



# 2023/2024 WATER PLANNING WRAP UP

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**Water  
Planning**

**NEBRASKA**

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# Table of Contents



→	03	Division Overview
→	04	Statewide
→	05	Basin Success Stories
→	06	Lower Platte
→	07	Upper Platte
→	08	Missouri Tributaries
→	09	Blue
→	10	Niobrara
→	11	Republican



# Division Overview



## Vision

Our vision is advancing collaborative water management across the State of Nebraska based on sound science. Our mission is to sustain and protect Nebraska's water supplies and water uses for both the near and long term.

## Mission

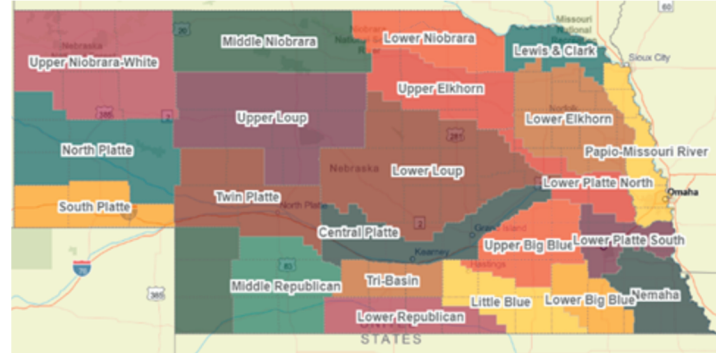
The Water Planning Division seeks to sustain and protect Nebraska's water supplies and uses with collaborative water management strategies based on sound science. We work with Nebraska's Natural Resources Districts (NRDs) to develop local and basin-wide water management plans to ensure Nebraska meets its obligations in interstate water agreements. We educate the public about water management and provide technical analysis to support all these efforts. The following report highlights stories of new and ongoing projects showing Water Planning's dedicated service to the people of Nebraska that demonstrates how this team is preparing to meet the water challenges of the future.

# Statewide

## 20th Anniversary of Integrated Management Plans

Nebraska's unique system of water management shares responsibility between the Nebraska Department of Natural Resources (NeDNR) and NRDs. The state has 23 NRDs which are locally controlled and based on watershed boundaries. The NRDs are responsible for the regulation of groundwater, while the State is responsible for surface water. This cooperative management recognizes the connection of our water resources and allows for tailored solutions to local challenges.

Local control and water user participation are keys to Nebraska's successful water management. NRD board members, elected by their neighbors, represent the interests of their constituents. This ensures decisions made by the NRD boards reflect the communities they represent. This grassroots approach fosters accountability and ensures the States natural resources are allocated efficiently, with state funds leveraged with local dollars to address local priorities. Nebraska producers who are affected by the policies of NRDs are able to participate in crafting and modifying them.



**NeDNR works with each NRD to adopt local IMPs which showcase this hands-on, collaborative spirit. These IMPs were developed with a wide range of water users, including farmers, ranchers, canal operators, bankers, industries, and utilities. IMPs enable us to comply with interstate agreements like the Republican River Compact while preserving local guidance and avoiding litigation and conflict. The IMP development process ensures that local water users within Nebraska's river basins have input over how the state goes about complying with compacts, decrees, and agreements. This participatory process empowers Nebraska producers to manage water in the way that is best for them and plan for more certain water supplies.**



Because many federal funding opportunities require applicants to provide match funding, the state and the NRDs are able to leverage funding for larger projects, such as reservoirs, irrigation canals, or groundwater recharge infrastructure, according to their specific needs. By adapting solutions to local conditions and harnessing the expertise of our communities, Nebraska has positioned itself as a leader in water management.

### Natural resources districts initiating voluntary Integrated Management Plans

Five Natural Resources Districts have initiated a voluntary water planning process with the Nebraska Department of Natural Resources. Most recently, the Lower Elkhorn NRD, joined the Lower Platte South NRD, the Lower Platte North NRD, the Papio-Missouri River NRD, and the Lower Niobrara NRD by initiating the integrated management planning process with the Department of Natural Resources. This planning process,

which results in the joint adoption of Integrated Management Plans, is required in areas of the state that have been designated as fully or over-appropriated by the department. IMPs have been developed in those areas through joint efforts between the Department and the 10 NRDs that have such designations. Recent changes in state statutes provide a process for the development of

IMPs before a designation of fully appropriated by the department. IMPs are the blueprint for a proactive approach to managing hydrologically connected surface and groundwater as a single resource. These joint plans between the department and the local NRDs will serve to bring together state and local water managers in collaboration with various stakeholders. This joint approach allows the department and NRDs to fully

collaborate on efforts aimed at ensuring the short and long-term sustainability of our water resources. Department Director, Brian Dunningan, said of the action, "We are very pleased that thus far, five NRDs have initiated this voluntary planning process. These types of proactive approaches have potential to provide greater future opportunities for water users and water managers."

# Basin Success Stories

## Basins in Nebraska

This annual report will highlight some of the various river basin success stories throughout Nebraska.



Water in Nebraska is managed according to river basins. A river basin, or watershed, is all the land area drained by a river and its tributaries, consisting of surface water: lakes, streams, and reservoirs, and all the underlying groundwater. Due to significant portions of the water in a basin being connected, all the water users in each basin have the potential to affect each other and must work together to effectively manage their shared resource.



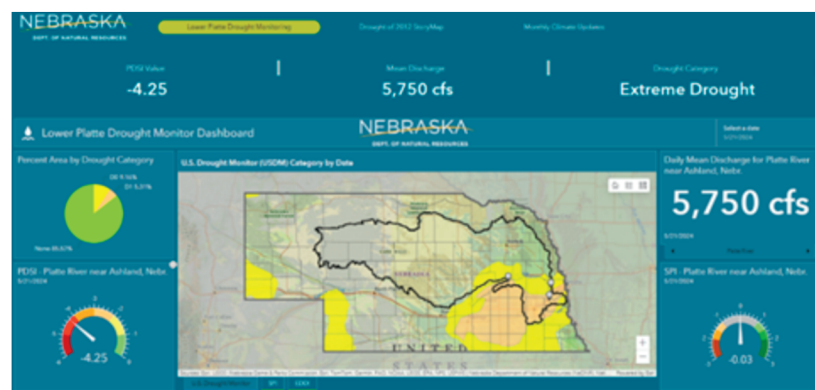
# Lower Platte

## Preparations for Consortium Update

The Lower Platte Drought Consortium, of which the Department is a member, is currently working on its Five-Year Plan Update to be adopted in 2024. The updated drought plan will help agricultural producers and municipalities in the Lower Platte basin prepare for and mitigate the effects of drought. NeDNR is reducing the costs to our partners and the taxpayers by conducting many of the updates to the Plan in-house, thus saving the Consortium's budget for engineering work or construction on beneficial drought mitigation projects.



The Consortium was founded in 2016 as a response to the drought of 2012. Since that time, the Consortium has leveraged state dollars with federal grants, including the USBOR WaterSMART program, to plan on-the-ground, actionable solutions to the threat of drought, allowing consortium members to apply for future WaterSMART grants for implementation of projects. Along with the NRDs and the Department, Metropolitan Utilities District (MUD), and the city of Lincoln are founding members of the Consortium.



As part of its effort to educate the public on the risks of drought, the Consortium developed a public-facing dashboard to pull together the data needed to inform management decisions. Some data included in this dashboard are near real-time streamgauge data, the current U.S. drought monitor drought category map, and the latest USGS streamgauge camera snapshots. To view the dashboard, click [here!](#)



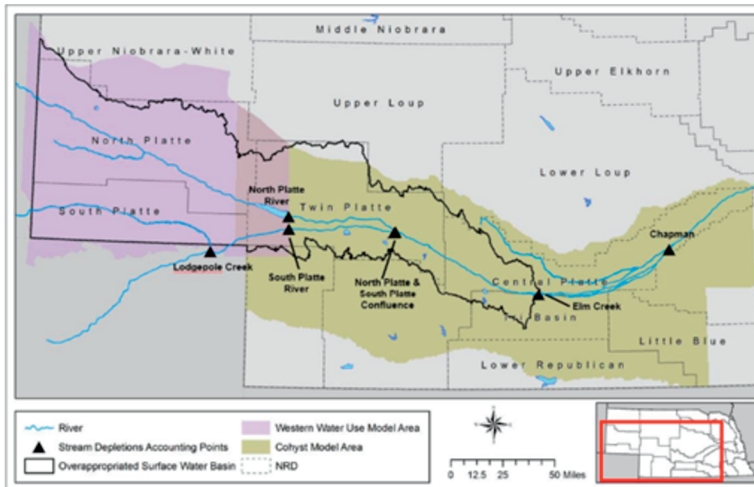
# Upper Platte

## Robust Review

The Department has finished the 2023 Robust Review of the streamflow impacts of management actions by NRDs. The results of this review allow NRDs, NeDNR, and local agricultural producers to review the effectiveness of their management actions and ensure compliance with the Platte River Recovery Implementation Program (PRRIP).

NeDNR, working in conjunction with the five Upper Platte River Basin NRDs through the Platte Overappropriated Area Committee (POAC), has presented the results of this effort to basin water users to provide an update on water management activities aimed at fulfilling the goals and objectives of the following:

- Basin-Wide Plan for Joint Integrated Water Resources Management of Overappropriated Portions of the Platte River Basin, Nebraska
- NRD-level IMPs
- The Nebraska New Depletion Plan (NNDP) for PRRIP



During the first increment of the BWP, the NRDs and NeDNR implemented various management actions, such as investments in canal infrastructure for the recharge of excess streamflow, voluntary incentives to reduce impacts to streamflow, water banking, and regulations. These investments have secured water for over two million irrigated acres, and Nebraska's largest sources of energy production. Ensuring compliance with PRRIP provides regulatory certainty for water users in the area and protects their water use from potential federal regulations resulting from the endangered species act. Additionally, NeDNR and the Upper Platte River Basin NRDs are able to allow for permitted transfers and new development with mitigations measures which are annually reported and summarized. This "Robust Review" summarizes the combined outcomes of all of those management actions.



# Missouri Tributaries

## Hydrologic Investigation Program

WATER PLANNING WRAP UP 2023/2024



NeDNR's Hydrologic Investigation Program (HIP) enhances groundwater model accuracy by conducting on-site investigations to verify model inputs and outputs. This process, known as “ground truthing” helps to further calibrate and refine the models, ensuring they more accurately reflect real-world conditions. Improved models allow NeDNR and NRD to make more informed decisions. In areas covered by voluntary Integrated Management Plans (IMPs), these models help determine how many new irrigation permits can be issued each year without significantly impacting water supplies for existing permit holders. This careful management ensures that groundwater resources are used responsibly, balancing new development with the needs of current water users.

MISSOURI TRIBUTARIES



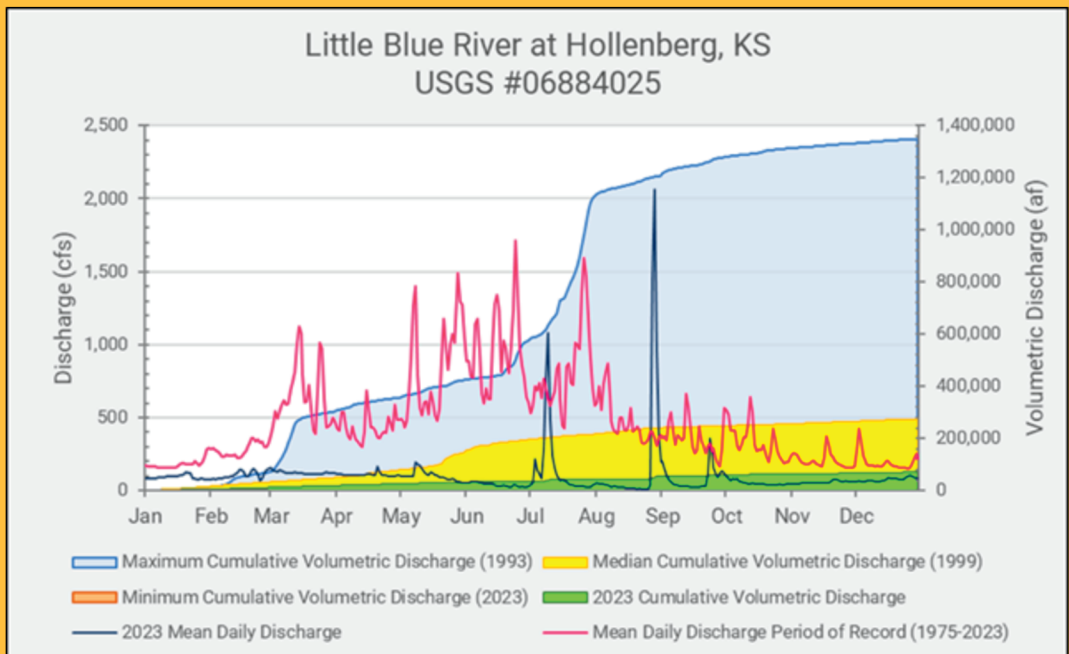
## Story of the Blue Compact

WATER PLANNING WRAP UP 2023/2024



2023 marked the 50th annual meeting of the Kansas-Nebraska Big Blue River Compact Administration. The Compact, which applies to the drainage basins of the Big Blue and Little Blue Rivers in Nebraska and Kansas, was the first and only interstate compact in the US to address both water quantity and quality. NeDNR is the lead agency representing Nebraska and serves as the State's voting member in the Compact Administration.

NeDNR's primary concern related to the Compact is to ensure that during the irrigation season, streamflows at the NE/KS state line are in compliance with levels set by the Compact. This is accomplished by "turning off" junior appropriators when streamflows are insufficient for Compact compliance. In 2023, the Blue Basin was hit particularly hard by drought, which required producers to rely more heavily on groundwater and surface water irrigation. This increase in demand, coupled with decreased runoff from precipitation, caused record low streamflows at the state line resulting in 78 days of closure between May 1st and September 30th for surface water appropriators junior to the Compact.





# Niobrara

## Leveraging State Dollars

In 2023, NeDNR partnered with Niobrara River basin NRDs to fund technical projects. Upper Niobrara White NRD was awarded a grant from the Nebraska Water Sustainability Fund, for a project to update the District's groundwater model. The project, which is currently underway, will convert the District's existing groundwater model to the latest version of the United States Geological Survey's (USGS) modular hydrologic model program, MODFLOW 6, update land use datasets, evaluate and update geology, and refine the District's aquifer property evaluation. NeDNR also matched Middle Niobrara NRD dollars for the development of a groundwater index to help the District evaluate and rank new applications for groundwater permits. Both projects leverage State and local dollars to ensure that the best available data and methods are used in the management of surface water and groundwater resources in the Niobrara basin.



# Republican

## Real-time Data for Producers

Metered irrigation withdrawal is a requirement of the Republican River Final Settlement Stipulation (FSS). With financial help from NeDNR, the NRDs in the Basin are leveraging federal funds to install telemetered flow meters and weather stations, to improve outcomes for producers. Telemetry removes the need to manually report data and replaces it with an automated and secure method for transferring information directly to the NRD. Data collected is used to track water supply and demand for groundwater irrigated acres and to generate evapotranspiration data. Local producers receive this information via the internet, or through a smartphone app. Producers can manage their irrigation water in real-time by using the data to schedule irrigation.



Projects like these serve to enhance on-farm water management and conservation, with the additional goal of stabilizing regional groundwater resources. Key goals and objectives in the Republican River Basin-Wide Plan (RRBWP) includes maintaining Nebraska's compliance with the Republican River Compact utilizing best management practices to ensure the over 1 million acres of irrigated land is sustained. Increasing collaborative efforts among water management entities and stakeholders across the Basin has also helped the Republican River Basin invest in water for generations to come.



# Contact Us



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