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Re: Federal Register; Vol. 87, No. 121; Friday, June 24, 2022.¹ Request for Input on Development of Post-2026 Colorado River Reservoir Operational Strategies for Lake Powell and Lake Mead Under Historically Low Reservoir Conditions.

Dear Ms. Jerla

This letter is provided by Living Rivers, Great Basin Water Network, Center for Biological Diversity, Save The Colorado, Las Vegas Water Defender, Glen Canyon Institute, Utah Rivers Council and Colorado Riverkeeper.

1. INTRODUCTION

Thank you for this opportunity to provide pre-scoping comments regarding the strategies for future reservoir operations in the Colorado River Basin (CRB), which will officially begin in Year 2023 under the guidance of the National Environmental Policy Act (NEPA), and specifically to prepare an Environmental Impact Statement (EIS) in compliance with 1970 Criteria for Coordinated Long-Range Operation of Colorado River (LROC), and the reservoirs pursuant to the Colorado River Basin Project Act of September 30, 1968, and with specific attention given to Section 602a Storage.²

¹ <http://www.riversimulator.org/2025Guidelines/PreScoping/FRN.Post2026CoRivReservoirOpsPowellMeadUnderLowReservoirConditions2022June23.pdf>

² Dams constructed under the Colorado River Storage Project Act are Flaming Gorge, Crystal, Morrow Point, Blue Mesa, Navajo, and Glen Canyon Dams. Hoover Dam was constructed under the Boulder Canyon Project Act. Davis Dam was constructed under provisions of the Reclamation Project Act. Construction of Parker Dam was authorized under the River and Harbors Act.

The ideal objective of 602a storage “shall utilize a value of not less than 14.85 million acre-feet (elevation 3,630 feet) for Lake Powell,” which has since proven to be unachievable — even with a significant equalization opportunity with Lake Mead that occurred in the high-water year of 2011.^{3 4} That brief trend of abundance was succeeded by a longer trend of hot and dry climate that forced water managers to revise the shortage sharing agreement of 2007 and well before its expiration date of December 31, 2025.⁵

The public must understand that since Year 2005, water managers and water users in the CRB have failed to properly equalize reservoir elevations at Lakes Mead and Powell —despite countless promises. Furthermore, state officials have intentionally abused and politically manipulated this river system for three generations — at the ultimate cost of losing water security for 42 million people in two nations.⁶ The inability by the states and the federal government to find consensus on how to cut water use is a step toward collapse, rather than a step toward sustainability.

We also want the public to understand that we will accept the challenge to balance the water budget in this basin, and that we will be persistent about affecting policy changes that begin to prioritize river health over the desires of unsustainable economic interests.

2. FOUNDATIONAL KNOWLEDGE AND SHAPING FUTURE OPERATIONAL STRATEGIES

2.a. Reclamation has already identified the following elements as foundational truths for the CRB:⁷

1. The Basin’s reservoir storage system is approaching inactive pool elevations and significant social disruptions are likely to occur.
2. Atmospheric temperatures have increased since 2007, and will continue to increase beyond 2060.
3. Aridity continues to upend the adopted policies of Colorado River Interim Guidelines for Lower Basin Shortages and Coordinated Operations for Lake Powell and Lake Mead (2007 IG), the adopted policies of Drought Contingency Planning Documents

³ FRN of September 30, 2003 and 602a Storage DEA. <http://www.riversimulator.org/2025Guidelines/PreScoping/68FR56317Reclamation30September2003.pdf>

⁴ FRN of May 19, 2004 and 602a Storage FONSI. <http://www.riversimulator.org/2025Guidelines/PreScoping/69FR28945Reclamation19May2004.pdf>

⁵ Tony Davis, *Arizona Daily Star*, 2015. *Feds: Fix Colorado River problems or we will*. <http://www.livingrivers.org/pdfs/Press/FedsFixColoradoRiverProblemsOrWeWill.pdf>

⁶ Ian James, *Los Angeles Times*, 2022. *They sounded alarms about a coming Colorado River crisis. But warnings went unheeded*, July 2022. <http://www.riversimulator.org/2025Guidelines/News/2022/ScientistsHaveLongWarnedOfColoradoRiverCrisis2022iJamesLATimes.pdf>

⁷ Reclamation’s Webinar of July 2022 - <https://www.youtube.com/watch?v=3-aA0CczaMM>

(DCP), and the adopted policies of Drought Response Operations Agreement (DROA) for both the Upper and Lower Divisions.

4. Reclamation — with scientific integrity and effective water policies — will generate meaningful solutions.
5. Reclamation will be inclusive about active participation with the tribes, Mexico, and the general public (voters, taxpayers, ratepayers, citizen groups, academic institutions, experts, and etc). However, tribes are presently questioning the commitment from the signatories of 2007 IG.⁸
6. Reclamation, per its mid-term projections, estimates the CRB needs to conserve an additional 2.5 MAF, independent of existing agreements, to stabilize the system in 2023. However, the public is unsure of any other deadlines, aside from December 31, 2025, that will help bring stability to the system and outline immediate approaches for scenario planning, which will help to identify the affected environments of the region and its cumulative impacts.

Please ensure that the above considerations will not be dismissed in the upcoming NEPA analysis of 2023.

2.b. The 2007 Interim Guidelines Problem

The 2007 IG were a minimalist approach that only serviced two federal facilities, namely Glen Canyon Dam (Lake Powell) and Hoover Dam (Lake Mead). The voluntary prescriptions to achieve reservoir storage stability required additional applications, almost immediately, to enhance the original strategies of 2007 IG, and as follows:

1. 2009 - SECURE Water Act
2. 2012 - Colorado River Basin Supply and Demand Study
3. 2013 - Moving Forward Effort
4. 2017 - Treaty Minutes with Mexico
5. 2018 - Colorado River Basin Ten Tribes Partnership Tribal Water Study
6. 2019 - Drought Contingency Planning
7. 2021 - Lower Basin Drought Response Operations Agreement
8. 2022a - Upper Basin Drought Response Operations Agreement
9. 2022b - DROA +

All of these combined strategies and agreements are adversely affecting CRB ecosystems, infrastructure operations, and recreation management — and without receiving the precautionary benefits of a comprehensive basin-wide NEPA review.

⁸ Letter from Colorado River Tribes to Deputy Secretary Trujillo. <http://www.riversimulator.org/2025Guidelines/PreScoping/LetterFromBTCToTrujillo22July2022.pdf>

2.c. The following items, locations and/or facilities are receiving negative and cumulative impacts because of current management practices:

1. River base water flows fed via groundwater continue to diminish.
2. CRB communities waste their time and resources pursuing federal permits for water projects that are infeasible, resource intensive, and politically controversial.
3. CRB reservoirs like Flaming Gorge Dam, Blue Mesa Dam and Navajo Dam are experiencing unprecedented emergency operations.
4. Ecosystems are imperiled at Grand Canyon, Salton Trough, and the Colorado River below Morelos Dam in Mexico. System degradation and decline also exists on the many dewatered tributaries within the basin, and incidentally includes trans-basin diversion projects such as the Great Salt Lake/Bonneville ecosystem and the imperiled Rio Grande ecosystem.
5. The ecosystem values of our National Parks, National Monuments, Wildlife Refugia, Heritage Areas, and National Recreation Areas are also jeopardized in the CRB.
6. State, local and tribal assets also suffer degradation.

3. SUGGESTED STRATEGIES**3.a. We strongly advocate that the following suggestions be embraced for the upcoming NEPA process:**

1. Immediately ask Congress for consistent funding and increased staffing to guarantee a robust and exhaustive public review.
2. Provide multiple in-person and virtual meetings at multiple locations in each basin state of USA and Mexico to ensure a robust review.
3. The analysis must be comprehensive, programmatic and basin-wide in scope, including the counties with trans-basin and intra-basin diversion projects in existence and new proposals.
4. Enlist the National Academy of Sciences to run focus groups.
5. Enlist the Center for Climate Adaptation Science and Solutions (CCASS) at the University of Arizona to partner on the development of strategies that promote sustainability.⁹
6. Consult with the Scripps Institute of Oceanography and Lamont-Doherty Earth Observatory.
7. Collaborate with the US Geological Survey¹⁰ and Surface Atmosphere Integrated Field Laboratory¹¹ concerning base flow analyses and additional groundwater assessments, including monitoring and isotopic data collection.

⁹ Center for Climate Adaptation Science and Solutions (CCASS). <https://ccass.arizona.edu/themes/water-security-planning-and-policy/colorado-river>

¹⁰ Colorado River Basin Focus Area Study. <https://www.usgs.gov/mission-areas/water-resources/science/colorado-river-basin-focus-area-study>

¹¹ Surface Atmosphere Integrated Field Laboratory (SAIL). <https://sail.lbl.gov>

8. Reassess evaporation rates for soil moisture, vegetation transpiration, channel and river losses, and reservoir losses.
9. Accept non-stationarity weather and climate patterns.
10. Prepare for weather and climate extremes.
11. Encourage scientific investigations about the North American Monsoon.
12. List the schedule of priority rights in the Upper and Lower Basin to give the public a better understanding of the discrepancy in record keeping between the basins.
13. Reassess all proposed dams and diversions on all tributaries and the main stem for the purpose of reviving the river.
14. Detail the public process and strategy for assessing the feasibility of River Outlet Works at Glen Canyon and Hoover Dams.
15. All mitigation programs financed by hydropower revenues need to be reassessed.
16. Reassess the effect of sediment mobilization at Lake Powell on storage, recreation, wildlife habitat, water quality, water temperature and other such impacts related to Glen Canyon Dam operations.
17. Assess costs and feasibility of abandoned recreational infrastructure.
18. Assess new recreational opportunities at Grand Canyon National Park and the National Recreation Areas of Glen Canyon and Lake Mead.
19. Reevaluate the cumulative impacts of increasing aridity upon habitat for endangered species.
20. Perform CRB vegetation assessments that highlight the status of invasive, non-native and native species.

3.b. Colorado River Simulation System (CRSS) and Colorado River Mid-term Modeling System (CRMMS)

For modeling climate projections and creating scenario planning documents, we suggest the following criteria for base flow and snow melt volumes at Lee's Ferry, Arizona (Compact Point). The framework should be vetted with the community of physical and social scientists who understand all the characteristics of the CRB.

3.b.1. Modeling the natural flow in the 21st century

- Scenario One: The current 30-year average of 9.6 million acre-feet (2021) for inflows into Lake Powell.
- Scenario Two: The projected 30-year average in 2051.
- Scenario Three: The projected 30-year average in 2081.

3.b.2 Modeling the compensations for possible temperature reductions in the 21st century

Present-day monitoring data of carbon molecules hovering in the atmosphere clearly indicates that, since the first Conference of the Parties (COP) held in Germany in Year 1995, absolutely no progress has been made to reduce or sequester global carbon emissions.¹² Therefore, the scenario planning exercises of 2007 IG and 2012 Basin

¹² Carbon dioxide data at Mauna Loa Observatory. <https://keelingcurve.ucsd.edu/>

Study to demonstrate possible temperature reductions occurring between 2005 and 2060 was not really helpful to practitioners, nor to the public.

Therefore, and choosing to be optimistic about this problem, we propose the following criteria for scenario planning in regards to international policies becoming effective toward reducing temperatures in the atmosphere and the ocean before the end of this century.

- Scenario One: A business-as-usual trend of rising temperatures that continues unabated to Year 2101.
- Scenario Two: The trend begins to stabilize by Year 2051.
- Scenario Three: The trend begins to reverse by Year 2081.

The examples above are a plain language approach, which is necessary because previous narratives and graphics for the public consumption of this information was either too vague or too busy. The writers of this NEPA process should explain to the public that cooling the atmosphere and ocean have lag times that last many centuries. Consider, for example, that the temperature regimes of the Medieval Warm Period and the Little Ice Age were persistent for time periods that lasted three to four centuries.¹³

In other words, we need to accept that the negative impacts of greenhouse gas emissions are unlikely to reverse in this century, i.e., that circulation patterns will continue to disrupt weather and climate, that the ocean will continue to rise and the Arctic tundra will continue to thaw.

4. CONCLUSION

What the public in the CRB learned just recently from Reclamation's press release concerning the 24-month report of August 16, 2022,¹⁴ is that the signatories of 2007 IG in the Upper Basin have committed to apply water efficiency programs, but are not committed to actual reductions in their consumptive uses.¹⁵

As to the 2007 IG signatories in the Lower Basin, we already know that cuts beyond those outlined in 2007 IG and DCP are not sufficient. We also know that the various parties who agreed to implement the 500+ Plan have not yet been able to secure that sum of water as outlined (500,000 acre-feet for two years).¹⁶

¹³ Global Average Temperature Change in the last 2000-years. <http://www.riversimulator.org/Resources/Graphs/GlobalAverageTemperatureChange2000Years.jpg>

¹⁴ Reclamation Press Release. <https://www.usbr.gov/newsroom/news-release/4294>

¹⁵ Letter from Upper Colorado River Commission, July 2022. <http://www.riversimulator.org/2025Guidelines/States/UCRC/UCRCLetter2022July18ToReclamation.pdf>

¹⁶ Debra Utacia Krol, Arizona Republic. *'There's simply not enough water': Colorado River cutbacks ripple across Arizona*, <http://www.riversimulator.org/2025Guidelines/News/2022/TheresSimplyNotEnoughWaterDebraUtaciaKrol2022AzRep.pdf>

The tribes have demonstrated a commitment to share shortages in these troubled times, but should not participate until an equal commitment arrives from the actual signatories of 2007 IG.

Lastly, what we hope never to hear again are exhortations for wet winters that do nothing but steal the time necessary to make actual progress at balancing the water budget.¹⁷

Therefore, we think this NEPA process will require two approaches: (1) an effort to balance the diminishing water supply with human demands, immediately and sustainably; (2) anticipate inaction or failure and prepare for system collapse.

The Secretary of Interior should petition the Cabinet, CRB state representatives, Mexico, Tribes, congressional committees, and the National Academy of Sciences for assistance and advisement, should a national emergency arrive.

Regardless of the approaches that will be adopted in this round of LROC discussions, or not, what is absolute is that the limits of nature have arrived, and as anticipated, and as affirmed. The future of the CRB depends entirely on reducing our consumption of energy and water resources and in extraordinary amounts. Let's all take this big step forward together, wisely and safely, and without further delays or distractions.

Sincerely yours,

John Weisheit, Living Rivers and Colorado Riverkeeper
Kyle Roerink, Great Basin Water Network
Robin Silver, Center for Biological Diversity
Tick Segerblom, Las Vegas Water Defender
Gary Wockner, Save The Colorado
Eric Balken, Glen Canyon Institute
Zach Frankel, Utah Rivers Council

¹⁷ Sustainable water deliveries from the Colorado River in a changing climate; Barnett and Pierce, 2009. <http://www.riversimulator.org/Resources/ClimateDocs/PierceBarnett2009.pdf>