NEVADA LEGISLATURE
SUBCOMMITTEE ON PUBLIC LANDS OF THE JOINT INTERIM STANDING COMMITTEE ON NATURAL RESOURCES

(*Nevada Revised Statutes* [NRS] 218E.510)

DRAFT MINUTES

May 23, 2022

The second meeting of the Subcommittee on Public Lands of the Joint Interim Standing Committee on Natural Resources for the 2021–2022 Interim was held on Monday, May 23, 2022, at 9 a.m. in the City of Boulder City, Council Chambers, 401 California Avenue, Boulder City, Nevada.

The agenda, minutes, meeting materials, and audio recording of the meeting are available on the Subcommittee's meeting page. The audio recording may also be found at https://www.leg.state.nv.us/Video/. Copies of the audio or video record can be obtained through the Publications Office of the Legislative Counsel Bureau (LCB) (publications@lcb.state.nv.us or 775/684-6835).

SUBCOMMITTEE MEMBERS PRESENT IN BOULDER CITY:

Assemblywoman Maggie Carlton, Chair
Senator Melanie Scheible, Vice Chair
Senator Ira Hansen (Alternate for Senator Pete Goicoechea)
Assemblywoman Alexis Hansen
Clifford Banuelos, Tribal-State Environmental Liaison, Inter-Tribal Council of Nevada, Inc.
Justin Jones, Clark County Commissioner

SUBCOMMITTEE MEMBER ABSENT:

Senator Pete Goicoechea (Excused)

OTHER LEGISLATORS PRESENT:

Howard Watts III, Assembly District 15

LEGISLATIVE COUNSEL BUREAU STAFF PRESENT:

Alysa M. Keller, Senior Principal Policy Analyst, Research Division
Jann Stinnesbeck, Senior Policy Analyst, Research Division
Maria Aguayo, Research Policy Assistant, Research Division
Allan Amburn, Senior Deputy Legislative Counsel, Legal Division
Kimbra Ellsworth, Senior Program Analyst, Fiscal Analysis Division
Mark Sharp, Officer, Nevada Legislative Police, Administrative Division
Chad Romero, Officer, Nevada Legislative Police, Administrative Division

Items taken out of sequence during the meeting have been placed in agenda order.
[Indicates a summary of comments.]

AGENDA ITEM I—OPENING REMARKS

[Chair Carlton called the meeting to order. She welcomed members, presenters, and the public to the second meeting of the Subcommittee on Public Lands of the Joint Interim Standing Committee on Natural Resources.]

Chair Carlton:

Good morning, everyone. Welcome to Boulder City. It is very nice to be out here today. We will begin with roll call. Can you please call the roll?

[Roll call reflected in Subcommittee Members Present.]

For those listening in today, we are meeting in the Council Chambers in Boulder City. We have a full agenda today and will be hearing several presentations regarding water. Unfortunately, Senator Goicoechea cannot be here with us, but we have Senator Hansen as his alternate for this meeting.

[Chair Carlton reviewed virtual meeting and testimony guidelines.]

AGENDA ITEM II—PUBLIC COMMENT

Chair Carlton:

Our first order of business this morning will be public comment. Members of the public may provide testimony in several different ways, all of which are listed on our agenda. Please remember to clearly state and spell your name and limit your comments to three minutes.

[Chair Carlton reviewed all options for providing public comment.]

Do we have anyone here in the Chamber wishing to make public comment this morning? [There was none.]

Broadcast and Production Services (BPS), do you have anybody on the line who wishes to give public comment?

Jose Silva, Progressive Leadership Alliance of Nevada:

The Progressive Leadership Alliance of Nevada believes that everyone has the right to live in a clean and healthy environment regardless of their race, income, gender, or immigration status, yet for decades, communities of color have been neglected in the creation of sound environmental and land use policy.

Due to this, disparities in the quality of health and life between traditionally white communities and communities of color have surged, and increased development in the southern part of the Las Vegas Valley has raised several concerns amongst the community: Where will our water come from? How much more heat can our residents handle? What will happen to our Mojave Desert wildlife? How will this further the negative impacts on communities of color and lower-income households?

Nevada is the driest state in the nation, and it is important we take care of our most precious resource. While extensive water use in Nevada may be deemed inevitable due to growing populations and industries, acknowledgement of overallocation is long overdue. Our water basins, which are currently overallocated in Nevada, provide massive amounts of water to Nevada's supply for aeration, mining, and growing urban landscapes. One remnant of open pit mining is the massive pit lakes that result from mining below the water table. Generally, the water in pit lakes is substandard and of lower quality than surrounding groundwater.

If an operation results in pollution that will require treatment of 500 years or more, there are no specific regulations for this treatment in perpetuity of toxic waste, and at the federal level, the regulations for these kinds of pit lakes are determined by laws from 1872, which are over 150 years old and were enacted when Nevada was barely 10 years old.

This leaves Nevadans without strong protection against the harmful impacts of mining, including water overallocation, pit lakes, water that needs to be treated in perpetuity, destruction of indigenous sites, and negative public health outcomes. We have seen the tribal community suffer immensely from the consequences of this lack of protection, with some people even having to rely on bottled water after their wells were contaminated by mining waste.

The increasing demand for lithium puts our communities, environment, and resources at a greater risk. There are smarter ways for populations to grow than we are implementing right now. Extensive urban development in the north and south is expected to increase our respective heat island effect, ruin the region's natural defense at combating pollution in the air, and augment the consumption rate of our natural bodies of water.

We should look at examples of smart development in other cities in the southwest region: they are building up and high and focusing on conservation and the most important use of water—to sustain life. We urge this Committee to put people first in its decision making, not the well-being and profits of the mining corporations or developers. Only then can we ensure that the next seven generations of Nevadans all have the dignity to thrive.

Garrett Kingen, Private Citizen, Las Vegas, Nevada:

About 90 percent of the water in southern Nevada comes from the Colorado River. In January 2022, a study conducted in southern Nevada found that water allocation was reduced by 7 billion gallons, enough water to supplement 45,000 homes in Las Vegas.

I regularly speak with hundreds of thousands of people across Las Vegas who are in great fear of our water shortages, not so much for themselves, but for their children and grandchildren. According to the City of Las Vegas, southern Nevada will receive at least 7 percent less water from the Colorado River. The Southern Nevada Economic Development and Conservation Act (S.-567, 117th Congress), a bill that proposes adding about 820,000 residents to the southern Nevada area by the year 2060, would further the devastation on southern Nevada's water supply.

From what I have seen, and from people with whom I have been speaking, this systemic issue has been going on for years and years. I would like to think that here in Las Vegas and here in Boulder City we can come together to see what we can do on these issues. It is an idea that we all should grasp with both hands, because this is both a matter of life and death. Thank you so much.

Andie Davis, Private Citizen, Las Vegas, Nevada:

As a Nevada native, a Las Vegas resident, and an amateur gardener, I know firsthand that water means life. The one issue that needs to be addressed in this Subcommittee, especially since the topic of this meeting is dedicated to water, is the topic of mining, specifically lithium mining. The environmental impacts of lithium mining include not only water loss, ground destabilization, habitat degradation, loss of biodiversity, increased salinity of water and soils, and increased toxic waste.

All this leads to the increased desertification of the fragile Nevada ecosystem we reside in, including the contamination of both water and soil. On the issue of water loss, it takes over 500,000 gallons of water to mine one ton of lithium. With Lake Mead at record low levels and in the current state of drought, the question is: where would this water come from?

I realize that lithium is one of the main components capable of powering electric cars, a sustainable alternative to most vehicles that now rely on fossil fuels. However, is that enough to outweigh the cost of mining? I implore the Committee to consider alternatives: directing funds to fixing already existing public infrastructure and making public transportation more accessible to folks within my community, funding research that investigates more sustainable alternatives to mining, and possibly using gray water instead of fresh water for mining.

Additionally, as a young person who balances a 40-hour work week and attends a university, I do hope the Committee would consider scheduling these meetings for a different time than 9 a.m. on a Monday morning to make it more accessible for folks who would like to attend.

Chair Carlton:

Are there other folks in the Chamber who wish to give public comment? [There were none.] I believe we have some callers on the line; BPS, could you queue up the first caller please?

Joe Guild, Private Citizen:

I am testifying on behalf of myself and my ranching business. My comment relates to the last meeting of the Subcommittee in Ely, Nevada. I had a conversation with Assemblywoman Hansen about one of the things I thought was lacking in that meeting. There was a lot of testimony about wild horse impacts on the public ranges and the impacts on the multiple uses of the public range as a result of the overpopulation of horses, but it seemed to me there was no solution or action item presented to the Subcommittee.

I wrote and submitted a memo pointing out that there is a growing body of scientific evidence that horses and burros provide some damage to the ranges (Agenda Item II). The livestock industry is subject to permits and time and seasons of use restrictions, so we cannot completely blame livestock grazing. What the Subcommittee can do is help push this along. There is precedent for this from the Public Lands Committee prior to this Subcommittee's reorganization in sending a letter to all relevant agencies and the Congressional Delegation expressing the Legislature's concern about the overgrazing situation on the ranges.

Chair Carlton:

We have probably talked about horses for about 24 years now, so I do appreciate the memo. Thank you for your input, and we will move forward from there.

Do we have any other callers who wish to provide public comment?

BPS:

Chair, the line is open and working; however, there are no additional callers at this time.

AGENDA ITEM III—PRESENTATION ON WATER ISSUES CONCERNING THE COLORADO RIVER

Chair Carlton:

We can move on to item number three on our agenda, which is a presentation on water issues concerning the Colorado River. The first presentation today is from the Southern Nevada Water Authority.

A. SOUTHERN NEVADA WATER AUTHORITY

John J. Entsminger, General Manager, Las Vegas Valley Water District and Southern Nevada Water Authority (SNWA):

As most Subcommittee members are aware, southern Nevada is highly reliant upon the Colorado River for our water resources (Agenda Item III A). We get 90 percent of our water supply from the Colorado and the other 10 percent from the aquifer that underlies the Las Vegas Valley. Another way of looking at that is 90 percent of the water supply for 76 percent of the state's population comes from the Colorado River. This system is imperiled. There is no other way to say it.

If you look back to the turn of the century, red is below average, blue is above average. We had five years between the turn of the century and 2021 that were above average, but this period of record includes 2002, which is the driest year in recorded history. The years 2012 and 2013 were the driest back-to-back years in recorded history until 2020 and 2021, which have now eclipsed those as the driest back-to-back years in recorded history.

The ramifications can be seen in these three pictures. We went into this century with Lake Mead essentially full. In the first five years, we have dropped from full to less than half full, and we have kind of bumped along since then. The last two years have had a dramatic impact, and now we sit at 34 percent capacity in Lake Mead.

Locally, we are seeing the effects. This is a picture of the upper intake built by the federal government, which came online in 1971 and was the first access for Las Vegas from Lake Mead. I do not have an updated photo, but as Commissioner Jones is aware, we showed an updated photo at our board meeting last week and that intake is now about seven feet out of the water. In the span of time between April 25, 2022, and last weekend, the lake has gone down another six to seven feet.

This is a graphic of our water infrastructure in Lake Mead; the higher intake with the circle on it is that picture I just showed you of that infrastructure that was built in the 1970s. Fortunately, we now have online our low lake level pumping station and our third intake, which gives us access to pump 900 million gallons a day from an elevation of 875 feet in Lake Mead. We are sitting at about 1,050 feet today. That is a critical elevation, because an elevation of 895 feet—what is referred to as dead pool—is the level at which the United States Bureau of Reclamation cannot physically pass water through the Hoover Dam downstream to Arizona, California, and the country of Mexico. Even in the direst hydrologic

conditions, we are essentially guaranteed to always have 20 feet of water over our lowest intake.

Regarding the probabilities of where Lake Mead's elevation is going to be over the next 24 months, we are sitting a little below 1,050 feet today, and there is about a 43 percent chance we are going to be below 1,025 feet by the end of 2023. Conditions are not only getting worse, but the rate of deterioration is also accelerating. That has all led to the federal government declaring the first ever Level 1 shortage condition. Deb Haaland, Secretary, U.S. Department of the Interior (DOI), declared that condition in August of 2021.

What does a shortage condition for southern Nevada actually mean? Anywhere above an elevation of 1,090 feet, we have access to our full 300,000 acre-feet of legal entitlements, but for each elevation below 1,090 feet, we have a deduction from our legal entitlements. This does not mean we will have to use less water than we are using today—shortage is a legal definition within federal law. Today we are in that first year of shortage between 1,050 feet and 1,075 feet, so our legal allocation is reduced from 300,000 acre-feet to 279,000 acre-feet. We will almost certainly go into a Tier 2 declaration for 2023, so we will be reduced to 275,000 acre-feet. The good news is, last year we used 242,000 acre-feet. Again, "shortage" is a legal definition, and at least for southern Nevada, it means that for the immediate future, we have less extra water. Even with the shortages being declared by the federal government, we will be banking extra water in Lake Mead this year.

Turning our attention upstream, the most imperiled infrastructure in the last three to four months has been at Lake Powell, not at Lake Mead. In the last three weeks, the federal government took two actions: (1) reduce 500,000 acre-feet from Flaming Gorge Reservoir downstream into Powell; and (2) retain 480,000 acre-feet that was scheduled to be delivered from Powell to Mead, so 980,000-acre feet in total.

The goal is to protect power head at Glen Canyon Dam, which is the critical facility for our nation's black start capability on the western grid as well as 100 percent of the water supply for Page, Arizona, and some of the communities of the Navajo Nation. It is currently below 3,490 feet. It is very important to protect those elevations, and Nevada fully supported the secretarial action to do so in the immediate term.

In the last two decades, we have taken several actions and entered into cooperative agreements on the Lower Colorado. In 2019, we joined the Drought Contingency Plan in which Arizona, California, and Nevada all agreed to put additional water into Lake Mead in order to protect those elevations. Absent all the cooperative actions between the three states, water users, environmental communities, Native American tribes, and the country of Mexico, Lake Mead would be 67 feet lower than it is today. As dire as the hydrology is, it is important for us to keep in mind that we do have tools available to us to preserve these critical elevations if the region can continue to work together.

Another plan was completed in December of 2021 when the three states came together and agreed to leave another 500,000 acre-feet in the Lake this year, and an additional 500,000 acre-feet in 2023. Conditions are continually getting worse, but we are also continuing and ramping up cooperation efforts.

We have three types of water in SNWA's resource plan: (1) temporary water; (2) permanent supplies from our Colorado River; and (3) future resources. Our temporary resources are our bank supplies; we have banked water in Lake Mead, Arizona, and California, and have even gotten contributions from Mexico's treaty allocation. We have

2.2 million acre-feet of water in these temporary bank supplies, and since we used 242,000 acre-feet last year, we have eight to nine years of our current demands stored in these temporary supplies.

We also have new supplies on the way. We have engaged in a cooperative partnership with the Metropolitan Water District of Southern California. They plan to take all the wastewater California currently discharges in the Pacific Ocean, treat that wastewater, and recharge it into the aquifers in coastal California. Then they can take that out for use by their residents. Our board has already allocated a $750 million contribution from Nevada to California, and in exchange for our capital contribution, they will leave a portion of California's Colorado River water in Lake Mead for our use.

If you look at our resource plan, the dark blue is our permanent supplies, the light blue is that California water, the green is our temporary supplies when we begin accessing those bank accounts, and the brown is where we could need future water supplies. Regarding the upper demand scenario, which outpaces projections by a couple percent, if we can hit our conservation goal of moving from 112 gallons per capita per day to 86 gallons per capita per day by 2035, we will continue to have a very solid water resource portfolio here in southern Nevada.

I could have spent my whole presentation and much longer talking about conservation, but for anybody who wants to know more about our conservation efforts, we have considered rising local temperatures and increased our projection to consider that if we do absolutely nothing, our gallons per capita per day will go up from 112 to 123 because of warmer local temperatures. We then fight downhill from 123 to 86 gallons per capita per day by taking every conservation initiative in our resource plan, quantifying and then achieving that initiative in a gallons-per-capita-per-day savings, and then showing the road map for how to get from 123 to 86 gallons per capita per day.

The single biggest item on there is fully implementing Assembly Bill 356 (2021), which is the removal of nonfunctional turf. I saw Assemblyman Watts III in the audience, so tip of the hat for his leadership and getting that through the Legislature last session. When you start quantifying these, some are literally not even a full gallon per capita per day, and some are .7, but AB 356 is over 8 all by itself.

I will wrap up, and I am happy to answer any questions.

Chair Carlton:

Thank you, Mr. Entsminger. We will take the other presentations first and then open it up for individual questions. Next, we have Dr. Jim Prairie from the Bureau of Reclamation.

B. UNITED STATES BUREAU OF RECLAMATION

James Prairie, Ph.D., Group Chief, Upper Colorado Basin Research and Modeling, U.S. Bureau of Reclamation:

I am stationed at the Center for Advanced Decision Support in Water Environmental Systems at the University of Colorado, Boulder. I was asked to speak today about natural flow conditions in the Colorado River Basin, both in a historical and a plausible future context, and couple that with the impacts we are seeing with the current drought.

One of the tasks my team leads is extending and maintaining the Colorado River Basin's natural flow record, which represents stream flow in the Colorado River Basin if humans had not impacted the river. This record is available from 1906 to 2019 at 29 gauges throughout the Basin, and we have further produced a provisional natural flow estimate at the Colorado River at Lee's Ferry through the current year 2022.

Before the drought that began in 2000, natural flow at Lee's Ferry averaged about 15.23 million acre-feet. Now, given the 22-year drought from 2000 to 2022, that average has dropped to about 12.22 million acre-feet, which amounts to 3 million acre-feet less than the long-term average, or about a 20 percent reduction. This marked a change in our long-term record. The recent drought is one of the lowest 22-year periods over the last 600 years; we have compared it with reconstructed tree ring records developed for the Colorado River Basin at Lee's Ferry, and we can see that there have been maybe three periods in the last 600 years with drought as deep as this over a 22-year period.

The level of drought we have seen in the past 100 years is unprecedented. There are two climate variables strongly influencing this drought in relation to stream flow: precipitation and temperature. Historically, precipitation has varied over the decades, increasing and decreasing over time but not exhibiting any significant downward trend in precipitation. Temperature in the Basin is showing a very different signal. Beginning in the early century, temperature was like precipitation in that it varied over the decades, but beginning in about 1970, we have seen a significant upward trend in the 10-year average of temperature across the Colorado River Basin. This trend has remained stubbornly in place since then and has continued to increase each year.

Since about 1980, the Basin has also seen about a one degree Celsius or two degrees Fahrenheit increase in long-term average temperature. This may not sound that significant, but studies have shown that for each degree increase in temperature on average, we are experiencing about a 10 percent reduction in flow. Under this drought, we have already begun to experience the influence of temperature on flow, seeing similar precipitation as in the past but not realizing the stream flow from that precipitation due to this increasing temperature.

If we take this a step further, we can look at projection summaries for various future flow projections that came out of our 2020 *Colorado River Basin Climate and Hydrology: State of the Science* report. It provides ample information on how climate change is impacting the Basin along with observations in the Basin as a whole. Within this report are global climate model projections we can use to understand what the future climate may look like under this changing climate. A lot of work has relied on the historical record to predict what is going to happen in the future, but we now recognize that the historical record does not include this increasing temperature continuing in the future, so the global climate models are a tool we can use to look at that.

One key aspect that these models agree on is warming. They agree that the warming is happening across models, but they do not necessarily agree on how precipitation is going to respond to this warming. Will we see higher or lower precipitation? Generally, these models indicate a 2.5 to 5 degree Celsius increase by 2050, which will further reduce the flows from the Basin. On the temperature side, there is little agreement about what will occur regarding precipitation. We see a wide range of potential futures under precipitation.

When we couple precipitation and temperature, we see reductions of 10 to 20 percent on average, which is consistent with our current trend, but we also see a range of reductions up to 40 percent and potential increases up to 30 percent. These studies demonstrate the

wide range of what is plausible, but the possibilities are based on a moderate emission scenario, not the worst-case emission scenario.

What does this mean for planners in the Basin? In our view, there is a much wider range of plausible futures we could experience, but we cannot guarantee we are going to be at the high levels or the low levels. No risk estimates of what we are going to hit in the future are available now under this "nonstationary"' climate, meaning a climate that is changing. We do not have a stable climate we can use to project risk in the future.

That reality leads to the need to develop alternatives that can work under a wide range of possible future flows. Traditionally, we have worked under the goal of 15 million acre-feet, and for the past 20 years, we have been sitting at a little over 12 million acre-feet on average. We should consider future levels of 11 or even 9 million acre-feet as possibilities and have plans in place for how to address that.

Chair Carlton:

Thank you. Our last presentation on this panel is from Eric Witkoski of the Colorado River Commission.

C. COLORADO RIVER COMMISSION OF NEVADA

Eric Witkoski, Executive Director, Colorado River Commission of Nevada (CRC):

My presentation is a little broader because every two years under the Public Lands Committee, we are supposed to give an update on the activities of the CRC. It is not lost on me to focus on the drought, but I do have a presentation that is slightly wider in scope, though I will touch on the drought and some of our activities to address that problem (Agenda Item III C).

Our organization was created in 1935 and we are tied to the Hoover Dam. We were created to secure hydropower for the Lincoln County Power District 1 created that same year, and about two years later, we were able to deliver hydropower up to Pioche, Nevada, to support mining activity. We have played a lot of roles over the years, but our purpose has always been to protect and hold hydropower and water rights for the greatest benefit of Nevada.

We have seven members: four appointed by the governor and three by the SNWA, and we focus on four areas. We oversee hydropower and its allocation, wherein we interact with federal agencies, and we also work with SNWA on water issues and environmental issues. We operate and maintain a high voltage system for certain customers, including SNWA, the city, and member agencies, and we assist Boulder City on various transmission projects. We also help staff the Silver State Energy Association (SSEA) along with the SNWA, and they provide purchase power for Boulder City, the SNWA, member agencies, and the CRC if we need it. Lincoln Power and Overton Power District 1 are also members; I do not think they currently take market power from us, but they have that option.

Next is an overview of Lake Powell and Lake Mead. You will hear the terms "Upper Basin" and "Lower Basin" throughout this presentation. The Upper Basin refers to Lake Powell, and there is a different hydropower system up there, while the Lower Basin encompasses the Hoover, Parker, and Davis Dams.

I would also like to give an overview of the contracts flow. The DOI operates the dams. They deliver the power to the Western Area Power Administration (WAPA), with whom we

have long-term contracts, and in turn we have contracts with our 23 customers. Some of our direct retail customers are legacy customers from World War II; one was an industrial park built during the War to develop magnesium and titanium. In June of 2020, a lot of that production was shut down and it was uncertain what the future might hold, but with the Russian invasion of Ukraine, production may ramp up. Boeing Aircraft gets about 30 percent of their titanium from Russia, and that is going to change, so we were notified the plant will step up production to probably double it over the next 6 months, then double it again in the next 24 months. That is significant because in June 2020, they had to lay off about 190 people.

We provide hydropower to NV Energy, Lincoln, Boulder City, Overton, and Valley Electric Association while our water customers are the cities and members of the SNWA. The state's agencies have a had a small slice of Hoover Dam since the reallocation in 2013 in which 5 percent was shaved off; we have a credit mechanism they receive, and they are doing quite well right now.

As for our activities with the Bureau of Reclamation, we attend their meetings, work with them on their investments in the plant, and try to keep an eye on rates. This requires us to strike a balance, because you want to keep the rates low, but you also must make investments in the plant to maintain the plant. We engage in similar activities with WAPA by participating in their meetings and in discussions of rate charges. They operate more of the transmission, so we also look at their activities such as the Regional Transmission Organization (RTO).

Power is valuable. It is cost-based, so there is no markup and no return on equity, and the cost alone is passed on to customers. At least in Nevada, power is considered a renewable resource per SB 358 (2019), so it helps meet the renewable portfolio standard (RPS) for a company like Nevada Power. It is flexible because it can be used to help offset instances when renewables may be going down. It can be loaded into the hours when that other power may not be available. It has black start capability; in the event of a huge outage, you can use it to bring the system back up.

The Bureau of Reclamation and WAPA have also been working on what the federal government refers to as renewable energy credits (RECs). Nevada calls them portfolio energy credits (PECs), while the Western Renewable Energy Generation Information System (WREGIS) refers to them simply as certificates. The WAPA is a third-party verifier, so they can verify that a certain amount of energy was created, and the state is entitled to a certain number of certificates. The WAPA transfers those into REGIS, and then we can transfer them to us onto the customers, which brings some confidence in the system.

The other hot topic in the West is the Regional Market Organizations. The Upper Basin is more up in Colorado, and they are looking at evaluating the Southwest Power Pool, which operates mostly in the center part of Colorado. Some of the utilities are also looking at going that way. In the Upper Basin, WAPA is looking at doing that as well. They are conducting studies right now, and we expect if they do it, it will happen in 2025.

In the Desert Southwest, which operates out of Phoenix, WAPA is currently joining the California Independent System Operator (CAISO), which operates the Energy Imbalance Market, a 5-minute market that, if you need balancing power, you can reach out and get it or you can sell into it, which helps to keep balancing the system. We also participate in the Governor's Regional Task Force. There is legislation for NV Energy to be part of an RTO by 2030. There are lots of discussions going on in the West about which direction to follow.

As far as drought operation discussions in the Upper Basin, we participate in the Colorado River Energy Distribution Association (CREDA). We have five meetings a year plus drought operations committees watching the drought, impacts on rates, and how we can manage those. In January, we started pushing the group to consider looking at alternative resources, because a lot of our customers are located all over the West, and they are small, their cities are rural electric, and they do not have big purchasing economies of scale. If they could either work with WAPA or the Bureau of Reclamation or among other customers to look for renewable resources that could be near WAPA's transmission line, that might be attractive. It is something we started talking about with them this year and there is a meeting next month to discuss that.

The Lower Basin deals with the Hoover Dam. For years, they have had an Engineering Operations Committee, and we recently pushed to form a subcommittee to explore with them not only drought operations, but possibly also alternative resources.

On the topic of water delivery, various efforts have been made to bolster low lakes, including both Lake Powell and Lake Mead. Regarding relations with Mexico, a 1944 treaty approved in 1945 states that Mexico received 1.5 million acre-feet of water, and we continue to work with Mexico to maintain that treaty by sharing in shortages and those kinds of things.

The Colorado River Basin Salinity Control Program aims to help reduce the naturally occurring salt in the river. There are two main environmental programs: the Multispecies Conservation Program (MSCP) in the Lower Colorado River Basin and the Glen Canyon Dam Adaptive Management Workgroup in the Upper Colorado River Basin. The MSCP program is a 50-year program that balances the use of the river with conservation and native species and habitat to meet the Endangered Species Act (16 U.S.C. § 1531 et seq. [1973]). The goal is to create 8,132 acres of new habitat, and so far, they have created 6,049 acres with over 13 mitigation sites. The program is also meant to augment the population of native fish. The Glen Canyon Dam Adaptive Management Workgroup is an advisory group for the reclamation operations at Glen Canyon Dam, and we have various stakeholders who can provide comment and input about the operations.

I believe I mentioned that we provide staffing along with the SNWA to the SSEA, which secures and hedges power for various entities. Our next group is the Power Delivery Project Group, a system used to deliver electricity to the SNWA in major cities and for wastewater treatment. We also work to maintain the substations owned by SNWA and three by Clark County Water Reclamation.

Chair Carlton:

Subcommittee members, does anyone have any questions for the Colorado River Commission? [There were none.]

I have a question. We keep hearing conversations about possible blackouts or brownouts this summer, so I think you might be one of the best people to ask about this. We know that our neighbors to the west need a lot of power and there are industries in this state that need power to keep going, but we all represent constituents who want to make sure the air conditioning and the refrigerator stay on. What have those conversations looked like?

Mr. Witkoski:

This summer, California could be in a situation where they are 1,700 megawatts short, but that depends on temperatures and how high the peak gets. They have been adding a lot of battery storage, so hopefully some of that will help, but it is worrisome.

I know Nevada Power is better positioned for that, and they could probably better speak to that. They have been adding resources, and they have a lot in the planning and development stages. There is some concern about the supply chain issues and whether they can get all those done in time, but it is a situation throughout the West.

Two years ago, California had some outages, and Nevada Power did a good job. They called us asking if they could pull anymore out of the Dam, and Reclamation did what they could at Glen Canyon Dam during those two or three days in August of 2020. It is a challenge. There is an effort to cut fossil fuel and carbon emissions because we foresee increased temperatures and their impact on the river. It is a tough issue to try to cut carbon, because we are not generating what we would call "conventional" power like natural gas or coal. We are trying to get there with solar and batteries, and hopefully we can.

Chair Carlton:

I did not mean to put you on the spot. I wanted to consider not just the individual NV Energy question, but also the bigger picture up and down the Basin and with our neighbors to the West.

Mr. Witkoski:

We think about it a lot.

Chair Carlton:

I can imagine. Are there any other questions from Subcommittee members?

Senator Hansen:

As the river level drops, the dams' ability to produce power drops proportionally, right? If that is the case, when do you reach a point where the water level is so low you cannot generate power?

Mr. Witkoski:

I think it is around 950 feet in elevation, but it is a slow decline. I have checked this and there are charts, but it comes down slowly. For Boulder City, the SSEA helps manage their portfolio, so as it slowly declines, they can add a little bit, and they have both added a solar contract. They are in pretty good shape, pretty full-on power and hedge. It comes down slowly, so you have time to respond. It does not drop off a cliff.

Senator Hansen:

What is the maximum power generation potential for the two major dams on the Colorado River? As far as you know, if we are going to eliminate natural gas and coal-fired plants, how much hydroelectric energy can we consistently rely on these two dams to produce?

Mr. Witkoski:

At the Hoover Dam, the nameplate capacity is about 2,000, but it has not been at that level since the 1980s. That is the maximum amount.

Senator Hansen:

That is megawatts?

Mr. Witkoski:

Yes. Megawatts of capacity, but we probably have not seen that since they had the overflows in the 1980s. In recent years, it has been less than that. The way to think about it, and the rule of thumb I use, is that if we get down to the level of 1,000, you have about 1,000 megawatts of capacity. When you look at the charts and the elevation is about 1,012, it means you are generating about half of the full capacity of the plant, but we have not been there in some time.

Senator Hansen:

And that is similar to Glen Canyon?

Mr. Witkoski:

We are not as familiar with that one, and we only have about 27 megawatts from that dam.

Senator Hansen:

So that dam is small, and Hoover provides the main power? At maximum, if everything works out perfectly, could you generate 2,000 megawatts?

Mr. Witkoski:

In a perfect world, and if the river was brimming at the top, yes.

Chair Carlton:

Subcommittee members, are there any questions for Dr. Prairie with the Bureau of Reclamation?

Mr. Jones:

We have been managing the river based on reservoir levels. Are we at a point where we need to be looking at them based on flows, given that there is much less flow right now?

Dr. Prairie:

I believe thinking about that is a part of this discussion. We are not doing that at this point; we are still operating under the 2007 Interim guidelines along with the job contingency planning, which are based on looking at reservoir levels to determine deliveries throughout the Basin.

Mr. Jones:

We have been managing them based on reservoirs. What happens if users start using up their allocations—their banked resources—in the reservoirs?

Dr. Prairie:

I think you are going to see activities like those that occurred this last month where Reclamation worked with the Basin states to agree on reduced releases through Lake Powell to protect the Glen Canyon Dam. You also saw reductions in the Lower Basin used to continue to protect Mead and Powell together. You are going to see continued efforts to recognize flow projections in the next few years and working to maintain uses that will not completely drain the system.

Chair Carlton:

Are there any other questions?

Senator Hansen:

Upstream use—obviously the flow rate is 15 million acre-feet. Is that measure starting at Lee's Ferry? Where do you measure from?

Dr. Prairie:

Yes, Lee's Ferry is the gauge above the compact point between the Upper and Lower Basins.

Senator Hansen:

I have been doing some homework, and it has been quite interesting. How much of an increase has there been among the upstream users? Are they typically tapping out the maximum capacity when you have low flow issues on the river?

Dr. Prairie:

I must be careful to make sure I understand what you mean when you say maximum capacity. Their allocated right is 7.5 like the Lower Basin, and right now they are using about 4.6 on average. They also include evaporation from reservoirs in the Upper Basin in that number, so they are well below their apportionment, and their uses have been fairly stable over the last decade. They have not been having a strong increase.

Senator Hansen:

That is kind of scary if they are only using half their capacity now and we are on the downstream side of things, and they decide to max out if the drought gets worse. You mentioned a 600-year window of study, but I saw one that I think was by the U.S. Geological Survey (USGS), DOI, going back 1,000 years that mentioned several multidecade periods of drought on the Colorado River where the flow dropped below about line 8.1 and remained there for years. You discussed worst case scenarios, but have you gone back to that level of worst-case scenarios? That is scary.

Dr. Prairie:

I was looking at the most recent reconstructions, both by Dr. David Meko at the University of Arizona; he has one that goes back to about 1762 and another one that does not go back

quite as far. This is a more skillful projection going back, and that is why we have been using this one, but yes, it is the medieval drought period of about 50 years with flows below what we have seen now.

It is good to know that even without climate change, there are these megadroughts that have occurred historically and spanned decades, and that is not with the warming we are seeing. We are trying to be cognizant right now that this warming is impacting this drought more than we have seen in the past. A key question we are asking right now is, are we in a new normal?

Senator Hansen:

The one you referred to from 2004 by that individual is the same one I mentioned. It is interesting to see how this is not a new phenomenon; the Colorado River has had some major long-term, serious droughts probably equal to or in some cases greater than we are currently seeing.

Dr. Prairie:

The key thing to keep remembering is that this temperature increase has not been seen in that historical or paleo record going back, and they have done that; what is unprecedented is the temperature increase, which exacerbates everything.

Senator Hansen:

But you did mention that according to your models, we may potentially see increased precipitation in some models. Is that correct?

Dr. Prairie:

It is wide-ranging, but yes, that is the key question, because the models do not agree on what the physics are going to do under our warming atmosphere as far as rain. As a planner and in talking with planners, I will say that we need to be ready for all these possibilities. It could be an increase in flow or a decrease, and we need to have contingencies for both.

Senator Hansen:

I pray for an increase. Thank you.

Chair Carlton:

The decrease is the scariest. If it increases, I would love to see it flow over again like it did before. Are there any questions for Mr. Entsminger and the SNWA?

Mr. Jones:

I have two questions for you. I know there are concerns about water affordability; what are your thoughts on that? Perhaps more importantly for this group—since the whole idea is to provide recommendations or ideas for legislation, and you worked very closely with Assemblyman Howard Watts III last time—is there anything else when you are looking at 15 different things that we need to do in order to get to 86 gallons per capita per day (GPCD) that would be beneficial from the legislature?

Mr. Entsminger:

I am happy to answer both questions. If you consider the affordability of water, you are almost inevitably talking about the difference in philosophy between water as a pure commodity and water as a public trust. We try to blend those within our retail service system and address affordability by having a four-tier system where the first tier of water—the first 5,000 gallons that people pay for each month—is significantly subsidized. It costs us about $3.50 to provide 1,000 gallons of water to a tap. For those first 5,000 gallons, you are only paying about $1.17 for 1,000 gallons, so you have a 65 percent subsidy to protect those at-risk communities within southern Nevada to make sure that the public trust is being met.

The second thing I would say in terms of the legislation is that we try very hard to achieve things on a regional basis down here, but there are some things that I think the Legislature may be able to cut through. First and foremost, the Las Vegas Valley Water District has already prohibited the use of Colorado River water for any use if we are not getting the wastewater back. If a home or a business is planning on having a septic and we are not going to get those return flow credits back to reuse and extend the resource, we will not hook them up, but some of the other municipalities have not taken that step. I think the Legislature could intervene and make the use of Colorado River water for new septic systems illegal.

There may well be a couple of other things related to AB 356. Frankly, we are hearing some saber-rattling from some homeowner's associations (HOA) that think there are some gray areas in that legislation, and they may not be willing to comply. There may be some small fixes to clarify. We do not believe there is any ambiguity in the statute, but in the event a judge disagrees, we may want to make some clarifications to AB 356 to make it abundantly clear.

Mr. Jones:

I am aware because I am on the SNWA board, but could you quickly walk us through what the SNWA did with the Nonfunctional Turf Removal Advisory Committee (NTRAC) in deciding on what the language would be used for nonfunctional turf.

Mr. Entsminger:

Over the past 20 years, we have regularly impaneled citizens' committees to do everything from setting conservation goals to deciding what capital projects to build, and ultimately how to pay for all that stuff. Assembly Bill 356 required the empanelment of what was ultimately called NTRAC, which met for about five months and did site visits to see exactly where turf in our community was being utilized by our citizens and where the turf was only being walked on by the people who mowed. They had different definitions for parks, schools, and businesses, and came up with the uniform definitions that are now in the process of being implemented across jurisdictional lines. There are the same rules of the road in Anthem, Summerlin, and Aliante for the implementation of that process.

Chair Carlton:

To expand on that regarding AB 356 and NTRAC, what are the HOAs up to here? I have been through too many HOA battles in my life, so thank God I will not be there for this one, but I am curious. I want to know what they are thinking.

Mr. Entsminger:

I wish I could answer that more precisely. Right now, they are grumbling, but I would also say that this calendar year, Green Valley Ranch has taken out, I believe, 300,000 square feet of turf. The Howard Hughes Corporation is leading the charge in Summerlin, and we have seen a couple of 6-figure artificial turf removals within the Summerlin area. We are hearing some of the pockets of—shockingly—the more affluent areas of town saying they think there are some avenues of challenge available, but because the law does not become fully enforceable and you are not required to take out your grass until the end of 2026, we have not seen exactly what their legal arguments would be yet. We have heard that they think they are special and should be able to keep their grass.

Chair Carlton:

I do not want to send people into a tizzy, but it might be time for a nonfunctional turf rate, and I would be happy to help you design that rate.

Are there any other questions?

Senator Hansen:

You used 242,000 acre-feet of water, you got 2.2 million acre-feet of water, and you have a chart here that shows all sorts of other areas that have bank water. At some point, if the river drops to a certain level, will the federal government force you to use your stored water rather than your Colorado River water?

Mr. Entsminger:

I do not think they would be forcing us. We have clear rules of the road down until an elevation of 1,025 and after that, there have not been agreements about how deep those shortages might become. In a scenario where we must take an additional 20,000 acre-feet of reduction and you could get to where our basic allocation is not covering us, that is when we would pull on those banks. But considering our available basic proportion after shortage cuts and our annual limitations to what you can withdraw—because you cannot take all that bank water out in one year—as long as those two things cover any one year's worth of water use, frankly, I think the Bureau of Reclamation is going to have bigger fish to fry.

Senator Hansen:

Wow. I heard that upstream, they are currently only using half of their allocations, and if you start adding up these numbers, it is worrying if everybody started to use them at maximum capacity like they do in northern Nevada, which is a big problem because all our basins are over-allocated.

I think you deserve quite a compliment, though, considering you have 2.2 million acre-feet of water in storage through a severe drought window; that is a real compliment to you to be able to bank that in a time when the flows are down substantially in Southern Nevada. Everybody beats up on the SNWA all the time, and you are the bad guys on the block, but I must say there has been some excellent long-term planning to have that level of storage available for Las Vegas to use.

Chair Carlton:

It is their citizens' committee that did the hard work, and I can say that because I served on one.

AGENDA ITEM IV—PRESENTATION ON WATER ISSUES IN NEVADA

Chair Carlton:

Next, we again have water issues with a presentation from the Division of Water Resources (DWR) of the State Department of Conservation and Natural Resources (DCNR).

Adam Sullivan, P.E., State Engineer and Administrator, DWR, DCNR:

Good morning. With me is Micheline Fairbank, Deputy Administrator, and we are going to split this presentation between the two of us. We are going to give more of a statewide perspective on conservation, specifically the challenges and opportunities we are currently experiencing and observing (Agenda Item IV A).

There is a different set of rules than what we have been talking about with the Colorado River, which has an interstate compact defining how the river is administered. There are several analogous situations that hit me this morning as we were listening, but as the state agency charged with administering water law throughout the state, we look at conservation and its challenges and opportunities directly through the lens of Nevada water law, and that is where we are focusing our discussion this morning.

Although there are many efforts statewide to be realistic by working within the available water budget and implementing smart conservation measures, Nevada's water law has limitations, and in some ways, it has the potential to actually impede efforts to conserve water. Water law is effective for its core function of appropriating water for beneficial use. It is well established and largely unchanged since it was originally enacted, but today, now that our population is approximately 30 times larger than it was when water law was initially established, we are facing many different constraints and expectations.

There are different kinds of demands on the state to address the problems we face, but when we respond to those issues in the context of Nevada water law, there are limitations regarding managing shortages in groundwater, encouraging conservation, supporting localized solutions, maintaining sensitive environmental resources, and considering multigenerational, long-term sustainability well into the future. Principles are in place to support the intent of some of these efforts, like recognizing that water is a public resource and that we have a priority system that is not designed to be implemented where there is not enough water to go around. We will give some examples of where we are coming up short because of the limitations in water law.

The recent drought of the last two years has raised awareness of the need to prioritize conservation, but it has also highlighted the imminence and the consequences of having a short water supply.

The state is responsible for carrying out water law in a consistent manner statewide and maintaining records and data to support those efforts on a larger basis. Counties are responsible for developing county resource plans to meet their long-term needs, and while local communities are most directly affected by the consequences of these efforts, they are also the most equipped to know or understand the localized circumstances. It is critical to have effective influence implementation of all these levels working together. As a state

agency, we have made an effort to hold public meetings in various communities with different circumstances in which we discuss the data we have available, what the options are for responding to drought, declining water levels, and water shortages, and what the state can do to help implement reasonable local solutions.

As I see it, there is a lot of good news on this front. Las Vegas is a good example of a municipality implementing effective water conservation measures, and there are also a lot of good examples up north of current actions to implement conservation. For instance, in the Walker River Basin, irrigators understand their circumstances and are working together to implement voluntary conservation efforts to limit the rate of aquifer drawdown.

What the state can do, and what our staff are doing, is to help define targets of how much reduction would be able to make a difference. We can also support that by communicating that nonuse for short periods of time to respond to drought would not put them at risk of losing their water rights due to cancellation or forfeiture. We do not want to penalize people for conserving water.

In the Carson River Watershed, there is a good community-led effort to work within the available water budget, and within the Humboldt River, there is a substantial effort to be realistic about the effect of groundwater pumping on flow in the river and the senior decreed rights. We will hear more about that this afternoon. Another example is in Diamond Valley, which has implemented a community-based groundwater management plan to address chronic local water drawdown. These are all good examples of collective efforts to manage the common pool resource in a way that is supportive of the community and the local economy. The state needs to be supportive of these efforts rather than impeding local conservation.

We are now experiencing—and my concern is that it might get worse over time if we do not respond to it—that water law can impede innovative localized solutions. Despite the intent present in water law to work within a prior appropriation system and use the best available science to allow for groundwater management plans, the implementation and interpretation of those measures is problematic. We have disparate legal interpretations that leave uncertainty about the legislative intent, and in addition, the role and the authority of the DWR in implementing those measures. The absence of clear legislative direction invites differing interpretations. For example, statements of policy within NRS are called into question and whether they mean anything.

An additional element is that there is a culture of resistance to adapting Nevada's water laws to contemporary issues. It makes complete sense to be both cognizant and weary of unintended consequences, but without getting ahead of some of these problems, we are in a situation where we are forced to be reactive or resolve issues in the courts. Ultimately, the concern is that this is detrimental overall to public service and to water resources.

Lastly, we live with a legacy of distrust, partly related to our office, but also among other stakeholders who have different points of view. It is important for the state to overcome this so we as an agency can carry out our duties in accordance with law and with due respect to the water right holders and be realistic about the constraints we are facing with a limited water resource. I will now turn it over to Micheline.

Micheline Fairbank, Deputy Administrator, DWR, DCNR:

One of the issues we want to address is that there is uncertainty with respect to the state engineer's role within the legislative policy directives. This lack of a clear Legislative

directive leaves uncertainty with respect to how to execute policy directives, which are intended to direct our office on responsible resource management.

Recently, we received a judicial decision stating that statements of policy set forth by the Legislature are not operative statutory enactments (Agenda Item IV B). The court went on to say that the statute does not declare that the best available science should dictate the decisions, so the Office of the State Engineer's reliance on the best available science was not in conformity with the explicit authority given to the State Engineer's Office.

The same came into effect with respect to conjunctive management, which refers to management of all water in the state regardless of the source of supply; it is the policy directive of the Legislature, but it is not explicit as to how we are to implement that policy directive, and there is no explicit authority bestowed upon the state engineer to conjunctively manage water resources.

We are left with significant uncertainty about what our role is and a lack of clarity regarding a path for implementation. The Legislature has given us guidance, but when we try to go ahead and use our best efforts—the state engineer's best discretionary implementation of that policy directive—we are left to the courts interpreting what we can and cannot do based on explicit statements contained within Nevada's water law. Without clear definitions, we are left with that level of uncertainty regarding our role, because we do get differing viewpoints from different courts. We do not know exactly what the Legislature intends the state engineer to do and what the DWRs' ultimate responsibilities are.

[Inaudible] we are also left with limited statutory tools. This is not a new discussion in the Legislature. Nevada water law leaves the state engineer with very limited statutory tools to respond to an ever-changing and complex resource management environment. We can administratively cancel water rights, forfeit water rights, and undergo abandonment of water rights.

Cancellation and forfeiture take a lot of work and impute a lot of equity concerns on the part of the courts. A defensible abandonment decision is very challenging for our office, because we must show that the appropriator or user of the water right had an actual intent to abandon that water. If you have an unused right for a period of time that may not be subject to cancellation or forfeiture, making a showing of abandonment is extremely difficult, especially if you are dealing with prestatutory rights, because we might be trying to prove an intent to abandon decades upon decades later.

Curtailment by priority is another tool our office possesses, but it is not necessarily as easy as it appears. It seems simple to draw a line in the sand and say, "Anybody who is junior to this line does not have the opportunity to use their water," and on a surface water system, that is very easy, and people understand how to do that. But it is a much more complex discussion when we start talking about brown water resources and interconnected resources, and while the Legislature has given us the authority to designate critical management areas, those come with great consequences. That designation starts a 10-year clock on a particular basin, requiring them to identify and establish a groundwater management plan to be approved by the state engineer within ten years. If that is not accomplished, then we are left with curtailment by priority.

Nevada's water law may get in the way of localized solutions that meet the needs of these communities. As an example, I will use the Diamond Valley Groundwater Management Plan, the first groundwater management plan implemented in response to a critical management area designation. The community spent years developing what would be a sensible solution

for that community, but because the law is not explicit about what can and cannot be contained within the groundwater management plan—meaning whether that groundwater management plan has to strictly adhere to the doctrine of prior appropriation—that question is now before the Supreme Court to make the decision as to the Legislature's intent. The Legislature did not clearly define what could and could not be instituted within a groundwater management plan. As a result, the localized solution may be impossible to implement due to Nevada's statutory regime, and that is not necessarily in the best interest of the community at large.

Smith and Mason Valley irrigators have also come together and made collective efforts to limit their groundwater usage to try to preserve the resource through this time of drought, but if a senior water right holder says, "I do not want to play ball," there is nothing in the law that requires them to do so, because prior appropriation entitles the most senior right holders to do whatever they want regardless of the overall conditions in the system.

That is why we say priority alone is not necessarily enough to manage shortages, and that is why I raised the issue regarding groundwater. On a surface water system, the water is either there or it is not, and senior system users can access that water while junior users cannot, but in a groundwater system it is not that simple. The water is still there, but groundwater level declining is what plays into effect. The timing of curtailment and the timing of nonuse may not be resulting in actual availability of water for generations to come.

Priority of managing a groundwater system or even interconnected hydrologic systems does not necessarily serve the purpose of the resource or the communities, and there needs to be some consideration of how to best manage these different resources within the confines of the law that provide flexibility for those local communities so they can then identify solutions that are appropriate for their needs.

Another challenge facing the DWR is underfunding. Absent appropriate resources, we are unable to meet our basic obligations, let alone be more proactively engaged in water conservation efforts. Like most of the state, the Division is currently experiencing pervasive vacancies and the inability to recruit and retain employees, and that is putting us behind even doing our core functions, let alone trying to get ahead of different issues within the state that demand our attention and time to appropriately create and manage reasonable solutions with our local communities.

As I stated before, our mission is uncertain. Despite court decisions, the lack of legislative directives and the lack of stakeholder support for guidance results in uncertainty for the agency and staff. Not only is the uncertainty difficult because it makes it challenging to try to identify appropriate management strategies, but it also has a significant impact on employee morale, further contributing to the challenges in retention and employment of new staff.

Finally, long-term resource management requires innovation to sustain a changing climate, including warming, drying soil conditions that absorb more runoff and lower flows than we have become accustomed to, and updating science. We need to update our water resource budgets for each of our basins, because they are between 50- and 70-years-old and are increasingly under attack in the court systems; it is not that they are not still appropriate, but because they are old, it is easy to attack them. We need to acknowledge the limitations in existing law and remove those impediments to community-led solutions that would allow for innovative water management. What may work for one community may not be the appropriate solution for another, but they need to have flexibility to work outside of

the strict prior appropriation doctrine to come up with solutions that will work for those individuals and those communities.

Chair Carlton:

I will now open it up to Subcommittee members for questions, and I do have some myself.

Assemblywoman Hansen:

We certainly know the difficult position that you are in while trying to do the work you do for the state, and it does not go unappreciated. You talked about the language in the latest court decision stating that "statements of policy set forth by the Legislature are not operative statutory enactments," and "the statute does not declare that the best available science should dictate the decisions." Could you clarify for me when that decision was rendered?

Ms. Fairbank:

That decision was rendered in April of this year, 2022.

Assemblywoman Hansen:

Which court handed down that decision?

Ms. Fairbank:

It was the 8th Judicial District Court, and it was the case involving Order 1309, which related to the Lower White River Flow System.

Assemblywoman Hansen:

We talk a lot about prior appropriations making it harder to navigate conservation efforts. I am putting you on the spot, but if you had a magic wand and you could enhance Nevada water law, what would that look like? What is the solution? If we are having this conversation and the courts are not a factor—in a dream—what would that solution be without impeding conservation efforts?

Mr. Sullivan:

A couple of reasonable options come to mind related to clarifying legislative intent where we have had conflicting interpretations. The specific areas I am talking about are conjunctive management, protecting environmental resources, and the strict curtailment by priority in groundwater systems. The latter was a principle written for surface water that has been adopted for groundwater systems but has never been implemented; how would that work? Another big solution is balancing the tenet of beneficial use with the need for long-term resource planning, and that is probably most prevalent in municipal systems, but it is a consideration with all manners of use. A couple other things are incentivizing conservation for irrigation and determining what the scope of groundwater management plans or critical management areas could or could not be.

Ms. Fairbank:

To build on what Adam stated, current law states that beneficial use shall be the basis measuring the limit of a right. Oftentimes, we engage in conversations with our other

western state colleagues, and when we talk about the difficulties we face with forfeitures and cancellations, they are mind-blown by how difficult it is for us to take unused water off the books.

In many western states, the policy is "use it or lose it," and this loss is seriously considered, adhered to, and honored by the court systems. If we could have more effective authority where unused water is no longer part of the portfolio, that would provide significant help to get the first toehold on the problem.

We talk about conjunctive management to a degree, but it would help to give the express acknowledgement to the Office of the State Engineer to administer water rights based upon the resource of the water right, not artificial administrative boundaries. We must acknowledge the scientific interconnectivity of water basins, and that is relevant when we talk about disparate court decisions. One court made a finding that the potential impact hundreds of years in the future of an upgradient groundwater basin precluded the appropriation of additional rights because, at some indeterminate point in the future, that water was already appropriated in downgradient basins. Yet another court makes a finding based on clear scientific evidence that, used today, captures water approximately 100 miles away, and even though they are in different administrative hydrology units, we cannot consider them together, and thus we cannot manage the resource collectively and conjunctively.

Having the authority to honor the scientific bases of interconnectivity regardless of administrative boundaries is essential for responsible resource management. Understanding how we can do that would be extremely helpful in terms of trying to manage the resources responsibly to hit all those different pieces while still honoring existing rights.

We must come up with a solution to the problem of how to manage water rights that are part of that interconnected system that were not necessarily appropriated with that in mind. That is not our decision to figure it out; the Legislature needs to tell us how we should go ahead and unwind that ball of string.

Assemblywoman Hansen:

Thank you for being brave. I appreciate it, and I made lots of notes. We are all trying to find solutions.

Senator Hansen:

I am not as nice as Assemblywoman Hansen on this, because you are almost calling for a revolution in Nevada water law by talking about priority appropriation doctrine being either completely suppressed or turned over to you to do what you think is right in each basin based on the best scientific approach. My understanding is, if you are a senior water rights holder, those are your legal property rights. For you to come in and now say, "We are going to go to Diamond Valley and have a groundwater management plan, and whether you are a junior or senior water rights holder, everybody is going to be treated the same," that is not the way the whole game was supposed to be played.

The bottom line—after watching this in the Legislature for 12 years now—is that, at some point, your agency over appropriated water rights in numerous basins across the state. I represent Lovelock, which is on the bottom of the Humboldt River System, but they have the most senior water rights on the entire system. The Rye Patch Reservoir goes dry about every ten years and the people who are the senior water rights holders do not get to have

any water in their ditches. I totally agree with what you are saying about beneficial use. We need to make it so if people are not properly using their water, you have some ability to get those back.

Your whole presentation scares me in that we are no longer treating the senior water rights as property rights, but rather as flexible things in a groundwater management plan. We are going to all come together and sing kumbaya, and we are going to have a groundwater management plan where everybody is going to behave the same, but that is not the way the law was supposed to be implemented.

I enjoyed your presentation, and I agree that you are underfunded. Adam, I always say that you have the toughest job in the state—you and the guy in charge of public education—because everybody expects miracles from you, and you have 100 years of precedent falling on your shoulders. Are you responsible for over appropriation in Diamond Valley or Pahrump? I do not think so. That stuff probably happened long before you were even born.

I respect where you are coming from, but I want to get on the record that the senior water rights holders I represent in so many areas of the state—and by the way, I represent Pyramid Lake, Walker Lake, and Lovelock, all on the bottom of communal water systems—are very upset with how the upstream folks are taking the water. It is a huge issue in my district, so I am very familiar with a lot of these things, and I am very uncomfortable with the idea of treating senior water rights as prior appropriation and something that we are going to turn over to you guys to adjudicate. We will have to see how that plays out.

Mr. Jones:

I have a question regarding beneficial use. Since we are trying to come up with solutions, are there other states that are doing it better or can serve as models that the Legislature could examine?

Ms. Fairbank:

It is not an easy answer, because a lot of the institutional history of other states has created a smoother pathway for them to be able to more effectively handle the beneficial use question. For example, in Wyoming, you use it or lose it, and nobody questions it when the water right goes away because of nonuse; it is an accepted fact. That is a historical and cultural perspective in that particular state.

Other states have grappled with similar issues; Idaho in the Eastern State Plains Aquifer has encountered significant challenges in terms of trying to manage the groundwater use and surface water impacts. It has not been easy, and it was the outcome of significant litigation, but the hydrologic system there is different than ours here in Nevada, so that creates its own unique challenges. It is also easy to point to the fact that Idaho has a lot more water than we do in Nevada, and those are frank realities that create distinctions between other states and Nevada, so that is the challenge that we have here.

Mr. Banuelos:

I have a couple questions. First, do you have any impediments to working with Nevada tribes regarding conjunctive water management?

Ms. Fairbank:

It is more about exchange of information. With some of our tribal communities and nations, we have relatively good relationships, and we can exchange water usage data, but that is probably the most important information for us. We recognize that particularly on surface water systems, the water rights of tribes that have been recognized are tribal and sovereign rights, but an area of opportunity that is probably underutilized is understanding the usage so we can help balance the entire system that is inclusive of resource use both within and outside of the reservations.

Mr. Banuelos:

That is a good segue into my second question. Chair Rupert Steele of the Confederated Tribes of the Goshute Reservation requested a response to a letter from Governor Sisolak regarding one of their water rights, and I think the Pyramid Lake Paiute Tribe has over time asked that question. I wonder if the DWR will be reviewing tribal water rights, and if so, will that result in a document that will be made available to the tribes?

Mr. Sullivan:

Regarding the Confederated Goshute Nation, we have been working and cooperating with the tribes, the State of Utah, and our federal partners to quantify the water resources for the tribal nation. That has been a positive experience, and it is in process, but it stands as a good example of how the state and the tribes can work together for a responsible solution.

Ms. Fairbank:

To build on that, the state is always interested in engaging with our tribal communities to achieve certainty with respect to Federal Reserve claims of water rights within tribal boundaries. We are committed to working collaboratively and cooperatively with our tribal nations as Adam recognized with the Confederated Tribes of the Goshute Nation, but we have also worked diligently to try to achieve resolutions. One example we like to highlight is the City of North Las Vegas Paiute Tribe and their Federal Reserve claims, which were finalized in the 1990s.

Chair Carlton:

I had a couple of questions. In relation to the quote that reads, "Statements of policy set forth by the Legislature are not operative statutory enactments," I want to understand what we are talking about when we refer to the term *statements of policy*. What is in the bill and NRS is the rule book, so when you use that term, what are you referring to?

Ms. Fairbank:

This is in NRS 533.024 where there are legislative declarations. A couple of those are that the state engineer shall consider the best available science, and the state engineer shall conjunctively manage all waters in the state regardless of the source of supply; I believe that is subsections 1(c) and 1(e) of NRS 533.024. There are also policy declarations regarding domestic wells being protectible interests, and so, in this particular decision, the court found that those policy declarations are not specific enactments of authority to the state engineer; they are merely informative, but they do not control.

Chair Carlton:

They are in the NRS, correct? They have a citation because you just gave it to me, so that means that we—the royal "we," as in the Legislature—have given them the actual power of guidance. I am confused why the court would not overlay that because in a lot of instances, we give that overarching policy statement and then everything else underneath needs to fit beneath that umbrella. It is my understanding that the court does not think that us giving guidance is strong enough to operate as statute. Does that guidance need to be firmer? Does it need to be clearer?

Ms. Fairbank:

My interpretation is that if the Legislature wants us to go ahead and utilize those different policy directives, it needs to be explicit about how and in what manner the state engineer of the DWR is to implement them.

Chair Carlton:

This is not meant to be argumentative, but I want to put some things on the record. We are only in session for 120 days every other year. You do not want us to get too precise, because you need room to move and adjust for ongoing changes. In the past, we have found that when we have been too prescriptive, it has come back to bite us in the butt because your hands have been tied.

In my own opinion, I believe a lot of times when we do these policy statements—and they are in the NRS, so they are statutory—that we are basically trying to say, "Operate within this certain world" and then everything else fits within it. If we get too prescriptive with you, then that can tie your hands. My next question would be, if those policy tools are not giving you what you need, what tools have you lost through this whole thing to be able to do the work you do?

Ms. Fairbank:

Obviously, we believe those policy directives do guide us, and that is why we have operated and tried to do things within the scope of those policy directives. Regarding your question about what tools we have lost, we certainly are not going to admit defeat. We still feel that those policy directives guide our decisions and operations, but in this judicial district and these particular facts, they constrain our ability to conjunctively manage water resources for the protection of senior decreed surface water rights.

If they are expanded, they could impact our ability to implement other management strategies that would be protective of senior decreed surface water rights. For example, Senator Hansen talked about the end of the Humboldt River System in his district, and if you were to transpose this particular decision on that system, we would be unable to regulate groundwater usage that directly impacted surface water deliveries. The real threat is that it creates that uncertainty.

Chair Carlton:

It is a very interesting conversation. I will go back to being a legislator—we wrote it down, we passed it, we voted on it, the Governor signed it, and it is in the NRS, so it is the law. Sometimes, even though we do that, we must go back and say, "By the way, we really mean it." If we must go back and do a "we really mean it" bill, that is what we will have to do to make sure we are perfectly clear. Are there any other questions?

Assemblywoman Hansen:

Is there an example of a completed curtailment of water by priority?

Ms. Fairbank:

Virtually every surface water system in any given irrigation year would have completed curtailment, because in the absence of extreme flood years, not all water rights can be served on a surface water system. On the groundwater system in the State of Nevada, no.

Chair Carlton:

I have a lot more questions, so I will work with staff to work with you to make sure we get the information back to the Subcommittee as we move forward. We try to address every issue that we can and give you the tools or data you might be missing.

We will now move on to the next agenda item.

AGENDA ITEM V—PRESENTATION ON WALKER BASIN WATER CONSERVATION EFFORTS

Chair Carlton:

The next agenda item is a presentation on the Walker River Basin conservation efforts.

Peter Stanton, Executive Director, Walker Basin Conservancy:

I am here to report back on the first decade of progress with the Walker Basin Restoration Program. The Walker Basin Conservancy is tasked with implementing the Walker Basin Restoration Program, which aims to maintain and protect Walker Lake while protecting the agricultural, environmental, and recreational balances within the Basin. I am here to talk about the success of the program, which is one of the most ambitious freshwater acquisition projects for environmental benefit in North America, and to discuss some of the challenges that a decade of environmental water transactions and assisting in the creation of a new state park in Nevada has brought to light and to propose some solutions through policy and potential legislation (Agenda Item V).

For those who are not familiar, the Walker Basin is in western Nevada, straddling western Nevada and eastern California, beginning at the crest of the Sierra Nevada Mountains and flowing through Bridgeport and Antelope Valley in California. The western fork flows through Smith Valley, the east through the East Walker Canyon in Nevada, and they come together in Mason Valley. From there, they flow north and through the Walker River Paiute Reservation on to Walker Lake.

As recently as the 1980s, Walker Lake supported approximately 50 percent of the Mineral County economy through recreation and recreational tourism. It is also the traditional homeland of the Agai Dicutta or Walker River Paiute Tribe; the Numu words "agai dicutta" translate to mean "trout eaters," which speaks quite clearly to these waters' cultural importance. It has traditionally been home to a world-class fishery, and the fish in this photo are all Lahontan cutthroat trout caught in Hawthorne, Nevada, which hosts an annual loon festival.

Agricultural diversions throughout the Upper and Middle Walker River Basin have led to serious declines in the lake's levels and water quality and complete ecosystem collapse.

Since the 1850s, Walker Lake has declined in volume by more than 90 percent and in surface area by 50 percent. The lake used to be half the surface area of Lake Tahoe, but now it is approximately one-quarter of that.

Walker Lake is a desert terminus lake, meaning that the only outflows are through evaporation and groundwater intrusion, so as the in-flows to the lake have decreased, the concentration of salt, or salinity, of the lake has increased. It is now too saline to support fish life of any kind. The last Lahontan cutthroat trout came out of Walker Lake in 2009, the last loon festival was also held in Hawthorne in 2009, and the Lower Walker River that runs through the Walker River Paiute Reservation runs dry many years as well.

The Walker Basin Conservancy administers the Walker Basin Restoration Project, a federally funded project to protect and maintain flows to Walker Lake that was enacted originally in 2002 with appropriations in 2008, 2011, and 2014. We operate as an independent 501(c)(3) nonprofit headquartered in Reno with a field office in Yerington, Nevada. We buy water, protect that water in-stream, and in so doing, we protect the interests of agriculture throughout Smith and Mason Valleys and increase public access.

Our goal is to increase the average flows of Walker River into Walker Lake by 50,000 acre-feet per year. To date, we have acquired sufficient water to reach approximately 53 percent of that goal, which is about 120 cubic feet per second at full priority. In order to do that, we have implemented a variety of deal structures. We are in the third year of a temporary leasing program with the Walker River Irrigation District; we have completed permanent acquisitions of water and land; and we have made water-only purchases and three-party deals where we purchase water and another grower purchases the land. We have leased back land and water to sellers, and we have created life estates and boundary line adjustments to allow sellers to retain their homes throughout the project. We work only with willing sellers throughout the Walker Basin, and most transactions we have closed have been with farmers and ranchers who otherwise would be leaving agriculture because they do not have folks to take over the farms.

After we acquire water, we protect that water in-stream for environmental benefit. As a reminder, this is a federally adjudicated system that spans the California and Nevada state lines, and the first time we filed an application, it took nine years from the time we initiated the process to the time the first water reached Walker Lake. I am glad to say that we have since been able to shorten that time period after dealing with many of those concerns. Most recently, we filed an application and in less than 12 months were able to administer that water to Walker Lake.

It is important to note that we are currently administering only about 14 percent of our conservation goal in-stream, or about 25 percent of the water that we have purchased. That is because of these significant time delays in protecting water in-stream in the Walker River System, frankly because of the decreed interstate nature of that system.

As we made these acquisitions, we created significant public access throughout the Basin and donated more than 12,000 acres to the State of Nevada at the Mason Valley Wildlife Management Area. We created what is now the Walker River State Recreation Area, which is the newest recreation area or state park in Nevada. I am proud to say that sometime last summer, the 100,000th visitor to that state recreation area passed through the gates, and that is with only one of the three branches that were donated to the state open to the public. It is a golden opportunity because it serves as a gateway to more than 60 miles of the East Walker River and has some world-class fishing.

It has not been without its challenges, first and foremost in terms of collaborative planning with the Bureau of Land Management (BLM), DOI, and the Forest Service, U.S. Department of Agriculture (USDA). I think there are significant opportunities to further connect that state recreation area to Mason Valley and Yerington. Currently, you can go to Yerington and have no idea there is a 10,000-acre state park right around the corner, and vice versa you can go to a 10,000-acre state park and have no idea that Yerington is right around the corner. It is important to leverage the investments we make in outdoor recreations to benefit local communities.

To call attention to the state lands National Environmental Policy Act (NEPA) process, we function as an independent 501(c)(3) nonprofit organization, and we have brought federal money to bear in helping to develop the Walker River State Recreation Area. A good example of that is the Recreational Trails Program (RTP) grant, for which we were fully awarded and fully funded. We have been waiting three years for state NEPA clearance, and that all runs through Nevada's Department of Transportation (NDOT). Along those lines, I would suggest that we develop a proposal potentially within the Division of State Lands or DCNR for NEPA analysis on state lands.

Every year, the Conservancy brings up to 50 excited, passionate, and well-educated young people from around the country to work in the Walker Basin through our AmeriCorps program. Many of the leaders of our organization came to Nevada through this program, and indeed I moved to Nevada ten years ago to serve in the AmeriCorps program. The state faces the same staffing struggles that other employers are facing, but I dare venture to say that it is exaggerated within the state government. We have an opportunity to create a pipeline for Nevada conservation careers. For instance, the federal government offers noncompetitive hiring status to AmeriCorps members who complete a term of service; I think we can do something similar here in the State of Nevada. That would give the state an advantage in hiring a talented workforce of folks who otherwise would be coming to the region for six months to a year and then leaving after gaining a valuable conservation career experience.

One of the key challenges that we are facing and will continue to face in the Walker Basin as we move forward is the conflict between surface and groundwater users. Within the Basin, surface water rights are senior to groundwater rights, and surface water rights are also adjudicated by federal decree, while Nevada groundwater rights derive from the state. It is worth noting that the most senior surface water rights in the system are used at the end of the system by the Walker River Paiute Tribe. The Conservancy also owns senior decreed water rights that are administered to Walker Lake that date back to the 1860s.

Some recent USGS studies have indicated that the stream efficiency of the Walker River—how much water is not diverted and thus makes it through the course of the river—has declined on average by 1 percent per year for the last 50 years. Over that same time, the aquifers in Smith and Mason Valleys have both declined by more than 250,000 acre-feet. A USGS study also demonstrates that the water table closer to the river has declined less, suggesting surface water flows are supporting groundwater recharge.

In the last few years, there have been multiple times when water in the Walker River in Mason Valley has not made it to downstream to senior decreed water rights holders, while groundwater pumps have remained on in the Valley. As the variability and frequency of dry years increases, we expect there could be more years when groundwater pumping can be found to negatively impact or injure senior decreed water rights holders, especially at the end of the Walker River System.

The Nevada state engineer has a mandate to implement conjunctive management, which was called into question by a recent ruling, as we heard in the previous presentation, albeit with little clarity on how to implement that. I have seen firsthand and can attest to the need first and foremost to increase the availability of staffing within DWR in order to effectively implement conjunctive management. We are talking about protecting one of the state's most significant resources—its water—and the resources are not being invested in DWR to do that effectively or within any reasonable timeline. I would also like to call attention to the state's significant liability in this groundwater conflict as there are federal water rights at the end of the system.

I would also echo the DWR's emphasis on the need to protect and incentivize water conservation. The Walker Basin Restoration Program has made millions of dollars available to the Walker River Irrigation District and various ditch companies for efficiency improvements, but none of those water savings have been protected in-stream to benefit Walker Lake. The Basin is over-appropriated and water conservation savings lead to more land being irrigated with those conservation savings.

We have funds available to lease water saved through conservation; in other words, we can incentivize water conservation in the Walker Basin, but there is no provision in Nevada state law that provides for in-stream administration of that water. We can incentivize it, but we cannot rely on a statutory mechanism for in-stream administration. Multiple western states, including Montana, Texas, California, Oregon, and Washington have direct statutory authority to administer water conservation savings in-stream for environmental benefit, and I encourage the state to look at adopting similar legislation. From the Conservancy standpoint, that would give us the ability to increase flows to Walker Lake, increase payments to irrigators, and do that without taking land out of agricultural production, which is a win-win for us and for the communities we serve.

I am happy to take any questions or clarify anything in my presentation for the Subcommittee.

Chair Carlton:

I am curious. You are a 501(c)(3) nonprofit, correct?

Mr. Stanton:

Yes, that is correct.

Chair Carlton:

Who funds you?

Mr. Stanton:

Our money for acquisitions of water rights comes from the Desert Terminal Lakes appropriations through the National Fish and Wildlife Foundation.

Chair Carlton:

Are there any other questions from Subcommittee members?

Senator Hansen:

I love Walker Lake and I remember when it was a huge fishery. You are only proposing 50,000 acre-feet of water. Do you intend to raise the level of the lake or just maintain it? Right now, it is not anywhere near the levels necessary to reestablish the cutthroat trout that were once abundant in the lake.

Mr. Stanton:

That is correct. Our goal is to raise the level of the lake to a total dissolved solids concentration of 12,000 milligrams per liter, which would allow all the native fish that have traditionally lived in Walker Lake to come back. That will require flows over the current stasis of approximately 50,000 acre-feet per year.

Senator Hansen:

For how many years?

Mr. Stanton:

It depends on climate variability, but suffice to say, for decades.

Senator Hansen:

It took a long time to get it down to where it is now, and it is not like you are going to magically add 50,000 acre-feet of water and in two years have a reestablished cutthroat population. I represented Hawthorne until the reapportionment occurred, but Hawthorne basically died. All the sporting goods stores closed once that lake dropped to a level where there was no more fishery. I am anxious to see this happen, and I know you are still walking that delicate line of trying to protect the interests of the upstream users.

A question about Mason Valley—Nevada's Department of Wildlife (NDOW) manages that, but does your organization have a relationship with them? Last time I was there, virtually every pond in the place was dry. Is that because the drought, or have you brought up the water rights there and are moving downstream?

Mr. Stanton:

We have not acquired any of the water rights that NDOW owns in Mason Valley. They are the largest decreed water rights owner in Mason Valley right now, and their water rights are subject to the priority dates of the decree like any other decree user. Over the last few years, there have been times when there has not been enough prior decree in priority to meet NDOW's water rights in the Mason Valley Wildlife Management Area.

We are working with NDOW on a temporary water exchange where we would exchange several hundred acre-feet of groundwater for their decreed surface water, which would give them the ability to change the timing of when water is added to the wildlife management area and get more water for the program to send downstream.

Senator Hansen:

Schurz, Nevada, with the reservoir and Indian tribe there, uses a tremendous amount of the water on the river which is right upstream from the lake; are they cooperating with you?

Mr. Stanton:

We work closely with the Walker River Paiute Tribe. Our decreed water flows through the reservation and through Weber Reservoir, so we work with them on at least a weekly basis to administer that water through their reservoir for release through the Lower Walker River. They have senior decreed water rights to about 26 cubic feet per second, which in the grand scheme of the system does not make up a substantive portion of the water rights appropriated for irrigation within the system. Overall, our interests directly align in the sense that the more water is flowing through the Lower Walker system, the healthier the river corridor is through the reservation as well.

Senator Hansen:

Good. I hope it will be a win-win for everybody.

Chair Carlton:

Are there any other questions from Subcommittee members?

Seeing none, we will now move on to the next agenda item. Agenda Item VI, which is a presentation from the Great Basin Water Network.

AGENDA ITEM VI—PRESENTATION ON WATER CONSERVATION EFFORTS IN NEVADA

Chair Carlton:

We will now move on to the next agenda item, which is a presentation from the Great Basin Water Network.

Kyle Roerink, Executive Director, Great Basin Water Network:

I want to start my presentation with some good news. Yesterday, I drove through Gold Butte National Monument then through Grand Canyon-Parashant National Monument down to Lake Mead National Recreation Area. I went to Grand Wash Bay, which on my maps and even on Google is a big blue dot, but when I got there, it was gone—there was no blue there, but there were a bunch of dead tamarisks, quagga mussels, and zebra mussels. I wanted to use that as an example to talk about what is on paper versus what is happening in reality. On my maps, you see a big blue dot there, but if you go there, you see nothing. This is our challenge throughout the state (Agenda Item VI).

The other bit of good news is that SNWA, Commissioner Jones, and General Manager Entsminger worked with Assemblyman Howard Watts III to put forth great things last legislative session that are making a change down here. I want to thank them and the Legislature for taking that action. As it relates to our 256 groundwater basins, the folks in the State Engineer's Office have among the toughest jobs in the state, and I think there is a question of what we are going to do. Nevada can put a feather in its cap in a lot of areas, especially in southern Nevada, but we also must be conscious of what neighboring states are doing.

I am going to be talking about Utah, which is where my organization is doing a lot of work now, but I would be remiss not to also discuss the issues that we face here, because we are in a bit of a bind. Right now, we are seeing litigation all over the place, on the Humboldt River, in Diamond Valley, and now in the Lower White River flow system. I would

advise all lawmakers going into the upcoming session to read Order 1309 as well as the opinion that came out of the district court and be grounded in that as we go forward. There are going to be some difficult conversations, and I think the question is, what do we need to bolster the state engineer's ability to curtail? Whether you like it or not, we do work within the system of prior appropriation. It has been the system for more than a century, and if you are not able to curtail, what good is the system as it relates to protecting those senior rights and the public interest, which is also a provision of the law? I do not think it is spoken about enough.

Do we need to figure out ways to give the state engineer more ability to curtail? Do we need better perennial yield figures for our groundwater basins? Absolutely. Do we need to redefine basins, and can this be done equitably within the confines of the existing system? These are hard questions we must ask ourselves, and it needs to come back to the issue of whether we can do it equitably for existing rightsholders, the environment, and all other parties. That is going to be the challenge.

All that considered, I wanted to talk about what our neighbors in Utah are doing. If you look at the big picture, they have not faced the same reality check that we have experienced. I want to let you know what we are dealing with as an organization that works both in Nevada and Utah and what the effects could be in Nevada. Whether it be reduction in surface flows or reduction in groundwater flows, what happens there ultimately impacts Nevada communities.

I will first discuss the Cove Reservoir in the East Fork of the Virgin River. When you look at the King County Water District and working in partnership with Washington County, which is where St. George, Utah, is located, they want to put a reservoir there about six miles up north near Orderville, Utah. The East Fork of the Virgin runs through Zion National Park and ultimately flows into Nevada. It is an important Colorado River tributary. This project would create a reservoir that would hold about 6,500 acre-feet a year. It is currently being reviewed by NEPA at the federal level, with NEPA overseen by the Natural Resources Conservation Service within the USDA. I was up at the East Fork of the Virgin River this weekend and it seemed more like a babbling brook than the fork of a mighty river. For Nevada, I wonder what it means about those flows coming into the Virgin which serve our communities down here. This reservoir would serve residential communities in St. George.

Regarding the Lake Powell Pipeline, the project has stalled in federal permitting after major backlash during the draft environmental impact statement (DEIS) process in the summer of 2020. I do not think anyone believes right now that they are going to be moving forward this summer to stick a pipeline in Lake Powell to get water for St. George or Washington County, but one or two big winters can change peoples' mindsets, causing them to lose touch with reality. It is a massive project. The Bureau of Reclamation has yet to withdraw the application for the communities around St. George that have been pushing for this project, but I do not think anyone thinks that a spare 28 billion gallons exist annually on the Colorado River right now. I will tip my hat again to the SNWA, who submitted thoughtful comments on the DEIS, but I think as we can all understand that if you stick more straws in the reservoirs around here, you are going to see more declines of Lake Mead.

There are currently 18 new Washington County water rights applications, with all the proposed points of diversion following along I-15. This is a fully appropriated basin, meaning that it has gone through adjudications. They do adjudications a little differently in Utah, but parts of the basin have already been adjudicated, while there are other adjudications that have been going on since 1980. I call this the "hocus pocus" water, because they think

that a spare 12,900 acre-feet actually exists, and though there is not a lot of science to demonstrate that, it is being proposed by the Washington County Water District.

When we talk about groundwater, it is important to realize that it is likely already being used somewhere else, so if you were to start pumping that quantity of water—about 4.5 billion gallons every year—you need to consider what harm that may be causing. A couple points of diversion are near important tributaries to the Virgin River, so we must be cautious about that, and our organization is paying very close attention to tributaries like Ash Creek and LeVerkin Creek.

This speaks to a bigger trend, especially with the Lake Powell pipeline situation. There is going to be a push by southern Utah to get more water for their rapidly growing communities, but it is important to note here that Utah is not engaging in the sort of conservation efforts that are happening here in southern Nevada. I have been yelling and screaming about this, and we are working on it, but again, we are not seeing that effort statutorily. You see a lot of public relations and a lot of gimmicks, but when it comes down to brass tacks, it is not being done the way that it is done here. I do not think anyone would disagree that the way that it is being done here is world-class.

The Pine Valley Water Supply Project is near Great Basin National Park, south of Snake Valley. This would be a three-phase project: phase one is in Pine Valley, phase two is in Wah Wah Valley to the east, and the potential phase three is in Hamlin Valley. The blue arrows on the map indicate groundwater that flows northward all the way to the Great Salt Lake, which the USGS has demonstrated over the years through the Barcus Creek studies and other research papers.

What worries us about this proposed project is that phase one and phase two would pump about 27,000 acre-feet a year from along the Nevada-Utah borderline. The USGS modeling of this pumping shows major impacts to Nevada. White Pine County is involved, and they are fighting along with the Confederated Tribes of the Goshute Reservation. We are working with the Indian Peaks Band of the Paiute Indian Tribe of Utah and the Millard County, Juab County, and Tooele County, and both Salt Lake County and the Great Salt Lake Advisory Committee have also submitted comments, largely in opposition. We are working closely with Beaver County in rural Utah as well, and the project proponent is for Iron County in Cedar City.

There are new homes going up everywhere with green lawns, and voluntary conservation efforts are not always effective. If you politely ask someone to do something, they are not necessarily going to do it, but they have a model here in southern Nevada and they are not following that playbook.

The modeling done by the BLM has largely excluded Nevada. They have put the potential area of impact in a box, and this was a major part of our NEPA process. Comments were submitted by White Pine County, several grazing organizations, 22 nongovernment organizations (NGOs), many of them, like Patagonia, that are based in from Nevada.

The USGS data are showing up to 50 feet of drawdown in Snake Valley and Spring Valley. You can put a lot of numbers in models, and we have had experts review the USGS modeling to try to pinpoint the time it could take to see this amount of drawdown, but we do not know, and it gives you a lot of trepidation when you hear about that type of pumping. There are alternatives to a massive expensive project like this, but I think they are not willing to deal with that.

This is happening on the doorstep of the Great Basin National Park, Nevada's agricultural communities, and sacred tribal lands. It could be powerful if the Nevada Legislature put forward a resolution clearly opposing this project and standing up for Nevada communities and for our special places like Great Basin National Park.

I am happy to answer any questions you may have.

Chair Carlton:

Are there any questions from the Subcommittee?

Mr. Jones:

My dad lives in St. George, and it is a beautiful area with lots of functional turf and nice interconnecting parks and trails. I am jealous of that, but also, they are masters of watering sidewalks like nobody else. Every time I go there, I think, "Wow this sidewalk is going to grow because they water it so well." Is anyone in Salt Lake City listening to the cries for conservation?

Mr. Roerink:

There is a mindset crisis throughout the State of Utah. The most applaudable effort they put forth in the 2022 Legislative Session was what they call a "secondary metering effort" to start metering water coming out of creeks and streams high off the mountains. They were not doing any of that, but I think they put about $5 million toward turf removal. We know it is expensive, but we also know the first, second, and third cheapest options for conservation are conservation, conservation, and conservation. That is what we are dealing with there, but there is hope, and there are a lot of people in Utah who want it. We are going to be out there on the front lines, and we will show them the playbook that you all are crafting.

Senator Hansen:

On the Lake Powell Pipeline, we heard a presentation earlier and it sounds like Utah, Colorado, and Wyoming are only using about half of their current legal allocation; would Lake Powell's 86,000 acre-feet fall within the parameters of what they are allowed to use anyway?

Mr. Roerink:

That is what they think. The gentleman from the Bureau of Reclamation prefaced his comments by saying this was complicated due to the difference between how rights work in the Upper and Lower Basin. Upper Basin rights are based off percentages, while in the Lower Basin, we have exact rights—we have our 300,000 acre-feet. The Upper Basin is already overusing the amount of water they have, and there has been great research done on this subject. I think the Lake Powell Pipeline's water right is nothing but a paper water right.

Senator Hansen:

I am curious because if I was a Utah guy, I would be saying, "Okay, you guys have three straws down there to get to your 300,000 acre-feet of water from Vegas, but now we have the equal legal right to a certain number of acre-feet. We are going to put a pipeline into Lake Powell, and you Nevada guys are bellyaching about it, but we are not even using half our current allocation off the Colorado River."

Mr. Roerink:

That is why I started out my presentation today talking about the gap between what is on paper and what is really happening. There are a lot of very strong arguments against a project like the Lake Powell Pipeline, and there are things that I can say that others who are at the table right now cannot, largely because we need collaboration right now. We do not need litigation, nor do we need everybody with knives out.

Chair Carlton:

We appreciate the fact that some folks in the room can say certain things other folks cannot. Being able to have a full record and an honest conversation about this is important, because if we had not had an honest conversation 20 years ago about digging that tunnel and putting in that third straw, look at where we would be today. We appreciate folks being willing to put their statements on the record.

Mr. Roerink:

For the record, I did thank former General Manager Pat Mulroy for her foresight on that, because, again, look where we are today.

Chair Carlton:

We will move on to the next agenda item. Agenda Item VII, which is a presentation on issues at Lake Mead.

AGENDA ITEM VII—PRESENTATION ON PUBLIC LANDS ISSUES AT LAKE MEAD

Chair Carlton:

The next agenda item is a presentation on issues at Lake Mead.

David Alberg, Chief of Resource Management, Interpretation, and Compliance, National Park Service, DOI:

I have been a Nevada resident and a National Park Service employee for a year and a half; prior to that, I lived in Virginia and worked with the National Oceanic and Atmospheric Administration, U.S. Department of Commerce, for about 15 years. Our family made the decision to move out West, and I certainly picked an interesting time to be joining the Lake Mead team.

Chair Carlton:

Welcome to Nevada.

Mr. Alberg:

I was asked to speak generally about what we are seeing in terms of the pace of recreation at Lake Mead and how that has been impacted both by shifting visitor use patterns and the ongoing low water, but I thought I would talk briefly about some of the things that make Lake Mead extraordinary beyond just the water [unintelligible] for boaters, which is, of course, what many people know us for.

The Park Service's mission is to preserve unimpaired the natural and cultural resources and values of the National Park System for the enjoyment, education, and inspiration of this and future generations. We have been involved with Lake Mead since the 1930s, and the Park Service has had a related role from the time the dam was constructed. In 1967, Lake Mojave was added, and Congress designated us as the first national recreation area in the country.

From the Park Service's perspective, the Colorado River, which has been the subject of this morning's discussion, has great importance. We have several Park Service units along the Colorado River: the Rocky Mountain National Park in Colorado, Dinosaur National Monument within Black Canyon of the Gunnison National Park, Curecanti National Recreation Area, Arches National Park, Canyonlands National Park, Glen Canyon National Recreation Area, Rainbow Bridge National Monument, Grand Canyon-Parashant National Monument, and, of course, Lake Mead. All told, these parks sit along over 1,000 miles of river, drawing over 26.8 million visitors a year and generating over $2.33 billion in revenue. In terms of recreation, the Colorado River is very important, not just to Lake Mead, but to the larger park system.

At Lake Mead National Recreation Area, we average about 8 million visitors a year, making us the fifth most visited Park Service unit in the entire system, encompassing about 1.5 million acres with more and more becoming land each year. We are sandwiched between two states—Nevada and Arizona—and contain both Lake Mojave and Lake Mead. The construction of the Hoover Dam is what created Lake Mead, and the Hoover Dam and its visitation is certainly important, but beyond the water, looking landward towards the other places in the park, we have incredible opportunities for recreation that are unaffected by the declining lake levels. In the weeks and years to come, you will hear about the Park Service's efforts to shift gears to make sure that we do not abandon recreation as we have known it, but to further embrace opportunities that will be available as the water declines.

In terms of resource management and cultural resources, we have incredible archaeological sites, prehistoric and historic cultural landscapes, traditional cultural properties, ethnographic resources, and a significant museum collection. Although we do not have a museum ourselves in the Park Service, we support museums around the country. Our archaeological records and resources include 185,000 submerged acres and approximately 1,000 terrestrial archaeological sites, though only about 5 percent of the park has been fully surveyed; there are probably tens of thousands more, many of them currently underwater, that will reemerge as the lake level goes down.

We work with 18 tribal nations that have a history or current association with the areas within Lake Mead. The Park Service is working harder to shift from only working with those tribes when there is a complaint or a legal requirement to do so to recognizing that these lands belonged to other peoples long before the Park Service or Western settlers came into the area. Our goal is to learn from them as well, not just in terms of partnership, but in terms of recognizing how their traditional knowledge may be beneficial in our efforts to better understand and wrestle with the changes in the environment we are currently seeing.

I mentioned prehistoric resources, referring to everything from artifact scatters to rock art, rock shelters, pueblos, and in some cases even living resources. The grasses at Rogers and Blue Point Springs up near Overton, Nevada, are a relic community of grasses that existed when Tooele Springs had mastodons living and moving through that area. Although it is a very small area, it is an incredible place that we will be working to interpret more.

Historic resources include the Hoover Dam and sites that predate it: army forts; towns like St. Thomas, Nevada; ferry crossings; and ranches all still exist submerged under Lake Mead. We also have famous resources underwater like the B-29 Superfortress airplane that crashed into the lake in 1948, which has been protected since its discovery in 2000 by hundreds of feet of water, but is now less protected, probably within roughly 60 feet of resurfacing. These are all things that the Park Service is deeply concerned about.

Lake Mead National Recreation Area also protects modern era National Park Service sites. Our headquarters building in Boulder City is on the National Register, and we oversee Mission 66 sites, which were part of the efforts to rebrand the Park Service back in the 1950s and 1960s, and campgrounds that are preserved and interpreted by the Park Service. As I mentioned earlier, we also oversee museum collections containing over 100,000 objects, and we support university museums and other museums across the country.

The big issue for us of late is the declining water and its impact on water-based recreation. We have seen significant drops in the past two years; since 2000, we have averaged roughly 12 feet of drop a year, but in the past two years, that has accelerated closer to 25 to 30 feet of drop per year. The Park Service is working to deal with that, but one of our biggest challenges is the rapid rate of decline, because by the time a plan is developed and funding is secured, we run the risk of building bridges and ramps to nowhere. We may complete a project, but by the time it is completed, it may serve nobody.

Our short-term solution has been moving what we call "temporary launch facilities" to locations that we can access, which allows boaters access to areas like Hemenway Harbor, but if you look back to 2000, the Park Service had roughly 50 lanes of access into Lake Mead; today, we have two. We had ten launch ramp facilities in 2000, but today we have only one at Hemenway Harbor. We will be working to hopefully relocate places in Echo Bay and some other areas, but again, while we have good plans, the challenge is certainly the planning time needed to interface our plans with the speed with which the water is dropping and the reality of bathymetry and topography complicates things. We have people who see areas and say, "Why can you not extend the ramp further out?" The reality is that in many of those places, the angle at which the lakebed drops is too shallow, so you would have to drive in. You see it often at Hemenway Harbor, where people are flooding their cars trying to get out to the water as best they can. In contrast, there are areas created by the Colorado River gate areas that were once canyons, and now the lakebed drops off so much that it makes any potential construction significantly more difficult.

We may have less on the Nevada side than in Arizona, but communities like Mead View that have sprung up and see their identity as being tied to lake access have been impacted, and it poses challenges in those areas where that access is diminishing. It also impacts the local economy, harming concessionaires and business owners who operate the marinas, business owners in Clark County, boat manufacturers, boat sellers, and marine suppliers who provide recreational equipment for people.

From the resource management side, while many visitors access the lake on those authorized ramps, there are others who try to get in at unauthorized locations, which can cause significant damage and personal safety issues. We had a lady who was stuck up to her waist and sunburning, and we literally had to go out with ladders to get her unstuck. The shoreline may be here, and the mud might look dry, but the soil is so wet and damp that you could sink up to your waist, and when people are trying to get trailers into those

areas, it poses a risk for them but also a challenge for the Park Service to respond to those situations.

On the positive side, this is an incredible place with landscapes that cannot be seen anywhere else in the world. We have a rich cultural history, both current and historic, between the tribal nations that have occupied this area and our modern history. As the Park Service works to continue this access to water, we are looking for ways to bolster those recreational opportunities with new trails, trail enhancements, and new interpretations to bring people to this area. We want to make sure they have an enjoyable experience, and we hope we can begin to shift them away from the "traditional" view of access to the lake with big houseboats by promoting kayaking and smaller watercraft that can get onto the lake more easily and for a longer period of time.

I suspect you probably have some good questions, and I would be happy to answer them for you.

Chair Carlton:

Going back to the statement you made about the B-29 Superfortress. Could you elaborate on that a little bit more? I heard about this plane years and years ago, but I had totally forgotten about it.

Mr. Alberg:

In 1948, a B-29 Superfortress airplane was doing a very low flight on a military operation when the pilot was blinded by the glare off the lake and hit the water. The crew survived, but the plane was lost until the early 2000s. It is protected by several state and federal laws and is an important resource. When it was found in 2000, it was in pristine condition, but by 2005 or 2006, quagga mussels had begun to impact its condition.

What kept it a pristine archaeological site was its depth; at 250 feet below the lake's surface, only very skilled technical divers could get down to it. The public is not allowed on the site, but the Park Service issued a personal use authorization that allowed a couple of dive companies to escort divers to view the plane. We issue permits for about 200 divers a year to see it if they follow the old "leave only bubbles, take only pictures" policy, which has allowed us to monitor the site and keep it in good condition.

Now, more than 20 years since its discovery, the concern is that as the water level has dropped, the plane's location is better known than it was in 2000. A quick Internet search would probably give us the coordinates of that location pretty fast, and while we do not keep it a secret, we do not broadcast it either. In addition, with lower water levels comes increased temperature, increased oxygenation, and, ultimately, more rapid corrosion and decay of the site, not to mention the potential that once you are down within 50 to 60 feet of recreational dive depths, anybody with a boat can scoot out there very quickly and do what they are going to do.

The B-29 is a very high-profile resource on the lake, but I think it is important for me to communicate the message that it is one of thousands of resources that are beginning to be found. Most recently, there was the terrible discovery of an individual in a barrel, and within a week another private group—probably with all good intentions—put out word that they would offer a $5,000 reward for anybody else who could go out there and look for other human remains.

The problem with that is there are literally hundreds of objects and artifacts, including 50-gallon drums, that were left over from the construction of the Hoover Dam; they are archaeological resources that, to the untrained eye, look no different from the barrel that was found down in Hemenway Harbor. From the Park Service's perspective, we do not want to see people trying to help us do advocational archaeology and potentially ruining sites.

Our staff are recovering hundreds of yards of shoreline every year as the lake level continues to drop, and Native American sites and other archaeological sites are reemerging back from the lake faster than the Park Service can survey them. Our concern is to make sure we are getting out the message that if the public finds sites they suspect may be important, that they do not touch them. Instead, they should notify the Park Service so we can get in there and document them properly. A lot of these sites are reemerging in areas below the lake level where people are, in some cases, operating all-terrain vehicles and ripping around, and it poses some challenges.

Chair Carlton:

I hope you can get the message out a little bit better. I have not seen a whole lot about it, but this conversation has been going on as we have watched how the bathtub ring expands all the way down into the lake. The public needs to understand this better and respect it to give us a chance to recuperate anything you find.

Mr. Alberg:

I agree. Another takeaway I want the public to understand is that the Park Service does not manage the water on Lake Mead—that is done by the Bureau of Reclamation—but we do manage the recreation on Lake Mead. We are at an elevation of about 1,048 feet today, and we anticipate that dropping closer to about 1,035 feet by the fall. Each month, the Bureau releases numbers indicating a most probable and a least probable lake level. These models diverge the further out you get in time, but what we have seen is that often the least probable is the most accurate number. It is possible that we could get down to 1,010 feet by the end of 2023.

When you start talking about dead pool and the ability to generate power, we are getting to unprecedented lake levels and some significant infrastructure investments to try to keep up with that. The biggest challenge is to make sure we are not wasting taxpayers' money and investing that money wisely so we can get more than six months' worth of water access in those places and then we are back high and dry.

Vice Chair Scheible:

I think we all understand if you are looking at an actual bathtub and you are draining the water it comes from the drain and the whole bathtub level decreases by an inch or a foot or whatever it is. I imagine that on Lake Mead it is much more complex than that because it is not a perfectly round container with an even bottom to it. Have there been challenges associated with predicting exactly where the water lines are going to shift? Is that science sound, allowing you to predict that this shoreline is going to increase by 10 feet and this other shoreline is going to increase by three feet? Or have you been surprised sometimes and thought that one area would be less affected, and it turned out to be more affected, or vice versa?

Mr. Alberg:

You hit on an important point that the lake is generally V-shaped; ten years ago, losing a foot of water did not result in the same shoreline that we are seeing now with a foot of water decline; it is accelerating more and more. We are working to try to find new technologies, because so much survey work would be required to get an accurate snapshot of that at any given time, that by the time you surveyed it, you would have to do it again. We have a group working with us to use current Landsat satellite imagery to take monthly snapshots so we can begin to adjust our maps, our public information, and ultimately feed both to places like Google so they have a more accurate representation of what we are seeing on the ground.

To your question, we can predict it well. We are not alone in this, but the big challenge is trying to predict where the lake level is going to be beyond 24 months. The plan for low water we included in one of our most recent environmental assessments could have resulted in hundreds of millions of dollars of investment. We thought that would last many years, but I do not think that is the case, and I believe that, had the trigger been pulled, we would see potentially large investments that would not get you that much time.

The challenge is trying to figure out where we can put the money to serve most members of the public. The shoreline is important, but it is less significant to us in terms of trying to predict the lake level, because we are trying to pinpoint where we can get enough angle for ramp extensions to get people into the water.

Chair Carlton:

Are there any other questions? Seeing none, thank you for being here. I know the lake is important to the Las Vegas Valley and a lot of the surrounding areas.

We will now take a break.

AGENDA ITEM VIII—PRESENTATION ON THE TRUCKEE MEADOWS WATER BASIN

Chair Carlton:

Our next agenda item is a presentation from the Truckee Meadows Water Authority.

John R. Zimmerman, Esq., Assistant General Manager, Truckee Meadows Water Authority (TMWA):

I would like to begin with a quick overview of the TMWA. Our annual water demand is about 83,000 acre-feet, and that is predominantly Truckee River water, but we also have groundwater resources. One thing unique to TMWA is that we have three operating run-of-river hydroelectric plants that reduce our customer cost by about $3.5 million on an annual average basis, so it is a significant resource for us (Agenda Item VIII).

Next is an overview of the Truckee River system that highlights how fortunate we are in the Truckee Meadows to have significant upstream storage starting with Lake Tahoe. Donner and Independence Lakes are two of TMWA's privately owned storage reservoirs that we rely on when there is a drought on the system, and we also have the Stampede and Boca Reservoirs. On average, the Truckee River creates about 80 percent of TMWA's water supply, and about 20 percent is groundwater.

We are also investing in supplemental creek water. We finished the Mount Rose Water Treatment Plant, which will treat creek water and distribute it to customers in that area, and that will help because there was significant over pumping when Washoe County had the water system in that area, and it really drew down the groundwater levels. Since TMWA has taken over, we have pushed more surface water into that area, which has allowed us to rest those wells and that aquifer has really rebounded. The Mount Rose Water Treatment Plant will further that, because in the shoulder months when that plant is operating, we will be able to deliver that treated creek water to our customers and rest those wells.

We conduct groundwater aquifer storage and recovery, so in those shoulder months when there is plenty of Truckee River water and our demands are low, we are injecting treated Truckee River water into our aquifers. We operate in nine different groundwater basins and that helps us be able to keep those aquifers sustainable so that when there is a drought, we can we use more of that water.

In a normal year, TMWA takes out about 3 percent net of the Truckee River's water, with the term "net" referring to consumptive use. We divert a little more than that from the river, but a portion of that water returns to the river through the wastewater and water reclamation facility east of town. In a drought year, however, that percentage goes up to about 9 percent, and that highlights the benefit of the Truckee River Operating Agreement (TROA) and its importance to the region, because it allows us to continue to draw the same amount of water we need. We are not drawing more water from the river; it is a higher percentage.

As you probably all know, we have experienced the third straight year of below average snowpack, and over the last 40 years, there has been this boom-and-bust cycle of wet years and then dry years. Part of the reason that TROA came into being was to help TMWA and other parties on the system operate and be able to rely on our upstream storage and groundwater recharge to get through those dry years.

The water year starts October 1, and we had good rainfall in October, a great December, and then all of a sudden, the storms spigot shut off. We came into the year at 225 percent of normal and proceeded to have the three driest months on record—January, February, and March. We had a little bit of extra snowpack building in April that helped us, and right now, we are projected to have normal Truckee River flows through September even into early October. We can rely on those normal river flows and not have to release upstream storage.

Looking at our upstream storage highlights that by mid-July, we estimate that we will have about 67,000 acre-feet in upstream storage, and when you consider that our annual diversion from the rivers is around 73,000 acre-feet, you realize that we have a lot of upstream storage. This is all credited to TROA, which allows us to store that water in dry periods, and when it turns into a wet period, that water spills over and becomes fish credit water available for the Pyramid Lake Paiute Tribe to use for their fisheries. That was TROA's grand compromise.

Even though we have all the upstream storage, it is helpful to have perspective on how much upstream storage we have relied on to meet our customer demand and how often we have to do that. It is not that frequent, so even though we have quite a bit of upstream storage, we do not rely on it that often. On the Truckee River system, we have been dealing with droughts for the entire history of the system. Before the Truckee River decree was adjudicated, we went through a severe drought between 1928 and 1934. The parties

involved at that time were going through drought and its attendant shortages, but this river did not begin as an overallocated system.

Since 2000, our customers have reduced their water use by 30 percent even though our system has grown by about 30 percent, which demonstrates how TMWA operates our system and how we provide water for new development. In 1977, there was another severe drought, and back then the utility was owned by the Sierra Pacific Power Company. They enacted a rule requiring all new development to dedicate water rights, and oftentimes in the Truckee Meadows, those are decreed Truckee River rights. If you have a project, no matter what it is, and you want water service from TMWA, you must dedicate sufficient water rights for that use, and there is only a finite supply of Truckee River water rights. It has helped allow TMWA to operate in a system that is sustainable, and along with our upstream storage reservoirs, it helps us get through those severe droughts.

The key takeaway here is that even though we are fortunate to have a very resilient water supply, we are not resting but continuing the hard work that our predecessors have done before us, like acquiring Donner Lake and Independence Lake or continuing with "forecast informed reservoir operations." That is a fancy way of saying we are going to try to work with the Bureau of Reclamation and the U.S. Army Corps of Engineers to retime when we can capture runoff, because if climate models are correct, we might have more precipitation falling as rain instead of snow and falling sooner in the year than later. We want to be able to retime those reservoirs and be able to store water sooner, because right now, they double as flood protection reservoirs, and we generally cannot store water until the month of April. In the future, we are going to try to store water earlier in the season.

We are currently in the process of replacing all our old water meters with advanced metering infrastructure (AMI). Our service territory is pretty much fully metered at this point, but once they are installed in our system and up and operating, these AMI meters will allow customers to look at their water use in real time to be able to set leak alerts at a certain amount—say, more than 500 gallons in a couple days or a week. I think you will also see it drive down customer water use, because they will pay closer attention to their water use. Our customers can also call our water conservation consultants who will go out to their homes and help them investigate where they might have a water leak, whether it is a leaky toilet or a water leak in their irrigation system, and our customers find that helpful.

Other projects we are doing include the Tahoe-Reno Industrial Center (TRI) General Improvement District (GID) treated effluent pipeline. The TMWA is not a wastewater reclamation provider, but we are partnering with the cities of Reno and Sparks, which operate the largest water reclamation facility in the Truckee Meadows. They have entered into an agreement to provide up to 4,000 acre-feet of treated effluent to the TRI GID for industrial cooling purposes, and TMWA's role in the project is to ensure there is sufficient other Truckee River water rights left in the river for instream flow.

One thing that is unique to northern Nevada in contrast to southern Nevada is that historically on the Truckee River, agricultural rights were not fully consumed. Some of that water got back to the river, and downstream users and downstream water right holders both count on that water. You cannot continue to reuse that water even though it is going back through the water reclamation process. The TMWA will ensure there is sufficient substitute water rights in the river to make it whole for downstream users.

We are working with the City of Reno on an advanced purification water treatment facility. It is planned in the North Valley, and it will take treated effluent from the Reno Water Reclamation Facility and run it through another advanced treatment process to treat it to a

higher standard than even drinking water. That water will then be recharged in that aquifer as a groundwater bank for future use. As it goes through that recharge process, it also goes through another natural filtering process. It has a dual purpose: providing drought resiliency to TMWA while also providing treated effluent reuse for Reno.

Another interesting project is the Palomino Valley Recycled Water Study. Palomino Valley is in the Warm Springs Groundwater Basin, and our goal is to assist Reno and Sparks with their water reclamation facility delivered treated effluent as a substitute for the native groundwater in that basin that is currently being used to irrigate alfalfa. The concept is to use treated effluent for that irrigation while we rest those wells and that groundwater resource and send potable water out into that valley as a groundwater bank. Our preliminary investigation shows that there is about a 40,000 acre-feet hole in that basin from over pumping over the years, which equates to a reservoir the size of Boca Reservoir, but located underground where it is protected from evaporation and loss. If that project comes to fruition, it will provide more potable water and more drought resiliency to TMWA's system.

I will end on a cheerful note with the Ladybug Project. We are working with our partners at the U.S. Forest Service, the National Forest Foundation, and others to help prevent forest thinning and decrease the chance of a substantial wildfire risk in our upper watershed. That is where our upstream storage is located, so we have to protect it. With Independence Lake, there is a very good synergy with TMWA and The Nature Conservancy because TMWA owns water rights in that lake, but the Nature Conservancy owns the land around it. They protect it from development and any pollution getting into the lake, so it is real win-win for both of us. I am happy to take any questions.

Chair Carlton:

Are there any questions from Subcommittee members?

Senator Hansen:

How many private companies still exist? You bought up almost all of them, but I think there is one in Sun Valley and one or two other water providers.

Mr. Zimmerman:

Sun Valley is our largest wholesale customer. You would be surprised that there are several hundred private water systems remaining, though some of them are one-well systems supplying a restaurant or a business. The TMWA policy is to be proactive, and as we see those systems in need of water to grow, we look at consolidating them and using state Revolving Funds to assist with that consolidation. The goal is for TMWA to be the regional water manager and be able to use those resources as efficiently as possible.

Senator Hansen:

You have done a great job. I am a little surprised there are still so many, because at one time there were a couple dozen bigger ones that were almost competitors. From what I can tell, everybody is very happy with TMWA and its performance.

You did not cover groundwater recharge in your presentation. You mentioned 40,000 acre-feet in Palomino Valley, but how much do you currently have? As I recall, you have recharged most of the current aquifers in the area. Do you have any idea if the overall quantity?

Mr. Zimmerman:

Since our recharge program began operation in the early 1990s, we have recharged upwards of 35,000 acre-feet in all our different basins. Our current recharge rate is about three to four acre-feet a year, and our goal is to increase that to about 9,000 acre-feet over time. It is difficult to find a basin that will accept enough of the water, and there is also an associated cost, because you must treat that water before you inject it, but through active recharge or injection, we are trying to increase the efficiency of those aquifers.

Another big issue is our conjunctive use, where we can rely on Truckee River flows in the shoulder months and rest a lot of our groundwater wells. We have over 89 production wells in our system, so resting them allows an aquifer to recover and be there for us when we need it in a drought.

Senator Hansen:

You have done an amazing job, and I was shocked how rarely you use your upstream storage; I thought those reservoirs were drained down every year. One last question about Swan Lake in Lemon Valley. It is in my district, and we had a huge problem with the lake overflowing. Treatment plants were being built there at the same time people's houses were being flooded. Is there any hope that somehow TMWA can develop a well system or something to utilize some of that water, even as reclaimed water?

Mr. Zimmerman:

That is related to the American Flat Project. Right now, the Reno Water Reclamation Facility has a permit to discharge a certain amount of that treated effluent into Swan Lake, so part of that American Flat Project will be to take that effluent treated to advanced purified water levels and reinject it into the aquifer. That will allow that water another place to go besides to Swan Lake. Once it is fully operational, that project will also net about 2,000 acre-feet annually.

Senator Hansen:

It is ironic that everywhere else in the state we are having drought issues, and here I have an overflowing basin of water that could be utilized. I cannot win here.

Chair Carlton:

Are there any other questions from the Subcommittee?

Seeing none, we will move on to the next agenda item.

AGENDA ITEM IX—PRESENTATION ON THE VIRGIN VALLEY WATER BASIN

Chair Carlton:

We will move on to the next agenda item, a presentation from the Virgin Valley Water District. We heard about the Virgin River earlier, and we would also like to hear their perspective.

Kevin W. Brown, General Manager, Virgin Valley Water District:

In the late 1980s and early 1990s, the Legislature carved up Clark County into three water district areas. The SNWA has the primary responsibility for the eastern and most populous parts of Clark County; the Moapa Valley Water District has the central part in the Moapa, Logandale, and Overton areas; and the Virgin Valley Water District has the eastern part of Clark County, which covers Mesquite and Bunkerville.

I am going to talk about our water rights portfolio, our water system, what we are doing regarding water conservation, whether we have enough water—which seems to be the big question nowadays—and a summary and pictorial history of how the valley has grown over the last 30 years (Agenda Item IX).

Our water rights portfolio is 50 percent groundwater rights amounting to 12,271 acre-feet of permitted groundwater rights available to us, and of that, we are currently pumping about 7,200 acre-feet. We have surface water rights on the Virgin River through the Mesquite Irrigation Company and the Bunkerville Irrigation Company that own the water rights on the Virgin River. Like a lot of other entities in the area, we are shareholders in those two companies. We have springs up on the Virgin Mountains that the pioneers historically used. We are not currently utilizing them, but we have the water rights available to us.

We operate in Groundwater Basin 222, which is a little different than a lot of the water basins in Nevada in that we share it with two other states, the northern part of Arizona and the southeastern part of Utah, but we have the lion's share of the basin's land mass in which 12,271 acre-feet of water are permitted. We are relatively unique because there are not many other basins in the State of Utah that have multistate jurisdictions involved in water rights.

We currently have 9 production wells for our groundwater; we recently drilled 2 more production wells and are now in the process of equipping them, so we will soon have 11 production wells in total.

As for our surface water, as shareholders in the Mesquite and Bunkerville Irrigation companies, we have 8,820 acre-feet of water in our water right portfolio in our shares on the river. The main takeaway here is that we do not rely on the Colorado River or Lake Mead for our water supply. The Virgin River is a tributary of the Colorado River, and we own water rights on that river, but we do not rely on Lake Mead.

We have a high growth rate, and we get phone calls from people from across the nation looking to relocate to Mesquite and they ask if we are running out of water like they are in Las Vegas. That is all the press that they see, because unfortunately, Mesquite does not have a local newspaper, and even if they did, there would not be a whole lot of press on water issues. The only press they get is what comes out of the *Las Vegas Review-Journal* or the *Las Vegas Sun*, and of course it is not very good news. The main issue is we do not rely on Lake Mead for our water supply, and we do have water rights available for us.

Regarding the 8,820 acre-feet of water we do have on the Virgin River, currently, we are not using our water rights for any of our culinary uses. We lease the lion's share of that to either golf courses or the SNWA, which is the major water rights holder on the Virgin River with a current holding of about 83 percent, plus or minus a percent or two because they have been making some transactions lately on the river. The water we lease to them is part

of their 2 million acre-feet of banked water. We also lease to local farmers and golf courses in the area.

Our spring water is up in the Virgin Mountains, and we have about 2,500 acre-feet of water rights that we own. We currently are not using them but intend to as our groundwater portfolio becomes fully developed.

We are in the eastern part of Clark County. Our northern boundary is the line between Lincoln and Clark Counties, our eastern boundary is the Arizona-Nevada border, and our southern boundary is the Virgin Mountains near the northern edge of Gold Butte National Monument.

Our system is complex for a small water system, and we serve a growing population of about 25,000 people. The biggest issue in our area is that our groundwater is full of arsenic, which is not a healthy thing for people to consume, so we must build expensive treatment plants to remove it to beneficially use that water for human consumption. We also have a lot of pressure differentiation and elevation differences in the Mesquite area, and it is therefore difficult to manage the pressures in the area.

Interestingly, in the summertime you basically do not need a hot water heater for your house because we have very warm underground water. It comes out of the ground at about 80 degrees, sits in the above-ground steel storage tanks and gets a little warmer, and then passes through pipes embedded only about 36 to 42 inches deep in the hot ground to reach residents' homes. A lot of people choose to turn off their hot water heater in the summertime.

The public expects to use water for irrigation, sanitary purposes, recreation, and so on, and it takes a lot of resources for a water company or water district to provide all that stuff. If our water system did not exist right now and we hired a contractor to come and build our water system from scratch today—and this does not count current supply chain inflation issues—they would need to build a quarter of a billion dollars' worth of infrastructure to meet our current demand.

In terms of well production, from 1990 until the mid-2000s, before the economy crashed in 2008, our well production in Mesquite was growing at a healthy rate. Right after the economy crashed, things remained steady, but over the past five years, our rate of well production has begun to steadily increase.

Over the last ten years, right after the 2008 to 2012 crash when things started to recover, our population has grown over almost 50 percent while our water production has only grown by 10 percent; that is because all the homes that are being built in Mesquite are xeriscaped or desert-landscaped, so there is very little turf. In addition, because of some aggressive rate increases we had to implement in 2011 and 2015 to get our budget to the right size, a lot of people started tearing out their turf themselves because of the higher cost of water to irrigate it. We do have a four-tier increasing rate structure, which means that if you use a lot of water, you pay a lot of money for it, and a lot of people did not want to do that.

Regarding water conservation, we are roughly at about 106 gallons per capita per day for a three-quarter inch house meter, and our goal by 2035 is to get down to 85 gallons per capita per day. In comparison, SNWA's 2030 goal is to reach 86 gallons per capita per day, so we want to be right there as well. Tucson, Arizona, is currently at 82 gallons per capita per day, and I am not sure how they got there so fast, but they have done a remarkable job of getting to where they need to be. There has been a lot of talk about what is or is not

going on in Utah, and they are currently consuming about 300 gallons per capita per day. They have a lot of work to do regarding water conservation, and if they took a hard look at what they need to do, this is a place where they could start.

Do we have enough water? We did a master plan update in 2020 showing that based on the growth rate we projected at the time, our 12,271 acre-feet of water will be exhausted in roughly the year 2034. At that time, we will start looking at developing our Virgin River rights and spring water and determine if we need to also seek out other water groundwater opportunities that might be available to us.

There have been a lot of studies done on our basin over the last 30 years. State Engineer Jason King was in Mesquite in 2015 and Deputy Administrator Micheline Fairbank was there last year, and both felt comfortable with the groundwater rights available to us and our rate of pumping. They do not feel that we have an issue at this point like some of the other basins in Nevada.

Someone mentioned earlier that there needed to be updates to a lot of the state engineer's perennial yield studies. We are in the process of conducting our own perennial yield study that should be completed in the next three to four years, and hopefully some good data comes out of that study that will be helpful for the State Engineer's Office.

How do we know that our aquifer is okay and that we are not over pumping? We have precipitation gauges in the mountains, and most of our aquifer's recharge comes from the precipitation that falls in the mountains around us. We have only begun to see the effects of climate change on our aquifer within the past two years; prior to that, even though the southwest part of the United States has been in a 20-year drought, we have had a good 16-year head start on a lot of folks in the area.

We monitor the water levels in our nine production wells, and when we rest those wells, we measure how fast the aquifer recovers. We also have 16 groundwater monitoring wells around the area; we monitor those, and our groundwater has not dropped at all since we have begun monitoring those over the last couple of decades.

If you look at satellite imagery, in 1992, there was basically nothing north of I-15, and everything south of the highway was mostly farmland. By 2006, six golf courses had been built north of I-15, a lot of the agriculture had disappeared, and a lot of houses had begun to pop up. By 2017, one more golf course had been added, most of the agriculture had disappeared, and even more houses had appeared. We are good at growing houses here in Mesquite.

Looking forward, we plan on staying ahead of the growth by continuing to develop our 12,271 acre-feet of water, and as that gets close, we will utilize our other water resources. We will continue to invest in our current and existing infrastructure. We keep our metered rates and rate increases at 2.5 percent or less annually. We are getting ready to update our master plan for 2023 and our water conservation plan, and we hope to stay vigilant on our physical and cybersecurity issues because here are a lot of issues out there with cybersecurity. We are also dealing with a golf course that is trying to abscond with some of our water rights.

Our takeaways are that we are growing fast at a rate of 5 to 6 percent, our water resources are strong and capable to handle that growth, and water conservation is happening in Mesquite.

I am happy to answer any questions you may have.

Chair Carlton:

We heard earlier about the situation in Utah regarding what is going on how and how it could possibly impact you. Could you please expand upon that?

Mr. Brown:

Yes. The St. George Washington County area is directly to the east of us. They are currently using 300 gallons per capita per day, and they are running short of available water. I know they have been banking on the Lake Powell Pipeline to bail them out, but I do not believe that is ever going to happen. That is my opinion for a variety of reasons: (1) it is very costly; and (2) we are hearing a lot about climate change and the availability of water at Lake Powell. I think the political folks in that area and in the State of Utah need to take a hard look at water usage in the state and in that area and, frankly, do a better job of water conservation. Kentucky bluegrass is a beautiful, nice thing to have under your feet, but in the desert, it is not a smart thing to have.

Chair Carlton:

Are there questions from any other Subcommittee members? Seeing none, we can move on to the next agenda item.

AGENDA ITEM X—PRESENTATION ON THE CARSON WATER BASIN

Chair Carlton:

The next agenda item is a presentation from the Carson Water Subconservancy District.

Edwin James, P.E., General Manager, Carson Water Subconservancy District (CWSD):

I am going to give you a little background on CWSD because we are a unique organization, and then I will talk about the watershed since it is important to understand what we are dealing with in our situation before moving on to discuss our future plans. We do many different things, but I am going to focus mostly today on the water resource issue (Agenda Item X A-1) (Agenda Item X A-2).

Back in 1989, the Nevada Legislature restructured CWSD's purpose and goals to start looking at regional water system planning for the Carson River. At that time, CWSD included Douglas County, Carson City, and Lyon County. In 1999, the Nevada Legislature added Churchill County to the Subconservancy, and in 2001, through a joint exercise of powers agreement, Alpine County joined CWSD as a partner in the watershed. Last year, in 2021, the Legislature brought in Storey County, so we now have the entire watershed working cooperatively in this region.

As a side note, Alpine County and our board have been considering moving them from a partner to be more recognized in the organization, so there is a proposal to bring in legislation see if Alpine County can become an official member of CWSD. It is going to be interesting. We are also talking with legislators in California to see if there needs to be anything done on that side, too.

What do we do? The CWSD's mission is to promote cooperative action with communities to protect the Carson River Watershed, including everything from flooding to water quality to water supply—basically everything that goes into the watershed. We have two forks that start in Alpine County, the East and the West forks. They flow out of Alpine County into Douglas County where they form the Carson River, which flows through the Carson Valley, Carson City, and Lyon County before it reaches Lahontan Reservoir. From there, water is released and moves down into Churchill County. Later, I will talk about Silver Springs, Nevada, the town adjacent to the reservoir, detailing the situations we are dealing with in that area.

To give you some parameters on the Carson Watershed, the Sierras typically get over 40 inches of precipitation, but Churchill County gets less than 4 inches. We have an extreme difference of water coming down, but it depends on what we get every year from Mother Nature. Our critical source of water is the snowpack. The river is 184 miles long, beginning up in the Sierras at an elevation of 11,460 feet and ending at an elevation of 3,000 feet. We have five major groundwater basins in the Watershed, but we have limited upstream storage, less than 10,000 acre-feet in total when you add all the small reservoirs together. Our largest reservoir is Lahontan, which, when full, can store about 300,000 acre-feet of water. The river is fully appropriated, which means every drop of water has already been allocated. It is unique to the federal Alpine Decree, and is monitored, so if you have a dry year, the water is allocated and if you have a wet year, the water is also allocated. It is a unique process in place.

I want to talk about the Truckee Canal because it is a critical piece of infrastructure that brings water from the Truckee River over into Lahontan Reservoir. It was constructed back in the early 1900s and has been a key element to the Newlands Project, one of the first that was ever developed. I want to show you how important that Truckee Canal is to the Newlands Project. In water year 2021, for the of amount of water that entered Lahontan, 26 percent came from the Carson River and 74 percent came from the Truckee River, so you can see that the Truckee River is a critical element during dry years. In wet years, the Carson River can handle the entire demand, but in a dry year, they take more water from the Truckee River than they do from the Carson.

I want to address some of the water issues we are dealing with. As I mentioned before, the river is fully appropriated, so there is no additional water, and 95 percent goes to agriculture. Droughts and climate change are impacting our agricultural community, a critical element of open and free use space and recharge in this area.

There are five groundwater basins and every one of them is over appropriated, but the good news is that all but four are not being over pumped, so we have some leeway there. There is one basin that is very close to being over pumped. We have no large upstream storage, so it depends on what Mother Nature gives us. We had flooding in 2017 and we are now in a major drought; in theory we could be flooding in January and be in a drought in July, so we must learn to adapt our plans to be able to handle those possibilities.

We have some water quality problems, because when the water gets this low in the river, it is hard to maintain even a fishery. Part of this is supposed to be a cold-water fishery, but when you do not have any water in the river, it is very hard to maintain that.

Later, I am going to go into more detail about wet water versus paper water, because this is a critical element in our watershed.

Surface and groundwater interaction has become a hot topic, and we recognize it on the Carson and will talk about how we will try to deal with this in the future.

Climate change is having an impact on us today and we anticipate that it will continue to do so in the future.

In terms of growth, we have many people coming to the area, so we must grapple with how we handle the growing demand for water.

In relation to groundwater basins, we talked about perennial yield and have had studies done on all five groundwater basins. In our watershed, perennial yield is a good start, but it is not a good indicator of how much water is freely available. We are concerned about that, especially when you have a river that goes right through the groundwater basins. If you start pumping a lot of the groundwater, do you impact surface flows? If you impact surface flows, are you taking someone else's water downstream? That is a real concern from the lower watershed.

We work with 13 major water purveyors, and they are going to be able to meet the water demands this summer. A lot of people talk about the climate, or how low the water is, but I will assure you that right now, unless a well goes out, every water purveyor has enough water to meet their demands. In fact, the water purveyors are using less water today than they did 20 years ago, like what happened in southern Nevada. We are seeing less water being used, so we can stretch those waters further.

Now I want to talk about wet versus paper water rights in the Churchill Valley Groundwater Basin located near Silver Springs. According to the pumping inventory released by the state engineer, the committed groundwater rights for irrigation total about 3,500 acre-feet of water; 145 acre-feet of water rights are reserved for stock-watering, industry, and commercial use; and about 5,300 acre-feet for the quasi-municipal. In total, the Basin has 9,045 acre-feet of water rights committed to these various interests.

In 2020, when the pumping occurred, irrigation used about 365 acre-feet, or about 10 percent of what they had available. The same goes for the industrial and commercial, which only used 44 acre-feet, and the quasi-municipal, which used less than 500 acre-feet. The biggest user of the groundwater basin in that watershed is domestic wells. Though they do not need a water right, they do consume water, and they used 1,307 acre-feet. The grand total of water used in 2020 was 2,194 acre-feet.

The problem with this is the perennial yield is only 1,600 acre-feet. We are already pushing that envelope right now, and yet, you have a whole bunch of people with permitted water rights. Regarding quasi-municipal, I have been going there for 20 years and giving the same speech reminding people that you may have water on paper, but you do not have wet water. If you start trying to develop that water, either you are going to need to be far enough away from the Carson River that you are not going to impact it—but there is no water there—or you will need to get close to the river to pump it. If you do that, people downstream are going to fight you on it. The takeaway is that in that Basin, they only have so much water available, and they have probably reached the upper level at this point, so if we want to develop that area, we are going to have to find alternative water sources to come to that community.

The Desert Research Institute (DRI) studied runoff change and climate change for us in 2010. They looked at stream flow records on the East Fork of the Carson River upstream from almost every diversion. There is some storage above this point, but all the agriculture

and diversions of the river are below. They took records from 1941 through 1974 and 1975 through 2009 and compared the fraction of the flows that came down by each month, and you can see that in the month of March, our flows are now coming off more quickly than they were historically. There is more water now coming off in March than you saw in the earlier part of the period, and when you get to June it switches, and there is historically more water coming down than we see today. We are already seeing climate change impact our runoff, which raises the question of how to plan for that and meet those supplies if we have no upstream storage.

Now, we are developing a 30-year water resource plan looking at sustainability, infrastructure needs, and how to deal with droughts. We have a working group comprised of every 1 of the 13 major water purveyors as well as state, federal, and county irrigation users and other interested parties. If we are going to develop a plan that serves the whole watershed, we need to make sure everyone can participate. We had our kickoff meeting in April and we are continuing to move forward with that process.

We are utilizing some of the tools that have been developed over the last couple of years. The USGS has the Upper and Middle Carson River models. They were developed for other purposes, but they look at groundwater pumping and the interaction of surface water, so we can predict how it will impact the surface water if you put a well out there somewhere and start pumping the water. As we start planning and as the entities upstream start developing their resources, this tool will help us to see if those changes have an adverse effect. If they do, we need to identify them.

This 30-year plan will look at shortfalls and potential conflicts, and once we have identified those, we will start working on the infrastructure we will need, such as more pipes to move new water around to meet those needs to ensure that future planning does not adversely affect a neighbor downstream.

After we develop this plan, we will then look at more climate change scenarios. The USGS developed a couple future "what if" scenarios, and we will put that in, run the models again, and see if our plan still holds water as we move forward. Even though I focused on municipal water demands, when we do a study, we look at all major users. It is a balancing act of water resources, because if you take water from one and give it to another, you are going to adversely affect them. I call it a three-legged stool, and we want to make sure we have a balanced three-legged stool, so even though we have these plans coming in place for municipalities, we look at the environment and our agriculture to make sure we do not have a plan that is going to adversely affect another party as we move forward. A lot is going on, and we will be working on this plan for the next three or four years.

Are there any questions?

Chair Carlton:

At the beginning, you mentioned that regardless of whether it is a wet year or a dry year, all the water is allocated. Do you not have the opportunity to save up for a rainy day? That struck me as new, because I always thought that you had an opportunity for storage.

Mr. James:

The problem is, with no upstream storage, the runoff flows down and is lost. In 2017, we had so much water going down the Carson that the Truckee-Carson Irrigation District in Churchill County apparently had to scramble, and even though Lahontan can store up to

300,000 acre-feet, they had to move almost 900,000 acre-feet through that system in about four months. A lot of water flowed out into the desert and was lost because that was the only way to avoid flooding Churchill County and the City of Fallon, Nevada, and there was no way to store it upstream.

We have had people in the past asking why we do not build upstream storage, but the problem is, if you have a reservoir that is dry 99 years out of 100, you cannot justify the cost. Additionally, the environmental impact to build a large reservoir on a river is prohibitive—you cannot do it. If you look at every major reservoir being built today in the West, none of them are on a major stream. They are all off channel, because the environmental impacts are huge. We started looking at off-stream storage, which would hold a maximum of maybe 4,000 or 5,000 acre-feet, so we do have to live within our means. In 2017, every farmer was able to irrigate the upper watershed throughout the entire irrigation season, which was rare. Typically, by June, you start having juniors already going out of production. The system has been built on this for 100 years, and that is how we live with it, so it is a year-to-year operation. We do not have a terminal lake at the bottom, so we do not have to worry about that impact.

Senator Hansen:

Regarding wet water versus paper water, you cited 1,300 acre-feet for domestic use. Is there any recharge credit given? If you pull water out of a well, at a certain point, it goes into a septic tank and there must be a certain percentage of that water that will percolate back into that aquifer. The SNWA says they use 240,000 acre-feet and receive a 200,000 acre-feet credit for the recharge. Do you do anything like that for the Silver Springs area?

Mr. James:

We have not looked at that in detail. I am sure there is some recharge. We have other communities in the upper watershed that are all on wells and septic tanks. Their water tables are dropping, and their nitrate levels are going up because of the septic tanks, but if you got rid of the septic tanks and connected everyone to a sewer, the water levels would drop even more quickly.

We are aware of those issues but have not done a study up here; this estimate is more from the State Engineer's Office. They are allowed two acre-feet per domestic well, and they estimate an acre-foot of water being used there. Even though we are upside down a little bit, we are probably not going to have an impact today but if you start getting much higher than 1,600, you are going to have a real problem. The main focus of this is that people own a lot of paper water rights that they will never be able to develop and use.

Senator Hansen:

That is an interesting dilemma, because obviously you are recharging the aquifer, but you are doing it with polluted water. Have you ever read the book *Conflict on the Carson*?

Mr. James:

Yes, I have.

Senator Hansen:

This has been going on a long time; they have been fighting about Carson City water since the Comstock days. Back then it was the mills versus the upstream water users, so there is nothing new on this watershed as far as conflict and litigation.

Mr. James:

Hopefully we are a little ahead of the curve now. I have been told by the state engineer that we have fewer conflicts today than other watersheds.

Senator Hansen:

Yes, you guys have done a magnificent job. I do not know how many years you have been doing this presentation, but most of the time I have been in the Legislature, you have been the man when it comes to Carson River. You are the expert.

Mr. James:

I have been doing this presentation for 24 years.

Senator Hansen:

It seems to me you are doing the best you can, but it is a shame you cannot come up with some upstream storage like TMWA has at Independence Lake. Is there any possibility of using recharge systems in any of the aquifers in your five groundwater basins?

Mr. James:

We are already reusing our water 100 percent. Every major wastewater treatment has storage ponds where water is stored during the winter, and they typically use the water for irrigation for parks, agriculture, and golf courses. We also import quite a bit of water from Lake Tahoe because they cannot discharge it. In total, we have three major wastewater facilities that pump water over into our watershed, and we utilize all of those.

What is interesting is that during the droughts back in 2014 or 2015, Carson City ran out of water, but they did not run out of potable water, they ran out of reclaimed water. They had to take the parks' water off the reclaimed water and put them back on potable water because they had plenty of potable water but not enough reclaimed water to irrigate all the parks. Because of conservation, the amount of water going to the wastewater plant had dropped significantly.

Chair Carlton:

Are there any other questions from other Subcommittee members? Seeing none, we can move on to the next agenda item.

AGENDA ITEM XI—PRESENTATION ON THE HUMBOLDT RIVER WATER BASIN

Chair Carlton:

We can move onto a presentation from the Humboldt River Basin Water Authority.

Jeff Fontaine, Executive Director, Humboldt River Basin Water Authority:

Palisade is the hydrological divide between the Upper and Lower Humboldt River; above the Palisade, constriction of the flows in the Humboldt increase, so it is a gaining river, and below the flows decrease, so it is a losing river. This gauge is one of many on the Humboldt River operated by USGS and others, and it is used for determining and scheduling the delivery amounts of Humboldt River decreed rights (Agenda Item XI).

The Humboldt River Basin Water Authority was established in 1995 by Elko, Eureka, Lander, Humboldt, and Pershing Counties pursuant to Nevada's Interlocal Cooperation Act. It was formed to oppose a proposed export project in excess of 300,000 acre-feet of groundwater from the Upper Humboldt River Basin to the Lower Carson River Basin, and that application was ultimately denied. For the past 27 years, the board of directors has continued to meet to discuss water issues in the Humboldt region.

In terms of geography, the Humboldt River Basin sits entirely within the State of Nevada, has a massive drainage area of over 7,410 square miles, and is about 330 miles long, although others put the length a lot higher because of its meandering nature. The river terminates in a sink near the Churchill-Pershing County line, which is protected as part of the Humboldt Wildlife Management Area. Geographically, it is divided into an upper, middle, and lower division, and hydrologically it is divided into two basins.

The history of the Humboldt River is well documented as far as the river and valleys and its importance to early migration and the history of the West. Historically, the high flows in Humboldt River were documented at over 300,000 acre-feet between 1905 and 1925, but immediately following that, there was a substantial decline in flows from 1925 through 1935. As a result of increased demand and conflict between agricultural users, the state engineer started putting together an Order of Determination with the court, and ultimately Bartlett Decree was entered in 1931 and subsequent amendments created the Edwards Decree in 1935. These were state decrees, so there is no federal element in the management of the Humboldt River except that it is considered a "Water of the United States" and regulated in such by the U.S. Environmental Protection Agency (EPA) and the U.S. Army Corps of Engineers. Those decrees were based on irrigated acreage during a time of plenty of water and the most senior Humboldt River System surface rights date back to 1861, so practically all the junior groundwater rights after that are junior to those surface decreed rights.

You are all familiar with the economy of the Humboldt River Basin. Water is extremely important to all those economic sectors like mining and agriculture and, of course, the corridor is important for key infrastructure.

Regarding the characteristics of the river, there are 469,000 acre-feet of perennial groundwater yield and approximately 758,000 acre-feet of community-run water rights. Very little if any groundwater remains, 23 of the 34 groundwater basins are over appropriated, and all the groundwater basins within Humboldt River Basin have been designated by the state engineer. The bottom line is that long-term over pumping of groundwater in those basins is impacting the base flow of the Humboldt River.

Many factors are contributing to diminished flow in the Humboldt River. The loss of functioning riparian areas is creating problems with erosion, undercutting banks, and meandering of the river while also reducing the amount of groundwater recharge, floodwater retention, and overall storage. Decades of groundwater pumping have led to

increased capture of Humboldt River water and its tributaries resulting in conflicts with rights of the Humboldt Decree.

Warming trends have been talked about a lot today and certainly the Humboldt River region is no exception, with reduced snowpack and earlier runoff as a result of warming weather. During the period between 2012 and 2015, the Humboldt region experienced one of the worst droughts since 1902, and the annual flow at that Palisade gauge for that four-year period averaged about 82,000 or maybe 83,000 acre-feet, which is 30 percent of the historical average flow. This year, the Lower Humboldt precipitation water year—from October 1, 2021, to April 30, 2022—measured 104 percent of the median for precipitation, but the snowpack was only 79 percent of the median. In the Upper Humboldt region, precipitation was 90 percent of the median, but snowpack was only 37 percent.

In October and December, we had atmospheric rivers. Rain is good, but snow is a lot better because how much total winter snowfall you get at the end of the winter, how fast that snow melts, and when it melts are all important to the operation of the system as you have heard from others. It is the reservoir in the Upper Humboldt region, so less snow means less storage and a lot less uncertainty for the river. On top of that, there is the possibility that a lot of the snowmelt is being lost through sublimation, so it goes from snowmelt to vapor and is lost to the entire system.

The stream flow of Palisade from 1902 to 2021 is represented in six-year blocks, and on May 20, the streamflow at Palisade was 99 cubic feet per second or 89 percent below average. That peak flow typically occurs between May and June, but based on our graph and others, it appears the peak flow may already occurred in early to mid-April.

As far as storage is concerned, the only significant storage on the system is at Rye Patch, which is used at the lower end of the system for irrigation in Pershing County. On May 1, 2021, the storage capacity at Rye Patch was 29 percent, and on May 1 of this year, the storage capacity at Rye Patch was 6 percent. Storage is a big issue, and because there is no storage in the Lower Humboldt Basin except for Rye Patch, you must have adequate flows in the upper region to move water to Rye Patch, which did not occur in 2014 or 2015, and it is unlikely to occur again this year.

In contrast, during years of average or better flows, we have no storage to capture those flows. In 2017, about 300,000 acre-feet flowed out in the sink, and I believe that was the first year in many where the Humboldt sink and the Carson sink actually merged because of those overflows. Little to no storage capacity results in little to no drought reserve within the Humboldt River Basin.

Conjunctive management is another big issue, and the Humboldt region is a big test case for how you apply or implement conjunctive management on a system-wide basis. Conjunctive management has been utilized a lot by the state engineer in the past when you talk about individual wells and groundwater impacts on a stream or a river, but in the case of a large, complex system like this, it takes a lot of work, discussion, and thought about how to do this. The state engineer did issue Interim Order 1329, which attempted to implement conjunctive management for the system. That has been appealed, but probably the most important thing I can tell you is that we are seeing efforts by the state engineer to work with USGS and the DRI to put together capture studies that will help guide the implementation of that order. We also have some recommendations in here that we will bring back to the Subcommittee at a later date.

Chair Carlton:

I was reading through the recommendations and conjunctive management statements, thank you. Are there any questions from Subcommittee members?

Seeing none, we will move on to the next agenda item.

AGENDA ITEM XII—PRESENTATION ON CENTRAL NEVADA REGIONAL WATER ISSUES

Chair Carlton:

We will have a presentation from the Central Nevada Regional Water Authority.

Jeff Fontaine, Executive Director, Central Nevada Regional Water Authority (CNRWA):

The CNRWA is a regional government established by nine member counties, which collectively cover about 80 percent of Nevada's land area, and a 23-member board of directors consisting of a combination of county commissioners and community members. The mission statement is to protect the water resources in member counties so these counties will not only have an economic future, but their valued quality of life and natural environment will be maintained (Agenda Item XII).

For a county to be a member of the CNRWA, it must have a portion of the Central Hydrographic Region within its boundaries. Within this region, there are 78 groundwater basins within 12 Nevada counties, and it is the largest of Nevada's 14 hydrographic regions, covering much of central, eastern, and southern Nevada. It is characterized by the absence of regional surface water flows, groundwater basins that are often interconnected by subsurface flow, deep bedrock aquifers, and some productive alluvial aquifers as well.

Much like the Humboldt River region, the economy in the central region consists largely of mining, agriculture, and tourism. I want to highlight that tourism, and specifically outdoor recreation, is becoming an important element for rural Nevada's economic sector, including the nine CNRWA member counties. Bodies of water are a significant outdoor recreation asset, and providing those water-based activities like boating and fishing brings quite a bit of revenue into the state and makes Nevada a great place that people want to visit or move to. Protection of water resources is an important component of outdoor recreation, especially for the CNRWA member counties.

The issues in the central region are no different than any other region you heard from today, and that is balancing the demands among various users—domestic, municipal, agricultural, and industrial—in dealing with various conflicts. This is a statewide issue, but within the central region it has intensified as well.

Regarding the protection of existing water rights, you all know what NRS requires in terms of the state engineer's decision on water rights and what types of protections those with water rights have, but it is important to CNRWA members that no new permits are issued for a new water appropriation or a change of existing appropriation if there is going to be a conflict. Even if there is some interest in approving a new appropriation or change to try to mitigate that conflict, there should be no conflict, and I think we are quite resolute on that particular position. We are also concerned about interbasin transfers of groundwater from rural Nevada to urban Nevada, and I think that speaks for itself.

There is no escape from the drought in the central region. Most of the region is currently in severe to extreme drought, and with those higher temperatures or leading increase evaporation demand and decrease in the yields of the alfalfa and hay fields, pasture conditions are very poor and fire activities are increasing.

We are concerned with "buy and dry," which describes a class of water transactions that typically involve a municipality or other local government paying the owner or owners of a farm for some or all their available water rights and agricultural water transfers. I believe it is a slow and rather invisible flow of water from the region's agricultural industry heritage to meet the demands of urban growth. I think this phrase was coined in Colorado where the same thing is taking place, and it is another thing we are very concerned about in the central region.

Evaporative pond extraction of lithium was discussed this morning. As you know, Nevada is home to the only operating lithium mine in the United States, in Platte Valley. According to the Division of Minerals, lithium exploration in Nevada has drastically increased the past couple of years. They estimate almost 15,000 active, filed, and submitted placer claims located in Nevada in 18 different hydrographic regions, most in the central region and presumably for lithium brine. There is some concern on behalf of the CNRWA about the potential negative impacts that evaporative techniques used in mining lithium could have on groundwater levels and quality, and we will be continuing to work with folks to try to address that as well.

Regarding the over appropriation of groundwater resources, almost half the groundwater basins in the region are designated, and Diamond Valley is the only basin currently designated as a Critical Management Area. I am not going to get into that because that was discussed very well this morning.

As far as recommendations, we support increased funding to the DWR to restore staffing, update water basin budgets, adjudicate basins, and digitize data. In addition, we would request a consideration to restore the Water Basin Account, which was used to offset some of the State General Fund dollars for DWS this biennium. We also urge support for need-based funding for counties to prepare and update water resource plans, the result of SB 150 (2019), which required all counties to prepare a water resource plan over the course of about ten years and keep those updated, and there are those counties that need assistance to and complete those plans.

Lastly, we recommend establishing county groundwater boards for over-appropriated basins. We have been working on this issue with the state engineer and will continue to seek a way to authorize local groundwater boards in the counties for over-appropriated basins so we can be proactive in the management of those basements and avoid them becoming critical management areas.

Chair Carlton:

One of your concerns is listed as "buy and dry." Could you expand on that please?

Mr. Fontaine:

In other states, particularly Colorado, as urban areas grow, the water purveyors will buy farms from willing sellers, and it is not one farm but multiple farms. There are cases where entire communities have lost their farming operations to the point where it has become an economic problem for the entire community. I know Colorado is looking for alternatives to

avoid those types of scenarios playing out, and we want to make sure that in Nevada, we can figure out a way to avoid that happening in some of our rural farming communities.

Chair Carlton:

This is not referencing what we were talking about with the Walker River-type project earlier today. Or is that within that universe, but not quite what you were talking about?

Mr. Fontaine:

Quite frankly, I had not thought about it in those terms, but I guess that potentially could be an example of a "buy and dry" scenario.

Chair Carlton:

That is more of a restoration project than an attempt to take it off the books.

Mr. Fontaine:

That is right, and in that case, it is more of an environmental restoration project and probably more a case of returning water to where it originally flowed in the first place.

Chair Carlton:

I wanted to make sure that I understood the term. I had not heard anyone proposing anything like this, so I wanted to make sure we were all on the same page.

Assemblywoman Hansen:

I have great regard for CNRWA and the Humboldt River Basin Water Authority and given that Humboldt is quite a large representation of the state, I am glad to see you are trying to work it out together.

When we talk about an example of "buy and dry," I am thinking Owens Valley; is that what we think of as "buy and dry" where the water literally did go down to Southern California, while maybe with the Walker River, it went to a lake? Mono Lake took the hit on that if I recall correctly. I am curious about that.

Mr. Fontaine:

Back in the early days, "buy and dry" was not a phrase, but today you could probably apply that terminology to what happened in Owens Valley.

Assemblywoman Hansen:

You mentioned establishing county groundwater boards for over-appropriated basins. You mentioned in your comments that maybe we could work with the state engineer; what is the impediment? I would like to understand what keeps us from being able to do that.

Mr. Fontaine:

Last session, CNRWA made a recommendation to the Public Lands Committee to authorize the establishment of local groundwater boards or county groundwater boards in counties that had basins that were designated. The state engineer had concerns about that, so we have been meeting with the state engineer to figure out how we could come to agreement

on our interest, which is to provide a better opportunity for local groundwater users, the community, county commissioners, and whoever needs to be involved in those discussions locally to discuss and have some input into decisions that are made by the state engineer so the state engineer can hear those voices. We thought it was a pretty good idea.

The impediment right now is that there is already authority to establish local groundwater boards, but the problem is we do not want to do it that way because it would require those local groundwater boards to do certain things; it is in the NRS. That is not the intent here, but that is the way the statute reads, and we do not want to create any more delays. We want to provide input and have more involvement in those decisions. I hope we can work through whatever the state engineer's remaining concerns might be on that topic and bring a recommendation back to this Subcommittee.

Senator Hansen:

When did you get Humboldt County to finally join?

Mr. Fontaine:

Humboldt County joined about three or four years ago, and we are very grateful that they did because they only have a very small portion of one basin within Humboldt County, but they felt it was important to be part of the part of the CNRWA.

Senator Hansen:

I was glad to see it. I have not followed up on that in a while, and I remember talking to them to try to get them to join. Regarding evaporative pond extraction of lithium, Albemarle Corporation has 20,000 acre-feet of water in Clayton Valley, and they are the only ones I know of that use the evaporative process. As I understand it, Ioneer and Thacker Pass are not brine-related at all. Are you aware of some future ones coming up? It seems like Albemarle is the lone wolf in that arena since they own almost all the water rights in Clayton Valley, and they have been doing that since World War II, if I remember correctly.

Mr. Fontaine:

We are fully aware of Albemarle's operations, their processes, and they have been in operation since 1967 or maybe even longer. We are aware of other claims, for example in Railroad Valley, although in that case, the indications are that there would be a lot less consumptive use. Quite frankly, when I saw the number of claims out there in those basins, out of 15,000 claims, but as of today, Albemarle is the only operation at all into that effort lithium extraction and they use brine evaporation.

Senator Hansen:

I wondered if I was missing something there because except for them, all the newer ones seem to be more traditional mining methods, not evaporative. Also, I assume if they do have an evaporative pond, they would have to get the water rights cleared through the state engineer and purchase from the local people. I think there is some checks and balances in there.

Chair Carlton:

Are there any other questions? Seeing none, we can move on to the next agenda item.

AGENDA ITEM XIII—PRESENTATION ON THE TRUCKEE-CARSON IRRIGATION DISTRICT

Chair Carlton:

Our next agenda item is a presentation from the Truckee-Carson Irrigation District.

Rusty D. Jardine, ESQ., General Manager and Counsel, Truckee-Carson Irrigation District:

We are proud of our district. It has existed since 1918. I am the general manager, and I have served in that capacity for 12 years, and in those 12 years, we have seen a lot of different things occur, as you can appreciate. We saw the breach of the Truckee Canal in 2008, and I came on board with the District in 2010, and I can say my mission was to help resolve all the conflict that arose from that catastrophic event.

One of the most startling photographs I present to you is the City of Fernley inundated with water during that flood event (Agenda Item XIII). That breach of the canal occurred, I believe, on January 5, 2008, and if you can visualize the amount of water in a canal at that time, it was flowing at about 750 cubic feet per second. That is a good rate, and because of the typography of the area, when that breached, the canal was very flat, so the water was flowing out of that breach area in both directions, compounding the effect upon those homes that were inundated.

After that occurred, we engaged in multiple studies, and the Truckee Canal has probably become one of the most studied canals you could possibly envision. When we talk about the Truckee Canal or the Carson and Truckee Rivers for that matter, I always apply the personal pronoun "my." I talk about "my Truckee River," "my Carson River," "my Truckee Canal," and "my Lahontan Reservoir". That is how we view it, and I am proud of everyone who has participated here because I have always viewed those of us involved in water matters as people with a mission. It is more than a job; it is important to us because water is precious, as we all know.

As a result of that breach of the Truckee Canal, innumerable studies and investigations have occurred in addition to our daily checks postbreach. It took several months to restore it to operating condition, and after that, everything changed, and it has been operated in a completely different fashion since the breach. We have 14 monitoring sites on the canal with alarms now that tell us when we exceed a certain stage elevation within the prism of that canal system. Things certainly have changed.

Now comes the time when we finally have the money before us with which to do something about it. Owing to the bill or the bipartisan infrastructure law that was passed most recently, we are among 46 projects throughout the West that have been approved to provide for repair to our Truckee Canal. It is still an incredible challenge for us, and we have been allocated $35 million with which to do that.

The environmental impact statement (EIS) associated with this project and a record of decision that ensued from the regional director in Sacramento with the Bureau of Reclamation provided that the preferred alternative was to take 12 miles of the canal and line it, so we are talking about an 80-foot section of concrete overtopping a geomembrane lining. The cost of that exceeds $10 million per mile, so that project has been downgraded and the scope of it has been reduced to approximately 3.56 miles of concrete-lined canal. We will also replace what is known as the "Fernley Check Structure," a large structure we

use with which to build up the bay with which to provide delivery of water in the area of Fernley.

Things have changed in Fernley; if I showed you a map of 1948, you would not find a home on it. These were all fields, and coincidentally, they were all flood irrigated. We did not anticipate that would happen in 2008, but things have changed, and so many homes are going up in this area. These fields have been taken out of production. Around 1948, we had probably in excess of 11,000 acres of irrigated lands, but now that is down to 1,500, so incredible change has occurred.

Since the breach, we have faced the problem of how to make it safe for people to live in this area, and that was the reason for going through the process of an EIS culminating in a record of decision. There are some collateral consequences to making it safe. The City of Fernley has a portfolio of approximately 10,000 acre-feet of surface water coupled with 10,000 acre-feet of groundwater and historically has relied upon the seepage from the Truckee Canal with which to charge those municipal and private wells in the area. There is litigation as we speak involving this particular issue.

After this record of decision was authorized and now that we are in the throes of deciding who receives this money and providing for this repair to the Truckee Canal, the City of Fernley has sued to enjoin that, I suppose, because of that historical reliance upon that groundwater seepage for which there is no water right associated and no precedent set. Relief has been sought through the U.S. District Court for the District of Nevada and passed onto the U.S. Court of Appeals for the Ninth Circuit, and we are hopeful that at some point, those issues can be resolved. I am not sure quite how yet—perhaps with the addition of other sources of water—but it is an incredible challenge for that community, and we are very in tune with that struggle. That is something to consider as you go through your deliberations and upcoming sessions, but we continue to work on that, and it is no small challenge for a little district.

A little history—we have approximately 3,000 water users in this project. The largest single water user is the U.S. Fish and Wildlife Service, DOI, serving the Stillwater National Wildlife Refuge out there in our neck of the woods. We have a tribe, a city, a county, NDOW, and the U. S. Navy. I would add it takes little water out there to float the Navy, so we do just fine, and we are proud of that association in our community. We have all these varied uses, and our mission remains constant, but we have a small user base, so when you take a $35 million nonreimbursable bill to build this, that is a tough challenge for a small district like us. Consider that we have a $7.5 million annual budget, and we are going to discharge debt on a $35 million bill, and we are going to do that for 50 years. The reality is that as we do that, we apply those resources for that kind of repair, which is necessary. There is so much more to do over in the Lahontan Valley, in the Carson Division of the Newlands Federal Reclamation Project. That is what we are up to in our district, and we are proud of that opportunity, but it is going to be cumbersome.

All of what I have described has to go to election by water right holders, as well it should. Who pays the bill? Those 3,000 entities that I mentioned. We must get their permission, and we are hopeful that they will approve. What if we do not do this? We have been hoping to provide a permanent repair since 2008, but in the absence of that concrete lining I described, the permanent solution would be to limit flow in the Truckee Canal to 140 cubic feet per second, unchecked, with no ability to raise it against those check structures, and that water would flow through Fernley out to Lahontan and be stored there for use by the users below Lahontan Dam. That would be catastrophic; that is the equivalent of essentially

shutting it down. We are at a point where we must provide for this repair, and we are looking forward to doing that.

Chair Carlton:

Are there any questions from Subcommittee members?

Senator Hansen:

You have 3,000 people voting, but obviously, they all own different percentages of water rights. You mentioned the U.S. Fish and Wildlife Service has the highest ownership, so is the voting based on the percentage of ownership? For example, if half of the water rights are controlled by the U.S. Fish and Wildlife Service, do they control half of the vote? How do you work that out when you have 3,000 people there?

Mr. Jardine:

That is an important issue. Under Chapter 539 of NRS, we have a weighted voting system, but we do not allow those other governments to enter the fray. They are not deemed electors for purposes of voting and so our farmers typically will engage in that voting process.

Senator Hansen:

You have a weighted system. I wondered how you did that. I think it was 1993 when we had Question 2 on the ballot, which allowed NDOW to buy water rights to transfer that water down to Stillwater National Wildlife Refuge. I think that was a 30-year allocation or some amount that was set up as a tax based on something in the Reno-Sparks area. Are you familiar with that, and is that where NDOW got the water rights you are talking about being transferred out to Stillwater and so forth?

Mr. Jardine:

What you perhaps are referring to is the purchase of water rights by the United States for the benefit of Stillwater.

Senator Hansen:

I remember there was a question—and I think it was Question 3 in 1990—where it was a big deal and there was a tax put on something to purchase water rights, I think, for Stillwater, or the Carson Lake area, or somewhere out there. I do not know if I am mixing apples and oranges here or not, or did they transfer those water rights to the U.S. Fish and Wildlife Service for the Lahontan area, particularly the Stillwater area?

Mr. Jardine:

The federal government came up with money with which to provide for the acquisition of water rights. When we spoke earlier, we talked about "buy and dry," and, well, we have had a little flavor of that in the Lahontan Valley. When we talk about Hazen, Nevada, and the Swingle Bench, water flows from Fernley through that area and goes on out to Lahontan. Through the acquisition or the provision of federal money, the Pyramid Lake Paiute Tribe purchased water rights off those areas, and that water was transferred back into the river for the benefit of the lake. The U.S. Fish and Wildlife Service accomplished much the same thing.

In former times, there was an overabundance of water, and litigation ensued on a widespread basis. We went through litigation that was called "recoupment," and it was destined to provide an order requiring the district to make recoupment for waters that have been over-appropriated. The need for water rights for the benefit of the refuge became apparent, a program developed with which to provide that, and they have had a very active program. As you indicate, it is about to the point of expiration, and I do not think that they have accomplished the goal of purchasing that which they had desired, but they are close.

Senator Hansen:

The big problem right now is that you have a canal that is about 30 to 35 miles long from Derby Dam all the way to where it discharges into Lahontan, but there is a four-mile section going through Fernley that the government wants you to spend $35 million on to line canals, but that also recharges the aquifer the City of Fernley uses. Is that it in a nutshell? Surely, though, on each end of that, if you have that four-mile section of canal, there is still a great deal of a recharge that must occur outside of that. Is that insufficient for Fernley's needs?

Mr. Jardine:

I appreciate that question, because that is an important component of what we are trying to achieve here. In reducing the scope of this, yes, there is going to be a corresponding reduction in the impact had to the city from that, and again, there is no water right associated with it, but the practical concern is to turn off the water in a city. That is no small measure for the people who have come to rely upon it. We are sympathetic to that, but the canal must be repaired in the name of public safety, and it must discharge its mission of providing waters to all those water right holders that we have throughout the system.

Senator Hansen:

When you study that whole Newlands Project, the biggest problem was that the years they used to calculate the amount of water that could be taken off the Truckee River System and transferred to the Carson System were all exceptionally wet years. Since that time, the actual amount of available water coming out of the Truckee Watershed is substantially less than what they based those projections on, to the detriment of those poor farmers downstream in Fallon and Fernley who counted on that water. With time, they realized they were drying up Pyramid Lake, and that is when you had the Portage Decree and then Harry Reid's decision, which was especially beneficial to Pyramid Lake but hurt Fallon. The reality is water was not being allocated fairly and Pyramid Lake was very much in the same boat as Walker Lake is today, with levels dropping because so much water is being transferred to the Newlands Project. You have quite a job ahead of you.

Chair Carlton:

Are there any other questions? Seeing none, we will now move on to our second round of public comment.

AGENDA ITEM XIV—PUBLIC COMMENT

Chair Carlton:

I will first open it up for public comment here in the Chamber. Is there anyone in the room who would like to give public comment? [There was none.]

Broadcast Services, do we have anyone on the phone who wishes to give public comment?

BPS:

The public comment line is open and working; however, there are no callers this time.

Chair Carlton:

We will conclude public comment. If we missed anyone, you are more than welcome to email us or send in your public comment, however you prefer.

Our next and final meeting of the Subcommittee on Public Lands will be Monday, June 27, 2022. I look forward to seeing you all there.

AGENDA ITEM XV—ADJOURNMENT

There being no further business to come before the Subcommittee, the meeting was adjourned at 2:35 p.m.

Respectfully submitted,

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Sarah Baker
Research Policy Assistant

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Maria Aguayo
Research Policy Assistant

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Jann Stinnesbeck
Senior Policy Analyst

APPROVED BY:

_____

Assemblywoman Maggie Carlton, Chair

Date: _____

MEETING MATERIALS

AGENDA ITEM	PRESENTER/ENTITY	DESCRIPTION
Agenda Item II	Joseph Guild, Private Citizen	Written Comments
Agenda Item III A	John J. Entsminger, General Manager, Las Vegas Valley Water District and Southern Nevada Water Authority	Microsoft PowerPoint Presentation
Agenda Item III C	Eric Witkoski, Executive Director, Colorado River Commission of Nevada	Microsoft PowerPoint Presentation
Agenda Item IV A	Adam Sullivan, P.E., State Engineer and Administrator, Division of Water Resources (DWR), State Department of Conservation and Natural Resources (DCNR)	Microsoft PowerPoint Presentation
Agenda Item IV B	Micheline Fairbank, Deputy Administrator, DWR, DCNR	Order 1309 District Court Decision
Agenda Item V	Peter Stanton, Executive Director, Walker Basin Conservancy	Microsoft PowerPoint Presentation
Agenda Item VI	Kyle Roerink, Executive Director, Great Basin Water Network	Microsoft PowerPoint Presentation
Agenda Item VIII	John R. Zimmerman, Esq., Assistant General Manager, Truckee Meadows Water Authority	Microsoft PowerPoint Presentation
Agenda Item IX	Kevin W. Brown, General Manager, Virgin Valley Water District	Microsoft PowerPoint Presentation
Agenda Item X A-1	Edwin James, P.E., General Manager, Carson Water Subconservancy District (CWSD)	Microsoft PowerPoint Presentation
Agenda Item X A-2	Edwin James, P.E., General Manager, CWSD	2021 Activities and Accomplishments Annual Report

AGENDA ITEM	PRESENTER/ENTITY	DESCRIPTION
Agenda Item XI	Jeff Fontaine, Executive Director, Humboldt River Basin Water Authority	Microsoft PowerPoint Presentation
Agenda Item XII	Jeff Fontaine, Executive Director, Central Nevada Regional Water Authority	Microsoft PowerPoint Presentation
Agenda Item XIII	Rusty D. Jardine, Esq., General Manager and Counsel, Truckee-Carson Irrigation District	Microsoft PowerPoint Presentation