

Nevada Division of
WATER RESOURCES

STATE OF NEVADA
Department of Conservation and Natural Resources
Joe Lombardo, *Governor*
James A. Settelmeyer, *Director*
Adam Sullivan, P.E., *State Engineer*

FOR IMMEDIATE RELEASE

Contact: Levi Kryder, 775-684-2866, lkryder@water.nv.gov

MEETING SCHEDULE AND AGENDAS FOR CONJUNCTIVE USE MANAGEMENT WORKSHOP SERIES AUGUST 1, SEPTEMBER 6, AND SEPTEMBER 26, 2023

As part of the ongoing stakeholder workshops to develop conjunctive management concepts for the Humboldt River Region, NDWR will hold a series of meetings on August 1, September 6, and September 26, 2023. The meetings will be held in person at the NDWR office and via Microsoft Teams for those who prefer to attend remotely and will be recorded.

The focus of these meetings will be to hear from stakeholders who have submitted abstracts and will present their ideas to the State Engineer and other stakeholders. Agendas detailing the schedule for each meeting are included with this letter, along with copies of the abstracts that have been submitted. Presentations are limited to 15 minutes each, with a few minutes for questions and discussion following each. Due to the time limitations associated with the meeting schedules, NDWR will accept written comments regarding the presentations from August 1 to October 31, 2023 (submit to lkryder@water.nv.gov).

At the August 1 meeting the State Engineer will outline how the process is envisioned to move forward from presentations and comments to development of policies, draft orders, etc. with engaged stakeholders. As a reminder, guidelines for presentations are included below.

- a. A brief description of the concept and how it would work.
- b. Discussion of steps/considerations needed to implement the concept.
- c. Funds needed and potential source(s) of funding.
- d. Description of steps and timeline that may be needed to implement the concept.
- e. Description of the expected/desired outcomes.
- f. If known, describe examples where the concept has been or is being implemented successfully. What actions were required to reach agreement and how were stakeholders afforded the opportunity to be involved?

If you have questions regarding this announcement, need assistance or accommodations, or need modifications to your agenda item, please contact Levi Kryder at 775-684-2866 or lkryder@water.nv.gov.

Agenda for NDWR stakeholder workshops on Conjunctive Management concepts and ideas for the Humboldt River Region

August 1, 2023

Presenter/ Comment by	Type	Title	Approximate time
NDWR Welcome			1:00 PM - 1:10 PM
Allander, Kip	Presentation	NDWR - Establishment of Capture Management Zone and Humboldt River Conservancy District	1:10 PM - 1:35 PM
Eason, James	Presentation	GBWC - Conjunctive use management strategies related to municipal water providers	1:35 PM - 2:00 PM
Hooper, Scott	Comment	Curtail by priority	2:00 PM - 2:10 PM
Wolf, Lili	Comment	Conjunctively manage water resources by priority	2:10 PM - 2:20 PM
Garret, Jennifer	Comment	Regulate all water use by priority	2:20 PM - 2:30 PM
Break			2:30 PM - 2:45 PM
Busselman, Doug	Presentation	NFB - Conjunctive management should be based on impact and implemented by basin	2:45 PM - 3:10 PM
Ure Stix, Therese	Presentation	SLO - Use of critical groundwater management areas as a tool in conjunctive management, an Oregon example	3:10 PM - 3:35 PM
Skulan, Caitlin	Presentation	SLO - Use of groundwater management areas and mitigation measures for conjunctive management, an Idaho example	3:35 PM - 4:00 PM
General Comment and Discussion session			4:00 PM - 4:25 PM

September 6, 2023

Presenter/ Comment by	Type	Title	Approximate time
NDWR Welcome			1:00 PM - 1:10 PM
Carlson, Severin	Presentation	NGM - Future conjunctive management in the Humboldt River region	1:10 PM - 1:35 PM
Hooper, Mark	Comment	Options to consider for conjunctive management	1:35 PM - 1:45 PM
Dixon, Jay and Mahannah, Chris	Presentation	Dixon et al. - Implications of PY based curtailments and CO style augmentation	1:45 PM - 2:10 PM
Ure Stix, Therese	Comment	SLO - USCID & other papers on conjunctive management	2:10 PM - 2:20 PM
Saito, Laurel	Presentation	TNC - Water rights retirement on the Humboldt River	2:20 PM - 2:45 PM
Break			2:45 PM - 3:00 PM
Hodges, Bennie	Presentation	SLO - Conservation measures on the Humboldt River using retirement of water rights and seeking recommendations from schools of water management and conservation	3:00 PM - 3:25 PM
Smith, Dwight	Presentation	SLO - Potential for ASR in Lovelock Valley	3:25 PM - 3:50 PM
Thiel, Tamara	Presentation	Taggart - ASR using floodwater in Paradise Valley/Winnemucca Farms	3:50 PM - 4:15 PM
General Comment and Discussion session			4:15 PM - 4:30 PM

September 26, 2021

Presenter/ Comment by	Type	Title	Approximate time
NDWR Welcome			1:00 PM - 1:10 PM
Collins, Ryan	Presentation	SLO - Conservation through better management of the Humboldt Decree	1:10 PM - 1:35 PM
Gallegos, Erica	Presentation	NGM - Future water management in the Humboldt River region	1:35 PM - 2:00 PM
Smith, Dwight and	Presentation	Dixon et al. - Groundwater pumping from distant locations for flow augmentation the Humboldt River	2:00 PM - 2:25 PM
Skulan, Caitlin	Presentation	SLO - Funding sources for Water Master, river management, and gaging	2:25 PM - 2:50 PM
	Break		2:50 PM - 3:05 PM
Skulan, Caitlin	Comment	SLO - Updated conjunctive management "white paper" submission	3:05 PM - 3:15 PM
Hodges, Bennie	Presentation	SLO - Groundwater duty management as a conjunctive management tool	3:15 PM - 3:40 PM
Saito, Laurel	Presentation	TNC - Nature-based solutions on the Humboldt River	3:40 PM - 4:05 PM
Smith, Dwight	Presentation	SLO - Modeling tool updates and uses related to allocations of costs for management of the river	4:05 PM - 4:30 PM
General Comment and Discussion session			4:30 PM - 4:45 PM

Establishment of Capture Management Zone and Humboldt River Conservancy District

This abstract summarizes some of the current thoughts and ideas of the NDWR on how to approach Conjunctive Management within the Humboldt River Basin. The ideas and concepts expressed in this abstract are not final or complete. The objective of this Conjunctive Management concept is to prevent additional conflict from developing from new applications for underground water rights and to reduce conflict from existing underground rights that are in conflict over a period of time.

The fundamental concept being presented here is the creation of a Capture Management Zone (CMZ) based on current and future impacts of groundwater pumping on stream capture. The Capture Management would largely be managed by a Conservancy District that would encompass the same area and boundaries as the CMZ.

Capture Management Zone

The CMZ would be established based on estimated impacts of pumping on stream capture of x% after y years [between 1% and 10% capture in 50 or 100 years]. For underground water rights within the CMZ, capture would be managed using conjunctive management principles as well as traditional hydrographic basin management using perennial yield. Areas outside the CMZ would still be managed traditionally by hydrographic basins and perennial yield and would be exempt from CMZ management.

The CMZ would consist of two subzones. A curtailment zone where pumping impacts on stream capture are severe [25% or 50% of pumped water in conflict]. And an assessment zone which lies between the curtailment zone and outer edge of the CMZ. Within the curtailment zone, all non-exempted pumping would be curtailed unless it has been offset with dedicated decree rights of sufficient quantity and reliability (wetness) to offset the impact. Within the assessment zone, assessments will be levied based on [mean annual] pumping rate multiplied by capture rate with assessment rates being based on water value [economic value of water used for irrigation in the Humboldt River]. Assessments would be prorated in a given year based on time that groundwater pumping is out of priority. GW is only in priority when all senior surface water decree and storage rights are met or will be met.

Although the CMZ would be established based on full estimated impact after y years [50 or 100 years], implementation of conjunctive management would be gradual through time based on impacts of pumping starting from some effective future date [say 1/1/2025]. However, in recognition of need to get relief to impacted senior surface water rights, time of pumping would proceed at a rate of 2 years of pumping per year up until the total actual number of years of pumping is met. Total years of actual pumping would be defined as evaluation date minus proof of completion date (or permit date in absence of POC date).

All existing water rights within the CMZ would remain valid and maintain priority and value even if curtailed. All water rights can be sold, transferred, or offset with decree as needed to find relief from curtailment or assessments. An Order would be issued closing off all new appropriations within hydrographic basins with curtailments until all curtailed water rights are dealt with. New change applications within the curtailment zone would require decree water of sufficient 'wetness' to offset capture impacts. Minor groundwater uses with less than 5 AFY of capture impact after y years would be exempted from CMZ management which would exempt all domestic wells and many stock wells.

Humboldt River Conservancy District

The Humboldt River Conservancy District (HRCD) would be established to manage the CMZ and levy and use capture assessments as well as a base assessment to all GW and SW water right holders within the CMZ. The staff and operations of the HRCD would be funded through the base assessments. The HRCD would use the capture assessments to purchase and retire or resell SW and GW water rights that are in greatest conflict to avoid or reduce capture impacts. For example, purchase of groundwater rights within the CMZ and resale of rights to outside of the CMZ, or to a location of lesser impact within the assessment zone, or retirement if hydrographic basin is over appropriated. Or purchase of Humboldt decree rights for resale to offset impact from GW water rights within the CMZ (curtailment or assessment zones). Additionally, the HRCD may use capture assessments to undertake river restoration or enhancement projects that result in more efficient flow of the Humboldt River or Tributaries such that more water is available for existing users.

The HRCD may also manage and maintain a water market and water trading that could be used to offset impacts or encourage conservation efforts. The HRCD would be overseen by a board of elected officials from local jurisdictions and be representative of the various water user groups.



By: James Eason, Director of State Operations, GBWC
To: Levi Kryder, Chief, Hydrology Section
Date: July 14, 2023
Subject: Conjunctive Use Management Strategies for the Upper Humboldt River Region – Abstract Submittal

Introduction

NDWR requires water purveyors and utilities to address conjunctive use issues while maintaining compliance with either/or responsibilities and requirements of the Public Utilities Commission of Nevada, Nevada Department of Environmental Protection, or a public board or similar body. Some of these requirements include and are not limited to dedication rates with safety factors, backup production well sources, and fire flow demands. Rate payers bear the brunt of new permitting requirements.

Concept

New appropriations or change applications filed for a publicly regulated water system and that are within an existing utility service area shall be exempted from the replacement water scenario as described under the State Engineer's Order 1329. Publicly regulated water systems shall be exempt, when the utility can demonstrate they are outside of direct contact with the Humboldt River or when they manage an integrated water system with multiple intertied pressure zones, variable flow drives or timed well operation, and support return flow systems into the basin. Post application approval, the utility will use metered water usage and system data paired with stream flow measurements to identify if conjunctive use impacts from operating the water system have occurred. Groundwater modelling, well and pump test results, or similar data will be used to determine potential conjunctive use impacts.

Implementation

Implementation of this scenario maintains existing application processes (publication/protest, RFA Committee review, NSE Signature) and provides exemption from the conflicts analysis in lieu of permit term requirements. Permit terms may be included with requirements for detailed reporting for metered use, well capacities, stream water flow monitoring, or stream diversions in proximity to production wells. If impacts to stream flows are identified, timed well operation and effluent water streams could be used to offset conjunctive use impacts. This approach uses existing statutory constructs and, potentially, preferred use provisions within designated groundwater basins, and monitoring plan components already included in many water right permits. Analysis of potential conjunctive use impacts remains variable to accommodate different areas and conditions.

Similar Concept Implementation

Additional time is needed to evaluate examples of this concept in other neighboring States; however, the Chino Basin Conjunctive Use Environmental Water Storage/Exchange Program (CBEWP) appears to partially implement this scenario.

Challenges

- Groundwater modelling data and related tools are still under development.
- Utility and NDWR staffing needs to manage monitoring and management plans.

July 13, 2023

Levi Kryder
Chief, Hydrology Section
Department of Conservation and Natural Resources
Nevada Division of Water Resources
901 S. Stewart St., Suite 2002
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lkryder@water.nv.gov

Dear Mr. Kryder,

I am submitting this letter not as a request to make a presentation at the August 1st meeting but rather as a simple public comment.

I have been following the water adjudication discussion. I understand the desire of the Nevada Division of Water Resources to find a solution that makes all present irrigation water users whole. However, as outlined below, I do not believe this is possible. I also believe that this attempt has resulted in the conversation often becoming lost “in the weeds”. To my mind, the history of the present problem and governing law allow only one course of action. To wit:

- 1) The event that triggered this difficulty is that the Lovelock irrigation users are not receiving the water to which they are legally entitled.
- 2) Prior to the last decade, the Lovelock irrigation users had, on average, been receiving the water to which they are legally entitled.
- 3) Point 2 indicates that, until recently, the adjudication system set up by the Edwards and Bartlett decrees had been in balance and was sustainable.
- 4) The present inability to deliver the Lovelock users the water to which they are entitled temporally corresponds to a great increase in irrigation by persons pumping Humboldt River water.
- 5) The Edwards and Bartlett decrees have governed Humboldt River water use for almost 100 years and are based on Nevada statute. As such, they are the established law governing use of Humboldt River water for irrigation purposes.
- 6) The fundamental criterion in Nevada law and the Edwards and Bartlett decrees by which water is delivered to irrigation users is date of first beneficial use.
- 7) I do not believe that the Nevada Division of Water Resources has the authority to unilaterally overturn established law. My understanding is that the Nevada Division of Water Resources has only authority to administer established law, not to make new law.
- 8) The Nevada Division of Water Resources has, unfortunately, by allowing increased use of Humboldt River water by pumped irrigation, over-adjudicated the water available from the Humboldt River.
- 9) In my opinion, the only recourse open to the Nevada Division of Water Resources is to follow the law and reduce the amount of water being used for irrigation upstream from Lovelock on the basis of date of first use.
- 10) Given the facts presented above, the practical result is that, since pumped irrigation has a later date of first beneficial use, pumped irrigation use be reduced until Humboldt River irrigation water use is again in balance and sustainable.

I understand that this course of action is not the win-win situation the Nevada Division of Water Resources was hoping for. However, water cannot be created from thin air. There is no administrative action that can bring Humboldt River water use back into balance except to reduce its use and governing law requires that this reduction be based on date of first beneficial use.

It is also important to stress that Nevada agricultural land value is primarily determined by the water rights associated with the land. Any reduction of irrigation water use would greatly decrease the value of the affected land. Surface irrigation users were the original users of the water they use. Furthermore, they have not changed their usage patterns and are thus not the cause of the present imbalance of Humboldt River water use. Destroying the value of the surface users' lands by decreasing their ability to irrigate would thus be inequitable, punishing people who have done nothing wrong and are not the cause of the problem.

I understand the Nevada Division of Water Resources is in a "damned if you do, damned if you don't" situation, and I sympathize with the Department personnel who have to respond to the present difficulty. However, I believe that both by established law and equity the Department has no choice but to allocate irrigation water according to the established law and principles in Nevada statute and the Edwards and Bartlett decrees, that is, by date of first beneficial use. Any other course of action will destroy hundreds of millions of value of agricultural land in Elko County. This would undoubtedly result in a lawsuit by the affected landowners against the Department. Given the black letter law governing the present situation, I think the Department would likely lose this suit. It seems to me that it is therefore in the Department's best interests to follow present law in resolving this situation. Given that the ultimate result will almost certainly be a court upholding established law, for the Department not to follow the present law only needlessly prolongs everyone's uncertainty.

Sincerely,

Scott L. Hooper (by email)

June 20, 2023

Nevada Department Water Resources

To Whom It May Concern,

I attended the Water Management Strategies meeting that was held on March 28, 2023. Thank you for having this meeting and working to include all parties involved.

The Humboldt River Adjudication(1923-1938) is a well thought out adjudicated system. For years, people submitted data that proved their beneficial use of the surface water and these water rights have been used and valued ever since. But now, due to over adjudication, well water pumping and Mother Nature, we don't always have the water that is needed. I appreciate that the Department of Water Resources is trying to alleviate some of the issues and make it have the least impact on everyone involved.

The following are some of my thoughts on this issue.

Surface water users are under the Humboldt River Adjudication as well as some permits that were granted after the adjudication. These Surface users, have priority over Well water right users, yet the Well water users are not held to the same rules as the Surface users. Here are a couple of examples. The Well water users are able to pump all year long and Surface users are only able to irrigate from 4/15-8/15, (depending on what district you are in). The Surface users are not able to irrigate when there is not sufficient water. Well water users are able to keep irrigating as long as their well will produce. Surface users along with Well water users are allotted so many acre feet/acre, but it is known that the Surface users don't use their full duty because the allotted water isn't there for the entire season, but with a well, the full duty allotted is used, which impacts the Surface users rights over time.

Water rights is a heated topic and I understand that people will be impacted by the following changes I think need to be implemented, but the Surface users have already been impacted by what the Department of Water Resources has allowed and therefore, I feel the following changes need to be made. If an existing well or a new well is determined to be within the Humboldt River groundwater model and producing conflict, then the following rules should apply to that irrigation well.

1. The Well water users' irrigation date of use has to be the same as the Decreed use, ie 4/15-8/15.
2. If the water commissioner determines the Surface user is unable to irrigate due to lack of water, then the Well water user is unable to irrigate.
3. Surface users have priority dates that determine when water can be turned on. Priority dates need to be implemented and regulated on the Well water users.
4. Currently, subject to regulation, surface users are able to sell or move their water rights. Water well users should be able to purchase surface users rights to gain senior priority if both parties are interested.

Thank you again for including all that are impacted by this tough, but necessary situation.


Lili A. Wolf - Surface user

6/20/23

Nevada Division of Water Rights

Water Rights Meeting Comments

I am commenting on the Water Rights Meeting held on 3/28/23.

I really enjoyed the meeting information and want to thank you for putting it on and for asking for comments on solutions to the Nevada Water Rights issues that the Division of Water Rights is grappling with.

The Humboldt River Adjudication has a very comprehensive and functional water rights system that was completed after years of research and demonstrations of people proving their water rights that were accepted and put into law with the Bartlett and Edwards decrees. These water rights have been established and delivered accordingly for many years and property values are determined according to these same water rights. These rights cannot now be dismantled and changed because mistakes, e.g., over adjudicating, have been made recently.

It has always been said, "first in time, first in right" and I think that should continue to hold today. Surface irrigation was the first way Nevada was irrigated and the areas most efficient to irrigate have the earliest water rights. Pivots that were developed later allow irrigation of land that is less efficient to irrigate.

Therefore, I feel the following options are worth considering;

1. The duration of well water usage should be tied to the availability of surface water availability and usage. For example, if it is a drought year and no surface water is flowing for surface irrigation, then the wells in that area should not be able to pump any ground water for irrigation. That straw in the ground is depleting water for the surface user as well as the well user for the next year. The underground water should not be depleted further if there is not enough water for surface irrigation.

2. The well water irrigation season should be the same as the surface water irrigation season in the area (for Elko County, April 15th to August 15th). Currently the well water users can pump all year long as long as they have not used their allotted duty. Surface right holders often do not get their allotted duty because the water runs out. Once again, keeping a straw in the underground pool all year doesn't allow rejuvenation for the next year. Also, the growing season has already been established depending on the area and it should also hold true for the well water users.

In summary, Nevada has a very functional system of water rights based on date of first beneficial use that works very well and should be continued. Well water users should have to follow the same rules set up in the Bartlett and Edwards decree as the surface water users are bound by.

Once again, thank you for the informative meeting and for the opportunity to comment.

Sincerely,



Jennifer Garrett

Rancher

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WATER DIVISION
MIDWEST DISTRICT

Nevada Farm Bureau Abstract
For Conjunctive Management Humboldt River Basin
(Contact: Doug Busselman, 775-870-3349 – email doug@nvfb.org)

Description of the concept/method and how it would work: Nevada Farm Bureau believes that conjunctive management needs to be based on site specific circumstances. Not all areas have the same connection and interaction throughout a system. We also believe that regulatory activity to operate conjunctive management needs to be based on established scientific documentation that the specific groundwater and surface water are connected.

Nevada Farm Bureau supports the option which covers *“curtailments based on wells which have the greatest impact on stream flows.”* This needs to provide scientific documentation that the specific groundwater and surface water are connected and that the evidence is based on site specific circumstances. We also support the combined options of *“replacement water”* and *“conservation systems which reduce levels of pumping.”*

How To Implement This Concept -- Use of the Capture Models – Replacement Water – Reductions Of Pumping:

We have been able to confirm that the models will be capable of determining the capture impact of individual wells and their impact on stream flows. The wells also have requirements for metering to monitor the amount of water pumped.

Using actual annual water pumping results of the meters on the well, the model should be used to recognize and record reductions in pumping over the course of an annual water season. From this information the model would be used to calculate capture impacts for a well for whatever conservation measures might yield or whether it was not used in one year or another.

Both reductions in annual pumping or non-pumping of a well should provide for the model to reflect conservation taking place which would be translated into the same type of consequences as “replacement water.” Less water pumped is less water being captured.

For those specific wells, which have been demonstrated by the scientific findings as having the greatest impact on surface flows, either curtailment or reductions in pumping should be covered in a management plan which addresses senior surface water right owners not receiving sufficient water to meet their rights.

Local Basin Meetings:

Considering possible Humboldt River conjunctive management activities, there needs to be full public discussion of what conjunctive management of water resources will mean in practice. Farm Bureau’s proposal includes local/basin level meetings which provides water right owners in each basin with basin-level details and analysis for what the circumstances of water resources are for their specific basin. This is especially critical for groundwater basins which are over-appropriated and those which are over-pumped. The local basin situation should also identify what the impact of local wells are having for river flows, based on the capture models of wells within the basin.

Participants in the basin-level process should be asked to offer their input on ideas which they believe will provide resolution for workable solutions. These basin-level recommendations should be submitted to the Division of Water Resources and the comprehensive report should receive an analysis assessment of whether the proposals submitted will accomplish resolution of conflicts which impact senior water rights.

Examples of successful implementation: It is our assertion that conducting the operations that we’ve presented fits within the application of Nevada State Law. It also follows somewhat the operating procedures of the Snake River in Idaho (as we understand their process). When senior water right owners are negatively impacted in obtaining their water, groundwater pumping is reduced or curtailed.

Pitfalls or issues as well as the role of the public and the State Engineer’s office: From our perspective the State Engineer’s role is to enforce Nevada state law and provide protection for senior water rights. Additionally, the State Engineer’s office is responsible for engagement with the public. The State Engineer’s office is also responsible for monitoring wells that have been identified as having an impact on river flows, and managing the use of the models in calculating whether water conservation is sufficiently meeting the requirements to provide for senior water rights.

ABSTRACT SUBMISSION

August 1, 2023 Humboldt Conjunctive Management Stakeholder Meeting

Use of Critical Groundwater Management Areas as a Tool in Conjunctive Management, an Oregon Example

Schroeder Law Offices, P.C.

Therese A. Ure Stix

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While conjunctive management focuses on the interaction between groundwater and surface water, helping all water systems come into equilibrium will only assist in overtaxing the resources, regardless of the source. Thus, bringing the groundwater basins into a sustainable annual (or perennial) yield, should be a concept that NDWR is pursuing, regardless of whether or not the basin is part of the Humboldt River System.

Like the Critical Management Areas in Nevada (NRS 534.110(7)), Oregon has a system in place to determine Critical Groundwater Areas (CGWA). OAR 690-010-0050¹. Oregon uses CGWA designations as a tool to assist in managing substantial interference issues between wells and senior surface water rights.² However, unlike Nevada, Oregon implements a stricter regime of curtailment in CGWA without the option of allowing the basin water users to attempt to agree on a basin wide management plan. The CGWA boundaries are set by rule. Subareas within a CGWA are sometimes determined as well.

Under the Oregon structure, an annual sustainable yield is determined by the Oregon Water Resources Department (OWRD) each year. Water right holders within the boundaries of the CGWA request an allocation of up to their full duty of their water right located within the CGWA. OWRD then allocates the ASY to all the water right holders in than CGWA by priority and any administrative rule. Water users within a CGWA can and do exchange allocations and can do so without a transfer for money or other consideration. This system can be implemented much faster than the management areas in Nevada and thereby more robust in protecting the resources and senior water users.

A presentation related to this abstract will address the CGWA concept in Oregon, how it comports with prior appropriation doctrine, how it is implemented and used each year, how it relates to conjunctive management issues along the Umatilla River by using the Stage Gulch and/or Butter Creek CGWAs as an example.

¹ <https://www.oregon.gov/owrd/programs/GWWL/GW/Pages/AdminAreasAndCriticalGWAreas.aspx>

² https://www.oregon.gov/owrd/programs/GWWL/GW/Documents/Summary_of_Groundwater_Controls.pdf

ABSTRACT SUBMISSION

August 1, 2023 Humboldt Conjunctive Management Stakeholder Meeting

**Use of Groundwater Management Areas and Mitigation Measures for
Conjunctive Management, an Idaho Example**

Schroeder Law Offices, P.C.

Caitlin R. Skulan

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On November 2, 2016, Idaho Department of Water Resources, Director Gary Spackman created the largest groundwater management area (“GWMA”) in Idaho, encompassing the Eastern Snake River Plain Aquifer (“ESPA”). The ESPA region extends from the upper eastern corner of the state, near Saint Antony Idaho to Thousand Springs, near Hagerman, Idaho, where the ESPA discharges into the Snake River. Spackman signed the order creating the GWMA in hopes of halting the drop of the aquifer level, which had experienced an annual rate of decline estimated at 200,000 acre-feet.

In Idaho, a GWMA is a separate designation from a critical groundwater area (“CGWA”). A GWMA is all or part of a groundwater basin that may be approaching the conditions of a CGWA. Applications for water appropriation in a GWMA may be approved only after it is determined that sufficient supply is available and other prior water rights will not be injured. The IDWR Director may also require reporting of water use by water users in a GWMA.

In creating the ESPA GWMA, the intent was to bring all of the region’s water users into the fold in an effort to restore the water supply. Although this was partially accomplished in 2015 through a settlement agreement between groundwater and surface water groups within the conjunctively managed ESPA region, not all members of the groundwater district participated in the agreement. The GWMA was implemented as a tool to allow all water users in the region to participate in the development of a management plan.

A presentation related to this abstract will further address the GWMA concept in Idaho, how it comports with the prior appropriation doctrine and existing Nevada statutory law. The presentation will further address the management concepts contemplated and/or implemented in the ESPA GWMA currently and historically including mitigation tools utilized to assist in the conjunctive management of groundwater and surface water in the GWMA.

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KAEMPFER

CROWELL

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July 7, 2023

VIA EMAIL

Levi Kryder
Chief, Hydrology Section
Dept. of Conservation and Natural Resources
Nevada Division of Water Resources
901 S. Stewart Street, Suite 2002
Carson City, NV 89701
lkryder@water.nv.gov

Re: Abstract – Future Conjunctive Management of the Humboldt River Region

Dear Mr. Kryder:

Kaempfer Crowell submits this abstract on behalf of our client, Nevada Gold Mines LLC (“NGM”). As this public process unfolds and as we learn from other stakeholders, NGM reserves its right to offer additional perspectives or to alter components of this abstract.

Sincerely,

KAEMPFER CROWELL



Severin A. Carlson
Alex J. Flangas
Ellsie E. Lucero

SAC/AJF/EEL/sas

Enclosure: Abstract

cc: Client

Nevada Gold Mines LLC: Future Conjunctive Management of the Humboldt River Region

Preliminarily, a one-page abstract is insufficient to meaningfully summarize the legal, social and practical steps necessary to fundamentally modify Nevada's 100-year history of surface and groundwater as separate resource systems.¹ The development, distribution, and protection of water resources are among the most important *political* and *public policy* issues in the western United States (emphasis added). See William Blomquist, et. al., *Institutions and Conjunctive Water Management among Three Western States*, 41 NAT. RESOURCES J. 653, 653–83 (Summer 2001). As observed nearly 50 years ago by two prominent civil engineers involved in the American Water Works Association (considered the largest organization of water supply professionals in the world), far more than the application of hydrologic principles is involved in successful conjunctive management:

[P]hysical, social, legal, and economic factors determine the operation of conjunctive ground-surface water systems...Of the many interacting parts of a system, the physical characteristics are often relatively well understood—economic and legal aspects less so... The major difficulty lies in transferring laws and regulations into quantitative measures... Economic characteristics are major constraints in constructing any mathematical representation of a conjunctive use system...There is no advantage in using a model of a conjunctive ground-surface water system that includes considerable hydrologic detail but neglects legal and economic factors. Output from such a model is essentially worthless from the standpoint of obtaining an optimal (or even good) total system operation policy.

Reza Maknoon et. al, *Conjunctive Use of Ground and Surface Water*, 70 J. AMERICAN WATER WORKS ASS'N 419, 421 (1978). The authors correctly conclude that only when the physical, economic and legal variables have been properly identified, and the complete *objectives* of the conjunctive management system to be implemented have been fully established and agreed upon (legally through regulation/law or in combination with commercial transactional elements), is it even possible to systematically approach implementing an operational solution.

Recognizing this, the successful development of a regulatory scheme, or even a combined regulatory/stakeholder transactional commerce system, to conjunctively manage surface and groundwater involving the Humboldt River Region (the "Region") should not commence until the State Engineer has jurisdiction to do so as the State Engineer's Order 1329 is subject to pending judicial review proceedings. See *Westside Charter v. Gray Line Tours*, 99, Nev. 456, 664 P.2d 351 (1983) ("It is the general rule that when an order of an administrative agency is appealed to a court, the agency's power and authority in relation to the matter is suspended as to questions raised by the appeal."). If the reviewing court determines that the State Engineer does not currently have statutory authority to conjunctively manage surface and groundwater, then the State Engineer must seek authority from the Nevada Legislature.

Additionally, stakeholders within the Region (which may include nearly 1,000 permitted/certificated groundwater holders and vast numbers of domestic well users) are still awaiting publication of the long-promised regional groundwater models from the USGS and DRI, which the State Engineer has described as "an important tool that will be used to demonstrate the effectiveness of different management strategies and possible administrative actions." See Order 1329 (Dec. 7, 2021). As of March 2023 the State Engineer indicated that the model Report would be completed in June 2023. (March 28, 2023 Humboldt River Region Water Management Informational Update). Without that, one aspect of this "abstract" process that remains incomplete is public input on the model. The State Engineer should also heed his own legal counsel's position and directly notice this process to all potentially affected holders of water rights in the Humboldt River Region rather than small groups of stakeholders (as was done here) because any conjunctive management system could result in the curtailment of existing groundwater rights. Consistent with the State Engineer's own prior statements, such result requires notification as a matter of *due process* to those potentially affected water rights holders so that they can provide input on a new water management system. See State Engineer's Motion to Dismiss in *Pershing County Water Conservation District v. State Engineer* (Case No. CV15-12019); see also *Eureka Cty. v. State Eng'r*, 131 Nev. 846, 853, 359 P.3d 1114, 1118–119 (2015).

The ultimate objective of successful conjunctive management is to coordinate water resource use in ways that reduce exposure to drought, maximize water availability, protect water quality, and sustain ecological needs and aesthetic and recreational values, (see Bloomquist at 654), as well as achieve equity among users and enhance social well being (see Maknoon at 423). The State Engineer must recognize that the legal and economic aspects of that objective have not been addressed, and legislative action is necessary to implement changes to the separate-resource system currently embodied in Nevada law and policy to address those aspects. Therefore, the State Engineer should embark on a long-term process of engaging in stakeholder and public input designed to propose statutes to address that objective and those various elements (the legal and economic, as well as hydrologic impacts). Until that process is undertaken in a meaningful manner, likely over the next few years (not condensed into a few months), this highly complex, systemic overhaul of Nevada water law, policy and management is unworkable.

Finally, as for direction from other states—none have successfully enacted a statewide system or policy of conjunctive management that could be inserted into Nevada's current statutory framework that would address the Humboldt River Region without further direct input from Nevada's Legislature. The specifics of the physical system itself (the hydrology of the Region's basins), and the institutional framework (the legal and economic system in place) will dictate whether any recommended "management" that implicates both surface and groundwater rights, conjunctively, will be operationally successful. However, a systematic approach to analyzing the problem, the variables, the significant physical elements of the system, and the true *objectives* to be obtained through conjunctive management, can provide direction to reach the goal (see Maknoon at 424).

¹ As this public process unfolds and as we learn from other stakeholders, NGM reserved its right to offer additional perspectives or to alter components of this abstract.

From: mark and kim hooper <markandkimh@gmail.com>
Sent: Friday, July 14, 2023 8:35 AM
To: Levi Kryder
Subject: Conjunctive Management Comments July...

Follow Up Flag: Follow up
Flag Status: Flagged

WARNING - This email originated from outside the State of Nevada. Exercise caution when opening attachments or clicking links, especially from unknown senders.

Conjunctive Management Comments July 14, 2023

Dear Sirs,

I am writing regarding the current discussions as to how to resolve/manage the ground water/surface water conflicts on the Humboldt river-the issue of "Conjunctive Management".

I am speaking only of the portion of the ground water withdrawal that is in conflict with surface water rights. I do believe that the concept of balancing perennial yield to groundwater withdrawal is sound, and if the well is geologically isolated from surface water flow, and therefore not impacting surface water flow, and therefore not generating any conflict, there does not need to be any further regulation, as long as the aquifer remains sound.

I have been involved in many discussions regarding this issue. These discussions include many meetings with the Humboldt River Basin Working Group, in Winnemucca Nevada, and as a alternate member from Elko County of the Humboldt River Basin Water Authority.

I am a surface water right holder myself, and have irrigated under the priority water right system that governs the surface water use.

Under the priority water right system, on some years I have enjoyed irrigation while water rights junior to mine in priority have not been able to irrigate.

On other years, I have been the one unable to irrigate, while watching other neighbors irrigate, because their rights were superior to mine.

Whether or not I get to irrigate is solely determined by the quantity of water available on any given year, and how far up the priority ladder that quantity will serve.

When this method of irrigation was established by the Bartlett and Edwards decrees, groundwater withdrawals were minimal. As groundwater withdrawals have increased, so has conflict, between groundwater withdrawals that affect surface water flow, and the existing surface water right holders. Acknowledging this conflict, and quantifying it, and remedying it have been the subject of the discussions that I have attended. I believe that the Division of Water Resources is earnest and well-meaning in their attempts to remedy this issue, and conversations have been productive.

However, the hard fact is, that the surface waters (the water "pie") were already fully adjudicated before groundwater withdrawals began, and there is no way to make more "wet water", than what mother nature provides on an annual

basis. Another hard fact is, with the current complete adjudication of the surface water, any individual wishing to obtain another/more surface water rights, would certainly be denied.

Therefore I believe, that to the extent that groundwater withdrawal impacts surface flow, and creates conflict, that groundwater withdrawal must be acknowledged, and accounted for.

Individual Actions-

I believe that an irrigator, who is junior on the priority table, such as a groundwater user, could address this conflict with the surface water right holders, by buying and transferring surface water rights to his operation. I believe the law already calls for this, in a similar fashion, with land developers, who must provide a source of water to serve the proposed subdivision.

I also believe that conservation could play a role. More efficient irrigation methods could be used, by either surface or ground water users. The water saved by the investments of these individuals could then be traded/sold to other individuals who need better water availability or to reduce their conflict.

Adjustments between individuals would allow reduction of conflict in an economically efficient manner.

Collective Action-

Given the large flow variation on the Humboldt River from one year to the next, water storage is always discussed. Due to the cost/environmental/evaporation problems with surface water reservoirs, underground water banking seems to be the preferred method. By storing a portion of excess water in years when it occurs, the water "pie" could be kept more constant from one year to the next.

To a large extent, the value of land is affected by the quality of its water right, and this quality includes the priority date of the water right, since the earlier Water Rights enjoy irrigation on a more consistent basis than later Water Rights. Allowing ground water wells to simply "siphon off" some of the surface flow affects the existing surface rights holders, and should be acknowledged and remedied.

Thank you for the opportunity to comment.

Sincerely,

Mark Hooper

Mark

ABSTRACT SUBMISSION

August 1, 2023 Humboldt Conjunctive Management Stakeholder Meeting

Implications of Perennial Yield-Based Curtailments and Colorado-Style Augmentation in the Humboldt River Region

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Chris Mahannah, PE, WRS
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This abstract and potential discussion will focus on two specific topics of interest pertaining to conjunctive management policy in Nevada. First, we will discuss Colorado-style augmentation plans and then explain why basin-wide curtailments to estimated perennial yield might not work as well as some have indicated.

It is well-established that Nevada is one of the only western states to not fully recognize the administration and utilization of groundwater and surface water as one system (conjunctive use). At least not to the extent of other states such as Colorado, New Mexico, Oregon, Idaho, and California, where conjunctive management has been clearly codified and implemented for several decades in many cases. Of particular interest for the purposes of this analysis is the Colorado framework for augmentation plans. Colorado augmentation plans are based on the 1969 Water Right Determination and Administration Act, which integrated tributary/alluvial groundwater and surface water use and allowed for plans to replace out-of-priority depletions of junior water rights in time, place, and amount. Our discussion will explore how a Colorado-style augmentation framework might work in Nevada with the objective of providing increased protection of senior priority decreed surface water rights from upstream groundwater appropriations based on the State Engineer having clear statutory authority to administer the conjunctive use of groundwater and surface water, thereby enabling increased beneficial use of the total water resource. This framework is summarized based on the following primary issues:

1. Utilization of a reliable method and tools to quantify capture and timing,
2. Providing an equitable funding mechanism,
3. Continued and, in some cases (where appropriate), providing for increased utilization of groundwater by utilization of one or a combination of augmentation and replacement water tools successfully implemented by Colorado.

A proposed second topic for discussion is the misleading notion in Nevada that simply curtailing by priority, entire hydrographic basins based on the estimated perennial yield will eliminate conflicts with hydrologically connected surface water sources throughout the basin. While it is recognized that reducing groundwater appropriations within basins where pumping exceeds the perennial yield will reduce well-to-well conflicts or water level declines, it may only help reduce

river capture in some areas, and it could take years or decades to reverse the capture. The amount of pumping allowed without adverse consequences to surface water has little to do with recharge. *“Often streams are depleted long before the pumping reaches the magnitude of recharge”*ⁱ Furthermore, if a curtailment order or water right purchases are based upon strict adherence to priority within the entire basin, there will be instances where the most senior right(s) that are immediately adjacent to the surface water source will be allowed to continue pumping (with significant capture) while a junior right miles away, with potentially minimal or no river capture at all, is curtailed. This type of scenario is likely to occur in the Humboldt River basins unless focused curtailments or water right purchases in sub-areas where demonstrable impacts are occurring or could occur in the future. The authors will use one or two two hydrographic basins in the Humboldt River Region to graphically demonstrate the potential issues with basin-wide curtailment based on estimated perennial yield.

ⁱ Groundwater, J. Bredehoeft, Vol 35, No. 6, Nov-Dec, 1997

ABSTRACT SUBMISSION

August 1, 2023 Humboldt Conjunctive Management Stakeholder Meeting

USCID & Other Papers on Conjunctive Management

Schroeder Law Offices, P.C.

Therese A. Ure Stix

10615 Double R. Blvd. Ste 100, Reno, NV 89521

775-786-8800; counsel@water-law.com

This abstract is not an offering for a presentation, but for research to provide to NDWR electronically.

The U.S. Committee for Irrigation and Drainage (“USCID”) has held conferences in the past that focus on conjunctive management issues. We are offering to research the past USCID conference proceedings to locate and provide to NDWR copies of papers and research projects related to conjunctive management issues in other states and/or internationally. For example, in 2006, the organization held a conference on “Ground Water and Surface Water Under Stress: Competition, Interaction, Solutions”. Likewise, in Colorado along the South Platte River, conjunctive management papers have analyzed how different hydrological approaches have been used to increase water supplies.¹

Thus, we are offering to locate and review the papers submitted for these types of conferences and provide them to NDWR. This may provide insight as to other conjunctive management schemes and strategies.

¹ https://opensiuc.lib.siu.edu/cgi/viewcontent.cgi?article=1068&context=ucowrconfs_2006

<http://southplatte.colostate.edu/files/Conjunctive%20Management%20in%20Idaho--The%20Water%20Report.pdf>

HUMBOLDT RIVER ABSTRACT SUBMISSION

Participant: The Nature Conservancy, Nevada

Title: Water Rights Retirement on the Humboldt River

a. **Brief description of the concept/method/idea and how it would work.**

The voluntary and permanent retirement of water rights causing conflict or detriments to natural resources could be a means to provide long-term solutions for conjunctive management on the Humboldt River that should also benefit ecosystems.

b. **Discussion on how to implement this concept and what is needed.**

The capture models for the Humboldt River Basin could be used to identify where curtailment and the retirement of groundwater rights could benefit flows to the Humboldt River. The State, willing water right holders, or other facilitating entities could apply for grants to compensate the voluntary and permanent retirement of these water rights. We know that a lot of water users are good stewards of nature as well as the land, so keeping land productive while using less water is important. Some of the federal programs can help with transitioning land to other uses like dryland agriculture, crops that use less water (including native plants that might provide native seed, which is another program that TNC is working on), or grazing.

c. **If this concept has been implemented successfully in other states, provide additional information on how it was implemented and examples.**

Voluntary water rights retirement programs have been tested in other states. Kansas has had two programs in place since 2007 that have successfully retired water rights. Information about these programs are available at <https://agriculture.ks.gov/divisions-programs/division-of-conservation/water-conservation-programs>. The Upper Arkansas River and Rattlesnake Creek Conservation Reserve Enhancement Program has used funds from both the State of Kansas and the Natural Resource Conservation Service (NRCS) Conservation Reserve Enhancement Program (CREP) to retire 47,643 AF of water as of 2021, and the Water Right Transition Assistance Program has retired 2,663 AF. A CREP Program in the Harney Basin in Oregon has also just begun that will retire groundwater rights with additional compensation available for retiring water rights near groundwater-dependent ecosystems (see <https://www.oregon.gov/owrd/Documents/CREP%20Handout.pdf>) with funding from Oregon and the US Farm Services Agency. Using American Rescue Plan Act funds, the Rio Grande Water Conservation District has just implemented [a Groundwater Compact Compliance and Sustainability Fund](#) to retire groundwater rights in Colorado that was enabled by Senate Bill 22-028 in 2022.

d. **Any pitfalls or issues (funding concept, additional needs by public or State Engineer's office)?**

It is important that any conjunctive management regulations or legislation does not preclude the ability of water users to permanently retire water rights. As noted in the examples from other states, grant funding opportunities may be available to implement water rights retirement.

Additional information about water rights retirement in other states:

- Oregon - House Bill 3357: <https://olis.oregonlegislature.gov/liz/2023R1/Measures/Overview/HB3357>
- Colorado - Senate Bill 22-028: <https://leg.colorado.gov/bills/sb22-028>

Conservation Measures on Humboldt River using Retirement of Water Rights And Seeking Recommendations from Schools of Water Management and Conservation

Bennie Hodges

Approximately 22 of the 33 Basins in the Humboldt River Basin are over appropriated. This is one of the Problems affecting surface water deliveries.¹ Over the last 60 years or so, groundwater use in the Basins has only increased, and often times over perennial yields. When this happens the basins groundwater resource declines as storage is used without recharge. As a way to offset this decline, Pershing County Water Conservation District recommends implementing conservation measures, including but not limited to the following:

A system where groundwater users could retire water rights on marginal ground in exchange of future tax credits on other lands still operated by that water user.

A system created by the State of Nevada to purchase water rights from willing sellers or retire water rights that are most junior in priority in basins that are over appropriated.

As system of voluntarily relinquishment of surface water rights in favor of groundwater rights as a tool for mitigation.

The State Engineer's Office could look at National Institute for Water Resources for new ideas in water conservation.

¹ While it is argued by some that the over appropriation of groundwater basins has nothing to do with conjunctive management, how can it not? By bringing each basin back into a sustainable yield the water levels should increase, and cones of depression soften. Thereby, portions of these basins next to the surface water system should in turn capture less of the senior surface water rights. Regardless of the debate, bringing the basins into a sustainable annual yield should be a goal for the State Engineer in responsibly administering the waters of the state.

ABSTRACT SUBMISSION

August 1, 2023 Humboldt Conjunctive Management Stakeholder Meeting

Potential for Shallow Aquifer Recharge, Storage and Recovery in the Lovelock Agricultural Area

Dwight L. Smith, PE, PG, CHg
Principal Hydrogeologist UES/McGinley & Associates
6995 Sierra Center Pkwy, Reno, NV 89511
dsmith1@teamues.com

The potential for aquifer recharge, storage and recovery (ASR) is being evaluated in an incremental approach at a farm in lower Lovelock Valley. The farm utilizes Humboldt River decreed water rights to irrigation approximately 8,000 acres of land for alfalfa cultivation. The ASR concept revolves around recharging the shallow aquifer with a portion of the farm's decreed Humboldt River water rights during average or above average water-year conditions, for future subsequent withdrawal during drought years. A phased feasibility approach of analysis is being implemented to: 1) determine the extent and thickness of the shallow aquifer; 2) determine the existing groundwater quality in the shallow aquifer; 3) determine the hydraulic properties of the shallow aquifer, and if potential exists for completion of high-capacity shallow wells; 4) determine if there exists, or can be created by pre-ASR pumping, sufficient aquifer storage capacity to operate an ASR; 5) determine/estimate the water quality to expect from an operational ASR and determine if suitable for agricultural uses; 6) conduct engineering and cost feasibility reviews for capital expenditures and O&M, and 7) produce technical evaluations and applications for ASR permitting, including UIC injection for recharge wells.

Drilling of nested monitoring well groups at the farm has identified potentially favorable shallow aquifer conditions on the northern portion of the farm, with a shallow sand aquifer present from 15 to 50 feet below land surface. Groundwater present in the shallow aquifer contains total dissolved solids (TDS) concentrations of 1800 to 2000 mg/L, which is marginal for crop irrigation, but could be diluted to an acceptable salinity with recharge water from the Humboldt River water. High clay content in the near-surface soils would be prohibitive for implementing a rapid infiltration basin recharge concept, however, a dual-purpose injection and recovery well concept may be feasible. Unfavorable shallow aquifer conditions for ASR were found on the northwestern side of the farm, owing to a thinner section of sand comprising the shallow aquifer and TDS concentration exceeding 5000 mg/L.

Preliminary findings on the northern portion of the farm have been favorable enough to advance to a test well drilling phase of evaluation planned for the summer of 2023. This effort will involve drilling a 24-inch diameter test well to 50 ft in depth, screening the shallow sand aquifer from 15 to 50 ft, and conducting a 10-day constant-rate pumping test. In order meet an acceptable condition, the test well will likely need to have a production rate of at least 2 cubic feet per second, or 1000 gallons per minute. If well yield is less, then the number of wells required to implement the ASR would likely be cost-prohibitive. Pending a favorable test well outcome, the next phase of evaluation will entail drilling of additional shallow monitoring wells on the farm to further define the extent of the shallow aquifer and existing salinity in groundwater in the aquifer.

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SONIA E. TAGGART

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DAVID H. RIGDON
TIMOTHY D. O'CONNOR
THOMAS P. DUENSING
TAMARA C. THIEL

July 14, 2023

VIA: Hand Delivery and Email

Levi Kryder
Chief of the Hydrology Section
Nevada Division of Water Resources
901 S. Stewart St., Suite 2002
Carson City, NV 89701
lkryder@water.nv.gov

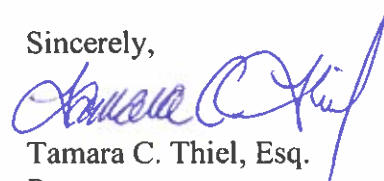
Re: Submission of Abstract Regarding Conjunctive Use Management Strategies for the Humboldt River Region

Dear Mr. Kryder:

The attached one-page abstract is being submitted on behalf of US Water and Land, LLC. The attached conjunctive use proposal is currently authorized for implementation under existing law, and is consistent with the foundations of prior appropriation and beneficial use. *See* NRS 533.055 (water may be stored for beneficial use), NRS 534.250-NRS 534.340 (Aquifer Storage and Recovery ("ASR") permitting statutes).

Thank you for the opportunity to present this proposed conjunctive management concept for the Humboldt River. If you have any questions, or require any additional information, please feel free to contact my office.

Sincerely,



Tamara C. Thiel, Esq.

Partner

TAGGART & TAGGART, LTD.

Encl.: Brief abstract of Artificial Storage and Recovery (ASR) Project

Brief abstract of Artificial Storage and Recovery (ASR) Project

Brief description of the concept/method/idea and how it would work.

As referenced in a presentation to the Nevada Legislature's Public Land Committee by the Humboldt River Basin Water Authority ("HRBWA") in 2014, there is a need for additional storage within the Humboldt River Basin to ensure adequate water supply during years of below average runoff.¹ In its 2014 presentation, HRBWA identified Paradise Valley as a desirable storage area, and specifically referenced that opportunities for aquifer storage and recovery may exist there.

US Water and Land, LLC, a Delaware limited-liability company ("USWAL") is the owner of Winnemucca Farms in Paradise Valley. USWAL is exploring the implementation of an aquifer storage and recovery ("ASR") project in Paradise Valley Basin.

The State Engineer's management of Humboldt River water resources should include use of the ASR project in Paradise Valley Basin. This project will divert excess flood waters of the Humboldt River (under pending Application 87492) and reinject this water into the aquifer for future use. When needed, the water reinjected into the aquifer could be utilized for replacement "wet water" requirements or other replacement needs. At a minimum, replacement water produced from USWAL's ASR project could be allowed to offset to any alleged capture from pumping.

Discussion on how to implement this concept and what is needed.

In a wet year, when Rye Patch Reservoir and Pitt-Taylor Reservoir reach capacity, and senior rights are met, excess flood water is available for an ASR project. In past conversations with former Humboldt River Water Master, Steve Del Soldato, he indicated that in 7 of the last 25 years, Humboldt River flows exceeded the flows needed to meet senior rights, and in those 7 years, an aggregate of almost 1.3 million acre-feet in excess water was available, and unappropriated. Under the ASR project, the excess water would be diverted to storage in the groundwater aquifer when it is available through rapid infiltration basins or injection wells. The flood water would be stored underground to improve the health of the groundwater aquifer, and subject to adjustment for system losses, would be available to divert from storage as needed or desired.

If this concept has been implemented successfully in other states, provide additional information on how it was implemented and examples.

Augmentation plans in Colorado, and water banking throughout the West, are examples of how ASR-type projects have been used in other states.

Any pitfalls or issues (funding concept, additional needs by public or State Engineer's office)

An ASR project will be costly, and funding is needed from any available source. Also, approvals from the State Engineer and the Division of Environmental Protection are needed. Existing protests against the ASR project must be resolved. USWAL has engaged in discussions with stakeholders to develop an ASR project management plan that will protect all senior rights and create a bank with water that is available for augmentation of the Humboldt River.

¹ See Humboldt River Basin Water Authority, *Overview of Organization, Key Issues and Recommendations*, Presentation To Nevada Legislature's Natural Resources, Agriculture And Mining Committee at page 10. Available at https://www.leg.state.nv.us/App/NELIS/REL/78th2015/ExhibitDocument/OpenExhibitDocument?exhibitId=9895&fileDownloadName=h0219_Humboldt%20River%20Basin%20Water%20Authority%20Presentation.pdf

Conservation of Water Through Better Management on the Humboldt River - Utilizing Tighter Deliveries On Priority and Hiring More Personnel to Administer Water Deliveries Water

Ryan Collins, Manager
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Addressing both surface water and groundwater individually, as well as conjunctively, can help lead to a more sustainable and reliable water system. To help surface water shortages on the Humboldt River and its tributaries, tighter and better management of the system can be implemented.

From years of watching the management of the Humboldt River, Pershing County Water Conservation District has noticed several areas where the system can be better managed. These include:

- River Commissioners serving the same priority below Palisade as above Palisade
- River Commissioners not raising priority of water service until all of the current priority deliveries are served.
- Requiring that all water deliveries be made by Ditch Riders and River Commissioners (individual water users should not be allowed to operate their own delivery gates).
- Providing transparency by creating a real-time database for all surface water delivery records on the Humboldt River and its' tributaries available to the public.
- Creating a publicly available database for all stream measurement stations for flow and elevation and thereby limiting the "measurement & shift" issues that creates issues for stream gauge tracking.
- Re-installing a river gauge at Rose Creek in the Winnemucca area. The largest loss of river water is the Winnemucca segment. A gauge at Rose Creek would assist in monitoring and tracking river loss between Comus and Winnemucca.

PCWCD believes that for long-term success, a funding source should be created to assist in offsetting the costs of management akin to the Federal Water Master on the Truckee or Walker system. These recommendations, if implemented, would vastly improve management on Humboldt River and its' tributaries.



NEVADA GOLD MINES LLC
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July 13, 2023

Via Email

Mr. Levi Kryder (lkryder@water.nv.gov)
Department of Conservation and Natural Resources
Division of Water Resources
901 S. Stewart Street. Suite 2002
Carson City, Nevada 89701-5250

Re: Nevada Gold Mines LLC Conjunctive Management Abstract: Future Water Management in the Humboldt River Region

Dear Mr. Kryder:

Nevada Gold Mines LLC is hereby submitting a 1-page abstract in response to the notice received on June 30, 2023, for the Humboldt Conjunctive Management Stakeholder Meeting and Call for Abstracts.

If you have any questions or require any additional information, please contact me by phone at 775-748-1225 or by email at egallegos@nevadagoldmines.com

Sincerely,

Erica Gallegos
Water Resources Engineer
Nevada Gold Mines

Enclosure: Nevada Gold Mines LLC Conjunctive Management Abstract: Future Water Management in the Humboldt River Region

Nevada Gold Mines LLC Conjunctive Management Abstract: Future Water Management in the Humboldt River Region

The term “conjunctive management” can describe a variety of water management tools, and the term continues to evolve as western states amend and update their water laws to address scientific evidence of hydrologically connected surface water and groundwater sources, water shortages, over-appropriation, and the uncertain impacts of climate change. However, implementing conjunctive management principles in a state like Nevada – where groundwater rights and surface water rights have been administered separately for over a century – would be disruptive, unless the transition plan is carefully considered. A successful conjunctive management system rests on both sound policy and economic determinations, as well as sound science that can determine hydrologic connections between surface and groundwater resources with reasonable accuracy. Conjunctive management tools work best where the underlying science is accessible to users and consensus exists on the means, methods, and results. The ultimate goal is to allocate scarce water among users as efficiently and equitably as possible, while recognizing existing vested and decreed property rights.

To effectively develop the framework for conjunctive management, it will be critical for the State Engineer to model capture in the Humboldt River Region and to make the model available for water right holders in the Humboldt River Region to review. Furthermore, the USGS/DRI model has exceeded the schedule, which raises the question of sustainability in maintaining this system and incorporating the best available science in the future. The State Engineer should also consider that a mitigation plan based on a model is not as accurate as a plan based on observed impacts because a model requires several assumptions and has inherent limitations which will result in a real burden to permit applicants.

Other states have implemented conjunctive management with varying degrees of success. But in most cases, those states have spent years studying and understanding the complexity of their hydrologic resources and then designing their state systems to include transition tools to meet the needs of both surface and groundwater water users. Nevada should carefully assess the successes and failures of other states so that it can better understand how to make a successful transition through policy determinations suited for Nevada’s unique economy and hydrological systems.

Other considerations that may aide in managing and developing the framework for conjunctive management include mitigation, voluntary agreements, federally funded voluntary programs, aquifer recharge/recovery storage, water banking, and integrated planning.

Nevada Gold Mines recognizes that in some instances there is a connection between groundwater and surface water and honors the Prior Appropriation Doctrine. However, we also recognize that not all groundwater rights impact surface water rights, so curtailment based solely on priority date will not cure all impacts to surface water and could devastate the State’s economy. Nevada Gold Mines suggests that the State Engineer consider a study to include engaging experts, including those from other jurisdictions, to understand the successes and failures in implementation of various conjunctive management approaches.

ABSTRACT SUBMISSION

August 1, 2023 Humboldt Conjunctive Management Stakeholder Meeting

Conjunctive Use Concept: Groundwater Pumping from Distant Locations for Annual or Targeted Irrigation-Season Flow Augmentation in the Humboldt River

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A potential conjunctive-use water management strategy is proposed for Humboldt River Region based on a framework for augmenting river flows by delivery of pumped groundwater from distal locations to the river. This general type of augmentation strategy has been used in Colorado for decades and has technical merit for consideration. Because of the hydrogeologic variability, this strategy would require site-specific considerations in Nevada and the Humboldt River Region. As a concept, the distal groundwater pumping would have a long-term capture effect on the river, but the percentage and volume of capture would be comparatively small and attenuated in contrast to the instantaneous wet-water delivery benefit to the river. In effect, the incidental capture associated with the augmentation groundwater pumping could be viewed as paying interest on short-term loans. The benefit to be gained from this conjunctive use strategy is that flows in the river would be augmented during more critically dry water-years, and/or seasonally during moderate flow periods to augment decreed water rights for down-stream irrigation. The concept would have the following main requirements:

- A. Potential augmentation source areas would need to be defined and would ideally have long-term stream flow capture estimated to be below a certain threshold, for example 10% of the pumped volume after 50 years of continuous pumping. Augmentation source areas could include: 1.) mines where dewatering in excess of mining and milling water uses are occurring, 2.) existing agricultural areas that are distal from the river where willing owners may be willing to convert wholly or partially to the river augmentation water supply, or 3.) at undeveloped locations within basins, that receive substantial recharge and are situated near large areas of phreatophytes with low environmental sensitivity (areas with uncaptured groundwater discharge).
- B. Wells and water conveyance infrastructure would need to be permitted, funded, and constructed to deliver water directly to the Humboldt River or a tributary.
- C. Operation of the augmentation program water would need to be managed to deliver water to the river at the appropriate times. Augmentation water would be delivered during the decree irrigation season, and during targeted river flow conditions.

The existing USGS / DRI numerical flow models for the Humboldt River Region could be used in a Decision Support System for review, design, permitting, implementation and operation of the augmentation water projects. This concept requires a source of funding for implementation and operation that could potentially be derived from a new duty or use fee spread amongst all permitted groundwater users in the Humboldt River basins, potentially weighted by percent capture of pumping or based on permitted water rights available to pump.

Abstract jointly submitted by PCWCD and Flying M Ranch.

ABSTRACT SUBMISSION

August 1, 2023 Humboldt Conjunctive Management Stakeholder Meeting

Funding Sources for Water Master, River Management, and Gauging

Schroeder Law Offices, P.C.

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This presentation would discuss potential funding schemes and sources for the Humboldt River Water Master, river management, and installation/maintenance of gauges on the river. The presentation would review the schemes, sources, and budgets used elsewhere in Nevada, namely on the Walker River and Truckee Rivers. An example of the type of information that would be discussed is outlined below related to the Walker River. A presentation would focus on how these surface water schemes could be modified and used in the Humboldt Basin.

Walker River

To aid in management and funding for the Walker River, the United States Board of Water Commissioners (“Board” or “Commissioners”) and Chief Deputy Water Commissioner/Water Master (“Water Master”) for the Walker River submit an annual Report and *Petition for Approval of Budget and Approval of Rate of Assessment* outlining the management activities, precipitation, prior year deliveries, and financial needs for management of the river. Prior to submission of this document to the Decree Court, the Board meets to discuss and consider its budget and rate assessment for the following year and the Water Master presents a proposed budget and rate assessment. Such proposal is considered and deliberated before being voted on by the Commissioners.

The approved July 1, 2023 to June 30, 2024 assessment for the Walker River is three dollars and Fifty Centers (\$3.50) for each assessed acre. Assessments are collected by the United States Board of Water Commissioners as well as the Walker River Irrigation District. The projected total operating revenue resulting from these assessments for the 2023-2024 irrigation season based on this assessment is \$462,812.00. This revenue will be used to cover various Walker River operating expenses, including salaries and benefits for the Water Master, Staff, and River Riders; \$145,000 in gauging expenses; a legal services budget; and various smaller expenses to operate an office and equipment required for Walker River management.

Daily management funded by these assessments are governed by a set of standard operating procedures. Management is facilitated by the Water Master and five (5) river riders. The Water Master meets daily with the local River Riders and ditch riders from the Walker River Irrigation District prior to 11 AM and communicates with the River Riders not locally located by electronic means. At these daily meetings, the next days water deliveries are determined and communicated to the river riders and ditch riders who control the diversion of water from the river system and various ditches. Delivery determinations are based on priority and real time gauging data.

ABSTRACT SUBMISSION

August 1, 2023 Humboldt Conjunctive Management Stakeholder Meeting

Updated Conjunctive Management “White Paper” Submission

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In August 2014, Schroeder Law Offices and the Pershing County Water Conservation District (“PCWCD”) authored and provided to the NDWR a “White Paper” surveying how other prior appropriation states were then implementing conjunctive management. This paper was entitled “*Water Management in a Prior Appropriation System: Conjunctive Management Solutions to Groundwater Withdrawals Effecting Surface Water Flows within the Humboldt River Basin.*” The State systems addressed in the White Paper included those in Colorado, Idaho, Utah, Washington, and Oregon.

Schroeder Law Offices is offering to review and update the White Paper and provide current information to the State Engineer in this regard. This may provide insight to other State’s conjunctive management schemes, including how they have been implemented and/or updated since the original White Paper’s authoring in 2014.

A paper and/or presentation may focus on other states’ approaches that may benefit or be of use to Nevada.

Groundwater Duty Management as a Conjunctive Management Tool

Bennie Hodges

Pershing County Water Conservation District believes there are disparities on the Humboldt River and its' tributaries as to how surface water users and ground water users are treated regarding per acre duties of water rights and "in priority" allocations limiting duties. Conservation tools in conjunctive management should include an equitable administration of duties among all sources of water.

Historically, surface water users were and are currently delivered water based on their year of priority. (1861 – 1921)

A Harvest Right is entitled to 3.0 ac/ft/ac

A Meadow Pasture Right is 1.50 ac/ft/ac

Diversified Pasture Right is .75 ac/ft/ac

There are a very small number of surface water rights that receive 4.0 ac/ft/ac due to poor or sandy soils, but this number is very small. These duties are established by the Humboldt River Adjudication (1923 – 1938).

In the past 20 years, surface water users have rarely received a full allotment, especially below the Palisade gauge where the year of priority for delivery is established. Yet ground water users with irrigation permits receive a 100% allotment of 4.0 ac/ft/yr although most all ground water permits are junior in priority to all surface water decreed rights on the Humboldt River.

In 2017 the Nevada Legislature made a declaration that all water, regardless of the source, are to be managed conjunctively. Therefore, any new applications and change applications to ground water should be limited to duties established by the Humboldt River Decree like surface water users are, because ground water users are junior in priority to surface water users, and yet they receive 100% allotment every year and surface water users rarely receive 100% allotment. A system of allocation priority for underground users should be established that is similar to, or at minimum, follows the surface water user allocations. This would put surface and ground water users on a more equitable playing field.

This system could be established administratively to maintain the paper water right, but reduce the season duty allocation based on the water year.

HUMBOLDT RIVER ABSTRACT SUBMISSION

Participant: The Nature Conservancy, Nevada

Title: Nature-based Solutions on the Humboldt River

a. Brief description of the concept/method/idea and how it would work.

When looking at management decisions along the Humboldt River that will help resolve conjunctive management conflicts in the system, it is important to consider actions that can provide multiple benefits to the system, including positive impacts to ecosystem health in the watershed. Incorporating nature-based solutions that increase water security while also having beneficial environmental impacts could increase water supply resiliency and reliability for the Humboldt River system.

b. Discussion on how to implement this concept and what is needed.

There are several options for nature-based solutions that could be implemented along the Humboldt River to increase water yield and overall ecosystem health. Managed aquifer recharge (MAR) is a nature-based solution that uses the purposeful recharge of water to aquifers for subsequent recovery and environmental benefit. MAR is used by water managers, large pumpers, developers, and others to provide water supply resiliency, helping balance seasonal and periodic decreases in water availability with demands. Floodplain wetland restoration and river restoration can also help increase water yield while enhancing the natural system and increasing water quality for downstream users. [The Nature Conservancy's restoration of the lower Truckee River](#) is a good example of such restoration. Consideration of the locations of nature-based solutions that might coincide with returning water to senior water users at the right time, place, and quantity could provide multiple benefits to the Humboldt River system and water users. Such approaches could also provide opportunities for carbon sequestration, improvements in water quality, and flood control.

c. If this concept has been implemented successfully in other states, provide additional information on how it was implemented and examples.

The Nature Conservancy is involved in [nearly 50 watershed investment programs](#) that employ nature-based solutions to address a range of challenges, including living with wildfires, mitigating flooding, increasing water quality and dry season availability, and improving market access for farmers and ranchers. The Arizona chapter of The Nature Conservancy has done successful work in [flood managed aquifer recharge](#). Additionally, the Santa Ana River in California has a large-scale conservation and conjunctive-use program designed by the five regional water agencies that uses a combination of a Conjunctive Use Program, invasive weed removal and habitat creation/restoration and water use efficiency and water conservation measures to recharge, store, and increase the dry year yield of the river (see <https://www.ieua.org/read-our-reports/santa-ana-river-conservation-and-conjunctive-use-program/>).

d. Any pitfalls or issues (funding concept, additional needs by public or State Engineer's office)?

It is important that any conjunctive management regulations or legislation do not preclude the ability of water users to apply nature-based solutions to gain multiple benefits from resolution of conjunctive management issues. In addition, grant funding opportunities may be available to implement approaches that resolve water conflicts while benefitting nature (<https://fundingnaturebasedsolutions.nwf.org/>). Nature-based solutions will require further studies to identify what area of the watershed would maximize the amount of water being returned to the Humboldt system.

Additional information about nature-based solutions:

Zheng, Y., Ross, A., Villholth, K.G. and Dillon, P. (eds.), 2021. [Managing Aquifer Recharge: A Showcase for Resilience and Sustainability](#). Paris, UNESCO.

ABSTRACT SUBMISSION

August 1, 2023 Humboldt Conjunctive Management Stakeholder Meeting

Modeling Tool Updates and Uses Related to Allocations of Costs for Management of the River

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The modeling tools that were developed by the US Geological Survey (USGS) and Desert Research Institute (DRI) on behalf of the Nevada Division of Water Resources (NDWR) include a stream capture function / tool, whereupon 50-year projected capture can be determined as it relates to future change applications or applications for new appropriations for underground rights. In order to assess historical capture that has occurred by existing underground permits, the modeling tools need additional functionality to enable calculation of present-day capture on a permit level. While it is foreseen that some component of mitigation or augmentation project requirement /funding is needed to deal with present-day stream flow capture, and this model functionality will make equitable allocations possible. Mitigation programs that may require funding include expanded water level and stream gaging data collection, routine audits and updates to the models, and establishment of augmentation and mitigation programs. On the routine model audits, it is notable that WY2023 river flows into Rye Patch are predicted to be notably lower than historically comparable wet year flows, and the ability of the model to accurately simulate WY2023 flow conditions needs to be a priority review item.

The cost allocation structure for river management actions related to groundwater pumping capture of Humboldt River flow could be a tiered approach. There are Groundwater Sustainability Agencies in CA that have adopted this approach for funding of groundwater pumping management actions that are required under SGMA (Salinas Valley GSA example). One tier is a cost per acre irrigated or acre-feet pumped that is uniformly applied to all underground water right users in all hydrologically connected basins, regardless of proximity to the river. The second tier is related to either specific subbasin groundwater management actions required or the degree of long-term declining water levels and severity of groundwater management challenges. In the case of the Humboldt River, the modeled river capture could be the basis of Tier 2. The management cost allocations can therefore be distributed over underground water rights in the 33 hydrographic basins down to and including Lovelock Valley. Research by Interflow Hydrology in 2018 determined that there are approximately 1.9 million acre-feet of underground water rights approved for appropriation by NDWR in these 33 basins. Tier 1 costs may be developed on budgets determined for management expenses relating to all underground water rights in the basins. Tier 2 cost allocations may be an additional cost related to currently projected river capture by volume as determined by the modeling tools (subject to further tool development as noted above), and/or may focus on water rights within a certain distance of the river or a tributary to the river. Interflow Hydrology (2018) estimated the permitted underground water rights within 5 miles of the river or a major tributary to total approximately 1.0 million acre-feet. Based on the magnitude of existing permitted water rights, the management fees that may be imposed may not be overly burdensome, if distributed amongst the duty of underground water right held in an equitable manner.