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December 11, 2023

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Sent via email

RE: U.S. Bureau of Reclamation's Revised Draft Supplemental Environmental Impact Statement for Near-term Colorado River Operations dated October 2023 (88 Fed. Reg. 73840)

Dear Ms. Johnson,

The Grand Canyon Trust ("Trust") submits this letter to provide comments on the U.S. Bureau of Reclamation's *Revised Draft Supplemental Environmental Impact Statement for Near-term Colorado River Operations dated October 2023* ("Revised Draft SEIS"). Reclamation proposes to revise the 2007 Interim Guidelines for the operation of Glen Canyon and Hoover Dams for the period between 2023 and 2026 for the purpose of addressing the potential for impacts from ongoing low-runoff conditions in the Colorado River Basin. In November of 2022, Reclamation began this process to "promptly identify and analyze modified operating guidelines to address current and foreseeable hydrologic conditions."[1] At that time, Reclamation emphasized that it "lacks the operational tools necessary to address projected extreme drought conditions and is prioritizing implementation of near-term actions to stabilize the decline in reservoir storage and prevent system collapse."[2] Reclamation requests comments on "the analyses or alternatives that can be considered and potentially integrated into the final SEIS."[3]

The Grand Canyon Trust is a 501(c)(3) non-profit advocacy organization founded in 1985 with a mission to safeguard the wonders of the Grand Canyon and the Colorado Plateau, while supporting the rights of its Native peoples. We are headquartered in Flagstaff, Arizona and have more than 3,000 members and supporters. For decades, we have worked across the four corners region to secure protections for important cultural landscapes, safeguard water from uranium mining pollution, defend the unsustainable withdrawal of groundwater for development, protect the Grand Canyon ecosystem, and restore healthy forests and springs. We appreciate the opportunity to comment on the proposal to modify interim operations at Glen Canyon and Hoover Dams and to consider how this interim step fit into the broader challenges facing the Colorado River Basin.

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[1] 87 Fed. Reg. 69402 (November 17, 2022).
[2] Revised SEIS at 1-8.
[3] Revised SEIS Website for Public Involvement. Available at: https://www.usbr.gov/ColoradoRiverBasin/interimguidelines/seis/publicinvolvement.html.

The basin seems to continuously find itself in a place where policy evolution is not keeping up with the pace and severity of the water crisis. Over the past several decades, Reclamation warned that additional tools are needed in the basin to address the challenges of climate change and drought. In fact, the 2007 interim guidelines were created because Reclamation "had not yet developed operational rules for the full range of operations at Lake Powell and Lake Mead because these types of low-reservoir conditions had simply not yet occurred."[4] At that time, the basin was said to be in its "eighth year of drought – the worst eight year period in over a century of continuous recordkeeping."[5] Reclamation acknowledged that "[w]hile water storage in the massive reservoirs afforded great protection against the drought" more tools were needed to mitigate the reservoir decline.[6] As you well know, even despite the tools established in the original 2007 guidelines and the supplemental 2019 drought contingency plans, we are currently in "the driest 23-year periods in more than a century and one of the driest periods in the last 1,200 years" and new tools are still needed to address the situation.[7]

Despite the strong spring runoff in 2023, we may find ourselves back in the same situation we were a year ago even before the post-2026 guidelines take effect. History demonstrates how quickly water from a good year can disappear.[8] After the big water years of 2011 and 2019, which respectively had a natural flow at Lees Ferry of 20 million acre-feet (maf) and 18 maf, the gains realized to Lakes Powell and Mead (about 7 maf in 2011 and 4.5 maf in 2019) were cut in half within the first year and completely gone within the second year. In 2023, the natural flow at Lees Ferry was about 18 maf, which added a little more than 5 maf to storage in Lakes Powell and Mead. This amount is only slightly more than what was added to the reservoirs in 2019 and 2 maf less than what was added in 2011. Thus, depending on the flows into the Colorado River and its tributaries in 2024, 2025 and 2026 and the water use in the basin, a repeat of 2022 conditions could be a reality. The lower end of Reclamation's modeling at Lake Powell shows that certain traces could reach critical elevations (e.g. minimum power pool) in the spring of 2025 and remain there through 2026 even with implementation of the proposed action.

We applaud the efforts of the tribes, states, federal government, and others to reach agreements to conserve 3 million acre-feet of water over the next 3 years. We know it involves hard decisions on the part of water users. We understand from the *Dear Reader Letter* and choices made in the Revised Draft SEIS that Reclamation considers the 2023 water gains in Lakes Powell and Mead to be enough to bridge the 2023 to 2026 gap while the post-2026 guidelines are negotiated. The Trust, however, remains very concerned about the challenges facing the Colorado River. We believe that additional short-term conservation (beyond what is included in the proposed action) is needed to stabilize and recover reservoir storage, set the basin up well for negotiation and implementation of the post-2026

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[4] U.S. Bureau of Reclamation (2007), Record of Decision for the 2007 Colorado River Interim Guidelines for Lower Basin Shortages and Coordinated Reservoir Operations for Lake Powell and Lake Mead (November 2007) at 1. Available at: https://www.usbr.gov/lc/region/programs/strategies/RecordofDecision.pdf.
[5] *Id.*
[6] *Id.*
[7] 87 Fed. Reg. 37884 (June 24, 2022).
[8] Schmidt, Jack (2023), *Water Year 2023 in Context: A Cautionary Tale* dated October 25, 2023, Utah State University, Center for Colorado River Studies, Quinney College of Natural Resources (Available at: https://qcnr.usu.edu/coloradoriver/blog/WY2023-schmidt) and *Protecting Reservoir Storage Gains from Water Year 2023: How are we doing?* Dated November 2, 2023 (Available at: https://qcnr.usu.edu/coloradoriver/blog/WY2023-schmidt-1).

guidelines, as well as to ensure that the Colorado River and its ecological, cultural, and recreational resources in the Grand Canyon and throughout the basin can be sustained into the future given climate realities. Unfortunately, it appears that political will to explore opportunities otherwise unavailable except during a crisis have dissolved with the snow that fell in the mountains this past winter.

The Revised Draft SEIS does not meet the minimum requirements of the National Environmental Policy Act ("NEPA"). Reclamation's analysis of only two alternatives and its premature choice to eliminate all but one action alternative from the analysis also significantly limits the ability of the basin sovereigns, stakeholders, and the public from being privy and able to understand and provide feedback on the choices before the agency. Over the past year, Reclamation received proposals from the 6-Basin States (Arizona, Colorado, Nevada, New Mexico, Utah, and Wyoming)[9], California[10], and the Lower Basin States[11] among others offering demand reductions, policy revisions, and other ideas for sustaining the Colorado River system. In addition, Reclamation spent many months and resources to develop two of its own alternatives that were completely analyzed in the April 2023 Draft SEIS for near-term operations. Yet, Reclamation eliminated nearly all these alternatives from the Revised Draft SEIS and chose to move forward with only the Lower Basin's proposal and the No Action Alternative. Reclamation's failure in this regard undermines not only the alternatives analysis but the entirety of the NEPA process limiting the dialogue around possible short- and long-term policy changes that is so desperately need in the basin.

We understand Reclamation's reticence to take bold unilateral action to stabilize and recover reservoir elevations at Lakes Powell and Mead in the short-term with the looming negotiation of post-2026 guidelines for the basin given the lack of consensus and possible litigation on the horizon. This, however, was not a choice Reclamation had to make prior to releasing the Revised Draft SEIS. Instead of embracing the public process under NEPA to analyze different options, weighing the risks and benefits, receiving feedback and suggestions before deciding on how to move forward, Reclamation did its assessment behind closed doors prior to releasing the Revised Draft SEIS. While the Trust supports Reclamation's revision of the 2007 interim guidelines to expand its ability to address low runoff and reservoir conditions and memorialize additional water conservation in the lower basin, we also believe that Reclamation needs to comply with the law and expand the Revised Draft SEIS to fully analyze a range of additional operational policies related to reducing demand, the operational tiers, and mid-year review. Reclamations analysis will be rendered inadequate if a reasonable alternative exists, but it is not fully incorporated into the analysis.[12] Reclamation should either fully analyze Alternatives 1 and 2 in the Revised Draft SEIS including the full range of its

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[9] Colorado River Basin State Representatives of Arizona, Colorado, Nevada, Utah, and Wyoming (January 31, 2023), *Letter to Reclamation transmitting its Consensus- Based Modeling Alternative* ("6-State Plan"). Available at: https://www.snwa.com/assets/pdf/seis-letter.pdf.

[10] Colorado River Board of California (January 31, 2023), *Letter to Reclamation transmitting its Colorado River Modeling Framework* ("California Plan"). Available at: https://crb.ca.gov/wp-content/uploads/2023/01/California-SEIS-Submittal-Package_230131.pdf.

[11] Colorado River Basin States Representatives of Arizona, California, and Nevada, (May 22, 2023), Letter to Reclamation transmitting Lower Division States Alternative ("Lower Basin Plan"), Available at: https://www.doi.gov/sites/doi.gov/files/lower-basin-plan-letter-5-22-2023.pdf.

[12] *See Friends of Southeast's Future v. Morrison*, 153 F.3d 1059, 1065 (9th Cir. 1998) (citation omitted) ("The existence of reasonable but unexamined alternatives renders a [NEPA analysis] inadequate.")

environmental consequences or, at a minimum, Reclamation should take the feedback received and develop an additional alternative that fully analyzes a range of futures that can either justify moving forward with the proposed action or perhaps show that a new alternative may have broader appeal and more benefit up to and post-2026.

The Trust details its comments below:

I. Reclamation's Revised Draft SEIS fails to comply with NEPA

The National Environmental Policy Act "is a federal environmental law that requires agencies to consider the environmental impacts of their actions as part of the decisionmaking process and to inform the public about these impacts."[13] NEPA aims to "encourage productive and enjoyable harmony between man and his environment" and promote "efforts which will prevent or eliminate damage to the environment."[14] The law is said to be "our basic national charter for protection of the environment."[15] NEPA establishes an "action-forcing" mechanism to ensure "that environmental concerns [will] be integrated into the very process of agency decisionmaking."[16] Pursuant to that statutory provision, "all agencies of the Federal Government shall ... include in every recommendation or report on ... major Federal actions significantly affecting the quality of the human environment, a detailed statement" known as an environmental impact statement ("EIS") addressing "the environmental impact of the proposed action, any adverse environmental impacts which cannot be avoided ..., alternatives to the proposed action," and other environmental issues.[17] What NEPA requires is that federal agencies take a "hard look at [the] environmental consequences" of their proposed actions.[18]

A. The purpose and need for the near-term revision of the 2007 interim guidelines is too narrow to facilitate holistic solutions to sustain the Colorado River and its resources.

The Revised Draft SEIS must "briefly specify the underlying purpose and need to which the agency is responding in proposing the alternatives including the purposed action." 40 C.F.R. § 1502.13. However, the agency cannot "define the project so narrowly" that it forecloses reasonable consideration of alternatives to the proposed action.[19]

Reclamation provides that "[t]he purpose of the SEIS is to supplement the 2007 Interim Guidelines to modify guidelines for operation of the Glen Canyon and Hoover Dams to address historic drought, historically low reservoir elevations, and low-runoff conditions in the Basin."[20] "The need for the modified operating guidelines is based on the potential that continued low-runoff conditions in the

[13] *Dine Citizens Against Ruining Our Env't v. Haaland,* 59 F.4th 1016, 1025 (10th Cir. 2023).
[14] 42 U.S.C. § 4321.
[15] 40 C.F.R. § 1500.1(a).
[16] *Andrus v. Sierra Club*, 442 U.S. 347, 350 (1979).
[17] 42 U.S.C. § 4332.
[18] *Robertson v. Methow Valley Citizens Council*, 490 U.S. 332, 350 (1989) (internal quotation omitted).
[19] *Davis v. Mineta*, 302 F.3d 1104, 1119 (10th Cir. 2002); *City of Carmel by the Sea v. DOT*, 123 F.3d 1142 (9th Cir. 1997); *Simmons v. U.S. Army Corps of Eng'rs*, 120 F.3d 664, 666 (7th Cir. 1997).
[20] Revised Draft SEIS at 1-10.

Basin could lead Lake Powell and Lake Mead to decline to critically low elevations, impacting operations through the remainder of the interim period (prior to January 1, 2027)."[21] Importantly, Reclamation clarifies that

> To ensure Glen Canyon Dam continues to operate under its intended design for purposes of maintaining downstream water releases and protecting infrastructure from the potential consequences of operating at or below critical elevations, Reclamation may need to modify current operations and reduce Glen Canyon Dam downstream releases, impacting downstream resources and reservoir elevations at Lake Mead. Consequently, to protect Hoover Dam operations, system integrity, and public health and safety, Reclamation also may need to modify current operations and reduce Hoover Dam downstream releases.[22]

The purpose and need statement narrowly focus on reservoir elevations at Lakes Powell and Mead and the impact of reservoir elevations on "operations" during the 2023-2026 interim period. It emphasizes the threat as climate but fails to recognize the role unsustainable demand has and will continue to play in the decline of reservoir elevation. The focus is on ensuring the dams "operate under [their] intended design." In so doing, Reclamation specifically contemplates "impacting downstream resources" and "reservoir elevations at Lake Mead." *Id.* Protecting infrastructure over all else—when other resource considerations are mandated by statutes like the Grand Canyon Protection Act of 1992 and the Endangered Species Act—is too narrow a view when establishing the purpose and need and forecloses alternatives that should be considered.

With a slightly broader purpose and need, Reclamation could have factored a more holistic view into the policy revisions and allowed them to inform the amount of necessary water conservation—an amount not only to prevent the system of water distribution on the Colorado River from collapse, but to ensure that the Colorado River itself and the resources and interests it supports are included and protected. The purpose could be

> to supplement the 2007 Interim Guidelines to modify guidelines for operation of the Glen Canyon and Hoover Dams to address historic drought, historically low reservoir elevations, and low-runoff conditions **impacting the Colorado River and its unique resources by adjusting demand**.

Likewise, the need should acknowledge the necessity of safeguarding downstream resources along the Colorado River as follows:

> The need for the modified operating guidelines is based on the potential that continued low-runoff conditions in the Basin could lead Lake Powell and Lake Mead to decline to critically low elevations, **impacting operations, water availability, and safeguarding downstream environmental, cultural, and recreational resources along the Colorado River including endangered and threatened species** through the remainder of the interim period (prior to January 1, 2027).

[21] *Id.*
[22] *Id*.

For example, as reservoir elevations fall, water temperature increases in the Colorado River downstream of Glen Canyon Dam. In addition, as the warmer upper layer of water in Lake Powell encounters the penstocks, nonnative fish also are allowed to pass through the dam, which is an imminent and serious threat to the native population of humpback chub. Therefore, while keeping Lake Powell at 3,500 feet is the threshold for hydropower generation and ensuring the full delivery of water downstream, that elevation is terrible for preventing nonnative fish passage through the penstocks and warmer water releases. While we are engaged in and understand that a separate process is underway to address the smallmouth bass issue through a supplemental environmental impacts statement for the Long-term Experimental and Management Plan ("LTEMP SEIS") focused on dam operations, those efforts will prove futile if there is not enough water in Lake Powell to facilitate those releases at the temperatures necessary or if more nonnative fish continue to pass through the dam. This Revised Draft SEIS process is inextricably linked with the LTEMP SEIS and together the decisions made could determine the fate of the last stronghold of humpback chub in the basin. Reclamation needs to demonstrate through action that it is committed to taking a more holistic view of the river and its resources and that think beyond and plan for operating beyond thresholds even in the short-term. This acknowledgement could start by simply broadening the purpose and need of the proposed action to recognize the river itself, the environment, and the resources that could be impacted.

B. Reclamation failed to analyze a reasonable range of alternatives to the proposed action.

The "heart" of the NEPA process is an agency's duty to consider "alternatives to the proposed action" and to "study, develop, and describe appropriate alternatives to recommended courses of action in any proposal which involves unresolved conflicts concerning alternative uses of available resources."[23] An agency must "[r]igorously explore and objectively evaluate all reasonable alternatives" in response to a "specif[ied] purpose and need."[24] Operating in concert with NEPA's mandate to address environmental impacts, an agency's commitment to a robust alternatives analysis allows agencies to "sharply defin[e] the issues and provid[e] a clear basis for choice among options by the decision maker and the public."[25] NEPA's implementing regulations emphasize the importance of fully informed and well-considered conservation decisions that "foster excellent action" and "protect, restore, and enhance the environment."[26] Detailed consideration of reasonable alternatives provides all interested parties with an informed basis to question initial predispositions and "to rethink the wisdom of the action."[27] Accordingly, "[t]he existence of reasonable but unexamined alternatives renders a [NEPA analysis] inadequate."[28]

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[23] 42 U.S.C. §§ 4332(2)(C)(iii), 4332(2)(E); 40 C.F.R. § 1502.14(a).
[24] 40 C.F.R. §§ 1502.14(a); *Wyoming v. U.S. Dep't of Agric.*, 661 F.3d 1209, 1243–44 (10th Cir. 2011) (internal citations omitted).
[25] 40 C.F.R. § 1502.14.
[26] 40 C.F.R. § 1500.1(c); *see also* 40 C.F.R. § 1500.2(e).
[27] *Nat. Resources Def. Council v. Hodel*, 865 F.2d 288, 296 (D.C. Cir. 1988); *see also Citizens Against Burlington, Inc. v. Busey IV*, 938 F.2d 190, 196 (D.C. Cir. 1991) ("the rule of reason does not give agencies license to fulfill their own prophecies, whatever the parochial impulses that drive them).
[28] *Friends of Southeast's Future v. Morrison*, 153 F.3d 1059, 1065 (9th Cir. 1998) (citation omitted).

Reclamation limited the revisions to the 2007 Interim Guidelines to the following three sections:

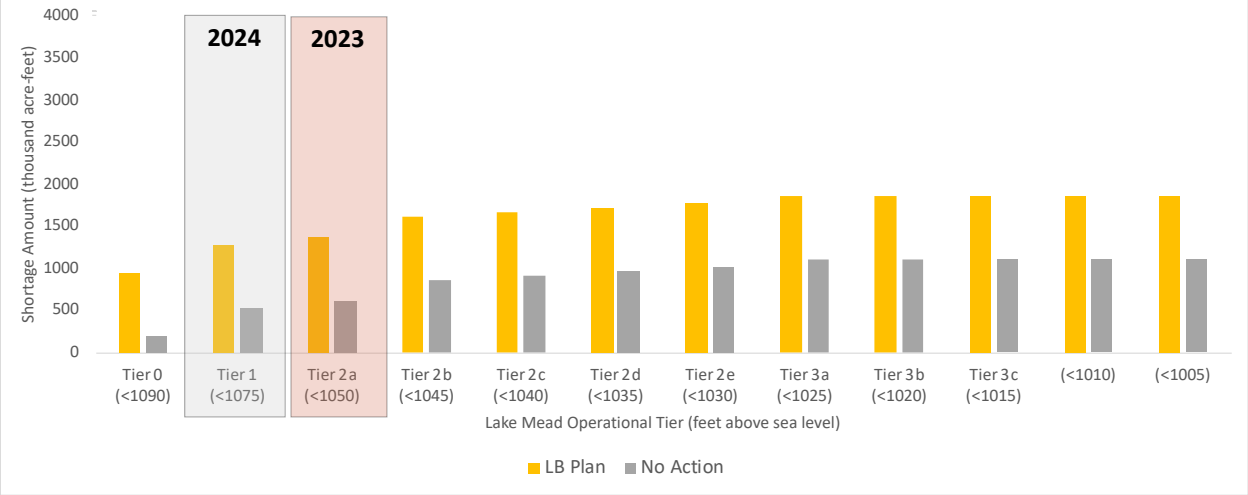
- **Section 2. Determination of Lake Mead Operations**—determining shortage conditions that would decreases the quantity of water apportioned for use in the lower basin.
- **Section 6. Coordinated Operations of Lake Powell and Lake Mead**—revise the mid-elevation release tier and lower elevation balancing tier to reduce quantity of water released from Glen Canyon Dam in years of low flow and low reservoir elevations.
- **Section 7. Implementation Guidelines**—mid-year review determination to allow for reduced deliveries to Lake Mead.

We address the range alternatives related to each of these revisions in the three sections below.

1. Reclamation failed to analyze a reasonable range of shortage conditions at Lake Mead.

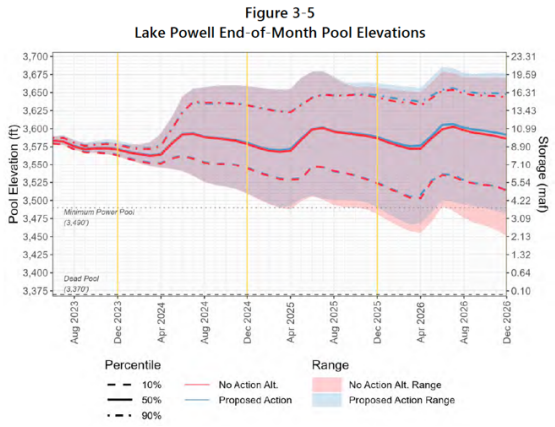
The determination of demand reductions from Lake Mead, under Section 2 of the 2007 Interim Guidelines, is key to addressing the free fall of reservoir elevations at Lakes Powell and Mead. The proposed range of alternatives offered by Reclamation does not provide a meaningful choice for Reclamation, basin sovereigns, stakeholders, or the public to assess risks of reaching critical reservoir elevations or benefits for reservoir stabilization and recovery and the associated effects to the environment. The Revised Draft SEIS fully analyzes only two demand reduction scenarios between the two alternatives: 1) continuation of the existing shortages under the 2007 Interim Guidelines and the Drought Contingency Plans under the No Action Alternative, and 2) the proposed 3 maf of shortages over 3 years proposed in the Lower Basin Plan. The Trust's **Figure 1** below shows the proposed shortage tiers with the corresponding level of water conservation that will continue or is proposed. The shaded boxes show the relevant operational tiers in 2023 and 2024 based on the relevant August 24-month study.

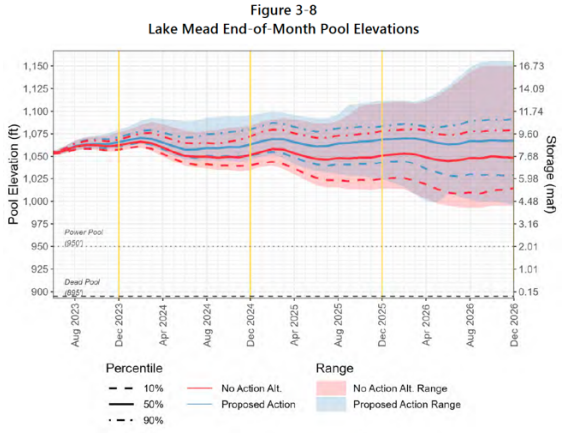
Figure 1. Comparison of Selected Alternatives Proposed Demand Reductions



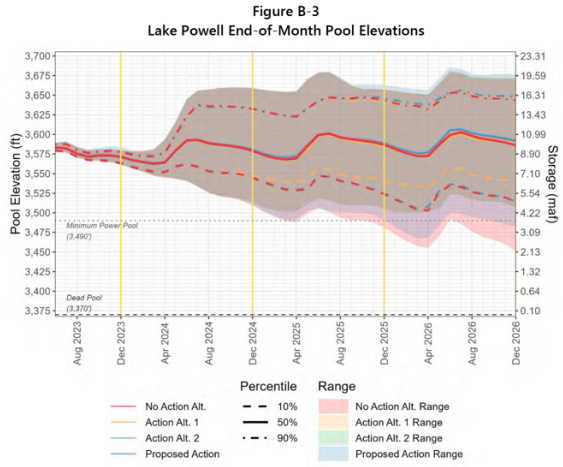
In **Figure 3-5** (Lake Powell) and **Figure 3-8** (Lake Mead) of the Revised Draft SEIS, Reclamation analyzes the No Action Alternative against the Lower Basin Proposal/Propose Action based on the new June 2023 hydrology. While the June 2023 hydrology significantly reduces the risk of the No

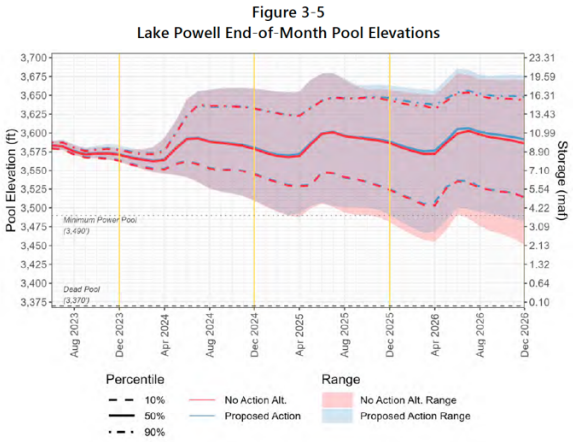
Action Alternative falling below critical reservoir elevations (as compared to the September 2022 hydrology), the Lower Basin Proposal does not eliminate that risk during the interim period for Lake Powell.





Specifically for Lake Powell, Reclamation found 8 percent of traces reaching critical elevations through 2026 for the No Action Alternative and 4 percent of traces for the Lower Basin Proposal.[29] However, what is particularly interesting is Reclamation's analysis in Appendix B of the Revised Draft SEIS, which looks at not just the No Action and Lower Basin Plan, but also includes an analysis of Reclamation's Alternatives 1 and 2 under the June 2023 hydrology. The gray cloud in Figure B-3, *Lake Powell End-of-Month Pool Elevations* (left), shows that the amount of conservation in Alternatives 1 and 2 provides a benefit to reservoir elevations beyond the selected alternatives that is not insignificant. A side-by-side comparison of Lake Powell End-of-Month Pool Elevations modeled in the Revised Draft SEIS are shown in **Figure B-3** (left) and **Figure 3-5** (right) below:





It is clear from these graphs that better outcomes, at least for Lake Powell, occur under Alternatives 1 and 2. Appendix B of the Revised Draft SEIS[30] provides

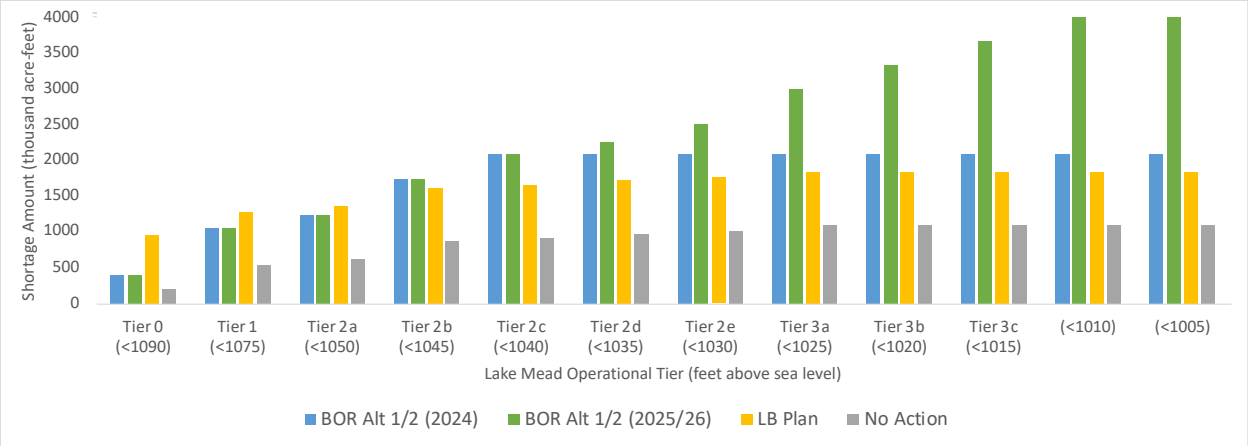
[29] *Dear Reader Letter* at 2; and Revised Draft SEIS at 3-29, for narrative explanation.
[30] Revised Draft SEIS, Appendix B at B-10.

In **Figure B-3**, the cloud extents, or full ranges of modeled Lake Powell elevations, are similar for all alternatives at the high end and median. The lower bound of the No Action Alternative and Proposed Action cloud drops to 3,500 feet in 2025 and decreases to a minimum of 3,451 feet and 3,467 feet in 2026, respectively. The lower bound of the clouds for Action Alternatives 1 and 2 does not drop below 3,490 feet; this is because these alternatives include a provision to protect a Lake Powell elevation of 3,500 feet.

The question remains why the cloud for the Proposed Action in **Figure 3-5** falls below the minimum power pool critical elevation in 2025 and 2026 for certain traces despite the protection mechanism of 3,500 feet being included in that Alternative. We assume that this occurs because of the commitment to maintain the minimum flows required in LTEMP, but a clearer explanation of this is needed in the Revised Draft SEIS. If this is the case, then the need for additional conservation to be added to the alternatives or another policy revision may be needed to protect against Lake Powell reaching minimum power pool and meeting the purpose and need of the action.

Alternatives 1 and 2 do just that. The additional degree of savings proposed under Reclamations Alternatives 1 and 2 is evident in the Trust's **Figure 2** below comparing Reclamation's Alternatives 1 and 2 against the selected alternatives:

Figure 2. Comparison of Demand Reductions in Alternatives 1/2 and the Selected Alternatives



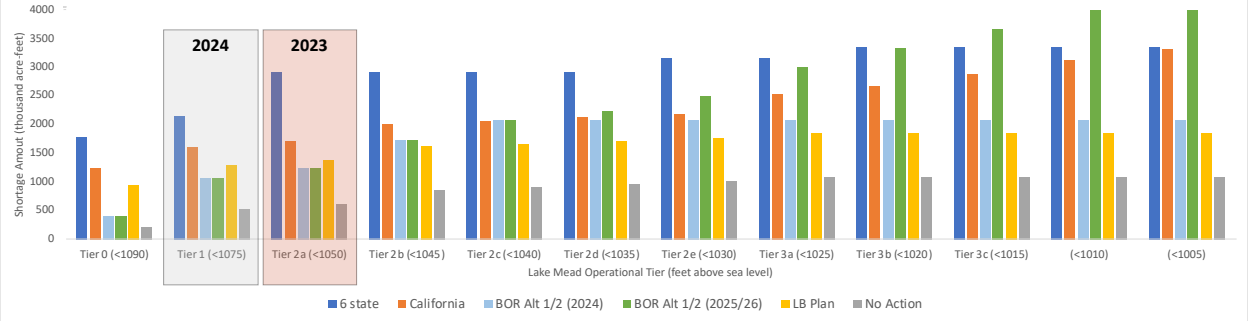
For example, the tiered reductions in the Lower Basin Plan range from 950,000 acre-feet to 1.85 maf. Action Alternatives 1 and 2 in 2024 propose a range from 400,000 acre-feet to 2.083 maf and in 2025/2026 from 400,000 acre-feet to 4 maf.

It is apparent from the bar chart above and the cloud diagrams assessing the percent of traces below critical elevations at Lake Powell that including more alternatives that represent different policy changes (in this case demand reductions) allow for a more robust assessment of the choices before the agency. Reclamation, by excluding Alternatives 1 and 2 from full analysis in the Revised Draft SEIS, deprives itself, the other basin sovereigns, stakeholders, and the public from the ability to assess the risks of reaching critical reservoir elevation or realizing benefits of reservoir stabilization and recovery and the associated effects to the environment. Reclamation fails to analyze a reasonable range of

alternatives as required by NEPA. Reclamation should have carried through and fully analyzed Alternatives 1 and 2 with the selected alternatives in the Revised Draft SEIS.

Further, even if Reclamation did not want to move forward utilizing its own authority to implement demand reductions in the basin, Reclamation had at least two other alternatives that demonstrate a unique range of demand reductions including the 6-States Plan and the California Plan (these plans are described in more detail in Section 1.C below). Based on the addition of the two state-proposed alternatives to the selected alternatives and Reclamation's alternatives 1 and 2, the Trust's **Figure 3** below shows the range of proposed shortage tiers with the corresponding level of water conservation in a side-by-side comparison with the full range of alternatives. Like the above Trust's Figure 2, the shaded boxes show the relevant operational tiers in 2023 and 2024 based on the relevant August 24-month study.

Figure 3. Comparison of Full Range of Proposed Demand Reductions



As is evident from the figure above, a much wider range of proposed demand reductions are represented when all six alternatives are represented. The specific amount of reduction is shown in the Trust's **Table 1**[31] below.

[31] The source of information for the shortage amounts in Table 1 is as follows: 1) the No Action Alternative (Table 2-1, Revised Draft SEIS at 2-4; 2) the Proposed Action/Lower Basin Plan (Table 2-3, Revised Draft SEIS at 2-9), Alternative 1/2 (2004) (Table 2-3, April Draft SEIS at 2-8), Alternatives 1/2 (2025/2026) (Table 2-5, April Draft SEIS at 2-10), 6-States Plan (Table, Letter at 8), and the California Plan (Table 1, Letter at 3). Figures 1 to 5 showing bar chart comparisons of shortage amounts for each alternative are based on the numbers shown in Table 1.

Table 1. Comparison of Full Range of Proposed Demand Reductions

	Proposed Demand Reductions (thousand acre-feet)					
Operational Tier (feet above sea level)	**No Action**	**Lower Basin (Proposed Action)**	**BOR (2024)**	**BOR (25/26)**	**6-State (Evaporation)**	**California**
Tier 0 (<1090)	200	950	400	400	1,784	1,241
Tier 1 (<1075)	533	1,283	1,066	1,066	2,156	1,613
Tier 2a (<1050)	617	1,367	1,234	1,234	2,918	1,721
Tier 2b (<1045)	867	1,617	1,734	1,734	2,918	2,013
Tier 2c (<1040)	917	1,667	2,083	2,083	2,918	2,071
Tier 2d (<1035)	967	1,717	2,083	2,250	2,918	2,129
Tier 2e (<1030)	1,017	1,767	2,083	2,500	3,168	2,188
Tier 3a (<1025)	1,100	1,850	2,083	3,000	3,168	2,525
Tier 3b (<1020)	1,100	1,850	2,083	3,333	3,368	2,675
Tier 3c (<1015)	1,100	1,850	2,083	3,667	3,368	2,875
(<1010)	1,100	1,850	2,083	4,000	3,368	3,125
(<1005)	1,100	1,850	2,083	4,000	3,368	3,325

For example, the range of reductions proposed under Tier 2a—the operation tier in effect in 2023 based on the August 2022 24-month study—were from 617,000 acre-feet in the No Action Alternative to 2.918 maf in the 6-state proposal. The 6-State Plan demonstrates additional conservation, as compared to the Lower Basin/Proposed Action of 1.551 maf. The amount of water savings proposed in the 6-State Plan would surely play a much larger role than the No Action Alternative and the Proposed Action at stabilizing reservoir elevations and possibly allowing some recovery of storage.

Appendix B of the April Draft SEIS also modeled the 6-State Plan, California Plan, as well as a plan submitted by the University of New Mexico School of Law's Utton Center ("Utton Center Plan") and by a group of four tribes including the Chemehuevi Indian Tribe, the Colorado River Indian Tribes, the Quechan Tribe, and the Cocopah Tribe ("4-Tribes Plan"), but under the September 2022 hydrology. This analysis was not updated in the Revised Draft SEIS or in Appendix B to the Revised Draft SEIS. The shortages proposed as a part of those submissions represented even more alternatives Reclamation had to choose from. *See* **Table B-2**, Appendix B to the April Draft SEIS. Thus, Reclamation had several options to choose from to represent different policy choices, reservoir elevation and water delivery outcomes, as well as range of impacts on resources like those in Glen Canyon National Recreation Area and Grand Canyon National Park. The current range of alternatives analyzed by Reclamation related to *Section 2. Shortage Conditions at Lake Mead* does not constitute a reasonable range as required by NEPA. Reclamation should have carried through and fully analyzed at least one, if not more, of the state's proposals and/or its own Alternatives 1 and 2 with the selected alternatives in the Revised Draft SEIS. Reclamation missed a critical opportunity to model and share the impact of greater demand reductions on reservoir elevations and how that could impact or mitigate the environmental effects to important resources.

2. Reclamation failed to analyze a reasonable range of modifications to the operational tiers for Lakes Powell and Mead and corresponding annual release volumes from Glen Canyon Dam.

The determination of coordinated operations at Lakes Powell and Mead, under Section 6 of the 2007 Interim Guidelines, is also important to address low reservoir elevations and is critical to environmental resources in Glen Canyon National Recreation Area and Grand Canyon National Park. The proposed range of alternatives offered by Reclamation does not provide a meaningful choice for Reclamation, basin sovereigns, stakeholders, or the public to assess risks of reaching critical reservoir elevations or benefits for reservoir stabilization and recovery and the associated effects to the environment. The Revised Draft SEIS analyzes only minimum operational changes for releases from Glen Canyon Dam based on the operational tiers.

The Lower Basin Plan, the only alternative from which to compare the No Action Alternative in the Revised Draft SEIS, makes no adjustments to the reservoir elevations associated with the operational tiers as define in **Table 2-2**.[32] Only two changes are proposed in **Table 2-5** for the Proposed Action including: 1) the addition of language to the Mid-Elevation and Lower Elevation Tiers that "if any minimum probable Lake Powell elevation projection shows Lake Powell <3,500 feet over the next 12 months, reduce releases to a minimum of 6.0 maf to maintain an elevation of 3,500 feet"; and 2) "[t]he Secretary reserves the right to operate Reclamation facilities to protect the Colorado River system if hydrologic conditions require such action."[33] **Table 2-5** also states that the Lake Powell operational tiers are "subject to April adjustments or mid-year review modifications,"[34] this is the same in the No Action Alternative.

A much broader range of suggested policy changes are found within the other four alternatives Reclamation failed to carry forward into its analysis in the Revised Draft SEIS. For example, Reclamation proposed several changes in its Alternatives 1 and 2 including: 1) combining the Mid-Elevation and Lower Elevation Tiers into a single new Lower Elevation Release Tier; 2) setting the initial release of the new Lower Elevation Release Tier to 6.0 maf; 3) adjusting releases based on April end-of-water-year elevation projections for Lake Powell; 4) exploring adjustments based the following range of elevations: (≥ 3,575 feet, release 8.23 maf), (< 3,575 feet and ≥ 3,550 feet, release 7.48 maf), (< 3,550 feet and ≥3,535 feet, release 7.0 maf),(< 3,525 feet and ≥ 3,500 feet, maintain 6.0 maf release), (< 3,500 feet, reduce releases so gains equal losses, so Lake Powell ends year at 3,500 feet); and 5) adding a protection level of 3,500 feet at Lake Powell. *See* **Table 2-6** in the April Draft SEIS.[35]

A few of these changes were carried forward into the Lower Basin Proposal including the protection elevation at 3,500 feet and the 6.0 maf release; however, how the 6 maf release is implemented in the Lower Basin Plan is different than in Alternatives 1/2. In the Lower Basin Plan, the release reduction to 6.0 maf is triggered by Lake Powell being projected to reach the protection level of 3,500 feet. On the other hand, Alternatives 1 and 2 set an initial release of 6.0 maf and adjust releases upward or hold based on April Lake Powell end-of-water-year elevation projections. It is impossible to weigh the benefits or risks of the nuance in this policy because the policies related to operation in Alternatives 1

[32] Revised Draft SEIS at 2-6.
[33] *Id.* at 2-11.
[34] *Id.*
[35] *Id.* at 2-12.

and 2 were not analyzed against those in the Proposed Action, nor were their environmental effects evaluated.

Also, as mentioned above, Reclamation modeled a range of suggested policy changes, including those relevant to operational tiers, in Appendix B in April Draft SEIS based on September 2022 hydrology. The 6-States Plan, California Plan, the Utton Center Plan included suggested operational policy changes including: 1) reducing releases from Glen Canyon Dam to protect elevation 3,500 feet (6-State Plan and California Plan) or 3,515 feet (Utton Center Plan); 2) changing set release at elevation 3,575 feet to 7.48 maf (6-States Plan) or to range from 7 maf to 8.23 maf (California Plan); 3) below 3,575 feet balancing release while protecting elevation 3,515 feet in Lake Powell and 975 feet in Lake Mead (Utton Center Plan), 4) removing operational neutrality (e.g. using actual elevations to determine tiers) (California Plan); among other proposals.[36] Reclamation did not conduct a similar modeling analysis in the Revised Draft SEIS for these alternatives under the June 2023 hydrology. This omission renders Reclamation's analysis incomplete and ineffective to evaluate a reasonable range of alternatives to inform its policy decision. As a result, the failure of Reclamation to include a reasonable range of alternatives in the Revised Draft SEIS continues to plague its analysis. A reasonable range of alternatives is key for the basin sovereigns, stakeholders, and the public to engage meaningfully in the discussion around choosing a path forward. This is even true when the action is in the short-term. Reclamation needs to remedy this oversight before it finalizes its analysis and decides how and with which alternative to proceed.

The Trust is very curious what the outcome of certain of these policies may be including how the 6.0 maf Glen Canyon Dam release reduction is implemented and what impact to reservoir elevations at Lakes Powell and Mead occur if the protection level at Lake Powell is raised from 3,500 feet (only 10 feet above minimum power pool) to 3,525 feet or even 3,515 feet based on the reality that the closer Lake Powell elevations are to the penstocks the warmer penstock releases and the more likely non-native fish will pass through the dam. Unfortunately, due to the narrow purpose and need, limited range of alternatives analyzed in the Revised Draft SEIS, and the failure to move all but the no action and proposed action through a complete effects analysis these questions and many others remain unanswered. Under NEPA, Reclamation is required to "[r]igorously explore and objectively evaluate **all reasonable alternatives**" in response to a "specif[ied] purpose and need."[37] Reclamation's failure to do that here when it chose to consider but ultimately eliminate Alternatives 1 and 2, the 6-State Plan, and the California Plan. This decision renders its NEPA analysis incomplete and not meet the "hard look" required by NEPA.

3. Reclamation failed to analyze a reasonable range of policy changes to the mid-year review provision in the implementation of guidelines.

Section 7.C of the 2007 Interim Guidelines contains a provision that allows a mid-year review in April to consider revisions to the Annual Operating Plan (AOP) including 1) that a determination that a different operational tier applies for the remainder of the year, or 2) that a different amount of water (other than what was specified at the start of the year) will be released for the remainder of the year. These decisions are based on evaluation of following objectives: "to avoid curtailment of uses in the

[36] Table B-1, April Draft SEIS, Appendix B at B-3.
[37] 40 C.F.R. §§ 1502.14(a); *Wyoming v. U.S. Dep't of Agric.*, 661 F.3d 1209, 1243–44 (10th Cir. 2011) (internal citations omitted) (emphasis added).

Upper Basin, minimize shortages in the Lower Basin and not adversely affect the yield for development available in the Upper Basin." For Lake Mead, revisions can only adjust to provide additional deliveries.

The Lower Basin Plan explores a revision as follows

> if the April 24-Month Study minimum probable model in 2024, 2025, and 2026 indicates that the respective end-of-year elevation in Lake Mead will fall below 1,025 feet, the Lower Division States would have 45 calendar days from the publication of the respective 24-Month Study to propose, after consultation with the Upper Division States, an implementable plan to Reclamation to protect Lake Mead from reaching an elevation of 1,000 feet. If such an acceptable plan, as determined by Reclamation, is not developed, Reclamation may independently take action(s) to protect 1,000 feet.
>
> As described in **Section 2.7**, the Secretary retains the authority to protect the Colorado River system if hydrologic conditions require additional action.[38]

This could play out in the context of reducing deliveries from Glen Canyon Dam if the April 1 forecast indicates Lake Powell would fall below 3,500 feet. As described in more detail in Section I.D.2 below, the Trust is concerned how this could impact flows in the Colorado River below the dam and the environmental, cultural, and recreational resources. Based on Table 3-5, Lake Powell traces reached 3,500 feet in 2025 and 2026, unless the August 24-month study projects this, such adjustments in either year could be in April during the mid-year review.[39]

The only other mid-year review provision proposed in the full range of alternatives appears to be from Reclamation's Alternative 1 and 2 which provides

> The provisions for a mid-year review are the same as those under the No Action Alternative except revisions to shortages associated with Lake Mead elevation determinations in the mid-year review can be revised to allow for either further reduced deliveries or additional deliveries.[40]

The 6-State Plan and California Plan did not propose a revision to this section of the 2007 Interim Guidelines. Reclamation should consider how mid-year review revisions could help meet the purpose and need of the proposed action and develop a few different policy scenarios to include for comparison, if possible. The Trust is particularly interested in one that addresses our concern about the 6.0 maf release adjustment mid-year to flows in the Colorado River below the dam.

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[38] Revised Draft SEIS at 2-13.

[39] A comprehensive review of the accuracy of Reclamation's 24-month studies found that the studies overestimated inflows into Lake Powell and as a result often predicted reservoir elevations that were higher than what occurred in those years. *See,* Wang, J., Udall, B., Kuhn, E., Wheeler, K., and Schmidt, J.C. (2021). Evaluating the Accuracy of Reclamation's 24-month Study Lake Powell Projections. Utah State University Center for Colorado River Studies, White Paper No. 7. https://qcnr.usu.edu//coloradoriver/files/news/White-Paper-7.pdf.

[40] April Draft SEIS at 2-14.

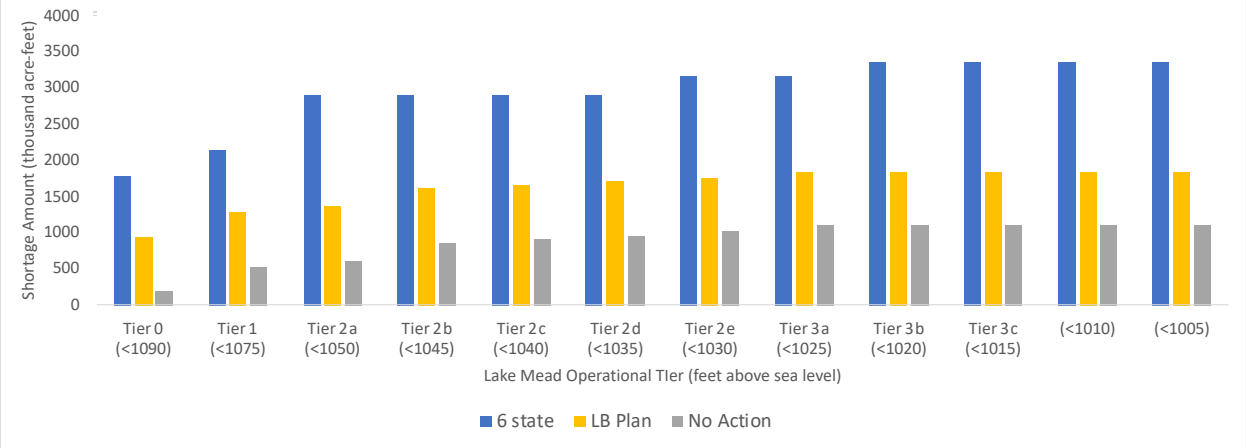
C. Reclamation failed to justify a valid reason for not carrying forward at least four of the "considered by eliminated" alternatives.

1. Reclamation failed to include the 6-States Plan and California Plan as alternatives to the proposed action in both the April and October Draft SEIS.

a. Reclamation failed to justify its decision to eliminate the 6-State Plan.

On January 31, 2023, the 6-basin states (Arizona, Colorado, Nevada, New Mexico, Utah, and Wyoming) submitted an alternative to Reclamation "that apportions among all contractors reductions to account for water evaporation, seepage, and system losses."[41] Reclamation also received scoping comments that were in favor of such an alternative, including from the Trust.[42] Reclamation refused to carry it forward in both the April Draft SEIS and the Revised Draft SEIS based on the reasoning that "the Proposed Action contemplates conservation amounts similar to those that would be assessed based on evaporation, seepage, and system loss calculations in the proposals received."[43] In fact, the amount of water conservation proposed by the 6-States Plan significantly outpaces the conservation proposed in the proposed action. This is easily seen in the figure below.

Figure 4. Comparison of 6-Basin States Alternative to Proposed and No Action Alternatives



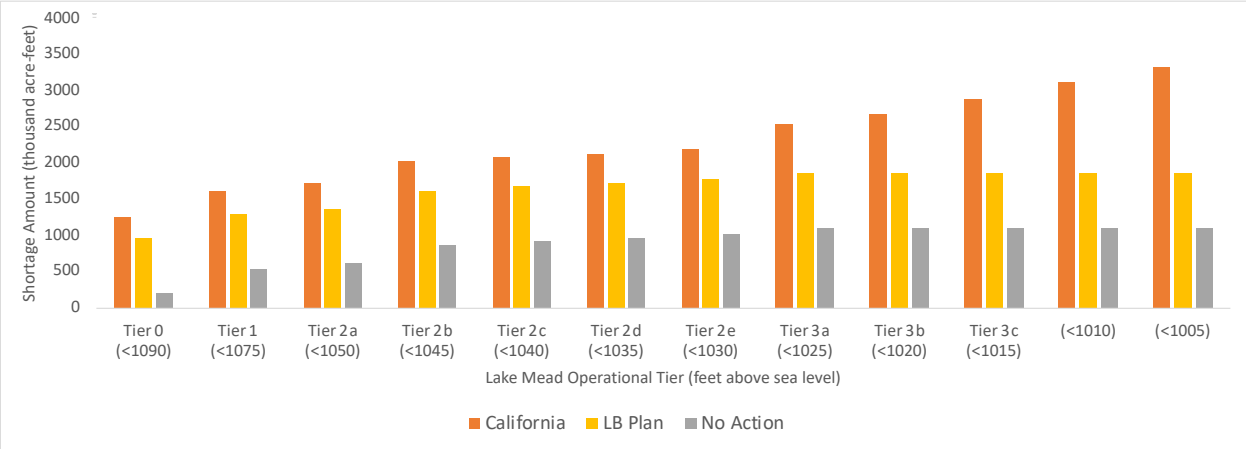
More specifically, the 6-State Plan proposed shortage amounts that exceed those in the Lower Basin Plan by more than 800,000 acre-feet (at higher elevations, Tier 0 < 1090 feet) and by 1.5 maf (at lower elevations, Tier 3b < 1020). Reclamation may have had more solid ground to stand on when it made that statement in the April Draft SEIS because that analysis also included Alternatives 1 and 2, which have significantly more water conservation than the proposed action. The fact is the Lower Basin Plan and the No Action Alternative do not contemplate nor analyze fully similar conservation amounts in this Revised Draft SEIS. Thus, Reclamation cannot justify eliminating this alternative from consideration in the Revised Draft SEIS unless it were to consider another alternative that assessed similar demand reductions and policy amounts like Reclamation's Alternatives 1 and 2.

[41] Revised Draft SEIS at 2-15; April Draft SEIS at 2-18.
[42] *Id.*
[43] *Id.*

b. Reclamation failed to justify its decision to eliminate the California Plan.

On January 31, 2023, California proposed an alternative to be analyzed in the April Draft SEIS. This alternative was not even mentioned as "considered but eliminated from detailed analysis" in either Section 2.9 of the April Draft SEIS or Section 2.8 in the Revised Draft SEIS.[44] The California Plan, however, was incorporated into Appendix B of the April Draft SEIS and it was run through Reclamation's model based on the September 2022 hydrology.[45] The proposal offered revisions to the 2007 Interim Guidelines related to upper basin demand management, Glen Canyon Dam operations, and lower basin demand reductions.[46] California's proposed lower basin water use reductions are as follows:

Figure 5. Comparison of California's Alternative to Proposed and No Action Alternatives



The shortages proposed are clearly more substantial than those incorporated into the Lower Basin Plan/Proposed Action. Reclamation failed to provide its reasoning for why this plan was not even included in the "considered but eliminated" category or why it ultimately was not analyzed or carried forward into the Revised Draft SEIS. We believe this alternative contains policy revisions that Reclamation could and should have considered and analyzed in the Revised Draft SEIS.

2. Reclamation failed justify its decision not to carry forward its own Alternatives 1 and 2 for detailed study in the Revised Draft SEIS.

Reclamation itself designed two alternatives detailed and fully analyzed in the original April Draft SEIS that did not rely upon "basin-wide consensus," but rather called upon the authority of the

[44] Revised Draft SEIS at 2-13 to 2-18; April Draft SEIS at 2-16 to 2-20.
[45] April Draft SEIS, Appendix B at B-1. Reclamation notes with respect to Appendix B to the April Draft SEIS that "[t]his analysis does not cover the breadth of resources or geographic locations included Chapter 3 [the effects analysis] of this report but focuses on higher level comparison with respect to hydrologic resources and water deliveries, which are the primary categories from which relative effects on other resources can be inferred."
[46] Table B-1, *Summary of Modeling Assumptions Provided in Submitted Proposals*, April Draft SEIS, Appendix B at B-3.

Secretary of the Interior under applicable federal law.[47] While both alternatives modeled similar water use reductions for 2024 and then 2025/2026 separately, each alternative proposed unique ways of distributing those reductions either by priority (Alternative 1) or by the same percentage across all lower basin water users (Alternative 2).[48] These alternatives were fully modeled in the April Draft SEIS under the September 2022 hydrology, including a detailed analysis of the environmental consequences of the alternatives compared to the no action alternative. "Action Alternatives 1 and 2 both modeled releases between 6.0 and 8.23 maf from Lake Powell when it is below 3,575 feet, with potentially lower releases to preserve the elevation of 3,500 feet."[49] *See* the Trust's **Figure 2**, above in Section I.B.1. Comparison of Demand Reductions in Alternatives 1/2 and the Selected Alternatives, above in Section I.B.1.

Before eliminating these alternatives, Reclamation did conduct "a detailed hydrologic analysis" of Alternatives 1 and 2 as compared to the No Action and Proposed Action based on the June 2023 hydrology in Appendix B of the Revised Draft SEIS. Reclamation states that "this analysis was used to inform Reclamation's decision to eliminate Action Alternatives 1 and 2 from detailed analysis."[50] Reclamation notes that "[t]his analysis does not cover the breadth of resources or geographic locations included in **Chapter 3** of this revised Draft SEIS; instead, it focuses on higher-level comparisons with respect to hydrologic resources and water deliveries, which are the primary categories from which relative effects on other resources can be inferred."[51]

Reclamation's reasoning followed that

> the Proposed Action would achieve many of the same purpose and need objectives—namely, reducing the potential that continued low-runoff conditions could lead Lake Powell and Lake Mead to decline to critically low elevations, protecting critical infrastructure at both reservoirs, and balancing overall operational risks in the Colorado River Basin as Action Alternatives 1 and 2. [52]

Reclamation added that Alternatives 1 and 2 "show comparable, though smaller, risks of reaching critical elevations at Lake Powell compared with the No Action Alternative and the Proposed Action; however, they also show increased risk of reaching critical elevations at Lake Mead relative to the Proposed Action."[53] Thus, Reclamation ultimately concluded, based on the updated hydrologic modeling results alone, that "the Proposed Action would provide additional risk reduction compared with Action Alternatives 1 and 2, while implementing similar flow reductions, therefore, Action Alternatives 1 and 2 were eliminated from detailed analysis in this revised Draft SEIS."[54] *See* the Trust's **Figure 2**, above in Section I.B.1. for comparison of flow reductions under Alternatives 1 and 2 compared to the selected alternatives.

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[47] Revised Draft SEIS at 2-17.
[48] *Id*.
[49] Revised Draft SEIS at 2-17 to 2-18.
[50] Revised Draft SEIS, Appendix B at B-1.
[51] *Id.*
[52] Revised Draft SEIS at 2-18.
[53] *Id.*
[54] *Id*. at 2-18.

It appears the crux of Reclamation's reasoning for eliminating Alternatives 1 and 2 was the increased risk of declining elevations at Lake Mead. However, after taking a closer look at Reclamation's analysis, this seems like red herring. We have already established above in Section I.B.1 that Lake Powell reservoir elevations benefit from the demand reductions and policy revisions made in Alternatives 1 and 2.[55] In fact, the cloud representing traces for Alternatives 1 and 2 remain at or above 3,500, while traces for the No Action and Proposed Actions reach or fall below minimum power pool in 2025 and 2026.

Figure 3-8 from the Revised Draft SEIS[56] (left) and Figure B-8 from Appendix B to the Revised Draft SEIS[57] (right) show modeled reservoir elevations at Lake Mead.

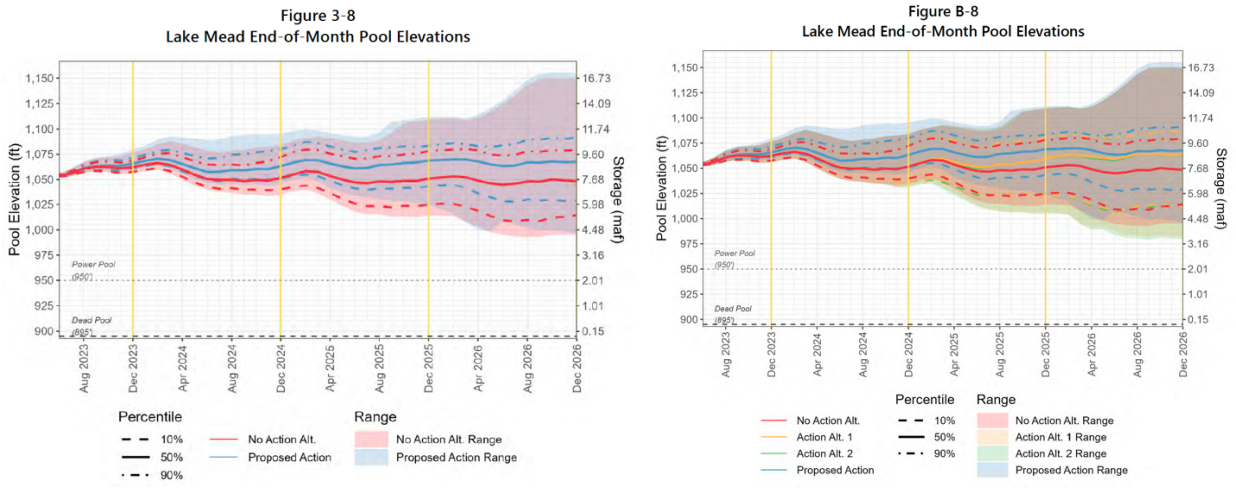

Figure 3-8 shows that Lake Mead elevations stay well above (nearly 50 feet) above minimum power pool (elevation 950 feet) under the No Action and Proposed Action. Figure B-8 shows the clouds for traces for Alternatives 1 and 2 reaching lower elevations approaching elevation 975 feet in 2026. "Action Alternatives 1 and 2 have the lowest modeled elevations at 982 feet and 980 feet, respectively, while the No Action Alternative and Proposed Action end 2026 approximately 13 to 16 feet higher at around 995 feet and 996 feet, respectively."[58] However, it should be noted that 980 feet (the lowest elevation reached) is still 30 feet over minimum power pool at Lake Mead. The buffer at Lake Powell (3,500 feet) is only 10 feet above the minimum power pool elevation of 3,490 feet. If this comparison were apples to apples, we'd be looking at a Lake Powell protection level of 3,515 feet to Lake Mead's 1,000 feet or Lake Powell 3,500 feet to Lake Meads 950 feet. The reason for this difference is not stated or explained in the Revised Draft SEIS.

Figure B-9 in Reclamation's analysis uses Lake Mead elevation 1,020 feet to analyze percentages of traces below critical reservoir elevations.[59] Reclamation notes that "[a]n elevation of 1,020 feet was

[55] Figure B-5 shows End-of-Water-Year Pool Elevations at Lake Powell. Appendix B of the Revised DSEIS at B-12. Alternatives 1 and 2 show higher pool elevations at the low end than the traces under the No Action and Proposed Action.
[56] Revised Draft SEIS at 3-33.
[57] Appendix B, Revised Draft SEIS at B-15.
[58] Id. at B-16.
[59] Appendix B at B-16 and B-17.

identified as a critical elevation in the 2019 DCPs."[60] Interestingly, the 2019 DCPs find 3,525 feet as the critical elevation for Lake Powell, which is a 35-foot buffer above 3,490 feet. However, this DCP critical elevation is not used in Reclamation's parallel analysis of Lake Powell dropping below critical elevations. This same analysis in Figure B-4 uses 3,490 feet (minimum power pool) as the critical elevation. Reclamation is cherry picking elevations to justify its decision. Reclamation needs to decide how it wants to define "critical elevations" for both Lake Powell and Lake Mead. If Reclamation wants to use the critical elevation defined in the DCPs then it needs to redo its analysis of Lake Powell percent of traces below 3,490 feet and use elevation 3,525 feet. In the alternative, Reclamation could just use the minimum power pool elevation for both reservoirs 3,490 feet for Lake Powell and 950 feet for Lake Mead. This is the least subjective metric that Reclamation could use to define critical elevations consistently across both reservoirs. Reclamation needs to revisit its analysis and recreate Figure B-9 using Lake Mead's minimum power pool elevation (950 feet). The result of this new and more consistent analysis needs to be factored into Reclamation's decision whether to include or eliminate Alternatives 1 and 2 from detailed and full analysis in the Revised Draft SEIS.

Thus, Reclamation's analysis of Alternatives 1 and 2 glosses over the benefits to Lake Powell of staying above 3,500 feet, which is only 10 feet from minimum power pool (3,490 feet) and emphasizes the risks to Lake Mead when reservoir elevations at the low end don't even come within 25 feet of elevation 950 feet (minimum power pool at Lake Mead). Reclamation is working to protect elevation 1,000 feet[61] or arguable 1,020 feet to give Lake Mead a 50-foot to 70-foot buffer over minimum power pool, yet it is only willing to protect Lake Powell to 3,500 feet, which is only a 10-foot buffer and one that has serious consequences for downstream resources from nonnative fish passage and establishment that will harm the humpback chub. This is problematic when weighing risks between two different reservoirs.

Reclamation's analysis in Appendix B does not support its analysis to eliminate Alternatives 1 and 2 because of their impact on reservoir elevations at Lake Mead. The sovereigns, stakeholders, and the public are relying on Reclamation's expertise and careful analyses to guide important decisions in the basin. Reclamation's less than consistent and thorough analysis to evaluate Alternatives 1 and 2 against the No Action and Proposed Action gives us pause about the veracity of the remainder of the analysis. Reclamation must either revisit its hydrologic analysis in Appendix B to further evaluate Alternatives 1 and 2 or simply determine that these alternatives belong in the Draft SEIS and should fully analyze and include in the FEIS due to the benefits they provide to meeting the purpose and need of the proposed action. Let's not forget that these alternatives were fully analyzed, albeit under different hydrology, in the April Draft SEIS.

D. Reclamation fails to take a hard look at the direct, indirect, and cumulative effects of the proposed revisions to the 2007 Interim Guidelines.

Reclamation is required to take a "hard look at the environmental consequences" of the proposed action including the direct, indirect, and cumulative effects.[62] Direct effects are "caused by the action

[60] *Id*. at B-16.
[61] Reclamation uses 1,000 feet as its protection level for Lake Mead in its mid-year review proposal for the Proposed Action. See Revised Draft SEIS at 2-13.
[62] *Robertson v. Methow Valley Citizens Council*, 490 U.S. 332, 350 (1989) (quoting *Kleepe v. Sierra* Club, 427 U.S. 390, 410 (1976); 42 U.S.C. 4332(2)(C), 40 C.F.R. 1508.1(g).

and occur at the same time and place."[63] Indirect effects, on the other hand, are "caused by the action and are later in time or farther removed in distance, but are still reasonably foreseeable."[64] Reclamation fails to take a hard look at the direct and indirect environmental consequences of the no action and proposed actions because it does not analyze and compare a full range of alternatives that allow a meaningful comparison of the environmental effects.

1. Reclamation's failure to analyze an adequate range of alternatives cripples any meaningful comparison of the environmental effects of the proposed action.

As an initial matter, Reclamation hinders its own environmental effects analysis by failing to analyze a reasonable range of alternatives to the proposed action. Reclamation uses hydrologic modeling to assess the effects of the alternatives—in this case only the no action and proposed action alternatives. Reclamation provides

> The hydrologic modeling provided projections of potential future Colorado River system conditions (such as reservoir elevations, reservoir releases, and river flows) under the No Action Alternative for comparison with conditions under the Proposed Action. Due to uncertainties associated with future inflows into the system, multiple simulations were performed for each alternative to explore a range of possible future conditions. All statistics calculated are reflective of the hydrologic scenarios and other assumptions used in modeling. **They are not intended to suggest actual probabilities of any events occurring.** However, **it is meaningful to compare statistics across alternatives to differentiate performance**. For this reason, the environmental consequences analyses provided in the sections below may discuss the likelihood of certain scenarios or impacts occurring.
>
> Hydrologic modeling also provided the basis for analyzing potential effects of each alternative on other environmental resources, such as recreation, biology, and energy. The potential effects on specific resource issues are identified and analyzed for the Proposed Action and compared with the potential effects on that resource issue under the No Action Alternative. These comparisons are typically expressed in terms of the **incremental differences in probabilities** (or projected circumstances associated with a given probability) between the No Action Alternative and the Proposed Action.[65]

Thus, the hydrologic modeling only works to compare alternatives that are analyzed using the same parameters. In this case, Reclamation only provided a detailed and complete analysis of the no action and proposed action under June 2023 hydrology. While Reclamation indicated that it conducted an analysis of its Alternatives 1 and 2 from the April Draft SEIS in its *Dear Reader Letter* and Appendix B, it does not utilize these data in its effects analysis because it "considered but eliminated" these alternatives before releasing its October Revised SEIS for public comment. Therefore, Reclamation's effects analysis is extremely limited to the difference between doing nothing in the basin to address

[63] *Id*. at § 1508.8.
[64] *Id*.
[65] Revised Draft SEIS at 3-2 (emphasis added).

"historic drought, historically low reservoir elevations, and low-runoff conditions in the Basin" and taking steps proposed in the proposed action.[66]

Further, the hydrologic inputs make a significant difference in the outcome of the analysis. *See* the *Dear Reader Letter* in the Revised Draft SEIS. For example, Reclamation reassessed the hydrology between the April Draft SEIS and the October Revised Draft SEIS for the No Action Alternative and concluded that

> the updated hydrology modeling shows that even no action presents much lower risk of reaching critical elevations at Lake Powell and Lake Mead through 2026 than prior hydrology modeling from September 2022. While the No Action Alternative is often not a reasonable mechanism to achieve the purpose and need of a federal action, the change in hydrology, short timeframe, and corresponding change in risk may make the No Action Alternative viable here.[67]

However, while the results of the modeling are less extreme than they were in the April Draft SEIS, there are real risks still present for the Colorado River and its resources. Traces from the most recent modeling, with June 2023 hydrology, still show traces reaching minimum power pool at Lake Powell from early 2025 through 2026. If those traces were to come to fruition there would be significant impacts on the environmental, cultural, and recreational resources in Grand and Marble Canyons. The fact that Reclamation prematurely and without a reasonable explanation eliminated Alternatives A and B leaves the entire effects analysis solely based on how the proposed action performs next to doing nothing. This leads to a much less informative and effective analysis from which to make critical decisions for the basin.

2. Resources in Grand Canyon may be negatively impacted by the mid-year reduction of release volumes to protect 3,500 feet at Lake Powell.

The proposed action would revise Section 6.C (Mid-Elevation Release Tier)[68] and 6.D (Low Elevation Balancing Tier)[69] of the 2007 interim guidelines to allow for an adjustment of the release volumes identified for the mid- and lower elevation tiers to a minimum release of 6.0 maf to keep Lake Powell's water elevation above 3,500 feet.[70] This adjustment may occur during the upcoming water year (October to September) if the minimum probable forecast in the August 24-month study shows

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[66] Revised Draft SEIS at 10.
[67] *Dear Reader Letter* at 3.
[68] Section 6.C of the 2007 Interim Guidelines (Mid-Elevation Release Tier) provides that "In Water Years when the projected January 1 Lake Powell elevation is below 3,575 feet and at or above 3,525 feet, the Secretary shall release 7.48 maf from Lake Powell in the Water Year if the projected January 1 elevation of Lake Mead is at or above 1,025 feet. If the projected January 1 Lake Mead elevation is below 1,025 feet, the Secretary shall release 8.23 maf from Lake Powell in the Water Year." Record of Decision for 2007 Interim Guidelines at 52. Available at: https://www.usbr.gov/lc/region/programs/strategies/RecordofDecision.pdf.
[69] Section 6.D of the 2007 Interim Guidelines (Lower Elevation Balancing Tier) provides that "In Water Years when the projected January 1 Lake Powell elevation is below 3,525 feet, the Secretary shall balance the contents of Lake Mead and Lake Powell, but shall release not more than 9.5 maf and not less than 7.0 maf from Lake Powell in the Water Year." *See* 2007 Interim Guidelines ROD at 53.
[70] Revised SEIS at 2-10.

Lake Powell falling below 3,500 feet in any month during the upcoming water year.[71] The Revised Draft SEIS also states "[s]ub-annual releases would comply with LTEMP and would not drop below LTEMP minimum flows, with the goal of keeping the Lake Powell elevation above 3,500 feet." Further, under Section 7.C (Mid-Year Review)[72] the applicable operational tier or the amount of water to be released may be adjusted for the remainder of the water year based on "an evaluation of the objectives to avoid curtailment of uses in the Upper Basin, minimize shortages in the Lower Basin and not adversely affect the yield for development available in the Upper Basin."[73] The mid-year review is based on the April 1 forecast of April to July runoff "and other relevant factors." *Id.*

Given **Table 3-5**[74] in the Revised Draft SEIS, there is less concern about monthly volumes below Glen Canyon Dam under the proposed action when the operational tier and 3,500-foot protection level are identified in the August 24-month study. The 12-month lead time allows for the annual volume to be distributed over the year ahead in compliance with the LTEMP monthly and daily minimums, as the example release pattern is demonstrated below.

Table 3-5
Monthly Release Volumes under LTEMP with Example Release Pattern for 6.0 maf

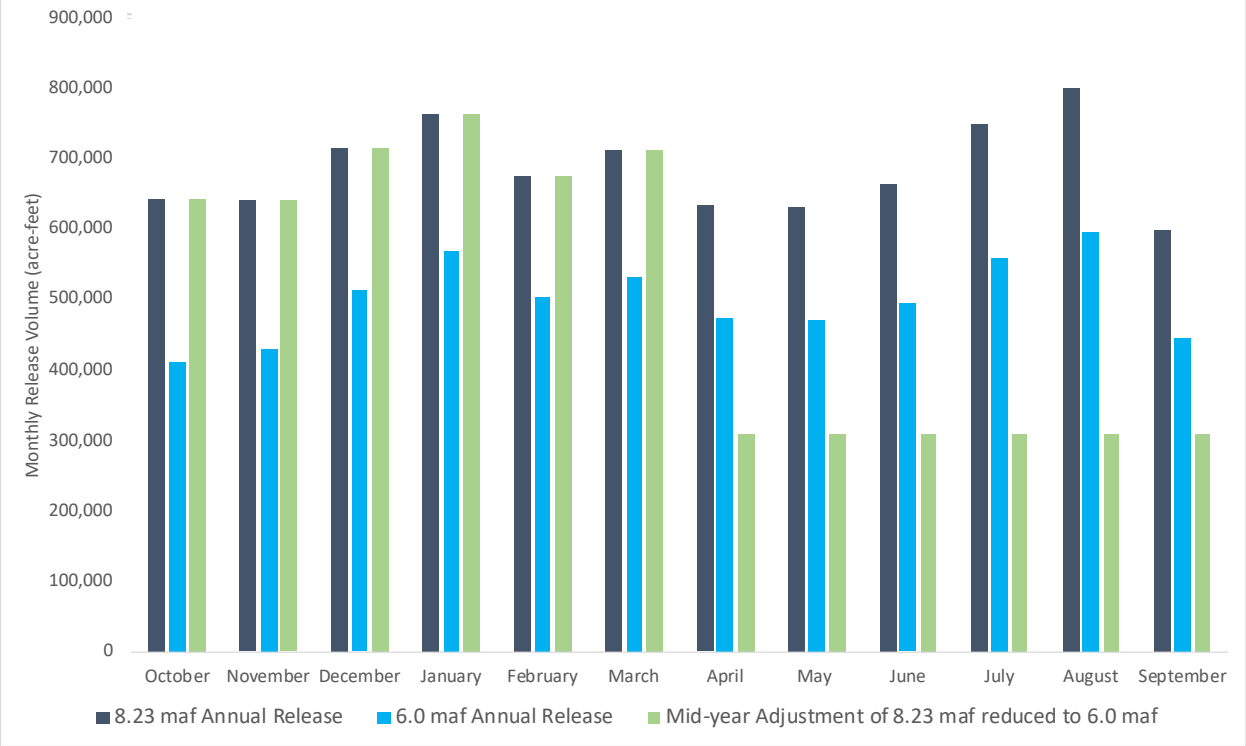
	Monthly Release Volume (thousand acre-ft)				
Month	6,000	7,000	7,480	8,230	9,000
October	411	480	480	643	643
November	429	500	500	642	642
December	514	600	600	715	715
January	569	664	723	763	857
February	503	587	639	675	758
March	531	620	675	713	801
April	473	552	601	635	713
May	471	550	599	632	710
June	495	577	628	663	745
July	559	652	709	749	842
August	597	696	758	800	900
September	447	522	568	600	674

[71] *Id.*
[72] Section 7.C. of the 2007 Interim Guidelines (Mid-Year Review) provides that for better water management "the Secretary may undertake a mid-year review" to modify the AOP to determine that a different operational tier will apply for the remainder of the water year or to adjust the amount of water released as appropriate. 2007 Interim Guidelines ROD at 55.
[73] *Id.* at 1-9, 2-6, and 2-10; 2007 ROD at 55. The factors to consider in making the adjustments mid-year set forth in the 2007 interim guidelines do not contemplate consideration of downstream effects to environmental and cultural resources (e.g. violating the LTEMP monthly and daily minimum flow requirements). Further, the proposed action says that releases will not go below LTEMP minimums, but also does not explain how under this scenario.
[74] Table 3-5, reproduced from Revised Draft SEIS at 3-43. It should be noted that Table 3-5 is just a sample monthly distribution used in this analysis, the LTEMP ROD and FEIS did not contemplate annual releases or develop monthly distributions below 7.0 maf. The LTEMP ROD would need to be supplemented and such table developed in consultation with the Glen Canyon Dam Adaptive Management Program before it could legally be implemented.

We are very concerned, however, about how the monthly distributions of water into the Colorado River below Glen Canyon Dam would be affected if the adjustment to 6.0 maf is made mid-year as allowed by the proposed action.[75] We are also concerned that LTEMP daily minimum flows may not be met as the commitments around meeting the flows are not clearly set forth in the Revised Draft SEIS. *See* Section I.D.3, below. This is especially concerning when Glen Canyon Dam is operating in the Mid-Elevation Release Tier and Lake Mead is below elevation 1,025 feet, where an 8.23 maf release is contemplated.

For example, the Trust's **Figure 6** attempts to play out this scenario where an 8.23 maf release year is reduced to 6.0 maf mid-year. The dark blue bars in the figure represent releases under an 8.23 maf year using the monthly distributions set under LTEMP (see Table 3-5, above). The turquoise bars show a 6.0 maf release based on the sample monthly LTEMP distributions (see Table 3-5, above). The green bars show a combination of these two scenarios, where the mid-year review cuts releases for the last 6 months of the year.

Figure 6. Impact of Mid-Year Adjustment on 8.23 maf Release Reduced to 6.0 maf



Thus, for the first 6-months of the water year (October through March), Glen Canyon Dam would release 4.151 maf under the 8.23 maf schedule. If at that point the April 1 forecast (mid-year review)

[75] The Revised Draft SEIS at 3-42 describes that "the estimated total monthly volume that would be released if Glen Canyon Dam met the minimum daily releases specified in the LTEMP (5,000 cfs between 7 p.m. and 7 a.m. and 8,000 cfs between 7 a.. and 7 p.m., with ramping constraints resulting in an estimated average daily flow of 6,521 cfs."

indicates Lake Powell dropping below elevation 3,500 feet, then the annual release will be adjusted downward to 6.0 maf. This determination would mean only 1.894 maf would be available for release for the remaining 6 months of the water year (April through September). The 1.894 maf volume equates to about 308,167 acre-feet per month if distributed evenly over the remaining months.

The Trust's **Table 2** reproduces the monthly release volumes under the LTEMP distribution table for an 8.23 maf release, the sample pattern for a 6.0 maf release, and shows the adjustment in April if a mid-year adjustment occurs to protect 3,500 feet at Lake Powell. The Trust's **Figure 6** above is based on the Trust's **Table 2** below.

Table 2. LTEMP Monthly Distribution of Annual Releases from Glen Canyon Dam

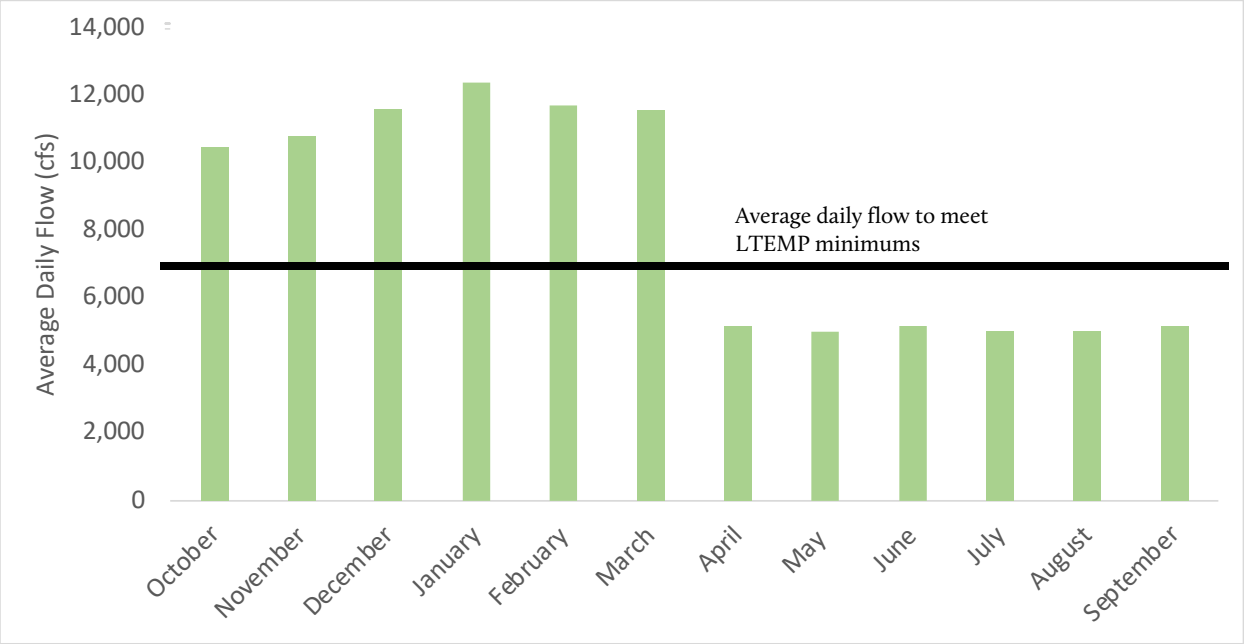
	Annual Release 8.23 maf	Annual Release 6.0 maf	Mid-year Adjustment 8.23 maf reduced to 6.0 maf
October	643,000	411,000	643,000
November	642,000	429,000	642,000
December	715,000	514,000	715,000
January	763,000	569,000	763,000
February	675,000	503,000	675,000
March	713,000	531,000	713,000
April	635,000	473,000	308,167[76]
May	632,000	471,000	308,167
June	663,000	495,000	308,167
July	749,000	559,000	308,167
August	800,000	597,000	308,167
September	600,000	447,000	308,167

To determine whether the monthly release for the last 6 months of the year would meet the LTEMP minimum flows, we translated the monthly volume into a daily volume for each month. The 308,166 acre-feet each month would translate to 9,940 acre-feet per day in months with 31 days and 10,292 acre-feet per day in 30-day months. These daily volumes translate into daily average flow rates of 5,178 cubic feet per second (cfs) in 30-day months and 5,011 cfs in 31-day months. The Revised Draft SEIS estimates an average daily flow of 6,521 cfs is necessary to meet the 5,000 cfs and 8,000 cfs nightly and daily flow minimums under LTEMP.[77] The flows from April to September under this scenario do not meet the average daily flow necessary to meet daily LTEMP flow minimums by more than 1,000 cfs.

The Trust's **Figure 7** shows average daily flows in cubic feet per second (in green) for each month during the water year. The black horizontal bar roughly shows the average daily flow needed (6,521 cfs) to maintain LTEMP minimum flows under the 8.23 to 6.0 maf mid-year adjustment scenario described above.

[76] For demonstration purposes, Table 2 assumes that the remaining 1.849 million acre-feet of water will be released uniformly across the remaining 6 months of the year (308,167 acre-feet per month).
[77] Revised Draft SEIS at 3-42.

Figure 7. Impact of Mid-Year Adjustment on LTEMP Daily Minimums under 8.23 to 6.0 maf



Despite this example of how the mid-year flow reductions combined with the 3,500 feet elevation protection at Lake Powell may operate to impact resources downstream of Glen Canyon Dam, it is incredibly unclear in the Revised Draft SEIS exactly how the LTEMP minimum flows or reservoir elevations will be prioritized under the revised guidelines. *See* Section I.D.3, below. Reclamation needs to develop guidance for how these competing goals should play out under the revised guidelines.

3. It is unclear from the Revised Draft SEIS whether LTEMP minimum flows will be met regardless of whether that causes reservoir elevations at Lake Powell to dip below 3,500 feet.

The language in the Revised Draft SEIS around the competing goals of protecting Lake Powell reservoir elevation at 3,500 feet and meeting the mandates of the Grand Canyon Protection Act through the LTEMP minimum flows needs to be clarified throughout.

For example, the Revised Draft SEIS discusses the LTEMP minimum flows in Section 2.7.2 as follows:

> Sub-annual releases would comply with LTEMP and would not drop below LTEMP minimum flows, with the goal of keeping the Lake Powell elevation above 3,500 feet.[78]
>
> Hourly, daily, and monthly releases from Lake Powell for coordinated operations would be consistent with the parameters of the ROD for the LTEMP SEIS (Reclamation and NPS 2016). Monthly releases from Glen Canyon Dam would be

[78] Revised Draft SEIS at 2-10.

> distributed proportionally across the remaining months of the operating year for annual releases below 7.0 maf (see **Figure 2-3** for monthly distributions in a year when the annual release is 8.23 maf). Annual flows adjusted mid-year would be distributed to meet the goals of LTEMP, including potential distribution across monthly or experimental flow patterns, and including the unique resource considerations specific to any mid-year annual adjustments.[79]
>
> Hourly and daily releases would follow LTEMP parameters, **so long as sufficient water is available from the annual release**. If sufficient water is not available from the annual release to meet hourly and daily LTEMP release parameters, hourly and daily releases would follow the base operation daily and nightly minimum flows (8,000 cfs and 5,000 cfs, respectively), for as long as possible. **If sufficient water is not available from the annual release to support the base operation nightly minimum flow of 5,000 cfs, hourly and daily releases would be consistent with the run of the river to match Lake Powell inflows consistent with protecting an elevation of 3,500 feet at Lake Powell.**[80]
>
> If any minimum probable scenario in the 24-Month Study shows Lake Powell dropping below 3,500 feet at any point in the following 12 months, an adjustment could be made to reduce the annual Glen Canyon Dam release volume to no less than 6.0 maf while maintaining LTEMP minimum flows **subject to run-of-the-river conditions, operational constraints, and prudent operation, as determined by Reclamation**, to maintain an elevation of 3,500 feet at Lake Powell.[81]

Based on the statements above, Reclamation is clearly stating its intention to meet LTEMP minimum flows, but also provides several caveats for what it would do if "sufficient water is not available from the annual release" and mentions "releases would be consistent with the run of the river to match Lake Powell inflow" among other responses. Section I.D.2 above, identifies just one scenario where LTEMP monthly minimums would be difficult, if not impossible to meet, given the mid-year adjustment from 8.23 maf to 6.0 maf.

Such worst-case scenario planning for flows through Marble and Grand Canyons should be made thoughtfully pursuant to a full and public process and involving the group formed to make decisions on such matters—the Glen Canyon Dam Adaptive Management work group representatives. Further, it should be clear from reading these iterative paragraphs, how the Revised Draft SEIS and the LTEMP ROD will exist together. That clarity is currently missing from the Revised Draft SEIS. Reclamation must ensure that its commitments can be met under the Grand Canyon Protection Act and if there is a chance that those commitments cannot be met, then it needs to consult with the adaptive management program, basin sovereigns (including the 30 basin tribes), stakeholders, and the public to determine the best path forward that honors the unique resources and cultural landscapes.

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[79] *Id.* at 2-12.
[80] Id. (emphasis added).
[81] Id. at at 2-13.

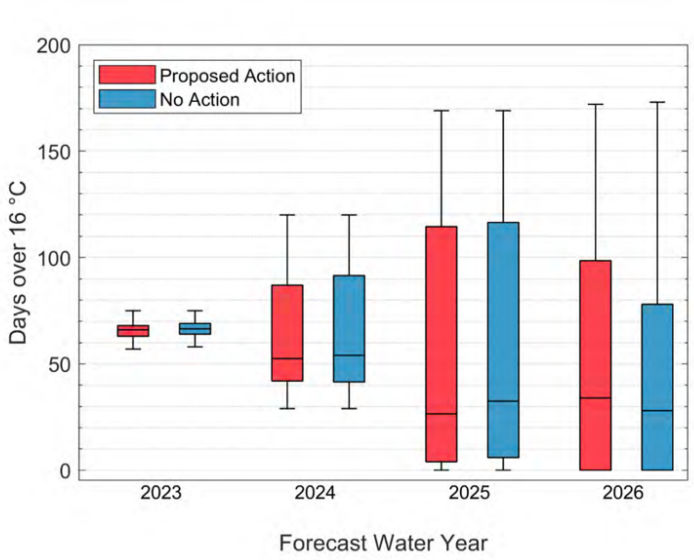
Reclamation needs to put measures in place as a part of the Final EIS and ROD to ensure that the environmental, cultural, and recreational resources downstream of Glen Canyon Dam are protected, mitigate any harm, and improve the values for which the Grand Canyon National Park and Glen Canyon National Recreation Area were established. This goes beyond just complying with the FEIS and ROD for the LTEMP sub-annual flow minimums.

4. Reclamation fails to take a hard look at the resources in Marble and Grand Canyons that will be negatively impacted by inadequate conservation and demand reductions by lower basin states.

a. Low reservoir elevations at Lake Powell will increase water temperatures below Glen Canyon Dam if water is being released through the penstocks.

Reservoir elevations and where water is released (through the penstocks or the river outlet works) is "a key determinant" of release temperatures from Glen Canyon Dam.[82] Reclamation's modeling of the selected alternatives indicates that at the lower end of the modeled traces, Lake Powell could fall below minimum power pool (elevation 3,490 feet) as soon as 2025 and those reservoir elevations may hover around that "protection level" for the remainder of the interim period.[83] **Figure 3-35** shows the number of days with average release temperatures over 16 degrees C under the selected alternatives.

Figure 3-35
Box Plots Showing the Number of Days with an Average Glen Canyon Dam Release Temperature over 16°C (60.8°F) for All CRMMS Traces and Each Alternative for Operating Years 2023–2026*



Given that smallmouth bass are already reproducing in Marble and Grand Canyons, these temperatures will further exacerbate the likelihood that the establishment will continue. Without

[82] Revised Draft SEIS at 3-108.
[83] *See* Figure 3-5, Revised Draft SEIS at 3-29.

higher reservoir elevations to facilitate lower temperatures and a mechanism to ensure additional smallmouth bass do not pass through the dam—which is the subject of the LTEMP SEIS—the years of conservation efforts to ensure the survival and recovery of native humpback chub in Grand Canyon may be lost. Reclamation should be analyzing at least one additional alternative to the selected alternatives that conserves even more water in Lake Powell both as a meaningful comparison for the selected alternatives and to understand the impact such elevations could have on this and other critical resource issues downstream of Glen Canyon Dam.

As mentioned above, Alternatives 1 and 2 provide greater protection of reservoir elevations at Lake Powell than the selected alternatives. A comparison of these resources in Chapter 3 of the Revised Draft SEIS did not occur as related to Alternatives 1 and 2 because they were not carried forward. The risk of increased water temperatures due to low reservoir elevations is important given that smallmouth bass are already reproducing in Marble Canyon and possibly Grand Canyon below the dam. Warmer temperatures facilitate this reproduction and could lead to establishment of the species below the dam. This is an incredible threat to the threatened humpback chub, which has its most robust and last stronghold population in the Colorado River Basin. An estimated 92% of all humpback chub live in the Colorado River in Grand Canyon.[84] While Reclamation is working to address this threat in the context of the LTEMP SEIS, its choices around alternatives for this SEIS are critical to how much mitigation will have to be done on the part of Reclamation and the Park Service to modify reservoir operations (specifically where water is released from) in the LTEMP SEIS.

Finally, all of the work in developing and implementing the LTEMP SEIS could be for not if reservoir elevations hover around minimum power pool for the last two years of the interim period. Nonnative fish passage through the dam is inevitable unless reservoir elevations are maintained at higher elevations (where the warm water these fish exist in does not encounter the penstocks) or a barrier is installed to prevent passage of nonnatives downstream. Based on the alternatives selected and analyzed and the prospect of a barrier existing, the outlook for preventing the establishment of smallmouth bass in Grand Canyon looks bleak.

b. Low reservoir elevations at Lake Powell will reduce the opportunities for high flow experiments, which is the only mechanism for distributing sediment, building beaches, and protecting cultural resources in Marble and Grand Canyons.

The Revised Draft SEIS notes that "[s]andbars and beaches are important for biological, cultural, and recreational resources along the Colorado River."[85] Sandbars are vital as a foundation for riparian vegetation, to create low velocity habitat for young fish, provide a source of sand to be transported by wind to protect archeological resources, and to build camping beaches for recreation.[86] "HFEs [high

[84] *See* National Park Service's scoping comments on LTEMP SEIS at 3. Available at: https://www.usbr.gov/uc/DocLibrary/EnvironmentalImpactStatements/GlenCanyonDamLong-TermExperimentalManagementPlan/LTEMP-SEIS-ScopingComments/025_National%20Park%20Service_508.pdf.
[85] Revised Draft SEIS at 3-89.
[86] Revised Draft SEIS at 3-89.

flow experiments] are the only existing mechanism for producing river stages high enough to contribute to significant sandbar building."[87]

The Revised Draft SEIS provides that "[u]nder both alternatives, HFEs … would not be implemented when Lake Powell elevations are below the protection level, which is 3,500 feet."[88] Reclamation analyzes the frequency of spring and fall HFEs based on modeling finding that April HFEs would be triggered about 15% of the time in each year during interim period and November HFEs would be triggered about 25% of the time in 2023 and 60-80% of the time in 2024-2026.[89] This analysis, however appears to be dated given that it is still modeling 2023 HFEs, when a spring HFE in 2023 already occurred and a determination has been made that conditions did not trigger another HFE for fall of 2023.

Further, the model assumes that HFEs will occur when triggered when historically that has not been the case. HFEs are not always implemented even if sediment triggers are reached. Several other factors are weighed in deciding whether or not to implement a HFE, including if humpback chub or other resources could be impacted by a HFE (e.g. HFE leading to passage of smallmouth bass through the dam or moving nonnative fish further downstream) or the impact on reservoir elevations of the water release, among other possible impacts to LTEMP resources. Thus, intervening factors may play into this modeling.

Finally, the Revised Draft SEIS[90] finds

> Between November 2024 and 2025 the probabilities for 36- and 72-hour HFE durations would decrease by approximately 5 percent under the Proposed Action, compared with the No Action Alternative. In November 2026, the Proposed Action would reduce the potential of elevations below 3,500 feet, and, therefore, would increase the probability of HFE implementation compared with the No Action Alternative.

If this occurs, "[n]et erosion of sandbars would occur, and sandbar building would decrease, if HFEs cannot be implemented." Unfortunately, additional alternatives that provide more water conservation like Alternatives 1 and 2 or the 6-States Plan were not carried forward for additional analysis, so it is impossible to determine how much additional water in Lake Powell would increase the frequency of HFEs and contribute to reducing net erosion.

c. Reclamation needs to consider and propose mitigation measures to address potential harm to downstream environmental, cultural, and recreational resources.

Reclamation did not consider or propose mitigation measures in the Revised Draft SEIS as required by NEPA. 40 C.F.R. 1508.25(b)(3). It appears Reclamation is relying on a separate and parallel process of developing modifications to Glen Canyon Dam operations under the LTEMP SEIS to mitigate the

[87] Revised Draft SEIS at 3-90.
[88] Revised Draft SEIS at 3-116.
[89] *Id.* at 3-116.
[90] *Id.* at 3-116.

reasonably foreseeable impacts to water temperatures, nonnative fish passage, and harm to listed threatened and endangered species downstream. Further, Reclamation does not provide any mitigation measures for the possibility that HFEs will not be implemented during the remainder of the interim period due to low reservoir elevations and/or lack of the sediment trigger being reached. Without HFEs sandbars and beaches in Marble and Grand Canyons will erode causing impacts to biological, cultural, and recreational resources. Reclamation must consider and analyze what mitigation measures it could put in place to address these reasonably foreseeable impacts.

d. Reclamation needs to acknowledge the significant groundwater contributions into the Colorado River from Glen Canyon Dam to the full pool at Lake Mead.

Reclamation fails to recognize groundwater contributions to Colorado River flows in Marble and Grand Canyons. The Revised Draft SEIS at 3-18 describes flows in the 265-mile river reach between Glen Canyon Dam and full pool at Lake Mead as receiving water primarily from dam releases and additional contributions from the Paria and Little Colorado Rivers representing "less than 3 percent." This assessment, however, disregards the significant contribution groundwater makes to the Colorado River in this reach.[91]

As mentioned before in the Trust's scoping comments for this SEIS, the Colorado River downstream of Lees Ferry receives significant intervening flows from tributary streams as well as from large springs within the Grand Canyon that contribute to ground and surface water in the region.[92] Wang and Schmidt (2020) find that data collected from 2007 to 2018 show that about 99% of gaged inflow to Lake Mead came from the Colorado River.[93] "Of the total delivered to Lake Mead by the Colorado River, about 92% was released from the Glen Canyon Dam or seep around the dam, and 8% came from tributaries and springs within the Grand Canyon or from the Paria or Little Colorado Rivers." Between 1990 and 2018, 768,000 acre-feet of water per year entered the Colorado River between the Lees Ferry and the Diamond Creek gauges.[94] The Paria and Little Colorado rivers contributed 17 percent (133,000 acre-feet per year) of these intervening flows and the remaining 83 percent (635,000 acre-feet per year) came from groundwater within the Grand Canyon. *Id*. Similarly, flow data collected from 2007 to 2018 showed intervening flows in the Grand Canyon averaged 710,000 acre-feet per year. *Id*. at 13. Importantly, the study concluded "gaging measurements between 2007 and 2018 suggest that most of the intervening inflows came from spring sources within the Grand Canyon that directly drain to the Colorado River or its perennial tributaries. *Id*. Springs in the lower part of the Little Colorado River canyon are a large source of water."[95]

A graph of these inflows developed by J.C. Schmidt, Center for Colorado River Studies, Utah State University, August 2023 reproduced below shows the total inflows between the Lees Ferry and Diamond Creek in black, spring-fed inflows within Grand Canyon in blue, and tributary contributions from the Paria River and Little Colorado River in red.

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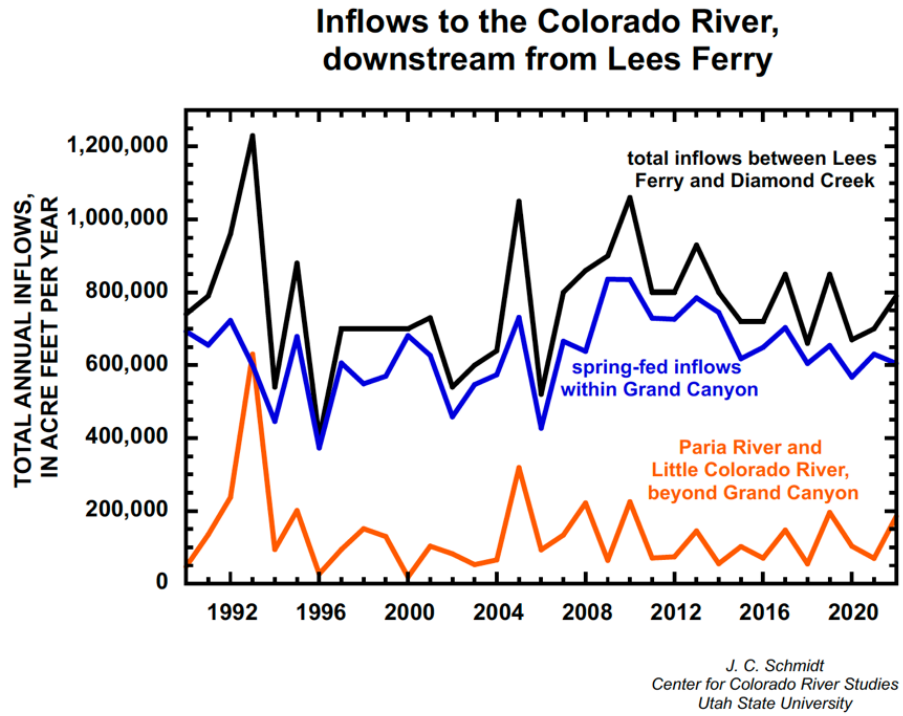
[91] Wang, J., and Schmidt, J.C. 2020. *Stream flow and Losses of the Colorado River in the Southern Colorado Plateau,* White Paper No. 5, The Future of the Colorado River Project, Quinney College of Natural Resources, Utah State University at 10. Available at: https://qcnr.usu.edu/coloradoriver/futures.
[92] *Id*.
[93] *Id*. at 13.
[94] *Id*. at 11.
[95] *Id*.



The 1990-2022 data shows a decline in spring-fed inflows within the Grand Canyon between 2009 to 2022. The flows of these Grand Canyon springs and seeps that contribute water to the Colorado River may also be influenced by climate change, as shown by *Miller et al.* (2021)[96] for Upper Basin baseflows, but additional assessments should be made to confirm and assess this trend. The Trust recommends that Reclamation consider this information in defining the amount of water that enters the Colorado River from Glen Canyon Dam releases versus tributary and groundwater sources. This information may prove vital in understanding how to conserve and protect water resources in Marble and Grand Canyons as well as water contributing flows to the Colorado River above Lake Mead.

II. The Revised Draft SEIS needs to meet the mandates of the GCPA and ESA

Reclamation has authority under both the Grand Canyon Protection Act and the Endangered Species Act to consider and ensure that the environmental and cultural resources as well as endangered and threatened species are protected and any harm is mitigated. As demonstrated throughout these comments, the selected alternatives do not ensure that Lake Powell does not reach critical elevations and traces show the reservoirs could hover around 3,500 for most of 2025 and 2026. To understand other possible paths forward and to compare a more protective path with the alternatives analyzed, Reclamation needs to either carry forward Alternative 1 and 2 or develop a combination alternative

[96] Miller, O. L., Miller, M. P., Longley, P.C., Alder, J. R., Bearup, L. A., Pruitt, T., et al. (2021). How will baseflow respond to climate change in the Upper Colorado River Basin? Geophysical Research Letters, 48, e2021GL095085. Available at: https://doi.org/10.1029/2021GL095085.

that contemplates additional demand reductions, reservoir operations and other policies that meets the mandates of the Law of the River, but also the GCPA, ESA, and other environmental laws.

The Trust asked Reclamation in our scoping comments[97] to include and analyze "additional alternatives beyond the No Action, Framework Alternative, and Reservoir Operations Modification Alternatives" suggested in the scoping notice. Importantly, we'd like to reiterate that

> Even in this intentionally narrow process to obtain additional authorities, Reclamation can be more innovative and creative. As it stands, the same interests are protected that stand to benefit (water users, hydropower interests), while the same interests left to shoulder the burden (tribes and the environment) stand to lose. The tables need to be turned to distribute the burden, albeit painful, and Reclamation has at least some of the authority it needs right now to start this process. Reclamation needs to rethink how it can equitably distribute the burdens of the challenges ahead. The tribes, the ecosystem, and native fish can no longer shoulder this burden alone, nor should they be required to contribute additional water or face additional impacts.[98]

Alternatives 1 and 2 meet more of those values than either the no action or proposed alternative. In the absence of a true ecosystem-based alternative,[99] at least Alternatives 1 and 2 developed by Reclamation are precautionary and contained an equity frame. As noted above, these alternatives were improperly eliminated from full analysis in the Revised Draft SEIS. This process would benefit significantly if Alternatives 1 and 2 were carried forward an analyzed, including a full effects analysis, prior to the issuance of a FEIS or ROD.

Reclamation can meet the purpose and need of the federal action, the Law of the River, and comply with the mandates of the Endangered Species Act and Grand Canyon Protection Act, but to do so it needs to think more holistically about the solution going forward.

III. Reclamation failed to provide adequate time for engagement by interested parties and the public.

Reclamation must ensure no overlap between public comment periods for Colorado River environmental review processes under NEPA. The Trust understands that Reclamation is undertaking several environmental review processes under the National Environmental Policy Act (NEPA) that relate to the Colorado River and that there is urgency for the agency to move through these processes in timely manner. Our concern, however, is when these processes, in the same

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[97] Trust's scoping comments on Reclamation's proposal to revise the 2007 Interim Guidelines to address low flow and low reservoir conditions at Lakes Powell and Mead (December 20, 2022) at 9-11.
[98] *Id*. at 10.
[99] Reclamation categorically eliminated ecosystem-based alternatives as not meeting the federal action's purpose, need, or objectives and went on to say "[t]his is because it does not focus on the critically low elevations impacting operations of both Glen Canyon and Hoover Dams during the interim period (prior to January 1, 2027). Apart from concepts of beneficial-use determinations, Reclamation has limited authorities to mandate water conservation measures in the Lower Basin for ecosystem-based purposes." Revised Draft SEIS at 2-16.

geography and cover similar issues, have public engagement periods that overlap. For example, this Revised Draft SEIS was released for public comment on October 25, 2023. At the same time, however, the 30-day public comment scoping period on Reclamation's Supplemental Environmental Impact Statement for the revision to the LTEMP SEIS was still underway. The notice of intent for the LTEMP SEIS was published on October 4, 2023 and the 30-day comment period closed on November 3, 2023. The overlap of the two processes was nearly 10 days. Many of the same stakeholders and sovereigns are engaged in several if not all these NEPA processes (e.g. SEIS Near-term Operations, LTEMP SEIS, Post-2026 Guidelines) or would be if they had the capacity and resources. To ensure the opportunity for the public and impacted parties to engage and provide robust feedback in these important forums that involve common issues, geography, and stakeholders, we ask the Reclamation take this into consideration when it schedules NEPA processes for the Colorado River and work to avoid such overlap.

IV. Conclusion

The stakes remain incredibly high for the communities, economies, cultures, and environments throughout the basin. It is a lot to ask stakeholders in the basin to develop post-2026 guidelines that may have to avert another crisis on January 1, 2027. The sentiment throughout the basin appears to be let's get this short-term revision finalized so we can move on with negotiation of the post-2026 guidelines. While we completely understand that desire, we are disappointed that this process could not be seen as the opportunity it is—to analyze in depth a series of policy changes and conservation levels to set us up well for and lead into those post-2026 discussions and ensure we are adequately prepared for the next three years.

The Trust appreciates the opportunity to comment on the modification of the near-term operations of Glen Canyon and Hoover Dams in the Colorado River Basin. While we generally support revisions to the 2007 interim guidelines we believe Reclamation needs to consider 1) updating the purpose and need statement, 2) ensuring analysis of the full range of reasonable alternatives by either fully analyzing Alternatives 1 and 2 in the Revised Draft SEIS or developing at least one additional alternative that provides benefit to reservoir elevations up to and post-2026 while protecting environmental and cultural resources of the Grand Canyon, and 3) running other considered but eliminated alternatives (e.g. 6-States Plan, California Plan, etc.) through the updated June 2023 hydrology for useful comparison. We look forward to continuing to work with you and other partners in the basin to integrate this short-term measure in the larger landscape of ensuring that the Colorado River is sustained into the future.

Sincerely,

Jen Pelz
Water Advocacy Director
Grand Canyon Trust