 3500 ft, 3490 ft) during 2026–2027, resulting in extended periods below minimum power pool.

Bryce Mihalevich then presented on water quality, focusing on temperature, dissolved oxygen (DO), conductivity, and turbidity. He noted that temperatures were warmer than usual, with an unusual low DO plume near the dam and slightly higher conductivity. Turbidity remained low. At Lees Ferry and downstream, record-high water temperatures for the time of year (around 11°C) were observed, with projections showing temperatures exceeding 15.5°C by late May/June and reaching up to 25°C in some scenarios. These conditions pose an acute risk to rainbow trout and other cool water species. Surface DO was adequate but could become problematic if reservoir

fills or stratification persists. The group discussed the implications of low DO, the ability to use bypass releases to aerate water, and the impact of low flows on recreation and resource management. The presentations underscored the urgency of the situation and the need for adaptive management strategies to respond to rapidly changing conditions.

Discussion About Potential Operations Resulting from Drought Response Operations Agreement and Interim Guidelines Section 6(E)

This agenda item focused on the operational implications of the Drought Response Operations Agreement (DROA) and Section 6(E) of the Interim Guidelines, particularly in the context of worsening hydrology. The group discussed deficit projections, noting that with current forecasts, Lake Powell could face a deficit of 1.5–2 MAF below elevation 3500 ft. DROA releases from Flaming Gorge could provide up to 1.0 MAF, but this may not be enough to avoid dipping below minimum power pool. Operational flexibility was limited, as most DROA water would be released in May, with the remainder spread over the year, and there were limits on how much could be shaped for ecological or operational benefit.

Temperature and flow constraints were also discussed, with lower monthly volumes restricting the ability to conduct experimental flows (such as smallmouth bass flows and HFEs), and minimum flows of 6,000–9,000 cfs likely becoming the norm, with little room for variation. The impact on recreation was significant, as flows below 6,000–8,000 cfs would greatly increase risk for river users, especially during motor season, and would have economic impacts on outfitters and increase the need for rescues. The group also discussed the cascading effects of reduced generation at Glen Canyon Dam on the Basin Fund. The urgency of the situation was emphasized, with inflows and temperatures worse than 2002 and the need for rapid, flexible response. The discussion highlighted the interconnectedness of hydrology, operations, resource management, and stakeholder interests, and the need for coordinated action to address emerging challenges.

Hydropower Workshop Discussion

The Hydropower Workshop Discussion provided an opportunity to review the outcomes of the previous hydropower knowledge assessment workshop and to identify next steps. The workshop, held in September 2025, focused on hydropower operations, renewable integration, tribal perspectives, and alternative funding for LTEMP experiments. Feedback was limited due to timing, but key interests included understanding renewable energy integration and market changes. (for example, WAPA's participation in the Southwestern Power Pool – SPP, a regional transmission organization), tribal perspectives on hydropower benefits and bill crediting, and alternative funding mechanisms for experiments.

The group also brainstormed possible hydropower experiments, such as relaxing flow restrictions and HFE down ramping. Argonne National Lab is currently modeling the sensitivity of hydropower to various operational constraints, with the goal of identifying where flexibility could be increased with minimal resource impact. Action items emerging from the discussion included reconvening the Socioeconomic Ad Hoc Group (SEAHG) to develop short- and long-term experimental concepts, considering educational sessions on market changes and tribal benefits, exploring alternative funding and creative solutions for hydropower experiments, and maintaining focus on hydropower benefits while minimizing impacts to other resources. The discussion underscored the importance of innovation, collaboration, and adaptability in managing hydropower resources in a changing environment.

Discussion of Possible Implementation of a Spring High Flow Experiment and Smallmouth Bass Flows and Request for TWG Input for Planning and Implementation Processes

This agenda item centered on the status and planning for potential LTEMP experiments, specifically a spring High Flow Experiment (HFE) and smallmouth bass flows, and solicited TWG input for the Planning and Implementation process. For the spring HFE, it was reported that sufficient sediment is available for a 32,400 cfs, 27hr HFE, but the duration is constrained by monthly volume limits, with implementation tentatively targeted for June pending final modeling and decision. For smallmouth bass flows, a screening tool is being used to evaluate 13 scenarios, including various Cool Mix options, non-bypass, and no action. Modeling results are expected soon, with technical recommendations to follow.

The decision timeline is tight, with a Planning and Implementation Team recommendation due by the end of April and implementation likely in June if approved by the Secretary of the Interior. Stakeholders focused on concerns about the ability to include the latest hydrology in modeling, the impact of bypass flows on hydropower (specifically the Basin Fund) and carbon credits, and the need for rapid response plans if experiments cannot be implemented. There were also calls for greater inclusion of tribes and stakeholders in the Planning and Implementation process and recognition of the importance of both HFE and Cool Mix flows for resource protection. Updates on the status of thermal curtain feasibility studies and other infrastructure solutions were requested as standing agenda items. The discussion highlighted the complexity of balancing competing resource needs, regulatory requirements, and stakeholder interests in the planning and implementation of experimental flows.

Report Out from the Budget Ad Hoc Group for the Fiscal Year 2027 Work Plan and Budget

The budget report provided an overview of the President's FY27 budget, which proposes \$10.23M for the GCD AMP—a 4% reduction from the previous year (FY2026), with a possible

additional 5.7% sequestration cut, following a 15% reduction in FY26. The Budget Ad Hoc Group (BAHG) is tasked with developing recommendations for the FY27 work plan, considering 0%, 5%, and 10% reduction scenarios. A survey was distributed to TWG members to prioritize projects and inform the recommendation process. The survey includes sliding scale questions, text boxes for open feedback, a 15-point allocation across projects, and a max-diff ranking for decision-making necessity. Results will be discussed at the next BAHG meeting.

Concerns were raised about repeated cuts to certain projects, the need for iterative review, and the importance of clear communication about the implications of budget changes. There were calls for after-action reviews and better integration of tribal input. Despite budget cuts, all planned field trips for FY26 will proceed, thanks to savings from the shutdown and staff vacancies, but capacity remains stretched and further cuts may impact future operations. The discussion emphasized the need for transparency, collaboration, and strategic prioritization in budget planning and resource allocation.

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

During this agenda item, the group identified several emerging issues, including the need to re-engage the SBAHG and SEAHG for strategic plan updates and hydropower experiments, the establishment of a long-term science panel on smallmouth bass risk factors (such as turbidity), ongoing funding challenges and the need for creative solutions, and the status of long-term actions (such as temperature control devices, acoustic barriers, and entrainment deterrents). Rapid response planning for hot spots and chemical treatment options (such as rotenone) was also discussed, along with anticipation of further recommendations and decisions following upcoming rapid response meetings. The group recognized the heavy workload and the need to prioritize actions and avoid overextending staff and stakeholders. The discussion highlighted the importance of adaptability, innovation, and proactive planning in addressing emerging challenges and uncertainties.

Key updates included the upcoming knowledge workshop (scheduled for June 9–11 in Flagstaff, with possible pre-work), continued planning for rapid response and hot spot treatment, ongoing budget and work plan development, and monitoring of legislative and funding developments (such as thermal curtain studies and the appropriations process). The group emphasized the importance of communication and transparency regarding agency actions and decisions, and the need to keep stakeholders informed about items under consideration for implementation before the next TWG meeting. The discussion reinforced the value of ongoing engagement, collaboration, and information sharing among all participants.

The meeting concluded with a discussion of planned topics for the next meeting, including FY27 budget approval, the Trout Ad Hoc Group (TAHG) report, knowledge workshop logistics and content, updates on long-term actions and emerging issues, and a continued focus on prioritization and workload management. There was a consensus on the need to balance ambition with capacity and to prioritize the most critical actions for the program's success. Participants acknowledged the challenges of limited resources and the importance of making strategic choices to ensure the effectiveness and sustainability of the program.

Participants

TWG Members, Alternates, and Leadership

Ben Reeder (Grand Canyon River Guides)	Jakob Maase (Hopi Tribe)
Bill Persons (TU)	Jeremy Hammen (Reclamation)
Brent Powers (Navajo Nation)	Jerry Wilhite (WAPA)
Matt O'Neill (Reclamation)	Joe Duncan (State of Wyoming)
Nicki Gibney (NPS-GLCA)	Kelly Burke (GCWC)
Christina Noftsker (State of New Mexico)	Ted Rampton (UMPA)
Colleen Cunningham (State of New Mexico)	Larry Stevens (GCWC)
Daniel Bulletts SPC (Southern Paiute Consortium)	Leslie James (CREDA)
Danielle Collins (State of Nevada)	Marc Wicke (SRP)
David Rogowski (AZGFD)	Mel Fegler (State of Wyoming)
David Ward (USFWS)	Michelle Garrison (State of Colorado)
Deb Williams (USFWS)	Rob Billerbeck (NPS-GRCA)
Ellsworth, Craig (WAPA)	Ryan Mann (AZGFD)
Emily Omana-Smith (NPS-GRCA)	Seth Shanahan (TWG Chair)
Emily Young (State of Arizona)	Shana Rapoport (State of California)
Hannah Chambless (NPS-GRCA)	Sinjin Eberle (American Rivers)
Stewart Koyiymptewa (Hopi Tribe)	Erik Stanfield (Navajo Nation)
Scott McGettigan (State of Utah)	Wayne Pullan (DFO-Reclamation)

Other GCDAMP Members and Interested Persons

Amanda Becker (Reclamation)	Kestrel Kunz
Bill Stewart (Reclamation)	Kim Dibble (GCMRC)
Bridget Deemer (GCMRC)	Kurt Shollenberger (GRCA-NPS)
Bryce Mihalevich (Reclamation)	Lindsay Capito
Charles Yackulic (GCMRC)	Lynn Hamilton (GCRG)
Charles Yackulic (GCMRC)	Maria Dzal (GCMRC)
Charlie Ferrantelli (State of Wyoming)	Mark Anderson (GCMRC)
Colleen Allen (GLCA-NPS)	Matthew Boggie (USFWS)
Dale Fonken	Megan Kramer (State of Colorado)
Dave Foster	Michael Callahan (Reclamation)
Ernest Rheäume (Reclamation)	Michael Pillow (USFWS)
Helen Fairley (GCMRC)	Nick Williams (Reclamation)
James Heffner	Pilar Rinker (USFWS)
Jeff Arnold (NPS-GLCA)	Richard M. Begay (Navajo Nation)
Jen Pelz	Seth Cohen (Udall)
Jess Newton (USFWS)	Susan Wood (GRCA-NPS)
Jim Strogon (Trout Unlimited)	Taylor McKinnon
John Fennell	Ted Kennedy (GCMRC)
Joshua Randall	Warren Turkett (State of Nevada)
Kate Behn (USGS)	Will Turman
Kathy Callister (Reclamation)	Zachary Nelson (Reclamation)