



Agenda

Humboldt River Stakeholder Working Group

Date: April 11, 2025

Time: 8 AM - 12 PM

Location: Bryan Building, Bonnie Rm, 1st Floor Bryan Building 201 S Stewart St., Carson City, NV

1. Opening Remarks (8:00-8:20 AM)

Presenter: Adam Sullivan

The State Engineer will provide opening remarks, outlining the Nevada Division of Water Resources (NDWR) position, takeaways from previous meetings, key progress, and plans moving forward.

2. Unused Decree in the Humboldt (8:20 – 8:50 AM)

Presenter: Landon Harris

Overview of unused decree on the Humboldt system.

3. Dr. Prudic's trends contrasted with model estimated capture along the Humboldt (8:50 – 9:50 AM)

Presenter: Kip Allander

Review of [Dr. Prudic's recent trends report](#) findings contrasted with [findings from capture models](#).

Break (9:50 – 10:00 AM)

4. Overview of the Subgroup Meetings (10:00 – 11:35 AM)

Presenters: Kelly McGowan, Chris Mahannah, & Michael Taylor

- A. A brief update of the conservancy and economic offset subgroups outcomes. Discussion to follow.
- B. Key lessons from Garrick Baxter's Idaho example.
- C. Economic analysis proposal to support offsets/economics subgroup work.

5. Humboldt Region Public Outreach Planning (11:35 – 11:55 AM)

Presenter: Adam Sullivan

Discussion on communicating the progress of this working group with broader stakeholder community.

6. Wrap-up and Next Meeting Agenda (11:55 AM – 12:00 PM)

Presenters: Adam Sullivan and Kelly McGowan

The group will discuss and determine agenda items for the next meeting. The date and time of the next meeting will be confirmed.

Humboldt River Stakeholder Working Group Meeting Summary

April 11, 2025

Version 1

The Humboldt River Stakeholder Working Group discussed progress and challenges in developing conjunctive management strategies for the Humboldt River region. The group reviewed unused Humboldt decree, identifying 23,000 acre-feet upstream of Palisade gage when in full priority. Recent analysis by David Prudic demonstrates minimal changes upstream of Comus gage but significant reductions downstream, particularly at the Imlay Gage. The upper model estimated 11,000 acre-feet of capture, while the middle model indicated fluctuating impacts centered around 15,000 acre-feet. The Humboldt River Stakeholder Working Group discussed the capture of water in the Humboldt River system, with models estimating a combined 26,000 acre-feet annually. The group discussed the contradiction between the Prudic trends and the models with Division of Water Resources suggesting that the lack of trend at upstream gages may be a result of unused decree and other unassigned offsets masking the impacts of upstream capture. They also considered the potential for conservation offsets and the need for better data and models to understand the system's dynamics. The discussion highlighted the complexity of managing capture and the potential for legislative and public outreach efforts to help address these challenges. The Humboldt River Stakeholder Working Group discussed the historical and current groundwater management in Idaho, highlighting the formation of groundwater districts and the economic and legal challenges faced. The Idaho Supreme Court upheld prior appropriation doctrine, leading to conjunctive management and mitigation plans. The discussion emphasized the need for scientific modeling with updates when needed, legislative support, and economic analysis to inform practical decisions on groundwater management, including the feasibility and cost of offsets and the formation of districts.

Action Items

- Kip Allander and Landon Harris - Analyze wetness of unused decree water to get a better sense of the potential impact on flows.
- Division of Water Resources (DWR)- Explore the mechanism used by the USGS in the Salinas River to provisionally release model results.
- DWR - Develop a proposal for a scope of work and timeline for Dr. Taylor's graduate student to analyze the economics of offset options, districts, and other key economic questions.
- DWR - Schedule a meeting with Dr. Taylor to finalize the scope of work and timeline for the economic analysis.

Outline

Opening Remarks and Meeting Agenda

- Adam initiates the meeting with emphasis on progress and completion of previous discussions, with a focus on collaborative strategies and reducing conflicts.
- Mention of scoping document and the importance of staying grounded in the group's objectives.
- Discussion on the informal timeline of progress, highlighting the current stage of public meetings and feasibility discussions.
- Emphasis on the importance of understanding the middle model and the USGS model, despite current constraints and frustrations. Mention of a new director at the Nevada Water Science Center and plans for future meetings to address the middle model issue.
- Discussion on the role of the DWR and the importance of stakeholder buy-in and support.
- Highlights the economic implications of the discussions and the importance of stakeholder feedback.
- Mention of Mike Taylor and Andrew Ayres outcomes from subgroup meetings and the value of their proposals.
- Emphasis on the importance of effective public outreach to ensure accurate and consistent communication.

- Introduction of the agenda items, including presentations on unused decree and the comparison of Prudic Trends report with model results.

Unused Decree Presentation

- Landon provides an overview of currently unused decree water in the system, including reasons for its unused status.
- It is estimated that there is around 22,600 acre-feet of unused decree water (when in full priority) upstream of the Palisade gage.
- Only 1,400 acre-feet of unused decree water is estimated downstream of Palisade gage.
- Discussion on the source of unused decree from washed-out infrastructure, subdivision of previously irrigated lands into small parcels, and in-stream flow rights for wildlife purposes.
- Emphasis on the fluctuating nature of unused water and its subjectivity to priority. Need for evaluation of wetness of the unused decree water to have a better sense of how much blind offset this may be contributing too.
- Bennie Hodges is a terrible navigator when operating ATV's, and Landon Harris is not much help either.

Dr. David Prudic trend analysis compared with model results

- Kip presents an analysis of flow duration curves from David Prudic's trend analysis for various gages, comparing historical and recent periods.
- Discussion on the similarities and differences in flow patterns, with a focus on low flows, monthly flow patterns, and overall annual flow trends.
- Mention of the impact of discharge from the Lone Tree Mine and other factors contributing to observed flow patterns.
- Emphasis on the importance of long-term data and the role of groundwater pumping on flow trends.
- Kip summarizes the capture estimates derived from capture models and makes comparisons with Dr. Prudic's flow trend analysis.
- Discussion on the estimated capture from the upper and middle Humboldt River Basin models.

- Emphasis on the importance of understanding the cumulative impacts of pumping on the system.
- Mention of the need for further analysis and refinement of the models to better capture the true impacts.
- Discussion on the South Fork Reservoir and its impact on flow patterns. In particular on the agreement to maintain a minimum flow of 5 CFS and the role of seepage losses from the reservoir.
- Emphasis on the importance of understanding the dynamics of the system and the role of various factors in flow trends such as earlier snowmelt runoff timing.
- Discussion on the impact of groundwater pumping, the role of in-stream flows, and the importance of accurate data.
- Kip discusses the middle model's estimate of capture of 15,000 acre feet per year, noting the discrepancy between the middle model's prediction and actual gage flow data are in the ball park of each other.
- Kip explains the need to add upper model estimated capture to middle model estimated capture to align with flow data, resulting in a total model estimated capture of around 26,000 acre feet per year at the Imlay gage.
- Some discussion on the model's accuracy in estimating capture, with the comparison with Prudic's trend findings at Imlay gage suggesting that the middle model may be underestimating the true capture.
- Kip highlights the importance of understanding the unused decree and other offsets to account for the discrepancy observed between upper model results and Dr. Prudic's trend analysis.
- Some discussion that mine water discharge water could be masking some of the observed capture, suggesting that total observed capture at Imlay gage could be 36,000 acre feet if it's accounted for.
- One of the stakeholders suggests need to inquire about projecting the impacts of mine dewatering once mine discharge is discontinued. Kip explains that this analysis has been done and will be presented in middle model report.
- Some discussion centers around the contrast in results between the upper model capture estimates and Prudic's trend analysis for upstream gages and the possible role of unused decree water and other offsets towards this contrast.

- Some discussion occurred on the impact of impounded surface water at South Fork Reservoir infiltrating into carbonate rocks, prompting further discussion on the role of South Fork Reservoir in flow changes.
- Kip discusses the limited data available on spring discharges from carbonate rocks in the canyon below South Fork Reservoir, noting that recent measurements have shown consistent flows.
- Kip proposes analyzing the wetness of all unused decree water to better understand the model's results and potential unassigned offset that may be occurring.

Offset Management and Water Rights

- One of the stakeholders raises concerns about the impact of droughts on flow trends, with Kip acknowledging the need for further analysis to better understand the historical context.
- One of the stakeholders suggests focusing on downstream areas with the most significant impacts to prioritize management efforts.
- Consideration of the impact of capture curves on offset requirements with emphasis on the need for a flexible approach to manage offsets was suggested.
- The need for further analysis and modeling to better understand the impact of various management strategies on flow trends was expressed.

Conservancy districts

- Adam emphasizes the importance of public outreach to gain ground-up support for potential conservancy districts.
- Kelly discusses the challenges of forming districts and the need for legislative support to establish new authorities and funding mechanisms.
- One of the stakeholders highlights the need for a simple pathway to the desired outcome, suggesting pilot projects to test the feasibility of district formation.
- One of the stakeholders raises concerns about the timeline for solving the problem, emphasizing the need for short-term fixes while working towards long-term solutions.

Economic Subgroup Update: Market-Based Approaches

- Kelly provides an update on the economic subgroup's meeting, focusing on market-based approaches for offsets.
- Kelly highlights the potential benefits of a market-based system, including incentivizing profitable water use and reducing overall costs.
- Kelly raises questions about the amount of offsets needed, the mechanics of fees, and the feasibility of conservation offsets.
- One of the stakeholders suggests considering the impact of depletion over time on offset requirements rather than having to offset for impact of entire duty, emphasizing the need for a more flexible approach to manage offsets.
- Discussion around California's sustainable groundwater management model (SGMA), highlighting the success of the Salinas Valley's overarching district and sub-district structure.
- The importance of stakeholder engagement and locally driven solutions in achieving sustainability goals was emphasized by one of the stakeholders.
- Some concerns were expressed about achieving the political support needed to establish similar legislative guidance and support in Nevada, suggesting the need for early legislative outreach.
- Challenges with forming districts in California was discussed, noting the need for competent representation and discussion around the role of existing public agencies.

Key takeaways from Idaho's experience with conjunctive management and GW districts

- Chris Mahannah provided a general overview of key takeaways from Garrick Baxter's presentation to the group in February on Idaho's experience with Conjunctive Management and formation of GW districts.
- Discussion about the reliance of irrigators and fish hatcheries on the thousand springs discharge from the Snake River Plain aquifer, noting the historical increase in aquifer storage from surface water irrigation until the 1960s when groundwater pumping started ramping up.

- The peak groundwater discharge from the Snake River Plain Aquifer in the 1960s was 6500 CFS. This discharge started diminishing with time due to the number of groundwater withdrawals.
- Groundwater users in Idaho and Colorado argued that conjunctive management would cause substantial economic harm, would lead to less profitable uses of water, and would result in a 'taking' of junior water rights leading to years of litigation.
- The Idaho Supreme Court ruled in 1994 that the DWR had legal authority to administer groundwater and surface water conjunctively and that the prior appropriation doctrine is applicable between users of both GW and SW sources.
- DWR in Idaho, with legislative support, funded a \$3 million groundwater modeling effort to support conjunctive management.
- The formation of individual groundwater districts allowed for more localized management and mitigation plans.
- Mitigation plans in Idaho included voluntary buyouts, monetary compensations, negotiated settlements, artificial recharge projects, use of storage water and leases, conversions of GW to SW use, and expanded cloud seeding to reduce overall pumping.

Differences Between Idaho and Nevada

- Idaho's aquifer is more transmissive, allowing for quicker recovery when pumping is reduced.
- Aquifers in the Humboldt region require more time for recharge, making it harder to see immediate effects of reduced pumping.

Idaho's strong legislative support, dedicated judges, clear conjunctive management rules, and State investment in modeling are highlighted as key factors in their success.

Key Takeaways from Idaho

- The prior appropriation doctrine and the failure of junior groundwater arguments are emphasized – the prior appropriation doctrine rules.
- Idaho's solutions may not be directly applicable to Nevada due to different hydrology and unavailability of upstream storage supply.

- Defensible science and updates to models as more data become available are crucial for effective management.
- The ability to fund mitigation projects and collect funds from users is a significant benefit/advantage of groundwater districts.

Economic Analysis proposal to evaluate conjunctive management solutions

- Mike Taylor proposes an economic analysis to inform practical decisions.
- The focus will be on the basic economics of conservancy districts, offsets, and the demand for offsets.
- The goal is to provide practical information and economic impacts to help make informed decisions related groundwater management options.
- The analysis will consider the supply and demand of offsets, the administrative structure, and the viability of groundwater districts.
- The need for practical application versus hypothetical analysis was discussed.
- The importance of transparent assumptions in economic analysis was emphasized.
- The potential market for offsets and the economic advantages for users are to be considered.
- The need for a balance between practical application and detailed analysis was highlighted.
- The proposal is to use DWR's Humboldt basin funds to fund the economic analysis. This can be done with no change in assessment rates.
- The timeline for the analysis is estimated to be six months to a year, depending on the scope, complexity, and start time.
- The importance of aligning the analysis with the group's timeline for generating a draft order is stressed.
- The need for a structured scope of work to ensure practical and timely results was discussed.
- There may be a potential for additional analysis to answer future questions, refine answers and ensure precision.
- The potential for offset markets and the willingness of water users to sell their rights was discussed.

- The need for a balanced approach that considers both practical application and detailed analysis is highlighted.

Final Thoughts and Next Steps

- The importance of collaboration and alignment with the group's timeline for NDWR to generate a draft order was highlighted.
- Suggestion that if unused decree water is currently offsetting impacts of upstream pumping, then there exists no current conflict in that part of the system and therefore should be exempt from capture management policy.
- The Division countered that there may not be existing conflict due to this condition, but that this situation may exist as a result of upstream pumpers using unused decree as an offset that is not 'assigned' to them. If the unused decree does get assigned to offset impacts from others, the upstream pumper would then be in conflict. The equivalent of a 'discovered check' in the game of chess. The stated position of the Division is that in the Humboldt, the capture from a pumping well will need to have an offset 'assigned' to offset its impact to keep the entire system fair.
- Creation of technical subgroup to focus on quantitative methods, including model run reviews and offset calculations.
- Meetings to be scheduled in early June for anyone interested in the progress and findings of this group. This follows up on the last all-public meeting in April 2024 where we planned annual updates.

Humboldt River Stakeholder Working Group Meeting: Brief Summary

Date: April 11, 2025

Opening Remarks and Objectives

The meeting opened with a focus on collaboration, reducing conflict, and maintaining alignment with the group's objectives. Updates included the informal timeline of progress, highlighting the current stage of public meetings and feasibility discussions. concerns about the USGS middle model's availability, and stakeholder buy-in for future planning were highlighted. Emphasis was placed on the economic implications of water management decisions and mention of a research proposal to be discussed later.

Unused Decree Water and Flow Analysis

An estimated 23,000 acre-feet of unused water remains in full priority, with contributing factors including degraded infrastructure, small parcel fragmentation, and in-stream flow rights. Some of this water may be viable for offsets, depending on priorities and diversion rates.

Water Capture and Model Discrepancies

Flow duration analysis showed minimal upstream changes but significant reductions downstream, especially at the Imlay Gage. Factors include groundwater pumping and discharge from sources such as the Lone Tree Mine. Models estimated 11,000 acre-feet of capture in the upper basin and 15,000 acre-feet annually in the middle basin, totaling approximately 26,000 acre-feet when combined.

Discrepancies between modeled and observed flows highlighted the need to account for both upstream and downstream impacts. Some estimates suggested total capture could reach 36,000 acre-feet when including mine discharge. Additional factors affecting flows include seepage losses, impounded surface water infiltration, and degraded infrastructure. The potential for converting unused water into wet water for more accurate flow accounting was discussed.

Reservoirs, Groundwater Pumping, and Offset Management

South Fork Reservoir influences local flow patterns, with an agreement to maintain a minimum flow of 5 CFS. The impact of groundwater pumping and the importance of better modeling and data were emphasized. Drought, flow depletion curves, and the feasibility of using all available water should also be considered in assessing offset potential.

Conservancy Districts and Legislative Support

The group explored forming conservancy districts, noting the need for legislative support, pilot projects, and a simplified path to implementation. Short-term solutions were prioritized alongside long-term governance structures.

Economic Subgroup and Market-Based Offsets

Discussion centered on market-based offset strategies, including water rights trading and incentivizing conservation. The subgroup emphasized evaluating offset quantity, fee structures, and depletion timing. Flexible, adaptive offset approaches were recommended.

California Groundwater Management

California's model—particularly the Salinas Valley's district and sub-district structure—was discussed. Key takeaways included the value of stakeholder engagement, local governance, and political support. Nevada's political and legal context may require early legislative outreach to adapt similar frameworks.

Idaho Groundwater Management

Historical analysis showed groundwater discharge in Idaho peaked at 6,500 CFS in the 1960s. The 1994 Idaho Supreme Court decision enabled conjunctive management, leading to the formation of groundwater districts and a \$3 million investment in modeling. Mitigation plans included buyouts and negotiated pumping reductions.

Idaho's transmissive aquifer allowed for faster recharge effects, unlike Nevada's slower-recharging system. Idaho's success was attributed to strong legal foundations, funding mechanisms, and trained/dedicated judiciary, but differences in hydrology limit the applicability of its model to Nevada.

Economic Analysis and Practical Application

Mike Taylor proposed an economic analysis to assess offset markets, conservancy district viability, and the economics of water rights transfers. The analysis will evaluate offset supply and demand, district structures, and practical implementation strategies. Emphasis was placed on transparent assumptions, funding mechanisms, and market feasibility.

The analysis will be funded through the Division of Water Resources and is expected to take 6–12 months. It aims to align with the group's timeline for generating a draft order. A defined scope of work and regular collaboration with stakeholders will ensure actionable, timely results.