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September 8, 2020

Lake Powell Pipeline Project
Bureau of Reclamation
Provo Area Office
302 East Lakeview Parkway
Provo, Utah 84606
801-379-1159

Sent via eMail and includes hard copies of all citations for the administrative record to:
lpp@usbr.gov

RE: Comments on Draft EIS & Draft RMPA

Dear staff at Reclamation,

Thank you for this opportunity to provide comments regarding the Draft Environmental Impact Statement (DEIS) and Draft Arizona Strip Field Office Resource Management Plan Amendment (RMPA) for Lake Powell Pipeline Project (LPP), as provided by the Bureau of Reclamation (Reclamation). LPP is a proposed water delivery project in the Colorado River Basin (CRB).

PART A: INTRODUCTION.

Living Rivers & Colorado Riverkeeper are non-profit organizations based in Grand County, Utah, in the county seat of Moab. The western border of our county is the Green River. North of Moab, the Dolores River joins the Colorado River, and then the Colorado River flows through the city limits of Moab. The staff, members and partners of our organizations enjoy the waters of the Colorado River and its tributaries and we invest our time and resources to protect the biological integrity of these precious water resources.

Joining with us on this letter as sign-ons are the following organizations: Center for Biological Diversity, Waterkeeper Alliance, Utah Rivers Council, Save the Colorado, Great Basin Water Network & Great Basin Waterkeeper, Rio Grande Waterkeeper, Glen Canyon Institute, and the affiliates of Colorado Riverkeeper, which include Green River Action Network, Upper Green River Network, and Las Vegas Water Defender.

Our comments address the reasons why we understand the best alternative for this DEIS is the Local Waters Alternative, and the second best alternative is the No Action Alternative.

Whereas the Preferred Alternative, the Lake Powell Pipeline Project, must be completely withdrawn because it will be harmful to the 40 million existing users and wildlife habitat in the CRB. This harm exists because the CRB is not being managed correctly and administrative policies must be changed to improve long-term sustainability and equity. The approval of the LPP will further embed inappropriate actions toward water policy in the CRB.[1]

We also recommend the preparation of a comprehensive and programmatic, basin-wide EIS for the entire CRB as quickly as possible, because there is a desperate need to balance the water budget so that long-term sustainability can finally be achieved. For the benefit of existing users in the CRB, we hope Reclamation and US Congress will not underestimate the critical nature of this public request which, in the 1970s, the courts agreed was necessary but Congress would not provide the necessary appropriations to fund the study.[2]

PART B: GEOGRAPHY AND BRIEF ADMINISTRATIVE HISTORY.

The water for the LPP is held in Water Right No. 41-3479,[3] with a priority date of 1958. This water is held in storage at Flaming Gorge Reservoir, which spans the Wyoming/Utah border, and is planned to be used in Washington County, Utah. The release of this stored water for LPP requires a federal water contract between the Utah Board of Water Resources (UBWR) and Reclamation for 86,249 acre-feet.[4] UBWR understands the water right for LPP is junior to the water rights of the Central Utah Project,[5] which we discuss in more detail below.

The high dam that created this reservoir is called Flaming Gorge Dam, which was authorized by the Colorado River Storage Project Act of 1956 (CRSP). When this water exits the outlet tubes at Flaming Gorge Dam it is destined for Lake Powell, which spans the Arizona/Utah border and is formed by Glen Canyon Dam, which is the centerpiece facility of CRSP.

The proposed water release from Flaming Gorge reservoir will flow down the Green River in Utah. It briefly enters the state of Colorado and Dinosaur National Monument (NM), which spans the Colorado/Utah border. In Dinosaur NM the Yampa River enjoins the Green River and the combined flow then swings back into Utah. As the Green River heads south it will greet other tributaries such as the White River, the Duschene River, the Price River and finally the San Rafael River. Then, in Canyonlands National Park, the Green is captured by the Colorado River and the combined flow enters the vigorous rapids of Cataract Canyon and then plunges into Lake Powell.

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[1] Harding, Lnyker Technologies 2020: http://www.riversimulator.org/Resources/ClimateDocs/Harding/LPPeisMemoFinal2020Harding.pdf

[2] EDF vs Higgenson, 1978: http://www.riversimulator.org/Resources/Legal/GCD/1981EDFvHigginson655FR2d.pdf

[3] Admin Record for Water Right No. 41-3479: https://www.waterrights.utah.gov/asp_apps/wrprint/wrprint.asp?wrnum=41-3479

[4] Lake Powell Pipeline Contract, 2017. http://www.riversimulator.org/Resources/LPPadmin/2017/LakePowellPipelineContract.pdf

[5] Subordinate Agreement of May 6, 2011: https://www.waterrights.utah.gov/docImport/0541/05415576.pdf

Actually, since Lake Powell is only 49% full, the river has to flow over perched reservoir sediment for about 40 miles and then, before it enters the still waters of Lake Powell, a mix of river water and re-suspended reservoir sediment alters the water column of the reservoir. The entrained sediment is a water quality issue that is not discussed in the LPP DEIS. It is a concern because the sediment load includes entrained organic material that lowers healthy oxygen levels for native and non-native aquatic species. This sediment issue also affects the Dirty Devil River Arm at Lake Powell, the Escalante River Arm and the San Juan River Arm. The sediment load of the San Juan River is equal to the load of the Colorado River.[6] These zones of exposed sediment are an extremely unpleasant experience for visitors of Glen Canyon National Recreation Area.

The second point of diversion for this water right is a proposed LPP pumping station at the forebay of Glen Canyon Dam. The forebay is infested with invasive quagga muscles, which debilitate water diversion facilities and are extremely difficult to control.

If the releases of LPP water are timed improperly, it could hurt the critical habitat for endangered fish in the Green River between Flaming Gorge Dam and Lake Powell. Harm to native fish is happening right now: in December of 2018 the humpback chub population in Whirlpool Canyon (Dinosaur NM) was declared extirpated by US Fish and Wildlife Service (USFWS), and discussions are underway in biological committees to consider augmenting the population of Colorado pikeminnow with hatchery-raised brood stock, which means natural fish reproduction is not happening below Flaming Gorge Dam.[7] The Green River below Green River City, Utah, (Reach 3), is where we notice native fish mortality due to heat and low oxygen stresses, especially for the threatened flannelmouth sucker.[8] This strongly suggests the prescriptions of the 2006 Record of Decision (ROD)[9] for operations at Flaming Gorge Dam are inadequate or, perhaps there is yet another habitat problem that needs to be addressed by Reclamation and USFWS. This impact is not discussed in the LPP DEIS.

The water release for the LPP will incur evaporation and seepage losses while in transit between Flaming Gorge Dam and Glen Canyon Dam. This loss is not precisely reflected in the water contract, nor the DEIS. So the amount withdrawn from the Colorado River system may be greater than 86,249 acre-feet. How it commingles with the release for the Green River Block Water Exchange Contract,[10] or with the inputs of the other tributaries, is not precisely known. Nor do we understand the potential cumulative impacts of these integrated flows, because this information is also not reflected in the administrative record. Moreover, the LPP

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[6] San Juan River Siltation Rates; Gene Stevenson, 2000: http://www.riversimulator.org/Resources/Contractors/SanJuanSiltationStevenson2000.pdf

[7] USFWS Memo of December 19, 2018: http://www.riversimulator.org/Resources/USFWS/Progress/2018ColoradoRiverSufficientProgressMemo.pdf

[8] Personal communication, 2020: John Weisheit, certified Colorado River pilot.

[9] Flaming Gorge ROD, 2006: http://www.riversimulator.org/Resources/USBR/FlamingGorge/RODFlamingGorgeROD2006Feb.pdf

[10] Green River Block Water Exchange Contract: http://www.riversimulator.org/Resources/USBR/ExchangeContracts/GreenRiverBlockExchangeContract.pdf

would provide no returning flow to the Upper Basin to be reused, because Washington County is in the Lower Basin.

The proposed pipeline will cross a dividing line between the Upper Basin Division and the Lower Basin Division of the CRB. This boundary was a negotiation feature of 1922 Colorado River Compact and confirmed by 1928 Boulder Canyon Project Act and upheld by US Supreme Court decision of 1963, known as Arizona vs California. This means a Lower Basin water user will be using an Upper Basin water right and without the necessary permission to do so from the other six states or U.S. Congress. This begs the following questions: why was this procedural matter not addressed at the very beginning of the LPP application process, which began in 2007 under Federal Energy Regulatory Commission (FERC), and why does this issue remain unaddressed to this very day? For this reason alone, the LPP EIS should be suspended because it is unknown if the necessary permission will even be granted, or if litigation between the states will occur.

In the near future, every state in the CRB will be using much less water in order to balance the water budget of this watershed. If the states are unsuccessful in this objective, then the consequence will be forced water shortage curtailments, especially for the holders of junior water right positions, such as LPP. In the proceeding pages of these comments, we will argue that the Preferred Alternative should be terminated indefinitely because the water budget of the Colorado River Basin will continue to exist in a deficit position for the rest of the 21st century.

For these reasons, we will also argue that the Local Waters Alternative and the No Action Alternative are the appropriate two choices as alternatives for this EIS.

PART C: CURRENT HYDROLOGY WILL IMPACT THE LPP's PAPER WATER RIGHTS.

In Reclamation's 24-month Report of July 2020,[11] the basin hydrology section remarks that the flow into Lake Powell for the last two decades was 19% below the 30-year average. Project Skywater,[12] a federal cloud-seeding and river augmentation program initiated in 1961, is not countering this downward trend in flow. During these two decades the outflow through the power plant at Glen Canyon Dam exceeded the inflow, and consequently the reservoir now stands at 49% capacity; hydropower production ceases to function at 35% capacity or elevation 3,525 feet above sea level (asl). The situation at Lake Mead is more dire as current capacity is 40% and hydropower production is curtailed at Hoover Dam when the elevation reaches 31%, or elevation 1,045 feet asl.

C.1.1 - Colorado River Basin Supply and Demand

The annual average virgin flow of the Colorado River at the Compact Point (Lee Ferry, AZ) from 1906 to 2018 is a firm number. That number is 14,758,935 acre-feet per year, according

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[11] 24-month Report; July 2020, page 7: http://www.riversimulator.org/Resources/USBR/24month/24monthComplete/2020.07.pdf

[12] Project Skywater: http://www.riversimulator.org/Resources/USBR/ReclamationHistory/ProjectSkywater2009USBRrevised.pdf

the Reclamation's spreadsheet called Natural Flow Data.[13] In the following pages we will demonstrate that consumption exceeds the supply at the Compact Point, and any new diversion in the CRB is at risk of water shortages (forced curtailments),[14] from either the Upper Colorado River Commission in the Upper Basin Division, or the Secretary of Interior in the Lower Basin Division.

Tabulation 1.1: Average of annual virgin flow at The Compact Point near Lee Ferry, AZ, between 1906 and 2018.

Natural Flow Data …… 14,758,935 million acre-feet

C.1.2 - Analysis of the 30-year Average as of Year 2020.
A tabulation of the National Weather Service's 30-year average of unregulated flow into Lake Powell (above the Compact Point at Lee Ferry, AZ) is presented below. The tabulation demonstrates a significant decrease of 19%, or 2,310,000 acre-feet, for the unregulated supply of the CRB during the last 30-years. The total losses represented in this analysis for the last 30-years, significantly exceeds Utah's alleged total annual appropriation of 1.3 million acre-feet.

These declining 30-year averages are provided by Reclamation's Annual Operating Plans[15] of the Colorado River Basin between 1971 and 2020 and in compliance with 43 U.S. Code § 1552, Criteria for Coordinated Long-Range Operation of Colorado River Reservoirs.[16]

It is also important to consider that Upper Basin consumptive losses[17] due to incidental evaporation have increased overall, due to a persistent hot and dry climate regime.[18] We do not know what this cumulative evaporative loss in the Upper Basin is, and it is not in the administrative record.

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[13] Natural Flow Data: https://www.usbr.gov/lc/region/g4000/NaturalFlow/NaturalFlows1906-2018_20200110.xlsx

[14] The authors of this DEIS prefer the word "shortage," rather than "curtailment." In either case the word means a forced reductions in consumptive use and the first targets will be the junior water right holders.

[15] Archive of Annual Operating Plans: https://www.usbr.gov/lc/region/g4000/aop/index.html

[16] Criteria for Coordinated Long-Range Operation of Colorado River Reservoirs: http://www.onthecolorado.com/Resources/LawOfTheRiver/OperatingCriteria1970.pdf

[17] 30-year average of UB consumptive use: http://www.riversimulator.org/Resources/Graphs/30YearAvgUBconsumption.pdf

[18] Reservoir Evaporation in the Western United States; Friedrichs, 2017: http://www.riversimulator.org/Resources/ClimateDocs/ReservoirEvaporationWesternUSAcurrentScienceChallengesFutureNeeds2017Friedrich.pdf

Tabulation 1.2: Analysis of current 30-year flow entering Lake Powell as of Year 2020.

1971 to 2000, 30-year average: 12.04 million acre-feet (MAF)
1981 to 2010, 30-year average: 10.83 million acre-feet (loss of 1.21 MAF)
1991 to 2020, 30-year average: 9.73 million acre-feet (loss of 1.1 MAF) (provisional[19])

C.1.3 - Projecting 30-year average to Year 2050.

We will now provide projected 30-year averages into the future. Conservative estimates of supply projections in peer-reviewed climate journals, such as, *21st Century Colorado River Hot Drought and Implications for the Future,*[20] include a decrease of 20% to Year 2050, and 35% by end of 21st century. This essentially means the existing downtrend of the last two decades continues for another 80-years. This science journal includes a caveat that this downward trend could move to 30% by 2050 and 55% by 2099, and this potential outcome is supported by the gathered data cited in this paper by Jonathan Overpeck and Bradley Udall.

Tabulation 1.3: Provisional 30-year average to Year 2050 at trend of -20%.

2001 to 2030, 30-year average: 8.76 million acre-feet
2011 to 2040, 30-year average: 7.88 million acre-feet
2021 to 2050, 30-year average: 7.01 million acre-feet

C.1.4 - The Upper Basin Hydrologic Determination of 1988 and 2007.

In 1988, Reclamation understood that the promise of the 1922 Colorado River Compact to provide the Upper Basin with 7.5 million acre-feet per year was no longer feasible. After completing an analysis using a computerized modeling system (to be discussed below) it was determined that an allocation of 6 million acre-feet was feasible. The report is called *Hydrologic Determination of 1988*.[21] This determination was revised in 2007[22] and the Upper Basin allocation was trimmed down to 5.76 million acre-feet; a drop of 240,000 acre-feet. It is fully anticipated this determination will be revised again before 2026 during the re-consultation of 2007 Interim Guidelines (to be discussed below). To be consistent with the known data, we project that the Hydrologic Determination of 2026 will be 20% less than the determination of 2007, which is 4.61 million acre-feet and a drop of 1.15 million acre-feet. Recall that the 30-year average for the Upper Basin in 2007 was 12.04 million acre-feet and in 2026 the 30-year average will be 9.73 million acre-feet.

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[19] Spreadsheet of flow between 1991 and 2020: http://www.riversimulator.org/Resources/Graphs/1991to2020provisional30YearAverage.pdf

[20] 21 Century Colorado River Hot Drought Implications; Overpeck & Udall. 2017: http://www.riversimulator.org/Resources/ClimateDocs/21CenturyColoradoRiverHotDroughtImplicationsForFuture2017Udall.pdf

[21] Hydrologic Determination of 1988, Reclamation: http://www.riversimulator.org/Resources/USBR/HydroDetermination1988.pdf

[22] Hydrologic Determination of 2007, Reclamation: http://www.riversimulator.org/Resources/USBR/2007HydrologicDetermination.pdf

Tabulation 1.4 - Annual Upper Basin Hydrologic Determination Analysis

1922 …… 7,500,000 acre-feet
1988 …… 6,000,000 acre-feet
2007 …… 5,760,000 acre-feet
2026 …… 4,610,000 acre-feet (projected)

Part C.1.5 - Colorado River Basin Demand as of Year 2018.
According to the Upper Colorado River Basin Consumptive Uses and Losses Report of 2016-2020,[23] total Upper Basin consumption in 2018 averaged 4,800,000 acre-feet per year. By year 2060, the projected consumption of the Upper Basin will be 5,429,000 acre-feet, as shown by an analysis provided by the Upper Colorado River Commission in 2007 called the *Upper Basin States Depletion Schedules*.[24]

Tabulation 1.5: Upper and Lower Basin Depletions and Obligations as of 2020.

Allocation to Mexico ……..	1,500,000 acre-feet
Allocation of the Lower Basin ……..	7,500,000 acre-feet
Transit losses to diversion points in the Lower Basin …..	1,200,000 acre-feet
Upper Basin Consumption & Evaporation …….	4,800,000 acre-feet
GRAND TOTAL	15,000,000 acre-feet

Note: As of Year 2060, according to the Upper Basin States Depletion Schedules, total depletion amounts will rise to 15,629,000 acre-feet.

Discussion about equity and obligations:

- Unused tribal water is presently consumed by other users in the Upper and Lower Division.
- For the last decade the users of the Colorado River are consuming less water to avoid curtailments to junior water right holders and to honor sovereign obligations to Tribes and Mexico.
- In 2008, the year following the EIS for the development of shortage criteria (to be discussed below), the consumption & losses were 14,950,000 acre-feet.
- In Year 2014, when Drought Contingency Planning began (to be discussed below), the total consumption in the basin was 14,300,000 acre-feet.
- In Year 2019, when Drought Contingency Planning documents were signed the total consumption in the CRB was 14,110,000 acre-feet (provisional).
- The LPP is a Lower Basin project using an Upper Basin water right. A determination of a shortage in the Upper Basin is under the jurisdiction of the four states that comprise the Upper Colorado River Commission. It is logical to assume the Commission will short a delivery to a Lower Basin user before shorting a delivery to an Upper Basin user.

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[23] Upper Colorado River Basin Consumptive Uses and Losses Report of 2016-2020: https://www.usbr.gov/uc/envdocs/reports/ColoradoRiverSystemConsumptiveUsesandLossesReports/20190800-ProvisionalUpperColoradoRiverBasin2016-2020-CULReport-508-UCRO.pdf

[24] Upper Basin Depletion Schedule by Upper Colorado River Commission, 2007: http://www.riversimulator.org/Resources/Graphs/UpperBasinDepletionSchedule.pdf

- When a shortage situation for the LPP arrives, UBWR will likely negotiate temporary water transfer contracts with senior water right holders (typically farmers) to satisfy the demand of the LPP. This is a hidden cost of the LPP. We do not know if this hidden cost is significant or not, because the information it is not provided in the administrative record.

Part C.1.6 - Senior Water Rights in the CRB as of 2020.
Below is a tabulation of the total water rights that are senior to the priority position of the LPP. The Grand Total does not include the water right holders between 1929 and 1958. We do not know that number and it is not in the administrative record.

Tabulation 1.6: The senior water rights above the priority position of LPP.

Allocation to Mexico ……..	1,500,000 acre-feet
Allocation of the Lower Basin ……..	7,500,000 acre-feet
Transit losses to diversion points in the Lower Basin …..	1,200,000 acre-feet
Allocation owed to Navajo & Ute nations ……	185,000 acre-feet
Allocation to Central Utah Project ……	500,000 acre-feet
Allocation Upper Basin pre-1929 Perfected Rights ……	2,200,000 acre-feet
GRAND TOTAL	13,085,000 acre-feet

Conclusion of C.1.: As demonstrated in this section above, the analysis of Reclamation's Natural Flow Data, the 30-year average, the Upper Basin Hydrologic Determination, Consumptive Use and Loss Reports, the Upper Basin Depletion Schedules, and the amounts of senior water right holders, all support a conclusion that the proposed LPP will suffer curtailments as soon as construction is completed in the decade of the 2030s. The efforts of the water managers in the CRB to balance the deficit in the water budget in the recent decade is commendable, but is not sufficiently in pace with the decline of the natural flow and the increase of natural evaporation. Conservation by water managers in acre-feet are at amounts of hundreds-of-thousands, while declines in natural flow are in the millions. It also supports a conclusion that vital information is missing in Reclamation's analysis of the DEIS for LPP. In the section below we provide more information to support our conclusion; information that should be in the administrative record.

C.2. Reclamation's 2007 assessment of surplus water in Flaming Gorge Reservoir.
In 2007 Reclamation declared that, in order to honor its commitments in the ROD for operations at Flaming Gorge Dam, only 165,000 acre-feet per year was available for new projects to Year 2047 from Flaming Gorge Reservoir.[25] UBWR's LPP Contract is for 86,249 acre-feet and UBWR's Green River Block Contract is for 72,641 acre-feet per year; combined the total of the two proposed 50-year contracts for Utah is 158,890 acre-feet.

When Reclamation did this analysis in 2007, the 30-year average was 12.04 million acre-feet. If Reclamation repeated this analysis in 2021, with a 30-year average of only 9.73 million acre-feet, the safe yield projection for diversions at Flaming Gorge Dam would be nonexistent. In fact, the 30-year average decrease is greater than the entire annual allocation of Utah. This

[25] Water Marketing from Flaming Gorge Reservoir: http://www.riversimulator.org/Resources/UCRC/UCRCflamingGorgeWaterAvailibilityReclamation2007.pdf

means the water that UBWR visualized in 2007 has vanished since LPP proponents began the federal permitting process 13-years ago with the Department of Energy (FERC). This leaves no room for the LPP Contract, or leaves the exercise of that contract subject to a successful legal challenge. Clearly, no junior water is left for use in the LPP.[26]

C.3. - Colorado River Simulation System (CRSS).
For this DEIS Reclamation used a computer model called Colorado River Simulation System (CRSS) to assess system impacts to future water deliveries to the LPP by Year 2060. The baseline data set includes an anomalous wet period (the "20th century pluvial"[27]) before the framing of the 1922 Colorado River Compact. This wetter data set is what was used to establish the allocations of the Upper and Lower divisions and why the over-appropriation problem exists to this very day. The data set also includes a persistent dry period that occurred in the decades between 1931 and 1970, which we will discuss in more detail below.

The purpose of CRSS is to simulate Colorado River operations into the future; to better understand how the CRB water delivery system might function. This computer program is called RiverWare.[28] The embedded data of CRSS includes the natural supply data for the CRB between Year 1906 to Year 2018. This data set also includes current consumptive losses and all the operating criteria (RODs) for federal dams. Each individual year in this data set is called a "Trace" and there is a total of 112 Traces; Year 1906 is Trace #1 and Year 2018 is Trace #112. When a technician initiates the computer program, it is called a "Run." A Run of any Trace could begin at any chosen year between 1906 and 2018.

Figure 1: In the graphic presented on the next page from Reclamation's DEIS of 2007 Interim Guidelines (2007 IG), which is the current operating criteria for Lakes Mead and Powell and a shortage sharing agreement, the chosen year to begin the Run was 2005. It is important to understand that the basic concept of 2007 IG is to simultaneously balance the contents of Lakes Mead and Powell over a time-scale of about one-year. Essentially the two reservoir levels are regulated to rise and fall together. When Lake Mead is full, so is Lake Powell. When Lake Mead is empty, so is Lake Powell. This system is very similar to a long-haul transportation vehicle that operates with two fuel tanks.

This is a likely question for a CRSS technician to answer: How would the CRB system perform if the hydrology for the next 50-years matched the dry period from 1931 to 1970? The technician would likely choose a Trace prior to 1931, such as Year 1926 or Trace #21, as Reclamation demonstrated below in the DEIS for 2007 IG.

In the CRSS modeling review for the LPP DEIS, Reclamation did not provide a worst-case scenario. In contrast, the review by Reclamation for 2007 IG provided three Traces to illustrate possible low reservoir scenarios. Figure 1 (next page) is from the DEIS for 2007 IG, Figure

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[26] Reservoir memory complicates water management in the Upper Colorado River Basin; Harding, 2019: http://www.riversimulator.org/Resources/ClimateDocs/ReservoirMemoryComplicatesWaterManagementUpperColoradoRiverBasin2019Harding.pdf

[27] The 20th century pluvial: http://www.riversimulator.org/Resources/ClimateDocs/Woodhouse2005.pdf

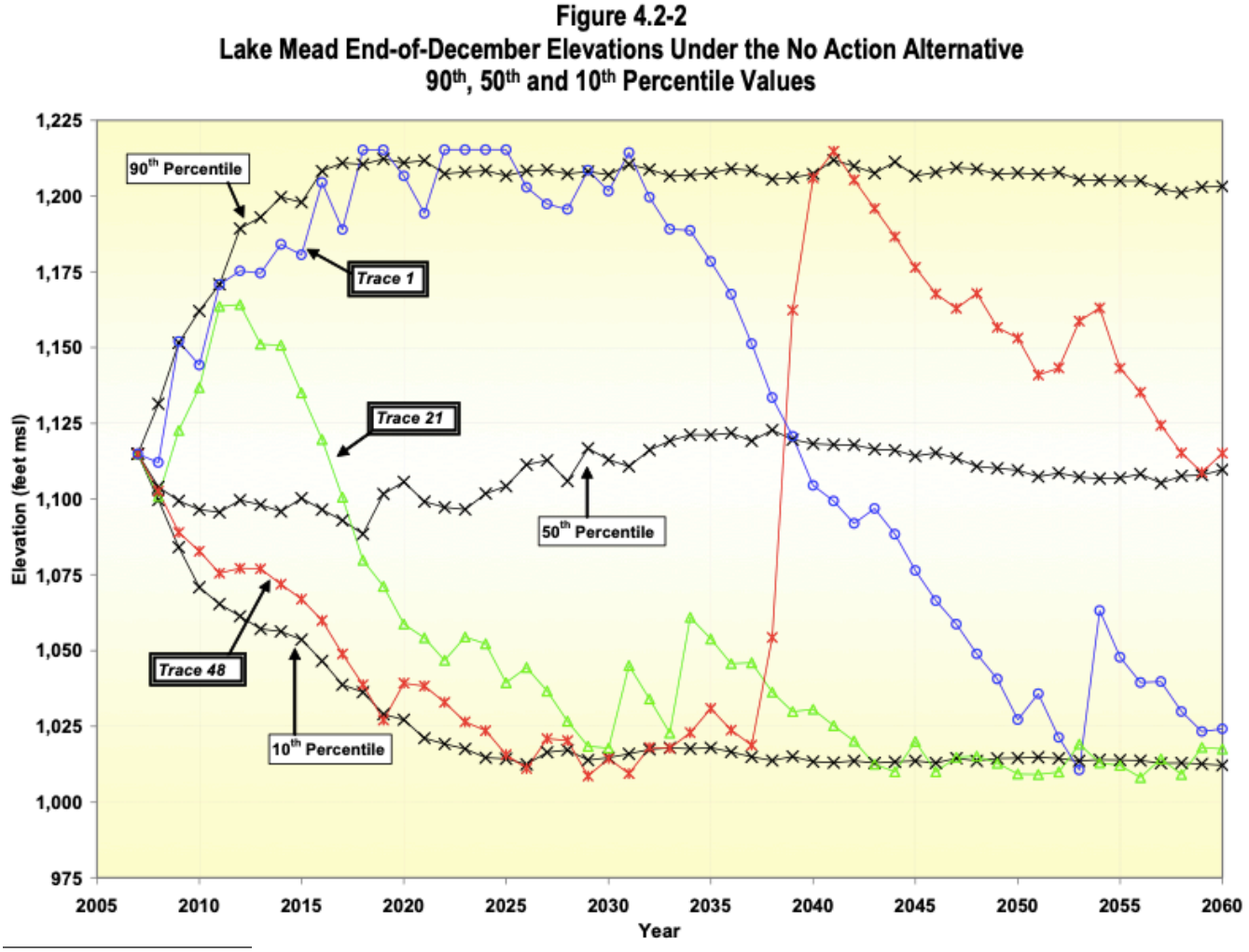
[28] CADSWES: https://www.colorado.edu/cadswes/creative-works/riverware

4.2-2[29] (No Action) and for Hoover Dam/Lake Mead, which is the utmost critical infrastructure of the CRB.

The blue line is Trace #1 (Year 1906) and the starting year for this CRSS model "Run" is 2005, and the immediate rise reflects the wet decades of the 1900s, 1910s & 1920s. The green line is Trace #21 (Year 1926) and the sudden drop represents the dry decades of the 1930s, 1940s & 1950s. The red line is Trace # 48 (Year 1953). The sudden rise represents the wet decades of the 1980s and 1990s. Eventually, for each of these three Traces, hydropower production falls to zero when Lake Mead elevation is below 1045 feet. All three Traces spend decades of time at this low reservoir stage, but the result of Trace # 21 is the most stunning.

The black 90th percentile line represents a probable wetter hydrology, the black 50th percentile line represents a presumptive normal hydrology, and the black 10th percentile line depicts a drier hydrology. Of interest is this: The 50th percentile line did not actually represent what really happened in the CRB between 2005 to 2020, nor does the 10th percentile line. The actual

Figure 1: DEIS for 2007 IG

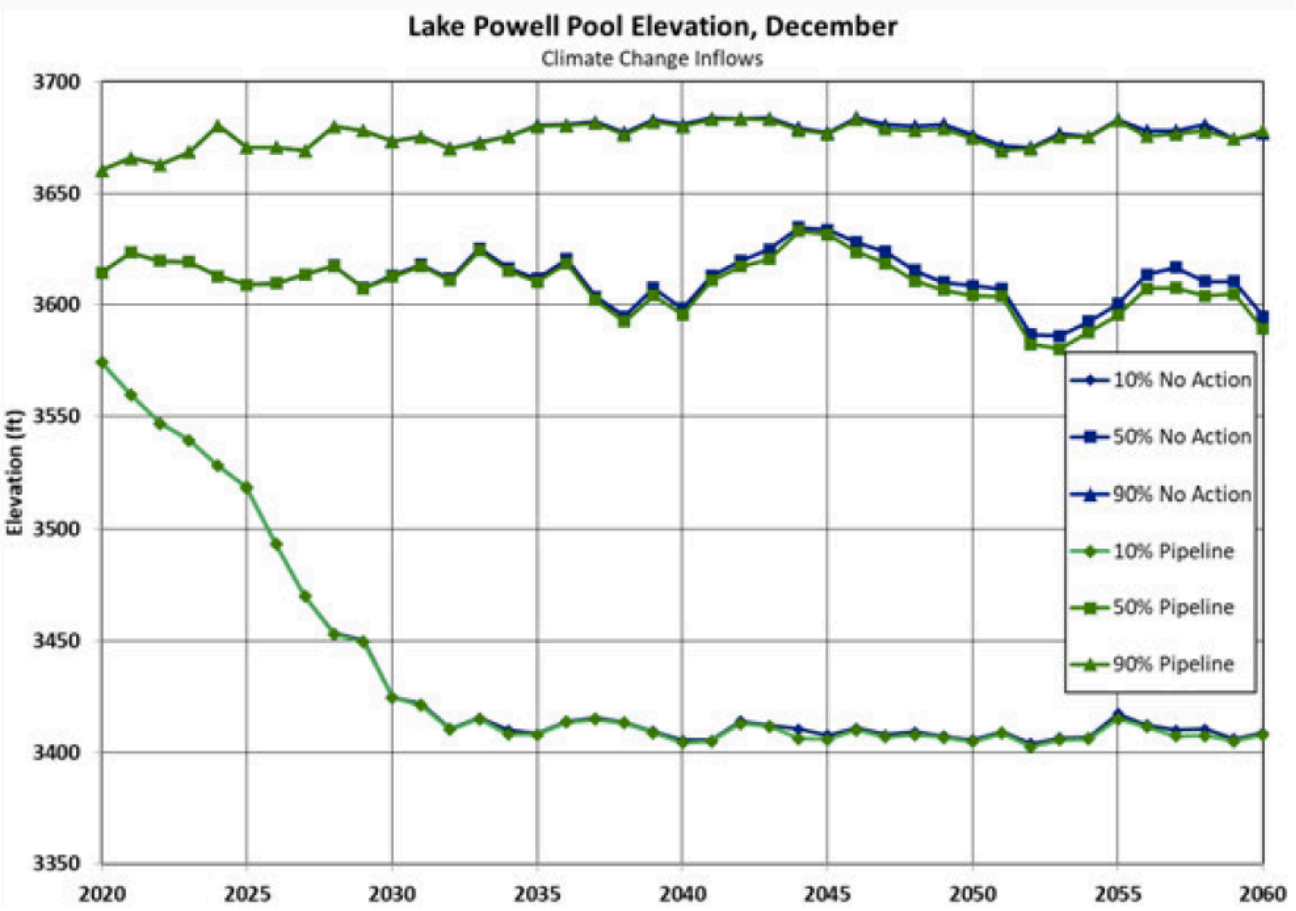


[29] 2007 Interim Guidelines Chapter 4; Page 4-9, Figure 4.2-2: http://www.onthecolorado.com/Resources/USBR/Shortage/FEISshortage2007.pdf

real-time hydrology between 2005 and 2020 was somewhere between these two percentile lines. This means the 2007 IG 50th percentile (normal hydrology) proved to be an optimistic result.

Figure 2: Unlike the DEIS for 2007 IG,[30] the DEIS for LPP[31] does not capture a worse-case scenario, such as Trace #21, nor does it even present a CRSS graphic for the critical infrastructure at Hoover Dam/Lake Mead. As was the case for 2007 IG, we suggest that the 50th percentile in Figure 2 (below) is a duplicate of that optimism expressed in 2007. The 10th percentile line (dry hydrology) presented here does match the Run of Trace #21 from the DEIS of 2007 IG. It is not unreasonable to conclude that the 10th percentile line in the DEIS scenario will indeed reflect the future levels at Lake Powell, because it agrees with the analysis we portrayed earlier about the declining 30-year average. There is yet one more CRSS analysis to

Figure 2: LPPP DEIS



discuss, which is the analysis of 2012 Basin Study.

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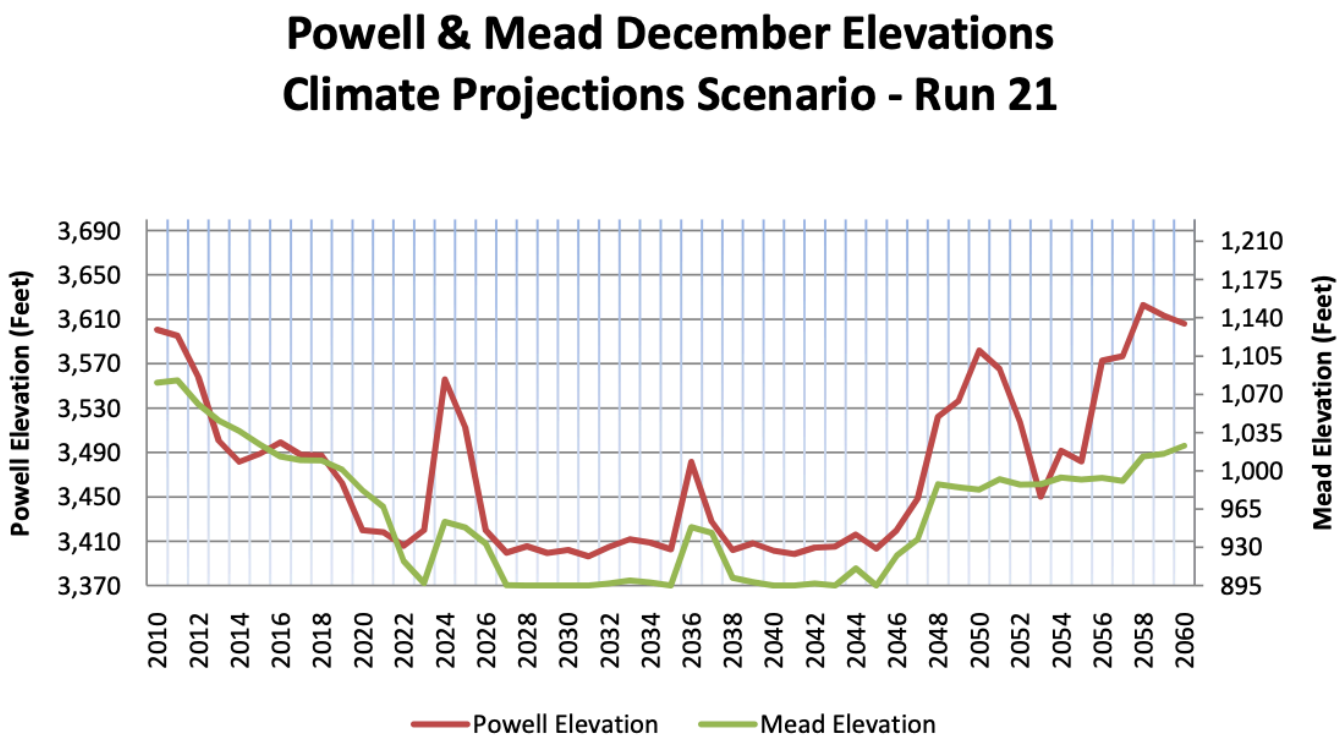
[30] 2007 Interim Guidelines Appendix A; CRSS Model Documentation: http://www.riversimulator.org/Resources/USBR/ShortageEIS/FEIS/AppAcrssModelDocumentation2007IG.pdf

[31] LPP DEIS Appendix C-10, Hydrology: http://www.riversimulator.org/Resources/LPPadmin/2020/2020USBR/DEIS/LPPdeisAppC10Hydrology.pdf

Figure 3: We present a graphic below from the Modeling Assumption Sub-group of 2011[32] of the 2012 Colorado River Basin Water Supply and Demand Study (2012 Basin Study).[33] This graphic was provided via Freedom of Information Act (FOIA) request for the administrative record of this federal study. We asked Reclamation for all the Runs from the 2012 Basin Study, but did not receive them. Using CRSS modeling software, Reclamation produced a graphic of future reservoir levels at Lakes Powell & Mead between 2010 and 2060 (50-years). As you can see both reservoirs dip below the safe level of hydropower production for decades (Lake Powell safe level is 3,525 feet; Lake Mead is 1,045 feet). Again, this is Trace #21 simulating the historically dry hydrology of the 1930s, 40s & 50s under present and projected consumption stages.

Figure 3: Run of Trace 21 from 2012 Basin Study for Lakes Powell & Mead

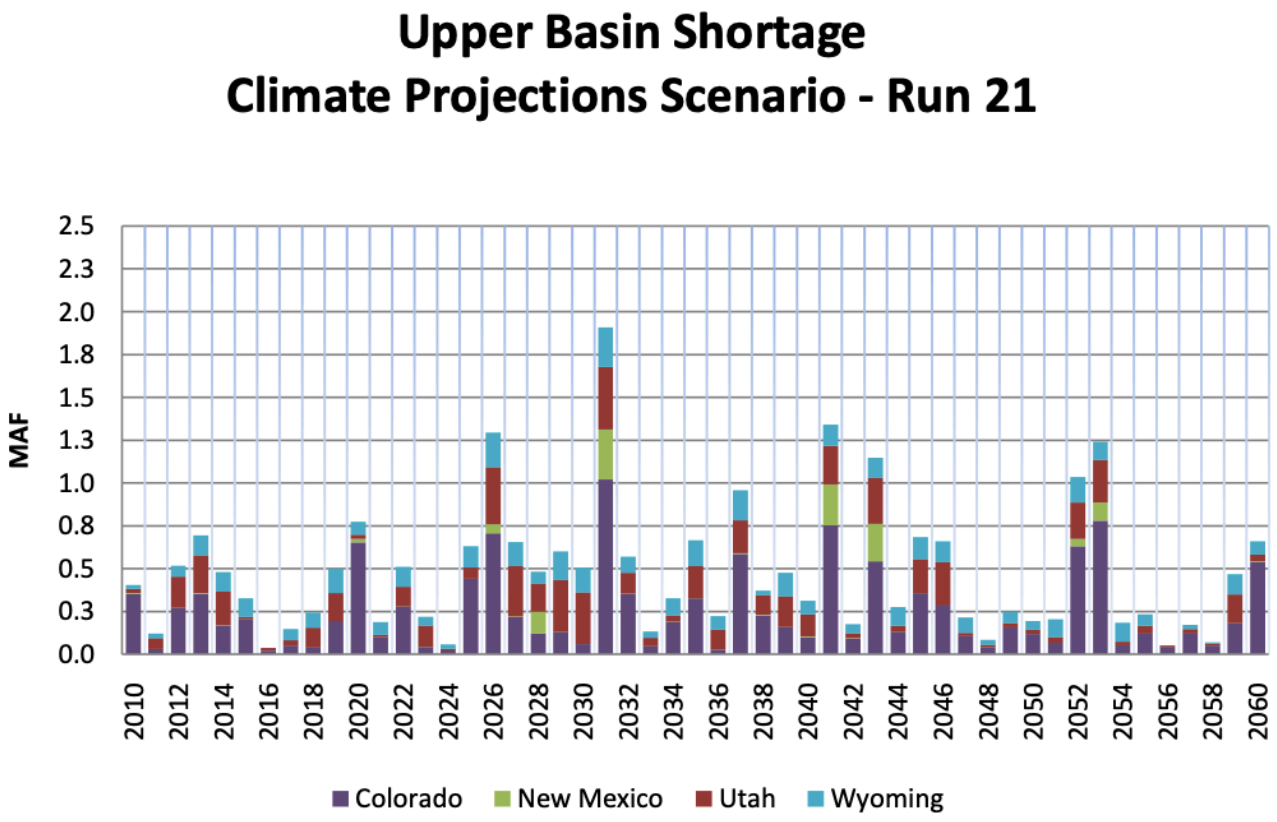


[32] Modeling Assumption Sub-group of 2011: http://www.riversimulator.org/Resources/USBR/BasinStudy/Trace21/Trace21CPScenarioV2.pdf

[33] 2012 Colorado River Basin Water Supply and Demand Study: https://www.usbr.gov/lc/region/programs/crbstudy.html

Figure 4: The graphic below is a CRSS scenario to demonstrate the curtailment amounts for the Upper Basin under the Run of Trace #21 from the 2012 Basin Study. A curtailment refers to an executive decision to forego a water delivery to a water provider when a situation of a water shortage arrives in the CRB. For example, a call for water from senior water right holders occurred on the Yampa River (state of Colorado) in 2018.[34] The vertical axis of Figure 4 depicts projected curtailments from 2010 to 2060 that would be required, based on the Trace 21 hydrology (1926-1977) and projected water use/losses for the years 2010 to 2060.

Figure 4: Run of Trace 21 for assessment of shortage curtailments in the Upper Basin



Trace 21 is a known and well-documented stress test by Reclamation and totally appropriate for public reviews under NEPA guidelines. In this stress test every state in the Upper Basin faces a situation of curtailment, in which senior water right holders make a “call” for their assured water delivery. The worst-case year in this time-series is Year 2031 and the total amount of curtailment for the four states is about 1.9 MAF. This amount is greater than Utah’s total annual appropriation. For Utah, the 2031 curtailment in this graphic is about 300,000 acre-feet.

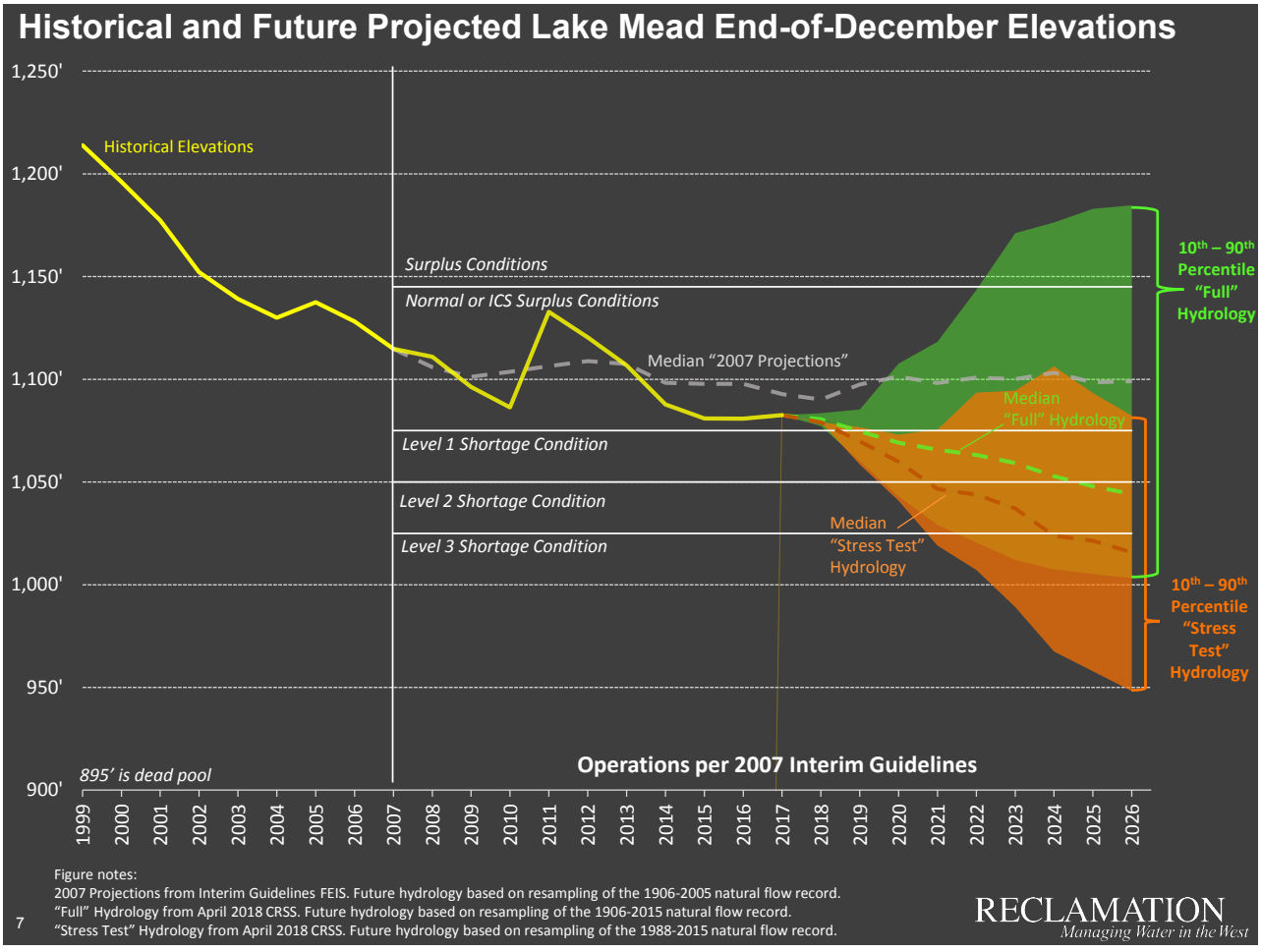
In this 50-year outlook, Utah will suffer a curtailment 47 times. Curtailments for Utah that are in volumes greater than the water right of the LPP will occur 27 times. It is not unreasonable to

[34]First call on Yampa; The Steamboat Pilot: http://www.riversimulator.org/Resources/States/ContingencyPlanning/YampaRiverPlacedOnCallFor1stTimeEver.pdf

state the chance of curtailment for LPP for the next 50-year is greater than 50% and would not even be available to this community when it needs it the most. This curtailment situation would become an unsustainable financial burden to the community of Washington County. Their debt obligation to the LPP would hinder their ability to initiate effective water conservation programs from their local water supplies. This is why the suggested preferred alternative for this EIS should be a water resiliency plan, rather than a very expensive and unfeasible pipeline project.

Figure 5: Below is a graphic from the master presentation hosted by Reclamation, Arizona Water Resources Department and the Central Arizona Project on June 28, 2018 at the University of Arizona, Tempe.[35] The purpose of the meeting was to assist support for the formal Drought Contingency Planning agreement with the Upper and Lower Divisions of the CRB, which happened on May 20, 2019.[36]

Figure 5: Stress test presentation about Lower Basin Drought Contingency Planning



[35] Master presentation by Reclamation, 2018: http://www.riversimulator.org/Resources/States/ContingencyPlanning/Reclamation/MasterPresentationLBDCPandReclamationJune2018.pdf

[36] Reclamation press release: http://www.livingrivers.org/pdfs/Press/ColoradoRiverBasinDroughtContingencyPlans.pdf

This stress test used the CRSS hydrology analysis and evaluated the possible ranges of future reservoir levels at Lake Mead given a future with repeat hydrology from 1988 to 2015. A stress test of reservoir levels for Lake Powell was not presented at this meeting. A stress test of Lake Powell is not in the public record, nor in the administrative record of the LPP DEIS. As we mentioned earlier, the two reservoirs are managed as one, so we can assume correctly that a stress test of Lake Powell would demonstrate a similar result as the Lake Mead stress test.

As we have demonstrated, in previous pages, the stages of the 2007 IG 90th percentile (wetter) and the 50th percentile (normal) do not match the current hydrology of the CRB, but the stages near the 10th percentile (dryer) do. The result of the stress test above shows curtailments for the Lower Basin and cessation of hydropower operations.

We do not understand why Reclamation did not use CRSS to stress test possible reservoir conditions at Lake Powell for the 2018 meeting in Tempe, or the LPP DEIS. However, we do understand the consequence: given how the two reservoirs are managed concurrently, what will happen at Lake Mead, is exactly what will happen at Lake Powell. Moreover, while the 2007 IG and the more recent agreements both helped to alleviate the risk of system crashes in the immediate term, they do not solve the ongoing risk of continued drying the CRB.

C.4. - Utah Board of Water Resources (UBWR) and Water Right No. 41-3479.
The water stored in Flaming Gorge Reservoir is not exclusively set aside for the projected demands of Washington County. The CRB is a multiple-use system that services 40 million people in two countries, and protects critical habitat for wildlife. For example, when river temperatures are too high for fish populations to thrive, it is necessary to release water from Flaming Gorge Dam. If water deliveries to Mexico are jeopardized, releases from Flaming Gorge Dam may be necessary to satisfy this Treaty obligation. If Lake Powell needs a boost of water to safely produce hydropower, then a water release from Flaming Gorge Dam may be necessary. These contingencies are not discussed in the administrative record for the LPP DEIS.

In the next paragraph we will demonstrate that UBWR already understands the limitations of the natural supply, the risk of curtailments to junior water right holders, impairment to non-use values when water is scarce, and the impediment of acquiring large sums of money for very expensive capital projects.

In 2018 Water Horse Resources LLC, from the state of Colorado, submitted an Application to appropriate water from the Green River below Flaming Gorge Dam with Utah Division of Water Rights (State Engineer). A Letter of Protest from UBWR[37] about this application was submitted and it requested that the State Engineer deny this application for the following reasons: 1) the Applicant was “speculative;” 2) the “Application would be regulated if the Upper Basin states implement curtailment;” 3) the Applicant “does not appear to have the financial ability” and; 4) “the Application will impact public recreation and the natural stream environment of the Flaming Gorge Reservoir and the entire Green River.”

[37] UBWR Protest - https://waterrights.utah.gov/docImport/0598/05984942.pdf

These statements exactly match all the cautionary comments from citizens about the LPP application. We are justified to conclude that if the merits of risk and uncertainty apply to Water Horse Resources, then they most certainly apply to UBWR and the LPP. With their public protest, UBWR acknowledged that water curtailments in the Upper Basin are indeed likely, that new diversion projects have issues about feasibility, and that habitats and recreation will suffer impacts if these projects are built.

C.5. - The Science of Climate Change.
The preceding pages discussed the climate patterns that are accepted by Reclamation and UBWR between 1906 and 2018. This data alone is sufficient to demonstrate that water for LPP is imaginary. For understanding potential climate impacts between 2018 and 2099, we need the assistance of the oceanic and atmospheric sciences. We would like to start this conversation with a paper that was written in 1956 and published in 1957 by Roger R. Revelle and Hans E. Suess called, *Carbon Dioxide Exchange Between Atmosphere and Ocean and the Question of an Increase of Atmospheric CO*.[38]

Revelle and Suess (Scripps Institute) tested a hypothesis that carbon dioxide molecules in the atmosphere, from burning fossil fuels since the beginning of the Industrial Revolution, were being sequestered in the sedimentary rock layers under the ocean. Their findings demonstrated that the transfer of carbon dioxide from the atmosphere to the ocean had already reached its saturation point before 1956. Therefore, the increasing load of carbon-based emissions would remain in the atmosphere and create a greenhouse effect, and then global temperatures would progressively rise and the heat would increase the mean temperatures of the atmosphere and ocean. They admitted that further research was required, which they provided in 1983.

That research was published by Roger R. Revelle and Paul E. Waggoner and called, *Effects of a Carbon Dioxide-Induced Climatic Change on Water Supplies in the Western United States*.[39] When this paper was published, every reservoir in the CRB was brim full. However, the data and equations in this document are stunning and the climate scientists of the 21st century have since confirmed the accuracy of their temperature projections.

The authors included a statement that climate behaviors are not stationary, but highly variable. In fact, this topic produced several science papers circa 2008 announcing that in terms of forecasting climate behaviors accurately —“stationarity is dead”—and the consequence of following this practice is—“wither water management.”[40]

The definition of stationarity as a principle to forecast future events is: *The traditional approach for characterizing future events is to assume that the characteristics of future events will*

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[38] http://www.riversimulator.org/Resources/ClimateDocs/CarbonDioxideExchangeBetweenAtmosphereOceanIncreaseOfAtmosphericCO2Revelle1957.pdf

[39] http://www.riversimulator.org/Resources/ClimateDocs/EffectsOfACarboInducedClimaticChangeOnWaterSuppliesInTheWesternUSARevelle1983.pdf

[40] Stationarity Is Dead: Whither Water Management; Milly, 2008. http://www.riversimulator.org/Resources/ClimateDocs/MillyBetancourt2008.pdf

resemble the past and that the past can be represented by a sample of observations drawn from the same physical process from which the future will be generated, i.e., stationarity.

Stationarity is the approach of the CRSS modeling tool used by Reclamation in the DEIS. This approach is not limited to forecasting climate, for economists use this modeling principle to predict the future behaviors for the various capital markets. As consumers we understand that it is quite normal to have cycles of abundance and scarcity in the markets. What these models don't predict very well are events such as what occurred in 2007 and what is occurring right now with the Covid-19 pandemic. The economist Nassim Nicholas Taleb labeled these random but devastating events as, "black swans."[41] It could be argued that many financial institutions did forecast the arrival of the Great Recession of 2007 and were spared its consequences, and obviously they did not use a stationarity approach, because they successfully avoided the consequences. However, it appears that economists did not see the economic consequences of unemployment and bankruptcy when the Covid-19 pandemic emerged. This is an excellent example of why the stationarity approach is an inappropriate forecasting tool.

The public would be well-served if Reclamation expanded CRSS data sets to analyze the known variabilities of climate events in past centuries. For example, Colorado River floods of the 19th century[42] had significant higher magnitudes than the 20th century, and the 13th century was significantly dryer than the 20th century.[43] Yes, expanding the data base would result in uncomfortable conclusions, but it would also be truthful, and the public and water providers would better understand and appreciate the need to protect their cherished assets from the harms of mega-drought[44] and catastrophic floods.[45]

C.6. - When will Lake Mead go dry?
Immediately following the signing of the ROD for 2007 IG, Tim P. Barnett and David W. Pierce (Scripps Institute) published a paper in 2008 called *When will Lake Mead go dry?*[46] The authors explained that the prescriptions of the 2007 ROD were not sustainable and predicted, very accurately, that *"[m]inimum power pool levels in both Lake Mead and Lake Powell will be reached under current conditions by 2017 with 50% probability*."

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[41] Black Swan Theory: https://en.wikipedia.org/wiki/Black_swan_theory

[42] Colorado River Basin Probable Maximum Floods: Hoover and Glen Canyon Dams; USBR, 1990: http://www.riversimulator.org/Resources/USBR/MaxProbableFloods.pdf

[43] Harding, Lnyker Technologies, 2020: http://www.riversimulator.org/Resources/ClimateDocs/Harding/LPPeisMemoFinal2020Harding.pdf

[44] Large contribution from anthropogenic warming to an emerging North American megadrought; Williams, 2020: http://www.riversimulator.org/Resources/ClimateDocs/Anthro/LargeContributionAnthropogenicWarmingToAnEmergingNorthAmericanMegadrought2020Williams.pdf

[45] A 2000 year natural record of magnitudes and frequencies for the largest Upper Colorado River floods near Moab, Utah; Greenbaum, 2014: http://www.riversimulator.org/Resources/Hydrology/2000YearRecordMagnitudeFrequenciesLargestUpperColoradoRiverFloodsMoabUtahGreenbaum2014.pdf

[46] Barnett and Pierce, 2008: http://www.riversimulator.org/Resources/ClimateDocs/2008BarnettPierce.pdf

Faced with exactly this prospect—the potential that Lake Mead would go dry—in 2013 and 2014 Reclamation and the seven states began to initiate a process called Drought Contingency Planning (DCP)[47] in response to serious declines in reservoir levels at Lakes Mead & Powell, and in 2019 the final DCP documents were approved by the seven states and US Congress.[48] Consequently, we now understand that the very unpopular 2008 analysis by Barnett and Pierce was indeed correct, and even conservative by a few years.

The science paper by Barnett and Pierce was a simplistic water budget analysis and not a sophisticated modeling tool, such as CRSS. Their analysis was time-scaled into the future based on published papers prepared by colleagues and cited in their paper. Recall that 2007 IG predicted near-normal reservoir conditions to 2060 (50th percentile). The immediate response to the cautionary statement by Barnett and Pierce was a press release issued by the manager of the Central Arizona Project and entitled, *Lake Mead will **not** go dry!*,[49] and exclaimed that this notion of Lake Mead falling to critical levels was “absurd.”

This 2008 science paper by Barnett and Pierce, incidentally, cites the DEIS comment letter for 2007 IG composed by Living Rivers and Center for Biological Diversity, because we also provided a simple water budget analysis to support a position that Lakes Mead & Powell will eventually go dry.[50] As for this DEIS of 2020, we will affirm this position once again and confidently state that Lakes Mead & Powell will indeed go dry, with or without the LPP.

C.7. - The Social Science of Climate Adaptation.
The commonalities of the papers by Revelle, Suess, Waggoner, Barnett and Pierce were emphatic about the need for society to adapt to climate. In this case, to adapt to the impacts of increasing temperatures. We do acknowledge the science community asks society to adapt to all stages of climate. For example, if the globe cools down by 4 degrees Celsius in the next 100-years, society must adapt to these impacts, as well.

As it stands today, society is not prepared for the impacts of any stage of climate change. Society built a lot of water infrastructure in the 20th century to provide a measure of control over the variabilities of climate, yet the impacts of extreme floods and extreme droughts and fluctuating sea levels, continue. Society is not prepared for the climate of the 21st century and any DEIS that uses 20th century applications of stationarity in their analysis are not in the public interest.

By default, nature withdraws significant water without prejudice from every user of the CRB, which is demonstrated as decreasing annual water yields and increasing evaporation. In fact, this cumulative withdrawal by nature has been assessed to be about 3 million acre-feet, since 1906 and the modest projected loss to the end of the 21st century will be another 3 million

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[47] DCP Resolution of 2014 by UCRC: http://www.ucrcommission.com/RepDoc/DroughtContingencyPlan/Upper_Basin_Drought_Contingency_Plan.pdf

[48] http://www.livingrivers.org/pdfs/Press/ColoradoRiverBasinDroughtContingencyPlans.pdf

[49] CAP news release: Lake Mead will not go dry. http://www.riversimulator.org/Resources/Press/LakeMeadDryCAPdozierFulp.pdf

[50] http://www.livingrivers.org/pdfs/LR_Shortage_DEIS.pdf

acre-feet.[51] Building more-and-more water diversion infrastructure in the 21st century will aggravate the water scarcity problem. For society to avoid withering away in these arid lands, the better approach is doing the best we can with the water that we still have, and to also use international resources to begin a united approach to unload the atmosphere of greenhouse gases.

The solution proposed by Washington County explains they only have a single (sole-source) water supply and is therefore justified to seek a secondary supply. The secondary supply they seek is much more vulnerable that the supply they have. We see no viable solution in pursuing their strategy. The expenses alone to prepare the LPP application has, so far, totaled $38 million dollars. This amount of money is equivalent to producing 25,000 acre-feet for a typical water reuse program for this water-limited community. If this amount of money were provided for other water reduction programs, the water and operational savings would eventually pay for itself.[52] This is water that is protected from shortage declarations, temporary water transfer contracts (proposed demand management programs[53]) and incidental evaporation losses. It is truly unfortunate this DEIS did not choose a water conservation program as the preferred alternative, as suggested by Western Resource Advocates (Local Waters Alternative),[54] because this alternative is a best management practice and much more cost-effective than the LPP price tag of ~2 billion dollars. The Army Corps of Engineers specifically asked that this Alternative be "explored."[55] We see this circumstance as a project that is willfully investing a very large sum of money to permanently embed curtailments into a public water supply.[56]

C.8. - The "Grand Bargain" Proposal.
A "Grand Bargain" type proposal has never been considered as a possibility in any environmental review in the CRB, nor in the administrative record of the LPP. However, it is worth mentioning, because the proposal has been vetted by water managers and academics as a viable opportunity for the seven states to self-correct the over-allocation/curtailment problem in the CRB. One such widely discussed Grand Bargain proposition involves capping the present total depletions of the Upper Basin in exchange for eliminating the Compact obligation to deliver 75 million acre-feet every 10-years to the Lower Basin.

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[51] Overpeck & Udall, 2017: http://www.riversimulator.org/Resources/ClimateDocs/21CenturyColoradoRiverHotDroughtImplicationsForFuture2017Udall.pdf

[52] The Cost of Alternative Water Supply and Efficiency Options in California; Pacific Institute, 2016: https://1ccaxf2hhhbh1jcwiktlicz7-wpengine.netdna-ssl.com/wp-content/uploads/2016/10/Pacific-Institute.pdf

[53] http://www.ucrcommission.com/RepDoc/DroughtContingencyPlan/Upper_Basin_Drought_Contingency_Plan.pdf

[54] WRA Local Waters Alternative: http://www.riversimulator.org/Resources/LPPadmin/2013/LocalWatersAlternativeLakePowellPipelineWRA2013.pdf

[55] ACOE comment letter to UBWR, 2019: http://www.riversimulator.org/Resources/Pipelines/LLP2019/ACOE/ACOEletterToDWR404PermitLPP2019.pdf

[56] The Risk of Curtailment under the Colorado River Compact, Castle, 2019: www.riversimulator.org/Resources/LawOfTheRiver/RiskOfCurtailmentUnderColoradoRiverCompact2019Castle.pdf

If this proposal happened tomorrow, the cap would likely prevent the LPP from moving forward. If the cap happened after the LPP was initiated, the risk of curtailment for LPP within the jurisdiction of the Upper Basin would still remain. For our time-scaled analysis, as presented in this DEIS comment letter, it does not really matter if the Grand Bargain is implemented or not, because we understand that Lakes Powell and Mead will empty unless serious allocation reductions occur throughout the CRB.[57]

C.9. - Iron County and Kane County withdraw from LPP.
Iron County withdrew from the LPP in 2012 because the permit application, construction and operational expenses of the project were much too high. Their decision to withdraw is final, for Iron County is no longer listed as a user of Water Right # 41-2479. Iron County has decided instead to build a pipeline to a distant groundwater source in a closed basin, which is also not sustainable, nor prudent.

Kane County withdrew from the LPP in 2020 for reasons that the project planning is a drain on their revenues, and their internal assessment of their local water supply will be reliable for another 40-years, which is also the case for Washington County as demonstrated by Western Resource Advocates. Kane County will remain a potential user of Water Right # 42-3479 and is listed as such in the administrative record. We think Kane County is wise and prudent today, but should abandon Water Right # 42-3479 in the future for the reasons of protecting their community from the hardships of debt and from the high jeopardy of LPP curtailments.

PART D. - THE BIOLOGICAL AND CULTURAL IMPACTS OF LPP DEIS

The Preferred Alternative is for many reasons a violation of the Clean Water Act 404 Permit and Section 10 of Rivers and Harbors Act, which will be explained in this section. The Preferred Alternative is especially egregious when considering the disrespect it has for the tribes and for healthy ecosystem values. Better choices, such as the Local Waters Alternative and No Action Alternative, are being dismissed or ignored by LPP proponents and in the analysis of this DEIS by Reclamation.

In Part A, we discussed the extirpation of an endangered humpback chub population in the Green River at Dinosaur NM, and the lack natural reproduction of the endangered Colorado pikeminnow in the Green River watershed. We will now focus our attention on the watersheds of the pipeline project area, which are the Paria, Kanab and Virgin rivers. We will also discuss the potential harm to human populations in the CRB.

D.1. - The Sovereignty of Kaibab Paiute Nation must be respected.
Reclamation reinitiated government-to-government consultation with Indian tribes under Section 106 of the National Historic Preservation Act and in accordance with Executive Order 13175. For either Alternative, Southern or Highway, the Kaibab PaiuteTribe and Bureau of Indian Affairs (BIA) must issue a Right of Way (ROW) agreement for the LPP to move forward. This action requires a Tribal Council resolution that, as of this date, may or may not arrive. The possibility of litigation over this issue should not be dismissed as a possible outcome.

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[57] Kenney, 2019: http://www.riversimulator.org/Resources/LawOfTheRiver/CaseForGrandBargainKenney2019.pdf

Kaibab Paiutes do not favor either pipeline routes, because of the impacts to traditional cultural properties, of which we cannot explain in greater detail through this public forum.[58] If a pipeline were going through the shrines and graveyards of St. George, the fine citizens of Washington County would be enraged, so we totally understand the sensitivities of this issue to the Kaibab Paiute Nation.

We do not know if another preferred ROW alternative even exists, for it is not in the administrative record. If it does exist, the cost or inconvenience of such an alternative does not matter, because sacred things are priceless. Choosing a pipeline route that provides an advantage and convenience to the proponents of a dominant society, over a humble and patient sovereign nation is completely inappropriate. Especially when considering this water pipeline has a very high potential of being empty five- out of ten-years for the next 50-years.

D.2. - The Sovereignty of Ute and Navajo communities in Utah must be respected.
The Uintah Ouray Ute and Navajo nations that reside in the state of Utah have reserved water rights to the Colorado River and their priority position is senior to the LPP by almost 95-years. The nations will eventually receive their water, or some form of agreeable compensation, or both. Nonetheless, this matter should have been dealt with long before the very serious deficit problem appeared, and long before the permitting of the LPP began. Again, UBWR and Washington County are not helpful about solving the long-suffering, over-allocation problems of the CRB.

The provisions for the tribes and Mexico should have been established first and foremost when the 1922 Compact was negotiated, or at least by 1929 when the Boulder Canyon Project was enacted. Mexico's allocation was finally satisfied in the 1940s. Finding solutions for the tribes of the Upper Basin should have been determined in 1948 when the Upper Colorado River Compact was signed, which did not occur. To the credit of the US Supreme Court, five tribes of the mainstream Colorado River quantified their apportionments in the Lower Basin in the 1960s. Solving tribal needs are much more important than solving the needs of Washington County, because the LPP serves as an additional threat to the ever-widening gap between supply and demand in the CRB.

D.3. - Areas of Critical Environment Concern (ACEC)
The Bureau of Land Management (BLM) issued the ROD of their Resource Management Plan (RMP) for the Arizona Strip in 2008. The "Strip" is a watershed of the Greater Grand Canyon and it is also a watershed that provides vital gains to the inflows at Lake Mead for the Lower Basin. These gains, during the hot and dry climate regime of the last 20-years, have not escaped the basin-wide reduction in flow, whether it be surface water, spring water, or groundwater seeping directly into the Colorado River. Impacts to all ACECs in the Greater Grand Canyon region are occurring right now. The preferred Southern Pipeline route must be denied because it is a violation of the Clean Water Act 404 permit and Section 10 Rivers and Harbors Act permit (see Living Rivers 2019 letter to US Army Corps of Engineers).[59]

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[58] Salt Lake Tribune: http://www.riversimulator.org/Resources/LPPadmin/2020/2020USBR/DEIS/News/LakePowellPipelineWillMakeRiverAngrySouthernPaiutesWarnAsFedsReleaseAnalysis.pdf

[59] LR letter to ACOE, 2019: http://www.riversimulator.org/Resources/Pipelines/LLP2019/ACOE/LivingRiversCommentsToACOE404PermitLPP.pdf

LPP proponents are requesting that BLM amend their Resource Management Plan (RMP) in order to accommodate the proposed and preferred Southern Pipeline route. The route will traverse through an ACEC, which was intentionally set aside to protect and preserve sensitive wildlife (a threatened fish called speckled dace and breeding amphibians), water resources, and a rare riparian desert habitat. This was an excellent designation on the part of the BLM. Rather than respect this designation and locate a different route to bypass the ACEC, Utah's LPP planners insist that BLM execute an amendment to the RMP and for their convenience. We reiterate that we do not even understand why this command from Utah exceeds the needs of wildlife, tribes and neighbors. We want this request to amend the RMP to be denied, because that is the right thing to do. Mitigation efforts to improve the integrity of the ACEC is necessary with or without the pipeline project, and pipeline construction should not be the deciding factor about implementing a mitigation plan to improve the integrity of this ACEC.

D.4. - The Quagmire of Quagga Muscle Infestations

The seven states of the CRB have tried very diligently to stop the spread of quagga muscle infestations without much success. We have little confidence that the preventative measures mentioned in the DEIS to mitigate quagga muscle infestations will succeed, especially from the forebay at Glen Canyon Dam where high concentrations of quagga muscles proliferate. It is a given that infestations will eventually arrive and harm native ecosystems in the watersheds of the Virgin, Paria, and Kanab rivers. Prevention protocols at the forebay and backbay of the LPP will become a considerable expense to an already expensive project. The DEIS does acknowledge the possibility of infestations happening, despite preventative measures, and that implies more robust mitigation costs and additional capital project infrastructure to neutralize or remove the chemical agents added to culinary water supplies for the purpose of suppressing the reproduction of quagga muscles. All these factors also imply possible litigation at a future time for potential harm to the health of wildlife and humans (see Living Rivers 2019 letter to US Army Corps of Engineers (footnote #59)). All of these risks can be more effectively avoided by accepting the Local Waters Alternative as the preferred alternative.

D.5. - Lack of review about Colorado River Salinity Control Act

The purpose of the Salinity Control Act of 1974 is to reduce the salt load of the Colorado River below Imperial Dam near the Mexico/USA international border. We brought this subject up in scoping and anticipated a discussion in the DEIS about the Lake Powell Pipeline water contract and the Green River Block water contract between UBWR and Reclamation. The concern is about return flows from irrigation and seepage on agricultural lands with saline soils. We did not find any substantive discussion on this subject in the DEIS for the LPP.

D.6. - Lack of review about economic analysis of LPP.

In scoping the public asked Reclamation for an accurate project budget for the construction of the LPP, and to please submit this information in the DEIS for public review. The response by Reclamation during a public webinar for the DEIS was that financial details were best answered by the proponents of the project. We understand this response, but the reason why the public asked Reclamation for this information is because LPP proponents are evasive about answering legitimate questions from the public, and especially from the ratepayers of Washington County and the taxpayers of Utah, the constituents of which our organization and members belong. Willfully withholding this information from taxpayers is essentially a drama about a captured hostage that does not end well. Concerned citizens would probably yield if

this money was invested into a water conservation and reuse programs. In contrast, forcing citizens to spend money on a project that embeds curtailments into a public water supply is completely absurd.

PART E: CONCLUSION

The summaries of academic historians,[60] who explain the development of public water supply projects in the arid lands of the western USA, have a common observation: the conversations at the front ends of this development scheme were careful and systematic, but the looming problems at the back ends were ignored. It was a deliberate pass for future generations to solve, and such conversations did emerge, but the paradigm of business-as-usual is what prevailed.

The information source for this general observation by the historians is the Congressional Record beginning with the irrigation caucuses of the early 1890s. For the Colorado River Basin, this formative period ends with the first compilation of the Hoover Dam Documents by the Department of Interior in the early 1930s,[61] and then World War II emerged.

In the Congressional Record after World War II, cautionary discussions continued, and the day of reckoning for shortages was even identified, which was the beginning of the 21st century,[62] yet the paradigm of business-as-usual continued and even included a grandiose conversation about importing water into the CRB from other river basins with a potential cost to federal taxpayers of one trillion dollars.[63]

Wallace Stegner said this in a 1985 Los Angeles Times opinion piece:[64]

> "*We need a Congress that will say no to any more water boondoggles in the West. We need a moratorium on boosters and developers and raiders who can't or won't see the consequences of their acts. We need to scale down our expectations and advise a lot of hopeful immigrants that what they seek is not here."*

On the eve of the 21st century, CRB managers began to focus on sharing reservoir surpluses and to Year 2016.[65] In 2001, total consumption and system evaporation reached an all-time high of 17 MAF. This overconfidence at the start of the 21st century proved to be a false start,

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[60] Walter Prescott Webb, Bernard DeVoto, Wallace Stegner, Donald Worster, Norris Hundley, Donald Pisani,, Patricia Limerick, William deBuys, and many others.

[61] On The Colorado; Weisheit, 2010: http://www.onthecolorado.com/articles.cfm?mode=detail&id=1292710182151

[62] Northcutt Ely, Esq., 1954: http://www.riversimulator.org/Resources/Testimony/ColoradoRiverBoard1954ocr.pdf

[63] North American Water and Power Alliance, Wikipedia: https://en.wikipedia.org/wiki/North_American_Water_and_Power_Alliance

[64] Wallace Stegner OpEd: https://www.latimes.com/archives/la-xpm-1985-12-29-op-26163-story.html

[65] Colorado River Interim Surplus Criteria; Notice of Intent To Prepare an Environmental Impact Statement, 1999: https://www.govinfo.gov/app/details/FR-1999-12-07/99-31681

because the conversation changed very quickly in March of 2005 when the turbines at Glen Canyon Dam approached 60% efficiency, and Secretary Norton initiated an EIS[66] (2007 IG) to prepare for sharing shortages, instead.

In just four more months this shortage sharing agreement known as 2007 Interim Guidelines will begin a five-year process of re-consultation[67] and the theme of this five-year review will be about balancing the water budget of the CRB, which means junior water right holders, such as the LPP, are at greater risk for curtailments.

Are the managers of this river basin going to change the paradigm of business-as-usual in the 21st century, or not? Will the managers continue to ignore the back end problems they inherited, or not?

This much we understand, if the Lake Powell Pipeline is approved, it means the managers of the Colorado River Basin "can't or won't see the consequences of their acts."

This concludes our comments. Thank you for your kind attention.

Sincerely yours,

Colorado Riverkeeper
John Weisheit, Conservation Director

Living Rivers
Sarah Stock, Program Director

Center for Biological Diversity
Doug Wolf, Senior Attorney

Waterkeeper Alliance
Daniel Estrin, General Counsel

Utah Rivers Council
Zach Frankel, Executive Director

Save the Colorado
Gary Wockner, Executive Director

Great Basin Water Network & Great Basin Waterkeeper
Kyle Roerink, Executive Director

Rio Grande Waterkeeper
Jen Plez, Executive Director

Glen Canyon Institute
Eric Balken, Executive Director

Green River Action Network
Lauren Wood, Program Director

Las Vegas Water Defender
Tick Segerblom, Program Director

Upper Green River Network
Rica Fulton, Program Director

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[66] 2005 Mid-Year Review: http://www.livingrivers.org/pdfs/LRlibrary/ShortageEIS/Chronology/2005AOPMid-YearReview.pdf

[67] Reconsultation of 2007 IG; ROD, page 56: https://www.usbr.gov/lc/region/programs/strategies/RecordofDecision.pdf