U.S. Department of the Interior
Bureau of Reclamation
Upper Colorado Basin Region

Glen Canyon Dam
Adaptive Management Program

Glen Canyon Dam Adaptive Management Work Group Meeting

Wednesday, August 12, 2026
9:30 a.m. – 5:00 p.m. Arizona

Thursday, August 13, 2026
8:30 a.m. – 3:30 p.m. Arizona

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Administrative Items

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Meeting Packet Order

Tabs	Documents
	Packet Cover/Meeting Information
Administrative Items	• Meeting Packet Order • Federal Register Notice • Teams Participant Information • AMWG Ground Rules
AMWG Supporting Documents	• New Secretary's Designee Letter to AMWG • AMWG & TWG Committee Membership Lists • AMWG Charter 2025
Draft Agenda	• Agenda for August 12-13 Meeting
Final Minutes & Action Items	• Approved May Meeting Minutes • Action Item Tracking Report
Supplemental Materials	• Potential GCDAMP & Other Meetings in 2027 • TWP Process Document - Table 1 and Sec 2.7 • GCDAMP Guidance - Petty • Five Priorities - Pullan • Budget Scenario FY27 (GCMRC and BOR)

Federal Register Notice:https://www.federalregister.gov/documents/2026/07/21/2026-14650/public-meeting-of-the-glen-canyon-dam-adaptive-management-work-group

For more information, please see https://www.usbr.gov/uc/progact/amp/amwg.html

Participant Registration Information

Topic: AMWG Day 1

Date/Time: Wednesday August 12, 9:30 am Pacific Time

Registration link: https://events.gcc.teams.microsoft.com/event/787a9f1f-f38b-4d47-964a-a0cc0325a25a@0693b5ba-4b18-4d7b-9341-f32f400a5494

Meeting ID: 295 317 642 076 206
Passcode: QR7CC7HH

Topic: AMWG Day 2

Date/Time: Wednesday August 13, 8:30 am Pacific Time

Registration link: https://events.gcc.teams.microsoft.com/event/15bfc020-4bda-455f-80c7-38cc6524577d@0693b5ba-4b18-4d7b-9341-f32f400a5494

Meeting ID: 258 088 969 990 319
Passcode: Vd7jS2Kq

Glen Canyon Dam Adaptive Management Work Group Ground Rules

- Arrive on time OR 10-15 minutes early to confirm connectivity and check your mic and audio settings.
- Remain MUTED when not actively speaking.
- Turn down cell phone ringers and other background sounds.
- Commit to FULL participation.
- Do homework before meeting begins.
- Take private and/or sidebar conversations outside/ offline.
- Wait to be recognized before speaking.
- Always state your name and affiliation before making a comment.
- Show respect for others.
- Be concise. Stick to the topic.
- Save new business for the appointed time
- Help keep the meeting on schedule

Glen Canyon Dam AdaptiveManagement Work Group Meeting

Please feel free to test your sound prior to the start of the meeting. Please ensure your microphone stays muted.

Reminder for member questions and comments:

- Member questions and comments are welcome after each presentation
  - Use the Teams “raise hand” function (or *3 on the phone) to get in the queue
  - State your name and affiliation prior to comment
  - We will read aloud member questions entered into the chat if they are relevant to the current conversation.
- Comments in the chat window are considered informal discussion and will NOT be included as part of the formal meeting record unless you request the facilitator to read them aloud.

Reminder for non-AMWG members: you are welcome to observe but are asked to defer any comments until the public comment period at the end of each meeting day.

Tips for audio and connectivity:

- If you joined via phone for audio, dial *6 to unmute
- If you are connected via phone and webinar, you may have to unmute on both devices to be heard.
- If you have mic/audio challenges, please chat Tara Ashby
- If you have an unstable internet connection, or get kicked out of Teams, please rejoin.

NOTE This meeting is being recorded to support our note taking. Please hang up if you don’t want to be recorded.

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AMWG Supporting Documents

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THE SECRETARY OF THE INTERIOR

WASHINGTON

FEB 2 3 2026

Memorandum

To: ember and Alternate
Glen Canyon Dam Adaptive Management Work Group

From: Doug Burgurn
cretary of th Interior

ıbject: Secretary's Designee - Glen Canyon Dam Adaptive Management Work Group

Glen Can on Dam is a critical Federal facility on the Colorado Ri er and its operation is necessary for the orderly and efficient management of the Colorado *Ri* er. Balancing the need of the olorado Ri er with the purpose and b nefits of Glen Can on Dam to water upplie and power generation is a challenging and important priority for the Department of the Interior (Department). It is essential that the Department continues to have time! r I ant input and recommendations on our management activities related to the operation of Glen Can on Dam and overall management of the Colorado River.

Dr. Andrea Tra nic k, A i tant ecretary for ater and c1ence ha been asked to rv a m de ignee to the Glen anyon Adapti Management Working Group (WG). A i tant ecretary Travnicek is unique! qualified to erve in thi po ition pre iousl erving as Principal Deputy Assistant Secretary during the previous Trump Administration and acting Assistant ecretary and through her man ears of o erseeing the management of water resource for the state of orth Dakota through at r development r gulatory responsibilities, planning, ducation, and afety. A th olorado River ba in continue to face ongoing drought condition . there are man important i sues facing the AMWG on how to balanc ri er operation to meet the varied needs of all its users.

The AMWG is a Federal Advisory Committee established to ad i e me of the effects of Glen Canyon Dam operations and oth r management action . Pur uant to the charter that I appro ed on eptemb r 12, 2025 and filed with the General rv1c Administration and Congr son eptember 1-, 2025, effective immediately, I hereb appoint Dr. Tra nicek a my designee for the AMWG. the Department" designee on the WG, Dr. Travnicek will erve a Chair and be responsible for timely dissemination and consideration by the Department of formal recommendations and other related input from the AMWG. he will al o er ea the primary poke per on to con ey my deci ion and view . a appropriate, to the A WG.

In addition effective immediately Mr. Dustin Sherer Deputy Assistant Secretary for Water and Science is designated as the Secretary s Alternate Designee. Finally the Bureau of Reclamation s Upper Colorado Regional Director Wayne Pullan shall serve as the Departments Designated Federal Officer (DFO) for the AMWG. In the absence of Assistant Secretary Travnicek or Deputy Assistant Secretary herer the Regional Director as DFO is hereby authorized to carry out all duties and respon ibilities of the Secretary s Designee.

It is my intention that the daily responsibilities for carrying out the primary administrative and routine functions of AMWG will continue to be carried out by the Upper Colorado Regional Office of the Bureau of Reclamation.

Glen Canyon Dam Adaptive Management Work Group

Committee Membership List

(Updated: 8/4/26)

SECRETARY'S DESIGNEE	ALTERNATE SECRETARY'S DESIGNEE	Designated Federal Officer
Andrea Travnicek Assistant Secretary for Water and Science Department of the Interior 1849 C Street NW Washington, DC 20240 T: EM: andrea_travnicek@ios.doi.gov	Dustin Sherer Deputy Assistant Secretary for Water and Science Department of the Interior 1849 C Street NW Washington, DC 20240 T: EM: dustin_sherer@ios.doi.gov	Wayne G. Pullan Regional Director UCB Regional Office Bureau of Reclamation 125 S. State Street, Room 8100 Salt Lake City, UT 84138 T: (801) 524-3600 EM: wpullan@usbr.gov

Federal Agencies:

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2-BUREAU OF INDIAN AFFAIRS	
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3-NATIONAL PARK SERVICE	
Ed Keable (member) Grand Canyon National Park PO Box 129 Grand Canyon, AZ 86023 T: (928) 638-7758 EM: edward_keable@nps.gov	Jacob Ohlson (alternate) Glen Canyon National Recreation Area 691 Scenic View Drive Page, AZ 86040 T: (928) 640-6548 EM: Jacob_ohlson@nps.gov

4-U.S. FISH AND WILDLIFE SERVICE	
Heather Whitlaw (member) IN PROCESS Arizona Ecological Services Field Office 9828 N 31st Ave, Suite C3 Phoenix, AZ 85051 T: (806) 773-5932 EM: heather_whitlaw@fws.gov	Jess Newton (alternate) IN PROCESS U.S. Fish and Wildlife Service 2500 S Pine Knoll Dr. Flagstaff, AZ 86001 T: (928) 369-6250 EM: jess_newton@fws.gov

Native American Tribes:

5-HUALAPAI TRIBE	
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6-HOPI TRIBE	
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7-NAVAJO NATION	
Richard Begay (member) Navajo Nation Heritage and Historic Preservation PO Box 4950 Window Rock, AZ 86515 T: (928) 871-7198 EM: r.begay@navajo-nsn.gov	Erik Stanfield (alternate) Navajo Nation P.O. Box 3366 Page, AZ 86040 T: (480) 313-2482 EM: erikstanfield@navajo-nsn.gov

8-PUEBLO OF ZUNI	
VACANT	Arden Kucate (alternate) PO Box 339 1203-B State Highway 53 Zuni, NM 87327 T: (505) 782-7000 EM: arden.kucate@ashiwi.org

9-SOUTHERN PAIUTE CONSORTIUM	
Daniel Bulletts (member) 1 North Pipe Spring Rd. Fredonia, AZ 86022 T: (928) 643-6278 EM: dbulletts@kaibabpaiute-nsn.gov	VACANT (alternate)

10-SAN JUAN SOUTHERN PAIUTE TRIBE
VACANT (member)

Seven Basin States:

11-ARIZONA	
VACANT	Emily Young (alternate) Arizona Department of Water Resources 1110 W. Washington Street, Suite 310 Phoenix, AZ 85007 T: (602) 771-8516 EM: eyoung@azwater.gov

12-CALIFORNIA	
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13-COLORADO	
Michelle Garrison (member) IN PROCESS Colorado Water Conservation Board 1313 Sherman Street, Room 718 Denver, CO 80203 T: (303) 866-3441 x3213 EM: michelle.garrison@state.co.us	Emily Zmak (alternate) IN PROCESS Colorado Water Conservation Board 1313 Sherman Street, Room 718 Denver, CO 80203 T: (303) 866-3441 x3248 EM: emily.zmak@state.co.us

14-NEVADA	
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15-NEW MEXICO	
Ali Effati (member) IN PROCESS NM Interstate Stream Commission 407 Galisteo St, Bataan Memorial Bldg., Room 101 Santa Fe, NM 87501 T: (505) 614-4636 EM: ali.effati@ose.nm.gov	Christina Noftsker (alternate) IN PROCESS NM Interstate Stream Commission 5550 San Antonio Dr. NE Albuquerque, NM 87109 T: (505) 570-7000 EM: christina.noftsker@ose.nm.gov

16-UTAH	
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17-WYOMING	
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Environmental Groups:

18-ENVIRONMENTAL GROUP	
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19-ENVIRONMENTAL GROUP	
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21-RECREATIONAL INDUSTRY	
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Federal Power Purchase Contractors:

22-FEDERAL POWER PURCHASE CONTRACTORS	
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23-FEDERAL POWER PURCHASE CONTRACTORS	
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Other Stakeholders:

24-ARIZONA GAME AND FISH DEPARTMENT	
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25-DEPARTMENT OF ENERGY (DOE) – WESTERN AREA POWER ADMINISTRATION (WAPA)	
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Glen Canyon Dam Technical Work Group
Membership List
(Updated: 8/4/26)

TWG Chairperson	TWG Vice Chairs
Seth Shanahan State of Nevada	Michelle Garrison State of Colorado Jeremy Hammen Bureau of Reclamation

Federal Agencies:

1-BUREAU OF RECLAMATION	
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2-BUREAU OF INDIAN AFFAIRS	
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3-NATIONAL PARK SERVICE (Grand Canyon National Park)	
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	Hannah Chambless (2nd alternate, 1/6/26) Grand Canyon National Park 1824 South Thompson Street, Suite 200 Flagstaff, AZ 86001 T: (928) 638-7464 EM: Hannah.chambless@nps.gov

4-NATIONAL PARK SERVICE (Glen Canyon National Recreation Area)	
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Native American Tribes:

6-HUALAPAI TRIBE	
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7-HOPI TRIBE	
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8-NAVAJO NATION	
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9-PUEBLO OF ZUNI	
VACANT	VACANT

10-SOUTHERN PAIUTE CONSORTIUM	
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11-SAN JUAN SOUTHERN PAIUTE TRIBE	
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Seven Basin States:

12-ARIZONA	
Emily Young (member, 8/8/24) Arizona Department of Water Resources 1110 W. Washington Street, Suite 310 Phoenix, AZ 85007 T: (602) 771-8516 EM: eyoung@azwater.gov	VACANT

13-CALIFORNIA	
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14-COLORADO	
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15-NEVADA	
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Environmental Groups:

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Recreational Industry:

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22- RECREATIONAL INDUSTRY	
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Federal Power Purchase Contractors:

23-COLORADO RIVER ENERGY DISTRIBUTORS ASSOCIATION (CREDA)	
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24-UTAH ASSOCIATED MUNICIPAL POWER SYSTEMS (UAMPS)	
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Other Stakeholders:

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26-DEPARTMENT OF ENERGY (DOE) – WESTERN AREA POWER ADMINISTRATION (WAPA)	
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U.S. Department of the Interior
Bureau of Reclamation

Glen Canyon Dam Adaptive Management Work Group

RENEWAL CHARTER

1.ooAdvisory Committee's Official Designation. Glen Canyon Dam Adaptive Managementooo Work Group (AMWG).ooo

2, Authority. The AMWG is a discretionary advisory committee established by the Grand Canyon Protection Act (Act) of October 30. 1992. Public Law 102-575. The AMWG is operated pursuant to the Federal Advisory Committee Act (FACA), as amended (5 U.S.C. Ch. 10) and the Federal Advisory Committee Management regulations found at 41 CFR Part 102-3.ooo

3. ooObjectives and Scope of Activities. The Glen Canyon Dam Adaptive Management Programooo (AMP) provides for monitoring the results ofthe operating criteria and plans adopted by theooo Secretary ofthe Interior (Secretary), and for research and studies to suggest appropriateooo changes to those plans and operating criteria.ooo

The AMP includes the AMWG. The AMWG provides advice and recommendations to theooo Secretary relative to the operation of Glen Canyon Dam. The Secretary's Designee is theooo Assistant Secretary for Water and Science or an alternate designee who serves as the Chair.ooo The AMWG recommends suitable monitoring and research programs and makesooo recommendations to the Secretary. The AMWG may recommend research and monitoringooo proposals outside the Act which complement the AMP process, but such proposals will beooo funded separately and shall not deter from the focus of the Act.ooo

Under Section 1802(a) of the Act. "[t]he Secretary shall operate Glen Canyon Dam inooo accordance with the additional criteria and operating plans specified in Section 1804 [of theooo Act] and exercise other authorities under existing law in such a manner as to protect, mitigateooo adverse impacts to, and improve the values for which Grand Canyon National Park and Glenooo Canyon National Recreation Area were established, including but not limited to. natural andooo cultural resources and visitor use." Under Section 1802(b) ofthe Act, "[t]he Secretary shallooo implement this section [of the Act] in a manner fully consistent with and subject to theooo Colorado River Compact, the Upper Colorado River Basin Compact. the Water Treaty ofooo 1944 with Mexico, the decree of the Supreme Court in Arizona v. California, and theooo provisions ofthe Colorado River Storage Project Act of 1956 and the Colorado River Basinooo Project Act of 1968 that govern allocation, appropriation; development, and exportation ofooo the waters ofthe Colorado River basin."ooo

4. **Description of Duties.** The duties or roles and functions of the AMWG are in an advisory capacity only and all tasking shall be directed by the Designated Federal Officer (DFO).

They are, as applicable, to:

a. Establish AMWG operating procedures.

b. Advise the Secretary in meeting environmental and cultural commitments including those contained in the Record of Decision for the Glen Canyon Dam Long-Tenn Experiment and Management Plan Final Environmental Impact Statement and subsequent related decisions.

c. Recommend the framework for the AMP policy, goals, and direction.

d. Recommend resource management objectives for development and implementation of long-tenn monitoring plan, and any necessary research and studies required to detennine the effect of the operation of Glen Canyon Dam on the values for which Grand Canyon National Park and Glen Canyon National Recreation Area were established, including but not limited to, natural and cultural resources, and visitor use.

e. Review and provide input on the report identified in the Act to the Secretary. the Congress, and the Governors of the Colorado River Basin States. This annual report includes discussion on dam operations, the operation of the AMP, status of resources, and measures taken to protect, mitigate, and improve the resources defined in the Act.

f. Annually review long-tenn monitoring data to provide advice on the status of resources and whether the AMP goals and objectives are being met.

g Review and provide input on all AMP activities undertaken to comply with applicable laws, including pennitting requirements.

5. **Agency or Federal Officer Receiving the Advisory Committee's Advice/ Recommendations.** The AMWG reports to the Secretary through the Secretary's Designee.

6. **Support.** The logistical and support services for the meetings of the AMWG will be provided by the Bureau of Reclamation.

7. **Estimated Annual Operating Costs and Staff Years.** The estimated annual operating costs associated with supporting the AMWG's functions are $400,000, including all direct and indirect expenses. It is estimated that four full-time equivalent (FTE) employees will be required to support the AMWG.

8. **Designated Federal Officer (DFO).** The DFO is the Bureau of Reclamation, Upper Colorado Region, Regional Director, or designated alternate who is a full time Federal employee appointed in accordance with Agency procedures. The DFO must:

a. Ensure the AMWG activities comply with the FACA, FACA Final Rule, Agency administrative procedures, and any other applicable laws and regulations;

b. Approve or call all meetings of the AMWG or subcommittee;

c. Approve the agenda;

d. Attend all AMWG and subcommittee meetings for their duration;

e. Fulfill the requirements under section 1009 of the FACA, Advisory Committee Procedures;

f. Adjourn any meeting when the DFO determines it to be in the public interest;

g. Chair any meeting when so directed by the Secretary;

h. Maintain infonnation on AMWG activities and provide such information to the public. as applicable; and

i. Ensure AMWG members and subcommittee members, as applicable, receive the appropriate training (e.g., FACA overview, ethics training) for efficient operation and compliance with the FACAand FACA Final Rule.

In addition, the DFO should ensure a public facing website is created and maintained for the AMWG.

9. **Estimated Number and Frequency of Meetings.** The AMWG is expected to meet approximately twice a year, and at such other times as designated by the DFO.

10. **Duration.** The duration of the AMWG is continuing, subject to the Termination section below.

11. **Termination.** The AMWG will tenninate 2 years from the date the charter is filed, unless prior to that date, it is renewed in accordance with the provisions of section 1013 of the FACA. The AMWG will not meet or take any action without a valid current charter.

12. **Membership and Designation.** Members and alternate members of the AMWG appointed by the Secretary will be comprised of: but not limited to, the following:

a. Secretary's Designee, who will serve as Chairperson for the AMWG.

b. One representative each from the following entities:

(1) The Secretary of Energy {Western Area Power Administration)
(2) Arizona Game and Fish Department
(3) Hopi Tribe

(4) Hualapai Tribe
(5) Navajo Nation
(6) San Juan Southern Paiute Tribe
(7) Southern Paiute Consortium
(8) Pueblo of Zuni

c. One representative each from the Governors from the seven basin States:

(1) Arizona
(2) California
(3) Colorado
(4) Nevada
(5) New Mexico
(6) Utah
(7) Wyoming

d. Representatives each from the general public as follows:

(1) Two from environmental organizations
(2) Two from the recreation industry
(3) Two from contractors who purchase Federal power from Glen Canyon Powerplant

e. One representative from each of the following DOI agencies as ex-officio non-voting members:

(1) Bureau of Reclamation
(2) Bureau of Indian Affairs
(3) U.S. Fish and Wildlife Service
(4) National Park Service

Members and alternates will be appointed to the AMWG by the Secretary. with input and recommendations from the above-referenced agencies, States. Tribes, contractors for Federal power from Glen Canyon Dam, environmental organizations, and other stakeholders. Members and alternates of the AMWG will be appointed for a 3-year tenn.

Members of the AMWG will serve without compensation. However, while away from their homes or regular places ofbusiness, AMWG and subcommittee members engaged in AMWG or subcommittee business approved by the DFO may be allowed travel expenses, including per diem in lieu of subsistence. in the same manner as persons employed intennittently in Government service under *5* U.S.C. § 5703.

13. **Ethics Responsibilities of Members:**

a. **Federal Employees.** Federal members who are appointed to the AMWG in their official capacity as Federal employees are subject to applicable Federal ethics statutes and regulations, to include applicable exceptions and exemptions.

b. **Non-Federal Employees.** Non-Federal members of the AMWG and subcommittees are appointed as representatives and therefore are not subject to Federal ethics statutes and regulations. However, non-Federal AMWG and subcommittee members may not participate in any AMWG and subcommittee deliberations or votes relating to a specific party matter before the Department or its bureaus and offices including a lease. license, pennit, contract, grant, claim, agreement, or litigation. in which the member or the entity the member represents has a direct financial interest.

14. **Subcommittees.** Subject to the DFO's approval. subcommittees may be formed for the purpose of compiling information or conducting research. However, such subcommittees must act only under the direction of the DFO and must report their recommendations to the full AMWG for consideration. Subcommittees must not provide advice or work products directly to the Agency. Subcommittees will meet as necessary to accomplish their assignments, subject to the approval of the DFO and the availability ofresources.

15. **Recordkeeping.** Detailed records must be kept of each AMWG, subcommittee, or other subgroups. All records must be made available to the public, subject to the Freedom of Information Act (5 U.S.C. § 552) and must be handled in accordance with General Records Schedule 6.2 and other approved Agency records disposition schedules.

16. Filing Date: SEP 15 2025

Secretary of the Interior

SEP 12 2025

Date Signed

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Draft Agenda

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Glen Canyon Dam Adaptive Management Program
Adaptive Management Work Group Meeting, August 12-13, 2026
Little America, Flagstaff AZ

Wednesday, August 12, 2026

Register Here for Day 1:
August AMWG Day 1 | Join meeting in Teams | Microsoft Teams

DRAFT AGENDA

START TIME [1] (Duration)	Wednesday, August 12, 2026 Topic, Presenter, and Purpose[2]
9:30 PST (:60)	**Welcome and Administrative:** Andrea Travnicek, Secretary's Designee to the Adaptive Management Work Group ▪ Opening Remarks (Andrea Travnicek and Wayne Pullan – Designated Federal Officer) ▪ Ground Rules/Introductions and Determination of Quorum (13 members) o Facilitator: Becki Bryant ▪ Administrative Updates (Bill Stewart) o AMWG Membership Status/call for nominees o Action Item Tracking Report o GCDAMP Timeline of Activities Additional Information: AMWG Website
10:30 PST (:30)	**Post 2026 Update:** Carly Jerla, Reclamation ▪ Presentations (20 minutes) ▪ Q&A and discussion (10 minutes)
11:00 PST (:30)	**Basin Hydrology and Operations:** Mike Callahan and Bryce Mihalevich, Reclamation ▪ Presentations (20 minutes) ▪ Q&A and discussion (10 minutes) Additional Information: 1) Current GCD operations 2) 24-Month Study 3) CRMMS 2-Year Projections 4) 5-Year Projections 5) Drought Contingency Plans Purpose: To increase understanding of water supply, forecasted hydrologic conditions, and projected reservoir conditions and operations for the current and upcoming water years.
11:30 PST (:30)	**Nonnative Fish Status and Rapid Response Efforts: NPS** ▪ Status of smallmouth bass and other nonnative fish (20 mins) ▪ Q&A and discussion (10 minutes) Purpose: To provide an update on the status of smallmouth bass and other nonnative fish.

12:00 PST (1:30)	**LUNCH** Tribal luncheon: Silver Pine Restaurant (Little America)
1:30 PST (1:30)	**GCDAMP FY27 Work Plan:** Seth Shanahan, TWG chair; Michelle Garrison, BAHG chair, Bill Stewart, Reclamation; and Mark Anderson, GCMRC ▪ Review the motion process ▪ Discussion on FY25-27 Triennial Workplan Purpose: Take action on a recommendation for FY27 adjustments to the Secretary of the Interior with respect to the FY 25-27 Triennial Workplan. **Draft Proposed Motion:** *"The Adaptive Management Work Group (AMWG) recommends the Fiscal Year 2027 Bureau of Reclamation and Grand Canyon Monitoring and Research Center budget scenarios to the Secretary of the Interior that were provided to the AMWG on August 13, 2026. The AMWG recognizes that these scenarios represent an attempt to address potential funding reductions while maintaining support for critical monitoring, research, data management capacity, and Glen Canyon Dam Adaptive Management Program obligations.* *The AMWG further recommends that any unforeseen available funding be used to address ongoing or emerging threats and to preserve previously planned research and monitoring activities."*
3:00 PST (:15)	**BREAK**
3:15 PST (:45)	**GCDAMP FY27 Work Plan (Continued):** TWG chair; Reclamation; GCMRC ▪ Review the motion process ▪ Discussion on FY25-27 Triennial Workplan Purpose: Take action on a recommendation for FY27 adjustments to the Secretary of the Interior with respect to the FY 25-27 Triennial Workplan.
4:00 PST (:45)	**Monitoring Paiute Places on the Colorado:** Daniel Bulletts, Southern Paiute Consortium ▪ Presentation (30 minutes) ▪ Q&A and discussion (15 minutes) Purpose: Presentation on the outcomes of Project 5.G in the triennial workplan, which created immersive virtual training tools to help new tribal monitors and agency partners understand tribal monitoring goals, processes, and cultural resource impacts.
4:45 PST (:15)	**PUBLIC COMMENT**
5:00 PST	**ADJOURN FOR THE DAY**

Glen Canyon Dam Adaptive Management Program
Adaptive Management Work Group Meeting, August 12-13, 2026
Little America, Flagstaff AZ

Thursday, August 13, 2026

Register Here for Day 2:
August AMWG Day 2 | Join meeting in Teams | Microsoft Teams

DRAFT AGENDA

START TIME [1] (Duration)	Thursday, August 13, 2026 Topic, Presenter, and Purpose[2]
8:30 PST (:15)	**Welcome and Administrative:** Andrea Travnicek, Secretary's Designee to the Adaptive Management Work Group and Wayne Pullan – Designated Federal Officer ▪ Introductions and Determination of Quorum (13 members) o Facilitator: Becki Bryant
8:45 PST (:60)	**GCDAMP FY27 Work Plan (Continued if needed) and Discussion on FY28-30 Triennial Work Plan:** ▪ Review process and timeline ▪ Discussion on FY28-30 Triennial Workplan Purpose: Discussion of the upcoming Triennial Workplan
9:45 PST (:30)	**GCDAMP/AMWG 101:** Bill Stewart, Reclamation ▪ Presentation (20 minutes) ▪ Discussion (10 minutes) Purpose: Overview of the GCDAMP and AMWG.
10:15 PST (:30)	**Workshop Updates (Hydropower and Fish):** Seth Cohen, Senior Program Manager Udall Foundation ▪ Presentation (20 minutes) ▪ Discussion (10 minutes) Purpose: The purpose is to provide updates to AMWG on past hydropower and fish workshops and plans for the remaining resource workshops.
10:45 PST (:15)	**BREAK**
11:00 PST (:15)	**Updates on Sandbar Conditions:** David Topping, GCMRC ▪ Presentation (10 minutes) ▪ Discussion (5 minutes)

	Purpose: The purpose is to provide updates to AMWG on the status of sandbar conditions, the HFE trigger, and current state of knowledge. .
11:15 PST (:30)	**FWS ESA Updates:** Deb Williams, USFWS ▪ Razorback sucker downlisting ▪ Summary of recent federal register notices ▪ Other topics Purpose: To provide AMWG members with ESA regulatory updates and lessons learn from nonnative fish invasion in the Colorado River Basin
11:45 PST (:75)	**LUNCH**
1:00 PST (:30)	**Status of Lees Ferry Rainbow Trout Fishery:** Brian Healy, GCMRC ▪ Presentation (20 minutes) ▪ Q&A and discussion (10 minutes) Purpose: To provide an update on the current status of the rainbow trout fishery.
1:30 PST (:30)	**Technical Work Group Chair Report:** Seth Shanahan, Technical Work Group Chair ▪ Presentation (20 minutes) ▪ Q&A and discussion (10 minutes) Purpose: To update AMWG members on the TWG Meetings held since May 2026 AMWG meeting and to seek direction from AMWG on priorities in for the upcoming year.
2:00 PST (:30)	**Stakeholder Perspective: Grand Canyon River Guides:** David Brown, Grand Canyon River Guides AMWG Member ▪ Presentation (20 minutes) ▪ Q&A and discussion (10 minutes) Purpose: This presentation will provide a Grand Canyon River Guide perspective on the Adaptive Management Program and the state of the River.
2:30 PST (:30)	**Stakeholder Updates (2-3 minutes each):** ▪ States: ADWR, AZGFD, CA, CO, NM, NV, UT, WY ▪ Tribes: Hopi, Hualapai, Navajo Nation, Pueblo of Zuni, Southern Paiute ▪ NGOs: Environmental (x2), Federal Power Purchasers (x2), Recreation (x2) Purpose: To share general updates regarding current stakeholder activities on the Colorado River that are pertinent to the GCDAMP.
3:00 PST (:15)	**Federal Agency Updates (2-3 minutes each):** ▪ USGS, USFWS, USBR, NPS, BIA, WAPA, DOI Solicitors Office Purpose: To share general updates regarding current activities on the Colorado River that are pertinent to the GCDAMP.

3:15 PST (:15)	**PUBLIC COMMENT**
3:30 PST (:15)	**WRAP-UP:** Andrea Travnicek, Secretary's Designee to the Adaptive Management Work Group and Wayne Pullan, Designated Federal Officer ▪ Cultural Resource, Recreation (whitewater), Sediment, and Vegetation Knowledge Workshop – Sept 22-24 ▪ Natural Processes and Recreation Angling Knowledge Workshop/TWG Meeting Nov 3-5 ▪ Next AMWG Meeting February, 2027
3:45 PST	**ADJOURN**

[1] Every effort will be made to adhere to the schedule and agenda, but on occasion, for unforeseen reasons, some modifications may occur.

[2] Action may be by consensus or a vote; and either may be a recommendation to the Secretary of the Interior or feedback to presenter(s) or to subordinate groups.

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Final Minutes & Action Items

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Glen Canyon Dam Adaptive Management Program
Adaptive Management Work Group (AMWG) Meeting Summary
Date: May 13, 2026

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

Meeting Start Time: 8:00 am PST
Location: Virtual

Welcome and Administrative

Becki Byrant (Reclamation) opened the meeting, confirmed quorum (13 members), and reviewed ground rules (muting, verbal comments logged over chat, and recording notice). Dustin Sherer (Department of Interior) and Wayne Pullen (Reclamation) offered opening remarks emphasizing "unprecedented challenges" across hydrology, invasive species pressures, and operational constraints, and underscored the Secretary's reliance on science-based and consensus-driven guidance from Glen Canyon Dam Adaptive Management Work Group (AMWG). He previewed key themes—trade-offs among resource protection, hydropower, cultural resources, recreation, and water supply—and thanked participants for their commitment.

Administrative updates from Bill Stewart (Reclamation) covered membership term status (nominations in process, additional call expected), an action-item tracking list, and a two-year Glen Canyon Dam Adaptive Management Program (GCDAMP) activity "Gantt" view (workshops, Technical Work Group (TWG) recommendations, August AMWG meeting, and subsequent planning for FY28–30 Triennial Work Plan (TWP) and the Long-Term Experimental and Management Plan (LTEMP; 10-year review). The TWG Chair report by Seth Shanahan (State of Nevada) summarized April meetings (knowledge workshops and TWG), highlighted concerns around low summer releases, temperature, hotspot habitats, and reinforced the need for rapid response flexibility and renewed ad-hoc charges (e.g., socioeconomic (SEAHG) and smallmouth bass (SBAHG) ad hoc groups).

Basin Hydrology and Operations

Presenters Alex Pivarnik (Reclamation) and Bryce Mihalevich (Reclamation) reported historically poor 2026 hydrology: Upper Basin live storage as of May 11 showed Lake Powell ~24% full (elev. 3,526.47'), with April–July inflow forecast at 800 thousand acre-feet (kaf; 13% of average) and water-year unregulated inflow ~3.27 million acre-feet (maf; 34%), placing 2026 near the second driest on record absent protective actions. They noted low precipitation, warm temperatures, and Snow Water Equivalent (SWE) that peaked at ~60% of median in early March.

Water-quality observations indicated rapid warming: releases and river temperatures at Lees Ferry, River Mile (RM) 15, RM 30, and RM 61 were tracking above historical medians, with model projections showing exceedance of 15.5 °C thresholds from early–mid June under most probable hydrology. Reservoir profiles at Wahweap showed elevated chlorophyll at depth and deep-water anoxia development, trends that warrant continued monitoring. Together with Wayne Pullan remarks, Reclamation explained the use of Drought Response Operations Agreement (DROA) and Section 6E operations to hold Powell above minimum power pool (reducing annual releases to 6.0 maf and augmenting inflows from Flaming Gorge, Aspinall, and Navajo), aiming to maintain generation capability into 2027.

Workshop Updates

Jeremy Hammen (Reclamation) recapped the Humpback Chub, Nonnative Fish, and Other Native Fishes knowledge workshop (April 7–8). Goals were to build shared understanding of LTEMP resource conditions, surface stakeholder knowledge gaps, and feed both the FY28–30 TWP and the LTEMP 10-year review. Key takeaways included clarifying short/medium/long-term actions, reviewing the Nonnative Fish Strategic Plan, assessing Endangered Species Act (ESA) risk tolerance, sharpening monitoring priorities and metrics, enabling adaptive rapid-response management, and exploring hotspots/habitat modifications and independent science review. Upcoming workshops: Cultural & Archaeological, Recreation (Whitewater), Sediment, Vegetation (now Sept 22–24, 2026) and Natural Processes, Rainbow Trout Fishery, Recreation (Angling) (Nov 3–5, 2026), with a Program Processes & Tribal Resources workshop planned for summer 2027.

Stakeholders emphasized the need to keep engaging Tribes and program participants through surveys and SharePoint updates, and to use workshop outputs to inform the LTEMP 10-year review framing and FY28–30 portfolio. The planning team invited further input (contacts listed in the presentation) and will circulate a detailed summary prepared with Udall support.

Nonnative Strategic Plan Action updates

Jeremy Hammen outlined the three-tier strategy from GCDAMP’s Nonnative Fish Strategic Plan: Long-term prevention (limit entrainment), Mid-term flows (prevent successful smallmouth bass spawning below Glen Canyon Dam), and Short-term rapid response (monitoring/removal, environmental Deoxyribonucleic Acid (DNA), artificial substrates, and—only if needed—rotenone). Long-term work includes assessments of fish entrainment options, deterrent studies (including electric barrier concepts), hydroacoustic entrainment modeling (Utah State), and steps toward a temperature-control device—recognizing engineering and compliance complexity. Mid-term actions include Cool Mix flow implementations in 2024–2025 and habitat

modification considerations (e.g., −12 Mile Slough, completed in June 2025 with ongoing replanting), while short-term actions focus on chemical and mechanical removal efforts.

Key takeaways from spring 2026 sampling were: >20 days of sampling (Glen Canyon National Recreation Area and Grand Canyon National Park); five smallmouth bass (100–300 mm) captured; abundant green sunfish and bluegill upstream of Lees Ferry; no evidence of Young-of-Year (YOY) smallmouth bass in 2024–2025. Early captures of green sunfish and bluegill were possibly due to presence during the previous warm fall with winter survival, entrainment during warmer reservoir conditions, or early-spring backwater warming. Rapid Response plans continue below the dam with an eye on Slough velocities and thermal equalization under low releases.

LTEMP Experiments Update

Bill Stewart reviewed LTEMP experiments and 2026 Planning and Implementation (PI) Team recommendations. Since 2016, AMWG has implemented Macroinvertebrate flows (2018, 2019, 2020, 2022), High-Flow Experiment (HFE)s (2016, 2018, 2023), and Smallmouth Bass (SMB) flows (Cool Mix in 2024, 2025). The screening tool (Grand Canyon Monitoring and Research Center (GCMRC), Western Area Power Administration (WAPA), Argonne) evaluated 33 scenarios (13 modeled), comparing SMB population growth risks (excluding entrainment) and hydropower costs, with river-mile temperature thresholds and on/off-ramp logic. For an HFE the team considered a 32,400 cfs, 12-hour June 23 option (fits projected June volumes), noting learning value of low-magnitude/duration floods for beaches/arch sites, but raised concerns about low-flow forecasts, two simultaneous experiments, and public messaging on total release neutrality; mixed support resulted.

For SMB flows, the PI leadership recommendation favored Cool Mix targeting RM 15 (on-ramp: 3 consecutive days >15.5 °C; off-ramp: Oct 20, 2026); most PI members supported this, with median cost ~$24–25 M and documented biological benefits (suppressing SMB, protecting Humpback chub and natives, improving temperature/Dissolved Oxygen for trout/food base). Stakeholder dialogue weighed Basin Fund sustainability, grid reliability, and the need for long-term entrainment solutions—with AMWG members urging transparency and broader inclusion alongside the PI process. Decision authority rests with the Secretary of the Interior, with briefings and a decision expected in the coming weeks given early-June temperature triggers.

GCDAMP Triennial Budget and Work Plan Development Process

Michelle Garrison (Budget Ad Hoc Group [BAHG] Chair) described the FY25–27 TWP cadence and the FY27 update path: BAHG → TWG (June) → AMWG (August) → Department of Interior (DOI) recommendation by Sep 30. After a ~15% FY26 reduction (Initial Units total

$20.667 M → Glen Canyon Dam Adaptive Management Program (GCDAMP) ~$10.6 M; ~80% USGS, 20% Reclamation), Reclamation directed starting FY27 at $10.6 M with 5% and 10% walkdowns; the President's Budget later proposed Initial Units $20.06 M, implying GCDAMP ~$10.23 M (BOR ~$2.046 M; GCMRC ~$8.184 M). A TWG survey ranked projects across monitoring/modeling/data functions to help prioritize within constrained budgets while preserving long-term datasets, program alignment, and maintaining program expertise.

Next steps: Reclamation and GCMRC finalize draft FY27 workplans; BAHG discusses and recommends to the TWG; TWG recommends to AMWG; AMWG advises DOI by Sep 30; Reclamation/GCMRC then align execution to actual appropriations (recognizing continuing resolution (CR)s/shutdown risks). BAHG flagged the importance of documenting impacts of reductions, safeguarding core time series, and noting valuable projects not included this cycle to revisit in FY28–30.

LTEMP Programmatic Agreement Update

Zachary Nelson (Reclamation) reported on section 106 Programmatic Agreement engagements with Partner Tribes, emphasizing the cultural significance of tribal monitoring trips (identity, connection, healing), concerns about visitor impacts, and support for HFEs to sustain sites and landscapes. Agencies monitored 77 sites, including partially submerged historic resources; the Navajo film "Learning from the Colorado River" will be shared to broaden understanding. Tribes expressed interest in a Tribal Ad-hoc Group to help plan workshops and strengthen collaboration moving into the LTEMP 10-year review.

Public Comment

Members of the public and stakeholders weighed in on operational projections, cool mix necessity for the Lees Ferry trout fishery, transparency of PI deliberations, and the need to implement HFEs given multiple recent sediment triggers and degraded beach/campsite conditions. Several emphasized that hydropower impacts largely stem from falling reservoir elevations, not solely experiments, and urged balanced distribution of benefits and burdens across all LTEMP resources in 2026 (supporting *both* Cool Mix and an HFE). WAPA clarified Basin Fund mechanics—experiment replacement energy costs are direct, non-reimbursable Basin Fund expenditures, with risk shifts to customers—and offered to bring finance/contract subject matter experts (SME)s for deeper briefings.

AMWG Next Steps

Wayne Pullan closed by reaffirming comprehensive briefings to the Secretary of the Interior on Cool Mix and HFE recommendations, requesting future presentations on other revenue sources that mitigate Basin Fund impacts, options to protect the Basin Fund during experiments, and an assessment of resource impacts if Lake Powell were to fall below minimum power pool (short/medium/long-term scenarios). The next AMWG meeting is scheduled for August 12–13, 2026, at Little America, Flagstaff, AZ.

Participants

AMWG Members, Alternates, and Leadership

Ali Effati (State of New Mexico)
Amy Haas (State of Utah)
Charlie Ferrantelli (State of Wyoming)
Christina Noftsker (State of New Mexico)
Daniel Bulletts (SPC)
David Brown (GCRG)
Dustin Sherer (DOI-ASWS)
Ed Keable (NPS)
Emily Young (State of Colorado)
Emily Zmak (State of Colorado)
Erik Stanfield (Navajo Nation)
Heather Whitlaw (FWS)
Jacob Ohlson (NPS-GLCA)
Jakob Maase (Hopi)
Jess Newton (FWS)
Jim Strogen (Trout Unlimited)
Kathleen Callister (Acting DFO)
Katrina Grantz (BOR)
Kelly Burke (GCWC)
Larry Stevens (GCWC)
Leslie James (CREDA)
Matt Rice (American Rivers)
Mel Fegler (State of Wyoming)
Michelle Garrison (State of Colorado)
Mike Squire (UAMPS)
Richard Begay (Navajo Nation)
Rod Buchanan (Trout Unlimited)
Rodney Bailey (WAPA)
Sara Price (State of Nevada)
Shana Rapoport (State of California)
Sheri Farag (Salt River Project)
Stewart Koyiyumptewa (Hopi)
Warren Turkett (State of Nevada)
Wayne Pullan (DFO/Chair)

Other GCDAMP Members and Interested Persons

Alexander Pivarnik (Reclamation)
Rudy Keedah (BIA)
Amanda Nicodemus
Andrew Colosimo (Colorado Springs Utilities)
Andrew Schultz (USGS)
Becki Bryant (Reclamation)
Bill Persons (Trout Unlimited)
Brett Power (Navajo Tribe)
Brian Hines (Reclamation)
Brian Pauly
Brittany Peterson (Associated Press)
Brooke Larsen (The Salt Lake Tribune)
Bill Stewart (Reclamation)
Cassandra Reed (NPS)
Clint Carney
Conor Clancy
Craig Dengel
Daniel Anderson
Danielle Collins (State of Nevada)
Dave Foster
Dave Wegner
David Dean (GCMRC)
David Topping (GCMRC)
David Ward (FWS)
Deb Williams (FWS)
Elyse Magen (UDALL)
Emily Brandt
Emily Omana (NPS-GRCA)
Ernest Rheaume (Reclamation)
Fred Brown
Graham Rex
Hannah Chambless (NPS-GRCA)
Janet Balsom (NPS-GRCA)
Jen Pelz
Jenna Vonhofe
Jeremy Hammen (Reclamation)
Jerry Wilhite (WAPA)
Jessica Pope (Reclamation)
Joe Duncan (State of Wyoming)
Joel Sankey (GCMRC)
John Carol
Kathrine Behn (GCMRC)
Kelly Kaye
Lisa Belenky
Lisa Meyer
Lucas Bair (GCMRC)
Lynn Hamilton (GCRG)
Mark Anderson (GCMRC)
Matt O'Neill (Reclamation)
Matthew Boggie (FWS)
Megan Kramer (State of Colorado)
Natalie Ortega
Nicholas Williams (Reclamation)
Nicole Gibney (NPS)
Paul Grams (GCMRC)
Rob Billerbeck (NPS-GRCA)
Rod Smith (DOI)
Ron Rudolph
Ryan Mann (AZGFD)
Ryan Randol (Reclamation)
Seth Cohen (Udall)
Seth Shanahan (State of Nevada)
Shana Tighi
Stephanie Graham
Stephanie Trimmer
Tara Ashby (Reclamation)
Ted Rampton (UAMPS)
Taylor McKinnon
Ted Kennedy (GCMRC)
Tildon Jones (FWS)
Tom Hazel
Tom Martin
Trevor Updegraff
Valerie Deppe (Reclamation)
Wendy Crowther
Will Turman
Zachary Nelson (Reclamation)

GLEN CANYON DAM ADAPTIVE MANAGEMENT WORK GROUP
Action Item Tracking Report

Note: Items marked "Closed" will be removed from the next iteration of the report.

ITEM NO. / DATE	ACTION ITEM	ASSIGNED TO / DUE DATE	STATUS
Item 2017.Sep.01	**At its next meeting, AMWG will consider a process for planning for the next 20 years of LTEMP.** February 2018 update: This will be addressed through the development of monitoring metrics and by the streamlining of GCDAMP guiding documents as described in the LTEMP ROD. August 2019 Update: This action item will move forward as directed and informed by the Guidance Memo issued by the Secretary's Designee in August 2019. May 2020 Update: The draft FY21-23 budget and workplan includes funding support to develop and track monitoring metrics and to streamline guidance documents. Beginning Oct 20, Reclamation and GCMRC will initiate review of the LTEMP FEIS metrics. This work will be a focus for FY21, but will likely be ongoing through the FY21-23 TWP. … May 2021 Update: GCMRC and Reclamation are working to define the scope of the metrics development effort, propose a list of existing and new metrics for consideration, and develop criteria to evaluate the metrics. Will seek Secretary's Designee input and TWG feedback on proposed plan later in 2021. August 2021 Update: A draft project plan, including objectives and timeline, was distributed in early June 2021 for review and input. GCMRC is addressing TWG comments. A status update will be presented during the August AMWG meeting and member feedback requested. February 2022 Update: The GCMRC developed several draft metrics and pilot presentations concurrently with the 2021 Annual Report. The draft metrics are currently in review with DOI bureaus and leadership, prior to further review and discussion by the Technical Work Group. May 2022 Update: The GCMRC developed several draft metrics and pilot presentations concurrently with the 2022 Annual Report. The draft metrics are currently in review with	Reclamation / ongoing	Open

ITEM NO. / DATE	ACTION ITEM	ASSIGNED TO / DUE DATE	STATUS
	DOI bureaus and leadership, prior to further review and discussion by the Technical Work Group. Aug 2022 update: The GCMRC developed several draft metrics and distributed for AMP review. Stakeholders revisited the GCDAMP guiding principles on the 2022 Stakeholder River Trip. Feb 2023 update: The GCMRC developed several draft metrics and presented at the 2023 Annual Reporting Meeting. Rollout to the GCDAMP website is planned for 2023 after DOI meetings. May 2023 update: The GCMRC developed several draft metrics and presented at the 2023 Annual Reporting Meeting. Rollout to the GCDAMP website is planned for 2023 after DOI meetings. August 2023 update: The GCMRC is finalizing monitoring metrics report. Developed several draft metrics and presented them at the 2023 Annual Reporting Meeting. Rollout of individual metrics to the GCDAMP website will begin in late 2023/early 2024. Feb 2024 update: The GCMRC is presenting metrics and this Feb AMWG meeting. Will be used to guide the 2025-2027 TWP process. Rollout of individual metrics to the GCDAMP website will begin in 2024. May 2024 update: BR and USGS met in early May to discuss path forward. There are two metrics that need additional conversations (tribal and hydropower) and we will be working with partners to finalize metrics by February 2025 AMWG meeting. A status update will be provided at the August AMWG meeting. August 2024 update: No new updates from May August 2025 update: Metrics are complete and GCMRC is going through the review process before metrics report will be distributed. GCMRC will be presenting the metrics during this AMWG meeting. Additionally, GCMRC is near finalizing the 2024 annual report that has been reorganized to		

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	report-out on these metrics. Report out on metrics as part of the annual reports will be the practice moving forward. February 2026 update: Metrics have been finalized and GCMRC is going through the review process before description of the metrics report will be distributed. GCMRC will be presenting the metrics during the AMWG meeting. GCMRC finalized and distributed the GCMRC 2024 metric annual report in December. GCMRC provided metric posters at the 2025 Annual Reporting Meeting on February 3-4, 2026. May 2026 update: No new updates. August 2026 update: No new updates.		
Item 2022.Aug.18	**The Acting Secretary's Designee proposed for the GCDAMP to undertake activities to address the following five action areas:** **1) Evaluation of High-flow Experiments under Low-elevations/Low-flows.** **2) Evaluation of Downstream Resource Impacts under Low-Elevations/Low-flows.** **3) Continue drafting Nonnative Fish Strategic Plan.** **4) NEPA Compliance for Operational Flexibilities to Address Nonnative Fish** 5) **Planning to Evaluate Exclusion Projects**. February 2023 update: 1) GCMRC provided analysis to the GCDAMP via email and at the 2023 ARM, 2) Evaluation is being completed through SEIS analysis/modeling, 3) A draft was provided to AMWG by TWG for consideration, 4) a draft EA prepared by Reclamation, and 5) an engineering team assembled a subject	GCMRC, Reclamation, TWG / Februar y 2023	Open

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	matter expert panel and is pursuing design of a forebay net barrier. May 2023 update: 1) GCMRC provided analysis to the GCDAMP via email and at the 2023 ARM, 2) Evaluation is being completed through SEIS analysis/modeling, 3) Strategic plan was recommended to the Secretary of the Interior for Adoption, 4) a draft EA prepared by Reclamation, and 5) an engineering team assembled a subject matter expert panel and is pursuing design of a forebay net barrier. August 2023 update: 1) GCMRC provided analysis to GCDAMP via email and at the 2023 ARM. The TWG through FLAHG is developing a proposal to address sediment accounting and implementation. 2) Evaluation is being completed through SEIS analysis/modeling, 3) Completed 4) draft EA was prepared and is now being transitioned into a supplemental EIS to LTEMP, and 5) an engineering team assembled a subject matter expert panel and is investigating design option for a forebay net barrier. Feb 2024 update: 1) Completed. 2) Evaluation is being completed through SEIS analysis/modeling, 3) Strategic plan was recommended to the Secretary of the Interior for Adoption. This task is complete and implementation updates are being provided at TWG and AMWG meetings, 4) draft LTEMP SEIS is out for public review, and 5) the TSC is expected to have a final appraisal level report on a fish exclusion net and thermal curtain. Reclamation intends to hold a value planning study to further design considerations. May 2024 update: 1) Completed. 2) Evaluation is being completed through SEIS analysis/modeling, 3) Strategic plan was recommended to the Secretary of the Interior for Adoption. This task is complete and implementation updates are being provided at TWG and AMWG meetings, 4) final LTEMP SEIS and ROD is expected in May/June, and 5) the TSC is expected to have a final appraisal level report on a fish exclusion net and thermal		

ITEM NO. / DATE	ACTION ITEM	ASSIGNED TO / DUE DATE	STATUS
	curtain. Reclamation intends to hold a value planning study in July to further design considerations. <u>August 2024 update:</u> 1) **Completed**. 2) **Completed:** Evaluation of downstream resource impacts under Low-Elevations/Low-flows was evaluate in the near term Colorado river operations SEIS, 3) **Completed:** Strategic plan was recommended to the Secretary of the Interior for Adoption. This task is complete and implementation updates are being provided at TWG and AMWG meetings, 4) **Completed:** final LTEMP SEIS and ROD was signed on July 3rd, and 5) **In Progress:** Reclamation conducted a value planning study in July and upon completion of the report will provide an update to AMWG and TWG members		
	<u>August 2025 update:</u> 1) **Completed**. 2) **Completed:** Evaluation of downstream resource impacts under Low-Elevations/Low-flows was evaluate in the near term Colorado river operations SEIS, 3) **Completed:** Strategic plan was recommended to the Secretary of the Interior for Adoption. This task is complete and implementation updates are being provided at TWG and AMWG meetings, 4) **Completed:** final LTEMP SEIS and ROD was signed on July 3rd, and 5) **In Progress:** Reclamation completed a value planning study in Oct 2024. An ongoing biofouling study is underway to investigate how quagga mussels will impact different material types/coatings. <u>February 2026 update:</u> 1) **Completed**. 2) **Completed:** Evaluation of downstream resource impacts under Low-Elevations/Low-flows was evaluate in the near term Colorado river operations SEIS, 3) **Completed:** Strategic plan was recommended to the Secretary of the Interior for Adoption. This task is complete and implementation updates are being provided at TWG and AMWG meetings, 4) **Completed:** final LTEMP SEIS and ROD was signed on July 3rd, and 5) **In Progress:** Reclamation completed a value planning study in Oct 2024. An ongoing biofouling study is underway to investigate how quagga mussels will impact different material types/coatings.		

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Supplemental Materials

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GCDAMP & Other Meetings in 2027

Proposed

Days	Dates	Meeting	Comments
		JANUARY	
F	Jan 1	New Years Day	
W	Jan	UCBLT all day	
W-Th	Jan 6-7	CRAB Meeting	
M	Jan 18	Martin Luther King Holiday	
Tu-W	Jan 26-27	UCRIP Researcher's Meeting	
		FEBRUARY	
T-W	Feb 2-3	Annual Reporting Meeting – Flagstaff, Little America	
Th	Feb 4	TWG Meeting – Flagstaff, Little America	
M	Feb 15	President's Day Holiday	
Tu	Feb 23	DOI Federal Family Meeting – TBD	
W-Th	Feb 24-25	AMWG Meeting – TBD	
Th	Feb	MSCP Financial WG mtg	
		MARCH	
Sun	Mar 14	Daylight Savings (begins)	
Th	Mar	Flaming Gorge WG	
		APRIL	
Tu-W	Apr 6-7	TWG Meeting – TBD	High Country CC???
Th	Apr 8	Knowledge Workshop	
W	Apr	UCBLT all day	
W	Apr	MSCP Steering Committee meeting	
		MAY	
Tu-W	May	MSCP work group	
W	May 12	AMWG Webinar - Virtual	
W-Th	May	Salinity WG Mtg	
M	May 31	Memorial Day Holiday	
		JUNE	
Tu-F	Jun 1-4	Salinity Forum and Advisory Council	
Tu-W	Jun 8-9	TWG Meeting - TBD	
M	Jun 14	Flag Day	
Sat	Jun 19	Juneteenth Holiday	
W	June	MSCP Steering Committee meeting	
		JULY	
Sat	Jul 4	Independence Day Holiday	
W	Jul	UCBLT all day	
Th	Jul	WAPA/CREDA mtg	
		AUGUST	
Tu	Aug 17	DOI Federal Family Meeting – Grand Canyon	
W-Th	Aug 18-19	AMWG Meeting – Grand Canyon	

Days	Dates	Meeting	Comments
M-F	Aug 16-20	First week of school - Utah	
M-F	Aug	Fall semester starts at NAU – Flagstaff, AZ	
		SEPTEMBER	
M	Sep 6	Labor Day Holiday	
		OCTOBER	
W	Oct	UBCLT all day	
M	Oct 11	Columbus Day	
W	Oct	MSCP Steering Committee meeting	
Tu-W	Oct 19-20	TWG Meeting – Virtual/TBD	Or Oct 26-27???
M-F		Salinity Forum & Advisory Council Mtgs	
		NOVEMBER	
Su	Nov 7	Daylight Savings (ends)	
Th	Nov 11	Veteran's Day Holiday	
Th	Nov 25	Thanksgiving Holiday	
		DECEMBER	
Sa	Dec 25	Christmas Day Holiday	

Approximate Timelines for the Development and Implementation of the TWP Table 1 and Criteria for Review and Revisions Section 2.7)

Table 1. Approximate timelines for the development and implementation of the TWP. Dates shown are estimated targets. Dates are shown which implement the 2025-27 TWP for reference.

Month	Year-1 2024 development of TWP	Year-2 2025
December (year prior)	GCMRC and Reclamation produces annual project reports document for GCDAMP review.	
January	Annual reporting meeting and information synthesis 2 days followed by 1-day TWG meeting to review budget and provide initial guidance to GCMRC and Reclamation. TWG reviews progress in addressing Information Needs and research accomplishments.	Annual reporting meeting 1-2 days followed by 1-day TWG meeting with a primary emphasis on reporting results/findings/scientific advances on previous work plan.
February	GCMRC meets with tribes and DOI agencies. GCMRC follow-up with BAHG on priorities and areas of emphasis on TWP. GCMRC meets with cooperators to develop projects. AMWG meeting to discuss initial priorities. DOI and Federal family input.	
March	GCMRC and Reclamation will develop an initial TWP based on DOI priorities and input from scientists, the TWG, and DOI/DOE family. Initial TWP presented to DOI and Secretary's Designee.	
April	GCMRC meets with tribes and DOI agencies. April TWG meeting to consider draft TWP, including anticipated funding sources. Unresolved issues or conflicting priorities will be resolved by DOI in consultation with the DOI Family. GCMRC begins development of second draft TWP.	BAHG and TWG considers potential changes to the Fiscal Year 2 TWP based on criteria in section 2.7.
May	GCMRC and Reclamation provide a second draft TWP to the BAHG, Science Advisors, DOI agencies, and tribes for their review and comment. GCMRC meets with tribes, BAHG, to get input on TWP. GCMRC develops third draft of TWP.	
June	GCMRC and Reclamation finish third draft for review. TWG meets to provide input on the draft GCMRC and Reclamation TWP and provide a recommendation to the AMWG.	TWG recommends Fiscal Year 2 2026 budget of TWP to AMWG.
July	GCMRC and Reclamation provide a final draft TWP to the AMWG for their review.	
August	AMWG meets to provide input on the GCMRC and Reclamation draft TWP and provide a recommendation to the SOI.	AMWG recommends Fiscal Year 2 2026 budget of TWP to SOI.
September	SOI reviews the budget and work plan recommendation from AMWG.	
October 1	Fiscal Year 1 begins under the TWP guidance.	Fiscal Year 2 begins under the TWP guidance.
November 1	Consumer Price Index becomes available.	
Late November	Science and management meeting with DOI and cooperators.	Science and management meeting with DOI and cooperators.
December	Budget is finalized. USGS produces GCMRC annual project reports document for prior year work.	GCMRC produces annual project reports document.

Table 1 continued). Approximate timelines for the development and implementation of the TWP. Dates shown are estimated targets. Dates in parentheses are shown which implement the 2025-27 TWP cycle for reference.

Month	Year-3 2026	Year-4 2027
January	Annual reporting meeting and information synthesis (2 days followed by 1-day TWG meeting to review initial results and findings of TWP. Potential TWP changes may be identified.	Process starts again under year 1.
February	BAHG/agencies/tribes meetings to consider mid-work plan adjustments to TWP, February through March.	
March		
April	Consider mid-work plan adjustments at TWG meeting. BAHG and TWG considers potential changes to the Fiscal Year 3 TWP based on criteria in section 2.7.	
May		
June	TWG considers and recommends mid-work plan adjustments to TWP and a recommendation for Fiscal Year 3 2027 budget.	
July		
August	AMWG meets and considers mid-work plan adjustments to TWP recommended by TWG and recommends Fiscal Year 3 2027 budget to the SOI.	
September		
October 1	Fiscal Year 3 begins under the TWP guidance.	
November 1	Consumer Price Index becomes available.	
Late November	Science and management meeting with DOI and cooperators. New TWP development meeting within DOI.	
December	USGS produces GCMRC annual project reports document for prior year work.	

Table 1 calendar years have been updated to reflect development of the 2025-2027 Triennial Work Plan.

2.7 Criteria for Review and Revisions of the Budget and Work Plan

In order for the TWP process to be successful in reducing the administrative burden on the GCMRC, Reclamation, and the GCDAMP, it must have clear criteria for making changes to the budget and work plan. Revisions of the year two budget are intended to be limited to unexpected changes due to a scientific requirement or merit, or administrative needs. Year three changes may be more substantive according to the guidelines below. The individual steps of the process, including roughly when meetings should occur and their objectives, are provided in Table 1. The burden of an appropriate rationale for proposing a change falls upon the proposer to make a persuasive argument to the TWG and AMWG. The following criteria will be used by GCMRC, Reclamation, and TWG in making recommendations to AMWG on changes to the budget and work plan:

- Scientific requirement or merit: New information gained during the implementation of monitoring and research projects may result in a need to alter methods, scope, or timelines in the work plan or substantially alter or eliminate a project. This is a science need based on the experience of implementing an already approved project. This does not represent a shifting priority e.g., policy change , but a scientific learning process which results in needed modifications to carry out the goals of the Program.
- Administrative needs: Administrative, policy, or programmatic changes may occur within the time-frame of an approved TWP. Examples might include the mitigation of an impact resulting from ESA, NHPA, or tribal consultation, a change in the “overhead” charges of a federal or state agency, a significant reduction of the balance of available funds, or a failure to secure permits.. As soon as an administrative event occurs that affects the TWP, GCMRC or relevant agency – such as DOI will notify the TWG.
- New initiatives: New initiatives may be brought up for discussion by members during BAHG or TWG budget discussions see Table 1) for consideration by Reclamation and GCMRC. These new initiatives may need to be considered by the GCDAMP Program Manager prior to requesting either GCMRC or Reclamation to develop a proposal for mid-work plan consideration. If DOI determines it is beyond the scope of a mid-work plan change, then the initiative could be considered during the development of the next work plan. Given that the budget will likely be fully accounted for, direction on funding source within the current budget will be required for discussion with the GCDAMP Program Manager. Revisions must comply with the Budget Principles see Section 2.1).

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United States Department of the Interior

OFFICE OF THE SECRETARY
Washington, DC 20240

AUG 14 2019

MEMORANDUM

To: Brent Esplin, Designated Federal Officer, Bureau of Reclamation
Regional Director, Upper Colorado Region
Kathleen Callister, Resources Management Division Manager, Bureau of Reclamation
Upper Colorado Region
Scott VanderKooi, Chief, Grand Canyon Monitoring and Research Center (GCMRC)
U.S. Geological Survey (USGS)

From: Timothy R. Petty, Ph.D.
Secretary's Designee
Assistant Secretary for Water a - 1ence •

Subject: Glen Canyon Dam Adaptive Management Program Guidance

The Colorado River faces many challenges in the coming years, especially with an ongoing drought now in its 19th year. As such, it is important that the Glen Canyon Dam Adaptive Management Program (GCDAMP) is managed in such a way as to ensure consistency with the Grand Canyon Protection Act (GCPA) and the priorities of the Secretary of the Interior, and in accordance with the Law of the Colorado River and the Glen Canyon Dam Long Term Experimental and Management Plan (LTEMP) Record of Decision (ROD) and Final Environmental Impact Statement (FEIS).

The GCDAMP plays a central role in ensuring compliance with multiple laws associated with the operation of Glen Canyon Dam. It provides a process for cooperative integration of dam operations, downstream resource protection and management, and monitoring and research. Under the GCPA, Reclamation and GCMRC conduct research and monitoring and consult with specific stakeholders on that research and monitoring. The Adaptive Management Working Group (AMWG), a Federal Advisory Committee, is the vehicle through which Reclamation accomplishes this consultation. The AMWG also makes recommendations to the Secretary per the LTEMP ROD.

LTEMP Implementation

The primary guiding documents for the GCDAMP will continue to be the LTEMP FEIS and ROD, which provide the framework for adaptively managing Glen Canyon Dam operations and management actions associated with downstream resources through 2037. This program guidance document will help ensure continuity and continued successes within the GCDAMP under the current administration and in the years to come. The priorities identified in the LTEMP ROD for the GCDAMP are as follows:

- Management and Experimental Actions
- Mitigation and Environmental Commitments
- Research and Monitoring

In addition, the Department of the Interior (Interior) has recently prioritized the responsible development and production of renewable energy on federal lands. To this end, I encourage the GCDAMP to work within the LTEMP framework to seek ways to improve the value of the hydropower resource. This work may include continued engagement with Project N of the GCDAMP Fiscal Years (FY) 2018-20 Triennial Workplan (TWP) and with interested AMWG stakeholders regarding the current science and policy regarding dam operations.

Updating Guidance Documents

I direct Reclamation, USGS, and other Interior agencies to work with the AMWG to update the GCDAMP guiding documents to reflect and be fully consistent with the priorities outlined in the LTEMP FEIS Section 1.4 and emphasized in Section 6.l(c) of the LTEMP ROD. These guiding documents include the GCDAMP strategic plan, vision, mission, and chaiier.

With the challenges faced in FY 2018 regarding funding for the GCDAMP and the need to ensure appropriations are requested through the federal budget process, Interior supports continuing with the three-year workplan and budget process. The current FY 2018-20 GCDAMP TWP and budget process demonstrated that it can improve program efficiency by reducing the time and effort spent on annually developing a workplan and budget. The GCDAMP should continue to review the TWP annually to ensure it meets the priorities and goals of the GCPA and GCDAMP.

The development of the TWP and budget for FY 2021-23 will commence in late FY 2019 and continue through FY 2020. Its development should include consultation with members of AMWG, who will recommend to the Secretary whether they support the planned projects and funding. Reclamation and GCMRC will take the lead in drafting the FY 2021-23 TWP. The TWP and budget should focus on compliance priorities including:

- Maintaining dam releases consistent with applicable laws;
- Activities associated with the Endangered Species Act;
- Actions necessary for compliance with the National Historic Preservation Act; and
- Research and monitoring as required by the Grand Canyon Protection Act.

Activities that concern annual release volumes from Glen Canyon Dam-including discussion of Drought Contingency Planning and new negotiations of the Colorado River Interim Guidelines for Lower Basin Shortages and the Coordinated Operations for Lake Powell and Lake Mead-will be underway in FY 2019 or in the coming years. The GCDAMP and AMWG guidance documents discussed here should consider any implications of these ongoing discussions.

The LTEMP Scientific Monitoring Plan will continue to provide a framework for the scientific support needed to complete the monitoring and experimentation specified in the LTEMP FEIS

and ROD. This plan will help ensure that long-term monitoring and research activities are aligned with the LTEMP FEIS and ROD and the GCDAMP decision making process. In accordance with the LTEMP ROD, the Science Plan will be reviewed every tln-ee years and may be updated as needed. The next review will occur in conjunction with the start of the next TWP development process in early FY 2020. Also, in accordance with the LTEMP ROD, specific details concerning the means to collect, analyze, and report information required to support development of recommendations by the AMWG and decision making by Interior will be included in the TWP.

It is also important that the GCDAMP develops and implements monitoring metrics for the resource goals and objectives defined in the LTEMP ROD. Interior directs the AMWG to develop recommendations for these monitoring metrics to assist Interior in their development. The recommended metrics should build on existing LTEMP conservation measures, environmental and recreational goals, and other easily identifiable goals. As the process continues, additional goals can be developed.

Future research proposed and undertaken by the GCDAMP should be tied directly to LTEMP resource goals and objectives and continue to be focused on providing the best available science such that decision making is science-based and continues to work towards ensuring benefits to as many resources downstream of the dam as possible. This should be done in a collaborative process involving AMWG and TWG members, the Science Advisors Program, and ad hoc groups as needed. Several areas to consider as identified by the GCDAMP partners include:

- Evaluation of the threat posed by invasive non-native species.
- Exploring vegetation management to benefit high value recreational beaches and protect vulnerable archaeological sites.
- Considering impacts to hydropower as part of the development of a LTEMP experiments and study plans.

Operating Criteria and Operational Flexibility

The LTEMP ROD provides guidance for hourly, daily, and monthly releases (see, for example, Table 3, p. B-4). In accordance with the LTEMP ROD Attachment B Section 1.2 (Page B-7), I encourage Reclamation to continue to utilize operational flexibility at Glen Canyon Dam in response to varying hydrological and other resource-related conditions. As warranted, Reclamation, in consultation with Western Area Power Administration (WAPA), should continue to make adjustments to hourly, daily, and monthly release volumes within the water year in response to operational, resource-related, and hydropower-related issues.

In response to stakeholder input at recent AMWG meetings, the feasibility of conducting Spring High Flow Experiments (HFE), along with modeling for improvements and efficiencies that benefit resources including natural, cultural, recreational, and hydropower should be explored. As a potential starting point, I encourage you to consider opportunities to conduct higher spring releases within power plant capacity, along with spring HFEs that may be triggered under the cmTent LTEMP Protocol.

Conclusion

This guidance is not meant to be all encompassing or to preclude additional scientific investigations that can improve the resources downstream of Glen Canyon Dam that are consistent with the LTEMP. The GCDAMP should seek ways to continuously improve the program, including searching for efficiencies and improvements and listening to the States, Tribes, and other program stakeholders.

The GCDAMP and AMWG are vital to ensuring Interior's responsibilities under the GCPA and the LTEMP ROD, and I greatly appreciate Reclamation, USGS, other Interior bureaus, and our external partners' dedication to ensuring Glen Canyon Dam is operated in a manner that protects, mitigates impacts to, and improves downstream resources.

1. **Evaluation of High-flow Experiments under Low-elevations/Low-flows** – The first of the low-elevation/low flow actions is to task GCMRC with developing and presenting to the leadership team an analysis of how to optimize HFEs in the current environment. Specifically, this would include evaluating whether less-frequent/higher-flow HFEs are preferable to more-frequent/lower-flow HFEs in a low water environment. Among other issues, this evaluation may consider: What are the minimal frequency, flow, and duration that would be effective? Are there other alternatives to what we have considered for meeting the objectives of HFEs? How do we time and design HFEs to minimize the hydropower impacts? GCRMC is likely to be able to complete this analysis relatively quickly and with minimal budget impact as much of this has already been considered. If possible, we would seek this presentation before a decision needs to be made about implementing any HFE proposal that may be developed for 2022.

2. **Evaluation of Downstream Resource Impacts under Low-Elevations/Low-flows** – The second of the LE/LF actions is to task GCMRC with developing a proposed schedule and budget for evaluating the potential downstream impacts to LTEMP resources of water surface elevation at Lake Powell dropping below minimum power pool and below dead pool for any period greater than three months. We would ask that the proposed schedule and budget be completed by October 15, 2022 to seek additional funding from Reclamation. GCMRC will need to coordinate with Reclamation modelers on results that may be available to blend into coupled-modeling activities. In other words, taking the CRMMS probabilistic results and using them in GCMRC's temperature, water quality, and fish models to determine impacts for each resource under the Adaptive Management Program.

3. **Nonnative Fish Strategic Plan** – The first of the non-native fish actions is simply to ask the TWG, GCMRC, and Reclamation to continue the draft non-native fish strategic planand have it ready for distribution as soon as possible. This includes incorporating the next steps and prioritizing activities, equipment, and budgets for short-, mid- and long-term actions as discussed during the first day of AMWG deliberations. In turn, these will be combined into future project management plans within the GCDAMP program.

4. **NEPA Compliance for Operational Flexibilities to Address Nonnative Fish** – The second of the non-native fish actions is to task Reclamation with developing a project management plan that includes a budget and schedule for initiating a NEPA process associated for operational alternatives /actions to disadvantage SMB and other non-native fish, which may require further refinement from GCMRC. We ask that the schedule be aimed at completing a NEPA decision document in time for possible implementation in the late spring/early summer of 2023. I encourage Reclamation to analyze the degree to which such compliance can be tiered off the LTEMP FEIS and ROD. It will be important to maintain a focused scope for this effort and to avoid inclusion of ancillary actions and issues to ensure the process can meet a possible spring/summer 2023 implementation. This NEPA analysis must not become a vehicle for addressing the range of concerns about the LTEMP FEIS and ROD, but should rather give us possible tools that we can implement in a timely manner to address the non-native fish challenges we are currently facing. I propose that the project management plan, be shared with the GCDAMP partners by October 14, 2022.

5. **Planning to Evaluate Exclusion Projects –** The third of the non-native fish actions is to task Reclamation with initiating a planning effort to evaluate options for avoiding entrainment of non-native fish resulting in a recommendation of options to be included in a feasibility study. The intent is to select the most effective option for excluding non-native fish from establishing below Glen Canyon Dam.

Glen Canyon Dam Adaptive Management Program FY27 Proposed Grand Canyon Monitoring and Research Center Science Activities Budget Reductions – 02 July 2026

The Bureau of Reclamation has indicated that a reduced Glen Canyon Dam Adaptive Management Program (GCDAMP) budget for FY27 is anticipated. The extent of the reduction is currently unknown but is expected to be at least 15% lower than the $10 million funding amount anticipated in the FY25-27 Triennial Work Plan (TWP) in FY27. To accommodate a timely recommendation from the Adaptive Management Work Group, new budgets have been developed by the Bureau of Reclamation and the USGS Grand Canyon Monitoring and Research Center (GCMRC) projecting budgets at reduced levels.

The GCMRC budget plan presented here (Plan 4) was developed among GCMRC leadership and staff and seeks to maintain high-priority research and monitoring needs identified by Department of the Interior (DOI) and the Budget Ad Hoc Group (BAHG) at funding levels comparable to the original TWP while maintaining only a basic level of monitoring across other resources goals that were lower priority. We present budget reduction scenarios at the 15, 19.25, and 23.5% (19.25% and 23.5% represent an additional 5% and 10% reduction from the minimum 15% reduction; total reduction amounts at each
level are $1,500,000 at 15%, $1,925,000 at 19.25%, and $2,350,000 at 23.5%).

This planning assumes the federal hiring freeze will continue, and therefore any staff lost will not be replaced; cooperators may be limited in the ability to replace staff as well. Loss of staff during the hiring freeze would create a lasting impact on GCMRC and GCDAMP science capabilities that would extend into the next TWP.

For background, the GCDAMP BAHG was presented with three draft reduction plans from May 26-June 10th. The first draft reduction plan by GCMRC was distributed on May 26, 2026 (Plan 1); it preserved, fully intact, field monitoring efforts for each resource goal, which was identified as a priority in the BAHG. Evaluation of the plan produced written comments from 8 member organizations, and it was found to be lacking, particularly in the effort to support monitoring concerns regarding Humpback Chub.

Plan 2 was considered by the BAHG on June 5th. Plan 2 fully protected the priorities planned in the TWP regarding threatened Humpback Chub; however, the required budget reductions resulted in the complete elimination of effort on several Long Term Experimental and Management Plan (LTEMP) resources. The BAHG noted that the elimination of effort on entire LTEMP goals from the monitoring plan and budget would result in a loss of GCMRC expertise from the program providing no support for potential emerging issues, scientist

participation in stakeholder meetings, or the completion of work previously invested in by the program. Additionally, questions were raised regarding the sufficiency of Plan 2 to address GCDAMP LTEMP responsibilities.

A third draft budget plan (Plan 3) was evaluated by the BAHG on June 8 that addressed the program support concerns that were generated so sharply in Draft 2. For Plan 3, Project Lead funding was protected to ensure continuity of the workplan/science and retention of capacity and expertise to complete the investment the GCDAMP has put forth in the FY25-27 workplan. FY27 is the final year in the current work plan; efforts need to be concluded to preserve the work conducted over the previous two years. Future TWPs may not include aspects that were included in the current work plan, especially if funding levels remain reduced. Additional identified program interests that were accommodated in Plan 3 include full support as needed for meetings (ad hoc groups, TWG, AMWG, etc.), expert participation in FY28-30 TWP planning that starts this fall, participation in workshops and knowledge assessments etc. related to the program's 10-year review, support for emerging issues, and a sustained program effort and attention to the relevant LTEMP resources.

Following presentation of Plans 1-3 on June 8, the BAHG concluded that more time was needed for GCMRC staff to develop a plan that minimizes impact to program priorities. Each of the previous plans was developed with a different strategy, protecting various program priorities, but the extent of the reduction makes it difficult to address all concerns. More careful planning between projects and with cooperators, in consideration of existing capacity limits, was expected to better generate a "middle-of-the-road" plan to protect all program priorities to the extent possible. Draft plans 2 and 3 were identified as preferred of the three drafts for continued planning. The BAHG also recommended prioritizing the capture of data related to the current unique and rapidly changing resource conditions expected in FY27.

The Technical Work Group (TWG) met on June 10, endorsing the BAHG recommendation to continue developing the budget plan. The result of this additional time and effort afforded by the BAHG and TWG recommendations is Plan 4, presented in detail, below.

GCMRC Budget Plan and Process

Plan 4 presented here was developed collaboratively by GCMRC leadership and staff. The plan outlines project funding that is maximally responsive to BAHG feedback and survey results without creating lasting negative impacts on long-term capability. Project Leads will be required to carefully examine their efforts and find ways to reach target reductions while minimizing the impact on the information anticipated in the TWP.

For Plan 4, a new budget, referred to here as the Capacity-Limited Budget, was developed internally at GCMRC as a starting point. Project Leads considered the staff losses and funding reductions applied in FY26 and replanned their FY27 Project Plan from the TWP in light of the new constraints. Target

reduction amounts, which are derived from BAHG survey scores, were applied to travel, operating expenses, logistics, and cooperative agreements. Critical close cooperators (e.g., FWS, AGFD, and AZ Water Science Center) were not reduced when that reduction was expected to create a long-term capacity reduction for the program.

For the development of the previous plans (Plans 1-3 described above) and the effort in for FY26, reduction targets were modified proportionally to relative element funding amount to ease the burden on project elements with relatively small budgets. Plan 4 has no such budget modifier applied since elements were protected from reductions impacting long-term capacity (elements cannot be eliminated by targets in this plan) and to maximize the influence of BAHG survey scores.

For the previous FY27 plans (1-3), certain project elements were excluded from reductions to avoid impacts to science. For this plan, all project elements are given reduction targets since there is time to potentially find creative ways of reaching those reductions.

In FY26, the GCMRC budget was reduced by 15%, but many impacts to science (and basic operations) were minimized through sharing of staff and combining field efforts to recoup what was possible of unfunded TWP efforts. That planning takes considerable time and contribution from the involved Project Leads to consider details of the planned efforts and the specific capacity limitations faced by each project. The plan presented here is expected to improve as sharing and other cost reduction strategies are identified. Plan 4 provides BAHG survey score derived reduction goals for each project element that collectively can meet the total reduction required.

With time to develop cost saving strategies through negotiation with cooperators, assessment of data sufficiency within specific elements, staff sharing arrangements, proposal writing for external funding (outside GCDAMP) to cover staff, etc., it is hoped that many project elements will be maintained as close to TWP planning as possible with target reductions, but there will inevitably be situations where cost savings identified are unable to compensate for the reduction targets. At the higher reduction levels, finding the amount of savings that would be required to offset the reduction targets with minimal impact is likely not possible. Survey results and feedback from the BAHG will be used to reduce elements as needed (including some impacts to science and potential capacity loss when necessary) to support higher scoring elements.

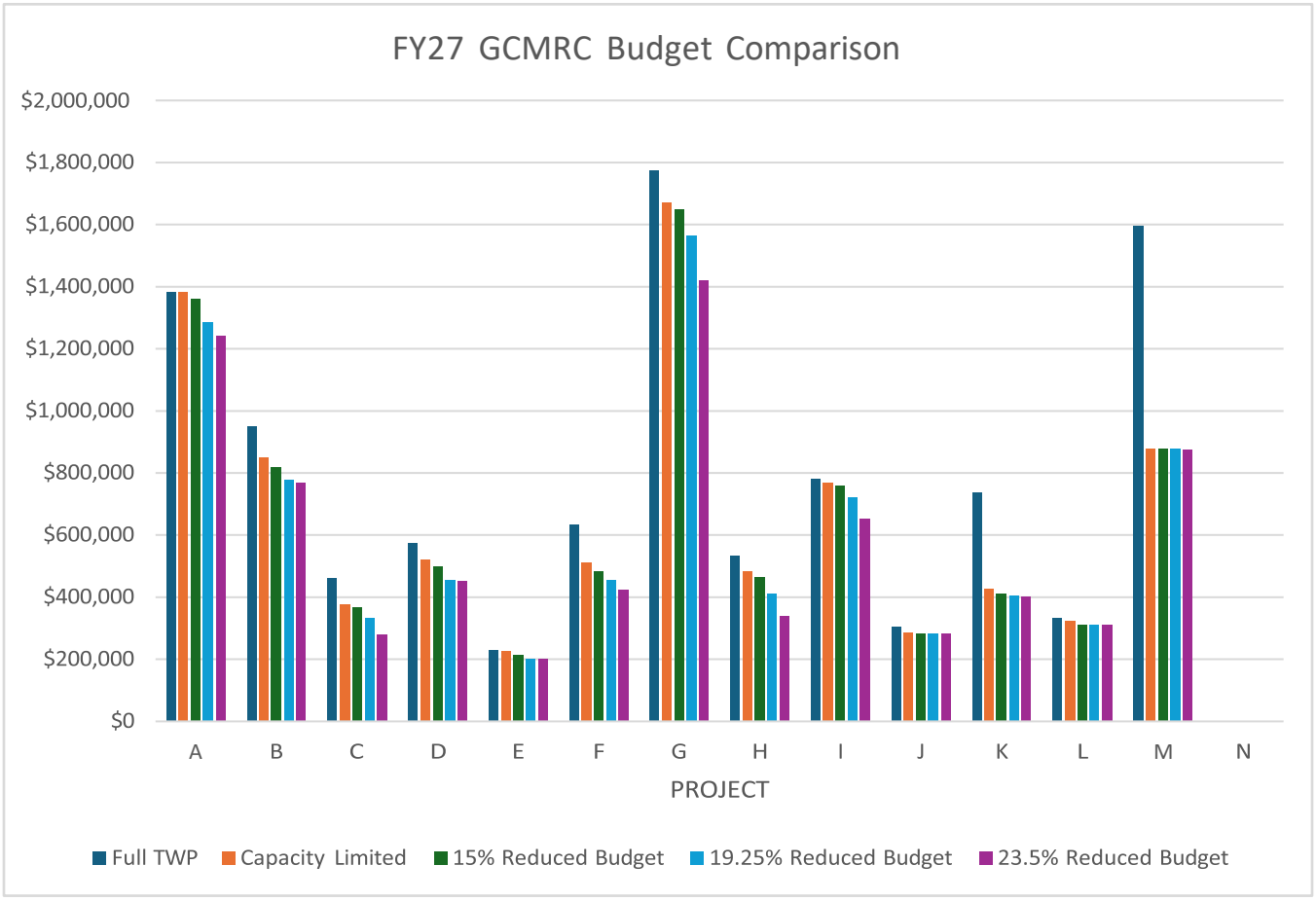
Presented below is the GCMRC Budget Reduction Plan for FY27 for 15%, 19.25%, and 23.5% reductions from the FY25-27 TWP.

Fiscal Year 2027													
Project	Project Description	FY27 Capacity Limited Total	Capacity Percent Reduction from FY25-27 TWP	GRAND AVE RANK	15% Reduction	15% Reduction from capacity limit	15% Reduced Budget	19.25% Reduction	19.25% Reduction from capacity limit	19.25% Reduced Budget	23.5% Reduction	23.5% Reduction from capacity limit	23.5% Reduced Budget
A	**Streamflow, Water Quality, and Sediment Transport and Budgeting in the Colorado River Ecosystem**												
A.1	**Stream gaging and hydrologic analyses**	**$443,415**	**0.30%**	3.2	$2,818	0.64%	$440,597	$13,612	3.07%	$429,803	$34,389	7.76%	$409,026
A.2	**Continuous water quality parameters**	**$228,735**	**5.34%**	8.7	$3,979	1.74%	$224,756	$19,217	8.40%	$209,518	$37,679	16.47%	$191,056
A.3	Sediment transport and budgeting	**$709,490**	**-2.06%**	9.3	$13,291	1.87%	$696,199	$64,192	9.05%	$645,298	$68,605	9.67%	$640,885
	Total A	**$1,381,640**	**0.00%**	7.1	$20,088	1.45%	$1,361,552	$97,020	7.02%	$1,284,620	$140,673	10.18%	$1,240,967
B	**Sandbar and Sediment Storage Monitoring and Research**												
B.1	**Sandbar and campsite monitoring with topographic surveys and remote cameras**	**$366,309**	**6.88%**	14.0	$10,293	2.81%	$356,016	$49,713	13.57%	$316,596	$58,850	16.07%	$307,459
B.2	**Bathymetric and topographic mapping for monitoring sediment storage and riverbed dynamics**	**$484,356**	**12.97%**	30.5	$22,344	4.61%	$462,012	$22,344	4.61%	$462,012	$22,344	4.61%	$462,012
B.3	Control network and survey support	**$-**			$0	0.00%	$0	$0	0.00%	$0	$0	0.00%	$0
B.4	Streamflow, sediment, and sandbar modeling	**$-**			$0	0.00%	$0	$0	0.00%	$0	$0	0.00%	$0
	Total B	**$850,665**	**10.45%**	22.3	$32,637	3.84%	$818,028	$72,057	8.47%	$778,608	$81,194	9.54%	$769,471
C	**Riparian Vegetation Monitoring and Research**												
C.1	**Ground-based riparian vegetation monitoring**	**$300,593**	**1.22%**	15.2	$9,150	3.04%	$291,443	$44,194	14.70%	$256,399	$99,032	32.95%	$201,561
C.2	**Determining hydrological tolerances and management tools for plant species of interest**	**$-**		42.7	$0	0.00%	$0	$0	0.00%	$0	$0	0.00%	$0
C.3	Predictive models and synthesis	**$25,911**	**34.08%**	39.5	$0	0.00%	$25,911	$0	0.00%	$25,911	$0	0.00%	$25,911
C.4	Biogeomorphic Linkages between streamflow, sediment transport, and vegetation composition	**$51,613**	**3.85%**	35.7	$0	0.00%	$51,613	$0	0.00%	$51,613	$0	0.00%	$51,613
C.5	Vegetation management decision support	**$-**			$0	0.00%	$0	$0	0.00%	$0	$0	0.00%	$0
	Total C	**$378,117**	**18.09%**	33.3	$9,150	2.42%	$368,967	$44,194	11.69%	$333,923	$99,032	26.19%	$279,085
							$0						
D	**Effects of Dam Operations and Vegetation Management for Archaeological Sites**						$0						
D.1	**Monitoring the effects of dam operations on archaeological sites**	**$345,133**	**9.21%**	16.3	$11,315	3.28%	$333,818	$54,646	15.83%	$290,487	$56,521	16.38%	$288,612
D.2	**Monitoring landscape-scale ecosystem change with repeat photography**	**$74,914**	**6.29%**	38.7	$2,940	3.92%	$71,974	$2,940	3.92%	$71,974	$2,940	3.92%	$71,974
D.3	Evaluating effects of LTEMP non-flow actions and other experimental vegetation management on archaeological sites	**$101,134**	**10.76%**	33.0	$6,699	6.62%	$94,435	$9,800	9.69%	$91,334	$9,800	9.69%	$91,334
D.4	Pilot study to evaluate potential to extract cultural and ecological information from Colorado River deposits using eDNA and pollen	**$-**			$0	0.00%	$0	$0	0.00%	$0	$0	0.00%	$0
D.5	Monitoring petroglyphs and pictographs with photogrammetry and lidar	**$-**			$0	0.00%	$0	$0	0.00%	$0	$0	0.00%	$0
	Total D	**$521,181**	**9.11%**	29.3	$20,953	4.02%	$500,228	$67,386	12.93%	$453,795	$69,261	13.29%	$451,920
E	**Controls on Ecosystem Productivity: Nutrients, Flow, and Temperature**												
E.1	**Phosphorus budgeting in the Colorado River**	**$64,719**	**-8.96%**	33.7	$3,430	5.30%	$61,289	$3,430	5.30%	$61,289	$3,430	5.30%	$61,289
E.2	**Rates and composition of primary producers in the Colorado River**	**$93,534**	**8.77%**	33.3	$6,258	6.69%	$87,276	$19,276	20.61%	$74,258	$19,276	20.61%	$74,258
E.3	Understanding the energetic basis of the food web in Western Grand Canyon	**$-**			$0	0.00%	$0	$0	0.00%	$0	$0	0.00%	$0
E.4	Productivity at higher trophic levels	**$68,182**	**-3.30%**	34.8	$2,940	4.31%	$65,242	$2,940	4.31%	$65,242	$2,940	4.31%	$65,242
	Total E	**$226,435**	**0.65%**	33.9	$12,628	5.58%	$213,807	$25,646	11.33%	$200,789	$25,646	11.33%	$200,789
F	**Aquatic Invertebrate Ecology**												
F.1	**Invertebrate and bat monitoring in Marble and Grand Canyons**	**$237,951**	**-1.84%**	36.7	$17,512	7.36%	$220,439	$17,640	7.41%	$220,311	$17,640	7.41%	$220,311
F.2	**Aquatic invertebrate monitoring in Glen Canyon**	**$142,931**	**18.67%**	30.5	$3,247	2.27%	$139,684	$3,247	2.27%	$139,684	$3,247	2.27%	$139,684
F.3	Aquatic invertebrate monitoring of Grand Canyon tributaries	**$82,804**	**28.20%**	34.5	$5,734	6.92%	$77,070	$27,693	33.44%	$55,111	$57,500	69.44%	$25,304
F.4	Invertebrate and fish diet studies	**$49,154**	**54.71%**	38.8	$3,831	7.79%	$45,323	$10,607	21.58%	$38,547	$10,607	21.58%	$38,547
	Total F	**$512,840**	**19.02%**	35.1	$30,324	5.91%	$482,516	$59,186	11.54%	$453,654	$88,993	17.35%	$423,847

Project	Project Description	FY27 Capacity Limited Total	Capacity Percent Reduction from FY25-27 TWP	GRAND AVE RANK	15% Reduction	15% Reduction from capacity limit	15% Reduced Budget	19.25% Reduction	19.25% Reduction from capacity limit	19.25% Reduced Budget	23.5% Reduction	23.5% Reduction from capacity limit	23.5% Reduced Budget
G	**Humpback Chub Population Dynamics throughout the Colorado River Ecosystem**												
G.1	**Humpback chub population modeling**	**$261,104**	**-1.98%**	4.8	$2,533	0.97%	$258,571	$12,234	4.69%	$248,870	$12,740	4.88%	$248,364
G.2	**Annual spring/fall HBC abundance estimates in the lower 13.6 km of the LCR**	**$586,563**	**1.91%**	6.0	$7,064	1.20%	$579,499	$34,116	5.82%	$552,447	$86,193	14.69%	$500,370
G.3	Juvenile chub monitoring near the LCR confluence (JCM-East)	**$549,789**	**12.77%**	7.5	$8,276	1.51%	$541,513	$39,972	7.27%	$509,817	$100,986	18.37%	$448,803
G.4	Remote PIT-tag array monitoring in the LCR	**$28,463**	**43.03%**	20.5	$879	3.09%	$27,584	$4,248	14.92%	$24,215	$5,670	19.92%	$22,793
G.5	Monitoring humpback chub aggregation relative abundance and distribution	**$246,063**	**2.81%**	7.7	$3,786	1.54%	$242,277	$18,287	7.43%	$227,776	$46,202	18.78%	$199,861
G.6	Juvenile chub monitoring - Western Grand Canyon (JCM-West)	**$0**			$0	0.00%	$0	$0	0.00%	$0	$0	0.00%	$0
G.7	Chute Falls translocations	**$-**			$0	0.00%	$0	$0	0.00%	$0	$0	0.00%	$0
G.8	Sampling of springs in the upper LCR	**$-**			$0	0.00%	$0	$0	0.00%	$0	$0	0.00%	$0
G.9	Movement in western Grand Canyon from system-wide antenna monitoring	**$-**			$0	0.00%	$0	$0	0.00%	$0	$0	0.00%	$0
	Total G	**$1,671,982**	**5.80%**	9.3	$22,539	1.35%	$1,649,443	$108,856	6.51%	$1,563,126	$251,791	15.06%	$1,420,191
H	**Salmonid Research and Monitoring**												
H.1	**Rainbow trout fishery monitoring in Glen Canyon**	**$99,578**	**0.30%**	18.2	$0	0.00%	$99,578	$0	0.00%	$99,578	$0	0.00%	$99,578
H.2	**Experimental flow assessment of trout recruitment (TRGD)**	**$292,641**	**13.14%**	24.2	$14,195	4.85%	$278,446	$68,556	23.43%	$224,085	$138,984	47.49%	$153,657
H.3	Salmonid modeling	**$92,095**	**4.28%**	32.3	$5,880	6.38%	$86,215	$5,880	6.38%	$86,215	$5,880	6.38%	$86,215
	Total H	**$484,314**	**9.14%**	24.9	$20,075	4.14%	$464,239	$74,436	15.37%	$409,878	$144,864	29.91%	$339,450
I	**Non-native Invasive Species Monitoring and Research**												
I.1	**System-wide native fishes and invasive aquatic species monitoring**	**$374,698**	**2.47%**	3.2	$2,382	0.64%	$372,316	$11,502	3.07%	$363,196	$29,060	7.76%	$345,638
I.2	**Estimating kinship and spawner abundance of warm-water non-natives**	**$18,408**	**0.50%**	16.5	$610	3.31%	$17,798	$2,058	11.18%	$16,350	$2,058	11.18%	$16,350
I.3	Identifying emerging threats to the Colorado River Ecosystem using environmental DNA	**$111,044**	**1.53%**	17.0	$3,789	3.41%	$107,255	$18,299	16.48%	$92,745	$46,233	41.63%	$64,811
I.4	Modeling population dynamics and improving forecasting tools for smallmouth bass and other non-native fish	**$263,798**	**0.11%**	5.7	$3,000	1.14%	$260,798	$14,491	5.49%	$249,307	$36,610	13.88%	$227,188
	Total I	**$767,948**	**1.49%**	10.6	$9,781	1.27%	$758,167	$46,350	6.04%	$721,598	$113,961	14.84%	$653,987
J	**Socioeconomic Research**												
J.1	**Integrated models for adaptive management**	**$156,853**	**5.14%**	19.3	$3,920	2.50%	$152,933	$3,920	2.50%	$152,933	$3,920	2.50%	$152,933
J.2	**Recreation monitoring and research**	**$130,991**	**6.38%**	31.7	$1,960	1.50%	$129,031	$1,960	1.50%	$129,031	$1,960	1.50%	$129,031
J.3	Tribal resources research	**$-**		34.5	$0	0.00%	$0	$0	0.00%	$0	$0	0.00%	$0
	Total J	**$287,844**	**5.71%**	28.5	$5,880	2.04%	$281,964	$5,880	2.04%	$281,964	$5,880	2.04%	$281,964
K	**Geospatial Science, Data Management, and Technology**												
K.1	**Enterprise GIS, geospatial analysis, and processing**	**$168,161**	**23.57%**	30.2	$9,408	5.59%	$158,753	$9,408	5.59%	$158,753	$9,408	5.59%	$158,753
K.2	**Data management and database administration**	**$216,261**	**56.47%**	14.7	$4,453	2.06%	$211,808	$4,704	2.18%	$211,557	$4,704	2.18%	$211,557
K.3	Data telemetry and field engineering	**$42,417**	**74.83%**	20.8	$1,774	4.18%	$40,643	$8,566	20.20%	$33,851	$9,849	23.22%	$32,568
	Total K	**$426,839**	**50.84%**	21.9	$15,634	3.66%	$411,205	$22,678	5.31%	$404,161	$23,961	5.61%	$402,878
L	**Overflight Remote Sensing in Support of GCDAMP and LTEMP**												
L.1	**Analysis and interpretation of overflight remote sensing data**	**$322,233**	**3.03%**	34.3	$11,760	3.65%	$310,473	$11,760	3.65%	$310,473	$11,760	3.65%	$310,473
L.2	**Acquisition of overflight remote sensing imagery**	**$-**			$0	0.00%	$0	$0	0.00%	$0	$0	0.00%	$0
L.3	Acquisition of airborne lidar in conjunction with overflight remote sensing imagery	**$-**			$0	0.00%	$0	$0	0.00%	$0	$0	0.00%	$0
	Total L	**$322,233**	**3.03%**	34.3	$11,760	3.65%	$310,473	$11,760	3.65%	$310,473	$11,760	3.65%	$310,473
M	**Leadership, Management, and Support**												
M.1	**Leadership, management, and support**	**$490,891**	**51.79%**	27.0	$0	0.00%	$490,891	$0	0.00%	$490,891	$0	0.00%	$490,891
M.2	**Logistics staff**	**$308,305**	**37.84%**	12.7	$0	0.00%	$308,305	$0	0.00%	$308,305	$0	0.00%	$308,305
M.3	IT	**$80,215**	**1.13%**	40.8	$0	0.00%	$80,215	$1,000	1.25%	$79,215	$4,435	5.53%	$75,780
	Total M	**$879,411**	**44.87%**	26.8	$0	0.00%	$879,411	$1,000	0.11%	$878,411	$4,435	0.50%	$874,976
N	**Native Fish Population Dynamics**												
N.1	**Sucker and dace distribution and demographics (SADDAD)**	**$-**			$0	0.00%	$0	$0	0.00%	$0	$0	0.00%	$0
N.2	**Predictive modeling and Decision support for native fishes**	**$-**			$0	0.00%	$0	$0	0.00%	$0	$0	0.00%	$0
N.3	Evaluating dispersal and sources of mortality (Razorback sucker) using new technology	**$-**			$0	0.00%	$0	$0	0.00%	$0	$0	0.00%	$0
N.2	Predictive modeling and Decision support for native fishes	**$0**			$0	0.00%	$0	$0	0.00%	$0	$0	0.00%	$0
N.3	Evaluating dispersal and sources of mortality (Razorback sucker) using new technology	**$0**			$0	0.00%	$0	$0	0.00%	$0	$0	0.00%	$0
	Total N	**$0**			**$0**	**$0**	$0	$0	0.00%	$0	$0	0.00%	$0
	TOTALS-->	**$8,711,449**			**$211,449**		**$8,500,000**	**$636,449**		**$8,075,000**	**$1,061,449**		**$7,650,000**

REDUCTION SUMMARY GRAPH

The previous plans were evaluated using a chart of reductions comparing the final reduction proposed to the target reductions generated; however, in this version, based in maintaining capacity, as much as possible, the targets lose their meaning as a suitable comparison, no elements are maintained at full funding ("M" designation in previous charts), and no elements are paused ("P" designation in the previous charts). The graph below is provided as an overview of the funding levels for each project (not element, for simplicity) as it compares between the original TWP, Capacity Limited Budget, and the proposed reduction levels.



BUDGET REDUCTION SCENARIOS BY PROJECT

PROJECT A – Streamflow, Water Quality, and Sediment Transport

FY27 TWP Budget

Fiscal Year 2027									
Project A Streamflow, Water Quality, and Sediment Transport and Budgeting in the Colorado River Ecosystem	**Salaries**	**Travel & Training**	**Operating Expenses**	**Logistics Expenses**	**Cooperative Agreements**	**To other USGS Centers**	**AMP Special Burden Rate***	**Total**	**USGS Contributing Funds****
							23.40%		Est Full Rate = 56%
A.1. Stream gaging and hydrologic analyses	$168,847	$6,000	$6,000	$29,000	$0	$185,800	$49,104	**$444,752**	
A.2. Continuous water-quality parameters	$130,384	$1,000	$12,000	$27,400	$0	$30,900	$39,963	**$241,647**	
A.3. Sediment transport and budgeting	$356,915	$6,000	$38,000	$28,000	$0	$165,900	$100,366	**$695,181**	
Total Project A	**$656,146**	**$13,000**	**$56,000**	**$84,400**	**$0**	**$382,600**	**$189,434**	**$1,381,580**	**$87,139**

Survey Rank

ELEMENT	GRAND AVE RANK
A.1	3.166667
A.2	8.666667
A.3	9.333333

Project A supports the following LTEMP resource goals:

- Archaeological and Cultural Resources
- Natural Processes
- Humpback Chub
- Hydropower and Energy
- Other Native Fish
- Recreational Experience
- Sediment
- Rainbow Trout Fishery
- Nonnative Invasive Species
- Riparian Vegetation

Reductions

Project	Project Description	FY27 Capacity Limited Total	Capacity Percent Reduction from FY25-27 TWP	GRAND AVE RANK	15% Reduction	15% Reduction from capacity limit	15% Reduced Budget	19.25% Reduction	19.25% Reduction from capacity limit	19.25% Reduced Budget	23.5% Reduction	23.5% Reduction from capacity limit	23.5% Reduced Budget
A	**Streamflow, Water Quality, and Sediment Transport and Budgeting in the Colorado River Ecosystem**												
A.1	**Stream gaging and hydrologic analyses**	**$443,415**	**0.30%**	3.2	$2,836	0.64%	$440,579	$13,729	3.10%	$429,686	$34,389	7.76%	$409,026
A.2	**Continuous water quality parameters**	**$228,735**	**5.34%**	8.7	$4,004	1.75%	$224,731	$19,382	8.47%	$209,353	$37,679	16.47%	$191,056
A.3	Sediment transport and budgeting	**$709,490**	**-2.06%**	9.3	$13,374	1.88%	$696,116	$64,743	9.13%	$644,747	$68,605	9.67%	$640,885
	Total A	**$1,381,640**	**0.00%**	7.1	$20,213	1.46%	$1,361,427	$97,854	7.08%	$1,283,786	$140,673	10.18%	$1,240,967

Elements A.1-3

A.1 partially funds the collection, serving, and interpretation of continuous 15-minute measurements of stage and discharge on the main-stem Colorado River at USGS streamflow gaging stations, and at gaging stations on the major tributaries and in a representative subset of the smaller tributaries.

A.2 funds the collection, serving, and interpretation of continuous 15-minute measurements of water temperature, specific conductance (a measure of salinity), turbidity, and dissolved oxygen at the outlet of Glen Canyon Dam and at the six main-stem Colorado River gaging stations.

A.3 funds the collection, serving, and interpretation of continuous 15-minute measurements and episodic measurements of suspended sediment and bed sediment at gaging stations on the Colorado River and its tributaries as well as the sand supply interpretive work from the Paria River, Little Colorado River, and the Colorado River between Glen Canyon Dam and Lake Mead. This element funds most of the data collection required to trigger, design, and evaluate HFEs; some funding for this requirement is within Element A.1.

Savings from decommissioning gages are minimal but preclude any data collection. Consistent effort through years has minimized gage costs through partnerships.

Reduction Strategy and Potential Impacts to Science

Proposed reductions would necessarily require decommissioning of gages and measured parameters used in many projects. Significant reductions may be indicated in the future by eliminating project elements and having reduced information needs, but all gage data is currently used by projects. Some gages are more important than others from an individual project perspective. Gages will be considered for elimination to reach these targets, but critical data will be protected. Some gages have importance for non-GCDAMP entities that might be able to provide additional support (many gages currently have outside support). Support of some gages may be moved to the projects for which the data is important (if the gage data importance exceeds the need for alternate uses of the funding within the relevant project).

Substantial cuts to element A.3 will end the ability of the GCMRC to support planning of HFEs.

If savings cannot be found, to achieve the proposed cuts, Project A would have to end support for the following activities in the following order.

1. Streamflow and realtime water temperature at the Little Colorado River above the mouth near Desert View, AZ, gaging station. Removal of this gage does not result in removing all information on the Little Colorado River because of the presence of the Little Colorado River near Cameron, AZ, gaging station upstream. Because removal of this gage does not result in a complete loss of information on the Little Colorado River, this gage is the first to go. Removal of GCDAMP support will result in the transfer of the partial support for this gage from the USGS uranium monitoring program to Kanab Creek. Consequently, the Little Colorado River above the mouth near Desert View, AZ, gaging station would be decommissioned and removed.

2. Streamflow at the Havasu Creek above the mouth near Supai, AZ, gaging station. This gage is the only streamflow gaging station on Havasu Creek, and its removal would end all information on Havasu Creek. Consequently, this gage is more important to maintain than is the Little Colorado River above the mouth near Desert View, AZ, gaging station. Removal of GCDAMP support would result in the transfer of the partial support for this gage from the USGS uranium monitoring program to Kanab Creek. Consequently, the Havasu Creek above the mouth near Supai, AZ, gaging station would be decommissioned and removed.

3. Streamflow at the Kanab Creek above the mouth near Supai, AZ, gaging station. This gage is the only streamflow gaging station on Kanab Creek (lower Kanab Creek is disconnected from its gaged headwaters), and its removal would end all information on Kanab Creek. Consequently, this gage is more important to maintain than is the Little Colorado River above the mouth near Desert View, AZ, gaging station. Removal of GCDAMP support for this gage would likely be offset by the transfer of USGS funds from the Little Colorado River above the mouth near Desert View, AZ, and Havasu Creek above the mouth near Supai, AZ, gaging stations; therefore, this gage would likely continue without GCDAMP support if those other two gages were decommissioned.

4. Streamflow at Moenkopi Wash at Moenkopi, AZ. This gage is partially supported by GCDAMP, so we would need to look for other funding if the GCDAMP funds were retracted. This gage is required to support the sediment fieldwork at the downstream Little Colorado River near Cameron, AZ, gaging station that is required to evaluate HFEs. If we had extra funding from decommissioning the Little Colorado River above the mouth near Desert View, AZ, and Havasu Creek above the mouth near Supai, AZ, gaging stations, we would transfer those funds to this gage to make it whole.

5. All water-quality monitoring at the base of Glen Canyon Dam. This action would end our ability to monitor water quality in Glen Canyon below the dam. We would then use the realtime water-quality data at the Colorado River at Lees Ferry, AZ, gaging station (funded by USGS-NGWOS, not GCDAMP) to inform on downstream water quality.

Gage data is used in all projects, and each element of Project A scored well in the BAHG survey. To the extent that saving cannot be found, needed gage data will be supported with further reduction in lower ranked projects.

PROJECT B – Sandbar and Sediment Storage

FY27 TWP Budget

Fiscal Year 2027									
Project B Sandbar and Sediment Storage Monitoring and Research	Salaries	Travel & Training	Operating Expenses	Logistics Expenses	Cooperative Agreements	To other USGS Centers	AMP Special Burden Rate*	Total	USGS Contributing Funds**
							23.40%		Est Full Rate = 56%
B.1. Sandbar and campsite monitoring with topographic surveys and remote cameras	$260,273	$2,000	$4,000	$32,895	$23,500	$0	$70,710	**$393,378**	
B.2. Bathymetric and topographic mapping for monitoring sediment storage and riverbed dynamics	$431,301	$2,000	$2,000	$0	$18,800	$0	$102,424	**$556,526**	
B.3. Control network and survey support (*unfunded at this time*)	$0	$0	$0	$0	$0	$0	$0	**$0**	
B.4 Streamflow, sediment, and sandbar modeling (*unfunded at this time*)	$0	$0	$0	$0	$0	$0	$0	**$0**	
Total Project B	**$691,574**	**$4,000**	**$6,000**	**$32,895**	**$42,300**	**$0**	**$173,135**	**$949,904**	**$79,057**

Survey Rank

ELEMENT	GRAND AVE RANK
B.1	14
B.2	30.5
B.3	43.5
B.4	43

Project B supports the following LTEMP Resource Goals:

- Sediment
- Recreational Experience
- Archaeological and Cultural Resources
- Tribal Resources

Reductions

Project	Project Description	FY27 Capacity Limited Total	Capacity Percent Reduction from FY25-27 TWP	GRAND AVE RANK	15% Reduction	15% Reduction from capacity limit	15% Reduced Budget	19.25% Reduction	19.25% Reduction from capacity limit	19.25% Reduced Budget	23.5% Reduction	23.5% Reduction from capacity limit	23.5% Reduced Budget
B	**Sandbar and Sediment Storage Monitoring and Research**												
B.1	**Sandbar and campsite monitoring with topographic surveys and remote cameras**	**$366,309**	**6.88%**	14.0	$10,357	2.83%	$355,952	$50,140	13.69%	$316,169	$58,850	16.07%	$307,459
B.2	**Bathymetric and topographic mapping for monitoring sediment storage and riverbed dynamics**	**$484,356**	**12.97%**	30.5	$22,344	4.61%	$462,012	$22,344	4.61%	$462,012	$22,344	4.61%	$462,012
B.3	Control network and survey support	$-			$0	0.00%	$0	$0	0.00%	$0	$0	0.00%	$0
B.4	Streamflow, sediment, and sandbar modeling	$-			$0	0.00%	$0	$0	0.00%	$0	$0	0.00%	$0
	Total B	**$850,665**	**10.45%**	22.3	$32,701	3.84%	$817,964	$72,484	8.52%	$778,181	$81,194	9.54%	$769,471

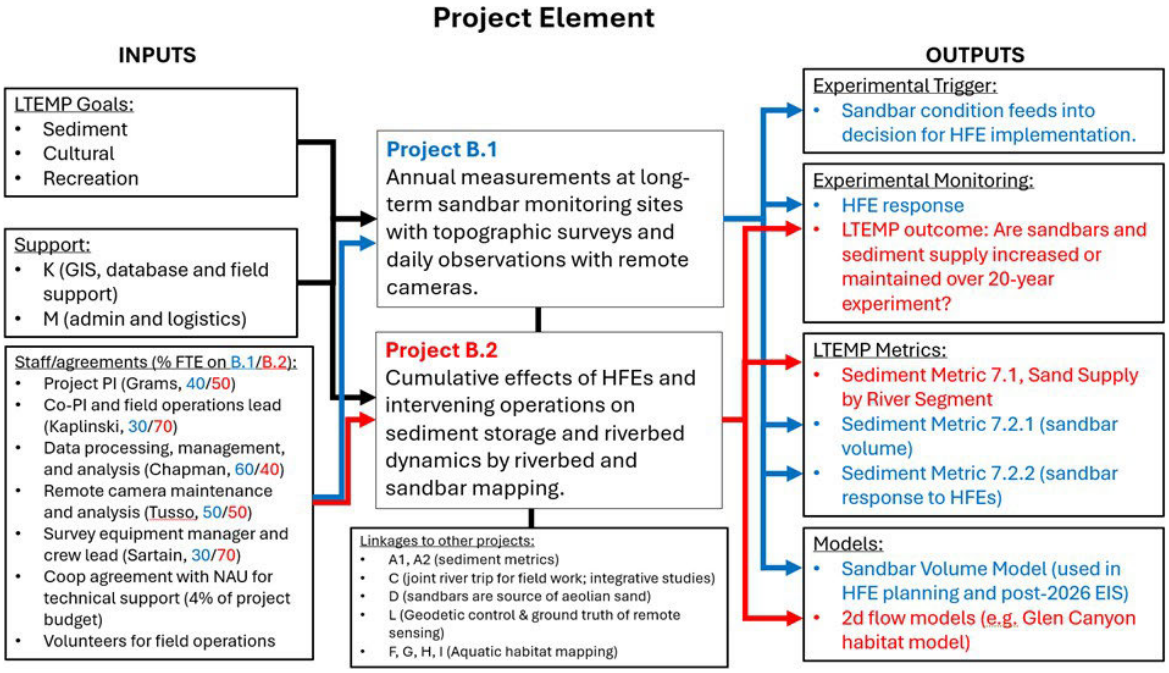
Element B.1-2

B.1 funds annual measurements at long-term sandbar monitoring sites with topographic surveys and remote cameras to assess cumulative effects of HFEs and intervening operations on sandbars and campsites. Provides the data for annual reporting on LTEMP metric 7.2, Sandbar Volume, which are not provided by any other project.

B.2 assesses cumulative effects of HFEs and intervening operations on riverbed sand storage and riverbed dynamics through mapping surveys. No fieldwork was planned for FY27, which included
completion of the processing and reporting for data collected in FY26, the only channel mapping effort

in the FY25-7 TWP (River Mile 166 to 225). Provides data used for evaluating LTEMP metric 7.1, Sand Supply by River Segment, together with data collected by Project A.

Below is a flow Chart of Project B.



Reduction Strategy and Potential Impacts to Science

Without recouping the target reduction through savings (as discussed in the intro), this plan threatens numerous products anticipated in the TWP (TWP pg. 49) and analysis of recently collected (FY26) sediment mapping data. Data collection and analysis for B.1 Sandbar monitoring will be minimally impacted at lower reduction levels. The project will need additional support from volunteers and/or other GCMRC staff, which is difficult, because specific skills are required.

PROJECT C – Riparian Vegetation

FY27 TWP Budget

Fiscal Year 2027									
Project C Riparian Vegetation Monitoring and Research	Salaries	Travel & Training	Operating Expenses	Logistics Expenses	Cooperative Agreements	To other USGS Centers	AMP Special Burden Rate*	Total	USGS Contributing Funds**
							23.40%		Est Full Rate = 56%
C.1. Ground-based riparian vegetation monitoring	$141,592	$1,615	$3,500	$88,103	$14,112	$0	$55,369	**$304,291**	
C.2. Determining hydrological tolerances and management tools for plant species of interest	$11,397	$0	$0	$0	$48,820	$0	$4,131	**$64,348**	
C.3. Predictive models and synthesis	$10,854	$0	$0	$0	$25,156	$0	$3,294	**$39,304**	
C.4. Biogeomorphic linkages between streamflow, sediment transport, and vegetation composition (*unfunded at this time*)	$43,503	$0	$0	$0	$0	$0	$10,180	**$53,682**	
Total Project C	**$207,345**	**$1,615**	**$3,500**	**$88,103**	**$88,088**	**$0**	**$72,974**	**$461,625**	**$32,352**

Survey Rank

ELEMENT	GRAND AVE RANK
C.1	15.16667
C.2	42.66667
C.3	39.5
C.4	35.66667
C.5	47.5

Project C supports the following LTEMP resource goals:

- Goal 1. Archaeological and Cultural Resources.
- Goal 2. Natural Processes.
- Goal 6. Recreational Experience.
- Goal 7. Sediment.
- Goal 11. Riparian Vegetation.

Reductions

Project	Project Description	FY27 Capacity Limited Total	Capacity Percent Reduction from FY25-27 TWP	GRAND AVE RANK	15% Reduction	15% Reduction from capacity limit	15% Reduced Budget	19.25% Reduction	19.25% Reduction from capacity limit	19.25% Reduced Budget	23.5% Reduction	23.5% Reduction from capacity limit	23.5% Reduced Budget
C	**Riparian Vegetation Monitoring and Research**												
C.1	**Ground-based riparian vegetation monitoring**	**$300,593**	**1.22%**	15.2	$9,207	3.06%	$291,386	$44,574	14.83%	$256,019	$99,032	32.95%	$201,561
C.2	**Determining hydrological tolerances and management tools for plant species of interest**	**$-**		42.7	$0	0.00%	$0	$0	0.00%	$0	$0	0.00%	$0
C.3	Predictive models and synthesis	**$25,911**	**34.08%**	39.5	$0	0.00%	$25,911	$0	0.00%	$25,911	$0	0.00%	$25,911
C.4	Biogeomorphic Linkages between streamflow, sediment transport, and vegetation composition	**$51,613**	**3.85%**	35.7	$0	0.00%	$51,613	$0	0.00%	$51,613	$0	0.00%	$51,613
C.5	Vegetation management decision support	**$-**			$0	0.00%	$0	$0	0.00%	$0	$0	0.00%	$0
	Total C	**$378,117**	**18.09%**	33.3	$9,207	2.44%	$368,910	$44,574	11.79%	$333,543	$99,032	26.19%	$279,085

Element C.1

C.1 funds annual measurement of plant species cover and composition for multiple geomorphic features representative of the CRe and long-term monitoring sandbars and campsites surveyed as a part of Project B. These data are used for metrics reporting and tracking how dam operations change plant communities.

This element was already at its minimum form. These data are collected annually and reduced frequency (e.g., every other year or every third year) means that we would miss plant responses to specific flow patterns, like low steady flows, HFEs, SMB flows, bug flows, etc.

Element C.2

C.2 funds greenhouse experiments on how daily fluctuations effect various species of the riparian plant community to better understand and predict the effects of daily water level fluctuations.

In all scenarios, funding for this element is paused in FY27 due to being discontinued to reach the budget reduction required in FY26; the element cannot be restarted in FY27 due to the inactivity in FY26 (no plants to work with).

Element C.3

C.3 funds predictive modeling of riparian vegetation community responses to dam operations.

Element C.4

C.4 partially funds a multi-phased, interdisciplinary study aimed at quantifying large-scale changes to channel morphology relative to vegetation change in cooperation with Projects B, D, and L and external partners. C.4 is one of the few interdisciplinary, cross-cutting projects in the TWP. It evaluates linkages between plant communities, sand, and river flow in collaboration with other Projects and external partners.

Reduction Strategy and Potential Impacts to Science

Reductions in C.1 result in the removal of annual data collection efforts (as opposed to reduced data collection efforts each year) and the loss of annual monitoring metrics for Goal 11. We would not be able to say how dam operations are changing plant communities.

Products related to the Greenhouse Experiment (C.2) in the TWP (pg. 89) will not be produced. We will have limited abilities to inform stakeholders how plant communities will be affected if lake levels drop below power pool.

Only C.1 was judged as having potential reductions that did not create lasting capacity impacts. However, C.1 cannot be reduced without ending the field monitoring effort. The data quality and organization of C.1 will be reduced (products TWP pg. 78). The monitoring data might not be available for Goal 11 Metrics reporting.

Savings will need to be found across the project elements. Elements without target reductions may be reduced; reductions in C.3 and C.4 result in a narrowing of scope for each element and could threaten products being produced from work conducted in FY25 and FY26 (products TWP pg. 85). The modeling that examines how dam operations and plant interactions affect plant communities may not be conducted fully as planned in FY27. The multi-phased, interdisciplinary study aimed at quantifying

large-scale changes to channel morphology relative to vegetation change in cooperation with Projects B, D, and L and external partners (C.4) may be reduced (products TWP pg. 94).

These potential reductions leave limited abilities to tease apart the influence of plant interactions versus flow patterns on plant communities. The Project Lead will focus on finding savings and organizing the Project as the most effective overall science plan for riparian vegetation monitoring and research, given funding constraints. C.1 is scored in the survey such that lower ranked elements may be reduced to recoup the field mission potentially precluded in this budget.

PROJECT D – Archeological and Cultural

FY27 TWP Budget

Fiscal Year 2027									
Project D Effects of Dam Operations and Vegetation Management for Archaeological Sites	**Salaries**	**Travel & Training**	**Operating Expenses**	**Logistics Expenses**	**Cooperative Agreements**	**To other USGS Centers**	**AMP Special Burden Rate***	**Total**	**USGS Contributing Funds****
							23.40%		Est Full Rate = 56%
D.1. Monitoring the effects of dam operations on archaeological sites	$247,813	$9,000	$15,000	$36,257	$0	$0	$72,088	**$380,158**	
D.2. Monitoring landscape-scale ecosystem change with repeat photography	$61,782	$2,000	$1,000	$0	$0	$0	$15,159	**$79,941**	
D.3. Evaluating effects of LTEMP non-flow actions and other experimental vegetation management on archaeological sites	$81,837	$7,500	$2,500	$0	$0	$0	$21,490	**$113,326**	
D.4. Pilot study to evaluate potential to extract cultural and ecological information from Colorado River deposits using eDNA and pollen (*unfunded at this time*)	$0	$0	$0	$0	$0	$0	$0	**$0**	
D.5. Monitoring petroglyphs and pictographs with photogrammetry and lidar (*unfunded at this time*)	$0	$0	$0	$0	$0	$0	$0	**$0**	
Total Project D	**$391,431**	**$18,500**	**$18,500**	**$36,257**	**$0**	**$0**	**$108,737**	**$573,425**	**$50,018**

Survey Rank

ELEMENT	GRAND AVE RANK
D.1	16.33333
D.2	38.66667
D.3	33
D.4	44
D.5	46.83333

Project D supports the following LTEMP resource goals:

- Archaeological and Cultural Resources

Reductions

Project	Project Description	FY27 Capacity Limited Total	Capacity Percent Reduction from FY25-27 TWP	GRAND AVE RANK	15% Reduction	15% Reduction from capacity limit	15% Reduced Budget	19.25% Reduction	19.25% Reduction from capacity limit	19.25% Reduced Budget	23.5% Reduction	23.5% Reduction from capacity limit	23.5% Reduced Budget
D	**Effects of Dam Operations and Vegetation Management for Archaeological Sites**						$0						
D.1	**Monitoring the effects of dam operations on archaeological sites**	**$345,133**	**9.21%**	16.3	$11,385	3.30%	$333,748	$55,115	15.97%	$290,018	$56,521	16.38%	$288,612
D.2	**Monitoring landscape-scale ecosystem change with repeat photography**	**$74,914**	**6.29%**	38.7	$2,940	3.92%	$71,974	$2,940	3.92%	$71,974	$2,940	3.92%	$71,974
D.3	Evaluating effects of LTEMP non-flow actions and other experimental vegetation management on archaeological sites	**$101,134**	**10.76%**	33.0	$6,740	6.66%	$94,394	$9,800	9.69%	$91,334	$9,800	9.69%	$91,334
D.4	Pilot study to evaluate potential to extract cultural and ecological information from Colorado River deposits using eDNA and pollen	**$-**			$0	0.00%	$0	$0	0.00%	$0	$0	0.00%	$0
D.5	Monitoring petroglyphs and pictographs with photogrammetry and lidar	**$-**			$0	0.00%	$0	$0	0.00%	$0	$0	0.00%	$0
	Total D	**$521,181**	**9.11%**	29.3	$21,065	4.04%	$500,116	$67,855	13.02%	$453,326	$69,261	13.29%	$451,920

Elements D.1, D.2, D.3

These three elements are very closely intertwined and share staff, logistics, data collection, data analysis, interpretation and reporting resources. Reductions to specific elements need to be discussed as impacts among elements.

- D.1 specifically focuses on long-term monitoring of archaeological sites using lidar to quantify the effects of dam operations and other factors on the geomorphic condition of a sample of archaeological sites in the Colorado River corridor.
- D.2 focuses on repeat photography to monitor vegetation and geomorphic changes that affect the condition of cultural resources in the river corridor.
- D.3 is collaboration with NPS, the Hopi Tribe, and other parties, to study effects of experimental vegetation management LTEMP non-flow actions that contribute to archaeological site preservation.

Reduction Strategy and Potential Impacts to Science

15% - Monitoring data <u>is</u> collected D.1, but <u>is not</u> collected in D.2 or D.3 during FY27. Analysis, modeling, and reporting will focus on new (acquired in FY27) and existing (acquired prior to FY27) data in D.1, but analysis and reporting will be limited to existing data in D.2 and D.3. Collaborative activities with other projects will be eliminated. GCMRC evaluation of LTEMP Vegetation Management Experiment work conducted by NPS in FY27 by BOR TWP Project 4.D: GRCA and
GLCA Experimental Vegetation Treatment will not be conducted. Planned collaborations with Hopi Tribe, NPS, and others on traditional vegetation management strategies to enhance cultural resource preservation may be reduced in FY27. Project Leads will participate in program meetings and the TWP development process.

19.25% and 23.5% - Monitoring data <u>is not</u> collected in D.1, D.2, or D.3. Analysis, modeling, and reporting will focus on existing data (acquired prior to FY27) in D.1, D.2, and D.3. Reporting on metrics for LTEMP Goal 1 will be delayed. Collaborative activities with other projects are

eliminated. GCMRC evaluation of LTEMP Experiment work conducted by NPS in FY26 by BOR TWP Project 4.D: GRCA and GLCA Experimental Vegetation Treatment will not be conducted. Planned collaborations with Hopi Tribe, NPS, and others on traditional vegetation management strategies
to enhance cultural resource preservation will be reduced or possibly not occur in FY27. Project Leads will participate in program meetings and the TWP development process.

PROJECT E – Ecosystem Productivity

FY27 TWP Budget

Fiscal Year 2027									
Project E Controls on Ecosystem Productivity: Nutrients, Flow, and Temperature	**Salaries**	**Travel & Training**	**Operating Expenses**	**Logistics Expenses**	**Cooperative Agreements**	**To other USGS Centers**	**AMP Special Burden Rate***	**Total**	**USGS Contributing Funds****
							23.40%		Est Full Rate = 56%
E.1. Phosphorus budgeting in the Colorado River	$44,632	$0	$3,500	$0	$0	$0	$11,263	**$59,395**	
E.2. Rates and composition of primary producers in the Colorado River	$63,290	$0	$18,044	$1,750	$0	$0	$19,442	**$102,526**	
E.3. Understanding the energetic basis of the food web in Western Grand Canyon (*unfunded at this time*)	$0	$0	$0	$0	$0	$0	$0	**$0**	
E.4. Productivity at higher trophic levels	$50,485	$0	$3,000	$0	$0	$0	$12,516	**$66,001**	
Total Project E	**$158,408**	**$0**	**$24,544**	**$1,750**	**$0**	**$0**	**$43,220**	**$227,922**	**$19,881**

Survey Rank

ELEMENT	GRAND AVE RANK
E.1	33.66667
E.2	33.33333
E.3	44.33333
E.4	34.83333

Project E supports the following LTEMP resource goals:

- Natural Processes
- Humpback Chub
- Other Native Fish
- Rainbow Trout Fishery
- Nonnative Aquatic Species

Reductions

Project	Project Description	FY27 Capacity Limited Total	Capacity Percent Reduction from FY25-27 TWP	GRAND AVE RANK	15% Reduction	15% Reduction from capacity limit	15% Reduced Budget	19.25% Reduction	19.25% Reduction from capacity limit	19.25% Reduced Budget	23.5% Reduction	23.5% Reduction from capacity limit	23.5% Reduced Budget
E	**Controls on Ecosystem Productivity: Nutrients, Flow, and Temperature**												
E.1	**Phosphorus budgeting in the Colorado River**	**$64,719**	**-8.96%**	33.7	$3,430	5.30%	$61,289	$3,430	5.30%	$61,289	$3,430	5.30%	$61,289
E.2	**Rates and composition of primary producers in the Colorado River**	**$93,534**	**8.77%**	33.3	$6,297	6.73%	$87,237	$19,276	20.61%	$74,258	$19,276	20.61%	$74,258
E.3	Understanding the energetic basis of the food web in Western Grand Canyon	**$-**			$0	0.00%	$0	$0	0.00%	$0	$0	0.00%	$0
E.4	Productivity at higher trophic levels	**$68,182**	**-3.30%**	34.8	$2,940	4.31%	$65,242	$2,940	4.31%	$65,242	$2,940	4.31%	$65,242
	Total E	**$226,435**	**0.65%**	33.9	$12,667	5.59%	$213,768	$25,646	11.33%	$200,789	$25,646	11.33%	$200,789

Element E.1

E.1 funds development of predictive models of phosphorus and various sources and sinks and potential linkages with turbidity to understand the relative importance of these drivers of ecosystem effects in the river.

Element E.2

E.2 funds the underlying modeling to support the natural processes gross primary productivity metric and aims to disentangle the drivers of both rates and types of riverine primary production and their link back to fish production.

Element E.4

E.4 funds development of ecosystem models incorporating multiple trophic levels to understand how bottom-up and top-down processes interact to drive ecosystem dynamics and determine carrying capacity, following the approach recently taken on the rainbow trout population in Glen Canyon.

Reduction Strategy and Potential Impacts to Science

In E.1, funding is mostly for salary to analyze and write up results from previous year's work. The proposed cuts are flat across all funding scenarios for this element. We will eliminate funding from the operating expenses budget, which was planned to cover publication expenses for a peer reviewed paper. The lead PI will look for outside funding to cover publication fees.

In E.2, funding covers salary for analyzing and serving gross primary production data from Grand Canyon as well as for maintaining two water quality sondes that are used to estimate gross primary production (GPP) in Glen Canyon. These sondes also provide water quality information that is relevant to Project H. Operating expenses are for a combination of publication fees, replacement oxygen sensors, and sonde repair and maintenance. At the 15% cut level, the operating expenses budget will be reduced and no funding will be available for publication fees; salary would be reduced for the lead PI by half a pay period (down from 3 pay periods under the capacity limited total). At the 19.25% and 23.5% cut, funding for ecosystem metabolism measurements in Glen Canyon is proposed as eliminated. Water quality measurements will only be collected from the –8 mile sonde during times of special interest as funded in Project H.

For E.4, funding is mostly for salary to analyze and write up results from previous year's work. The proposed cuts are flat across all funding scenarios for this element. We will eliminate funding from the operating expenses budget, which was planned to cover publication expenses for a peer reviewed paper. The lead PI will look for outside funding to cover publication fees.

Savings as discussed in the introduction will be pursued by the Project Lead to minimize the impacts to science discussed above and maintain data collection related to the current unique and rapidly changing resource conditions expected in FY27.

PROJECT F – Aquatic Invertebrates

FY27 TWP Budget

Fiscal Year 2027									
Project F Aquatic Invertebrate Ecology	Salaries	Travel & Training	Operating Expenses	Logistics Expenses	Cooperative Agreements	To other USGS Centers	AMP Special Burden Rate*	Total	USGS Contributing Funds**
							23.40%		Est Full Rate = 56%
F.1. Invertebrate and bat monitoring in Marble and Grand Canyons	$171,354	$1,000	$17,000	$0	$0	$0	$44,309	**$233,663**	
F.2. Aquatic invertebrate monitoring in Glen Canyon	$139,043	$1,000	$1,500	$875	$0	$0	$33,326	**$175,744**	
F.3. Aquatic invertebrate monitoring of Grand Canyon tributaries	$42,302	$1,000	$0	$8,961	$49,350	$0	$13,710	**$115,324**	
F.4. Invertebrate and fish diet studies	$76,487	$1,000	$1,500	$8,961	$0	$0	$20,580	**$108,527**	
Total Project F	**$429,186**	**$4,000**	**$20,000**	**$18,797**	**$49,350**	**$0**	**$111,924**	**$633,257**	**$50,804**

Survey Rank

ELEMENT	GRAND AVE RANK
F.1	36.66667
F.2	30.5
F.3	34.5
F.4	38.83333

Project F supports the following LTEMP resource goals:

- Natural Processes
- Humpback Chub
- Other Native Fishes
- Rainbow Trout Fishery

Reductions

Project	Project Description	FY27 Capacity Limited Total	Capacity Percent Reduction from FY25-27 TWP	GRAND AVE RANK	15% Reduction	15% Reduction from capacity limit	15% Reduced Budget	19.25% Reduction	19.25% Reduction from capacity limit	19.25% Reduced Budget	23.5% Reduction	23.5% Reduction from capacity limit	23.5% Reduced Budget
F	**Aquatic Invertebrate Ecology**												
F.1	**Invertebrate and bat monitoring in Marble and Grand Canyons**	**$237,951**	**-1.84%**	36.7	$17,621	7.41%	$220,330	$17,640	7.41%	$220,311	$17,640	7.41%	$220,311
F.2	**Aquatic invertebrate monitoring in Glen Canyon**	**$142,931**	**18.67%**	30.5	$3,247	2.27%	$139,684	$3,247	2.27%	$139,684	$3,247	2.27%	$139,684
F.3	Aquatic invertebrate monitoring of Grand Canyon tributaries	**$82,804**	**28.20%**	34.5	$5,770	6.97%	$77,034	$27,931	33.73%	$54,873	$57,500	69.44%	$25,304
F.4	Invertebrate and fish diet studies	**$49,154**	**54.71%**	38.8	$3,855	7.84%	$45,299	$10,607	21.58%	$38,547	$10,607	21.58%	$38,547
	Total F	**$512,840**	**19.02%**	35.1	$30,492	5.95%	$482,348	$59,424	11.59%	$453,416	$88,993	17.35%	$423,847

Element F.1

F.1 funds identification of links between Glen Canyon Dam operations, environmental conditions (e.g., tributary flooding, water temperature), and the downstream aquatic food base through invertebrate citizen science invertebrate light trapping that has been ongoing since 2012. This represents the longest and most extensive dataset of aquatic insect emergence from a river segment in the United States and a valuable dataset for documenting ecological change in the Grand Canyon.

Element F.2

F.2 funds continuation of a Glen Canyon monitoring program that has been ongoing since 2007 for identifying status and trends in the aquatic food base supporting rainbow trout populations in Glen Canyon.

Element F.3

F.3 funds eDNA monitoring of tributary streams that are important spawning and rearing habitat for native fishes, and some are also sites of humpback chub translocations.

Element F.4

F.4 funds DNA analysis of fish fecal samples and isotope analysis of fin clips to document fish feeding habits, trophic position, trophic niche breadth, and other measures of food web structure.

Reduction Strategy and Potential Impacts to Science

Food base monitoring and research will be maintained to the extent possible given the constraints of the selected budget with effort apportioned to elements according to rankings to minimize the impacts to science and maintain data collection related to the current unique and rapidly changing resource conditions expected in FY27.

PROJECT G – Humpback Chub

FY27 TWP Budget

Fiscal Year 2027									
Project G Humpback Chub Population Dynamics throughout the Colorado River Ecosystem	**Salaries**	**Travel & Training**	**Operating Expenses**	**Logistics Expenses**	**Cooperative Agreements**	**To other USGS Centers**	**AMP Special Burden Rate***	**Total**	**USGS Contributing Funds****
							23.40%		Est Full Rate = 56%
G.1. Humpback chub population modeling	$194,482	$8,000	$5,000	$0	$0	$0	$48,551	**$256,033**	
G.2. Annual spring/fall HBC abundance estimates in the lower 13.6 km of the LCR	$3,051	$0	$20,222	$108,272	$422,944	$0	$43,470	**$597,958**	
G.3. Juvenile chub monitoring near the LCR confluence (JCM-East)	$153,851	$2,000	$30,156	$324,740	$0	$0	$119,515	**$630,262**	
G.4. Remote PIT-tag array monitoring in the LCR	$24,405	$0	$3,000	$3,000	$0	$0	$7,115	**$37,519**	
G.5. Monitoring humpback chub aggregation relative abundance and distribution	$3,051	$0	$12,436	$66,912	$147,083	$0	$23,694	**$253,176**	
G.6. Juvenile chub monitoring - Western Grand Canyon (JCM-West) (*unfunded at this time*)	$0	$0	$0	$0	$0	$0	$0	**$0**	
G.7. Chute Falls translocations (*unfunded at this time*)	$0	$0	$0	$0	$0	$0	$0	**$0**	
G.8. Sampling of springs in the upper LCR (*FY25 project only*)	$0	$0	$0	$0	$0	$0	$0	**$0**	
G.9. Movement in western Grand Canyon from system-wide antenna monitoring (*unfunded at this time*)	$0	$0	$0	$0	$0	$0	$0	**$0**	
Total Project G	**$378,839**	**$10,000**	**$70,814**	**$502,924**	**$570,027**	**$0**	**$242,344**	**$1,774,948**	**$103,611**

Survey Rank

ELEMENT	GRAND AVE RANK
G.1	4.833333
G.2	6
G.3	7.5
G.4	20.5
G.5	7.666667
G.6	24.33333
G.7	41.66667
G.8	38.16667
G.9	36.5

Project G supports the following LTEMP resource goals:

- Humpback Chub
- Other Native Fishes
- Nonnative Species

Reductions

Project	Project Description	FY27 Capacity Limited Total	Capacity Percent Reduction from FY25-27 TWP	GRAND AVE RANK	15% Reduction	15% Reduction from capacity limit	15% Reduced Budget	19.25% Reduction	19.25% Reduction from capacity limit	19.25% Reduced Budget	23.5% Reduction	23.5% Reduction from capacity limit	23.5% Reduced Budget
G	**Humpback Chub Population Dynamics throughout the Colorado River Ecosystem**												
G.1	**Humpback chub population modeling**	**$261,104**	**-1.98%**	4.8	$2,549	0.98%	$258,555	$12,339	4.73%	$248,765	$12,740	4.88%	$248,364
G.2	**Annual spring/fall HBC abundance estimates in the lower 13.6 km of the LCR**	**$586,563**	**1.91%**	6.0	$7,108	1.21%	$579,455	$34,409	5.87%	$552,154	$86,193	14.69%	$500,370
G.3	Juvenile chub monitoring near the LCR confluence (JCM-East)	**$549,789**	**12.77%**	7.5	$8,328	1.51%	$541,461	$40,315	7.33%	$509,474	$100,986	18.37%	$448,803
G.4	Remote PIT-tag array monitoring in the LCR	**$28,463**	**43.03%**	20.5	$885	3.11%	$27,578	$4,284	15.05%	$24,179	$5,670	19.92%	$22,793
G.5	Monitoring humpback chub aggregation relative abundance and distribution	**$246,063**	**2.81%**	7.7	$3,810	1.55%	$242,253	$18,444	7.50%	$227,619	$46,202	18.78%	$199,861
G.6	Juvenile chub monitoring - Western Grand Canyon (JCM-West)	**$0**			$0	0.00%	$0	$0	0.00%	$0	$0	0.00%	$0
G.7	Chute Falls translocations	**$-**			$0	0.00%	$0	$0	0.00%	$0	$0	0.00%	$0
G.8	Sampling of springs in the upper LCR	**$-**			$0	0.00%	$0	$0	0.00%	$0	$0	0.00%	$0
G.9	Movement in western Grand Canyon from system-wide antenna monitoring	**$-**			$0	0.00%	$0	$0	0.00%	$0	$0	0.00%	$0
	Total G	**$1,671,982**	**5.80%**	9.3	$22,679	1.36%	$1,649,303	$109,792	6.57%	$1,562,190	$251,791	15.06%	$1,420,191

Element G.1

G.1 funds humpback chub modeling, including 1) estimating abundance of various size classes in the LCR-spawning population as defined in the 2016 Biological Opinion, 2) using antenna detections from a wide geographic area in Grand Canyon to obtain a better estimate of adult survival in JCM-west (to differentiate emigration from mortality), 3) estimating abundance of humpback chub adults in western Grand Canyon based on data collected by USFWS aggregation trips, 4) estimating the effects of environmental covariates on demographic parameters (e.g., survival, growth, movement), and 5) developing an occupancy model that accounts for detection probability to look at long-term, large-scale changes to humpback chub distribution with the Colorado River ecosystem.

Element G.2

G.2 funds USFWS sampling trips into the LCR to estimate humpback chub abundance at different life stages. Spring trips inform adult, large subadult, and age-1 abundance estimates in the LCR and provide information about the migratory component of LCR-spawners. USFWS fall trips provide estimates of age-0 abundances in the LCR and abundances of LCR residents.

Element G.3

G.3 funds three sampling trips to the JCM-east reach as well as one annual sampling trip to the lower LCR (July) to estimate abundance and outmigration of age-0 humpback chub born the previous spring. This project provides information on survival, growth, and abundance of humpback chub in the LCR and in the mainstem Colorado River.

Element G.4

G.4 funds PIT-tag arrays in the LCR that read and record codes from previously tagged fish that swim over antennas anchored to the river bottom or riverbank. These data are used to increase detection probabilities for all humpback chub and detection of a subset of the humpback chub population that is relatively invulnerable to capture. These data are important because humpback chub models without antenna data underestimate the proportion and number of migratory adult humpback chub that move into the LCR in spring months and also underestimate adult survival compared to models with these data.

Element G.5

G.5 funds USFWS sampling that is focused on using hoop nets to sample known humpback chub aggregations in the mainstem Colorado River (e.g., RM 30-36, LCR, Bright Angel, Shinumo, Stephens Aisle/Middle Granite Gorge, Havasu, Pumpkin Spring) as well as other sites that are targeted for biological interest. Backwater seining for nonnatives was not included in the approved FY27 budget (as it was in FY25 and FY26), so seining is not scheduled to occur next year.

Reduction Strategy and Potential Impacts to Science

The required reductions identified represent progressive reductions to operating expenses, travel, publication costs, and cooperating agreements to the extent possible without creating long-term capacity limits in each element as indicated by BAHG survey scores. The previous plans evaluated protected various aspects of project G even more than the BAHG scores would suggest, but no protections were applied for this plan.

In G.1 (humpback chub modeling), reductions at the 15.0% and 19.25% level would reduce travel to meetings and conferences and reduce our ability to pay required open access publication fees for products on humpback chub growth, abundance, and environmental drivers that affect survival. Elimination of the discretionary budget at the 23.5% level would stop all travel and hinder our ability to publish products.

In G.2 (USFWS LCR monitoring), the cooperative agreement with the USFWS was preserved. Under the 15.0% reduction scenario, logistics costs and the number of pit tags purchased would need to be reduced by ~5.8% relative to the approved TWP budget. Under a 19.25% cut, this project loses ~28.2% of its pit tag and logistics budget (which is compounded by the higher boatman contract costs), so trip length reductions or other configurations will need to occur. Under a 23.5% reduction, G.2 would lose

~71.4% of its logistics and pit tag budget, which would eliminate this trip and impact data collection used to inform triggers for humpback chub management actions.

In G.3 (juvenile humpback chub monitoring in the mainstem and LCR, i.e., JCM-east and the LCR trip), a 15% reduction would result in ~2.5% of its travel, pit tag/supply, and logistics budget – a reduction that may be assumed by reducing expenditures and trip days. Under the 19.25% reduction, this element loses ~12.3% of its discretionary funding, and under a 23.5% reduction this element loses ~30.9% of its discretionary funding (travel, supplies, logistics). Under the latter two reduction scenarios our ability to provide data on humpback chub abundance and survival that is used to make management decisions would be severely hindered. Reductions in G.3 would reduce/eliminate monitoring of non-native species near the LCR confluence, such that expansions of warmwater non-natives fishes into habitats occupied by humpback chub will be unobservable or very hard to detect.

In G.4 (remote PIT tag array in the LCR), the budget to fly into and service the PIT tag arrays in the LCR wouldl be reduced by ~15.3% under the 15.5% cut. The majority of discretionary budget (~74.0%) is cut in the 19.25% scenario, and logistics and supply budget is completely cut in the 23.5% reduction scenario. In the latter two cut scenarios we would no longer be able to effectively service and fix the PIT tag array in the LCR that provides information on emigration and movement of humpback chub. These data are important because models without antenna data underestimate the proportion and number of migratory adult humpback chub that move into the LCR in spring while also underestimating adult survival compared to models with these data.

In G.5 (USFWS Aggregations monitoring in the mainstem), the cooperative agreement with the USFWS was preserved. The discretionary budget for G.5 is composed of supply costs to purchase pit tags and logistics costs for 1 mainstem river trip. Under the 15.0% cut, G.5 would lose ~5.1% of its discretionary budget, which would impact the number of pit tags purchased and trip length (due to this cut but also increased boatman costs). Under the 19.25% cut, G.5 would lose ~24.7% of its logistics and supply budget, and under the 23.5% cut it will lose ~61.9% of its discretionary budget. Under the latter two cut scenarios this element will no longer be able to provide data to the program on humpback chub abundance estimates in western Grand Canyon and it will be hindered in its ability to provide data used to make management decisions.

Evaluation with partners regarding data sufficiency, especially for triggers for management actions and critical information on invasive species will be closely examined; to the extent that saving cannot be found, lower ranked project elements will be reduced to maintain data sufficiency and effective invasive species detection in Project G.

Impacts that may remain in Project G after all adjustments include leaving the project in a vulnerable position if equipment were to break. Science could suffer from reduced collaboration and information product output and analysis from lead scientists. The potential for these impacts increases

progressively as the reductions are increased at each reduction level. Because staff is shared across projects H, I, and G, reductions in staff would have effects on other projects as well.

PROJECT H – Trout

FY27 TWP Budget

Fiscal Year 2027									
Project H Salmonid Research and Monitoring	Salaries	Travel & Training	Operating Expenses	Logistics Expenses	Cooperative Agreements	To other USGS Centers	AMP Special Burden Rate*	Total	USGS Contributing Funds**
							23.40%		Est Full Rate = 56%
H.1. Rainbow trout fishery monitoring in Glen Canyon	$7,484	$0	$0	$0	$88,000	$0	$4,391	**$99,875**	
H.2. Experimental flow assessment of trout recruitment (TRGD)	$82,735	$2,500	$68,800	$118,998	$0	$0	$63,890	**$336,923**	
H.3. Salmonid modeling	$71,972	$0	$6,000	$0	$0	$0	$18,245	**$96,217**	
Total Project H	**$162,191**	**$2,500**	**$74,800**	**$118,998**	**$88,000**	**$0**	**$86,526**	**$533,015**	**$38,587**

Survey Rank and Target

ELEMENT	GRAND AVE RANK
H.1	18.16667
H.2	24.16667
H.3	32.33333

Project H supports the following LTEMP resource goals:

- Rainbow Trout Fishery
- Non-native species

Reductions

Project	Project Description	FY27 Capacity Limited Total	Capacity Percent Reduction from FY25-27 TWP	GRAND AVE RANK	15% Reduction	15% Reduction from capacity limit	15% Reduced Budget	19.25% Reduction	19.25% Reduction from capacity limit	19.25% Reduced Budget	23.5% Reduction	23.5% Reduction from capacity limit	23.5% Reduced Budget
H	**Salmonid Research and Monitoring**												
H.1	**Rainbow trout fishery monitoring in Glen Canyon**	**$99,578**	**0.30%**	18.2	$0	0.00%	$99,578	$0	0.00%	$99,578	$0	0.00%	$99,578
H.2	**Experimental flow assessment of trout recruitment (TRGD)**	**$292,641**	**13.14%**	24.2	$14,195	4.85%	$278,446	$68,556	23.43%	$224,085	$138,984	47.49%	$153,657
H.3	Salmonid modeling	**$92,095**	**4.28%**	32.3	$5,880	6.38%	$86,215	$5,880	6.38%	$86,215	$5,880	6.38%	$86,215
	Total H	**$484,314**	**9.14%**	24.9	$20,075	4.14%	$464,239	$74,436	15.37%	$409,878	$144,864	29.91%	$339,450

Element H.1-3

In the TWP, this element was extensively modified with sampling reduced by the discontinuation of trout monitoring surveys outside of TRGD sites. Additionally, the trout projects were made more collaborative to reduce costs and to minimize the information lost related to these modifications/reductions. The consolidation of projects resulted in a budget reduction of ~29% from the previous TWP; however, the cuts early in the 2025-2027 TWP led to insufficient funding to support the time required of the PI to support the project and provide requested updates and reporting to the TWG and AMWG.

Element H.1

H.1 funds Arizona Game and Fish Rainbow Trout monitoring and creel surveys that directly measure the satisfaction of anglers.

Element H.2

H.2 funds the field data collection component of the Trout Reproductive and Growth Dynamics (TRGD) project, including costs for PIT tags and salaries for the PI and term fish biologists tasked with supporting the field components and data organization and analysis. This element also funds contracted analytical support, currently provided by Ecometric, Inc. The field component also detects non-native aquatic species (warmwater nonnatives).

Element H.3

H.3 funds the modeling and analysis of the data collected in H.1 and H.2. The element funds staff time for estimation of LTEMP metrics (trout abundance), assesses linkages between dam operations and environmental conditions to trout population dynamics and the quality of the fishery, and informs dam operational recommendations by the P&I team. Data analysis can support estimates of entrainment or detect reproduction of warmwater nonnative fishes.

Reduction Strategy and Potential Impacts to Science

Reductions are not possible without pausing field data collection. Extensive changes to consolidate partner efforts were applied in development of the TWP; further reduction of effort will have severe impacts to monitoring and detection of warmwater nonnative fishes, creel surveys (potentially not worth conducting if reduced), and precision in trout monitoring data.

15% - H.1 would be maintained as funded in the TWP for all scenarios. Under this budget reduction scenario, in H.2, one TRGD trip would be cut, and publication costs budgeted in H.3 would have to be cut. We will try to maintain consecutive planned trips to maintain consistency and precision in estimates for as long as possible, to enable the assessment of linkages between Glen Canyon Dam operations and trout demographics. Thus, the summer (June) 2027 TRGD trip would be cut under this scenario, which would reduce our ability to detect warmwater nonnatives in addition to compromising the integrity of the analysis of trout demographics. The data from the June trip are also important for modeling April abundance, suggesting the age-0+ abundance LTEMP metric may not be estimable for 2026-2027. We will also need to explore ways to reduce logistics costs, to enable the other 3 mark-recapture trips to be conducted, including in the fall 2026, and winter and spring 2027.

19.25% - The severity of the cuts to H.2 in this scenario would require cutting 2 TRGD trips and push the project towards a cliff; due to insufficient funding for trip logistics and salary for staff to run them, the project nears the point where inadequate data would be collected for the intended purpose (linking trout demographics and trout catch to operations). Staff are also shared among other higher priority projects (e.g., G and I), which may be compromised. We would again prioritize cutting later trips, to maintain continuity and data consistency to the extent possible, meaning the April and June trips would be cut rather than the fall and winter trips. This would limit our ability to understand annual recruitment rates, prevent calculation of the rainbow trout abundance metric, and detect warmwater nonnatives to provide insights into entrainment rates through Glen Canyon Dam. Cuts to H.3 would be

the same as in the 15% scenario. Our understanding of the implications of management actions to trout demographics and angler catch may be limited to those actions enacted during the summer 2026 (e.g., coolmix decisions).

23.5% - Under this scenario all TRGD trips would be cut, which would have ramifications to understanding trends in trout demographics and abundance beyond 2027. Remaining staff time would be devoted to analysis of data collected through 2026. The trout monitoring project would have to be redesigned for the next TWP, and if mark-recapture was continued in the future, it may require a minimum of 3-5 more trips beyond 2027 before precision in demographic rate estimates may be suitable to understand the effects of management actions to the trout fishery.

Savings will be sought to minimize these impacts, but they may be very difficult to find given the reductions that were in the original TWP and the further reductions applied in FY26.

PROJECT I – Nonnative Aquatic Species

FY27 TWP Budget

Fiscal Year 2027									
Project I Non-native Invasive Species Monitoring and Research	**Salaries**	**Travel & Training**	**Operating Expenses**	**Logistics Expenses**	**Cooperative Agreements**	**To other USGS Centers**	**AMP Special Burden Rate***	**Total**	**USGS Contributing Funds****
							23.40%		Est Full Rate = 56%
I.1. System-wide native fishes and invasive aquatic species monitoring	$10,965	$0	$4,650	$114,150	$217,550	$0	$36,892	**$384,207**	
I.2. Estimating kinship and spawner abundance of warm-water non-natives	$12,892	$2,000	$100	$0	$0	$0	$3,508	**$18,500**	
I.3. Identifying emerging threats to the Colorado River Ecosystem using environmental DNA	$33,418	$300	$0	$17,104	$48,600	$0	$13,350	**$112,772**	
I.4. Modeling population dynamics and improving forecasting tools for smallmouth bass and other non-native fish	$212,212	$0	$1,800	$0	$0	$0	$50,079	**$264,091**	
Total Project I	**$269,487**	**$2,300**	**$6,550**	**$131,254**	**$266,150**	**$0**	**$103,829**	**$779,570**	**$44,088**

Survey Rank

ELEMENT	GRAND AVE RANK
I.1	3.166667
I.2	16.5
I.3	17
I.4	5.666667

Project I supports the following LTEMP resource goals:

- Nonnative Invasive Species
- Other Native Fish Species
- Humpback Chub

Reductions

Project	Project Description	FY27 Capacity Limited Total	Capacity Percent Reduction from FY25-27 TWP	GRAND AVE RANK	15% Reduction	15% Reduction from capacity limit	15% Reduced Budget	19.25% Reduction	19.25% Reduction from capacity limit	19.25% Reduced Budget	23.5% Reduction	23.5% Reduction from capacity limit	23.5% Reduced Budget
I	**Non-native Invasive Species Monitoring and Research**												
I.1	**System-wide native fishes and invasive aquatic species monitoring**	**$374,698**	**2.47%**	3.2	$2,396	0.64%	$372,302	$11,601	3.10%	$363,097	$29,060	7.76%	$345,638
I.2	**Estimating kinship and spawner abundance of warm-water non-natives**	**$18,408**	**0.50%**	16.5	$613	3.33%	$17,795	$2,058	11.18%	$16,350	$2,058	11.18%	$16,350
I.3	Identifying emerging threats to the Colorado River Ecosystem using environmental DNA	**$111,044**	**1.53%**	17.0	$3,813	3.43%	$107,231	$18,457	16.62%	$92,587	$46,233	41.63%	$64,811
I.4	Modeling population dynamics and improving forecasting tools for smallmouth bass and other non-native fish	**$263,798**	**0.11%**	5.7	$3,019	1.14%	$260,779	$14,615	5.54%	$249,183	$36,610	13.88%	$227,188
	Total I	**$767,948**	**1.49%**	10.6	$9,841	1.28%	$758,107	$46,731	6.09%	$721,217	$113,961	14.84%	$653,987

Element I.1

I.1 provides long-term data on the distribution, catch per unit effort, species composition and status and trends of the fishes in the mainstem Colorado River from Lees Ferry (RM 0) to Pierce Ferry Rapid (RM 281) trough hoop netting, electrofishing, angling, and a pilot project in collaboration with Project Element G.1 to deploy more submersible PIT tag antennas to track fish movement.

Element I.2

I.2 uses kinship genetic analysis to better understand the ongoing expansion of smallmouth bass into the Colorado River in Glen, Marble, and Grand Canyons, determine the extent to which juveniles are locally produced or entrained from Lake Powell, and potentially estimate spawner abundance and survival for species being removed from the system via close-kin mark recapture.

Element I.3

I.3 funds eDNA analysis of water samples to identify aquatic invasive species being entrained from Lake Powell while increasing biosurveillance of nonnative species including smallmouth bass throughout the Colorado River and its tributaries. I.3 also funds monitoring for parasites including the Asian fish tapeworm and anchor worm (Lernaea) in Humpback Chub, data that is collected per the Biological Opinion.

Element I.4

I.4 funds modeling work that includes updating forecasting tools for smallmouth bass, understanding the drivers of entrainment of smallmouth bass from Lake Powell, evaluating the effectiveness of management actions including LTEMP Experimental Flows on smallmouth bass catch rates, dispersal, and recruitment, and develops a workflow process for an occupancy model that evaluates data across fish projects to determine the presence and reproduction of nonnative aquatic species (LTEMP Goal #10). This project also supports laboratory work to determine how turbidity and temperature effect the growth and survival of early life stages of smallmouth bass.

Reduction Strategy and Potential Impacts to Science

For the previously evaluated plans, various elements of Project I were protected due to high scoring in survey results and the critical timely requirement for the information Project I produces. For this plan target reductions are identified.

In I.1 (AZGFD system-wide monitoring), the cooperative agreement with the state of Arizona was preserved. Discretionary budget reductions to logistics combined with higher boatmen costs that were finalized post-TWP would result in a reduction in the number of sampling days under the 15.0 and 19.25% reduction scenarios. Those 2 trips would likely be reduced in number from 17 days to 14-15 days unless savings can be found by combining those trips with other trips in the work plan (e.g., spring aquatic food base trip). High reductions in the 23.5% scenario would likely lead to the elimination of 1 full 17-d trip and replacement with a diamond down trip, which is similar in effort to the FY23-25 work plan.

In I.2 (kinship), salary was preserved but travel and operating costs were eliminated in the 19.25% and 23.5% reduction scenarios. This would reduce the PI's ability to collect smallmouth bass samples in Lake Powell and/or present results from this research at meetings or a conference.

In I.3 (biosurveillance using eDNA; parasite monitoring), Asian tapeworm and Lernaea monitoring would continue as planned in collaboration with G.2 and G.3. The eDNA work is minimally affected under the 15% cut scenario, with slightly fewer samples collected. Under the 19.25% cut scenario, one gear type (electrofishing or hoop netting) would be eliminated from the eDNA gear comparison project. Under the 23.5% cut scenario, we would need to re-design year 3 of this work and focus on gear comparison in Lees Ferry only, thus eliminating the downstream component of this work. The latter two reduction scenarios would reduce the robustness of the product that compares detection of nonnative aquatic species using eDNA vs. traditional sampling gear (seines, electrofishing, hoop nets).

In I.4 (smallmouth bass and nonnative fish modeling), cuts under the 19.25 and 23.5% reduction scenarios would reduce or eliminate progress on development of an occupancy model related to LTEMP metrics reporting and reduce modeling efforts associated with understanding the drivers of entrainment of smallmouth bass from Lake Powell and the effectiveness of LTEMP experimental flows on smallmouth bass growth, distribution, and survival in the Colorado River. TWP products would be progressively threatened by the target reductions (TWP products pg. 270, 279-280, and 285).

The potential impacts above will be avoided to the extent possible. If costs are unable to be reduced, lower ranked project elements will be reduced to maintain a robust effort regarding invasive species, in accordance with BAHG survey rankings and to maintain data collection related to the current unique and rapidly changing resource conditions expected in FY27.

PROJECT J – Socioeconomic

FY27 TWP Budget

Fiscal Year 2027									
Project J Socioeconomic Research	Salaries	Travel & Training	Operating Expenses	Logistics Expenses	Cooperative Agreements	To other USGS Centers	AMP Special Burden Rate*	Total	USGS Contributing Funds**
							23.40%		Est Full Rate = 56%
J.1. Integrated models for adaptive management	$129,999	$2,000	$2,000	$0	$0	$0	$31,356	**$165,355**	
J.2. Recreation monitoring and research	$111,386	$1,000	$1,000	$0	$0	$0	$26,532	**$139,918**	
J.3. Tribal resources research (*unfunded at this time*)	$0	$0	$0	$0	$0	$0	$0	**$0**	
Total Project J	**$241,385**	**$3,000**	**$3,000**	**$0**	**$0**	**$0**	**$57,888**	**$305,273**	**$26,628**

Survey Rank

ELEMENT	GRAND AVE RANK
J.1	19.33333
J.2	31.66667
J.3	34.5

Project J supports the following LTEMP resource goals:

- Recreational Experience
- Tribal Resources

Reductions

Project	Project Description	FY27 Capacity Limited Total	Capacity Percent Reduction from FY25-27 TWP	GRAND AVE RANK	15% Reduction	15% Reduction from capacity limit	15% Reduced Budget	19.25% Reduction	19.25% Reduction from capacity limit	19.25% Reduced Budget	23.5% Reduction	23.5% Reduction from capacity limit	23.5% Reduced Budget
J	**Socioeconomic Research**												
J.1	**Integrated models for adaptive management**	**$156,853**	**5.14%**	19.3	$3,920	2.50%	$152,933	$3,920	2.50%	$152,933	$3,920	2.50%	$152,933
J.2	**Recreation monitoring and research**	**$130,991**	**6.38%**	31.7	$1,960	1.50%	$129,031	$1,960	1.50%	$129,031	$1,960	1.50%	$129,031
J.3	Tribal resources research	**$-**		34.5	$0	0.00%	$0	$0	0.00%	$0	$0	0.00%	$0
	Total J	**$287,844**	**5.71%**	28.5	$5,880	2.04%	$281,964	$5,880	2.04%	$281,964	$5,880	2.04%	$281,964

Element J.1

J.1 funds integrated modeling of rainbow trout (*Oncorhynchus mykiss*) and humpback chub (*Gila cypha*) population dynamics, evaluating cost-effective nonnative species management alternatives that meet humpback chub viability goals, and the assessment of the economic costs of experimental flows such as trout management and smallmouth bass (*Micropterus dolomieu*) flows. J.1 has recently expanded to include work on smallmouth bass screening tools, models to inform optimal smallmouth bass monitoring and research, and value of information analysis for the GCDAMP.

Element J.2

J.2 funds development of predictive modeling capability for assessment of whitewater rafting recreational experience under different future management scenarios, as recommended by the GCMRC Socioeconomic Research Review Panel.

Reduction Strategy and Potential Impacts to Science

Reduction targets for Project J are relatively small because additional reductions would have lasting impacts on program capability and likely affect the next TWP. Project J was redirected from some TWP purposes in FY26 to address critical emergent needs including the development of Smallmouth Bass tools to assess management actions; no development of a whitewater rafting simulation model to estimate recreational use, behavior, and economic value was planned to occur, meaning that individual trip-based simulation models will not be integrated with the revealed and stated preference research specific to whitewater rafting in Grand Canyon. The FY26 adjustments are expected to extend through FY27. Impacts of the reductions in this plan are expected to be minimal; saving will be sought, but due to the nature of the project and the program need, savings are unlikely to be significant (if capability is maintained).

PROJECT K – Geospatial Science, Data Management and Technology

FY27 TWP Budget

Fiscal Year 2027									
Project K Geospatial Science, Data Management, and Technology	Salaries	Travel & Training	Operating Expenses	Logistics Expenses	Cooperative Agreements	To other USGS Centers	AMP Special Burden Rate*	Total	USGS Contributing Funds**
							23.40%		Est Full Rate = 56%
K.1. Enterprise GIS, geospatial analysis, and processing	$168,704	$4,000	$5,600	$0	$0	$0	$41,723	**$220,028**	
K.2. Data management and database administration	$276,796	$1,800	$3,000	$0	$0	$0	$65,893	**$347,489**	
K.3. Data telemetry and field engineering	$126,499	$3,500	$6,550	$0	$0	$0	$31,952	**$168,501**	
Total Project K	**$571,999**	**$9,300**	**$15,150**	**$0**	**$0**	**$0**	**$139,569**	**$736,018**	**$64,201**

Survey Rank

ELEMENT	GRAND AVE RANK
K.1	30.16667
K.2	14.66667
K.3	20.83333

Project K supports the following LTEMP resource goals:

- Archaeological and Cultural Resources
- Natural Processes
- Humpback Chub
- Other Native Fish
- Recreational Experience
- Sediment
- Rainbow Trout
- Nonnative Invasive Species
- Riparian Vegetation

Reductions

Project	Project Description	FY27 Capacity Limited Total	Capacity Percent Reduction from FY25-27 TWP	GRAND AVE RANK	15% Reduction	15% Reduction from capacity limit	15% Reduced Budget	19.25% Reduction	19.25% Reduction from capacity limit	19.25% Reduced Budget	23.5% Reduction	23.5% Reduction from capacity limit	23.5% Reduced Budget
K	**Geospatial Science, Data Management, and Technology**												
K.1	**Enterprise GIS, geospatial analysis, and processing**	**$168,161**	**23.57%**	30.2	$9,408	5.59%	$158,753	$9,408	5.59%	$158,753	$9,408	5.59%	$158,753
K.2	**Data management and database administration**	**$216,261**	**56.47%**	14.7	$4,481	2.07%	$211,780	$4,704	2.18%	$211,557	$4,704	2.18%	$211,557
K.3	Data telemetry and field engineering	**$42,417**	**74.83%**	20.8	$1,785	4.21%	$40,632	$8,640	20.37%	$33,777	$9,849	23.22%	$32,568
	Total K	**$426,839**	**50.84%**	21.9	$15,673	3.67%	$411,166	$22,752	5.33%	$404,087	$23,961	5.61%	$402,878

Element K.1

K.1 funds geospatial data management, GIS services and support. Staff in Project K have often had some overlapping planned hours among all three elements, as many data-centric initiatives for GCMRC involve geospatial data, data management and relational database administration, and providing access to online resources.

Element K.2

K.2 funds continued maintenance of existing enterprise relational databases in support of LTEMP related science efforts, and in some cases, the design and development of new databases for projects or resources. This includes a very large effort to begin building capacity to work with cloud computing resources, primarily using Amazon Web Services, and adhering to Department of the Interior mandatory directives to implement cloud migration strategies by end of calendar year 2027.

Element K.3

K.3 funds installing, maintaining, and collecting data telemetrically from field-based sensors in the Grand Canyon. Work in this element is responsible for managing both the field and power equipment deployed at sites across Grand Canyon in support of GCMRC science project needs and in response to almost all LTEMP goals. This project element was also responsible for managing the data telemetry, data and system security, and data ingest into the AWS cloud.

Project Elements K.1 - K.3 are highly integrated; reductions were applied across elements based on survey scores, with the assumption that a hiring freeze would continue through FY27. If the hiring freeze is lifted, this plan should be adjusted to meeting the very high priority of hiring a database manager/computer scientist to support the vast datasets housed and served out by GCMRC and used by researchers and stakeholders interested in AMP related monitoring in Glen and Grand Canyons.

Reduction Strategy and Potential Impacts to Science

Reductions in one or more project elements in Project K will continue to have compounding impacts to the support provided across GCMRC. Accounting for the impacts that these budget levels is nearly impossible as the lack of or reduction in capacity for data management, data science, web application development, data telemetry, field system engineering, etc., inherent in this exercise assuming the hiring freeze will continue, affects nearly all projects and the GCMRC as a whole. Staffing is already too low in Project K to fully assure continued data management and data accessibility that all science projects depend upon and that the GCDAMP uses for decision-making. If the hiring freeze continues, there is no opportunity to bring staffing above half of what was planned in the TWP. If hiring became allowed, a Data Manager/Computer Scientist would be hired to better ensure competent data management, although the staffing will still be lower than anticipated in the TWP; lower ranked elements will be reduced to accommodate the increased cost. Without the hiring of either the Physical

Scientist / Internet of Things engineer or a Computer Scientist / Database Administrator, there is a high likelihood that incidents can occur that will lead to data loss for these systems.

PROJECT L – Remote Sensing

FY27 TWP Budget

Fiscal Year 2027									
Project L Overflight Remote Sensing in Support of GCDAMP and LTEMP	**Salaries**	**Travel & Training**	**Operating Expenses**	**Logistics Expenses**	**Cooperative Agreements**	**To other USGS Centers**	**AMP Special Burden Rate***	**Total**	**USGS Contributing Funds****
							23.40%		Est Full Rate = 56%
L.1. Analysis and interpretation of overflight remote sensing data	$257,300	$7,000	$5,000	$0	$0	$0	$63,016	**$332,316**	
L.2. Acquisition of overflight remote sensing imagery (*FY26 project only*)	$0	$0	$0	$0	$0	$0	$0	**$0**	
L.3. Acquisition of airborne lidar in conjunction with overflight remote sensing imagery (*FY26 project only*)	$0	$0	$0	$0	$0	$0	$0	**$0**	
Total Project L	**$257,300**	**$7,000**	**$5,000**	**$0**	**$0**	**$0**	**$63,016**	**$332,316**	**$28,987**

Survey Rank

ELEMENT	GRAND AVE RANK
L.1	34.33333
L.2	44.66667
L.3	42.16667

Project L supports the following LTEMP resource goals:

- Archaeological and Cultural Resources
- Natural Processes
- Humpback Chub
- Hydropower and Energy
- Other Native Fish
- Recreational Experience
- Sediment
- Tribal Resources
- Rainbow Trout Fishery
- Nonnative Invasive Species
- Riparian Vegetation

Reductions

Project	Project Description	FY27 Capacity Limited Total	Capacity Percent Reduction from FY25-27 TWP	GRAND AVE RANK	15% Reduction	15% Reduction from capacity limit	15% Reduced Budget	19.25% Reduction	19.25% Reduction from capacity limit	19.25% Reduced Budget	23.5% Reduction	23.5% Reduction from capacity limit	23.5% Reduced Budget
L	**Overflight Remote Sensing in Support of GCDAMP and LTEMP**												
L.1	**Analysis and interpretation of overflight remote sensing data**	**$322,233**	**3.03%**	34.3	$11,760	3.65%	$310,473	$11,760	3.65%	$310,473	$11,760	3.65%	$310,473
L.2	**Acquisition of overflight remote sensing imagery**	**$-**			$0	0.00%	$0	$0	0.00%	$0	$0	0.00%	$0
L.3	Acquisition of airborne lidar in conjunction with overflight remote sensing imagery	**$-**			$0	0.00%	$0	$0	0.00%	$0	$0	0.00%	$0
	Total L	**$322,233**	**3.03%**	34.3	$11,760	3.65%	$310,473	$11,760	3.65%	$310,473	$11,760	3.65%	$310,473

Element L.1

L.1 funds analysis and interpretation of aerial imagery data from the 2021 and previous overflights that is used by all projects. Project L also conducts collaborative science efforts with other specific projects

(A, B, C, D), including development of landcover classification maps, analyses of topographic change and changes in landcover, and measuring system-wide changes in high-elevation sand deposits using the archive of remote sensing digital topography.

Reduction Strategy and Potential Impacts to Science

15%-23.5% - Data production, analysis, and interpretation, occur as described in the triennial workplan. However, there is no funding budgeted for required software licenses, publication of science findings, or in-person attendance of stakeholder meetings owing to the elimination of operating expenses and travel under these scenarios. Either an alternate source of funding for these expenses will need to be identified, or project staffing will need to be reduced to a level that frees up funding to pay for these expenses.

PROJECT M – Management

FY27 TWP Budget

Fiscal Year 2027									
Project M Leadership, Management, and Support	Salaries	Travel & Training	Operating Expenses	Logistics Expenses	Cooperative Agreements	To other USGS Centers	AMP Special Burden Rate*	Total	USGS Contributing Funds**
							23.40%		Est Full Rate = 56%
M.1. Leadership, management, and support	$695,066	$16,000	$114,000	$0	$0	$0	$193,066	**$1,018,132**	
M.2. Logistics staff	$401,913	$0	$0	$0	$0	$0	$94,048	**$495,961**	
M.3. IT	$0	$0	$65,750	$0	$0	$0	$15,386	**$81,136**	
Total Project M	**$1,096,980**	**$16,000**	**$179,750**	**$0**	**$0**	**$0**	**$302,499**	**$1,595,228**	**$139,148**

Survey Rank

ELEMENT	GRAND AVE RANK
M.1	27
M.2	12.66667
M.3	40.83333

Project M supports the following LTEMP resource goals:

- Archaeological and Cultural Resources
- Natural Processes
- Humpback Chub
- Hydropower and Energy
- Other Native Fish
- Recreational Experience
- Sediment
- Tribal Resources
- Rainbow Trout Fishery
- Nonnative Invasive Species
- Riparian Vegetation

Reductions

Project	Project Description	FY27 Capacity Limited Total	Capacity Percent Reduction from FY25-27 TWP	GRAND AVE RANK	15% Reduction	15% Reduction from capacity limit	15% Reduced Budget	19.25% Reduction	19.25% Reduction from capacity limit	19.25% Reduced Budget	23.5% Reduction	23.5% Reduction from capacity limit	23.5% Reduced Budget
M	**Leadership, Management, and Support**												
M.1	**Leadership, management, and support**	**$490,891**	**51.79%**	27.0	$0	0.00%	$490,891	$0	0.00%	$490,891	$0	0.00%	$490,891
M.2	**Logistics staff**	**$308,305**	**37.84%**	12.7	$0	0.00%	$308,305	$0	0.00%	$308,305	$0	0.00%	$308,305
M.3	IT	**$80,215**	**1.13%**	40.8	$0	0.00%	$80,215	$1,000	1.25%	$79,215	$4,435	5.53%	$75,780
	Total M	**$879,411**	**44.87%**	26.8	$0	0.00%	$879,411	$1,000	0.11%	$878,411	$4,435	0.50%	$874,976

Element M.1

M.1 funds salaries, travel, and operating expenses for the management and operation of GCMRC.

Reductions were applied by maintaining current vacancies in support positions for information product production and data releases. The GCMRC Chief salary has been paused assuming the SBSC Center Director acting role will continue.

Element M.2

M.2 funds salaries for GCMRC Logistics operation.

Element M.3

M.3 covers GCMRC's information technology equipment and related support costs.

Reduction Strategy and Potential Impacts to Science

Reductions were not applied to M.1 (management) or M.2 (logistics); long-term capacity impacts would be created.

M.1 funds management staff, vehicles, and fuel for all projects. It was evaluated for reduction, but ultimately not reduced in recognition of increased fuel prices (especially from 2024 when the TWP was developed). Staffing losses included in the internal GCMRC Capacity Limited Budget remain and have impacts including the delay of information products (papers, presentations, posters, etc.) and the data releases. Managerial functions will remain stressed or overwhelmed.

M.2 is not reduced from the internal GCMRC Capacity Limited Budget, but existing staff losses in Logistics could still create problems that impact the ability to put trips on the river. If hiring were allowed, this plan would be altered to accommodate funding to better ensure functionality in Logistics.

M.3 is reduced but by amounts less than target reductions would suggest. IT needs were carefully considered and reduced as possible without compromising all projects with inability to maintain equipment and cover agreements that house data in the cloud. IT risk is minimized in this plan.

PROJECT N – Native Fish Population Dynamics

FY27 TWP Budget

Fiscal Year 2027									
Project N Native Fish Population Dynamics	Salaries	Travel & Training	Operating Expenses	Logistics Expenses	Cooperative Agreements	To other USGS Centers	AMP Special Burden Rate*	Total	USGS Contributing Funds**
							23.40%		Est Full Rate = 56%
N.1. Sucker and dace distribution and demographics (SADDAD) (*unfunded at this time*)	$0	$0	$0	$0	$0	$0	$0	**$0**	
N.2. Predictive modeling and Decision support for native fishes (*unfunded at this time*)	$0	$0	$0	$0	$0	$0	$0	**$0**	
N.3. Evaluating dispersal and sources of mortality (Razorback sucker) using new technology (*unfunded at this time*)	$0	$0	$0	$0	$0	$0	$0	**$0**	
Total Project N	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**

Survey Rank

ELEMENT	GRAND AVE RANK
N.1	48.33333
N.2	50
N.3	42.5

Project N supports the following LTEMP resource goals:

- Other Native Fish

Reductions

Project	Project Description	FY27 Capacity Limited Total	Capacity Percent Reduction from FY25-27 TWP	GRAND AVE RANK	15% Reduction	15% Reduction from capacity limit	15% Reduced Budget	19.25% Reduction	19.25% Reduction from capacity limit	19.25% Reduced Budget	23.5% Reduction	23.5% Reduction from capacity limit	23.5% Reduced Budget
N	**Native Fish Population Dynamics**												
N.1	**Sucker and dace distribution and demographics (SADDAD)**	**$-**			$0	0.00%	$0	$0	0.00%	$0	$0	0.00%	$0
N.2	**Predictive modeling and Decision support for native fishes**	**$-**			$0	0.00%	$0	$0	0.00%	$0	$0	0.00%	$0
N.3	Evaluating dispersal and sources of mortality (Razorback sucker) using new technology	**$-**			$0	0.00%	$0	$0	0.00%	$0	$0	0.00%	$0
N.2	Predictive modeling and Decision support for native fishes	**$0**			$0	0.00%	$0	$0	0.00%	$0	$0	0.00%	$0
N.3	Evaluating dispersal and sources of mortality (Razorback sucker) using new technology	**$0**			$0	0.00%	$0	$0	0.00%	$0	$0	0.00%	$0
	Total N	**$0**			**$0**	**$0**	$0	$0	0.00%	$0	$0	0.00%	$0

Project N was almost entirely eliminated from the 2025-2027 TWP with the exception of a small amount of funding to support tuition of a PhD student (~$22k) whose dissertation proposal is focused on supporting the GCDAMP and the other native fish goal. The PI was allocated zero salary to support and supervise the student, serve on the student's committee, and complete analysis and presentation of metrics requested by the GCDAMP. Additional cuts to salary of the PI in project H would further limit the volunteer time that the PI can devote to both Project H and N and metrics summaries and presentations. The PI would be required to find additional work outside the GCDAMP with its own set of deliverables.

Element N.1

N.1 involves the use and analysis of existing data to understand the influence of dam operations, environmental variation, expanding nonnative species, and other management actions on the population dynamics of ONF.

Element N.2

N.2 uses the results of demographic modeling in Project Element N.1 to develop predictive models to inform management and decision-making for ONF.

Element N.3

N.3 collects data that would be used to estimate predation mortality and movement rates for released razorback sucker, including evidence of where predation may occur to inform management of nonnative predators or mitigate other forms of mortality.

Reduction Strategy and Potential Impacts to Science

Project N was not funded in the FY27 TWP Budget.

Survey Results

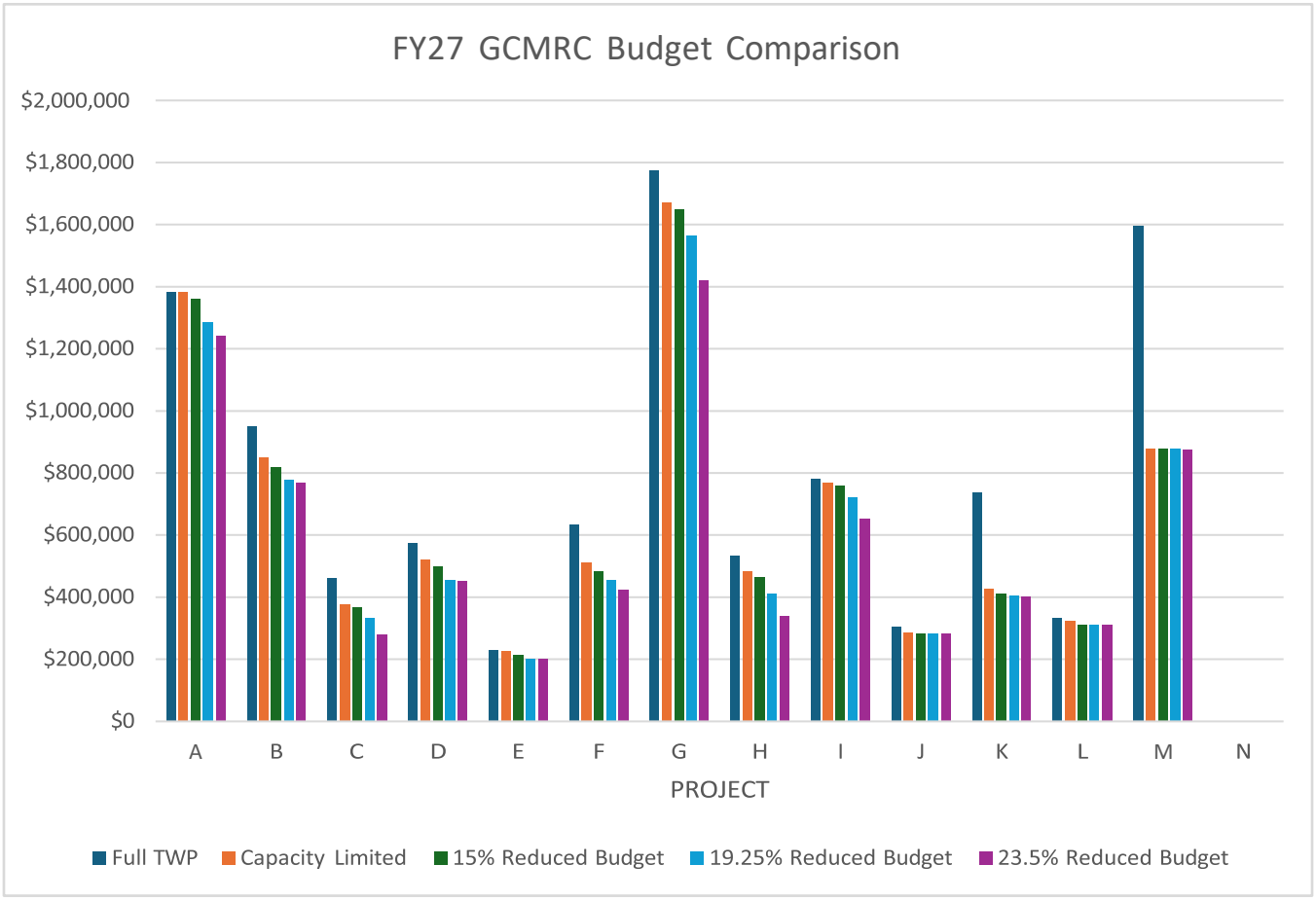
The tables below include the survey results as shared from the DOI (average collective score), the BAHG (each survey result and an average), and the Grand Average (DOI and BAHG average scores averaged) used to generate targets in this plan.

PROJECT	DOI Total (Higher Score Higher Priority)	BAHG Points Rank	BAHG Agreement	BAHG MaxDiff	BAHG Average	GRAND ave RANK
A.1 Strear	62	5	1	5	3.666667	3.17
A.2 Conti	56	18	8	8	11.33333	8.67
A.3 Sedin	50	8	12	10	10	9.33
B.1 Sandb	53	17	20	22	19.66667	14.00
B.2 Bathy	24	26	27	11	21.33333	30.50
B.3 Contr	32	52	55	43	50	43.50
B.4 Strear	17	34	41	45	40	43.00
C.1 Groun	50	11	18	24	17.66667	15.17
C.2 Deter	30	48	43	42	44.33333	42.67
C.3 Predic	22	47	42	36	41.66667	39.50
C.4 Biogeo	37	38	36	34	36	35.67
C.5 Veget	4	56	39	54	49.66667	47.50
D.1 Monit	53	25	22	19	22	16.33
D.2 Monit	20	49	54	40	47.66667	38.67
D.3 Evalua	37	46	29	37	37.33333	33.00
D.4 Pilot s	11	45	56	56	52.33333	44.00
D.5 Monit	7	44	53	53	50.66667	46.83
E.1 Phosp	21	40	32	30	34	33.67
E.2 Rates	22	33	31	21	28.33333	33.33
E.3 Under	27	53	52	48	51	44.33
E.4 Produ	16	42	30	27	33	34.83
F.1 Invert	26	41	38	39	39.33333	36.67
F.2 Aquat	29	32	21	23	25.33333	30.50
F.3 Aquat	14	29	33	29	30.33333	34.50
F.4 Invert	26	36	34	35	35	38.83
G.1 Hump	59	7	4	3	4.666667	4.83
G.2 Annua	62	4	16	2	7.333333	6.00
G.3 Juven	60	10	11	9	10	7.50
G.4 Remo	39	19	10	17	15.33333	20.50
G.5 Monit	47	1	2	7	5	7.67
G.6 Juven	25	13	15	25	17.66667	24.33
G.7 Chute	9	51	47	46	48	41.67
G.8 Sampl	34	21	51	52	41.33333	38.17
G.9 Move	22	43	50	44	45.66667	36.50
H.1 Rainb	47	6	26	33	21.66667	18.17
H.2 Experi	40	14	25	38	25.66667	24.17
H.3 Salmo	15	27	37	32	32	32.33
I.1 Systen	61	2	6	1	3	3.17
I.2 Estima	43	16	14	15	15	16.50
I.3 Identif	44	12	24	12	16	17.00
I.4 Model	56	3	9	6	6	5.67
J.1 Integra	50	28	28	18	24.66667	19.33
J.2 Recrea	46	39	49	47	45	31.67
J.3 Tribal r	13	20	35	28	27.66667	34.50
K.1 Enter	11	22	13	20	18.33333	30.17
K.2 Data m	32	23	3	4	10	14.67
K.3 Data t	35	24	23	14	20.33333	20.83
L.1 Analys	5	31	19	26	25.33333	34.33
L.2 Acquis	2	50	45	51	48.66667	44.67
L.3 Acquis	4	37	44	50	43.66667	42.17
M.1 Leade	7	15	5	16	12	27.00
M.2 Logist	42	9	2	13	8	12.67
M.3 IT $70	1	30	17	31	26	40.83
N.1 Sucke	16	54	40	53	49	48.33

N.2 Predic	9	55	46	41	47.33333	50.00
N.3 Evalu	32	35	48	49	44	42.50

REDUCTION SUMMARY GRAPH

The previous plans were evaluated using a chart of reductions comparing the final reduction proposed to the target reductions generated; however, in this version, based in maintaining capacity, as much as possible, the targets lose their meaning as a suitable comparison, no elements are maintained at full funding ("M" designation in previous charts), and no elements are paused ("P" designation in the previous charts). The graph below is provided as an overview of the funding levels for each project (not element, for simplicity) as it compares between the original TWP, Capacity Limited Budget, and the proposed reduction levels.



Proposed Reductions to Reclamation side of Budget:

	Reclamation Adaptive Management Program Budget Summary FY25-27	2027 Budget	Budget at 95%	Budget 90%
3.A	Administrative Support for NPS Permitting	$135,000	$135,000	$122,000

Impact: Travel for NPS permitting staff to attend GCDAMP meetings would be reduced or eliminated. Reductions in NPS permitting may put a higher burden on National Park Service to support the permitting staff for access to the Colorado River below Glen Canyon Dam. This could result in prioritization and delays in river permitting GCDAMP projects to be completed.

	Reclamation Adaptive Management Program Budget Summary FY25-27	2027 Budget	Budget at 95%	Budget 90%
3.B	Contract Administration	$130,000	$129,050	$115,000

Impact: Reductions in the contract administration may lead to limited ability to get all contracts in place for the fiscal year. It may lead Reclamation having to prioritize which projects are finished and which may have to be delayed. Additionally, with contracting services being consolidated under DOI, it is unknown how this may impact administrative funding for processing the dozens of agreements associated with the GDAMP.

	Reclamation Adaptive Management Program Budget Summary FY25-27	2027 Budget	Budget at 95%	Budget 90%
4.B	Science Advisors Program	$75,000	$64,000	$14,000

Impact: Any reductions to the Science Advisors Program restrict our ability to have an outside perspective on science, programming process, or any other potential projects. The science advisors are a crucial component of the 2016 LTEMP ROD and limiting their participation in the program could result in uncertainties and confidence in the science element of the GCDAMP. These reductions will hinder a science advisor review of the FY28-30 work plan and would delay any science panel reviews identified by AMWG and/or TWG.

	Reclamation Adaptive Management Program Budget Summary FY25-27	2027 Budget	Budget at 95%	Budget 90%
4.C	Experimental Management Fund	$230,300	$150,000	$120,800

Impact: Any reductions to the Experimental Management Fund restrict our ability to better understand whether goals and objectives are being met when experiments are conducted at the

Glen Canyon Dam. The experimental fund is crucial when making decisions in management of the Glen Canyon Dam in the future.

	Reclamation Adaptive Management Program Budget Summary FY25-27	2027 Budget	Budget at 95%	Budget 90%
5.A	Cultural Resources Program Management (BOR) - 2017 PA Stipulations I-IX, XI, and XII	$140,000	$126,000	$126,000

Impact: Reductions in this element would result in less participation of Reclamation's archaeologists in the Upper Colorado Region.

Table 1: Reclamation budget proposal for FY2027 at a 5% reduction and a 10% Reduction.

Reclamation Adaptive Management Program Budget Summary FY25-27		2027	95%	90%
	GCDAMP Total	**$10,625,000**		
	Reclamation Total (20%)	$2,125,000	$2,018,750	$1,912,500
	GCMRC Total (80%)	$8,500,000	$8,075,000	$7,650,000
1	**Adaptive Management Work Group**	**$140,000**	**$140,000**	**$140,000**
	percent of BOR budget	**7%**		
1.A	AMWG Direct Costs and Administration	$140,000	$140,000	$140,000
1.B	AMWG Member Travel Reimbursement	$-		
1.C	AMWG Facilitation and Notetaking	$-		
1.D	Public Outreach - Reclamation public affairs, POAG	$-		
2	**Technical Work Group**	**$200,000**	**$200,000**	**$200,000**
	percent of BOR budget	**9%**		
2.A	Technical Work Group Costs (BOR)	$200,000	$200,000	$200,000
2.B	TWG Member Travel Reimbursement	$-		
2.C	TWG Facilitation	$-		
3	**Program Management and Contract Administration**	**$450,000**	**$449,050**	**$422,000**
	percent of BOR budget	**21%**		
3.A	Administrative Support for NPS Permitting	$135,000	$135,000	$122,000
3.B	Contract Administration	$130,000	$129,050	$115,000
3.C	Program Management	$135,000	$135,000	$135,000
3.D	Program Evaluation	$50,000	$50,000	$50,000
4	**ESA Compliance and Management Actions**	**$550,300**	**$459,000**	**$379,800**
	percent of BOR budget	**26%**		
4.A	Integrated Stakeholder River Trip	$-		

4.B	Science Advisors Program	$75,000	$64,000	$14,000
4.C	Experimental Management Fund	$230,300	$150,000	$120,800
4.D	Experimental Vegetation Treatment - Grand Canyon	$162,000	$162,000	$162,000
4.D	Experimental Vegetation Treatment - Glen Canyon	$83,000	$83,000	$83,000
4.E	Southwestern Willow Flycatcher monitoring	$-	$-	$-
4.F	Monitoring Metrics Development and Tracking	$-	$-	$-
4.G	Hydropower Monitoring and Research	$-	$-	$-
5	**NHPA Compliance**	**$784,700**	**$770,700**	**$770,700**
	percent of BOR budget			
5.A	Cultural Resources Program Management (BOR) - 2017 PA Stipulations I-IX, XI, and XII	$140,000	$126,000	$126,000
5.B	Cultural Resources Monitoring - Grand Canyon - 2017 PA Stipulation VI	$85,000	$85,000	$85,000
5.C	Cultural Resources Monitoring - Glen Canyon - 2017 PA, Stipulation VI	$45,000	$45,000	$45,000
5.D	Traditional Cultural Property Documentation - 2017 PA, Stipulations I, IV, and VI	$-		
5.E	Public Outreach (HPP Appendix O)	$-		
5.F	Zuni and NPS Data Recovery and Community Outreach Pilot - 2017 PA, Stipulation I(B)(2)	$-		
5.G	Monitoring Paiute Places on the Colorado: An Educational Resource 2017 PA, Stipulation I(B)(4)	$-		
5.H	Hualapai Agricultural and Gardening Practices along the Colorado River - 2017 PA, Stipulation I(B)(4)	$-		
5.I	Hopi Grand Canyon (Öngtupqa) Oral History Project - 2017 PA, Stipulation I(B)(4)	$-		
5.J	Southern Paiute Participation in the Glen Canyon AMP:	$-		
	25 Years of Monitoring and Education, 1996-2021 - 2017 PA, Stipulation I(B)(4)			
5.K	Hualapai Shared Histories Along the Colorado River in Grand Canyon - 2017 PA, Stipulation I(B)(4)	$-		
5.L	Cultural Sensitivity Training Development - 2017 PA Stipulation III(C)	$-		
5.M	Contingency fund for NHPA section 106 compliance - 2017 PA Stipulation I(B)	$-		
5.N	Tribal resources monitoring - 2017 PA Stipulation VI	$175,000	$175,000	$175,000
5.O	Hualapai Tribal Salt Song Project - 2017 PA, Stipulation I(B)(4)	$103,700	$103,700	$103,700
5.P	Hualapai Tribal Hesperoyucca Project- 2017 PA, Stipulation I(B)(4)	$65,000	$65,000	$65,000
5.Q	Navajo - Tribally Informed Bird Inventory and Habitat Use Throughout the Colorado River Corridor - 2017 PA, Stipulation I(B)(4)	$15,000	$15,000	$15,000
5.R	Southern Paiute Expansion of Interactive, Immersive Tool for Broader Audience - 2017 PA, Stipulation I(B)(4)	$86,000	$86,000	$86,000
5.S	Southern Paiute Assessment of Visitors to the Colorado River Corridor - 2017 PA, Stipulation I(B)(4)	$70,000	$70,000	$70,000

5.T	*Tribal participation in AMP (Funded through DOI Agencies)* - *2017 PA Stipulation VI*	*$605,000*	$605,000	$605,000