BUREAU OF RECLAMATION

Scoping Summary

Supplemental Environmental Impact Statement for the Glen Canyon Dam Long-Term Experimental and Management Plan

Upper and Lower Colorado Basin Regions

U.S. Department of the Interior

November 2023

Mission Statements

The Department of the Interior (DOI) conserves and manages the Nation's natural resources and cultural heritage for the benefit and enjoyment of the American people, provides scientific and other information about natural resources and natural hazards to address societal challenges and create opportunities for the American people, and honors the Nation's trust responsibilities or special commitments to American Indians, Alaska Natives, and affiliated island communities to help them prosper.

The mission of the Bureau of Reclamation is to manage, develop, and protect water and related resources in an environmentally and economically sound manner in the interest of the American public.

Front Cover: Glen Canyon Dam. Bureau of Reclamation.

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Acronyms and Abbreviations

AMWG	Adaptive Management Work Group
Draft EA	*Glen Canyon Dam/Smallmouth Bass Flow Options Draft Environmental Assessment*
EIS	environmental impact statement
EJ	environmental justice
HFE	high-flow experiment
LTEMP	Long-Term Experimental and Management Plan
NEPA	National Environmental Policy Act
NGO	nongovernmental organization
NOI	notice of intent
Reclamation	Bureau of Reclamation
ROD	Record of Decision
SEIS	Supplemental Environmental Impact Statement
USFWS	U.S. Fish and Wildlife Service
WAPA	Western Area Power Administration

Chapter 1 Introduction

This scoping report was prepared for the Supplemental Environmental Impact Statement to the Glen Canyon Dam Long-Term Experimental and Management Plan (LTEMP) Project (the project). The project was initiated to analyze additional flow options at Glen Canyon Dam in response to warmwater nonnative species and adjust the sediment accounting period for high-flow experiments (HFEs). This process will entail the preparation and publication of a Supplemental Environmental Impact Statement (SEIS), pursuant to the National Environmental Policy Act (NEPA), that analyzes and documents all relevant impacts, conditions, and issues associated with the proposed action and its alternatives; public review processes; and other related activities.

1.1 Project Purpose and Need

The purpose of the LTEMP SEIS is for the Bureau of Reclamation (Reclamation) to analyze additional flow options at Glen Canyon Dam in response to invasive smallmouth bass and other warmwater nonnatives recently detected directly below the dam. The need is to prevent the establishment of smallmouth bass below the Glen Canyon Dam (by preventing additional spawning), which could threaten core populations of threatened humpback chub in and around the Little Colorado River and its confluence with the Colorado River mainstem. The LTEMP SEIS will also consider the HFE protocol by including the latest scientific information to improve Reclamation's ability to implement HFEs as originally intended in the LTEMP SEIS. Specifically, Reclamation is considering adjusting the sediment accounting periods.

1.2 Draft Environmental Assessment Public Comment Analysis

In February 2023, Reclamation published the *Glen Canyon Dam/Smallmouth Bass Flow Options Draft Environmental Assessment* (Draft EA), which evaluated operational alternatives at Glen Canyon Dam that may serve to disrupt the spawning of smallmouth bass and other warmwater invasive fish that pass through the dam (Reclamation 2023a). Reclamation received nearly 7,000 comments on the Draft EA, with many comments focused on the effects to hydropower generation and revenues, as well as the effects on Tribal resources. Reclamation analyzed these comments and found 356 substantive comments which were further categorized into 95 representative concern statements (see Reclamation 2023b: Table 2-2 Concern Statements). Reclamation concluded that additional analysis was warranted in an SEIS.

1.3 Scoping Process

On October 4, 2023, Reclamation published a *Federal Register* notice formally initiating the process to prepare an SEIS and requesting public comments concerning the additional flow options at Glen Canyon Dam in response to warmwater nonnative species and adjustments to the sediment accounting period for HFEs. The *Federal Register* notice announced a 30-day public comment period ending on November 3, 2023, and two virtual public scoping webinars.

1.3.1 Advertising of the Notice of Intent and Public Scoping Webinars

Reclamation notified interested parties of the notice of intent (NOI) (Appendix A) scoping comment period through a press release on October 3, 2023, and email notification to the project mailing list (204 recipients) on October 4, 2023 (Table 1). The press release and email notification are presented in Appendix B.

Table 1. Scoping Period Notification Methods and Publication Dates

Notification Item	Method and Date
Press release	Reclamation News and Multimedia website,[1] October 3, 2023
NOI	*Federal Register*, October 4, 2023
Email notification	Project mailing list, October 5, 2023

Two virtual public webinars were held during the scoping period. Table 2 provides a summary of the dates, times, and meeting attendance of the webinars. The webinars consisted of an overview of the project background, the purpose of and need for the SEIS, an overview of potential alternatives being considered in the SEIS, and information on the SEIS process schedule. The webinars also included opportunities for the public to ask clarifying questions and provide verbal comments. The webinars were recorded and published on the project website.[2] Materials presented at the scoping meetings are in Appendix C.

Table 2. Public Scoping Meeting Dates, Locations and Attendance

Meeting Format	Meeting Date	Meeting Time	Number of Attendees
Virtual (Zoom) webinar	Wednesday, October 18, 2023	5:00 p.m. to 6:30 p.m. Mountain Daylight Time	37
Virtual (Zoom) webinar	Friday, October 20, 2023	11:00 a.m. to 12:30 p.m. Mountain Daylight Time	60

1.3.2 Opportunities for Scoping Comments

The public was directed to submit comments via email to LTEMPSEIS@usbr.gov or provide verbal comments at the public webinars. Handwritten comments were directed to be sent to: Bureau of Reclamation, Attn: LTEMP SEIS Project Manager, 125 South State Street, Suite 800, Salt Lake City, Utah 84138.

[1] https://www.usbr.gov/newsroom/news-release/4648
[2] https://www.usbr.gov/uc/progact/amp/index.html#current

Chapter 2 Comment Collection and Analysis

The overall goal for scoping comment collection and analysis is to ensure that all scoping comment submittals are tracked and considered in the development of the scope of analysis, alternatives, and issues to be addressed in the SEIS. The comment analysis process consists of reading and coding comments using a comment coding structure, interpreting and analyzing the comments to identify issues and themes, and preparing comment summaries.

2.1 Comment Processing

An electronic comment analysis and reporting database was used to manage the comment submittals. Comments received were unique submittals with unique content. No form letters (submittals from multiple entities or individuals containing identical or similar content) or form plus letters (letters that have additional unique content in addition to the form letter content) were received.

Names, contact information, and letter text for all respondents were entered into the database. Each database entry was considered a "submittal" and assigned a unique number, and the sender type was captured to indicate the entity from which it was received (i.e., individual, government, Tribe, or nongovernmental organization [NGO]). Submittals that included only a person's name and any address information were categorized as having been received from an individual. Comments from businesses were also categorized as individual. Submittals with affiliation to a government (federal, state, local), Tribe, or NGO were assigned to the corresponding category. Submittals from elected officials were categorized as government or Tribe, depending on their affiliation. Submittals from water management agencies, water and irrigation districts, water service providers, and electric service providers were categorized as government submissions due to the governmental and quasi-governmental status of the senders (e.g., Arizona Electric Power Cooperative, Inc., Central Arizona Project, Salt River Project, etc.)

After the submittals were entered into the database, each unique submittal was read to identify specific comments. A coding structure was developed to help thematically sort comments in the database into logical topics that represent issues and concerns for the SEIS. Outputs from the database consist of tallies of the total number of submittals and comments received, sorting and reporting comments by a topic or issue, and sender affiliations. Section 2.2, Summary of Comment Submittals, summarizes the results of comment processing.

2.2 Summary of Comment Submittals

Reclamation received 35 letter submissions (unique) during the public scoping period, consisting of 293 coded comments (Appendix D). Of the 35 letters, 34 were unique letters and one was a duplicate letter (Table 3). Table 4 provides information on the affiliation of letter submissions and the number of senders. Table 5 lists the specific Tribes; federal, state, and local entities; and NGOs and stakeholders that submitted letters during the scoping period. Joint entity submissions are also listed in Table 5.

From the 35 letter submittals, 293 comments were identified. Table 6 lists the coding structure themes, the number of comments coded to each theme, and the percentage of those codes out of the total comments. Chapter 3 summarizes the comments for each comment theme.

Table 3. Submittals by Type

Type	Number of Submittals	Percentage of Total Submittals
Unique	34	97%
Duplicate	1	3%
Total	**35**	**100%**

Table 4. Summary of Sender Affiliation Type

Affiliation	Number of Senders
Tribes	3
Federal, state, and local entities	21
NGOs and stakeholders	25
Individuals	2
Total	**51**

Note: The total number of senders (51) does not equal the total number of letter submittals (35) as more than one sender may be affiliated with a submittal.

Table 5. Sender Affiliations

Tribes	
Colorado River Indian Tribes	Pueblo of Zuni
Hopi Tribe	
Federal, State, and Local Entities	
Arizona Department of Water Resources	Salt River Project
Arizona Electric Power Cooperative, Inc.	Southern Nevada Water Authority
Arizona Game and Fish Department	U.S. Environmental Protection Agency, Region 9
Central Arizona Project	U.S. Fish and Wildlife Service
Central Arizona Water Conservation District	Utah
Colorado	Upper Colorado River Commission
Colorado River Board of California	Utah Municipal Power Agency
Colorado River Commission of Nevada	Western Area Power Administration
Glen Canyon National Recreational Area	Wyoming
National Park Service, Interior Regions 6, 7, and 8	Wyoming Municipal Power Agency
New Mexico	

NGOs and Stakeholders	
American Rivers	Great Basin Water Network
Blue Ribbon Coalition	Irrigation and Electrical Districts Association of Arizona
Center for Biological Diversity	Las Vegas Water Defender
Colorado River Energy Distributors Association	Living Rivers
Colorado Riverkeeper	National Parks Conservation Association
Glen Canyon Institute	River Runners for Wilderness
Grand Canyon River Guides, Inc.	Save the Colorado
Grand Canyon Trust	Sierra Club Grand Canyon Chapter
Grand Canyon Wildlands Council	Utah Rivers Council
Great Basin Waterkeeper	
Joint Entity Submissions	
Colorado River Basin States Submission: Arizona Department of Water Resources, Colorado River Commission of Nevada, Colorado River Board of California, Southern Nevada Water Authority, Colorado, New Mexico, Utah, Wyoming	NGOs Submission: Center for Biological Diversity, Colorado Riverkeeper, Glen Canyon Institute, Great Basin Waterkeeper, Great Basin Water Network, Las Vegas Water Defender, Living Rivers, Save the Colorado, River Runners for Wilderness, Utah Rivers Council
Lower Colorado River Basin States Submission: Arizona Department of Water Resources, Southern Nevada Water Authority, Colorado River Commission of Nevada, Colorado River Board of California	NGOs Submission: Center for Biological Diversity, Colorado Riverkeeper, Great Basin Waterkeeper, Great Basin Water Network, Living Rivers, Sierra Club Grand Canyon Chapter
Upper Division States Submission: Colorado, New Mexico, Utah, Wyoming	

Table 6. Comment Coding Summary

	Number of Comments	**Percentage of Total Comments**
NEPA Process, Laws, and Regulations		
Consultation and Coordination – Biology/Endangered Species Act	6	2.05%
Consultation and Coordination – Tribal	5	1.71%
Cooperating Agencies	6	2.05%
Cumulative Impacts	4	1.37%
Data Sources	3	1.02%
Decision Process	10	3.41%

	Number of Comments	Percentage of Total Comments
Environmental Assessment Analysis	3	1.02%
Long-Term Experimental and Management Plan Environmental Impact Statement	1	0.34%
Mitigation	3	1.02%
Policy and Governance	6	2.05%
Public and Stakeholder Involvement	13	4.44%
Purpose and Need	8	2.73%
Scope	34	11.6%
Alternatives		
Alternative Option B – Cool Mix with Flow Spikes	7	2.39%
Alternative Option D – Cold Shock with Flow Spikes	1	0.34%
Alternatives Not Analyzed in Detail	1	0.34%
Proposed New Alternatives	36	12.29%
Generation-Focused Alternatives	12	4.10%
High Flow Experiment Alternatives	25	8.53%
No Action Alternative	5	1.71%
Common to All Alternatives	3	1.02%
Resource Analysis Issues		
Air Quality, Climate Change, and Greenhouse Gas Emissions	6	2.05%
Cultural and Tribal Resources	9	3.07%
Ecology	2	0.68%
Environmental Justice	7	2.39%
Fish Species	20	6.83%
Hydroelectric Power	39	13.31%
Recreation	4	1.37%
Socioeconomics	6	2.05%
Water Modeling	1	0.34%
Water Resources	6	2.05%
Wildlife (except fish)	1	0.34%
Total	**293**	**100%**

Chapter 3 Comment Theme Summary

This chapter summarizes the unique scoping comment themes identified in the comment submittals (see Sections 3.1, 3.2, and 3.3).

Reclamation also developed public concern statements, which are summarized in Table 7. Many of the public concern statements repeat similar representative concern statements that were previously identified in the *Glen Canyon Dam/Smallmouth Bass Flow Options Draft Environmental Assessment Public Comment Analysis Report* (see Reclamation 2023b: Table 2-2 Concern Statements). Representative concern statements from Reclamation (2023b) are denoted with an asterisk (*) in Table 7.

Table 7. Public Concern Statements

Public Concern Statements
NEPA Process, Laws, and Regulations
The SEIS should prioritize consultation with Tribes and analyze measures that do not conflict with Tribal values.
The SEIS analysis should incorporate traditional Tribal knowledge, values, and perspectives.
Reclamation should consider input from a science panel developed to inform Reclamation's proposed action on possible solutions to smallmouth bass populations below Glen Canyon Dam.
The SEIS should include the Interim Guidelines SEIS and the Post-2026 Guidelines EIS projects in the cumulative impacts analysis.
The SEIS should analyze direct, indirect, and cumulative impacts on hydropower customers.
Reclamation should continue using the current Planning and Implementation Team framework that has been developed from Section 1.4 of the LTEMP Record of Decision.
The SEIS should include mitigation measures for any resource impacts that are disproportionately large, including off-ramps for hydropower impacts.
Commenter suggested that Reclamation consider additional public webinars during the SEIS process to increase public engagement opportunities.
Reclamation should review and consider previous submitted comments for the *Glen Canyon Dam/Smallmouth Bass Flow Options Draft Environmental Assessment* (Reclamation 2023a) and other Glen Canyon Dam–related NEPA projects.
Commenters expressed concern that the scope of the purpose and need is too narrow to justify changes to the protocol for high-flow experiments and precludes Reclamation from considering other available solutions.
Commenters expressed concern that operational flow actions alone would not be sufficient to disrupt spawning and prevent establishment of smallmouth bass.
The commenter is concerned with the dual objectives in the purpose and need and the timeline to complete the objectives.
Reclamation should focus exclusively on the need to address the threat of smallmouth bass.

Public Concern Statements
Reclamation should further define which warmwater nonnative species are addressed by this project and what the related actions are for those species.
Reclamation should include mid-term and long-term solutions for the duration of the Glen Canyon Adaptive Management Program.
Reclamation should use the Adaptive Management Work Group Invasive Species Strategic Plan when defining the scope of the action.
Reclamation should include flexibility and adaptive management strategies in the scope of the action.
Commenters are concerned with the separate durations of the two actions and noted that the SEIS needs to clearly define the differences in duration in the analyses.
The scope of the project should include establishing defined objectives for resources so that impacts to resources can be fully examined.
Reclamation should consult with the United States Fish and Wildlife Service to protect any federally listed species. *(Draft EA Concern Statement 42)* *
The commenter requests that Reclamation provide a more detailed analysis of the impacts on cultural and tribal resources. *(Draft EA Concern Statement 36)* *
The EA should use the best available science to evaluate impacts. *(Draft EA Concern Statement 21)* *
The commenter would like Reclamation to expand the stakeholder group. *(Draft EA Concern Statement 33)* *
The commenter requests Reclamation provide further detail on the decision-making process for choosing one flow option over another. Will this process include adaptive management and monitoring? *(Draft EA Concern Statement 24)* *
The commenter would like Reclamation to develop off-ramps for these experimental flows. *(Draft EA Concern Statement 62)* *
Government legislation, such as the Endangered Species Act and the Grand Canyon Protection Act, requires Reclamation to implement actions to protect and conserve downstream resources. *(Draft EA Concern Statement 19)* *
The commenter would like Reclamation to undertake a more comprehensive EA instead of the current targeted approach. *(Draft EA Concern Statement 18)* *
Has Reclamation considered other predators of humpback chub in the EA. *(Draft EA Concern Statement 13)* *
The commenter recommends that Reclamation analyze the many other actions that are planned for the basin, including the actions in the Interim Guidelines Supplemental EIS. *(Draft EA Concern Statement 86)* *
The commenter would like Reclamation to extend the timeline for the project. Extending the timeline to mirror the life of the LTEMP, or at least until after the Post-2026 EIS is written. *(Draft EA Concern Statement 88)* *
Alternatives
The commenter opposes Alternative Option B, saying that this alternative would cause detrimental erosion to occur in the Paria River channel, and potentially prevent HFEs from occurring.

Public Concern Statements
What other flow alternatives were considered that prevent the establishment of smallmouth bass and why were they dismissed?
How will Reclamation use the 2023 *Invasive Fish Species Below Glen Canyon Dam: A Strategic Plan to Prevent, Detect, and Respond* document while developing the SEIS?
Reclamation should avoid management options, such as electroshocking, that may harm culturally significant, threatened, or endangered fish species.
Reclamation should consider a reservoir elevation alternative to address temperature concerns as opposed to only flow options.
Reclamation should consider flexibility in the timing of proposed flows and potentially implementing more than one of the proposed alternatives in a given year.
Commenters supported the inclusion of a generation-focused alternative to demonstrate trade-offs.
Commenters did not support a generation-focused alternative because it would not meet the purpose and need and management actions should not be limited by hydroelectric power production.
Commenters suggested that the generation-focused alternative be incorporated into the alternatives as a sub-option.
Commenters were opposed to the No Action Alternative because of the threats to the Grand Canyon ecosystem.
The commenter prefers the No Action Alternative because of concerns that the proposed alternatives would degrade humpback chub habitat.
Experimental flows should be suspended during emergencies.
Reclamation should provide WAPA with advanced notice of experimental flows.
The commenter prefers Flow Option B. *(Draft EA Concern Statement 79)* *
Has Reclamation considered additional alternatives, such as increased reservoir elevations, fish barriers, modifications to the forebay, and modifications to the slough? *(Draft EA Concern Statement 2)* *
Reclamation should adjust a flow option to incorporate a large release akin to a High Flow Experiment (HFE) to benefit sediment resources. *(Draft EA Concern Statement 8)* *
The commenter would like Reclamation to undertake a more comprehensive EA instead of the current targeted approach. *(Draft EA Concern Statement 18)* *
The EA does not address the lethal management of smallmouth bass associated with the proposed action. *(Draft EA Concern Statement 39)* *
The commenter requested that Reclamation update the capacity, reserves, and emergency operations language in the EA to reflect current administrative plans. *(Draft EA Concern Statement 30)* *
Will Reclamation use monitoring and adaptive management strategies to choose which flow option to use throughout the timeline of the project? *(Draft EA Concern Statement 22)* *
The scope of the hydropower analysis is limited. The scope should be expanded to include impacts on operations and maintenance, government programs, and customers over the entire 3-year time frame of the project. *(Draft EA Concern Statement 28)* *
Why has there not been a more detailed analysis on the economic impacts on the Basin Fund and the power customers from the resulting loss in hydropower generation? *(Draft EA Concern Statement 25)* *

Public Concern Statements
Resource Analysis Issues
The commenter would like Reclamation to acknowledge that all natural resources are considered cultural resources, traditional cultural landscapes, and traditional cultural properties of affiliated Tribes.
The comment noted that the proposed actions in the SEIS must not impact Tribal water rights.
Reclamation should take an ecosystem management approach and selection of the Preferred Alternative should control undesirable resource elements while benefiting desired natural resources.
The SEIS should include a cumulative analysis of Reclamation's impacts to sovereign Tribal nations from colonization and Reclamation's past failures to fulfill environmental justice obligations.
The SEIS should analyze the direct and indirect impacts to environmental justice communities from increased electrical rates.
The SEIS should analyze cumulative impacts of drought and changes to HFE protocol on downstream fish populations.
The SEIS should weigh revenue losses against potential costs from losses of operational flexibility and future water development throughout the system if the status of humpback chub changes.
Are low water temperatures or flow velocity more effective at controlling smallmouth bass populations?
Will bypass flows and flow spikes push invasive species farther downstream into warmwater conditions?
Commenters are opposed to HFEs during drought conditions.
Commenters requested more information about how proposed changes in HFE protocols would impact sediment balance, treatment of rollover sediment, and the frequency of HFEs.
How will an increase in hydropower prices impact Tribal communities who rely on federal power?
How will Reclamation minimize impacts to recreational users?
What are the impacts and benefits of different flow regimes and HFE protocols on recreation resources in Glen Canyon?
The SEIS should analyze the costs associated with the threats of a smallmouth bass invasion?
The commenter agrees that a temperature threshold of 16 degrees Celsius is enough to prevent smallmouth bass spawning.
The SEIS should consider reasonable assumptions of low reservoir and low inflow conditions.
The SEIS should consider increasing reservoir levels to address temperature concerns.
The SEIS should consider all culturally important wildlife (such as storks, hawks, sandhill cranes, desert mule deer, bighorn sheep, geese, ducks) and plant species (such as arrowweed and gourds).
Why does the EA not include a detailed section on climate change and greenhouse gases? *(Draft EA Concern Statement 31)* *
The commenter would like further analysis on the replacement power and potential impacts on greenhouse gases and climate change. *(Draft EA Concern Statement 32)* *
The commenter requests that Reclamation provide a more detailed analysis of the impacts on cultural and tribal resources. *(Draft EA Concern Statement 36)* *
Has Reclamation considered the flow option impacts on other fish and aquatic species?" Issue Statement *(Draft EA Concern Statement 15)* *

Public Concern Statements
The commenter is concerned about the negative impacts of these flow options on macroinvertebrates *(Draft EA Concern Statement 16)* *
The commenter requests further detail on the decision-making process for choosing one flow option over another. Will this process include adaptive management and monitoring?" *(Draft EA Concern Statement 24)* *
The environmental justice section should be expanded to include all Colorado River Storage Project Firm Electric Service customers. *(Draft EA Concern Statement 40)* *
Why does the EA not include a detailed analysis of underserved rural and tribal communities? *(Draft EA Concern Statement 38)* *
Several commenters recommended minor updates to language, which would not result in substantive changes to the EA. *(Draft EA Concern Statement 55)* *
The commenter would like Reclamation to further discuss other fish species in the analysis area. *(Draft EA Concern Statement 48)* *
Has Reclamation considered how these flow options would impact other fish species, such as trout? *(Draft EA Concern Statement 45)* *
The commenter does not believe that a temperature threshold of 16 degrees Celsius is enough to completely prevent smallmouth bass spawning *(Draft EA Concern Statement 92)* *
The commenter suggests that further research is needed on the impacts of HFEs on nonnative fish dispersal. *(Draft EA Concern Statement 58)* *
Will Reclamation use monitoring and adaptive management strategies to choose which flow option to use throughout the timeline of the project? *(Draft EA Concern Statement 93)* *
How have the impacts of these options been analyzed with other experimental operations, such as bug flows and HFEs *(Draft EA Concern Statement 14)* *
Government legislation, such as the Endangered Species Act and the Grand Canyon Protection Act, requires Reclamation to implement actions to protect and conserve downstream resources. *(Draft EA Concern Statement 19)* *
The commenter suggests that further research is needed on the impacts of HFEs on nonnative fish dispersal. *(Draft EA Concern Statement 58)* *
The commenter is worried that the proposed action would have negative impacts on the transmission system. *(Draft EA Concern Statement 66)* *
The commenter requests that Reclamation conduct further analysis on the impacts on hydropower customers. *(Draft EA Concern Statement 72)* *
The commenter would like Reclamation to conduct a more thorough analysis on the costs of replacement power. *(Draft EA Concern Statement 73)* *
Can Reclamation secure funding from outside resources to mitigate the economic impacts resulting from the proposed action? *(Draft EA Concern Statement 26)* *
The commenter would like Reclamation to add the reservoir elevation of Lake Powell to the analysis area to better analyze these operations under different lake elevation conditions. *(Draft EA Concern Statement 89)* *

3.1 NEPA Process, Laws, and Regulations

3.1.1 Consultation and Coordination – Biology or Endangered Species Act Related

Comments related to coordination with the U.S. Fish and Wildlife Service (USFWS) on biology and threatened and endangered species issues focused on the need for Reclamation to reconsult with the USFWS regarding impacts to the humpback chub, and question whether the current 2016 LTEMP Biological Opinion has sufficient measures to protect the humpback chub. One commenter also requested that Reclamation and USFWS include degrading environmental baseline conditions due to climate change in the analysis of impacts to humpback chub and razorback sucker (*Xyrauchen texanus*) individuals and designated critical habitat (see related comment theme under Section 3.1.4 Cumulative Impacts).

Also see related comment theme summary below for Section 3.3.3 Ecology and Section 3.3.5 Fish Species.

3.1.2 Consultation and Coordination – Tribal or Section 106 Related

Comments related to Section 106 consultation and Tribal coordination focused on asking Reclamation to prioritize consultation with Tribes, to set aside enough time in the NEPA process to meaningfully consult with Tribes, prioritize prevention measures that do not conflict with Tribal values, and to incorporate cultural knowledge in the analysis. One commenter recommended that Reclamation clearly discuss impacts and mitigation measures for archaeological sites and traditional cultural properties to comply with the National Historic Preservation Act.

Regarding Tribal values, one commenter noted that "The Pueblo of Zuni, the Hopi Tribe, and other Tribes have expressed significant ongoing concerns regarding taking of life in the Marble and Grand Canyons. Specifically, the Tribes oppose many, if not all, of the measures proposed by Reclamation to prevent the establishment of smallmouth bass in the Colorado River downstream of Glen Canyon Dam."

Several commenters requested that Tribal cultural knowledge be considered and included in the SEIS, for example: "[Reclamation] must consider that in any effort to achieve good faith and reasonable NEPA compliance, information and data informing NEPA review must be gathered, analyzed, and considered by and through Native knowledge and science systems, values and uses, and perspectives and meanings (i.e., ontologies and epistemologies) in at least in equal standing with mainstream Western scientific methodologies and findings."

See related comment theme summary below for Section 3.3.2, Cultural and Tribal Resources.

3.1.3 Cooperating Agencies

The Upper Colorado River Commission and Salt River Project accepted Reclamation's invitation to participate in the SEIS process as a cooperating agency. Colorado River Energy Distributors Association provided general support for the cooperating agencies in the SEIS process. The Western Area Power Administration (WAPA) developed a science panel to inform Reclamation's proposed action on possible solutions to smallmouth bass populations below Glen Canyon Dam and

requested that Reclamation create a process or schedule consistent with existing communication processes to allow time to plan for experimental flows.

3.1.4 Cumulative Impacts

Commenters recommended that Reclamation include the Interim Guidelines SEIS and the Post 2026 Guidelines EIS projects in the cumulative impacts analysis, as well an appropriate geographic area, resources of concern, baselines, and scientifically defensible thresholds. Two commenters noted the impacts of climate change on reservoir elevations, concerning the impacts to hydropower and endangered fish species recovery.

Another commenter noted that Reclamation "must identify direct, indirect, and cumulative impacts associated with hydropower customers acquiring replacement resources and discuss mitigation measures."

3.1.5 Data Sources

One commenter requested that the Invasive Species Strategic Plan adopted by the Adaptive Management Work Group in February 2023 be used to develop the SEIS[3]. Another commenter provided an appended list of data sources to consider. One commenter provided a data source showing past government efforts on invasive species management resulted in large economic benefits by responding early in the invasion curve, rather than later.

3.1.6 Decision Process

Multiple comments concerned the communication and consultation processes associated with implementing proposed alternatives. Some commenters want Reclamation to continue using the current Planning and Implementation Team framework that has been developed from Section 1.4 of the 2016 LTEMP Record of Decision (ROD) (Reclamation 2016). Other commenters think the current framework is not inclusive enough and should include all Adaptive Management Program stakeholders, SEIS cooperating agencies, and other key stakeholders.

Two commenters asked Reclamation to clearly define in the SEIS what success criteria will be used to determine the effectiveness of operational changes on controlling invasive species.

One commenter was supportive of completing the SEIS process in time to implement flows during spring/summer of 2024, whereas another commenter had concerns that the current time frame of the SEIS did not allow enough time for careful review.

3.1.7 Environmental Assessment Analysis

One commenter expressed concern with the lack of scientific evidence present in the Draft EA regarding the use of flow spikes or cold-water releases for nonnative fish disruption and expects that proper rationale would be used to justify any selected alternative, particularly if it negatively impacts

[3] The Invasive Species Strategic Plan (Reclamation 2023c) is available here: https://www.usbr.gov/uc/progact/amp/amwg/2023-02-16-amwg-meeting/20230216-InvasiveFishSpeciesBelowGlenCanyonDam-508-UCRO.pdf

hydropower. One commenter noted that the Draft EA incorrectly cites the 1996 ROD (Reclamation 1996), rather than the revised 2018 Operating Criteria, which implement the 1996 ROD. The last comment demonstrated concern that the final agency action may result in a violation of NEPA if certain issues are not addressed.

3.1.8 LTEMP Environmental Impact Statement

One commenter requested that the SEIS take a "hard look" at the extent that Reclamation did not prepare a precautionary SEIS in a timely manner, contrary to the guidelines of NEPA, and commented that the 2016 Final EIS relied on data without considering the impacts of climate change.

3.1.9 Mitigation

Commenters requested that Reclamation include mitigation measures for any resource impacts that are disproportionately large, including off-ramps for hydropower impacts.

3.1.10 Policy and Governance

Commenters related the actions in the LTEMP SEIS to the Grand Canyon Protection Act of 1992, the Endangered Species Act, the 2007 Interim Guidelines SEIS, the Post-2026 Operations EIS, the Colorado River Basin Compact, and the purposes for which Glen Canyon Dam was authorized.

3.1.11 Public and Stakeholder Involvement

Many commenters submitted previous comments for the *Glen Canyon Dam/Smallmouth Bass Flow Options Draft Environmental Assessment* (Reclamation 2023b) and other Glen Canyon Dam–related NEPA projects. Some of the comments noted a decrease in public participation in this SEIS process. One commenter suggested that Reclamation consider additional public webinars during the SEIS process. Other commenters requested to be included as an interested party throughout the SEIS process.

3.1.12 Purpose and Need

Commenters expressed concern that the scope of the purpose and need is too narrow to justify changes to the protocol for high-flow experiments and precludes Reclamation from considering other available solutions. Commenters requested that the purpose and need be expanded beyond operational flow modifications, as demonstrated by this comment: "the purpose and need statement should be broadened to consider a broad range of actions including non-flow related actions to prevent the entrainment and establishment of smallmouth bass and other nonnative populations below Glen Canyon Dam." Commenters expressed concern that operational flow actions alone would not be sufficient to disrupt spawning and prevent establishment of smallmouth bass.

The USFWS expressed support for the purpose and need and stated that it "is imperative to the continued adherence to the Endangered Species Act (ESA)."

One commenter expressed concern with the dual objectives in the purpose and need and the timeline to complete the objectives. The commenter is supportive of the overall need to increase the

opportunities for HFEs; however, the focus should be on actions that address the threat of smallmouth bass. As stated by the commenter, "if during the development of the LTEMP SEIS, it is clear that resource constraints will prevent a decision from being made before the spring/summer of 2024, Reclamation should focus exclusively on the need to address the threat of smallmouth bass."

One commenter also requested that Reclamation further define which warmwater nonnative species are addressed by this project and what the related actions are for those species.

3.1.13 Scope

Many comments were received requesting that Reclamation broaden the scope of the project to include additional actions and broaden the temporal scope of the actions. Suggestions included:

- Include a multi-faceted approach beyond just operational flow changes (see related comment theme below in Section 3.2.4 Proposed New Alternatives).
- Include mid-term and long-term solutions for the duration of the Glen Canyon Adaptive Management Program. Commenters recommended using the Adaptive Management Work Group (AMWG) Invasive Species Strategic Plan when defining the scope of the action.
- Extend the time frame for experimental nonnative fish flows through the duration of the LTEMP ROD (through 2036), which would also coincide with the duration or analysis for the proposed HFE protocol modifications.
- Broaden the LTEMP to address future changes in monthly release volumes that may occur because of the Interim Guidelines SEIS or Post-2026 process.
- Include "flexibility within the implementation of action alternatives to fit within the adaptive management framework of the program."

Although many commenters expressed support for including long-term solutions, one commenter requested that the action be limited to temporary measures through 2026.

Related to similar concerns expressed for the proposed action above, commenters are concerned with combining the two actions (experimental flows and HFE protocols) into one scope because these two actions are not dependent on each other. As one commenter noted, "It is important that these actions not be considered mutually exclusive because the intended purpose benefits separate resources goals. Related to this concern, implementation of each should not be influenced by the other (e.g., cost, impact to water or hydropower resources)." Commenters also noted that two separate durations for these actions would complicate the analysis in the SEIS, and Reclamation needs to clearly articulate those duration differences in the analysis.

Related to the two actions, one commenter requested an analysis of how these actions may be combined during implementation and requested that Reclamation engage with the Grand Canyon Monitoring and Research Center to support that analysis.

One commenter also requested that the scope of the project include establishing defined objectives for resources so that impacts to resources can be fully examined. Another commenter requested Reclamation develop criteria for success so that there are "clear and measurable objectives" that Reclamation can use in its evaluation of trade-offs.

3.2 Alternatives

3.2.1 Alternative Option B – Cool Mix with Flow Spikes

Commenters were generally supportive of Alternative Option B, citing this alternative as being a non-lethal option, good for sediment in Grand Canyon, and being the most likely alternative to effectively manage smallmouth bass. One commenter wrote in opposition of Alternative Option B, saying that this alternative would cause detrimental erosion to occur in the Paria River channel, and potentially prevent HFEs from occurring.

3.2.2 Alternative Option D – Cold Shock with Flow Spikes

One comment was received in opposition of Alternative Option D, citing the negative impacts this alternative would have on macroinvertebrate life cycles in the Colorado River.

3.2.3 Alternatives Not Analyzed in Detail

One comment was received for alternatives not analyzed in detail: "What other flow alternatives were considered that prevent the establishment of SMB [smallmouth bass] and why were they dismissed?"

3.2.4 Proposed New Alternatives

Many commenters requested that Reclamation consider non-flow options in addition to the current flow alternatives. The two primary non-flow options referenced were physical barriers to prevent invasive fish from passing through Glen Canyon Dam, and to address the suitable spawning conditions provided by the 12-mile slough. Other non-flow options proposed included: increasing turbidity below Glen Canyon Dam, introducing the Colorado pikeminnow (*Ptychocheilus lucius*), electroshocking, and using a 13-degree Celsius threshold rather than a 16-degree Celsius threshold. Several comments requested that Reclamation use the 2023 Invasive Species Strategic Plan[4] (Reclamation 2023c) document while developing the SEIS. Commenters requested that Reclamation avoid management options, such as electroshocking, that may harm culturally significant, threatened, or endangered fish species. One commenter proposed removing Glen Canyon Dam. Other commenters suggested that Reclamation consider a reservoir elevation alternative (by limiting consumptive use, for example) to address temperature concerns as opposed to only flow options (see related comment theme summary under Section 3.3.10 Water Resources).

Regarding the flow alternatives, commenters asked that Reclamation consider flexibility in the timing of proposed flows and potentially implementing more than one of the proposed alternatives in a given year. One commenter suggested a new flow alternative, a flow with a single spike above 40,000 cubic feet per second rather than multiple flows at 30,000 cubic feet per second.

[4] The Invasive Species Strategic Plan (Reclamation 2023c) is available here: https://www.usbr.gov/uc/progact/amp/amwg/2023-02-16-amwg-meeting/20230216-InvasiveFishSpeciesBelowGlenCanyonDam-508-UCRO.pdf

3.2.5 Generation-Focused Alternatives

Overall, commenters appreciated a hydropower flow option being included in the SEIS, as including this alternative will allow stakeholders to better understand trade-offs and will strengthen the analysis. Commenters reiterated the importance of hydropower as an energy resource, and asked Reclamation to fully analyze the impacts of all alternatives to hydropower. One commentor requested that Reclamation reassess the hydropower flow option to "include minimum and maximum flow limits, ramp rates, and daily fluctuations beyond limits set by the LTEMP Record of Decision."

Three commenters did not support the hydropower flow option. USFWS does not believe this alternative would meet the purpose and need of the SEIS as the temperature of the water released through the penstocks would be too high. One commenter questioned whether this alternative would meet the purpose and need as a standalone alternative and recommended the hydropower flow option be incorporated into the alternatives as a sub-option. Another commenter does not believe management actions should be limited by hydroelectric power production.

3.2.6 High Flow Experiment Alternatives

Commenters were generally supportive of HFEs, sharing a sentiment of agreement that they are beneficial to the ecosystem and recreation resources. Commenters were only opposed to HFEs during drought conditions. Many commenters also support amendments to the HFE protocol to revise sediment accounting and implementation windows, with several recommendations for different accounting windows, timing, and goals for HFEs.

Some commenters requested that these alternatives be analyzed in conjunction with the different flow alternatives for controlling smallmouth bass, whereas others requested these be analyzed separately and their impacts disclosed together. Commenters also requested that the SEIS analyze how the proposed actions affect sediment balance and potential for HFEs, treatment of rollover sediment, impacts of implementing both spring HFEs and flow options in the same year, and the potential altered frequency of HFEs as analyzed in the LTEMP Final EIS and ROD. Commenters requested that the SEIS disclose the impacts of transporting warmwater invasive species downstream into critical habitat for humpback chub and razorback sucker as a result of HFEs.

3.2.7 No Action Alternative

Overall, commenters were opposed to the No Action Alternative, citing that smallmouth bass establishment below Glen Canyon Dam would forever alter the Grand Canyon ecosystem, it would run counter to the high investment made in the past decades on endangered species recovery programs, and that the Glen Canyon Adaptive Management Program has an agreement to prevent the establishment of smallmouth bass below Glen Canyon Dam.

One commenter was supportive of the No Action Alternative, reasoning that higher water temperatures would benefit humpback chub spawning, and that all proposed action alternatives would degrade humpback chub habitat.

3.2.8 Common to All Alternatives

Commenters asked that Reclamation include the following items in all action alternatives:

- increasing downstream turbidity
- bypass tube generation
- thermal curtains
- 12-mile slough modification
- monitoring
- detailed implementation triggers
- adjustments to existing LTEMP experiments
- adaptive management actions when fish barriers are installed
- off-ramping procedures
- spring flow HFE requirements
- emergency operations requirements
- funding to mitigate losses to the Upper Colorado Basin Fund

3.3 Resource Analysis Issues

3.3.1 Air Quality, Climate Change, and Greenhouse Gas Emissions

One comment requested including a discussion on general air quality and recommended demonstrating compliance with federal and state laws related to air quality, as well as evaluating the potential impacts from temporary and cumulative degradation of air quality. The same commenter also provided recommendations to inform development of measures to improve the climate resiliency of the project. Other commenters requested that the SEIS analyze cumulative impacts from greenhouse gas emissions on climate change associated with replacing hydropower with other fossil fuel generators.

3.3.2 Cultural and Tribal Resources

Many commenters were concerned about the lethal management of aquatic life and its indirect psychological and emotional impacts on Tribal communities. Commenters requested that Reclamation and its cooperating agencies acknowledge and internalize that all natural resources within Glen Canyon National Recreation Area, Grand Canyon National Park, and the Colorado River and its canyons are lands and waters of the First Peoples of the regions and are considered cultural resources and properties of all affiliated Tribes (see related comment theme summary below in Section 3.3.11, Wildlife). Other commenters requested that the SEIS address Indian Sacred Sites (Executive Order 13007), incorporate Indigenous Knowledge, and consider how changes in the HFE protocol will impact cultural resources in the Grand Canyon.

One comment noted that the proposed actions in the SEIS must not impact Tribal water rights.

3.3.3 Ecology

One commenter believes coupling treatments to control undesirable resource elements (e.g., smallmouth bass) while benefiting desired natural resources (e.g., sandbar and beach habitats) should play a strong role in selecting the Preferred Alternative, noting that single-species management is ineffective compared to an ecosystem management approach. Another commenter shared the same concern and emphasized that contingency planning should be explicitly addressed during the decision-making process to cope with unexpected issues.

3.3.4 Environmental Justice

Commenters requested that the SEIS analyze impacts to minority and low-income populations (i.e., environmental justice or "EJ" communities) and included recommendations for the analysis as well as potential mitigation measures. Some commenters were interested in the direct and indirect impacts on EJ communities from increased electrical rates, whereas others were interested in a cumulative analysis of Reclamation's impacts to sovereign Tribal nations from colonization and Reclamation's past failures to fulfill EJ obligations. One commenter noted that altering dam operations to result in mortality would adversely affect the Zuni community.

3.3.5 Fish Species

Comments related to fish included requests to include smallmouth bass (or warmwater invasive fish) experts on the SEIS team and requests for the SEIS to analyze impacts to trout (particularly from spring HFE implementation), Colorado pikeminnow, razorback sucker, bonytail chub (*Gila elegans*), and humpback chub (particularly the western Grand Canyon population). Commenters also requested that the SEIS analyze cumulative impacts of drought and changes to HFE protocol on downstream fish populations and weigh revenue losses against potential costs from losses of operational flexibility and future water development throughout the system if the status of humpback chub changes. Two commenters requested information be updated in the SEIS, particularly the ESA status of the humpback chub and avoiding the term "core populations" in favor of defined terms in the recovery plan (i.e., "aggregations" and "Lower Colorado River population").

Many commenters acknowledged that an established smallmouth bass population is the biggest threat to the humpback chub, and 92% of all humpback chub adults exist in one stretch of the Colorado River. Commenters suggested that Reclamation's penstocks are facilitating smallmouth bass invasion in the Colorado River, and smallmouth bass have been observed spawning in temperatures between 13 and 16 degrees Celsius. One commenter noted that past methods of removing smallmouth bass (i.e., rotenone and electrofishing) proved to be expensive, unsuccessful, and counter to Indigenous cultural concerns regarding fish management. Another commenter provided evidence that long-term reductions in smallmouth bass populations require nearly 70% removal of young of year for at least 10 consecutive years. One commenter asked if low water temperatures or flow velocity would be more effective at controlling smallmouth bass populations.

Some commenters expect that bypass flows and flow spikes are expected to be very effective at preventing warmwater nonnative species from establishing and impacting endemic fish species, whereas others were concerned that pushing invasive species farther downstream into warmwater conditions would not prevent their reproductive efforts. Commenters requested additional

downstream assessments to determine the establishment of smallmouth bass and other warmwater invasive species (e.g., green sunfish), and determined that if established populations exist, then the proposed actions will not be effective. They also requested Reclamation develop a study plan to investigate the effects of flow regimes on smallmouth bass prior to, during, and after implementation to determine the effectiveness of the action.

3.3.6 Hydroelectric Power

Comments regarding hydroelectric power focused on asking Reclamation to perform a comprehensive hydropower impact analysis that includes infrastructure and grid concerns, power production concerns, and financial concerns. When asking for a comprehensive analysis, commenters asked that Reclamation include minimum, maximum, and most probable hydrologic scenarios, direct, indirect, and cumulative impacts, and to use Grand Canyon Monitoring and Research Center models if WAPA's Generation and Transmission Maximization Gutman (GTMax) analysis is not available.

Comments regarding infrastructure and the grid were concerned with grid reliability, availability of dispatchable power, human health and safety, and impacts to the bypass tubes. Power production concerns were primarily focused on emergencies. One commentor noted that running a bypass experiment at Glen Canyon Dam may "cause a shortage of electrical capacity in the region and potentially increased instances of electrical emergencies. If this occurs, WAPA will ask that Reclamation modify or suspend the experiment." It was requested in the comments that WAPA receive notice at least 6 weeks prior to Reclamation conducting an experimental flow.

Financial concerns were focused on the price of replacement power, how increased costs would impact Colorado River Storage Project customers, and how increased costs would impact the Upper Colorado Basin Fund. Two commenters requested that the hydropower costs of the bypass alternatives be considered non-reimbursable expenses. One commenter was concerned with how an increase in prices would impact Tribal communities who rely on federal power. Two commenters noted the additional costs to hydropower now may save money in the long term for funding endangered species recovery. See related comment theme summary below in Section 3.3.8 Socioeconomics.

3.3.7 Recreation

Commenters requested more information regarding the impacts and benefits of different flow regimes and HFE protocols on recreation resources in Glen Canyon. One commenter suggested that implementing peak flows during times of lowest use and making public announcements ahead of time would minimize impacts to recreational users.

3.3.8 Socioeconomics

Commenters requested that the SEIS analyze impacts related to loss of hydropower, particularly impacts to the grid, direct impacts to customers from increased power costs, indirect impacts related to finding replacement power sources, and potential mitigation through a funding mechanism. One commenter requested that any cost analysis completed for the SEIS include costs associated with moving up on the smallmouth bass invasion curve. One commenter was particularly concerned with

the timing of releases and the economic impacts to surrounding communities and the recreation industry.

3.3.9 Water Modeling

One commenter asked Reclamation to improve the water temperature prediction tool, as this tool will be used to predict when flows will be triggered, and currently the predicted temperatures do not always match observations.

3.3.10 Water Resources

Commenters requested that the SEIS identify impacts to impaired water bodies and waters of the United States and should include reasonable assumptions of low inflow and low reservoir conditions to analyze the feasibility of the proposed action and alternatives. One commenter requested that the SEIS consider use of reservoir elevations to address temperature concerns as opposed to only flow actions. Another commenter suggested the only way to avoid consequences of low reservoir levels is by preemptively reducing consumptive water use altogether, thereby increasing storage in Lake Powell and Lake Mead. Finally, one commenter agreed with Reclamation's flow alternative trigger of 16 degrees Celsius as they observed water temperatures at Lee's Ferry in 2022 and 2023 being conductive for smallmouth bass spawning.

3.3.11 Wildlife

One commenter requested that Reclamation consider all culturally important wildlife (such as storks, hawks, sandhill cranes, desert mule deer, bighorn sheep, geese, ducks) and plant species (such as arrowweed and gourds) in the SEIS analysis.

Chapter 4 Literature Cited

Bureau of Reclamation (Reclamation). 1996. *Record of Decision for the Operation of Glen Canyon Dam Final Environmental Impact Statement.* Available at: https://www.usbr.gov/uc/envdocs/rod/Oct1996_OperationGCD_ROD.pdf. Accessed November 2023.

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APPENDIX A

Notice of Intent

TABLE 2—CONCESSION CONTRACTS CONTINUED UNTIL THE EXPIRATION DATE SHOWN OR UNTIL THE EFFECTIVE DATE OF A NEW CONTRACT, WHICHEVER COMES FIRST—Continued

Park unit	CONCID	Concessioner	Continuation effective date	Continuation expiration date
Lake Mead NRA	LAKE006–74	Las Vegas Boat Harbor, Inc.	1/1/2024	12/31/2024
Lake Mead NRA	LAKE009–88	LMNRA Guest Services, LLC	1/1/2024	12/31/2024
Interior Region 1—National Capital Region.	NACC003–86	Guest Services, Inc.	1/1/2024	12/31/2025

TABLE 3—TEMPORARY CONCESSION CONTRACT

Park Unit	CONCID	Services	Effective date
Voyageurs NP	VOYA002–11	Lodging, Food and Beverage, Transportation, Marina, Retail, and Boat Portage Services.	1/1/2024

Justin Unger,

Associate Director, Business Services.

[FR Doc. 2023–21908 Filed 10–3–23; 8:45 am]

BILLING CODE 4312–52–P

DEPARTMENT OF THE INTERIOR

Bureau of Reclamation

[RR040U2000, 23XR0680GB, RXN5570007.3200000]

Notice of Intent To Prepare a Supplemental Environmental Impact Statement for the December 2016 Record of Decision Entitled Glen Canyon Dam Long-Term Experimental and Management Plan

AGENCY: Bureau of Reclamation, Interior.

ACTION: Notice and request for comments.

SUMMARY: On June 6, 2023, the Secretary of the Interior's Acting Designee to the Glen Canyon Dam Adaptive Management Work Group (AMWG), a Federal advisory committee, directed the Bureau of Reclamation (Reclamation) to prepare a Supplemental Environmental Impact Statement (SEIS). The supplement is to the December 2016 Record of Decision for the Glen Canyon Dam Long-Term Experimental and Management Plan (LTEMP) Final Environmental Impact Statement and will analyze flow options to prevent smallmouth bass and other warmwater invasive nonnative fish from establishing below Glen Canyon Dam (by preventing additional spawning) and will analyze new information regarding the sediment accounting window associated with the LTEMP High-Flow Experiment (HFE) protocol.

DATES: This **Federal Register** notice initiates the public scoping process for the SEIS. Reclamation requests that the public submit comments concerning the scope of specific operational guidelines, strategies, and any other issues that should be considered on or before November 3, 2023.

Reclamation will host two public webinars to provide summary information and receive oral comments. For specific information concerning the dates, times, and links to the webinars, click on the link provided in the **ADDRESSES** section of this notice.

ADDRESSES: Please send written comments pursuant to this notice to *LTEMPSEIS@usbr.gov* or by mail to Bureau of Reclamation, Attn: LTEMP SEIS Project Manager, 125 South State Street, Suite 800, Salt Lake City, UT 84138. For information on the upcoming webinars, go to *https://www.usbr.gov/uc/progact/amp/index.html.*

FOR FURTHER INFORMATION CONTACT: Kathleen Callister, Adaptive Management and Water Quality Division Manager, Bureau of Reclamation, at (801) 524–3867, or by email at *LTEMPSEIS@usbr.gov.* Please also visit the Glen Canyon Dam Adaptive Management website at *https://www.usbr.gov/uc/progact/amp/index.html* for updates. Individuals in the United States who are deaf, deafblind, hard of hearing, or have a speech disability may dial 711 (TTY, TDD, or TeleBraille) to access telecommunications relay services. Individuals outside the United States should use the relay services offered within their country to make international calls to the point-of-contact in the United States.

SUPPLEMENTARY INFORMATION: This document provides notice that Reclamation intends to prepare an SEIS and a modified Record of Decision for the 2016 LTEMP. Reclamation is issuing this **Federal Register** notice pursuant to the National Environmental Policy Act of 1969, as amended (NEPA), 42 U.S.C. 4321 *et seq.;* the Council on Environmental Quality's regulations for implementing NEPA, 43 CFR parts 1500 through 1508; and the Department of the Interior NEPA regulations, 43 CFR part 46.

Background

The Colorado River Basin has been in a prolonged period of drought and low-runoff conditions, and despite current projections of 2023 runoff being above average, the period from 2000 through 2023 is currently estimated as the second driest period in more than a century and one of the driest periods in the last 1,200 years.

As the water elevation at Lake Powell has declined, the epilimnion (upper layer of water) where most fish reside has become closer to the dam's intakes, which move water from the reservoir, into the dam through the turbines for hydropower production, and downstream into the Colorado River. The decrease in water elevation means that nonnative fish in Lake Powell are now more likely than in prior years to become entrained, passing through the dam and downstream into the Colorado River. While some level of fish mortality occurs during passage through the turbines, some fish survive. As Lake Powell elevations decline, warmer water from the epilimnion is discharged, resulting in releases of water with warmer temperatures. Warm water temperatures below the dam create conditions that are suitable for warmwater nonnative fish to reproduce and eventually establish populations. This is a concern because smallmouth bass and other predatory invasive fish pose a threat to federally listed fish species and other native fish downstream of Glen Canyon Dam. Although invasive fish, including smallmouth bass, have been detected

below the dam previously, the thermal conditions in the river (that is, warmer waters) are now conducive for smallmouth bass reproduction and establishment.

To respond to the changing conditions, the Secretary of the Interior's Acting Designee to the AMWG directed Reclamation in August 2022, through the AMWG, to identify and analyze operational alternatives at Glen Canyon Dam that may serve to disrupt spawning of smallmouth bass and other warmwater invasive fish that pass through the dam.

Reclamation undertook an environmental assessment (EA) in August 2022. The draft EA entitled Glen Canyon Dam/Smallmouth Bass (SMB) Flow Options was released for public comment on February 24, 2023. Based on the EA analysis and nearly 7,000 comments received, Reclamation concluded that additional analysis was warranted.

Additionally, the increased temperatures of water releases, entrainment of warmwater nonnative fish, and lower Lake Powell elevations have resulted in the Department deciding to not implement fall HFEs in 2015, 2021, and 2022, despite reaching input triggers for sediment HFEs. The absence of spring HFEs during the first 10 years of the HFE protocol, coupled with analyses documenting reduced transport of fine sediments in years with low release volumes and low Lake Powell elevations, have prompted the researchers to reassess aspects of the scientific information supporting the HFE protocol. Assessment of the protocol from its use over the past 11 years indicates a need to evaluate the potential for longer sediment accounting periods and implementations windows as described in the LTEMP Record of Decision. The successful implementation of a spring HFE in April 2023 gives preliminary credence to altering sediment accounting windows.

The LTEMP SEIS will also consider modifying the LTEMP HFE protocol to incorporate the latest scientific information available. Over the past 25 years, scientific information on the use and timing of HFEs has improved understanding of how best to manage tributary-derived sediment supplies below the dam. Refined evaluation of opportunities and impediments for HFEs over the past decade under lower Lake Powell reservoir levels warrants review of the HFE implementation protocols. The LTEMP SEIS will re-evaluate the HFE sediment accounting period and implementation window to more fully achieve the LTEMP goals as they relate to using HFEs.

Purpose and Need

The purpose of the LTEMP SEIS is for Reclamation to analyze additional flow options at Glen Canyon Dam in response to invasive smallmouth bass and other warmwater nonnatives recently detected directly below the dam. The need is to prevent the establishment of smallmouth bass below the Glen Canyon Dam (by preventing additional spawning), which could threaten core populations of threatened humpback chub in and around the Little Colorado River and its confluence with the Colorado River mainstem.

The LTEMP SEIS will also consider the HFE protocol by including the latest scientific information to improve Reclamation's ability to implement HFEs as originally intended in the LTEMP EIS. Specifically, Reclamation is considering adjusting sediment accounting periods and HFE implementation windows.

Preliminary Proposed Action

Reductions in water temperature combined with changes in flow velocity may be vital tools that can be used to disrupt smallmouth bass from successfully spawning and establishing a population. As such, Reclamation has determined that an SEIS is necessary to pursue implementation of additional flow options at Glen Canyon Dam. A range of reservoir releases with temperature and flow velocity combinations will be analyzed to determine efficacy of their ability to disrupt and prevent smallmouth bass spawning behavior. Reclamation will also analyze the sediment accounting periods and implementation windows associated with the HFE protocol analyzed in LTEMP.

Alternatives To Be Considered

During the EA process, nearly 7,000 public comments were received. Many of the substantial comments focused on the effects to hydropower generation and revenues as well as the effects on Tribal resources. Upon direction from the Secretary of the Interior's Acting Designee, Reclamation is transitioning to an SEIS analysis.

For the LTEMP SEIS scoping process, Reclamation anticipates the following preliminary alternatives will be considered:

- No Action.
- Four actions initially analyzed in the Glen Canyon Dam/Smallmouth Bass Flow Options Draft Environmental Assessment (February 2023). The Draft EA can be accessed at this web address: *https://www.usbr.gov/uc/DocLibrary/EnvironmentalAssessments/20230200-GCDSmallmouthBassFlowOps_Draft%20EA_508.pdf.*
- Hydropower flow option that does not include the use of bypass to reduce water temperatures.
- Included in all but the No Action alternative will be a revised annual sediment accounting period and implementation window associated with the HFE protocol.

Summary of Expected Impacts

The LTEMP SEIS will analyze reasonably foreseeable impacts from the alternatives considered. An initial analysis of impacts was done as part of the Glen Canyon Dam/Smallmouth Bass Flow Options Draft Environmental Assessment (February 2023). This initial analysis and alternatives considered will be further informed by comments received during the public EA comment process, the current SEIS scoping process and analysis of the current hydrology. These analyses will build upon and utilize information described in the 2016 LTEMP Final EIS and relevant analyses. The analyses in the SEIS will consider potential effects on the resources below Glen Canyon Dam, including natural and cultural resources, endangered species, recreation, water resources, hydropower resources, and other resources and uses. Reclamation will use an interdisciplinary approach incorporating expertise in the relevant resource fields.

Schedule

Reclamation is planning to provide opportunities for public participation consistent with the NEPA process, including a 30-day scoping period and a 45-day public comment period on the draft LTEMP SEIS. The draft LTEMP SEIS is anticipated to be made available for public review in the winter of 2023–2024 and the final LTEMP SEIS with a Record of Decision, as appropriate, is anticipated to be available during the early summer 2024. The proposed duration of the flow options would potentially run through 2027. Any decisions regarding revisions to the HFE protocol are anticipated to run through duration of the LTEMP Record of Decision.

Cooperating Agencies

Reclamation will be inviting the cooperating and co-lead agencies that participated in the LTEMP EIS to be cooperating agencies on the current LTEMP SEIS. Federal agencies with jurisdiction by law or with specialized expertise include the National Park Service, U.S. Fish and Wildlife Service,

Bureau of Indian Affairs, and Western Area Power Administration.

Public Disclosure of Comments

Before including your address, phone number, email address, or other personal identifying information in your comment, you should be aware that your entire comment—including your personal identifying information—may be made publicly available at any time. While you can ask us in your comment to withhold your personal identifying information from public review, we cannot guarantee that we will be able to do so.

Wayne Pullan,

Regional Director, Bureau of Reclamation, Upper Colorado Basin Region.

[FR Doc. 2023–22077 Filed 10–3–23; 8:45 am]

BILLING CODE 4332–90–P

INTERNATIONAL TRADE COMMISSION

[Investigation Nos. 701–TA–487 and 731–TA–1197–1198 (Second Review)]

Steel Wire Garment Hangers From Taiwan and Vietnam; Determinations

On the basis of the record [1] developed in the subject five-year reviews, the United States International Trade Commission (''Commission'') determines, pursuant to the Tariff Act of 1930 (''the Act''), that revocation of the antidumping duty orders on steel wire garment hangers from Taiwan and Vietnam and the countervailing duty order on steel wire garment hangers from Vietnam would be likely to lead to continuation or recurrence of material injury to an industry in the United States within a reasonably foreseeable time.

Background

The Commission instituted these reviews on April 3, 2023 (88 FR 19669) and determined on July 7, 2023 that it would conduct expedited reviews (88 FR 55068, August 14, 2023).

The Commission made these determinations pursuant to section 751(c) of the Act (19 U.S.C. 1675(c)). It completed and filed its determinations in these reviews on September 29, 2023. The views of the Commission are contained in USITC Publication 5464 (October 2023), entitled *Steel Wire Garment Hangers from Taiwan and Vietnam: Investigation Nos. 701–TA–487 and 731–TA–1197–1198 (Second Review).*

[1] The record is defined in § 207.2(f) of the Commission's Rules of Practice and Procedure (19 CFR 207.2(f)).

By order of the Commission.

Issued: September 29, 2023.

Lisa Barton,

Secretary to the Commission.

[FR Doc. 2023–21980 Filed 10–3–23; 8:45 am]

BILLING CODE 7020–02–P

INTERNATIONAL TRADE COMMISSION

[Investigation Nos. 701–TA–694 and 731–TA–1641–1642 (Preliminary)]

Aluminum Lithographic Printing Plates From China and Japan; Institution of Antidumping and Countervailing Duty Investigations and Scheduling of Preliminary Phase Investigations

AGENCY: United States International Trade Commission.

ACTION: Notice.

SUMMARY: The Commission hereby gives notice of the institution of investigations and commencement of preliminary phase antidumping and countervailing duty investigation Nos. 701–TA–694 and 731–TA–1641–1642 (Preliminary) pursuant to the Tariff Act of 1930 (''the Act'') to determine whether there is a reasonable indication that an industry in the United States is materially injured or threatened with material injury, or the establishment of an industry in the United States is materially retarded, by reason of imports of aluminum lithographic printing plates from China and Japan, provided for in subheading 3701.30.00 of the Harmonized Tariff Schedule of the United States, that are alleged to be sold in the United States at less than fair value and alleged to be subsidized by the Government of China. Unless the Department of Commerce (''Commerce'') extends the time for initiation, the Commission must reach a preliminary determination in antidumping and countervailing duty investigations in 45 days, or in this case by November 13, 2023. The Commission's views must be transmitted to Commerce within five business days thereafter, or by November 20, 2023.

DATES: September 28, 2023.

FOR FURTHER INFORMATION CONTACT: Celia Feldpausch (202) 205–2387, Office of Investigations, U.S. International Trade Commission, 500 E Street SW, Washington, DC 20436. Hearing-impaired persons can obtain information on this matter by contacting the Commission's TDD terminal on 202–205–1810. Persons with mobility impairments who will need special assistance in gaining access to the Commission should contact the Office of the Secretary at 202–205–2000. General information concerning the Commission may also be obtained by accessing its internet server (*https://www.usitc.gov*). The public record for these investigations may be viewed on the Commission's electronic docket (EDIS) at *https://edis.usitc.gov.*

SUPPLEMENTARY INFORMATION:

Background.—These investigations are being instituted, pursuant to sections 703(a) and 733(a) of the Tariff Act of 1930 (19 U.S.C. 1671b(a) and 1673b(a)), in response to a petition filed on September 28, 2023, by Eastman Kodak Company, Rochester, New York.

For further information concerning the conduct of these investigations and rules of general application, consult the Commission's Rules of Practice and Procedure, part 201, subparts A and B (19 CFR part 201), and part 207, subparts A and B (19 CFR part 207).

Participation in the investigations and public service list.—Persons (other than petitioners) wishing to participate in the investigations as parties must file an entry of appearance with the Secretary to the Commission, as provided in §§ 201.11 and 207.10 of the Commission's rules, not later than seven days after publication of this notice in the **Federal Register**. Industrial users and (if the merchandise under investigation is sold at the retail level) representative consumer organizations have the right to appear as parties in Commission antidumping duty and countervailing duty investigations. The Secretary will prepare a public service list containing the names and addresses of all persons, or their representatives, who are parties to these investigations upon the expiration of the period for filing entries of appearance.

Limited disclosure of business proprietary information (BPI) under an administrative protective order (APO) and BPI service list.—Pursuant to § 207.7(a) of the Commission's rules, the Secretary will make BPI gathered in these investigations available to authorized applicants representing interested parties (as defined in 19 U.S.C. 1677(9)) who are parties to the investigations under the APO issued in the investigations, provided that the application is made not later than seven days after the publication of this notice in the **Federal Register**. A separate service list will be maintained by the Secretary for those parties authorized to receive BPI under the APO.

Conference.—The Office of Investigations will hold a staff conference in connection with the preliminary phase of these investigations beginning at 9:30 a.m. on

APPENDIX B

Press Release and Email Notification

MENU

News & Multimedia

News, Speeches, Fact Sheets and Multimedia from the Bureau of Reclamation

Reclamation analyzing Glen Canyon Dam operations to disrupt invasive fish

Purpose is to identify and analyze operational alternatives at the dam for disrupting invasive fish from spawning and to consider altering the High-Flow Experiment process

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Media Contact: Upper Colorado Basin Public Affairs ucbpao@usbr.gov

For Release: Oct 3, 2023

Glen Canyon Dam in Page, Arizona.

PAGE, Ariz. – The Bureau of Reclamation today announced it is initiating the formal process to develop future alternative operations at Glen Canyon Dam aimed at disrupting invasive fish from spawning downstream. The proposed flow options would potentially run through 2027.

Reclamation undertook an environmental assessment in August 2022, entitled Glen Canyon Dam/Smallmouth Bass Flow Options, which was released for public comment Feb. 24. Based on the environmental assessment analysis and nearly 7,000 comments received, Reclamation concluded that additional analysis was warranted.

On June 6, the Glen Canyon Dam Adaptive Management Work Group directed Reclamation to prepare a supplemental environmental impact statement to the December 2016 Glen Canyon Dam Long Term Experimental and Management Plan Record of Decision.

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As the water elevation at Lake Powell has declined, the epilimnion, or upper layer of the lake where most fish reside, has become closer to the water intakes for Glen Canyon Dam, meaning that nonnative fish are now more likely to pass through the dam and downstream into the Colorado River. The epilimnion is also the warmest, top-most layer of the reservoir and, when discharged downstream, increases the temperature of the river. These warmwater releases are creating ideal spawning conditions specifically for smallmouth bass, a predatory invasive fish species which poses a threat to the federally protected humpback chub and other native fish.

"We will continue our work to protect the river and its native species to the best of our ability as we plan our operations of the river," said **Reclamation Commissioner Camille Calimlim Touton**. "If smallmouth bass continue to spawn and establish below Glen Canyon Dam, there will likely be negative impacts to the humpback chub and other native fish species."

"Reclamation has obligations under the 2016 Long-Term Experimental and Management Plan Biological Opinion to protect humpback chub," said **Reclamation Upper Colorado Basin Regional Director Wayne Pullan**. "Humpback chub were recently downlisted from endangered to threatened. However, in the Grand Canyon, the number of sub-adults has been low enough to trigger taking additional conservation actions to bolster the population by increasing survival and growth."

It is estimated there are approximately 60,000 humpback chubs below Glen Canyon Dam, with some residing in and around the Little Colorado River's confluence with the Colorado River approximately 75 miles downstream of the dam, and a larger population in the Western Grand Canyon beginning approximately 175 miles downstream of the dam.

For the scoping process, Reclamation will analyze a range of reservoir releases with temperature and flow velocity combinations. This will include a flow option that does not use the dam's river outlet works to reduce water temperatures. These analyses will help determine the ability to disrupt smallmouth bass spawning behavior to prevent their establishment below the dam. Reclamation will also update the high flow protocol sediment accounting process to incorporate the latest scientific information.

The Notice of Intent to prepare a Supplemental Environmental Impact Statement and a modified Record of Decision for the 2016 Long Term Experimental and Management Plan requests that the public submit comments concerning the scope of specific operational guidelines, strategies, and any other issues that should be considered, as well as to consider potential impacts on the resources below Glen Canyon Dam, including natural and cultural resources, endangered species, recreation, water, hydropower, and other resources and uses. Reclamation will host two

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public webinars to provide summary information and receive oral comments. The Notice of Intent will be available for public comment for 30 days after it is published in the Federal Register.

For more information, visit https://www.usbr.gov/uc/progact/amp/index.html.

STAY IN TOUCH

From: GCDAMP, BOR UCR <bor-sha-ucr-gcdamp@usbr.gov>
Sent: Thursday, October 5, 2023 9:52 AM
To: GCDAMP, BOR UCR <bor-sha-ucr-gcdamp@usbr.gov>
Subject: LTEMP EIS Public Webinar Information

GCDAMP members and interested parties,

Reclamation will host two public webinars to provide summary information and receive oral comments. Each public webinar will cover the same material. The link below will navigate you to the webinars.

Glen Canyon Dam Adaptive Management Program | Bureau of Reclamation (usbr.gov)

Let us know if you have any questions.

Jeremy Hammen
Biologist
Reclamation-Upper Colorado Regional Office
720-951-3989
jhammen@usbr.gov

APPENDIX C

Scoping Meeting Materials

BUREAU OF RECLAMATION

Glen Canyon Dam Long-Term Experimental and Management Plan Supplemental Environmental Impact Statement

Public Scoping Meeting

October 2023

BUREAU OF RECLAMATION

Glen Canyon Dam Long-Term Experimental and Management Plan Supplemental Environmental Impact Statement (LTEMP SEIS)

Virtual Public Scoping Meetings – October 18 and 20, 2023

For technical support, please contact Jessica Sams: jessica.sams@swca.com

Public Scoping Meeting Agenda

- Introductory Remarks and Welcome
- Presentation
- Public Comment
- Closing Remarks

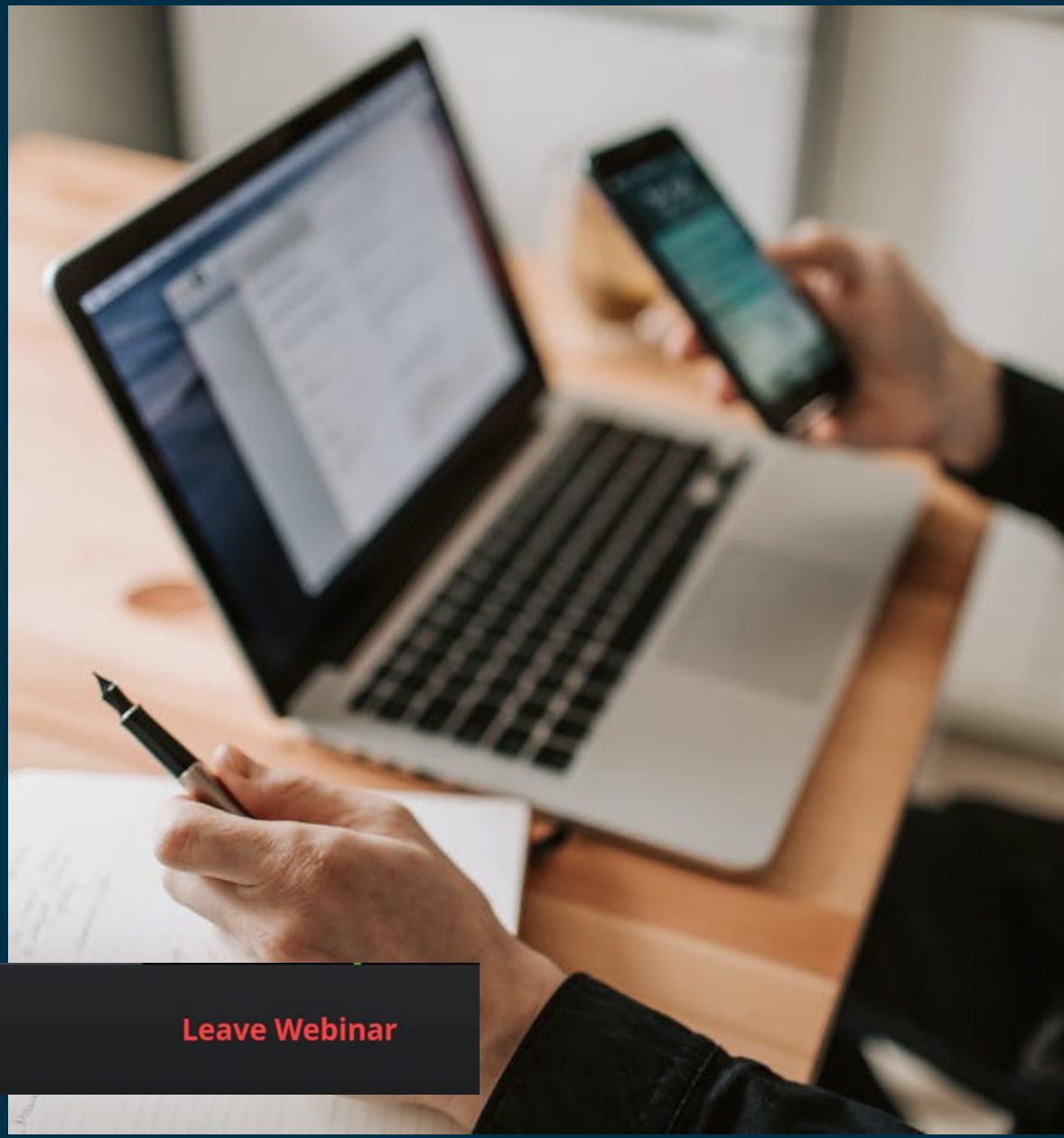
Zoom Orientation

Webinar is being recorded

Microphones are muted

Chat feature is turned off

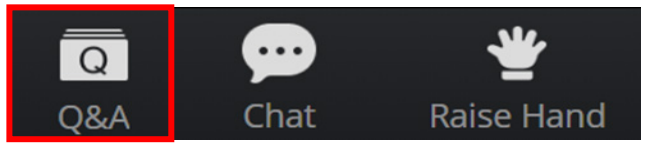
Submit comments using Q&A during the Public Comment Period



Questions about the Presentation?

How to submit a question

- Click the Q&A button
- A box will pop up
- Type your question
- Click send
- Responses to questions will appear in the Q&A box



Questions are not part of the project record

Welcome

Kathleen Callister, LTEMP SEIS Project Manager
Bureau of Reclamation

BUREAU OF RECLAMATION

Presentation

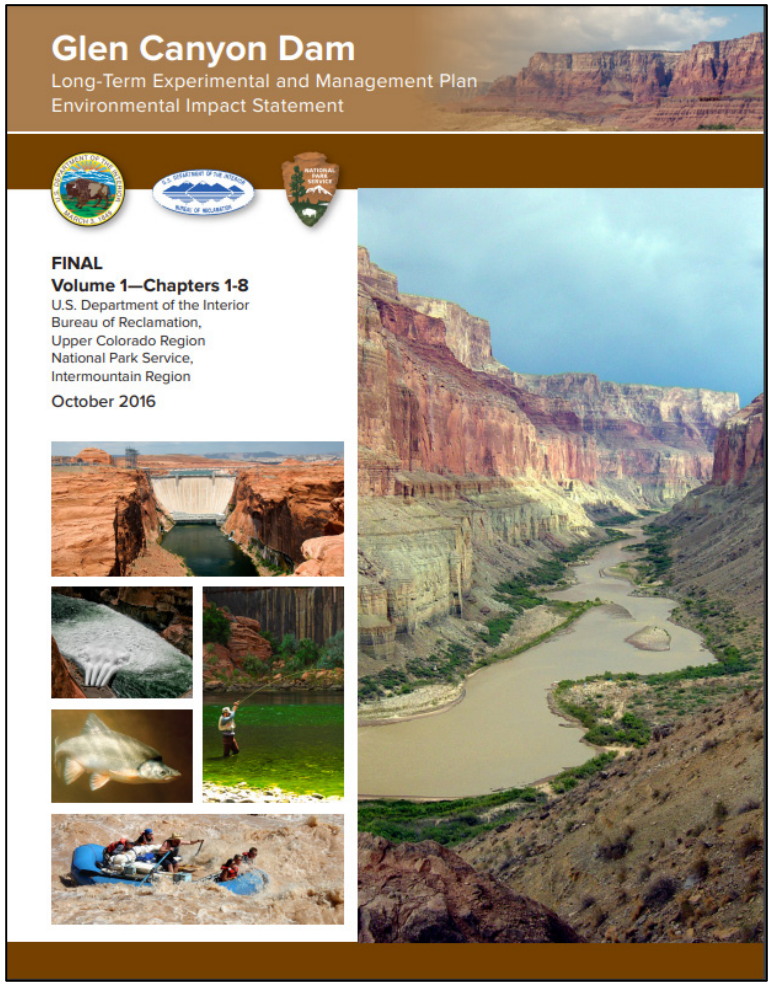
OVERVIEW

- Background
- Purpose and Need
- Schedule

Background

December 2016 - Reclamation published *Long-Term Experimental and Management Plan* (LTEMP) *Record Of Decision*

- Provides a framework for adaptively managing Glen Canyon Dam operations consistent with the Grand Canyon Protection Act (GCPA).
- Identifies specific options for dam operations based on hourly, daily, and monthly release patterns.
- Identifies appropriate experimental and management actions that meet the GCPA's requirements, hydropower production, and improving downstream resources, including those important to American Indian tribes.



Glen Canyon Dam Adaptive Management Work Group (AMWG)

- Created under The Grand Canyon Protection Act (1992)
- AMWG is a Federal advisory committee.
  - Membership appointed by the Secretary of Interior with representation from federal agencies, tribes, Colorado River basin states, environmental groups, recreation interests, and contractors for federal power from Glen Canyon Dam.
- Recommends resource management objectives and necessary research required to determine the effects of the operation of Glen Canyon Dam, including natural and cultural resources, and visitor use.

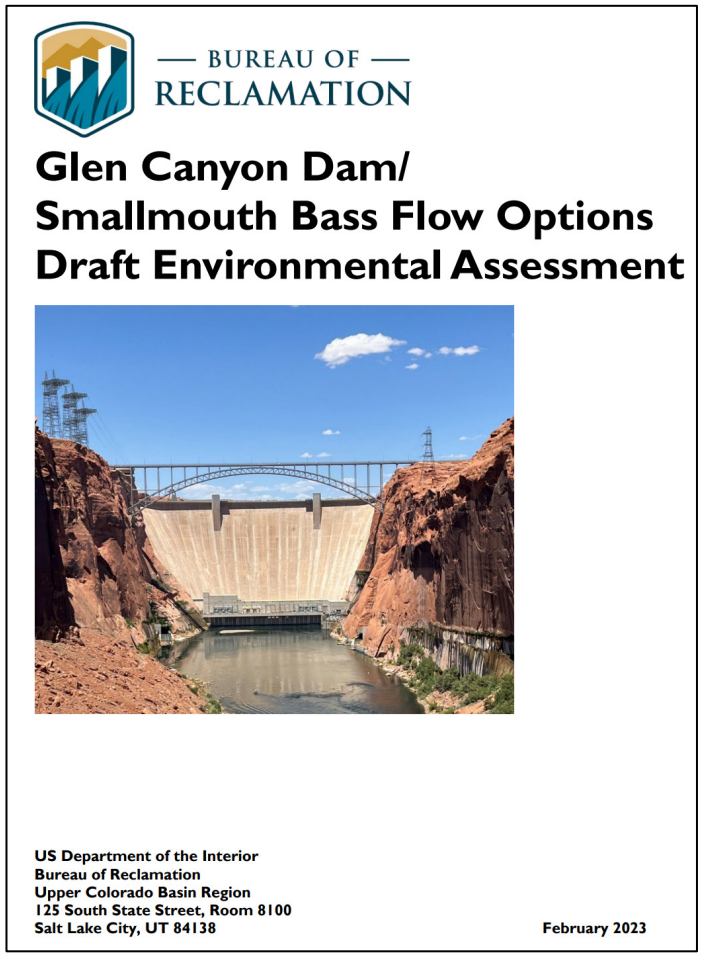
Warm Water Invasive Species

- Colorado River Basin prolonged drought resulting in lower reservoir elevations.
- Lake Powell elevation decline – the *epilimnion* (upper layer of water) where most fish reside is closer to the Glen Canyon dam's intakes.
- Nonnative fish in Lake Powell are now more likely to pass through the dam and downstream into the Colorado River.
- Water below the dam is now warmer making conditions suitable for warmwater nonnative fish including smallmouth bass.
- Smallmouth bass and other predatory invasive fish pose a threat to federally listed fish species and other native fish downstream.

High Flow Experiments (HFEs)

- HFEs are experiments to further understanding of incorporating high water releases into future dam operations to maintain or improve beaches, sandbars, and associated habitat.

Glen Canyon Dam/Smallmouth Bass Flow Options Draft Environmental Assessment (EA)



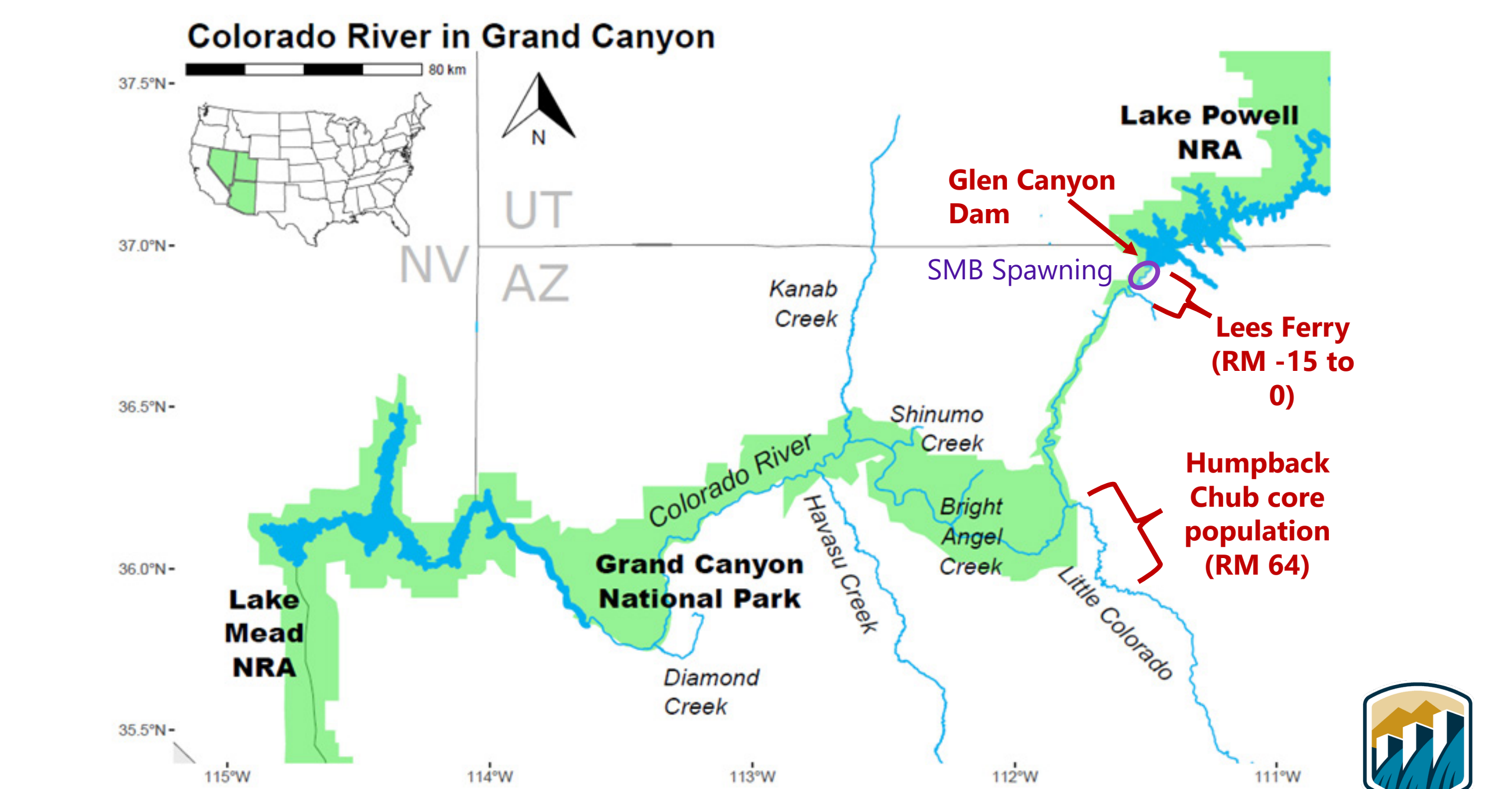
- Published February 2023
  - Evaluated operational alternatives at Glen Canyon Dam that may serve to disrupt spawning of smallmouth bass and other warmwater invasive fish that pass through the dam.
  - Nearly 7,000 comments received with many comments focused on the effects to hydropower generation and revenues as well as the effects on Tribal resources.
  - Reclamation concluded that additional analysis was warranted.

Purpose and Need

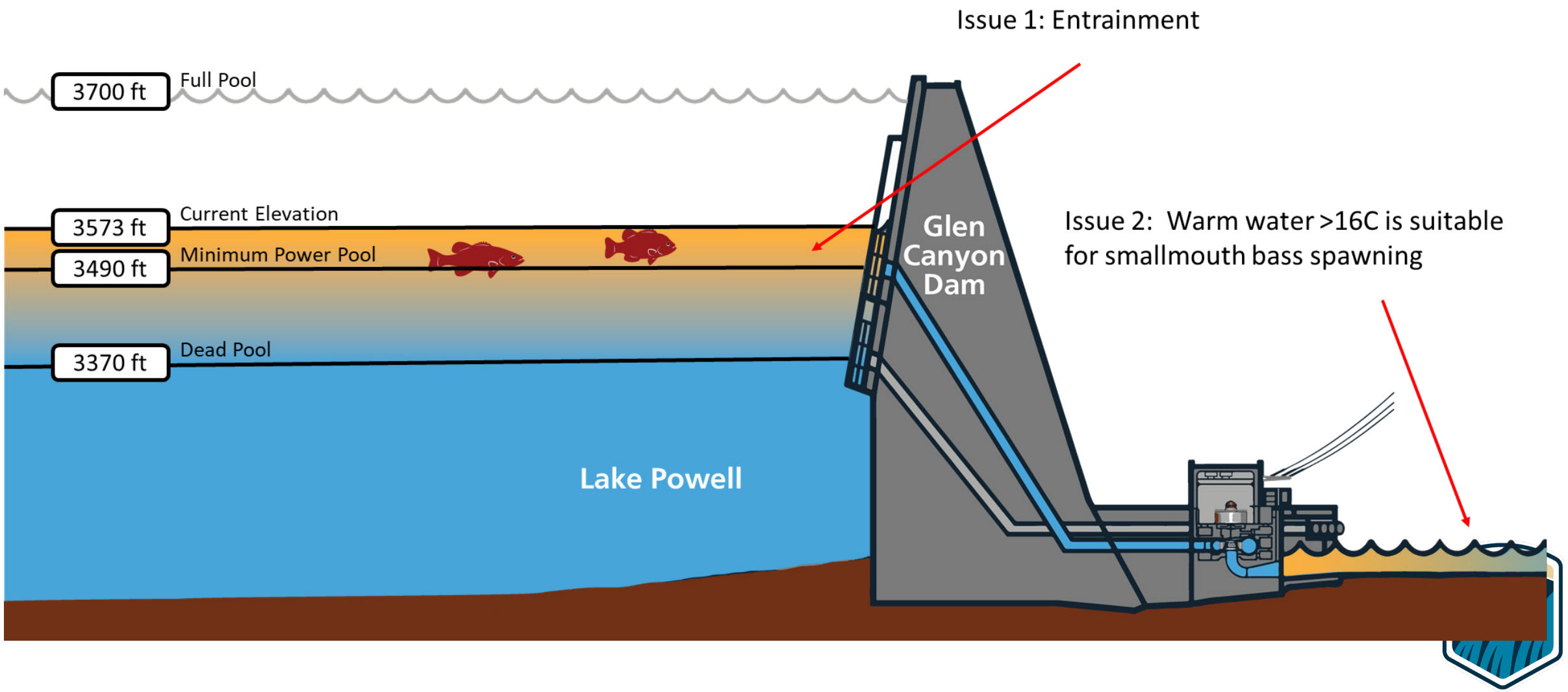
- The purpose of the LTEMP SEIS is for Reclamation to analyze additional flow options at Glen Canyon Dam in response to invasive smallmouth bass and other warmwater nonnatives recently detected directly below the dam.
- The need is to prevent the establishment of smallmouth bass below the Glen Canyon Dam (by preventing additional spawning), which could threaten core populations of threatened humpback chub in and around the Little Colorado River and its confluence with the Colorado River mainstem.
- The LTEMP SEIS will also consider the HFE protocol by including the latest scientific information to improve Reclamation's ability to implement HFEs as originally intended in the LTEMP EIS. Specifically, Reclamation is considering adjusting the sediment accounting periods.

Preliminary Proposed Action

- A range of reservoir releases with temperature and/or flow velocity combinations will be analyzed to determine efficacy of their ability to disrupt and prevent smallmouth bass spawning behavior.
- Analyze the sediment accounting periods and implementation windows associated with the HFE protocol analyzed in LTEMP EIS.

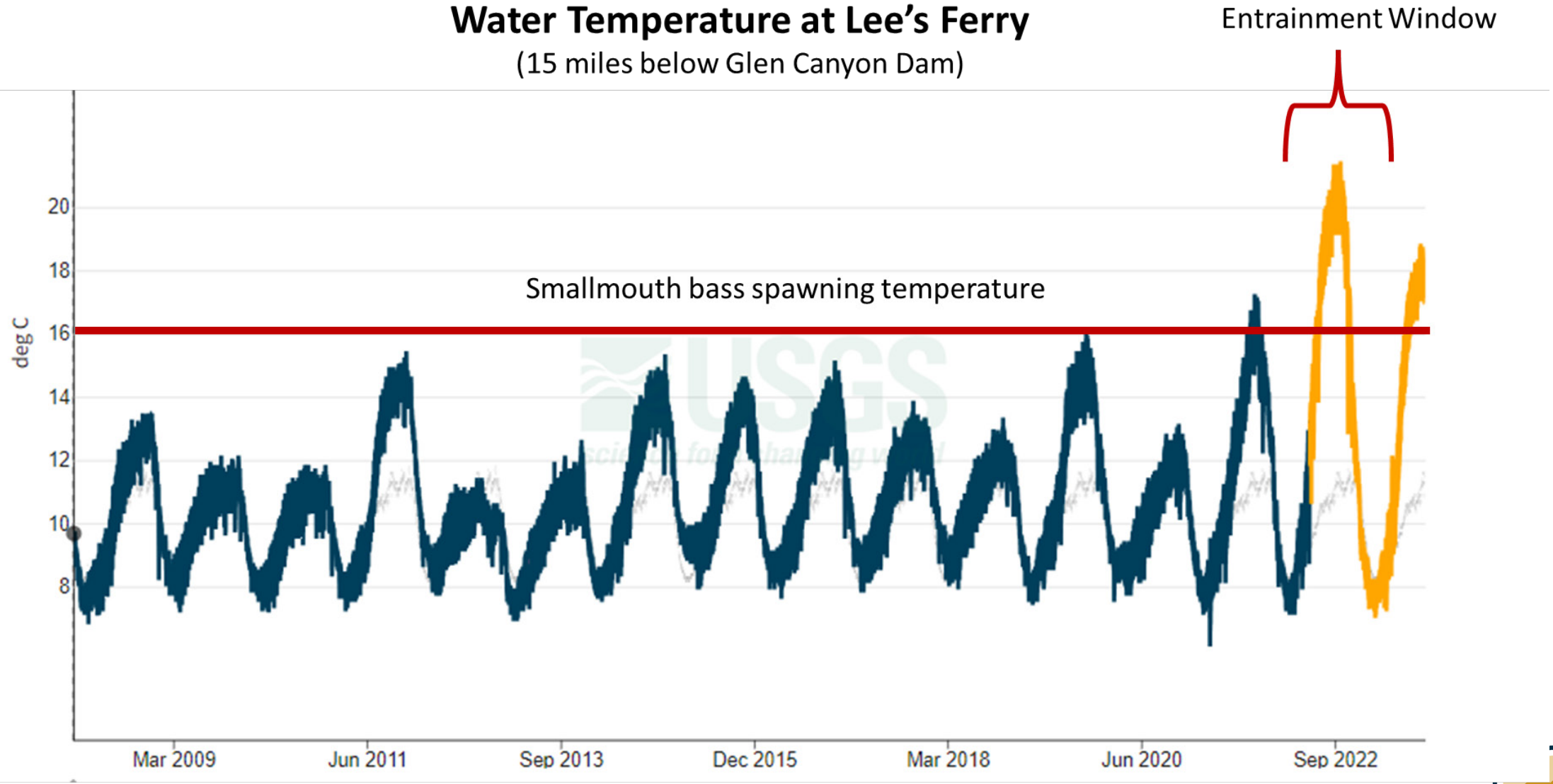

Colorado River in Grand Canyon
80 km
N
37.5°N
37.0°N
36.5°N
36.0°N
35.5°N
115°W
114°W
113°W
112°W
111°W
UT
NV
AZ
Lake Powell NRA
Glen Canyon Dam
SMB Spawning
Lees Ferry (RM -15 to 0)
Humpback Chub core population (RM 64)
Kanab Creek
Shinumo Creek
Colorado River
Bright Angel Creek
Havasu Creek
Little Colorado
Grand Canyon National Park
Lake Mead NRA
Diamond Creek

Invasive Threat to Native Fish

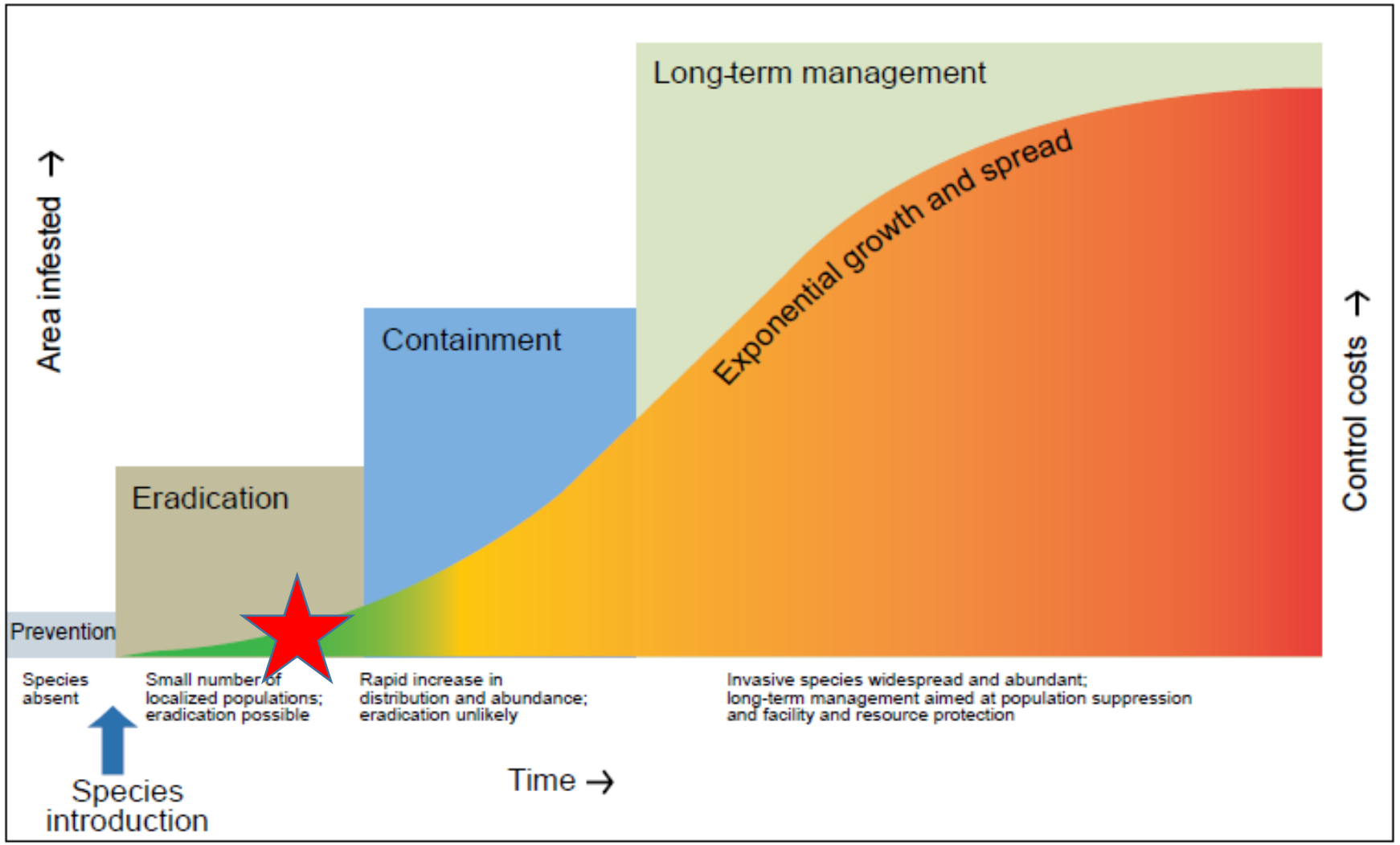


Water Temperature at Lee's Ferry

(15 miles below Glen Canyon Dam)



The Invasion Curve from DOI Invasive Species Strategic Plan (2021-2025)

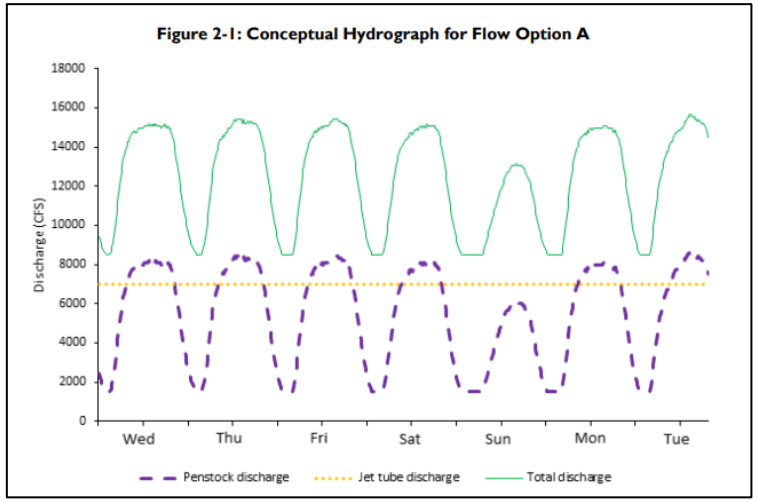


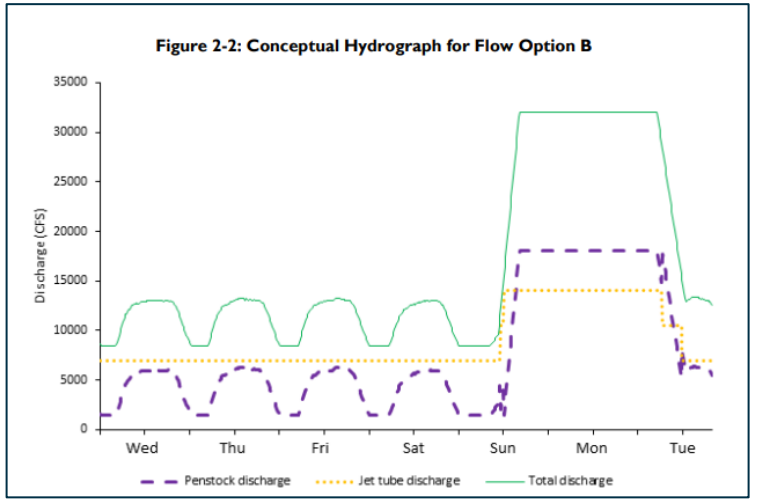
Preliminary Alternatives

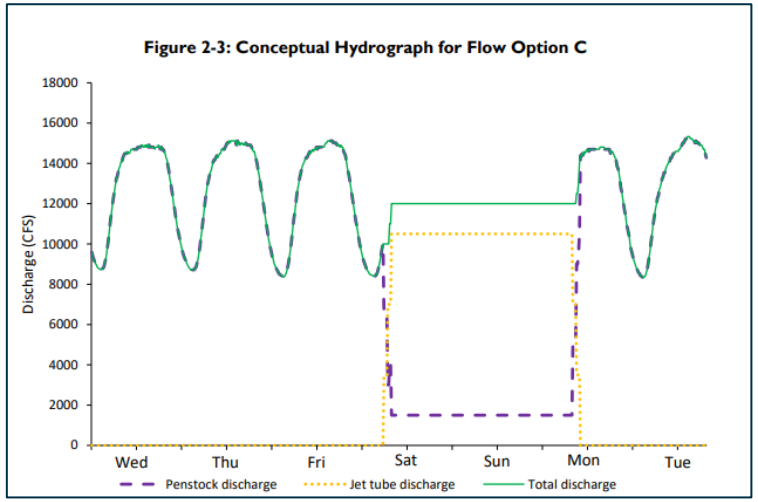
- No Action – Glen Canyon Dam operations will continue as defined in the 2016 LTEMP ROD.
- Four actions analyzed in the Glen Canyon Dam/Smallmouth Bass Flow Options Draft Environmental Assessment (February 2023).
- Hydropower flow option that does not include the use of bypass to reduce water temperatures.
- All action-alternatives will include a revised annual sediment accounting period and implementation window associated with the HFE protocol.

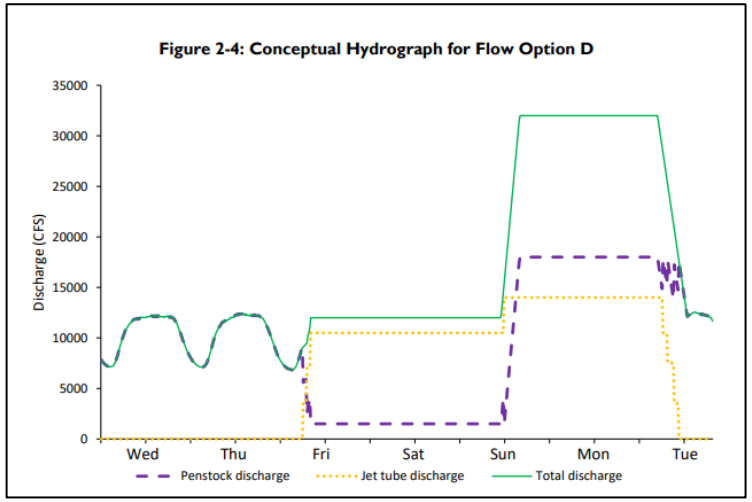
Preliminary Alternatives

Four actions analyzed in the Glen Canyon Dam/Smallmouth Bass Flow Options Draft Environmental Assessment (February 2023).









Preliminary Alternatives

- All action-alternatives will include a revised annual sediment accounting period and implementation window associated with the HFE protocol.

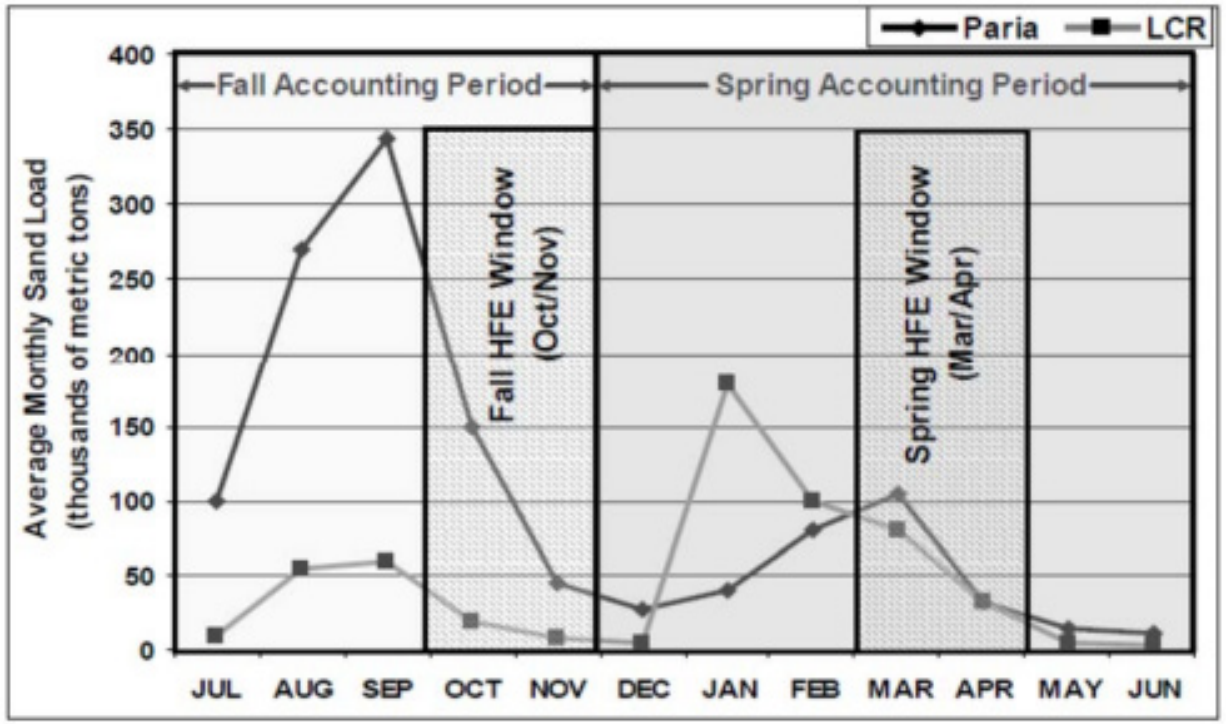
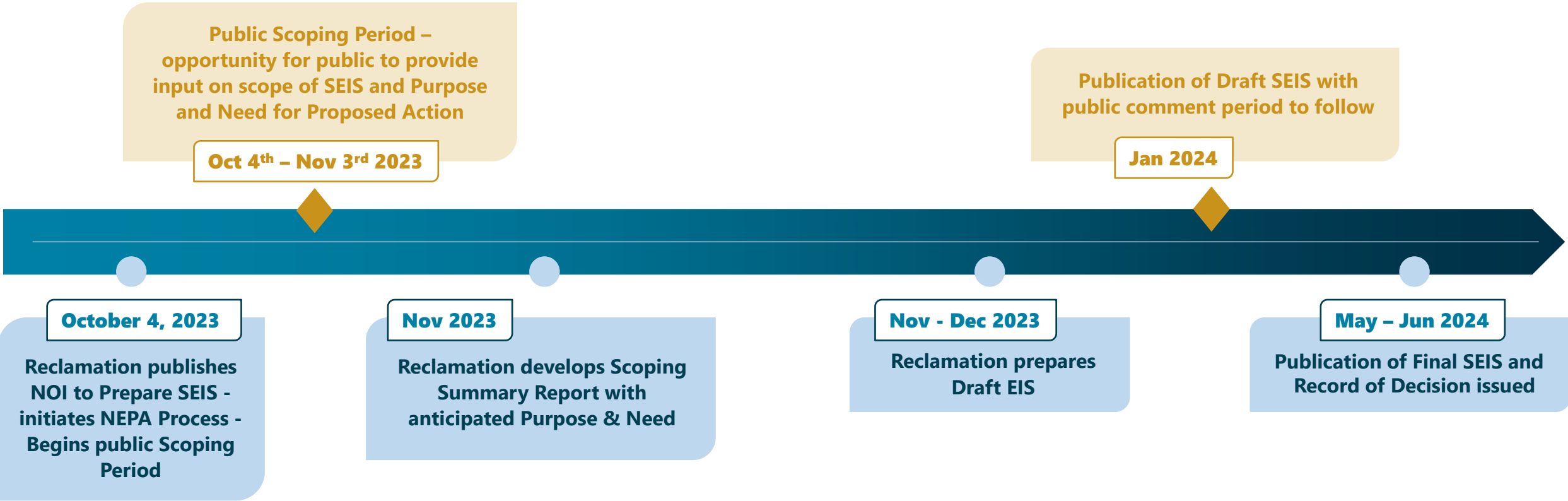


FIGURE 1 Average Monthly Sand Load from the Paria River and Little Colorado River Showing the Fall and Spring HFE Accounting Periods and Implementation Windows

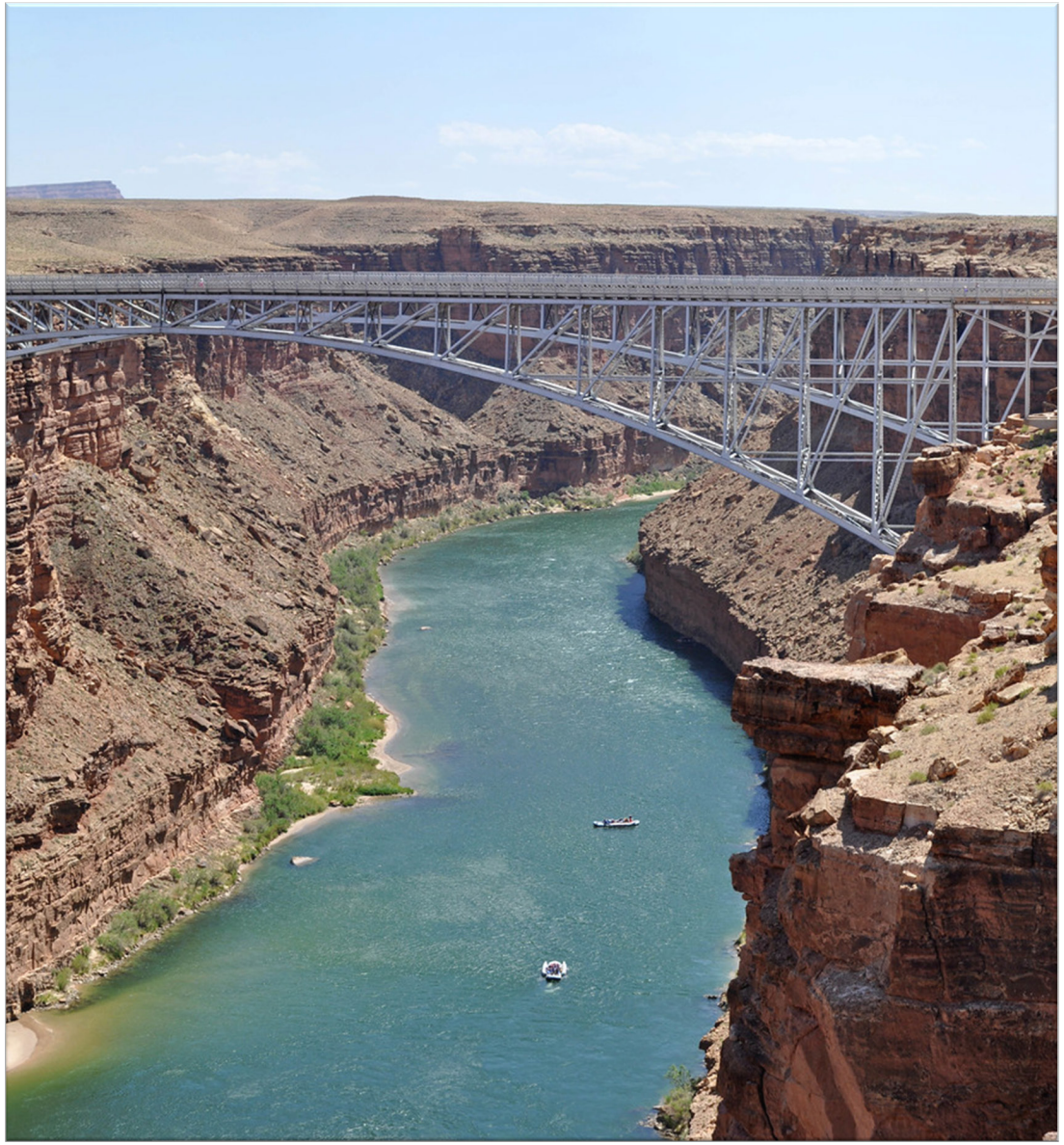
SEIS Impact Analysis

- Consider potential effects on the resources below Glen Canyon Dam.
  - natural and cultural resources
  - endangered species
  - recreation
  - water resources
  - hydropower resources
  - other resources and uses
- Build upon analyses in LTEMP EIS (2016) and Glen Canyon Dam/Smallmouth Bass Flow Options Draft EA (February 2023).
- Informed by submitted EA public comments, current SEIS public scoping comments, and current hydrologic conditions.

LTEMP SEIS: Proposed Schedule



Key NEPA Process milestones – Opportunities for Tribal, State, Partner, Stakeholder, and Public engagement



Scoping Process

- Notice of Intent was published in the *Federal Register* on **October 4, 2023.**
- 30-day public scoping comment period ends **November 3, 2023.**
- Public Webinars are being held on **October 18 and 20, 2023.**
- Invite all Basin partners, stakeholders, and interested members of the public to provide oral and written comments
- Seeking comments concerning the scope of specific operational guidelines, strategies, and any other issues that should be considered in the SEIS.

How does the LTEMP SEIS differ from other current planning activities?

	NEAR-TERM COLORADO RIVER OPERATIONS (Interim Guidelines SEIS)	GLEN CANYON DAM LONG-TERM EXPERIMENTAL AND MANAGEMENT PLAN (LTEMP SEIS)	LONG-TERM COLORADO RIVER OPERATIONS (Post-2026 Process)
PLANNING EFFORT			
RANGE OF OPERATIONS	Limited sections of the 2007 Interim Guidelines Focus on annual releases	Limited sections of the 2016 LTEMP ROD; Sub-annual flows - timing of hourly, daily, monthly and experimental releases from Glen Canyon Dam	Revisit all sections of the 2007 Interim Guidelines and other operating agreements that expire in 2026. Focus on annual releases
DURATION	2024 – 2026 (3 YEARS)	2024 – 2027 (Flow Alternatives) 2024 – 2036 (HFE protocol)	2026 AND BEYOND

Ways to Comment

- During public scoping meetings
- Send an email: **LTEMPSEIS@usbr.gov**
- By mail to:

Bureau of Reclamation
Attn: LTEMP SEIS Project Manager
125 South State Street, Suite 800
Salt Lake City, UT 84138

30-day comment period closes on November 3, 2023

Need Information?

- Project Website: https://www.usbr.gov/uc/progact/amp/index.html
- Send questions to: LTEMPSEIS@usbr.gov
- Kathleen Callister, Adaptive Management and Water Quality Division Manager, Bureau of Reclamation: (801) 524–3867

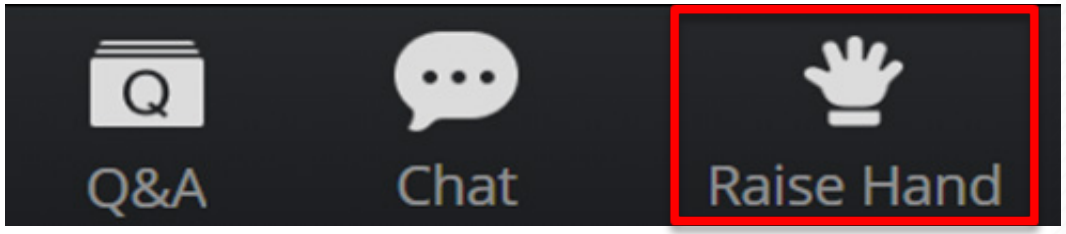

Public Comment
BUREAU OF
RECLAMATION

Comment Guidelines

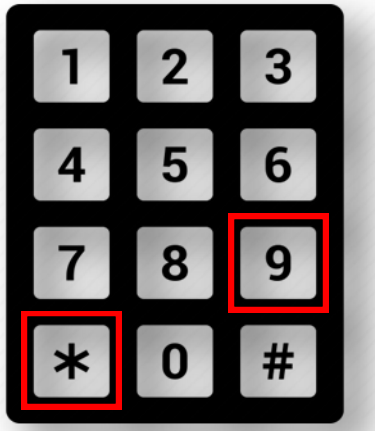
- This time is for Reclamation to receive public comment to consider in the NEPA process; it not a forum for Reclamation to respond to comments.
- Comments should be directed to the Bureau of Reclamation, not to other commenters.
- Comments will be limited to 3 minutes, so we have time to hear from as many commenters as possible. Comments longer than 3 minutes can be submitted in writing.
- This virtual event is designed to be viewed in homes across the country in real time. Profanity is not acceptable.

To Comment

- Click the raise hand button
- Facilitator will call your name
- Click unmute to speak
- Please state and spell your name when you begin
- Please limit comments to 3 minutes. Please submit comments longer than 3 minutes in writing



Telephone



Comment Timer

Closing Remarks

BUREAU OF RECLAMATION

APPENDIX D

Coded Scoping Comments

Letter Number	Letter Comment	Comment Code	Comment Text	Organization / Affiliation	Sender Name
2	1	ALTB - Alternative Option B - Cool Mix with Flow Spikes	As with my previous comment in March, I continue to support Flow Option B which was proposed in the Draft Environmental Assessment (EA). It is the option in the best interest of the Colorado River, Grand Canyon, local Tribes, recreationists, and wildlife.		Morgan Sjogren
2	6	ALTB - Alternative Option B - Cool Mix with Flow Spikes	Because no methods to impede smallmouth bass from passing through Glen Canyon Dam are included in the Flow Options, Flow Option B provides a non-lethal method, HFEs, to protect humpback chub from the smallmouth bass per the ongoing insistence of the Zuni and Hopi Tribal Governments and communities. HFE's proved this spring to be an effective way to protect the threatened humpback chub from non-native smallmouth bass as described here by the Glen Canyon Dam Smallmouth Bass Environmental Assessment (DEA) (p. 2-4): Water would be released through the penstocks and bypass tubes to maintain a daily average water temperature below 16degC from below the dam to the Little Colorado River (RM 61), with the goal of disrupting smallmouth bass spawning. In addition, up to three 36-hour flow spikes would be added between late May and mid-July if sufficient water is available. The flow spike would likely disrupt spawning in margin habitats that may be warmer than the main stem river. Option B, as explained in the DEA (p. 3-7) is most likely to achieve humpback chub protection because of its effect on spawning habitat: Flow Option B would reduce the water temperature to below 16degC in the mainstem Colorado River, and the flow spikes would push cold water into the backwater habitats to prevent spawning or push male smallmouth bass off nests, if spawning has already occurred. For these reasons, this option is most likely to meet the purpose and need. (emphasis added).		Morgan Sjogren

Letter Number	Letter Comment	Comment Code	Comment Text	Organization / Affiliation	Sender Name
2	8	ALTB - Alternative Option B - Cool Mix with Flow Spikes	Flow Option B (along with D) will be the most beneficial to sediment management (p. 3.26). Improved hydrology models from this past water year that include this past water year demonstrate that there will be enough water in the system to proceed with Flow Option B in the coming spring.		Morgan Sjogren
7	3	ALTB - Alternative Option B - Cool Mix with Flow Spikes	With regards to smallmouth bass control options, American Rivers continues to support Alternative B, as outlined in the previously proposed Draft Environmental Assessment (EA), as our Preferred Alternative to control small mouth bass populations below Glen Canyon Dam and in the upper reach of Marble Canyon.	American Rivers	Sinjin Eberle
24	3	ALTB - Alternative Option B - Cool Mix with Flow Spikes	NPCA believes that the preliminary proposed action of reservoir releases with various temperature and flow velocity combinations is the best solution to protect the native fish species and ecology of the Grand Canyon. This mirrors Alternative B: Cool Mix with Flow Spikes from the Draft Environmental Assessment (EA). Cooler water releases have the highest certainty of preventing the establishment of new warm-water invasive fish through lowering the water temperature. This should be done through the release of water from the bypass tunnels in combination with the release of water from the penstocks. We understand that the use of the bypasses will have a negative impact on the hydropower production unless modifications are made to compensate for the loss of power. However, both the flow spikes and the use of the bypasses are essential for ecological restoration purposes and protecting the Grand Canyon's critical ecosystem.	National Parks Conservation Association	Sanober Mirza

Letter Number	Letter Comment	Comment Code	Comment Text	Organization / Affiliation	Sender Name
25	19	ALTB - Alternative Option B - Cool Mix with Flow Spikes	Evaluating an alternative with summer bypass with flow spikes - The action alternative in this EA, including the use of bypass and flow spikes was conceptually analyzed and recommended by the SMB task force led by the USFWS last year (AMWG notes, May 2022) the tool most likely to be effective at preventing the establishment of SMB below the dam.	Glen Canyon National Recreation Area; National Park Service, Interior Regions 6,7,8	Ed Keable; Michelle Kerns
32	8	ALTB - Alternative Option B - Cool Mix with Flow Spikes	Grand Canyon River Guides is deeply concerned that Flow Options B and D (with potential for multiple spike flows) could be extremely detrimental to sediment, resulting in substantial erosion of the sand that accumulates in the channel from the Paria River and precluding the opportunity to conduct an HFE.	Grand Canyon River Guides, Inc.	Lynn Hamilton
2	9	ALTD - Alternative Option D - Cold Shock with Flow Spikes	While Flow option D is also more effective than the No Action Alternative to protect the integrity of the Grand Canyon and Colorado River's natural ecosystem as is required, it "would involve recurring cold shocks and recurring flow spikes," could also be effective in achieving the purpose and need. (DEA, p. 3-9). However, Flow Option D could have negative effects on invertebrates "the cold shocks of Flow Option D could lead to high rates of macroinvertebrate drift and potentially disrupt macroinvertebrate development and life cycles." Id. Aquatic invertebrates play an important role in the water purification process through consumption followed by decomposition of rich organic matter (bacteria, fungi, microbes, algae): Aquatic insects constitute an abundant, diverse, and functionally important component of the biota of freshwater systems. Insects are by far the most speciose and abundant macroinvertebrates found in freshwater ecosystems. Nearly 100 000 species from 12 orders spend one or more life stages in freshwater (Dijkstra et al., 2014). They are, therefore, likely to be one of the most ecologically important groups.8 It is also important to note that,		Morgan Sjogren

Letter Number	Letter Comment	Comment Code	Comment Text	Organization / Affiliation	Sender Name
			Freshwater ecosystems cover less than 1% of the planet's surface but support up to 10% of known species. Around 25% of freshwater invertebrate species are under threat of extinction.9 Aquatic invertebrates are an important step in removing and balancing ratios of pollutants in our water systems. Flow Option D would not only disrupt the macroinvertebrate life cycles in the Colorado River, but also their quiet behind the scenes work to maintain the integrity of water quality.		
32	6	ALTDIS - Alternatives not analyzed in detail	What other flow alternatives were considered that prevent the establishment of SMB and why were they dismissed?	Grand Canyon River Guides, Inc.	Lynn Hamilton
8	4	ALTGEN - Generation focused alternative	The Service does not believe that penstock releases alone (the new Hydropower Alternative), would meet the purpose and need of this program in the short term as water temperatures at the penstock intakes are too warm to meet outflow temperature objectives needed to prevent spawning. This option may work in future conditions if water temperatures at penstock intakes are cold enough that releases following hydropower production would be cold enough to prevent spawning and/or a temperature control device was utilized to lower water release temperatures.	US Fish and Wildlife Service	Heather Whitlaw

Letter Number	Letter Comment	Comment Code	Comment Text	Organization / Affiliation	Sender Name
10	21	ALTGEN - Generation focused alternative	The inclusion of the non-bypass flow option is an important addition to the alternatives considered in the Smallmouth Bass EA and will allow stakeholders to better understand the tradeoffs between bypass and non-bypass options.	AMWG Colorado; AMWG New Mexico; AMWG Utah; AMWG Wyoming; Arizona Department of Water Resources; Colorado River Board of California; Colorado River Commission of Nevada; Southern Nevada Water Authority	Ali Effati; Amy Haas; Charlie Ferrantelli; Clint Chandler; Colby Pellegrino; Jessica Neuwerth; Michelle Garrison; Sara Price
12	1	ALTGEN - Generation focused alternative	Identify operating conditions when bypass for non-native fish control or High Flow Experiments (HFE) should be avoided. The CRCNV appreciates that Reclamation has incorporated a hydropower flow option that does not include the use of bypass to control invasive species. As Reclamation develops scoping parameters, it is important to recognize that hydropower remains a critical energy resource. Electrical demand throughout the Western Interconnection is rising rapidly due to growth and the electrification of the transportation industry. Utility managers are struggling to keep up with demand due to supply chain constraints that have severely slowed the construction of new resources. During certain times of the year, federal hydropower is needed as a tool to keep the electrical system operating and keep the lights on. Although bypass is one tool for controlling invasive species populations, the CRCNV urges Reclamation to avoid using it when certain conditions are present. The same can be said for HFE's that are used to distribute sediment. Extending the sediment accounting period and	Colorado River Commission of Nevada	Eric Witkoski

Letter Number	Letter Comment	Comment Code	Comment Text	Organization / Affiliation	Sender Name
			implementation window for HFE's could cause HFE's to be conducted during peak power months which could, at times, have a detrimental impact on the hydropower community and the electric grid.		
15	4	ALTGEN - Generation focused alternative	Coupled with the actions alternative are two additional alternatives about which GCWC is concerned. The first is a hydropower flow option to not use the bypass tubes to reduce water temperature. Impacts of the preferred alternative should not unfairly burden any one group, and such burdens as may arise from such management actions should be recognized by Reclamation and mitigated, where possible. However, the threats posed by non-native SMB and other species invasions are dire and very likely irreversible. Therefore, GCWC does not support limitations on management actions to benefit hydroelectric power production or downstream water delivery that may reduce the effectiveness of the flow management actions. Such limitations could ultimately increase the costs to hydropower and water users by orders of magnitude to try to obtain minimal, or even net zero effectiveness in preventing extirpation and extinction. Again, analysis of impacts under this alternative needs to be conducted across multiple time scales.	Grand Canyon Wildlands Council	Kelly Burke; Larry Stevens
17	1	ALTGEN - Generation focused alternative	Based on the nearly 7,000 responses to the draft EA entitled Glen Canyon Dam/Smallmouth Bass Flow Options, it is evident that there is interest in the operation of the dam. But when you review the Public Comment Analysis Report, you realize that the majority of the substantive comments relate to hydropower and how all options presented were limited to flow alternatives that negatively impacted hydropower generation. Therefore, we appreciate the inclusion of the non-bypass flow alternative in the LTEMP SEIS.	Irrigation & Electrical Districts Association of Arizona	Ed Gerak

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20	3	ALTGEN - Generation focused alternative	We support Reclamation further investigating the operational alternatives described in the draft SMB Environmental Assessment ("EA") published in March 2023, and appreciate that Reclamation has included a preliminary alternative that does not use the bypass tubes. Inclusion of a non-bypass alternative strengthens the environmental compliance analysis and focuses on impacts of flow fluctuations as opposed to solely evaluating temperature variations.	AMWG Colorado; AMWG New Mexico; AMWG Utah; AMWG Wyoming	Ali Effati; Amy Haas; Charlie Ferrantelli; Michelle Garrison
21	3	ALTGEN - Generation focused alternative	If Reclamation must consider a flow-based alternative, SRP supports including an option that avoids bypass assuming the option does not reduce hydrogeneration at times of peak demand when it is most challenging and costly to maintain reliability. Alternatives could consider temporarily altering the flow to increase hydrogeneration during peak needs on a day ahead or week ahead basis. Additionally, SRP would recommend no implementation of bypass flow-related options until it reviews and fully analyzes impacts related to emissions, economics, finances, grid reliability, health and safety.	Salt River Project SRP	Angie Bond-Simpson
25	12	ALTGEN - Generation focused alternative	The Notice of Intent (NOI) states that an alternative without bypass will be evaluated - based on the evaluation of the SMB task force and the subsequent analysis performed in the development of the EA, this option is unlikely to meet the need for this SEIS when considered as a stand-alone alternative and Reclamation should consider incorporating this as a sub-option in the proposed alternative that includes bypass. Using only flow spikes and not bypass to lower temperatures, would be significantly less effective under most of the operating range, but there could be parts of the operating ranges or temperature ranges where this option would be available and have some benefits when bypass is not available or would be ineffective. These will be limited	Glen Canyon National Recreation Area; National Park Service, Interior Regions 6,7,8	Ed Keable; Michelle Kerns

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			circumstances (such as very close to power pool elevation). NPS requests reclamation evaluate the effectiveness of the flow tools at different elevation ranges and inflow/outflow conditions, and to identify the tools that are most effective in those ranges and have the proposed alternative allow for the use of those tools when they are most effective.		
29	16	ALTGEN - Generation focused alternative	The hydropower flow option should be renamed as the non-bypass flow option or the disturbance flow option. Aspects of this flow option does not solely revolve around avoiding bypass just to protect the hydropower resource. Additionally, since this effort is no longer bound by attempting to reach a Finding of No Significant Impact (FONSI), this flow option should be expanded and reassessed to include minimum and maximum flow limits, ramp rates, and daily fluctuations beyond limits set by the LTEMP Record of Decision (ROD). For example, it may be necessary to have minimum flows below the current minimums to affect smallmouth bass spawning. WAPA is working with the science panel to consider these concepts further for later consideration by Reclamation. WAPA appreciates Reclamation adding a non-bypass flow option, which was a request from the EA process.	Western Area Power Administration	Rodney Bailey
29	23	ALTGEN - Generation focused alternative	WAPA Recommends Reclamation Include Discussion for Emergency Operations Revised operations under the SEIS would follow LTEMP requirements for emergency situations. To help describe this, we suggest that Reclamation include the following information in the SEIS: Glen Canyon Dam regulation historically requires that +/- 40 MW be available to the WAPAs Balancing Authority (BA). This number has changed recently due to low releases at Glen Canyon Dam, but the prevision of regulation for the BA remains an obligation. During the experiment, Glen Canyon Dam will continue to respond to Northwest Power Pool electrical	Western Area Power Administration	Rodney Bailey

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			emergencies. This requires sufficient reserves be available to respond to these emergencies. To assist in the elimination or reduce the severity of black-outs or brown outs, Glen Canyon Dam will be available, under existing criteria, to respond to power emergencies.		
29	31	ALTGEN - Generation focused alternative	Based on our review of the previous proposed actions, WAPA anticipates the bypass alternatives will significantly impact hydropower operations, the CRSP Basin Fund and WAPAs ability to serve its customers.	Western Area Power Administration	Rodney Bailey
29	33	ALTGEN - Generation focused alternative	WAPA appreciates Reclamations decision to consider additional alternatives, including a non-bypass alternative, which may help prevent smallmouth bass establishment by causing a disturbance to smallmouth bass spawning and rearing, causing males to abandon nests, and resulting in high mortality of offspring and it does this without putting CRSP water and power operations at risk. Combined with added measures such as mechanical removal, modifications of the slough, installation of a thermal curtain in the forebay, and keeping reservoir elevations high, the program could conceivably reverse the likelihood of smallmouth bass establishment, or at least reach containment in the Lees Ferry reach.	Western Area Power Administration	Rodney Bailey
1	7	ALTNEW - Proposed new alternative	5. Releasing water through bypass tubes has an important dual purpose to control smallmouth bass. Reclamation has been aware of the need to prevent passage of nonnative species through Glen Canyon Dam at least since the Record of Decision for the LTEMP was finalized in 2016 (six years ago) and likely long before. In fact, the Biological Opinion for the LTEMP ROD specifically contemplates temperatures to be warmer under lower reservoir elevations and that options to "minimize or eliminate passage through the turbines or bypass intakes" and to "hinder expansion of warmwater	Grand Canyon Trust	Jen Pelz

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			nonnative fishes" were warranted at that time.21 Further, the importance of "regulation and control of nonnative fish" has been a "management action identified in the humpback chub and razorback sucker recovery goals since 2002."22 Reclamation, however, only acted after smallmouth bass were found reproducing in Marble Canyon in 2022. All of the proposed modified flow actions introduced by Reclamation as part of the LTEMP Revision rely on releases from the bypass tubes in Glen Canyon Dam to lower temperatures in the Colorado River to create inhospitable conditions for smallmouth bass spawning. However, the other important purpose is that bypass releases are also critical to avoiding additional smallmouth bass passing through the dam. Therefore, until Reclamation can construct a barrier to downstream passage of nonnative fish through the dam, measures should be taken, not just to thwart spawning of smallmouth bass already in Marble and Grand Canyons, but also to prevent as few nonnative fish as possible pass through the dam.		
2	5	ALTNEW - Proposed new alternative	I believe the Pueblo of Zuni would be very supportive of the primary preventive measure recommended in your report which is to prevent fish from passing through Glen Canyon Dam. This is a position that the Zuni Governor, Tribal Council and religious leaders have repeatedly recommended to the National Park Service as a proactive measure, rather than continually being reactive by implementing lethal management actions. 5 Additionally, the Hopi preference is documented: The water levels and continued difficulties of climate change means new strategies need to be approached and that sacrifices of values on certain resources and discussion between institutions need to be made. This includes the Lake Powell side above the dam. The Colorado River is not a closed ecosystem between the dams. If it must		Morgan Sjogren

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			come down to it, then Hopi hopes that procedures can be done without the taking life and if further then taking of life un-needlessly.6		
5	6	ALTNEW - Proposed new alternative	Part Four: Glen Canyon Dam (GCD) is not engineered for a water delivery system that includes the impediments of maximum human consumption under conditions of global warming that will persist for time periods that will last for multiple centuries. To protect downstream resources and jeopardy to living communities, Reclamation must begin discussions about decommissioning this facility. * Sea level elevations began to rise in the 1880s, indicating a trend of thermal expansion and the melting of continental ice.9 * The geologic bedrock at Glen Canyon and the climate of the Colorado River Basin is problematic for a reservoir that can store 27 million acre-feet of water, entrained sediment and decaying organic materials. * In 1983 it was discovered that the outlet works at GCD could not safely handle a four-month snow melt of 15 million acre-feet, which induced property damage to people and businesses that occupy the floodplain below Davis Dam.10 * During the lifespan of this facility, the demand to safely bypass a five-month snowmelt in the range of 30 to 60 million acre-feet will arrive. This structure will fail and damage and destroy all critical infrastructure downstream and will inundate the structural depression at the Salton Trough (Salton Sea) for decades, which currently provides the nation with dependable supplies of fresh produce.11 * In 2015 (before the implementation of the LTEMP) it was discovered that non- native fish can safely bypass through the penstocks of GCD. * In 2022 it was determined that hydropower production would be seriously impaired at GCD should the snow melt of 2023 fail to provide adequate runoff.13 * Reservoir water seepage through the bedrock at the dam site is significant. The Upper Colorado River	Center for Biological Diversity; Colorado Riverkeeper; Glen Canyon Institute; Great Basin Waterkeeper; Great Basin Water Network; Las Vegas Water Defender; Living Rivers; River Runners for Wilderness; Save the Colorado; Utah Rivers Council	Eric Balken; Gary Wockner; John Weisheit; Kyle Roerink; Taylor McKinnon; Tick Segerblom; Tom Martin; Zach Frankel

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			Commission's annual report of 2015 reports the gain in river flow below Glen Canyon Dam averages 153,000 acre-feet per year, which is 211 cubic feet per second. We understand that leakage is normal, but this amount is unacceptable. We request an explanation from Reclamation that addresses this concern we have about dam safety.14 * During episodes of significant water evacuation from Lake Powell since 1992, we have observed the degradation of the natural cementation of the sandstone formations of the Glen Canyon Group. For example, you can easily crush these rocks types without tools. Reclamation's chief engineer recognized this issue too, in an engineering report.15 This natural incompetence of bedrock is a dam safety issue that Reclamation should explain to the public. * Sediment storage in Lake Powell is often interpreted as increasing the lifespan of Hoover Dam, but this belief is deceptive. With each passing decade, there is less water storage and less capacity for flood control at Lake Powell. In other words, the issue isn't where the sediment is stored, the issue is when does sediment storage compromise the priority mandates of flood control and water storage? Reclamation must explain this issue to the public. * Lastly, connectivity to the tributaries from the confluence of the Green and Colorado rivers to the basin-and-range country at Lake Mead is how you will solve all the threats to the endangered species of the Colorado River Basin. Give them the habitat and the food web that they need to flourish by removing Glen Canyon Dam.		
8	9	ALTNEW - Proposed new alternative	The Service believes that spiking flows to lower the temperature of releases at GCD below 16degC is the most important and time critical step needed to prevent establishment of smallmouth bass and other nonnative warm water fish. It is imperative to address species while they are early in the invasion process to prevent full establishment and	US Fish and Wildlife Service	Heather Whitlaw

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			spread (U. S. Department of Interior 2021). This step is just one of many steps needed for long term management and monitoring of invasive fish species as all partners continue to navigate climate change, warming waters and aridification of the southwest. Successfully preventing the introduction, establishment and spread of warm water invasive fish will take a multi-pronged effort (Smallmouth Bass Ad Hoc Group 2023). It is vital that entrainment of these fish through Glen Canyon Dam is addressed; that fish that do pass through the dam are removed; that conditions below the dam are not conducive to successful spawning in sloughs and in the mainstem river; that conditions that prevent the movement of warm water invasive fish upstream from Lake Mead are maintained; and that monitoring for warmwater invasive fish downstream of the dam is continued.		
10	2	ALTNEW - Proposed new alternative	Support for Flow Options Identified in the NOI to Prevent the Establishment of Warmwater Invasive Fish: The Basin States' Representatives support Reclamation's analysis of the proposed bypass flow options and non-bypass flow option. If other options are identified during the process that may better achieve the purpose and need, Reclamation should fully analyze and consider those alternatives. In addition to the currently identified flow options, the Basin States' Representatives reiterate support for the document produced by the Glen Canyon Dam Adaptive Management Program (GCDAMP) Smallmouth Bass Ad Hoc Work Group, "Invasive Fish Species Below Glen Canyon Dam: A Strategic Plan to Prevent, Detect, and Respond", which was recommended by consensus to the Secretary of the Interior at the February 16, 2023 Adaptive Management Work Group (AMWG) meeting.	AMWG Colorado; AMWG New Mexico; AMWG Utah; AMWG Wyoming; Arizona Department of Water Resources; Colorado River Board of California; Colorado River Commission of Nevada; Southern Nevada Water Authority	Ali Effati; Amy Haas; Charlie Ferrantelli; Clint Chandler; Colby Pellegrino; Jessica Neuwerth; Michelle Garrison; Sara Price

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10	4	ALTNEW - Proposed new alternative	Existing alternatives or potential new alternatives that may also impact other invasive species of concern could be analyzed and considered if appropriate and they do not interfere with the completion of the compliance process for smallmouth bass actions by the spring/summer of 2024. It is appropriate, however, to note any potential benefits of the flow options towards preventing other invasive fish establishment.	AMWG Colorado; AMWG New Mexico; AMWG Utah; AMWG Wyoming; Arizona Department of Water Resources; Colorado River Board of California; Colorado River Commission of Nevada; Southern Nevada Water Authority	Ali Effati; Amy Haas; Charlie Ferrantelli; Clint Chandler; Colby Pellegrino; Jessica Neuwerth; Michelle Garrison; Sara Price
0	5	ALTNEW - Proposed new alternative	Proposed Action and Alternatives to be Considered: The Basin States' Representatives support analyzing the four bypass flow options initially included in the Smallmouth Bass EA and one non-bypass flow option. If other options are identified during the process that may better achieve the purpose and need, Reclamation should fully analyze and consider those alternatives.	AMWG Colorado; AMWG New Mexico; AMWG Utah; AMWG Wyoming; Arizona Department of Water Resources; Colorado River Board of California; Colorado River Commission of Nevada; Southern Nevada Water Authority	Ali Effati; Amy Haas; Charlie Ferrantelli; Clint Chandler; Colby Pellegrino; Jessica Neuwerth; Michelle Garrison; Sara Price

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10	19	ALTNEW - Proposed new alternative	Additional Actions Needing Execution: In order to address the emergency posed by warmwater invasive species, the Basin States' Representatives urge Reclamation, the National Park Service, and other appropriate Department of the Interior agencies to quickly take the following actions in addition to the SEIS: 1. Deploy fish exclusion technologies to prevent further invasive fish entrainment through Glen Canyon Dam. 2. Work cooperatively to fund and implement all phases of the Glen Canyon -12-mile slough modification work proposal found in the document entitled "Glen Canyon Dam Sloughs: Proposed Modifications" that was provided to the AMWG on August 10, 2023. 3. Fully fund adequate early detection and rapid response. The flow actions being considered in this SEIS are unlikely to be successful in the absence of timely implementation of these additional actions. Time is of the essence for these and other actions to be effective in the long term at preventing the establishment of smallmouth bass and other warmwater invasive fish.	AMWG Colorado; AMWG New Mexico; AMWG Utah; AMWG Wyoming; Arizona Department of Water Resources; Colorado River Board of California; Colorado River Commission of Nevada; Southern Nevada Water Authority	Ali Effati; Amy Haas; Charlie Ferrantelli; Clint Chandler; Colby Pellegrino; Jessica Neuwerth; Michelle Garrison; Sara Price
15	3	ALTNEW - Proposed new alternative	With regards to these four action options, we continue to recommend emphasis on option B, but remain concerned that selection of a single flow Alternative may not be sufficient to solve the problem. Therefore, multiple flow configurations, other non-flow options and altered timing of implementation may be needed to effectively control SMB, Green Sunfish, and other nonnative piscivores in this system.	Grand Canyon Wildlands Council	Kelly Burke; Larry Stevens
15	6	ALTNEW - Proposed new alternative	While the focus on discharge-related options is the primary emphasis of this SEIS, multiple nondischarge-related control measures also are needed, such as measures that reduce throughdam transport of non-native fish, tailwater control efforts (including management of the -12L Mile Slough), and other methods. We know from the Green, Yampa, and Colorado River reaches above Lake Powell that establishment	Grand Canyon Wildlands Council	Kelly Burke; Larry Stevens

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			of SMB is a primary factor in population declines of humpback chub and other native fish species outside of Grand Canyon. The Yampa River invasion provides the cautionary tale of the ecological consequences that arise from failing to pursue intervention early in the non-native fish colonization process (Dr. Rich Valdez, personal communication). The costs involved in controlling established SMB through long-term management and to keep federally listed native fish from jeopardy and the brink of extinction there, are orders of magnitude greater than the cost of early prevention of establishment and those goals have proven impossible to obtain. We have also repeatedly heard from our Tribal colleagues in the AMP that taking of life in the Colorado River significantly harms indigenous cultural integrity and therefore should be avoided when possible.		
15	9	ALTNEW - Proposed new alternative	Our previously submitted analysis of non-flow-related options indicated that physical barrier screens, in-reservoir nets, floating barriers, turbine mortality, and electrofishing appeared to be equally easily accomplished and inexpensive short-term (emergency) management actions. If all were to be undertaken simultaneously, these may be the best collective strategy considered to reduce the likelihood of SMB establishment. Withdrawal of deeper water from the forebay and sorting facility options are intermediate management options, having higher cost or greater complexity, respectively. Our lowest ranked long-term solutions were installation of an air bubble screen and/or an acoustic barrier, with greater management costs to the implementation of multi-stimulus, CO2, and energy dissipation, and with electrical barrier as the most costly and difficult to implement option.	Grand Canyon Wildlands Council	Kelly Burke; Larry Stevens

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15	10	ALTNEW - Proposed new alternative	Another unconsidered option we recommended was propagation and release of a large number of mature, predatory, endangered Colorado River pikeminnow. This option would require low cost at a medium-to-long-term timeframe, with medium levels of compliance and low implementation cost. In addition to applying additional pressure to non-native fish, this option would help achieve an essential goal of the AMP and GCPA, namely returning a top aquatic predator to the Colorado River ecosystem. Like all Alternatives and non-flow Options, such an action would require continued monitoring, likely in perpetuity.	Grand Canyon Wildlands Council	Kelly Burke; Larry Stevens
15	12	ALTNEW - Proposed new alternative	Because of the high levels of uncertainty about how well treatments related to the preferred alternative and/or to non-flow measures, such as construction of a larval fish curtain in the forebay, or reduction of habitat suitability for non-native fish at -12L Slough will address the issues under consideration, flow and non-flow options may have to be pursued over time. Such decision-making will require this SEIS to be a "live and learn" adaptive management document, one kept up-to-date with active monitoring, and capable of flexibility as new treatment considerations (e.g., a single large flow peak) are needed or arise. Integration of such information, and feedback that improves management are crucial to long-term success of this effort, and hopefully will help satisfy the BOR's Section 10 responsibilities to species listed under the Endangered Species Act.	Grand Canyon Wildlands Council	Kelly Burke; Larry Stevens
17	9	ALTNEW - Proposed new alternative	There are multiple "tools" to consider in the prevention of non-native fish establishment downstream of Glen Canyon Dam. These include not only temperature modification, but fish curtains, disturbances, scouring, etc. Certain areas, like the -12 mile slough, should also be permanently modified to eliminate a warm water area ripe for non-native fish	Irrigation & Electrical Districts Association of Arizona	Ed Gerak

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			establishment. These actions should ultimately be included in the LTEMP SEIS, in addition to the flow actions.		
18	6	ALTNEW - Proposed new alternative	While it is commendable that Reclamation seeks to restrict invasive smallmouth bass from establishing a population below the Dam, CRIT urges Reclamation to avoid management techniques which may harm culturally significant, endangered or threatened species. For example, "shocking" fish may impact not only the smallmouth bass but also other species. Reclamation should also address striped bass issues.	Colorado River Indian Tribes	Rebecca Loudbear
20	5	ALTNEW - Proposed new alternative	Operational alternatives alone are insufficient to meet the purpose and need of the proposed action. Recent fish survey data and information from invasive fish control efforts in the Upper Colorado River Basin and other river basins have shown that an exclusive reliance on modified dam operations is insufficient to prevent invasive fish establishment. Moreover, the Glen Canyon Dam Adaptive Management Program Non-Native Fish Strategic Plan ("NNF Strategic Plan") concludes that other long-term and short-term actions beyond dam operations are necessary to meet the specified goal. Such actions include early detection and rapid response, and fish exclusion. Any use of operational alternatives to disrupt establishment of non-native species should be implemented in conjunction with non-operational alternatives as detailed in the NNF Strategic Plan, as the actions being considered in this SEIS may not be successful in the absence of timely implementation of these additional efforts.	AMWG Colorado; AMWG New Mexico; AMWG Utah; AMWG Wyoming	Ali Effati; Amy Haas; Charlie Ferrantelli; Michelle Garrison
20	16	ALTNEW - Proposed new alternative	Moreover, the operational alternatives analyzed in the SEIS may each need to be implemented at some point in time depending on conditions. We recommend that more than a single operational alternative be available for implementation in a given water year.	AMWG Colorado; AMWG New Mexico; AMWG Utah; AMWG Wyoming	Ali Effati; Amy Haas; Charlie Ferrantelli; Michelle Garrison

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21	2	ALTNEW - Proposed new alternative	The NOI states that "reductions in water temperature combined with changes in flow velocity may be vital tools that can be used to disrupt smallmouth bass from successfully spawning and establishing a population," and therefore "a range of reservoir releases with temperature and flow velocity combinations will be analyzed to determine efficacy of their ability to disrupt and prevent smallmouth bass spawning behavior." SRP believes that other alternatives are likely to be more effective than flow changes in disrupting smallmouth bass proliferation. In riverine environments, small mouth bass typically spawn in off-channel waters (e.g., backwaters and sloughs) where little, if any, flow exists. As observed in the Lees Ferry reach below GDC, these waters are notably higher in temperature than the main channel. The alternative flows that utilize steady "bypass flows" to decrease riverine temperatures below 16 degrees Celsius may not sufficiently affect temperatures in these off-channel waters to preclude small mouth bass spawning, as warmer aquatic refugia will almost always be available. SRP has concerns that all of the bypass flow options could have an impact on the power production at times when power is needed most, i.e., at times of peak electricity demand. SRP strongly recommends studying alternatives that do not modify bypass flows or disrupt hydrogeneration. For example, Reclamation should develop alternatives for the LTEMP SEIS that include preventing entrainment through reservoir elevation manipulation, thermal curtain or barrier net, habitat modifications, and addressing the ~12-mile slough where the smallmouth bass and other invasive fish spawn.	Salt River Project SRP	Angie Bond-Simpson
22	6	ALTNEW - Proposed new alternative	The ongoing warmwater fish invasion now resulting from BORs Glen Canyon Dam operations and BORs failure since the 2016 LTEMP Bi-Op to implement conservation measures to prevent warmwater invasive fish from passing through the	Center for Biological Diversity; Colorado Riverkeeper; Great	John Weisheit; Kyle Roerink; Sandy Bahr; Taylor McKinnon

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			dam warrants BOR immediately advance modifications to Glen Canyon Dam that (1) prevent passage of warmwater fish from Lake Powell into the Colorado River in the first place, and (2) augment sedimentation and increase turbidity sufficient to reduce or inhibit predation of humpback chub by smallmouth bass and other warmwater invasive fish. Thus, in addition to the SEIS, BOR must immediately and concurrently initiate action to: Modify the dam with fish exclusion devices to prevent entrainment of warmwater invasive fish; Modify the 12 mile slough to prevent warmwater invasive fish reproduction;	Basin Waterkeeper; Great Basin Water Network; Living Rivers; Sierra Club, Grand Canyon Chapter	
22	7	ALTNEW - Proposed new alternative	BOR must also immediately and concurrently initiate action to augment sediment and increase turbidity downstream of the dam in order to reduce smallmouth bass predation. The 2015 Biological Assessment for LTEMP acknowledged that the failure of LTEMP to provide methods to manage river temperature and sediment effectively excluded from LTEMP the most important potential conservation tools for humpback chub in the Grand Canyon. It states: Methods to actively manage temperature releases from Glen Canyon Dam sediment augmentation below the Paria River are not included in the Long-Term Experimental Management Program (LTEMP), for Glen Canyon Dam. Inclusion of infrastructure options including these were eliminated from detailed study in the LTEMP alternatives for a variety of reasons. We mention them here because these methods may still represent the most important potential conservation tools that could be used for the long-term conservation of HBC in Grand Canyon and the concepts should not be lost.	Center for Biological Diversity; Colorado Riverkeeper; Great Basin Waterkeeper; Great Basin Water Network; Living Rivers; Sierra Club, Grand Canyon Chapter	John Weisheit; Kyle Roerink; Sandy Bahr; Taylor McKinnon

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23	6	ALTNEW - Proposed new alternative	It should be stressed that although the Department agrees that the mechanisms of the flow options proposed in the EA should disadvantage warmwater species, the efficacy of such actions to elicit population-level effects on unwanted species is yet unknown. Reliance on flow operations exclusively to disadvantage warmwater species at Lees Ferry is likely not an effective long-term strategy, unless paired with other preventative measures. Technologies preventing or limiting entrainment of warmwater fish through Glen Canyon Dam needs to be pursued concurrently, if not implemented first. For example, the reduction in the entrainment of fish through the dam would attempt to address the source and would not come with the same costs to water storage and hydropower resources that changes to flow operations have. The Department recognizes there would be a substantial cost associated with the development, implementation, and maintenance of fish exclusionary devices but cost associated with post-establishment control efforts have the potential to be much larger. The high costs in managing high risk warmwater species in the upper basin can be referenced as evidence for the difficulty in controlling unwanted species once established. For these reasons, the Department believes that preventative measures continue to be the best defense against aquatic invasive species to minimize biological and economic impacts to existing resources.	Arizona Game and Fish	Luke Thompson
24	5	ALTNEW - Proposed new alternative	Lastly, lower water levels in Lake Powell are the main cause of the issue as they have allowed smallmouth bass to pass through the Glen Canyon Dam. These low reservoir levels must also be restored to higher levels. With projections of increased drought conditions, Lake Powell water levels need to be addressed more broadly and long-term solutions, including passthrough prevention, need to be considered to not only prevent the smallmouth bass from entering the	National Parks Conservation Association	Sanober Mirza

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			Grand Canyon but to protect the entire Grand Canyon ecosystem.		
25	11	ALTNEW - Proposed new alternative	Nets/barriers below the dam - The NOI doesn't mention the consideration of including any nets or barrier options to prevent additional entrainment of warmwater non-natives. We understand Reclamation is pursuing this separately on a longer timeline. However, we also understand there are some encouraging options involving nets below the dam in the restricted area that may present less risks and complications to dam infrastructure that could be implemented on a faster timeline. We would urge consideration of those options as a common to all element for the alternatives in this process (to be used in combination the flow options). If they could be installed and used sooner, it would make a difference while we are in the early stages of the invasion curve for SMB.	Glen Canyon National Recreation Area; National Park Service, Interior Regions 6,7,8	Ed Keable; Michelle Kerns
26	2	ALTNEW - Proposed new alternative	BRC has concerns with all the proposed release options. If releases are based on preventing spawning by keeping water temperatures cooler by initiating "triggers" when the water reaches 60 degrees Fahrenheit then we believe these releases will be in vain. Many sources which we have included in Appendix A show conflicting science. Many studies indicate that smallmouth bass spawning can occur in temperatures ranging from 40-80 degrees fahrenheit. However, if lower water temperatures will in fact prevent spawning of smallmouth bass then the best long term solution will be to keep water levels in Lake Powell higher.	BlueRibbon Coalition	Ben Burr; Simone Griffin
26	3	ALTNEW - Proposed new alternative	Due to current precipitation within the Upper Colorado River Basin, water levels are predicted to rise within the reservoir which would in turn make the need for these releases due to low levels obsolete. We strongly oppose any prolonged high flow releases through the hollow jets until the reservoir is stabilized at a higher level.	BlueRibbon Coalition	Ben Burr; Simone Griffin

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26	7	ALTNEW - Proposed new alternative	We recognize that the proposal only contemplates releases consistent with governing statutes and regulations. BOR should at least analyze an alternative that considers holding back more water to raise the lake level to where the temperature of water passing through the dam penstocks would achieve the purpose and need of the proposed action.	BlueRibbon Coalition	Ben Burr; Simone Griffin
28	1	ALTNEW - Proposed new alternative	UMPA is concerned that the invasive species and predators of the endangered fisheries are already established downstream. The slough continues to be a problem and has become a nursery for these invasive fish. Why is the focus on flows when this natural hatchery for invasive fishery is allowed to exist? Several attempts to fix the slough and chemical treat the fish over the years have yielded marginal results and failed to accomplish the end goal. Chemical treatments and the taking of life are discouraged by tribal partners. Until the slough is addressed appropriately based on technical recommendations by participating partners, results from the bypass flows or proposed Small Mouth Bass (SMB) flows offer little benefit.	Utah Municipal Power Agency	Kevin Garlick
28	4	ALTNEW - Proposed new alternative	We propose that consideration be given to maintaining an elevation in Lake Powell to prevent the entrainment of these invasive species. If lake levels are high enough, this is clearly the best method to prevent entrainment. High lake levels help with better hydropower production with lesser flows.	Utah Municipal Power Agency	Kevin
28	11	ALTNEW - Proposed new alternative	If low lake levels are predicted in the future, Reclamation should immediately begin the work on a barrier device in the forebay as discussed for the long-term solution to this challenge. The prior effort is deficient by only focusing on the mixing of flows using the bypass tubes to address the SMB matter and did not seriously examine other options.	Utah Municipal Power Agency	Kevin

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29	5	ALTNEW - Proposed new alternative	There are three key contributing factors to smallmouth bass establishment below Glen Canyon Dam that should be considered simultaneously within the same NEPA action, or at least as a cohesive invasive fish control strategy: o Lake Powell Elevations (entrainment): Low reservoir elevations allow smallmouth bass to be entrained through Glen Canyon Dam and continue to provide propagule pressure to the Lees Ferry reach. Options for mitigation include a thermal curtain in the forebay or maintaining a higher reservoir elevation during the summer and fall when bass are more susceptible to entrainment. o Lake Powell Elevations (temperature): Low reservoir elevations result in higher release temperatures that are suitable for smallmouth bass reproduction and recruitment below the dam. Options for mitigation instead of using bypass, include modifying the intake structures or maintaining a higher reservoir elevation during the summer and fall when reservoir temperatures are warmer (e.g., 3,550 ft. or higher). Suitable Habitat in Glen Canyon: Smallmouth bass are spawning and growing above Lees Ferry, primarily in the -12 mile slough complex, but potentially in main channel habitats as well. Options for mitigation include slough modification as described in a recent Reclamation report and experimental spike flows that reduce smallmouth bass spawning success. By segmenting these possible mitigation efforts, it makes it nearly impossible to understand the effects on resources from the IG SEIS, post-2026 EIS, and LTEMP SEIS. These all have substantial overlap and should be considered together. The scope should be broadened in an EIS to allow Reclamation to consider all the potential management actions within their authority.	Western Area Power Administration	Rodney Bailey

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29	6	ALTNEW - Proposed new alternative	Reclamation should also extend the scope of this EIS to consider non-flow actions (described below) to meet its purpose and need. Reclamation should consider adding the National Park Service (NPS) as a co-lead to provide compliance for non-flow management actions such as the physical modification of the -12 mile slough. This habitat is directly contributing to the establishment of smallmouth bass below Glen Canyon Dam. The mechanical and chemical treatments that NPS has now conducted on an annual basis are only removing a portion of the bass produced there each year. The -12 mile slough needs to be addressed immediately as part of a multi-faceted strategic plan, so it does not continue to provide nursery habitat for smallmouth bass and negate other efforts to address bass establishment below the dam.	Western Area Power Administration	Rodney Bailey
29	29	ALTNEW - Proposed new alternative	In 2022 and 2023, smallmouth bass were found spawning in the -12 mile slough just below Glen Canyon Dam and chemical treatments were conducting in both years to try and remove this establishing population. Temperature monitoring showed about 4 degrees C of warming in the slough during normal weekday operations and about 10 degrees C of warming during the steady weekend flows associated with a Bug Flow experiment (Reclamations 2023 Slough Modification Report). The warming during the Bug Flow experiment presents a robust data set that raises significant concerns about the slough and the potential impact of steady flow experiments like Bug Flows, and the steady flow components of operations like balancing and equalization, on the successful spawning and establishment of smallmouth bass in Glen Canyon. WAPA and the Basin States expressed these concerns during the technical team process for the Bug Flow experiment and during TWG meetings in 2022 but these concerns were dismissed by all Department of the Interior	Western Area Power Administration	Rodney Bailey

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			(DOI) agencies and AZGFD representatives at those meetings. When evaluating the flow options with bypass that were proposed in the EA earlier this year, it appeared unlikely that any of them will prevent the -12 mile slough from warming above 16 degrees C and keep smallmouth bass from continuing to spawn and establish in Glen Canyon. Additionally, there are several other sloughs, backwaters, and tributary mouths between Glen Canyon Dam and the Little Colorado River that would similarly be unaffected by changes in release temperatures. Smallmouth bass are likely to eventually establish in these sloughs, backwaters, and tributary mouths like they have at the -12 mile slough over the last 2 years if their entrainment through the dam and continued spawning in the Lees Ferry reach is not promptly addressed. Additionally, flow options with bypass will do little to address the risk of smallmouth bass establishment in the 200 miles of the Colorado River between the Little Colorado River and the Lake Mead inflow and reduce the threats to the humpback chub and razorback sucker populations, translocations, and reintroductions in western Grand Canyon. Additionally, without efforts by NPS to physically modify the -12 mile slough as outlined in Reclamations 2023 Slough Modification Report, WAPA does not see how Reclamation can prevent establishment of smallmouth bass below Glen Canyon Dam with a flow-only option. The -12 mile slough allows for successful spawning, recruitment, and dispersal. As long as smallmouth bass continue to be entrained through the dam, maintain a presence in the Lees Ferry reach, and have habitat where they can maintain their life cycle, they will continue to establish below Glen Canyon Dam.		

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30	2	ALTNEW - Proposed new alternative	Chemical treatment and electrofishing were used in 2023 to prevent establishment of the SMB. Yet, the SMB population grew. Thus, considering other options seems prudent. The slough has been an issue for several years and has proven to produce significant numbers of green sunfish, and current monitoring for SMB appears to show that this non-native invasive species is following the trajectory of the green sunfish. This summer, the SMB population in this area grew significantly. Addressing the slough seems like a wonderful opportunity for controlling non-native fish populations. Physical barriers should also be considered as a long-term solution.	Wyoming Municipal Power Agency	Rosemary Henry
32	7	ALTNEW - Proposed new alternative	The SEIS should consider a flow option with a larger magnitude (single) spike flow timed to disrupt SMB spawning while simultaneously being potentially beneficial for sediment. Please refer to recent HFE optimization modeling conducted by Grand Canyon Monitoring and Research Center (specifically Paul Grams' September 1, 2022 presentation, Scenario C). Moreover, what supporting evidence suggests that multiple spike flows are necessary? A single flow above 40,000 CFS may be more beneficial than multiple flows at 30,000 CFS	Grand Canyon River Guides, Inc.	Lynn Hamilton
32	9	ALTNEW - Proposed new alternative	If reduced water temperatures are shown to be more effective than higher velocities, then the SEIS should consider an alternative that focuses on reducing water temperatures below 13 degrees Celsius. The SEIS should consider sustained flows with reduced water temperatures that may be more effective at inhibiting SMB establishment while not adversely affecting sediment resources.	Grand Canyon River Guides, Inc.	Lynn Hamilton

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33	2	ALTNEW - Proposed new alternative	As noted by the Colorado River Basin States in their March 10, 2023 letter, "We continue to believe that flow-related actions are only one tool to address the issue and that additional actions like the installation of fish exclusion device(s) are necessary and urgently needed for the long-term prevention of establishment of nonnative species from Lake Powell into the reach below Glen Canyon Dam." (emphasis added). It is CREDA's understanding that following the April high flow release, and notwithstanding chemical treatment of the -12 mile slough, there is evidence of increased SMB presence and spawning in the system. Referring to the Colorado River Ecosystem, the Executive Summary of the Plan recommends: "To prevent the establishment of invasive fish species in the CRe, a combination of long-term, mid-term, and short-term actions will be required." CREDA recommends that Reclamation consider incorporating Appendix F from the Plan in its consideration of supplemental actions that were proposed by members of the Smallmouth Bass Ad Hoc Group and cooperating agencies to be considered in the management of invasive species. These actions, including temperature control device(s), generators on the bypass tubes, and modification of nursery and spawning habitat are recommended to complement identification and prevention actions and should be considered now.	Colorado River Energy Distributors Association	Leslie James

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2	2	ALTNO - Alternatives – No Action	The intention to consider only the "No Action Alternative" ignores scientific evidence for best practices to both manage river sediments and flows, as well as protecting humpback chub from smallmouth bass and other warm water invasive/non-native fish. It also runs counter to the Glen Canyon AMP's agreement to, "prevent the establishment of smallmouth bass below the GCD, which could threaten core populations of humpback chub in and around the Little Colorado River and its confluence with the mainstem" which could forever alter the Colorado River and these federally listed fish.1		Morgan Sjogren
2	11	ALTNO - Alternatives – No Action	And "no action" will cost us all something much greater. If the smallmouth bass populations are not addressed rapidly and effectively, these populations will establish to the permanent detriment of the humpback chub. The Grand Canyon's ecosystem and wildlife, like the threatened humpback chub, are millions of years old and yet the management choices we make show how precariously close we may come to forever altering or losing them.		Morgan Sjogren
24	2	ALTNO - Alternatives – No Action	Grand Canyon National Park should not become an ecological sacrifice zone by allowing current operations to continue under the "No Action" preliminary alternative. Instead, BOR must take the preliminary proposed action to lower temperatures in the Colorado River below the Glen Canyon Dam-this will help reduce the reproductive potential of invasive fish like smallmouth bass that have already managed to enter the lower Colorado River Basin. It is crucial to saving the ecosystem and protecting the native fish species like the humpback chub, which was recently downlisted from endangered to threatened under the ESA because of its successful restoration within the Grand Canyon.	National Parks Conservation Association	Sanober Mirza

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25	17	ALTNO - Alternatives – No Action	Hundreds of millions of dollars have been invested toward endangered fish recovery in the Colorado River basin. In the Upper Basin from 1989 through 2021, the recovery programs spent $209 million in capital, and were federally funded starting at $8 million per year for annual base funding. "No action" on this issue of invasion of SMB into the Grand Canyon may risk losing the progress made by these other programs. These efforts also serve as a harbinger of possible fish-recovery costs in both basins if we fail to prevent SMB establishment below GCD.	Glen Canyon National Recreation Area; National Park Service, Interior Regions 6,7,8	Ed Keable; Michelle Kerns
26	4	ALTNO - Alternatives – No Action	It is also important to note that the Humpback Chub, the native species residing within the Colorado River, spawns best at temperatures above 60 degrees Fahrenheit. If water temperatures do in fact increase, it would only benefit the listed humpback chub species. Ultimately the best option for protecting the Humpback Chub is maintaining a higher lake level. All proposed options would immediately hurt this endangered species for a speculative benefit. Each option degrades the desired habitat for the humpback chub. For this reason, BOR should not move forward with any of the proposed options.	BlueRibbon Coalition	Ben Burr; Simone Griffin

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10	7	ALTSCOMMON - Alts Common to All	Timeframe and Duration for the Analysis: More detail is needed in the description of alternatives regarding how or when a contemplated alternative might be triggered for implementation, might be off-ramped, might interact with implementation of an existing LTEMP experiment, and might be altered when a fish exclusion technology has been installed. At minimum, Reclamation should identify criteria for moving between flow options and off-ramping flow experiments. Importantly, Reclamation should continue to explicitly treat bypass flow actions as experiments. Furthermore, Reclamation should clearly state that the consultation and communication provisions of the LTEMP Record of Decision are a component of any LTEMP SEIS alternative.	AMWG Colorado; AMWG New Mexico; AMWG Utah; AMWG Wyoming; Arizona Department of Water Resources; Colorado River Board of California; Colorado River Commission of Nevada; Southern Nevada Water Authority	Ali Effati; Amy Haas; Charlie Ferrantelli; Clint Chandler; Colby Pellegrino; Jessica Neuwerth; Michelle Garrison; Sara Price
29	17	ALTSCOMMON - Alts Common to All	Non-flow actions that should be common to all alternatives: o Increasing downstream turbidity (i.e., the turbidity curtain concept previously developed by the GCDAMP) o TCD or generation on the bypass tubes o Thermal curtain in the forebay o Slough modification to eliminate spawning and nursery habitat for smallmouth bass o Monitoring to describe effects and impacts of experimental releases	Western Area Power Administration	Rodney Bailey
33	5	ALTSCOMMON - Alts Common to All	Pending review of proposed alternatives in the draft SEIS, CREDA recommends the following elements be included as Elements Common to All Alternatives: * Implementation of a spring High Flow Experiment (HFE) would require use of water from month(s) prior to the spring HFE (as opposed to spring/summer/fall months following the experiment. * Identification and mitigation of financial, economic, electric grid and Tribal impacts associated with each Alternative. * Establishment of on- and off-ramps addressing both operational and financial impacts (which requires appropriate monitoring and criteria for decision-making). * Emergency	Colorado River Energy Distributors Association	Leslie James

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			operations requirements as described in WAPA's March 10, 2023, letter, pages 11-12. * Identified funding on a non-reimbursable basis to mitigate the financial impacts of the experiment on the Upper Colorado River Basin Fund (Basin Fund). This funding would assist WAPA in meeting its contractual delivery obligations required as a result of the experiment. Failure to do so could also impair federal repayment obligations and ongoing operation and maintenance requirements of Reclamation and WAPA for the CRSP.		
6	5	CCGHG - Climate Change and GHG Emissions	Air Quality In the Draft EIS, include a qualitative discussion of ambient air conditions (existing conditions), National Ambient Air Quality Standards, and criteria pollutant non-attainment areas in the analysis area and vicinity. This type of evaluation is helpful in demonstrating compliance with state and federal air quality regulations and disclosing the potential impacts from temporary or cumulative degradation of air quality. Evaluate whether project activities could affect air quality and include measures in the Draft EIS that are needed to prevent significant impacts. Examples of potential air emissions associated with the proposed project activities include air pollutants from gasoline and diesel emissions from equipment used in the planned activity, emissions from idling equipment, emissions from vehicles traveling on paved and unpaved roads, and re- entrained dust. Recommendations: * Characterize existing air quality conditions to set the context for evaluating project impacts, including identification of: o Class I areas, which are afforded special protections under the Clean Air Act. o Sensitive receptors in the vicinity (such as population centers, nonattainment areas, and Class II areas with sensitive resources). o Airshed classifications and monitored baseline conditions (design values) for each criteria pollutant. o Any regional concerns in the area (e.g., ozone,	Environmental Protection Agency, Region 9	Stephanie Gordon

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			PM2.5, seasonal wildfire smoke). * Include modeled emissions of NAAQS and greenhouse gases. * Describe the management activities and provide timelines for implementation, if possible. This will be the basis of the information that will inform the level of emission generating activity and potential air quality impact. * Analyze reasonable and practicable mitigation measures to reduce project-related emissions. Typical mitigation measures include fugitive dust control measures, mobile and stationary source controls, and administrative controls. Ensure the Draft EIS includes a comprehensive list of all best management practices and mitigation measures to be implemented as part of the project		
6	6	CCGHG - Climate Change and GHG Emissions	Climate Change Consistent with Executive Order 14008 goals, we encourage measures to provide for diverse, healthy ecosystems that are resilient to climate stressors; require effective mitigation and encourage voluntary mitigation to offset the adverse impacts of projects or actions; reduce greenhouse gas emissions from authorized activities to the lowest practical levels; identify and protect areas of potential climate refugia; reduce barriers to plant migration; and use pollinator-friendly plant species in restoration and revegetation projects. Recommendations: * Discuss actions to improve adaptation to changing environmental conditions, such as water operations that improve resilience and decrease the vulnerability of specific species under projected climate conditions in the short and longer term. * Discuss reasonably foreseeable effects that changes in the climate may have on the proposed project, and what impacts the proposed project will have on climate change consequences. These considerations could help inform the development of measures to improve the resilience of the project.	Environmental Protection Agency, Region 9	Stephanie Gordon

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11	5	CCGHG - Climate Change and GHG Emissions	Regarding cumulative impacts, greenhouse gas emissions must be adequately analyzed. Specifically, the LTEMP SEIS must include consideration of the greenhouse gas emissions associated with obtaining replacement power, as well as the impact on climate change. As explained by the Ninth Circuit, "[t]he impact of greenhouse gas emissions on climate change is precisely the kind of cumulative impacts analysis that NEPA requires agencies to conduct."6	Arizona Electric Power Cooperative, Inc.	Patrick Ledger
28	8	CCGHG - Climate Change and GHG Emissions	Any replacement power from the loss of hydropower will not be solar or renewable energy. Utilities already subscribe to taking all the intermittent energy sources like wind and solar whenever it is available and utilities back down or ramp down the dispatchable power supplies from either coal fired or natural gas. If clean and renewable hydropower is not available, utilities are ramping up power supplies from carbon-based facilities contributing to greenhouse gases and air pollutants. Is the benefit worth trading the environment attributes and benefits of renewable hydropower with those generated by fossil fuels?	Utah Municipal Power Agency	Kevin
29	14	CCGHG - Climate Change and GHG Emissions	The LTEMP SEIS should follow the Biden-Harris Administration guidance to disclose climate impacts in environmental reviews by quantifying increases in greenhouse gas emissions as a result of the experiment. As described in WAPAs comments on the EA, the experiment may require WAPA to use other generating resources to replace Glen Canyon Dam generation. Based on NRELs analysis, replacement power would mostly come from fossil-fuel driven generators. Increased greenhouse gas emissions are among the impacts of generating electricity using fossil fuels sources and the SEIS should include an estimate of the additional greenhouse gasses that will be emitted due to the experiment.	Western Area Power Administration	Rodney Bailey

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33	7	CCGHG - Climate Change and GHG Emissions	Greenhouse gas emission impacts associated with each Alternative. The SEIS cannot rely on analysis performed for the LTEMP EIS given significantly changed conditions, due in part to implementation of revised WAPA rate schedules, regional electric grid resource changes, and regional replacement power availability.	Colorado River Energy Distributors Association	Leslie James
1	8	CONSBIO - Consultation biology/ESA related	6. The Endangered Species Act requires Reclamation to ensure the survival and recovery of humpback chub in the Grand Canyon. Reclamation is required to ensure that its management actions are not causing jeopardy to listed species under the Endangered Species Act. The 2016 LTEMP Biological Opinion23 details conservation measures established to prevent jeopardy and help ensure the survival and recovery of the threatened humpback chub. The danger to humpback chub from nonnative species was clear in 2016 and several significant measures were included to ensure Reclamation took steps to protect the humpback chub from these threats. The conservation measures set out the in the 2016 Biological Opinion include: explore the efficacy of a temperature control device at the dam to respond to potential extremes in hydrological conditions due to climate conditions that could result in nonnative fish establishment; pursue means of preventing the passage of deleterious invasive nonnative fish through Glen Canyon Dam; planning and compliance to alter the backwater slough at River Mile (RM) 12 (commonly referred to as "Upper Slough"), making it unsuitable or inaccessible to warmwater nonnative species that can compete with and predate upon native fish, including humpback chub; and planning and compliance of a plan for implementing rapid response control efforts for newly establishing or existing deleterious invasive nonnative species within and contiguous to the action area.24 "These conservation measures are designed to minimize or reduce	Grand Canyon Trust	Jen Pelz

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			the effects of the proposed action or benefit or improve the status of listed species as part of the LTEMP."25 It is clear from the 2016 Biological Opinion that a need already existed to take actions around nonnative warmwater fish and that it "may become a more frequent need ... with lower reservoir elevations and warmer dam releases."26 Given the discovery of nonnative fish below the dam and evidence of spawning, Reclamation must reconsult with the U.S. Fish and Wildlife Service to determine what measures are needed, including or in addition to those proposed as part of the LTEMP Revision, to ensure continued survival and recovery of humpback chub in Grand Canyon.		
8	2	CONSBIO - Consultation biology/ESA related	There is a long consultation history between the Service and Reclamation involving operations at GCD. A full list of consultations is on file in the Arizona Ecological Services Field Office. Consultation histories and summaries can also be found in the 2016 Biological Opinions for the LTEMP.	US Fish and Wildlife Service	Heather Whitlaw
8	10	CONSBIO - Consultation biology/ESA related	In December, 2022, Reclamation determined that the proposed flows to prevent establishment of SMB being proposed in the EA would not have any additional impacts to HBC or Razorback Sucker (Reclamation 2022). The Service responded in February, 2023, that Reclamation's plans were in accordance with the LTEMP BO (U.S. Fish and Wildlife Service 2023a). The LTEMP program currently operates under a 2016 BO (U.S. Fish and Wildlife Service 2016). Reinitiation of consultation is required under the BO in instances where "discretionary Federal agency involvement or control over the action has been retained (or is authorized by law) and: (1) If the amount or extent of incidental take is exceeded; (2) If new information reveals effects of the agency action that may affect listed species or critical habitat in a manner or to an extent not considered in this opinion; (3) If the agency action	US Fish and Wildlife Service	Heather Whitlaw

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			is subsequently modified in a manner that causes an effect to the listed species or critical habitat not considered in this opinion; or (4) If a new species is listed or critical habitat designated that may be affected by the action." 50 CFR Section 402.16(a). After selecting the preferred alternative, Reclamation should consider the environmental consequences of this alternative, and explore with the Service if the action meets any of the regulatory reinitiation triggers.		
22	4	CONSBIO - Consultation biology/ESA related	Measures to protect the chub and sucker from warmwater invasive fish, as set forth in the Biological Opinion for the Glen Canyon Dam Long-Term Experimental and Management Plan (LTEMP Bi-Op), either arent being implemented by BOR, or arent working; o BOR has failed, and continues to fail, to implement conservation measures that the 2016 Biological Opinion for the Glen Canyon Dam Long-Term Experimental and Management Plan (LTEMP Bi-op) presumed would prevent the introduction and downstream expansion of warmwater invasive fish into the Colorado River. This includes BORs ongoing failure in Grand Canyon to (1) construct barriers on the dam that prevent the passage of warmwater invasive fish, (2) eliminate side-channel nursery habitat below the dam, and (3) manage river temperatures and flows to prevent spawning and reproduction of smallmouth bass; and o In the absence of measures to prevent warmwater fish from passing through Glen Canyon Dam, rapid response conservation measures1 to control resultant warmwater fish invasion with chemical and mechanical eradication are failing. Despite detection and removal with chemical and mechanical treatments of 345 smallmouth bass from the Lees Ferry reach in October of 2022, NPS reported 667 smallmouth bass (SMB) in one portion of the Lees Ferry reach by August 2023, including dozens of young-of-year bass, and thousands of green sunfish, which have become established throughout	Center for Biological Diversity; Colorado Riverkeeper; Great Basin Waterkeeper; Great Basin Water Network; Living Rivers; Sierra Club, Grand Canyon Chapter	John Weisheit; Kyle Roerink; Sandy Bahr; Taylor McKinnon

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			Grand Canyon. Agency monitoring reports show downstream expansion of smallmouth bass in 2023 below the Paria River. o Glen Canyon Dam discharge temperatures in 2023, as in 2022, have remained above 16 degrees Celsius since early summer, thereby likely facilitating spawning, reproduction and expansion of smallmouth bass populations below the dam in locations beyond just the 12 mile slough.		
22	8	CONSBIO - Consultation biology/ESA related	BOR and FWS Must Consider Climate Change, Regional Aridification, Declining Colorado River Flows and Lake Powell Elevations, as Contribute to Warmwater Fish Invasion Downstream of Glen Canyon Dam, As Degraded Baseline Conditions in Consultation for Humpback Chub and Razorback Sucker The ESA mandates that all the impacts of the agencys discretionary activities on listed species, such as BORs operation of Glen Canyon Dam, be assessed as an effect, not as part of the environmental baseline, in determining jeopardy. This principle was reaffirmed during the rulemaking process for the 2019 revisions to the 402 consultation regulations. 84 Fed. Reg. 44,976, 44,978 (discretionary activities . . . that are part of the proposed action but for which no change is proposed are to be analyzed as part of the effects of the action, even those operations that the Federal agency proposes to keep the same.). Establishing an environmental baseline that fails to consider factors harming the species or degrading the species habitat violates the ESA. See, e.g., Am. Rivers & Ala. Rivers All. v. FERC, 895 F.3d 32, 46-47 (D.C. Cir. 2018) (holding Fish and Wildlife Service acted arbitrarily in establishing a baseline that failed to consider degradation caused by power plant); Natl Wildlife Fedn v. Natl Marine Fisheries Serv., 524 F.3d 917, 929 (9th Cir. 2008) (finding that a biological opinion violated ESA where it did not incorporate degraded baseline conditions into its jeopardy analysis.). Here, BOR and FWS must consider	Center for Biological Diversity; Colorado Riverkeeper; Great Basin Waterkeeper; Great Basin Water Network; Living Rivers; Sierra Club, Grand Canyon Chapter	John Weisheit; Kyle Roerink; Sandy Bahr; Taylor McKinnon

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			in the context of consultation the observed and predicted future climate change, regional aridification, Colorado River flow declines, declines in Lake Powell surface elevations, and resulting transport of warm water and warmwater invasive fish from Lake Powell into the Colorado River as degraded environmental baseline conditions that are degrading designated critical habitat for humpback chub and razorback sucker.		
32	5	CONSBIO - Consultation biology/ESA related	Do the flow alternatives satisfy the BOR's Section 10 responsibilities to species listed under the Endangered Species Act?	Grand Canyon River Guides, Inc.	Lynn Hamilton
1	9	CONSCULT - Consultation tribal related	7. Reclamation must prioritize consultation with the Grand Canyon affiliated Tribes and ensure that the LTEMP Revision honors and values their concerns around taking life in the canyon. The Pueblo of Zuni, the Hopi Tribe, and other tribes have expressed significant ongoing concerns regarding taking of life in the Marble and Grand Canyons. Specifically, the tribes oppose many, if not all, of the measures proposed by Reclamation to prevent the establishment of smallmouth bass in the Colorado River downstream of Glen Canyon Dam. Given these concerns, we strongly encourage Reclamation and other partners to prioritize and elevate consultation with the Grand Canyon affiliated Tribes to understand their interests, consider alternate solutions that do not conflict with their culture and values, and do so in a way that allows adequate time and engagement to ensure meaningful consultation and to influence outcomes. This consultation should be ongoing, not just during the LTEMP Revision process, including during planning, design and implementation of actions related to preventing establishment of nonnative fish in the Grand Canyon, and	Grand Canyon Trust	Jen Pelz

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			should include travel to respective reservations to reduce barrier to conversation and consultation. Further, preventative methods--such as creating a barrier in Lake Powell to ensure non-native species do not pass through the dam--have long been advised as an action Reclamation could take that may not conflict with values of and cause harm to tribes and Native communities. We strongly recommend that these proactive solutions be expedited and prioritized to carry out the agency's trust responsibility to the tribes and Native communities with ties to the Colorado River and its canyons.		
6	8	CONSCULT - Consultation tribal related	Consultation with Tribal Governments It is important that formal government-to-government consultation take place early in the scoping phase of the project to ensure that all issues are adequately addressed in the Draft EIS. The principles for interactions with tribal governments are outlined in the presidential "Memorandum on Government-to Government Relations with Native American Tribal Governments" (April 29, 1994) and Executive Order 13175, "Consultation and Coordination with Indian Tribal Governments" (November 6, 2000). As resources, we recommend the document Tribal Consultation: Best Practices in Historic Preservation,3 published by the National Association of Tribal Historic Preservation Officers and Traditional Knowledge and the Section 106 Process: Information for Federal Agencies and Other Participants document.4 Please note that the Advisory Council on Historic Preservation (ACHP) considers that "[c]onsultation is more than simply notifying an Indian tribe about a planned undertaking."5 While consultation should begin with a formal letter, the ACHP advises that "[f]ace-to-face meetings or on-site visits may be the most practical way to conduct consultation." Recommendations: * Summarize the results of tribal consultation, identify the main concerns expressed by	Environmental Protection Agency, Region 9	Stephanie Gordon

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			tribes, and clearly discuss how those concerns were addressed.		
6	9	CONSCULT - Consultation tribal related	National Historic Preservation Act Consultation for tribal cultural resources is required under Section 106 of the National Historic Preservation Act (NHPA). Historic properties under NHPA are properties that are included in the National Register of Historic Places (NRHP) or that meet the criteria for the NRHP. Section 106 of NHPA requires a federal agency, upon determining that activities under its control could affect historic properties, to consult with the appropriate State Historic Preservation Office/Tribal Historic Preservation Office. Under NEPA, any impacts to tribal, cultural, or other treaty resources must be disclosed in the Draft EIS. Section 106 of the NHPA requires that federal agencies consider the effects of their actions on cultural resources, following the regulation at 36 CFR Part 800. Recommendations: * Discuss how Reclamation would avoid or minimize adverse effects on the physical integrity, accessibility, or use of cultural resources or archaeological sites, including traditional cultural properties, throughout the project area. * Clearly discuss mitigation measures for archaeological sites and TCPs. * Append any Memoranda of Agreements to the Draft EIS, after redacting specific information about these sites that is sensitive and protected under Section 304 of the NHPA. * Provide a summary of all coordination with Tribes and with the State and Tribal Historic Preservation Offices, including identification of NRHP eligible sites and development of a Cultural Resource Management Plan.	Environmental Protection Agency, Region 9	Stephanie Gordon

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18	4	CONSCULT - Consultation tribal related	Tribal Nations, including CRIT, have cultural knowledge which can help inform Reclamation in its development of appropriate, effective management tools. Tribes must have a seat at the table and their cultural knowledge must be considered and included in the SEIS. For example, The White House Council on Environmental Quality issued Guidance for Federal Departments and Agencies on Indigenous Knowledge and Traditional Ecological Knowledge on November 30, 2022. Use of this guidance, and consultation with Tribal Nations, can help Reclamation have a more complete perspective on the culturally significant fish, flora, fauna, and traditional cultural properties related to the River, Lake Powell, and the Glen Canyon Dam area.	Colorado River Indian Tribes	Rebecca Loudbear
31	12	CONSCULT - Consultation tribal related	Reclamation must also consider how these NEPA standards and approaches--along with recognition of Tribal sovereignty and fiduciary trust responsibilities--necessitate inclusionary spaces and equal opportunities in every step of NEPA review for Tribal knowledge sovereignty and subject matter expertise for best available sciences. Inextricably tied to cultural, social, and political sovereignty and associated relationships of ecological health and wellbeing (see Norgaard 2014:2), knowledge sovereignty can be understood "[f]rom a local indigenous knowledge perspective" as: the freedom to recapture and utilise indigenous knowledge as a peer to [mainstream Western] scientific knowledge, to move it from 'invisible to visible[,] ... to challenge the fundamental dichotomies of [dominant Western] scientific thought such as object/subject, rational/irrational and White/Black So, to be knowledge-sovereign is to have the ability to choose one's own knowledge system, and to be able to use it freely to critique dissimilar constructions of knowledge without being subsumed by them [Fre 2018:16]. Reclamation must consider that in any effort to achieve good faith and	Pueblo of Zuni	Arden Kucate

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			reasonable NEPA compliance, information and data informing NEPA review must be gathered, analyzed, and considered by and through Native knowledge and science systems, values and uses, and perspectives and meanings (i.e., ontologies and epistemologies) in at least in equal standing with mainstream Western scientific methodologies and findings (Panteah 2021; Prabhakar and Mallory 2022). Reclamation must consider how appropriate attention to these concerns by trained, qualified, and Tribally trusted personnel are fundamentally necessary to collectively fulfill and comply with, both reasonably and in good faith, the overall purpose and procedures of NEPA generally and for this proposed supplemental EIS specifically.		
13	2	COOPAGENCY - Cooperating Agencies	The Upper Division States's comments will also guide the UCRC's participation as one of the cooperating agencies Reclamation invited to assist in the development and preparation of the SEIS.	Upper Colorado River Commision	Charles Cullom
20	15	COOPAGENCY - Cooperating Agencies	We also request that Reclamation create a process or schedule consistent with the existing communication and consultation processes in order to provide Western Area Power Administration (WAPA) sufficient time to plan for experimental flows.	AMWG Colorado; AMWG New Mexico; AMWG Utah; AMWG Wyoming	Ali Effati; Amy Haas; Charlie Ferrantelli; Michelle Garrison
21	6	COOPAGENCY - Cooperating Agencies	SRP appreciates Reclamation inviting the cooperating and co-lead agencies who participated in the LTEMP EIS process to also participate in the LTEMP SEIS process. SRP accepts and appreciates the opportunity to serve in this manner and to develop an option to achieve the goals described in the purpose and need without disrupting critical the critical hydropower function GCD serves.	Salt River Project SRP	Angie Bond-Simpson

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27	1	COOPAGENCY - Cooperating Agencies	Thank you for your letter of October 17, 2023, which invited the Upper Colorado River Commission ("UCRC") to participate as a cooperating agency in the preparation of a Supplemental Environmental Impact Statement ("SEIS") for the December 2016 Record of Decision Entitled Glen Canyon Dam Long-Term Experimental and Management Plan. This letter, together with my email dated October 25, 2023, will confirm the UCRC's acceptance of your invitation and its commitment to participate as a cooperating agency in the development of the SEIS.	Upper Colorado River Commision	Charles Cullom
29	34	COOPAGENCY - Cooperating Agencies	To address all the considerations mentioned above, WAPA, in coordination with Reclamation, has convened an independent science panel to help consider and inform Reclamation, WAPA, DOI and the GCDAMP participants on possible solutions to smallmouth bass populations below Glen Canyon Dam. We have asked this science panel to take a holistic approach and consider all the possible actions, even those that may lay outside of Reclamations authority to implement. WAPA is interested in generating ideas to help find solutions. We expect information from the science panel will inform modifications to Reclamations proposed action and to a long-term science plan, as it becomes available.	Western Area Power Administration	Rodney Bailey
33	12	COOPAGENCY - Cooperating Agencies	CREDA supports Reclamation's inclusion of LTEMP EIS co-lead and cooperating agencies in development of alternatives and the draft SEIS. Most, if not all, of these entities were also engaged in development of the AMWG Plan referenced above, and the federal and State agencies all have significant roles and responsibilities associated with SMB and other nonnative species issues.	Colorado River Energy Distributors Association	Leslie James

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2	4	CRTRIBE - Cultural and Tribal Resources	Flow Option B respects the Zuni and Hopi Tribes desire to not kill any fish, native or non-native, based on their belief that all life is sacred and that taking of life within the Colorado River system and Grand Canyon adversely affects both tribes. The Zuni and Hopi management preferences were presented to the Glen Canyon Dam Adaptive Management Group Technical Work Group on January 26, 2023, and accepted by the Adaptive Management Work Group on February 16, 2023: The continued implementation of reactive management actions to undesirable fish below Glen Canyon Dam in the CRe that result in the destruction of these fish will continue to have negative psychological and emotional impacts on the Zuni community. Recent Western scientific studies have continuously demonstrated that emotional and psychological stress on the body can weaken immune systems and inflammatory response, cause the decline and dysfunction of the prefrontal cortex and the hippocampus, and even influence cancer incidence and cancer progression. The impacts of lethal management actions have farther reaching negative effects than those experienced within the defined CRe.		Morgan Sjogren
6	10	CRTRIBE - Cultural and Tribal Resources	Executive Order 13007 Executive Order 13007, "Indian Sacred Sites" (May 24, 1996), requires federal land managing agencies to accommodate access to, and ceremonial use of, Indian sacred sites by Indian religious practitioners, and to avoid adversely affecting the physical integrity, accessibility, or use of sacred sites. Recommendations: * Address the existence of Indian sacred sites in the project area that may be considered spiritual sites by regional tribal nations. * Discuss how Reclamation would ensure that the proposed action would avoid or mitigate for the impacts to the physical integrity, accessibility, or use of sacred sites. * Consult with Tribes located outside the direct impact area the plan area	Environmental Protection Agency, Region 9	Stephanie Gordon

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			that may also have religiously significant ties to lands within the plan area.		
18	1	CRTRIBE - Cultural and Tribal Resources	1. Impacts of operational changes on water deliveries and protection of CRIT's water rights and agricultural operations. We expect that Reclamation will prepare its Plan with the full knowledge of the unique aspects of CRIT's water rights. We do not have a Reclamation contract, our water is not delivered through a Reclamation facility, and we are not part of the state water rights system. Reclamation, as part of the United States Government, has a trust obligation to protect our first priority decreed water rights for CRIT's present and future use. CRIT has federal Indian reserved water rights to divert water from the mainstream of the River as they have done throughout millennia. The CRIT water rights were adjudicated and quantified by the United States Supreme Court in (Arizona v. California (373 U.S. 546 (1963)) and included in the 1964 decree (Arizona v. California 376 U.S. 340, 344 (1964))) and subsequent Consolidated Decree 547 U.S. 150 (2006) . Any operational changes must not impact or impair CRIT's water rights. Changes to the quantity, timing, temperature, salinity, and quality of water may potentially impact CRIT's ability to fully exercise, use, and enjoy its water rights. Reclamation must ensure that CRIT's water rights are respected and protected in full. CRIT Farms and farmers on CRIT land use River water for irrigation. Any changes in water temperature, quality, salinity, or timing must not impact existing agricultural operations or the ability of CRIT to manage and plan for future water uses.	Colorado River Indian Tribes	Rebecca Loudbear

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18	7	CRTRIBE - Cultural and Tribal Resources	CRIT's membership includes people of Mohave, Chemehuevi, Hopi, and Navajo descent. The Lake Powell area, the River canyon, and the River are cultural resources for our people. The River and the River basin are a traditional cultural landscape and traditional historical property that are culturally significant to CRIT.	Colorado River Indian Tribes	Rebecca Loudbear
25	8	CRTRIBE - Cultural and Tribal Resources	Cultural resources - in the Grand Canyon there are over 300 documented archeological sites in the river corridor and there are very likely many more not documented that are currently covered by sediment. The 1992 GCPA mandates dam operations in a manner to protect or mitigate these resources. This LTEMP SEIS will influence the protection of these resources as it considers adjusting the High Flow Experiment (HFE) protocol to allow for adjustments to timing of HFEs that are more compatible with the lower reservoir operating range we have experienced in recent years. HFEs are the only dam operation for rebuilding sandbars to provide the source material for aeolian transport that can keep many of these cultural sites protected.	Glen Canyon National Recreation Area; National Park Service, Interior Regions 6,7,8	Ed Keable; Michelle Kerns
31	1	CRTRIBE - Cultural and Tribal Resources	The Pueblo of Zuni through this scoping response reiterates our expressed concerns regarding the taking of aquatic life that exists within this very sacred land/waterscape: the Colorado River in Grand Canyon. In 2009, the Pueblo of Zuni conveyed grave concerns on the intentional taking of life associated with mechanical removal of rainbow trout in a letter from Zuni Governor Cooeyate to Mr. Larry Walkoviak, Regional Director of the Bureau of Reclamation. In 2010, the Zuni Tribal Council passed Tribal Council Resolution M70-2010-C086 formalizing the Zuni Government's opposition to lethal management actions on aquatic life in the Grand Canyon. The full language of this resolution was formally and directly provided to Reclamation. In this resolution the Zuni	Pueblo of Zuni	Arden Kucate

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			Tribal Council formally declared: the government of the United States of America, especially the Department of the Interior, and all agencies thereof, has a trust responsibility to manage Zuni cultural and natural resources, including tangible and intangible cultural resources valued by the Zuni people wherever such resources may occur, in a manner responsive to the interests of the Zuni Tribe and its members; and the cultural values and beliefs of the Zuni people are intimately related to its ancestral lands, to natural places, and to the plants, animals, and spiritual qualities of such land and places. The Zuni Tribal Council Resolution passed in 2010 is based, in part, by the fact that every Zuni government leader is asked to take an Oath that in part reads: Into your care we entrust our land and our people.... The stranger who comes into our land will become as one of your people, regardless of race, color or creed, and you will give unto them the same protection and rights as you would your own. You will cherish and protect all that contains life; from the lowliest crawling creature to the human [Constitution of The Zuni Tribe, Article XVI - Oath of Office]. Zuni people know that all aquatic beings contain life, and thus are cherished and require protection, but also that they are Zuni relatives and children themselves. This is taught in Zuni traditional history by chimiky'ana'kowa, translating to "When newness was made," stories which convey events of history from the time of Zuni emergence from the fourth womb of 'awitelin tsitta into this world at chimik'yana'kya dey'a, in the Grand Canyon. Reclamation, National Park Service, U.S. Fish and Wildlife Service, Grand Canyon Monitoring and Research Center, all characterize non-native aquatic life in Glen and Grand Canyons as "threats," "pests," "invasive," "clear and present dangers," or as part of an "invasion"--as these agencies persistently do--are highly dispossessing acts that wholly		

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			dismiss Zuni relational life/ways, traditional histories, and sacred geographies. Such militaristic depictions are used to justify violent life-taking practices by conveying the notion that Zuni kin are out of place and unworthy of existence--or less worthy than other existences--rendering a life no longer of value or even part of nature; "[i]t isn't wildlife.... [It instead] becomes an evil influence that must be eliminated" (Brookshire, 2022:52). Such valuations serve to naturalize and universalize colonial timelines and the bad habits of the Western mind to create artificial divisions of nature then mistake these divisional artifices for Reality. Zuni has consistently and persistently made objections to any and all forms of lethal management of aquatic life (including flow options) to the Department of the Interior agencies.		
31	4	CRTRIBE - Cultural and Tribal Resources	Throughout the supplemental Environmental Impact Statement analysis, Reclamation must give due consideration to how the National Environmental Policy Act (NEPA) involves analyses and assessments of direct, indirect, and cumulative impacts (40 CFR 1508.8) to resources of traditional use and importance to Native American tribes. It must be acknowledged and internalized by Reclamation and its cooperating agencies, that all lands and waters within Glen Canyon National Recreation Area (GCNRA) and the Grand Canyon National Park (GCNP) are lands and waters of the First Peoples of the region and intimate and indelible parts of Native human environments. Reclamation must give attentive consideration to the fact that natural resources of the GCNRA and GCNP are cultural resources for affiliated Native peoples, and that 40 CFR 1508.14 defines the "Human Environment" broadly, stipulating that the: Human environment shall be interpreted comprehensively to include the natural and physical environment and the relationship of people with that environment.	Pueblo of Zuni	Arden Kucate

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31	6	CRTRIBE - Cultural and Tribal Resources	Reclamation must consider how its own self-stated institutional roots and historical purpose both pinpoint its active and ongoing role and cumulative contribution in advancing adverse effects on Native tribes and communities of the Colorado Plateau through dispossession, displacement, alienation, containment, and erasure from vast swaths of ancestral territories and traditional cultural land/waterscapes by privileging Western notions of natural resource exploitation and management and the associated limited notions of "development" through valuations and processes of "resource colonialism," or : the identification, appropriation, extraction, and processing, by dominant societies, of select natural resources belonging to other, subordinated peoples - [this colonial practice] quickly moved, in the Americas, from the gold and silver, which drew early conquistadors, to encompass plants and animals of numerous and varied sorts. Not only did European naturalists collect "the stuff of nature," ... but they also "lay their own peculiar grid of reason over nature so that nomenclatures and taxonomies often served as 'tools of empire'" [Whitt 2009:19].	Pueblo of Zuni	Arden Kucate
31	10	CRTRIBE - Cultural and Tribal Resources	Reclamation must consider how these facts of necessary inclusiveness, analyses, and special expertise are underscored by recent White House guidance on Indigenous Knowledge (IK), which acknowledges that IK can more "accurately capture the impact[s] ... on culturally or ecologically significant land[s]" (Prabhakar and Mallory 2022:19), and, as such, "[a]gencies should also include Indigenous Knowledge as an aspect of best available science" (Prabhakar and Mallory 2022:19). Regarding IK inclusion in NEPA processes specifically, White House IK guidance states: The National Environmental Policy Act (NEPA) requires Agencies to analyze, consider, and disclose the effects of major Federal actions on the human environment. CEQ's implementing regulations also direct	Pueblo of Zuni	Arden Kucate

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			Agencies to "make use of any reliable data sources" in carrying out their responsibilities under NEPA. Through the NEPA process, Agencies often engage with affected communities to inform the assessment of environmental effects. Agencies should recognize that Tribes and Indigenous Peoples hold relevant information and perspectives regarding the environment, and Indigenous Knowledge can inform Agencies' environmental analysis. Tribes and Indigenous communities may have special expertise with respect to environmental and community impacts, informed by Indigenous Knowledge. Tribes can play a key role in the NEPA process as a cooperating or participating agency. Common circumstances in which Indigenous Knowledge may arise include environmental reviews of resource management plans, forest plans, energy resource lease sales, and other Federal authorizations regarding the use of public lands [Prabhakar and Mallory 2022:6]. Reclamation seemingly recognizes that "[t]he entire landscape/waterscape of the Colorado River and the Colorado Plateau is culturally significant to Arizona, New Mexico, Utah and Colorado tribal nations and is still used for tribal purposes today. Yet, Reclamation also has a legacy of privileging, to the exclusion of all other forms of knowledge production, Western science methodologies and ideologies, as it repeatedly implements with respect to environmental compliance that disenfranchises and dismisses Zuni and presumably other Tribal forms of knowledge production.		

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6	2	CUMU - Cumulative Impacts	Cumulative Impacts Cumulative impacts are those that are reasonably foreseeable, related to the proposed action, and subject to the Bureau of Reclamation's jurisdiction and control. Considering all the actions in this area together would help decision makers to understand more clearly what the cumulative impacts on environmental resources are likely to be. The EPA has issued guidance on how to provide comments on the assessment of cumulative impacts, Consideration of Cumulative Impacts in EPA Review of NEPA Documents.1 Recommendations: * Evaluate impacts over the entire area of impact and the impacts when added to other past, present, and reasonably foreseeable future projects in the analysis area, including both the Near Term (2023-2026) and Post 2026 Long Term Colorado River Operations. * Using the Consideration of Cumulative Impacts in EPA Review of NEPA Documents as a resource, include the following information: o Resources, if any, that are being cumulatively impacted. o Appropriate geographic area and the time over which the effects have occurred and will occur. o All past, present, and reasonably foreseeable future actions that have affected, are affecting, or would affect resources of concern. o A benchmark or baseline. o Scientifically defensible threshold levels.	Environmental Protection Agency, Region 9	Stephanie Gordon
11	3	CUMU - Cumulative Impacts	a. The Bureau must identify direct, indirect, and cumulative impacts associated with hydropower customers acquiring replacement resources and discuss mitigation measures. Failure on behalf of the Bureau to take the requisite 'hard look' which "requires consideration of both foreseeable direct and indirect effects, as well as cumulative impacts" may result in a violation of NEPA.4 In accordance with Ninth Circuit precedent, "'[a] proper consideration of the cumulative impacts of a project requires some quantified or detailed information; . . . general statements about possible effects and	Arizona Electric Power Cooperative, Inc.	Patrick Ledger

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			some risk do not constitute a hard look absent a justification regarding why more definitive information could not be provided."...We emphasized that a cumulative impacts analysis 'must be more than perfunctory; it must provide a useful analysis of the cumulative impacts of past, present, and future projects.'"5		
11	8	CUMU - Cumulative Impacts	Without question, the operations at Glen Canyon Dam face unprecedented challenges imposed by extensive and persistent droughts. While we were encouraged with a better water year last year, it remains clear that the Bureau will continue to restrict hydropower generation in upcoming years to maintain lake level elevations. The prudency of this decision is evident. However, depletion of water resources at Glen Canyon Dam to manage a non-native species is not well justified and would not appear to be prudent from an operating utility perspective absent appropriate mitigation measures.	Arizona Electric Power Cooperative, Inc.	Patrick Ledger
22	9	CUMU - Cumulative Impacts	BOR and its sister agencies (NPS, USFWS) must undertake planning now to ensure the survival, and recovery of threatened and endangered fish in the context of minimum power pool, dead pool, and a warm Colorado River flowing through Grand Canyon. Worsening greenhouse gas pollution, regional warming, aridification, and Colorado River flow declines provide little assurance that, in the long term, sufficient water will be available to maintain Lake Powell levels and cold water flows from Glen Canyon Dam. BOR and its sister agencies duty to carry[] out programs for the conservationi.e., recovery of listed species, should compel planning now to ensure for the survival and recovery of threatened and endangered fish. This planning must consider ways to avoid, minimize, or off-set impacts from warm Colorado River water flowing through Grand Canyon due to	Center for Biological Diversity; Colorado Riverkeeper; Great Basin Waterkeeper; Great Basin Water Network; Living Rivers; Sierra Club, Grand Canyon Chapter	John Weisheit; Kyle Roerink; Sandy Bahr; Taylor McKinnon

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			increasing risks of long-term minimum power pool and dead pool behind Glen Canyon Dam. 16 U.S.C. 1536(a)(l). This must include planning for the climate inevitable obsolescence of Glen Canyon Dam and Lake Powell, and in that context provide for a phased decommissioning of the dam and associated engineering solutions that will provide for the survival and recovery of endangered fish in the mainstem of the Colorado River in Glen Canyon National Recreation Area and Grand Canyon National Park.		
17	3	DATA - Data Sources	The Invasive Species Strategic Plan approved by the Adaptive Management Work Group at its February 2023 meeting should be used in development of the SEIS.	Irrigation & Electrical Districts Association of Arizona	Ed Gerak
25	18	DATA - Data Sources	o Many past government efforts on invasive species have shown there are large economic benefits by responding early in the invasion curve rather than trying to suppress later in the invasion curve (Blaalid et al. 2021). [Reference from lit cited: Blaalid R, Magnussen K, Westberg NB, Navrud S (2021) A benefit-cost analysis framework for prioritization of control programs for well-established invasive alien species. NeoBiota 68: 31-52. https://doi.org/10.3897/neobiota.68.62122]	Glen Canyon National Recreation Area; National Park Service, Interior Regions 6,7,8	Ed Keable; Michelle Kerns
26	11	DATA - Data Sources	[Appendix A with links] See Appendix A for additional datasources	BlueRibbon Coalition	Ben Burr; Simone Griffin

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3	3	DECI - Decision Process	The Lower Basin States expect the continued use of the Planning and Implementation Team, which is outlined in the LTEMP ROD and requires discussion and recommendation of each experiment prior to implementation. This process is designed to ensure changes in dam operations are meeting the needs of the Glen Canyon Dam Adaptive Management Program and remain in compliance with existing law. While the Lower Basin States are requesting the alternatives be analyzed for the duration of the LTEMP, this additional analysis should not come at the expense of completing the necessary work to make these experimental flows administratively available by the proposed spring/summer 2024 deadline.	Arizona Department of Water Resources; Colorado River Board of California; Colorado River Commission of Nevada; Southern Nevada Water Authority	Clint Chandler; Colby Pellegrino; Jessica Neuwerth; Sara Price
10	18	DECI - Decision Process	Schedule: The Basin States' Representatives support the completion of the LTEMP SEIS and Record of Decision so that flow options are available for implementation in the spring/summer of 2024. As indicated elsewhere in this letter, the availability of flow options to prevent the establishment of smallmouth bass below Glen Canyon Dam is the most urgent element of the proposed action. Reclamation should ensure that the LTEMP SEIS is complete when needed to optimally prevent the establishment of invasive fish.	AMWG Colorado; AMWG New Mexico; AMWG Utah; AMWG Wyoming; Arizona Department of Water Resources; Colorado River Board of California; Colorado River Commission of Nevada; Southern Nevada Water Authority	Ali Effati; Amy Haas; Charlie Ferrantelli; Clint Chandler; Colby Pellegrino; Jessica Neuwerth; Michelle Garrison; Sara Price

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12	4	DECI - Decision Process	Measure success in the short-term and identify the path forward for the long- term. The CRCNV appreciates the difficult task that lies ahead and understands that controlling invasive species on the river may be as difficult as controlling the river itself. The CRCNV believes that reliance on any one technique for controlling invasive species populations may prove to be unsuccessful and multiple techniques may be needed in the short-term. The scope of the SEIS needs to include a framework for measuring whether one, or a combination of the flow options identified in the SEIS has been successful in controlling invasive species and include offramps for ceasing experiments if they have not had any appreciable impact on the problem.	Colorado River Commission of Nevada	Eric Witkoski
15	13	DECI - Decision Process	Lastly, and like Grand Canyon River Guides, many of the Native American Tribes, and others, GCWC encourages Reclamation to revisit the HFE decision-making about its Planning and Implementation (PI) team membership. More comprehensive involvement is critical to realizing the spirit of the 1992 Grand Canyon Protection Act to adaptively manage Glen Canyon Dam "in such a manner as to protect, mitigate adverse impacts to, and improve the values for which Grand Canyon National Park and Glen Canyon National Recreation Area were established". The PI Team needs to include the voices of all AMP stakeholders, as we have previously requested.	Grand Canyon Wildlands Council	Kelly Burke; Larry Stevens
20	14	DECI - Decision Process	In the draft SEIS, Reclamation should clarify and expressly state that implementation of operational alternatives will follow the communication and consultation processes that have been developed according to Section 1.4 of the LTEMP Record of Decision.	AMWG Colorado; AMWG New Mexico; AMWG Utah; AMWG Wyoming	Ali Effati; Amy Haas; Charlie Ferrantelli; Michelle Garrison

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20	18	DECI - Decision Process	(2) that Reclamation provide the criteria it will use to evaluate the effectiveness of the operational alternatives.	AMWG Colorado; AMWG New Mexico; AMWG Utah; AMWG Wyoming	Ali Effati; Amy Haas; Charlie Ferrantelli; Michelle Garrison
23	5	DECI - Decision Process	Additionally, the Department has concerns that the current decision process does not allow for adequate time to thoroughly discuss, deliberate, and make a determination on implementation for these actions separately and recommends BOR identify clear guidance that ensures adaquate time for review and coordination.	Arizona Game and Fish	Luke Thompson
32	15	DECI - Decision Process	GCRG respectfully requests that this SEIS should also revisit the HFE decision-making process as part of its evaluation of the HFE protocol. Greater inclusivity is fundamental to more fully realize the goals of the Grand Canyon Protection Act (GCPA), by expanding membership of the implementation/planning group [PI Team] described on page C-6 of the LTEMP ROD. The PI Team should include ALL stakeholders as GCRG and others requested in our Oct 2021 letter to Secretary's Designee, Wayne Pullan. Otherwise, key stakeholders (recreation, environmental, and Tribes) are disenfranchised from the decision-making process for this key tool to manage downstream resources specifically cited as justification for their membership on the AMWG.	Grand Canyon River Guides, Inc.	Lynn Hamilton
32	16	DECI - Decision Process	In our 2021 letter we stated, "If the inclusion of our voices can only be achieved through a National Environmental Policy Act process, we request that the Secretary consider including our voices on the PI Team during the AMP's next NEPA-related effort." The LTEMP SEIS should address how marginalizing some stakeholders from the process meets the stated goals of the GCPA and the underlying intent behind formation of the AMWG. GCRG believes that the current PI Team configuration	Grand Canyon River Guides, Inc.	Lynn Hamilton

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			does not in fact meet those mandates and must therefore be modified so that all voices and perspectives can be heard and incorporated into the decision-making process for High Flow Experiments. Supporting greater transparency, equity, and inclusion should be an important component of this LTEMP SEIS so that we can make the best recommendations to the Secretary of the Interior as we face the challenges ahead.		
33	13	DECI - Decision Process	Section 1.4 of the LTEMP ROD establishes a decision-making/recommendation process associated with experiments undertaken under LTEMP. Given the potential direct and immediate impacts of actions being considered by this SEIS to CRSP electric service customers, CREDA recommends that all LTEMP Cooperating Agencies be afforded the opportunity to participate in any decision-making/recommendation process associated with actions under this SEIS.	Colorado River Energy Distributors Association	Leslie James
11	2	EAANALYSIS - EA Analysis	Although AEPCO supports the Bureau's decision to prepare the LTEMP SEIS, AEPCO nonetheless continues to have concerns regarding the Bureau's efforts in analyzing the impacts of the Preliminary Proposed Action as well as the Purpose and Need associated with the Preliminary Proposed Action.2 Failure on behalf of the Bureau to resolve such concerns may result in a final agency action that is "'arbitrary, capricious, an abuse of discretion, or otherwise not in accordance with law'" in violation of NEPA."3	Arizona Electric Power Cooperative, Inc.	Patrick Ledger

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17	4	EAANALYSIS - EA Analysis	IEDA remains concerned with the lack of scientific support present in the draft EA regarding the use of flow spikes or cold-water releases for non-native fish disruption. We expect that proper rationale will be included to justify any selected alternative, especially one that negatively impacts hydropower,, especially considering the LTEMP's charge to maintain or enhance hydropower production to the greatest extent practicable.	Irrigation & Electrical Districts Association of Arizona	Ed Gerak
29	24	EAANALYSIS - EA Analysis	In the previous EA on page 3-30, the document stated that WAPA will continue to operate under the emergency exception criteria, as stipulated under the 1996 ROD, which allows Glen Canyon Dam to be operated outside of minimum and maximum flow limits, daily change constraints, and both maximum hourly up-and-down ramp rates in the event of a power system emergency (Reclamation 1996). This citation is incorrect and should be updated in the SEIS. On June 6, 2018, then Regional Director, Brent Rhees signed a revised Operating Criteria for Glen Canyon Dam which implements the LTEMP ROD and provides for Emergency Exception Criteria. WAPA can provide this document to Reclamation if needed.	Western Area Power Administration	Rodney Bailey
15	7	ECO - Ecology	Coupling treatments to control undesirable resource elements while benefiting desired natural resources, such as sandbar and beach habitats, is core to adaptive ecosystem management, and should play a strong role in prioritization in the selection of a Preferred Alternative for this EA. It has repeatedly been shown that single-species management is ineffective as an ecosystem management approach due to the complexity of habitat X species X assemblage interactions. Therefore, we emphasize the importance of evaluating whole-system impacts and recognizing the complexity and uncertainty of these dynamic systems, especially under	Grand Canyon Wildlands Council	Kelly Burke; Larry Stevens

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			accelerating climate impacts. We additionally emphasize that the Preferred Alternative needs to provide the greatest benefit to ecosystem and program integrity, by coupling prevention of SMB establishment with other resource benefits, particularly those related to improvement or enhancement of habitat, such as sandbar rejuvenation.		
15	8	ECO - Ecology	While we recognize the urgent need for this action to disadvantage specific non-native warm water invasive species, we remain concerned that primary focus on SMB in the forebay and Glen Canyon reach tailwaters may have unintended consequences related to other natural resources, as well as other nonnative invasive species that also pose severe threats to the downstream river (e.g., other non-native fish, several non-native invertebrate taxa, etc.). Unintended consequences often exacerbate threats to native species and natural processes, including increased cost to remediation and monitoring, and potentially limiting future management options. Therefore, as we highlighted in our earlier AMP stakeholder input, we emphasize the need to carefully evaluate potential negative effects of the preferred action and develop robust contingency plans to cope with issues that arise unexpectedly. These include unexpected interaction effects among the various SMB flow and non-flow treatment options, which require careful consideration in implementation planning. We continue to maintain this concern and urge that contingency planning be explicitly addressed during decision-making and as guidance for monitoring. Such planning should be conducted in the context of the recently completed Non-native Fish Strategic Plan and in relation to Tribal stakeholder cultural concerns.	Grand Canyon Wildlands Council	Kelly Burke; Larry Stevens

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6	7	EJ - Environmental Justice	Environmental Justice The EPA's goal is to provide an environment where all people enjoy the same degree of protection from environmental and health hazards and equal access to the decision-making process to maintain a healthy environment in which to live, learn, and work. This goal is reflected through our review of NEPA analyses under Section 309 of the Clean Air Act. In addition, Executive Order 12898, "Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations" (February 16, 1994), directs federal agencies to identify and address, as appropriate, disproportionately high and adverse human health or environmental effects of their actions on minority and low-income populations. It further directs agencies to develop a strategy for implementing environmental justice and providing minority and low-income communities access to public information and public participation. Recommendations: * Include an environmental justice section that addresses potential adverse environmental effects of the proposed project on these communities and outline measures to mitigate for impacts. As part of an environmental justice analysis, use EPA's EJScreen and/or the most recent American Community Survey from the U.S. Census Bureau to determine the presence of minority and low-income populations. However, it is important to note that minority and low-income can be measured in various ways. After Reclamation has determined if minority and low-income populations exist in the project area, we recommend that the Draft EIS discuss whether these communities would be potentially affected by individual or cumulative actions of the proposed action. Even though project impacts may be the same for all populations within the proposed project area, please note that social determinants of health,2 such as language and literacy skills, education, job opportunities, and income, may result in	Environmental Protection Agency, Region 9	Stephanie Gordon

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			minority and low-income populations bearing a disproportionate burden of environmental health risk from project impacts. These factors of risk should be accounted for in the Draft EIS and considered in the analysis for determining if any alternative would cause any disproportionate adverse impacts. If it is determined that minority and low-income populations may be disproportionately impacted, describe in the Draft EIS the measures taken by Reclamation to fully analyze the environmental effects of the action on minority communities and low-income populations and identify potential mitigation measures. Mitigation measures could include ensuring public notification procedures occur for all project area proposed actions, and media releases to inform locals and visitors about the expected impacts of the experimental flows. Recommendations: * Identify low-income and minority populations within the project area using block groups and clearly disclose potential impacts to these populations including disparate health effects (including risks). * Discloses the opportunities Reclamation provided for early and meaningful involvement and document early outreach as recommended by E.O. 14096 ((C)(ix)(C)). * Disclose any measures to minimize or mitigate for health impacts. * Identify how Reclamation would notify the public of upcoming experimental flows, and translate documents where areas of linguistically isolated populations exist. If needed, EJScreen's output clearly identifies linguistically isolated populations and languages present.		

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29	15	EJ - Environmental Justice	The LTEMP SEIS should evaluate potential impacts to underserved and disadvantaged rural and tribal communities. Environmental justice communities should be evaluated for an analysis of disproportionately high and adverse human health or environmental impacts of the experiment. WAPA estimates that 45 percent of CRSP power customers are electric service providers for areas that could be classified as disadvantaged communities (WAPAs initial report to DOE based on 2019 data in response to the Justice40 Initiative, Executive Order 14008 (January 27, 2021). Therefore, the proposed action has the potential to impact those disadvantaged communities that are CRSP firm electric service customers.	Western Area Power Administration	Rodney Bailey
31	2	EJ - Environmental Justice	An additional consideration that is need of attention is that any increase in power rates due to the need for purchasing contracted power as a result of changes to operations in Glen Canyon dam that the low-income Zuni community members will have to pay will compound and intensify the emotional and psychological trauma experienced.	Pueblo of Zuni	Arden Kucate
31	3	EJ - Environmental Justice	The various dam operational alternatives identified in this Notice of Intent to prepare a Supplemental Environmental Impact Statement are understood through the Zuni concept "Deshamik'ya," which is imagining or acting out an undesirable behavior that results in negative effects to a family or community of people. In this instance, purposefully altering dam operations as a method to prevent or disrupt the continuing of life and which could result in mortality can be understood through the translation of the word karma, with the harmful effects and impacts being directed on and toward the Zuni community. These adverse effects and impacts will exponentially contribute to greater vulnerability and precariousness, which Indigenous people experience at greater frequency and intensity than do the industrial nations.	Pueblo of Zuni	Arden Kucate

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			Consideration and analysis of these effects and impacts are frequently lacking from an equitable and meaningful environmental justice analysis and must be included lest this intended supplemental EIS and NEPA process itself serve as part of systemic social and environmental injustice and continually imposed barriers and obstacles for equity.		
31	7	EJ - Environmental Justice	Reclamation must additionally consider in this context how it and other U.S. agencies repeatedly fail to fulfill environmental justice and equity obligations, and how the claim of "[n]eutrality, which is important to government agencies, means ignoring racial inequalities" (Harrison 2019:92). These Reclamation considerations must therefore also include the many ways in which perpetuations of structural violence have historically and geographically occurred as a result of Federal agency staff bias and negligence through "environmental regulatory protections [that] have never been evenly applied" and how "[w]orking-class, racially marginalized, and Native American communities have always been disproportionately exposed to deadly environmental hazards relative to wealthier, white communities" (Harrison 2019:xi).	Pueblo of Zuni	Arden Kucate
31	8	EJ - Environmental Justice	Reclamation must directly consider how past allocation and use of Colorado River waters have intentionally excluded sovereign tribal nations that have occurred to date throughout the West and Southwest regions of the United States are part of geographies and land/waterscapes of sacrifice with enduring ideological, cultural, social, and material impositions that rely on and co-constitute continually accumulating Indigenous environmental injustices of damage, despair, and destruction. Reclamation must consider how these processes of injustice--over space and time--have been built on and persevere through various forms of settler colonial "racism, militarism, and economic imperialism [that]	Pueblo of Zuni	Arden Kucate

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			have combined to marginalize a people and a land that many within government or industry, consciously or not, regard as expendable" (Kuletz 1998:6), and how "settler-colonization is at base a winner-take-all project whose dominant feature is not exploitation but replacement. The logic of this project, a sustained institutional tendency to eliminate the Indigenous population, informs a range of historical practices that might otherwise appear distinct - invasion is a structure not an [isolated] event (Wolfe 1999:163). Reclamation must further consider in these precise contexts of the logics and cumulative adverse effects of settler colonialism its agency's own role in promoting Anglo and Euro American settlement of the Western United States and the aggregating environmental and social injustices this has caused and continues to cause.		
33	8	EJ - Environmental Justice	Impacts to underserved and disadvantaged rural and tribal communities. Nearly half of Colorado River Storage Project (CRSP) power customers (including CREDA members) are electric service providers for areas that could be classified as disadvantaged communities. Impacts to these environmental justice communities should be evaluated in the SEIS.	Colorado River Energy Distributors Association	Leslie James
2	3	FISH - Fish Species	The warming waters below Glen Canyon Dam create a problematic equation for the threatened humpback chub, which are more likely to venture out into the main channel below Glen Canyon Dam where smallmouth bass, a known predator which also prefers warm water to spawn, are becoming more established: Like humpback chub, smallmouth bass can spawn when temperatures exceed 16degC/61degF; however, sufficient numbers of adult fish need to be present for successful reproduction and population establishment to occur.2 According to biologists, "If smallmouth bass and other predators become established,		Morgan Sjogren

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			it could be a point of no return for humpback chub and other native fishes in Grand Canyon."3 Past methods to remove smallmouth bass using rotenone and elctro-fishing proved expensive and unsuccessful. They also directly counter and disrespect Indigenous cultural concerns regarding fish management in Glen and Grand Canyon.4		
8	8	FISH - Fish Species	The Service believes that a dedicated project evaluating the conditions prior to and after the use of these flow options will assist in understanding the effectiveness of any action taken. Spawning and nesting for smallmouth bass generally occurs within the littoral zone of lakes and nearshore in flowing waters, making it relatively easy to conduct observations of nests from a distance with binoculars (Winemiller & Taylor 1982). Spawning (generally followed 4 to 5 days later by nesting) takes place from April to mid-July at southern latitudes when water temperatures exceed 15degC (Tringali et al. 2015). Male smallmouth bass establish territories and excavate saucer- shaped depressions in coarse substrates (Pflieger 1966). Nests are often located near rocky or wood cover and males provide parental care during egg incubation, larval development, and the juvenile dispersal stage (Tringali et al. 2015). The Service believes that Reclamation, in partnership with GCMRC and the agencies responsible for the fishery in the Glen Canyon Reach of the Colorado River, should develop a study plan to investigate the effects of these disturbances on smallmouth bass prior to, during, and after any flow is implemented.	US Fish and Wildlife Service	Heather Whitlaw

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10	12	FISH - Fish Species	An updated scientific understanding of trout recruitment impacts from Spring HFE implementation should also be included and any impacts from not implementing Trout Management Flows as described in the LTEMP should be disclosed.	AMWG Colorado; AMWG New Mexico; AMWG Utah; AMWG Wyoming; Arizona Department of Water Resources; Colorado River Board of California; Colorado River Commission of Nevada; Southern Nevada Water Authority	Ali Effati; Amy Haas; Charlie Ferrantelli; Clint Chandler; Colby Pellegrino; Jessica Neuwerth; Michelle Garrison; Sara Price
10	15	FISH - Fish Species	Impacts to the western Grand Canyon population of the humpback chub should be analyzed.	AMWG Colorado; AMWG New Mexico; AMWG Utah; AMWG Wyoming; Arizona Department of Water Resources; Colorado River Board of California; Colorado River Commission of Nevada; Southern Nevada Water Authority	Ali Effati; Amy Haas; Charlie Ferrantelli; Clint Chandler; Colby Pellegrino; Jessica Neuwerth; Michelle Garrison; Sara Price

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15	2	FISH - Fish Species	Virtually all of the substantive environmental comments received by Reclamation in the previous SMB EA recognized the urgent need for action with regards to the on-going invasion of highly predatory smallmouth bass (SMB) downstream in Glen Canyon. That invasion is taking place primarily because southwestern aridification is reducing water levels in Lake Powell leading to warmer water releases downstream, conditions that allow SMB and other piscivorous non-native fish to survive and reproduce in the Glen Canyon Dam tailwaters. Based on much knowledge of SMB impacts on native fish populations in the upper Colorado River Basin and elsewhere, this invasion poses extreme threats to the existence and condition of native fish populations in Grand Canyon, particularly those of Threatened Humpback Chub.	Grand Canyon Wildlands Council	Kelly Burke; Larry Stevens
18	2	FISH - Fish Species	The Razorback sucker, Bonytail and Humpback chub are all culturally significant fish to CRIT. Our Ancestors caught and ate these fish for countless generations. As recently as the prior generation, our Elders fished for these species while running cattle below the Dam. We know that these fish need warm water; temperatures below 50 degrees Fahrenheit are fatal to them. They also need shallow pools with slow moving water for breeding. In any analysis of management tools for controlling smallmouth bass, Reclamation should also analyze whether there are impacts to the Colorado pikeminnow, Razorback sucker, Bonytail, or Humpback chub.	Colorado River Indian Tribes	Rebecca Loudbear
20	10	FISH - Fish Species	We also suggest that Reclamation include one or more SMB/warmwater invasive fish species experts on the SEIS team.	AMWG Colorado; AMWG New Mexico; AMWG Utah; AMWG Wyoming	Ali Effati; Amy Haas; Charlie Ferrantelli; Michelle Garrison

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20	11	FISH - Fish Species	We urge Reclamation to ensure that the proposed actions do not negatively impact humpback chub. We recommend that Reclamation include sufficient offramps for any proposed operational alternatives at Glen Canyon Dam, and that the SEIS analyze the cumulative effects of drought and changes in the HFE protocol that may impact humpback chub populations downstream. Additionally, the cumulative effects and changed operations may require reinitiation of consultation under the Endangered Species Act.	AMWG Colorado; AMWG New Mexico; AMWG Utah; AMWG Wyoming	Ali Effati; Amy Haas; Charlie Ferrantelli; Michelle Garrison
22	2	FISH - Fish Species	BORs operation of the Glen Canyon Dams penstocks is causing, on an ongoing basis, an invasion of nonnative warmwater predator fish by transporting warm water above 16 degrees Celsius and warmwater invasive fish from Lake Powell into the Colorado River. This is facilitating the ongoing establishment, reproduction, and downstream expansion of warmwater invasive fish populations into and immediately upstream of designated critical habitat for razorback sucker, humpback chub, and humpback chubs last large source population at the Little Colorado River;	Center for Biological Diversity; Colorado Riverkeeper; Great Basin Waterkeeper; Great Basin Water Network; Living Rivers; Sierra Club, Grand Canyon Chapter	John Weisheit; Kyle Roerink; Sandy Bahr; Taylor McKinnon
22	3	FISH - Fish Species	Populations of some warmwater invasive species, like smallmouth bass, may be impossible to control if they become established, and could eliminate the humpback chubs last large source population at the Little Colorado River. Researchers estimate that long-term reductions in smallmouth populations require nearly 70% removal of young of year for at least ten consecutive years. This type of intensive, long-term smallmouth bass management is likely not physically possible in GCNRA and GCNP.	Center for Biological Diversity; Colorado Riverkeeper; Great Basin Waterkeeper; Great Basin Water Network; Living Rivers; Sierra Club, Grand Canyon Chapter	John Weisheit; Kyle Roerink; Sandy Bahr; Taylor McKinnon

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25	4	FISH - Fish Species	SMB were rated as the highest threat to humpback chub in the 2018 species status assessment (USFWS 2018) and over 92% of adults in the world (Badame 2008; Francis et al. 2016; USFWS 2018; Hines et al. 2020; Caldwell 2021; Van Haverbeke et al. 2022, 2023) are located below the GCD and have not had to contend with SMB until now (see figure 1). There is evidence from the Upper Basin that the presence of invasive fish, particularly like SMB, have been the largest determining factor in declines in native and federally listed fish in the last 20 years (Johnson et al. 2008, Martinez et al. 2014). A rapid decline in humpback chub from non-native predation could have operational cost implications throughout the entire Colorado River basin for state and federal government agencies. Revenue losses for hydropower should be weighed against potential costs from losses of operational flexibility and future water development throughout the system if humpback chub status changes. [References from Lit Cited: Badame PV. 2008. Population Estimates for Humpback Chub (Gila cypha) In Cataract Canyon, Colorado River, Utah, 2003-2005. Pages 1-17. Utah Division of Wildlife, Moab, Utah, United States. Francis TA, Bestgen KR, White GC. 2016. Population Status of Humpback Chub, Gila cypha, and Catch Indices and Population Structure of Sympatric Roundtail Chub, Gila robusta, in Black Rocks, Colorado River, Colorado, 1998-2012. Pages 1-63. US Fish and Wildlife Service, Grand Junction, Colorado, United States. Hines BA, Bestgen KR, White GC. 2020. Abundance Estimates for Humpback Chub (Gila cypha) and Roundtail Chub (Gila robusta) in Westwater Canyon, Colorado River, Utah 2016-2017. Pages 1-43. Utah Division of Wildlife, Moab, Utah, United States. Caldwell J. 2021. Humpback Chub Gila cypha Monitoring in Desolation and Gray Canyons of the Green River, Utah, 2018-2019. Pages 1-32. Utah Division of Wildlife, Moab, Utah, United States.	Glen Canyon National Recreation Area; National Park Service, Interior Regions 6,7,8	Ed Keable; Michelle Kerns

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			Van Haverbeke DR, Newton J, Young KL, Pillow MJ, Rinker P. 2023. Mark-Recapture and Fish Monitoring Activities in the Little Colorado River in Grand Canyon from 2000 to 2022. Pages 1-53. US Fish and Wildlife Service, Flagstaff, Arizona, United States. Van Haverbeke DR, Young KL, Pillow MJ, Rinker PN. 2022. Monitoring Humpback Chub in the Colorado River, Grand Canyon during fall 2022. Pages 1-41. US Fish and Wildlife Service, Flagstaff, Arizona, United States. Johnson, B. M., Martinez, P. J., Hawkins, J. A., & Bestgen, K. R. (2008). Ranking predator threats by nonnative fishes in the Yampa River, Colorado, via bioenergetics modeling. North American Journal of Fisheries Management, 28(6), 1941-1953. Martinez, P., K. Wilson, P. Cavalli, H. Crockett, D. Speas, M. Trammell, B. Albrecht, and D. Ryden. 2014. Upper Colorado River basin nonnative and invasive aquatic species prevention and control strategy. Final Report, Upper Colorado Endangered Fish Recovery Program, Denver, Colorado.] Figure 1. Current adult population abundance estimates (N) with upper and lower confidence intervals for humpback chub (Gila cypha) at six locations throughout its range. Estimates taken from most current and available reports (Badame 2008; Francis et al. 2016; USFWS 2018; Hines et al. 2020; Caldwell 2021; Van Haverbeke et al. 2022, 2023).		
25	5	FISH - Fish Species	Endangered Fish - The federally threatened humpback chub and the federally endangered razorback sucker are present in the Grand Canyon below the GCD. As shown above, over 92% of the adult humpback chub exist in this one stretch of river, This stretch of the Colorado has had the lowest population of invasive warmwater predators until now. Establishment of SMB and a suite of the warmwater predators is expected to have major negative impacts to these populations and the USFWS led multiagency SMB task force recommended a combination of bypass flows and flow spikes as the most	Glen Canyon National Recreation Area; National Park Service, Interior Regions 6,7,8	Ed Keable; Michelle Kerns

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			effective approach (AMWG notes, May, 2022). Increasing numbers of SMB in the Glen Canyon reach below the dam in 2022 and 2023have led to mechanical and chemical rapid response efforts to try to reduce numbers. In 2023, the first captures of SMB in recent years in Grand Canyon required emergency rapid response. Timing is critical to prevent expansion of the SMB population next summer to prevent them from coming into contact with humpback chub aggregation areas in Grand Canyon.		
25	6	FISH - Fish Species	Native fish species of the Grand Canyon - There were originally 8 native fish species endemic to the Colorado River that were present in the Grand Canyon but three have been extirpated (Colorado pikeminnow, roundtail chub and bonytail). The remaining five species include the two federally listed (humpback chub and razorback sucker), one Arizona species of concern (bluehead sucker), and two species with currently large and healthy populations (flannelmouth suckerand speckled dace;NPS 2013). These populations of fishes are resources that should be protected under both the 1992 GCPA and the NPS Organic Act that requires management to avoid impairment. [Reference from lit cited: NPS, 2013, Comprehensive Fisheries Management Plan, Environmental Assessment, Grand Canyon National Park and Glen Canyon National Recreation Area, Coconino County, Arizona, U.S. Department of the Interior, May. Available at https://parkplanning.nps.gov/documentsList.cfm?projectID=35150.USFWS. 2018. Species Status Assessment for the Humpback Chub (Gila cypha). Pages 1-220. Mountain Prairie Region, Denver, Colorado, United States.] These fish populations and the aquatic community are at risk if SMB and other warmwater invasive species establish in the Grand Canyon due to dam operations that allow for increased entrainment and for warmer release temperatures creating	Glen Canyon National Recreation Area; National Park Service, Interior Regions 6,7,8	Ed Keable; Michelle Kerns

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			suitable temperatures favoring establishment of the invasives. The proposed alternatives involving bypass flows and flow spikes are expected to be very effective at preventing warmwater non-natives from establishing and impacting these native species (based on the SMB Task Force work and the GCMRC analysis for the EA).		
26	1	FISH - Fish Species	Drought and declining water levels are cited as the reason for warmer water temperatures which allow non-native species such as smallmouth bass to spawn which then result in competition for the humpback chub. However, the years of declining water levels actually lead to the humpback chub being delisted from endangered to threatened. "Following a review of the best available science, the U.S. Fish and Wildlife Service announced in 2021 that it has reclassified the humpback chub from endangered to threatened under the Endangered Species Act (ESA)."1 Therefore, warm temperatures should not be a cause of concern for the humpback chub. When this plan was first created the Humpback Chub was listed as endangered. Water releases should reflect the change in listing as threatened rather than endangered.	BlueRibbon Coalition	Ben Burr; Simone Griffin
28	2	FISH - Fish Species	UMPA is concerned that there is insufficient fishery data in many of the tributaries and springs feeding the Colorado River and providing warmer waters where existing breeding grounds offer refuge to these invasive species. More downstream assessments need to be conducted to better determine the establishment and population of the SMB and green sunfish. If these invasive species of fisheries are already established further downstream, then the proposed SMB flows being considered offer little value in protecting the endangered species. There are current statements that green sunfish already occur throughout the Grand Canyon in low	Utah Municipal Power Agency	Kevin

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			numbers. Should we be concern about the potential impacts from dispersal? This seems to suggest that there is a lack of quantitative research on green sunfish movement or dispersal in response to flows. Is that showing the establishment of these predatory fishery?		
28	3	FISH - Fish Species	It is understandable that efforts are being made to protect the investment made to restore and promote the growth of endangered species. Millions of dollars have been spent from electric revenues and sound science provided by CRMRC over the years in protecting these fisheries. Although, there are several flows with mixing of the bypass tubes being analyzed to disrupt the spawning and reproduction cycles of these invasive species, the impacts to power production may not warrant the effort if the species are already established. With some of the higher flow patterns, there should be a concern that the invasive species are pushed downstream further into warm water conditions and no flows regime will be able to affect nor prevent their reproductive efforts. Pushing these invasive species further downstream is contrary to all prior efforts in protecting the populations of threatened humpback chub in and around the Little Colorado River and its confluence with the Colorado River mainstem.	Utah Municipal Power Agency	Kevin
29	4	FISH - Fish Species	Please avoid use of the term core population of humpback chub, as that is not a defined term. Other options are aggregations or the defined LCR population, per the recovery plan. The term core was used many years ago but has no basis in current terminology that we are aware of and may create confusion.	Western Area Power Administration	Rodney Bailey

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29	28	FISH - Fish Species	The Temperature Threshold of 16 degrees C Will Not Completely Prevent Spawning The metric of preventing establishment was not well defined in the EA that was released earlier this year, but the EA appeared to associate the metric with disrupting or preventing spawning and suggests smallmouth bass will not become established if mainstem water temperatures remain cooler than 16 degrees C. However, the EA stated on Page 2-8 that, data from the Yampa and Green Rivers suggests that smallmouth bass can continue to spawn when temperatures drop to 13.9 degrees C (Bestgen and Hill 2016). Additionally, the Habitat Suitability Index models for smallmouth bass developed by the USFWS states nest building and spawning occur when the water temperature is 12.8-21.0 degrees C, but most activity occurs at or above 15 degrees C. These sources suggest that smallmouth bass can and will spawn at temperatures lower than 16 degrees C, possibly down to about 13 degrees C. Assuming typical summer warming, a temperature target of no more than 16 degrees C at the Little Colorado River would require a maximum release temperature from Glen Canyon Dam of 14.5 degrees C. This may be cool enough to reduce spawning in the mainstem between Glen Canyon Dam and the Little Colorado River, but it is unlikely to completely prevent it. This is because Bestgen and Hill (2016) found that smallmouth bass spawn in backwaters, side channels, and sloughs; locations where cold-water releases from Glen Canyon Dam are less likely to reduce water temperatures below the desired temperature threshold.	Western Area Power Administration	Rodney Bailey
32	4	FISH - Fish Species	What is more effective in preventing SMB establishment - low water temperature or flow velocity?	Grand Canyon River Guides, Inc.	Lynn Hamilton

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32	10	FISH - Fish Species	We would like to emphasize that time is of the essence to prevent establishment of this invasive species below Glen Canyon Dam before it is simply too late. The fate of our native fish assemblage is at grave risk. Accordingly, all prevention methods must be pursued, including answering these important questions that have been raised by program stakeholders: * Will structural methods of preventing non-native invasive fish passage through the dam be addressed, such as installing curtains in the forebay? * How will habitat conditions in the slough be considered? While green sunfish and smallmouth bass continue to reproduce in the slough, will habitat modifications be considered and implemented at the earliest opportunity?	Grand Canyon River Guides, Inc.	Lynn Hamilton
1	6	HFE - High Flow Experiments	4. High flow experiments are critical to protect, mitigate adverse impacts to, and improve the transport and accumulation of sediment in Marble and Grand Canyons. In January of 2023, Glen Canyon Monitoring and Research Center ("GCMRC") scientists sounded the alarm regarding the downward spiral of sediment resources in the Colorado River in Marble and Grand Canyons.16 At least 28 million metric tons of sand has eroded since the dam was closed in 1963 and about half of that eroded in the late 1990s, including six metric tons from each Marble and Grand Canyons.17 Further, sandbar monitoring indicates that 67 percent of sites in Marble Canyon had less high-elevation sand in 2022 than in June of 1990; that percentage was 11 percent for Grand Canyon sites.18 These scientists urged the Adaptive Management Work Group representatives to help reverse this negative trend by implementing a series of high flow experiments (HFEs) as required by LTEMP. Until this spring (April 2023), the only HFE implemented since LTEMP was finalized was in the fall of 2018. This is very concerning given the mandate in the Grand Canyon Protection Act to operate	Grand Canyon Trust	Jen Pelz

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			the dam in a manner "to protect, mitigate adverse impacts to and improve the values for which the Grand Canyon National Park and Glen Canyon National Recreation Area" were established. HFEs are the only mechanism for transporting sediment inputs from tributaries throughout Marble and Grand Canyons and are the sole source of mitigation to address the adverse impacts to sediment resources since the construction of Glen Canyon Dam. The GCMRC scientists recommended revising the sediment accounting window in the HFE protocol to run annually starting and ending on July 1 of each year.19 Adapting the HFE protocol to address the issues arising due to "low water conditions" helps to address the sediment issue and ensures better compliance with the Grand Canyon Protection Act. This proposed change to the sediment accounting window would reduce the total number of HFEs possible for the remainder of the LTEMP 20-year period, but it could also ensure that HFEs are conducted more regularly to produce positive outcomes for sediment resources. The LTEMP HFE protocol appears to authorize (if sediment trigger is reached during the accounting window) 38 HFEs over the 20-year period, but based on the modeling analysis, LTEMP anticipated 15 fall HFEs and an additional 5 to 7 spring HFEs (a total of 22 HFEs) during the 20-year period.20 To date, only one fall HFE in 2018 and one spring HFE in 2023 were implemented during the LTEMP period, which leaves 15 fall HFEs and 5 to 6 additional spring HFEs through 2036 under the current protocol. With the proposed modification to the sediment accounting window, the maximum number of sediment-triggered HFEs for the remainder of the LTEMP period would be one per year or 13. A regular cadence of high flow experiments in years where sediment is available will ensure sediment transport occurs regularly to protect cultural, environmental, and recreational		

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			resources in the canyons. The Trust is supportive of modifying the sediment accounting window and strongly encourages Reclamation to move forward with analyzing and approving this portion of the proposed action.		
2	7	HFE - High Flow Experiments	There have been no other HFEs since 2018 despite clear evidence of their value to the Colorado River system including fish, invertebrates, vegetation, sediment deposits, and recreation. I have rafted the Grand Canyon, and the reach of Glen Canyon below the dam, and have witnessed the noticeable beach erosion. Without a replenishment of sediments, boaters and campers are limited to smaller areas that endure greater and greater impacts. It gives less breadth between recreationists and the wildlife that live on or near these beaches, and it threatens cultural sites as campers are forced to set-up in closer proximity. HFEs also mimic natural pre-dam flooding scouring that are a part of the reproduction process of riparian plants and prevent over-vegetation on beaches. This spring's HFE in the Grand Canyon successfully increased natural sedimentation on Grand Canyon beaches which is beneficial to wildlife and ecology in the National Park. Sand bars are essential for wildlife and river ecosystem functions, "Many campsites that had experienced significant gullying have filled in, and beach fronts that had exposed boulders and bedrock prior to the HFE flood are now sandy again."7		Morgan Sjogren

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7	2	HFE - High Flow Experiments	Additionally, we wish to thank and applaud Reclamation for including the Proposed Amendments to the High Flow Experiment (HFE) Protocol, as approved by the Glen Canyon Dam Adaptive Management Work Group (GCD-AMWG) in August, 2023. American Rivers is grateful to both the GCD-AMP for developing and approving these Proposed Amendments, as well as to Reclamation for intending to include those Amendments in each of the Alternatives to be analyzed in this and the upcoming public comment periods. The LTEMP SEIS will re-evaluate the HFE sediment accounting period and implementation window to more fully achieve the LTEMP goals as they relate to using HFEs. If adopted, these Amendments will add much needed flexibility and greater opportunity for the implementation of HFEs in the future.	American Rivers	Sinjin Eberle
10	6	HFE - High Flow Experiments	We also support and recommend the analysis and hard look at the impacts associated with amending the HFE sediment accounting periods and implementation window.	AMWG Colorado; AMWG New Mexico; AMWG Utah; AMWG Wyoming; Arizona Department of Water Resources; Colorado River Board of California; Colorado River Commission of Nevada; Southern Nevada Water Authority	Ali Effati; Amy Haas; Charlie Ferrantelli; Clint Chandler; Colby Pellegrino; Jessica Neuwerth; Michelle Garrison; Sara Price

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10	8	HFE - High Flow Experiments	The alternatives should clearly describe the specific revisions to the HFE protocol that are to be included. We support the consideration and analysis of an expanded sediment accounting period from July 1 to June 30, rolling over unused sediment from one or more prior sediment accounting periods, and an expanded Spring HFE implementation window to include May and June. For additional context, please refer to the "Proposal to Amend the High-Flow Experiment Protocol and Other Considerations" document that was recommended to the Secretary of the Interior by the AMWG at the August 17, 2023 meeting.	AMWG Colorado; AMWG New Mexico; AMWG Utah; AMWG Wyoming; Arizona Department of Water Resources; Colorado River Board of California; Colorado River Commission of Nevada; Southern Nevada Water Authority	Ali Effati; Amy Haas; Charlie Ferrantelli; Clint Chandler; Colby Pellegrino; Jessica Neuwerth; Michelle Garrison; Sara Price
10	9	HFE - High Flow Experiments	Reclamation should analyze the impacts of implementing both Spring HFEs and flow options to prevent invasive fish establishment, in the same water year.	AMWG Colorado; AMWG New Mexico; AMWG Utah; AMWG Wyoming; Arizona Department of Water Resources; Colorado River Board of California; Colorado River Commission of Nevada; Southern Nevada Water Authority	Ali Effati; Amy Haas; Charlie Ferrantelli; Clint Chandler; Colby Pellegrino; Jessica Neuwerth; Michelle Garrison; Sara Price

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10	11	HFE - High Flow Experiments	Reclamation should isolate the impacts of the different HFE options separately from the fish flow options, and disclose individual and combined impacts.	AMWG Colorado; AMWG New Mexico; AMWG Utah; AMWG Wyoming; Arizona Department of Water Resources; Colorado River Board of California; Colorado River Commission of Nevada; Southern Nevada Water Authority	Ali Effati; Amy Haas; Charlie Ferrantelli; Clint Chandler; Colby Pellegrino; Jessica Neuwerth; Michelle Garrison; Sara Price
15	5	HFE - High Flow Experiments	The second issue addressed among these alternatives is revision of the annual sediment accounting period and HFE implementation window. High flow events are essential for conservation of fine sediment mass balance, and springtime is the period when such floods occurred in pre-dam time. Because many native species and ecological processes are timed with springtime, rather than autumn, high flows, GCWC strongly endorses revision of the sediment accounting period and implementation window, which benefit not only the native species, other resources, and river running recreation by rejuvenating camping beaches immediately prior to the summer recreation season. But such policy revisions will not protect river sandbars if, as occurred in 2023, a springtime flood is followed by continuously elevated summer flows. Springtime high flow events should be the norm, not the exception, for conservation of sediment mass balance.	Grand Canyon Wildlands Council	Kelly Burke; Larry Stevens

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17	5	HFE - High Flow Experiments	Included in the NOI is consideration of adjusting the sediment accounting period to allow for more Spring High-Flow Experiments. While the current sediment accounting period has not resulted in Spring HFEs compared to LTEMP projections, how would this assist in non-native fish disruption? Could HFEs actually increase the risk to humpback chub by transporting predatory non-native fish into their habitat? Has the AMWG ever investigated the effects of HFEs on non-native fish transport downstream into humpback chub habitat?	Irrigation & Electrical Districts Association of Arizona	Ed Gerak
20	6	HFE - High Flow Experiments	The purpose and need describe the goal or objective that Reclamation is trying to achieve and the underlying problem or opportunity to which Reclamation is responding with the proposed action. While the purpose and need in an EIS cannot be so narrow as to preclude a reasonable alternatives analysis, the feasibility of alternatives is necessarily tied to the purpose and need. With respect to the HFE Protocol Modification, the purpose and need for this EIS was crafted broadly to include two actions that are somewhat dissimilar and this may adversely affect the alternatives to be developed. The preliminary alternatives provided in the Notice of Intent do not indicate a difference in alternatives for the HFE protocol modifications. Rather, the action alternatives include the same "revised annual sediment accounting period and implementation window." The alternatives analysis must meaningfully discuss the impacts of the proposed action. If the SEIS analyzes the same HFE modifications in all action alternatives, it will impair Reclamation's ability to isolate the impacts of the HFE protocol modifications from the impacts of the operational alternatives. This in turn will impair Reclamation's ability to thoroughly evaluate the HFE protocol modifications. We recommend a range of HFE accounting period and implementation window alternatives be analyzed	AMWG Colorado; AMWG New Mexico; AMWG Utah; AMWG Wyoming	Ali Effati; Amy Haas; Charlie Ferrantelli; Michelle Garrison

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			independently and in conjunction with the operational alternatives for SMB and other warmwater non-native species control.		
20	7	HFE - High Flow Experiments	The Flow Ad Hoc Group of the Technical Work Group ("TWG") for the Glen Canyon Dam Adaptive Management Program, in partnership with the Grand Canyon Monitoring and Research Center and Reclamation, developed a Proposal to Amend the HFE Protocol and Other Considerations. The TWG recommended the Proposal to the Adaptive Management Work Group ("AMWG"), which accepted the Proposal on August 17, 2023. The Proposal recommends additional analyses to appropriately formulate HFE protocol alternatives and fully analyze impacts. Based on the Proposal, any environmental review of modifications to the HFE protocol should analyze: *the risk of spring HFEs to distribute nonnative fish farther downstream andwhether that risk is significantly different for implementation of fall HFEs; *potential treatment of rollover sediment; *sediment accounting windows longer than 1 year; *the appropriate length of the spring HFE implementation window and theassociated tradeoffs and impacts; *whether changing the HFE protocol will alter the frequency of HFEs as analyzed inthe LTEMP Final EIS and Record of Decision; *the full potential impact to hydropower generation, power grid stability, andhydropower customers and beneficiaries including Tribal Nations anddisadvantaged communities; *the impact to the Upper Colorado River Basin Fund, considering its high value toboth power and environmental programs; and, *impacts to cultural resources.	AMWG Colorado; AMWG New Mexico; AMWG Utah; AMWG Wyoming	Ali Effati; Amy Haas; Charlie Ferrantelli; Michelle Garrison

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20	17	HFE - High Flow Experiments	Throughout the LTEMP Record of Decision and the Biological Opinion, there are known concerns with HFEs and impacts to fisheries. Specifically, there is concern that HFEs and Bug Flow Experiments may indirectly promote the establishment of warmwater non-native species by relocating the species farther downstream or by providing more favorable conditions, respectively. The SEIS should evaluate these potential risks and clarify how risks from the proposed operational changes for SMB or other warmwater non-native species differ from those risks presented by authorized experimental flows.	AMWG Colorado; AMWG New Mexico; AMWG Utah; AMWG Wyoming	Ali Effati; Amy Haas; Charlie Ferrantelli; Michelle Garrison
22	5	HFE - High Flow Experiments	We support revising the sediment accounting window for the LTEMP High Flow Experiment (HFE) protocol to favor HFEs timed during the spring or summer and lengthening the window so that a spring or summer HFE could occur anytime in the spring or summer. BOR should refrain from HFE experiments pending modification of Glen Canyon Dam penstocks with fish exclusion devices and other measures to ensure against further entrainment of warmwater invasive fish, and to prevent flushing warmwater invasive fish already in the Colorado River farther downstream into designated critical habitat for humpback chub and razorback sucker.	Center for Biological Diversity; Colorado Riverkeeper; Great Basin Waterkeeper; Great Basin Water Network; Living Rivers; Sierra Club, Grand Canyon Chapter	John Weisheit; Kyle Roerink; Sandy Bahr; Taylor McKinnon
23	3	HFE - High Flow Experiments	The Department is supportive of the changes to the sediment accounting window proposed by the Flow Ad Hoc Technical Work Group to the AMWG during the August 2023 meeting. The Department has long been advocating for adjustments to the accounting window to allow for additional spring high flow events as they fit more closely with natural processes of rivers. Further, these adjustments will address the changing precipitation conditions within the basin, which preclude current winter sediment triggers from being met. The Department believes strongly that the changes to the	Arizona Game and Fish	Luke Thompson

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			sediment accounting window are needed to meet sediment resource goals outlined in the LTEMP and are in the spirit of the adaptive management framework.		
24	4	HFE - High Flow Experiments	In addition, sediment flow and the restoration of beaches should also be prioritized when considering flow spikes or high flow experiments (HFE). BOR has proposed analyzing sediment accounting periods and implementation windows associated with the HFE protocol. The sediment accounting periods should be reviewed and modified to better reflect the reality of the river system, including variation in sediment sources and climate change. For example, accounting periods need to consider and monitor rollover of sediment and reflect changes in seasonal inputs. Sediment-enriched flows are needed to ensure the restoration of beaches, which is important not only for the ecology of the Grand Canyon but for the economy as well. Grand Canyon tourism, including river guides, outfitters, and the 22,000 people who float down the river every year, will all benefit from the restoration of beaches and sandbars along the Colorado River.	National Parks Conservation Association	Sanober Mirza
25	7	HFE - High Flow Experiments	Sediment resources - Sandbars form a fundamental element of the river landscape and are important for vegetation, riparian habitat for fish and wildlife, cultural resources, and recreation (Wright, Schmidt, et al. 2008; Reclamation 1995; Reclamation 2016). For example, they form the substrate for limited riparian vegetation in the arid environment. Low-elevation sandbars create zones of low velocity aquatic habitat (i.e., backwaters) that may be utilized by juvenile native fish. These low elevation sandbars are also a source of sand for wind transport that may help protect archaeological resources. In addition, beaches provide recreational value for visitors (e.g., camping areas for river and backcountry users) (Reclamation 2016).	Glen Canyon National Recreation Area; National Park Service, Interior Regions 6,7,8	Ed Keable; Michelle Kerns

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25	13	HFE - High Flow Experiments	HFE amendments - The Flow Ad Hoc Group (FLAHG) report on HFE Amendments was approved at the August 2023 AMWG meeting and should be incorporated into the alternatives as written with an expanded one year sediment accounting and implementation window to allow for the flexibility to consider HFEs in the May-June time period when the reservoir is at its highest during the year and when levels are the most certain. This is also the period in which peak flows were historically and would likely be the most beneficial to the organisms throughout the system. Because these native species evolved with this timing then this timing is likely to have the most beneficial effects and the least unintended negative impacts.	Glen Canyon National Recreation Area; National Park Service, Interior Regions 6,7,8	Ed Keable; Michelle Kerns
26	5	HFE - High Flow Experiments	We believe the science that justifies any high flow releases to prevent smallmouth bass spawning is weak, and we question whether any of the proposed experimental releases will have the intended effect. Periods of critical, prolonged drought are not the time to be engaging in speculative experiments.	BlueRibbon Coalition	Ben Burr; Simone Griffin
26	8	HFE - High Flow Experiments	We do not support any high flow releases for long periods of time especially during consecutive years of drought and low water levels that Lake Powell is currently experiencing. In 2023, any flow scenario which contemplates high flows from May until July should be rejected.	BlueRibbon Coalition	Ben Burr; Simone Griffin
28	6	HFE - High Flow Experiments	We concur with the efforts to better understand the changes and benefits of evaluating the added information regarding the sediment accounting window associated with the LTEMP High-Flow Experiment (HFE) protocol. Again, consideration should be focused on protecting the elevation of the lake for numerous reasons. Reclamation reported cavitation in the bypass tubes during the last HFE when the lake levels were low. The bypass tubes are an integral piece to the operations of the facilities and every effort to protect them should be	Utah Municipal Power Agency	Kevin

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			considered. Not only should conducting an HFE consider the sediment loads in the river but should consider the elevation of the lake. Any HFE during low lake levels, even with the use of the bypass, will promote the entrainment of these evasive species through the turbine tubes. Any operations that add to entrainment should be avoided. The impacts by droughts and low inflow of water years should be appropriately applied to protect the lake levels in managing the water flows between the two dams. The lake level is becoming a significant driver in decision for HFE and managing the evasive species. HFE should not increase the risk of reaching minimum power pool. We should avoid any HFE during low elevation for the opportunity for entrainment of these evasive species.		
32	3	HFE - High Flow Experiments	How will the flow alternatives affect the sediment balance in the river and the potential to conduct spring and fall HFEs?	Grand Canyon River Guides, Inc.	Lynn Hamilton
32	11	HFE - High Flow Experiments	GCRG is in full support of updating/amending the existing HFE Protocol to revise the sediment accounting periods and implementation windows per recommendations from the Flow Ad Hoc Group (FLAHG) based on scientific information from Grand Canyon Monitoring and Research Center. Those recommendations have been accepted by both the Technical Work Group and most recently by the Adaptive Management Work Group at their August 2023 meeting.	Grand Canyon River Guides, Inc.	Lynn Hamilton
32	12	HFE - High Flow Experiments	In order to provide additional input for consideration by the Bureau of Reclamation, GCRG solicited input from river users after the Spring 2023 HFE. Approximately 98% of respondents feel HFEs benefit the Grand Canyon ecosystem and more than 95% feel HFEs benefit the recreational resource in the Grand Canyon.	Grand Canyon River Guides, Inc.	Lynn Hamilton

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32	13	HFE - High Flow Experiments	Echoing GCRG's own views, a clear majority of respondents also prefer naturally timed spring HFE's due to biological considerations, aeolian transport for protecting cultural resources, and beach building that greatly enhances the recreational experience during the commercial boating season. A particularly insightful comment worthy of consideration in the SEIS explained that HFEs are critical to sustaining a viable recreation resource adding 'while the loss of campable area has been diminishing, it should provide a carrying capacity consistent with wild river/wilderness management concepts.'	Grand Canyon River Guides, Inc.	Lynn Hamilton
32	14	HFE - High Flow Experiments	Numerous firsthand accounts appreciated the successful beach building results that were sorely needed after several missed HFE opportunities in previous years. Several users also lamented releases before and after the HFE, specifically the high flows prior to and after the HFE as well as sudden down ramp rates that left steep cutbanks. With these experiences in mind, the HFE implementation protocol should be designed to optimize benefits as well as the longevity of deposits by carefully considering HFEs within the context of flow regimes before and after the HFEs including keeping post-HFE flows below the level of sediment transport/export, experimenting with different ramping rates, and other techniques to preserve the HFE sediments. This is especially important if aridification continues to influence the frequency, duration, and magnitude of HFEs.	Grand Canyon River Guides, Inc.	Lynn Hamilton

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2	10	HYDROPOWER - Hydroelectric Power	This preferred alternative will have adverse effects on hydropower. But so will the "No Action Alternative." Based on the results between 2018 and 2023 we know what will happen if no changes are made, and it will eventually result in a backlog of procedures. A consistent plan to include HFEs, as with Flow Option B, will mitigate actions that will be more costly to hydropower interests down the road. We are entering an era where we are aware that all of our actions have a cost. Flow Option B creates some financial and hydropower impacts now, but it also helps reduce a pile up of these costs for later.		Morgan Sjogren
2	12	HYDROPOWER - Hydroelectric Power	The future of hydropower from Glen Canyon Dam is uncertain. Low water levels that persisted through Spring of 2023 demonstrated that "Power Pool" and "Dead Pool" are possibilities in the future driven by a combination of overallocation and climate change-induced drought. Hydropower is a very new concept, and one that we also have time to rethink our use and management of.		Morgan Sjogren
9	1	HYDROPOWER - Hydroelectric Power	The District is the local sponsor of the Bonneville Unit (BU) of the Central Utah Project. As such, the District has interest in protecting access to diversion and storage of Colorado River water under the BU water right. Additionally, as documented in the Supplement to the 1988 Definite Plan Report for the Bonneville Unit, the Dishict has interest in Colorado River Storage Project (CRSP) power reserves. Actions taken at Glen Canyon Dam for the purposes described in the NOI have the potential to impact power production, power revenue, and downstremn releases, all of which may impact the Dishict operating costs, access to power reserves, and more fundamentally, the ability to dive1i and store Colorado River water in priority. We request consideration be given to the impact of changes proposed under the NOI to the District as	Central Utah Water Conservancy District	Gene Shawcroft

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			the operator and repayment entity for the Bonneville Unit of the Central Utah Project.		
10	10	HYDROPOWER - Hydroelectric Power	Comprehensive hydropower impact analyses should be considered. Reclamation should coordinate with the Western Area Power Administration, Colorado River Energy Distributors Association, and Grand Canyon Monitoring and Research Center to obtain the most comprehensive analysis possible.	AMWG Colorado; AMWG New Mexico; AMWG Utah; AMWG Wyoming; Arizona Department of Water Resources; Colorado River Board of California; Colorado River Commission of Nevada; Southern Nevada Water Authority	Ali Effati; Amy Haas; Charlie Ferrantelli; Clint Chandler; Colby Pellegrino; Jessica Neuwerth; Michelle Garrison; Sara Price
10	16	HYDROPOWER - Hydroelectric Power	Analysis of the potential for bypass tube impacts resulting from cavitation, using the observations from the Spring 2023 HFE as a guide, is necessary to ensure future experiments are protective of critical infrastructure.	AMWG Colorado; AMWG New Mexico; AMWG Utah; AMWG Wyoming; Arizona Department of Water Resources; Colorado River Board of California; Colorado River Commission of Nevada; Southern Nevada Water Authority	Ali Effati; Amy Haas; Charlie Ferrantelli; Clint Chandler; Colby Pellegrino; Jessica Neuwerth; Michelle Garrison; Sara Price

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11	4	HYDROPOWER - Hydroelectric Power	As such, in addition to direct impacts, included in the LTEMP SEIS must be an analysis and discussion of the effects, both indirect and cumulative, associated with hydropower customers acquiring replacement resources if less hydropower generation occurs at Glen Canyon Dam as a result of the alternatives considered.	Arizona Electric Power Cooperative, Inc.	Patrick Ledger
12	2	HYDROPOWER - Hydroelectric Power	The scope of the SEIS should identify operating conditions when it is simply inappropriate to use bypass to control non-native species or conduct HFE's because doing so could unnecessarily impair the electric grid or create economic hardship for Western Area Power Administration customers throughout the region. Operating conditions such as declared system emergencies, forecasted extreme weather events, natural disasters in the region, major equipment outages, and extraordinarily high market prices which indicate scarcity of resources are all conditions when using bypass or conducting HFE's may be too impactful to the energy sector and the many communities they serve. The scope of the SEIS should identify the framework for determining when these conditions are present so that the instances of bypass and HFE's can be limited to when those conditions are not present.	Colorado River Commission of Nevada	Eric Witkoski
12	3	HYDROPOWER - Hydroelectric Power	Conduct a robust analysis of hydropower impacts and identify sources of mitigation. Any loss of hydropower is impactful to the hydropower community even if such impacts last only for a few days or a few hours. Reclamation must fully evaluate the impacts to hydropower from the four bypass flow options and changes to the sediment accounting window. It is important that Reclamation's analyses of these impacts be as robust as possible and that the analyses be conducted over a wide range of market conditions and operating assumptions. Assumptions about system demand, availability of resources, the magnitude of market prices, variations in market prices	Colorado River Commission of Nevada	Eric Witkoski

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			throughout the day, etc. will all influence model outcomes and estimates. The CRCNV believes that Reclamation's scoping process should identify the method it will use to conduct the impact analyses and describe the key assumptions underlying the analyses. In addition to identifying the impacts, the scope of the SEIS needs to address methods of mitigating those impacts either operationally or economically. Whenever WAPA must purchase power to replace resources that are lost due to bypass for non-native fish control or HFE's, these costs should be considered non-reimbursable and should not be borne by WAPA's hydropower customers. Potential sources of funding, other than hydropower customers, should be identified during the scoping process.		
17	7	HYDROPOWER - Hydroelectric Power	Regarding impact analysis, the SEIS should use current replacement power pricing. There was insufficient documentation included in the EA to allow the public to understand the impacts of the proposed alternatives. The SEIS must disclose financial and economic impacts to federal hydropower contractors, as well as WAPA and the Upper Colorado River Basin Fund.	Irrigation & Electrical Districts Association of Arizona	Ed Gerak
17	8	HYDROPOWER - Hydroelectric Power	Colorado River Storage Project customers have seen the impacts of drought on Western Area Power Administration (WAPA), but the Western Interconnection includes more than just WAPA. It is forecasted that drought in the Pacific Northwest will reduce the nation's hydropower generation by 6% this year. An abundance of hydropower generated from the Northwest is exported into WAPA's territory. The lack of Northwest hydropower will put upward pricing pressure on an already scarce resource. The SEIS should analyze scarcity pricing based on reduced availability and recent market disruptions due to weather events. Bypass flows will further	Irrigation & Electrical Districts Association of Arizona	Ed Gerak

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			endanger the stability of the regional grid and prevent Glen Canyon Dam from responding to emergency operations requirements if called upon.		
18	5	HYDROPOWER - Hydroelectric Power	Finally, we are concerned about the costs of forgone hydropower generation- which must be made up by purchasing fossil fuel-generated power on the spot market- being passed on to power customers, which include many tribal communities. In our view, it is nonsensical for the costs of actions to safeguard culturally significant tribal resources like native fish to be ultimately passed on to tribal communities who rely on the federal power program. We believe the costs of actions to address our cultural needs must be non-reimbursable. The potential costs of these management actions to tribal communities must be disclosed in the SEIS.	Colorado River Indian Tribes	Rebecca Loudbear
20	4	HYDROPOWER - Hydroelectric Power	If necessary, we also support Reclamation analyzing additional operational alternatives, or modifying prior alternatives, to better achieve the purpose and need. We also recommend that Reclamation analyze any potential impacts to critical infrastructure from extended use of the bypass tubes, using the observations from the Spring 2023 HFE as a guide.	AMWG Colorado; AMWG New Mexico; AMWG Utah; AMWG Wyoming	Ali Effati; Amy Haas; Charlie Ferrantelli; Michelle Garrison
20	9	HYDROPOWER - Hydroelectric Power	The analysis of impacts in the SEIS should include any impacts, including multi-year impacts, to hydropower generation, grid stability, the Basin Fund and recipients of hydropower, especially Tribal Nations and disadvantaged communities. We encourage Reclamation to work with WAPA to evaluate impacts of the proposed action under the minimum, maximum, and most probable hydrologic scenarios.	AMWG Colorado; AMWG New Mexico; AMWG Utah; AMWG Wyoming	Ali Effati; Amy Haas; Charlie Ferrantelli; Michelle Garrison

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20	13	HYDROPOWER - Hydroelectric Power	We also recommend two additional points for inclusion in the SEIS: (1) offramps for emergency exception criteria, including a threshold below which the Upper Colorado River Basin Fund (established under Section 5 of the Colorado River Storage Project Act) cannot fall, and	AMWG Colorado; AMWG New Mexico; AMWG Utah; AMWG Wyoming	Ali Effati; Amy Haas; Charlie Ferrantelli; Michelle Garrison
21	4	HYDROPOWER - Hydroelectric Power	SRP remains concerned the four options Reclamation analyzed in the Draft EA which focused solely on bypass flows will be considered again in this LTEMP SEIS. SRP reviewed those options and determined that each option could potentially disrupt power production at critical times when the power is needed most. In its SRP March 2023 Comments, SRP detailed the current power production risks SRP is managing and the impacts a power disruption at GCD would have on power reliability. The concerns SRP described in February continue to apply despite significant efforts to mitigate those risks.	Salt River Project SRP	Angie Bond-Simpson
21	5	HYDROPOWER - Hydroelectric Power	The NOI schedule proposes a review of the Draft LTEMP SEIS in the winter of 2023 and into 2024, with Reclamation issuing and implementing the Final Record of Decision in the early summer of 2024. As previously noted, SRP plans its load and generation five years in advance - the current iteration of which includes GDC hydropower. To implement a change as impactful to hydropower generation as the proposed flow alternatives that utilize bypass in such short-term notice, commencing the summer season of 2024, creates a significant risk that SRP may not have sufficient resources to meet reliability needs. In addition, power market conditions have tightened considerably due to resource retirements across the west, and surplus power is not typically available on summer peak days.	Salt River Project SRP	Angie Bond-Simpson

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25	3	HYDROPOWER - Hydroelectric Power	Losses to hydropower revenue from bypass in a given year will vary greatly depending on reservoir level and inflow to Lake Powell and the resulting outflow temperatures from GCD. Some years may require very little bypass to achieve the temperatures to inhibit SMB breeding. Revenue losses must be evaluated for the entire range of hydrology scenarios to provide accurate cost assessment, and not be limited to a worst- case single hydrology run as was done in the EA.	Glen Canyon National Recreation Area; National Park Service, Interior Regions 6,7,8	Ed Keable; Michelle Kerns
25	14	HYDROPOWER - Hydroelectric Power	Hydropower revenue loss estimates - timeline for this process is critical to have tools available by June of 2024 when conditions in the river will again be suitable for SMB breeding. It is important to consider a range of reservoir conditions in the cost estimates for hydropower revenue, but if full analysis of these costs using GTMax may take too much time to meet the timeline, we would encourage Reclamation to consider using cost estimates produced by GCMRC personnel. Our understanding is that in the past two years GCMRC capabilities to make reasonable estimates has improved significantly.	Glen Canyon National Recreation Area; National Park Service, Interior Regions 6,7,8	Ed Keable; Michelle Kerns
25	16	HYDROPOWER - Hydroelectric Power	Western Area Power Administration was obligated in the past to contribute $20 million per year to species recovery but has retained that amount in the Upper Colorado Basin Fund for 4 out of the last 5 years as federal appropriation dollars are now being used instead. The cost of bypass for a few years may be less than the amount of funding that would have funded for endangered fish recovery if not for this recent change.	Glen Canyon National Recreation Area; National Park Service, Interior Regions 6,7,8	Ed Keable; Michelle Kerns

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28	5	HYDROPOWER - Hydroelectric Power	In evaluating the impacts to power supply, the study should consider conducting Spring HFE during low consumptive months defined as shoulder months in the industry. There is a high likelihood of available replacement power and costs tend to be lower. It has been reported that Spring HFEs could be beneficial to the trout fisheries and detrimental to the spawning of these evasive species if they are not established.	Utah Municipal Power Agency	Kevin
28	9	HYDROPOWER - Hydroelectric Power	WAPA is the balancing authority for the operating region and must maintain sufficient generating capacity to continue serving its customer load. This is to ensure reliable power availability and uninterrupted service. As shown in the past, this is particularly important for emergency situations. In the event of a large loss of generation capacity, WAPA is called upon to provide emergency reserves within minutes. WAPA's ability to supply emergency assistance and maintain its anchor source for stabilizing the grid in the West are critical missions.	Utah Municipal Power Agency	Kevin
29	9	HYDROPOWER - Hydroelectric Power	WAPA developed the hydropower impacts analysis for the EA that was developed earlier this year and plans to evaluate the hydropower impacts of the LTEMP SEIS. WAPA is working with the National Renewable Energy Laboratory (NREL) and the Argonne National Laboratory (Argonne) to develop WECC-wide models that focusses on the region of impact. Wehave tasked these national laboratories with: determining whether the implementation the SEIS alternatives will cause replacement power to be unavailable, evaluating the impacts to the local electrical transmission grid, determining the impacts to the stability and safety of the electrical system, and estimating the economic impacts on electrical production and distribution of the SEIS alternatives. WAPA will also estimate the impact of the SEIS alternatives on the CRSP Basin Fund and on the SLCA/IP firm electric service rates.	Western Area Power Administration	Rodney Bailey

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29	10	HYDROPOWER - Hydroelectric Power	WAPAs previous assessment in the EA described the cost of the proposed bypass experiments as having the potential to incur $40-80 million annually in hydropower firming costs. Any attempt to quantify actual firming costs is challenging. As the experiment is proposed for 3 years, hydrology and energy prices could fluctuate significantly. WAPA has been informed that there are implementation strategies that could reduce this cost in the SEIS and are looking forward to working with Grand Canyon Monitoring and Research Center (GCMRC) and Reclamation to explore these strategies. However, these strategies will need to be identified in the SEIS to evaluate them and understand how they could be implemented. Some strategies may not be feasible due to limitations on implementation. During the rushed Environmental Assessment (EA) process, there were assumptions about these approaches that did not make it into the alternative descriptions. WAPA expects additional time will be needed to assess exactly how the strategies proposed in the SEIS might be implemented.	Western Area Power Administration	Rodney Bailey
29	11	HYDROPOWER - Hydroelectric Power	The magnitude of this proposed experiment, and its potential impacts, exceed any prior experiment executed or envisioned as part of the Glen Canyon Dam Adaptive Management Program. For example, both the 2000 Low Summer Steady Flow experiment and the potential Long-Term Experimental Management Plan (LTEMP) Low Summer Flow experiment have estimated impacts on the order of $25 million. In addition, WAPA and Reclamation have never implemented flow actions of the type and magnitude proposed. As discussed further below, WAPA is concerned that these actions may impact the electrical system in ways we cannot quantify beforehand. WAPA is uncertain of its ability to implement the experiment without substantial risk to the	Western Area Power Administration	Rodney Bailey

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			CRSP project, WAPAs physical infrastructure, and the reliability of the power grid in the western United States.		
29	12	HYDROPOWER - Hydroelectric Power	Among WAPAs comments below, WAPA has identified two critical actions it believes Reclamation must address prior to implementing the action: Secure funding to mitigate the financial impacts of the experiment on the Upper Colorado River Basin Fund (Basin Fund). If not mitigated, this experiment could jeopardize the solvency of the CRSP project and force WAPA to suspend funding project requirements, including operations and management expenses, which could increase the likelihood of equipment failures and other impacts to the electrical system. Establish off-ramps addressing both operational and financial considerations impacting WAPAs ability to operate and maintain the CRSP system as well as a process and appropriate agreements to provide WAPA adequate notice of experimental flows.	Western Area Power Administration	Rodney Bailey
29	13	HYDROPOWER - Hydroelectric Power	In the Alternatives section of the NOI, the term revenues is used to describe impacts to hydropower. This is not a term we prefer, as WAPA has a revenue requirement on which the rate is based. Instead, impacts generally involve the amount and timing of generation, costs such as for purchasing replacement power, and impacts to the Basin Fund.	Western Area Power Administration	Rodney Bailey
29	18	HYDROPOWER - Hydroelectric Power	WAPA generally supports the proposals to modify the High-Flow Experiment (HFE) windows and implementation strategy based on the changes in sand supply and sediment transport. However, there is a scenario that could be extremely costly to hydropower and should be avoided. If a spring or early summer (e.g., June) HFE is contemplated, the water needed for that HFE should be taken from winter or early spring months. A preliminary analysis of impacts to the Basin Fund show that costs approximately triple if water for a spring or early summer HFE is taken out of the summer. For example,	Western Area Power Administration	Rodney Bailey

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			instead of having a potential impact of $2-3 million, a spring HFE could cost $8-9 million. The key takeaway is that early planning and decision making for a spring HFE will be important in minimizing the costs to hydropower.		
29	19	HYDROPOWER - Hydroelectric Power	WAPA provides wholesale power to small utilities, municipalities, and tribal reservations who fold this power into the rest of their portfolio to fulfill their load requirements. Under WAPAs current rate structure, WAPA provides its long-term firm power customers with a set amount of power on a quarterly basis. The amount of power is based on the amount of water Reclamation forecasts to release from the CRSP units during that quarter. If CRSP units do not generate enough power to fulfill these contractual obligations, WAPA must purchase power and transmission on the energy market to make up the difference. WAPA uses cash from the Basin Fund to make those purchases. Under the Grand Canyon Protection Act of 1992, Pub. L. 102-575 (GCPA), WAPA records the financial costs of environmental experiments as non-reimbursable by accounting for such costs as a constructive return to the U.S. Treasury rather than an operational or maintenance expense to be recovered through WAPAs cost-based power rates. Reclamation should consider the experiment proposed in this SEIS as a non-reimbursable expense under the Grand Canyon Protection Act.	Western Area Power Administration	Rodney Bailey
29	20	HYDROPOWER - Hydroelectric Power	By bypassing the electrical generators at Glen Canyon Dam, the bypass options will reduce hydropower generation. Accordingly, WAPA will be required to purchase replacement power to fulfill its contractual obligations to customers. The draft EA released earlier this year inaccurately stated that the experiment would reduce revenue generated and therefore reduce revenue transferred to the Treasury. More accurately, the experiment would markedly increase the	Western Area Power Administration	Rodney Bailey

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			amount of non-reimbursable costs drawn from the Basin Fund and constructively returned to the Treasury, leading to the impacts discussed below. As the Basin Fund is used to fund ongoing operating expenses, its balance significantly fluctuates due to the ongoing purchase and sale of energy and transmission. WAPA must maintain a sufficient balance in the Basin Fund to pay for operations and maintenance notwithstanding these fluctuations. WAPA projects that if the Basin Fund balance falls below $70 million, it would result in increased impacts to its ability to adequately fund project needs and environmental programs, including the Glen Canyon Dam Adaptive Management Program (and related experiments), the Upper Colorado River Recovery Implementation Program (and related experiments), the Upper Colorado River Recovery Implementation Program (and related experiments), water quality programs, consumptive use studies, and other functions it supports. This could lead also to immediate impacts, such as WAPA becoming unable to purchase sufficient energy or transmission to fulfill its contractual obligations. Such a reduction in the Basin Fund would carry long-term impacts resulting from WAPA cancelling or deferring maintenance and replacement of critical electrical infrastructure due to insufficient funds to fulfill those project needs. This could ultimately compromise reliability of the CRSP system. Accordingly, WAPA requires Reclamation establish an off-ramp that would modify or terminate the experiment if the Basin Fund balance is projected to fall below $70 million in the following 6 months or reaches a level otherwise insufficient to fund project needs.		

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29	21	HYDROPOWER - Hydroelectric Power	The experiment may impact WAPAs ability to meet its customers energy needs and the loss of generation on the electrical system could result in energy emergencies when supply is insufficient to meet demand. The proposed bypass flow options increase the risk that WAPA will be unable to meet its contractual obligations to provide customers with power unless it is able to procure sufficient replacement energy and associated transmission. This replacement energy and transmission may not be available without significant added expense, and WAPAs trading partners may not have sufficient replacement power and transmission available for purchase during periods of peak power demand at any cost. Accordingly, this experiment could increase the likelihood of scarcity events on the power grid and contribute to power emergencies. WAPA purchases replacement power through bilateral contracts with trading partners, where the sellers of electrical power must recognize market uncertainties and may not be fully aware of the positions of their trading partners. Additionally, many sellers of electrical power may be less willing to sell available power in times of scarcity and uncertainty to ensure they can fulfill their own power needs. WAPA has typically purchased power from a relatively small set of utilities, in relatively small amounts, and for short durations. Typical purchases are on the order of tens of megawatts per hour and only for a few hours at a time. It may not be possible for WAPA to find enough willing utilities to trade or sell the amount of power needed (100s of megawatts per hour) to offset the impact of the experiment. Accordingly, the experiment could impact the governments ability to fulfill its contractual obligations to the customers that fund its power system if WAPA cannot secure power to firm its contractual obligations.	Western Area Power Administration	Rodney Bailey

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29	22	HYDROPOWER - Hydroelectric Power	WAPA Requires 6 Weeks Advanced Notice of Experimental Flows WAPA is required to purchase energy to firm to the levels established in its Federal Electric Service contracts during experimental operations at Glen Canyon Dam. Under each of the proposed flow options that include bypass, WAPA will be required to purchase substantial amounts of power and possibly transmission before the experiment is implemented to meet its obligations for its Deliverable Sales Amount (DSA). Given the substantial amount of power the experiment would require WAPA to purchase, WAPA must have sufficient planning time to make these arrangements. Based on our experience with purchasing in the wholesale energy market, WAPA will need at minimum 6 weeks to arrange the purchases necessary. This will require determining bypass volumes at least 6 weeks in advance. Power is typically purchased in weekly blocks, so changes in bypass volume will need to follow the same weekly time step. Once the 6-week purchase window has closed, WAPA may not be able to accommodate unanticipated decreases in generation, due to the difficulty of finding replacement power on the day-ahead energy market. It will be easier for WAPA to accommodate changes that reduce bypass volume (resulting in an increase generation) than to increase bypass unexpectedly and try to purchase replacement power on the day-ahead market.	Western Area Power Administration	Rodney Bailey
29	25	HYDROPOWER - Hydroelectric Power	In addition to WAPAs response to the type of electrical emergencies described above, an electrical emergency can result from insufficient generation on the electrical system to meet demand causing citizens to lose power through blackouts and brownouts, WAPA believes that these emergencies are also part of WAPA and Reclamations existing obligation to respond to electrical emergencies and may impact the implementation of an experiment for the duration of the emergency. Note that the implementation of an	Western Area Power Administration	Rodney Bailey

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			experiment at Glen Canyon Dam may cause a shortage of electrical capacity in the region and potentially increased instances of electrical emergencies. If this occurs, WAPA will ask that Reclamation modify or suspend the experiment.		
29	27	HYDROPOWER - Hydroelectric Power	The Experiment May Increase Energy Prices at Exchange Nodes and Ultimately Costs to Consumers Based on the PLEXOS model runs for June to October 2023, for the EA, the reduction of electrical power production caused by the bypass alternatives would result in an increase in locational marginal prices in the WECC system. This means the reduction of power generated at Glen Canyon Dam is expected to make electrical power more expensive in some areas of the WECC. An increase in power prices indicates that the experiment is likely to have economic impacts to the electrical energy market. Because of the reductions in electrical generation at Glen Canyon Dam due to the experiment, utilities will be required to pay a higher price for the electrical power they purchase. The PLEXOS model was only run for 2023, and thus further analysis is needed to assess impacts to hydropower for this new time period under the SEIS. The experiment will likely also result in WAPA competing with its own customers to purchase replacement power. This competition for limited resources will likely result in increased power prices (as described above with the PLEXOS modeling) and is likely the driving factor of the price increases projected at exchange nodes. The increased power prices at exchange nodes indicate an economic impact and suggest the experiment will likely have significant impacts to power users. Reclamation should fully evaluate economic impacts of the change of energy prices in the SEIS with the assistance of WAPA.	Western Area Power Administration	Rodney Bailey

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29	30	HYDROPOWER - Hydroelectric Power	WAPA continues to be concerned about the status of the Basin Fund and our ability to absorb impacts from experimental releases at Glen Canyon Dam, as well as the availability of replacement power to offset lost hydropower generation and the ancillary impacts to our customers. The additional impacts of the experiment to generation and transmission, the Basin Fund, and our customers concern us very much.	Western Area Power Administration	Rodney Bailey
29	32	HYDROPOWER - Hydroelectric Power	WAPA remains committed to work with Reclamation to find a way to mitigate the financial and operational impacts of the proposed action. Financial mitigation is critical even with the implementation of off-ramps.	Western Area Power Administration	Rodney Bailey
30	3	HYDROPOWER - Hydroelectric Power	1) Grid Reliability Concerns Dispatchable generation, such as coal, hydro, nuclear, and gas, keep the power grid reliable. Dispatchable generation must equal non-dispatchable generation, such as solar and wind, minus customer usage. When there is not enough dispatchable generation on the grid, customers' power is turned off to maintain the frequency, which is necessary to keep the grid interconnected. The American people depend on electricity. Most people do not have alternative methods to supply the water that they need, manage their sewage, or keep their food safe without electricity. In addition, the heat in the southwest can been so extreme that human life can be at risk without air conditioning. In September 2022, California once again called upon the generation at GCD for an electricity emergency. Without GDC, many Californians may have suffered harm. Removing dispatchable generation is a very serious concern.	Wyoming Municipal Power Agency	Rosemary Henry

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33	6	HYDROPOWER - Hydroelectric Power	CREDA recommends that in addition to the "potential effects on the resources below Glen Canyon Dam, including natural and cultural resources, endangered species, recreation, water resource, hydropower resources" (NOI at 68668), that the SEIS consider: * The impact on replacement power availability and grid reliability during the summer months of the experiment. See NERC Summer Reliability Assessment 2022 at pp.5-6: "Drought conditions create heightened reliability risk for the summer. Drought exists or threatens wide areas of North America, resulting in unique challenges to area electricity supplies and potential impacts on demand: Energy output from hydro generators throughout most of the Western United States is being affected by widespread drought and below-normal snowpack. Dry hydrological conditions threaten the availability of hydroelectricity for transfers throughout the Western Interconnection. Some assessment areas, including WECC's California-Mexico (CA/MX) and Southwest Reserve Sharing Group (SRSG), depend on substantial electricity imports to meet demand on hot summer evenings and other times when variable energy resource (e.g., wind, solar) output is diminishing."	Colorado River Energy Distributors Association	Leslie James
33	9	HYDROPOWER - Hydroelectric Power	Impacts to CRSP customers in their capacity as electric service providers who have an obligation to provide reliable electricity to retail customers. These impacts are distinct from impacts to WAPA and the Upper Colorado River Basin Fund, although those impacts also potentially affect CRSP customers. Depending on the nature of the Alternative or elements thereof, whether the action is a management action or an experiment, resource adequacy requirements and availability of replacement power, could result in financial or economic impacts that must be disclosed and mitigated.	Colorado River Energy Distributors Association	Leslie James

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33	10	HYDROPOWER - Hydroelectric Power	Funding sources for mitigation. Hydropower operations are not the cause of SMB incursion, and should not be relied on for mitigation. In the event WAPA must purchase power to replace resources that are unavailable or lost due to bypass operations for non-native fish control or HFEs, these costs should be considered non-reimbursable and should not be borne by WAPA or WAPA's hydropower customers. Potential sources of funding should be identified during the scoping process.	Colorado River Energy Distributors Association	Leslie James
5	4	LTEMPEIS - LTEMP EIS	Part Two: Negligence by Reclamation to adopt new operating criteria for Glen Canyon Dam in a timely and prudent manner to avoid jeopardy to biological and cultural assets in Grand Canyon National Park. A failure of the authorized agency to be precautionary and adaptive to the long-term monitoring programs mandated by the Grand Canyon Protection Act of 1992. The development of this Supplemental EIS in 2023 means the Final EIS of 2016 (a 20- year management plan), was inadequate before the first day of its implementation, because basin-wide discussions about avoiding system shortages as a result of climate change were actually underway as early as February of 2014.6 These discussions culminated five years later with federal and state agreements known as 2019 Drought Contingency Planning.7 Shortages in the system were declared by the Secretary of Interior in August of 2021.8 Therefore, this Supplemental EIS process of 2023 must take a hard look at the following missteps that occurred in the last nine years: * To the extent that Reclamation made a decision not to prepare a precautionary SEIS in a timely manner, and that this decision was contrary to the guidelines of the National Environmental Policy Act (NEPA). This inaction demonstrates our argument that Reclamation and the seven states have not upheld their public interest obligations. * The 2016 analysis relied upon	Center for Biological Diversity; Colorado Riverkeeper; Glen Canyon Institute; Great Basin Waterkeeper; Great Basin Water Network; Las Vegas Water Defender; Living Rivers; River Runners for Wilderness; Save the Colorado; Utah Rivers Council	Eric Balken; Gary Wockner; John Weisheit; Kyle Roerink; Taylor McKinnon; Tick Segerblom; Tom Martin; Zach Frankel

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			incomplete and outdated data in regards to the impacts of climate change. * Reclamation relied solely upon historic flow predictions rather than also considering climate change flow predictions to Year 2036. * The purpose and need statement unreasonably omitted climate change in favor of a nonexistent obligation to produce hydroelectric power. * The Final EIS included only near-identical alternatives and failed to consider any alternative that could potentially address the realities of future climate change.		
10	17	MITIGATION - Mitigation	There may be some resource impacts that are disproportionately large. Reclamation should examine the magnitude of these impacts closely and consider adopting mitigation measures into the proposed action.	AMWG Colorado; AMWG New Mexico; AMWG Utah; AMWG Wyoming; Arizona Department of Water Resources; Colorado River Board of California; Colorado River Commission of Nevada; Southern Nevada Water Authority	Ali Effati; Amy Haas; Charlie Ferrantelli; Clint Chandler; Colby Pellegrino; Jessica Neuwerth; Michelle Garrison; Sara Price
29	26	MITIGATION - Mitigation	In WAPAs view, Reclamation must develop off-ramps for the experiment to avoid significant impact to the CRSP system and the broader power grid. The off-ramps are in addition to financial mitigation discussed above. WAPA proposes two off-ramps below. The first is intended to ensure the Basin Fund remains above the level WAPA needs to ensure stable operations. The second will ensure WAPA is able to fulfill its contractual obligations and that the experiment does not adversely impact the stability of the broader power grid.	Western Area Power Administration	Rodney Bailey

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			(1) WAPA will monitor the Basin Fund status and project future balances. If during the experiment, WAPA projects the Basin Fund will drop below $70 million in the following six months, Reclamation will immediately suspend the experiment. The experiment may be restarted if WAPA secures financial mitigation sufficient to maintain a Basin Fund balance over $70 million. (2) If during the experiment, WAPA is unable to purchase necessary replacement energy on the day-ahead market, in real time, or cannot find needed transmission, the experiment will be modified to provide the needed energy or be suspended. This off-ramp may have short notice due to the real-time nature of power operations. However, WAPA will attempt to project energy needs and provide advance notice to Reclamation if at all feasible. It is anticipated these would be short events, perhaps hours to weeks at most, and full implementation of the experiment could resume once replacement power is available.		
30	4	MITIGATION - Mitigation	Primary users of the system may be negatively impacted by the alternatives that are considered. These impacts should be clearly identified and mitigated. Please keep in mind that this is a multiple purpose, shared resource and the alternatives need to consider the impacts to all users as work is done to mitigate the SMB population.	Wyoming Municipal Power Agency	Rosemary Henry

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5	2	PI - Public and Stakeholder Involvement	Collectively, our organizations, members, staff and trustees have provided comments on the operation of Glen Canyon Dam (GCD) since 1989 when a Notice of Intent2 was published to develop the first Environmental Impact Statement for operations at Glen Canyon Dam. The scoping report3 for that original EIS highlighted that 71,000 unique comments from the public were received by April of 1990. We now know that 71,000 people will not be commenting for this SEIS because of the persistent state of recalcitrance4 demonstrated by the water managers of the Colorado River Basin (CRB). The reduction in public participation is a failure, signifying that current river management has demoralized the goodwill of the general public for parts of five decades.	Center for Biological Diversity; Colorado Riverkeeper; Glen Canyon Institute; Great Basin Waterkeeper; Great Basin Water Network; Las Vegas Water Defender; Living Rivers; River Runners for Wilderness; Save the Colorado; Utah Rivers Council	Eric Balken; Gary Wockner; John Weisheit; Kyle Roerink; Taylor McKinnon; Tick Segerblom; Tom Martin; Zach Frankel
5	5	PI - Public and Stakeholder Involvement	Part Three: Submission of our administrative record in regards to providing public comments to Reclamation and specifically about operations at Glen Canyon Dam. In consideration of the heavy lifting that we have already performed in providing public comments to Reclamation, we will again submit all our NEPA letters about operations at Glen Canyon Dam in the following table (next page): [table of previous comments with weblinks]	Center for Biological Diversity; Colorado Riverkeeper; Glen Canyon Institute; Great Basin Waterkeeper; Great Basin Water Network; Las Vegas Water Defender; Living Rivers; River Runners for Wilderness; Save the Colorado; Utah Rivers Council	Eric Balken; Gary Wockner; John Weisheit; Kyle Roerink; Taylor McKinnon; Tick Segerblom; Tom Martin; Zach Frankel

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7	1	PI - Public and Stakeholder Involvement	This letter is intended to satisfy our comments in the scoping phase of this action. We previously submitted the following comments and recommendations as part of the Glen Canyon Dam Smallmouth Bass Environmental Assessment (SMB-DEA) and wish to resubmit these comments at this time.	American Rivers	Sinjin Eberle
10	1	PI - Public and Stakeholder Involvement	Prior to announcing the present Supplemental NEPA process for LTEMP, Reclamation solicited stakeholder input on an Environmental Assessment to examine the impacts of several proposed flow regimes at Glen Canyon Dam to prevent the establishment of smallmouth bass below the dam. In response, on December 15, 2022, the Colorado River Lower Basin states, and the Colorado River Basin Upper Division states with the Upper Colorado River Commission submitted two separate stakeholder comment letters to Reclamation. Furthermore, on March 10, 2023, the Basin States' Representatives submitted comments on the Draft Glen Canyon Dam/Smallmouth Bass Flow Options Environmental Assessment (Smallmouth Bass EA).	AMWG Colorado; AMWG New Mexico; AMWG Utah; AMWG Wyoming; Arizona Department of Water Resources; Colorado River Board of California; Colorado River Commission of Nevada; Southern Nevada Water Authority	Ali Effati; Amy Haas; Charlie Ferrantelli; Clint Chandler; Colby Pellegrino; Jessica Neuwerth; Michelle Garrison; Sara Price

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10	20	PI - Public and Stakeholder Involvement	Reservation of Rights: These comments are intended to highlight overarching issues that will require acknowledgment, specification, or clarification as the LTEMP SEIS process continues to progress. The Basin States' Representatives' failure to provide specific comments regarding details of the LTEMP SEIS is not, and shall not be construed as, an admission with respect to any factual or legal issue or the waiver of rights for the purposes of any future legal, administrative, or other proceeding. Furthermore, the Basin States' Representatives reserve the right to comment further on LTEMP SEIS documentation as Reclamation proceeds with subsequent phases of the LTEMP SEIS process.	AMWG Colorado; AMWG New Mexico; AMWG Utah; AMWG Wyoming; Arizona Department of Water Resources; Colorado River Board of California; Colorado River Commission of Nevada; Southern Nevada Water Authority	Ali Effati; Amy Haas; Charlie Ferrantelli; Clint Chandler; Colby Pellegrino; Jessica Neuwerth; Michelle Garrison; Sara Price
11	1	PI - Public and Stakeholder Involvement	Given AEPCO's interests set forth above, AEPCO has a substantial interest in this National Environmental Policy Act ("NEPA") proceeding. As such, AEPCO submitted comments March 10, 2023, asserting that the proposed Smallmouth Bass Draft Environmental Assessment ("Draft EA") failed to meet legal and regulatory standards required by NEPA and associated executive orders. AEPCO incorporates those comments here by reference and further agrees with and supports the comments filed by the Colorado River Energy Distributors Association ("CREDA").	Arizona Electric Power Cooperative, Inc.	Patrick Ledger
13	1	PI - Public and Stakeholder Involvement	The Upper Colorado River Commission ("UCRC") endorses and supports the comments from the Upper Division States of Colorado, New Mexico, Utah, and Wyoming regarding the SEIS, which are incorporated herein by reference.	Upper Colorado River Commission	Charles Cullom

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15	1	PI - Public and Stakeholder Involvement	We previously provided comments and suggestions on the first iteration of the Glen Canyon Dam Smallmouth Bass Environmental Assessment (SMB EA) for the Long Term Experimental and Management Plan (LTEMP) early in 2023. We expect that Reclamation will include consideration of those comments and suggestions, in addition to those provided here as scoping comments to this LTEMP Supplemental EIS process.	Grand Canyon Wildlands Council	Kelly Burke; Larry Stevens
22	1	PI - Public and Stakeholder Involvement	Conservation groups hereby incorporate by reference our March 10, 2023 comments on the Glen Canyon Dam/Smallmouth Bass Flow Options Draft Environmental Assessment (Attachment 1). Those comments describe an emergency situation for humpback chub whereby: The passage of warm water and smallmouth bass from near the surface of Lake Powell through still-unscreened penstocks of Glen Canyon Dam, into the Colorado River, threatens the survival and recovery of humpback chub. Once established, a reproducing population of smallmouth bass in the Grand Canyon would be impossible to suppress. Predation by bass would reduce the number and reproductive success of the largest remaining population of humpback chub at the Little Colorado River. This outcome would jeopardize humpback chub, sharply increase extinction risk, and would be catastrophic for humpback chub recovery efforts overall.	Center for Biological Diversity; Colorado Riverkeeper; Great Basin Waterkeeper; Great Basin Water Network; Living Rivers; Sierra Club, Grand Canyon Chapter	John Weisheit; Kyle Roerink; Sandy Bahr; Taylor McKinnon
26	10	PI - Public and Stakeholder Involvement	BRC would like to be considered an interested public for this project. Information can be sent to the following address and email address: Ben Burr BlueRibbon Coalition P.O. Box 5449 Pocatello, ID 83202 brmedia@sharetrails.org	BlueRibbon Coalition	Ben Burr; Simone Griffin

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32	1	PI - Public and Stakeholder Involvement	Please be advised that Grand Canyon River Guides submitted comments and suggestions regarding the previously planned Glen Canyon Dam Smallmouth Bass Environmental Assessment envisioned by the Bureau of Reclamation (BOR). It is our understanding that comments received by the BOR on the Draft EA will be considered in this LTEMP SEIS.	Grand Canyon River Guides, Inc.	Lynn Hamilton
33	14	PI - Public and Stakeholder Involvement	CREDA encourages Reclamation to consider additional public webinar opportunities at appropriate times during the SEIS process, particularly given the extremely short timeframe currently being considered.	Colorado River Energy Distributors Association	Leslie James
34	1	PI - Public and Stakeholder Involvement	Commenter resubmitted their February 2023 comments on the Framework to Prevent nonnative Fish Species Establishment Below Glen Canyon Dam Addendum [See attachment]	Hopi Tribe	Stewart Koyiyumptewa
1	3	PN - Purpose and Need	2. The purpose and need of the LTEMP Revision are too narrow to justify changes to the protocol for high flow experiments. The purpose and need for the LTEMP Revision should be broad enough to incorporate the dual objectives to 1) modify flow operations to prevent the establishment of smallmouth bass and 2) update the high flow experiment protocol to reflect the latest scientific information and need to alter the sediment accounting windows. The Notice of Intent, however, states the purpose and need of the LTEMP Revision are to "analyze additional flow options at Glen Canyon Dam in response to invasive smallmouth bass and other warmwater nonnatives recently detected directly below the dam" and "prevent the establishment of smallmouth bass below Glen Canyon Dam (by preventing additional spawning), which could threaten core populations of threatened humpback chub in and around the Little Colorado River and its confluence with the Colorado River mainstem."9 The purpose and need is too narrow to justify changes to the high	Grand Canyon Trust	Jen Pelz

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			flow experiment protocol. Given that this proposed action is a LTEMP Revision, it might be helpful to reframe the purpose and need for the original action. The purpose of the Long-term Experimental and Management Plan is to provide a framework for adaptively managing Glen Canyon Dam in a manner consistent with the GCPA and other applicable laws.10 The plan sets forth specific dam operations, non-flow actions, and other experiments designed to minimize impacts to and improve cultural and environmental resources in Glen Canyon Recreation Area and Grand Canyon National Park.11 The need for the plan stemmed from a desire to use decades of scientific information to inform decisions so that the Secretary of the Interior can meet her obligations to protect downstream resources, conserve listed species under the Endangered Species Act, and avoid or mitigate impacts on National Register of Historic Places-eligible properties, while meeting water deliveries and generating power.12 Reclamation's singular and narrow description of the purpose and need may foreclose available solutions. The purpose of the LTEMP Revision is to analyze dam operations and update experimental protocols for the purpose of protecting, mitigating harm to, and improving downstream environmental and cultural resources. The need for the action is to ensure the survival and recovery of the threatened humpback chub in the Grand Canyon, prevent establishment of smallmouth bass below the dam, and ensure that experimental protocol to address sediment resources reflect updated and best available science. This broader purpose and need better reflects the pair of objectives trying to be addressed.		

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4	1	PN - Purpose and Need	Purpose and Need: The purpose of the LTEMP SEIS is for Reclamation to analyze additional flow options at Glen Canyon Dam in response to invasive smallmouth bass and other warmwater nonnatives recently detected directly below the dam. As noted by the Colorado River Basin States in their March 10, 2023, letter in response to the Glen Canyon Dam/Smallmouth Bass Flow Options Draft Environmental Assessment, "We continue to believe that flow-related actions are only one tool to address the issue and that additional actions like the installation of fish exclusion device(s) are necessary and urgently needed for the long-term prevention of establishment of nonnative species from Lake Powell into the reach below Glen Canyon Dam." CAWCD believes that the purpose and need statement should be broadened to consider a broad range of actions including non-flow related actions to prevent the entrainment and establishment of smallmouth bass and other non-native populations below Glen Canyon Dam.	Central Arizona Project CAP	Brenda Burman
8	1	PN - Purpose and Need	Purpose and Need As stated in your NOI "the purpose of the LTEMP SEIS is for Reclamation to analyze additional flow options at Glen Canyon Dam in response to invasive smallmouth bass and other warmwater nonnatives recently detected directly below the dam. The need is to prevent the establishment of smallmouth bass below the Glen Canyon Dam (by preventing additional spawning), which could threaten core populations of threatened humpback chub in and around the Little Colorado River and its confluence with the Colorado River mainstem" and "including the latest scientific information to improve Reclamation's ability to implement HFEs as originally intended in the LTEMP EIS" with an emphasis on "adjusting sediment accounting periods and HFE implementation windows". The Service acknowledges the challenges presented in the operation and management of	US Fish and Wildlife Service	Heather Whitlaw

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			GCD and appreciates Reclamation's willingness to improve conditions for the trust resources in the Grand Canyon. The Service believes that the stated purpose and need is imperative to the continued adherence to the Endangered Species Act (ESA). The fish community in the Grand Canyon has been in a transitory state during the current 20-year drought with many warm-water nonnatives becoming more abundant (Boyer & Rogowski 2022). With decreasing Lake Powell elevations, warm water is released through GCD downstream and nonnative fish are entrained, resulting in further additions and the threat of establishment for some species (U.S. Geological Survey 2023). Monitoring efforts presented by the Arizona Game and Fish Department (AGFD) in 2023 indicate that the fishery below Glen Canyon Dam has begun a transition away from a cold-water fishery and toward an assemblage of warm water non- native invasive fish. The chief concern among fisheries biologists is the establishment of smallmouth bass (Micropterus dolomieu); however, a number of other warmwater non-native fishes have been increasing during this transitory stage (Smallmouth Bass Ad Hoc Group 2023). As stated by Reclamation in the purpose and need of this SEIS effort, it is crucial to prevent the establishment of smallmouth bass (and other invasive warm water predatory fish) below GCD. Smallmouth bass have been identified as one of the most significant threats to the native fish community in Grand Canyon due to their piscivorous nature and their tolerance of environmental conditions. Humpback chub (Gila cypha) populations have increased dramatically in the Grand Canyon stretch of the Colorado River over the past decade; from a core population of approximately 9,000 fish in the Little Colorado River to estimates of as many as 65,000 fish currently between the tributaries and mainstem river (Van Haverbeke et al. 2022,		

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			2023). These populations constitute approximately 90% of the known humpback chub (Figure 1). The Service recently downlisted the humpback chub from "endangered" to "threatened" (86 FR 57588; November 17, 2021) due to the population of humpback chub below GCD being mostly free of impacts from predatory nonnatives; the commitment to removal efforts of invasive fish in the Upper Basin; and flow alterations at the Upper Basin dams. The Service believes that the establishment of warmwater invasive fish, including smallmouth bass, below GCD represents the greatest current potential threat to the continued survival and recovery of humpback chub in the Lower Colorado River basin. The Service supports Reclamation's efforts to analyze the potential of using additional flow options at GCD as a tool in response to increased detections of warmwater invasive fish below the dam.		
8	3	PN - Purpose and Need	The Service agrees with Reclamation's stated purpose and need of the SEIS to prevent establishment of smallmouth bass below GCD by preventing additional spawning. In the NOI, Reclamation anticipates analyzing several alternatives within this SEIS; No Action, the four Action Alternatives considered in the February 2023 Draft EA (Reclamation 2023a), and a new Hydropower Alternative that does not include the use of bypass flows to reduce water temperatures. The scientific literature, in addition to recent flow and temperature modeling, indicate that cooling water temperatures to below 16degC is the only effective method to prevent spawning, recruitment, and establishment of smallmouth bass in Glen Canyon. Furthermore, this is the best method for preventing their spread into western Grand Canyon (C. Yackulic, personal communication, November 30, 2022; (Bestgen & Hill 2016; Bestgen 2022; Yackulic & Eppehimer 2022; Young et al. 2022). The Service encourages Reclamation to work closely with Glen	US Fish and Wildlife Service	Heather Whitlaw

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			Canyon Monitoring and Research Center (GCMRC) to consider and include the best available science in determining whether proposed alternatives will meet the stated purpose and need of the SEIS. For an option to meet the stated need of preventing spawning of smallmouth bass, that option needs to demonstrate that waters will be cooled to below 16degC.		
10	3	PN - Purpose and Need	Purpose and Need: Reclamation proposes to prepare the LTEMP SEIS for the dual purpose of analyzing flow options at Glen Canyon Dam in response to invasive smallmouth bass and other warmwater invasive fish and to consider adjusting the sediment accounting periods and implementation windows of the High-Flow Experiment (HFE) protocol. The Basin States' Representatives generally support the proposed purpose and need statement, and offer the following order pertaining to the Basin States' Representatives' priorities: 1. Facilitate flow experiments to help prevent smallmouth bass establishment. 2. Facilitate flow experiments to help prevent establishment of other warmwater invasive species. 3. Increase the opportunity for HFEs. The most urgent need is to reduce the threat of invasive fish on humpback chub, an Endangered Species Act listed species. Amending the HFE protocol is an important need but of lesser urgency than addressing invasive fish threats, particularly smallmouth bass. If during the development of the LTEMP SEIS, it is clear that resource constraints will prevent a decision from being made before the spring/summer of 2024, Reclamation should focus exclusively on the need to address the threat of smallmouth bass. Reclamation should maintain the focus of the LTEMP SEIS purpose on addressing smallmouth bass as they have proven to have significant impacts on humpback chub populations in the Upper Basin tributaries. As conditions	AMWG Colorado; AMWG New Mexico; AMWG Utah; AMWG Wyoming; Arizona Department of Water Resources; Colorado River Board of California; Colorado River Commission of Nevada; Southern Nevada Water Authority	Ali Effati; Amy Haas; Charlie Ferrantelli; Clint Chandler; Colby Pellegrino; Jessica Neuwerth; Michelle Garrison; Sara Price

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			change over time other species may also need to be addressed. However, given current conditions and science, the purpose and need appropriately focuses on the known and immediate threat of smallmouth bass.		
11	7	PN - Purpose and Need	a. The Bureau should revise the Purpose and Need so that structural options may be reviewed, and adequate alternatives are analyzed. In defining the purpose of the proposed action as including only the analysis of additional flow options at the Glen Canyon Dam, the Bureau has ensured that no structural alternatives that may meet the need of the project will be analyzed. The Draft EA considered four alternatives in addition to the statutorily required No Action alternative. However based on nearly 7,000 public comments received, the Bureau has revised their analysis and "anticipates" that in addition to the to the four actions initially analyzed, the Bureau will consider a "[h]ydropower flow option that does not include the use of bypass to reduce water temperatures" and "[i]ncluded in all but the No Action alternative will be a revised annual sediment accounting period and implementation window associated with the HFE protocol."11 As explained by the Ninth Circuit, "[t]he range of alternatives that an agency must consider under NEPA is based on the purpose and need of the proposed agency action."12 As such, a reviewing court will "'begin[] by determining whether or not the Purpose and Need Statement was reasonable.'"13 Accordingly, the purpose of the LTEMP SEIS is for the Bureau "to analyze additional flow options at Glen Canyon Dam in response to invasive smallmouth bass and other warmwater nonnatives recently detected directly below the dam."14 Additionally, the need is to "prevent the establishment of smallmouth bass below the Glen Canyon Dam (by preventing additional spawning), which could threaten core populations of threatened humpback chub in and around the Little	Arizona Electric Power Cooperative, Inc.	Patrick Ledger

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			Colorado River and its confluence with the Colorado River mainstem."15 Although federal agencies "enjoy a good deal of discretion in framing the 'purpose and need' of an EA or EIS...the statement cannot 'unreasonably narrow[] the agency's consideration of alternatives so that the outcome is preordained.'"16 Here, the Bureau has done just that. In defining the purpose as analyzing "additional flow options at Glen Canyon Dam" the agency has predetermined that no structural options may be considered as alternatives.		
20	2	PN - Purpose and Need	Reclamation should clarify and expressly state that the purpose and need is to pursue operational alternatives at Glen Canyon Dam as a temporary means to help prevent the establishment of SMB and other warmwater non-native species through the end of water year 2026. In isolation, operational alternatives work to disrupt spawning and disadvantage SMB, and do not fully prevent establishment.	AMWG Colorado; AMWG New Mexico; AMWG Utah; AMWG Wyoming	Ali Effati; Amy Haas; Charlie Ferrantelli; Michelle Garrison
29	1	PN - Purpose and Need	The purpose of responding to smallmouth bass and other warmwater nonnatives is not clear. Which fish are defined as warmwater nonnatives and what types of actions may be needed for these other species? Is Reclamation considering flow actions for other species such as green sunfish? The Glen Canyon Dam Adaptive Management Programs (GCDAMP) Invasive Fish Strategic Plan focusses on invasive fish and cool and warm-water nonnative fish. Reclamation should review the strategic plan to align terminology and clarify the objective of this NEPA action.	Western Area Power Administration	Rodney Bailey

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1	1	POLICYGOV - Policy and governance	We appreciate Reclamation's efforts to revisit the 2007 Interim Guidelines in the near-term (2023- 2026) through release of its revised supplemental analysis and to begin the renegotiation process for the Post-2026 Guidelines. However, we are disappointed that the supplemental near-term analysis does not continue to analyze a broad range of alternatives that revise the 2007 guideline's framework for assessing operations at Lakes Powell and Mead and yield additional identified cuts to lower basin water use. Despite the improved hydrology in 2023, the need to stabilize and recover reservoir storage in the short-term should still be an immediate priority in the basin. The actions proposed in the LTEMP Revision will be rendered futile if there is not enough water in Lake Powell to support the modified operations.	Grand Canyon Trust	Jen Pelz
1	2	POLICYGOV - Policy and governance	. Compliance with the Grand Canyon Protection Act of 1992 must guide any supplement to the Long-term Experimental and Management Plan. It is curious that the Notice of Intent did not mention or cite the mandates of the Grand Canyon Protection Act4 ("GCPA") as a source of authority, or as part of the purpose or need, for the proposed action. The Long-term Experimental and Management Plan was intended as a framework to adaptively manage Glen Canyon Dam operations and serve as a mechanism to facilitate other experimental actions to fulfill the mandate of the Act.5 In determining how to proceed to balance resources in the Grand Canyon, Reclamation must consider the letter and spirit of the GCPA in its analysis. The Grand Canyon Protection Act of 1992 provides that: The Secretary shall operate Glen Canyon Dam in accordance with the additional criteria and operating plans specified in section 1804 and exercise other authorities under existing law in such a manner as to protect, mitigate adverse impacts to, and improve the values for which Grand Canyon National Park and Glen Canyon National	Grand Canyon Trust	Jen Pelz

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			Recreation Area were established, including, but not limited to natural and cultural resources and visitor use. Former Reclamation Commissioner and Deputy Secretary of the Interior, Michael Connor, described the Act6 as follows: The GCPA is a congressional attempt to protect the natural and cultural environment downstream of Glen Canyon by defining the priorities under which DOI must operate the dam. The law of the river is still paramount in dictating releases, but now the protection of downstream resources takes priority over all other values. In fact, the legislative history indicates that the GCPA specifically rejects the notion that power generation has any priority over protection of downstream environmental, recreational, or cultural values. This reordering of priorities, recognizing traditionally overlooked values, is by itself enough to make the GCPA a significant piece of legislation. Further, the goal of the GCPA goes beyond protecting downstream resources and specifically contemplates "improv[ing] the values for which Grand Canyon National Park and Glen Canyon National Recreation Area were established."7 Reclamation has authority under the Grand Canyon Protection Act that "gives priority to protection of the Grand Canyon, and all other values must operate within this mandate."8 We request that Reclamation consider and prioritize the GCPA mandates in this decision making process.		
4	2	POLICYGOV - Policy and governance	Operations to protect, mitigate and improve resources in Grand Canyon National Park and Glen Canyon National Recreation Area downstream of Glen Canyon Dam must remain consistent with and subject to the existing laws governing allocation, appropriation, development and exportation of the Colorado River resource. See Grand Canyon Protection Act, Pub. L. 102-575, 106 Stat. 4602, 4669,	Central Arizona Project CAP	Brenda Burman

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			SS 1802(b). The priority given to water storage, allocation and delivery under the GCPA substantially limits the Secretary's ability to change other elements of Glen Canyon Dam operations. Accordingly, under existing LTEMP framework, water deliveries must be made "in a manner that is fully consistent with and subject to the Colorado River Compact, the Upper Colorado River Basin Compact, the Water Treaty of 1944 with Mexico, the decree of the Supreme Court in Arizona v. California, and the provisions of the Colorado River Storage Project Act of 1956 (CRSPA) and the Colorado River Basin Project Act of 1968 that govern allocation, appropriation, development, and exportation of the water of the Colorado River Basin, and consistent with applicable determinations of annual water release volumes from Glen Canyon Dam made pursuant to the Long-Range Operating Criteria (LROC) for Colorado River Basin Reservoirs, which are currently implemented through the 2007 Interim Guidelines for Lower Basin Shortages and Coordinated Operations for Lake Powell and Lake Mead" (2007 Interim Guidelines). See Record of Decision for the Glen Canyon Dam Long-Term Experimental and Management Plan (Dec. 2016) at 1. The 2007 Interim Guidelines link release determinations at Glen Canyon Dam to specific trigger elevations at both Lake Powell and Lake Mead to better balance the system under varying water supplies. Depending on the reservoir levels in both, the 2007 Interim Guidelines provide a range of possible release volumes from Glen Canyon Dam in any given water year. Because these guidelines directly implicate water storage, allocation and delivery of the Colorado River resource in a manner intended to comply with and implement the Law of the River, the SEIS must be "consistent with and subject to" the 2007 Interim Guidelines, the Colorado River Compact, and other aforementioned provisions of law. The scope of the SEIS		

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			must be tailored to recognize the significant legal constraints placed on annual and monthly releases from Glen Canyon Dam as a result of water supply considerations, and water delivery requirements. The 2007 Interim Guidelines are set to expire in 2026. Reclamation is currently in the process of the Development of Post-2026 Operational Guidelines and Strategies for Lake Powell and Mead (Post-2026 Operations EIS). See 88 FR 39457 (June 16, 2023). It is of paramount importance that broad range of actions including non-flow related actions identified under the SEIS remain flexible under the operational policies for Glen Canyon Dam that could be in place post-2026.		
24	1	POLICYGOV - Policy and governance	Grand Canyon National Park is already dealing with invasive smallmouth bass entering the lower Colorado River Basin through Glen Canyon Dam because of low water levels and allowing warmer water from the upper levels of Lake Powell to pass through the penstocks. The National Park Service (NPS) has done the best it can to respond to this crisis, but ultimately the Bureau of Reclamation (BOR) must take action to remedy this situation as required by the Grand Canyon Protection Act of 1992, as well as a legal obligation under the Endangered Species Act (ESA), to not only prevent smallmouth bass from entering the Grand Canyon, but also from reproducing there.	National Parks Conservation Association	Sanober Mirza

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25	1	POLICYGOV - Policy and governance	Hydropower is an incident to the other purposes of the dam. GCD is authorized for 'for the purposes, among others, of regulating the flow of the Colorado River, storing water for beneficial consumptive use, making it possible for the States of the Upper Basin to utilize, consistently with the provisions of the Colorado River Compact, the apportionments made to and among them in the Colorado River Compact and the Upper Colorado River Basin Compact, respectively, providing for the reclamation of arid and semiarid land, for the control of floods, and for the generation of hydroelectric power, as an incident of the foregoing purposes,' 43 U.S.C. SS 620 (1956).	Glen Canyon National Recreation Area; National Park Service, Interior Regions 6,7,8	Ed Keable; Michelle Kerns
25	2	POLICYGOV - Policy and governance	In the Grand Canyon Protection Act (GCPA) of 1992, Congress mandated that GCD operate "to protect, mitigate adverse impacts to, and improve the values for which Grand Canyon National Park and Glen Canyon National Recreation Area were established' and in a way "fully consistent with and subject to" Colorado River authorities "that govern allocation, appropriation, development, and exportation of the waters of the Colorado River basin," (Public Law 102-575, section 1802)	Glen Canyon National Recreation Area; National Park Service, Interior Regions 6,7,8	Ed Keable; Michelle Kerns
23	2	REC - Recreation	The Department recognizes that the flow regimes outlined by the Grand Canyon Monitoring and Research Center and Reclamation to suppress SMB will disrupt recreational opportunities at Lees Ferry during high flows; however, they also represent an overall benefit to the LTEMP resource if effective in their suppression of SMB, and by maintaining colder water releases below the dam. To minimize impacting recreational users, the Department recommends Reclamation consider implementing peak flows during times of lowest use (i.e. weekdays), as feasible, and provide time for public announcement for recreationalists to adjust plans and minimize impacts to boating and angling trips.	Arizona Game and Fish	Luke Thompson

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25	9	REC - Recreation	Camping beaches in Grand Canyon - Adjustments to the HFE protocol will also help protect recreational camping sites and capacity for more than 24,000 visitors who raft the Colorado River through the Grand Canyon every year. The annual visitation to the Grand Canyon was over 4 million visitors in recent years (4,532,677 in 2021) and produced economic output for the region of almost a billion dollars ($0.94 billion).	Glen Canyon National Recreation Area; National Park Service, Interior Regions 6,7,8	Ed Keable; Michelle Kerns
25	10	REC - Recreation	Recreational Rainbow Trout Fishery in Glen Canyon – The operating range of Lake Powell in recent years is creating increased river temperatures, periodic decreases in dissolved oxygen and increases in warm water non-natives that may have negative impacts to the rainbow trout in and the recreational fishery in Glen Canyon. No action in this LTEMP SEIS would likely continue these negative impacts (Benjamin 2012). The proposed alternative should be evaluated to see if it may have benefits to protecting this recreational fishery which provides opportunity to over 15,000 visitors in busy months and contributes to the regional economic benefits.	Glen Canyon National Recreation Area; National Park Service, Interior Regions 6,7,8	Ed Keable; Michelle Kerns
32	2	REC - Recreation	How will the different flow alternatives impact recreation? In particular we would like to understand how the different options would impact river trips when the flows would be implemented and what metrics will be used to assess and compare alternatives in terms of impacts to river recreation.	Grand Canyon River Guides, Inc.	Lynn Hamilton
1	4	SCOPE - Scope of analysis	Another alternative scope of this analysis would include broadening the LTEMP Revision to include the anticipated and likely inevitable update of the monthly release volumes set out in Table 1 on page 3 of the LTEMP Record of Decision. The original revision to the 2007 Interim Guidelines proposed in the Draft Supplemental Environmental Impact Statement released in April 2023 suggested releasing less than 7 million acre-feet annually from Glen Canyon Dam to protect reservoir elevations at Lake Powell under certain scenarios.	Grand Canyon Trust	Jen Pelz

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			The monthly water distribution table developed in LTEMP does not contemplate what monthly releases would look like below that level. The LTEMP stakeholders have an interest in ensuring that these tables are updated with their input and that the LTEMP resources are protected especially during these lower flow conditions. These flow distributions are vital to the assessment of the affected environment in any subsequent NEPA processes that revise or update the 2007 Interim Guidelines. Given the urgency to develop additional tools to protect humpback chub and prevent nonnative fish from establishing in the canyons in the short-term, we recommend proceeding with the dual purpose LTEMP Revision as discussed above. However, Reclamation should prioritize a broader revision as soon as the LTEMP Revision is finalized and ensure that the monthly release volume table revisions occur parallel to and help inform the effects analysis for the post-2026 guidelines.		
3	1	SCOPE - Scope of analysis	In addition to the comments provided in the Basin States' letter, the Lower Colorado River Basin States request Reclamation analyze a potential term for the nonnative fish flows extending through 2036, the duration of the LTEMP ROD.	Arizona Department of Water Resources; Colorado River Board of California; Colorado River Commission of Nevada; Southern Nevada Water Authority	Clint Chandler; Colby Pellegrino; Jessica Neuwerth; Sara Price

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3	2	SCOPE - Scope of analysis	As discussed in "Invasive Fish Species Below Glen Canyon Dam: A Strategic Plan to Prevent, Detect, and Respond," a variety of tools are needed to help prevent establishment of smallmouth bass below Glen Canyon Dam and protect the federally listed humpback chub. Should the alternatives prove to be useful in helping to prevent the establishment of smallmouth bass or other invasive fish species, this tool may become a crucial component of adaptive management below Glen Canyon Dam. Analyzing the potential for the experimental flows to continue through the duration of the LTEMP will identify potential benefits and barriers to providing this flexibility and would coincide with the duration of analysis of the amendments to the HFE Protocol. Furthermore, if these experimental flows prove to be effective, completing an analysis for the remainder of the LTEMP period now will likely save time and planning resources later.	Arizona Department of Water Resources; Colorado River Board of California; Colorado River Commission of Nevada; Southern Nevada Water Authority	Clint Chandler; Colby Pellegrino; Jessica Neuwerth; Sara Price
3	4	SCOPE - Scope of analysis	In the long run, the Lower Colorado River Basin States also encourage Reclamation to address the need for developing a long term, permanent solution over the duration of the Glen Canyon Dam Adaptive Management Program.	Arizona Department of Water Resources; Colorado River Board of California; Colorado River Commission of Nevada; Southern Nevada Water Authority	Clint Chandler; Colby Pellegrino; Jessica Neuwerth; Sara Price

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5	3	SCOPE - Scope of analysis	Because of the present and failed state of reservoir storage in the CRB, and the looming jeopardy toward federally protected fish species in Grand Canyon National Park, we submit that long-term solutions submitted by citizens is what Reclamation must adopt for this process of developing new operating criteria for GCD in this current epoch of advancing and debilitating climate change. The documentation of agency recalcitrance is detailed by John Weisheit and Robert Lippman in a web-based post dated October 3, 2008 and entitled "A Legal History of Operations at Glen Canyon Dam." We invite the readers of our scoping document to analyze the merits of this post located at the following url: http://www.onthecolorado.com/articles.cfm?mode=detail&id=1223044403735	Center for Biological Diversity; Colorado Riverkeeper; Glen Canyon Institute; Great Basin Waterkeeper; Great Basin Water Network; Las Vegas Water Defender; Living Rivers; River Runners for Wilderness; Save the Colorado; Utah Rivers Council	Eric Balken; Gary Wockner; John Weisheit; Kyle Roerink; Taylor McKinnon; Tick Segerblom; Tom Martin; Zach Frankel
6	1	SCOPE - Scope of analysis	Alternatives Analysis Explore and objectively consider a full range of alternatives and evaluate in detail all reasonable alternatives that fulfill the project's purpose and need. We encourage selection of alternatives that protect, restore, and enhance the environment, and we also support efforts to identify and select alternatives that maximize environmental benefits that avoid, minimize, and/or otherwise mitigate environmental impacts. Recommendations: * Present the environmental impacts of the proposed action and alternatives in comparative form, thus sharply defining the issues and providing a clear basis for choice among options by the decision maker and the public (40 CFR 1502.14 (b)). * Quantify the potential environmental impacts of each alternative to the greatest extent. * Discuss the reasons for eliminating alternatives to the proposed action (40 CFR 1502.14 (a)).	Environmental Protection Agency, Region 9	Stephanie Gordon

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8	5	SCOPE - Scope of analysis	The previous Draft EA limited the evaluation of the proposed spawning disruptive flows to prevent spawning to just three years. The Service recommends that Reclamation not place a time limit for using disruptive flows in this SEIS but rather consider utilizing cold water spawning disruptive flows throughout the lifetime of the LTEMP whenever needed to lower river temperatures to below 16degC if there is a threat of warmwater invasive fish spawning.	US Fish and Wildlife Service	Heather Whitlaw
8	7	SCOPE - Scope of analysis	The Service participated in the discussions regarding sediment flows and fully supports pursuing options that would bring more sediment into this system. That stated, it should be noted that only under the instances where the two resource efforts (fish and sediment flows) can be combined with full success for both resources should they be combined as a singular action. The Service does not believe that sediment flows should be dependent on smallmouth bass, nor vice versa. The Service expects that any experimental flows will be discussed with the larger partnership and that Reclamation will determine how and when to implement a flow based on the best interests of these two resources.	US Fish and Wildlife Service	Heather Whitlaw
12	5	SCOPE - Scope of analysis	In addition, Reclamation should identify the path forward for a long-term solution which can be pursued in parallel with the short-term options identified in the SEIS. At a minimum, the path forward should include a plan for further analysis of long-term solutions, the identification of one or more long-term solutions, and the timeline for implementation. The CRCNV urges Reclamation to begin working on this plan sooner rather than later in the event that the short-term solutions identified in this SEIS prove to be unsuccessful.	Colorado River Commission of Nevada	Eric Witkoski

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15	11	SCOPE - Scope of analysis	GCWC recommends that Reclamation more fully examine how different flow alternatives will impact riverine resources, including native species, cultural resources, recreation, as well as hydropower and water delivery, and interactions among those resources. To do so will require refined definition of objectives for some resources, particularly including those for natural processes, recreation, and cultural values. In terms of interaction effects, improving understanding of how the selected flow alternative affects sediment mass balance, to prevent the kinds of system-wide scour that occurred in reservoir balancing or equilibration years (e.g., 2011).	Grand Canyon Wildlands Council	Kelly Burke; Larry Stevens
17	2	SCOPE - Scope of analysis	In response to the "Need", the stated "Purpose" should be expanded beyond only flow actions to address short, mid, and long-term needs.	Irrigation & Electrical Districts Association of Arizona	Ed Gerak
20	1	SCOPE - Scope of analysis	The SEIS should clearly state that any potential operational alternatives are temporary measures that will only be implemented through an annual determination after consultation and communication as provided in Section 1.4 of the LTEMP Record of Decision. It is unclear why the proposed operational alternatives would be implemented for up to three years, through water year 2027, rather than through 2026, when the 2007 Interim Guidelines and the 2019 Drought Contingency Plans expire. Moreover, additional environmental compliance for the LTEMP may be needed for any post-2026 operations. We recommend the SEIS and any potential operational alternatives to help prevent establishment of SMB or other warmwater non-native species be limited through the end of water year 2026.	AMWG Colorado; AMWG New Mexico; AMWG Utah; AMWG Wyoming	Ali Effati; Amy Haas; Charlie Ferrantelli; Michelle Garrison

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20	8	SCOPE - Scope of analysis	The timelines for the two proposed actions are also distinct. The SEIS notes that any decisions regarding revisions to the HFE protocol are anticipated to run through the duration of the LTEMP Record of Decision. In contrast, the operational alternatives are temporary measures and may only be used through water year 2026. The difference between these timelines complicates merging these two issues into a single analysis and must be acknowledged if the different timelines are carried forward for analyses in the SEIS.	AMWG Colorado; AMWG New Mexico; AMWG Utah; AMWG Wyoming	Ali Effati; Amy Haas; Charlie Ferrantelli; Michelle Garrison
20	12	SCOPE - Scope of analysis	Operations pursuant to the LTEMP dictate monthly, daily, and hourly releases from Glen Canyon Dam. The LTEMP does not impact annual operations. Importantly, the projected annual release from Glen Canyon Dam becomes the basis for the monthly LTEMP operations. Currently, there are two concurrent NEPA processes that impact annual operations at Glen Canyon Dam: (1) the Supplemental Environmental Impact Statement to the 2007 Interim Guidelines, and (2) the Environmental Impact Statement for Post-2026 Lake Powell and Lake Mead Operations. The proposed actions in these concurrent NEPA processes will impact annual operations in ways that may require additional NEPA compliance for the LTEMP. Therefore, certain aspects of this SEIS may need to be reconsidered, or expanded upon, after 2026.	AMWG Colorado; AMWG New Mexico; AMWG Utah; AMWG Wyoming	Ali Effati; Amy Haas; Charlie Ferrantelli; Michelle Garrison
21	1	SCOPE - Scope of analysis	The background information provided in the NOI is used to support the Purpose and Need statement for the proposed LTEMP SEIS: the Purpose being "to analyze additional flow options in response to invasive smallmouth bass and other warm water non-native fish detected directly below the dam," and the Need being "to prevent the establishment of smallmouth bass below Glen Canyon Dam." While additional flow options may need review, alternative methods for mitigation and prevention should also be considered. Flow	Salt River Project SRP	Angie Bond-Simpson

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			options are not the only alternatives available, nor are they established as the most effective and efficient alternatives.		
23	4	SCOPE - Scope of analysis	The Department has concerns with combining flow actions to address SMB and High Flow Experiments to address beach building by way of the sediment accounting window within the same SEIS. It is important that these actions not be considered mutually exclusive because the intended purpose benefits separate resources goals. Related to this concern, implementation of each should not be influenced by the other (e.g. cost, impact to water or hydropower resources).	Arizona Game and Fish	Luke Thompson
23	7	SCOPE - Scope of analysis	As a stakeholder within the Glen Canyon Dam Adaptive Management Work Group (AMWG), the Department is supportive of the implementation of flow options to disadvantage high-risk warmwater species, such as SMB. Preventative measures such as temperature and flow control in the management of high-risk warmwater non-native fish are vital to reduce the risk piscivorous nonnative fishes pose to the Rainbow Trout Fishery at Lees Ferry and native fish populations downstream. Thus, the Department is supportive of Flow Options A-D as outlined within the draft Environmental Assessment (EA) as actions to achieve the stated purpose and believe that they serve as meaningful options to reduce the risk of establishment of SMB. Additionally, the Department encourages Reclamation to plan for flexibility within the implementation of action alternatives to fit within the adaptive management framework of the program.	Arizona Game and Fish	Luke Thompson

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25	15	SCOPE - Scope of analysis	Analysis of how to combine experiments - the potential for HFEs, SMB flow spikes and bypass flows, macroinvertebrate flows and Trout Management Flows (TMFs) to all occur in the late spring/early summer requires resolution in this document. NPS would urge Reclamation to request GCMRC to provide recommendations how to address this issue in a way that would be both simple and clear while providing the best outcomes for the resources addressed under the 1992 GCPA	Glen Canyon National Recreation Area; National Park Service, Interior Regions 6,7,8	Ed Keable; Michelle Kerns
25	20	SCOPE - Scope of analysis	Timeline: Completing this process by late spring 2024 is imperative for this issue. Smallmouth bass (SMB) has shown reproductive behavior the last two years as soon as water temperatures below the dam have reached 16 degrees Celsius. For the tools in this plan to be effective at preventing establishment of SMB, then June of 2024 is when these tools will need to be available to address spawning as that is when river temperature may once again reach the levels that will drive more spawning. Delays to this process may result in the loss of the opportunity to prevent establishment of SMB. Such a delay could have irreversible detrimental impacts on the native fish community in the Grand Canyon and negative impacts on the populations of federally threatened humpback chub and the federally endangered razorback sucker in Grand Canyon National Park.	Glen Canyon National Recreation Area; National Park Service, Interior Regions 6,7,8	Ed Keable; Michelle Kerns
28	7	SCOPE - Scope of analysis	If the Reclamation moves forward with a proposed flow to address the SMB what will the criteria for measuring success? It appears to us that there are still open discussions and debate among the experts on SMB and the benefits of the proposed flows. To the nonexpert, the proposed flow controls and justification is a based-on trial-and-error method. Without a good baseline of fishery data downstream, success could be a moving target with no clear outcomes. Any	Utah Municipal Power Agency	Kevin

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			proposed flow patterns need to demonstrate clear and measurable objectives against the costs and other environmental attributes.		
29	2	SCOPE - Scope of analysis	Is preventing establishment the right goal in considering continued entrainment through Glen Canyon Dam and availability of spawning and nursery habitat in areas like the -12-mile slough? Is preventing establishment in Glen, Marble, and Grand Canyons feasible by the mechanism proposed (i.e., lowering release temperatures at Glen Canyon Dam)? From the collective experience in the upper basin, it may be unlikely that Reclamation can prevent establishment of smallmouth bass in areas that are minimally affected by release temperature, and that a wider scope is needed to meet the purpose and manage smallmouth bass such that they will not be a threat to the recovery of the threatened humpback chub in Grand Canyon.	Western Area Power Administration	Rodney Bailey
29	3	SCOPE - Scope of analysis	GCDAMPs Invasive Fish Strategic Plan highlights the need to have a multi-faceted approach in order to be effective. Although the plan on page 4 is a good one, a much more comprehensive approach is needed well beyond the items described there. The purpose described in this NOI is only one part of a larger plan and is thus not comprehensive and likely to fail on its own. The plan states that, To be successful, all actions must be strategically orchestrated and cohesive. WAPA agrees with this statement.	Western Area Power Administration	Rodney Bailey
29	7	SCOPE - Scope of analysis	WAPA is concerned that there is not a science plan that determines if the 4-year scope of this SEIS is sufficient to adequately test bypass, non-bypass and non-flow experiments to address the purpose and need. Experiments of Glen Canyon Dam operations will likely take more years to obtain the number of replicates needed to assess their efficacy.	Western Area Power Administration	Rodney Bailey

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29	8	SCOPE - Scope of analysis	It is estimated there are approximately 60,000 humpback chubs below Glen Canyon Dam, with a smaller population residing in and around the Little Colorado Rivers confluence with the Colorado River approximately 75 miles downstream of the dam, and a larger population in the western Grand Canyon beginning approximately 175 miles downstream of the dam. The existence and the boost to population viability of the western Grand Canyon population should be fully considered by Reclamation and the USFWS. If preventing establishment of smallmouth bass is not feasible, another set of solutions may be necessary to manage smallmouth bass canyon-wide and over a longterm period of time, as is the case in the upper basin.	Western Area Power Administration	Rodney Bailey
30	1	SCOPE - Scope of analysis	The Purpose and Need statements and the Proposed Action should be broadened to address short-term, medium-term, and long-term prevention and management of the Small Mouth Bass population. Using only flow actions doesn't seem comprehensive enough to address the need.	Wyoming Municipal Power Agency	Rosemary Henry
31	5	SCOPE - Scope of analysis	Reclamation must also consider that its legal NEPA responsibilities include identifying and assessing direct, indirect, and cumulative effects on historic and cultural resources (40 CFR 1502.16(g)), and that considerations must be given to how the NHPA 106 Process will inform NEPA review (40 CFR 1508.27(b)(8)). Moreover, Reclamation must further consider how it has commonly defined adverse effects too narrowly—in both space and time--to account for the large spectrum of adverse effects on Native human environments and historic and cultural resources. As noted by the Council on Environmental Quality (CEQ) within the Executive Office of the President guidance on adverse effects: Analyzing cumulative effects is more challenging [than direct or indirect adverse effects], primarily because of the difficulty	Pueblo of Zuni	Arden Kucate

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			of defining the geographic (spatial) and time (temporal) boundaries. For example, if the boundaries are defined too broadly, the analysis becomes unwieldy; if they are defined too narrowly, significant issues may be missed, and decision makers will be incompletely informed about the consequences of their actions [CEQ 1997:v].		
31	9	SCOPE - Scope of analysis	In order to ensure significant environmental justice, human environment, historic and cultural resource, and direct, indirect, and cumulative adverse effect issues are not missed during Reclamation's compliance with the full spectrum of obligations and responsibilities under NEPA review for the proposed supplemental EIS process, the study area and scope to assesses adverse effects on Native human environments and historic and cultural resources within, intersecting, enveloping, or otherwise connected with the Colorado River and Glen Canyon Dam require attention and definition through lived and living Native deep time and deep space practices and understandings of space-time--deep time being a simultaneous way of "looking back far into Earth's history, and looking forward far into the future" (McGrath, 2020), and deep space referring to both "the production of space intensified and writ large," and that which "identifies the immediacy, materiality, and power of ... uneven geographic development as it is perpetuated by, and lived according to, unjust social systems" (McKittrick, 2006:15).	Pueblo of Zuni	Arden Kucate
31	11	SCOPE - Scope of analysis	Attentive consideration must be given to the fact that, while coordination and substitution processes exist for NHPA and Section 106 review (see 36 CFR 800.8 et seq. and CEQ and ACHP 2013), neither process relieves Reclamation of its responsibilities under each act. It is vital for Reclamation to consider that NEPA is much broader than NHPA insofar that assessments of and considerations for impacts to or effects	Pueblo of Zuni	Arden Kucate

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			on historic/cultural/heritage properties and resources (such as culturally important places, land/waterscapes, and any contributing elements and resources) are not limited to those eligible or potentially eligible for listing in the NRHP. Reclamation must also give consideration to how its NEPA responsibilities intersect and include environmental justice charges under Executive Orders (EOs) 12898 and 14096, sacred site obligations under EO 13007, and responsibilities for identifying and building inclusive and systemic changes to advance equity for underserved communities--including in no small ways Native communities--under EOs 13985 and 14091. In fulfillment of these EOs and NEPA obligations, Reclamation must consider qualitative and quantitative differences in Native cosmologies, worldviews, and associated human-environment, people-place, and society-space relationships, including how: Environmental justice issues encompass a broad range of impacts covered by NEPA, including impacts on the natural or physical environment and interrelated social, cultural, and economic effects. In Section 106 consultations, representatives of affected communities may also raise environmental justice issues. Such issues which can be addressed through historic preservation considerations may contribute to the agency's overall environmental justice compliance [CEQ and ACHP 2013:16]. Reclamation must consider how NEPA presents general standards for data and information used in Environmental Impact Statements (EISs). Reclamation must attentively address and consider how 40 CFR 1500.1(b) and 40 CFR 1502.24 respectively mandate that decisions be made using "high quality" information and "professional integrity, including scientific integrity, of the discussions and analyses in environmental impact statements." To achieve both high quality and integrity Reclamation must consider how it is necessary that these		

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			standards always be coupled with the stipulations at 40 CFR 1502.6 "Interdisciplinary preparation," which state that: Environmental impact statements shall be prepared using an inter-disciplinary approach which will insure the integrated use of the natural and social sciences and the environmental design arts (section 102(2)(A) of the Act). The disciplines of the preparers shall be appropriate to the scope and issues identified in the scoping process (SS 1501.7). It is vital that Reclamation consider as part of the sequential steps of NEPA review, these standards and appropriate disciplinary approaches exist to help fulfill the overall purposes of the NEPA process: "to help public officials make decisions that are based on understanding of environmental consequences, and take actions that protect, restore, and enhance the environment" (40 CFR 1500.1(c)).		
33	1	SCOPE - Scope of analysis	The NOI describes the process the Glen Canyon Dam Adaptive Management Work Group (AMWG) undertook over the past year in its development of the Invasive Species Strategic Plan (Plan), which was approved by the AMWG at its February 2023 meeting. CREDA urges Reclamation to consider all three phases, rapid response (short-term), mid-term and long-term actions in its consideration of elements included in SEIS Alternatives, and to utilize the Plan as guidance in its preparation of the SEIS.	Colorado River Energy Distributors Association	Leslie James
33	3	SCOPE - Scope of analysis	As proposed, the "Need" cannot be achieved by the stated "Purpose". Flow actions alone are insufficient to "prevent the establishment of smallmouth bass below the Glen Canyon Dam". (NOI at 68668). In addition, the stated Purpose and Need do not align with the noted Secretary's Designee's guidance from May 2022, which directive was to "help prevent" invasive fish establishment, "while minimizing potential adverse effects to other resources". The NOI is also	Colorado River Energy Distributors Association	Leslie James

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			lacking in that it makes no mention of mitigation, as stated in the guidance. As rapidly as the system has been changing during the current extreme drought, the question of whether the SMB are already established (or not) below Glen Canyon Dam is secondary to the need to address the issue in a comprehensive manner, as outlined in the Strategic Plan. All actions included in Table 1 of the Plan "Fisheries Actions Within Current Compliance", should be considered and available to the Department through this SEIS to address SMB prevention and management. The Purpose and Need statements and Proposed Action should be broadened to address a comprehensive adaptive approach to both the prevention of and management of (established) populations of SMB.		
33	4	SCOPE - Scope of analysis	CREDA recommends Reclamation develop alternatives that are focused on addressing all aspects of SMB management: entrainment (reservoir elevation/curtain), habitat (-12 mile slough/backwaters), spawning (temperature/disturbance).	Colorado River Energy Distributors Association	Leslie James
33	11	SCOPE - Scope of analysis	CREDA acknowledges the NOI's proposal that the "duration of the flow options would potentially run through 2027," while the HFE protocol revisions "are anticipated to run through the duration of the LTEMP Record of Decision." (NOI at 68668). CREDA recommends Reclamation may reconsider these differing timetables following review of comments received on the NOI and consideration of input from fisheries experts and Cooperating Agency input on Alternative development.	Colorado River Energy Distributors Association	Leslie James
35	1	SCOPE - Scope of analysis	So the question I had or comment was, it was unclear to us why this SEIS, at least the small mouth bass control portion of this SEIS ended in 2026, and we're curious on what the plan for Small amount bass control after 2026 was and how that would be addressed.	Western Area Power Administration	Craig Ellsworth

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37	1	SCOPE - Scope of analysis	Since issuance of the EA, there was a spring high flow event and significant amounts of monitoring , a rotenone treatment, and increasing temperatures. Given all those significant events, I encourage Reclamation to reconsider the published Purpose and Need to take into consideration necessary actions beyond limiting to flow treatments. Since this SEIS is supplementing the LTEMP, and the LTEMP also includes management actions, it is appropriate to consider ALL types of actions to address the stated need of preventing establishment.	Colorado River Energy Distributors Association	Leslie James
8	6	SOC - Socioeconomics	The previous Draft EA also included a discussion on cost impacts as related to loss of hydropower production. Should the draft SEIS also include a cost analysis of options, the Service requests that analysis also include costs associated with moving up the invasion curve and the relationship between the area occupied by an invasive species, time since introduction, and the cost of prevention, eradication, containment, and long-term management (U. S. Department of Interior 2021). The costs to control smallmouth bass if additional spawning is not prevented, are likely to grow exponentially.	US Fish and Wildlife Service	Heather Whitlaw
11	6	SOC - Socioeconomics	Additionally, an indirect effect of the Preliminary Proposed Action is the cost associated with hydropower customers having to find replacement power. Indirect effects by definition are "caused by the action and are later in time or farther removed in distance, but are still reasonably foreseeable."7 Furthermore, effects by definition may be economic, "[e]ffects include...economic...whether direct, indirect, or cumulative. Effects may also include those resulting from actions which may have both beneficial and detrimental effects, even if on balance the agency believes that the effects will be beneficial."8 Once the Bureau has	Arizona Electric Power Cooperative, Inc.	Patrick Ledger

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			determined the impacts associated with hydropower customers acquiring replacement resources, specifically the greenhouse gas emissions as well as the economic cost, the Agency "must include a discussion of possible steps to mitigate environmental harm."9 As explained by the US Supreme Court: [O]ne important ingredient of an EIS is the discussion of steps that can be taken to mitigate adverse environmental consequences. The requirement that an EIS contain a detailed discussion of possible mitigation measures flows both from the language of the Act and, more expressly, from CEQ's implementing regulations. Implicit in NEPA's demand that an agency prepare a detailed statement on 'any adverse environmental effects which cannot be avoided should the proposal be implemented,'...SS 4332(C)(ii), is an understanding that the EIS will discuss the extent to which adverse effects can be avoided." The adverse effect of high costs associated with hydropower customers acquiring replacement resources may be mitigated by the creation and implementation of a funding mechanism.		
26	9	SOC - Socioeconomics	BOR should analyze the full impact of recreation opportunities with releases and experimental flows. When developing future plans potential economic loss needs to be considered. BOR should analyze implementing releases that don't cause significant economic damages based on the time of year. Timing of releases can potentially cause hundreds of millions of dollars of economic loss whereas considerations for the reservoirs could accommodate releases and recreational opportunity. In 2022 GCNRA economic output was $372,677,000.2 That is more than $7 million per week. Releases that cause lake levels to drop for an extra week or two cost local communities millions of dollars. Its economic multiplier is 10, giving rise to over $4 billion in direct economic value to its surrounding and regional areas. Timing	BlueRibbon Coalition	Ben Burr; Simone Griffin

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			of releases in 2023 negatively impacted marinas, local communities and Navajo Nation tribal communities on the southern border of the GCNRA, as well as Page, Arizona and should be recognized in the deliberations involving these flow options. BRC believes BOR can adequately manage flows while giving proper considerations to all other users and stakeholders.		
28	10	SOC - Socioeconomics	WAPA's basin fund cannot support the cost for the replacement power impacted by the proposed SMB flow options. The results will be passed on to the customers of WAPA. Besides UMPA members, other municipalities, rural co-operatives, and tribes will be impacted by additional costs. The study must fully examine these impacts on the utility consumers. Prior statements have been made to suggest that these impacts will be small caused by the new SMB flows. However, the replacement power costs may be grossly underestimated given all the different drivers affecting market rates. Prices will increase for all utilities in the market from the constraint of energy supplies, transmission path congestion and fuel conditions. The impact to the "Basin Fund" managed by WAPA has not been adequately addressed. Failure to identify the funding for purchasing the replacement power required to offset the impact of the flow options is lacking. Protecting the endangered fishery below GCD is in the best interest of all the parties. However, placing the burden for funding these experimental fish flow options on the backs of the power customers is unfair. The power customer did not introduce the small mouth bass, a non-native fish, into Lake Powell. No one anticipated low lake elevation and entrainment of fish. The federal agencies should seek federal funding or use their federal budgets to address this matter if the decision to proceed with by-pass flow happens. We ask that the study examine the beneficiary use	Utah Municipal Power Agency	Kevin

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			and pay structure of GCD caused by the impacts of the drought. There are several beneficial uses with GCD not being recovered through an appropriate pay structure.		
28	12	SOC - Socioeconomics	Any lost generation due to operating the bypass tubes for either SMB flows or HFEs will need to be replaced from power purchased on the market. The lost power generation will have a direct impact on regional market prices, transmission constraints, and financial basin obligations. As shown in the past, CRSP power customers will be forced to replace the hydropower with more expensive replacement power. These financial burdens will significantly impact our communities for years and with no clear path to resolve the matter. UMPA's members serve regions that are considered underserved and disadvantaged populations. The impacts caused by the drought in the West have resulted in higher power rates. We are concerned that conducting costly experiments will further expand this negative impact to consumers. One of the main missions of the GCD is to provide reliable and economic power to the region. Some of the proposed efforts to change flows and operations may undermine this important benefit to our business and residents.	Utah Municipal Power Agency	Kevin
28	13	SOC - Socioeconomics	UMPA's federal power is relatively minor compared to the more than five million customers across the regional states receiving federal power from CRSP. However, Glen Canyon Dam (GCD) and the federal facilities are major contributors to providing customers with clean, renewable (carbon-free) power to maintain the reliability of the grid and offer an affordable price to the consumers. Simply stated, any reduction in federal power from GCD compromises the integrity of the grid system and raises rates for our consumers.	Utah Municipal Power Agency	Kevin

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10	14	WATMODEL - Water Modeling	The water temperature prediction tool has been very useful to understand potential future conditions resulting from low inflows and a low reservoir, but modeled predictions have not always matched observations. Reclamation should prioritize improvement of the temperature prediction tool as it is of critical importance when considering whether this and other future flow options might be triggered.	AMWG Colorado; AMWG New Mexico; AMWG Utah; AMWG Wyoming; Arizona Department of Water Resources; Colorado River Board of California; Colorado River Commission of Nevada; Southern Nevada Water Authority	Ali Effati; Amy Haas; Charlie Ferrantelli; Clint Chandler; Colby Pellegrino; Jessica Neuwerth; Michelle Garrison; Sara Price
1	5	WATRESOURC - Water Resources	3. Recovering reservoir storage through demand reductions is key to meeting the dual purposes of the LTEMP Revision. To address the nonnative species threatening humpback chub in Marble and Grand Canyons, higher reservoir elevations at Lake Powell would reduce the opportunity for nonnative fish passage through Glen Canyon Dam, allow colder water into the Colorado River below, and create opportunities to modify flows through Marble and Grand Canyons to protect and improve cultural and environmental resources as mandated by the GCPA. Similarly, high flow experiments are more likely to be conducted when Lake Powell reservoir elevations are not near critical levels. As reservoir levels dwindle, not only do conflicts among resources increase, but the options for addressing issues become much more difficult, if not impossible. We encourage Reclamation to take preemptive actions now--both in the context of stabilizing reservoir storage and preventing the establishment of nonnative species below Glen Canyon Dam—to prevent even more difficult and expensive solutions later. Bruckerhoff et al.	Grand Canyon Trust	Jen Pelz

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			(2022) studied environmental metrics below Glen Canyon Dam to compare "the outcome of combinations of water storage scenarios and consumptive use limits" based on continuation of conditions under the Millennial Drought.13 The authors found that where water is stored "was less important when less water was available, highlighting the importance of keeping water in the system to provide flexibility for achieving ecosystem goals."14 This finding seems particularly relevant to the proposed action given that the environmental metrics were similar to the concerns being addressed in the LTEMP Revision. The study concluded the only way to avoid the consequences of low reservoir levels (e.g. inability to perform modified flows, warm river temperatures, and change to fish communities) "is by significantly reducing consumptive water use in the entire basin so that there is more water stored in Lake Powell and Lake Mead." Thus, "limiting consumptive use may provide the most flexibility in managing ecosystem drivers."15		
6	3	WATRESOURC - Water Resources	Waterbodies Section 303(d) of the Clean Water Act requires that states, territories, and authorized Tribes identify waterbodies that do not meet water quality standards and to develop, with EPA approval, Total Maximum Daily Loads for waters identified as impaired to meet established water quality criteria and associated beneficial uses. Because surface water quality degradation is one of the EPA's primary concerns, understanding the setting for the project is important for preparing an impact analysis. Recommendations: * Identify water bodies likely to be impacted by the project, the nature of the potential impacts, and the specific discharges and pollutants likely to impact those waters. Include a map to illustrate where these waterbodies are within the project area. * Disclose information regarding relevant TMDL allocations for any	Environmental Protection Agency, Region 9	Stephanie Gordon

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			impaired waters listed on the latest state CWA 303(d) list or Integrated Report, along with the water quality standards and pollutants of concern. * As the CWA anti-degradation provisions will also apply, demonstrate that the proposed action will comply with anti-degradation provisions of the CWA that prevent deterioration of water quality within waterbodies that currently meet water quality standards. * Where TMDL analyses for impaired waterbodies within or downstream of the project area still needed to be developed, ensure that proposed actions are carefully managed to prevent any worsening of the impairment or avoided altogether where such impacts cannot be prevented.		
6	4	WATRESOURC - Water Resources	Clean Water Act Section 404 Applicability The protection, improvement and restoration of wetlands and riparian areas are a high priority because they increase landscape and species diversity, support many species of western wildlife, and are critical to the protection of water quality and designated beneficial water uses. Recommendations: * To limit the impacts of management activities to hydrology and riparian vegetation, address specific management requirements or design features to protect wetlands, including monitor restoration to evaluate the success of management activities by including follow-up monitoring and assessments as a component of management plans. * Confirm with the U.S. Army Corps of Engineers if any jurisdictional waters would require a CWA Section 404 permit for discharge of dredged or fill materials into waters of the United States, including wetlands and "special aquatic sites." If a permit is required, describe the impacts under individual or nationwide permits authorizing the discharge of fill or dredge materials to waters of the U.S.	Environmental Protection Agency, Region 9	Stephanie Gordon

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10	13	WATRESOURC - Water Resources	The LTEMP SEIS should include reasonable assumptions of low inflow and low reservoir conditions and analyze the feasibility and effectiveness of implementing the proposed actions under these conditions.	AMWG Colorado; AMWG New Mexico; AMWG Utah; AMWG Wyoming; Arizona Department of Water Resources; Colorado River Board of California; Colorado River Commission of Nevada; Southern Nevada Water Authority	Ali Effati; Amy Haas; Charlie Ferrantelli; Clint Chandler; Colby Pellegrino; Jessica Neuwerth; Michelle Garrison; Sara Price
17	6	WATRESOURC - Water Resources	The SEIS should consider the use of reservoir elevations to address temperature concerns, as opposed to only flow actions. Given recent hydrology and forecasted "El Nino" precipitation, the lake elevation could rise enough in 2024 that that the penstocks could be drawing colder water from below the epilimnion, where fish tend to reside.	Irrigation & Electrical Districts Association of Arizona	Ed Gerak

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23	1	WATRESOURC - Water Resources	Proposed iterations of flow options have suggested a trigger of 16degC detected at the Little Colorado River for implementation. The Department agrees with the designation of 16degC as the biologically meaningful threshold for management action and recommends including temperatures at Lees Ferry, as well as temperatures in the mainstem at the Little Colorado River inflow. Lees Ferry is the epicenter for establishment of SMB due to its proximity to the dam. Water temperatures conducive for SMB spawning have already been reached in Lees Ferry in 2022 and 2023, which has contributed to observations of young-of-year SMB during the Department's long-term fish monitoring program and by other cooperating agencies in the reach. Delaying establishment at Lees Ferry will increase chances of preventing high risk warmwater species from establishing in downstream areas.	Arizona Game and Fish	Luke Thompson
18	3	WILD - Wildlife (except fish)	In addition, birds such as storks, hawks, and sandhill cranes are used for traditional ceremonies. As part of a migratory bird floyway, this habitat is important for these birds. Big game such as desert mule deer, big horn sheep, and geese and ducks were and are hunted for food, and plants such as arrowweed and several types of gourds are gathered for ceremony. CRIT urges Reclamation to consider the well-being of all of these culturally significant species in its management actions at Glen Canyon Dam.	Colorado River Indian Tribes	Rebecca Loudbear