

**Testimony of Anne Castle**  
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**U.S. House of Representatives Natural Resources Committee**  
**Water, Oceans, and Wildlife Subcommittee**  
**Hearing on Colorado River Drought Conditions and Response Measures**  
**October 20, 2021**

Chairman Huffman, Ranking Member Bentz, and Members of the Subcommittee,

Thank you for the invitation to testify on this important subject of shrinking flows in the Colorado River and the necessary response. My name is Anne Castle and I am a Senior Fellow at the Getches-Wilkinson Center for Natural Resources, Energy, and the Environment at the University of Colorado Law School. I am an attorney who focuses on western water policy and, from 2009 to 2014, I was the Assistant Secretary for Water and Science at the U.S. Department of the Interior.

**Colorado River Declining Flow and Responses**

The Colorado River is the lightning rod for climate change impacts on water resources. Impacts in this basin have been relentless and dramatic.

Since the start of the 21st century, the river's flows declined by 20 percent compared to the 20th century average. The reservoirs have dropped as a predictable result, from 95 percent full at the end of the 20<sup>th</sup> century to 32 percent full at the end of September 2021.

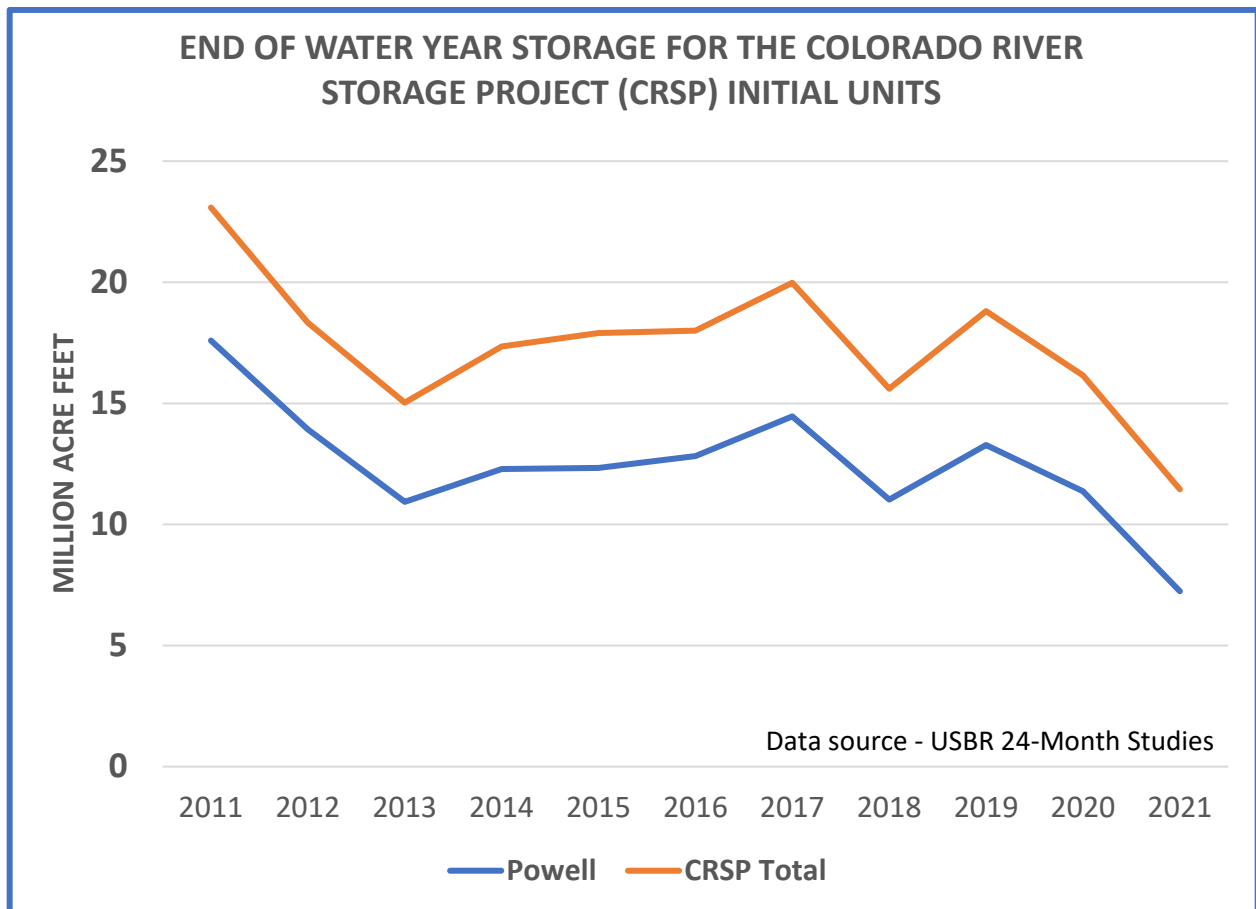
The reservoirs' declines have come despite significant reductions in water use among U.S. users in the Lower Colorado River Basin and Upper Basin users never expanding into their full legal allocation. The best available data suggests water use in the basin is declining. The 1922 Colorado River Compact and subsequent statutes and court decisions allocated 7.5 million acre feet of water each from the Colorado's mainstem for the river's Upper and Lower Basins. From 2011 - 2020, the Lower Basin average use was 7.2 million acre feet of water, while the Upper Basin averaged 3.9 million acre feet of use from 2009-2018.

Notwithstanding users taking less than they were originally allotted, the major reservoirs have continued to decline because of an imbalance between 20<sup>th</sup> century expectations of how much water use the river could support and the 21<sup>st</sup> century reality. Last month, the U.S. Bureau of Reclamation's projections posited a 41 percent chance that Lake Mead could drop to less than one quarter full by 2025, and a 34 percent chance that Lake Powell could drop so low that water would no longer be able to reach its power-generating turbines as soon as 2023. It is also important to note that many tribal water rights in the basin have not yet been fully developed but likely will be in the future, putting additional stress and uncertainty on an already over-

allocated system. Nor have environmental or ecosystem needs been historically accounted for as part of the overall system water balance.

Hydropower generation has been and continues to be an important element of the Colorado River system of dams and reservoirs. This system can supply approximately 4,200 megawatts of energy annually, reducing the use of fossil fuels in the area. The value of the hydropower produced at Glen Canyon Dam alone has been estimated to average over \$150 million annually. But hydropower production at Glen Canyon has decreased by approximately 16% since the year 2000, and further reductions across the system are anticipated because of lower inflows and releases. The loss of this power generation not only affects customer rates but also ripples through many different sectors as power revenues support the operation of and repayment for other Reclamation water projects, environmental programs (e.g., Upper Colorado and San Juan endangered fish recovery programs and basin-wide salinity control), and the Glen Canyon Dam Adaptive Management Program.

The chart below shows the progression of storage levels in Lake Powell (in blue) and in the entire system of Colorado River Storage Projects reservoirs in the Upper Basin (in orange). The plunging levels over the last two years signal the need for rapid action to prevent further unsustainable losses in these critical water savings accounts.



## **Action Urgently Needed**

Lake Powell dropped over 50 feet in the water year that ended three weeks ago. That represents a loss of over four million acre feet of water in just one year. If we experience another year like the one we just had, Lake Powell's level will drop below the hydropower turbine intakes. So in October of 2022, there would be no hydropower generation at Lake Powell. And the Upper Basin's ability to meet its obligations under the Colorado River Compact could be jeopardized soon thereafter. That's just one year from right now, if this hydrology continues.

We should not allow that to happen.

The Colorado River Basin has a history of coming together around collaborative agreements that govern the management of the river. The basin state leaders and major water users are rightly celebrated and admired for that work and results, and the testimony of the witnesses at this hearing have emphasized that collaboration.

If you look at the agreements on river management reached collaboratively in the past, there were two ingredients they all had in common. One was hydrology – it has to get really bad before there is sufficient motivation to act. The other common ingredient is a directive or a deadline or a default plan from the Department of the Interior.

In 2004, Interior officials warned the Lower Basin states that cutbacks in deliveries would be unilaterally imposed unless the states came to agreement. In 2005, Secretary of the Interior Gale Norton directed Reclamation to develop a plan to address low reservoir conditions. A collaborative agreement came together in 2007 with the adoption of the Interim Guidelines, eliminating the need for the implementation of the federal plan.

Another example occurred in 2013, when continued low flows in the river revealed that the 2007 Interim Guidelines provisions were not sufficient to halt the declines in the reservoirs. Secretary Sally Jewel told the states to come up with additional plans to address the impacts of climate change. She stated that she had a responsibility to take action if the states did not. That directive spurred the discussions that ultimately resulted in the Drought Contingency Plans.

But those plans still hadn't come together five years later. So in 2018, Commissioner of Reclamation Brenda Burman warned that unless the states were able to come to agreement by the end of January 2019, Reclamation would develop and implement a plan on its own within the year. The states cleared the way shortly thereafter and the DCPs were put in place later in 2019.

All of those previous collaborative agreements were facilitated by terrible hydrology and a directive or deadline from Interior. We certainly have the bad hydrology right now, but there

has not yet been a federal directive or default plan that would go into place if the states are not able to act quickly enough.

The Basin States and Interior are certainly focused on addressing the deteriorating hydrology and rapidly declining reservoir levels. Emergency drought response operations are being implemented now in the Upper Basin to raise water levels in Lake Powell. But this effort will boost the elevation by only 3 feet at a time when the reservoir experienced a decline of 50 feet in just one year. Work is continuing on a longer-term plan for drought response operations, but it will likely not be in place for another year. Consultation is beginning between the Lower Basin states and Interior, triggered by the provisions of the Lower Basin Drought Contingency Plan and the declining levels in Lake Mead, concerning additional measures to be taken to protect against catastrophic further declines.

Interior is also devoting very substantial funding to its drought relief efforts, including payment of compensation to induce water users to forego use and allow the conserved water to remain in the system. The bipartisan Infrastructure Investment and Jobs Act, H.R. 3684, would provide the Bureau of Reclamation with tremendous additional funding of \$8.3 billion to address infrastructure, conservation, drought, and climate change. This Committee's proposals in the budget reconciliation bill (Build Back Better Act) will add to Reclamation's abilities. This funding will undoubtedly assist greatly in contributing to conservation and improved infrastructure that will help the basin adjust to the new normal.

There is an ongoing healthy debate about population projections in the Colorado River basin states and the resulting water demand. Issues concerning realistic population growth, forecasts of water demand as compared to historical actual usage, and additional water development anticipated by the Colorado River Compact have all received considerable attention. But the simple fact remains that the Colorado River system is limited by supply and any additional demands imposed on the system reduce the amount available for existing uses.

The Colorado River system is in a state of imbalance. What is needed is a plan for sharing the burden of reduced supplies, one that recognizes the diverse economic and investment-backed interests at stake, but also provides equity among the Basin States, between the Upper Basin and the Lower Basin, and for the Native American tribes.

Imposition of a federally designed river management system is not a good outcome. A solution that reflects robust give and take among the states, tribes, and water users is a far better result. But state officials are challenged by their need to protect multiple interests with sometimes competing priorities, and progress toward collaborative solutions can be slow. The ongoing investigation of demand management in the Upper Basin reflects those challenges and the consequent lack of speed. It is unclear whether the river will allow the current pace to continue without devastating consequences.

The healthy and understandable dislike of unwelcome federal interference in river operations provides rich motivation to states, tribes, and water users to reach their own agreement.

Having a default alternative to work against can provide additional motivation to reach agreement on difficult compromises in a timely manner. Federal directives have been most effective when they establish explicit goals and deadlines. The point is not to determine winners or losers but to provide one option designed to address and mitigate the devastating impacts of a shrinking river. Other options may prove more acceptable to the states, tribes, and major water users and, if so, should definitely be adopted.

The urgency of reaching such an agreement cannot be overstated. The relentless declines in reservoirs levels are occurring despite heroic efforts by states, tribes, and water users to conserve, to develop alternative sources of water, and to use water more efficiently. Unfortunately, this means that the available options for addressing the deteriorating conditions are narrowing. If the storage levels decline further, the amazing resource and flexibility provided by the Colorado River's huge reservoirs as water savings accounts will disappear. Action is necessary now to maintain equilibrium in the system and take advantage of the relatively small amount of stored water cushion that remains.

### **Universal Access to Clean Drinking Water for Tribal Communities**

In the context of water issues in the Colorado River basin, it is critical to include the necessity of addressing the ongoing lack of access to clean and safe drinking water for Native Americans. The need and obligation to ensure that all tribal communities have clean water to drink cannot be overemphasized. We have a window of opportunity with the infrastructure bill and other funding vehicles to make meaningful progress, and we owe it to these indigenous communities to provide the same level of basic service that most Americans take for granted.

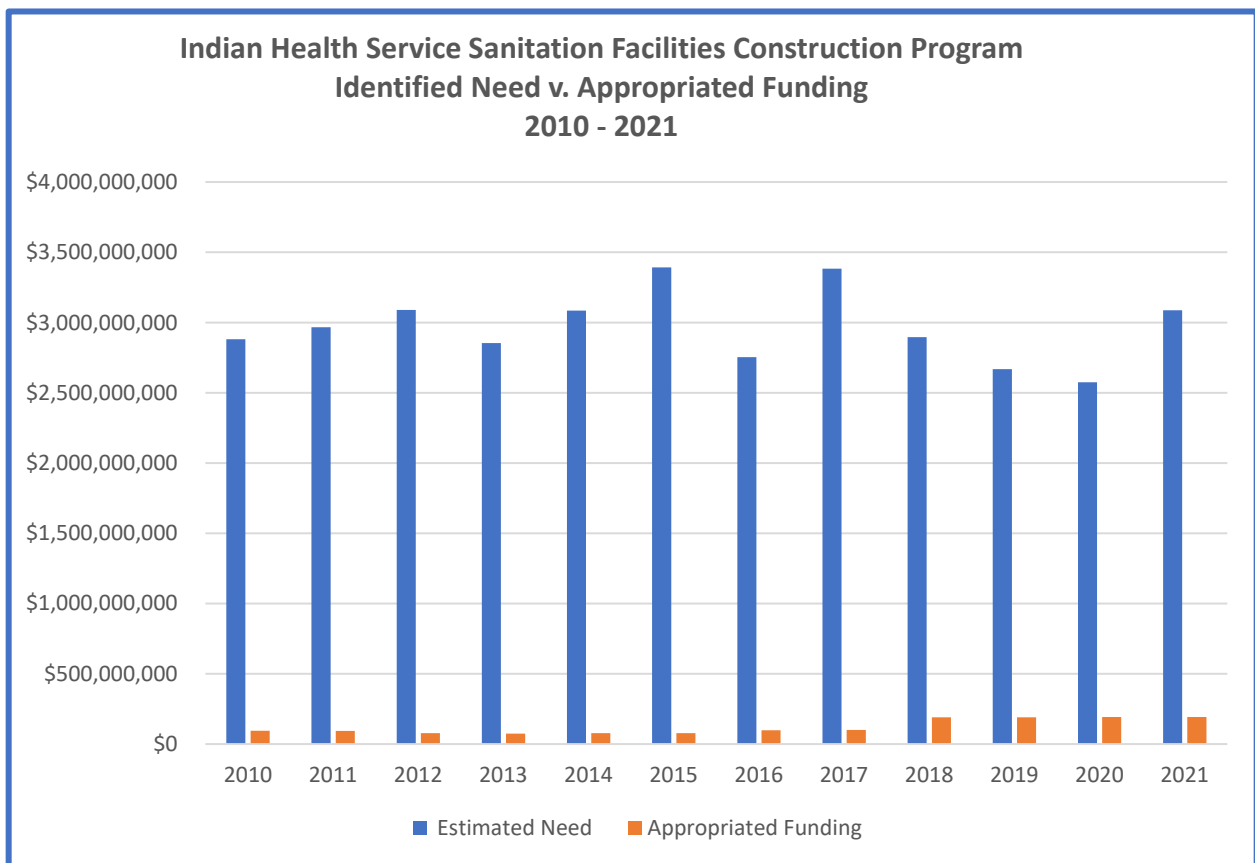
The coronavirus pandemic has tragically highlighted the vast and long-standing inequities facing Tribal communities, including disparities in water access. According to the [Centers for Disease Control and Prevention \(CDC\)](#), American Indians and Alaska Natives are more likely than any other ethnic or racial group to be hospitalized or die from COVID. Limited access to running water [is one of the main factors](#) contributing to this elevated rate of incidence. According to the [U.S. Water Alliance](#), Native American households are nineteen times more likely than white households to lack indoor plumbing. Without a safe, reliable, affordable, and easily accessible water supply, these households are unable to meet basic personal hygiene, food preparation, domestic cleaning, and other needs required for good health.

[“Water is essential to every aspect of household and community life and the economy,”](#) as recognized by the American Society of Civil Engineers. Yet many tribal communities still do not have access to clean and safe water. This lack of access reflects historical and persisting racial inequities that have resulted in health and socio-economic disparities. [“Race is the strongest predictor of water and sanitation access,”](#) with Native Americans more likely than any other group to face water access issues.

At least seven different federal agencies provide some type of funding for tribal drinking water or sanitation projects through over twenty different programs. The primary agencies involved in

water related projects include: Indian Health Service through its Sanitation Facilities Construction Program; Environmental Protection Agency through its Drinking Water Infrastructure Grants – Tribal Set Aside and Clean Water Act – Tribal Set Aside programs; U.S. Department of Agriculture’s Rural Development program; and U.S. Bureau of Reclamation as directed by Congress.

The Indian Health Service’s Sanitation Facilities Construction Program is the effort most directly aimed at ensuring that tribes have clean drinking water infrastructure. This program, like many of the others listed above, has been historically underfunded. The chart below shows the discrepancy between the unmet need for water and sanitation facilities in Indian country as estimated by the Indian Health Service and the annual appropriations for the program.



The [Tribal Access to Clean Water Act of 2021, S. 2369](#), would provide funding for each of the primary agency programs aimed at righting this longstanding wrong. The full current amount of estimated need for Indian Health Service construction funding, \$3.5 billion, is included in the bipartisan [Infrastructure Investment and Jobs Act, H.R. 3684](#). This funding is an absolute necessity for Indian country.

But the need doesn't stop with construction funding. These systems, whether new or existing, need to be operated by qualified personnel and maintained in a manner that preserves their functionality. Multiple tribes have attested to the desperate need for operation and maintenance support, even for new facilities, as the remote nature of many of these systems makes them expensive to maintain and the available resources within tribal communities to support ongoing costs can be lacking. Tribal communities do not have access to the same sources of funding as other municipal water providers, lacking the ability, for example, to impose property taxes on their lands for the purpose of funding and maintaining capital infrastructure.

The Indian Health Service has authority to provide O&M assistance (25 U.S.C. 1632(b)), but that authority has never received funding. The authorizing statute contemplates the need for O&M assistance "to protect the Federal investment in tribal sanitation facilities." The unprecedented amount of funding for construction and repair of these facilities through the bipartisan Infrastructure Investment and Jobs Act underscores the need to protect that investment and ensure sustainable operation of these systems. IHS technical assistance will help fill the gaps in tribal capacity to design, operate, and maintain appropriate water and wastewater disposal systems.

As provided in S. 2369, \$500 million is needed to fund the IHS authority to provide operation and maintenance assistance to tribal communities for water and wastewater infrastructure. Further funding is necessary for tribal technical assistance, to allow tribes to participate in the planning of the needed systems and to ensure that tribal members are developing the technical skills required to take over the operation and maintenance of both the physical systems and the governance structures. S. 2369 would provide funding for the existing technical assistance programs in IHS and the Bureau of Reclamation in the amounts of \$150 million and \$90 million, respectively. These needs are not currently funded in either H.R. 3684 or the budget reconciliation (Build Back Better) bill, but they should be.

In addition to funding, it is also necessary to ensure that the work of the various federal agencies that have tribal water programs are coordinated in their approach and committed to the goal of providing universal clean water access in Indian country. The solutions for each tribal community will be site specific and a "whole of government" approach is required to take advantage of the strengths of each relevant agency. Tribes understandably lack the resources, both human and financial, necessary to navigate all the potentially applicable federal programs and access them successfully. To fully realize the goal of universal access to clean water, the federal government must internalize the responsibility of assessing the unique tribal needs, determine through consultation and recognition of tribal sovereignty which programs can provide the necessary support, assist the tribes in navigating those programs, and help to implement the infrastructure and services needed on the ground. Throughout this process, federal personnel should ensure that designated tribal members are developing the technical skills required to take over the operation and maintenance of both the physical systems and the governance structures.

Tribes have not historically been included in negotiations and agreements concerning Colorado River management. The principals in the Basin States and federal agencies have committed in good faith to correcting that omission. Ensuring that tribal communities in the Basin have universal access to clean and safe drinking water should be considered a foundation for any future agreements.

A window of opportunity has opened to address drinking water insecurity in Indian country. It is critical that action be taken before that window closes and these issues are allowed to languish for another decade or even another generation.

Thank you for the opportunity to testify before the Subcommittee on this important subject. I look forward to your questions and further discussion.