

## **Input for pre-scoping for National Environmental Protection Act effort to update operations for Lake Powell and Lake Mead by 2026**

Submit by email to [CRB-info@usbr.gov](mailto:CRB-info@usbr.gov) by September 1, 2026.

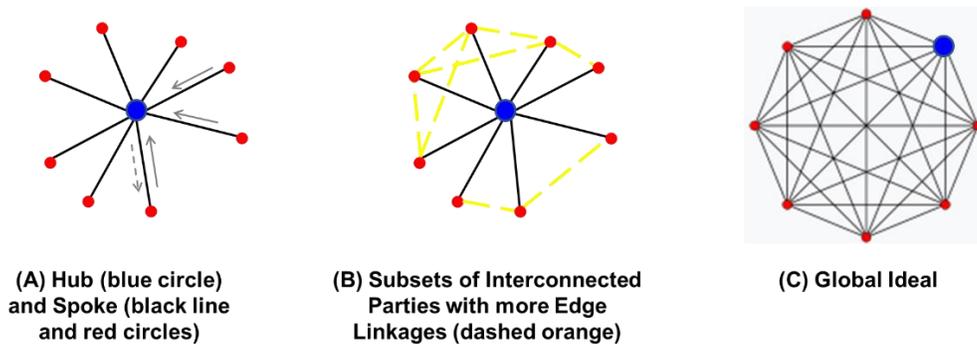
**September 1, 2022**

This email responds to a request by Reclamation in the Federal Register for input on the process and substance of a forthcoming National Environmental Protection Act (NEPA) effort to update operations for Lake Powell and Lake Mead (<https://public-inspection.federalregister.gov/2022-13502.pdf>). I commend Reclamation for requesting this input because seeking input early is a best practice of participatory management to build trust and operations that are actionable (Bourget et al., 2013; Langsdale et al., 2013).

### **Suggestions to Improve Process**

1. Publicly share responses to this request because that is an efficient and transparent way for people to see what others are saying and encourage conversations through the entire NEPA process. There are pros and cons to various methods to share. In my experience there is benefit to follow the Chatham House Rule where facilitators share information separate from the people who contributed the information (<http://www.chathamhouse.org>). This approach helps people focus on the substance of information, build trust, and is also common in social science research to help protect the identities of participants so participants can share information more freely. See recent applications of the Chatham House Rule in Colorado River basin work (Koebele, 2021; Rosenberg, 2022).
2. Review the list of people/entities that submit comments, identify gaps in participation, and reach out to groups that did not respond. Learn why these groups/individuals did not respond, help them overcome obstacles, and encourage them to participate. I submit these comments because a person from Reclamation asked for input.
3. Transition from a hub-spoke communication structure with Reclamation at the center (Figure 1a) to a structure where there is more interconnected communication and collaboration along the edges (Figure 1b). In the hub-spoke communication structure, Reclamation (Figure 1a, larger blue circle) pulls information in from participants (i.e., Figure 1a, red circles and solid inward grey arrows) such as this request for pre-scoping input. Additionally, Reclamation possibly pushes information back out to participants should Reclamation follow process suggestion #1 (Figure 1a, dashed outward grey arrows). Build relationships along the edges to build more subsets of interconnected parties that can better work together, improve communication, step wise build trust, and strengthen the substance of proposals (Figure 1b, dashed orange lines). In the global ideal case, every party communicates with every other party

(Figure 1c, adapted from <https://en.wikipedia.org/wiki/Simplex>). The global ideal is likely impossible and undesired because every party does not have the bandwidth nor willingness to be best friends with every other party. However, agent-based computer modeling of household water conservation behaviors showed a network of interconnected parties with more edge linkages communicated information among parties nearly as efficiently as the global ideal network (James and Rosenberg, 2022). Avoid what I understood happened for the 2007 Interim Guidelines where there were separate camps and separate proposals from the different camps that were all routed through Reclamation (Figure 1a). That approach exacerbated rather than reduced conflict.



**Figure 1. Potential communication structures for a NEPA process.**

4. Provide free RiverWare licenses, training, and Colorado River Simulation System (CRSS) model support to all participants that request it. If the CRSS will be central to the NEPA process, remove the barrier of the 3-year, \$12,150 cost for the first license, \$3,150 cost for each additional seat, and \$1,600 per person Riverware training that will disproportionally affect parties that were excluded from prior NEPA processes.
5. Encourage subsets of parties to work together because proposals from groups will be stronger and address a broader set of needs than proposals from individuals or individual groups (e.g., Figure 1b). Sharing input provided in this pre-scoping (Process suggestion #1) may be a first step to encourage parties to work together.
6. Offer regular opportunities like this pre-scoping for public input on what is going well and what to improve because today it is hard to see or comment on a NEPA process that is not yet defined past Winter 2023.

### Suggestions on Substance

Make the scoping and NEPA process broad enough to consider these options:

1. Adapt operations to inflow and reservoir levels, not just reservoir levels as in the Interim Guidelines and Drought Contingency Plans did. See Rosenberg (2022) for three example

exploratory exercises that adapted operations to inflow and storage and caveats. There are already guidelines for surplus and ordinary flow conditions.

2. Develop operations for the worst case scenario that may be Lake Powell and Lake Mead at or near their Dead Pools or minimum power pools and continuing natural flow at Lee Ferry of 5 million acre-feet per year or less as reconstructed from tree rings going back to 1416 AD (Meko et al., 2017; Salehabadi et al., 2021, Figure 14). Develop operations for the worst case because if parties can agree on operations for the worst case scenario, then parties will find it easier to agree on operations for larger flows and more storage.
3. Consider operations that work from the combined storage of Lake Powell and Lake Mead rather than individual storage because combined storage offers more flexibility, reduces Lower Basin/Upper Basin reservoir mentality, and provides a way to release colder water from Lake Powell that helps the young of endangered, native fish of the Grand Canyon against being eaten by non-native fish such as small-mouth bass.
4. Define metrics of system crash to avoid. These metrics could be
  - a. Lake Powell storage at minimum power pool.
  - b. Expatriation of native, endangered fish from the Grand Canyon.
  - c. Reclamation loses control of Lake Powell releases such as river outlets freeze in open position or Lake Powell storage below minimum power or dead pools.
  - d. Others?

Define these metrics because once the system crashes or fails, there is potential for cascading effects such as reduced power delivery to rural communities of the western U.S., reduced water availability and deliveries to Lower Basin users, lawsuits, among others. All of these cascading effects will reduce collaboration and ability of managers to adapt to continuing – or worsening – conditions.

5. Transition to a mindset of reduce water use rather than conserve water or manage demands to use in another place and/or at a future point in time. In a basin facing declining flows and ongoing aridity with historical water delivery obligations, there is no extra water to save. Parties reduce use from historical operations to use within the available water.
6. Link scarce water to more abundant resources such as money and energy by allowing trades among users and compensation for water use reduction. Link these resources to gain access to the \$1 trillion bipartisan infrastructure or other forthcoming Federal legislation. Give parties more operational flexibility without having to negotiate new agreements at every new seasonal or annual crisis.
7. Define a new expiration date for new operations. The Interim Guidelines and Drought Contingency plans defined 2026 as an expiration date. That expiration date motivates the

current pre-scoping and conservations about how to adapt operations to evolving basin aridity. In the upcoming NEPA process, again set an expiration date for new operations to force parties to continue to adapt operations as basin conditions change.

## Contributor

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