[EXTERNAL] Colorado River

Dennis Huber <dennyhuber@icloud.com>
Tue 6/28/2022 9:22 AM
To: CRB-Info, BOR <bor-sha-LCB-Info@usbr.gov>

To whom It May Concern:

There is an idea that has been around for 60 years that would completely solve water problems all over the Western US, including the Colorado River.

It is called the North American Water And Power Alliance (NAWAPA).

The project would basically take 75 million acre-feet of water per year from sub-Arctic Canadian rivers and divert it to the United States. This amount would:

1. Restore the Colorado River to normal flow and its lakes to normal levels.
2. Provide irrigation to the central valleys of California.
3. Rejuvenate the Ogallala aquifer in the midwest
4. Stabilize the flow of other western rivers like the Columbia and Missouri.
5. Stabilize the levels of the Great Lakes.
6. ...and many other projects.

This all sounds great but of course it has never been implemented for a lot of reasons:

* High cost; probably a trillion dollars over 30 years
* High environmental impact
* We would need to compensate Canada and pay the cost of pumping water uphill over long distances.
* Lack of political will

Anyway, it's a thought.

Dennis Huber
Green Valley, AZ

[EXTERNAL] Water Conservation

Herb Carpenter <herb.carpenter@hotmail.com>
Tue 6/28/2022 10:55 AM
To: CRB-Info, BOR <bor-sha-LCB-Info@usbr.gov>

Dear U.S. Bureau of Reclamation,

It would be interesting to know how much water would be saved if the watering of grass with drinking water were prohibited throughout the Colorado River service area. In nearly all situations, except agriculture, grass is a decorative plant and serves no practical purpose. My guess is that there would be substantial savings.

Thank you,
Herb Carpenter
Herb.carpenter@hotmail.com

[EXTERNAL] Canals

Tricia Jauregui <tjjauregui@yahoo.com>
Tue 6/28/2022 3:16 PM
To: CRB-Info, BOR <bor-sha-LCB-Info@usbr.gov>

Why aren't the canals that the water is transported through covered? How much evaporates in the hot desert sun? It's a waste of water to let it be reduced by evaporation and makes the water more concentrated (harder) with calcium and other minerals. Large pipes could be used through a lot of the desert and/or some type of material covering the canals. I realize that it will be expensive but so is the loss of so much water. Covering even less than a quarter of the canals would help substantially.

Thanks,
Tricia J.

[EXTERNAL] Colorado River Reservoir system comment suggestion

Oren Applequist [Grounds] <appleod@nv.ccsd.net>
Tue 6/28/2022 6:14 PM
To: CRB-Info, BOR <bor-sha-LCB-Info@usbr.gov>

Hi there,

My name is Oren Applequist, I am the Landscaping and Grounds Supervisor for Clark County School District in Clark County, Nevada.

My main goal is to ensure that we have healthy and beautiful landscapes at our school sites. I also have to be pragmatic in the approach we use when considering the well being of our communities best interest. In this case, I am forced to consider all communities that benefit from the Colorado river and reservoir system.

The solution of water conservation can be complicated and multi-tiered to be meaningfully successful.

The first issue that I would address is the requirement of water rights holders to have to use it or lose it legal requirement. It makes no sense that water must be pumped or released to satisfy rights retention requirements.

The second proposal would be to require municipal water companies with underground water reserves or reservoirs to be required to supplement their water usage with these reserves on a percentage basis. It would be effective even on a marginal scale.

The third suggestion would be to shut down swimming pools, fountains, and water features. The evaporation of shallow water is intensified by the accelerated thermal entropy.

The final suggestion is to limit water usage days of landscaping irrigation to 4 days per week. Healthy landscapes can survive just fine on a reduced watering schedule. This would require a split schedule on the lines of Monday & Tuesday, and Thursday & Friday.

I would also suggest that Lake Powell be ordered to release 30-40% of the normal amount of water that it usually would. This would help preserve the lower basin reservoirs' water levels.

This will have to be an agreed commitment for all communities that depend on the Colorado river system.

Thanks as always...

Oren Applequist
Landscape & Grounds Supervisor
Region II, Facilities Management Services
CCSD Landscaping & Grounds Dept.
702-303-3301 cell

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[EXTERNAL] Water

troy johnson <leon6562@gmail.com>
Tue 6/28/2022 6:41 PM
To: CRB-Info, BOR <bor-sha-LCB-Info@usbr.gov>

One of the things that I noticed is after Utah used cloud seeding to produce snow in the Rockies of mountains of Utah we begin to see changes in regards to the weather as far as large snow storms it was fine at first but they should have stopped afterwards but they did not my guess is they have tampered with the natural evaporation processes that have caused most of the water to go to the East Coast it was after these clouds eating operations that most of the snow ended up going to the east rather than Utah and Colorado having the necessary snow pack I had warned them several times in regards to stopping their operations with these least cloud seeding equipment I believe they still have them out of a company back east in Pennsylvania but I can't be certain I know that they were major changes to our weather systems after there was a large scale cloud seeding operation that occurred in the state of Utah I would recommend looking into this particular situation to see if they have stopped operations hopefully they have so that maybe the weather system itself as far as natural evaporation processes will return to normal and precipitation will be where it is supposed to be I would also recommend at this time that you start large water restriction programs where they are needed and where they can be utilized appropriately without sacrificing crop production Mr Troy Johnson 801-920-8955

[EXTERNAL] What it takes--Lake Powell / Mead Feedback

Rolf Schultz <rolfschultz@cox.net>
Tue 6/28/2022 8:51 PM
To: CRB-Info, BOR <bor-sha-LCB-Info@usbr.gov>

Department Of The Interior Bureau Of Reclamation
[RR0304000.22XR068080.RX.187 86000.5004001]

RE: Request for input on development of post-2026 Colorado River
Reservoir Operational Strategies for Lk Powell and Mead:

What got me to thinking about this was a U-Tube video "How to Fix This; a 5:42 sec video, it was very informative, and well thought out. We are all aware of climate change on the Western USA, and so is the challenge on what will be done to address our water ways. I do not know "how far" the CRB authority is able to accomplish the following:

1. To first create a political will to do this on a national basis sense this will be a truly national undertaking as was other national events in our nation's history (the Panama Connell for example). Although local stake holder states are already motivated on this, still—more political clout will be needed in the House and Senate. In other words, you have to come up with a game plane to "sell this politically."

2. Realizing the potential oppositions by tapping into "their water ways" to divert to the Colorado, Canada is a no go, their sovereignty issues and we would have no control. So it comes down to this, where "IS" enough fresh water to tap into?

Answer→ Lake Superior at Duluth to La Poudre Pass Lake, 1075 miles.
With the political pathway "plowed forward," basic issues will have to be addressed "how to eliminate" invasive species which will be a huge issue. If you use underground TBM's to create 12' D pipelines—engineering issues of hydro static pressures, earthquakes, and other issues OR stay above ground with a pipeline system. It takes a lot of energy to pump the volumes of water were talking about, but it's not an issues you have not already addressed with the California Aqueduct on a lesser scale.

Once a well thought out path, cost (this will be the main issue), engirineering approach, energy approach (dedicated solar farms per each transfer station to mitigate the power grid draw) plan is drawn up, then you can sell it politically.

Yes, time is working against us all (what is it, some 6' drop per month in Lk Mead alone?). How fast could this be undertaken? Well, what would be the consequences of inaction? Cost—sure to be front and center, $800 Billion? Does it really matter? How "motivated" is everyone? Is that rally an issue given the way we spend money in the US and abroad?

Reasoning behind this proposal:

1. There is simply not "enough" fresh water else ware, and the shortest distance between the problem and the answer is a straight line. Its some 1,928 miles from Duluth to the Colorado, but only 1,075 miles to the headwaters of the Colorado, Lk La Poudre Pass—or In that geographical vicinity.
2. If alternate rivers were tapped such as the Mississippi, you would never here the end of it from Louisiana affecting their delta.
3. Ralph Parsons did not take into account the political opposition Canadians would have over diverting water to the lower states, besides—we would have no say in the game.

Summary:

Your bureau is "best equipped" to run point on this, it just comes down to one real issue, "political will." Climate change may be permanent, with no realistic hope of re-filling up lk Powell and Mead. When I was once a pilot, the engine gave out, so the cost of inaction would be worse than the cost of "best case" action. I now love to fix up homes, and deal much the same pragmatic way in addressing issues as we all do in life. I wish I were wrong in my outlook on future issues with our water systems here in the West, but is it not better to do something with sound reasoning than to put a temporary political band aid on it? **The entire West Coast Region rests in your collective hands!**

As for "how fast this could realistically be accomplished", we as a country would have to view this with a WWII mindset, do or die, full speed ahead with everyone working on their respective areas of expertise. If China can do similar things, we can do it better—don't you agree? Political Will opens the money valves, and offers a great back up to seasonal snow melt runoff. To the directly involved states that are stake holders in this, failure will not be an option. How realistic am I really? Well if we were (and we just may be in the next few years) in a war with China, how fast do you think we would all get off our asses to move heaven and earth to get it done?

Rolf Schultz
June 28, 2022
www.Handyman-Services.Biz
C 619-322-7378

[EXTERNAL] Lake Mead & Lake Powell

Ryan Bender <patches1995@msn.com>
Tue 6/28/2022 8:54 PM
To: CRB-Info, BOR <bor-sha-LCB-Info@usbr.gov>

Hello!

I was watching Time Bomb YouTube channel and I saw at the end of the video that the water bureau wants the people input! I stand for Washington state, I believe lake mead and lake Powell should be shut down completely! And let it replenish as much as it can possible! Every ounce counts at such hard times like this. Because once it's gone it will never be there again. Electricity needs to be produced some other way, the Colorado river needs to be replenished and untouched. We need to look past how much tourism money and turbine money that will be lost, Mother Nature is much more important than money! Please save Lake Mead and Lake Powell! Thank you for your time!

-Ryan

[EXTERNAL] Flaming gorge water level

Kylee Simmons <kyleelouubaum@hotmail.com>
Tue 6/28/2022 9:16 PM
To: CRB-Info, BOR <bor-sha-LCB-Info@usbr.gov>

To whom it may concern,

Lowering the water level at flaming gorge has made a serious impact on the fishing and recreational activities.

Thank you!

[EXTERNAL] Colorado river issue resolved

DAVID CAMPBELL <campbell258@aol.com>

Tue 6/28/2022 9:31 PM

To: CRB-Info, BOR <bor-sha-LCB-Info@usbr.gov>

Why can't we pipe the Columbia river water into the Colorado river instead of into the ocean? Would that not require a large pipe and let the water flow refilling the Colorado for the lack of snow run-off?

Sent from iPhone

[EXTERNAL] Water Levels out west

gary.gustafson@raenergy.us <gary.gustafson@raenergy.us>

Wed 6/29/2022 9:43 AM

To: CRB-Info, BOR <bor-sha-LCB-Info@usbr.gov>

Coming from Minnesota I am trying to get my arms around the severity of the problem out west.

I think it would be helpful if:

There was a data base showing the following:

By state
How much water is available
Projected run dry date

Collectively among the states affected
How much water is available
Projected run dry date

As no one know when this problem will end what is the contingency plan
By State
Collectively for the states affected

I have friends in other parts of the world where whole towns are severely rationing or completely dry and when I discuss their plight with friends they just brush it off as mis management by foreign countries.

Are there any initiatives similar to those portrayed by John D. Liu in his video Lessons of the Loess Plateau?

Gary R. Gustafson
612-749-2879

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Watch your words they become your actions
Watch your actions they become your habits
Watch your habits they become your character
Watch your character it becomes your destiny

[EXTERNAL] The water issue at Colorado river

Kip Loretta <findkip@gmail.com>

Wed 6/29/2022 11:56 AM

To: CRB-Info, BOR <bor-sha-LCB-Info@usbr.gov>

You guys want river info from Americans..

1. Stop or ban all new construction until the river bounces back.
2. Restrictions on golf courses pools and water entertainment til further notice.
3. Tell the public the Truth for once.

Kip Loretta

[EXTERNAL] Save the Colorado River

Kevin Boese <boesecolorado@comcast.net>

Wed 6/29/2022 12:13 PM

To: CRB-Info, BOR <bor-sha-LCB-Info@usbr.gov>

If we are not using our workforce for building a oil pipeline use them for the other most valuable resource and build a pipeline to relieve the flood waters of the great Mississippi River to supply water to the southern freeze line as proposed!!

Sent from KevBoe's IPhone!

[EXTERNAL] Post-2026 Colorado River Operational Strategie

carl parmley <carldhparmley@yahoo.com>
Wed 6/29/2022 1:54 PM
To: CRB-Info, BOR <bor-sha-LCB-Info@usbr.gov>

Good afternoon,

I saw the Fed Register for public input regarding plans to maintain and continue operation for Lake Powell & Mead and wanted to respond with a few ideas I've had.

1. Interstate water pipeline from flood prone areas to Colorado River Powell & Mead.

The east coast and gulf states have been suffering record flooding incidents as climate change has progressed. Predictions are that it will only continue to worsen (https://engineering.princeton.edu/news/2022/02/03/future-hurricanes-likely-pose-much-greater-flood-risk-u-s-east-and-gulf-coasts).
Perhaps the US could construct an interstate pipeline capable of transporting excess water from overburdened levies in these high flood areas to drought stricken areas here in the west? The pipeline could be fitted with filters and testing points across the line to help ensure that clean water, free of organisms and debris, is being transported to replenish our area.
If we can figure out how to construct massive oil & gas pipelines that transport energy across our country, we can figure out how to transport water from flood areas to drought areas.

2. Placement of Virginia Tech "fog harps" along the Colorado River, Powell & Mead.

Fog nets have been utilized along the coast of California to capture moisture from the air very effectively. In 2018 Virginia Tech's engineering department created what they called a "fog harp" that was able to capture almost twice as much water in lighter fog/mist conditions. If we could place these along the Colorado River and lake shores we could capture some of the water we're losing from evaporation and return it. https://vtx.vt.edu/articles/2020/04/fogharp_results.html

3. Federal infrastructure investment in low flow appliances and ad promotion.

Purchasing low flow appliances can be expensive. If there was federal assistance with this cost we could get more low flow appliances into every household & business in drought prone states. There are some brilliant products out there. Take for example the Nebia Shower head, which effectively atomizes water into a mist that uses half as much water as your standard water saver

shower head (https://nebia.com/). But, at $150-250 it's pretty steep for many household incomes. Federal investment to help lower or cover the cost, and an efficient ad campaign so that people knew about the program, would help save millions of gallons.

Thank you for your time and consideration,

Carl Parmley
63505 Koehler Rd
Joshua Tree, CA 92252
(760)819-1958

Fw: [EXTERNAL] Long Term Colorado River Water Solutions

Nelson, KayLee D <kdnelson@usbr.gov>
on behalf of
CRB-Tribal-Info, BOR- <bor-sha-LCB-Tribes@usbr.gov>
Wed 6/29/2022 2:09 PM
To: CRB-Info, BOR <bor-sha-LCB-Info@usbr.gov>

Thank you,

KayLee Nelson
Native American Affairs Program Manager
Lower Colorado Basin Region
702-293-8073
kdnelson@usbr.gov

Ernie Rheaume
Native American Affairs Program Manager
Upper Colorado Basin Region
970-317-1487
erheaume@usbr.gov

— BUREAU OF —
RECLAMATION

From: Jerla, Carly <CJerla@usbr.gov>
Sent: Tuesday, June 28, 2022 12:14 PM
To: CRB-Tribal-Info, BOR- <bor-sha-LCB-Tribes@usbr.gov>
Subject: Fw: [EXTERNAL] Long Term Colorado River Water Solutions

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From: Tom Suess <tomsuess8@gmail.com>
Sent: Friday, June 24, 2022 6:08 PM
To: Jerla, Carly <CJerla@usbr.gov>
Subject: [EXTERNAL] Long Term Colorado River Water Solutions

Hi Carly Jerla, 25 Jun 2022

Currently, under drought conditions, conservation and cuts are required for short-term Colorado River viability for approximately 40 million people.

However, long-term creative science/engineering based solutions are missing from news articles and public discourse for many years...cuts and conservation only are on the menu. The cost of any capital water project would be shared between approximately 40 million people, so while not trivial, and expensive, ideas should be suggested and investigated as possible long-term solutions to the Colorado River water issue.

One example idea would be a water pipeline between the Columbia River and the Fontenell or Flaming Gorge reservoirs. The Columbia River contains locks, so environmental fish issues may be minimal, and the fresh water currently goes to the Pacific ocean. If the Engineers do not like the idea of a pipeline, how about Elon Musks Boring Co. to transfer the water? The downstream system. Powell, Mead, Havasu, are already in place.

Many long-term creative Colorado River water solutions are possible, but somebody in a decision making capacity, such as yourself (Senior Water Resources Program Manager), would benefit by announcing and publicizing the initial thought process to generate enthusiasm and solicit capital project ideas.

Regards,
Tom Suess
tomsuess8@gmail.com

[EXTERNAL]

Jonathan Zellner <Zellner_J@hotmail.com>
Wed 6/29/2022 3:53 PM
To: CRB-Info, BOR <bor-sha-LCB-Info@usbr.gov>

My opinion is, do anything to keep water flowing to produce electricity, but have a plan to keep the local business owners financially stable from the lakes upstream that are losing millions of dollars in tourism.

And is there anything similar to those black balls that's used in LA that could help reduce evaporation?

(Im from the east coast, I just hate the idea of this drought causing local business owners to lose everything. Protect them one way or another)

[EXTERNAL] Powell-Mead

Chris Fazendin <totalpi@yahoo.com>
Wed 6/29/2022 6:28 PM
To: CRB-Info, BOR <bor-sha-LCB-Info@usbr.gov>

To Whom it may concern,

All of my family & friends have boated at Lake Mead. Also we all use the water & power from the Colorado River. It saddens me that we are in this situation. It seems that all of the natural flow from the river is not enough to maintain water levels, supply hydro electric power & water to the residents of the southwest & Mexico.

What is needed is a way to supplement the flow of the Colorado River system.

I propose a pipeline from the Grand Coolee Dam area to deliver water into the upper Green River system. Engineers can detail this out. Also there is a proposal out there somewhere called "The Big Siphon" where water is pumped up & over a single mountain & then runs as a siphon all the way to the Green River. Needing very little pumping.

Chris Fazendin

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[EXTERNAL] Colorado River Reservoirs

mark.of.zander@icloud.com <mark.of.zander@icloud.com>

Wed 6/29/2022 7:51 PM

To: CRB-Info, BOR <bor-sha-LCB-Info@usbr.gov>

Hi,

I understand I can send an email to this address to comment on the Colorado River Basin.

First I would like to say that I do not envy the decisions that need to be made with the current drought and accompanying low water levels. I am not sure that there is a solution to the current problem or even a good possible outcome.

The evaporation from these reservoirs alone must be a tremendous loss of water. If water levels continue to decline will reservoirs need to be closed to prevent further loss of water to evaporation? Will you wait until reservoirs close due to lack of water from the continuing drought.

Good luck to those in charge.

Mark Zander

[EXTERNAL] Colorado river water levels

Mac Marmon <marmon45@msn.com>
Wed 6/29/2022 8:50 PM
To: CRB-Info, BOR <bor-sha-LCB-Info@usbr.gov>

I suggest a pipe line to divert fresh water from the Other parts of the country. We add pipe lines for Oil why not water to fill our lakes from areas that have an abundance of freshwater.

Thank You,

Mac Marmon
928-234-6813

[EXTERNAL] Comment on river management

Christopher Wade <wadechris251@gmail.com>
Wed 6/29/2022 10:14 PM
To: CRB-Info, BOR <bor-sha-LCB-Info@usbr.gov>

Hi my name is Christopher Wade, I'm 23 and this is my input on the water management. I'm a resident of Arizona and those who are currently managing the river/s in Arizona and across the Southwest are doing it in the most appropriate way possible. I think the cities should be held responsible and in my case Phoenix specifically needs to start seriously be more sustainable with our water uses. I'm aware of our aqueducts and facilities that recycle waste water but that's not enough. For instance we have monster monsoons that flood areas in minutes and all that water is left to runoff and evaporate, I'm not saying we should change the entire system but build onto what I think is a outdated system. And, from an agricultural perspective for an example my grandparents have 20 acres of land that they flood with canal water up to 3-4" of water every so often to grow alfalfa. And, I'm not against my grandparents of course, it's not their fault! That method has been passed down for ages. And, if my grandparents are doing it other farmers are doing it as well (that's a ton of water). But, I just think that method is outdated and should be changed if not changed at least regulated to some point. But to those who manage the rivers thank you first of all and secondly it's not your guys fault it's the consumers that aren't knowledgeable about this serious issue. Thank you and have a good rest of your day!

Sent from my iPhone

[EXTERNAL] Colorado River

David Johnston <david@thejohnstonproject.com>

Thu 6/30/2022 6:50 AM

To: CRB-Info, BOR <bor-sha-LCB-Info@usbr.gov>

Is there anyway to follow on line how this review is going?

Cheers,

David

[EXTERNAL] Comment on Water Management in the Colorado River Basin

Amethyst O'Connell <oconn828@umn.edu>

Thu 6/30/2022 7:57 AM

To: CRB-Info, BOR <bor-sha-LCB-Info@usbr.gov>

Hello,

I am an Electrical Engineering major with a Sustainability Studies minor at the University of Minnesota. By the time 2026 comes, I will hopefully be a practicing Electrical Engineer, and I would like to bring to your attention that the decisions you make have the potential to levy a great burden upon my future profession, my state of Minnesota, the Midwest region of which Minnesota is a part, the Mississippi River Basin, and my generation of Electrical Engineers.

Right now, the water in the Colorado River Basin is what powers the homes of many in the region. If this water isn't managed well, this power will have to come from elsewhere, and the only elsewhere that does not threaten the delicate supply chain providing the rest of the grid is renewable energy, which is why I write from Minnesota with no illusions that the happenings of the Colorado River Basin will somehow pass over my state. In the worst case, this loss of renewable energy from the draining of the Colorado River Basin will not only erase the fighting and gains of Electrical Engineers and Activists in the Midwest, who have been fighting to decarbonize for decades, but will also put us at odds with each other as we fight over a limited supply of fossil fuels on the open market. Because of the abundance of electricity from the Colorado River Basin, I fear that there has not been the same amount of work by the electricity communities of the Colorado River Basin to prepare the grid for wind and solar energy, and to build utility scale wind and solar than there would be if the abundant hydropower of the Colorado River did not exist. I worry that a lack of interdisciplinary cooperation with my future field and the water preservation community may lead to tragedy at worst, or an onerous work burden on my generation's Electrical Engineers at best, not just in the Colorado River Basin, but those across the United States who will have to bear the loss of this power together, for better or worse.

As a Minnesotan, and as someone who has heard the suggestions of diverting the Mississippi. I am particularly bitter about the waste of this water in the service of petty luxury. California should not look like Minnesota. Nevada should not look like Minnesota. Arizona should not look like Minnesota. Colorado should not look like Minnesota. If the rich want the lawns, golf, lakes, and abundant water of Minnesota, they should move to Minnesota, and should not demand the mighty Mississippi bend to meet them. To believe that anyone in the Mississippi River Basin would ever agree to divert our river, our economic output, and our heritage, to participate in the futile exercise of attempting to terraform

a desert, is peak magical thinking. It's Minnesota Nice, not Minnesota bend over, and we're not actually nice, we're passive aggressive. We might be able to assist you in your water problems by passive aggressively sending you copies of Cook Country's water ordinances allowing pressurized grey water and composting toilets, but we are not sending you the Mississippi, and you should expect harsh grassroots political opposition to any plans to fix the water problems of the Colorado River Basin by digging a trench to the Mississippi. At least have the graciousness of implementing water austerity before having that audacity.

If instead, you spent a fraction of the trillions of advertising dollars it would take to have half a chance of convincing the Midwest to agree to build a trench to the Mississippi on funding water conservation research, and implementing the results of that research, you would get much further. Implementing research such as realizing the results of the University of California Merced study: Energy and water co-benefits from covering canals with solar panels, which showed that putting solar panels over canals both created energy, and saves water, should occur long before roping the Midwest into your problems.

Thank you

Amethyst O'Connell

[EXTERNAL] water levels

Cortland Brown <CBrown@parkhousetire.com>
Thu 6/30/2022 10:26 AM
To: CRB-Info, BOR <bor-sha-LCB-Info@usbr.gov>

Why cant we build a pipeline running water from the Mississippi river to lake Powell. We are running out of water and I don't think our elected representative if a dam about it.

Cortland Brown
Parkhouse TIRE, INC.

13655 Santa Ana Ave.
Fontana, Ca. 92335
Phone(909) 428-1415

[EXTERNAL] Colorodo Basin water levels

kasey@unitedonerealty.com <kasey@unitedonerealty.com>

Thu 6/30/2022 2:16 PM

To: CRB-Info, BOR <bor-sha-LCB-Info@usbr.gov>

To Whom it May concern,

I am writing to find out if there are contingency plans in place to raise water levels at Lake Mead and Lake Powell. In searching for answers, the only info I can find is water conservation plans.

While I understand you cannot get blood from a turnip, Does the Bureau have any ideas of how to save these lakes and possibly bring water in from other sources?

I believe the Bureau is open to suggestions, so my suggestion is to install a catch basin on the EAST side of the Rockies, to bring in additional snow pack melt into the lakes.

Please reply with an information I can read of plans the Bureau has in place.

Thank you for your time.

Kasey Van Lant

[EXTERNAL] Strategies for Lake Powell and Glen Canyon Dam

John Beesley <johnbeesley@hotmail.com>

Thu 6/30/2022 6:10 PM

To: CRB-Info, BOR <bor-sha-LCB-Info@usbr.gov>;Russell Merrill Beesley <tic1@kanab.net>

Please consider draining Lake Powell and install two large bypass tunnel that are designed with entrance and exit designs that allow boaters and rafters to pass through the tunnels. Provide lighting and ventilation in the tunnels to allow human transit and to handle the spring floods. Modern TBM technology could easily build tunnels on the order of 50 ft diameter. Leave the dam in place as a relic to history and in case it becomes feasible to fill the lake again someday.

Sent from Mail for Windows

[EXTERNAL] Request for Input on Development of Post-2026 Colorado River Reservoir Operational Strategies for Lake Powell and Lake Mead

daniel.cirignani@gmail.com <daniel.cirignani@gmail.com>
Thu 6/30/2022 7:58 PM
To: CRB-Info, BOR <bor-sha-LCB-Info@usbr.gov>

Bureau of Reclamation:

With respect to the "Request for Input on Development of Post-2026 Colorado River Reservoir Operational Strategies for Lake Powell and Lake Mead" (https://www.federalregister.gov/documents/2022/06/24/2022-13502/request-for-input-on-development-of-post-2026-colorado-river-reservoir-operational-strategies-for#addresses), please find below my input.

This situation with Lake Mead and Lake Powell is an emergency with the availability of water to millions and the global supply of agricultural goods in the balance – so it should be approached like an emergency. High-yield, reasonable-cost, fast-to-implement measures are required.

I note these facts i before providing my suggestion:

1. Los Angeles addressed similar but not identical problems with is reservoirs using "shade balls"
2. Lake Mead loses 600,000 acre-feet (195.5 *billion* gallons) to evaporation yearly (https://www.nps.gov/lake/learn/water-budget.htm#:~:text=Additionally%2C%20Lake%20Mead%20loses%20over,of%20water%20from%20the%20lake)
3. That is over **535 million gallons per day** (1643 acre feet) lost to evaporation

I suggest that we immediately:

1. Draw on funds earmarked for water conservation in the Infrastructure bill to ...
2. Pay for and deliver *tarps* to Lake Mead

Literally tarp the lake. Tarps can stop 95% of evaporation – completely tarping the lake can in theory conserve over 500 million gallons of water per day. We can't afford to wait.

We should likewise encourage Central Arizona Project to provide shading for its 336 mile canal. It's excuses for not doing so are decades out of date. It is not necessary to completely enclose the canal to reduce evaporation and current estimates are that the canal loses 60000 acre feet (19.5 billion gallons) to evaporation every year (53.4 million gallons per day) – which is enough to supply an entire city such as Mesa or Chandler in the Central Arizona district that CAP serves. There are low-tech, low-cost methods CAP can achieve this with that can be paid for with reasonable surcharges on water bills.

We shouldn't wait another minute – we should begin this effort now. Recreation at Lake Mead can return when the problem is better managed – for now as much as 50% of farmland stands to go fallow in the Mohave and Sonoran deserts when we already face supply chain problems that will result in dangerous food shortages next year.

Best wishes,
Daniel Cirignani Wood

[EXTERNAL] Colorado River managment

Bob & Kristen Rothrock <bkrothrock@gmail.com>

Thu 6/30/2022 9:37 PM

To: CRB-Info, BOR <bor-sha-LCB-Info@usbr.gov>

New management guidelines must inflict pain immediately. Otherwise the result will be a variety of bandaid approaches. I have lived in Arizona for 48 years. Folks who moved here were told that you could have 300 days of sunshine a year with no consequences. Those chickens have come home to roost. Living in the desert requires lifestyle changes. There will be weeping and wailing at first but your actions will be seen as visionary when we begin to live within our means.

Thank you for the opportunity to comment.

Bob Rothrock
Cottonwood AZ

[EXTERNAL] Colorado River

Jesse Wentker <jessewentker@gmail.com>
Fri 7/1/2022 8:08 AM
To: CRB-Info, BOR <bor-sha-LCB-Info@usbr.gov>

Hello,

I was born in Phoenix, AZ and graduated high school in Denver, CO. The Colorado river quote literally raised me from a baby to an adult. I could not have survived the desert without it. In middle school, my class to a trip and visited the Hoover Dam and Lake Mead. I remember how much water poured out of the dam, and how full the lake seemed. Our class canoed down the river, launching from the base of the dam. It was and awesome experience.

I look at pictures of Lake Mead now and it's nothing like I remember from my childhood, just a decade or so ago. You need to do everything you can to protect the lake and river that form the bloodstream of the American southwest. Crack down on corporations abusing our waterways. Institute new regulations on the consumer use of water. There is no reason for someone living in the desert to have a quarter acre or more of lawn grass. This is the twenty first century, we have turf grass if someone really wants it.

--
Jesse Wentker
602-513-1742
he/him/his

[EXTERNAL] Colorado River Comment

Pat E <pepenn@gmail.com>

Fri 7/1/2022 3:55 PM

To: CRB-Info, BOR <bor-sha-LCB-Info@usbr.gov>

I heard that over 85% of the river water and groundwater is used for agriculture. Here in Arizona many farmers irrigate with open ditches many unpaved, just bare dirt. It would seem that a good place to start would be getting farmers to improve their agricultural methods to conserve water and make better use of it.

Pat Penn

[EXTERNAL] How to rebuild water supplies on the Colorado River.

Josiah Cassetti <JCassetti@outlook.com>
Fri 7/1/2022 6:05 PM
To: CRB-Info, BOR <bor-sha-LCB-Info@usbr.gov>

This is going to be fairly long so I appreciate your time in advance.

This will be a massive under taking. It requires help from all the water pac states as well as Mexico and outside privatized help.

I apologize for not having graphs and power point presentations set up.

As you know, we (all the people in the water pack states) are outstripping the water supply of the Colorado River. This is not something that we can politick out of. The River doesn't reach the sea of cortez anymore. And water levels are at all time lows in damn areas throughout the region.

So we need to use a 4 prong approach. Each of these prongs are undertakings that are usefull in there own way, and will help to ensure the levels of the River in the future.

Prong 1) this is the development of what is known as water seeding. It requires government funding to fly planes through watershed areas upstream of major damns. It Is not 100% guaranteed. However if it works even 1/2 the time to improve rainfall under the correct conditions it is a win.

There are currently a few water seeding companies on the market with one being based out of Utah that we can work with. Start small and build out. It will take at least 3 years to do the cloud seeding experiments over low altitude watersheds. Before tackling the larger watersheds located in the Colorado rockies.

If the research and development go well
Not only will the Colorado River basin have water but it could be a viable endeavor for the rest of the world.

Prong 2) ground works. Finding the best areas to simply collect water and store it or divert it back so it can converge with other ground water sources. This also includes strategic damn openings that, in the

future coincide with Prong 3. I'm sure the ground works department has a lot of ideas.

Prong 3) is investments in desalination. Just straight up massive desalination projects off the coast of California ,But also realisticly off the coast of the sea of cortez, as Mexico is also a part of what needs to happen. Unfortunately this also includes building pipelines. Lots of pipelines. To pump the desalination water inland.

Building pipes takes time but a pipe straight up to a massive damn That operates 24 7 365 is a sure bet to keep that reservoir topped off and ready to open to send water down stream.

Prong 4) rain dances and religion. It's impossible to measure scientificly. But people have been doing it for millenia. Get with some people and get some rain dance ceremonies going. If it works it works if it doesn't then oh well, it boosts culture and cultural relations. Pray for rain as well collectively at churches and gathering. It's not stupid if it works.

Overall, it requires a lot of investment. There is no easy get water quick scheme. So these things have to start being set in motion now so that the bounty can be reaped by us in the future w

[EXTERNAL] Colorado river Water solution

Mac Marmon <marmon45@msn.com>
Fri 7/1/2022 6:08 PM
To: CRB-Info, BOR <bor-sha-LCB-Info@usbr.gov>

I suggest a pipe line to divert fresh water from the Other parts of the country. We add pipe lines for Oil why not water to fill our lakes from areas that have an abundance of freshwater. Like an aqueduct from the Mississippi River, or from Organ..

Thank You,

Mac Marmon
928-234-6813

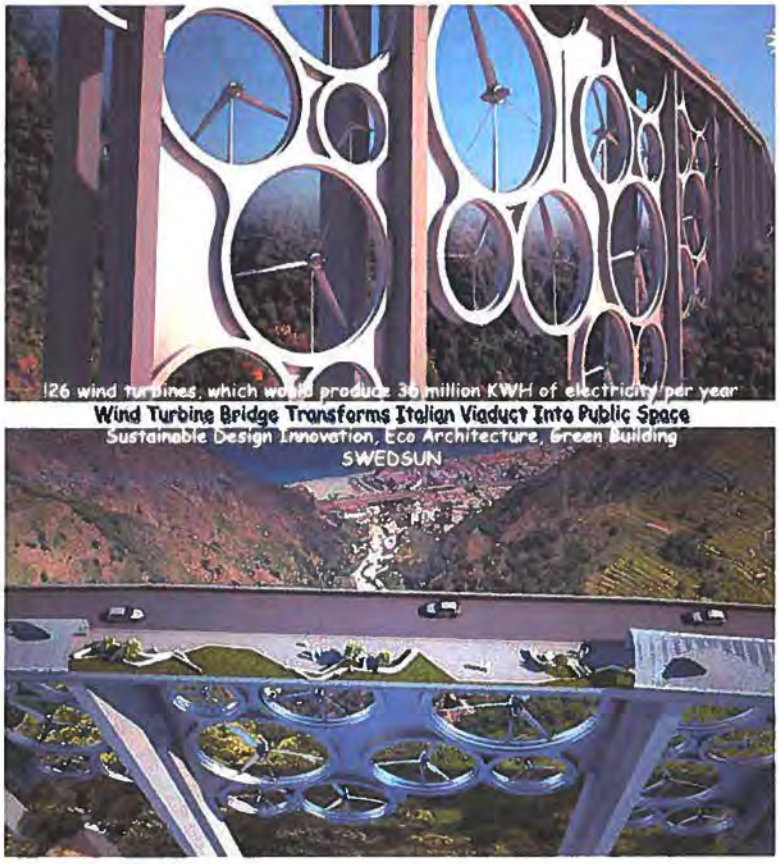
[EXTERNAL] Wind turbine corridor instead of water turbines For Lake Powell and Lake Mead!

ElaineSimplyEL <readbeequiet@gmail.com>

Fri 7/1/2022 6:41 PM

To: CRB-Info, BOR <bor-sha-LCB-Info@usbr.gov>

At Lake Powel the wind is plentiful. Page is nicknamed the "Windy Mesa!"
I believe climate change won't allow the Colorado River to last any longer. But if you want to keep the electricity flowing to millions of people to multiple states, here is an idea which the Italians have implemented to provide electricity. Replace the dam with this...perhaps Lake Mead also!



Elaine

[EXTERNAL] Instead of sending the huge amounts of water to China from the great lakes use that water to fill the reservoirs instead.

Bryan Smith <brywalsmi56@gmail.com>
Fri 7/1/2022 7:07 PM
To: CRB-Info, BOR <bor-sha-LCB-Info@usbr.gov>

Sent from my iPhone

[EXTERNAL] public comment on Lower Colorado Basin drought conditions

Patrick Anderson <wineshop@frontier.com>
Fri 7/1/2022 7:35 PM
To: CRB-Info, BOR <bor-sha-LCB-Info@usbr.gov>

Dear Bureau of Reclamation,

I am writing concerning the difficult decision that confronts your department due to the drought conditions currently faced in the American Southwest, as pertains to the five major dams that feed into the California, Nevada and Arizona regions: Flaming Gorge, Lake Power, Lake Mead, Blue Mesa and Navajo reservoirs. Clearly if projections are correct, this system will be under Full Pool and even operating capacity in the years to come. The only way to mitigate this is by short term drawing off waters upstream, until they are run dry, because we can't put more water into the system than nature allows, and by slowing down consumption. One way might be to mitigate evaporation in some way by covering these massive reservoirs to reduce evaporation, which seems like an impossible task that would also run into other problems, so that leaves conservation and reduction on the user end. Like instituting limitations on the growth of the regions to minimize drawn down, even a moratorium on growth and to institute rapid conservation measures for the long haul, such as making it illegal to plant yards requiring watering, like lawns, making houses more efficient so that they draw less electricity and reduce water impact to enable sustainable use of water and agriculture.

While these draconian measure will naturally be resisted especially in the anti-government and anti-regulation era we are currently in, without them these reservoirs will not only be out of water, but also out of power and the region will collapse rapidly and quite devastatingly for all involved. People need to be made to see that severe reduction and conservation is one of the only tools we have that can mitigate the inevitable outcome unless nature decides otherwise. General John Wesley Powell warned the US government that it was unwise to settle this region and remarked that it did not have the resource or natural capacity to sustain a large population. Since then we have attempted to use technology, industry and science to bludgeon our way into the region, over utilizing its resource beyond any natural capacity even without the current drought conditions. The massive and rapid growth of cities like Las Vegas, Phoenix and Tucson refuse to acknowledge that they are in fact fighting a losing battle. Tuscon suggests they can get by because they have been storing water underground, but when those wells run dry, they will have the same problems that our depleted aquifers have raised throughout the Midwest. Unless they start to conserve now, what might last 5-10 years without conservation and then be depleted for good, might last for a generation through slow draw down and very slow replenishment, giving people the time needed to rethink how to conserve their own communities with new modes of conservation and construction and land use.

It has been a real pity to see this country, which in the 1970's had so ardently pursued a national policy, of conservation of energy and gas and resource use, to have so easily abandoned it during and after the Reagan administration, and ever since then the notion of conservation has simply gone away with over extraction and bad resource management and even anti-conservation trends that over consume and waste energy, build bigger and less efficient cars and waste water and energy in building poorly constructed houses requiring massive energy use to cool them in the summer and heat them in the winter and water is wasted on lawns and in pools as agriculture is reaching a tipping point. This approach has driven the American economy and its resources to the brink and hardening natural conditions are exacerbating this. I would say this plunder and waste approach has built a very unsustainable economy and lifestyle that is on the brink of collapse on many levels. A very dark future awaits this country by its own negligent policies of getting rich quick, taking what one can without leaving anything behind and never thinking about the future or planning for long term investments.

And so my advice is to ramp up the efforts to remind people that they reap what they sow, and that the only way the Southwest can sustain itself in the long run and provide a still comfortable and decent life for people is to take drastic steps now to curtail the pain that is coming tomorrow. A radical reduction in usage can at least help the reservoirs recover or slow their depletion. The cost of all of this will add to the already growing inflation and cost hikes for energy, food production and cost of living. We needn't blame our parents and grandparents here, a great deal of this has been intensified just in the last generation or two, the last 30-50 years of over building without conservation or planning. After the 1930's and the 1970's you would think that Americans would better prepare themselves for such a crisis. But I guess Covid is but another reminder that Americans will need to learn the hard way, and then either blame someone else or simply deny the reality of the conditions in which they live. What that looks like when they have no water or no power is difficult to conceive.

Thank you,

Patrick Anderson
wineshop@frontier.com

[EXTERNAL] Colorado River Basin Water Plan Input

Nathan Sharp <nsharp8@yahoo.com>

Fri 7/1/2022 9:35 PM

To: CRB-Info, BOR <bor-sha-LCB-Info@usbr.gov>

Hello,

My name is Nathan and I am from Saint George, Utah. The water levels in the CRB are going to go down. It is inevitable. I think the best course of action is to have one reservoir get very low instead of releasing water from others to keep them steadily declining. I would let Lake Mead get very low which will garner the most national attention. The impending crisis will be covered by the nation media and the federal government be forced to provide funds and find solutions to the water issues plaguing the southwest. That is my 2 cents.

Good luck!

-Nathan Sharp

[EXTERNAL] Western Water crisis \ Lake Powel water.

Jaim Bojanski <kindnuguz@hotmail.com>
Sat 7/2/2022 8:40 AM
To: CRB-Info, BOR <bor-sha-LCB-Info@usbr.gov>

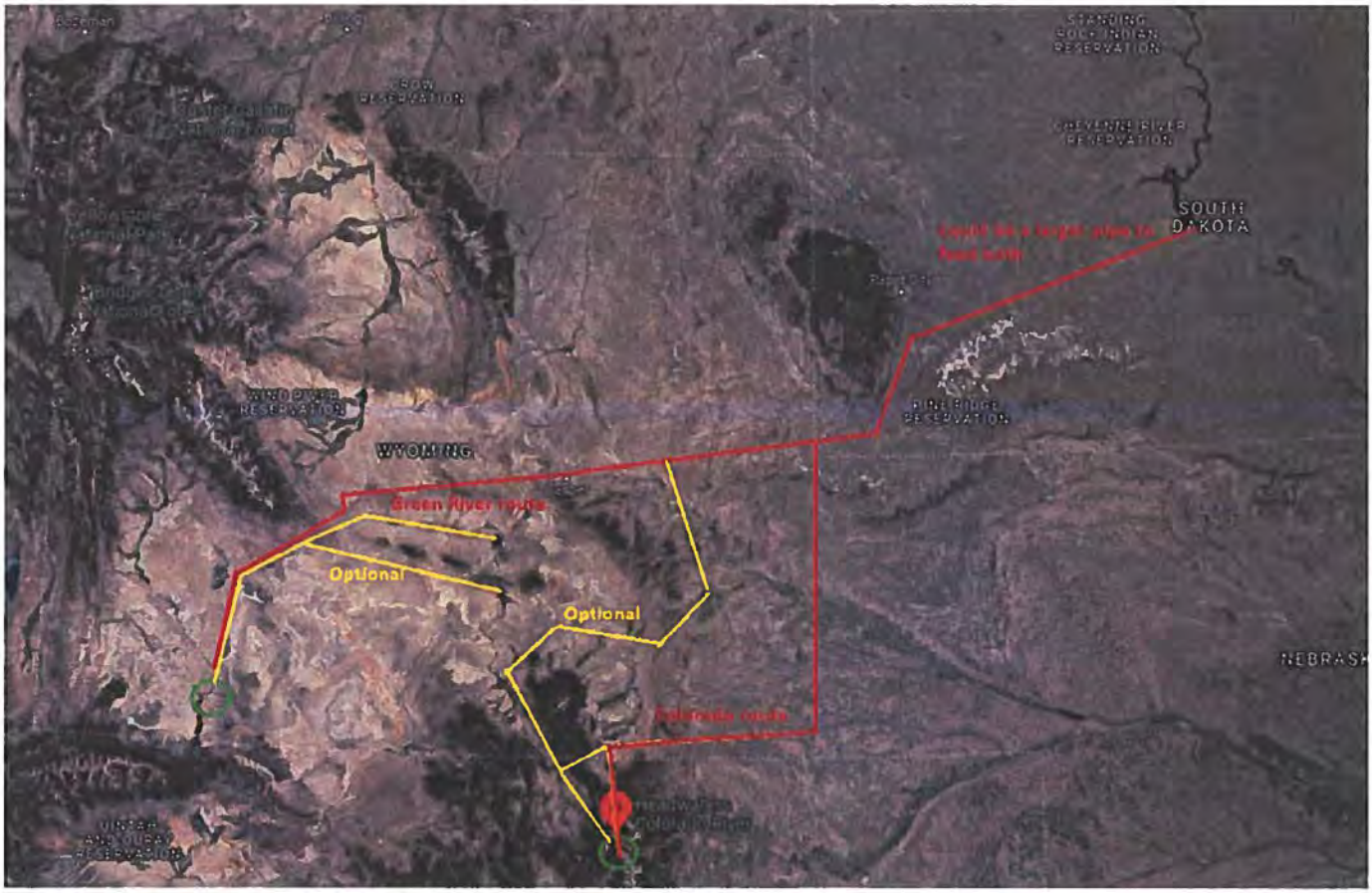
Hello there,

Emailing today because I seen a YouTube video about Lake Powel water levels and it indicated this email address wants to hear from the public about how to manage the water.

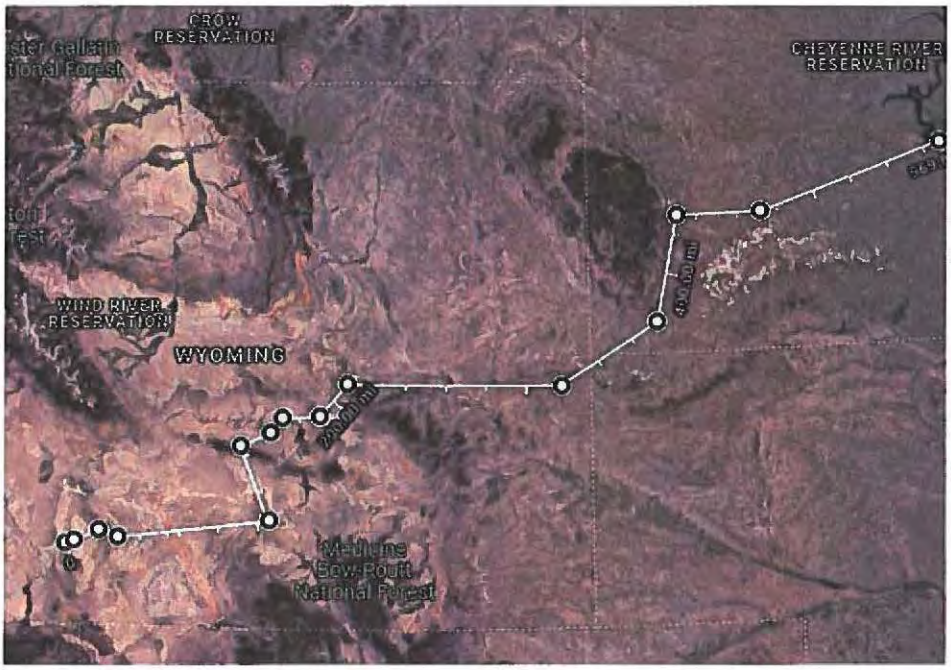
While I don't have comments on the current situation, my idea is more long term solution.

If Russia can build thousands of miles of pipe for oil and we can as well in Alaska, our only longer term solution will be a pipe from the Missouri River basin to either Green River or Colorado River start.

I personally think maybe the Green River is the better of the 2.
I looked up Missouri River reservoirs and most of them are well over 100% , some showing 200% meaning they are releasing so much extra water that ends up in the Ocean. But that's your job and the people reading this have a better idea at how much is where..
But here are some idea's of mine for a long term solution.



Green river route mileage



Colorado river mileage

Optional route mileage – this one wouldn't be able to push enough alone. It would most likely need more than just this pipe.

Without massive wells pumping more into the rivers I think our only solution will be a pipe from East to West.

We have a National Power grid now when we didn't 50? 70? years ago.
With water being as scary as it is , a National Water pipe line isn't too far fetched in my opinion.

Anyways maybe this can get some idea's rolling is all.

[EXTERNAL] Management of Colorado River Water Crisis

Robert Kumza <rkumza@q.com>
Sat 7/2/2022 9:13 AM
To: CRB-Info, BOR <bor-sha-LCB-Info@usbr.gov>

Dear CRB;

I believe the root cause source of the water issues we face today is the unrestricted continued development of residential land throughout the west. The following are the actions I think need to be taken NOW. The longer we wait, the greater the pain will be.

1. STOP all residential development in states, counties and municipalities that rely upon Colorado river water. If a home is currently under construction (i.e. the foundation is completed), then let the construction be completed, but stop ALL new building permits for residences that rely upon Colorado river water.
2. Immediately restrict water usage by all states that rely upon the Colorado river water to no more than the 90% of the average acre-foot gain for the entire system for the past 10 years. ALL states must suffer equally now if the solution is to be equitable and fair.
3. Start to manage the entire Colorado river system including Lake Mead, Lake Powell, Blue Mesa, Navajo, and Flaming Gorge as a SINGLE system.
4. Establish a goal to INCREASE the total acre feet of water stored in the whole system by 5% each year.
5. Monitor the above actions each year and adjust the plan as necessary.

Sincerely,

Robert Kumza
Saddlebrooke AZ

[EXTERNAL] Post 2026 Colorado River

Count De Monet <skywagoneer777@gmail.com>
Sat 7/2/2022 10:55 AM
To: CRB-Info, BOR <bor-sha-LCB-Info@usbr.gov>

Eugene Ostrowski
32 Staghorn St, Henderson, NV 89012

Hello

I think that the solution is quite obvious. Instead of a fixed amount of Acre feet of water allocated to states, the percentage of actual runoff should be used in planning the release of waters from the reservoirs. This will be unpopular to certain groups, i.e. farmers who currently use flood irrigation in the desert areas, but when there is no water, there is no water.

Thank you

Gene.O

[EXTERNAL] re: Lake Powell levels

Deb Reed <dlrb2018@gmail.com>
Sat 7/2/2022 12:04 PM
To: CRB-Info, BOR <bor-sha-LCB-Info@usbr.gov>

It's time to get real and stop bending to special interests!! As a longtime Denver resident, I'm well aware of these problems.

1) Restrict/eliminate grass lawns in the entire water-usage area. Promote xeriscape, period. The same would apply to most small city parks.
2) Halt use of water features and unnecessary electricity in Las Vegas.
3) Dry out the private swimming pools, fountains & other water features.
4) STOP issuing construction permits in the arid west!!!
5) Create incentives for agriculture to be more conservative, for example to NOT plant water-thirsty crops. It's CLIMATE CHANGE, and we have to accept it.
6) Decrease beef production.
7) Put large surcharges or volume limits on heavy water users.
8) Decrease municipal usage of electricity for unnecessary purposes such as Christmas lighting and other special events.
9) EDUCATE!!!
Everyone, everywhere, needs to deal with this. Not one group is being picked on. The people, the nation, and industry ALL need to make REAL concessions.
Unless, of course, no one really gives a damn about their grandchildren's quality of life. This may be the bottom line, frankly. (I don't even have kids...)
Most sincerely, Deborah Reed-Boden

[EXTERNAL] Public opinion on Colorado River water restrictions

Théo D. <theod.fb@gmail.com>
Sat 7/2/2022 4:14 PM
To: CRB-Info, BOR <bor-sha-LCB-Info@usbr.gov>

It seems that the USBR is seeking public opinion on actions to take, to handle the historic drought in the Colorado River water basin, (specifically as a mitigation of Lake Mead and Lake Powell' water levels).

As a California resident, I urge the USBR not to wait for California's politics to act and force real cuts on California.

Even as a California resident myself, I keep being flabbergasted by the lack of action to curve the drought here in California. Farms usage is tricky to handle, but residential usage is ridiculous.

All the headlines this year had "South California imposing great restrictions of water". One would think "Ah! Finally!".

Then upon reading the details, what does it mean? You can still water your useless outdoors lawn in the middle of a desert valley, once or twice a WEEK.

This is just a joke. Real water restrictions would mean something like this: you can't water your lawn AT ALL for the entire dry season, which is from May to late October. Your lawn might die? Yes, it probably will. Who cares? Your lawn will die and with it it will save the lives of humans.

California's population has grown entitled of being able to get away with anything water-wise. I urge the USBR to impose massive cuts to California so the Calofornians finally stop drying up the Colorado river with nonsensical, short-sighted and selfish behaviors.

The farms problem is similar - Nevada long ago forbid entirely the growing of cotton crops in some basins that didn't have enough water to sustain such agriculture, but California hasn't. And rice isn't a plant that's supposed to be grown in deserts.

Now is the West' last chance for redemption on blindsightedness around water usage. It won't work "bottom up", each state and individual will continue fighting for their own share, the USBR' historic power is to be able to override individual's interest for the interest of the entire group. Now is the time to stand up to this mission.

Best,
Théo

[EXTERNAL] Solution? What to do about water situation in Lake Powell

Steve Hunsader <steve@hunsader.com>
Sat 7/2/2022 5:02 PM
To: CRB-Info, BOR <bor-sha-LCB-Info@usbr.gov>

Dear sirs,

I just finished watching this YouTube video regarding lake levels in Lake Powell. It's apparent that it's getting more and more challenging to contain enough water in order to run the turbines and make electricity. I'm estimating that CURRENTLY all turbines are either running, or not running, and there may not be a way to shut some turbines off. BUT, as an engineer, this would be the first option for me.....reduce the amount of water used by shutting off a fraction of the turbines. I know nothing of how that water's being used downstream, but would EXPECT that it's all being used for agricultural or home use, so there'd definitely be other issues to address should one decide to cut back. BUT, turning off turbines all together would be worse than limiting the number of turbines since at least a fraction of the water would be available downstream.

Sincerely,

Steve Hunsader
Former businessman and entrepreneur
Steve@Hunsader.com
650-654-0800

[EXTERNAL] Urgent water level resolution plans

Brian Morris <brian_morris_001@hotmail.com>

Sun 7/3/2022 3:38 AM

To: CRB-Info, BOR <bor-sha-LCB-Info@usbr.gov>

Hi there, I have been watching this crisis unfold for a while now and understand the need for swift intervention in this highly volatile situation , we here in wales have a hydro electric facility called dynevor and it's function is , not only to generate electricity , but to use off peak power to refill the pool during the night or periods of low electrical demand from elsewhere on the power grid , the pool acts as a battery storing water for later discharge and generation which then is used to produce peak supply , already you can see the viability , in the case of Colorado electrical generation you already have a grid connection and the pool availability so water can be taken from discharge and pumped back to pool storage without too much hassle provided you make allowances for anti cavitation etc etc , but mostly my idea is to provide a solar garden and wind turbines if applicable very close to the dam , for exclusive use of pumping water supply back to main pool during the day at all times of max solar panel efficiency and that also allows for increased demand.
Wiring these to the grid could not be any cheaper as they would be so close to the existing grid feed from the dam .
For effect , the solar panels could even be affixed directly onto the front of dam if necessary if aesthetics ever come into it .
aas a back up and a fail safe a miniature nuclear reactor chamber similar to nuclear submarine / aircraft carrier could be built at a fraction or negligible cost , compared to projected losses , if not completed , to pump water from discharge to pool constantly , again with the option of working in revers to generate more power and to empty the lake more quickly in times of a water overfill or flooding , again grid connection is too easy because of maximum proximity to the existing grid . This should solve all problems and the expense is minimal as it would be a permanent solution , not a band aid , please help this information to get to the relevant agency as if it had been discussed already I would have seen about it on the World Wide Web , and I have looked for it , my name is brian morris and I am from Bridgend in South Wales UK , I hope this information will at least kick start some sort of rescue plan , glad to have helped if it does at least thank you for taking the time to read this Brian Morris

[EXTERNAL] Colorado River

C G <craiggaitan@yahoo.com>
Sun 7/3/2022 11:39 AM
To: CRB-Info, BOR <bor-sha-LCB-Info@usbr.gov>

My comments are as follows:

Restore the Colorado River back to the way it was in the 1950's.

The Colorado River cannot continue to be a source for generating electricity and water for the surrounding states for agriculture.

Growing crops in a desert environment such as Arizona and California takes a lot of water and it wasteful.

We need to reduce water released for agriculture by 15% per year for the next 10 years.

We have to preserve water which is a natural resource for future generations.

Thank you,
Craig

Sent from my iPhone

[EXTERNAL] How to manage the water?

Martina <mteomaya@gmail.com>
Sun 7/3/2022 1:45 PM
To: CRB-Info, BOR <bor-sha-LCB-Info@usbr.gov>

https://youtu.be/zSzIJc5G9Eo
To whom it may concern; I am responding to this YouTube request above.
I am a journalist living in Baja California. As you know we are the last on the water spigot governed by the 1944 treaty with the US.
In 2007 I began writing for the local news outlets about the water situation and our dependence on the Colorado River allotments. Even then in my research, the warnings were there! And now 15 years later, the government is asking the people? Don't you find this a little inconcongrous?

My question to you would be, why were you not listening for 15 years to the Native Americans who told you this was coming? However, there has been no will to come into alignment by those who sell the water and electricity. The theme has always been to sell to the highest bidder and hope it works out. Huge disgusting overuse for profit is so easy to see. Now you want the people to have a voice? When it is too late to fix it? Shutting down all boating recreation will be your next step. Will you make Los Vegas empty their lakes and pools first?
That is my suggestion; have Las Vegas give the river water back so they keep their suppy of electricity. I'll be watching and covering this story. It is too late to pray for rain and so what will be the government solution?
Good Luck!
Martina Dobesh
Freelance writer

[EXTERNAL] SUBMITTING OUTSIDE-THE-BOX SPECULATION

Don Hamrick <ki5ss@yahoo.com>
Sun 7/3/2022 8:35 PM
To: CRB-Info, BOR <bor-sha-LCB-Info@usbr.gov>

The Truth Behind Lake Powell's Water Levels

The Truth Behind Lake Powell's Water Levels

Maybe, just maybe, removing a few mountain tops and/or widening a few mountain passes will bring in moist air from the Pacific Ocean to mix with weather patterns in Colorado to cause an increase in rainfall.

My 2 cents worth. Best I could think of.

[EXTERNAL] FW: What it takes--Lake Powell / Mead Feedback

Rolf Schultz <rolfschultz@cox.net>
Sun 7/3/2022 9:57 PM
To: CRB-Info, BOR <bor-sha-LCB-Info@usbr.gov>

Sunday 3rd July

PS—I do have one main question:

With all the boat wrecks, trash, and higher sand bars creating a hazard to boating (which in itself may soon be a moot issue), are you making plans to "clean all this up?"

And on a former note, although it would be a shorter distance to tap into the Mississippi, I suspect there will be a lot of "in state political fighting" over that, which is why again I recommended Lake Superior.

Please acknowledge email.

Rolf Schultz
El Cajon, CA

From: Rolf Schultz [mailto:rolfschultz@cox.net]
Sent: Tuesday, June 28, 2022 8:49 PM
To: 'CRB-info@USBR.Gov'
Subject: What it takes--Lake Powell / Mead Feedback

Department Of The Interior Bureau Of Reclamation
[RR0304000.22XR068080.RX.187 86000.5004001]

RE: Request for input on development of post-2026 Colorado River
Reservoir Operational Strategies for Lk Powell and Mead:

What got me to thinking about this was a U-Tube video "How to Fix This; a 5:42 sec video, it was very informative, and well thought out. We are all aware of climate change on the Western USA, and so is the challenge on what will be done to address our water ways. I do not know "how far" the CRB authority is able to accomplish the following:

1. To first create a political will to do this on a national basis sense this will

be a truly national undertaking as was other national events in our nation's history (the Panama Connell for example). Although local stake holder states are already motivated on this, still—more political clout will be needed in the House and Senate. In other words, you have to come up with a game plane to "sell this politically."

2. Realizing the potential oppositions by tapping into "their water ways" to divert to the Colorado, Canada is a no go, their sovereignty issues and we would have no control. So it comes down to this, where "IS" enough fresh water to tap into?

Answer→ Lake Superior at Duluth to La Poudre Pass Lake, 1075 miles.
With the political pathway "plowed forward," basic issues will have to be addressed "how to eliminate" invasive species which will be a huge issue. If you use underground TBM's to create 12' D pipelines—engineering issues of hydro static pressures, earthquakes, and other issues OR stay above ground with a pipeline system. It takes a lot of energy to pump the volumes of water were talking about, but it's not an issues you have not already addressed with the California Aqueduct on a lesser scale.

Once a well thought out path, cost (this will be the main issue), engirineering approach, energy approach (dedicated solar farms per each transfer station to mitigate the power grid draw) plan is drawn up, then you can sell it politically.

Yes, time is working against us all (what is it, some 6' drop per month in Lk Mead alone?). How fast could this be undertaken? Well, what would be the consequences of inaction? Cost—sure to be front and center, $800 Billion? Does it really matter? How "motivated" is everyone? Is that rally an issue given the way we spend money in the US and abroad?

Reasoning behind this proposal:
1. There is simply not "enough" fresh water else ware, and the shortest distance between the problem and the answer is a straight line. Its some 1,928 miles from Duluth to the Colorado, but only 1,075 miles to the headwaters of the Colorado, Lk La Poudre Pass—or In that geographical vicinity.
2. If alternate rivers were tapped such as the Mississippi, you would never here the end of it from Louisiana affecting their delta.
3. Ralph Parsons did not take into account the political opposition Canadians would have over diverting water to the lower states, besides—we would have no say in the game.

Summary:

Your bureau is "best equipped" to run point on this, it just comes down to one real issue, "political will." Climate change may be permanent, with no realistic hope of re-filling up lk Powell and Mead. When I was once a pilot, the engine gave out, so the cost of inaction would be worse than the cost of "best case" action. I now love to fix up homes, and deal much the same pragmatic way in addressing issues as we all do in life. I wish I were wrong
in my outlook on future issues with our water systems here in the West, but is it not better to do something with sound
reasoning than to put a temporary political band aid on it? **The entire West Coast Region rests in your collective hands!**

As for "how fast this could realistically be accomplished", we as a country would have to view this with a WWII mindset,
do or die, full speed ahead with everyone working on their respective areas of expertise. If China can do similar things,
we can do it better—don't you agree? Political Will opens the money valves, and offers a great back up to seasonal

snow melt runoff. To the directly involved states that are stake holders in this, failure will not be an option. How realistic
am I really? Well if we were (and we just may be in the next few years) in a war with China, how fast do you think we would
all get off our asses to move heaven and earth to get it done?

Rolf Schultz
June 28, 2022
www.Handyman-Services.Biz
C 619-322-7378

[EXTERNAL] Input on Development of Post-2026 Colorado River Reservoir Operational Strategies

Mark Perantie <mperantie@yahoo.com>
Sun 7/3/2022 11:03 PM
To: CRB-Info, BOR <bor-sha-LCB-Info@usbr.gov>

To whom it may concern:

I am offering my comments in response to your June 24, 2022 Request for Input on Development of Post-2026 Colorado River Reservoir Operational Strategies for Lake Powell and Lake Mead Under Historically Low Reservoir Conditions. I do not have any special qualifications to give my comment authoritative weight, but I have been following the situation closely since 2007 and advising friends to not move to the Colorado River basin since that time. This "drought" is a slow-moving climate catastrophe that has been the apparent to anyone with eyes for many years now.

Despite decades of climate talks and promises, global atmospheric carbon and carbon equivalents (such as nitrous oxide) continue to rise. Indeed, the rate of the rise has increased and has likely crossed thresholds at which atmospheric carbon will continue to rise even if mankind were to miraculously cease emitting (never going to happen) due to the melting of permafrost and release of methane clathrates from shallow oceanic shelves such as the Eastern Siberian Arctic Shelf. In short, any plan that does not account for a worst-case scenario in which the drought continues and gets worse is a shortsighted manifestation of human hubris.

Pursuant to the obvious potential for a substantially worsening disaster, any plans the Bureau of Reclamation should account for the inevitable crisis levels of water shortage. Honestly, the scope of this disaster exceeds the Bureau's responsibilities. Farming in the desert must be abandoned yesterday. When electricity generation is diminished and water ceases to flow from the taps throughout the Colorado River Basin, we will have a massive humanitarian crisis on our hands that will make Hurricane Katrina seem like a pleasant picnic. When people abandon their properties to migrate to areas with water, there will be catastrophic levels of disruption. Banks will fail from being overwhelmed by mortgage defaults on suddenly worthless properties. Insurance companies will be tested. Companies will fail due to losing workers. States with better climates will be overrun by migrants. The true magnitude of the crisis is impossible to imagine.

Coping with this disaster will require massive coordination with FEMA, the National Guard, and other resources. Our nation's leadership has been woefully incompetent in preparing for this inevitable catastrophe on both sides of the aisle.

In the short term (to buy time for an orderly evacuation), farming the desert needs to stop, watering lawns is idiotic, swimming pools and fountains need to be closed and/or relocated to areas without water crises, golf courses should be closed, low flow toilets and faucets need to be mandated, and rationing programs need to be explored. The old Colorado river compact needs to be recognized as being founded based on sham data from an unusually wet period of time and torn up / renegotiated.

Good luck! You're going to need it.

Best regards,
Mark Perantie
Concerned Citizen
469-556-0591
mperantie@yahoo.com (preferred method of contact)

[EXTERNAL] Propose water concervation issues

Carolyn McBride <macncarolyn@aol.com>
Mon 7/4/2022 9:10 AM
To: CRB-Info, BOR <bor-sha-LCB-Info@usbr.gov>

My wife and I have provided some potential water conservation solutions.
Thanks

Water Conservation Concerning the Southwest

To whom it may concern:

These are just a few ideas to conserve/save water:

1. Start restricting housing developments. Eliminate lakes from communities.
2. Establish a moratorium on swimming pools. Or require spools rather than pools.
3. Stop installing irrigation systems in government/residential common areas; medians, etc. Use fake grass for looks. Save water & maintenance costs.
4. Develop additional reservoir's; Loosen environmental restrictions.
5. California, Oregon & Washington should take advantage of their coastlines and build desalination plants. Especially southern California. And from Baja to Arizona.

A bigger picture:

6. Build pipelines, or canals from the Columbia River to California. California tried to buy water from Ore & Wash two or three decades ago. The Northwest States wouldn't have it.
7. With all the Billions of dollars this country gives away to other countries we could help reduce water problems/flooding, etc. by building canals/pipelines in many

flood-prone areas of the country to huge reservoirs/lakes in drought areas. We built the interstate highway system. Use some of that as a template.

[EXTERNAL] Colorado River Management

Michael Dean <rogue74656@gmail.com>
Mon 7/4/2022 1:58 PM
To: CRB-Info, BOR <bor-sha-LCB-Info@usbr.gov>

Good day!

As an environmental science teacher, this is a subject that is important to me.

After teaching this topic for close to 20 years, I understand that stakeholders have competing interests, but EVERYONE must bow down to reality.

The reality is that we cannot keep allocating more water than is available. Allocation must be based on actual amounts, not some wishful thinking. In addition, we need to allow for some water retention to build up resources for the future.

I see what has been happening as an instance of the tragedy of the commons effect.

1) decrease all water allocations from the Colorado river by an equal percentage.

2) The total of all allocations for the next year should be (my suggestion) 90% of anticipated flow for that year.

3) Those entities who manage the water supply to use LESS than their allocation should be allowed to sell the excess to other entities and not receive a reduced allocation in future years for these savings.

Just the thoughts of a simple science teacher....

-Michael Dean

[EXTERNAL] A new approach.

Muriah Covey <coveymuriah76@gmail.com>
Tue 7/5/2022 10:06 AM
To: CRB-Info, BOR <bor-sha-LCB-Info@usbr.gov>

When has it ever worked out in our history that one big super facility or complex can support and produce enough for millions and sustain its orderly working environment?

I suggest that a chain of hydro electric dam systems added in key locations to assist the energy crisis be implanted.

Now I'm no expert but I know that in business when you have a big business you need more than one manager to keep the business affloat.

[EXTERNAL] Drought

Ted Spencer <noluck33@yahoo.com>
Tue 7/5/2022 5:28 PM
To: CRB-Info, BOR <bor-sha-LCB-Info@usbr.gov>

Force IDIOTS to stop watering grass and other plants that are not needed, if it is not food stop watering it daaaaa!!! This should have happened 20 years ago!!! Stop All of the new homes construction!!! They are building as fast as they can, it MUST STOP!!!

Thanks

Ted Spencer Sr.
Yuma, Arizona 85367
E-Mail: noluck33@yahoo.com
My URL: google.com/+TedSpencerSr
Enjoy your Freedom? Thank a VET!
REMEMBER Freedom isn't Free!!!
But Its Worth Fighting For!!!
And Dying For!!!

"Those Who Do Not Learn History Are Doomed To Repeat It."

"No free man shall ever be debarred the use of arms.
"When the people **fear** the **government**, there is tyranny. The strongest reason for the people to retain the right to keep and bear arms is, as a last resort, to protect themselves against tyranny in **government**."
-Thomas Jefferson, Proposed Virginia Constitution, 1776, Jefferson Papers 344

A man with a gun is a citizen, a man without a gun is a subject/slave.
Our forefathers knew this to be true..... Why do so many of us question their wisdom? -D. Michael Wiechman, May 14, 1996
Remember a person without a Gun, and his freedom is a Slave!!!
First Steps to becoming a Free Nation Again! We need to withdraw from the U.N.
We need to disband the D.H.S.!!!
We need to put that money in our Army and Country!!!

Doesn't Make Much Sense Does It?
Elderly go without needed medications.
Military go without proper equipment. Veterans go without benefits that were promised. Yet we donate Billions to other countries and excessive immigration before helping our own first!!!

The Only Thing That Stops a Bad Person With A Weapon!
Is A Good Person With A Gun!!!
Remember Police cannot prevent a Crime, because they are not there!!!

SUPPORT YOUR POLICE!!!

Keep Your Pets Healthy & Happy ... Have Them Spayed or Neutered!

[EXTERNAL] Colorado River water usage

David McDaniel <david@mobile-360.com>
Tue 7/5/2022 9:08 PM
To: CRB-Info, BOR <bor-sha-LCB-Info@usbr.gov>

First of all, thank you for all you do! I do believe you are all doing the best with the water situation as it is.

What I do think is the only realistic solution is to cut people's use of water for non-essential items. Maybe what needs to happen is have separate meters put on people's lawn sprinkler systems and charge them triple or quadruple for water being dumped on the lawn.

I just think that we as a society need to get smarter about where we use water. Also, potentially work with agriculture to not grow water intensive crops in arid climates, like alfalfa etc.

Thank you,
David McDaniel
Centennial, CO
720-515-3373

[EXTERNAL] Poor Water Utilization

perry foster <williamperry666@yahoo.com>

Wed 7/6/2022 2:30 AM

To: CRB-Info, BOR <bor-sha-LCB-Info@usbr.gov>

Dear Sirs, I lived at 317 W Holly St in Phoenix 1998-July 2004.

Before I left i stopped all "outside" or Landscaping water usage, except for two citrus trees. Water usage was reduced from over 200 gallons a day to 52 gallons a day.

52 gallons a day? For one person, in the middle of a desert? Reasonable?

The City of Phoenix came to the property to inspect the water meter. Instead of receiving some kind of reward or recognition, They assumed the meter was "Broken".

The water flowed inches high from the nearby homes down the gutter on a regular basis, more than once a week.

After I left, the new owners "put in a Lawn".

I paddled my new Kayak at Lake Mead, February 1999. The water level was "Full Capacity", with water travailing over the overflow slipway.

<Situation Critical> Sever restrictions of Poor Water Utilization should have been put in place 20 years ago.

~wp

[EXTERNAL] Colorado river

Maxwell Hanson <lukehanson0711@icloud.com>

Wed 7/6/2022 12:08 PM

To: CRB-Info, BOR <bor-sha-LCB-Info@usbr.gov>

Their should be more dams and/or ponds. This will increase surface area of water in the west creating more evaporation to increase rainfall.

[EXTERNAL] Colorado River strategy

John Guzik <johnguzik@me.com>
Wed 7/6/2022 12:33 PM
To: CRB-Info, BOR <bor-sha-LCB-Info@usbr.gov>

Hello,
I have never done anything like this and hope to help. I am elated to see that there is a discussion being held on what to do with this more than dire situation as it pertains to water and the Colorado River.

I think we are already far behind and time is not on our side. I think the solution is simpler than what most make it out to be and we need a man like Elon Musk to see the solution through.

Some ideas:
1- The Missisippi river floods annually. Divert the river to the Colorado. Simplest way in my opinion in to route a pipe alongside the railroad tracks. This eliminates the issue and years of litigation over eminent domain. Routing the excess water from Mississippi will help those people that live alongside the river as well. It is only about 1,000 miles. If the private industry can build a pipline for oil from Canada to Mexico, this should be much easier to pass AND is much safer! A break in a fresh water pipe is nothing like a break in crude oil!

2- Use government funds build desalination plants to desalinate 100% of the ocean water to fill the needs of **all** Californians. If many of the European nations can do it successfully, why can't we? This will eliminate much of the stresses we are putting on the Colorado river by using CA's allocation to fill the needs of NV, CO, UT, AZ and the tribal nations that depend on it today.

3- Option to idea #1, would be to use Elon Musk technology with the Boring company and bore a tunnel underground to fill the Colorado River at its start in Northern Colorado.

From what I have seen all options are viable. I like to think I'm an environmentalist as well and know that some would not like invasive fish and other algae or anything else that exists today in the Mississippi to be added to the Colorado but I would ask "what is the lesser of the two evils?" Water is a precious commodity that trumps any worry of an invasive species.

I think it'd be great for those in the west to be able to have lush green lawns again and take long showers, let kids use slip & slides, bring agriculture back to the US by allowing farmers more water,

create more hydropower electricity via increased water flow... the advantages far outweigh any negative.

We need to do something as more people are coming to the Southwest and will need water. Water rationing is NOT the answer. Rainfall will be less and less annually so let's prepare for it. The worst case is the reservoirs fill up and we have to release more water!

Happy to help in any way to promote these solutions.

My phone number is 760-672-6222. Let me know what I can do!

Sincerely,
John Guzik

[EXTERNAL] Lake Powell & Lake Mead Water Management

Kent Pull <kentlpull66@gmail.com>
Wed 7/6/2022 3:21 PM
To: CRB-Info, BOR <bor-sha-LCB-Info@usbr.gov>

Greetings,

As a Colorado Native living in the Colorado Rocky Mountainous since 1966, all indications that our 22 year drought is going to get worse.

Will over 40 years of resource management, advanced material reinforcement new product development and failure analysis engineering experience, I suggest building large desalination plants in California, then pumping water to Lake Powell which will act as a massive water & energy storage facility.

The electric water pumps can be driven by solar and wind turbines and hydro electricity produced by both Lake Powell and Lake Mead.

This is the only practical solution to keep water flowing through the hydro turbines and enough fresh water to continue to flow through the Western water distribution systems.

Colorado is simply running out of water for its own people as well.

Respectfully submitted,

Kent Pull
Colorado Springs, CO
719-639-8787

Success Is No Accident, it's Proper Engineering by Design

[EXTERNAL] Colorado river usage

Alex Nofzinger <alex@nucrue.com>
Thu 7/7/2022 11:57 AM
To: CRB-Info, BOR <bor-sha-LCB-Info@usbr.gov>

70% of the Colorado river usage is for flood irrigation for crops that need way too much water than the river can sustain. You need to stop these farmers growing crops that are not native to the areas and cut the usage of water for things like golf courses. Will it fix the issues completely no but with stop the bleeding a lot
Sent from my iPad

[EXTERNAL] Water level

Debbie DeLoach <debbydlch@gmail.com>

Fri 7/8/2022 11:59 PM

To: CRB-Info, BOR <bor-sha-LCB-Info@usbr.gov>

Could some of the deeper parts of the colorado river be shallowed up to divert the water level to where it is needed?

[EXTERNAL]

Personal <sdwarnick@comcast.net>
Wed 7/6/2022 3:25 PM
To: CRB-Info, BOR <bor-sha-LCB-Info@usbr.gov>

Lake Powell water levels

Sent from my iPhone
I thought that drought was measured by lack of precipitation. The media has been instructed to sell the idea of drought is measured by the resivour discharge. Farmers in california are subsidized for not growing crops. The government then says to maintain your water shares you still have to water you land. It's a man made water shortage from poor management. Same holds true in utah. Kennecott cooper has a contract with salt lake county to supply so much water. The column is never used. However the supply line is never turned back. Environmentalists should understand the importance of maintaining a backup water supply.

[EXTERNAL] We need more water

Chris Fazendin <totalpi@yahoo.com>
Sat 7/9/2022 7:51 AM
To: CRB-Info, BOR <bor-sha-LCB-Info@usbr.gov>

The Colorado River system was a raging torrent in the 1900's. A series of dams & reservoirs were created to control the flooding & store the excess from up years to be used in the down years. As population & agricultural use has increased in the Southwest, the Colorado River can no longer sustain the reservoirs & the demand for Nevada, Arizona & California, also into Mexico. Also note that most of the power generated from these dams goes into Southern California. Colorado river system needs to be supplemented somehow. People talk about pipelines from the Midwest, this doesn't seem feasible. Note that the Green River feeds into Lake Powell, ultimately supplementing the Colorado river system. At the Grand Coulee Dam the Columbia river is approximately 300 miles from the Green River. This is a very short pipeline project, it runs up and over one small mountain range. Experts say once you pump the water up & over this mountain, it will siphon naturally, requiring no electricity to pump, all the way to the Green River. Also along the pipeline turbines can be installed to generate clean electricity for farms & ranches & small towns along the way. Issues with connecting these two river systems, in regards to invasive species, the risk is very low, if salmon where to find their way into the Colorado river system, salmon could survive in lake Powell & Lake Mead. Politics would play a huge part in this. California is the state that needs the most water, this project needs to be seeded into California politicians, as they will have the most power and influence to get a project like this going & ultimately completed & operational. We need a huge campaign targeting, the SNWA, the Colorado river Authority & all jurisdictions in Southern California that rely on water from the Colorado river, Inyo county, Mojave county, San Diego county & Los Angeles county. We need to generate an email campaign & lobbyists that can communicate with potential politicians, board of trustees for these commissions that have control over the Colorado river water. Is there a billionaire that owns land along the potential pipeline route that can be an asset for this project from that area? To give everyone an idea of the flow needed, 10-60"pipes running at 25 psi into the upper Green River would supplement the Colorado River by 1% of its current flow, 2% would be a solid target. The current flow rate of the Colorado river is 22,600 cu. ft. per second. This flow could be managed higher & lower to match the current Green River flow rate.

Start the emails here:

CRB-info@usbr.gov

As everyone learns new contact points for this campaign post them here.

Save California! We need more water & power

Chris Fazendin

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[EXTERNAL] Request for Input on Development of Colorado River Reservoir Operational Strategies for Lake Powell and Lake Mead

Christina Karlhoff <ckarlhoff@gmail.com>
Sat 7/9/2022 9:13 AM
To: CRB-Info, BOR <bor-sha-LCB-Info@usbr.gov>

The management of water up to this point is in need of vast improvement. It is obvious that something must be done to regenerate, restore, and retain the Colorado River and the vast ecosystem that has been slowly eroding away due to the unforeseen negative effects of human engineering. Complicating the issue with even more urgency is the Western US dependency on Hoover dam for its power needs. That the Colorado river no longer flows to the Pacific has resulted in the vast degradation of the entirety of the Western United States and its potential to sustain the use of other natural resources. This water crisis is an opportunity - a wake-up call for modern-day agriculture practices and those who work with and manage land-based resources.

For those whose minds are mired in money, and business decisions and following the orders mandated by executive decision, here is a necessary reminder: Life depends on water. Focus must be upon long-term sustainable solutions that benefit the land and its natural ecosystems. No problem can be solved from the same level of consciousness that created it -- Piping water from other sources such as the Mississippi river to the Colorado river is NOT going to be cost-effective nor beneficial to either river; it is a non-solution.
Why? Because the aim is not only for more water in the reservoirs: A viable solution must include developing environmentally friendly technologies, implementing a green economy and achieving the saving of energy and water. The effects of investing in building natural ecosystems will not only raise water tables but restore biodiversity and quite literally contribute to healing our precious environment.
Ideal solutions to water resource management are going to come from a better understanding of natural cycles and heeding the advice of the environmental scientists and permaculture engineers that have a track record of reversing land degradation by restoring desert wastelands to their former glory.
A recent example of this can be seen in Mexico, where a small remnant of the vast Colorado river delta was recently restored.
From Hope to Reality: The Colorado River Flows to the Sea - YouTube
A pulse of water revives the dry Colorado River Delta - YouTube
Restoring the Colorado: Bringing New Life to a Stressed River - Yale E360

The logical course of action begins with those that have been successfully reversing drought and land degradation. Enlisting the help of ecosystem experts such as Goeff Lawton, Bill Molllison, John D. Liu, Richard Perkins, and dozens of others who, for decades, have successfully reversed land degradation on millions of hectares of land in places such as the Gobi desert in Mongolia, China, sub-Saharan Africa, Australia, Brazil, Saudi Arabia and many other countries.
We can transition to nature-mimicking sustainable agricultural practices now. Farmers that decided to stop using conventional fertilizers in-favor of building healthy soil naturally now see 1,700 beneficial species of insects for every 1 pest in their fields after 1 growth season. And their previously exhausted soils now easily sustain crops as a direct result of building swales which cause empty aquifers to flow with water once again. There are dozens of places around the world affected by enlightened permaculturists who have been working tirelessly on actively reversing centuries of agricultural practices that have denuded the landscape leaving the soil devoid of life. By engaging eco-friendly practices the results can be seen in as little as a year.

Realize that the solution is simple: Mimic Nature.

In Arizona, the Central Arizona Project canal shows how the raised canal structure has inadvertently become a major water harvesting swale that stretches across a wide landscape, and is one of the broadest examples of a desert swale in existence...all by accident!
This illustrates the point: Mimicking nature is profoundly important, and ignoring this fact has its consequences. Sadly, a group of decision makers, unaware of the natural benefits of the vegetation, decided upon the wholesale removal of cottonwood trees along the canals in metro Phoenix because they were considered 'water thieves'. They later realized the exact opposite is true - that the trees actually prevented more water loss by evaporation than human consumption, in addition to the other benefits of trees, especially in the desert. This accidental forest can be seen from space along the man-made canal...no one had planted a single blade of grass - yet nature responded automatically. The naturally occurring plant life reduces the 5 billion gallons of water evaporation per year in the desert climate.
This is the new approach - upon which to focus reservoir operational strategies - to reduce water evaporation on a large scale to retain water levels in the most efficient and cost-effective manner possible with zero negative externalities.
Take heed: It is a no-brainer to begin construction of swales at various points along the existing waterways - the Green, Yampa, Gunnison, San Juan, White, and Colorado rivers and along each of the various tributaries. Start this year before the snow and see results sooner rather than later. Eventually nature will take over - biodiversity will return and the water will flow again.
Once positive results are evident, further improvements can be made by continuing to build swales along the natural riverbeds from the Colorado Plateau to the Sonoran Desert in southern Arizona. Other worthy ecosystem projects include creek restoration, beaver reintroduction at strategic waterway points and similar ecosystem restoration in surrounding farmlands.
In Wisconsin: conservation groups along with city officials and citizens developed plans in the late 90's to remove eleven low head dams along the Baraboo River. In October of 2001, the Linen Mill Dam was removed, resulting in a free-flowing river that had not been seen there since the 1930s resulting in unprecedented improvements to the water quality, fisheries, and adjacent communities.
In the Arabian desert microclimates are being generated by solar water farms, and new desalination technology is being built, with which byproducts such as lithium can be extracted. If you were unaware of such technologies, now is the time to investigate the myriad effective ways that actually exist to sequester water and reverse land degradation.

Below is a list of relevant videos on the aforementioned. I trust that you, reader, will consider them as an educational incentive to think outside of the finite industrial economic box. With a little ingenuity and innovative eco-friendly know-how engineering, successfully raising the water table region by region is quite possible.

Lives depend on water and an abundance of natural resources. America's place in the world depends on thriving resources. And, there are literally thousands of Americans that would happily volunteer their time and efforts in such an important endeavor. Happy environment, happy farmers, happy people. Successful resource management, successful country.

Aspire to be successful by investing in natural ways to manage resources and let America remain a land of abundance and opportunity for all.

Thank you for your time and consideration.

Christina M. Karlhoff
USA

References (by no means an exhaustive list - there are many more current real-world examples out there)

The Canal that Accidentally Grew a Forest in the Arizona Desert - YouTube
Geoff Lawton Arizona Transformed with Swales - YouTube
Want to Solve Wildfires and Drought? Leave it to BEAVERS! - YouTube
Running Free: The Baraboo River Restoration Story - YouTube
Getting Water by Sunlight | Solar Dome Project - Saudi Arabia | NEOM - YouTube
How this seawater desalination technology will change the world - YouTube
How China Turned the Desert into Green Forests - YouTube
About Regreening Africa | Regreening Africa
How Saudi Arabia Is Turning Their Desert Into Green Forest - YouTube
Aral sea | The difficult return of water - YouTube
Man Spends 30 Years Turning Degraded Land into Massive Forest - YouTube
Justdiggit: Restoring dry land in Tanzania | Global Ideas - YouTube
The Biggest Permaculture Project on Earth! Paani Foundation - YouTube
Keys to building healthy topsoil (BUILT IN 3 YEARS!) S4 • E81 - YouTube

[EXTERNAL] Colorado River public comment

mza320@aol.com <mza320@aol.com>
Sun 7/10/2022 3:33 PM
To: CRB-Info, BOR <bor-sha-LCB-Info@usbr.gov>

Dear Madam or Sir,

I wish to comment on the current status of lake Mead and Lake Powell and offer my perspective as a longtime resident of Las Vegas who left the Desert for the Great Pacific Northwest some 30 years ago .
I moved Las Vegas in1968 and left in 1990 so I saw over two decades of the rapid growth of that region . I also return to visit on an annual basis so I continue to stay current on the issues in the area .
With the rain and snow pack in the Rocky Mountain collection region at a deficit for twenty years it is obvious that this fox has been knawing at the henhouse door for twenty years and now the parties whom have had the power and responsibility to manage this resource are now panicking to find a solution .
When I bought my first little house in Las Vegas in 1988 the city was crying " not enough water or power , cut your consumption " so the general public did . Many people tore up their lawns and put in rocks and desert landscaping , all good moves . But did the city or county restrict any golf courses or stop the construction of man made lakes or gigantic pools in front of the casinos ? NO !
They just took the money that these developers handed them under the table and stamped the project " APPROVED " .
But you regular serfs you stop using water so Steve Wynn can piss it away into the air and also have his country club to retreat to when the blistering heat and sun become too much . Las Vegas may not be run by the Chicago Mob anymore but it is still run by mobsters and they get what they want from and government regulators the old fashioned way .they buy it !
Another mob is the California Ag conglomerates . They suck the earth dry as they claim they are essential to feed the world . What a bunch of bullshit .
Until you people step up and take on these greedy water users there will be no change to the recent rate of depletion in the Colorado basin water shed . Blaming global climate change is a cop out just to cover your ass for incompetent management . Are you all on the TAKE also ?
If I was the Czar of the Colorado River I would Implement an EMERGENCY order to cut water consumption from EVERY user by 30% . Stop issuing building permits for golf courses and swimming pools . Require any existing golf courses in AZ, NV and southern CA to reduce water consumption by 50% and all existing pools be drained unless reasonable water conservation efforts such as covers to reduce evaporation can be achieved .
It's time to stop selling the next generations basic necessity WATER to the highest bidder for a short term monetary gain .

In the 80's the populations of the user regions was at an optimum level, that level needs to be revisited . Stop the growth of So Cal , Las , and PHX until alternative resources can be built to supply the basic needs , water ,power and septic.
Stop the pussyfooting around and act , thats what you get paid for !

Sincerely
Mark Zack
Happy well owner in the PNW .

[EXTERNAL] HELP LAKE MEAD

tbennow@yahoo.com <tbennow@yahoo.com>
Sun 7/10/2022 9:17 PM
To: CRB-Info, BOR <bor-sha-LCB-Info@usbr.gov>

You have to help lake mead.dont let die. Stop talking the Superior Lake wanted to China and put it into our own wake system people in America need it so why don't you take the water from the great lakes and stick it into the reservoir system so you can have the power and we have our water but trying to find them water someplace else do your job for America

[EXTERNAL] Colorado river system

Michael Wilson <mwwilson70@gmail.com>

Tue 7/12/2022 1:58 PM

To: CRB-Info, BOR <bor-sha-LCB-Info@usbr.gov>

Hello,

I ask that you please go back to the beginning of talks about this reservoir system and study the research that was done. It was noted back then that this river system, and it is just that "a river system ," goes through periods of drought. Long before this BS about man made climate change, we as intelligent humans acknowledged that droughts were possible. Not just on the Colorado but throughout time all over the world. We as humans most of the time screw up more than we fix. I believe that man made reservoir's are a big screw up and government is to proud to admit they cause more harm than good. Please let me know what information this research into the past produces. I look forward to hearing back from you soon.

--

M.W. Wilson
704-609-3451

[EXTERNAL] Public Input on Colorado River Operations

Mark Ruben <mark15185@yahoo.com>

Wed 7/13/2022 7:50 PM

To: CRB-Info, BOR <bor-sha-LCB-Info@usbr.gov>

Hello,

I'd like to advise you to fill Lake Powell and let Lake Mead run dry when there isn't enough water to fill both. Lake Powell has spectacular scenery and is wonderful to explore on large boats. Lake Mead, in contrast, is relatively barren, and the water in Mead evaporates more quickly since it's at a lower elevation and is hotter than Powell.

Thanks,

Mark Ruben

[EXTERNAL] BOR Input regarding the Colorado River Basin

Ruben Sanchez <ramps2@npgcable.com>

Thu 7/14/2022 1:13 PM

To: CRB-Info, BOR <bor-sha-LCB-Info@usbr.gov>

Thank you for the opportunity to comment. Our situation needs immediate attention! The public needs to take this seriously.

The process should consider analyzing the following:

1. Bring water from areas east of the U.S. that flood frequently every year via pipeline & pump stations utilizing existing rights of ways (Gas pipelines, utility R/W's, highways, etc.) as much as possible. Look back on how the 1970 Alaskan oil pipeline was constructed and the challenges confronted to meet the needs of the country.
2. Establish and maintain working communication relationships with states and cities that are served by the Colorado River to develop:
   a. Community Growth (population) guidelines
   b. Regulate types of building/development permits that require high water usage (golf courses, residential & community swimming pools, large casinos/resorts with manmade lakes/ponds, car wash facilities, etc.). This includes new residential areas that would bring in more people than what the current water supply can sustain.
   c. Recommendations/incentives for desert landscaping for existing and new residential and business properties. Recommended list of desert tolerant plants for landscaping.

3. Stop land sales to foreign investors from buying agricultural land & water rights for the production of exported products such as alfalfa.

4. As proposed during the meeting, consider a desalination plant to process and deliver water to Arizona as San Diego currently does at their Carlsbad Desalination Plant.

5. Work with mining companies in each state that are served by the Colorado River on conservation practices of fresh water usage for operations.

6. Address alternative ways to clean solar panels instead of using potable water like the solar project adjacent to Boulder, NV.

[EXTERNAL] Lake Powell water management

J L <jleevail@gmail.com>
Fri 7/15/2022 6:18 AM
To: CRB-Info, BOR <bor-sha-LCB-Info@usbr.gov>

To whom it may concern,

We are upper Colorado river residents. Thank you for receiving input. We are advocates for a Mississippi River flood water pipeline.

We realize this is potentially a multi decade project and will be expensive.

"We choose to go to the moon in this decade and do these other things. Not because they are easy, but because they are hard."

The alternative will be even more devastating and costly if we continue to sit on our hands and HOPE for rain.

Start now!

John & Patricia Lee

[EXTERNAL] Post-2026 Colorado River Reservoir Operational Strategies

Richard Resnick <rickresnick1498@gmail.com>
Fri 7/15/2022 8:25 AM
To: CRB-Info, BOR <bor-sha-LCB-Info@usbr.gov>

To our concerned parties,

I have lived in Arizona since 1987, 15 years in Scottsdale Arizona and the remainder in Flagstaff Arizona where I currently still reside.

When I first moved here, I was mortified by the amount of water allocated to home landscaping, swimming pools and golf courses. Nothing has changed, in fact it has only gotten worse. The complete lack of forethought for such allocation into a desert city is completely irresponsible in my humble opinion.

So I think and hope, that the people abusing water the most should get the most cutbacks in way of landscaping, swimming pools and many golf courses and such. There's nothing bad for the economy in this move whatsoever, as there are many golf courses at least now that not only use non-potable water, but they are more of an indigenous landscaping.

I do feel however, that in my state of Arizona, that responsible agriculturalists should continue to get a reasonable amount of water. That said, if these people are merely supplying water to say cattle that is owned by some company in the Midwest, then that Midwestern company should be subsidizing the effort.

In short, our lifestyles need to change, and the common person does not always fully appreciate that, so it is the job of the government to find the best solutions that are truly for the benefit of everyone, no easy task, but it needs to be done.

Richard Resnick
Flagstaff AZ

[EXTERNAL] Colorado River, Water Cycle.

TP Tursick <tursicktp@gmail.com>
Fri 7/15/2022 8:38 AM
To: CRB-Info, BOR <bor-sha-LCB-Info@usbr.gov>

The problem we face is larger than the Colorado River. The problem to be remedied is the weakened water cycle of the western United States.

In order to begin a heartfelt discussion that leads to the pathway of remedies for this drying up of our land we first must change the mindset we operate under.

We need to push aside, for the time being, the limitations of cost effectiveness and budgets. The monumental task ahead, should it be taken seriously, will require contribution of money, material and labor from every entity of this country, public and private. Even if there comes a turn around in the current dry out, this project must not be stopped for if we have learned any lesson,, a worse drought will come. The drying out of this land will wax and wane in a cycle that is heavily weighted to the drying up.

It is because the various fragile entities that have contributed to the water cycle that sustains life,,they are in need of supplementation. Merely calling on all life to use less water, although important, that in itself is just a very small bandaid for a large wound.

At this point you are thinking that I am preaching to the choir. And that may be so. The bureau of reclamation, whose existence is concerned with the preservation and use of our water resources and hydroelectric power generation, you are staffed with many, many great people who sincerely care about these things that are your life's work. However, being a retired federal and state employee myself,,I know how certain mindsets of government agencies can instill in the workforce an inner guiding light that snuffs out great ideas before they can come to life. It is the nature of the beast. The beast tends to discuss all the reasons something cannot be done and those become the forces for not doing it.

So let us go forward with the same guts and strength of those in the last century who accomished great feats in the face of great obstacles. Great feats like the Hoover Dam itself and all the other water infrastructure that made life in desert regions flourish.

So here are the two ideas that I have spoken of in the past and continue to speak of where there is any platform to speak from.

Problem: The water cycle of this land has changed and is causing the drying up and wasting of life in many areas.

Solution One: Replenish the great salt lake. The great salt lake has been more important to the health of the water cycle in the rocky mountain region than anyone truly realized in previous decades. The

water cycle is a vicious cycle when it depletes it sources and resources. Each entity that contributes to it is important.

This idea has been sent to some at the B.R. in the past but was not seriously considered because "the water cycle ebbs and flows and will correct." Here is what must be done: build a pipeline to bring water from the pacific ocean to the great salt lake before it becomes the salty mud puddle. The piped in ocean water becomes the raw material to get the part of the water cycle generated from the salt lake going again at its previous larger scale. This part of the rocky mountain water cycle will wax and not wane, thus contributing to all the other smaller players in the cycle, including the Colorado and Arkansas rivers, and it will contribute to the snow pack in a larger way than it does now at this drying out time. Everything is connected by the cycle of the water. As a major source of it is brought back to health, it's health will be contagious to other cycle sources,,,,,right?

Those of you who read this, and I hope someone does, you have already said to yourself that this can never be done, too expensive, too complex, to much to consider,,,,,you see, those are the limitations imposed upon you by the way you have been trained and educated ,,,,,right? Free your mind and your heart and great things will follow! Pipelines to pump oil have been built all over the world through rough terrain. Why not for water that has a big role in a major water cycle?

Idea number two: build desalinization facilities along the west coast, mostly California. Replenish depleted fresh water sources in California with desalinized ocean water. Yeah, I know it's not 'cost effective" But that is part of the mindset that keeps great public works projects from getting done.

These thoughts and potential projects must be viewed from the great mindset of the public works projects that benefitted all of us in the past.

Best Regards,
Timothy P. Tursick.

[EXTERNAL] water conservation

John Dwyer <john.m.dwyer@gmail.com>
Fri 7/15/2022 11:55 AM
To: CRB-Info, BOR <bor-sha-LCB-Info@usbr.gov>

simply shut off the water service at the house. One quart/day allowed for bathing, place clothes to be washed on the shower/bathtub floor to absorb water then ring out and line dry. Poop in a 5-gallon bucket and use it for a county-wide humanure fertilizer project, designed specifically by each county for optimal results. Urine goes in any container and is dumped in the yard. Maximum usage should be set: 2 gallons/day per person, for all uses including drinking.

[EXTERNAL] More H2O, before it is too late! In response to Post-2026, The Colorado River Operational Strategies. Doc # 2022-13502.

B Penn <mmsrtrd@yahoo.com>

Fri 7/15/2022 4:09 PM

To: CRB-Info, BOR <bor-sha-LCB-Info@usbr.gov>

Dear Secretary of Interior, Ms. Deb Haaland:

If you believe, as do I (and many others), that Global Warming will get worse, no amount of conservation, in the long-run, will provide enough water for crops, industry, existing population centers and growth. The Southwest will slowly and painfully dry-up. The economic cost will be devastating to the Nation -- and too individuals. From what I've read, desalination is far too costly and volume-short to provide for the needs of the entire Southwest (and then there exists the "brine" byproduct problem). Here may be the answer.

What citizens of the Southwest and Midwest need is an Eisenhower-like massive public works project akin to the interstate freeway program. We need a TRANSCONTINENTAL WATER for AGRICULTURE and OPPORTUNITY PIPELINE (a T. W. A. O. P.). Such a pipeline would transport water from the Great Lakes (and possibly even from the Missouri River) down through and across the Great Plains, ultimately feeding into Lake Powell. If we keep Lake Powell full (which, of course, feeds Lake Mead) we have resolved virtually all of the Southwest's water shortages -- and for many, many years to come.

This idea is not rocket-science. The United States has over 400,000 miles of oil and gas pipelines of varying sizes. The pi[pipeline I propose would only be about 2,500 miles long. Think about all the economic opportunities it would create -- not to mention the economic security provided by water availability. It would provide for thousands of job and for future growth too.

A water pipeline of this sort (Probably with some canals too, if designed effectively) could also provide water to areas of the Great Plains for crop irrigation where farmers are currently running short of water -- and many Midwestern farmer's foresee even more future water shortages.

Hope this is a helpful idea -- surly, someone else has thought of it.

Respectfully, a Veteran and an American, above all else,

Mike Pennoyer

[EXTERNAL] Managing the Colorado River System

John Korkosz <jpkorkosz@yahoo.com>

Sat 7/16/2022 5:30 AM

To: CRB-Info, BOR <bor-sha-LCB-Info@usbr.gov>

Bureau of Reclamation:

The best way to address the disaster occurring at Flaming Gorge, Lake Powell and Lake Mead is to demand an end to geoengineering. The geo-engineering projects that are taking place are what has lead to the current drought. If you are truly interested in ensuring a manageable water supply for, power, agriculture and household needs, geoengineering must be stopped. The use of chemical particulate matter through the use of direct and indirect atmospheric forcing alters the natural weather patterns, leaving the desert southwest depleted of necessary winter snow. Do your research on geo engineering, go to https://www.geoengineeringwatch.org/ where Dane Wigington has compiled a library of scientific research on geoengineering. Then, go to Congress and demand it be stopped.

John

[EXTERNAL]

E. <reddirtjeanie@gmail.com>
Sat 7/16/2022 8:33 AM
To: CRB-Info, BOR <bor-sha-LCB-Info@usbr.gov>

My family pioneered the south rim of Grand Canyon in 1885. The river & climate can't sustain the constant influx of people into the Southwest.
There is technology now that water can be made from air etc. Start aggressively researching & implementing these systems.
Do more right now to promote the importance of water conservation & give incentives for personal water saving measures by homeowners & businesses.
What are you doing to Glen Canyon Dam to allow water to flow into the Colorado River below the dam before it becomes dead pool? What about Page, AZ water supply? Is Lake Powell's electric generation, evaporation, & drawing down the upper reservoirs water supply a good choice over filling Lake Mead & using more of Hoover Dams electric generators?

[EXTERNAL] Water for the West

realtanklv@aol.com <realtanklv@aol.com>
Sat 7/16/2022 4:06 PM
To: CRB-Info, BOR <bor-sha-LCB-Info@usbr.gov>

To Whom It May Concern:

There are many causes for the draught. But it would be fair to make the biggest users, especially southwest agriculture, pay at least their fair share of the water needs to **build pipelines from midwest sources to the Colorado river, directly or via other rivers**. Start now on the projects. Otherwise, Southwest agriculture should be outlawed.

Additional thought: I was told that we lose zillions of gallons of water through evaporation so that if lake Powell were allowed to flow into Lake Mead, that would be a temporary help to cut evaporation down significantly.

Tom Tanksley,
Las Vegas, NV

September 2022

Ms. Carly Jerla

Senior Water Resources Program Manager

Bureau of Reclamation

Re: 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 and Bureau of Reclamation Staff:

Though originally from Arizona, we write to you as members of several water justice groups and coalitions groups based in Central America, including the Living Rivers Movement. We appreciate the opportunity to share our views, and wish you well in sorting through the many recommendations you will likely receive.

The groups we belong to are carefully observing the rapidly changing situation of the Colorado River Basin (the Basin), knowing that management practices in the Southwestern United States will influence water policy throughout the entire region, and beyond. **Above all, prefacing the comments that follow, we want to borrow from and slightly alter a line by poet Audre Lorde, "the monster's house cannot be dismantled by the monster's tools."** As you better than anyone know, the situation in the CRB is indeed monstrous, requiring above all a kind of raw honesty and courage about the enormity of change upon us. This honesty tends to get lost in thickets of specific recommendations and data. **It will be impossible to generate the political will necessary for meaningful change if the majority of people living in the CRB have no idea of what they are likely facing in the very short run.**

How to create safe spaces for existentially raw but urgent conversations, which the climate emergency demands?

1. **Suggested mechanisms for the anticipated NEPA process(es) to ensure that a wide range of Basin partners, stakeholders, and the general public can meaningfully engage and participate in the development of post-2026 operational strategies**

   Indigenous leaders and those representing climate and water justice movements in the Basin must be sought out and brought immediately to key water policy-making tables, where they are notably absent. Their role in these spaces, currently dominated by economically powerful stakeholders, will include helping publicly reveal the full range of scenarios that are being discussed in damaged basins; to challenge the pro-growth, corporate, consumerist approach to solving water problems prevalent at these tables; and to offer alternatives. As water moves at last to the center of climate and biodiversity agendas, water decision-making must receive the keen scrutiny in keeping with what climate justice groups and movements are offering through critiques about "undue influence" and "false solutions," among others, in international climate fora.

   It is difficult to enter hermetic water decision-making spaces, and once there, raise highly unpopular questions. To be honest, we would be in a better position in the Basin right now if water experts (and the media) had actively sought out and cultivated dissent, instead of ignoring it, and in some cases, tamping it down.

2. **Potential substantive elements and strategies that should be considered for post-2026 operations and considered in the anticipated upcoming NEPA process(es)**

New scientific, legal, and economic frameworks need to define global water policy at key decision-making tables and fora in the Basin. Dominant models--which basically ignore the needs of nature and the long-term common good of society in the service of endless growth, consumption, and corporate control—and which permeate global water decision-making, are killing sources of water in the Basin as around the globe. **We believe that even the models of Nature-based Solutions and public-private alliances and corollary financing applied to water management in the Basin need to be much more thoroughly, transparently, and publicly vetted.**

Three emerging frameworks, among others, as in significant ways they evolve together, are increasingly equipped to bring nature to the center of water decision-making processes. **Dead rivers and aquifers can't sustain human life.** These frameworks include the **science of environmental flows**, as it helps define and articulate for society the environmental, social, and economic tradeoffs involved in extracting water from rivers and other bodies of water; **Rights of Nature legal protection** for rivers and nature overall as living entities; and the field of **post-growth economics (and corollary Just Transition/Climate Justice/Global Green New Deal strategies)**, that challenge the belief that endless growth on a finite planet is possible, especially as the climate emergency deepens by the day. **Experts from these fields are also absent at key water decision-making tables throughout the Basin, and need to be brought in immediately.**

As complex as these frameworks can seem individually and especially together, they all reflect Indigenous understandings of humanity's place on this fragile planet: (i) Nature is alive and has limits that must be honored and protected if humans are to survive. (ii) It's important to transcend siloed decision-making to see connections between the treatment of nature and the fate of communities and human civilization. (iii) It's important to think in terms of the long run. (iv) It's difficult, if not impossible, for private entities looking to maximize profit for relatively few in the short run to take the lead in adequately protecting nature in the long run.

We understand that these strategies aren't new; nor do they represent a full list of disciplines insisting that nature has limits that must be respected. We have written out of the simple desire to underscore that as complex as designing water policy is, at center of what is missing with it in the CRB (as everywhere) is the fact that most water decision-making arenas don't include those willing to talk openly about the severity of the global water crisis and profound, immediate sacrifices it will likely require.

We may not, as you know, have decades to find solutions to water problems in the Basin. We may have only a few years. Even if we have more time, it's better if we act as if we don't. Our inability in the past few decades to publicly discuss the most severe scenarios now unfolding has led to the emergency we are in.

Thank you for any consideration you might give to these suggestions, and for opening this process to many diverse stakeholders. We look forward to learning from your interpretations and supporting ensuing dialogue.

Best wishes,

Madeline Kiser and Oscar Beita
Living Rivers Movement, Costa Rica
Longo Mai, Costa Rica
https://foodtank.com/news/tag/longo-mai/

From: mailagent@thesoftedge.com on behalf of Ryan Bretz
To: CRB-Info, BOR
Subject: [EXTERNAL] Please Make Lake Powell Recreation a Priority
Date: Thursday, August 11, 2022 4:08:19 PM

Dear Bureau of Reclamation:

I've been recreating on Lake Powell since I was 3 years old in 1978.

Every year, we spend at least 3 weeks at the lake. It's very concerning the condition it currently is in. I understand drought, and know we must be proactive in managing this resource. And maintaining the current recreation opportunities must be considered in the new plan.

The fill lake Powell initiative is one that should be strongly considered. It is well thought out and something that I am on board with.

Sincerely,

Ryan Bretz
7647 Rogers st
Arvada, CO 80007-7933

[EXTERNAL] Colorado River water

Randy Park <rparktucson@gmail.com>
Mon 7/18/2022 2:19 PM
To: CRB-Info, BOR <bor-sha-LCB-Info@usbr.gov>

Partial solution to low water levels. Buy the water rights from farmers in Eastern Colorado that use water diverted from the Colorado Rivet Basin.

There are a number of places in Colorado where water is shipped from west of the Continental Divide to east of the divide for the purpose of farming. The cities of the southwest need that water more than the farmers.

Randy Park

[EXTERNAL] RE: Colorado river - TO WHOM IT MAY CONCERN

Glenn Talan <gtalan@madplanet.tv>
Mon 7/18/2022 4:38 PM
To: CRB-Info, BOR <bor-sha-LCB-Info@usbr.gov>

Hi there,

I hope this gets to someone who can make the right decisions.

We must not deplete Lake Powell or Lake Mead in use for hydro power and or going into Utah for its wealthy neighborhoods to use for massive golf courses and or Southern California(If we do get it from there) and/or Las Vegas as well.

Some other kind of power source should be used at this point. Hopefully one will be created. Fusion power will hopefully be ready soon. I hope it's not too late. I've provided one link. I'm sure there are many, many more.

FUSION ENERGY LINK:
https://www.vox.com/22801265/fusion-energy-electricity-power-climate-change-research-iter

And for water, I'll have to contact my local resources here yet again. Some 10 years ago I asked why we don't desalinate the incoming currents here in Long Beach CA. They said it was too expensive at the time. At this point. We are just killing our own environment. And we have known about this for many years.

Please let me know what I can do to help here. I've used these lakes so many times in my childhood and as an adult. It would be a huge heartbreak for me to see them just vanish.

Thanks for your help.

Glenn

GLENN TALAN
Creative Director
Madplanet

www.madplanet.tv
Marketing • Advertising • Design

P 562 | 498 | 0079

[EXTERNAL] Colorado Reservoir Comments

Mike Moore <john322@att.net>

Tue 7/19/2022 10:52 AM

To: CRB-Info, BOR <bor-sha-LCB-Info@usbr.gov>

The reservoirs need to be managed prudently to maintain minimum power supply from the reservoirs along the river. In particular Glen Cyn and Hoover provide important grid stability. All reservoirs should be continued to be drawn down to keep the grid stable. These dams were paid by tax payers and should benefit tax payers with grid stability.

Water agencies that draw from the reservoir should be required to conserve water by eliminating non-functional turf similar to Nevada. Farming irrigation should be reduced to only essential domestic crops. Much of the farming in the lower basin is used for hay that is exported. This is essentially exporting our water to asia. The Federal government should pass legislation to change the priorities of water usage along the entire Co river.

-Mike Moore

[EXTERNAL] water control

David Wellen <themapnut@gmail.com>

Tue 7/19/2022 1:17 PM

To: CRB-Info, BOR <bor-sha-LCB-Info@usbr.gov>

This may be the wrong place to make this comment, but the states need to pass RIDGID rules and penalties concerning the use of residential irrigation water. We all have chosen to live in a desert and it is time we started acting like we like desert environment. NO GRASS

[EXTERNAL] Colorado river requests for comment

Curtis McCoy <curtmccoy@gmail.com>
Wed 7/20/2022 10:25 PM
To: CRB-Info, BOR <bor-sha-LCB-Info@usbr.gov>

I mean, the answer to this problem seems obvious, but no government organizations are communicating intent to try it - but to fix the issue of dwindling water resources, a significant portion of granted water usage rights need to be rescinded. Yes, farming communities relying on that water won't like it and I'm sure there are ample lobbying groups fighting against it, but the problem can't be solved when 70% or more of the water being used is going towards farming and the burden of fixing it is solely left to the remaining 30% of water users. Run a buyback program to purchase back water usage rights from the farmers, run incentives to plant crops that use less water, incentivise low-use crops for local consumption rather than high-use crops for foreign export. If not enough farmers voluntarily give back their allocated water rights, they'll have to be taken. The problem can't be solved without reducing consumption, and you can't meaningfully reduce consumption while ignoring the consumption of the largest users.

[EXTERNAL] Colorado River/Lake Powell issue

Colton Robinson <crobinson@rixindustries.com>

Thu 7/21/2022 10:16 AM

To: CRB-Info, BOR <bor-sha-LCB-Info@usbr.gov>

All,

Current weather predictions indicate that the Eastern United States will get wetter and the Western states will get drier. With that in mind I propose a Pipeline be constructed from the Great Lakes to Lake Powell. The pipelines can be constructed and maintained using the same technology that is used to build and maintain oil pipelines. If multiple lines are built, it would even allow for a continuous flow of water should one need to be shut down for maintenance or repair.

The cost of the pipelines will be high, but what will the cost be if Lake Powell runs out of water? Where will we get food from if California farmers cant water their crops? How will we make up for the loss of 250,000 homes worth of electricity?

We have the Technology, and the Great Lakes have the water. Lets make it happen.

Sincerely,

Colton Robinson

[EXTERNAL] Comments to Post-2026 Colorado River Operational Strategies

Nick Swenson <Conservewater@proton.me>

Fri 7/22/2022 2:51 PM

To: CRB-Info, BOR <bor-sha-LCB-Info@usbr.gov>

This is in response to the Federal Register Request for Input on the Development of Post 2026 Colorado River Reservoir Operational Strategies.

I am a consumer of Colorado River basin water, living near Denver Colorado. I am a fly-fisherman, skier, and boater. I believe that my interests and those of others in the Upper Basin have been largely discarded in your water planning efforts.

For substantive changes, the Bureau must confront the fact that the past goals of generating hydro-electric power and growing legacy agricultural crops were decisions in a climate that no longer exists. We know that rainfall and runoff in the Colorado basin will continue downward. The population of the western States will expand. Growing alfalfa and other water intensive crops is completely unsustainable given the dwindling resources of the Basin. The agriculture industry consumes 70% of the Basin's water according to the Bureau of Reclamation with 55% of the total for cattle feed according to an analysis by Nature.

Is our desire to eat a cheap hamburger grown from Western alfalfa worth the high price of brownouts, closed ski resorts, landlocked boats, dry water taps, dead fisheries and waterfowl? According to the USDA, it takes 460 gallons of water to produce one burger. We cannot afford this!

The Bureau's strategy of moving water from one reservoir to another is not solving the problem. Working with the States, Tribes and Mexico, you must dramatically slash agricultural water allocations to prevent cataclysmic ecological, economic and human harm. It's unfortunate that the West cannot sustainably grow historical crops or produce reliable hydroelectric power in the future but there are alternatives and we are called to adapt and adjust as our ancestors have.

For process and decision making elements, the cattle industry and corporate farming maintain a disproportionate level of representation in the management of the Basin's operational strategies and I ask for your reconsideration in the Post-2026 planning. My suggestion for obtaining feedback for the post-2026 plan is to prioritize voices protecting the environment, recreation and direct human needs for the next hundred years.

Thank you for your consideration!

Nick Swenson,
Englewood, Colorado

[EXTERNAL] Please fill and maintain western lakes!

Austin Loyd <ajlfamily@hotmail.com>
Sat 7/23/2022 11:32 PM
To: CRB-Info, BOR <bor-sha-LCB-Info@usbr.gov>

As a western Colorado citizen I am very concerned with the depletion of water levels at our western lakes from Colorado to Utah, Arizona, and Nevada. These reservoirs are a huge investment imposed on the American tax payer with a purpose to protect western water. California has been a huge abuser of western water. They have depleted their own water storage, and turned upstream to meet their demand. They need to be called to revive the holding of there own water to lessen the demand upstream. They need to hold and retain their in state water or go without, so the surrounding regions can continue to enjoy, and benefit from the tax payer bought reservoirs from Colorado to Nevada. If the very water demanding state of California does not want to store their own water then they shouldn't be allowed to steal from upstream states. Please take action to replenish the water levels in our Colorado, Wyoming, Utah, Arizona, and Nevada reservoirs.

Thank you,
Austin Loyd
ajlfamily@hotmail.com

[EXTERNAL] Colorado River Basin

andox2001@yahoo.com <andox2001@yahoo.com>
Sun 7/24/2022 7:18 PM
To: CRB-Info, BOR <bor-sha-LCB-Info@usbr.gov>

Hello USBR,

My comments will be brief - it seems that in order to permanently solve this western water issue water a water diversion plan diversion needs to be put in place through the Army Corps of Engineering. Some of the ideas that have been forwarded and feasible are:

1. The Mississippi water diversion plan from New Orleans to the Colorado River basin - if not diverted here it just flows into the Gulf

2. Diversion of water to the Missouri River via the Mississippi and ultimately to Lake Meade or Lake Powell - flood control

3. Water diversion from the Great Lakes as follows:
    a. by pipeline / aqueduct
    b. through the Mississippi - Missouri River - Platte River - to the Colorado

4. A salt water diversion from the Pacific Ocean with desalination plants built inland

The aqueducts to CA from Lake Meade were built, the oil pipeline in Alaska, and flood control dams in New Orleans to control the Mississippi during floods - a project like this would be well within the The Army Corps of Engineering bandwidth

Lets get busy and get this large infrastructure project on the road - this water infrastructure would benefit many States - jobs, fostering economic growth, continue fossil free electric generation, feed America, grow exports

Thank you,

David Anderson
3240 Lumassina Way
Henderson, NV 89044

[EXTERNAL] Possible solution for the development of Post-2026 Colorado River Operational Strategies

Mr Rey <markr0935@gmail.com>
Mon 7/25/2022 5:17 AM
To: CRB-Info, BOR <bor-sha-LCB-Info@usbr.gov>

Develop an aqueduct or multiple aqueducts from suitable location/s from the Mississippi River to suitable location/s of the Colorado River.

Kind regards,
Mark

[EXTERNAL] Colorado River Dams

Dan Walthall <dwalthall7@gmail.com>
Tue 7/26/2022 6:18 PM
To: CRB-Info, BOR <bor-sha-LCB-Info@usbr.gov>

At each dam, water can be recycled through the generators but no new water developed.
For desalination it may be best to do that in the Sea of Cortez.
Dan Walthall
770 938 5715

[EXTERNAL] Water opinion

Andy Pontious <andypontious@yahoo.com>
Fri 7/29/2022 5:33 PM
To: CRB-Info, BOR <bor-sha-LCB-Info@usbr.gov>

Hello to whoever will listen

I think Lake Powell and Lake Mead are more important then the upstream reservoirs it wouldnt be a bad idea to float solar panels on top of mead to block the sun and evaporation and make electricity at the same time or at least find another electricity sorce other then hoover.....lake Las Vegas should be pumped back into mead....California needs to give up on Almonds and front yard grass. If cloud seeding is real let's give that a try. Perhaps building up aquifers next time we have a wet season if we survive to see that ever again.

Good luck
PFR!!!

[EXTERNAL] Water Management Input

Thomas McGuire <cavecreektom@gmail.com>

Sun 7/31/2022 12:18 PM

To: CRB-Info, BOR <bor-sha-LCB-Info@usbr.gov>

1 attachments (800 KB)

m.ArizonasWaterNotice2022.jpg;

Gentlemen,

"Please submit input to CRB-info@usbr.gov by September 1, 2022."

I have been presenting a very broad PowerPoint to nearby municipal and other community groups for two years now. An announcement is attached. My next presentation will be to The Sierra Club.

I would see this as a framework to identify a dozen or so of our most pressing vulnerabilities and a great variety of *alternatives* to meet the goal of sustainability.

I'll take a stab at an example. This is a very broad look and extremely short on detail.

A. Make the public aware of our critical water issues and possible solutions through presentation and infusing educational materials into the schools. (I am a former science educator and textbook author.)

1. Use the well done DCP presentations of a couple of years ago as a model to reach decision makers and the public.
2. Produce hand-on activities for schools. (...a*nd monitor their use and impact for adjustments.*)
3. Produce an interagency annual "report card" of progress toward the major goals such as preserving the quantity and quality groundwater resources.
4. Establish an active hierarchy communication network with clear goals and actions.

B. Manage Arizona groundwater.

1. Make all of AZ an AMA

2. Require all users that are more than a single family or that exceed X gallons/year report water usage to a public database on an annual basis. (Major users more often.)

3. Investigate and establish disclosure, mitigation strategies, and *possible enforcement mandates.*

Obviously this is a huge realm, but also hugely consequential and potentially existential. Our agencies, including ADWR, CAP, Bureau of Reclamation, ASU Kyle Center, U of A, etc. have great resources and excellent expertise. But if this were a war, under our current efforts and strategies we'd be losing. Perhaps it is.

Regards,

--

Tom

****

Thomas McGuire
Author & Town Council Member
Cave Creek, AZ
cavecreektom@gmail.com

Arizona's Water PDF Presentation (Informative and entertaining)
https://www.dflt.org/courses/arizona%27s-water

An Armchair Tour of the Geology of the Jewel of the Creek, Cave Creek
https://www.dflt.org/courses/armchair-tour-of-the-jewel-of-the-creek-preserve

If we intend to live on this planet...
....we truly need to understand how it works.

[EXTERNAL] Lake Mead Plan

Angelo Mastrio II <angelo.mastrio@gmail.com>
Sun 7/31/2022 8:07 PM
To: CRB-Info, BOR <bor-sha-LCB-Info@usbr.gov>

To Whom It May Comcern,

Hey I have an idea, why doesn't someone actually hold those dumb asses in California accountable for once! NV and more specifically, Southern NV already conserves so much water we use less then our annual water allotment as it is!! Why the fuck should we have to keep doing all the heavy lifting!? The politicians and people of California are 100% to blame for this. We are in a natural period of aridification of the SW. We have all known this was coming. That is why Nevada and AZ started very drastic conservation efforts literally two decades ago but of course, those D bags in CA, just like with almost every other issue, talk one way and act in a completely different way. It should have been illegal to put grass in your front yard in CA decades ago. CA should have never been allowed to fill the salt flat. CA should have been recycling their water 20 years ago. They should have built several dams in Northern CA decades ago to capture water for allocation to the central and SO CA valleys. They also should have been firing up their current, and building more desalination plants long ago! Those dummies wax on about ocean level rise yet they don't want to allow us to get fresh drinking water from those rising oceans!? CA is beyond irresponsible and extremely excessive in literally everything! They run their state like shit and expect everyone else to bail them out. It is complete and total horseshit! The politicians in CA are too chicken shit to stand up to the environmental groups to do what is right! The state is also so poorly run that they can't afford or don't want to risk rising their water costs via desalination. They care more about giving handouts and getting votes vs umm, I don't know, making sure we all have enough water to survive!? So instead, they kick the can down the road and bury their heads in the sand ignoring the problem altogether! In addition, AZ has been drawing water off the CO River and banking water for years. They have over a 20 years supply of water banked. They also should not have been allowed to do that! Now Las Vegas even has a size limit on how big your swimming pool can be! That is how serious we in Nevada take this issue but of course in la la land California, they can have swimming pools as large as they want because "they care about environmental issues!" What a fucking joke! Sisolak needs to nut up and fix this allocation issue! He doesn't even mention the Vegas water issue ever! It is literally the most important issue we are currently facing and that fat shittard never even mentions it! UT should not have to send as much water down river! They should be able to fill up lake Powell. We shouldn't have to send as much water down stream from Hover Dam. We need to tell CA to eat a dick and address this problem themselves for once vs waxing on about environmental issues while simultaneously wasting the world's most precious resource literally every second of everyday!!!!

Warm Regards,

Angelo Mastrio II
AMM Consulting LLC
702-235-6101 cell
702-407-6866 fax
angelo.mastrio@gmail.com

[EXTERNAL] Recommendations for 2023 CRB operations

Mark Day <chilerico@gmail.com>
Tue 8/2/2022 4:58 PM
To: CRB-Info, BOR <bor-sha-LCB-Info@usbr.gov>
Cc: Joanna Allhands <joanna.allhands@arizonarepublic.com>

Greetings, USBR officials responsible for CRB operations,

You have requested recommendations and suggestions. Apparently, the official comment period closed yesterday, but my comments are still relevant.

I once worked on a DoI study of urban water demand in Tucson during the period 1974-1980, when there was a 30%, long-term reduction in demand. We found the primary factor was the increase in water prices. It seems to be a pattern since that time that there is little political will to use water rates as a primary factor in conservation planning. I hope the Bureau of Reclamation will use this situation to require CRB utilities to use increasing block rates and sound economic analysis to incentivize conservation. I have other suggestions. Thank you for considering my comments.

W. Mark Day, MS, MBA

1] Based on our research in Tucson, it's pretty clear that all urban water should be sold with increasing block rates (IBRs) and small base charges. Although our research didn't directly look at increasing block rates, it is clear that volumetric charges are much better conservation tools than base charges. And, I think Tucson Water's experience with steeply-Inclining block rates supports the idea that the steeper the rate blocks, the better the conservation tool you have. I believe that Reclamation has a window to leverage better conservation water rates, and in some cases simply having conservation rates, would be a big step forward. I don't think we can ignore the many research programs that have shown water use is price sensitive in the residential category, and no doubt also in the industrial and agricultural. In states where IBRs have been outlawed, surcharges could accomplish the same effects and benefits. Surcharges are also useful for stabilizing volumetric revenues.

Conservation rates should be in place everywhere, to reduce energy waste (processing unneeded water), and especially in the Colorado River basin and other areas depending on the Colorado River. And, I would extend that to any area that doesn't have vast surpluses of inexpensive water that is sustainable; not groundwater mining or diverting water from remote basins.

2] In the event (and when intended, as well) water sales revenues exceed the cost of operating water utilities, such revenues should be placed in a fund to assist in converting agriculture to drip irrigation. Of course, such funding could also help subsidize the fallowing of irrigated farm land, but that would be a short-term, not a long-term, strategy to make farm land more efficient. Enforcing water conservation in agricultural communities must address the immediate problems facing farmers who must find suitable higher value, lower water demanding crops to avoid higher costs of water to remain profitable.

In urban communities, a less desirable, but immediately beneficial strategy, would be to offer cash for lawn conversions to artificial turf or xeriscapes. Like all conservation programs, each method used should be evaluated for water saving efficiency per dollar. Turf removal may not be either the least or the most cost-effective program, but it may be fairly permanent in reducing water use to sustainable levels. In any case, setting higher incremental unit costs for water provides an incentive to apply conservation methods, and a permanent financial benefit for funding such technologies and methods.

3] Another key to setting financial incentives right, and also related to long-term water costs which incentivize conserving water, would be shifting water rights priorities to meet long-term social goals. Such goals as food production, efficient water use, equitable water rights availability, although common in all eras, may present a need to realign past practices with future necessities. Although past policies and practices may have been wildly effective, for instance, for developing western states, many have heavily favored base industries and their founders. But now, with population pressures and resource depletion, especially water resources (and drought), it seems there is a need to substantially change strategies to make our communities sustainable.

Reclamation must reconsider the future of the Salt River Project after the substantial transformation of its agricultural mission, to a largely urban water supplier role. The present need is for it to help provide sustainable and equitable water supplies for the citizens of the state of Arizona, not simply provide agricultural water for the original investing farmers. The fact that SRP has provided extremely inexpensive water in large volumes to the Maricopa County core agricultural areas, which now are mostly urban development, smacks of a detrimental favoritism, at this time, regardless of how much it benefitted the historic development of Arizona.

Now, since it is such a large part of the state's water supply, it needs to be managed for the benefit of a much larger portion of the state's population. This is appropriate in our current straits, despite the possibility that major drought is probable in the Tonto Basin, the source of SRP's water, as has occurred in the past. SRP reports that it usually provides 800 MAF annually, which is equal to half of our CAP allocation. And it provides it for a net cost of about $20 million, which means it delivers more than five times Tucson Water's allocation for roughly half as much as Tucson pays for its CAP water! That is astoundingly inexpensive.

So, SRP is about to become the largest water resource in Arizona... after the unknown amount of mined groundwater pumped throughout the rural areas of the state. Yet, this water supply is generally restricted to the SRP area. It could be shared anywhere in the CAP service area if CAP deliveries were restricted, and possibly even without such restrictions.

How would the SRP waters be allocated? I'm not a water market expert, but I'd recommend that it become part of a state water pool that could be made available to any utility to purchase and arrange for delivery. Paper water would not be allowed as it is now. Only water that is accessible could be

traded, so all the water banks would have to drill recovery wells, so CAP water that has been percolated into aquifers could actually be available to use. That would be a substantial change from recent practices, and would add considerable water to a state pool.

One of the important considerations would be to reset water rights. Consider the fact that some very nice homes in remote areas have wells that have dried up. One area near North Scottsdale has been buying water from that city and trucking it to their homes. Recently, Scottsdale decided it could not continue to allow a few thousand gallons of water to be purchased to supply those homes! I find that sort of restriction to be unconscionable. Scottsdale is a city that uses large amounts of water that goes to waste because it is so cheap, yet it can't sell a little to folks who will lose use of their homes. Such a small amount of water would not be noticed in all the wasteful use, but the city will deny these desperate homeowners a few thousand gallons a month (at any price).

Although such vulnerable homes should not be permitted to be built, it should be illegal to prevent homeowners in such desperate situations from buying water. It's similar to SRP not selling water to be used outside its boundaries. Let the new users buy water at fair prices. And let the existing customers buy water at fair prices, compared with other users around the state. It is bad for conservation if some users get water for cheaper than dirt prices, and in great quantities, while adjacent users pay a great deal more, or can't get as much as they need. Most water issues are local, and it is usually very expensive to move water very far. And it is very inexpensive to move it downhill, and very expensive to move it up hill.

SRP is a unique and massive blessing to all its users, and to the economy of Phoenix and the state of Arizona, but in the midst of a megadrought it needs to be better managed to directly benefit many more Arizonans. Reclamation should mandate policies that bring SRP water supplies to the Central Arizona market, not just to a central slice of the state.

[EXTERNAL] Powell water level

rick rsheatair.com <rick@rsheatair.com>
Wed 8/3/2022 10:04 AM
To: CRB-Info, BOR <bor-sha-LCB-Info@usbr.gov>

From the truth behind lake Powell's water levels; I saw this video

https://www.youtube.com/watch?v=LTzNgKm8F68

The Truth Behind Lake Powell's Water Levels

Welcome to timeBomb. In today's video we review the current water level situation at Lake Powell. We also discuss two new plans that have been enacted to help increase Lake Powell's water level so the Glen Canyon Dam can continue to generate hydropower. Are these

www.youtube.com

I believe that the spraying (of chemicals)(barium, aluminum,) in the sky is causing the problem, we can see it happening. Lets stop doing that... then let nature (God) heal our land.

Thanks Rick
408-781-6700

[EXTERNAL] Comments to Post-2026 Colorado River Operational Strategies and Necessary Near-Term Actions

Paul Ostapuk <postapuk@gmail.com>
Fri 8/5/2022 8:36 AM
To: CRB-Info, BOR <bor-sha-LCB-Info@usbr.gov>

Thank you for the opportunity to provide public comment regarding Post-2026 Colorado River Operational Strategies and Near Term Actions that may be needed to stabilize the decline in reservoir storage and prevent system collapse.

Step 1 - Impose an 'infrastructure delivery' offset (a 20% reduction in water deliveries) for all the Lower Basin states to address the ongoing structural deficit. That would save 1.4 to 1.6 maf as a starting point. This reduction would cut across all senior and junior paper rights. Everyone in the Lower Basin would share equally in the pain. For example, it would keep the CAP flowing...just with 20% less water.

Step 2 – Enact the concept of a rolling, 10-year average of 82.3 maf from the Upper Basin to recognized the original intent of the 1922 Compact that foreshadowed the variances of climate.

Step 3 – TBD water conservation in the Upper Basin to ensure Lower Basin water deliveries are met while keeping Lake Powell at a reservoir level suitable for power production.

The failure in the past of the Lower Basin to address the ongoing "structural deficit" related to average releases of 8.23 maf (and actually more water than this since the year 2000) has drained the storage buffer and now threatens the entire system.
Action should be taken near term (prior to 2026) to help stabilize critical reservoir levels in Lake Mead.

There are system delivery losses inherent in the Lower Basin that the paper rights have ignored.

This needs to be immediately corrected to stabilize the system since it is doubtful that voluntary efforts will succeed in this matter.

Thank you.

Paul Ostapuk
P.O. Box 3532
Page, Arizona 86040

[EXTERNAL] Colorado River lakes management

Tiffany Mapel <tiffmapel@yahoo.com>

Fri 8/5/2022 1:40 PM

To: CRB-Info, BOR <bor-sha-LCB-Info@usbr.gov>

Hello,

Thank you for the opportunity for the public to comment. I've been an avid Lake Powell vacationer since 1984. I've seen it from full back in 1999, to the low that it is now. I continue to enjoy my houseboat on Powell yet today. It is distressing to watch the water level drop a foot per week.

I think we've all accepted that our climate has changed, and we're not living in the wet period when the Compact was signed 100 years ago. Everything has changed since then--precipitation, population of the west, and how we use the water we are allotted. It is beyond time to finally do something. Like a recent article I've read online, this quote resonated with what I'm feeling:

Peter Gleick, a water and climate scientist and co-founder of the Pacific Institute, said the collective failure to heed scientists' repeated warnings is "directly responsible for how bad conditions are today."

"If we had cut water use in the Colorado River over the last two decades to what we now understand to be the actual levels of water availability, there would be more water in the reservoirs today," Gleick said. "The crisis wouldn't be nearly as bad."

I just hope it's not too late to resurrect Lakes Powell and Mead. A generation ago, BuRec engineers got a taste of too much water in 1983 when Lake Powell peaked at 3708. The water was held back with plywood sheets at the top of Glen Canyon Dam. Now, our water managers have a new task: save water. You simply cannot keep on with "business as usual." When 4-million-acre-feet comes down the river in a drought year, you cannot let out 8-million-acre-feet. When that happens for three years, the water level drops like a draining bathtub--exactly what it's been doing. It is not sustainable. Beyond time for a change.

I cannot recommend an exact plan for BuRec to follow, as I'm not good with number crunching and statistics, but the glaringly obvious fact to me is, **match** the

outflow of Powell (and Mead) to the inflow. That will stabilize both reservoirs. No, those with senior water rights will not be happy with this arrangement, but this might have to be the new norm for a year or two. Or three. Or until the precipitation returns again. And slow the flow out of Mead, too, so it can also stop dropping like a draining bathtub.

If you remember back in 1964 when Lake Powell was filling, the Glen Canyon Dam releases were slowed to 1,000cfs. Powell came up almost 90 feet that summer. You might have to take that same tack again. Let both Powell and Mead recover. Please do something now, and don't wait for Powell to hit 3,490.

We cannot control how much water falls in the Colorado Basin watershed, but we can control how we manage it. What if we get another dismal winter for 22-23? Then what? The water we're all counting on does not show up. Plan ahead.

Thank you for your time and consideration,
Tiffany Mapel
Durango, CO

[EXTERNAL] Post-2026 Colorado River Operational Strategies

Cecile LeBlanc <cleblanc46@gmail.com>

Mon 8/8/2022 9:08 AM

To: CRB-Info, BOR <bor-sha-LCB-Info@usbr.gov>

Re:

Agency/Docket Number:

RR03040000.22XR068080.RX.18786000.5004001

Document Number:

2022-13502

Hello,

Thank you for the opportunity to comment on these water re-negotiations for the Colorado River Basin.

Here are my main thoughts:

1. Include Indigenous tribes in your discussions
2. Be open on who owns the water rights and produce an easily accessible report on who uses the most water.
3. Develop a report outlining the current state of rivers, springs, wetlands, and groundwater reserves. Publish this report on your website and send it to newspapers. Why am I requesting this? Phoenix claims to be in great shape as far as water goes, but at what cost to the Salt River or to the groundwater reserves?
4. Probably not your responsibility but somewhere it would be nice to have suggestions on how to save water and someone to push water-saving measures, including installing gray water collection in new houses for use in yards.

Just some background: I am 60 years old. I grew up in the Denver area. We started limiting lawn watering—I think we were a diamond—when I was a teenager. I learned the term xeriscape—coined in Denver—before I was 20. When we moved to Utah in the 1990s, I looked for drought-tolerant plants and the nursery person asked, "why? Don't you have water?" When we moved to Flagstaff, Arizona 24 years ago my neighbor got mad at me as I tore out the front lawn and replaced it with native plants. It was a smart move though, since it was the start of the major drought. Still the watering times (odd and even) are only suggestions and when we go down to Phoenix people and businesses have lawns—winter lawns and summer lawns. How did I move backwards coming from Denver to Phoenix? Where was the power in those water talks?

Thank you again for your time.

Sincerely,

Cecile LeBlanc

[EXTERNAL] Lake Powell Level 3588'

Dan Griffiths <dangriffit@gmail.com>
Fri 8/12/2022 9:35 PM
To: CRB-Info, BOR <bor-sha-LCB-Info@usbr.gov>

I support the plane to raise the lake powell water level to 3588.

Thanks,
Dan Griffiths

[EXTERNAL] Fill Lake Powell

David Abbott <davidabbott33@gmail.com>

Sat 8/13/2022 11:07 AM

To: CRB-Info, BOR <bor-sha-LCB-Info@usbr.gov>

Hello,

I wanted to offer my opinion/suggestions for lake powell preservation. Since lake powell is lowering from water being sent to nearby cities, it isn't a reliable and sustainable source of water. Population growth will continue increasing and even once lake powell is empty then there will not be enough water coming through. I think an increase in oceanside nuclear powered desalination plants is the best way to create a sustainable water source for these cities.

Thank you,

David Abbott

[EXTERNAL] West's water need attention, now!

Casey Warner <mailagent@thesoftedge.com>
Fri 8/12/2022 7:10 PM
To: CRB-Info, BOR <bor-sha-LCB-Info@usbr.gov>

Dear Bureau of Reclamation:

Whatever we've been doing as far as water management hasn't worked!
It's time to make a change! Start today!!!

We can do this.

Sincerely,

Casey Warner
27298 road p.7
Dolores, CO 81323-9412

[EXTERNAL] Lake Powell

Angela Hill <mailagent@thesoftedge.com>
Fri 8/12/2022 9:31 PM
To: CRB-Info, BOR <bor-sha-LCB-Info@usbr.gov>

Dear Bureau of Reclamation:

I implore the Bureau of Reclamation to take into account the importance of Lake Powell to generations of families who have frequented the area for decades. Countless families, mine included, visit the lake from both the Utah (Bullfrog) and Arizona (Wahweap) side to take in the beauty of the area, explore, and recreate on that incredible lake. It is not merely a dam; it is a legacy location and a bucket list destination

I support the Path to 3588 plan so that individuals and families can continue frequenting the gem that is Lake Powell.

Sincerely,

Angela Hill
122 W hackberry rd
Vineyard, UT 84059-6539

[EXTERNAL] Colorado River

litztucson@aol.com <litztucson@aol.com>

Tue 8/16/2022 2:25 PM

To: CRB-Info, BOR <bor-sha-LCB-Info@usbr.gov>

The Columbia River dumps 100's of thousand square feet of water into the Pacific per second; why can't we harvest some of that water, and pipeline it to feed Lake Powell. Perhaps to the Green River. By feeding it to Lake Powell some of that water can be released to the Colorado which to turn will feed Lake Mead, and Lake Mead can then release some water to feed the Colorado River Valley, and be helpful to the farmers.

My understanding is that there are 40 million people dependent on the Colorado River for water, and some electric. If just $1.00 were added to their bill for drought prevention, about 40 million dollars a month could be raised to pay for this project. We need to get started now, because time is not on our side.

Choosing the Columbia River over the Mississippi makes sense to me because it is closer, and will not need to be pumped over the Continental Divide.

Just an average citizen.
Gerry Litz
Tucson, AZ

[EXTERNAL]

Dan Griffiths <rentals@saltysurflakepowell.com>

Tue 8/16/2022 6:02 PM

To: CRB-Info, BOR <bor-sha-LCB-Info@usbr.gov>

I support *Path to 3588'* plan. We need to fill the lake back up! Lake Powell is one of the most beautiful places in the world with water in it. It also provides water and electricity to so many people.

[EXTERNAL] Please Make Lake Powell Recreation a Priority

mailagent@thesoftedge.com <mailagent@thesoftedge.com>
on behalf of
Nick.h.hansen@hotmail.com <Nick.h.hansen@hotmail.com>
Tue 8/16/2022 7:46 PM
To: CRB-Info, BOR <bor-sha-LCB-Info@usbr.gov>

Dear Bureau of Reclamation:

I am writing as someone who not only recreates at Lake Powell, but also as someone who relies on the economic be Benefits that come from visitors coming to Lake Powell to camp, boat, and otherwise tour this beautiful resource. Many lives and households depend on the tourism that a healthy lake Powell brings. Please do not forget us in this decision to Fill Lake Powell!!

Sincerely,

Nick Hansen
4241 Stonebriar Cir
Corona, CA 92883-0671

[EXTERNAL] Path to 3588

CJ Heringer <cj.altius@gmail.com>
Tue 8/16/2022 7:53 PM
To: CRB-Info, BOR <bor-sha-LCB-Info@usbr.gov>

I fully support the Path to 3588, to get Lake Powell back full and not keep letting more water out than what is supposed to be letting go.

Please let the lake get back to full! It's such a sanctuary for millions who visit each year. The water through these canyons are what make it a completely unique experience and wonder to see. Lake Powell brings many families and friends together in which other avenues or destinations don't deliver the same experience and appreciation for the beauty the lake offers.

Let's fill lake Powell. Let the 3588 initiative go through.

Sincerely and enthusiastically,

CJ Heringer

Sent from my iPhone

[EXTERNAL] Please Make Lake Powell Recreation a Priority

Mike Anas <mailagent@thesoftedge.com>
Tue 8/16/2022 7:56 PM
To: CRB-Info, BOR <bor-sha-LCB-Info@usbr.gov>

Dear Bureau of Reclamation:

I encourage the Bureau of Reclamation to consider the recreation interests Lake Powell and the other reservoirs in the Colorado River Basin.

Best
Mike Anas

Sincerely,

Mike Anas
14731 s aulani cv
Draper, UT 84020-1618

[EXTERNAL] Help Lake Powell PLEASE!!!!

Brienne Poole <mailagent@thesoftedge.com>
Tue 8/16/2022 8:34 PM
To: CRB-Info, BOR <bor-sha-LCB-Info@usbr.gov>

Dear Bureau of Reclamation:

To whom it may concern:

I have spent vacations every summer my entire life on Lake Powell. My grandpa mother and entire family have been boating on Powell since the first year it was open. We enjoy home videos of my mom boating on a wood boat my Grandpa built boating in Lake Powell! There is truly nothing like it, unplugged with your family and friends. Some of my fondest memories of life have been there.

Please consider changing the target elevation!!! What had been happening recently is tragic. I personally have friends who have been waiting to launch their brand new houseboat for over a year now. Another friend cancelled their houseboat order and lost their $300,000 deposit!!!!

I support the Path to 3588 plan developed by BlueRibbon Coalition that provides a way forward to meet this historic challenge we are currently facing.

I recognize the Beauru has a difficult decision to make but the public should be considered shareholders in this decision as they are the ones using this beautiful National treasure!!!

-Brienne Poole

Sincerely,

Brienne Poole
3333 W Nordic Peak Court
South Jordan, UT 84095-5971

[EXTERNAL] Please Make Lake Powell Recreation a Priority

Brittany Wilding <mailagent@thesoftedge.com>
Tue 8/16/2022 9:00 PM
To: CRB-Info, BOR <bor-sha-LCB-Info@usbr.gov>

Dear Bureau of Reclamation:

I enjoy recreating on Lake Powell, and some of my fondest memories are the times I've spent on Lake Powell. I go every year with my family and it is our most cherished vacation location. Please refill Lake Powell.

Sincerely,

Brittany Wilding
3602 n 225 e North Ogden
North Ogden, UT 84414

[EXTERNAL] Please Make Lake Powell Recreation a Priority

mailagent@thesoftedge.com <mailagent@thesoftedge.com>
on behalf of
cutebaker1313@hotmail.com <cutebaker1313@hotmail.com>
Wed 8/17/2022 10:46 AM
To: CRB-Info, BOR <bor-sha-LCB-Info@usbr.gov>

Dear Bureau of Reclamation:

I Support plan 3588

Sincerely,

Kiana Reza
2233 N 2350 E Layton UT
Layton, UT 84040-8053

[EXTERNAL] Please Make Lake Powell Recreation a Priority

Harley Davidson <mailagent@thesoftedge.com>
Wed 8/17/2022 3:00 PM
To: CRB-Info, BOR <bor-sha-LCB-Info@usbr.gov>

Dear Bureau of Reclamation:

I love Lake Powell and it has been a traditional trip in my family for over 40 years! Please fill it up!

Sincerely,

Harley Davidson
394 w Burton ln
Kaysville, UT 84037-9764

[EXTERNAL] Comment on Post-2026 Colorado River Reservoir Operational Strategies

Jorene Downs <jorenedowns@gmail.com>

Wed 8/17/2022 4:09 PM

To: opentrails@azbackroads.com <opentrails@azbackroads.com>;CRB-Info, BOR <bor-sha-LCB-Info@usbr.gov>

Greeting

I believe we need to be better stewards of our environment. But being better stewards must include considering the needs of the humans who also rely on having a clean and sustainable environment. There needs to be a better balance in decisions made to create a path for a more sustainable future. Water is necessary in adequate quantity, stored in wet years for use in dry years, with infrastructure in place to also address flood mitigation. Power generation needs to be more reliable, especially with an increased demand to charge more EVs and power all-electric homes and businesses.

Consider the very extensive state and federal water infrastructure designed to mitigate flooding and store and distribute water in CA. That plan was very successful for decades, farmers kept the aquifers full by using allocated surface water, and we barely noticed drought years. But additional water storage was NOT built even as the population doubled, and with increasing use of water for some environmental reason we have a crisis. Humans now have a manmade water shortage and depleted aquifers, the most productive farmlands in the country are intentionally being reduced while fallow acres create unhealthy dust storms and less food is grown. These are preventable consequences resulting from mismanagement and poor planning regarding the otherwise ample water supply in CA where half the state's water isn't even captured. And now we have a study predicting the changing climate has the potential for increased flooding and even megafloods in CA, and the infrastructure is NOT in place to mitigate that threat because "environmental use" has priority over the humans who rely on that same environment. 2/3 of the voters in CA mandated FIXING the water shortage in 2014. That fix still hasn't happened. Blaming drought doesn't explain why the state does not have adequate water storage for ALL users, or why food prices continue to climb, or why the extreme wildfires keep burning in our unhealthy overgrown forests, etc. Solutions exist but haven't been implemented. The ongoing crises were preventable, and the voters are angry. Learn from the mistakes made in CA.

How much critical water is being wasted or mismanaged elsewhere in the western states where water is more limited? Is saving a plant or fish more important than the habitat and lives lost to the extreme wildfires that are the result of unhealthy forests, or than livelihoods or lives lost due to massive flooding or lack of adequate water or affordable food? Do a reset. Humans also matter. Find better balance.

What we need is to FIX the water shortage with increased water capture and storage that also offers flood protection, clean up the polluted waters by stopping the source so environmental use of water isn't dedicated to diluting polluted waters that also destroy the aquatic habitat, send an army of resources in to clean up our overgrown forests so we can save more vital trees and habitat and reduce the ongoing toxic smoke pollution in our air and contamination of our water at the source. This is a basic and urgent need that cleans up and better protects the environment that humans rely on, and provides a path to a more sustainable future because the strategy is more balanced and also considers human needs.

That our lands are so very vulnerable and our environment so compromised is a testament to the poor choices made by years of ongoing environmental policies. Please, make much better and more balanced choices going forward.

-- Jorene Downs
jorenedowns@gmail.com

This message is in response to the Bureau of Reclamation solicitation for public comments for Post-2026 Colorado River Reservoir Operational Strategies for Lake Powell and Lake Mead Federal Register docket #2022-13502. Please enter this comment into the public record.

[EXTERNAL] Written comments regarding the revision of federal guidelines

jim smith <james.davids@att.net>

Wed 8/17/2022 6:18 PM

To: CRB-Info, BOR <bor-sha-LCB-Info@usbr.gov>

1. Correct the 1922 Colorado River Compact's over estimated available water supply. A designated finite supply may incur federal, state and local accountability for a sustainable supply. (A realistic Federal Water Budget.)

2. If we believe in First-in-time, first-in-right water rights doctrine, Native Americans must be adjudicated water before anyone else. There must be federal oversight to maintain beneficial use and conservation just like any other water user. Hypocrisy has no place in policy.

3. Regarding water used in industry and agriculture; Industry and agriculture for domestic consumption must take precedence over industry and agriculture for export. At the very least a net zero water loss balance must be maintained over profit. There must be an added cost to products destined for export so other means of water production or conservation can be facilitated. i.e. Waste water reuse, desalination and storm water storage. *Water exported for profit must stop.*

4. Growth in our cities must not be allowed to outpace the available water supply. Apply the means and procedures for #3 above towards new development.

5. There must be a balance maintained between human need and the environment. i.e. Humans cannot continue irrigating exotic landscapes in a naturally arid environment. I'm speaking about nonnative turf, shrubs and trees. Doing so must come at a cost designed to discourage such use or at least augment the cost as in #3 above.

6. Groundwater must be held to the same principals as surface water. Ground subsidence must not be allowed.

[EXTERNAL] Comment on Post-2026 Colorado River Reservoir Operational Strategies

Jade Robinson <jade84737@gmail.com>

Wed 8/17/2022 8:13 PM

To: opentrails@azbackroads.com <opentrails@azbackroads.com>;CRB-Info, BOR <bor-sha-LCB-Info@usbr.gov>

Greeting

Environmentalists want to remove Glen canyon but they have no data on what it will do to the people of Page and surrounding areas. Let's see some data on economical impact that lake Powell creates let alone the memories

-- Jade Robinson
jade84737@gmail.com

This message is in response to the Bureau of Reclamation solicitation for public comments for Post-2026 Colorado River Reservoir Operational Strategies for Lake Powell and Lake Mead Federal Register docket #2022-13502. Please enter this comment into the public record.

[EXTERNAL] Fill Lake Powell to level 3588'

Reese Romine <romineреese@gmail.com>

Thu 8/18/2022 11:52 AM

To: CRB-Info, BOR <bor-sha-LCB-Info@usbr.gov>

I support the plan to fill lake Powell presented by the blue ribbon coalition. I would also like to note that farmers should have priority on water in the lower basin states and the city's can start looking at other plans like desalinization.

[EXTERNAL] Colorado River Export Restrictions

Marc Silverman <dhalgrn@gmail.com>
Thu 8/18/2022 8:34 PM
To: CRB-Info, BOR <bor-sha-LCB-Info@usbr.gov>

1 attachments (882 KB)
Colorado River - export restrictions (4).pages;

Dear Ms Jerla,
The attached letter describes a federal action that could help reduce demands on the Colorado River.

Thanks,
Marc Silverman
Los Angeles

September 23, 2022

This is a response to the DEPARTMENT OF THE INTERIOR Bureau of Reclamation [RR03040000.22XR068080.RX.18786000. 5004001] Request for Input on Development of Post-2026 Colorado River Reservoir Operational Strategies for Lake Powell and Lake Mead Under Historically Low Reservoir Conditions AGENCY: Bureau of Reclamation, Interior. ACTION: Notice and request for input

Send written comments on the proposed development of Post-2026 Colorado River Operational Strategies to CRB-info@usbr.gov.

P. Brian McNeece
5353 Aztec Dr Unit 14
La Mesa, CA 91942

Tel. 760-427-0440
bmcneece@gmail.com

Meeting the water crisis of 2023

Some input about how to manage the severe water shortage in the Colorado River basin.

The crisis in the Colorado River watershed is just another chapter in the book being written by humanity in this Anthropocene Age. All around us, our actions and inactions are causing enormous changes in the planet, changes that have affected our world at every level, from the smallest life forms to the atmosphere itself. Regarding climate, natural variations have been altered, probably permanently, by the burning of fossil fuels and other chemical processes ancillary to industrial development.

At the heart of the crisis is the recent exponential growth of the planet's population. Just 20,000 years ago, only about a million people roamed the earth. I say "just" because humans very similar to us have occupied the earth for several hundred thousand years. They were not as big as we are. Nor did they live as long. But in most every other aspect, they were the same in intellectual and emotional capacity. This insight makes the rapid increase in human knowhow and population even more startling.

We are all aware of the population explosion brought on by the Industrial Revolution that began only 200 years ago. In 1830, the world's population reached one billion. A hundred years later, when my mother was born in 1930, there were two billion people on earth. When I was born about 20 years later, three billion. In May of 2002, the earth contained 7.6 billion people. By November of 2022, the planet will reach 8 billion.

Alvin Toffler, in his 1970 book, *Future Shock*, coined that phrase to mean a psychological state brought on by "too much change in too short a period of time." On the Colorado River, we're all in future shock.

In 1922, when the Colorado River Compact was signed, the river served about a million people. Now it serves over 40 million. Hillsides in San Diego County are still being leveled for housing

developments. The metropolitan areas of Phoenix, Denver, Las Vegas, San Diego, and Tijuana continue to spread like the mycelia of a fungus, exploring and populating the hinterlands in every direction. Leaders in St. George, Utah say it's their turn to match the explosive growth in those cities. All they need is the water they're entitled to. The bottom line is that there's not enough water to serve present needs, much less more growth.

As emergency negotiations take place up and down the Colorado River, it's clear that water is not a singular problem. All over the planet, it's clear that our burgeoning population, along with the technology that supports it, is forcing us to revamp the way we live. Those who resist government regulation must see that there is no other option but to closely manage everything--from water to fuels to raw materials—in a sustainable way. This means that we must see the waste stream side of all production and consumption as just as important and just as valuable as the supply side.

Two principles follow from these conditions and guide these remarks. We have to live within the limits of the actual availability of resources at hand, and we need to re-use them as much as possible.

1. System Issues

a. The Structural Deficit. The structural deficit should be addressed first by re-setting the total amount of water allocated from the river to a more accurate 10-year average. The Colorado River Compact of 1922 and the 1944 treaty with Mexico allocated 16.5 million acre-feet. Paleo records based on tree ring analysis show a 14.7 maf annual average dating back to 1500. The actual 100-year historical average is 14.6[1] maf; however, with climate change and aridification, that number has also fallen.

Since the drought began in 2000, the average annual flow has been 12.3 maf.[2]

While with 1922 Colorado River Compact allocated 7.5 maf to both the Upper and Lower Basin states, and the 1944 treaty with Mexico allocated 1.5 maf, the Upper Basin states have never used their full allocation. Their annual use is 4.0 maf. Thus, total current use is 1.5 + 7.5 +4.0 +2.4 maf lost to evaporation or 15.4 maf total. The only way to significantly lower evaporation losses is to minimize Lake Powell (see below), so the cuts must come from the various contractor's actual current use of 13 maf. The available water is 12.3 maf minus evaporation of 2.4 = 9.9 maf. Contractors must therefore reduce consumption in aggregate by 3.1 million acre-feet just to keep the reservoirs where they are now.

This 3.1 maf reduction out of 13 maf represents a cut of 24%. Again, this fixes the structural deficit but does nothing to build elevation in either Lake Mead or Lake Powell. But it is the right place to start for 2023. The 24% number can be adjusted once a panel of experts certify the most up-to-date flow and evaporation figures.

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[1] "Water-Year Summary for Site USGS 09380000 Colorado River at Lees Ferry, AZ". National Water Information System. U.S. Geological Survey. 1922–2020.

[2] Wheeler Kevin G. Brad Udall, Jian Wang, Eric Kuhn, Homa Salehabadi, John C. Schmidt. What will it take to stabilize the Colorado River? *Science*. 22 July 2022. Vol 377. Pp 373-375

The California situation.

If we are to follow the schedule of senior and junior water rights strictly, we can see that this 24% cut will have devastating effects on junior water rights holder. California receives 4.4 maf per year. A 24% cut is 1.05 maf, leaving 3.35 maf to be distributed to the five signatories to the Quantification Settlement Agreement: Palo Verde Water District, Imperial Irrigation District, Metropolitan Water District, San Diego County Water Authority, and the Coachella Valley Water District.

Palo Verde has the most senior water right. Therefore, they can take delivery on their full allocation of about 450,000 acre-feet. Subtracting that amount from the 3.35 maf, we have 2.9 maf left. But the IID's allocation is 3.1 maf. Now what? The IID would be cut 200,000 a-f of water, and junior water rights holders would receive zero from their 1931 Seven Party Agreement allocations. The courts would not allow this scenario to occur.[3]

That's why the fairest method is to cut all contractors the same—24% across the board—and let each region solve its unique problem in its unique way.

b. This structural re-adjustment, along with the reductions found in the 2007 Interim Guidelines and the 2019 Drought Contingency Plans, should be re-evaluated via a comprehensive process to completely renegotiate the basic documents known as the Law of the River to coincide with the sunsetting of the Quantitative Settlement Agreement in 2045.

c. Provide some adjustment in areas where farmers and urban areas have already pursued effective conservation methods. For example, Southern Nevada Water Authority might be given less than a 24% cut, given that they have made great advances on cutting water use through proactive investment in efficiencies.

Consider a baseline gallon-per-day figure as a goal for all urban areas.

d. Minimize Lake Powell. One way to minimize cuts to Colorado River contractors is to lower evaporation losses in Lakes Powel and Lake Mead and everywhere else along the river. There seems to be great uncertainty about how much evaporation occurs. Consequently, it is important to continue studies to more accurately determine if water savings justify decommissioning the Glen Canyon Dam and returning Glen Canyon to being a river channel. This would include replacing the electrical generation capacity of Glen Canyon Dam with nuclear power based on thorium and fluoride salts.

If Glen Canyon Dam were to be decommissioned, and Lake Powell minimized, recent studies[4] indicate evaporation losses, currently at about 2.4 million acre-feet annually, would drop by .5 million a-f. While not a panacea, the increase of 500,000 a-f of water would drop the required cut from 3.1 maf to 2.6 maf. Instead of a 24% cut, agencies would need a 20% cut. This option should be considered.

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[3] IID's 2.6 million acre-feet of present perfected water rights and prior appropriation rights cannot be ignored in negotiations. Urban areas have more options for water supply and for conservation than do Imperial County farmers.
[4] Wheeler, *et al.*

Regrettably, this suggestion would cause considerable loss in revenue to the Lake Powell area because of the enormous popularity of boating and other water recreation there. Some of that loss could be mitigated by moving facilities to a resurgent Lake Mead. Also, as Lake Powell shrinks and a river ecology returns, other revenue could be generated via river rafting, fishing, and alternative riverine-based recreation.

e. Increase storage capacity of Upper Basin Reservoirs where possible. Pump back water into reservoirs to use them as hydroelectric storage batteries. This should save water as well by reducing the amount of water that is released for power production instead of for beneficial consumptive use.

f. The Bureau of Reclamation and its Colorado River stakeholders should recognize that the water entering the United States from Mexico at Calexico and San Ysidro becomes the property of the people of that region. It should therefore be available for reasonable and beneficial use to the appropriate local public water district. The new post-2026 agreements should include language that the International Boundary and Water Commission, in partnership with its Mexican counterpart Comisión Internacional de Límites y Aguas, deliver an agreed-upon amount of water to these agencies at water quality levels fit for non-contact recreational use.

   Precedents of cooperative agreements between the IBWC and CILA elsewhere along the border provide good templates for both San Diego and Imperial Counties, but especially the latter, which has been neglected in this matter in regards to the pollution in the New River entering the United States at Calexico, California. It should be noted that the Salton Sea has an existential need for New River water to keep toxic playa wet and therefore benign.

g. On the other side of the ledger, the post-2026 guidelines should recognize tribal water rights. Savings from the above suggestions should provide new water to tribes. Tribal water rights, however, should be treated the same way as other water districts hold: limits on transfers and constraints on reasonable and beneficial use should apply to tribal rights as they do to other contractors on the river.

h. Groundwater pumping on private land within the Colorado River watershed and delivery areas needs to be monitored, and pumping should be restricted to the level that does not lower the water table. Where feasible, guidelines should provide a timeline for establishing rates of pumping to restore water tables to sustainable levels. In other words, put teeth in California's Groundwater Management Act of 2014,[5] and implement similar legislation in the other states of the Colorado River Watershed.

i. It should be noted that the coastal areas of Los Angeles, Orange, and San Diego Counties have access to new supply of water through desalination of seawater in the Pacific Ocean. Likewise, Imperial County and Yuma County and the Mexican states of Baja California and Sonora have access to new

[5] Sustainable Ground Water Management Act. https://water.ca.gov/programs/groundwater-management/sgma-groundwater-management

supply of water through desalination of seawater in the Gulf of California, though at a much greater distance. No other areas in the delivery area of the Colorado River have this option. Negotiations on water matters in the Colorado River watershed and distribution area should not penalize these areas for their desalination options.

j. It should be recognized that while other areas have high incentives to recycle waste water for domestic and industrial uses, Imperial County has a disincentive to do so. Recycling re-use of waste water in Imperial County only hastens and furthers the shrinking of the Salton Sea and worsens the looming environmental and public health disaster. The sea-to-sea option of bringing water from the Gulf of California to the Salton Sea should be advanced in these same discussions.

k. Recent research shows that the Colorado River filled the Salton Sink seven times during the last 2,000 years.[6] On many other occasions, the basin was partially filled due to seasonal flooding. This is to argue that Imperial County is properly part of the Colorado River delta and that flow into the Salton Sea after consumptive use should be counted as return flow credit—or at least some portion of it. With 95% of traditional bird habitat along the Pacific Flyway destroyed by human development, the Salton Sea is a critical component of the ecological balance along the western flank of the whole North American continent.

l. Pursue ways to reduce evaporation in all reservoirs and canals.

m. Create a basin-wide public relations effort to change consumers' attitude toward water. We live in a desert. Water is precious. Water is valuable. Don't squander it.

2. Agricultural issues

a. Recognize that agriculture use of water is essential both for food production but also for preservation of habit and a healthy ecology. Agricultural use of water should never be seen as a second-rate use of water. Calculations of economic value produced per unit of water should not be given the highest priority in the way water is allocated.

b. Remove inefficient ag land. Take high water use agricultural land out of production. Imperial County, for example, includes a wide variation in the quality of land due to several factors: alkalinity and porosity are two of them. Several options are available to meet this goal.

   i. If all farmers' water orders are cut by 24%, they themselves decide which of their lands to fallow.
   ii. Use eminent domain to purchase enough land to reduce the demand for water by 24% in a given farming area. Alternatively, these permanently-fallowed lands could be converted into solar photovoltaic fields.

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[6] **Rockwell, Thomas K. Aron J. Meltzner. Erik C. Haakerd. Danielle Madugo.** The late Holocene history of Lake Cahuilla: Two thousand years of repeated fillings within the Salton Trough, Imperial Valley, California. Quaternary Science Reviews. Vol. 282. 15 April 2022. https://www.sciencedirect.com/science/article/pii/S0277379122000877?via%3Dihub

iii. Pay farmers to fallow enough land to free up that required 24% cut.
   1. Any program that pays farmers not to farm to save water should also pay the other affected stakeholders/ancillary members in the farming economy. In other words, any effort to make the farmers whole without equally compensating other elements of that economy must be recognized as unjust.

c. Provide more funding to help farmers convert to higher-value, low-water use crops.

d. Recognizing the Imperial County farmers' needs to manage salt buildup in their soils, provide incentives for land owners to upgrade the deep drain system to contemporary standards (shallower drains at smaller intervals). Imperial County, along with its neighbors in northern Baja California and Sonora, receives the worst quality Colorado River water because of accumulated run-off and return flow of other users upstream. All upstream water users need to recognize how Lower Basin farmers must cope with this salt-laden water on heavy soils.

e. Where groundwater quality is insufficient for agriculture or other uses, guidelines should spell out incentives to purify water through filtering, reverse osmosis desalination, or other emerging and less costly technologies so that groundwater can be used for reasonable and beneficial consumptive use.

f. Provide incentives to implement farming practices that reduce water consumption by managing soil ecology through inputs of beneficial bacteria and fungi and appropriate tillage practices.[7]

3. Municipal Issues

a. Urban Recycling All cities that receive Colorado River water should recycle all waste water and recapture and recycle rainwater. In San Diego, just at the Point Loma facility, about 200,000 acre-feet of wastewater (175 million gallons per day) is treated and then sent into the ocean.[8] We should see all the water that coastal cities flush into the ocean as new supply that needs to be put to reasonable and beneficial use.

   An important caveat to the recommendation of recapturing rainwater must be noted. As all local rivers have been dammed, rainfall below dams and urban run-off have become the only available water sources for the original flora and fauna in cities. The San Diego River and its feeder canyons are a case in point. Rainwater and urban run-off provide a fraction of the water originally supplied by the San Diego River and its tributaries upstream from dams. Thus rainwater recapture efforts in urban areas should focus on end-of-use rather than before those waters enter what's left of the natural ecology.

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[7] Guerena, Martin. Rex Dufour. Managing Soils for Water: How Five Principles of Soil Health Support Water Infiltration and Storage. ATTRA Sustainable Agriculture. November 2019. https://attra.ncat.org/wp-content/uploads/2019/11/managing-soils-for-water.pdf?

[8] Point Loma Wastewater Treatment Plant. https://www.sandiego.gov/public-utilities/customer-service/water-wastewater-facilities/point-loma#:~:text=Point%20Loma%20Wastewater%20Treatment%20Plant%20treats%20approximately%20175%20million%20gallons,gallons%20per%20day%20(mgd)

b. Transition to all native or equivalent landscape plants. Irrigated landscaping is a decorative form of agriculture, a luxury that we can no longer afford. New agreements among all Colorado River water agencies need to include plans to convert landscaping to native or other low-water-use plants that can survive on natural precipitation alone. The water saved from converting to native plants can also be considered new supplies of water.

   How is it that even after years of conservation measures, people of San Diego, California use three times as much water as people in Tijuana, Baja California? For one thing, there is simply not enough water for both domestic use and decorative landscaping in Tijuana.[9]

c. Municipalities should implement more aggressively tiered water rates, and water budgets need to be adjusted down for the lowest tiered rates. Revenue from the higher tiered rates can be used to help fund water-saving landscaping, water-saving irrigation technology, water recapture, and other technological advances.

d. Revenue from higher-tiered pricing can fund regional water banks, which could provide low interest loans to homeowners and industrial users to invest in water savings improvements.

e. Provide incentives to make to move people to where the water is now, not just within the Colorado River basins but to the east and north where water is plentiful. The west needs to accept that it cannot continue to grow in population at recent rates. High housing costs are performing this function to some degree already.

f. Establish policies to incentivize change in household behavior in water use. For example, provide rebates for installing point-of-use water heaters (such as under the sink). How many millions of gallons of water are wasted by consumers waiting for hot water at every tap?

g. Increase the amount of seawater to be desalinated along the coastline, taking advantage of new technologies that lower the current high costs and large electrical requirements for desalinating seawater.

h. Create a special research agency to analyze and evaluate all these suggestions to more accurately assess the water savings potential of each one.

[9] 144 gallons per day in San Diego. 50 gallons per day in Tijuana.

[EXTERNAL] Input to Federal Register on Colorado River water crisis

B McNeece <bmcneece@gmail.com>

Fri 8/19/2022 4:01 PM

To: CRB-Info, BOR <bor-sha-LCB-Info@usbr.gov>;Jerla, Carly <CJerla@usbr.gov>

Hello Carly,

Please see attached pdf. It contains many ideas for handling the upcoming severe water shortage in the Colorado River watershed and beyond. I hope you have a great weekend.

--

Brian McNeece

760-427-0440

[EXTERNAL] Colorado River Crisis

Nicolas Urias <nicolasbleuurias@gmail.com>
Sun 8/21/2022 8:57 AM
To: CRB-Info, BOR <bor-sha-LCB-Info@usbr.gov>

As a user of Colorado river resources, I want it to be made known that I disapprove of the countries willingness to allow the cattle industry to deplete vital resources without restraint. I do not think it is wise to not severely limit water usage for the number one waste of water resources for a animal product. Please use your power to reign in water that get allocated to the cattle industry before it is too late for the American southwest.

Nicolas Urias

[EXTERNAL] Please make the health of the ecosystem in the Grand Canyon a priority.

Jack Grant <mailagent@thesoftedge.com>
Thu 8/25/2022 6:56 PM
To: CRB-Info, BOR <bor-sha-LCB-Info@usbr.gov>

Dear Bureau of Reclamation:

I believe that the Colorado River should be freed of the Glen Canyon dam. I also believe that the Colorado River Compact must be reworked to protect the health of the entire ecosystem. For far too long, humans have disregarded this pristine natural area and used it to satisfy their insatiable desire for expansion and for resources.

All of the water currently stored in Powell could be stored in Mead. The flows in the Grand Canyon need not be altered by the Glen Canyon Dam any longer. Glen Canyon was never meant to be flooded by dam-happy engineers in the 60's.

The ecosystem of the Colorado Plateau must be protected for prosperity. This area is extremely special and resembles nowhere else on the entire planet. We must begin to put a much larger importance on the health of our natural places instead of continually disregarding the needs of our surrounding environment.

Please choose to protect the Grand Canyon and the Colorado Plateau. The Southwest must begin caring about our environment before it is too late.

Sincerely,

Jack Grant
1000 E Apache Blvd
Tempe, AZ 85281-5820

[EXTERNAL] Comments on the proposed development of Post-2026 Colorado River Operational Strategies

Jeremy Dausman <njdausman@yahoo.com>
Mon 8/29/2022 6:48 AM
To: CRB-Info, BOR <bor-sha-LCB-Info@usbr.gov>

We need a plan for a future with less water. Climate models, rates of use and an over-allocation from the start tell us that we must adapt.

The average person in the Colorado River basin uses about 200 gallons of water per day – in kitchens, bathrooms, laundry rooms, and in their yards. Along the Front Range of Colorado, approximately 40% of all water is used for 3 months in the summer to keep lawns green; that percentage may be even higher in the desert landscapes of Arizona and southern California. There should be a plan put in place for lawns to be transformed to Xeriscaping, which is the practice of designing landscapes to reduce or eliminate the need for irrigation. Some areas in the Front Range have clay soil and would be better planted with drought-tolerant species that thrive, or at least adapt, to clay. Rebates and incentives should be offered. The U.S. Geological Survey's most recent water use data just for Utah shows the state uses about 38 million gallons of water on golf courses per day — enough to fill almost 58 Olympic-size swimming pools.

The U.S. Census Bureau expects an average of a 53% increase in population in the year 2030 in the Colorado River basin states. This new population growth will all require new and more water, and place even more demand on the Colorado River and its tributaries. There needs to be a realistic analysis done of the impacts that having an ever growing population will have in these areas.

As the river flows downstream and into the arid Southwest, it is one of the only sources of water within hundreds of miles for wildlife of all types. Four federally listed endangered species of fish still cling to existence in the river; its water and wetlands provide habitat for migrating birds from the top of the basin all the way to the bottom; and bighorn sheep, elk, mule deer, bear, and mountain lion prowl its banks all along its 1,450 mile journey. The river is not just for our species. This planet is not just for us. We should consider other species in our decisions. Protecting the Colorado River will help protect the Southwest United States and the biological diversity its wild ecosystems contain.

Agriculture consumes the vast majority of the Colorado River's water. Diversions from the River for agriculture total about 78% of the River's entire flow, almost 4 trillion gallons. Some parts of the water challenge posed by beef and dairy consumption can be addressed directly, today, and help to save fish and ecosystems."We can control the amount of water we allocate to different things," says Xenopoulos. "We can try to grow food that uses less water. This is an easier issue to fix than climate change because that's such a bigger-scale problem. So let's focus here and find some answers," she says. Only through water law that is more flexible, as well as a social shift from

conflict to collaboration, will water efficient irrigation technologies and alternative agricultural transfer methods aid in allocating Colorado River water for future generations.

My hope is that there will be pragmatic solutions that will be put in place considering future generations and the wildlife that depends on it.

Nicole Jack
4816 Crest Ct
Waukegan, IL
60087

[EXTERNAL] Please Make Lake Powell Recreation a Priority

Regina Raymond <mailagent@thesoftedge.com>
Mon 8/29/2022 8:12 AM
To: CRB-Info, BOR <bor-sha-LCB-Info@usbr.gov>

Dear Bureau of Reclamation:

I enjoy recreating on Lake Powell, and some of my fondest memories are the times I've spent on Lake Powell.

I encourage the Bureau of Reclamation to consider the recreation interests Lake Powell and the other reservoirs in the Colorado River Basin as BOR reconsiders the 2007 Colorado River Interim Guidelines for Lower Basin Shortages and Coordinated Operations for Lake Powell and Lake Mead, the 2019 Drought Contingency Plans, and the international agreements between the United States and Mexico.

Economic benefits from recreation on Lake Powell are larger than the economic impact of the power generation. The economic impact of Lake Powell-based tourism is the lifeblood of towns such as Page, Arizona. Of course this impact reaches throughout the states of Utah, Arizona, Nevada, Colorado, California, and beyond. National Park Service recognizes Glen Canyon National Recreation Area contributed $495 million to gateway communities in 2019. This number doesn't account for the money visitors spend buying boats and supplies in the surrounding states in order to recreate on Lake Powell. It is likely that recreation on Lake Powell results in economic activity that is measured in billions of dollars. Water use and energy production are also critical services provided by Lake Powell and the Glen Canyon Dam, but it can't be ignored that recreation is as economically important as these other uses. Recreation shouldn't be an afterthought or ignored altogether.

I am aware the "target" elevation is 3,525 feet and the minimum elevation to operate the hydropower, or power pool, is 3,490. Although 3,525 allows you to continue to run hydropower operations, this level restricts numerous recreation opportunities. We have seen numerous closures of marinas and facilities throughout Lake Powell in recent years.Because there are so many variables affecting the lake's elevation such as precipitation, snowpack, runoff, release volumes, and other reservoir elevations the Bureau needs to consider changing the "target" elevation. Once the lake gets to the target elevation, because of the numerous variables it could be too late to keep the hydrology operations going. In the long run, I think 3588 feet is a better target elevation for the lake to meet the demand for recreation in a way that also protects the power and water right interests.

I support the Path to 3588 plan developed by BlueRibbon Coalition that provides a way forward to meet this historic challenge we are currently facing. This plan involves a combination of equitably reducing water use among the affected states and Mexico, reimagining the volume and timing of water releases through the major dams, and having enough flexibility built in so that if the reservoirs begin to fill

sufficiently, restrictions on water use can ease. The BlueRibbon Coalition Plan also maintains viable lake levels in Lake Mead, and it should be a preferred alternative to any plan that would suggest draining Lake Powell to fill Lake Mead.

While maintaining Lake Powell at higher elevation levels will require tradeoffs elsewhere in the Colorado Basin, Lake Powell should be given attention equal to its economic impact. It is a national treasure for outdoor recreation and vitally important for local economies at the same time the reservoir and dam provide clean energy and water certainty for downstream users based on the actual amount of water available in the system.

I recognize that the Bureau of Reclamation and water users in the basin are facing difficult choices. I also recognize that many of the recreation users of Lake Powell are also users of the water and power. We are all important stakeholders in this discussion, and we all have a role to play. Please consider recreation as an important voice in the effort to Fill Lake Powell!

Sincerely,

Regina Raymond
12611 Township Road 218
Van Buren, OH 45889-9702

[EXTERNAL] Keep Powell firing

Alec Cracchiolo <mailagent@thesoftedge.com>
Mon 8/29/2022 8:24 PM
To: CRB-Info, BOR <bor-sha-LCB-Info@usbr.gov>

Dear Bureau of Reclamation:

lake Powell is somewhere we love to enjoy water sports at and I intend to do the same with my kids one day. Don't take that from us. Peace

Sincerely,

Alec Cracchiolo
27209 N 147th Ave
Surprise, AZ 85387-6893

[EXTERNAL] Don't drain Lake Powell

vance_emily@yahoo.com <vance_emily@yahoo.com>
Mon 8/29/2022 8:26 PM
To: CRB-Info, BOR <bor-sha-LCB-Info@usbr.gov>

I have been going to Lake Powell my whole life. It is a sacred place to me and holds memories and opportunities I would not have made anywhere else in the world. Aside from my sentimental attachment to the lake it's purpose for holding water and it's impact on the economy is crucial for so many. The idea of it being drained is ridiculous to say the least. The affects of draining the lake will last decades. The affect of our ability to be self reliant and provide for life in the west will be impossible without our reservoirs. We have been in drought before and have never seen this kind of mismanagement of water resources. It is not going unnoticed the amount of reservoirs that are under attack. Stop draining our lakes and eliminating our resources.

Emily Vance

[EXTERNAL] Fill lake powell

Shanin Balfour <shaninwbalfour@gmail.com>
Mon 8/29/2022 8:47 PM
To: CRB-Info, BOR <bor-sha-LCB-Info@usbr.gov>

My family has been going to Lake Powell for almost 30 years please don't let our favorite and best family vacations end. We love the lake and have so many amazing memories there. We need the lake to help support dry climate too.
Shanin Balfour

[EXTERNAL] Support of Fill Lake Powell 3588

jstones@adventureup.net <jstones74@gmail.com>
Mon 8/29/2022 9:02 PM
To: CRB-Info, BOR <bor-sha-LCB-Info@usbr.gov>

Please, please, please figure out a way to save Lake Powell and update how water is used and wasted downstream. The lake has been serving its purpose and acting as a bank during this extensive drought. We just need to be smarter with our water/$$ during this time.

I am from Oregon and discovered LP in the mid-90's during my college years. I have been to Lake Powell maybe 50+ times since! My family and many friends can't get enough. We explore so much of southern Utah and it's amazing canyons. We love the diversity that all of these areas bring but Lake Powell is in a league of it's own. There's no where like it in the whole world.

Please do what you can to preserve this iconic 8th wonder if the world. I know you can make the necessary changes to be a win-win for most.

Please give the Fill Lake Powell 3588 proposal from BlueRibbon Coalition a chance.

Thanks 🙏

Jon Stones
--
Jon Stones

[EXTERNAL] my sincere thoughts on keeping lake powell

amy johnson <mailagent@thesoftedge.com>
Mon 8/29/2022 9:16 PM
To: CRB-Info, BOR <bor-sha-LCB-Info@usbr.gov>

Dear Bureau of Reclamation:

hi i hope you read this,

my most memorable experiences have been with my dear friends who i call family on lake powell. powell is my home. i feel completely at peace and all my worries leave once i am on the lake. we always look forward to every year spending that time with each other. my heart breaks to see and read how others are wanting to drain this beautiful lake. please do not drain this lake. i know i'm only one person but i am praying that you read this. i am praying that you would be willing to help save this lake. please don't take this lake away from so many who love it there. please keep our favorite memories going. please keep our hope and hearts strong in something that means everything to us.
i hope i am able to explain all my heartfelt thoughts on why lake powell means so much to me- i was excluded of being able to go with my birth family years ago after being disowned from that entire family.. and ever since that moment (over 10 years ago) i have been trying to bring my little family there so they can grow up having memories there too.. and last year was our first year we were able to finally get there and we found our "family" to go with. we went again this year and have already booked another trip for next year.. but watching my kids fall completely in love with this lake and watching them create their own favorite memories means everything to me too. the constant smiles and laughter and adventure every day is absolutely beautiful and has brought us all together in ways no other trip can. i want to be able to keep taking my children and one day take my grandchildren and keep this reunion going year after year. this is my sincerest dream.. my heartfelt desire for my
family. you may not understand completely why i love it and why it means everything to me to finally have this trip back again but it does. i am praying. i am praying you will read this and praying you will help support the filling of lake powell again. please help us- those of us who have our hearts there always and call this place home.
thank you for reading, amy

Sincerely,

amy johnson
653 hampton court
Alpine, UT 84004-1933

[EXTERNAL] Lake Powell/Colorado River Management

Tiffany Mapel <tiffmapel@yahoo.com>

Wed 8/31/2022 9:14 AM

To: CRB-Info, BOR <bor-sha-LCB-Info@usbr.gov>

Cc: Tiff Mapel <tiffmapel@yahoo.com>

Hello,

Thank you for the opportunity for the public to comment. It is very unfortunate we find ourselves in this situation with dwindling water in the Colorado River, just as other rivers around the world are also struggling at the same time. But, WE can actually do something about this. I hope it's not too late.

Please decrease the flows from both Glen Canyon Dam, and Hoover Dam. This will hold more water in Lakes Powell and Mead. Don't wait for it to get to the critical "dead pool" level. Do something NOW.

It is also unfortunate that California has the lions' share of the water, set forth in the Compact 100 years ago. Why is this Compact set in stone? It should be a living document, to change with the times/population/water supply. It no longer works as intended. If you keep up with "business as usual," then you are dooming Powell and Mead to empty. We are not living in the past. The Compact is. It is beyond time for change. What's the hold up?

Not sure if you've heard that the La Nina will continue this winter. That means another dismal year for water runoff--warm and dry are predicted. So what's your plan? We cannot count on a strong spring runoff in 2023.

Also, the very group that is pushing for decommissioning Glen Canyon Dam and restoring the Colorado River is the one that is begging the Bureau to consider drilling new outlet tubes to access water below the "dead pool" level. They are one step closer to achieving their dream. Do not fall for it. You need to KEEP water in Powell and Mead.

Please manage the Colorado River system BETTER to preserve Lakes Powell and Mead. These are National Recreation Areas, that draw millions of people each year, and generate hundreds of millions in annual revenue.

I would really hate to get to the point where everyone is doing a lot of hand-wringing asking themselves "how did this happen?" as Powell and Mead drain away. Do something NOW. Be pro-active, not re-active.

A concerned citizen,
Tiffany Mapel
Durango, CO

Comments on the proposed development of Post-2026 Colorado River Operational Strategies

Paul W. Harms, P.E.
August 2022

These comments include one section on potential substantive elements and strategies followed by a shorter section related to processes that can be employed to encourage and facilitate meaningful participation in the upcoming NEPA process.

Potential substantive elements and strategies for post-2026 operations

Basin-Wide Alternative

The Basin-Wide Alternative would have the following elements:

- A tentative operational plan for Lake Powell and Lake Mead in the coming calendar year would be set on a specific day late in the current calendar year and would be based largely on the combined storage volume in Powell and Mead on that day. Alternatively, the coordinated operational plan and the combined storage volume could encompass additional reservoirs in the basin that are operated by the Bureau of Reclamation.
- The combined storage volume on the specific day would be the primary determinant of the amount of mainstem water that Reclamation would deliver to the Lower Division states in the coming calendar year.
- The combined storage volume on the specific day would also be the primary determinant for setting an Upper Basin consumptive use limit for the coming calendar year. This would be a single limit for the Upper Basin that would be managed through the Upper Colorado River Commission along with Upper Basin Indian tribes.
- The basin states, and potentially the basin tribes, would develop an agreement on consumptive use that would include several elements. The Lower Basin would limit their mainstem uses to far less than 7.5 million acre-feet per year (maf/yr) except when Powell and Mead (or all reservoirs being considered) are nearly full. In collaboration, the Upper Basin would limit their consumptive use to far less than 7.5 maf/yr and less than the 2007 Hydrologic Determination amount (5.76 maf/yr exclusive of shared CRSP evaporation) except when the reservoirs are nearly full. The agreement could include a list of actions that the Upper Basin would take in years when it needed to reduce its consumptive use. In exchange for the Upper Basin limits and to allow for flexible reservoir operations, the Lower Basin states would agree to not make a compact call under Article III (d) and/or (c) of the Colorado River Compact as long as the Upper Basin was making a good faith effort to not exceed the consumptive use limits in the agreement. The Upper Basin would retain the future option of ending the agreement and the new consumptive use limitations, and thereby reverting to being constrained by the threat of curtailment or actual curtailment based on river flows at Lee Ferry.
- The reservoir operations, delivery amounts, and consumptive use limits for the coming calendar year would vary with the combined reservoir storage volume on a continuum rather than by tiers. The amount of water in storage would be the primary determinant, but other factors could be considered, such as forecasts and the amount of mainstem water still to be delivered in the current calendar year.

- On a regular time period, Reclamation, the basin states, and potentially the basin tribes would consider and adjust, if needed, the parameters of the new guidelines. For example, this could be set for every three years with the option for earlier discussion and adjustment when necessary.

Discussion on the elements of the Basin-Wide Alternative:

The common interpretation of Article III (d) of the Colorado River Compact is that at least 75 maf of water must flow from the Upper Basin to the Lower Basin at Lee Ferry in any 10 consecutive years, and further, that if there is a shortage in this flow then the Upper Basin must curtail its water use to restore this flow amount. A common interpretation of Article III (c) is that additional water must also pass from the Upper Basin to the Lower Basin to provide a portion of the Colorado River delivery to Mexico. Hence, Upper Basin water management operates under a continual and increasing threat of having to reduce water use below the current levels.

If this interpretation of the compact remains a factor in basin water management, then the Upper Basin would need Reclamation to operate Lake Powell and other Upper Basin reservoirs with priority given to maintaining storage amounts that are large enough to maintain flows at Lee Ferry during dry years. Reclamation has attempted to operate the reservoirs in this way in the past, with the controversial storage amount termed "602(a) storage" after the defining section in the 1968 Colorado River Basin Project Act. Going forward, this would mean, at minimum, not releasing from Powell any extra water above a minimum release amount whenever doing so would result in the Upper Basin reservoirs having less than the 602(a) storage amount or being further below the 602(a) storage amount. In practice, given the current hydrology, this would mean keeping Powell as full as possible and releasing no more flow than the necessary minimum.

If Reclamation is to operate Powell and Mead – and possibly additional reservoirs – in a more coordinated way that allows for greater flexibility to support multiple resources, then they would need to *not* give priority to maintaining a 602(a) storage amount in the Upper Basin. However, a primary original purpose of Powell and some other Upper Basin reservoirs was to maintain river flows to the Lower Basin during dry years while allowing the Upper Basin to continue its water use. To be fair, without this protection the threat of a compact call against the Upper Basin should be removed. But how, then, to limit Upper Basin water use? How to reduce Upper Basin water use if needed?

With the Basin-Wide Alternative, the new guidelines would set a limit on Upper Basin consumptive use in the coming calendar year based primarily on the combined reservoir storage volume on a specific day late in the current calendar year. In practice, with the reservoirs currently at low levels, in the near term the Upper Basin consumptive use limits would likely be near present uses, with increases in the limits occurring if there are increases in reservoir storage.

Measuring and limiting deliveries from the mainstem in the Lower Basin is a well-established procedure. Measuring and limiting consumptive use in the Upper Basin is much more difficult. The UCRC and Reclamation are working on determining Upper Basin consumptive use more quickly. If this work progresses as expected, then by late in a calendar year they would likely know the Upper Basin consumptive use for the previous year but have only preliminary estimates for the current year. Any actions needed by the Upper Basin to stay within the consumptive use limits of the coming year would largely be determined by whether the limits are less than these estimates of recent consumptive use. The Upper Basin would have a list of actions for reducing consumptive use that it would agree to use

when needed. Retrospective analysis of expected and actual consumptive use may improve the measurement and control of Upper Basin consumptive use.

The compact flows from the Upper Basin to the Lower Basin are based on water years, and Reclamation has customarily set annual release amounts from Powell based on water years. However, with an agreement between the basin states that protects the Upper Basin from compact calls, reservoir operations and consumptive use amounts could all be planned by calendar year.

Under the current Interim Guidelines, Reclamation plans reservoir operations and delivery amounts for the coming water year and calendar year in August using projected surface elevations of Powell and Mead. Without the need to focus on water year releases from Powell, the Basin-Wide Alternative would allow Reclamation, basin states, and basin tribes to plan for the coming calendar year using the actual combined reservoir storage volume on a specific day later in the year. A set date could be used, such as November 16, or a specific day, such as the last Friday before Thanksgiving. While the major parameters for the coming calendar year would be determined by the combined storage volume, basin-wide water management may benefit by yearly discussions among the parties in the days before the plan is finalized on the specified day.

Without the need to consider annual release volumes from Powell or 602(a) storage amounts in the Upper Basin, Reclamation could give more weight to other factors in its development of a method to optimize coordinated reservoir operations. The determination of the Lower Basin mainstem deliveries for the coming calendar year would give an approximation of the amount of water that would be released from Mead. This could act as initial input for planning the coordinated operations of Powell and possibly other basin reservoirs.

Under the Basin-Wide Alternative, water designated for specific users – such as Intentionally Created Surplus or Mexico's Water Reserve – could continue to be stored in Mead. However, consideration should be given to the benefits of not including this water in the combined reservoir storage amount that determines the operations for the coming calendar year.

Processes that can be employed to encourage and facilitate meaningful participation

Under current and anticipated hydrologic conditions, and even with large reductions in Lower Basin mainstem water use, the Upper Basin cannot increase its water use significantly without further destabilizing the whole basin. Nonetheless, Upper Basin depletion schedules, compiled through the UCRC, project large increases in Upper Basin water use. The Upper Basin states have projected these increases, in part, because of the water development plans of Upper Basin tribes.

In New Mexico, the Navajo Indian Irrigation Project is the largest user of Upper Basin water. The Navajo Nation plans to increase the size of this project by half. The plans for this project and, to a lesser extent, for the Navajo-Gallup Water Supply Project, dominate the anticipated increases in Upper Basin water use in New Mexico. In Utah, the Lake Powell Pipeline has received criticism, but the recent Utah settlement with the Navajo Nation involves a similar amount of water and could have an equivalent effect on Lake Powell. Utah also anticipates development by the Ute Indian Tribe in the Uintah Basin. In Colorado, the Southern Ute Indian Tribe and the Ute Mountain Ute Tribe expect further development of their settlement water. Arizona has not reached a settlement with the Navajo Nation on Upper Basin water use.

Starting meetings early in the upcoming NEPA process between Reclamation and the appropriate states and tribes may be beneficial. The participants should determine how to handle potential increases in Upper Basin tribal water development while avoiding significantly increasing overall Upper Basin water use in the foreseeable future.

[EXTERNAL] Drain the bathtub

Trevor Hattabaugh <mailagent@thesoftedge.com>
Wed 8/31/2022 6:36 PM
To: CRB-Info, BOR <bor-sha-LCB-Info@usbr.gov>

Dear Bureau of Reclamation:

It breaks my heart seeing the wakeboarders and fishermen of Lake Powell band together to try to "fill the dam". They don't see the irony that some of their arguments are the same arguments the fishermen and rafters made against damming the river in the first place. "What about the recreation?" "What about the fish?"
Their appeal to save their motor boating haven for economic reasons is maybe the dumbest line of logic I have heard yet. Anyone could hoard the most precious resource (water) with a dam and call it an economic hub. Lake Powell is an economic hub in the fact that it steals value from every single stream, river, and lake upstream and down. It is an economic hub in that it has economically crushed fishing communities and native communities alike.

The science is in. We are in a record drought and it's not getting better anytime soon. The last thing we should be doing is taking drinking water from other states to fill a bathtub in the desert so that Johny Utah can day drink on his $200k boat.

Sincerely,

Trevor Hattabaugh
1555 golden ave
Eugene, OR 97404-2816

[EXTERNAL] Colorado River management

Flessa, Karl W - (kflessa) <kflessa@arizona.edu>

Wed 8/31/2022 10:17 PM

To: CRB-Info, BOR <bor-sha-LCB-Info@usbr.gov>

An elaborate justification is not needed at this point: it should be common sense:
A 20th Century Compact isn't working with a 21st Century river. It's time to base allocations on percentages of five-year running-mean discharges.
And ensure a fair share for the riparian environment.

Karl W. Flessa
Department of Geosciences
University of Arizona
Tucson, AZ 85721 USA
Office: 520 621 7336
Mobile: 520 444 5383

[EXTERNAL] Comment on Post-2026 Colorado River Reservoir Operational Strategies

Teresa Edmunds <triplightly68@gmail.com>

Thu 9/1/2022 9:08 AM

To: opentrails@azbackroads.com <opentrails@azbackroads.com>;CRB-Info, BOR <bor-sha-LCB-Info@usbr.gov>

I have lived in Utah for over 3 decades and am committed to the land and environment here. I support "Path to 3588". Though I see a need to protect the Colorado River and surrounding area, I do NOT support the proposal to "Fill Mead First". This is a drastic action that will have other environmental impacts as well as economical impacts on the communities surrounding Lake Powell and the Glen Canyon dam. These areas are in both Utah and Arizona and they deserve consideration as well as Nevada. It is unfair to only look at the impacts that will take place along the river and the Lake Mead area. My cousin has been a river rafter along the Colorado for 27 years and she is concerned about the river flow, but even she does not want other environments to be at risk to "fix" another environment. There is no way to know exactly how the proposed changes to shut down the dam will affect the Glen Canyon dam area and the thousands of miles around Lake Powell. It is all speculation. The natural area has evolved since the creation of the dam. That is what nature does. And by changing things again, the existing habitat will have to adjust all over again and that is difficult to predict - there could be negative results and thus create even more environmental problems. With over 2,000 miles of shore line, shutting down Lake Powell will have a HUGE affect on the natural environment there.

Not only is protecting the environment important but so are human needs. Millions of people depend on the power generated by the dam. The "Fill Lake Mead First" proposal would not be able to replace the power that the dam generates, even when the dam is at low capacity. Many areas will be forced to turn to other power options, such as fossil fuels, which will hurt the environment. Humanity is not going to stop using electricity. It will always be needed. Why spend millions of dollars replacing a source of power? Why not use what is already in place? Also, there will be a HUGE loss of economic revenue for the area around Lake Powell if the "Fill Lake Mead First" proposal is put into place. In these dire economic times, that needs to be considered too. People need the economic resources of the area to survive financially. Again, the needs of the people shouldn't be ignored.

And another significant item is that "Filling Lake Mead First" is protecting the water, economic and power needs of a specific area: Las Vegas. This has all the signs of favoritism and special interest groups. By diverting the water to this area, their environmental and economic needs will be sustained and protect at the expense of Utah and Arizona. Though it has some environmental elements "Fill Lake Mead First" also feels like a smoke screen for powerful business entities.

Of the two plans, "Path to 3588" is the better choice. It considers the needs of both nature and humanity and wants to protect the interests of several states, not just the area of Las Vegas.

Thank you for considering my option. Teresa Edmunds, concerned citizen

-- Teresa Edmunds
triplightly68@gmail.com

This message is in response to the Bureau of Reclamation solicitation for public comments for Post-2026 Colorado River Reservoir Operational Strategies for Lake Powell and Lake Mead Federal Register docket #2022-13502. Please enter this comment into the public record.

[EXTERNAL] Support Plan to 3588

Tink Edmunds <triplightly68@gmail.com>
Thu 9/1/2022 9:16 AM
To: CRB-Info, BOR <bor-sha-LCB-Info@usbr.gov>

I have lived in Utah for over 3 decades and am committed to the land and environment here. I support "Path to 3588". Though I see a need to protect the Colorado River and surrounding area, I do NOT support the proposal to "Fill Mead First". This is a drastic action that will have other environmental impacts as well as economical impacts on the communities surrounding Lake Powell and the Glen Canyon dam. These areas are in both Utah and Arizona and they deserve consideration as well as Nevada. It is unfair to only look at the impacts that will take place along the river and the Lake Mead area. My cousin has been a river rafter along the Colorado for 27 years and she is concerned about the river flow, but even she does not want other environments to be at risk to "fix" another environment. There is no way to know exactly how the proposed changes to shut down the dam will affect the Glen Canyon dam area and the thousands of miles around Lake Powell. It is all speculation. The natural area has evolved since the creation of the dam. That is what nature does. And by changing things again, the existing habitat will have to adjust all over again and that is difficult to predict - there could be negative results and thus create even more environmental problems. With over 2,000 miles of shore line, shutting down Lake Powell will have a HUGE affect on the natural environment there.

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Also, there will be a HUGE loss of economic revenue for the area around Lake Powell if the "Fill Lake Mead First" proposal is put into place. In these dire economic times, that needs to be considered too. People need the economic resources of the area to survive financially. Again, the needs of the people shouldn't be ignored.

And another significant item is that "Filling Lake Mead First" is protecting the water, economic and power needs of a specific area: Las Vegas. This has all the signs of favoritism and special interest groups. By diverting the water to this area, their environmental and economic needs will be sustained and protect at the expense of Utah and Arizona. Though it has some environmental elements "Fill Lake Mead First" also feels like a smoke screen for powerful business entities.

Of the two plans, "Path to 3588" is the better choice. It considers the needs of both nature and humanity and wants to protect the interests of several states, not just the area of Las Vegas.

Thank you for considering my option.
Teresa Edmunds, concerned citizen

[EXTERNAL] comments on the proposed development of Post-2026 Colorado River Operational Strategies

George Rhee <gfrhee@gmail.com>
Thu 9/1/2022 1:32 PM
To: CRB-Info, BOR <bor-sha-LCB-Info@usbr.gov>

Thank-you for the opportunity for members of the public to comment on Colorado River Operations Strategies. The quote below I think provides some insight into the current crisis.

"This idea that in order to make a decision you need to focus on the consequences (which you can know) rather than the probability (which you can't know) is the central idea of uncertainty". N.N. Taleb

There are several problems with the current plans for managing the river.

First the timescale is off, we have no idea given the pace of change what the post-2026 situation will be. We need dramatic action in the coming weeks. The actions taken in the coming weeks will determine what should be done in the coming years.

Secondly, the models used to predict the elevation levels of Powell and Mead do not work. I thought it would be interesting to see what the predictions were for Mead and Powell in the August 2020 24 month study, since we are basing our policy on the current August 2022 24 month study.

Predictions on August 2020 for Mead Elevation August 1 2022:
prediction most probable 1083 feet.
prediction minimum probable 1050 feet.
Observed elevation 1040 feet.

The observed Mead elevation is ~40 feet below the most probable prediction and 10 feet below their minimum prediction.

Predictions on August 2020 for Powell Elevation August 1 2022:
prediction most probable 3604 feet.
prediction minimum probable 3565 feet.
Observed elevation 3536 feet.

The observed Powell elevation is 60 feet below the most probable prediction and 30 feet below the minimum prediction.

These models are not trustworthy for predicting reservoir elevations on a two year timescale. This applies to the current 24 month study. We should have a plan for much lower elevations than the minimum probable. Given this fact, policy makers should plan on the consequences of all possible events rather than their probabilities.

Thirdly; there is a major problem with the analyses in that errors are not included. For example, when that water supply is calculated such as annual natural flows at Lees Ferry or unregulated stream flows into Powell, no errors are quoted for these numbers. Without uncertainties it is difficult to estimate risk.

This mistake was made in 1922 when a hard number was assumed for the streamflow (~18MAF yearly average per decade) as opposed to the number consistent with the available data at the time. 18 MAF with an uncertainty of 5MAF giving a range of 13-23 MAF/year for the possible in the long term river flow of the Colorado. The one thing known already in 1922 was that the long term Colorado river flows were not known.

To summarize my three points;

1. We are in an emergency because the response to the alert given by the scientists was longer than the time remaining to avoid a bad outcome

2. Basing policy decisions on models that have been falsified (24 month study) is a recipe for disaster.

3. Ignoring errors in the key physical quantities also leads to underestimation of risk and a lack of urgency in solving these problems.

These comments are intended to be helpful in moving forward. I am happy to elaborate with anyone who may be interested. The situation we are in was predicted by models I developed ten years ago and published in the Journal of Climate. This is a difficult and complex problem. Basing decisions on sound science is a necessary but not sufficient condition to assuring a safe passage into an uncertain future driven by climate change.

sincerely
George Rhee
Boulder City
Nevada

[EXTERNAL] Save water -Cut 20

Ed Laake <edlaake@msn.com>
Thu 9/1/2022 2:08 PM
To: CRB-Info, BOR <bor-sha-LCB-Info@usbr.gov>
Cc: GM Stricker <gretchenstricker@yahoo.com>

Please support Cut 20 to save water and in doing so, preserve a safe, sustainable, water supply for Arizona citizens, and others using the Colorado river.

Most of all, think of the children, if you think of nothing else, who have their future robbed by irresponsible behavior and disrespect for their God-given rights to a world at least as good and beautiful as we were given.

Do what it takes to save the water and work with Cut 20 or any plan that saves MORE water.

Thank you
Ed Laake
Homeowner
Marana, Arizona

Sent from my iPhone

September 1, 2022

Seth Arens
Research scientist, Western Water Assessment
Principal, Western Climate Services
1070 S Windsor St
Salt Lake City, UT 84105

Comments on 87 FR 37884: Proposed Development of Post-2026 Colorado River Operational Strategies

Carly Jerla
US Bureau of Reclamation
1777 Exposition Dr, suite 113
421 UCB
Boulder, CO 80301-2628

Dear Ms. Jerla,

Thank you for the opportunity to comment on the *Development of Post-2026 Colorado River Reservoir Operational Strategies for Lake Powell and Lake Mead Under Historically Low Reservoir Conditions*. This letter provides information about ecological resources in the Lake Powell region below 3700 feet (3700') based on preliminary research from 2019-2022. The perspectives I offer are based on work done as a research scientist for Western Water Assessment and as an ecologist working as a principal consultant for my small firm, Western Climate Services. The information and views I offer do not necessarily reflect the perspectives of Western Water Assessment as an organization. The primary goal of my comments is to provide information about an issue in Colorado River management that has not yet been considered: ecological resources *above* Glen Canyon Dam.

Background

I became personally aware of rapid changes to landscapes, hydrology and riparian ecosystems in the Lake Powell region below 3,700' during a personal river trip down Cataract Canyon of the Colorado River in 2018. In October 2019, I organized a research trip down Cataract Canyon for the University of Utah's Global Change and Sustainability Center. The trip brought together researchers from various disciplines at the University of Utah, along with individuals from the USGS, Utah Geologic Survey, Canyonlands N.P., American Rivers and the Returning Rapids Project to begin to study changes occurring in Cataract Canyon. My primary research goals in lower Cataract Canyon were to survey plants and ecosystems re-establishing on landscapes previously inundated by Lake Powell, to compare re-establishing ecosystems to those not impacted by Lake Powell and to understand how these systems change over time.

In October 2019, I established vegetation survey sites in two tributaries of lower Cataract Canyon (Gypsum and Clearwater Canyons) that had been previously inundated by Lake Powell. In 2020, I re-surveyed sites from 2019 and established sites in a third tributary canyon (Dark Canyon). By 2021, I collected a three-year record on plant survey information from sites above

(4) and below (4) 3700' and a two-year record of plant survey information from an additional 3 sites. I am currently working on a manuscript describing the results from ecological research in Lower Cataract Canyon from 2019-2021 and seek to publish this research by early 2023.

This year, I began a four-year project (2022-2025) that builds and expands on previous research in lower Cataract Canyon of the Colorado River. The new project, *Ecological Transformation in the Lake Powell Region During Megadrought,* will address the following research questions:

- What types of ecosystems and plants are re-establishing on landscapes previously inundated by Lake Powell?
- How do re-establishing ecosystems change over time?
- What is the long-term trajectory and stability of these ecosystems?
- What happens to re-establishing ecosystems after they are inundated and subsequently re-emerge?

In 2022 and 2023 plant survey sites will be established across the Lake Powell region; sites will be re-surveyed in 2024 and 2025. The second survey of sites in the Lake Powell region will give a two-year window of change to help evaluate some of the above research questions. The research will focus on sites in tributary canyons with intermittently and perennially flowing water. However, some sites will be established in drier landscapes outside of tributary canyons such as Bullfrog Bay, Hite and the San Juan River confluence. In all tributary canyons or other locations, sites will be randomly selected within specific elevation ranges (3550'-3600', 3600'-3650', 3650'-3700') in order to control for the length of time a landscape has been exposed and to provide meaningful information for reservoir management relative to Lake Powell elevations. During summer 2022, 39 plant survey sites were established in 9 tributary canyons ranging in location from Forgotten Canyon (furthest upstream) to Reflection Canyon (furthest downstream). Field work locations for 2023 are not yet determined, but will likely focus on the San Juan River/Arm from Clay Hills to the confluence and Lake Powell from North Wash to Bullfrog.

As a research scientist for Western Water Assessment, my primary goal is always to provide usable science for management and planning contexts. The primary goal of the Cataract Canyon project and the current project, *Ecological Transformation in the Lake Powell Region During Megadrought*, is to provide land managers and the stakeholders of the Colorado River basin with usable information about ecological resources in landscapes that were once inundated by Lake Powell and how these systems change over time.

Preliminary Results

After four years of ecological monitoring in the Lake Powell region, the most striking result is that ecosystems are re-establishing very quickly and most locations in tributary canyons with flowing water have rich ecosystems dominated by native plant species. While the commonly held paradigm of slow-growing desert ecosystems is true in xeric landscapes, such as dry bays or dry tributary canyons, rapid re-establishment of ecosystems in locations with flowing water is occurring throughout the Lake Powell region. The geography of the Lake Powell region and the inundation and subsequent drying of landscapes between 3532-3700' creates a natural laboratory for studying ecologic succession. While this is interesting from a scientific standpoint, it is also relevant from a management perspective. Tributary canyons to Lake Powell that experience the same disturbance (flooding from the Lake) at the same time are isolated from each other.

Therefore, each tributary canyon may provide a slightly different version of how succession proceeds and what assemblage of native and non-native plants are present. Most tributary canyons I have visited and surveyed are strongly dominated by native plant species in locations that have been exposed for more than 5 years.

Native plants are typically outcompeting non-native plants. In the first several years that a landscape emerges from under Lake Powell, invasive plant species are common and there is often a mix of non-native and native plants species. In most locations exposed for at least 5 years, ecosystems are dominated by native plant species. Willow and similar native species (*Salix exigua, S. goodingii, Baccharis salicina, B. salicifolia*) typically form periodic stands in locations exposed for longer than 3 years and often form continuous stands in locations exposed for longer than 11 years. Many species of native bunchgrasses and wildflowers are also common. Cottonwoods (*Populus fremontii*) are re-establishing in most tributary canyons within 5-10 years of emergence from Lake Powell; cottonwoods up to 50 feet tall were observed on landscapes that have been exposed for 20 years. The plant survey work done in the Lake Powell region is not designed to identify every plant species, but to obtain a representative sample of ecosystem composition and coverage. Within that sampling context, approximately 50 native plant species have been identified in the Lake Powell region at sites below 3700'. One of the most unique and ecologically diverse ecosystems of the Lake Powell region is hanging gardens. Hanging gardens are also re-establishing in many tributary canyons to Lake Powell. Newly established hanging gardens were observed in landscapes that have been exposed for 11 and 21 years.

While I have published research findings to present in this brief comment, published research on ecological research in Cataract Canyon will be available in early 2023. My current project, *Ecological Transformation in the Lake Powell Region During Megadrought*, will not be completed until late 2025, but I plan to publish the results of the first two years of plant survey field work in early 2024. In early 2026, I will publish research findings related to changes to ecosystems first visited in 2022-2023. I am also very open to working with interested Colorado River basin stakeholders throughout the research project in order to make information available as it is collected and analyzed.

Recommendations

The general information I have provided about ecological changes in the Lake Powell region and following recommendations are related to 87 FR 37884, Changed Circumstances Since the Adoption of the 2007 Interim Guidelines:

1. *With respect to issues involving hydrology, risk facing the Basin and advances in scientific understanding.*

The Glen Canyon Dam Adaptive Management Program was established to "advise the Secretary of the Interior on how to best protect, mitigate adverse impacts to, and improve the integrity of the Colorado River ecosystem affected by Glen Canyon Dam, including natural biodiversity (emphasizing native biodiversity), traditional cultural properties' spiritual values, and cultural, physical and recreational resources through the operation of Glen Canyon Dam and other

means."[1] In the 1990s, when the program was developed, it made sense to focus work understanding and mitigating the impacts of Glen Canyon Dam on ecosystems below the dam, in the Grand Canyon. At the time, few imagined the scenario that exists 25 years later; Lake Powell is 25% full and nearly 100,000 acres of land the was once inundated is now exposed. There are now terrestrial ecosystems where there was once water. Ecological resources now exist on landscapes between 3532'-3700' in the Lake Powell region. Ecological resources of the Lake Powell region in locations between the reservoir's current elevation and 3700' should be considered during the renegotiations of the 2007 Interim Guidelines. Any management decision concerning elevations of Lake Powell will directly impact the re-establishing ecological resources in the Lake Powell region. While increasing the storage in Lake Powell is a desirable outcome for increasing water supply, any increase in the elevation of Lake Powell will have a cost to ecological resources. It is not my intent to assign a value to the ecological resources, that is the job of Colorado River Basin stakeholders as a whole, but to describe the system so that decisions regarding Lake Powell elevations can be made with a full understanding of the ecological costs. With that in mind, I suggest the following recommendations:

i. Ecological resources on landscapes in the Lake Powell region between the current reservoir elevations and 3,700 feet should be fully considered in the 2026 re-negotiations of the 2007 Interim Guidelines.
ii. The Glen Canyon Dam Adaptive Management Program and/or other organizations should study the impacts of Glen Canyon Dam and Lake Powell management on ecological resources in the Lake Powell region.
iii. Management decisions regarding elevations of Lake Powell should include an analysis of impacts to ecological resources in the Lake Powell region.

Although it is not my intent to assign value to ecological resources, there are zones of ecological resources from different age classes due to previous high water stands of Lake Powell. Landscapes between 3,660'-3700' have been exposed for 20 years, landscapes between 3635'-3660' have been exposed for 10 years, landscapes between 3620'-3635' have been exposed for 5 years and landscapes below 3,620' have been exposed for less than three years. Locations that have been exposed for a greater length of time typically contain richer and more diverse ecosystems. These elevation zones could serve as a guide for evaluating the impact of Lake Powell elevations on ecological resources.

2. *With respect to issues regarding engagement and inclusivity in Colorado River decision-making.*

Stakeholders with knowledge of the ecological resources of the Lake Powell region should be engaged in the renegotiations of the 2007 Interim Guidelines. This could include researchers, non-governmental organizations, Glen Canyon National Recreation Area staff and others with detailed knowledge of ecological resources in the Lake Powell region.

Thank you for the opportunity to provide comments.

Sincerely,
Seth Arens

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[1] Glen Canyon Dam Adaptive Management Program, GCDAMP Vision, Mission, Principles, Objectives and Planning. http://gcdamp.com/index.php/GCDAMP_Planning, accessed 9/1/22.