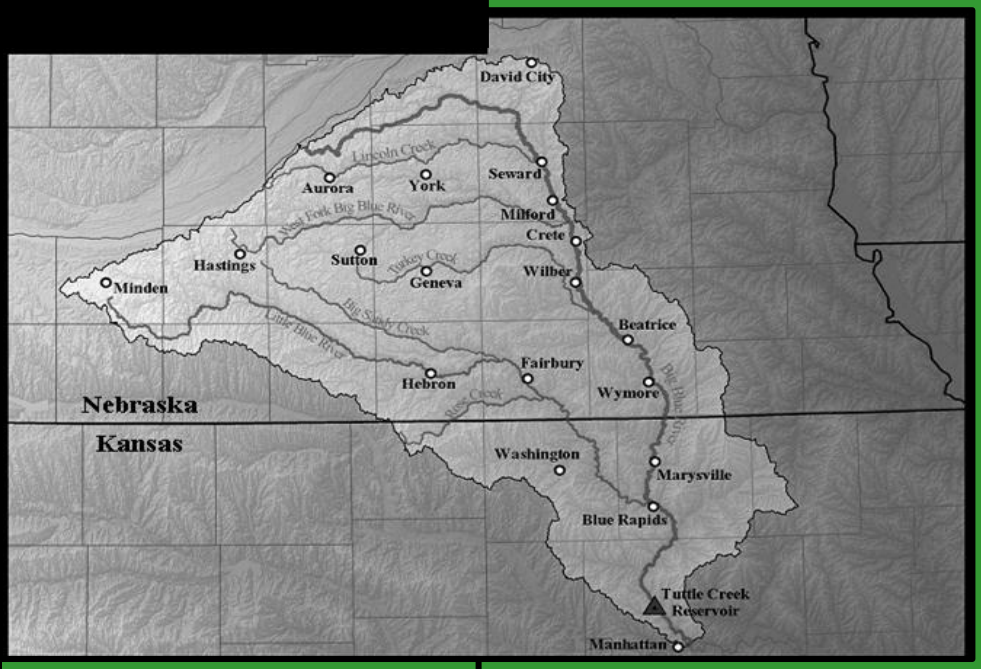
KANSAS-NEBRASKA
BIG BLUE RIVER COMPACT

FIFTY-FIRST
ANNUAL REPORT



FISCAL 2024

Manhattan, KS
May 8, 2024

KANSAS – NEBRASKA BIG BLUE RIVER

COMPACT ADMINISTRATION

May 7, 2025

The Honorable Donald J. Trump

President of the United States of America

The Honorable Laura Kelly

Governor of Kansas

The Honorable Jim Pillen

Governor of Nebraska

Pursuant to Article VIII, Section 1 of the Rules and Regulations of the Kansas-Nebraska Big Blue River Compact Administration, I submit the Fifty-First Annual Report. The report covers the activities of the Administration of the Compact for the Fiscal Year 2024 while I was the presiding Federal Chair.

Respectfully,

W. Don Nelson

Federal Compact Chair

Table of Contents

1320 Research Park Drive
Manhattan, KS 66502
785-564-6700
www. agriculture.ks.gov

Kansas
Department of Agriculture

900 SW Jackson, Room 456
Topeka, KS 66612
785-296-3556

Mike Beam, Secretary

Laura Kelly, Governor

March 6, 2024

W. Don Nelson, Federal Chair
Kansas-Nebraska BBRCA
2430 South Canterbury Lane
Lincoln, NE 68512

Tom Riley, Nebraska Commissioner
Kansas-Nebraska BBRCA
245 Fallbrook Boulevard, Suite 201
Lincoln, NE 68509

Hannah Birge, Kansas Advisor
Kansas-Nebraska BBRCA
2110 Walnut Drive
Manhattan, KS 66502

Larry Moore, Nebraska Advisor
Kansas-Nebraska BBRCA
2240 A Road
Ulysses, NE 68669

Dear Compact Members:

The 2024 meeting of the Kansas-Nebraska Big Blue River Compact Administration will be hosted by Kansas on Wednesday, May 8, 2024, at 9:00 A.M. The meeting will be held at the Kansas Department of Agriculture (1320 Research Park Drive, Manhattan, KS 66502).

A tentative agenda is enclosed with this meeting notice.

Sincerely,

Earl D. Lewis Jr.
Kansas Commissioner

Enclosures or Attachments (1)

cc: Budget Committee – Bob Robles, Lizzie Hickman
Legal Committee – Emily Rose, Stephanie Kramer
Engineering Committee – Jeremy Gehle, Lizzie Hickman
Water Quality Committee – Tom Stiles, Craig Romary, Dan Howell, Sarah Starostka, Tara Anderson, Dan Ross
NRD Managers – Scott Nelson, Scott Sobotka, David Eigenberg, John Thorburn
Add'l – Justin Hladik, Brett Bunger, Jim Macy, Jason Lambrecht

Kansas-Nebraska Big Blue River Compact Administration
51st Annual Meeting

May 8, 2024, 9:00 A.M.
Kansas Department of Agriculture
1320 Research Park Drive
Manhattan, KS 66502

AGENDA

1. Call to Order
2. Introductions and Announcements
3. Minutes and Report of the 50th Annual Meeting
4. Federal Chair's Report
5. Kansas Report
    a. State Overview Report
    b. Topeka Field Office Report
    c. Compact Advisor Comments
6. Nebraska Report
    a. State Overview Report
    b. Water Administration Report
    c. Reports of the NRDs
    d. Compact Advisor Comments
7. Secretary's Report
8. Treasurer's Report and Budget
9. US Geological Survey Report
10. Legal Committee Report
11. Engineering Committee Report
12. Water Quality Committee Report
13. Old Business
14. New Business
15. Committee Membership and Special Assignments
16. Adjournment

MINUTES OF THE FIFTY-FIRST ANNUAL MEETING
OF THE
KANSAS-NEBRASKA BIG BLUE RIVER COMPACT ADMINISTRATION

Call to Order

The Fifty-First Annual Meeting of the Kansas-Nebraska Big Blue River Compact Administration (Administration) was held on May 8, 2024, at the Kansas Department of Agriculture in Manhattan, KS. The meeting was open to the public.

The meeting was called to order at 9:00 AM CDT by W. Don Nelson, Federal Compact Chair. Mr. Nelson introduced himself and asked those in attendance to introduce themselves, beginning with the Compact Commissioners and Advisors. Following introductions, Mr. Nelson asked if any attendees had announcements. Lizzie Hickman, Compact Secretary, asked those who would speak during the meeting (including to ask a question) to give their name for the recording.

Introductions

Those confirmed in attendance were:

W. Don Nelson	Federal Compact Chair
Earl Lewis	Kansas Compact Commissioner; Kansas Department of Agriculture, Division of Water Resources, Chief Engineer
Tom Riley	Nebraska Compact Commissioner; Nebraska Department of Natural Resources, Director
Hannah Birge	Kansas Compact Advisor; The Nature Conservancy
Lizzie Hickman	Compact Secretary; Kansas Department of Agriculture, Division of Water Resources
Bob Robles	Compact Treasurer; Nebraska Department of Natural Resources, Assistant Director
Jeremy Gehle	Compact Engineering Committee Chair; Nebraska Department of Natural Resources, Water Administration and Permits Division Head
Stephanie Kramer	Kansas Department of Agriculture, Chief Counsel
Austin Vincent	Kansas Department of Agriculture, Staff Attorney
Tyler Smith	Kansas Department of Agriculture, Division of Water Resources, Topeka Field Office
Chris Beightel	Kansas Department of Agriculture, Division of Water Resources, Water Management Services Program Manager
Tom Stiles	Kansas Department of Health and Environment, Division of Environment, Bureau of Water Director
Kent Askren	Kansas Farm Bureau, Advocacy Division, Director of Public Policy
Angela Anderson	Kansas Water Office, Planning and Outreach Lead
Amelia Lane	Kansas Water Office, Regional Planning and Outreach Coordinator
Daniel Howell	Kansas Watershed Restoration and Protection Strategy, Tuttle Creek Project
Scott Nelson	Little Blue Natural Resources District, General Manager
Tyler Goeschel	Little Blue Natural Resources District, Assistant Manager
Scott Sobotka	Lower Big Blue Natural Resources District, General Manager
Tyler Weishahn	Lower Big Blue Natural Resources District, Assistant Manager
Jennifer Swanson	Nebraska Association of Resources Districts, Director of Water Quality Initiatives
Thad Fineran	Nebraska Department of Environment and Energy, Director

Sarah Starostka	Nebraska Department of Environment and Energy, Planning and Aid Division Manager
Dan Ross	Nebraska Department of Environment and Energy, Water Planning Section Supervisor
Emily Rose	Nebraska Department of Natural Resources, Agency Legal Counsel
Isabella Peterson	Nebraska Department of Natural Resources, Legal Counsel
Justin Hladik	Nebraska Department of Natural Resources, Lincoln Field Office Supervisor
Andy Pedley	Nebraska Department of Natural Resources, Water Planning Division
Chittaranjan Ray	University of Nebraska-Lincoln, Nebraska Water Center Director
Crystal Powers	University of Nebraska-Lincoln, Nebraska Water Center, Water Extension Educator
David Eigenberg	Upper Big Blue Natural Resources District, General Manager
Marie Krausnick	Upper Big Blue Natural Resources District, Assistant General Manager
Jack Wergin	Upper Big Blue Natural Resources District, Projects Department Manager
Terry Julesgard	Upper Big Blue Natural Resources District, Water Department Manager

Adoption of the Agenda

W. Don Nelson, Federal Compact Chair, entertained a motion to adopt the agenda. Earl Lewis, Kansas Compact Commissioner, made the motion, and Tom Riley, Nebraska Compact Commissioner, seconded the motion. The motion passed unanimously.

Approval of the Minutes of the Fiftieth Annual Meeting

Lizzie Hickman, Compact Secretary, reported that an electronic copy of the draft minutes of the Fiftieth Annual Meeting was provided to the Administration and to Kansas and Nebraska staff on May 3, 2024. No corrections had been returned as of the meeting. Ms. Hickman submitted the draft minutes to the Administration for approval, unless anyone present had any corrections to submit or wished for the minutes to undergo a longer review period.

Tom Riley, Nebraska Compact Commissioner, moved to approve the Minutes of the Fiftieth Annual Meeting as submitted. Hannah Birge, Kansas Compact Advisor, seconded the motion. The motion passed unanimously.

Chair's Report

W. Don Nelson, Federal Compact Chair, noted that the past year had been largely uneventful within the Compact area.

Kansas Report

State Overview Report

Earl Lewis, Kansas Compact Commissioner and Chief Engineer of the Kansas Department of Agriculture, Division of Water Resources (KDA-DWR), began the Kansas report. He also noted that the past year had been fairly uneventful, both within the Compact area and across the state of Kansas.

- **Drought:** Some areas of Kansas were still struggling with drought, particularly in the southwest and south-central regions. Minimum desirable streamflow (MDS) water right administration had been active for nearly two years in some Kansas streams. However, some areas had recently received more significant amounts of precipitation. There had recently been flooding in southeast Kansas, and minor flood damage had even occurred in the Compact area.
- **Legislative Session:** The Kansas Legislature planned to resume in a special session to finalize a tax reduction plan. Regarding water, one bill adding flexibility to the Local Enhanced Management Area (LEMA) tool passed. The LEMA tool provides for local or regional water use

reduction with some flexibility. Water remained a focus topic in the Kansas Legislature, with the House Water Committee receiving much attention. Kansas legislators would be up for election in 2024.

- **Federal Funding:** Governor Kelly's administration continued to work through a subcabinet to leverage federal funding. Kansas had designated $200 million to match federal funding from the bipartisan infrastructure law, primarily for public water supply and wastewater projects. Efforts were underway to secure more funding for dam repairs and safety improvements. Through the US Department of Agriculture (USDA), Natural Resources Conservation Service (NRCS) Regional Conservation Partnership Program (RCPP), a five-year program, Kansas received a $25 million federal grant targeted towards western and south-central Kansas, areas with more use than water.
- **Kansas Water Plan:** Governor Kelly announced a new goal to develop a strategic plan for updating the Kansas Water Plan, similar to the Kansas Strategic Transportation Plan, by the end of the year. Consultants had been engaged to determine funding needs and project selection.
- **House Bill (HB) 2302:** The 2023 Kansas Legislature passed HB 2302, which added $35 million in water funding over five years. Mr. Lewis noted that increased funding typically revealed the significant demand for water projects, as applications routinely outpaced available funding.

Mr. Lewis then invited Amelia Lane, Regional Planning and Outreach Coordinator at the Kansas Water Office (KWO), to continue the Kansas report.

- **House Bill (HB) 2302:** Ms. Lane noted that HB 2302 had provided the KWO with $17 million to initiate a grant program, of which they had awarded $5 million for technical assistance and $12 million for water projects. However, they received applications for about $380 million worth of projects, highlighting the need for funding. The KWO was in the early stages of working with awardees and would continue to issue grants over the remainder of the five-year program.
- **Kansas Reservoir Protection Initiative (KRPI):** The KRPI is a KWO partnership project targeting reservoir sedimentation, primarily in riparian areas around Tuttle Creek Reservoir. Another signup period was to come in June 2024.
- **Water-Injection Dredging Pilot Project:** The KWO and the US Army Corps of Engineers (USACE) are partnering on this project at Tuttle Creek Reservoir. The project had been approved and was waiting on equipment.
- **Kansas Reservoir Flood and Sediment Study:** The KWO provided input on this USACE project, which had released its initial findings. The USACE was reviewing public comments, and the final report was anticipated in the coming months.

Topeka Field Office Report

Tyler Smith of the KDA-DWR Topeka Field Office continued the Kansas Report (Attachment A).

- **Climate Conditions:** Precipitation in the Big Blue River basin in Kansas was below normal for much of 2023. The same had been true for 2024 until the last few weeks, when precipitation had nearly reached normal levels. At the same time, temperatures were above normal, leading the basin back into drought conditions, where it largely remained.
- **Streamflow and Administration:** This was also reflected in the US Geological Survey (USGS) streamflow gages in the basin, where streamflow was often below the median for the period of record. As of the meeting, MDS administration remained in effect for 24 surface water rights in the Little Blue River basin.
- **New Development:** KDA-DWR received 32 new applications in the Big Blue River basin in 2023, an increase from 19 in 2022.

Compact Advisor Comments

Hannah Birge, Kansas Compact Advisor, thanked those who had traveled to attend the meeting.

Nebraska Report

State Overview Report

Tom Riley, Nebraska Compact Commissioner and Director of the Nebraska Department of Natural Resources (DNR), began the Nebraska report (Attachment B).

- **Water Supply Conditions:** Mr. Riley noted that parts of Nebraska remained dry, though recent rains had provided some relief after three years of below-normal precipitation. Long-term forecasts suggested a shift from El Niño to La Niña, which would bring drier conditions.
- **Statewide Water Planning:** DNR collaborates with Natural Resources Districts (NRDs) to develop integrated management plans (IMPs). 2024 marked the twentieth anniversary of the legislation which established this integrated planning approach, which combines surface water (prior appropriation) and groundwater (correlative rights). All 23 NRDs in the state either had completed or were completing an IMP.
- **Blue Basin Regional Groundwater Model:** A groundwater model including the Compact area was nearing completion. This model would be used to assist with future water quantity planning.
- **Voluntary Water Use Reporting:** DNR continued to gather valuable data for water planning through its voluntary online water use reporting tool.
- **Legislative and Funding Updates:** The Nebraska Legislature had adjourned. Mr. Riley noted that significant funding had been dedicated to water and natural resources, with DNR's budget now at $30 million. The agency also managed an additional $1 billion in funding, including the use of American Rescue Plan Act (ARPA) funds for various major projects, such as locating a secondary water source for the city of Lincoln, NE. DNR was also managing the Perkins County Canal project on the South Platte River. The Nebraska Legislature had previously dedicated $50 million in state funds to assist with aging irrigation district infrastructure. DNR was working with the Nebraska Legislature to develop bills regarding nitrogen-related issues in groundwater and surface water. The Legislature passed a bill eliminating a $10 processing fee for DNR.
- **Water Sustainability Fund:** This fund provides about $11 million annually for projects by the NRDs and others. Further information regarding current and past projects in the Compact area and across the state of Nebraska can be found in Attachment B.
- **Dam Safety:** Over half of Nebraska's dams are over fifty years old, requiring continuous investment in their flood control capabilities. The DNR Dam Safety Section conducts failure analyses using hydraulic modeling software.

Compact Advisor Comments

Larry Moore, Nebraska Compact Advisor, was unable to attend the meeting. Tom Riley, Nebraska Compact Commissioner, reflected on Mr. Moore's passion for the integration of water quantity and water quality management, soil health, and long-term water supply.

Water Administration Report

Justin Hladik, DNR Lincoln Field Office Supervisor, continued the Nebraska report, covering water administration activities (Attachment C). Mr. Hladik noted that 2023 had been a very dry year in both the Big Blue and Little Blue River basins, requiring DNR staff to spend significant time in the field checking administered appropriations, as pumping schedules and compliance checks were conducted throughout the summer.

Two new stream gages were added in the Big Blue River basin: one in Seward County and one on the West Fork, improving streamflow data for management decisions. As of the meeting, DNR had seven gages on the Big Blue River. The river was closed for a total of 29 days, with the first closure being very early, from June 16 to July 2. The annual mean flow at the USGS Big Blue River gage at Barneston, NE was significantly below the 91-year average.

Conditions were even drier in the Little Blue River basin, with the river closed for 78 days, including a 41-day closure during peak irrigation season. The USGS Little Blue River gage at Hollenberg, KS, near the state line, recorded a record low daily mean flow in August. The annual mean flow was significantly lover than the 50-year average. Most of the Little Blue River basin was in severe or moderate drought.

Tom Riley, Nebraska Compact Commissioner, added that the new gages were funded by ARPA funds secured by DNR to improve data collection for better decision-making. Cameras may be added to these gages in the future for additional monitoring. DNR also planned to work with the NRDs to monitor reservoirs.

Lower Big Blue Natural Resources District (NRD) Report

Scott Sobotka, General Manager of the Lower Big Blue NRD (District), presented the District report (Attachment D).

- **Groundwater Levels:** Spring 2024 static water level measurements showed declines of 1.33 feet District-wide since Spring 2023 and of 3.64 feet from the baseline. Compact wells had declined 1.22 feet from Spring 2023.
- **Moratorium on New Wells:** Due to continued drought and concerns about groundwater sustainability, a permanent moratorium on new well construction and expansion of irrigated acres was enacted in the District in June 2023, with the ultimate goal being for the moratorium to end once the District has developed updated groundwater management rules for subareas delineated by hydrogeology and development.
- **Water Sustainability Fund Projects:** Two Airborne Electromagnetic Hydrogeologic Mapping (AEM) projects had been completed, and an application for a third project was underway.
- **Lower Turkey Creek National Water Quality Initiative (NWQI) Project:** This water quality project targeting E.coli, atrazine, and nitrates was moving into the implementation phase. A conservation specialist would be hired to work with landowners on conservation practices.
- **Community-Based Planning:** The District worked with landowners and stakeholders on conservation practices and in-lake improvements in three public use area watersheds. See Attachment D for further details.
- **Watershed Structures:** The District manages 270 flood control and grade stabilization structures, many past their design life, in 13 watersheds. USDA Watershed and Flood Prevention Operations (WFPO) projects were underway in two watersheds. The District would be interested in partnering with Kansas on a WFPO project in the shared Mission Creek watershed.

Daniel Howell, Kansas member of the Water Quality Committee, asked about the conservation practices that would be targeted for landowner adoption in the NWQI project.

Little Blue Natural Resources District (NRD) Report

Tyler Goeschel, Assistant Manager of the Little Blue NRD (District), presented the District report (Attachment E).

- **Groundwater Levels:** Groundwater level data is collected in the District each spring. Groundwater levels in Geologic Area 1 (High Plains/Ogallala) had declined an average of 1.43 feet from 2022 to 2023. Groundwater levels in Geologic Area 2 (ancient paleo valley) had declined an average of 0.58 feet.

- **Irrigation Flow Meters:** Flow meters had been required on high-capacity irrigation wells in the District since 2017. These meters provided good annual irrigation data.
- **Irrigation Allocations:** The data revealed a long-term decline in aquifer levels, with a peak in 2019 followed by dry conditions. Rainfall had been significantly below average in recent years. At the end of 2023, the aquifer level was close to the trigger level which would require a stay on new high-capacity wells and a moratorium on expanding certified acres. Spring 2024 groundwater measurements were complete and would be presented to the board the following week. If aquifer levels remained below the trigger level for two years, allocations would go into effect. Irrigation allocations were currently set at 13 inches per year for five years, which was recognized as too high to stabilize the aquifer. Certified irrigated acres increased in 2023.
- **Water Quality (Nitrates):** Approximately 300 irrigation wells are tested for nitrates annually. See Attachment E for a map displaying level two areas (60% of wells over 7 ppm nitrates), which are subject to additional regulations like demonstration fields and soil sampling. Four areas, including Fairbury and an area near the Kansas border, were being upgraded to level three (60% of wells over 10 ppm), requiring expanded demonstration fields, soil sampling, and nitrogen inhibitor use.

Scott Sobotka, General Manager of the District, noted that the District received about $8 million in grants for projects including a flood control (WFPO) project on 32-mile Creek, an NWQI project on Big Sandy Creek, and a small dam repair cost-share program, which could include working with DNR to update dam hazard classifications. The Little Blue Valley Water Project was ongoing but faced potential legal challenges related to rural water deliveries to Kansas.

Upper Big Blue Natural Resources District (NRD) Report

David Eigenberg, General Manager of the Upper Big Blue NRD (District), began the District report (Attachment F). Mr. Eigenberg introduced three other District staff in attendance: Marie Krausnick, Assistant General Manager, Terry Julesgard, Water Department Manager, and Jack Wergin, Projects Department Manager. Mr. Eigenberg conveyed well wishes from Larry Moore, Nebraska Compact Advisor.

Mr. Julesgard continued the District report.

- **Well Drilling Activities**: 2023 saw a significant increase in new irrigation and livestock wells (126 permits issued: 85 new and 41 replacements), likely due to more small fields being irrigated.
- **Groundwater Levels:** Spring 2024 water level measurements showed an average decline from spring 2023, but levels were still 3.6 feet above the District's allocation trigger.
- **Certified Irrigated Acres:** An increase of 2,305 certified irrigated acres had occurred since January 1, 2023.
- **Groundwater Withdrawal**: The average water applied per acre in 2023 was 9.56 inches, which was greater than the historical average.
- **Groundwater Quality (Nitrates):** See Attachment F. A groundwater quality management zone north of York, NE was upgraded to phase two (over 7 ppm nitrates), bringing the total to four phase two areas and three phase three areas. Both phases require reporting, with phase three also requiring water sampling every three years. Collaboration with the University of Nebraska Medical Center was ongoing to examine other contaminants (such as arsenic, selenium, and uranium).
- **Project GROW:** The District leases 140 acres of the City of York, NE's wellfield, which was being farmed for organic alfalfa and cover crops to promote soil health.
- **Interseeding Project:** An interseeding project in collaboration with the Nature Conservancy and University of Nebraska Extension had ended, but the District now owned the equipment for demonstration purposes.

- **Agricultural Water Management:** Producers in phase two and three groundwater quality management zones are required to report soil moisture on one of their fields. The District provides evapotranspiration (ET) gages and soil moisture probes at half price to promote irrigation scheduling.
- **Groundwater Model:** The development, in collaboration with several other NRDs as well as DNR, of a transient Blue River Basin Groundwater Model had been completed, and the model was being used to evaluate large water user applications.
- **New District Employees:** The District had recently hired two new employees for the Water Department to promote soil health best management practices (BMPs) to regional producers.

Mr. Wergin continued the District report.

- **Stream Gages:** The District provided funding assistance to DNR for two new stream gages in the upper Big Blue River basin, on the North Fork at Staplehurst and on the West Fork near Grafton.
- **Point of Use Reverse Osmosis (RO) Filtration System:** The District was piloting a cost-share program for private well owners whose drinking water nitrates exceed the safe water standard set by the US Environmental Protection Agency (EPA), currently 10 ppm nitrates. The District provided 75% of the cost for materials and labor, up to $500.
- **Water Quality Management Plan (WQMP):** In 2020, the District-wide WQMP, which identified the Beaver Creek watershed as a target area, was accepted by the EPA. Increased cost-share for BMPs such as filter strips or cover crops is offered within the target area, with efforts to increase producer adoption.
- **Lake Hastings WQMP:** The City of Hastings, NE, the Little Blue NRD, and the Nebraska Department of Environment and Energy (NDEE) were working together with the District to address sediment and pollutants in Lake Hastings. The draft watershed plan was under review by the EPA. In-lake improvements and sediment removal were included in the plan, but significant sediment removal would require federal funding.
- **Nebraska Buffer Strip Program:** This program provides cost-share funds for landowners to establish vegetative buffer strips, with additional payment for buffer strips within the Beaver Creek WQMP target area, but adoption had been low.
- **Private Dams Program:** The District provides cost-share funds for private dam owners for repairs: 75% or up to $75,000. Demand remained high. The cost share maximum was recently increased from $50,000 due to rising construction costs.
- **Recreation Area Warning Sirens:** The District received a Hazard Mitigation Grant to install warning sirens at four of the District's recreation areas.
- **Hazard Mitigation Plan Update:** A five-year update to the Big Blue Multi-Jurisdictional Hazard Mitigation Plan was underway, with good public participation.

Earl Lewis, Kansas Compact Commissioner, asked whether the groundwater quality management zone "phases," their definitions, and their requirements were established at the state or NRD level. Mr. Julesgard noted that each NRD establishes its own groundwater quality management phases, typically based on nitrate levels, with increasing management and reporting requirements in the higher phases. However, the NRDs' authority to do so comes from state groundwater management statutes.

A question was asked about the equipment used for the interseeding project. Mr. Julesgard explained that it is a four-row interseeder used early in the growing season to establish cover crops alongside the cash crop, with benefits for producers who also have livestock in their operations. Air-seeded cover crop application was also common in the area. The District did not loan out its interseeding equipment due to liability and the small size of the unit.

Secretary's Report

Lizzie Hickman, Compact Secretary, presented the Secretary's report.

Ms. Hickman explained the process of compiling the annual report. The 2022 report was due this year but was not yet complete. Physical copies would be sent to W. Don Nelson, Federal Compact Chair; KDA-DWR; and Nebraska DNR, with a digital copy sent to the Compact's email list. Others needing print copies would need to request them. Ms. Hickman requested that digital copies of reports presented during the meeting be sent to her within the month.

Treasurer's Report and Budget

Bob Robles, Compact Treasurer and Assistant Director of DNR, presented the Treasurer's report (Attachment G).

Mr. Robles reported that there was not much to discuss financially this year. Minor budget increases were proposed for Fiscal Years (FY) 2024 and 2025 to adjust for inflation. The proposed budget, including these minor adjustments, was then presented to the Administration (Attachment G).

Earl Lewis, Kansas Compact Commissioner, moved to accept the budget as proposed. Tom Riley, Nebraska Compact Commissioner, seconded the motion. The motion passed unanimously.

US Geological Survey (USGS) Report

Jeremy Gehle, Compact Engineering Committee Chair, noted that Jason Lambrecht, USGS Nebraska Water Science Center, who typically presented the USGS report, was unable to attend the meeting, but copies of the written report were available (Attachment H).

Legal Committee Report

Stephanie Kramer, Legal Committee (Committee) member for Kansas and Chief Counsel for KDA, presented their report on two special assignments the Committee had been given at the previous year's meeting.

- **Disbursement of Funds:** The Committee recommended amending Article VII, Section 2 of the Compact rules to remove the requirement that disbursements be made by check, allowing for funds to be disbursed by the Treasurer or the Treasurer's designee upon approval of the Budget Committee Chair, with no direct mention of method.
- **Treasurer's Bond:** The Committee reviewed the requirement that the Treasurer furnish a bond. The Committee recommended that the current language of the Compact rules, stating "in an amount satisfactory to the Administration" be deemed sufficient, as it provides flexibility to the Administration. Example language from the Kansas-Oklahoma Arkansas River Commission's rules was provided as a guide if the Administration wished to set a specific threshold in the future.

Tom Riley, Nebraska Compact Commissioner, moved to accept both recommendations of the Committee. Earl Lewis, Kansas Compact Commissioner, seconded the motion. The motion passed unanimously.

Engineering Committee Report

Jeremy Gehle, Compact Engineering Committee (Committee) Chair and Water Administration and Permits Division Head for DNR, presented the Committee report (Attachment I). Mr. Gehle noted that the Committee had not received any special assignments that year.

- **Review of Streamflow Data:** Mr. Gehle reported on the Compact state line streamflow targets for the Big Blue and Little Blue Rivers, which are applicable from May 1 to September 30 of each year. In 2023, streamflow in the Big Blue River at the USGS gage at Barneston, NE was

below target flows for a total of 31 days. Streamflow in the Little Blue River at the USGS gage at Hollenberg, KS was below target flows for a total of 77 days. Furthermore, the Hollenberg gage recorded its lowest daily flow for its 49 years of record in 2023. A little further upstream, the USGS gage on the Little Blue River near Fairbury, NE, which has 101 years of record, also experienced its lowest recorded daily flow, even lower than flows recorded during the Dust Bowl era. Though the Barneston gage on the Big Blue River did not set a new low for its 91 years of record in 2023, it also experienced significantly low flows.

- **Review of Groundwater Data:** Mr. Gehle noted that the Committee report (Attachment I) contains a review of groundwater level data collected by the Lower Big Blue NRD, presented as Exhibit C.
- **Review of Wells in Regulatory Reaches:** Mr. Gehle noted that no new wells had been added within the regulatory reaches of the Big Blue and Little Blue Rivers in the current century. In the year 2000, the Big Blue River regulatory reach had 29 wells; as of 2024, there were only 18, with 11 having been decommissioned. In the Little Blue River regulatory reach, there were 17 wells in 2000; in 2024, there was only one well remaining, with 16 having been decommissioned.

Mr. Gehle expressed thanks for DNR's stream gaging partners in the basin: the Upper Big Blue and Little Blue NRDs, noting that this partnership helps both DNR and the NRDs perform their jobs with the best available data.

Water Quality Committee Report

Sara Starostka, Water Quality Committee (Committee) member for Nebraska and Planning and Aid Division Manager for NDEE, began the Committee report (Attachment K).

- **Committee Meeting:** The Water Quality Committee met in early April, with representatives from NDEE, the Kansas Department of Health and Environment (KDHE), and all three NRDs in the basin in attendance. See Attachment J for Committee meeting agenda items.
- **Nebraska Water Quality Standards:** Proposed changes to Title 117 (water quality standards) were being finalized during Nebraska's triannual review.
- **Water Quality Assessments:** The 2022 Integrated Report was partially approved by the EPA. The 2024 Integrated Report was being finalized. Due to methodology changes, the number of listed atrazine impairments may increase.
- **Nitrate Study:** The final report for an NDEE study regarding nitrates in drinking water, including private wells, was under development. Free nitrate testing was offered to private well owners through March 2024; about 4500 test kits were requested, and about 3300 were returned to NDEE.
- **ARPA Funding for Reverse Osmosis (RO) Filtration Systems:** NDEE set aside about $22 million for a private well RO filtration system rebate program. Private well owners may apply for funds through the end of June 2024. NDEE was reaching out to private well owners who had submitted samples with elevated nitrate levels during the NDEE study.
- **Wastewater Treatment Plant Optimization Study:** Plans were underway for an NDEE optimization study for wastewater treatment plants in the Compact area.

Tom Stiles, Committee member for Kansas and Bureau of Water Director for KDHE, continued the Committee report (Attachment L).

- **Water Quality Standards:** Both states were in the midst of triennial reviews, often directly adopting the EPA guidelines. Both states utilized a variance procedure for ammonia in small municipal lagoons.
- **Section 303D Impaired Waters List:** Kansas submitted its list on April 1st. There was an ongoing debate with the EPA regarding the listing and delisting of atrazine using a binomial

approach. Common listings in Kansas included arsenic, lead, total suspended solids, and selenium.

- **Total Maximum Daily Loads (TMDLs):** TMDLs were in place for various pollutants, including nutrients in Tuttle Creek Reservoir and the Big Blue and Little Blue Rivers.
- **Non-Point Source Pollution:** There was a reinvigorated bi-state discussion with Nebraska on joint non-point source ventures and potential federal funding opportunities.
- **Infrastructure Financing:** Small towns in Kansas received grants for wastewater system improvements. Riley County received grant money for non-discharging wastewater facilities. Marysville was developing a non-discharging lagoon system.
- **PFAS:** Stream sampling (see Attachment L) indicated that PFAS was generally not a significant issue in Kansas surface waters within the Big Blue River basin.

Old Business

There was no old business.

New Business

There was no new business.

Committee Membership and Special Assignments

The Committee membership was as follows:

Budget Committee – Bob Robles (NE), Lizzie Hickman (KS)
Legal Committee – Emily Rose (NE), Stephanie Kramer (KS)
Engineering Committee – Jeremy Gehle (NE), Lizzie Hickman (KS)
Water Quality Committee – Daniel Howell (KS), Tara Anderson (NE), Sarah Starostka (NE), Tom Stiles (KS)

Adjournment

Tom Riley, Nebraska Compact Commissioner, moved that the meeting be adjourned. Earl Lewis, Kansas Compact Commissioner, seconded the motion. The motion passed unanimously, and the meeting was adjourned.

Earl D. Lewis Jr., Kansas Commissioner

for Jesse Bradley

Jesse Bradley, Nebraska Commissioner

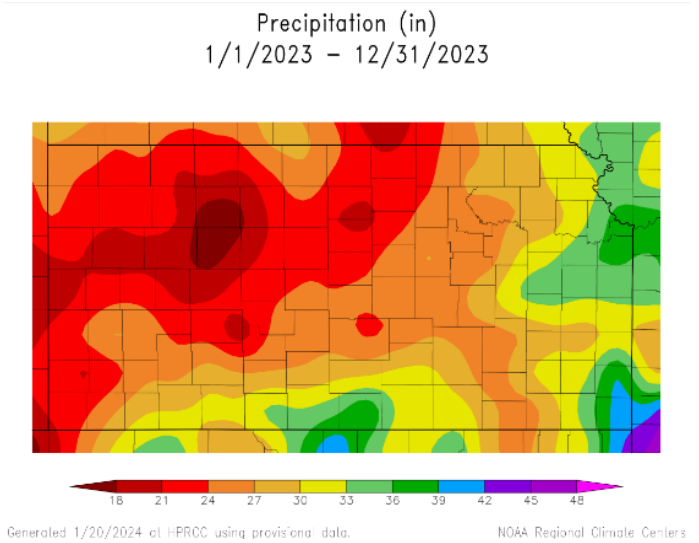
W. Don Nelson, Compact Chair

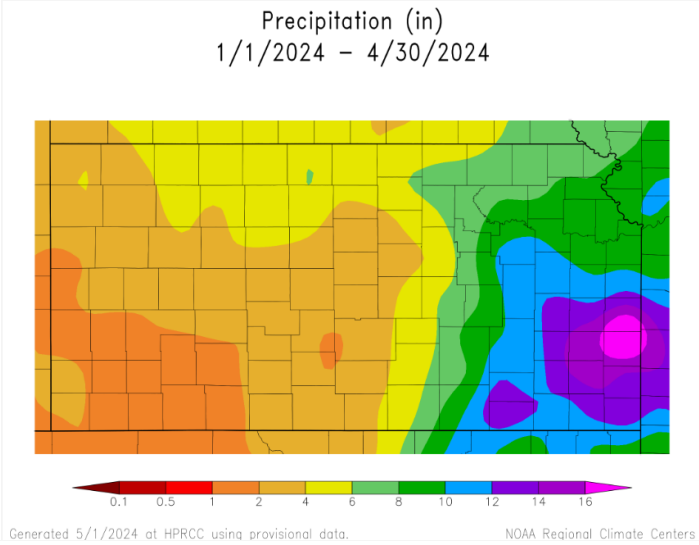
Attachment A

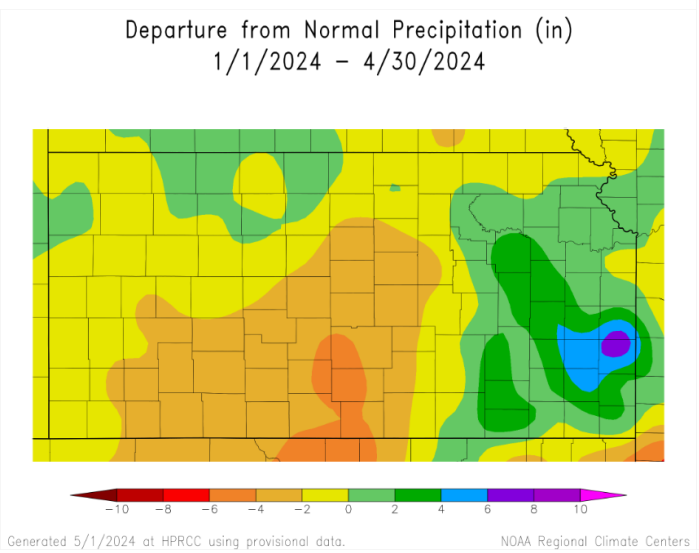
Kansas-Nebraska Big Blue River Compact Meeting, May 8, 2024
Report by Kansas Department of Agriculture, Division of Water Resources
Topeka Field Office

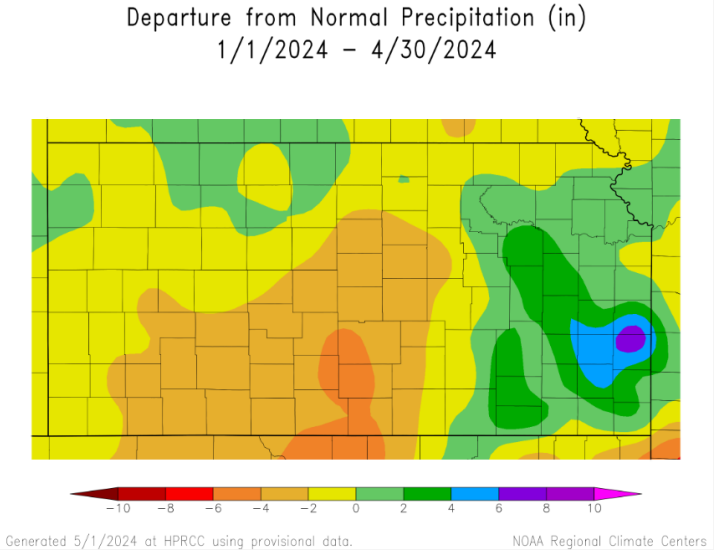
Climatic Conditions - Precipitation & Temperatures

Precipitation was mostly uniform across the Big Blue River basin during the 2023 calendar year, although that was rather less than normal. The High Plains Regional Climate Center reported between 21 and 30 inches of precipitation in calendar year 2023 across the entire Big and Little Blue River basin area in Kansas, including the tributary basins. This represents 70 to 85% of normal precipitation for the year. 2023 precipitation ranged from 4 inches below normal to 8 inches below normal. In 2024 so far, the Kansas portion of the basin has received 4 to 6 inches of precipitation, which is 2 inches below to 2 inch above normal precipitation.

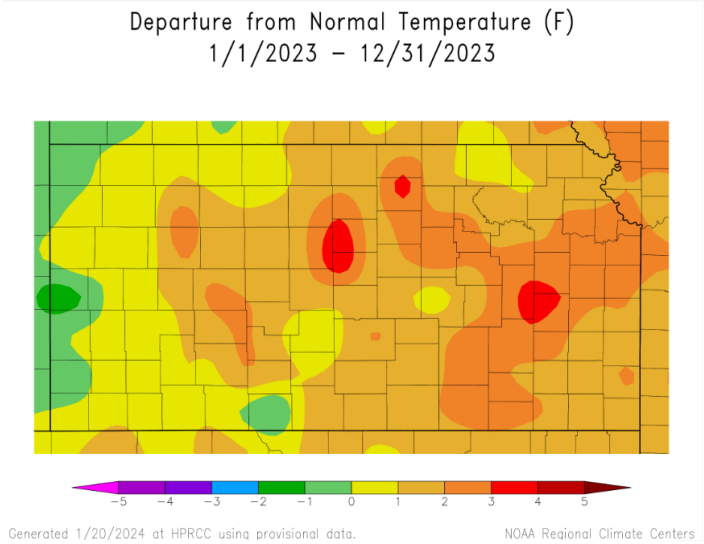


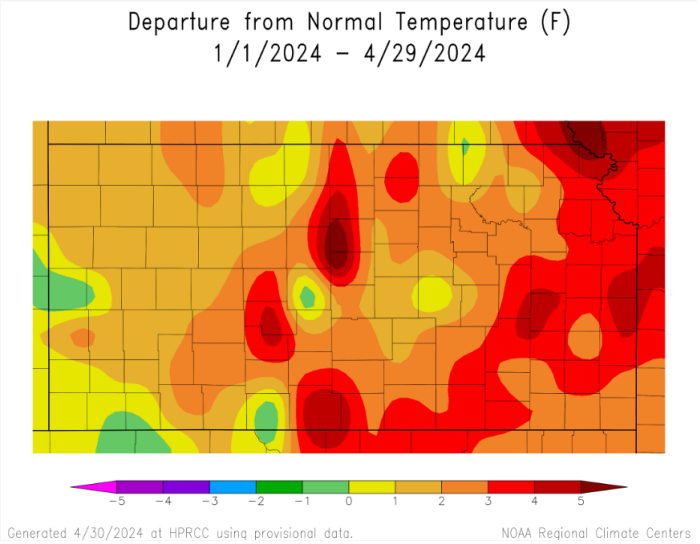


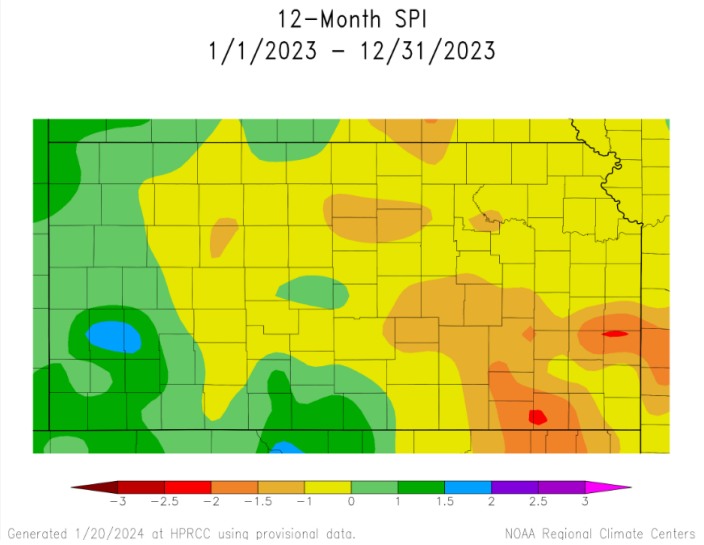


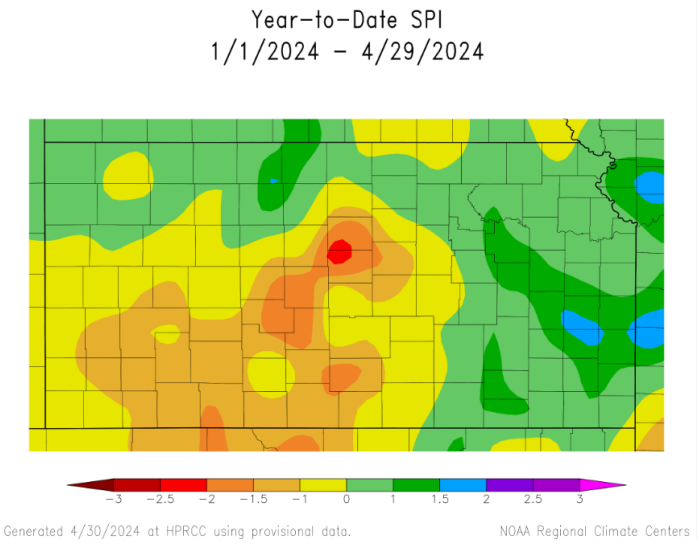


Temperatures during calendar year 2023 ranged from normal to 2 degrees warmer than normal. So far in 2024, temperatures have ranged from normal to 3 degree warmer than normal. We saw last year's trends continue, which is reflected in the Standardized Precipitation Index (SPI). The SPI fits precipitation data to a Gamma distribution and then transforms it to a normal distribution (bell curve), resulting in values independent of location and magnitude, allowing different seasons and climate areas to be compared. Ranges greater than 1 in either direction on the scale mark moderate drought and moderately wet conditions, respectively. In 2023, the SPI of the central Big Blue River basin did continue the trend of the drought being more prominent. That trend continued in 2024 until the very recent precipitation event occurred.









Streamflow and Administration Within the Big Blue Compact Basin

Statistics reflect 39 years of discharge data at the USGS gage at Marysville, Kansas (Big Blue River) and 65 years at the USGS gage near Barnes, Kansas (Little Blue River).

2023 streamflow data shows that the peak runoff periods occurred in spring and a couple intermittent high points during the summer but overall flows were quite lower than normal. So far in 2024, streamflow has been significantly lower than the median value at both gages.

From September 9, 2022 through March 15, 2023, 21 surface water rights junior in priority to Kansas's Minimum Desirable Streamflow (MDS) Statute (K.S.A. 82a-703) were under administration in the Little Blue River basin (including the tributary Mill Creek basin) upstream of the USGS stream discharge gage near Barnes, Kansas. Those same 21 surface water rights became subject to administration again on April 18, 2023. On June 20, 2023, administration orders were issued for two additional surface water rights. These were new water right applications which had been approved after MDS administration began in April. MDS administration on these 23 surface water rights was rescinded on February 7, 2024. On April 17, 2024, MDS administration began on 24 surface water rights: the 23 surface water rights from the previous administration plus one new approved application. Administration on these 24 surface water rights remains in effect.

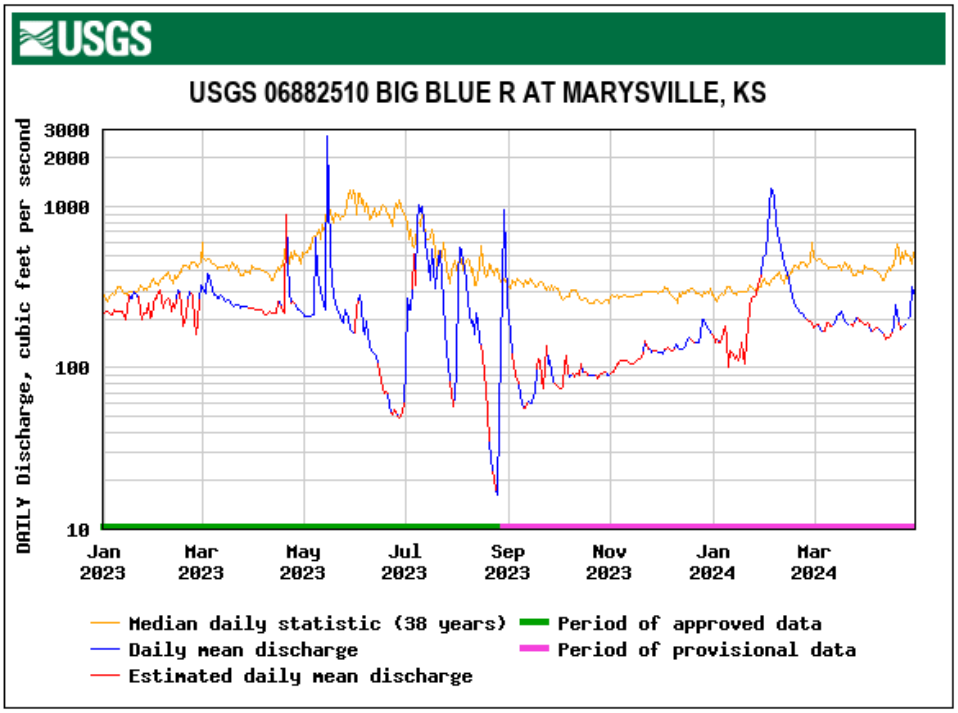
Streamflow at the USGS discharge gage on the Big Blue River at Marysville, Kansas has remained sufficient to avoid MDS administration of surface water rights in the Big Blue River basin upstream of that gage.

Minimum Desirable Streamflows (cfs)

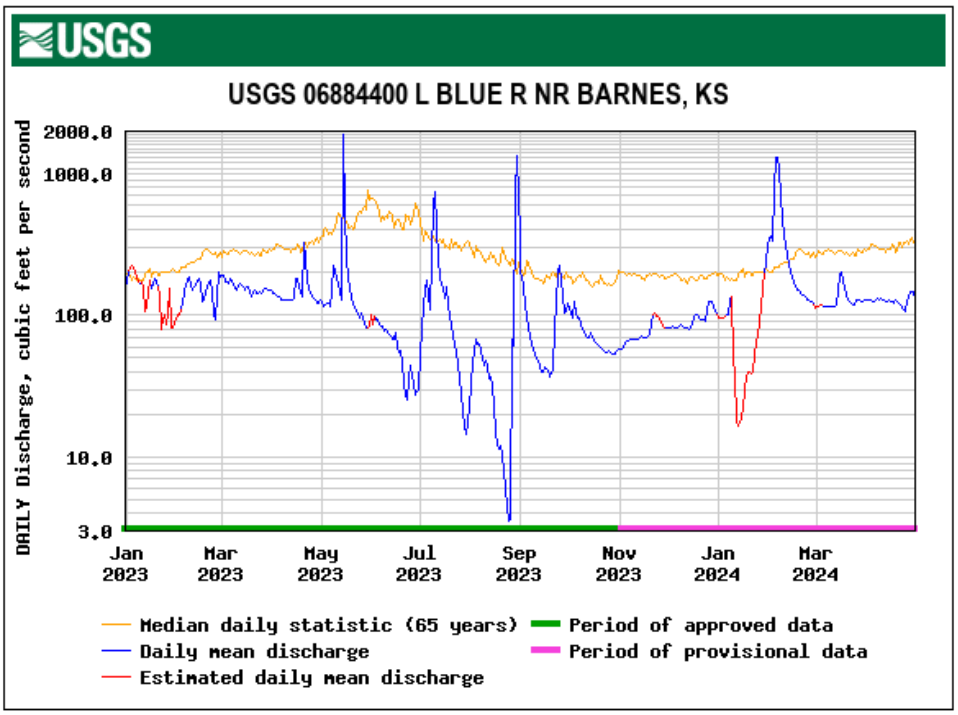
Watercourse	Month											
	J	F	M	A	M	J	J	A	S	O	N	D
Big Blue												
Marysville	100	100	125	150	150(d)	150(d)	80	90	65	80	80	80
Little Blue												
Barnes	100	100	125	150	150(d)	150(d)	75	80	60	80	80	80

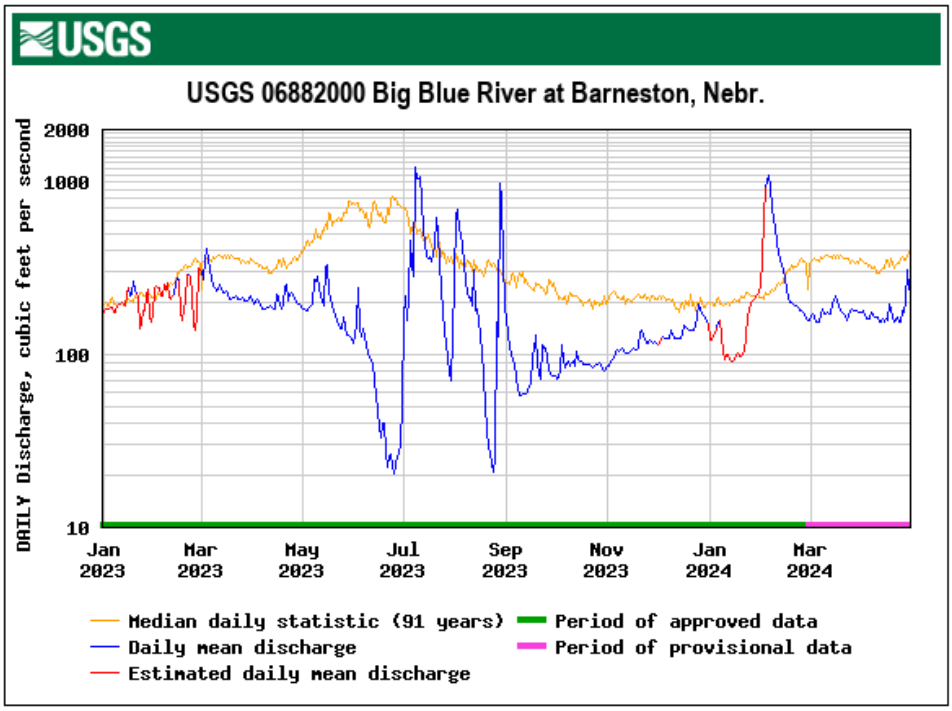
(d) Subject to the stateline flows contained in the Blue River Compact.

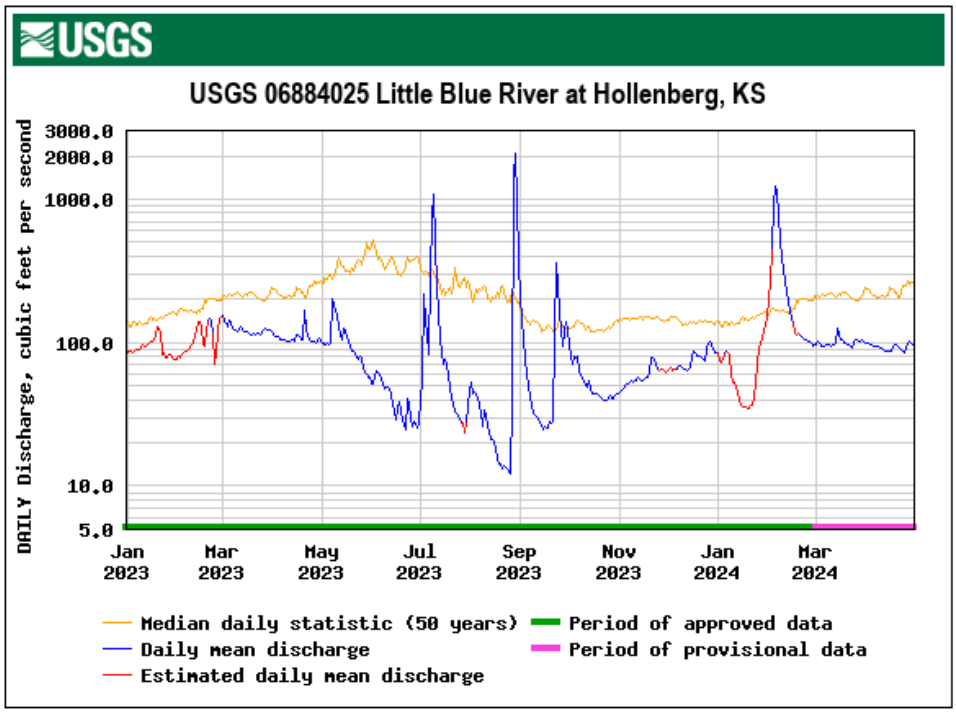
USGS 06882510 BIG BLUE R AT MARYSVILLE, KS



USGS 06884400 L BLUE R NR BARNES, KS







The Compact gages at Barneston, Nebraska (Big Blue River) and Hollenberg, Kansas (Little Blue River) experienced similar conditions throughout 2023 as well. So far in 2024, flows have remained below the median daily statistic. Little Blue River flows have been below the MDS threshold values and administration orders are in effect for surface water rights and permits in the Little Blue River and Mills Creek basins. There has been no water right administration within the Big Blue River or Black Vermillion River basins.

Compliance and Enforcement Activities

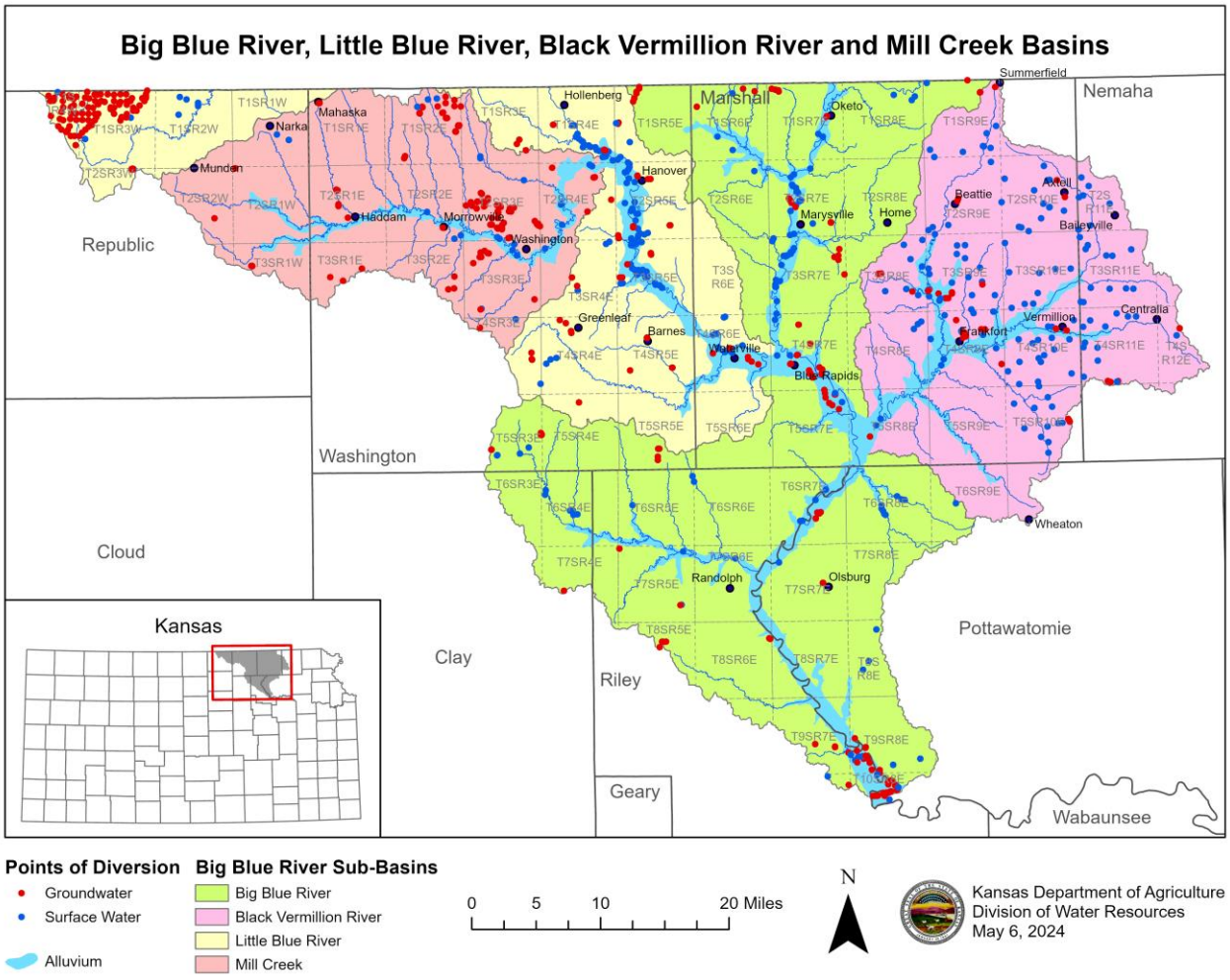
No formal Cease and Desist (CD) Orders, Notices of Non-Compliance (NONCs), or civil penalty orders were issued in the Compact area in 2022 or in 2023 to date.

In 2023, 11 civil penalty orders were issued in the larger Topeka Field Office area to water users who exceeded their authorized quantity or for other compliance violations. No NONCs or CDs were issued in the larger Topeka Field Office area in 2023. No NONCs, CDs, or civil penalty orders have been issued in the larger Topeka Field Office area in 2024 to date.

New Development

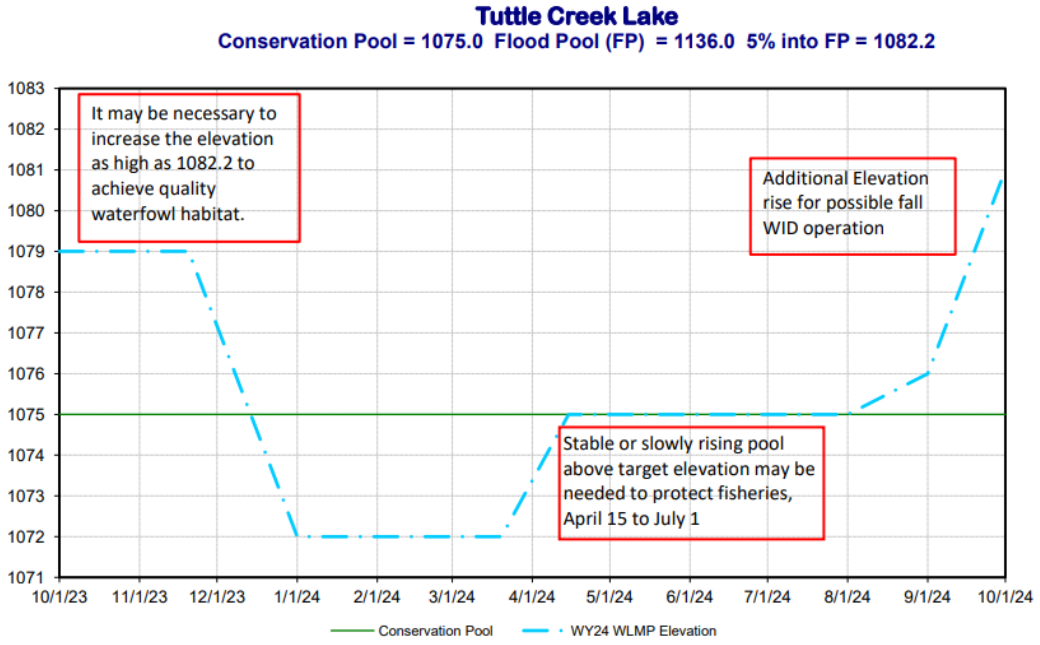
In 2023, KDA-DWR received 32 new applications (19 for appropriated water rights, 6 for temporary permits, and 7 for term permits) within the Compact area. This is an increase from the 19 applications received in 2022 (13 for appropriated water rights, 5 for temporary permits, and 1 for a term permit) within the Compact area. In 2024 to date, KDA-DWR has received 10 new applications (8 for appropriated water rights and 2 for term permits) within the Compact area.

In 2023, KDA-DWR approved 16 applications (6 for appropriated water rights, 8 for temporary permits, and 2 for term permits) within the Compact area. In 2022, KDA-DWR had approved 12 applications (8 for appropriated water rights and 4 for temporary permits) within the Compact area. In 2024 to date, KDA-DWR has approved 5 applications (3 for appropriated water rights and 2 for term permits) within the Compact area.



Tuttle Creek Reservoir

Lake Level Management plans were approved in fall of 2023 and are the same as the previous approved versions. The main focus is support of spawning fish and wildlife habitat.



	Time	Elevation	Comment
TUTTLE CREEK LAKE	Oct 1 – Nov 20	1079-1082.2	Attract migrating waterfowl, achieve quality habitat
	Nov 21 -- Mar 20	1072	Reduce ice damage potential and provide water storage, then hold through Mar 20
	Mar 20 – Apr 15	1075	Rise to reach top of conservation pool and enhance boating then hold through Sep 1
	Apr 15 – July 1	1082.2 max	Evacuate flood water to enhance crappie population. Protect tern and plover nests on the Kansas River
	July 1 – Sep 1	1075	Maintain conservation pool to re-vegetate shoreline. Consideration for navigation.
	Sep 1 – Sep 30	1079	Rise to inundate wetland habitat and attract migrating waterfowl

Attachment B

Nebraska State Report
Big Blue River Compact 51st Annual Meeting

May 8, 2024

Introduction

The State of Nebraska presents the following report to the Big Blue River Compact Administration in accordance with the Compact, which was entered into to promote interstate comity between the States of Nebraska and Kansas; to achieve an equitable apportionment of the waters of the Big Blue River Basin between the two States and to promote orderly development thereof; and to encourage continuation of the active pollution-abatement programs in each of the two States and to seek further reduction in both natural and man-made pollution of the waters of the Big Blue River Basin (*Neb. Rev. Stat.* § 1-115). To that end, the following report summarizes water supply conditions, integrated water management efforts, and other activities taking place in the Nebraska portion of the Compact area during the year 2023.

Water Supply Conditions

In the 2023 water year, the water supply conditions deteriorated slightly from 2022. Precipitation was again much below average; there was extensive water administration for the Blue River Compact. Appropriators junior to the Compact experienced three rounds of closure on the Little Blue River beginning in mid-June and ending mid-September, while junior appropriators along the Big Blue River experienced four rounds of closure through the same timeframe.

During the 2024 water year to date, both the Little Blue and Big Blue basins have received below normal precipitation, and have areas of moderate to severe drought, according to the U.S. Drought Monitor. Discharge at Hollenberg and Barneston were near all-time minimums prior to precipitation events over the last two weeks. Current discharge (5/7/2024) at Barneston on the Big Blue is 1,500 CFS while the discharge at Hollenberg is 528 CFS. The current U.S. Monthly Drought Outlook (April 30th, 2024) indicates that drought conditions will remain but improve, or for portions of the basin, the drought designation will be removed entirely.

Monitoring and Compliance

NeDNR field staff spent the majority of their summer conducting field inspections and compliance checks. Many appropriations in the Blue River Basin were inspected multiple times throughout the year. Pump schedules were issued to all senior irrigators that were found irrigating. Our field staff found minimal issues with compliance, and issues were traced to slow mail delivery, tenant changes, and changes of ownership.

Overview of Statewide Water Planning

In 2023, the Water Planning Division continued to collaborate with Nebraska's Natural Resources Districts (NRDs) on integrated water management efforts across the state. At this time, all twenty-three NRDs have an Integrated Management Plan either adopted or in development. Important achievements by the Water Planning Division in 2023 include completion of the Upper Platte Basin Robust Review analysis, and the Republican Basin-Wide Plan 5-yr technical analysis. NeDNR has also been working in partnership with NRDs to develop and implement drought plans in many areas of the state, including the Upper and Lower Platte Basins and the Republican Basin.

Integrated Water Management in the Blue River Basins

Blue River Basin Planning

In 2023, the Department, along with Tri-Basin NRD, Little Blue NRD, and Lower Big Blue NRD, continued implementation of voluntary IMPs in the area. To help improve coordination and communication, the three Blue Basin NRDs and the Department have established a joint annual meeting to share data, develop tools, and collaborate on research and studies.

Blue Basin Regional Groundwater Model

The Blue Basin NRDs and the Department have partnered to fund a project to update the Blue Basin Regional Groundwater Model. Model calibration and documentation wrapped up in 2023. Currently, the Department is reviewing the model and associated documentation in preparation for a fully appropriated basin analysis, which will occur in 2025.

Voluntary Water Use Reporting

To compliment integrated management planning activities, the Department continues to utilize our voluntary online water use-reporting tool that is being used by water users throughout the State of Nebraska. We continue to be pleased with these response rates, which shows interest from the community in collaborative monitoring of surface water use. The Department will continue requesting this data across the State moving forward.

Legislative Updates

The 108th Legislature adjourned June 1st, 2023, on Day 88 of the 90-day session. Filibusters led by a few senators slowed overall progress, resulting in a total of 291 bills being amended into just 33 bills and 19 appropriation bills, that were passed into law. No bills directly affecting water resources management in the Basin were passed.

The 60-day Second Session of the 108th Legislature concluded on April 18th, 2024.

Water Sustainability Fund

The Nebraska Water Sustainability Fund, established in 2014, accepted its nineth round of applications in March 2023. The Department reviewed the applications and moved nineteen forward to the Nebraska Natural Resources Commission. The Commission approved thirteen of those applications, which resulted in about $11.3 million of new funding for water sustainability projects and studies.

Sponsors of projects that were previously approved by the Commission submit annual reports that briefly describe project status, accomplishments, and plans for the next year. The annual reports are available to the public on the Commission's website (https://nrc.nebraska.gov/water-sustainability-fund-reports). The tenth round of applications for the Water Sustainability Fund were due between March 16-31, 2024. The Commission is anticipating that $11 million will be available for new applications.

Three groundwater recharge projects have been completed in the Little Blue NRD. When combined, they received nearly half a million dollars in Water Sustainability Funds. A Hydrologic Assessment project was awarded $85,800 and a project to construct a new Public Water Supply was awarded $3,905,655. In addition, a major nitrate and uranium mitigation project in the City of Hastings, Nebraska was funded over four million dollars. The Upper Big Blue NRD was awarded $105,000 for development of water use allocation software and $167,553 for a nitrate accumulation study. The Lower Big Blue NRD was awarded $1,788,300 for a Watershed Flood Prevention & Operations (WFPO) project on Little Indian Creek and $465,000 for two Airborne Electromagnetic Hydrogeologic Mapping projects. Table 1 summarizes the Water Sustainability Fund projects located within the Blue River Basins.

The Nebraska Natural Resources Commission has published a GIS storymap that summarizes the program and projects that it has funded. That storymap is available here: https://gis.ne.gov/portal/apps/storymaps/stories/c44608bb0b3d468cb4da9e6912c4fb6a.

Table 1. Summary of Water Sustainability Fund projects in the Blue River Basins

Water Sustainability Fund Projects in the Little Blue and Big Blue River Basins					
Year Funded	*Project Score*	*Project Number*	*Applicant*	*Project Title*	*Funded Amount*
2015	47	4117	City of Hastings (Utilities)	Aquifer Storage and Restoration Nitrate and Uranium Control Project, Hastings, Nebraska	$4,410,000
2016	42	4146	Little Blue NRD	Instream Weir Stabilization/Recharge Pilot Project	$100,979
2016	42	4147	Little Blue NRD	Low-head Embankment Stabilization/Recharge Pilot Project	$100,153
2017	44	5197	Little Blue NRD	LBNRD Oxbow Reconnections for Groundwater Recharge	$389,820
2019	47	5241	Upper Big Blue NRD	UBBNRD Allocation Software	$105,000
2021	36	5322	Upper Big Blue NRD	Nitrate Accumulation Study	$167,553
2022	45	10012	Little Blue NRD	Hydrologic Assessment	$85,800
2022	58	10013	Lower Big Blue NRD	Little Indian Creek WFPO	$1,788,300
2022	31	10036	Lower Big Blue NRD	Airborne Electromagnetic Hydrologic Mapping	$216,000
2023	41	10061	Lower Big Blue NRD	Airborne Electromagnetic Hydrologic Mapping	$249,999
2023	51	10066	Lower Big Blue NRD	Public Water Project	$3,919,500

Dam Safety

The Dam Safety Section continues to regulate and inspect 615 jurisdictional dams in the Blue River Basin. Corrosion of old corrugated metal pipe (CMP) spillway conduits continues to be a significant concern in the basin. In 2023, rusty CMP conduits were sliplined with new HDPE pipes at four watershed dams in the basin.

Figure 1. Comparison of photos taken during inspection of a NRD dam in 2019 (left) and 2023 (right), illustrating the replaced riser and conduit that was sliplined in 2023.

Also worth noting is the Dam Safety Section is in a multiyear process of reevaluating the hazard potential classifications of all dams in the Blue Basin in Nebraska. The first step in the process is performing a screening-level assessment and developing dam failure inundation boundaries for each dam using DSS-WISE Lite hydraulic modeling software.

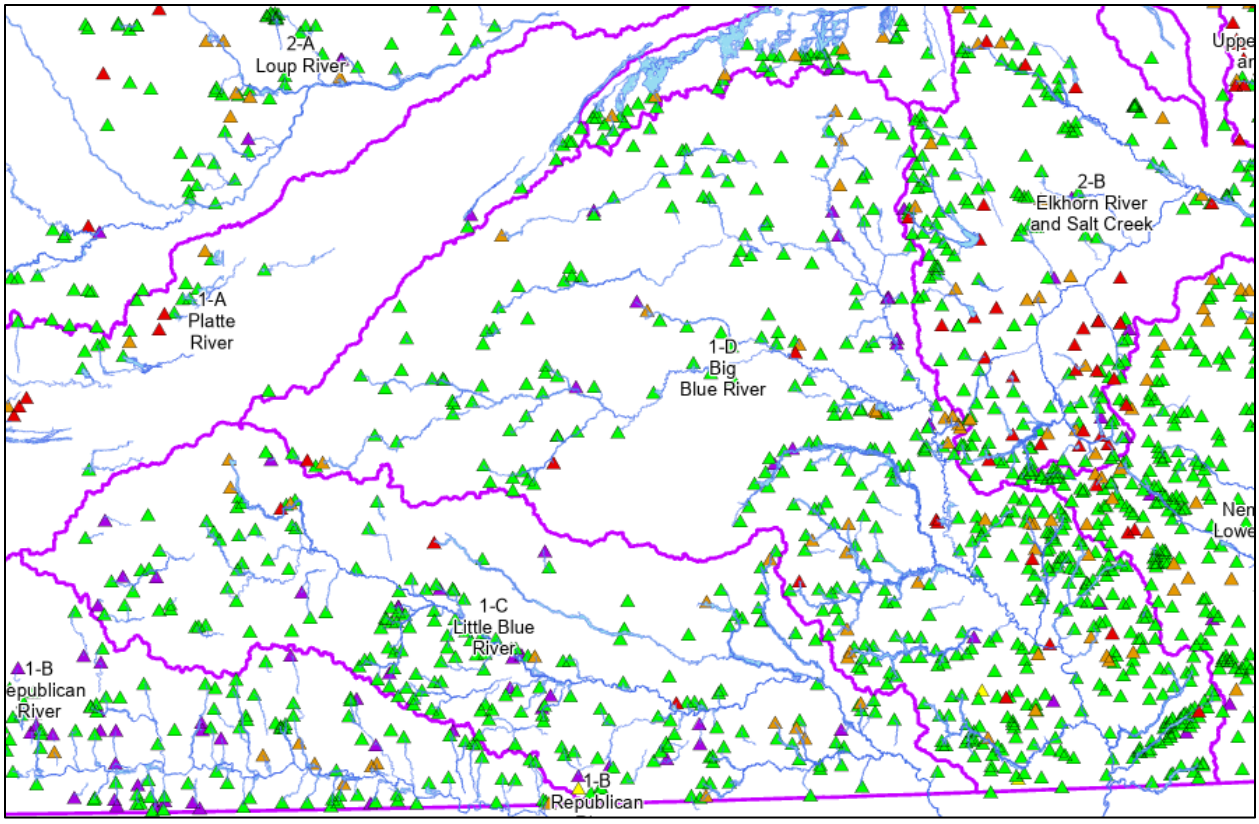


Figure 2. Dam failure inundation boundaries have been developed for 530 of the 615 dams in the Blue River Basin.

Conclusion

Nebraska would like to thank Kansas for their continued partnership in proactively managing the waters of the Blue River Basins. We look forward to ongoing cooperation in the successful administration of the Compact.

Attachment C

2024 BRC Meeting

Big Blue River

Area consists of approximately 4,447 square miles upstream of the Barneston, Ne gage

This year we added two new stream gages on the Big Blue River. The first site is near Staplehurst in Seward County. This gage will be accounting for about 642 square miles of the northern part of the Big Blue River upstream of the confluence of Lincoln Creek. This gage is in a local water administration hot spot with some senior appropriators, and once we get our rating table fine-tuned it will help our field office a lot to see the stage/discharge during periods of water administration to help with decision making. The other is on the West Fork of the Big Blue River in Fillmore County. This West Fork site will account for about 549 square miles of drainage and is in an area that does not have much stream data available and will help us make water administration decisions.

DNR now operates 7 gages on the Big Blue River- One at Surprise, Staplehurst, Seward and Beatrice. We also have a few gages on tributaries, one on Lincoln Creek, one on the West Fork of the Big Blue River and one on Turkey Creek. The USGS operates four additional sites, including the gage at Barneston.

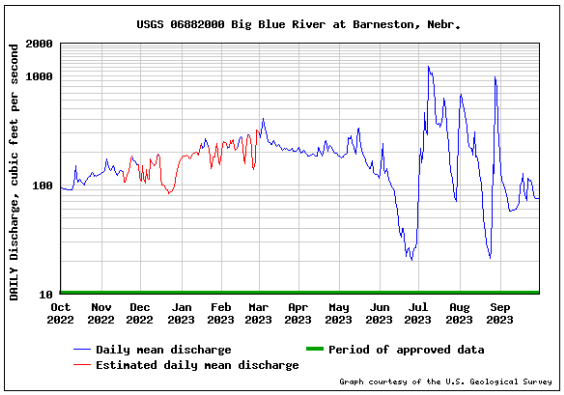
From May 1-September 30 we were closed **29** days total

Closed	Open	#of days
6/16	7/2	16
7/29	7/31	2
8/21	8/28	7
9/11	9/25	4

The WY2023 annual mean at the Barneston gage was 189.4cfs, the last 91 years annual mean averaged out to 848.2cfs, which is about 22% of “normal.”

SUMMARY STATISTICS

	Water Year 2023		Water Years 1933 - 2023	
Annual total	69,140			
Annual mean	189.4		848.2	
Highest annual mean			2,781	1993
Lowest annual mean			115.0	1934
Highest daily mean	1,220	Jul 08	50,000	Jun 09, 1941
Lowest daily mean	20.3	Jun 25	1.00	Nov 30, 1945
Annual 7-day minimum	23.7	Jun 21	15.1	Aug 03, 1934
Maximum peak flow	1,350	Jul 08	57,700	Jun 09, 1941
Maximum peak stage	5.85	Jul 08	34.30[a]	Jun 09, 1941
Annual runoff (cfsm)	0.043		0.191	
Annual runoff (inches)	0.578		2.59	
10 percent exceeds	293.4		1,720	
50 percent exceeds	169.0		285.0	
90 percent exceeds	73.0		110.0	



Little Blue River

Area consists of approximately 2,752 square miles upstream of the Hollenberg, Ks gage

DNR operates 3 gages in the Little Blue Basin. One on the Little Blue River in Hebron, one on Big Sandy Creek and one on Rose Creek. The USGS has four additional gages in the Little Blue Basin, including Hollenberg, Ks.

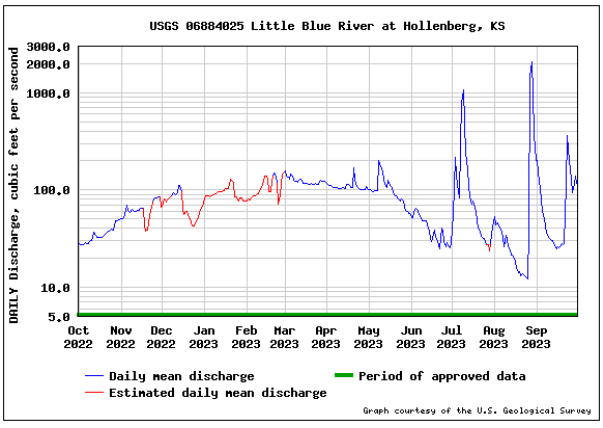
From May 1-September 30 we were closed **78** days total

Closed	Open	#of days
6/14	7/3	19
7/18	8/28	41
9/7	9/25	18

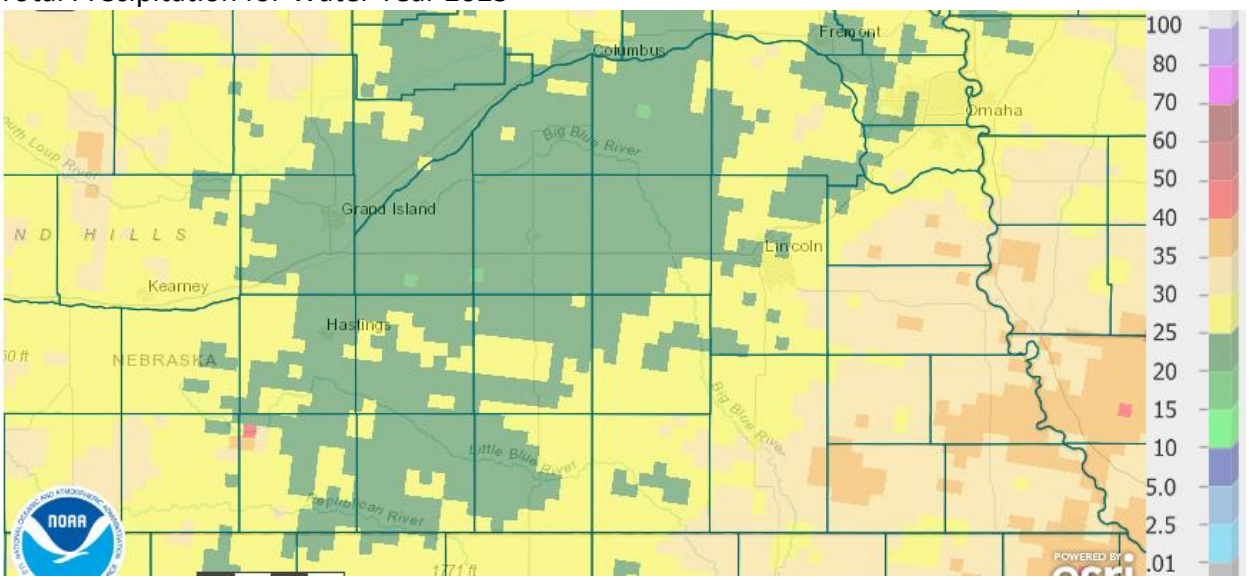
The WY2023 annual mean at the Hollenberg gage was 96.8cfs. The last 50 years annual mean averaged out to 476.3cfs, which is about 20% of "normal." Ill let Mr. Lambrecht talk more about this, but it is worth noting that we logged a new record for lowest daily mean on August 25 of 12.2cfs and 3 days later we logged the highest daily mean of 2,060cfs. We measured the flow in the intake of the irrigation systems when we came across an irrigator running, and issued pump schedules to every senior appropriator we came across that was running during periods of water administration. This applies to both river basins, but once we have documented our first field observation on each individual appropriation, we revisit almost all of these sites until the end of September if the target flows are not met at the state line gage. We make it a point to have a DNR vehicle in the area a few times per week on each stretch of the river, so the farmers know we are still actively monitoring surface water use.

SUMMARY STATISTICS

	Water Year 2023		Water Years 1974 - 2023	
Annual total	35,340			
Annual mean	96.8		476.3	
Highest annual mean			1,891	1993
Lowest annual mean			96.8	2023
Highest daily mean	2,060	Aug 28	39,300	Jul 26, 1992
Lowest daily mean	12.2	Aug 25	12.2	Aug 25, 2023
Annual 7-day minimum	13.2	Aug 19	13.2	Aug 19, 2023
Maximum peak flow	2,370	Aug 28	59,200	May 07, 2015
Maximum peak stage	5.69	Aug 28	23.07	Oct 12, 1973
Annual runoff (cfsm)	0.035		0.172	
Annual runoff (inches)	0.478		2.34	
10 percent exceeds	132.0		787.9	
50 percent exceeds	78.8		185.0	
90 percent exceeds	27.8		93.0	

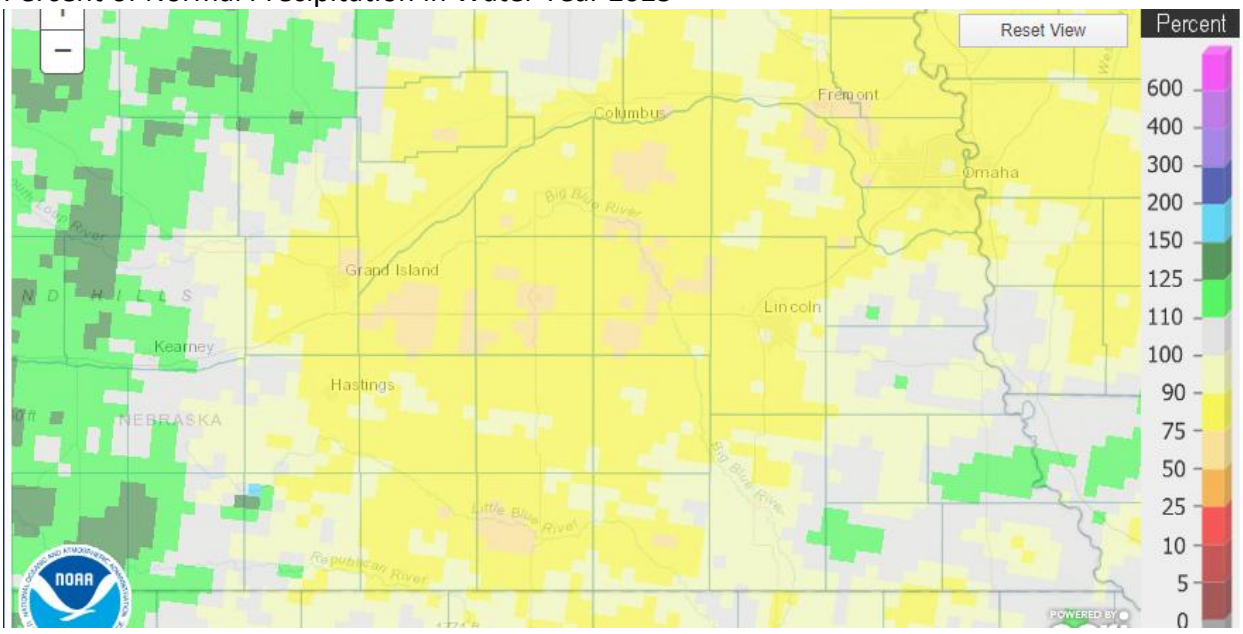


Total Precipitation for Water Year 2023



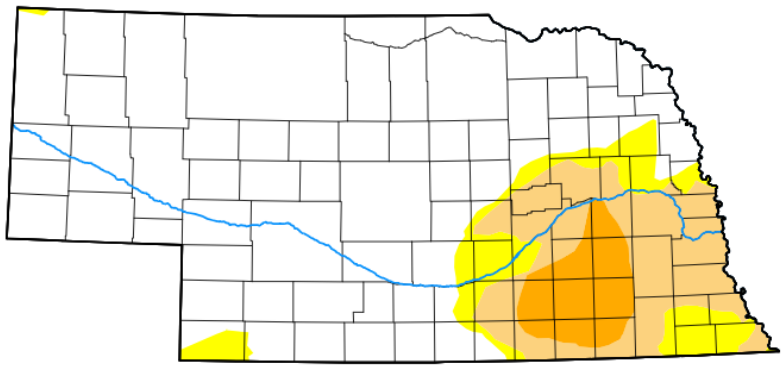
Most of the Big Blue and Little Blue basin received 20-30 inches of precipitation

Percent of Normal Precipitation in Water Year 2023



Most of the Big Blue and Little Blue Basin received 50-90% of normal annual precipitation

Current Drought Map May 2, 2024



Map released: Thurs. May 2, 2024

Data valid: April 30, 2024 at 8 a.m. EDT

Intensity

- None
- D0 (Abnormally Dry)
- D1 (Moderate Drought)
- D2 (Severe Drought)
- D3 (Extreme Drought)
- D4 (Exceptional Drought)
- No Data

Authors

United States and Puerto Rico Author(s):

Curtis Riganti, National Drought Mitigati

Pacific Islands and Virgin Islands Author(s):

Lindsay Johnson, National Drought Miti

Attachment D

Lower Big Blue
Natural Resources District

805 Dorsey Street, P.O. Box 826
Beatrice, NE 68310
P:402-228-3402
F:402-223-4441
www.lbbnrd.net

Established in 1972 for the development and conservation of soil and water resources

Lower Big Blue NRD 2024 Annual Report to the
Blue River Compact Annual Meeting on May 8, 2024, at Manhattan, KS

The Lower Big Blue Natural Resources District (LBBNRD) measures 172 wells across the district to monitor groundwater levels. Many of these are active irrigation wells that have been measured each spring and fall for the past 42 years. An additional 47 dedicated monitoring wells have been installed since 2016, many of those in conjunction with the public water supply wells of the District's communities. With the NRD's monitoring well network expanding over the years, the data serves to further illustrate the District's diverse aquifer systems changes in static water levels. Spring 2024 static water level measurements are down 1.33 feet districtwide from last spring, as well as down 3.64 feet from baseline. The Blue River Compact wells are down 1.22 feet from the previous Spring (see Appendix 1).

Those findings, along with continued drought conditions in the district and concerns over the sustainability of groundwater supplies prompted the LBBNRD Board of Directors to enact an immediate 180-day moratorium, or stay, on the construction of new wells and the expansion of irrigated acres at its December 2022 monthly board meeting. On May 18, 2023, the District held a public hearing, and on June 5, 2023, the Board took action to transition to a permanent moratorium. During the stay, District officials have been working with a consultant to better understand the hydrogeology of the district, as well as how to best manage and regulate further development of groundwater resources. Ultimately, it is intended that the districtwide moratorium will end and the NRD will be managed by subareas delineated primarily based on hydrogeology and development.

The NRD is also scheduled to begin its second Airborne Electromagnetic Hydrogeologic Mapping (AEM) project which will utilize resistivity to aid in delineating aquifer formations and developing a hydrogeologic framework in an area of the district with persistent elevated nitrate concentrations (see Appendix 2). Water Sustainability Funding (WSF) is being used to complete this project.

The Lower Turkey Creek National Water Quality Initiative (NWQI) project is moving to the implementation phase. The area includes water quality impairments of E. coli, Atrazine and Nitrates (see Appendix 3). Through a partnership with NRCS, the NRD plans to hire a Conservation Specialist who will focus on this 75,000-acre watershed, as well as Source Water Protection (SWP) Areas and Phase-II and -III Groundwater Management Areas (GWMAs).

Through a community-based planning process, the District has worked with the landowners and stakeholders of 3 public use area watersheds to install conservation practices and complete in-lake improvements to address water quality concerns such as sedimentation, phosphorus, Atrazine and E. coli over the past twenty years. The latest of these – the Cub Creek 12-A rehabilitation project – was completed this spring. Through the community-based approach, the NRD has been able to assist landowners in the watershed with implementing land treatment practices to improve water quality in the lake. This project included sediment removal, installation of jetties to increase travel time of water to the beach area, the creation of wetlands and shoreline stabilization.

The collaborative effort between basin NRDs and the Nebraska Department of Natural Resources (NeDNR) to develop a Blue Basin Groundwater Model is complete.

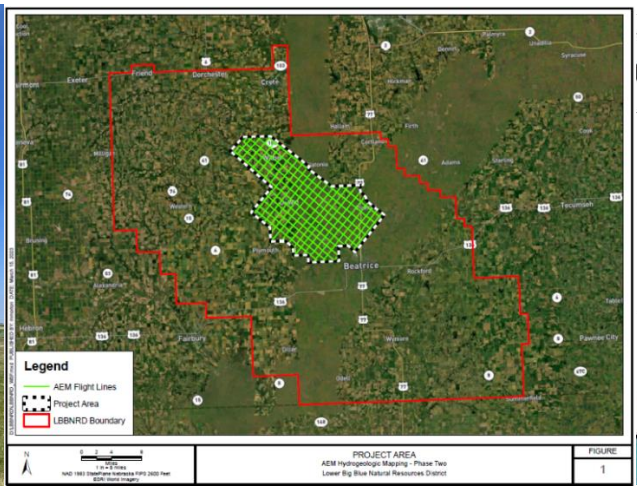
The LBBNRD is responsible for the maintenance and operation of 270 flood control and grade stabilization structures in thirteen watersheds. The oldest flood control project in the District was completed in the 1950s and the newest just a few years ago. As part of these flood control projects the District also maintains 10 public use areas. The effects of time on many of these structures and the budgetary limitations of local governance has inspired the pursuit of creative solutions. The LBBNRD has extended the life of sixteen structures through principal spillway tube insert projects to date. These projects are effective and efficient to install, so it is the intent of the District to continue their implementation as funding allows.

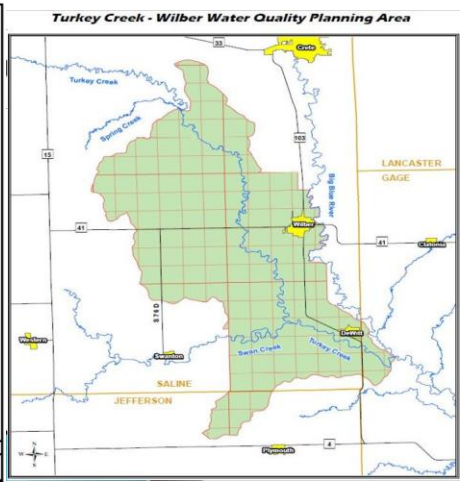
USDA Watershed and Flood Prevention Operations (WFPO) projects could provide the NRD unprecedented opportunity to improve many of its watersheds. The Little Indian Watershed and Plum Creek Watershed are currently at varying stages of the WFPO process (see Appendix 4).

Groundwater Levels

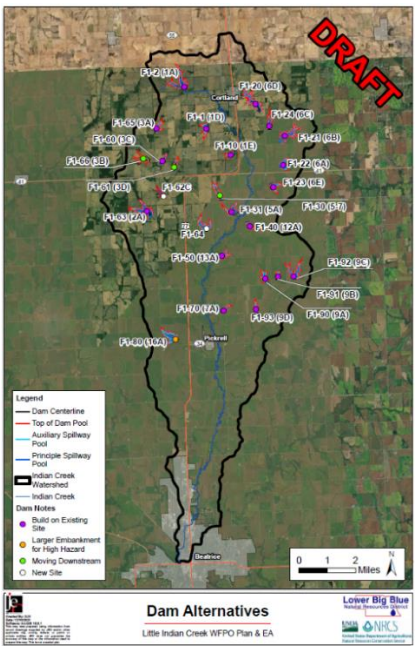
Wells	Number of Wells	Water Level Change From Spring 2023 to Spring 2024	Water Level From Baseline
Gage County	27	-0.6	-2.97
Jefferson County	24	-1.93	-7.53
Saline County	42	-1.53	-2.20
Dedicated Monitoring Wells	47	-1.37	-2.25
Blue River Compact Wells	32	-1.22	-3.27
District-Wide	**172**	**-1.33**	**-3.64**

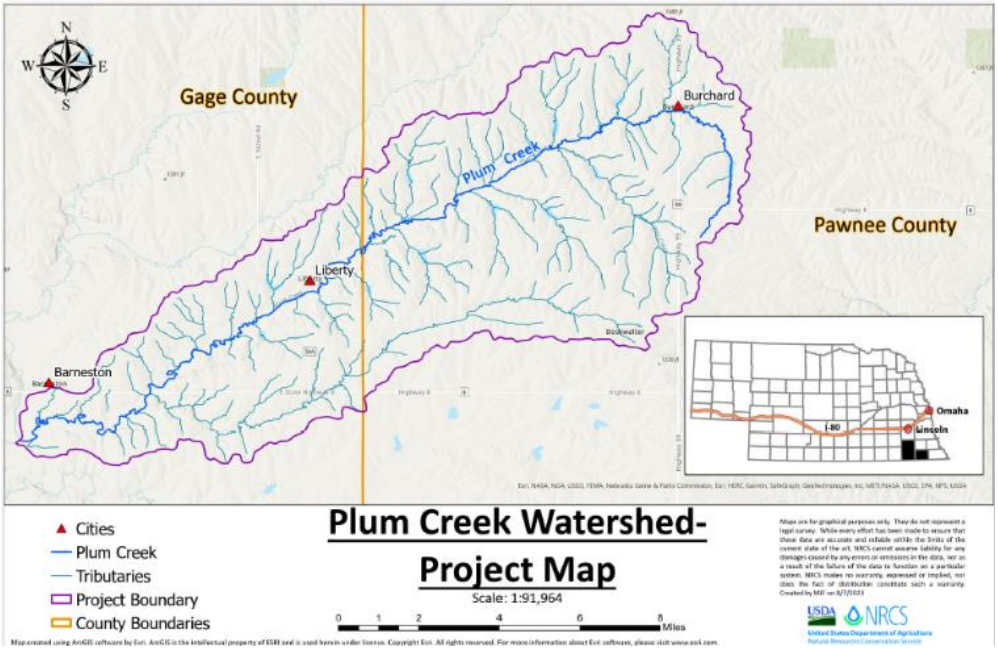
Appendix 1 Spring Water Levels





Appendix 2: LBBNRD-AEM 1 Takeoff & LBBNRD– AEM 2 Project Area Map **Appendix 3:** Lower Turkey Creek NWQI





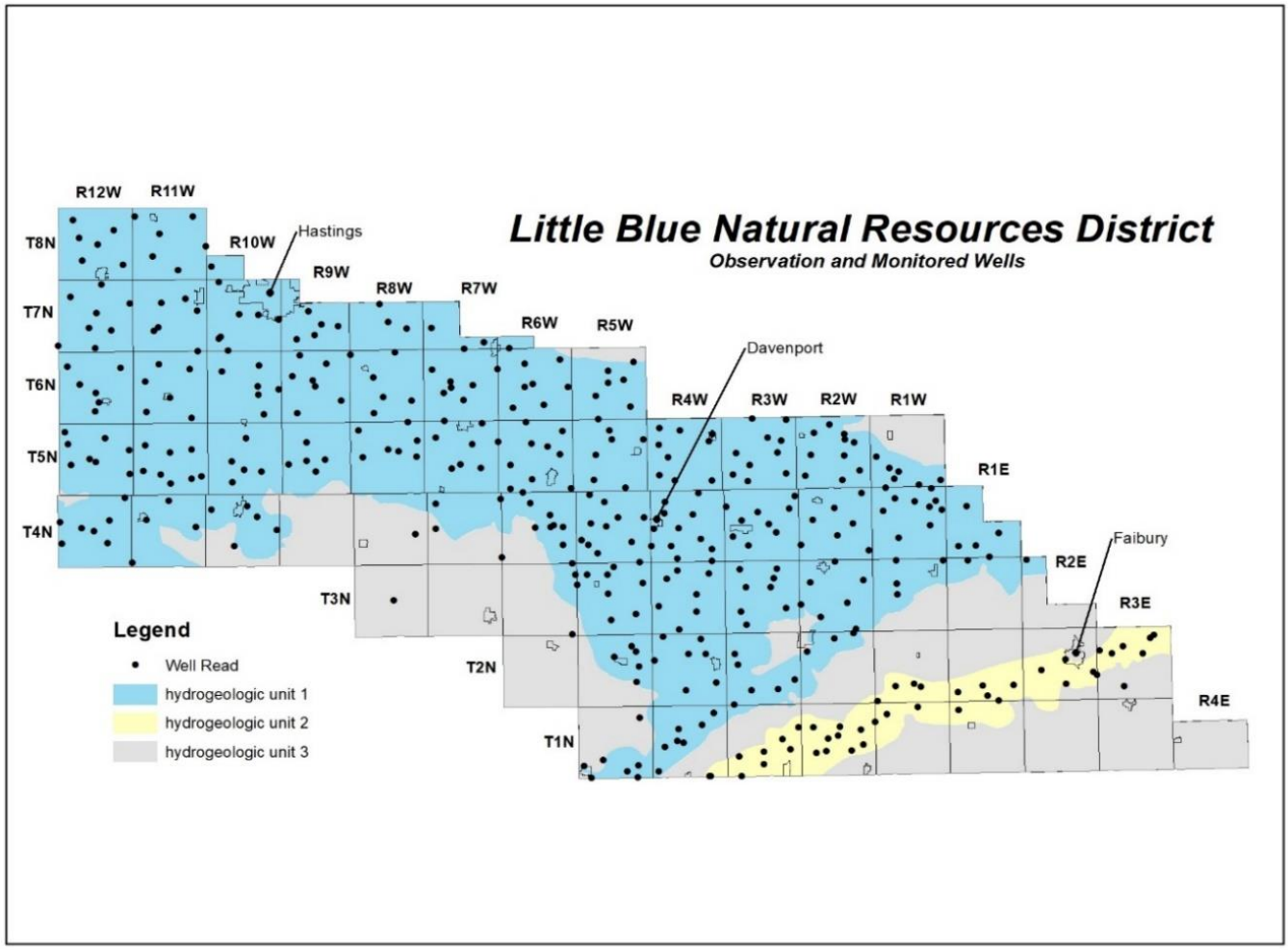
Appendix 4: Little Indian & Plum Creek WFPO

Attachment E

Little Blue Natural Resources District
Blue River Basin Compact Meeting
Annual Report – May 8, 2024

Spring 2022 to Spring 2023 Ground Water Levels

Spring 2023 water levels were completed during the month of April. The map below shows two geologic areas and observation wells that are monitored twice per year. Geologic Area 1 shown in blue was down -1.43 feet on average. Geologic Area 2 shown in yellow was down -0.58 feet on average. Average District precipitation for 2022 was 19.2 inches with average irrigation use of 9.4 inches per acre.

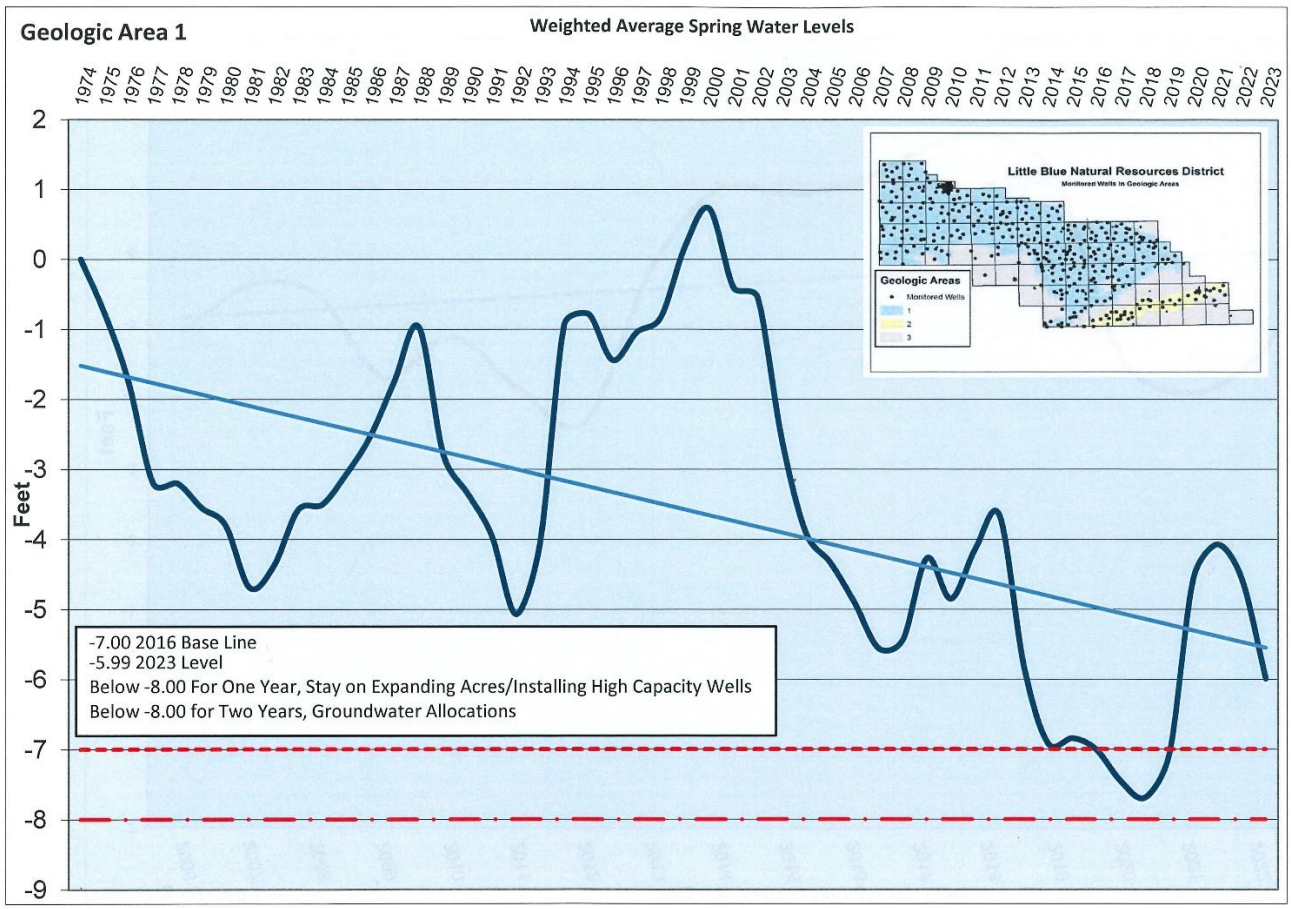


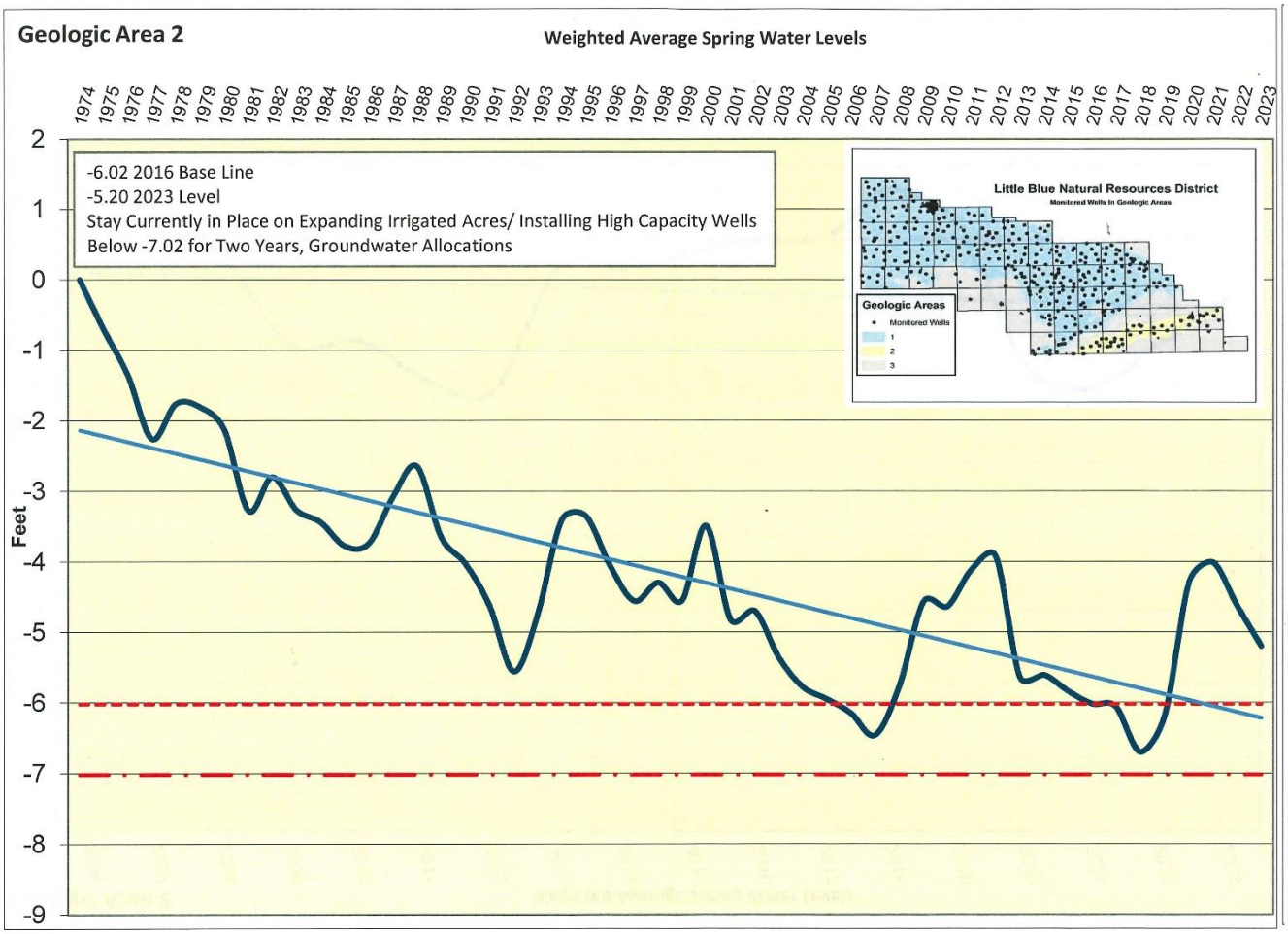
Irrigation Flow Meters

Per our Voluntary Integrated Management Plan (IMP), the District requires that every high capacity well have a working, accurate flow meter. To ensure accuracy and good water use records, each year the District inspects and maintains 800 irrigation flow meters during September, October and November. This schedule allows each meter to be inspected and maintained at least once every seven years. The annual cost for inspecting and maintaining meters is approximately $60,000.

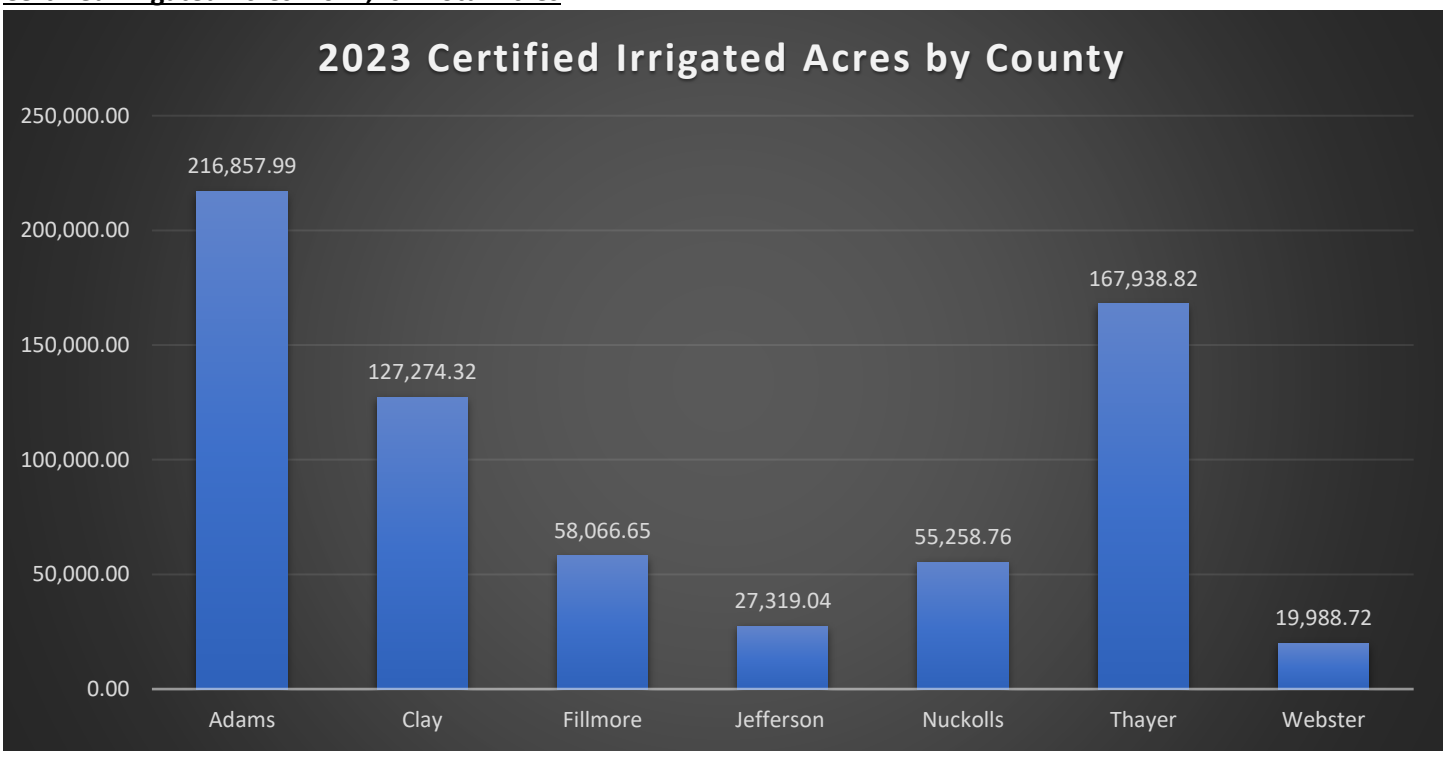
Irrigation Allocations

The District has adopted an allocation system that uses weighted average graphs for tracking water levels for each aquifer. If levels fall one foot below 2016 baseline levels for one-year, there is a stay on irrigation well drilling and expansion of irrigated acres within the respective area. If levels fall one foot below the 2016 baseline for 2 consecutive years allocations of groundwater for irrigation are implemented. Allocations are set at 5 years and 13 inches per year.





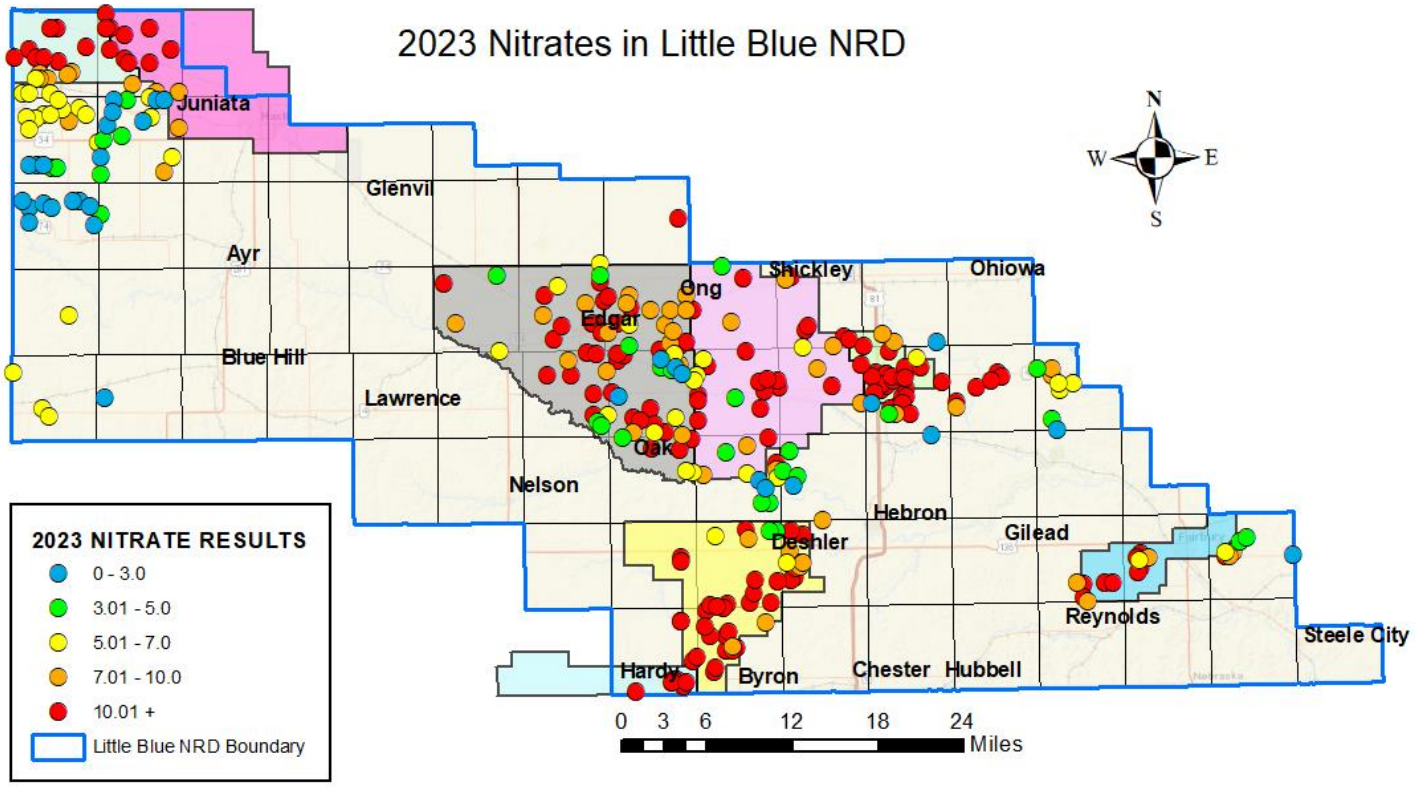
Certified Irrigated Acres – 672,704 Total Acres



Water Quality

The District is committed to protecting both surface and groundwater quality. The District offers many cost share programs to implement BMPs aimed at reducing nitrates in groundwater.

- Crop Rotation
- Irrigation Scheduling
- Continuous No-till
- Chemigation Incentives
- Nitrogen Management
- Nitrification Inhibitors



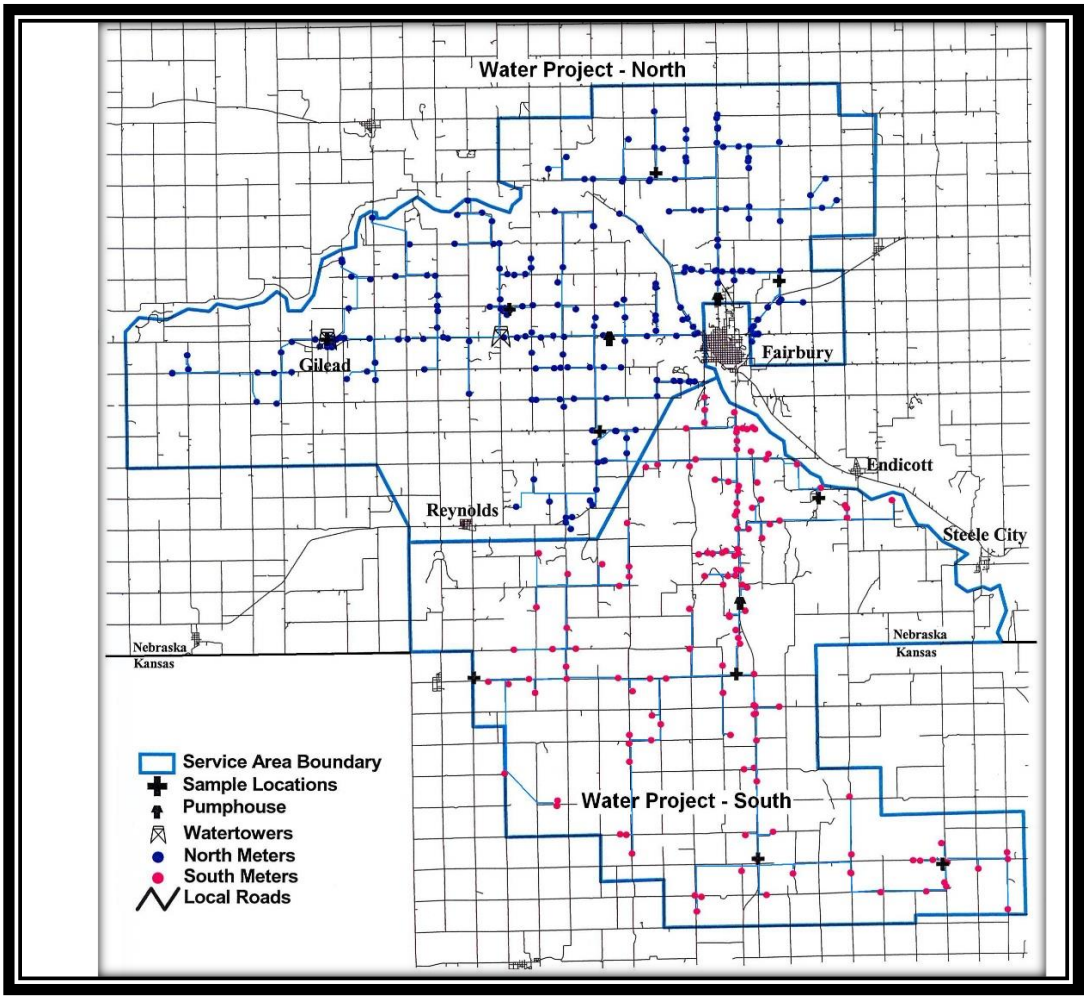
Watershed Projects

- **32-Mile Creek Watershed WFPO Project** – This project is in the 2nd year of planning and is aimed at reducing flood damages in the Villages of Kenesaw and Juniata. Benefit/Cost analysis is revealing that Juniata is lacking the benefits needed to continue but that Kenesaw is looking to be a feasible project. An earthern dike protects the Village of Kenesaw and the focus of the plan is to upgrade the dike to a levy. Other plans are to improve flow restrictions by enlarging culverts and improving channel capacity. Grade control projects will also be an integral part of the project as well as a sediment basin for Prairie Lake which is a public recreation area in this watershed.
- **Big Sandy Creek National Water Quality Initiative (NWQI) Project** – Area of this project includes the Villages of Bruning, Belvidere and Carleton and is aimed at reducing E-Coli and Atrazine in Big Sandy Creek. Due to a recent surge of landowner interest involving precision chemical application and using an alternative herbicide to atrazine, the project recently received approval to extend the project timeline for another 5-years, extending the deadline from April 2023 to April 2028.
- **Small Dams Program –** A popular cost share program involves the repair of existing dams or the construction of new dams having 300-drainage acres or less. In 2023, the District provided 75% cost share not to exceed $50,000 towards the repair of 2 existing dams in Jefferson County. Currently a new watershed dam consisting of 512-drainage acres is being built near Chester. The 300-drainage acre requirement is being waived as a private consultant designed the structure versus the Natural Resources Conservation Service.

Little Blue Valley Water Project

The Little Blue Valley Water Project is a rural water system that includes 400 service locations, of which 89 are located in the State of Kansas and provides potable water to 1,670 people. Due to rising water rates and elevated nitrate levels from the current source (City of Fairbury), an alternative water source was sought out and located. The District secured a 640-acre wellfield site where two 400 gallon per minute wells will be constructed. Nitrate water quality samples collected from 8 test wells on this property ranged from 0.5 to 2.63 parts per million. The cost to construct 2 wells and install 14 miles of pipeline is estimated to be $10 million dollars.

In 2023, the District focused efforts to secure funding for the project. USDA Rural Development is providing a $2 million Grant and a 40-year, $4 million dollar loan to help fund the project. The District applied for and was approved for a $4 million dollar Water Sustainability Fund grant from the State of Nebraska. Construction is planned to begin in the Fall of 2024 and be completed by the Spring of 2026. Monthly water rates for customers using 6,000 gallons per month are expected to be around $65.



Attachment F

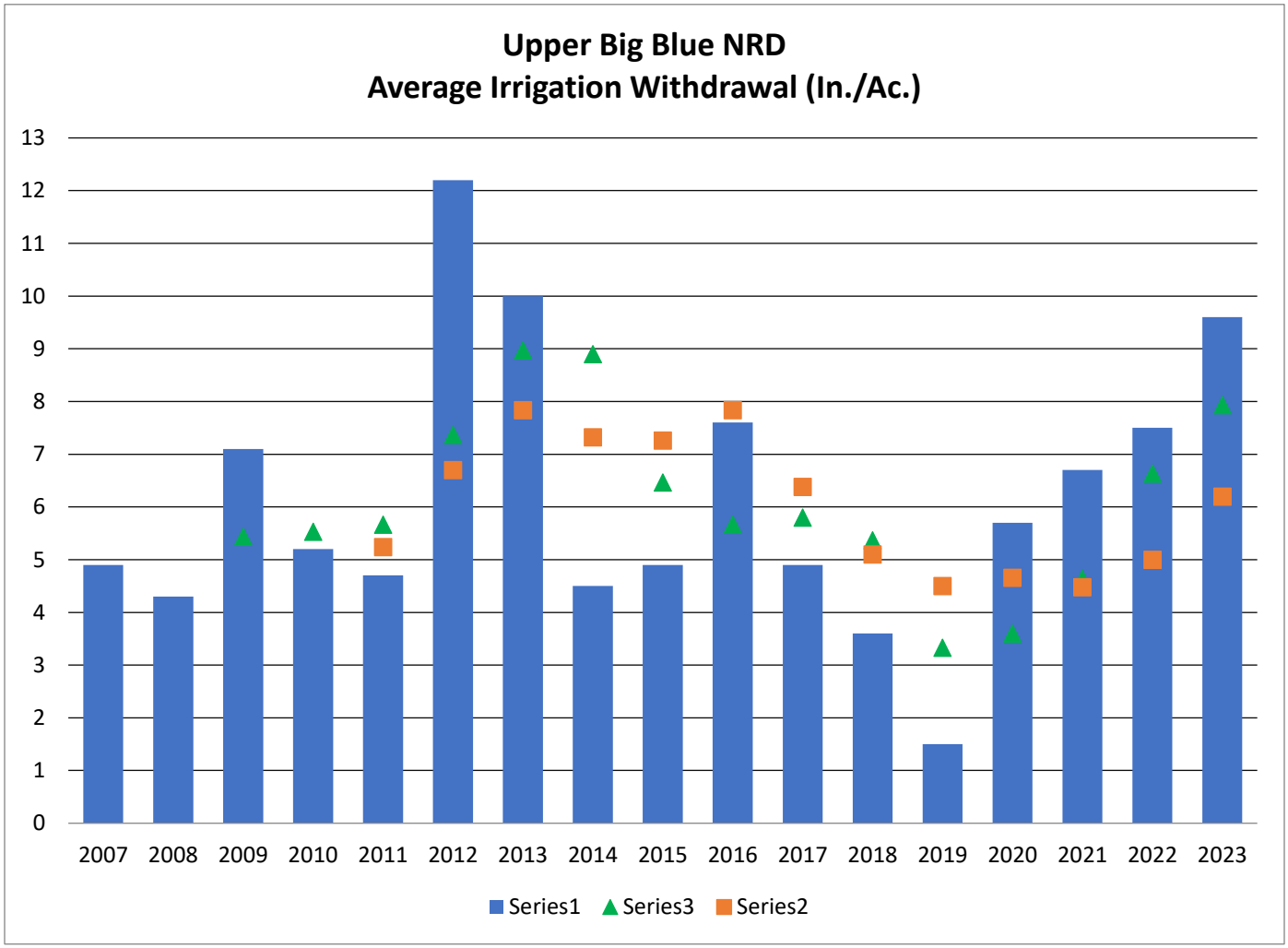
Blue River Compact (BBRC) Annual Meeting
Blue River Compact Report - Upper Big Blue NRD (UBBNRD)
Terry Julesgard, Water Department Manager
Jack Wergin, Projects Department Manager
May 8, 2024

Well Drilling Activities
One hundred twenty-six permits were issued for irrigation and livestock wells (85 new & 41 replacements) during the 2023 calendar year. In January 2024, there were 12,239 irrigation wells in the District.

Groundwater Level Changes
The average groundwater level change for the District from spring 2023 to spring 2024 was a decline of 3.08 feet. The spring 2024 groundwater level is 3.6 feet above the District's allocation trigger level.

Certified Irrigated Acres
Mandatory reporting of irrigated acres and other water uses began in 2006. As of January 1, 2024, there were 1,247,135 groundwater irrigated acres certified by the NRD. This represents an increase of 2,305 acres since January 1, 2023.

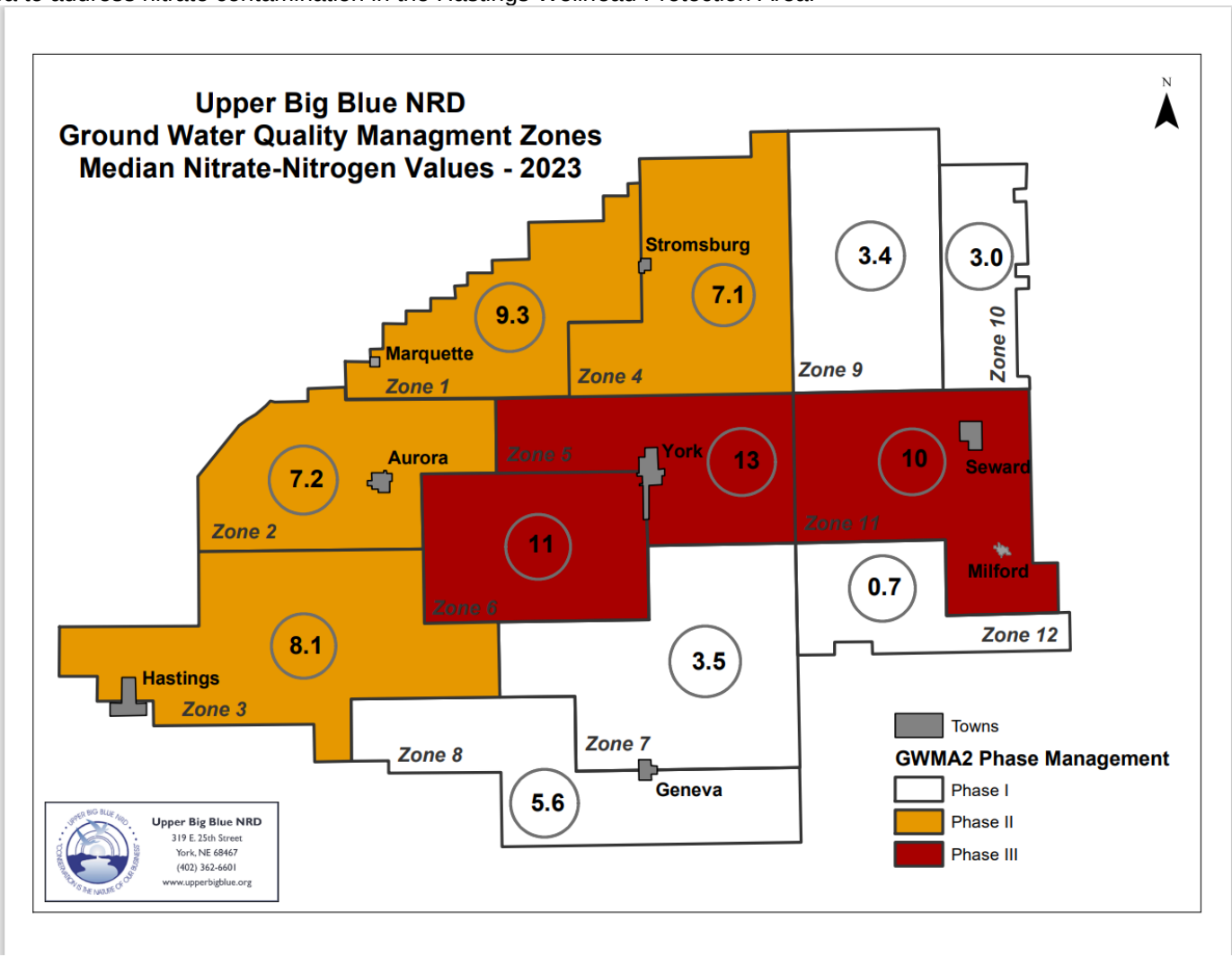
Groundwater Withdrawal
Mandatory reporting of groundwater withdrawal began in 2007. 2023 was the 16th year that groundwater withdrawal reports were required in the District. Metering became mandatory on all wells effective January 1, 2016. The staff has inventoried all flowmeter installations and are now conducting routine inspections as needed. The average groundwater withdrawal for irrigation in 2023 was 9.56 inches per acre. The graph below shows the average annual withdrawal for irrigation over the past sixteen years.



Groundwater Quality

Nitrate

The District is divided into twelve management zones for groundwater quality management. The primary groundwater quality management concern is nitrate. Four zones (1, 2, 3, and 4) are currently designated Phase II Management Areas and three (Zone 5, 6, and 11) designated as Phase III Management Area. Phase II & III Management Areas require farm operators to attend a training session on best management practices related to fertilizer and irrigation management. It also requires deep soil sampling, irrigation scheduling and annual BMP reports. Farm operators in Phase II & III must schedule irrigation using soil moisture sensors in at least one field. In a Phase III Management Zone, anhydrous ammonia fertilizer applied from November 1st through February 29th must include a nitrification inhibitor. The timing of application of nitrogen fertilizers is restricted District wide. There are currently over 1,350 farm operators in the District required to attend nitrogen management training. The District is also working with the City of Hastings and the Little Blue NRD on a special water quality management area to address nitrate contamination in the Hastings Wellhead Protection Area.



Arsenic, Selenium and Uranium

Natural groundwater contaminants such as arsenic, selenium and uranium occur in many areas. These chemicals are associated with sediments in the aquifer as well as the unsaturated zone above the aquifer. Recent groundwater quality investigations near Hastings, Nebraska as well as other parts of the mid-west indicate these naturally occurring contaminants may be released into the groundwater as a result of increased agriculture chemical contamination such as nitrate. The District is continuing to partner with the University of Nebraska to develop a monitoring program for arsenic, selenium and uranium. *See more under UNMC Project.*

Dakota Aquifer

In 2016 the District started a water sampling program for the Dakota aquifer. The Dakota is used in the eastern part of the District for domestic wells where other sources are very limited. High commodity prices and drought conditions in 2012 and 2013 prompted construction of irrigation wells in the Dakota. Concerns have been raised over the impact that Dakota aquifer irrigation wells may have on the domestic groundwater supply. The quality of water in the Dakota can be “hit and miss” as to suitability for domestic and irrigation uses. This program is ongoing. Since the program began, we have seen a decrease in the number of well construction permits for deep, Dakota aquifer wells.

University of Nebraska Medical Center (UNMC) Project
The District, in partnership with UNMC, will periodically collect drinking water samples to determine seasonal variability in contaminant concentrations which may be impacted by fluctuations in the water table due to irrigation. Samples were taken in April/May (pre-irrigation), June/July (during irrigation) and October/November (after irrigation) at up to 50 locations selected on the basis of proximity to known cases of pediatric cancer and the willingness of the homeowner to provide access to collect seasonal samples. Along with the collection of samples a survey was taken to learn about the occupants, well history, well construction if known, and any radon measurements collected in the home. UNMC will evaluate the water samples for conventional water quality parameters (conductivity, solids, pH, etc.) as well as nitrate, atrazine, arsenic, uranium and uranium decay products.

The first sample collection took place in the fall of 2021, followed by the spring, summer and fall of 2022. District staff are currently coordinating for the next spring sampling event.

Project Grow
Project GROW is a collaborative demonstration project between the City of York and the UBBNRD. It focuses on three areas of interest: a soil health demonstration, an awareness of the importance of pollinator habitat and a community garden for the citizens of York. The District is farming 140 acres of the City wellfield with crop rotation which includes cover crops and alfalfa to promote soil health. The current crop is alfalfa as we transition to organic practice. This is the seventh growing season, and the second year of our second five-year interlocal agreement for the project. Not only is the District seeing success in GROW, but the City and citizens are taking notice of our work to protect groundwater quality, and promote soil health practices while maintaining profitability.

Interseeding Project
The interseeder which was used for the joint partnership of the UBBNRD, the Nature Conservancy, and University of Nebraska Extension for demonstrating soil health/sustainable agriculture practices is now owned and housed at the UBBNRD. The District will continue to promote soil health by making the interseeder available to producers who want to test this practice on their own land. Last year, several demonstration seedings were done.

Agricultural Water Management
The District continues to promote best water management practices by providing producers with ET gages and Watermark sensors at half price to improve irrigation scheduling. Staff will help with the initial installation to ensure the proper placement and use of the equipment. Producers in the District's Phase II and III Groundwater Management Areas are required to report soil moisture throughout the growing season on one field in their operations.

Groundwater Modeling
The District, in cooperation with the Lower Big Blue, Little Blue, Tri-Basin NRDs and the Department of Natural Resources have partnered in the development of a transient Blue River Basin Groundwater Model that can not only answer the question of interconnection between surface and groundwater, but other management questions NRDs ask when reviewing their groundwater management plans. This project is complete and the model is being used to evaluate large water user applications. An application for water sustainability funds has been submitted to use the model to evaluate Hamilton County water sustainability for future development.

Source Water/Wellhead Protection Planning
The District continues to partner with communities to develop Source Water/Wellhead Protection Area (WHP Area) Plans. The District also assists communities with implementation of some plan components. These include BMP incentives, water sample collection, analysis from rural wells, and soil samples collected from the unsaturated zone for nitrates.

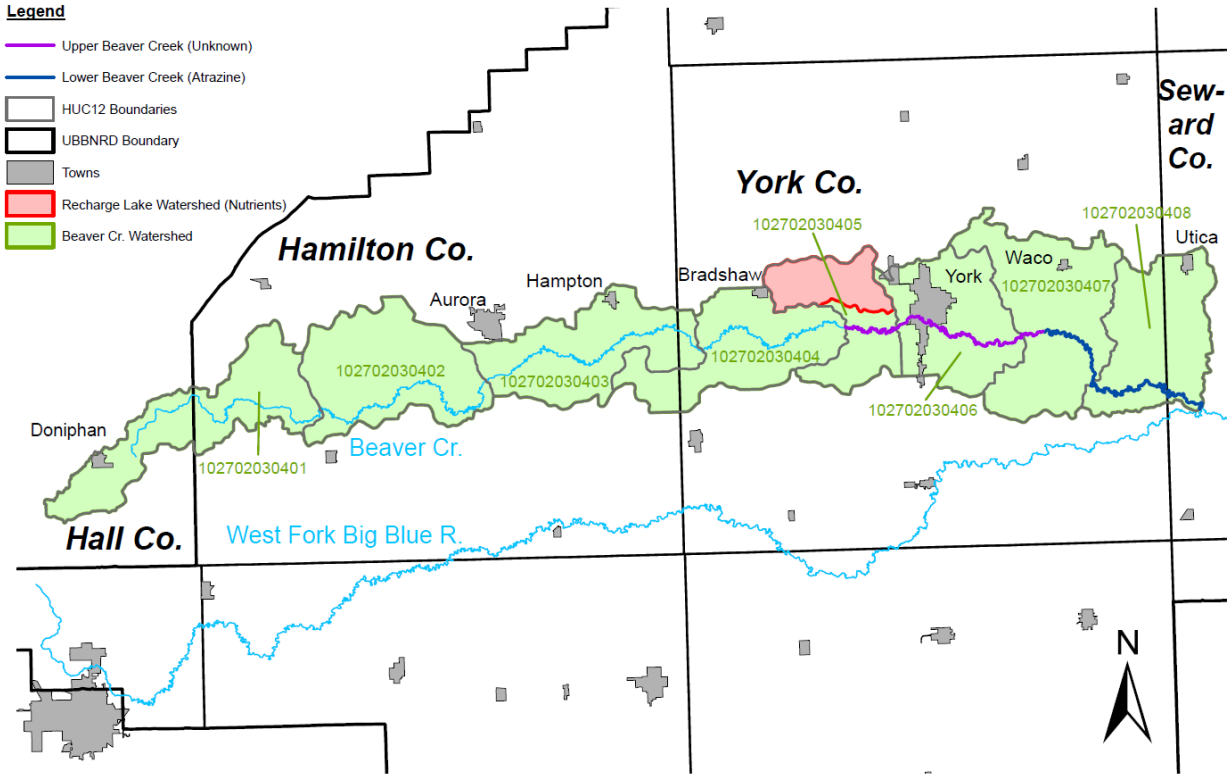
GWMA#2 Vadose Zone Study
The District has partnered with the University of Nebraska Water Center to look at nitrate movement and groundwater recharge throughout the District. This project will focus on investigation of the vadose (unsaturated) zone and groundwater nitrate and agrichemical contaminant occurrence and transport in the Upper Big Blue Natural Resources District (UBBNRD) using several shallow (15') and deep (to the top of the aquifer) soil samples collected from the water quality management zones. This is a four-year project which started the fall/winter of 2022.

Additional Stream Gaging Sites
Through an agreement with the Nebraska Department of Natural Resources, the District is providing funding assistance for the installation and annual operation and maintenance cost for two additional stream gaging sites within the Upper Big Blue watershed. The new gaging sites were added on the North Fork of the Blue River at Staplehurst and on the West Fork of the Big Blue River near Grafton. These new gaging sites will improve floodplain management and provide additional data for modeling, planning, designing, operating, and maintaining the Blue Basin's surface water supply. In addition, the NeDNR has started a pilot project that will provide stage only readings on five more sites (Lincoln Creek at Aurora, School Creek at

Sutton, West Fork Blue River near McCool Junction, Beaver Creek at York, and West Fork Blue River near Beaver Crossing).

Point of Use Reverse Osmosis Water Filtration System Pilot Program
If 2023, the District started a Point of Use Reverse Osmosis Water Filtration System Pilot Program that is intended to aid private well owners whose drinking water nitrates are above the safe water standard set by the Environmental Protection Agency (EPA) (currently set at 10 ppm). Homeowners connected to a private well with a lab analysis of over 10 ppm are eligible. Cost-share rate is set at 75% of actual cost for materials and labor up to a maximum of $500. To date, a total of 10 systems have been installed at an average cost share rate of $455 per system.

Water Quality Management Plan
In March of 2020, the UBBNRD District Wide Water Quality Management Plan (WQMP) was accepted by Environmental Protection Agency (EPA) and the UBBNRD Board of Directors. Stakeholder groups from the NRD wide WQMP and from the Beaver Creek Target Area both identified filter/buffer strips and cover crops as the most favorable best management practices (BMPs). The District and the Natural Resources Conservation Service continue to encourage installation of BMPs within the target areas of the WQMP.



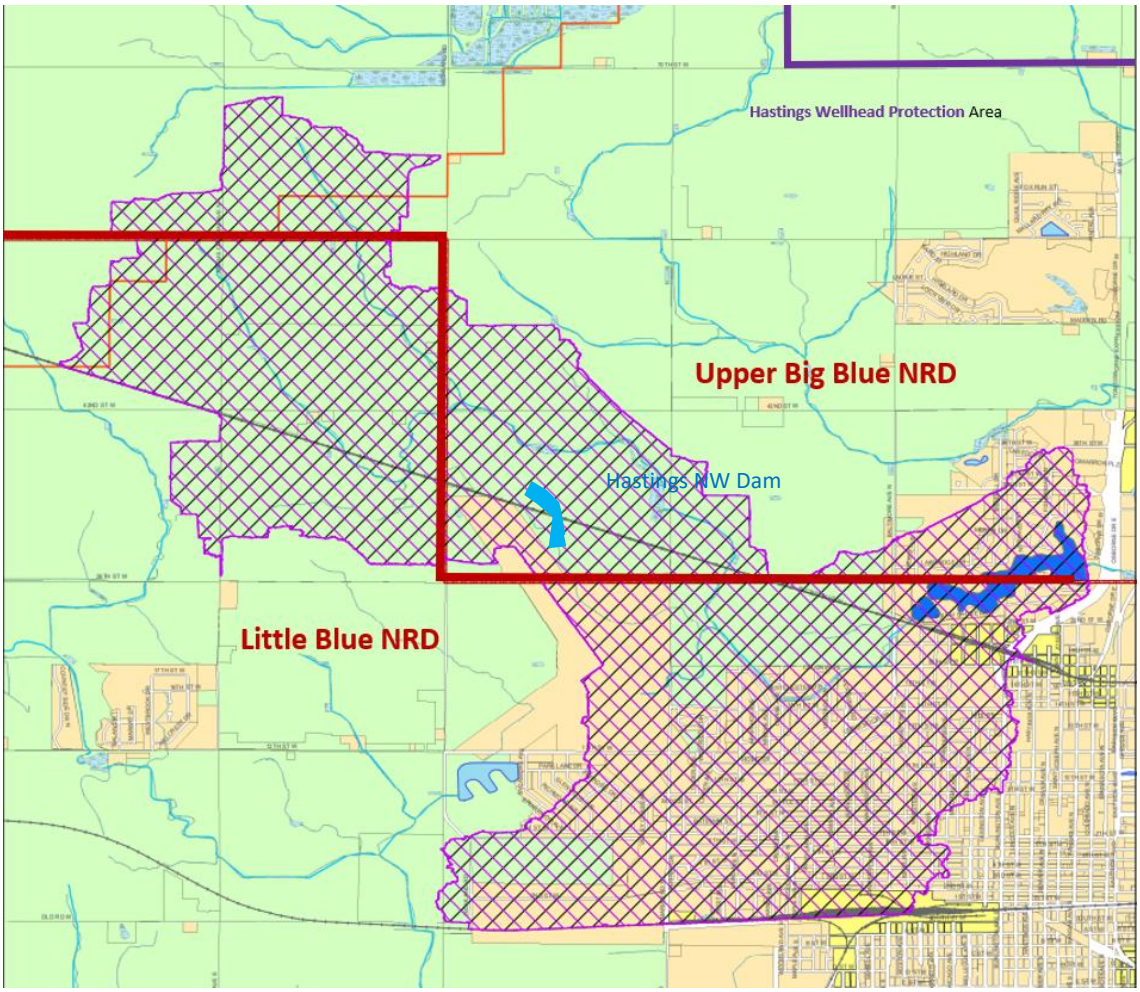
WQMP – Implementation Program
The District Board approved WQMP implementation programs that provide incentives for conservation practices in the priority areas. Initial programs utilized available NRD funding with plans to apply for the Clean Water Act Section 319 Grant funding as these programs develop. The dry summers of 2022 and 2023 have slowed landowner implementation of these BMPs.

The WQMP Cover Crop Program offers landowners cost share assistance to install cover crops in specific high-risk areas of the Beaver Creek watershed and within the wellhead protection areas of communities with approved wellhead protection plans. High risk areas were identified using the Agricultural Conservation Planning Framework (ACPF) program which identifies very high risk and high-risk areas based on topography and soil type. This program provides landowners with a tiered cost share with a 5-year commitment. The District also offers a 50% annual incentive payment (over the Nebraska Buffer Strip Program Rate) for new or renewed buffer strip contracts within the Beaver Creek watershed. In addition, the District offers an increased cost share rate and maximum funding assistance limit for land treatment projects within the high-risk areas of the Beaver Creek watershed.

Lake Hastings – Water Quality Management Plan

The City of Hastings, the Little Blue NRD, the Upper Big Blue NRD, and the Nebraska Department of Environment and Energy (NDEE) are working together to address sediment and pollutants in Lake Hastings. Through a contract with JEO Consulting Group and a Grant from the NDEE and Region VII Office of the U.S. Environmental Protection Agency, a Lake Hastings Watershed Management Plan will be developed and added to the Upper Big Blue NRD's District Wide Water Quality Management Plan. A local stakeholder group assisted in identifying existing conditions and contributing causes, as well as best management practices (BMPs) that will improve conditions in the watershed. The Draft Watershed Plan is currently being reviewed by the Environmental Protection Agency.

Lake Hastings Watershed
CITY OF HASTINGS, NE



Resource Conservation Partnership Program (RCPP)

In 2020, the Nature Conservancy was awarded RCPP funds for the Nebraska Soil Carbon Project. The project is a collaboration with the Natural Resources Conservation Service, Upper Big Blue NRD, Central Platte NRD, Ecosystem Services Market Consortium, Cargill, Target, and McDonald's. The goal is to partner with 100 producers to install soil health practices on 100,000 acres of central Nebraska cropland over five years. Farmers who enroll will be compensated for adopting cover crops, no-till, and/or diverse rotations. This program is in its fifth year and final sign-up will be in the fall of 2024. Discussions surrounding extending this program are underway.

Nebraska Buffer Strip Program

Through the Nebraska Department of Agriculture, the District administers the Nebraska Buffer Strip Program. This program provides cost share funds for landowners to establish vegetative buffer strips along shorelines of wetlands, streams, and lakes. Funding comes from a fee assessed on all pesticides registered for use in Nebraska. In FY2024 the District administered 26 buffer strip contracts which will provide a total cost share of $35,170.00.

Private Dams Program

Through the District's Private Dams Program, the District provides planning, design, and financial assistance for the construction or reconstruction of dams located on private property. In FY2024 the District has provided cost share assistance for two dams totaling $81,679.25 of District funds. Through the first seven years of the program, the District has provided assistance for 20 dams with an average cost share of $29,900.00 per dam. Due to increasing construction costs and requests to repair larger size dams, the District Board increased the maximum amount of cost share from $50,000.00 to $75,000.00. Three new private dam projects are currently in the design phase.

NRD Recreation Area Warning Sirens

Working with the Nebraska Emergency Management Agency and local county emergency management agencies, the District received a Hazard Mitigation Grant to install warning sirens at four of the NRD's recreation areas. Warning sirens have been installed at Pioneer Trails Recreation Area near Aurora, Bruce Anderson Recreation Area near York, Smith Creek Recreation Area south of Utica, and Oxbow Trail Recreation Area near Ulysses. Siren installations were coordinated with the Hamilton, York, Seward, and Butler County Emergency Management Agencies.

Hazard Mitigation Plan Update

Through the Building Resilient Infrastructure and Communities Grant Program and the Nebraska Emergency Management Agency (NEMA), the District has been awarded grant funding to update the Upper Big Blue Multi-Jurisdictional Hazard Mitigation Plan. This plan covers the counties of Seward, York, and Hamilton and was last updated in 2019. Hazard mitigation planning is a process in which hazards are identified and profiled, people and facilities at risk are identified and assessed for threats and potential vulnerabilities, and strategies and mitigation measures are identified. Through an agreement with JEO Consulting Group, the District is working with Seward, York, and Hamilton County Emergency Management Agencies, and local communities to update this plan. In addition to the participation of the three counties, 25 communities and three special districts participated in the 2019 Hazard Mitigation Plan. In the past, local fire departments could be included in city or county plans. New FEMA guidelines now require fire departments to have their own separate plans. Counties, local communities, and other organizations must participate in the development of the Hazard Mitigation Plan and must adopt the plan in order to be eligible for pre-disaster mitigation funds.

Visit our Website

You can learn all about the District's programs and activities at www.upperbigblue.org.

Attachment G

Current State of Finances as of April 15, 2024

Current balance as of April 15, 2024 is $24,400.06.

As shown in Table 1, revenue is comprised of Kansas and Nebraska dues totaling $19,000 and interest income is currently at $254.38.

Current expenses are comprised of USGS state line gages at $17,710 and Lower Big Blue Natural Resources District observation wells is an expected expense of $700. The annual financial review is budgeted at $2,400.

Proposed Budget for July 2024 to June 2025

The Budget Committee has no new suggestions for the budget this upcoming year and recommends the budget shown on Table 2.

Table 1
KANSAS-NEBRASKA BIG BLUE RIVER COMPACT ADMINISTRATION
As of April 15, 2024

BEGINNING BALANCE: July 1, 2023			$ 30,709.46
INCOME			
	State Assessments	$ 19,000.00	
	Interest Income	$ 233.97	
	TOTAL INCOME		$ 19,233.97
EXPENSES			
	USGS - Stateline Gages	$ 12,638.00	
	Lower Big Blue Natural Resources District - Observation Wells	$ 700.00	
	Printing Annual Report	$ 0	
	RG Assoc. - Review	$ 3,800.00	
	TOTAL EXPENSES		$17,138.00
BALANCE ON HAND:			$ 32,805.43
ESTIMATED EXPENDITURES THROUGH JUNE 30, 2023			
	USGS Quarterly Inv.	$ 4,500.00	$4,500.00
	Printing Annual Report	$ 0	
	Postage and Office Supplies	$ 0	
	Miscellaneous	$ 0	
	TOTAL ESTIMATED ADDITIONAL EXPENDITURES		$ 4,500.00
ESTIMATED INCOME THOUGH JUNE 30, 2022			
	Interest Income (May and June)		$ 37.90
ESTIMATED BALANCE AS OF JUNE 30, 2023			$ 28,343.33

Table 2
BIG BLUE RIVER COMPACT
BUDGET ANALYSIS

	FY 2021 - 2022	FY 2022 - 2023	FY 2023 - 2024	FY 2024-2025
	Actual 07/1/21-6/30/22	Actual 07/01/22 - 6/30/23	Partial 07/01/23 - 4/15/24	Proposed Budget
EXPENDITURES				
Operations				
USGS - Stateline Gages	$ 16,252.00	$ 16,809.00	$ 16,438.00	$ 17,800.00
LBBNRD - Observation Wells	$ 680.00	$ 680.00	$ 680.00	$ 700.00
Water Quality Committee	$ 0	$ 0	$ 0	$ 0
Annual report - Printing	$ 0	$0	$ 0	$ 0
Annual Financial Review	$ 0	$ 0	$ 3,800.00	$ 2,400.00
Postage and Office Supplies	$ 0	$ 0	$ 0	$ 0
Meeting Expenses	$ 0	$ 0	$ 0	$500.00
Miscellaneous Expenses	$ 0	$ 0	$ 0	$ 0
Total Expenses	$ 17,139.00	$ 17,509.00	$ 20,918.00	$ 21,800.00
INCOME & CARRY OVER				
Assessments (Both States)	$ 19,000.00	$ 19,000.00	$ 19,000.00	$ 19,000.00
Interest earned	$ 9.43	$ 187.13	$ 233.97	$ 235.00
Carry Over from Prior Year	$ 27160.90	$ 29,031.33	$ 30,709.46	$ 29,025.43
Total Income and Carry Over	$ 45,062.90	$ 48,218.46	$ 49,943.43	$ 48,260.43
Balance End of Year	$ 29,031.33	$ 30,709.46	$ 29,025.43 (est.)	$ 26,460.43 (est.)

Attachment H

KANSAS-NEBRASKA BIG BLUE RIVER COMPACT REPORT
U.S. Geological Survey—Water Year 2023

The U.S. Geological Survey (USGS) continues to operate two streamflow gaging stations for the Compact Administration—Big Blue River at Barneston, NE (06882000), and Little Blue River at Hollenberg, KS (06884025). An electronic data logger (EDL) at each station automatically records streamflow stage every 15 minutes. Every hour, these instantaneous values are transmitted via satellite to USGS offices, where they are used to compute preliminary values of instantaneous and daily discharge that are immediately posted to the USGS National Water Information System (NWIS) website (addresses shown below). Before the data are finalized, updates and revisions are made as needed, based on a series of quality checks and reviews. Finalized values of daily discharge and daily gage height, along with associated summary statistics are published annually on a site-by-site basis on the NWIS web page (address shown below).

During water year (WY) 2023 (October 1, 2022, to September 30, 2023), periodic visits were made to the stations to maintain and calibrate the sensing and recording equipment, make discharge measurements, and download the data directly from the EDLs, as a backup to the satellite-telemetered data. The discharge measurements were used to determine shifts from the stage-discharge relations (rating curves) that were then used to convert stage values to corresponding values of discharge.

For each of the State delegations and the Compact chairman, copies of the WY 2023 published data (manuscript, discharge daily values, statistics tables, and daily discharge hydrograph) from the NWIS web page are attached for each station. These water-year summaries (PDF files) are available online within the NWIS site page for each of the streamgages, along with data for other streamgages for the Nation. Also attached are plots of the annual mean discharges for the periods of record, and plots of the daily discharges for WY 2023 compared to those for the median daily statistic for each day of the year.

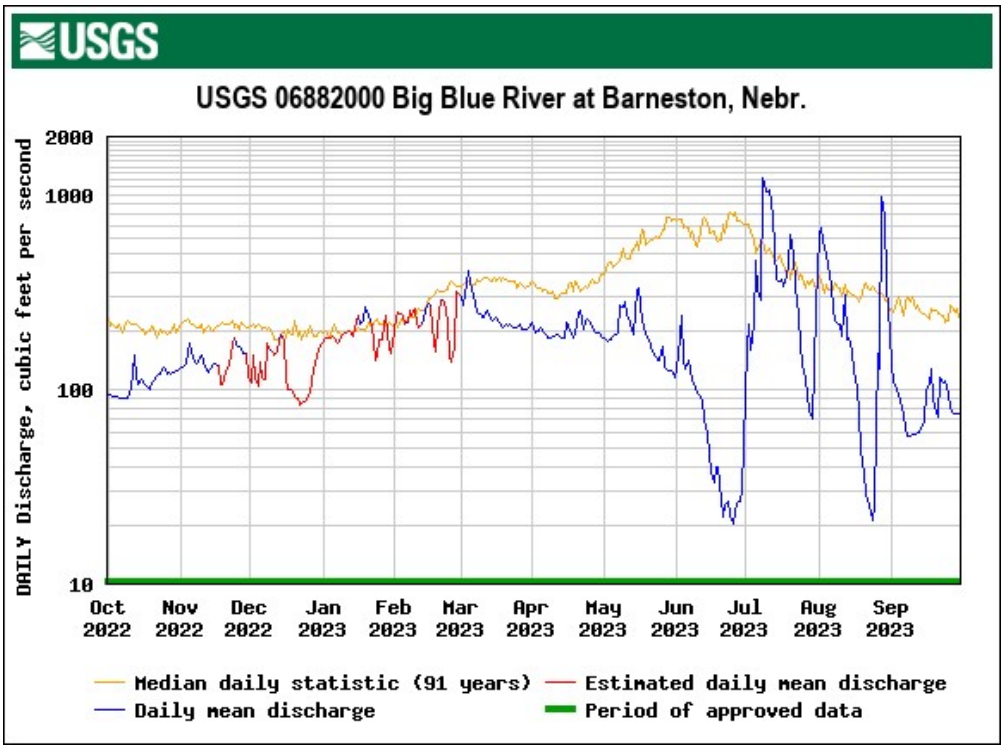
Current (real-time) and historical data on surface water, groundwater, and water quality for the Nation can be accessed and downloaded via the USGS National Water Dashboard website (https://dashboard.waterdata.usgs.gov/app/nwd/en/?aoi=default) or from the Nebraska Water Science Center website (https://www.usgs.gov/centers/ne-water). All unit values and daily values of discharge can be accessed using the NWIS web, as well as all unit values and daily values of gage height since October 2007.

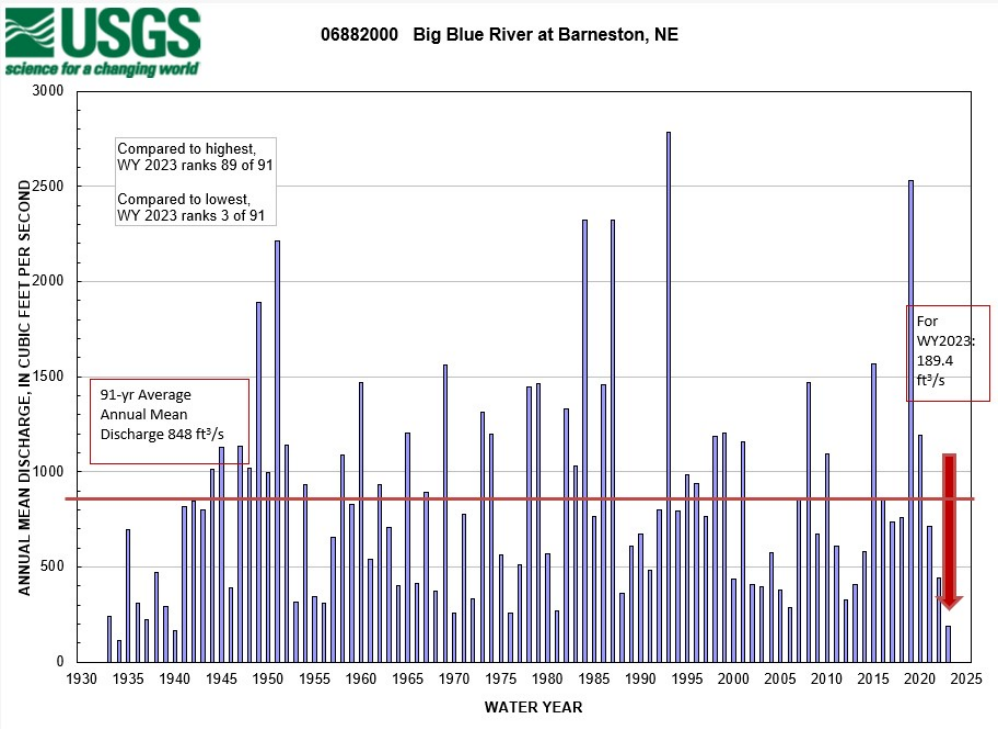
Jason Lambrecht
Deputy Director, Hydrologic Observations Chief

U.S. Geological Survey, Nebraska Water Science Center
5231 S. 19th St., Lincoln, NE 68512-1271
(jmlambre@usgs.gov)
402-328-4124 (office), 402-416-2363 (mobile)

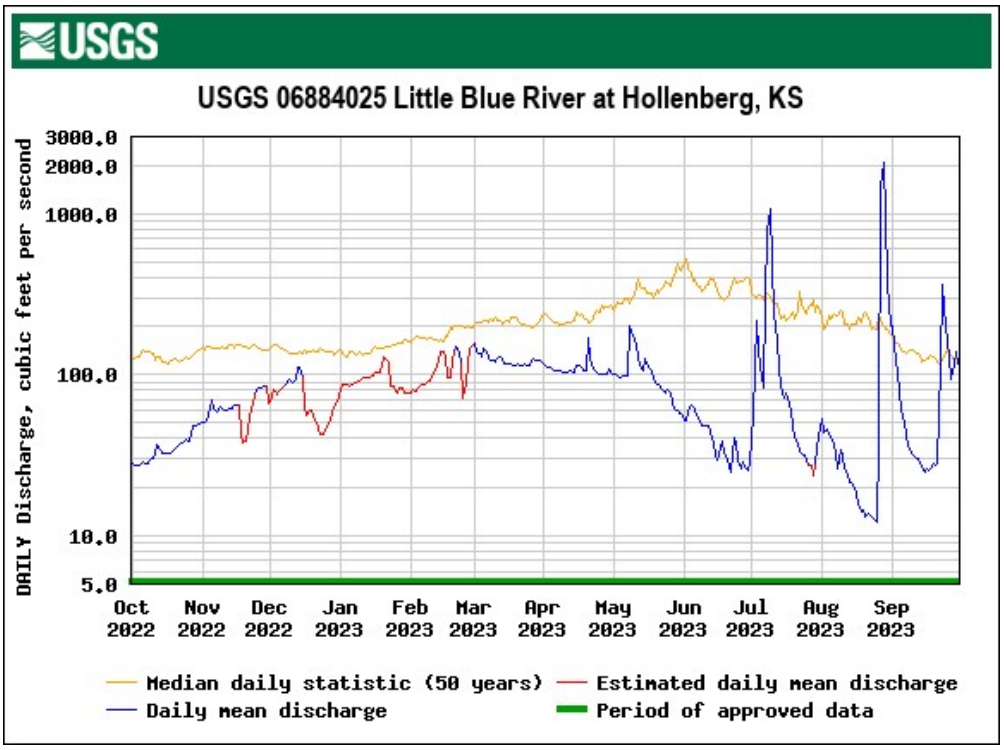
May 8, 2024

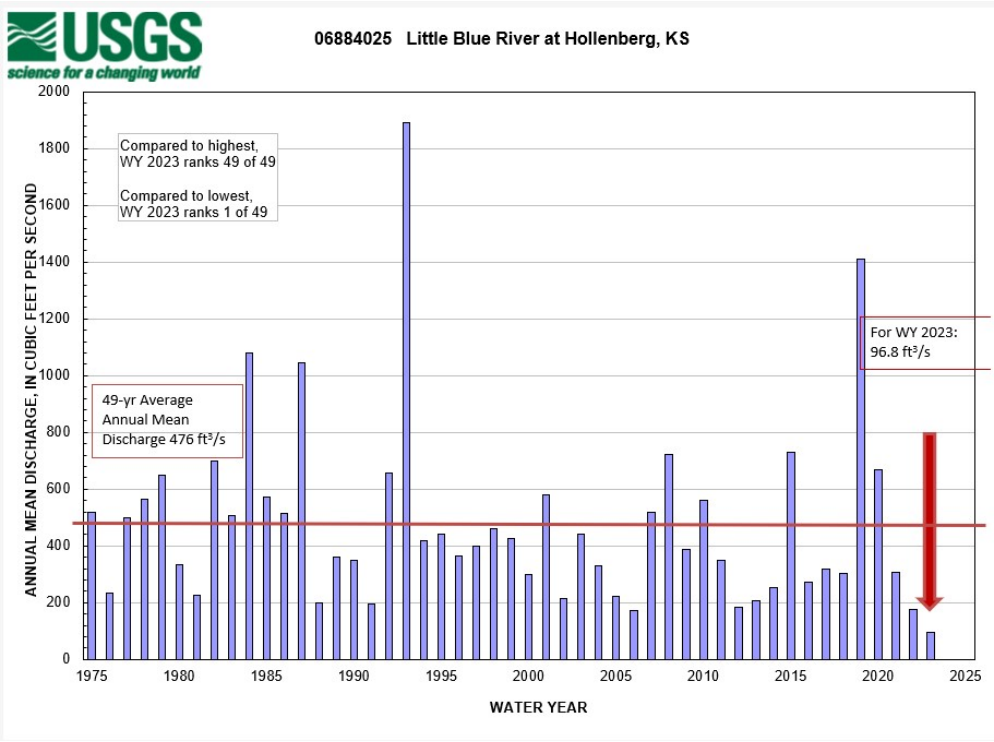
For station **06882000 Big Blue River at Barneston**, 13 discharge (and stage) measurements, ranging from 25.1 ft^3/s (2.75 ft stage) to 298 ft^3/s (3.92 ft stage), were made during WY 2023. The annual mean discharge of 189.4 ft^3/s was 2.3 times less than that of the WY 2022 mean of 439.9 ft^3/s; and 4.5 times lower than the new historical mean of 848 ft^3/s for WYs 1933–2023 (91 years of record). The maximum and minimum daily discharges were 1,220 ft^3/s on July 8, 2023 (peak of record daily mean was 50,000 ft^3/s on June 9, 1941); and 20.3 ft^3/s on June 25, 2023.





For station **06884025 Little Blue River at Hollenberg**, 15 discharge (and stage) measurements, ranging from 18.2 ft^3/s (1.28 ft stage) to 165 ft^3/s (2.17 ft stage), were made during WY 2023. The annual mean discharge of 96.8 ft^3/s was 1.8 times less than that of the WY 2022 mean of 178.1 ft^3/s; and 4.9 times lower than the new historical mean of 476 ft^3/s for WYs 1975–2023 (49 years of record). The maximum and minimum daily discharges were 2,060 ft^3/s on August 28, 2023 (peak of record daily mean was 39,300 ft^3/s on July 26, 1992); and 12.2 ft^3/s on August 25, 2023 (new record low).





USGS Water-Year Summary 2023

06882000 Big Blue River at Barneston, Nebr.

LOCATION - Lat 40°02'41", long 96°35'14" referenced to North American Datum of 1983, in NE 1/4 NW 1/4 sec.24, T.1 N., R.7 E., Gage County, NE, Hydrologic Unit 10270202, on right bank just downstream of bridge on State Highway 8, 0.6 mi southwest of Barneston, 1.3 mi upstream from Plum Creek, and 4.3 mi upstream from Nebraska-Kansas State line.

DRAINAGE AREA - 4,447 mi² of which 77 mi² probably is noncontributing.

REVISIONS HISTORY - WSP 896: 1932, 1935. WSP 1919: Drainage area.

SURFACE-WATER RECORDS

PERIOD OF RECORD - May 1932 to current year.

GAGE - Water-stage recorder with satellite telemetry. Datum of gage is 1,162.20 ft above sea level. Prior to June 9, 1941, water-stage recorder at site 0.3 mi downstream at datum 1.56 ft higher. June 9 to Nov. 17, 1941, non-recording gage, and Nov. 18, 1941 to Sept. 30, 1979, water-stage recorder at site 0.7 mi upstream at datum 2.0 ft higher.

REMARKS - Accuracy of records for water years prior to 2014 are noted in the individual Annual Data Reports for those water years. For water years 2014 onward, records fair to good except for estimated daily discharges, which are poor, unless otherwise noted.

EXTREMES FOR PERIOD OF RECORD - Maximum peak flow, 57,700 ft³/s, June 9, 1941, gage height, 34.30 ft, at site datum then in use.

U.S. Department of the Interior
U.S. Geological Survey

Suggested citation: U.S. Geological Survey, 2024, National Water Information System data available on the World Wide Web (USGS Water Data for the Nation), accessed [May 3, 2024], https://nwis.waterdata.usgs.gov/nwis/wys_rpt?dv_ts_ids=&93783&adr_begin_date=2022-10-01&adr_end_date=2023-09-30&site_no=06882000&agency_cd=USGS

DISCHARGE, CUBIC FEET PER SECOND
YEAR 2022-10-01 to 2023-09-30
DAILY MEAN VALUES
[e, Value has been estimated.]

Day	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
	2022	2022	2022	2023	2023	2023	2023	2023	2023	2023	2023	2023
1	94.1	130	e108	e176	e236	297	205	184	129	163	628	132
2	94.2	130	e150	e183	e250	270	198	182	151	217	687	110
3	92.6	136	e114	e183	e246	351	200	178	242	159	521	99.5
4	92.9	154	e104	e183	e242	409	207	179	139	217	497	92.1
5	92.1	174	e138	e188	219	354	202	187	128	461	431	88.3
6	90.2	143	e116	e186	220	310	192	191	140	324	341	73.6
7	89.9	138	e113	e174	e255	273	184	197	127	286	258	62.8
8	90.1	136	e172	e176	e239	249	184	270	111	1,220	226	58.2
9	89.9	145	164	e191	e259	245	189	267	102	1,040	216	58.1
10	95.6	151	157	e195	e216	234	187	285	95.2	1,040	215	58.7
11	103	138	e150	e198	e208	237	191	240	93.3	1,070	190	59.0
12	149	125	e158	e200	218	254	187	221	87.0	790	308	59.6
13	116	122	180	e194	224	238	183	202	70.7	526	180	60.2
14	107	129	193	e190	261	227	185	191	58.5	370	184	65.5
15	112	137	e181	e224	276	230	222	325	47.1	361	158	67.7
16	109	135	e114	241	267	234	212	333	37.8	369	126	98.2
17	107	132	e99.1	218	e174	221	191	228	33.2	343	103	107
18	102	e107	e99.5	225	e156	211	185	207	40.1	385	75.2	129
19	101	e107	e98.7	266	e210	207	191	193	39.8	432	49.4	88.6
20	108	e122	e93.0	239	291	215	250	179	27.2	623	37.1	76.8
21	113	e130	e90.6	223	287	214	255	166	22.1	500	29.0	72.0
22	118	e133	e84.0	e214	283	219	204	158	25.7	336	27.3	115
23	120	e170	e84.2	e140	e222	207	223	147	26.3	241	22.9	108
24	127	184	e85.9	e150	e143	208	230	140	22.7	171	21.1	110
25	130	170	e87.6	e180	e138	210	221	141	20.3	137	25.4	96.8
26	120	166	e97.5	e179	e167	215	207	165	22.8	113	153	80.3
27	122	162	e109	e218	e319	206	199	131	25.8	94.7	127	76.6
28	119	155	e129	e238	310	205	195	129	26.5	76.2	975	75.9
29	122	152	e147	e160		204	195	126	30.3	71.3	781	75.2
30	124	e116	e161	e155		210	188	124	51.6	127	349	75.0
31	126		e169	e172		220		116		264	191	
Total	3,377	4,229	3,947	6,059	6,536	7,584	6,062	5,981	2,173	12,530	8,132	2,530
Mean	109	141	127	195	233	245	202	193	72.4	404	262	84.3
Max	149	184	193	266	319	409	255	333	242	1220	975	132
Min	89.9	107	84.0	140	138	204	183	116	20.3	71.3	21.1	58.1
Ac-ft	6,697	8,388	7,829	12,020	12,960	15,040	12,020	11,870	4,310	24,850	16,130	5,018

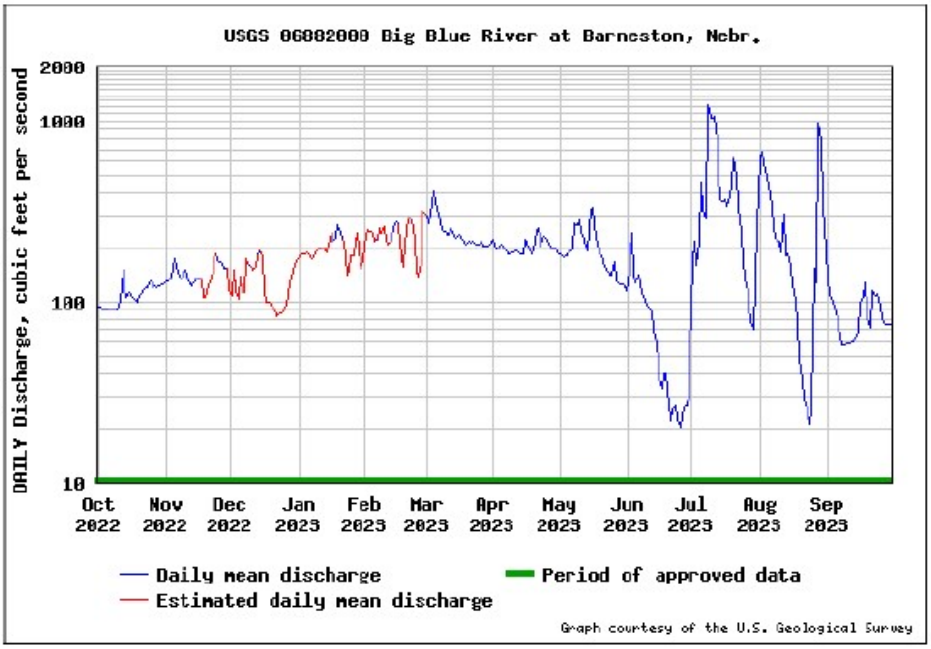
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1933 - 2023, BY WATER YEAR (WY)

	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Mean	581	307	286	300	588	1,268	798	1,397	2,054	1,209	689	692
Max	7,451	1,526	2,731	1,596	2,876	10,560	5,280	5,207	10,460	12,270	5,227	3,420
(WY)	(1974)	(1999)	(2019)	(1973)	(1984)	(1979)	(1984)	(1995)	(1951)	(1993)	(1954)	(1989)
Min	61.5	77.5	87.4	67.6	116	137	132	96.0	69.3	30.7	21.1	50.6
(WY)	(1941)	(1937)	(1977)	(1937)	(1940)	(1968)	(1934)	(1934)	(1934)	(1934)	(1934)	(1939)

SUMMARY STATISTICS

	Water Year 2023		Water Years 1933 - 2023	
Annual total	69,140			
Annual mean	189.4		848.2	
Highest annual mean			2,781	1993
Lowest annual mean			115.0	1934
Highest daily mean	1,220	Jul 08	50,000	Jun 09, 1941
Lowest daily mean	20.3	Jun 25	1.00	Nov 30, 1945
Annual 7-day minimum	23.7	Jun 21	15.1	Aug 03, 1934
Maximum peak flow	1,350	Jul 08	57,700	Jun 09, 1941
Maximum peak stage	5.85	Jul 08	34.30[a]	Jun 09, 1941
Annual runoff (cfsm)	0.043		0.191	
Annual runoff (inches)	0.578		2.59	
10 percent exceeds	293.4		1,720	
50 percent exceeds	169.0		285.0	
90 percent exceeds	73.0		110.0	

[a] Gage height at different site and(or) datum



USGS Water-Year Summary 2023

06884025 Little Blue River at Hollenberg, KS

LOCATION - Lat 39°58'49", long 97°00'17" referenced to North American Datum of 1983, in NE 1/4 SW 1/4 sec.8, T.1 S., R.4 E., Washington County, KS, Hydrologic Unit 10270207, on right bank just downstream from bridge on county road, 0.6 mi west of Hollenberg, 1.8 mi downstream from Nebraska-Kansas State line, and at mile 43.1.
DRAINAGE AREA - 2,752 mi².

SURFACE-WATER RECORDS

PERIOD OF RECORD - March 1973 to February 1974 (discharge measurements only), March 1974 to current year.

GAGE - Water-stage recorder with satellite telemetry. Datum of gage is 1,216.10 ft above sea level.

REMARKS - Accuracy of records for water years prior to 2014 are noted in the individual Annual Data Reports for those water years. For water years 2014 onward, records good except for estimated daily discharges, which are poor, unless otherwise noted. Discharge measurements made prior to 1974 water year are published in table of miscellaneous sites in WDR NE-73.

EXTREMES OUTSIDE PERIOD OF RECORD - A gage height of 23.07 ft, present datum, from floodmark, discharge not determined, occurred October 12, 1973.

EXTREMES FOR PERIOD OF RECORD -

Maximum peak flow, 59,200 ft³/s, May 7, 2015, gage height, 22.97 ft, site and datum then in use.

U.S. Department of the Interior
U.S. Geological Survey

Suggested citation: U.S. Geological Survey, 2024, National Water Information System data available on the World Wide Web (USGS Water Data for the Nation), accessed [May 3, 2024], https://nwis.waterdata.usgs.gov/nwis/wys_rpt?dv_ts_ids=&93795&adr_begin_date=2022-10-01&adr_end_date=2023-09-30&site_no=06884025&agency_cd=USGS

DISCHARGE, CUBIC FEET PER SECOND
YEAR 2022-10-01 to 2023-09-30
DAILY MEAN VALUES
[e, Value has been estimated.]

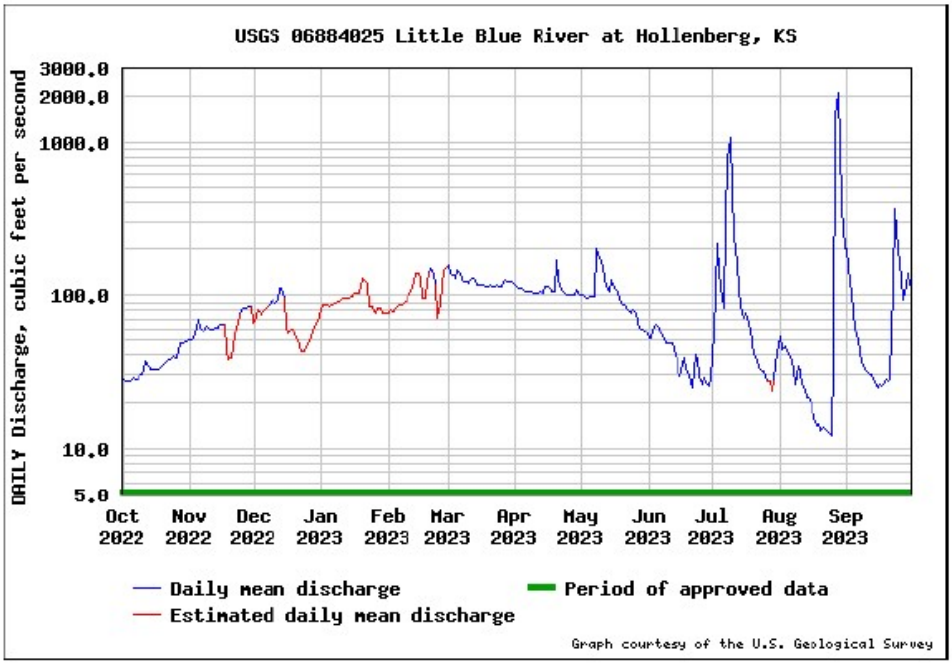
Day	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
	2022	2022	2022	2023	2023	2023	2023	2023	2023	2023	2023	2023
1	27.7	50.3	e67.0	e80.3	e76.7	157	113	99.8	51.9	39.8	52.8	200
2	27.5	50.9	81.4	e86.2	e81.0	138	111	99.4	51.5	56.3	43.6	149
3	27.5	52.1	78.4	e87.2	e78.9	135	110	97.9	58.5	216	45.5	104
4	27.4	62.1	e74.4	e86.5	e82.1	130	109	95.7	64.3	140	42.8	77.3
5	28.0	69.1	e78.2	e84.4	e84.6	145	106	98.2	62.7	113	41.1	60.3
6	28.4	61.2	e82.4	e86.0	e86.0	137	105	97.0	59.3	82.6	36.5	49.4
7	27.7	58.9	85.0	e89.0	e87.8	127	105	98.7	55.7	288	31.9	42.1
8	28.2	60.5	87.0	e89.2	e88.9	123	105	199	50.8	770	25.9	36.2
9	29.6	62.5	92.6	e90.3	e91.8	122	103	183	47.8	1,080	34.1	32.4
10	30.2	61.4	90.9	e92.5	e96.3	120	103	170	48.6	489	30.5	31.5
11	31.4	59.7	89.9	e95.6	e100	124	103	150	48.4	240	26.1	30.8
12	37.0	60.1	93.8	e95.0	e112	130	105	129	48.0	160	23.4	29.8
13	33.8	61.4	111	e94.6	e123	121	104	113	43.2	107	21.2	27.8
14	32.5	61.9	110	e96.4	e140	118	103	105	37.9	85.6	21.3	26.4
15	32.3	63.8	96.4	e99.0	140	118	114	125	31.9	70.6	19.8	24.9
16	32.6	64.5	e61.6	e102	e130	118	114	118	29.3	77.3	18.4	26.2
17	32.2	64.0	e56.0	e103	e95.9	116	110	108	34.7	71.1	15.5	25.4
18	32.4	e43.0	e60.5	e104	e95.2	114	106	103	38.6	58.5	14.2	25.7
19	33.6	e37.2	e60.2	e114	e121	113	106	93.1	32.7	48.1	14.3	28.1
20	34.5	e38.7	e54.3	e130	138	117	167	87.5	29.3	40.9	13.0	27.5
21	35.7	e44.6	e50.6	122	148	113	125	87.6	26.8	36.7	13.8	27.9
22	36.5	e56.0	e45.8	e118	138	115	109	82.3	24.9	33.3	13.4	112
23	37.8	e65.9	e42.5	e83.7	117	116	105	78.8	40.3	32.5	13.0	358
24	38.4	75.2	e42.3	e84.8	e70.5	114	103	76.2	37.7	31.3	12.6	254
25	39.7	79.7	e44.2	e79.1	e85.9	115	101	81.3	29.1	28.9	12.2	161
26	38.4	82.1	e47.6	e77.4	e118	122	101	76.4	26.0	27.5	38.4	124
27	42.7	82.9	e51.7	e83.4	e146	126	100	66.5	28.4	e27.1	1,460	94.2
28	47.8	84.2	e57.3	e82.7	152	123	101	61.4	26.9	e23.7	2,060	118
29	48.3	85.3	e62.4	e77.5		121	107	60.3	25.4	27.1	946	138
30	49.2	e66.5	e67.7	e76.7		121	103	56.6	27.8	36.1	372	118
31	49.7		e72.6	e76.1		118		57.1		46.9	198	
Total	1,079	1,865	2,196	2,867	3,025	3,827	3,257	3,155	1,218	4,585	5,711	2,560
Mean	34.8	62.2	70.8	92.5	108	123	109	102	40.6	148	184	85.3
Max	49.7	85.3	111	130	152	157	167	199	64.3	1080	2060	358
Min	27.4	37.2	42.3	76.1	70.5	113	100	56.6	24.9	23.7	12.2	24.9
Ac-ft	2,140	3,701	4,355	5,686	5,999	7,591	6,460	6,257	2,417	9,094	11,330	5,077

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1974 - 2023, BY WATER YEAR (WY)

	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Mean	334	206	200	181	281	639	432	826	932	795	469	354
Max	2,163	1,113	1,646	577	1,059	3,816	2,379	2,638	4,654	9,014	2,572	1,696
(WY)	(1987)	(1997)	(2019)	(1984)	(1993)	(1993)	(1987)	(2015)	(2015)	(1993)	(1985)	(2018)
Min	34.8	62.2	70.8	74.0	89.1	118	109	102	40.6	68.1	38.8	27.8
(WY)	(2023)	(2023)	(2023)	(2018)	(2018)	(1981)	(2023)	(2023)	(2023)	(2013)	(2022)	(2022)

SUMMARY STATISTICS

	Water Year 2023		Water Years 1974 - 2023	
Annual total	35,340			
Annual mean	96.8		476.3	
Highest annual mean			1,891	1993
Lowest annual mean			96.8	2023
Highest daily mean	2,060	Aug 28	39,300	Jul 26, 1992
Lowest daily mean	12.2	Aug 25	12.2	Aug 25, 2023
Annual 7-day minimum	13.2	Aug 19	13.2	Aug 19, 2023
Maximum peak flow	2,370	Aug 28	59,200	May 07, 2015
Maximum peak stage	5.69	Aug 28	23.07	Oct 12, 1973
Annual runoff (cfsm)	0.035		0.172	
Annual runoff (inches)	0.478		2.34	
10 percent exceeds	132.0		787.9	
50 percent exceeds	78.8		185.0	
90 percent exceeds	27.8		93.0	



Water Year 2023 Discharge Measurements

Site #	Meas. #	Meas. Date & Time	Meas. Used	Meas. Party	Meas. Agency	Discharge	Gage Height	Meas. Rating	Control Condition
06882000	1526	10/18/2023 10:08	Yes	bhi	USGS	85.2	3.20	Fair	Clear
06882000	1525	9/5/2023 11:27	Yes	bhi	USGS	94.9	3.22	Fair	Clear
06882000	1524	8/18/2023 9:18	Yes	JTC	USGS	83.4	3.16	Fair	Clear
06882000	1523	7/28/2023 8:26	Yes	LWN	USGS	84.2	3.12	Fair	DebrisLight
06882000	1522	6/22/2023 8:47	Yes	bhi	USGS	25.1	2.75	Fair	Clear
06882000	1521	6/16/2023 9:42	Yes	jtc	USGS	38	2.90	Good	Clear
06882000	1520	6/13/2023 10:55	Yes	kek	USGS	73.7	3.14	Fair	Clear
06882000	1519	5/18/2023 9:11	Yes	bhi	USGS	220	3.67	Fair	Clear
06882000	1518	4/12/2023 9:14	Yes	bhi	USGS	186	3.62	Fair	Clear
06882000	1517	3/1/2023 12:55	Yes	bhi	USGS	298	3.92	Fair	Clear
06882000	1516	1/20/2023 12:05	Yes	bhi	USGS	241	3.77	Fair	Clear
06882000	1515	12/2/2022 9:59	Yes	bhi	USGS	186	3.69	Poor	Clear
06882000	1514	10/21/2022 11:27	Yes	bhi	USGS	116	3.36	Fair	Clear
06884025	650	10/18/2023 11:50	Yes	bhi	USGS	42.6	1.45	Fair	Clear
06884025	649	9/5/2023 13:21	Yes	bhi	USGS	59.3	1.70	Fair	Clear
06884025	648	8/16/2023 11:04	Yes	bhi	USGS	18.2	1.28	Fair	Clear
06884025	647	7/27/2023 12:32	Yes	LWN	USGS	26.5	1.34	Fair	DebrisLight
06884025	646	7/14/2023 12:31	Yes	bhi	USGS	82.1	1.80	Fair	Clear
06884025	645	6/22/2023 11:01	Yes	bhi	USGS	24.3	1.25	Fair	Clear
06884025	644	6/16/2023 11:40	Yes	jtc	USGS	29	1.30	Good	Clear
06884025	643	6/13/2023 13:05	Yes	kek	USGS	42.6	1.44	Fair	Clear
06884025	642	6/1/2023 12:09	Yes	bhi	USGS	50.8	1.52	Fair	VegetationLight
06884025	641	5/18/2023 10:53	Yes	bhi	USGS	105	1.82	Fair	VegetationLight
06884025	640	4/12/2023 10:59	Yes	bhi	USGS	105	1.88	Fair	Clear
06884025	639	3/1/2023 10:56	Yes	bhi	USGS	165	2.17	Fair	Clear
06884025	638	1/20/2023 10:21	Yes	bhi	USGS	122	2.04	Fair	Clear
06884025	637	12/2/2022 12:04	Yes	bhi	USGS	103	1.91	Fair	Clear

Attachment I

REPORT OF THE ENGINEERING COMMITTEE
TO THE
KANSAS-NEBRASKA BIG BLUE RIVER COMPACT ADMINISTRATION

May 8, 2024

The Engineering Committee did not receive any special assignments from the Compact Administration and did not meet during the past year. The United States Geological Survey (USGS) and the Lower Big Blue Natural Resources District (LBBNRD) provided the data included in this report.

Review of Streamflow Data

The Compact sets forth the following streamflow targets at the state line gaging stations:

	Big Blue River	Little Blue River
May	45 cfs	45 cfs
June	45 cfs	45 cfs
July	80 cfs	75 cfs
August	90 cfs	80 cfs
September	65 cfs	60 cfs

From May 1 to September 30 of Water Year (WY) 2023 (October 1, 2022 through September 30, 2023), there were extended periods of natural streamflow shortage at the state line. Mean daily streamflow at the Barneston, NE gage on the Big Blue River (Exhibit A) was below target streamflow for a total of 31 days, and mean daily streamflow at the Hollenberg, KS gage (Exhibit B) on the Little Blue River was below target streamflow for a total of 77 days.

Real-time and historical data for these gaging stations can be found at the following websites:
Big Blue River at Barneston, NE https://waterdata.usgs.gov/monitoring-location/06882000/
Little Blue River at Hollenberg, KS https://waterdata.usgs.gov/monitoring-location/06884025/

Review of Groundwater Data

The LBBNRD provided groundwater level data (Exhibit C) within the Big Blue River basin near Beatrice, NE.

Review of Wells in the Regulatory Reaches

Exhibit D provides a list of active irrigation wells within the regulatory reaches. No new wells were drilled in the Big Blue River or Little Blue River regulatory areas during this reporting period.

Respectively Submitted,

Jeremy F. Gehle, Chair
Nebraska

Elizabeth Hickman, I.E.
Kansas

Exhibit A

Water-Data Report 2023

06882000 Big Blue River at Barneston, Nebr. -- Continued

SUMMARY STATISTICS

	Water Year 2023		Water Years 1933 - 2023	
Annual total	69,140			
Annual mean	189.4		848.2	
Highest annual mean			2,781	1993
Lowest annual mean			115.0	1934
Highest daily mean	1,220	Jul 08	50,000	Jun 09, 1941
Lowest daily mean	20.3	Jun 25	1.00	Nov 30, 1945
Annual 7-day minimum	23.7	Jun 21	15.1	Aug 03, 1934
Maximum peak flow	1,350	Jul 08	57,700	Jun 09, 1941
Maximum peak stage	5.85	Jul 08	34.30[a]	Jun 09, 1941
Annual runoff (cfsm)	0.043		0.191	
Annual runoff (inches)	0.578		2.59	
10 percent exceeds	293.4		1,720	
50 percent exceeds	169.0		285.0	
90 percent exceeds	73.0		110.0	

[a] Gage height at different site and(or) datum

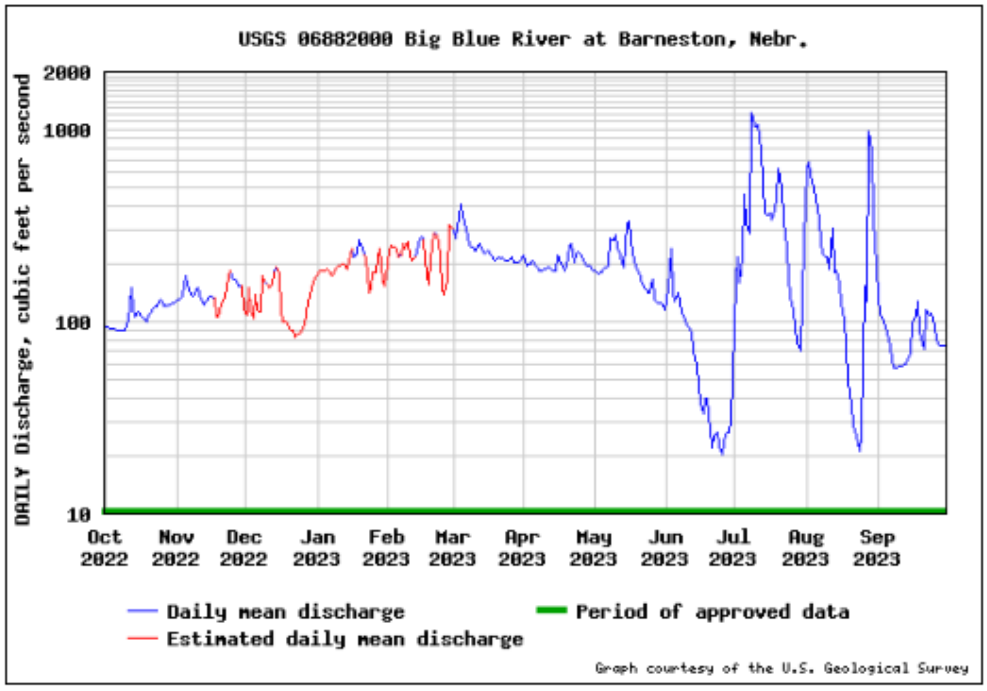


Exhibit B

Water-Data Report 2023

06884025 Little Blue River at Hollenberg, KS -- Continued

SUMMARY STATISTICS

	Water Year 2023		Water Years 1974 - 2023	
Annual total	35,340			
Annual mean	96.8		476.3	
Highest annual mean			1,891	1993
Lowest annual mean			96.8	2023
Highest daily mean	2,060	Aug 28	39,300	Jul 26, 1992
Lowest daily mean	12.2	Aug 25	12.2	Aug 25, 2023
Annual 7-day minimum	13.2	Aug 19	13.2	Aug 19, 2023
Maximum peak flow	2,370	Aug 28	59,200	May 07, 2015
Maximum peak stage	5.69	Aug 28	23.07	Oct 12, 1973
Annual runoff (cfsm)	0.035		0.172	
Annual runoff (inches)	0.478		2.34	
10 percent exceeds	132.0		787.9	
50 percent exceeds	78.8		185.0	
90 percent exceeds	27.8		93.0	

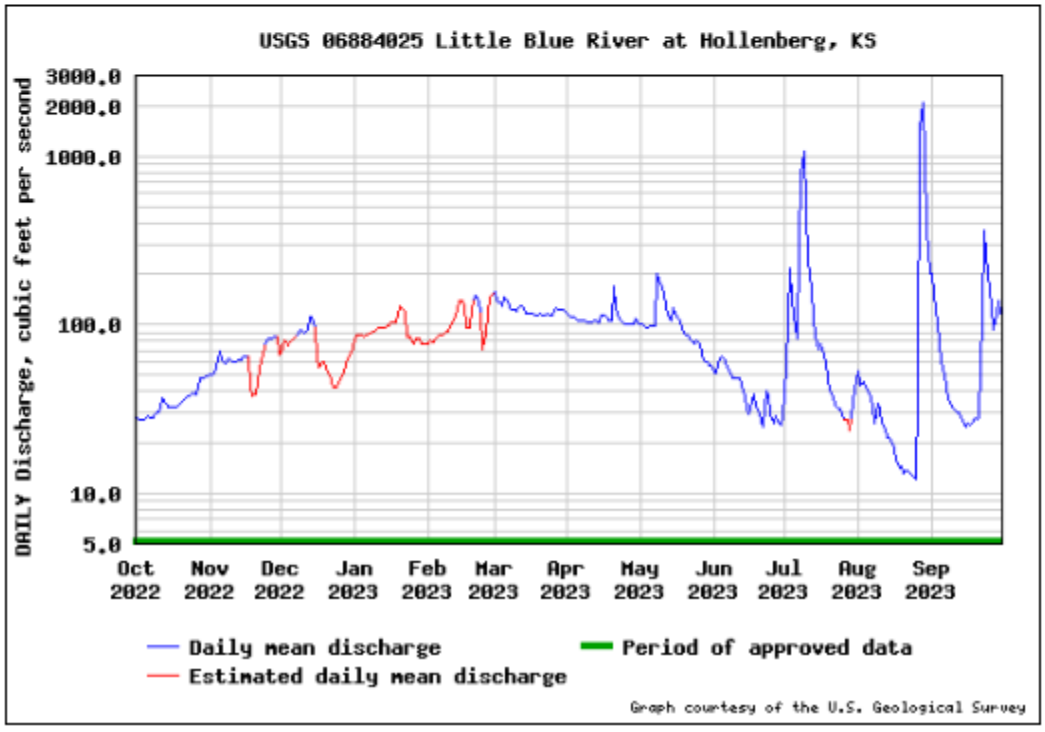


Exhibit C

BIG BLUE RIVER COMPACT STATIC WATER LEVELS 2023

LEGAL	SECT	SITE	TYPE	Spring 2023	Fall 2023
4N-5E	2	AAAA	OW	94.77	97.2
4N-5E	2	DDAA	IW	19.51	21.8
4N-5E	4	BBBC	IW	21.21	24.1
4N-5E	9	CBCC	IW	73.24	89.5
4N-5E	10	DDAA	IW	27.89	32.5
4N-5E	11	DACA	IW	17.33	19.2
4N-5E	14	ABBB	IW	15.06	17.1
4N-5E	25	AACD	IW	19.15	19.9
5N-4E	12	ABBA	IW	19.64	21.1
5N-4E	13	BADD	IW	17.17	18.1
5N-4E	23	BABB	IW	17.77	19.6
5N-4E	24	AACD	IW	19.39	21.1
5N-5E	7	CADD	IW	62.60	65.8
5N-5E	20	BCCD	IW	20.08	21.3
5N-5E	21	DDBB	IW	55.90	73.9
5N-5E	29	CBBB	IW	14.85	17.14
5N-5E	33	AADD	IW	19.74	24.8

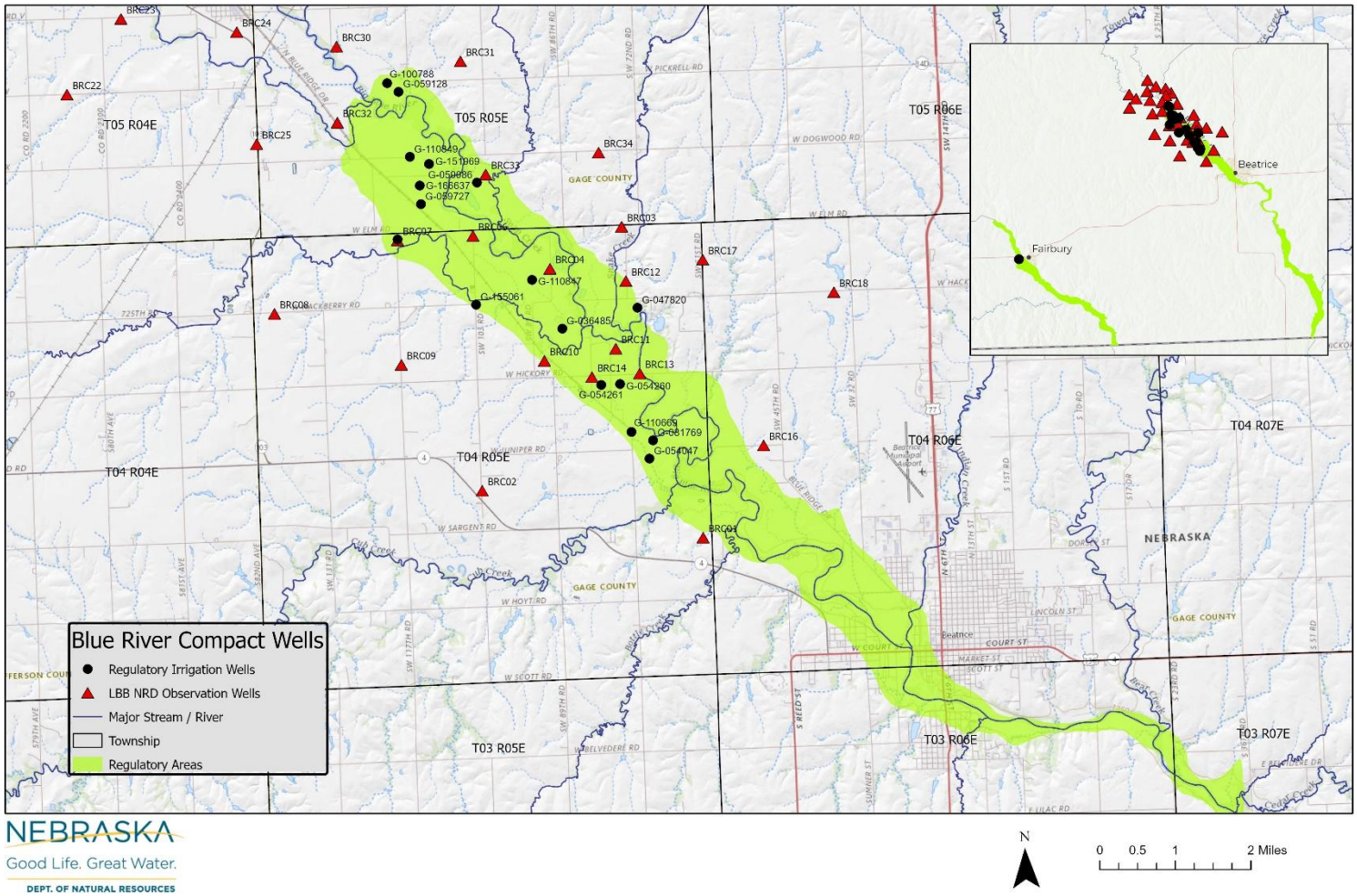
OW - OBSERVATION WELLS IW - IRRIGATION WELLS

Exhibit D

Big Blue River Regulatory Area Wells					
Registration Number	Location T-R-S	Completion Date	Depth (FT)	Registration Pumping Capacity (GPM)	Filing Date
G-036485	4N-5E-11BC	3/28/1972	82	750	4/24/1972
G-038314	4N-5E-2DD	1/16/1973	188	1,300	1/29/1973
G-047820	4N-5E-12BB	11/1/1975	117	1,200	12/4/1975
G-050086	5N-5E-33AD	5/26/1976	123	800	6/9/1976
G-054047	4N-5E-24BB	3/1/1976	84	800	1/6/1977
G-054260	4N-5E-14AA	6/1/1974	70	800	1/14/1977
G-054261	4N-5E-14AB	5/2/1970	70	800	1/14/1977
G-056152	4N-5E-4BB	4/14/1977	91	1,000	5/11/1977
G-059128	5N-5E-29AA	4/25/1977	60	400	1/4/1978
G-059727	5N-5E-33CB	4/19/1978	91	1,200	4/20/1978
G-081769	4N-5E-13CD	4/22/1994	65	250	6/24/1994
G-100788	5N-5E-29AB	3/19/1999	65	500	6/2/1999
G-110669	4N-5E-13CC	7/12/1995	64	375	6/29/2001
G-110847	4N-5E-3DA	5/4/1979	82	800	7/2/2001
G-110849	5N-5E-29DD	4/30/1983	102	800	7/2/2001
G-151969	5N-5E-33BB	12/11/2008	112	800	1/20/2009
G-155061	4N-5E-10BB	12/4/2009	98	800	1/27/2010
G-166637	5N-5E-33BC	03/20/2013	120	1,200	3/28/2013

Little Blue River Regulatory Area Wells					
Registration Number	Location T-R-S	Completion Date	Depth (FT)	Registration Pumping Capacity (GPM)	Filing Date
G-058158	2N-2E-16AD	8/15/1977	29	650	9/6/1977

Compact Monitoring and Regulatory Irrigation Wells in the Big Blue River Basin



NEBRASKA
Good Life. Great Water.
DEPT. OF NATURAL RESOURCES

Attachment J

Big Blue River Compact Water Quality Committee Agenda

April 10, 2024 11:00 – 2:00

Beatrice, Nebraska

1. Introductions
    a. In attendance:

        Compact Chair: W. Don Nelson
        Kansas Department of Health and Environment: William Carr, Tom Stiles, Bruna Rossi, Mike Beezhold, Shelly Shores, Chris Hase, Scott Satterthwaite
        Little Blue NRD: Tyler Goeschel, Scott Nelson
        Lower Big Blue NRD: Tyler Weishahn
        Upper Big Blue NRD: Marie Krausnick, Terry Julesgard
        Nebraska Association of Resource Districts: Jennifer Swanson
        Nebraska Department of Agriculture: Craig Romary
        Nebraska Department of Environment and Energy: Connor McFayden, Amanda Osborn, Patrick Ducey, Tara Anderson, Kara Valentine, Katie Hickle, Sarah Starostka, Noah Hovorka, Jessica Russell
        Tuttle Creek WRAPS: Daniel L. Howell

2. Water Quality Standards
    a. Kansas Updates
    b. Nebraska Updates
    c. Dealing with Selenium
    d. Adopting Human Health Criteria

3. 303(d) Lists and TMDLs
    a. Status of 2024 lists
    b. Impaired Waters in Kansas
    c. Impaired Waters in Nebraska
    d. Any Delisted Waters?

4. 319 Non-Point Source Pollution Control
    a. Kansas Watershed Activities (WRAPS)
    b. Nebraska NRD Watershed Activities
    c. Nebraska Watershed Activities
    d. Nebraska NRCS State Technical Committee – WQ Subcommittee
    e. Nitrogen Study Update
    f. Managing Nitrate in Groundwater
    g. Nebraska Nitrogen Reduction Act

5. NPDES Permitting
    a. Increased Scrutiny by Region VII?
    b. Antidegradation Procedures
    c. Nutrient Monitoring, Limits or Reductions

    d. Optimization Opportunities

6. SRF Projects in the Watershed
    a. Kansas
    b. Nebraska
    c. State Funded Projects

7. General Discussion

Attachment K

Nebraska's Water Quality Report for the Big Blue Compact WQ Meeting

April 10, 2024

11:00 – 2:00 PM

Water Quality Standards

- **Current Triennial Review**
  - Proposed changes were presented to the Environmental Quality Council (EQC) on November 17th, 2023.
  - Attachment A has a list of proposed changes that were accepted by the EQC.
  - Going through legal review and will be sent onto EPA once signed by Governor and Attorney General and filed with the Secretary of State.
- **Selenium Criterion**
  - NE adopted the 2016 EPA recommended selenium criterion in the 2019 triennial review. See Attachment A for selenium criteria in T117.
  - Fish tissue supersedes the water column criterion where fish tissue is present.
  - Have been collecting selenium fish tissue samples since 2016 in anticipation of adoption. See attachment A for fish tissue data.
  - In 2021 EPA identified that the following text was missing from the second sentence in footnote 4 in the criterion table: "When selenium inputs are increasing." Corrected footnote 4 now states: "4. Water column values are based on dissolved total selenium in water and are derived from fish tissue values via bioaccumulation modeling. When selenium inputs are increasing, water column values are the applicable criterion element in the absence of steady-state condition fish tissue data."
  - Currently have an approved 4c justification in the Elkhorn basin for naturally occurring selenium due to underlying geology.

- **Human Health Criteria**
  - Nebraska updated 84 of the Human Health Criteria during the last triennial review (approved in 2019) for both Aquatic Life and Public Drinking Water designations. These two paragraphs are from the explanation of proposal about the changes:
  - "Revised criteria are proposed for 84 substances that are found in Chapter 4, 003.1C1 and Chapter 7, 004.01C1. Criteria in these paragraphs are designed to protect aquatic life beneficial uses, which includes human health based on the consumption of fish and other aquatic organisms. The 84 proposed revisions are based on EPA recommendations under Clean Water Act Section 304(a) for protection of human health through consumption of fish and other aquatic organisms. Sixty criteria would become more stringent, 19 would become more lenient, and five are new. In all cases, the revised criteria would be based on better scientific information than the criteria they replace.
  - Revised criteria are also proposed for 84 substances that are found in Chapter 4, 004.01B. Criteria in these paragraphs are designed to protect the public drinking water supply beneficial use. These 84 proposed revisions are based on EPA recommendations under Clean Water Act Section 304(a) for protection of human health through consumption of water and aquatic organisms. Sixty-one criteria would become more stringent, 17 would become more lenient, and six are new. In all cases, the revised criteria would be based on better scientific information than the criteria they replace."

Water Quality Assessments

- Nebraska's 2022 Integrated Report was partially approved by EPA in August 2023. EPA deferred action on portions of the impaired waters list impacted by a miscommunication regarding the appropriate methodology for the assessment of toxic pollutants and the application of chronic water quality standards. The State is currently working to implement the agreed-upon changes to its assessment methodology, and the 2024 Integrated Report is targeted for submittal to EPA by the end of 2024.
- *E. coli*, atrazine, and impaired aquatic community are the most common stream impairments in the Big Blue and Little Blue river basins.
    - No delistings for *E. coli* or aquatic community are anticipated in 2024 IR.

Source Water and Wellhead Protection

- The Nebraska Department of Environment and Energy (NDEE) is inviting proposals for source water protection projects through July 1, 2024. Funding is authorized through section 1452 of the Safe Drinking Water Act as administered by the U.S. Environmental Protection Agency and the Nebraska Department of Environment and Energy. These funds are a potential source of support for drinking water protection projects in Nebraska. Program overview, grant process, general program information, funding priority, project requirements and format are outlined in the attached guidance. Project proposals will be reviewed by staff at Nebraska Department of Environment and Energy and representatives of other organizations. Projects recommended by the reviewers will be forwarded to the Director of NDEE for approval. Eligible applicants include political subdivisions in Nebraska that operate a public water system serving a population of 10,000 or less that can show financial hardship.
- The request for proposals can be found here: http://dee.ne.gov/RFP.nsf/pages/SWPG2024

319 Non-Point Source Pollution Control

Personnel Updates:

The Nebraska Department of Environment and Energy (NDEE) welcomes three new staff members to its 319 Program.

Katie Hickle- 319 Program Coordinator
Jessica Russell- 319 Project Manager
Noah Hovorka- 319 Project Manager

Please help NDEE congratulate, Elbert Traylor, 319 Project Manager, on his retirement at the end of this year. In 30 years plus of dedicated work, Elbert has helped define the direction of nonpoint source work on both the state and federal level. Elbert leaves Nebraska a legacy of being one of the most proactive and innovative states doing nonpoint source work in the United States.

Nonpoint Source Activities in the Big Blue River Basin:
Nonpoint source work done by the state of Nebraska in the Blue River Basin falls within one of three major river basins: the Upper Big Blue, the Little Blue, and the Lower Big Blue. Work completed within each river basin is overseen by a Natural Resources District (NRD) which are identified according to the basin they serve: Upper Big Blue NRD, the Little Blue NRD, and the Lower Big Blue NRD.

Upper Big Blue Natural Resources District (UBBNRD)

Lake Hastings Watershed Plan (Join Project with Little Blue NRD): Lake Hastings lies in the headwaters of the West Fork Big Blue River. Section 319 funds were awarded to develop a watershed management plan for the Lake Hastings watershed. The plan will identify the conservation practices effective in reducing loading of nutrients (phosphorus, nitrogen) and sediment to Lake Hastings. The plan also will develop concepts for renovation of the lake following completion of the watershed management efforts. Currently, final modeling is being completed for the plan and the project is anticipated to complete prior to May 31st of 2024. If approved by EPA, this project is anticipated to be followed up with an implementation project to install the conservation practices identified in the developed watershed plan.

High Clearance Cover Crop Seeder Implementation: NDEE and the University of Nebraska Extension initiated an inter-seeder demonstration project in 2021. The purpose of the project is to demonstrate the efficacy of sowing cover crops into standing corn. It will document operating costs for the machine and the return-on-investment potential for private service providers. The primary objective is to encourage service providers to purchase inter-seeders to serve the cover crop market. A total of 15 demonstrations have been completed in the Upper Big Blue district. 9 demonstrations were completed in 2022 and 6 were completed in 2023. An additional 6 demonstrations are scheduled for the Spring of 2024.

Aurora Drinking Water Protection Management Plan- The Aurora Drinking Water Protection Management Plan was reviewed and approved by EPA in October of 2023. A public open house at which the Plan was finalized and stamped was held in January of 2024, and in February of 2024, the City of Aurora began discussions with the NDEE 319 Program regarding starting a project to address water quality concerns addressed in their Drinking Water Protection Management Plan. The City of Aurora is presently working to hold public engagement meetings to provide educational opportunities, and to survey public interest in BMPs used to address elevated nitrate levels.

Little Blue Natural Resources District (LBNRD)

Lake Hastings Watershed Plan (Joint Project with Upper Big Blue NRD)

Groundwater Quality Awareness in the Little Blue NRD: The Little Blue NRD conducted a vadose zone sampling project and groundwater awareness campaign in the upper reaches of the Little Blue River basin. The focus was to provide data and determine public interest levels in the protection of drinking water sources for communities in the area. This project was completed as of December 2023.

Big Sandy Creek Watershed (NWQI) Project: Big Sandy Creek is a tributary of the Little Blue River near Alexandria, Nebraska. A National Water Quality Initiative (NWQI) project is currently being implemented in the lower reach of the watershed to reduce E. coli and Atrazine runoff. As of 2023, this project has been re-approved for implementation through 2028 and will begin work upon development of the Prairie Lake Water Quality Management Plan.

Prairie Lake Water Quality Management Plan: As an amendment to the Little Blue River Basin Water Management Plan, the Prairie Lake Water Quality Management Plan serves to identify Prairie Lake as a new target area for implementation of BMPs addressing nitrogen and phosphorus loading. As of March

2024, the Prairie Lake Water Quality Management Plan is in review by EPA.

Lower Big Blue Natural Resources District

Turkey Creek-Wilber (NWQI) Project: Turkey Creek lies in the northern tier of the Lower Big Blue Natural Resources District. A National Water Quality Initiative (NWQI) project is currently being implemented in the lower end of Turkey Creek watershed and the Wilber Wellhead Protection Area to address excess loading of E. coli, Atrazine, and nitrate.

Beatrice Drinking Water Management Plan: The Beatrice Drinking Water Management Plan aims to both proactively address the growing need for water resources by the increasing population of the City of Beatrice, and to address water quality concerns surrounding nitrate loading. As of July 2023, the Beatrice Drinking Water Management Plan is approved by EPA.

2023- 2024 Drinking Water in Nitrate Study

Goal:

Provide an analysis and recommend viable solutions for nitrate impacted drinking water including drinking water supply not regulated by the Safe Drinking Water Act (SDWA).

Objectives:

- Analyze nitrate concentrations in Nebraska groundwater and identify trends and data gaps.
- Provide free nitrate test kits to private well owners.
- Develop a risk communication-based outreach plan that NDEE and other partners can use to promote awareness of nitrate in drinking water supplies.
- Develop guidance and tools to assist private domestic well owners in evaluating their risk of nitrate in drinking water and provide solutions to mitigate nitrate-affected water. This includes a guidance document and an interactive, web-based geographic information system (GIS) tool. A predictive model is being developed to help predict nitrate concentrations, which is particularly helpful in areas where there may not be as much available nitrate data. This model is being integrated into the GIS tool.
- Develop guidance and tools that prioritize areas of the state for program outreach with the goal of proactively addressing rising nitrate concentrations, including a guidance document for small Public Water Systems (PWSs).

Private Well Sampling Effort:

- Postcards sent to all registered domestic well owners on November 29, 2023 advertising free nitrate test kits. Free kits were made available to all private domestic well owners – not just registered wells. We also released a press release to help bring awareness of the effort to all domestic well owners.
- Free kits were available through March 1, 2024.
- Approximately 4,500 kits requested. We have received results for about 3,300 samples. The average nitrate concentration is 4.83 mg/L, the median nitrate concentration is 1.87 mg/L. 508 of these results are above 10 mg/L, which is about 15.4% of sample results.
- We are still waiting for about 1250 kits to be returned for analysis.
- Approximately $490,000 remaining in the RO rebate fund – current deadline to apply is June 30, 2024. To be eligible for the funding, your well must be registered.

SRF Projects in the Big Blue River Watershed

DWSRF
Osceola – New Water Well and Water Tower
Bradshaw – New Water Tower
Seward – New Water Tower
Milford – Water Main Replacements
McCool Junction – Blending Supply Well
Fairmont – Iron/Manganese Water Treatment Plant
Hastings – Lead Service Line Replacements
Clay Center – Replacement Water Well
Fairfield – Distribution System Improvements
Steele City – Replacement Transmission Main
Crete – New Water Well and Distribution System Improvements
Beatrice – Blending Transmission Main and Distribution System Improvements, Land for Wellhead Protection

CWSRF
Benedict – Lagoon Rehabilitation
Gresham – Lagoon Rehabilitation
Fairbury – New Wastewater Treatment Facility

Potential Projects – Ranked in order of likelihood.

DeWitt – Major Rehabilitation of Wastewater Treatment Facility
Grand Island to provide drinking water supply to Phillips and Giltner
Aurora to provide drinking water supply to Hampton
Fairbury – Source Improvements Project

Attachment A

Selenium Criterion in Title 117

003.01C3 The following Selenium criteria are for the protection of aquatic life. These criteria are expressed preferentially as fish tissue concentrations (mg/kg fish), followed by water column concentrations (mg/L) in the absence of fish tissue information.

POLLUTANT			CAS No.*	
Selenium			7782-49-2	
	FISH TISSUE[1] CRITERIA		WATER COLUMN[4] CRITERIA	
Criterion Element	Egg/Ovary[2]	Fish Whole Body or Muscle[3]	Thirty-day average	Intermittent Exposure[5]
Magnitude	15.1 mg/kg	8.5 mg/kg whole body or 11.3 mg/kg muscle	1.5 µg/L in lakes and reservoirs 3.1 µg/L in streams and rivers	$WOC_{int} = \frac{WQC_{30\text{-}day} - C_{bkgrnd}(1-f_{int})}{f_{int}}$
Duration	Instantaneous measurement[6]	Instantaneous measurement[6]	30 days	Number of days/month with an elevated concentration
Frequency	Not to be exceeded	Not to be exceeded	Not more than once in three years on average	Not more than once in three years on average

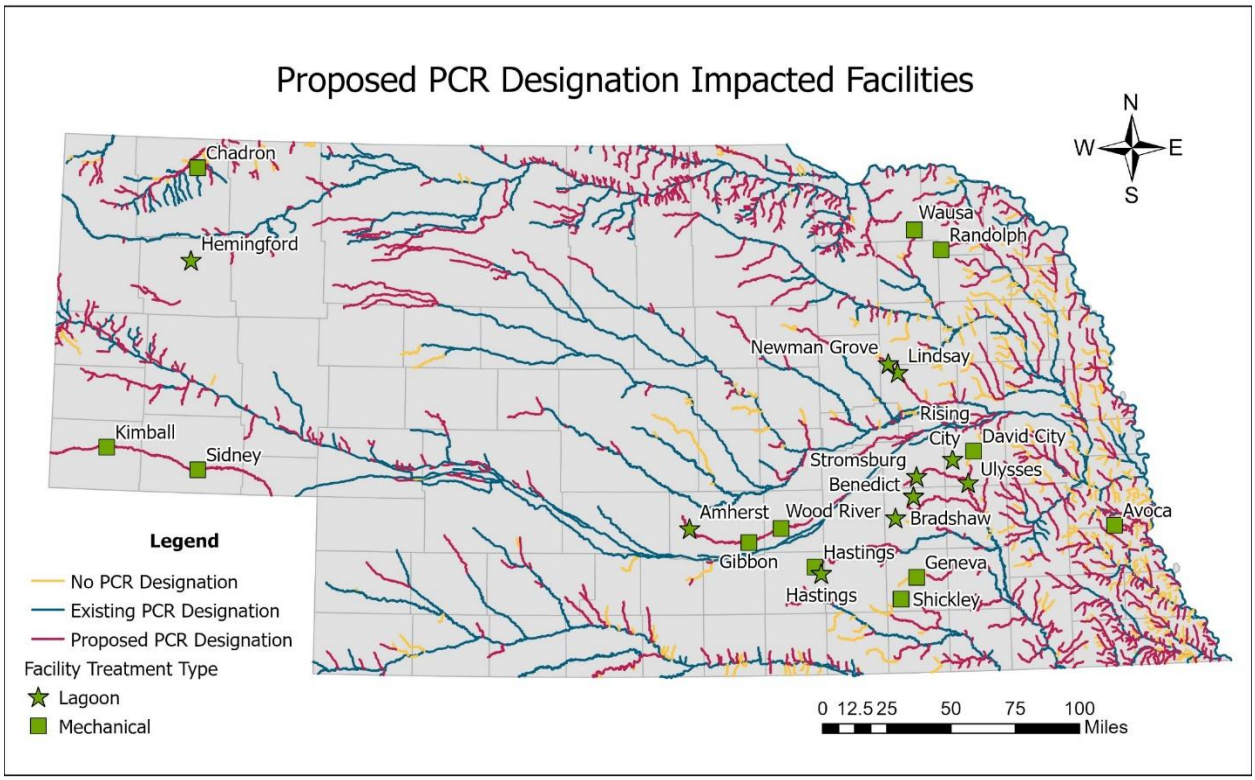
1. Fish tissue elements are expressed as steady-state.
2. Egg/Ovary supersedes any whole-body, muscle, or water column element when fish egg/ovary concentrations are measured.
3. Fish whole-body or muscle tissue supersedes water column element when both fish tissue and water column concentrations are measured.
4. Water column values are based on dissolved total selenium in water and are derived from fish tissue values via bioaccumulation modeling. Water column values are the applicable criterion element in the absence of steady-state condition fish tissue data.
5. Where $WQC_{30\text{-}day}$ is the water column monthly element, for either a lake or stream; C_{bkgrnd} is the average background selenium concentration, and f_{int} is the fraction of any 30-day period during which elevated selenium concentrations occur, with f_{int} assigned a value ≥0.033 (corresponding to 1 day).
6. Fish tissue data provide instantaneous point measurements that reflect integrative accumulation of selenium over time and space in fish populations at a given site.

Selenium fish tissue data

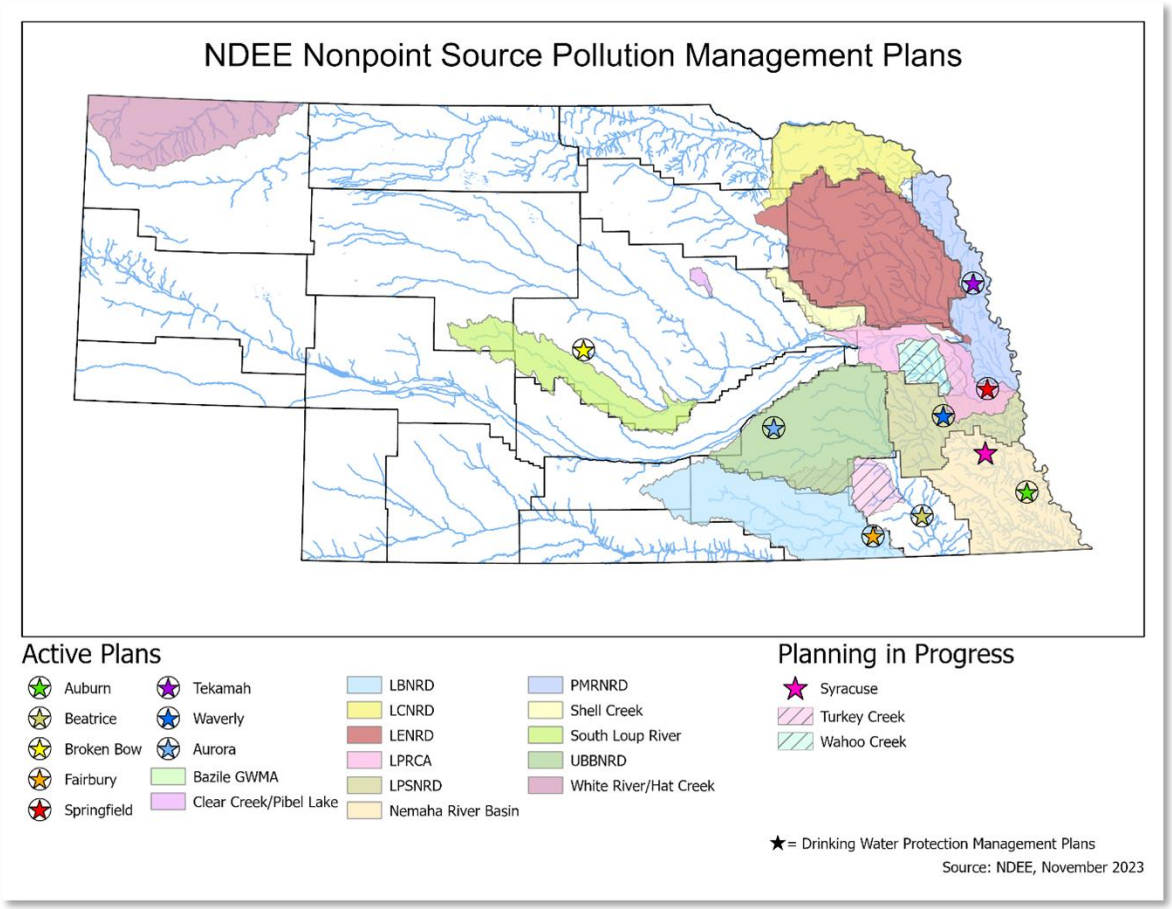
WATERBODY NAME	NE TITLE 117 ID	LAT	LONG	SAMPLE TYPE	SPECIES COLLECTED		FINAL RESULT - SE (mg/kg)
Big Blue River	BB1-10000	40.04444	-96.58611	Selenium	Common Carp		1.33
Big Blue River	BB1-20000	40.39416	-96.90735	Selenium	Red Shiner		2.94
Lincoln Creek	BB4-20800	40.93055	-97.16667	Selenium	Channel Catfish		1.27
Turkey Creek	BB2-10000	40.38936	-96.92778	Selenium	Channel Catfish		0.99
West Fork Big Blue River	BB3-10000	40.70802	-97.12088	Selenium	Channel Catfish		4.12
Big Sandy Creek	LB2-10100	40.21954	-97.31260	Selenium	Channel Catfish		1.01
Little Blue River	LB2-20000	40.16660	-97.59911	Selenium	Channel Catfish		0.98

Proposed changes to Title 117 – Nebraska Water Quality Standards

- **1 – Update list of key species.**
    - Remove species either no longer endangered, or likely extirpated from the state.
    - Add species considered to be sensitive (no newly endangered species listed).
    - Add scientific names to remove ambiguity.
- **2 – Waterbody use designations – add Primary Contact Recreation to 870 stream segments**
    - Per CWA Section 101(a)(2) states are required to designate Primary Contact Recreation to all designated streams, unless a Use Attainability Analysis shows that the PCR use is not attainable.
        - 1,558 stream segments designated.
        - 308 currently have PCR designations.
        - 380 UAA on segments has shown that PCR is not attainable (due to low flows, lack of depth, substrate, etc.).
        - Remaining 870 segments need to have PCR because the use is attainable.
    - New PCR designation would prompt new disinfection requirements for 15 NPDES permit holders with mechanical plants to discharge during the recreation season (May 1 – September 30).
        - 291 municipal or domestic wastewater treatment facilities permitted by the Department through NPDES.
        - 132 are lagoon facilities that discharge seasonally outside of the recreation season.
            - All but 10 lagoons have *E. coli* limits.
            - With this change all lagoon facilities will have *E. coli* limits.
        - 159 are mechanical facilities:
            - All but 15 mechanical facilities have E. coli limits in their NPDES permits:
                - 12 of these facilities will be required to upgrade to include disinfection ability.
                - 2 facilities will still not be required to disinfect – because they will not be within 30 miles of a rec stream.
                - 1 facility already has disinfection equipment but does not currently use it (Chadron).
- **3 – New waterbodies**
    - It is proposed to add 4 stream segments:
        - They are tributaries to the Platte River near Elm Creek – 3 perennial segments, 1 intermittent segment (which is proposed because the intermittent stream segment is downstream of a perennial reach).
    - It is proposed to add 8 lakes / reservoirs:
        - Newly constructed or newly identified.
- **4 - Removal of waterbodies**
    - Spencer Hydro Dam Lake no longer exists due to the dam being destroyed in 2019 flooding:
        - The stream segment exists in Chapter 5 and is flowing unimpeded.
- **6 - Errata Correction**
    - EPA recently published “2021 Revision Aquatic Life Ambient Water Quality Criterion for Selenium”.
        - They previously omitted the language “When selenium inputs are increasing” in the footnote of the criteria table.
        - It is proposed to incorporate that language into Title 117 in the footnotes and narrative descriptions of selenium criteria.
- **7 – Proposed housekeeping changes**
    - Update stream and lake names and waterbody identification numbers to conform to Geographic Names Information System.
    - Correct spelling errors.



NDEE Nonpoint Source Pollution Management Plans



Attachment L

Kansas Water Quality Report for Big Blue River Compact

May 7, 2024 – Manhattan, Kansas

1. Water Quality Standards: Kansas has submitted its latest triennial review of its surface water quality standards to EPA late last year. Among the changes made were adoption of 93 of the 94 substances with updated and revised Human Health Criteria established by EPA; adoption of the equation to compute acute cadmium criteria as a function of water hardness and updates to register noting which small town lagoon systems were granted variances from meeting ammonia criteria because of economic considerations. Within the Big Blue basin, Centralia has a variance for ammonia out of its lagoons.

2. Section 303d Listings: Kansas submitted its 303d list of impaired waters to EPA on April 1 of this year. Within the Big Blue basin, the upper and lower reaches of the Big Blue River are listed for arsenic, lead, total suspended solids and selenium. The arsenic and selenium listings are new from the 2022 list. The lead listings are likely tied to adhering to sediment put into suspension during runoff. Kansas is in the midst of a debate with EPA over the proper analysis for atrazine exceedances, calling into question some delistings of atrazine elsewhere in the state.

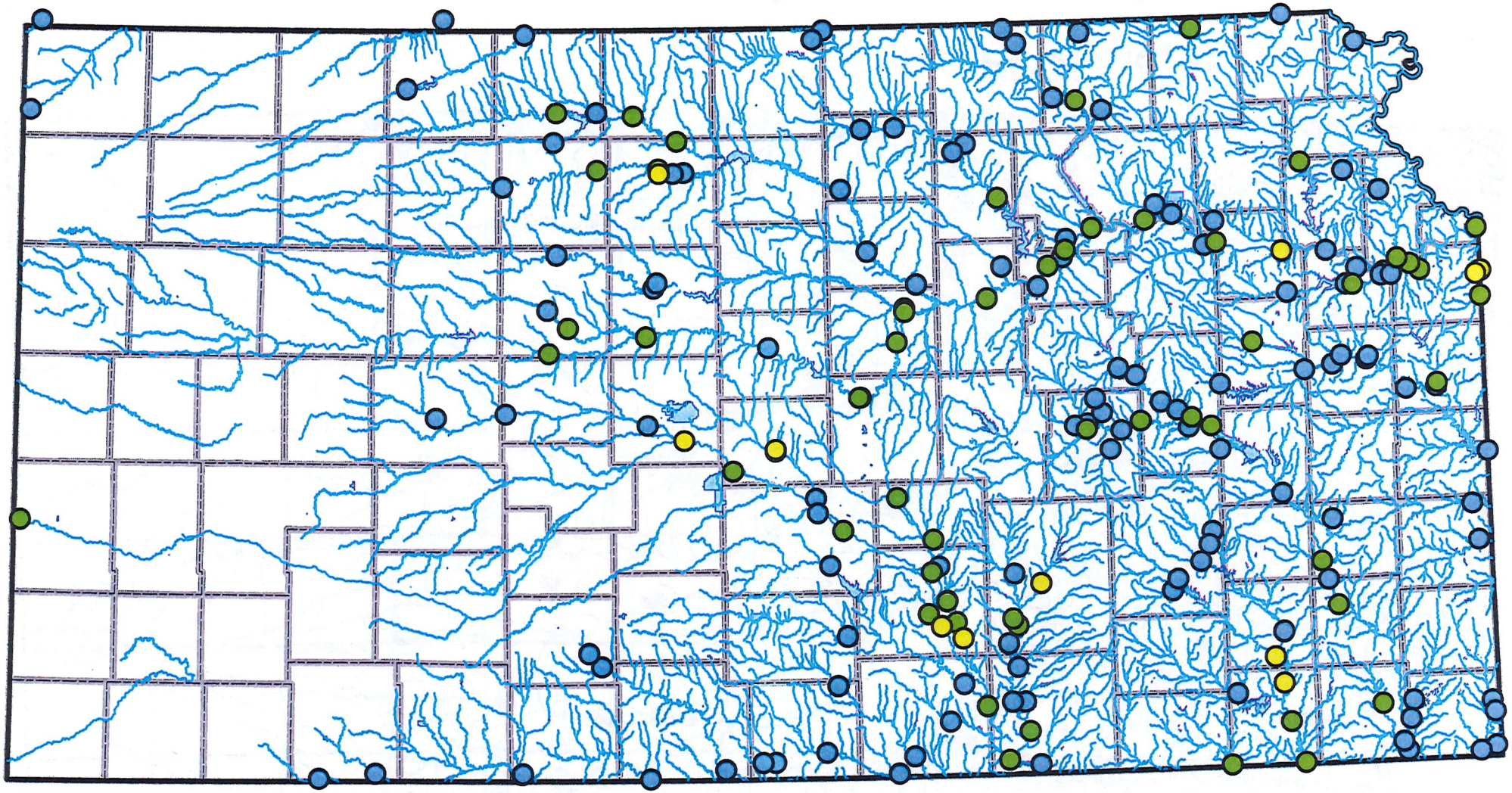
3. Delistings of Previous Impairments: Kansas has had a few streams delisted from the impaired waters list: beryllium, copper, pH marked early delists. More recently, a few streams, the Black Vermillion, Horseshoe Creek, the Little Blue River and Mill Creek saw total suspended solid median concentrations fall below 50 mg/l, supporting delisting. The Watershed Management Section of KDHE cited the delisting of Black Vermillion River as a success under its 319 program.

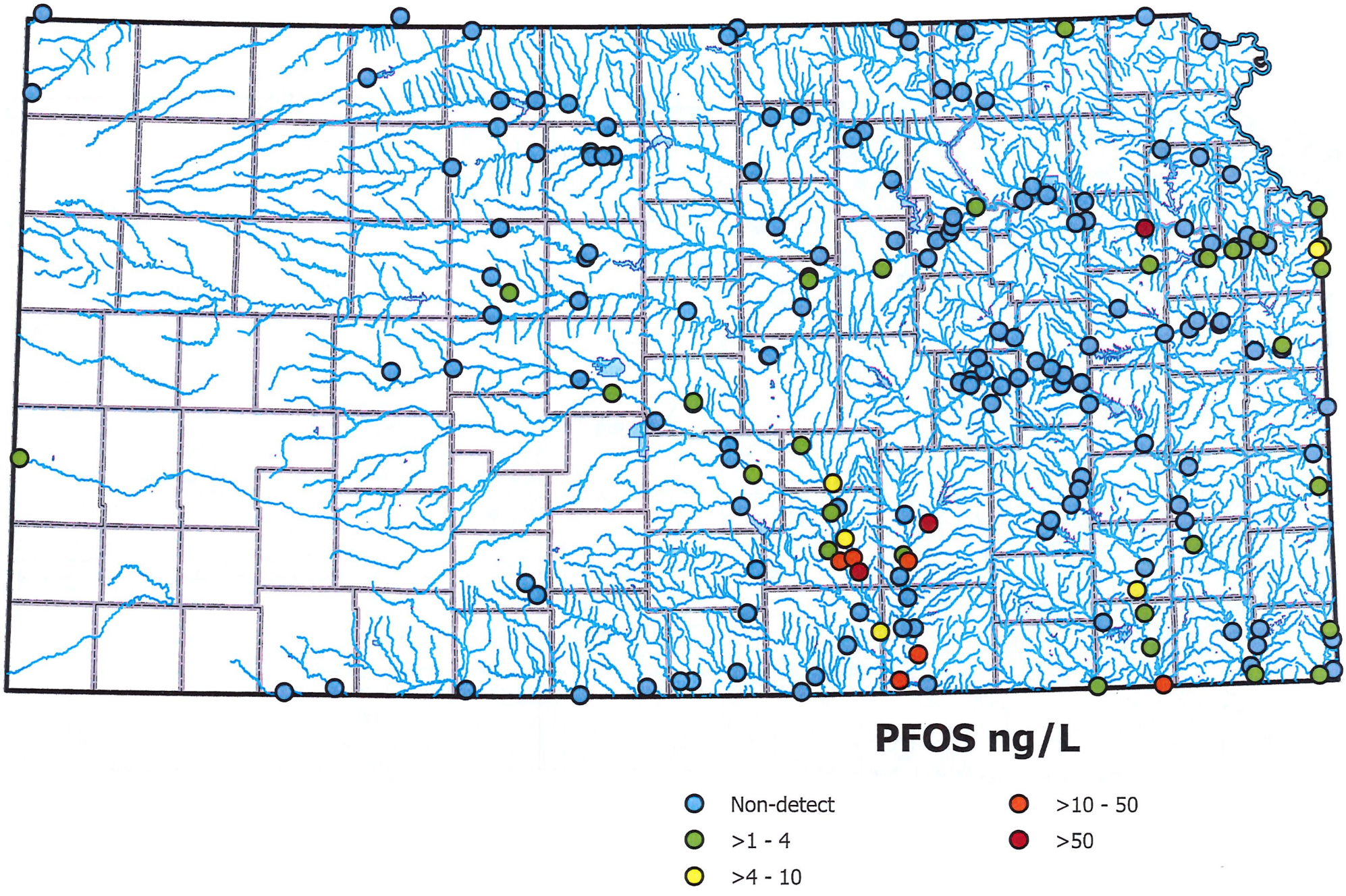
4. Total Maximum Daily Loads: Kansas reports no new TMDLs have been established in the basin; the TMDLs addressing atrazine, E. coli and phosphorus are still in place.

5. Non-Point Source Pollution Control: The Watershed Management Section continues to promote soil health practices through its Watershed Restoration and Protection Strategy group within the Tuttle Creek Lake drainage. As noted earlier, some success has been seen in reducing sediment loads into the rivers above the lake. The WQ meeting in April led to discussion with the NE 319 program to jointly develop a framework for getting FEMA interested in funding watershed wide soil health, i.e. Tuttle Creek Reservoir watershed. Along with improved Kansas water quality from practice implementation in NE.

6. No new State Revolving Fund loans have been executed recently for communities in the basin, however, two Small Town Infrastructure Grants have been awarded to Narka ($283,000) to repair and replace a leaky, above ground sewer line and to Olsburg ($490,000) to convert their wastewater lagoon to nondischarging. Additionally, Riley County was awarded $1.5M to convert University Park from a failing mechanical wastewater plant to a non-discharging lagoon, eliminating nutrient loading into Tuttle Creek. KDHE further awarded $462,210 of State Water Plan Funds to finish that project. KDHE also granted $2.54M in SWPF to Riley County to install a lagoon system in the community of Keats west of Manhattan to address failing septic systems.

7. NPDES: All wastewater systems discharging into the drainage leading to Tuttle Creek Reservoir are lagoon systems. The largest, at Marysville, is working to enlarge its primary cell and install a wetland at the terminus to make the system non-discharging into the Big Blue River.


PFOA ng/L
Non-detect
>1 - 4
>4 -10


PFOS ng/L
Non-detect
>1 - 4
>4 - 10
>10 - 50
>50