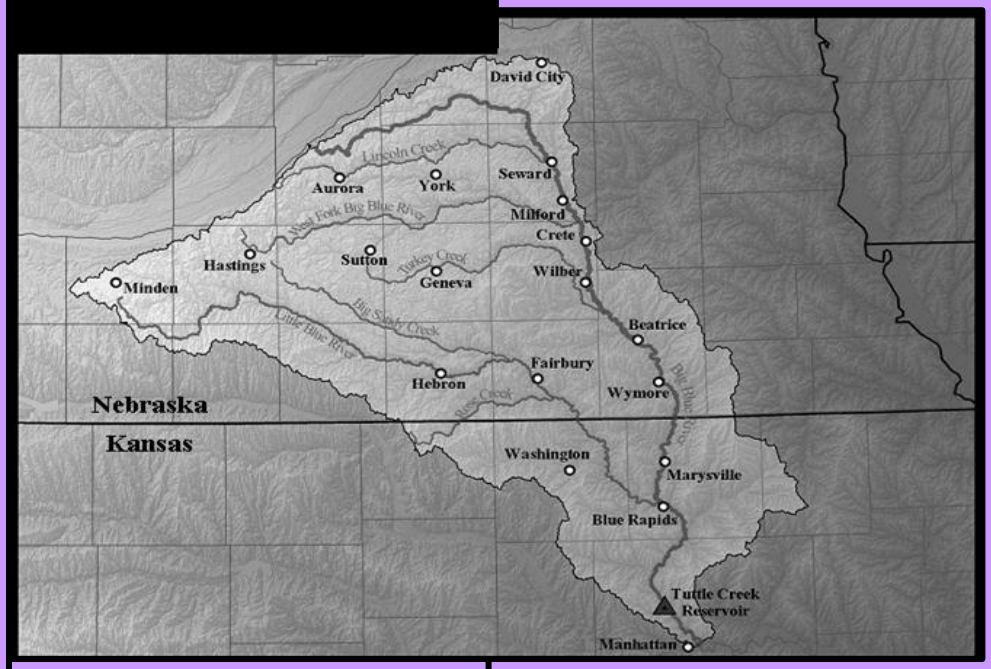
KANSAS-NEBRASKA
BIG BLUE RIVER COMPACT

FORTY-NINTH
ANNUAL REPORT



FISCAL 2022

Beatrice, NE
May 18, 2022

KANSAS – NEBRASKA BIG BLUE RIVER

COMPACT ADMINISTRATION

May 9, 2023

The Honorable Joseph R. Biden, Jr.
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 Forty-Ninth Annual Report. The report covers the activities of the Administration of the Compact for the Fiscal Year 2022 while I was the presiding Federal Chair.

Respectfully,

W. Don Nelson

Federal Compact Chair

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NEBRASKA

Good Life. Great Water.

DEPT. OF NATURAL RESOURCES

Pete Ricketts, Governor

May 3, 2022

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

Earl Lewis, KS Commissioner
Kansas-Nebraska BBRCA
1320 Research Drive, 3rd Floor
Manhattan, KS 66502

Hanna 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 2022 annual meeting of the Kansas-Nebraska Big Blue River Compact Administration will be hosted by Nebraska on Wednesday, May 18, 2022, at 9:00 a.m. The meeting will be held at the Homestead National Historical Park (8523 NE HWY 4, Beatrice, NE).

A tentative agenda is enclosed with this meeting notice.

Sincerely,

Thomas E. Riley

Tom Riley, P.E.
NE Commissioner
Enclosures or Attachments (1)

cc: Budget Committee – Bob Robles, Elizabeth Hickman
Legal Committee – Emily Rose, Kenneth Titus
Engineering Committee – Jeremy Gehle, Elizabeth Hickman, Katie Tietsort
Water Quality Committee – Tom Stiles, Craig Romary, Dan Howell, Ryan Chapman
NRD Managers –Scott Nelson, Scott Sobotka, David Eigenberg, John Thorburn
Add'l – Jim Macy, Jason Lambrecht, Tim Boyle

Tom Riley, P.E. Director
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Kansas-Nebraska Big Blue River Compact Administration
49th Annual Meeting

May 18, 2022, 9:00 A.M.
Homestead National Historical Park
8523 NE HWY 4
Beatrice, NE
AGENDA

1. Call to Order
2. Introductions and Announcements
3. Minutes and Report of the 48th Annual Meeting
4. 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
        i. Lower Big Blue NRD
        ii. Little Blue NRD
        iii. Upper Big Blue NRD
    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 49th ANNUAL MEETING
OF THE
KANSAS-NEBRASKA BIG BLUE RIVER COMPACT ADMINISTRATION

Call to Order

The Forty-Ninth Annual Meeting of the Kansas-Nebraska Big Blue River Compact Administration (Administration) was held on May 18th, 2022 at the Homestead National Historic Park in Beatrice, NE. The meeting was open to the public.

The meeting was called to order at 9:03 AM CDT by W. Don Nelson, Federal Compact Chair. Mr. Nelson introduced himself and invited attendees to raise their hands if they had a question or something to contribute at any point during the meeting. He reminded attendees that the Administration conducts its annual meetings in accordance with the open meeting laws of both the federal government and the Nebraska and Kansas state governments, so guests were, as always, welcome to participate in the meeting.

Introductions

Those confirmed in attendance were:

W. Don Nelson	Federal Compact Chair
Earl Lewis	Kansas Compact Commissioner; Chief Engineer, Kansas Department of Agriculture, Division of Water Resources
Tom Riley	Nebraska Compact Commissioner; Director, Nebraska Department of Natural Resources
Hannah Birge	Kansas Compact Advisor; The Nature Conservancy
Larry Moore	Nebraska Compact Advisor; Upper Big Blue Natural Resources District, Director
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 Division Head
Kenneth Titus	Kansas Department of Agriculture, Chief Counsel
Katie Tietsort	Kansas Department of Agriculture, Division of Water Resources, Topeka Field Office Water Commissioner
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
Stephanie Kramer	Kansas Department of Agriculture, Staff Attorney
Tom Stiles	Kansas Department of Health and Environment, Division of Environment, Bureau of Water Director
Doug Haney	Kansas River Water Assurance District No. 1, General Manager
Scott Nelson	Little Blue Natural Resources District, General Manager
Steve Kelley	Lower Big Blue Natural Resources District, Director
Scott Sobotka	Lower Big Blue Natural Resources District, General Manager
Tyler Weishahn	Lower Big Blue Natural Resources District, Assistant Manager
Dustin Wilcox	Nebraska Association of Natural Resources Districts

Ryan Chapman	Nebraska Department of Environment and Energy, Planning and Aid Division Manager
Sarah Starostka	Nebraska Department of Environment and Energy
Emily Rose	Nebraska Department of Natural Resources, Agency Legal Counsel
Justin Hladik	Nebraska Department of Natural Resources, Lincoln Field Office Supervisor
Andy Pedley	Nebraska Department of Natural Resources
Carrie Roberts	Nebraska Department of Natural Resources
John Miller	Upper Big Blue Natural Resources District, Director
Ronda Rich	Upper Big Blue Natural Resources District, Director
Bill Stahly	Upper Big Blue Natural Resources District, Director
Lynn Yates	Upper Big Blue Natural Resources District, Director
Dave Eigenberg	Upper Big Blue Natural Resources District, General Manager
Jack Wergin	Upper Big Blue Natural Resources District, Projects Department Manager
Marie Krausnick	Upper Big Blue Natural Resources District, Water Department Manager
Jason Lambrecht	US Geological Survey, Nebraska Water Science Center, Deputy Director for Hydrologic Data

Approval of the Minutes of the 48th Annual Meeting

Lizzie Hickman, Compact Secretary, reported that an electronic copy of the initial draft minutes of the 48th Annual Meeting was provided to the Administration and to Kansas and Nebraska staff on May 4, 2022. No corrections were returned. After the Compact Commissioners approved the minutes, they and the Compact Chair would be asked to sign the minutes where indicated. The Compact Chair would also sign the attached letter to the US President and the Governors of Kansas and Nebraska. As there were no comments or questions, Ms. Hickman submitted the Minutes of the 48th Annual Meeting to the Administration for approval.

Earl Lewis, Kansas Compact Commissioner, moved to approve the Minutes of the 48th Annual Meeting as submitted. Tom Riley, Nebraska Compact Commissioner, seconded the motion. There was no discussion. The motion passed unanimously.

Chair's Report

W. Don Nelson, Compact Chair, commented that he was very glad that the 49th Annual Meeting was able to take place in person after two years of meeting virtually due to the COVID-19 pandemic. He expressed hope that the regular rhythm of in-person Compact meetings could be reestablished. Mr. Nelson also stated that he hoped to visit various Kansas and Nebraska state agency offices in the coming year.

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 by thanking Nebraska for hosting the meeting.

Mr. Lewis stated that Kansas continued to experience drought, especially in the western half of the state. Central and eastern Kansas had received some relief in previous weeks. Kansas faced issues related to wildfires and dust storms that they had not dealt with for several years. The 2022 irrigation season had begun much earlier than had been necessary in recent years. In reviewing 2021 water use data, Kansas staff discovered that many water users used more water in 2021 than in recent years, and some used more water than they were authorized. Kansas staff were following up on administration of water rights that over-pumped in 2021. Mr. Lewis anticipated that Kansas would continue to deal with these issues until the drought ended.

As of the meeting date, there was only one day left in the 2022 Session of the Kansas Legislature. A great deal of policy discussion, but not much legislative action, was generated in 2020 and 2021 by the House Water Committee. This committee had been created to do more focused work on water issues, which are usually handled by the Agriculture and Natural Resources Committee. Discussion topics included the role of Kansas's local Groundwater Management Districts in contrast with the role of the state; funding sources for water programs; and the organization and distribution of water-related roles and responsibilities among Kansas state agencies. A proposed bill attempted to create a new, Cabinet-level Kansas Department of Water and Environment by consolidating several agencies and agency subdivisions. The bill was controversial, and though it did not move forward, it generated significant discussion across the state, and it was proposed that an Interim Committee of members of both the House and Senate meet in summer 2022 to continue these discussions.

Budget discussions over the past year were robust as well. Not much money was added for ongoing water programs or projects. Instead, the focus was on paying off debts and reducing ongoing obligations, including contracts with the federal government for water storage in federal reservoirs and a bond that was used to fund a dredging project in an eastern Kansas reservoir. The total water-related debt paid off by the Kansas Legislature in the past year approached $100 million.

The Legislature did add new funding for a water injection dredging pilot project in Tuttle Creek Reservoir on the Big Blue River, where sedimentation is a major concern. Tuttle Creek Reservoir is crucial for water supply in the Kansas River and for several northeast Kansas cities. Kansas is working with the US Army Corps of Engineers (USACE) to test water injection dredging, a new technology for reclaiming reservoir storage that may be less costly than traditional dredging. It was hoped that a federal budget allocation would be dedicated to this project as well.

Kansas continued to work with the USACE on a multi-year, comprehensive flooding and sedimentation study of all reservoirs in the Kansas River basin, including Tuttle Creek, Milford, and Perry Reservoirs in northern Kansas. While both Kansas and the USACE are invested in reservoir sedimentation issues, Kansas's interest in the study is also rooted in their desire to operate their reservoirs more efficiently, while the focus of the USACE is on flood control, especially the protection of life and property along the Kansas River.

There were no questions for Mr. Lewis.

Topeka Field Office Report

Katie Tietsort, Water Commissioner for the Topeka Field Office (TFO) of KDA-DWR, continued the Kansas report (Attachment A).

Kansas had received less precipitation than normal in 2021. The Kansas portion of the Big Blue River basin received between 20 and 30 in of precipitation, which is about 70-90% of normal. Precipitation across the basin was 3 to 9 in below normal. As of late April 2022, the Kansas portion of the basin had received 2 to 3 in less precipitation than is normal by that time of year. Average 2021 temperatures ranged from 1°F cooler than normal to 2°F warmer than normal. As of the meeting, average 2022 temperatures ranged from normal to 5°F cooler than normal. The drought which began in 2021 continued until recent rains alleviated conditions in the Kansas portion of the basin. The Standardized Precipitation Index (SPI), which uses a base value of 1 as normal, had entered a notable drought trend by January 2022.

There was no minimum desirable streamflow (MDS) administration of junior water rights in the Big Blue River basin in 2021, nor had there been any in 2022 as of the meeting. Periods of high streamflow at the US Geological Survey (USGS) gages on the Big Blue and Little Blue Rivers were observed in spring and again in late summer or autumn, as is typical. The second wet period of 2021 seemed to occur somewhat later in autumn than usual. There was no MDS administration in the TFO area of responsibility (eastern Kansas) in 2021. MDS administration on the Little Arkansas River in south-central Kansas occurred

between September 2020 and February 2021 and resumed in November 2021; administration was still ongoing as of the meeting. As of April 15, 2022, about 250 water rights in the Republican River basin were under MDS administration due to deficient streamflow at the USGS gages at Concordia and Clay Center; administration was still ongoing as of the meeting. KDA-DWR also protects releases of water from water marketing and supply storage in federal reservoirs. As of August 27, 2021, water protection administration was underway on the upper Neosho River; several water rights below Council Grove Reservoir were administered to protect supply for a major city. That administration ceased on January 14, 2022. While no further water protection administration had occurred as of the meeting, observed streamflow remained below normal in the northern half of the TFO area. Precipitation events were not delivering sufficient runoff to rescind MDS administration in the Republican River basin or to prevent further administration from potentially becoming necessary in the coming weeks and months.

No further legislative action occurred in the past year regarding the Lower Republican River Stakeholder Group's efforts to create an irrigation district. Additional legislation is still needed to address reallocation or other avenues the group might take to store water in the Republican River basin.

Ms. Tietsort reviewed the Notices of Non-Compliance (NONCs), Cease and Desist (CD) Orders, and civil penalties issued in various areas of the state. KDA-DWR issued 213 NONCs and/or CD Orders in 2021; 34 CD Orders were for water rights in the Big Blue River basin. KDA-DWR utilizes a three-pronged compliance and enforcement procedure. First, a NONC is issued to give water users a timeframe within which to bring their systems into compliance. If they do not act, KDA-DWR may issue a NONC-CD ("Cease Diversion"), which lets the water user know that they cannot use their water right until they have brought their system into compliance. If they still do not act, KDA-DWR may issue a formal CD Order, which the water user may appeal pursuant to the Kansas Judicial Review Act. For any water right which has received any of these notices or formal orders, all that must be done to legally resume water use is for the compliance issue to be addressed by the user with confirmation by inspection from the responsible KDA-DWR Field Office. Between 2006 and 2017, orders requiring flow meters and annual reporting of meter readings for all water users were issued basin by basin across the state. In eastern Kansas, where many irrigation water rights are supplemental to rainfall, many water users felt that they did not use their water rights often enough to justify the expense of a flow meter. KDA-DWR issued NONC-CDs to these water users to inform them that they could not use their water rights until they had a compliant flow meter. Over the past few years, problems had arisen surrounding property sales, in which new water right owners did not receive notice that the water rights could not be legally used because they only received official orders of the Chief Engineer, which a NONC-CD is not, with their purchases. To clarify the status of those water rights, the TFO began issuing formal CD Orders, one county at a time, for all water rights that had been issued a NONC-CD for failure to install a flow meter. This artificially inflated the number of CD Orders issued in 2021, making it appear there was some new compliance issue in the TFO area, when in fact there was not. As of the meeting, the TFO had issued 64 CD Orders in 2022 as part of this project; 5 were in the Compact area.

The TFO issued 8 civil penalty orders in 2021. 7 were for water users who over-pumped (exceeded their annual authorized quantity), and 1 was for failure to install a compliant flow meter. 2 of the over-pumping penalties were for stockwatering rights in the Compact area.

New water right development in the TFO area kept TFO staff busy assisting water users with applications for new water rights or to change existing water rights. 21 applications for new water rights or permits were approved in the Compact area in 2021, compared to 8 in 2020. As of the meeting, 6 new applications in the Compact area had been received in 2022, and more were expected; 4 new applications in the Compact area had been approved in 2022, 2 for appropriated water rights and 2 for temporary water use permits. TFO staff had provided application assistance to 181 individuals across their area in 2021 and 54 in 2022 as of the meeting.

In 2021, TFO staff conducted 472 compliance investigations. In late March 2022, they also completed the three-year project to digitize all TFO water right files and transition to completely paperless work. All paper water right files had been scanned into DocuWare, the state's digital file archive. Even most TFO stakeholders now submit applications and forms via electronic communications such as email. TFO was working with the rest of KDA-DWR to develop a fully electronic application process.

There was no change to the Tuttle Creek Reservoir Lake Level Management Plan from previous years. The focus remained the support of fish and wildlife needs and habitat.

KDA-DWR hoped to use information collected through the Kansas River Reservoirs Flood and Sediment Study to extend the life of Kansas reservoirs, establish better reservoir use practices, and reduce flood risk. The monitoring and data collection stage of the study was still underway as of the meeting. The final Watershed Study Report was expected in the autumn of 2023.

There were no questions for Ms. Tietsort.

Kansas Compact Advisor Comments

Hannah Birge, Kansas Compact Advisor, introduced herself to the Administration and stated that she has a unique perspective as a Kansas resident who studied in Nebraska and, through her work for The Nature Conservancy, collaborates with Nebraska stakeholders including the Natural Resources Districts (NRDs). Ms. Birge expounded on some lessons she had learned through her work. Significant change will not occur until producers are empowered to implement it, as they are the primary stewards of water in both Kansas and Nebraska. Contemporary agricultural practices are in many ways geared toward sustaining natural resources, and many longer-term issues are legacy issues stemming from the practices of past decades. For today's producers to be able to mitigate the effects of past practices, they must have tools, resources, and collaborative support from the public and private sectors. Ms. Birge acknowledged that this and many other interstate river Compacts were developed to address water quantity issues but expressed hope that water quantity and quality concerns could be addressed in an integrated manner.

There were no questions for Ms. Birge.

Nebraska Report

State Overview Report

Tom Riley, Nebraska Compact Commissioner, began the Nebraska report. Mr. Riley began by echoing Ms. Birge's comments regarding the importance of integrated water quantity and quality management strategies. He noted that many current funding opportunities for water projects require both concerns to be addressed.

The Nebraska Department of Natural Resources (DNR) had no dedicated office space for about a year, since March 2021. They had been asked to move from their previous office space to facilitate a consolidation of various state offices. Most DNR staff worked remotely during this time, but the agency is now housed in a new state office building that they share with the Nebraska Departments of Energy and Environment (DEE); Agriculture (NDA); and Economic Development, as well as the state's commodity agencies and boards.

Water supply conditions in Nebraska in 2021 were not as dire as they were in Kansas or other western states. However, 2021 water supply in the Big Blue River basin was still below normal. Precipitation was lower than normal in some areas. There was no administration of Nebraska water use on the Big Blue or Little Blue Rivers in 2021 to meet state line streamflow requirements of the Compact. Though there had been a bit more precipitation in previous weeks, 2022 precipitation as of the meeting was lower than normal overall, and the US Drought Monitor reported that most of Nebraska was in drought conditions. Continued drought monitoring was necessary.

The Water Planning Division of DNR had been focused on drought planning for the last few years, developing Drought Management Plans in basins including the Lower Platte and Republican Rivers. DNR hoped to launch drought planning programs across Nebraska to increase preparedness for drought conditions. Several years ago, the states were dealing with massive flooding, but in 2022, they were concerned with low streamflow in major rivers. The Missouri River 2022 streamflows were projected to be some of the lowest on record since the construction of the flood control dam system.

The Water Planning Division continued to work with the 23 NRDs in Nebraska to develop Integrated Management Plans (IMPs) across the state. Several IMPs were in their fifth generation as of 2022. In the Big Blue River basin, IMPs are voluntary, but DNR had made great progress through collaboration with stakeholders and NRDs. New floodplain mapping activities had been conducted in the Big Blue River basin as well. In Beatrice, NE, for example, many areas had been removed from the floodplain. DNR was planning to update floodplain maps across Nebraska to better prepare for the management and costs of future flood events. Mr. Riley hoped that water quality in the Big Blue River basin could continue to improve through collaboration with the NRDs, DEE, and KDA-DWR.

Development of a voluntary IMP for the Little Blue River basin had become a collaborative effort between DNR, the Tri-Basin NRD, and the Little Blue NRD, as they shared data, refined their planning efforts, and communicated ideas to producers. Development of a voluntary IMP also continued in the Big Blue River basin. DNR and DEE were collaborating on that IMP to address water quality concerns. Mr. Riley thanked all NRDs for their collaboration in IMP development.

DNR continued to see increased use and adoption of voluntary water use reporting and annual improvements to the reporting process. Jeremy Gehle and the Water Administration Division of DNR had worked hard to make reporting easier for water users so that DNR and producers alike can have valuable data available for better water management.

Mr. Riley updated the Administration on Legislative activities over the past year, which had been momentous for DNR. DNR was to receive $250 million, about 20 times their typical annual budget, for five major projects. First was the Perkins County Canal on the South Platte River, which is subject to the Colorado-Nebraska South Platte River Compact. The project would initiate a component of that Compact which allows Nebraska to operate an off-channel storage facility and canal system in the winter months. Requests for proposals had been issued for consulting work on that project. The “Star Wars and Jedi” project allocated about $100 million to DNR to investigate facilities including a potential lake between Lincoln and Omaha. $50 million had been allocated to DNR to implement a grant-based program to review critical infrastructure for irrigation districts across Nebraska. Mr. Riley noted that the continual cost increases make it difficult to plan for such projects. The Resilient Soil Water Quality Act, an extension of the Healthy Soils project, continues to promote soil health in the agricultural community. Finally, the Gering-Fort Laramie Irrigation District, which serves about 100,000 acres in Wyoming and Nebraska had a tunnel collapse a couple of years ago, and money had been dedicated to develop a permanent solution to ensure water quality and quantity. Mr. Riley further noted that strong state revenues and the availability of federal funding combined to make a unique opportunity for investments in water resources.

The Upper Big Blue NRD was awarded funding from Nebraska’s Water Sustainability Fund (WSF) to conduct nitrate accumulation studies. Mr. Riley noted that there is a story map available on the DNR website that explains more about the WSF.

Mr. Riley noted that the Big Blue River basin has over 600 dams, including 13 high-hazard dams, all of which are aging and in need of maintenance and repair.

Mr. Riley thanked Kansas, the NRDs and other natural resource agencies for their participation in the Compact.

Water Administration Report

Justin Hladik, DNR Lincoln Field Office Supervisor, continued the Nebraska report, covering water administration activities. Mr. Hladik reported that there had been no water administration in the basin since the last Compact meeting. The basin had received between 20 and over 40 in of rainfall, representing between 70-150% of average. DNR was able to perform about 98% of all pump checks in the basin. This amounted to 276 permits in the Little Blue River basin and 938 permits in the Big Blue River basin. Of those, there were about 100 pumps installed in the Little Blue River basin and around 350 installed in the Big Blue River basin. Timely rains across the Compact area reduced users' need to divert streamflow. The Big Blue River basin is about 4,500 mi^2 in area, with 64,000 ac under permit. The lowest recorded streamflow in the Big Blue River was around 150 ft^3/s. The Little Blue River basin is about 2,750 mi^2 in area, with about 18,000 acres under permit. The lowest recorded streamflow in the Little Blue River was about 70 ft^3/s. Mr. Hladik noted that the Lincoln Field Office is responsible to inspect about 250 dams in the basin this year.

Lower Big Blue Natural Resources District (NRD) Report

Scott Sobotka, General Manager of the Lower Big Blue NRD (District), summarized the District's report (Attachment B), including information on several projects that are underway in the District. He noted that the District operates and maintains over 250 flood control structures and grade stabilizations in 13 watersheds in the lower Big Blue River basin. The oldest flood control project in the District was a pilot project in the 1950s. As many of these structures have outlived their design lives, the District has focused on extending structure lives through various maintenance activities.

Little Blue Natural Resources District (NRD) Report

Scott Nelson, General Manager of the Little Blue NRD (District), summarized the District's report (Attachment C). Mr. Nelson noted that The Nature Conservancy presented information on water quality programs to the District Board and that the Board was cautiously interested in collaborating with The Nature Conservancy and the other NRDs to address water quality issues. The District has been working with producers on best management practices and would benefit from engaging other partners.

Ms. Tietsort asked about the District's well inspection program. Mr. Nelson explained that the District inspects flow meters for operational integrity and conducts some degree of random flow testing, the main action being to remove the meter, grease the bearings, and reinstall the meter. Mr. Nelson noted that meter inspections were once contracted out, but the District found that the program was more effectively implemented by District staff.

Mr. Beightel asked if water use reporting was mandatory. Mr. Riley explained that surface water reporting is not mandatory in all parts of the state and that groundwater reporting requirements vary among NRDs.

Mr. Beightel also asked who owns groundwater flow meters. Mr. Nelson explained that producers own their meters and the District provides cost-sharing to purchase the meters and provides 50% of the cost, up to $500, to repair meters. Inspection and maintenance of meters is provided by the District at no additional cost.

Upper Big Blue Natural Resources District (NRD) Report

Dave Eigenberg, General Manager of the Upper Big Blue NRD (District), began the District report by recognizing the District's staff and Board of Directors, five of whom were present at the meeting.

Marie Krausnick, Assistant Manager, and Jack Wergin, Projects Department Manager, continued the District report by summarizing information in the written report (Attachment D). Mr. Wergin noted one item that was not included in the written report: a study, funded by the District and the City of York,

exploring ways to lessen the floodplain and remove urban areas from the recently updated FEMA floodplain maps. One strategy is more detailed mapping of urban tributary streams, which may potentially remove several properties from the National Flood Insurance Program.

Mr. Eigenberg acknowledged the partnerships that the District has with DNR and The Nature Conservancy.

Mr. Beightel asked about the scope of the District's dam construction and repair program. Mr. Wergin confirmed that funding can be used for repair or construction of new dams, but not for sediment removal. New construction requires a 2% deposit to receive cost share funding.

Mr. Beightel asked about how water availability is determined for wells in the Dakota Aquifer. Ms. Krausnick explained that determining water availability is the responsibility of the well owner, who assumes all the risk for projects that depend on Dakota groundwater. Mr. Riley added that Dakota wells may have high levels of metals.

Mr. Riley asked about cover crops. Larry Moore, District director and Nebraska Compact Advisor, explained how the use of cover crops has evolved in his part of the basin over the last 20 years. Mr. Moore went on to respond to a previous question about flow meters, mentioning that his oldest meter dates to 1977 and has had one change of bearings, but other meters have lasted only two or three years. Water quality greatly affects the longevity of a meter. Mr. Moore mentioned that modern electronic meters are getting to be fairly reliable. He also mentioned that the District services about one quarter of the District's meters each year and others upon request.

Nebraska Compact Advisor Comments

Mr. Moore continued from his comments during the Upper Big Blue NRD Report, stating that the last couple of years had good moisture and crop yields and that no-till practices have really helped to increase yields and minimize rainfall runoff. He mentioned that one producer's land can accept over one foot of rain per hour and not run off, and that seed companies are beginning to pay producers to follow no-till practices. Mr. Moore noted that the City of York uses the same amount of water in a year as would be used to irrigate the same area of corn. He also noted that the chicken population in the District has grown from a couple hundred thousand to over seven million, and this is an ongoing water quantity concern. Chickens drink a half cup of water per day.

Mr. Riley noted that there are about 25 Natural Resources Conservation Service (NRCS) flood prevention operation projects underway in Nebraska that will affect water quality and quantity.

Secretary's Report

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

Ms. Hickman stated that the current process for developing the Minutes and Annual Report has been working well, so she plans to implement it again this year. She briefly described that process and requested that those who had presented reports during the meeting provide her with electronic copies of their written reports to be both included as attachments to the 49th Annual Report and made publicly available on KDA-DWR's Compact webpage. Once the Annual Report has been signed, it will be made available for the states to post publicly on their websites. If any members of the Administration would like a printed copy of the Annual Report, they may request that once the Report has been signed.

Chairman Nelson expressed his gratitude to the Secretary and other officers for their work to produce the Annual Report.

Treasurer's Report and Budget

Bob Robles, Compact Treasurer, presented the Treasurer's report (Attachment E). Elements of Attachment E included a written outline of Compact financial activities, an overview of the current year's finances, and a multi-year budget analysis.

Mr. Robles began by presenting an overview of Compact finances during Fiscal Year 2021 (FY2021). The Compact fund's balance as of May 12, 2022 was $29,315. Income came from state assessments and interest. Expenses included USGS state line stream gages, groundwater observation wells in the Lower Big Blue NRD, and the annual accountants' review. The expense of the accountants' review had not yet been incurred as of the meeting date but was expected before the end of Fiscal Year 2022 (FY2022).

Mr. Robles presented the proposed Fiscal Year 2023 (FY2023) budget (Attachment E). He noted that the cost for the accountants' review continues to increase and recommended several ways to trim expenses including reducing the level of professional accounting services and forgoing the printing of financial reports.

Mr. Robles proposed an increase to the USGS stream gaging and observation well line items to cover increasing costs. Future expenses would outpace the current level of income, but it would take several years to spend down the fund's surplus.

Stephanie Kramer, KDA attorney, noted that the Compact's rules require that the annual financial review be conducted by a certified public accountant.

Mr. Robles stated that he would move forward with finding a less costly alternative to the accounting firm that the Compact has worked with in recent years.

Mr. Lewis asked about the increase to the stream gage and observation well line items. Mr. Robles explained that there have been a series of cost increases for USGS services, but the observation well program costs have remained stable.

Mr. Lewis proposed to move $1,500 from the proposed budget's USGS stream gaging line item back to the financial review line item, while keeping the total expenses as proposed.

Mr. Riley moved to amend the proposed FY2023 budget according to Mr. Lewis's proposal. Mr. Lewis seconded the motion. There was no discussion. The motion passed unanimously.

Mr. Lewis moved to accept the Treasurer's report and approve the FY2023 budget as amended. Mr. Riley seconded the motion. There was no discussion. The budget passed unanimously.

US Geological Survey (USGS) Report

Jason Lambrecht summarized the USGS report (Attachment F), stating that Water Year 2021 (October 1, 2020 – September 30, 2021) was generally uninteresting in terms of streamflow statistics. Mr. Lambrecht noted that the USGS does not anticipate any significant cost increases for state line stream gage operation in the near future. He also noted that finalized discharge records for Water Year 2021 were available by January 2022; USGS and DNR are improving their ability to provide finalized data on a timelier basis. Mr. Lambrecht ended his report by describing some USGS tools and resources, including the Water Dashboard, the Hydrologic Imagery Visualization and Information System (HIVIS), and WaterAlert.

Legal Committee Report

Emily Rose, Compact Legal Committee member for Nebraska, reported that the Legal Committee had nothing to report.

Engineering Committee Report

Jeremy Gehle, Compact Engineering Committee (Committee) Chair, summarized the Committee report (Attachment G). The Committee received no special assignments from the Administration over the past year. Mr. Gehle had worked with Kansas members Lizzie Hickman and Katie Tietsort to develop the written Committee report. The Committee report contained much of the same information that had been related during the Nebraska Water Administration, Lower Big Blue NRD, and USGS reports.

The Committee reviewed the wells located in the regulatory reaches of the Big Blue and Little Blue River basins in Nebraska and found no well additions or retirements.

There were no questions for Mr. Gehle.

Water Quality Committee Report

Sarah Starostka reported that the Water Quality Committee (Committee) had met at the beginning of May, which allowed Committee members to gain a better understanding of current activities underway within the Compact area and to collaborate and share ideas among different water quality agencies in Kansas and Nebraska. Committee meeting attendees included representatives from the Kansas Department of Health and Environment (KDHE), DEE, NDA, and several NRDs, as well as Committee members and Mr. Nelson.

The Committee has slowly expanded the water quality parameters and concerns of interest to the Compact. Topics discussed at the Committee meeting included nutrients, pesticides, point and nonpoint source pollution, impairment, Total Maximum Daily Loads (TMDLs), and updates from Nebraska and Kansas agencies. In Nebraska, stream impairments are primarily for atrazine and E. coli, while lake impairments are primarily for nutrients. Kansas provided updates on their 2022 integrated report, which included no changes to impairments. Their 303d list was submitted and approved by the US EPA Region 7. There are existing TMDLs for atrazine, bacteria, and phosphorous for the Big Blue and Little Blue Rivers. The Committee also discussed point and nonpoint sources and reviewed the 319 projects within the Nebraska portion of the Big Blue River basin. Major point sources introduce phosphorous and nitrogen into the basin. KDHE had requested more information regarding point source discharges to better evaluate the pollutant concentrations crossing the state line into Kansas.

Ryan Chapman reported that the NRDs provided detailed examples of point source discharges. There was good discussion on nonpoint source pollution issues, which included discussion of practices such as cover cropping, and reasons why they have not been adopted widely enough to cause the desired effects.

Ms. Starostka also reported on an assignment the Committee had received the previous year to investigate a potential joint effort of Kansas and Nebraska to seek federal funding to address water quality concerns. She acknowledged the need for a bi-state effort to address these concerns but noted that staffing resource issues in both states present challenges when investigating funding directives. In Nebraska specifically, lack of engagement from local producers due to current commodity prices also presents challenges. The Committee is investigating the potential for collaboration between Nebraska and Kansas land grant universities to seek joint funding. Mr. Chapman has reached out to the University of Nebraska-Lincoln (UNL) recently to begin that conversation.

Tom Stiles has reached out to Kansas State University's Kansas Center for Agricultural Resources and the Environment. Mr. Stiles added that agencies in both states are reluctant to follow up on last year's assignment, party due to resource issues, and partly because they are currently poorly equipped to handle the care and effort required to nurture an NRCS Regional Cooperative Conservation Program, while producer engagement is also low. However, he also believes that collaboration between the two universities is a promising idea.

Mr. Chapman was soon to leave DEE. Mr. Nelson asked who would take over coordination with UNL. Mr. Chapman stated that Ms. Starostka was well-equipped for that role. Ms. Starostka thanked Mr. Chapman for his work with DEE and stated that she would be taking over his Compact-related duties until a replacement is hired. Mr. Nelson and Mr. Chapman concurred that it seems the universities both have a good history of collaboration with each other and the state agencies. Mr. Chapman noted that due to the lengthy timeline of these endeavors, it will likely be at least two years before a project begins.

Ms. Hickman read, from the Minutes of last year's meeting, the assignment that had been given to the Water Quality Committee the previous year. Mr. Riley reiterated the importance of integrated water quantity and quality management and commended the Water Quality Committee for seeking university engagement.

Old Business

W. Don Nelson, Compact Chair, read a resolution which had been submitted by the Kansas delegation in honor of Sharon Schwartz, previously Kansas Compact Advisor (Attachment H). Mr. Nelson ordered that the resolution be accepted.

New Business

There was no new business.

Committee Membership and Special Assignments

Mr. Lewis asked whether the Administration needed to renew or revise the previous year's assignment to the Water Quality Committee for the record. It was decided that this was unnecessary, and the previous year's assignment was left as a standing item.

The Committee membership is as follows:

Budget Committee – Bob Robles (NE), Lizzie Hickman (KS)
Legal Committee – Emily Rose (NE), Kenneth Titus (KS)
Engineering Committee – Jeremy Gehle (NE), Katie Tietsort (KS), Lizzie Hickman (KS)
Water Quality Committee – Dan Howell (KS), Ryan Chapman (NE), Sarah Starostka (NE), Tom Stiles (KS)

Adjournment

Mr. Nelson thanked attendees for their participation, especially NRD Board members. The meeting was adjourned.

Earl D. Lewis Jr., Kansas Commissioner

Tom Riley, Nebraska Commissioner

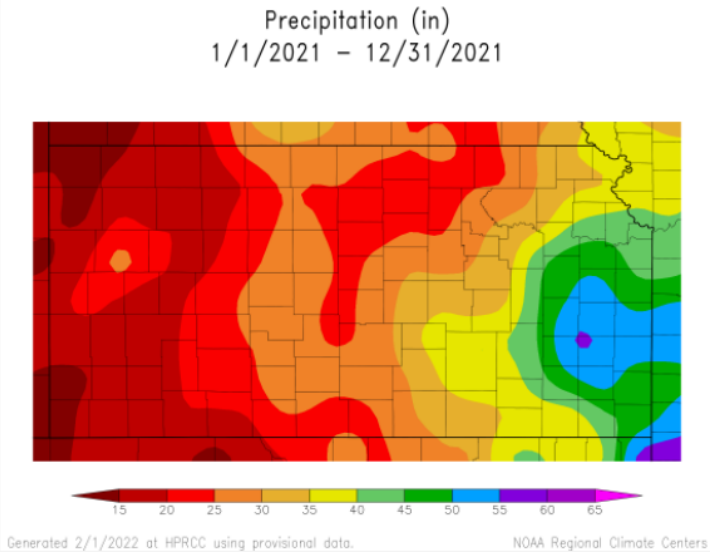
W. Don Nelson, Compact Chair

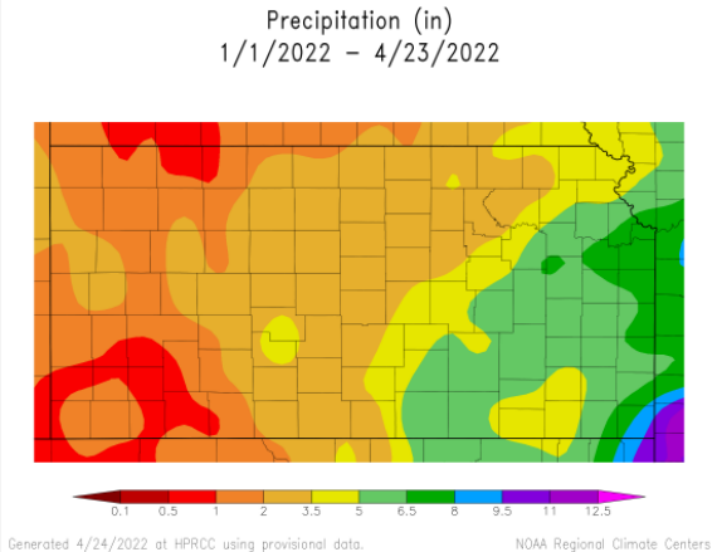
Attachment A

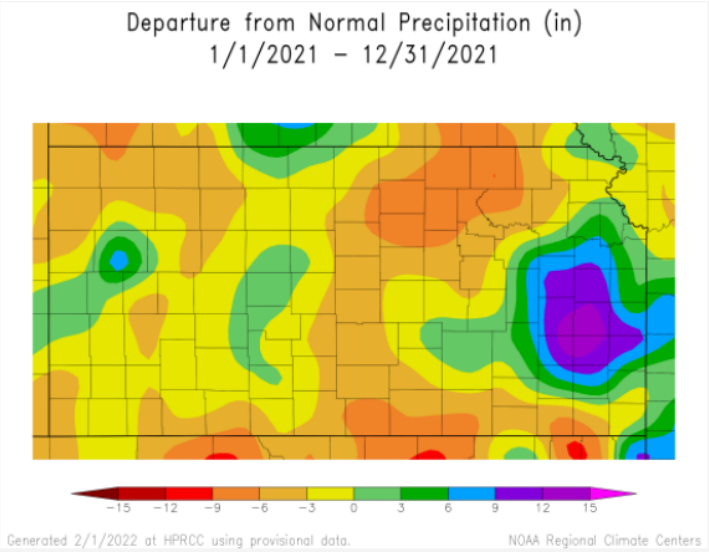
Kansas- Nebraska Big Blue River Compact Meeting May 18, 2022
Report by Kansas Department of Agriculture- Division of Water Resources
Topeka Field Office- Katherine A. Tietsort

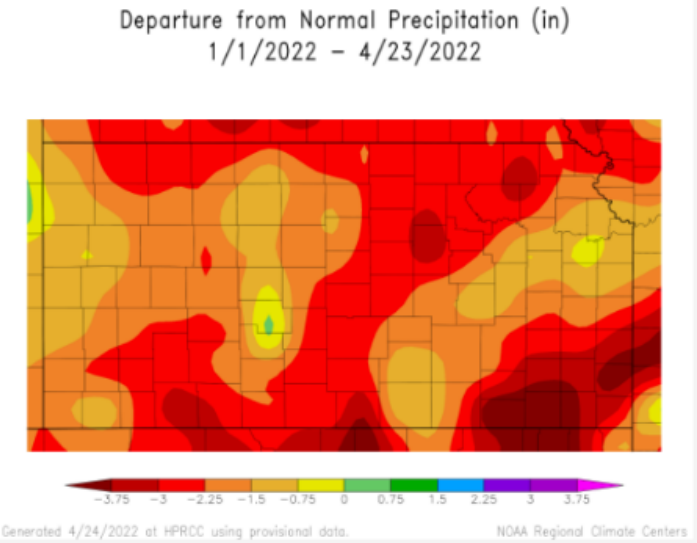
Climatic Conditions- Precipitation & Temperatures

Precipitation has been mostly uniform across the basin during the 2021 calendar year although it reflects a rather low amount compared to normal. The High Plains Regional Climate Center reported between 20 and 30 inches of precipitation in calendar year 2021 across the entire Big and Little Blue River basin area in Kansas, including the tributary basins. This represents 70 to 90% of normal precipitation for the year. Precipitation ranged from about 3 inches below normal to 9 inches below normal, for the year. So far this year, the portion of the basin in Kansas has received 2 to 5 inches of precipitation, which is 2.25 inches below to 3.75 inches below normal precipitation.

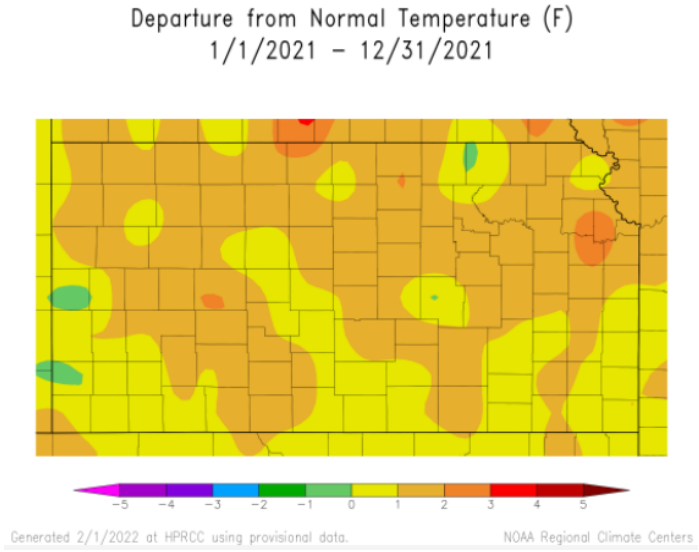


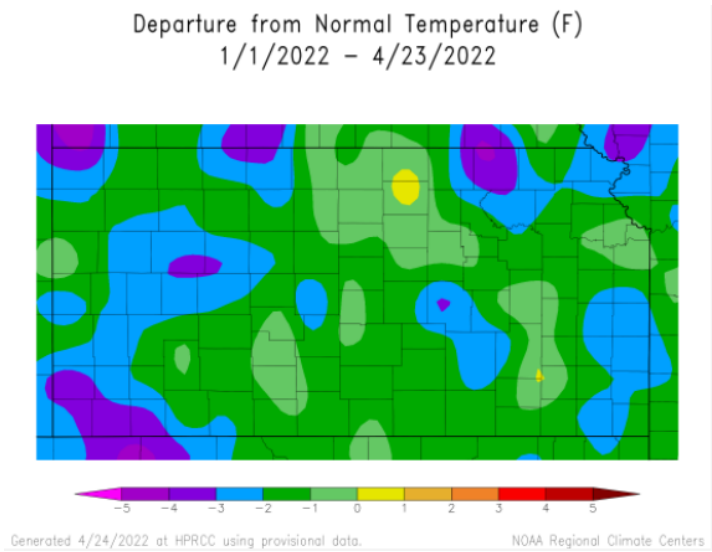


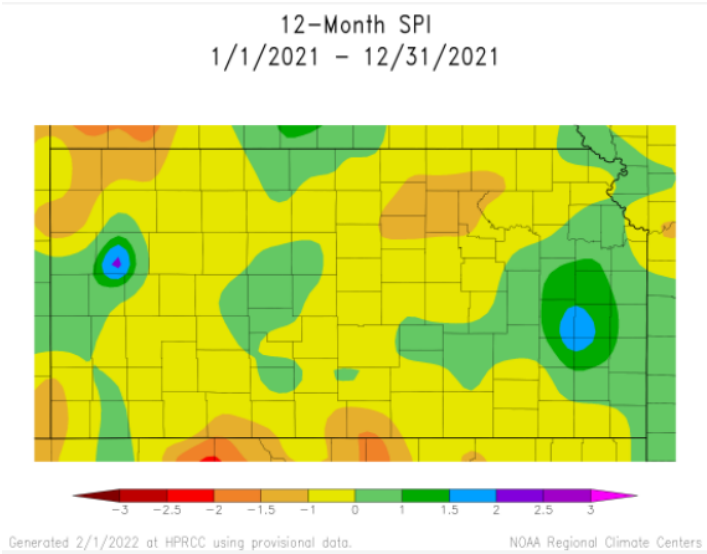


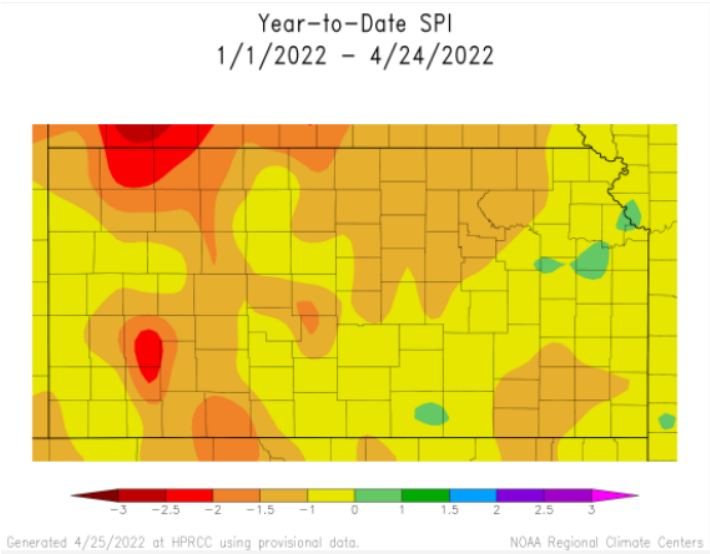


Temperatures for the calendar year 2021 ranged from 1 degree colder to 2 degrees warmer. So far in 2022, temperatures have ranged from normal to 5 degrees cooler than normal. We are seeing the trend from last year continue, which is reflected in the Standardized Precipitation Index (SPI). SPI takes rainfall data represented by a Gamma distribution, fits it into a bell curve, and then computes the data to show values independent of location and range of values so that different seasons and climate areas are all represented equally. Ranges greater than 1 either direction on the scale mark moderate drought and moderate wet conditions. The SPI showed an area central to the basin where values were beginning to show a trend developing towards drought in 2021. That trend had become more significant in 2022 until the very recent precipitation event occurred.









Streamflow and Administration Within the Big Blue Compact Basin

Statistics reflect 37 years of data at Marysville (Big Blue) and 63 years of data at Barnes (Little Blue).

In 2021, streamflow reflected peak runoff periods that occurred in spring then again late summer into fall at both gages. Interestingly, the peak runoff events appear to have occurred later in the summer season in 2021 than the statistical values indicate they normally occur. So far in 2022 flows have been near median value on the Big Blue, while the Little Blue flows have been decreasing and are significantly lower than the median value.

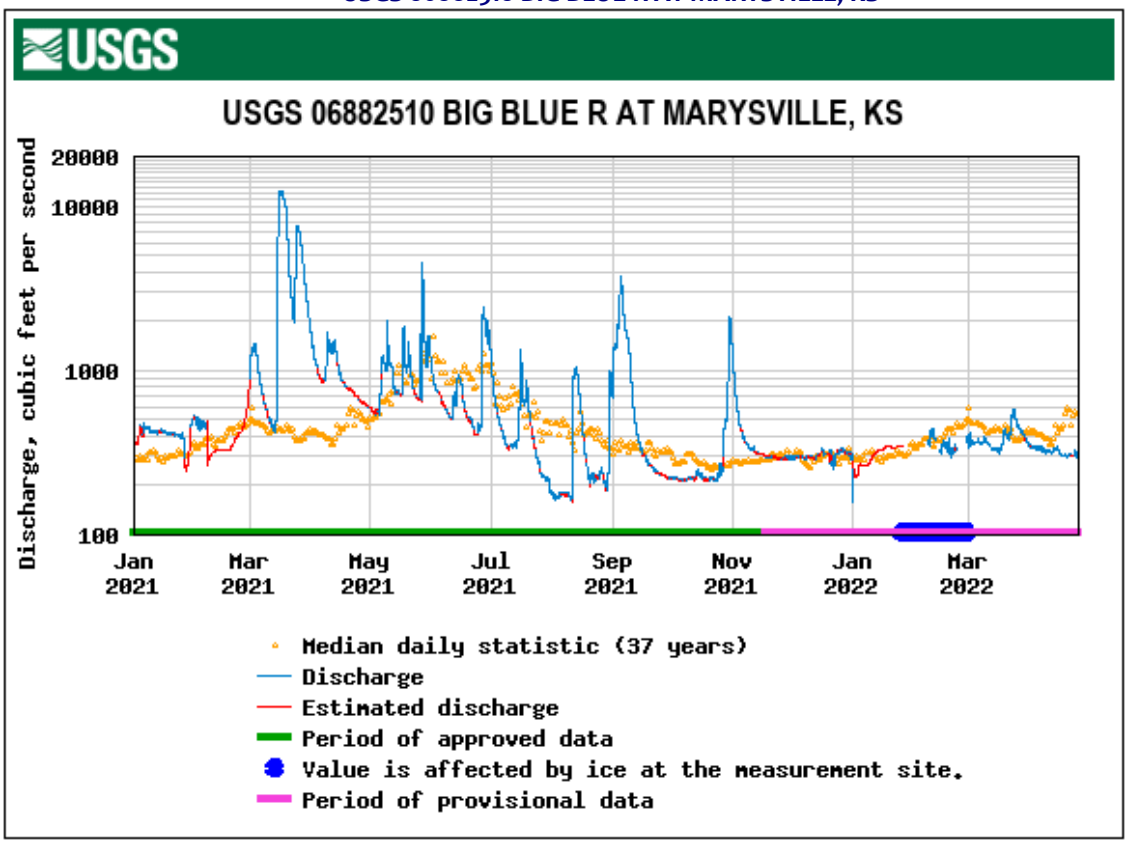
We did not trigger Minimum Desirable Streamflow (MDS) criteria within the Basin and MDS administration of junior rights did not occur in the basin or tributary basins in 2021 nor in 2022 to date.

Minimum Desirable Streamflows (cfs)

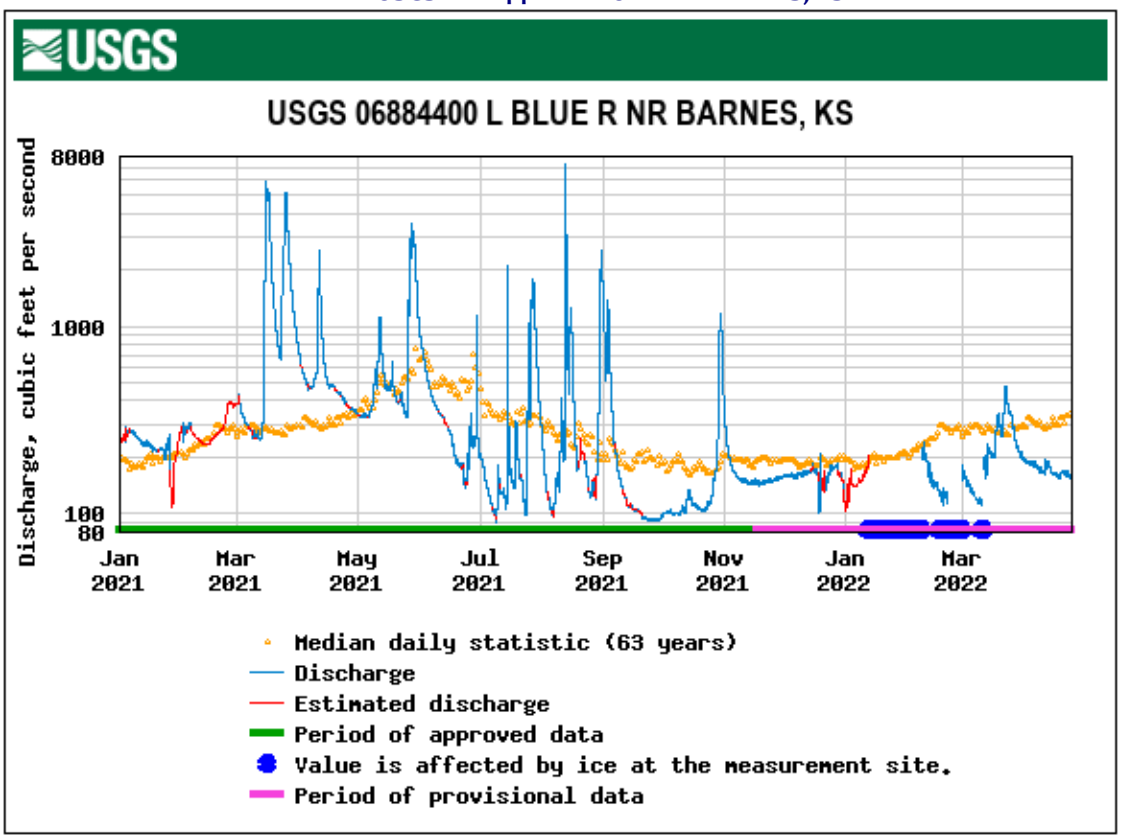
Watercourse	Month											
	J	F	M	A(a)	M(a)	J(a)	J	A	S	O	N	D
Big Blue												
Marysville	100	100	125	150	150(d)	150(d)	80	90	65	80	80	80
Little Blue												
Barnes	100	100	125	150	150(d)	150(d)	75	80	60	80	80	80

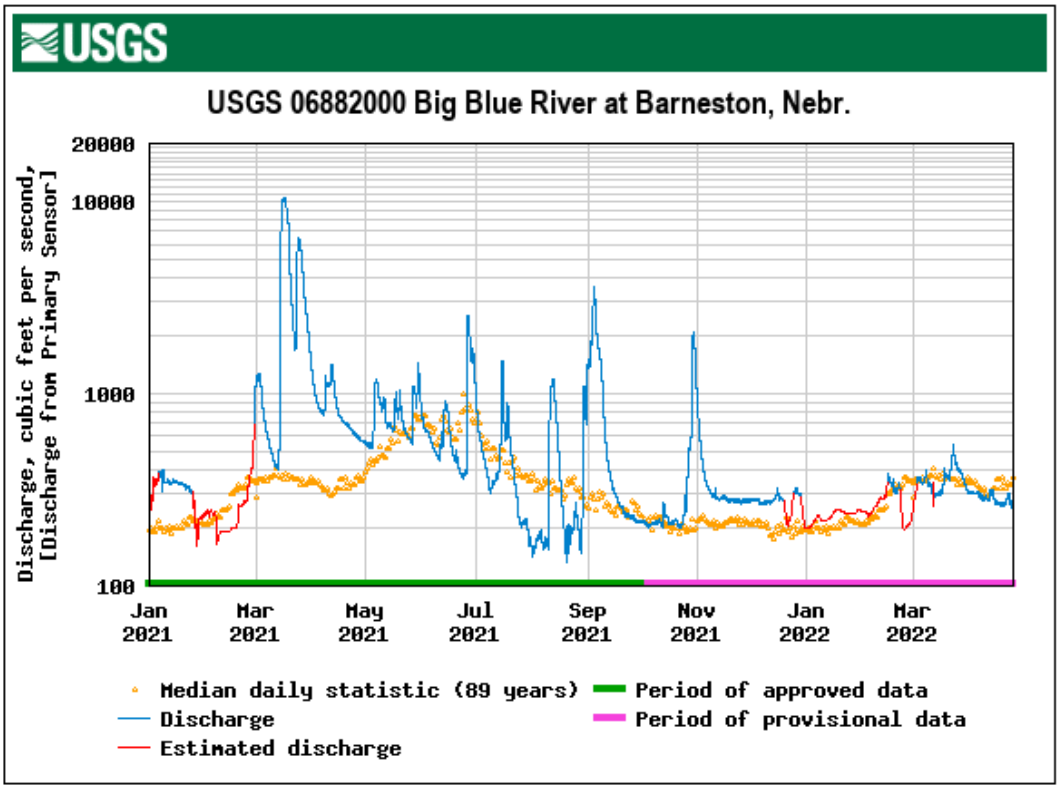
(d) Subject to the stateline flows contained in the Blue River Compact.

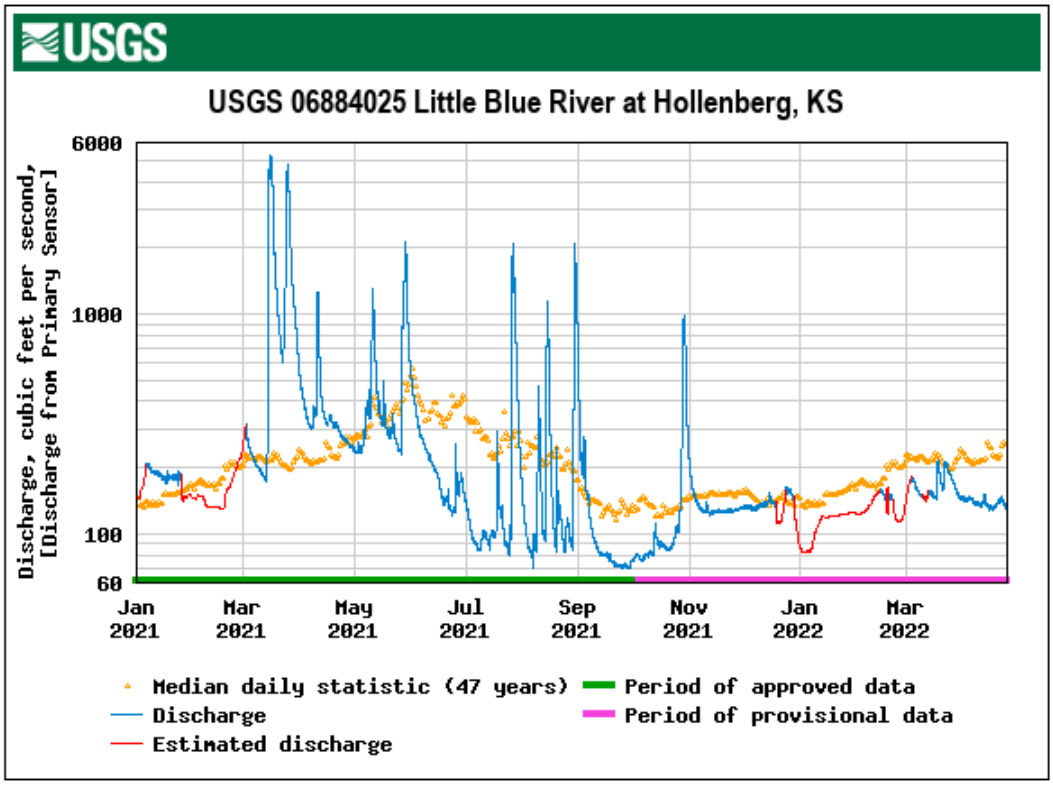
USGS 06882510 BIG BLUE R AT MARYSVILLE, KS



USGS 06884400 L BLUE R NR BARNES, KS







The compact gages at Barneston and Hollenberg reflected more normal conditions throughout 2021 as well. For the period of 1/1/2022 through today, flows remained sufficient to avoid any MDS administration in the Compact Basin. There has been no water rights administration within the Big Blue River, Little Blue River, Mill Creek, or the Black Vermillion River.

Administration Activities

No water right files were administered for Minimum Desirable Streamflows (MDS) in 2021 in either the Topeka Field Office area or the Compact area. 9 surface water right files above the Alta Mills gage on the Little Arkansas River in south-central Kansas remained under MDS administration, which had begun in September 2020. Those MDS administration orders were rescinded in February 2021. On November 29, 2021, MDS administration orders were once again issued for the Little Arkansas River basin above the Alta Mills gage, this time for 25 surface water rights. That administration remains in effect as of May 12, 2022.

On April 15, 2022, MDS administration orders were issued for the Republican River basin, which remain in effect as of May 12, 2022. In the basin above the Concordia gage to the Nebraska state line, 34 groundwater and 44 surface water rights (78 total) are under administration. In the basin between the Clay Center and Concordia gages, 74 groundwater and 89 surface water rights (163 total) are under administration.

Streamflows as of May 9, 2022			
Gaging Station	**Current Flow**	**May MDS**	**Comment**
Republican River at Concordia	198	150	Admin began April 15, 2022; 78 files; Estimated 60-day moving average discharge to MDS ratio is 1.21
Republican River at Clay Center	357	250	Admin began April 15, 2022; 163 files; 60-day moving average discharge to MDS ratio is 1.12
Little Arkansas River at Alta Mills	31	8	Admin began November 29, 2021; 25 files

Pursuant to K.S.A. 82a-706b, KDA-DWR protects water released from storage in Federal Reservoirs. Protection Orders were in effect in Neosho River basin between Council Grove Reservoir and the City of Emporia for 10 surface water rights between September 8, 2020 and April 30, 2021. On August 27, 2021, the same group of 10 water rights were administered in Kansas for Protection between as follows:

Stream	**Administration Began**	**Administration Ceased**	**Files Administered**
Neosho River	August 27, 2021	January 14, 2022	10

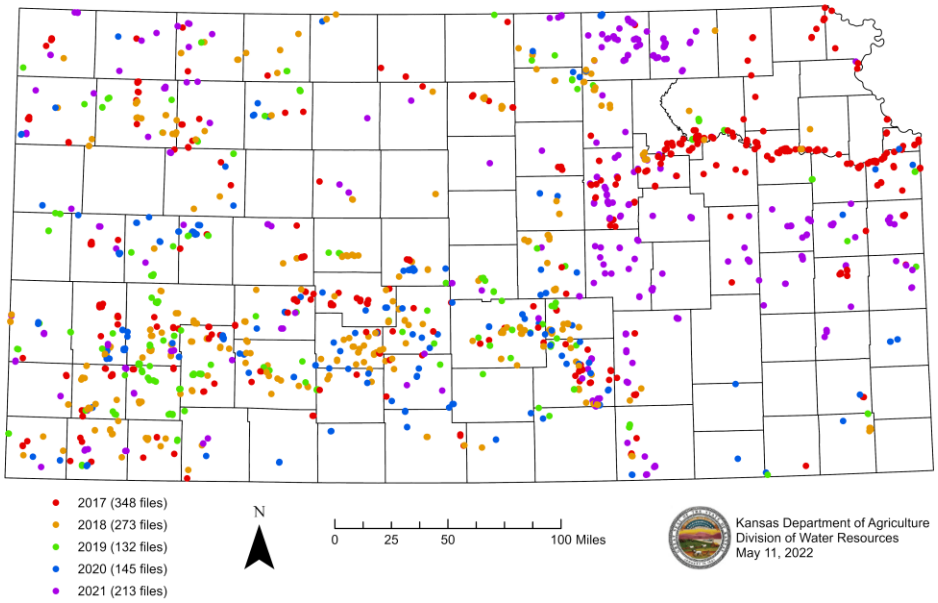
While no administration occurred in the Compact Basin, the southern half of the Topeka Field Office territory continued to struggle with flows on and off in 2021, which is continuing in 2022.

We have reported a number of times on the Lower Republican River Stakeholder group (LRAD) that has worked to establish a Special Irrigation District. Although bylaws were instituted and the Board was put in place, additional progress has not occurred. The necessary legislation to authorize the District was not introduced again during this session. The main challenge for this group is obtaining permanent storage space. To obtain this storage space in Harlan reservoir, the USACE would need to do a reallocation study or it would otherwise need to be addressed.

Compliance & Enforcement Activities

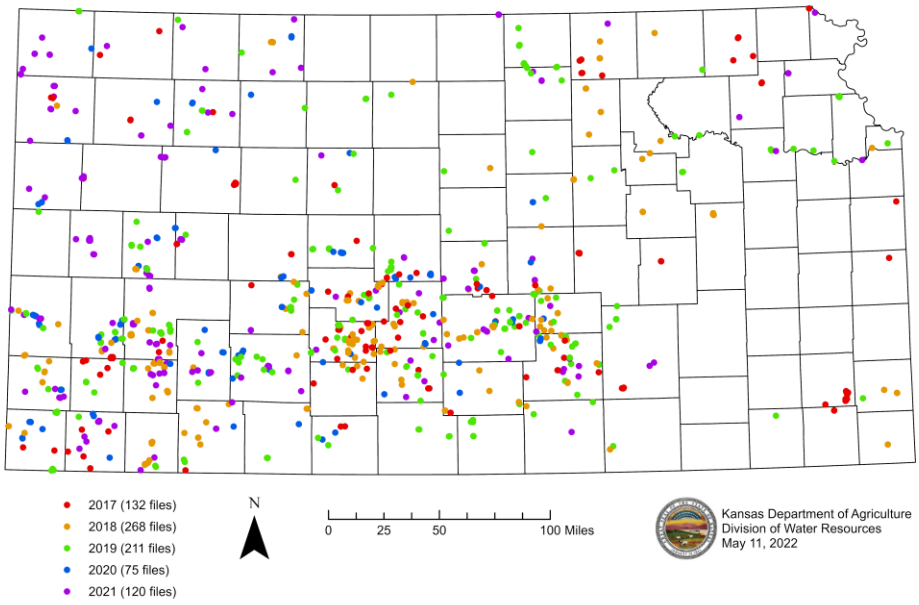
In 2021, KDA-DWR issued Notices of Non-Compliance (NONC), Notices of Non-Compliance Cease Diversions (NONC-CD), or Formal Cease and Desist (CD) Orders on 121 files in the Topeka Field Office area (eastern Kansas) and 213 files statewide. 34 CDs in total were issued in the Compact area in 2021. Most of these were due to a recent initiative. The Topeka Field Office issued basin-wide meter orders generally between 2007 and 2016 to complete the statewide metering initiative that was ongoing at that time. During this effort, TFO identified several water right owners who were not currently using their water rights for various reasons who did not wish to spend the money necessary to install the required water flowmeter meeting all the requirements of the metering regulations. For these folks, TFO provided a Notice of Non-Compliance Cease Diversion option. These Notices are a form of agreement between the owner and KDA-DWR that the owner agrees not to use the water right until the required metering is installed and it is field checked for compliance. Because Notices are not subject to the Kansas Judicial Review Act (KJRA), they are essentially non-binding. Now that several years have passed since these started getting issued, a problem has developed. A few of the owners have sold, transferred, auctioned off or otherwise transferred these water right files. When due diligence is done, realtors, property auctioneers, and new owners typically request all Orders issued under a water right to determine what the water right authorizes and what legal sanctions or other issues exist under the right. Since the NONC-CDs are not orders, they aren't included, which causes compliance problems. Because of this, the TFO has initiated a campaign to work county by county as we complete field work and issue Formal Cease and Desist Orders of the Chief Engineer to the current owners of these files. This does not represent a large, new compliance issue. This is why the number of Cease and Desist Orders is increased so significantly from previous years. This effort is anticipated to be completed in 2022.

Notices of Non-Compliance and Cease and Desist Notices Issued
2017 to 2021



As part of the Overpumping Program, the Topeka Field Office issued 8 penalty orders in 2021: 7 for water users who exceeded their authorized quantity in the 2020 calendar year (4 municipal, 2 stockwatering, and 1 contamination remediation), and 1 to a stockwatering user for failure to maintain a compliant water flow meter. Of those, the 2 overpumping penalties for stockwatering rights were within the Compact area. Statewide, DWR issued penalties on 120 water right files in 2021. Thus far in 2022, 5 CDs total have been issued in the Compact area; a total of 64 CD orders have been issued by the Topeka Field Office in 2022. Thus far in 2022, no penalty orders have been issued by the Topeka Field Office, either within or outside the Compact area.

Penalty Orders Issued
2017 to 2021

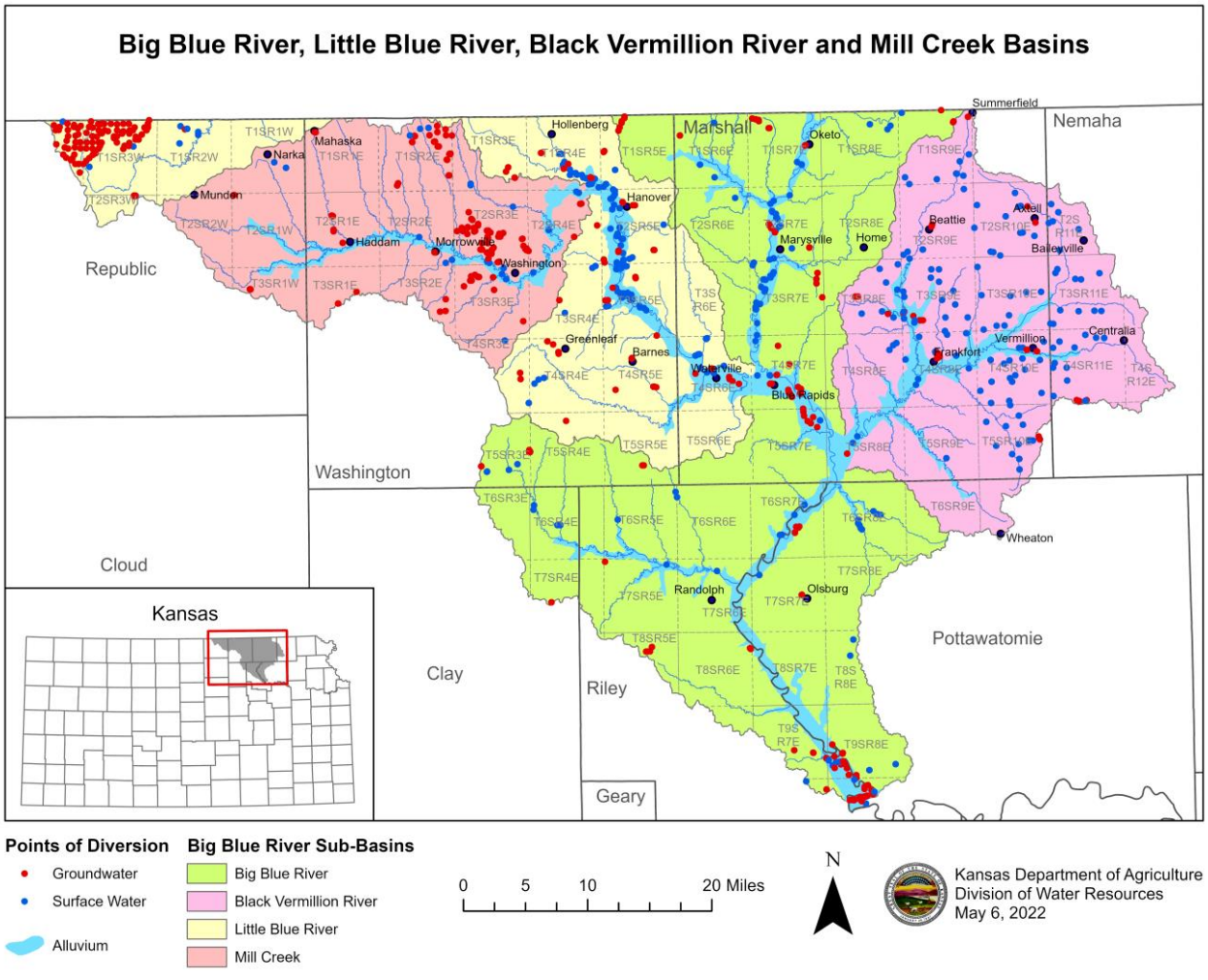


New Development

In 2021, KDA-DWR received 21 new applications (12 for appropriated water rights, 8 for temporary permits, and 1 for a term permit) within the Compact area. This is an increase from the 8 applications received in 2020 (5 for appropriated water rights, 2 for temporary permits, and 1 for a term permit) within the Compact area. In 2022 so far, KDA-DWR has received 6 new applications (4 for appropriated water rights and 2 for temporary permits) within the Compact area.

In 2021, KDA-DWR approved 14 applications (5 for appropriated water rights, 8 for temporary permits, and 1 for a term permit) within the Compact area. In 2020, KDA-DWR approved 6 applications (2 for appropriated water rights, 2 for temporary permits, and 2 for term permits) within the Compact area. In 2022 so far, KDA-DWR has approved 4 applications (2 for appropriated water rights and 2 for temporary permits) within the Compact area.

The requests for new appropriation permits and requests for applications for changes to existing permits continues to trend upward. In 2021, the TFO provided 181 application packages to customers- representing 108 new and 73 change requests. So far in 2022, TFO has assisted with 54 requests. This trend follows what we are seeing statewide and is creating a new application backlog.



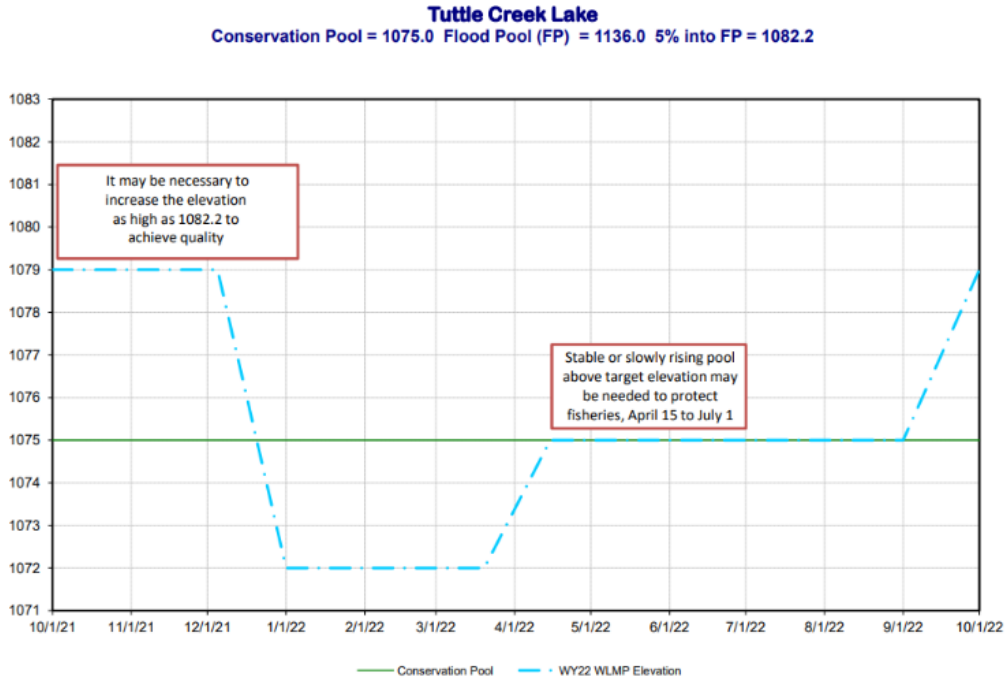
TFO Activities

The Topeka Field Office continues focusing on core mission inspections. In 2021, we completed 48 full field inspections, which includes rate tests, and 472 compliance investigations. We continue to decrease the backlog that had accumulated and continue working in the last areas that haven't yet been caught up.

The project to fully go electronic in the Topeka Field Office by scanning and converting all water right hard files to DocuWare images was recently completed. This was a 3-year project that involved preparing the file for imaging, imaging the file, storing it in the state archival system, reviewing the images page-by-page against the originals for quality control, and then disposing of the hard file by returning it to the owner. The nearly 5,000 active files within the TFO territory are all available within the DocuWare system now. There remains about 120 boxes of files to be reviewed for quality control. We continue to return files to owners as we perform field work and arrange other opportunities. This has resulted in the TFO being a completely paperless office and the KDA-DWR is working on the final piece of this conversion, making our application process electronic. We have found that working electronically, particularly through email and texting, has been a significant convenience for our customers and has enhanced our customer service. Nearly all paperwork is now handled electronically, except for applications.

Tuttle Creek Reservoir

Lake Level Management plans were approved in fall of 2021, again as per the previous version approved. The main focus is support of spawning fish and wildlife habitat.



	Time	Elevation	Comment
TUTTLE CREEK LAKE	Oct 1 – Dec 5	1079-1082.2	Attract migrating waterfowl, achieve quality habitat
	Dec 5- 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

Kansas River Basin Study

Monitoring and data collection remains ongoing for the Kansas River Reservoirs Flood and Sediment Study. The study includes the compact area. The study goal is to determine what actions are needed in the basin to extend the life of the reservoirs and to establish steps to reduce flood risk and increase infrastructure benefits, improve sediment management, mitigate drought, improve water supply availability, restore essential ecosystem, and enhance water quality and recreation. The Final Watershed Study Report is expected in Fall of 2023.

Attachment B

Lower Big Blue
Natural Resources District

Established in 1972 for the Development and Conservation of Soil and Water Resources

Lower Big Blue NRD 2022 Annual Report to the Blue River Compact Annual Meeting May 18, 2022

The Lower Big Blue Natural Resources District (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 effect age has had on many of these structures coupled with the budgetary limitations of local governance has inspired the pursuit of creative solutions. The LBBNRD has extended the life of eleven 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.

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 – is almost complete, with only the installation of electrical camping pedestals, signage and restrooms remaining. While the District did catch some recent rainfall, the lake has yet to return to permanent pool. 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.

On April 6, 2022, the Lower Big Blue NRD's Voluntary Integrated Management Plan (VIMP) was officially approved. The joint agency plan provides a framework for managing hydrologically connected surface and groundwater.

The in-house review of the District's Groundwater Rules and Regulations is nearly finalized, and it's anticipated a public hearing will be held soon as one of the final steps in completing the update of the document. The rules, as they're currently written, were approved in 2014, and include aquifer- and well-proximity-based scoring components for assessing and permitting new high-capacity wells. The primary purpose for revising the rules and regulations has been to clarify language and definitions.

The collaborative effort between basin NRDs and the Nebraska Department of Natural Resources (NeDNR) to develop a Blue Basin Groundwater Model continues. LBBNRD appreciates Marie Krausnick's and Upper Big Blue NRD's leadership on this effort, as well as the cooperation among partners.

Spring 2022 static water level measurements are down 2.85 feet Districtwide from last Spring, as well as down 1.81 feet from baseline. LBBNRD measures 93 irrigation wells and 45 dedicated monitoring wells across the District, as well as 32 wells relative to the Blue River Compact. Those 32 Compact wells are down 2.95 feet from the previous Spring (see Appendix 1).

The Lower Turkey Creek National Water Quality Initiative (NWQI) project is ramping up again with the NRD having hired retired NRCS employee, Jerry Bucy to provide technical assistance, outreach and education in the area. The area includes water quality impairments of E. coli, Atrazine and Nitrates (see Appendix 2).

USDA Watershed and Flood Prevention Operations (WFPO) projects could provide the NRD unprecedented opportunity to improve many of its watersheds. Currently, the Little Indian WFPO project is at the 60% plan phase, and the NRD is in the process of completing Preliminary Investigation Feasibility Reports (PIFRs) for three additional watersheds in the District – Lower Turkey, Swan and Wolf Wildcat (see Appendix 3).

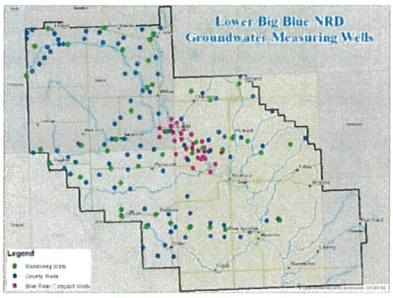
The NRD has also received three Nebraska Environmental Trust (NET) grants to address groundwater quality, quantity and assist work in with the Lower Turkey Creek NWQI area. Through these grants, the NRD has been able to bolster its current flow meter cost-share program, as well as address nutrient loading and nitrates (see Appendix 4).

805 Dorsey • P.O. Box 826 • Beatrice, Nebraska 68310-0826 • Phone 402-228-3402 • Fax 402-223-4441 • www.lbbnrd.net

Lower Big Blue Natural Resources District — Spring 2022

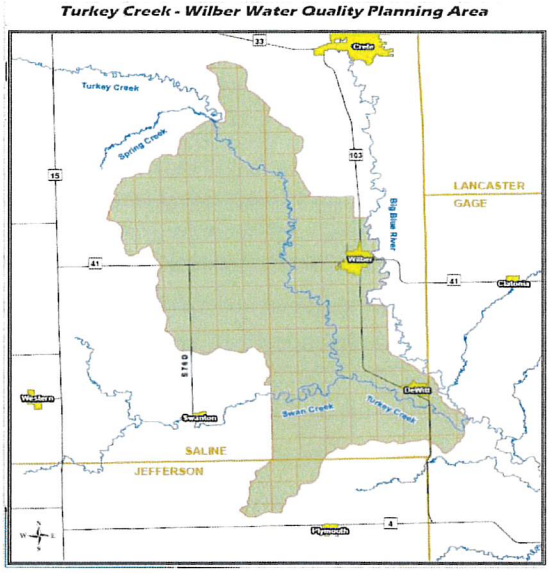
Groundwater Levels

Wells	Number of Wells	Water Level Change From Spring 2021 to Spring 2022	Water Level From Baseline	Fall 2021 to Spring 2022 Recharge	Average Fall to Spring Recharge
Gage County	27	-3.19	-0.45	2.00	1.84
Jefferson County	24	-3.93	-4.95	2.77	2.98
Saline County	42	-1.91	0.40	1.81	1.65
Dedicated Monitoring Wells	45	-2.28	0.75	3.52	2.85
Blue River Compact Wells	32	-2.95	-4.79	0.94	1.30
District-Wide	**170**	**-2.85**	**-1.81**	**2.21**	**2.12**

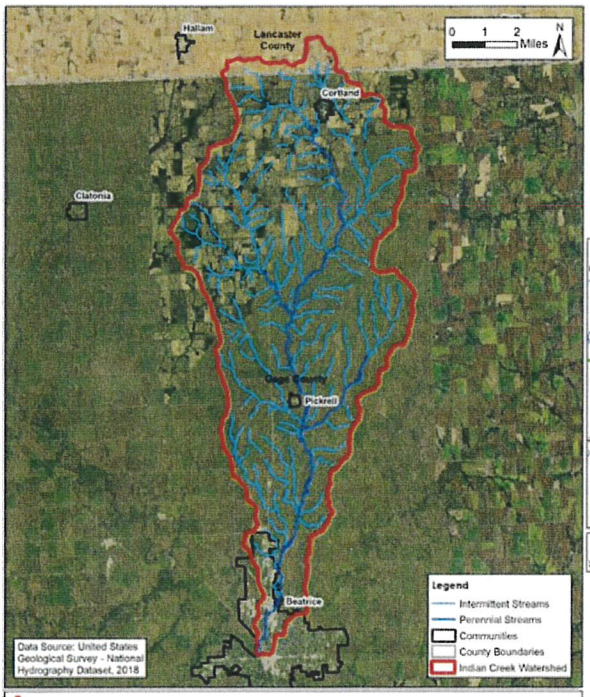


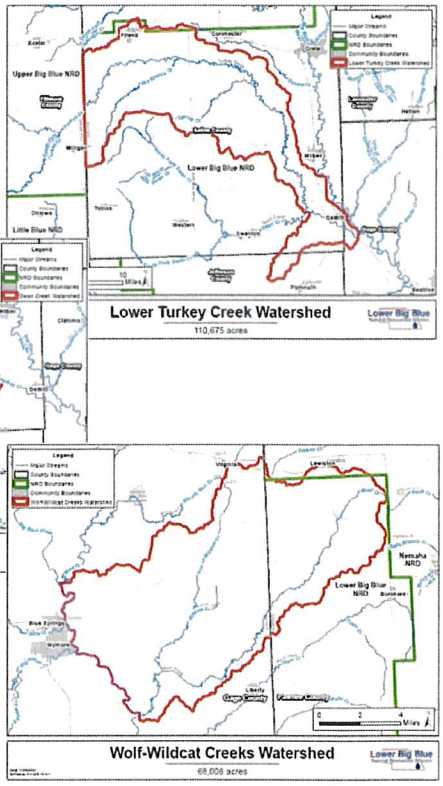
Lower Big Blue Natural Resources District

Appendix 1 Spring Water Levels



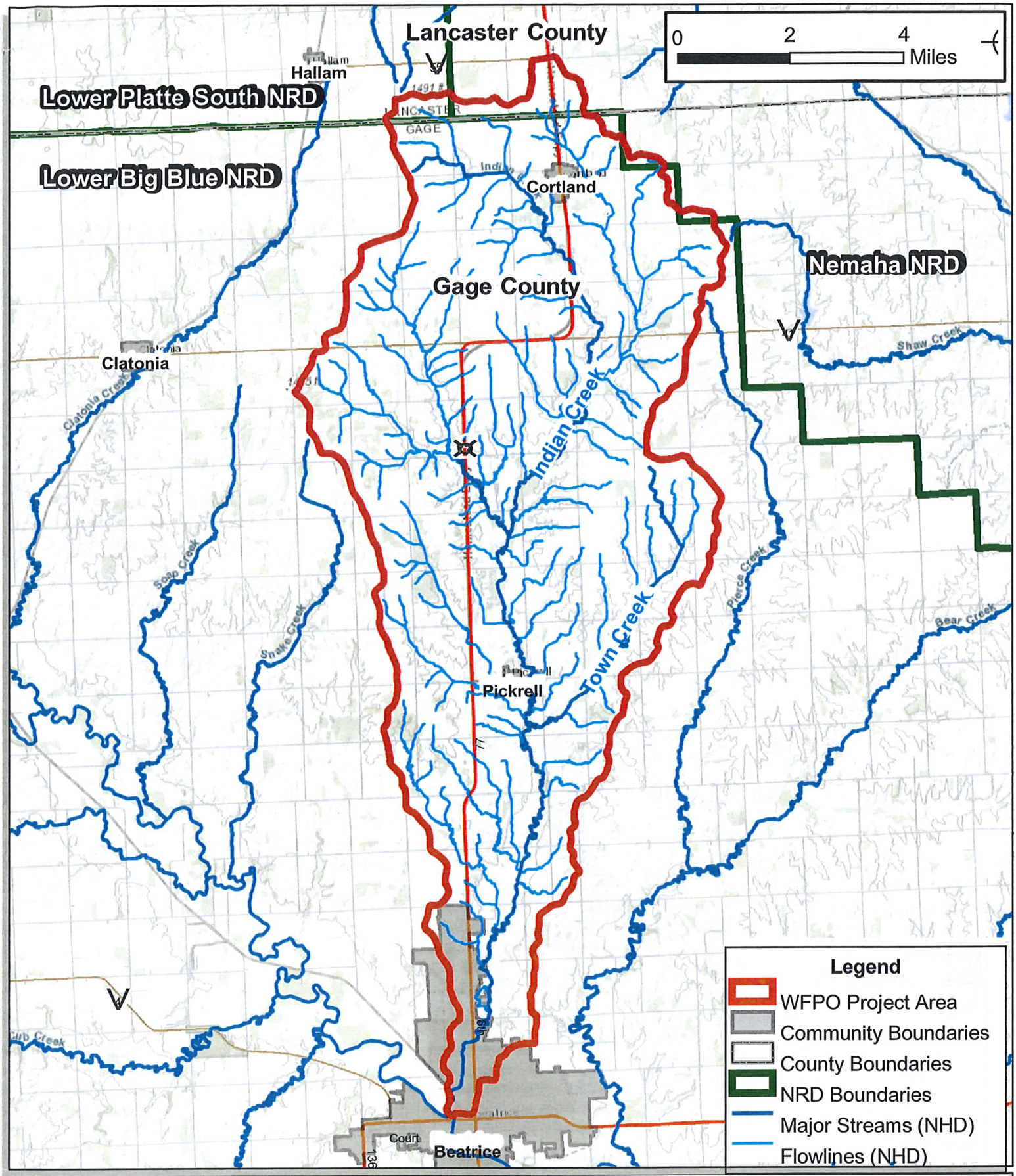
Appendix 2 Lower Turkey Creek NWQI





Appendix 3 Little Indian and Potential Future WFPO Watersheds

Appendix 4 NET Groundwater Grants Areas

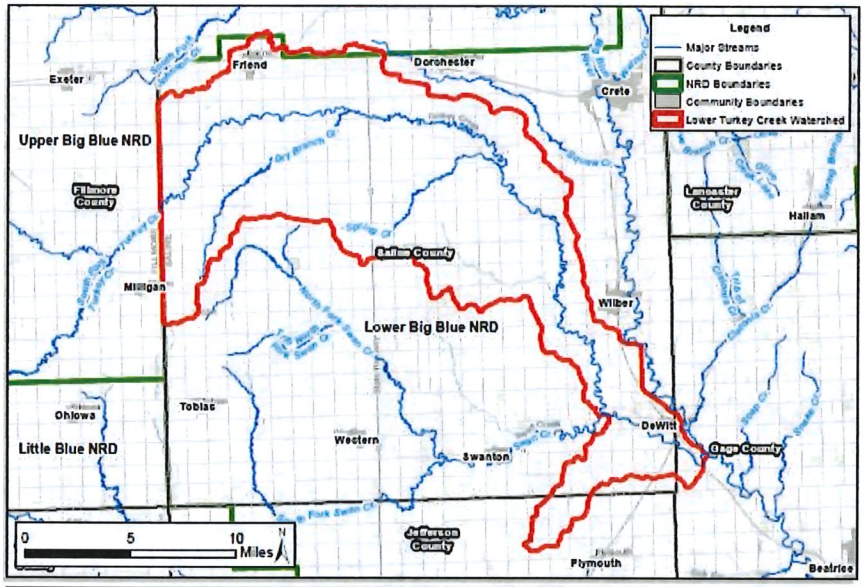


Little Indian Creek WFPO Project Area

Total Area = 48,425 acres

Date: 3/30/2020
Software: ArcGIS 10.7.1

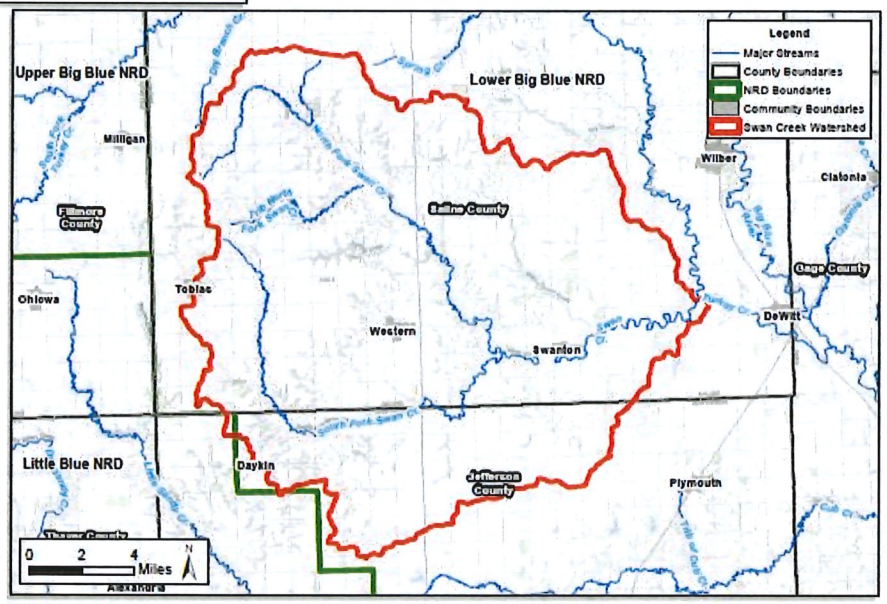
WFPO
APPLICATIONS



Lower Turkey Creek Watershed

110,675 acres

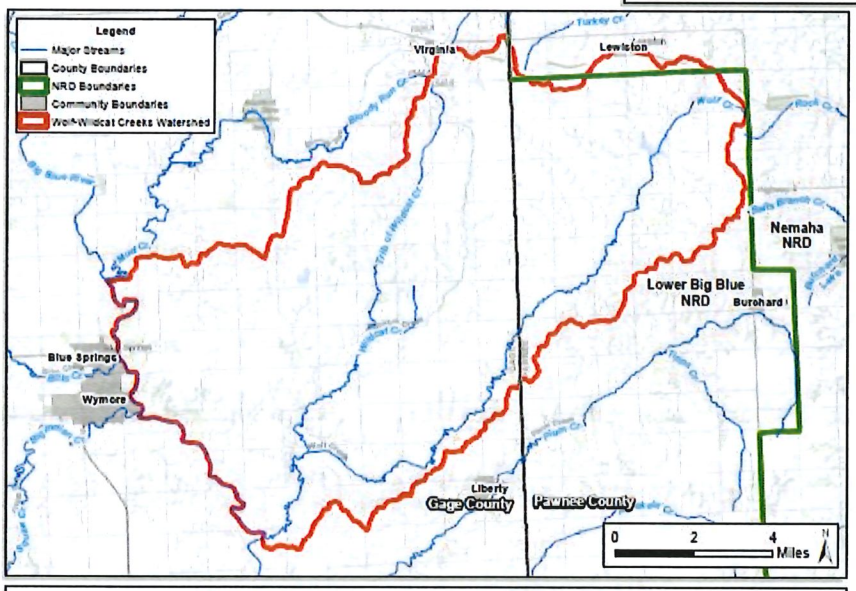
Lower Big Blue Natural Resources District



Swan Creek Watershed

154,834 acres

Lower Big Blue Natural Resources District

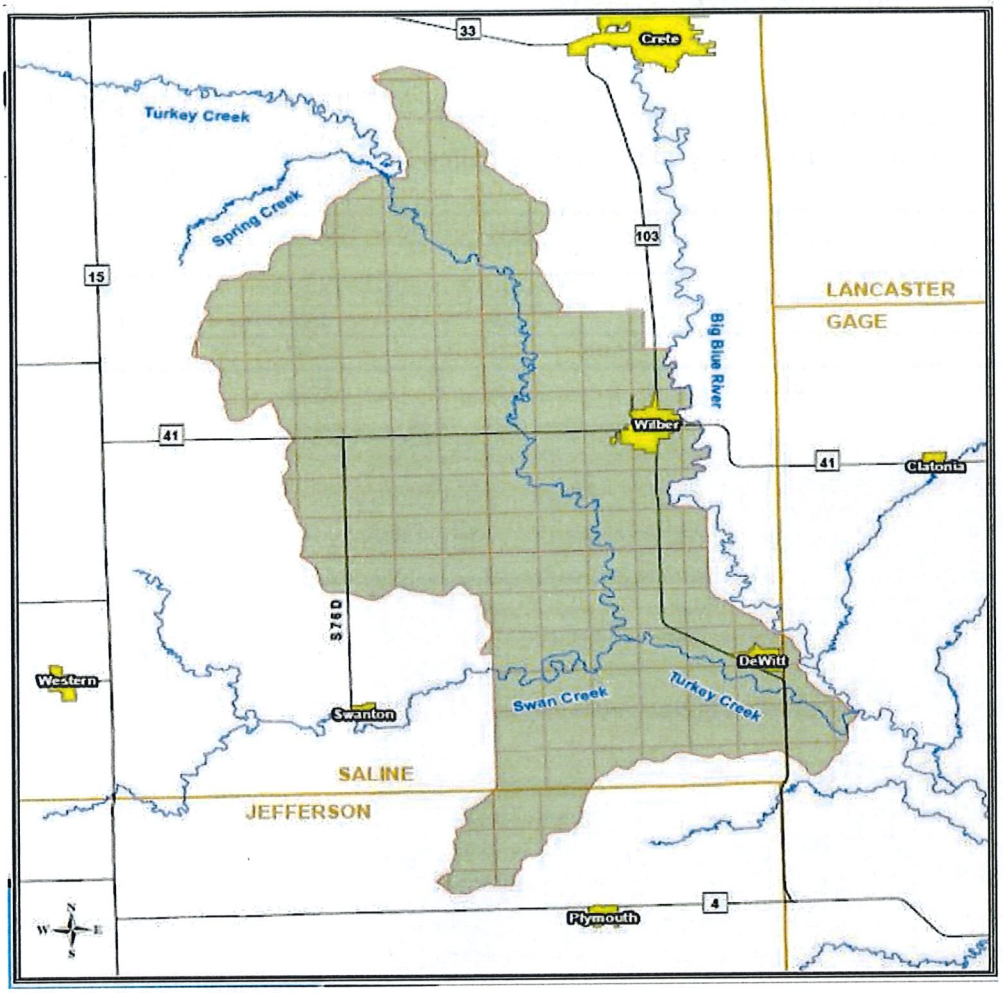


Wolf-Wildcat Creeks Watershed

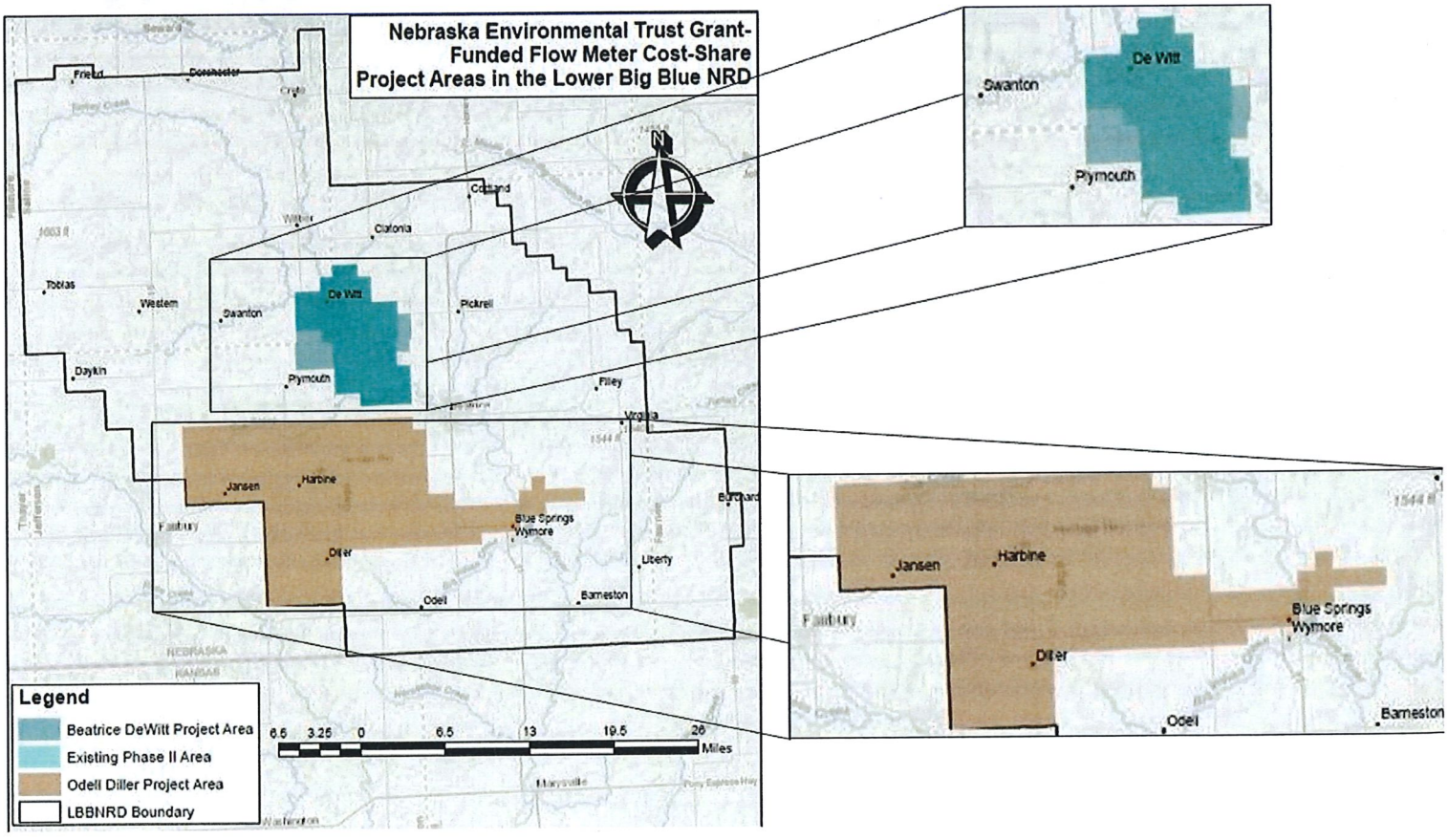
68,006 acres

Lower Big Blue Natural Resources District

Turkey Creek - Wilber Water Quality Planning Area

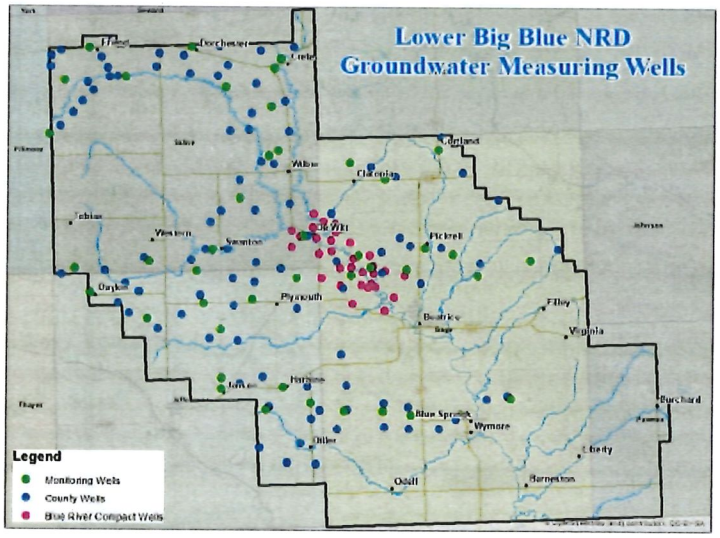


NWQI & NET GRANTS



Groundwater Levels

Wells	Number of Wells	Water Level Change From Spring 2021 to Spring 2022	Water Level From Baseline	Fall 2021 to Spring 2022 Recharge	Average Fall to Spring Recharge
Gage County	27	-3.19	-0.45	2.00	1.84
Jefferson County	24	-3.93	-4.95	2.77	2.98
Saline County	42	-1.91	0.40	1.81	1.65
Dedicated Monitoring Wells	45	-2.28	0.75	3.52	2.85
Blue River Compact Wells	32	-2.95	-4.79	0.94	1.30
District-Wide	**170**	**-2.85**	**-1.81**	**2.21**	**2.12**



Lower Big Blue
Natural Resources District

Attachment C

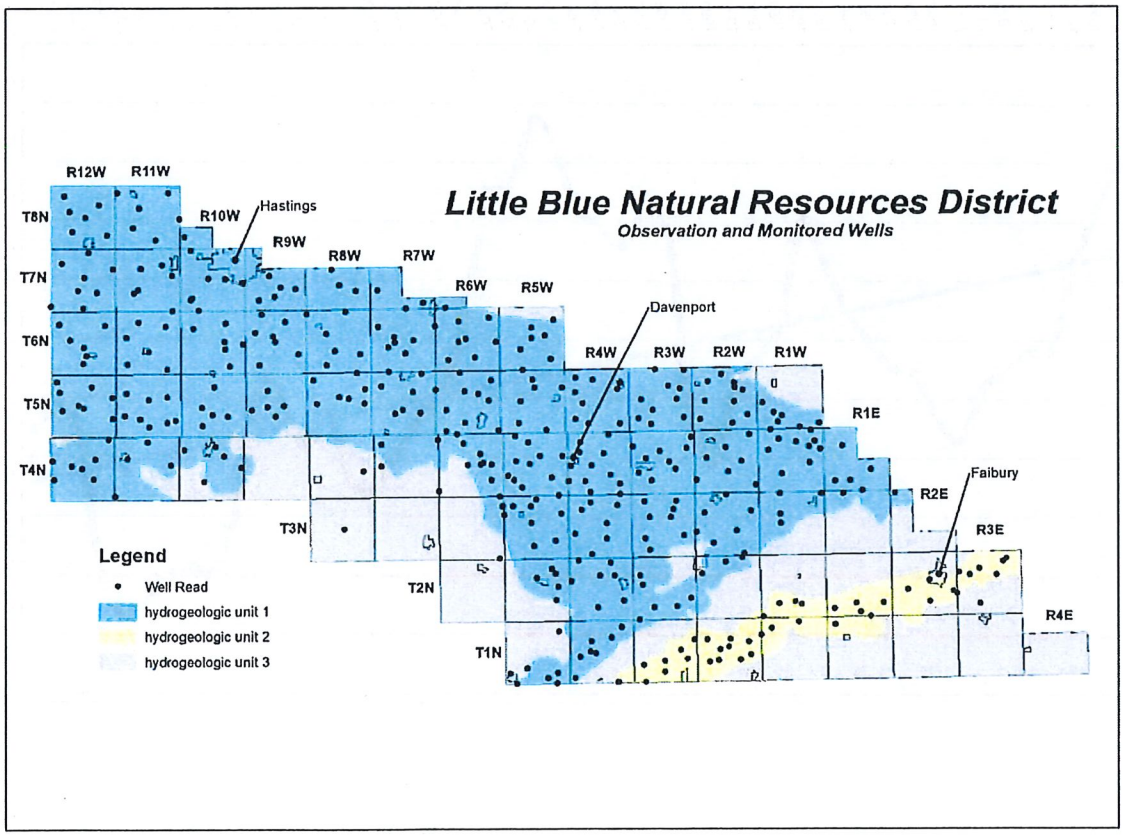
Little Blue Natural Resources District
Blue River Basin Compact Meeting
Annual Report – May 18, 2022

Voluntary Integrated Management Plan (IMP)

Since approval of our voluntary IMP, the District is working with federal, state and adjacent NRD's to identify and manage the interaction of ground water and surface water and increase the use efficiency of each resource. Since 2019, we have completed various recharge projects such as the construction of in-stream weirs and the re-connection of dry oxbows to flowing streams. Another large endeavor was working with the Nebraska Department of Natural Resources and neighboring Blue River NRD's to fund a Blue River Basin model that will help us better manage both ground water and surface water.

Spring 2021 to Spring 2022 Ground Water Levels

Spring 2022 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 -0.49 feet on average. Some of the hardest hit towns were Hebron, Alexandria, Carleton, Roseland, and Holstein. Geologic Area 2 shown in yellow was down -0.61 feet on average. The area hardest hit was between Fairbury and Reynolds. However, there were some small rises around Bladen, Kenesaw, and Shickley; with some significant rises by Chester. Average District precipitation for 2021 was 26.29 inches with average irrigation use of 8 inches per acre.

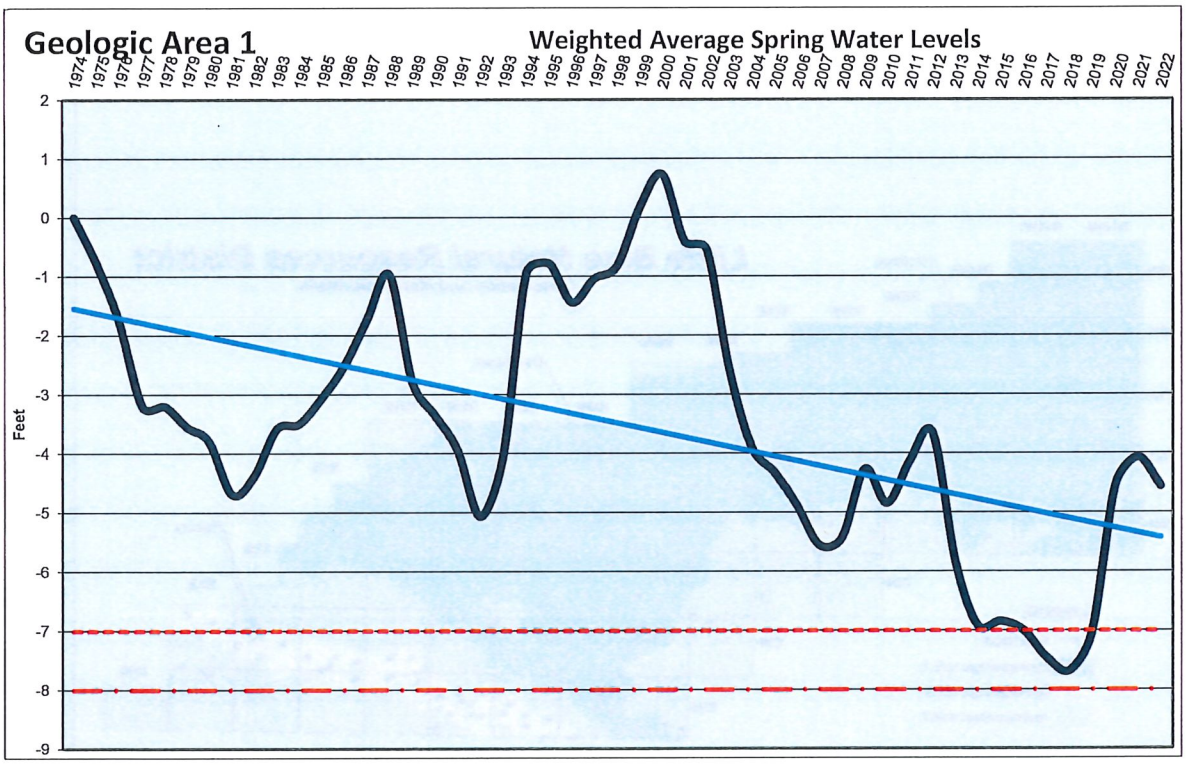


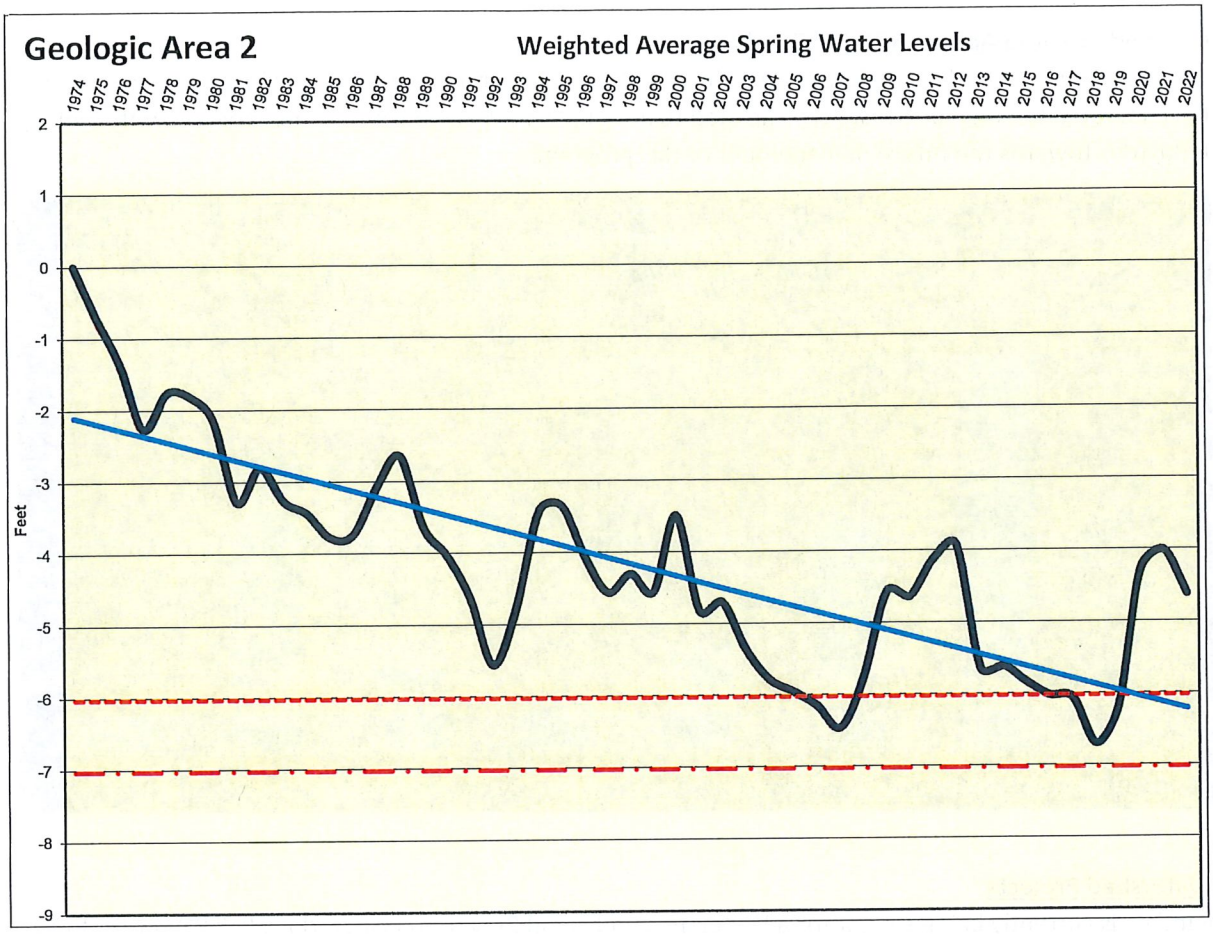
Irrigation Flow Meters

Per our 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 inspecting meters is approximately $60,000.

Irrigation Allocations

To protect against detrimental ground water declines, 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. First allocation period is set at 5 years and 13 inches per year.





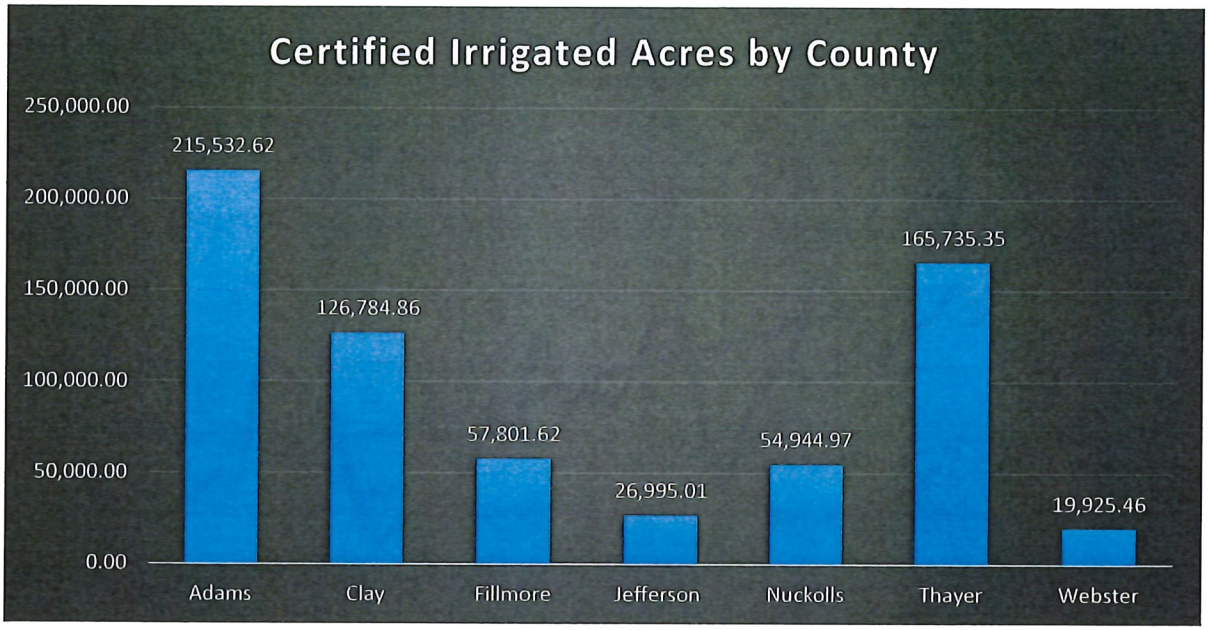
Water Quality Projects

The District is committed to protecting both surface and ground water quality. Currently we have identified 8 ground water sub-areas that we monitor regularly, and unfortunately the nitrate levels in 6 of the 8 areas are on the rise. Every five years, vadose zone sampling is conducted in areas of concern. In 2021, we completed a 1-year project and with the assistance of EA Engineering are working with area producers to implement the following best management practices.

- Diversified Crop Rotation
- Irrigation Scheduling
- Dryland Cropping
- Alfalfa Cropping
- Conservation Reserve Program
- Continuous No-till Management
- Increase Chemigation
- Decrease Anhydrous Ammonia
- Nitrification Inhibitors
- Perennial Prairie Strips

Certified Irrigated Acres – 667,720 Total Acres

The District has recently completed a lengthy and challenging process of certifying irrigated acres. We have invested the time and resources needed to accomplish this huge task and are working with Beehive Industries towards the future management of this program.



Watershed Projects

Funding is currently being sought for a Watershed and Flood Prevention Operations (WFPO) project that will provide flood control to the Villages of Kenesaw and Juniata. Kenesaw is located in the west branch of the 32-mile watershed and the main focus is improvement to a dike that is located on the north side of the village. Juniata is located in the east branch of the 32-mile watershed and the main focus of this project is the construction of two dry detention cells to lessen flooding. The District is also seeking NDEE 319 funds to implement best management practices in the Prairie Lake watershed which is located in the east branch of the 32-mile watershed. The main goal of this project is to improve water quality in the Prairie Lake reservoir.

Little Blue Valley Water System Project

This past year, the City of Fairbury and the Little Blue NRD entered into an interlocal cooperative agreement to form the Little Blue Valley Water System (LBVWS). This new entity is comprised of 2 members from the City of Fairbury and 2 members from the Little Blue NRD. LBVWS has secured USDA Rural Development funds to construct a new municipal supply wellfield located 14 miles northwest of Fairbury that will supply water to Fairbury and rural residents in Nebraska and Kansas (6,500 People). To date, funding and land needed for the project have been secured. To alleviate local concerns, Leonard Rice Engineering has been hired to complete a ground water model to determine impacts to nearby irrigation and domestic wells and stream/river flows involving the Blue River Basin Compact. This model and a final decision to proceed with the project are scheduled for completion in September 2022. The five test wells that were drilled in the 640-acre wellfield yielded excellent water quality and quantity results. Nitrates levels from the test wells ranged from 0.5 ppm to 2.63 ppm.

Attachment D

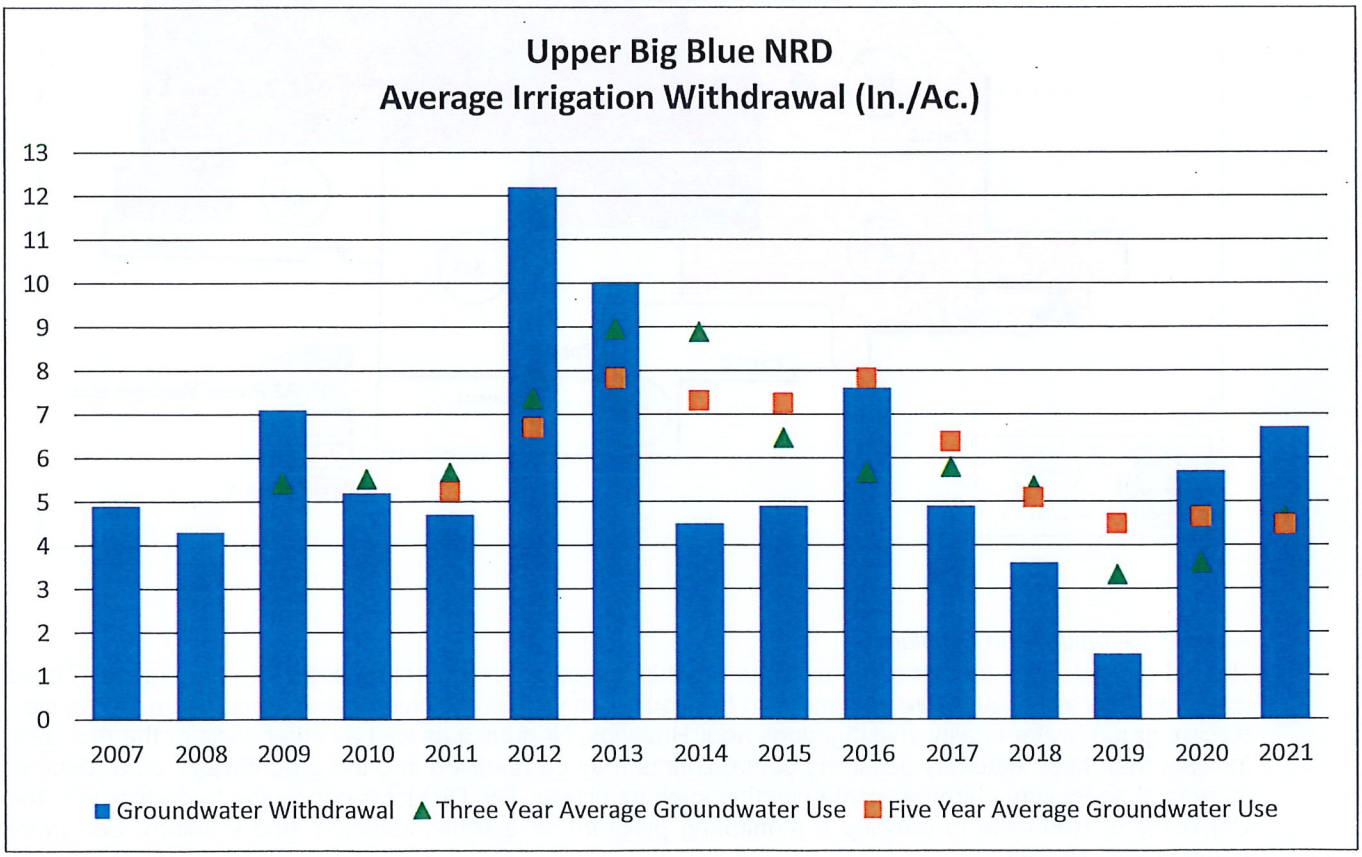
Blue River Compact (BBRC) Annual Meeting
Blue River Compact Report - Upper Big Blue NRD (UBBNRD)
Marie Krausnick, Water Department Manager
Jack Wergin, Projects Department Manager
May 18, 2022

Well Drilling Activities
Eighty permits were issued for irrigation and livestock wells (36 new & 44 replacements) during the 2021 calendar year. In January 2022, there were 12,219 irrigation wells in the District.

Groundwater Level Changes
The average groundwater level change for the District from spring 2021 to spring 2022 was a rise of -0.24 feet. The spring 2021 groundwater level is 8.89 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, 2022, there were 1,243,863 groundwater irrigated acres certified by the NRD. This represents an increase of 1,983 acres since January 1, 2021.

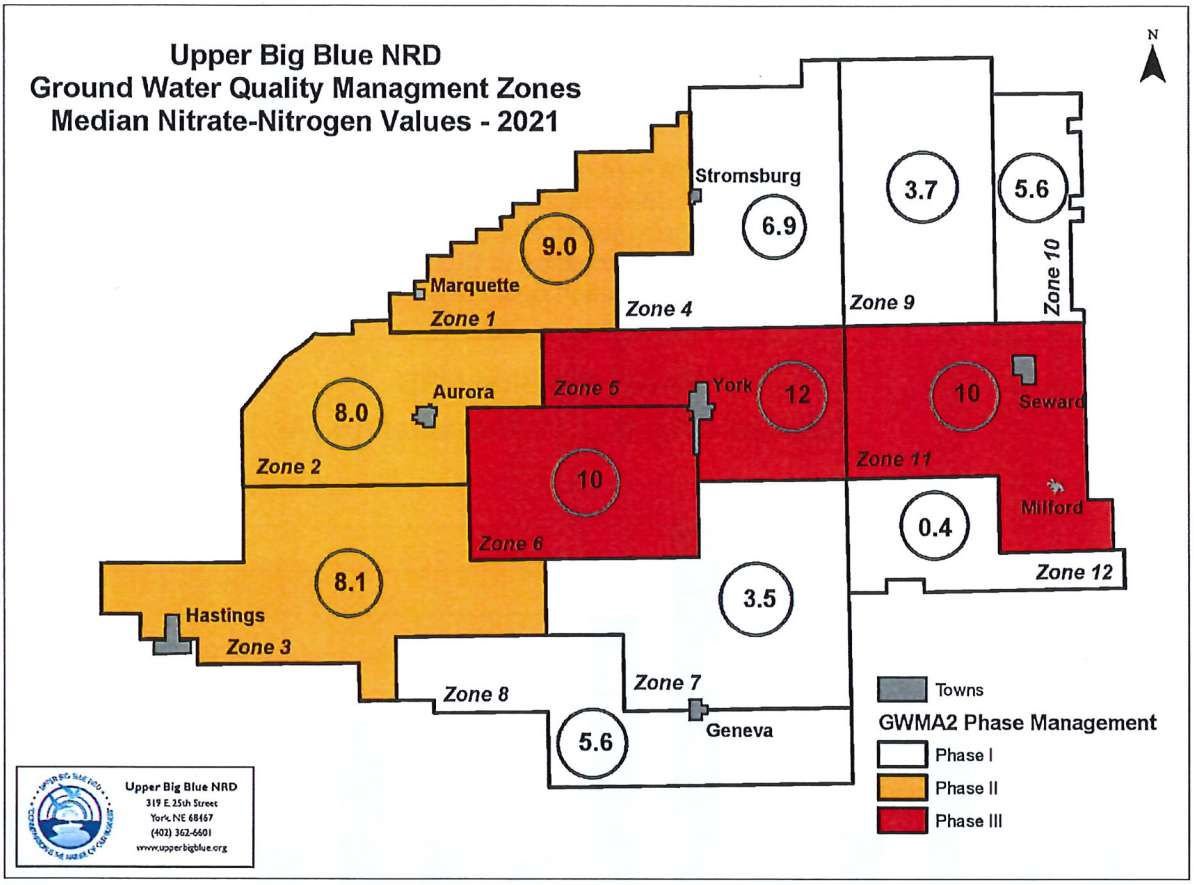
Groundwater Withdrawal
Mandatory reporting of groundwater withdrawal began in 2007. 2021 was the 14th year that groundwater withdrawal reports were required in the District. Metering became mandatory on all wells effective January 1, 2016. Staff has inventoried all flowmeter installations and are now conducting routine inspections as needed. The average groundwater withdrawal for irrigation in 2021 was 6.7 inches per acre. The graph below shows the average annual withdrawal for irrigation over the past fourteen years.



Groundwater Quality

Nitrate

The District is divided into twelve management zones for groundwater quality management. The primary groundwater quality management concern is nitrate. Three zones (1, 2, and 3) are currently designated Phase II Management Areas and three (Zone 5, 6, and 11) is designated a 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 1,147 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 that 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 on going. 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
Over a minimum of two years, 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 will be 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. The collection of samples will occur parallel to a survey 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. 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 a rotation of cover crops to promote soil health. This is the fifth growing season of the project. The initial interlocal agreement was for five years. Staff is currently working with the City to extend the project. Not only is the District seeing success in GROW, but the City and citizens are taking notice to our work to protect groundwater quality, promote soil health practices, all while maintaining profitability.

The Nature Conservancy Cover Crop Interseeding Project
The UBBNRD, the Nature Conservancy, and University of Nebraska Extension have partnered on a project demonstrating soil health/sustainable agriculture practices. The partners are working with local producers from all corners of the District to interseed cover crops into growing cash crops to improve soil organic matter, increase water infiltration, provide weed suppression, and to improve overall soil health. In 2021, ten producers are participating in this demonstration. We are in year three of this three-year project. The Nature Conservancy, and their partners, are the primary funding source for this project. The project partners are discussing the future of this project after this growing season.

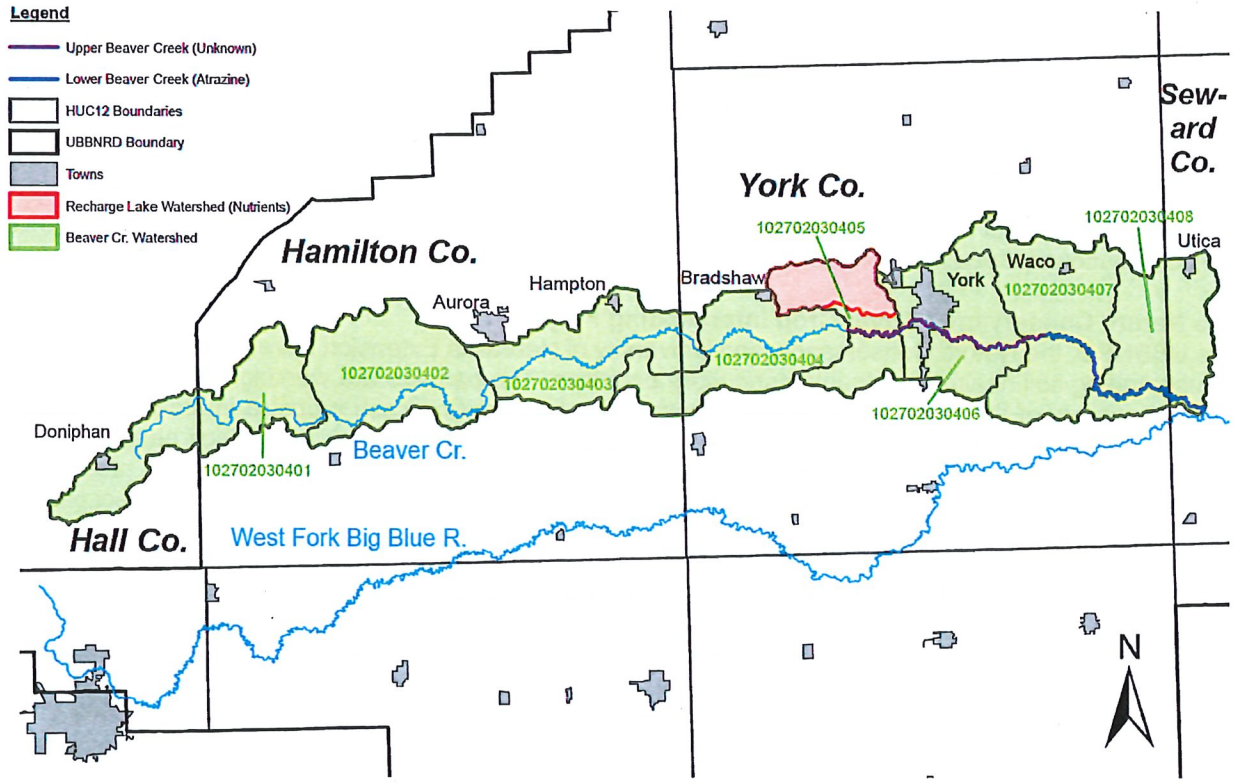
Nebraska Agricultural Water Management Demonstration Network
This program encourages producers to improve irrigation scheduling using Etgages and Watermark sensors to determine crop water needs. This program began in the UBBNRD in 2005 with a collaborative effort with the University of Nebraska Extension and 18 collaborators. The program is now being implemented in several NRDs and coordination has been taken over by the University of Nebraska. The District still sells this equipment to irrigators at a reduced cost to encourage adoption of irrigation scheduling practices.

Groundwater Modeling
The District, in cooperation with the Lower Big Blue, Little Blue, Tri-Basin NRDs and the Department of Natural Resources are partnering 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. These efforts are on going and the partners are hopeful for a June 2022 delivery.

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 this past fall/winter.

Water Quality Management Plan
In March of 2020, the Water Quality Management Plan (WQMP) was accepted by Environmental Protection Agency (EPA) and the UBBNRD Board of Directors. In the fall of 2020 through the summer of 2021, the District completed Phase I of the WQMP process to further identify priority conservation practices utilizing a target area stakeholder group comprised of landowners and other interests from both the Recharge Lake and Beaver Creek watersheds. Similar to the NRD wide WQMP stakeholder group, the target area stakeholder group identified filter/buffer strips and cover crops as the most acceptable practices.



WQMP – Implementation Program
In the fall of 2021, the Upper Big Blue NRD 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.

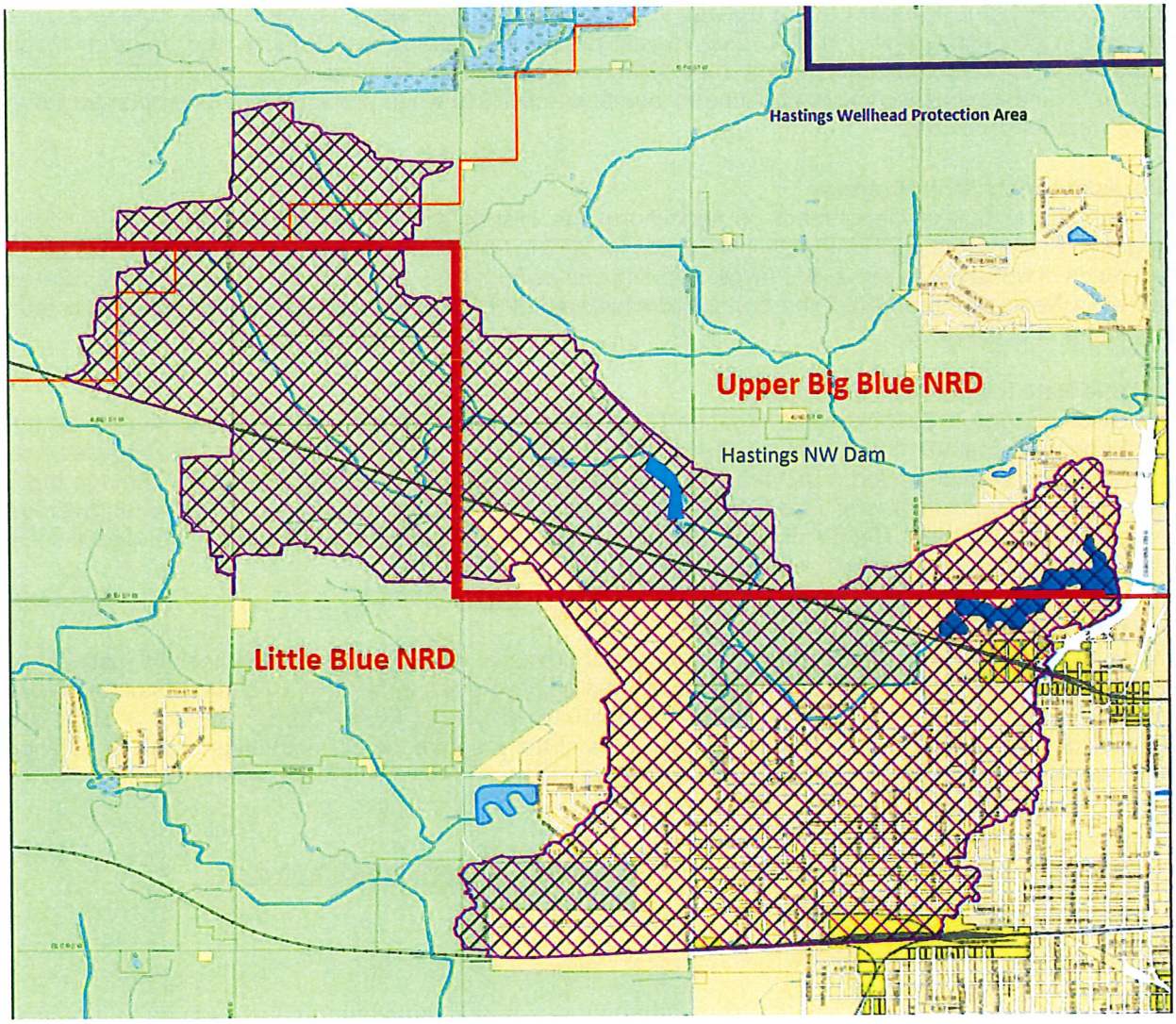
The WQMP Cover Crop Program offers landowners cost share assistance to install cover crops in specific high risk areas of the Beaver Creek watershed and within the well head protection areas of communities

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 re-newed 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 is requesting assistance in improving the water quality in Lake Hastings. The Lake Hastings watershed is split between the Upper Big Blue NRD and the Little Blue NRD. Lake contaminants include phosphorus, mercury, PCBs bound in the sediment, and nitrogen. Initial discussions included staff from the City of Hastings, both the Upper Big Blue and Little Blue NRDs, Nebraska Game and Parks Commission, and the Nebraska Department of Environment and Energy. Current plans are to add the Lake Hastings watershed as a priority area in the Upper Big Blue NRD's Water Quality Management Plan.

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. After the first sign up the seven (7) producers in the Upper Big Blue NRD were awarded, contracts impacting 3,865 acres with at least one new practice. 54% of those acres were for cover crops and the rest were enrolled for no-till. All 7 contracts have a length of 5 years. The total cost for all seven contracts is $411,681.94.

For the second enrollment period, NRCS has offered 12 contracts to farmers for a total cost of $639,236.34. We are still awaiting confirmation on which farmers have accepted the contracts.

Soil and Water Conservation Cost-share Assistance
Through the District's Land Treatment Program, the District obligated funding for 52 soil and water conservation projects with a total cost share of $183,862.10 in FY2022. Funded projects included terraces, sediment control basins, waterways, pasture plantings, and tree plantings for windbreaks & enhancing wildlife. Funding sources for the Land Treatment Program included $76,669.94 from the Nebraska Soil and Water Conservation Program and $107,192.16 from local NRD property tax revenues. This is a 25% increase in obligations from FY2021. One reason for this increase is the District's tree program which increased to 29 windbreak planting and renovation projects with a total funding obligation of $57,876.65. Interest in land treatment projects continue to increase from 2019 when projects were lower primarily due to the weather conditions.

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 FY2022 the District administered 22 buffer strip contracts which provided a total cost share of $26,439.56.

Variable Rate Irrigation Pilot Program
The District began a Variable Rate Irrigation Pilot Program in 2017. With over 10,000 center pivots the District believes that VRI can have a significant impact water use efficiency and may provide water savings. In FY2022 the District funded 4 VRI projects with a total District contribution of $5,446.20. Through the 6 years of this program the District has funded 19 VRI projects with a total cost share of $48,778.68 (average cost share of $2,438.93). The District Board voted to discontinue the VRI Pilot Program at the end of fiscal year 2022 due to the low participation rate.

Private Dams Program
Through 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 FY2022 the District provided cost share assistance for 1 dam with a total $50,000.00 of District funds. Construction of 3 dams are scheduled for fall of 2022. Through the first six years of the program the District has provided assistance for 16 dams with an average cost share of $23,750 per dam.

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

Project Growing **R**otational crops **O**n **W**ellfields

A Partnership Between the

City of York & Upper Big Blue Natural Resources District

PROJECT OVERVIEW

The Upper Big Blue Natural Resources District (NRD) and City of York are encouraged to share a conservation and public relations opportunity for the City of York regarding the York Wellfield. The NRD is proposing a special project that will benefit the City of York by planting cover & rotational crops, berry shrubs, a community garden, and a pollinator habitat within the city wellfield acreage. (Please see attached aerial map).

Establishing Goals

The goals are to improve soil health, increase soil carbon, erosion control, non-leaching of nitrogen into the water table, and increasing water holding capacity in the soil, all while maintaining profitability and protecting York's water quality at the wellfield.

Measuring Success—Objectives

As goals provide the direction, the following objectives will pinpoint the destination for this project. The goals become the catalyst for three types of identifiable objectives that are specific, measurable, attainable, relevant, and time-bound:

1). ***Awareness Objective***:
To have an effect on the awareness of City of York Citizens; specifically, to increase their understanding of the importance of how cover/rotational crops planted atop the city wellfield can sustain both water quality and soil health that correlates to sustaining citizens' health.

2). ***Acceptance Objective***:
To have an effect on the acceptance of cities to model the efforts of York as being an early adopter and lead influencer; specifically, to increase interest in other cities across the NRD to plant cover/rotational crops atop their city wellfields.

3). ***Action Objective***:
To have an effect on the action of municipalities in viewing York as a knowledgeable leader in wellfield conservation and environmental educational efforts; specifically, to empower York as an authority to influence and change behavior for other cities to adopt similar wellfield programs across Nebraska.

Timeline

The 5 year timeline—Summer/Fall 2017-2021:

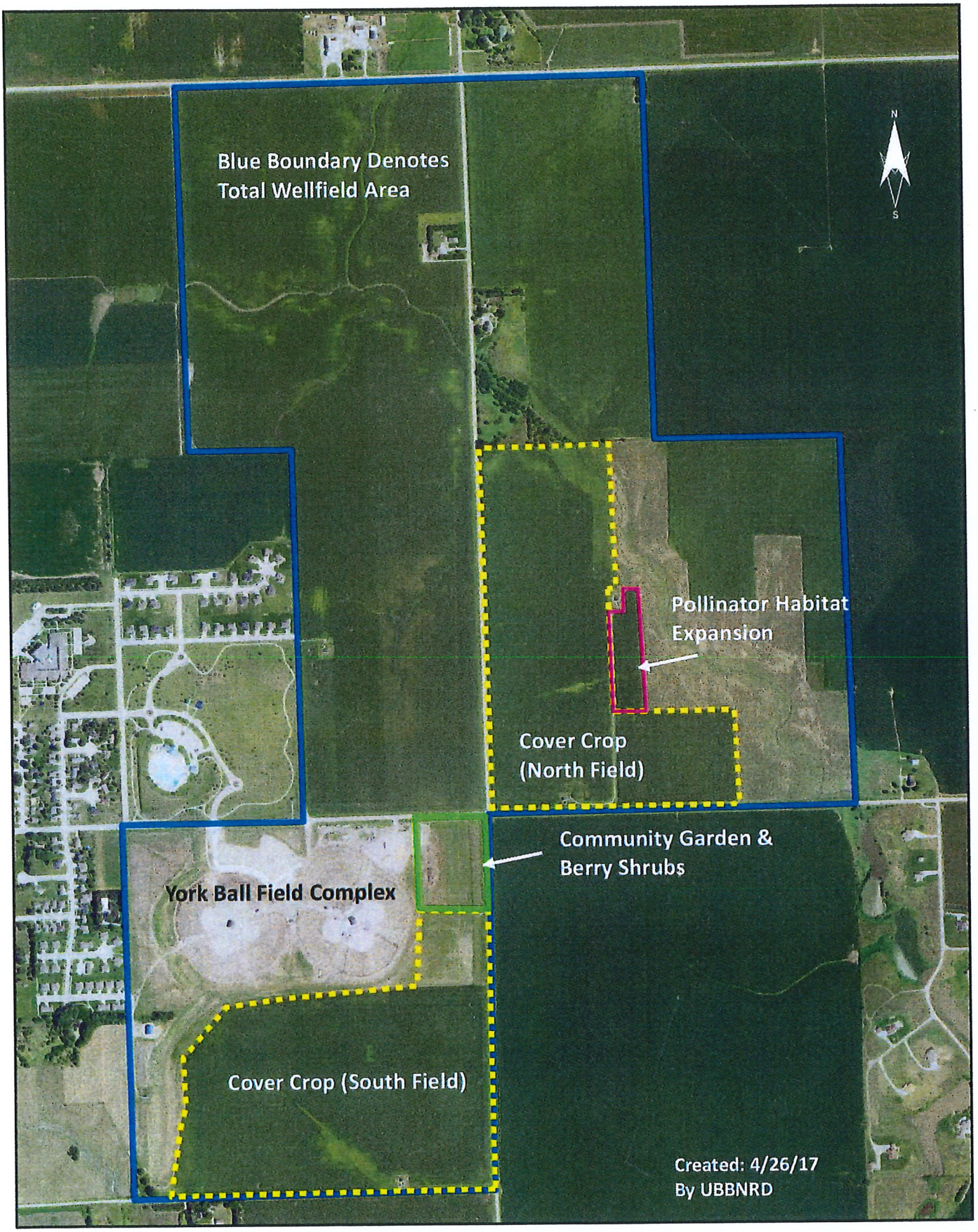
Summer 2017 (Year 1)—Collect soil health data; prepare the site for cover crop planting. The fall of Year 1 will be planted to Rye.
Spring 2018 (Year 2)—Triticale planted and contracted as seed; added a manure application to boost soil biology and planted a 16 species cover crop mix; grazing covers for added revenue
Spring 2019 (Year 3)—Non-GMO Corn and beans were planted followed by a seeding of cereal rye
Spring 2020 (Year 4)—The rye was contracted for seed and followed by covers that were grazed
Spring 2021 (Year 5)—Alfalfa and milo were planted. The milo was harvested and will be seeded to alfalfa in 2022.

Project Funding & Estimated Costs/Revenue

All Cash crops are non-GMO and non-Treated Seed. No insecticides or fungicides will be used. The NRD was successful in securing funding from NACD and NDEE to assist in the cost associated with start up and maintenance of the project.

The City of York would provide the land and costs related to farming operations and retains the income for the next five years. Scott Gonnerman will serve as both a consultant and custom planter/harvester. Dan Leininger, NRD Water Conservationist, will be the liaison between the City and NRD supervising the care of the site.

Proposed York Wellfield Pilot Program Aerial Map



Attachment E

Current State of Finances as of May 12, 2022

Current balance is $ 29,315.34.

As shown in Table 1, revenue is comprised of Kansas and Nebraska dues totaling $19,000 and interest income is currently at $9.43.

Current expenses are comprised of USGS state line gages at $16,459 and Lower Big Blue Natural Resources District observation wells was an expense of $680. Outstanding obligations are Dana Cole for the annual financial review at an estimated expense of $1800.

Proposed Budget for July 2022 to June 2023

As seen on Table 2, I would propose removing printing, postage and office supplies, and miscellaneous expenses categories from budget and reallocate those funds to USGS and Lower Big Blue NRD observation well to cover potential increase expenses. The annual financial review budget was set at $1,500.

We are currently soliciting bids from several accounting firms to find a more economical and customer service focused service provider. This would free up funds that could be potentially used for studies or stream gages.

Table 1
KANSAS-NEBRASKA BIG BLUE RIVER COMPACT ADMINISTRATION
As of May 12, 2022

BEGINNING BALANCE: July 1, 2021			$ 27,444.91
INCOME			
State Assessments	$ 19,000.00		
Interest Income	$ 9.43		
TOTAL INCOME			$ 19,009.43
EXPENSES			
USGS - Stateline Gages	$ 16,459.00		
Lower Big Blue Natural Resources District - Observation Wells	$ 680.00		
Printing Annual Report	$ 0		
Dana Cole - Review	$ 0		
TOTAL EXPENSES			$17,139.00
BALANCE ON HAND:			$ 29,315.34
ESTIMATED EXPENDITURES THROUGH JUNE 30, 2022			
Dana Cole - Review	$ 1,800.00		
Printing Annual Report	$ 0		
Postage and Office Supplies	$ 0		
Miscellaneous	$ 0		
TOTAL ESTIMATED ADDITIONAL EXPENDITURES			$ 1,800.00
ESTIMATED INCOME THOUGH JUNE 30, 2022			
Interest Income (May and June)			$ 1.76
ESTIMATED BALANCE AS OF JUNE 30, 2022			$ 27,517.10

Table 2
BIG BLUE RIVER COMPACT
BUDGET ANALYSIS

	FY 2019 - 2020	FY 2020 - 2021	FY 2021 - 2022	FY 2022-2023
	Actual 07/1/18-6/30/19	Actual 07/01/20 - 6/30/21	Partial 07/01/21 - 5/12/22	Proposed Budget
EXPENDITURES				
Operations				
USGS - Stateline Gages	$ 16,039.00	$ 16,252.00	$ 16,459.00	$ 19,300.00
LBBNRD - Observation Wells	$ 680.00	$ 700.00	$ 680.00	$ 1,500.00
Water Quality Committee	$ 0	$ 0	$ 0	$ 0
Annual report - Printing	$ 0	$ 0	$ 0	$ 0
Annual Financial Review	$ 950.00	$ 950.00	$ 1,800.00	$ 1,500.00
Postage and Office Supplies	$ 0	$ 0	$ 0	$ 0
Miscellaneous Expenses	$ 0	$ 0	$ 0	$ 0
Total Expenses	$ 17,669.00	$ 17,902.00	$ 18,939.00	$ 21,500.00
INCOME & CARRY OVER				
Assessments (Both States)	$ 19,000.00	$ 19,000.00	$ 19,000.00	$ 19,000.00
Interest earned	$ 105.89	$ 34.78	$ 9.43	$ 35.00
Carry Over from Prior Year	$ 24,591.23	$ 26,028.12	$ 27,160.90	$ 27,397.10
Total Income and Carry Over	$ 43,697.12	$ 45,062.90	$ 46,170.33	$ 46,432.10
Balance End of Year	$ 26,028.12	$ 27,160.90	$ 27,231.33	$ 24,932.10

Attachment F

KANSAS-NEBRASKA BIG BLUE RIVER COMPACT REPORT
U.S. Geological Survey—Water Year 2021

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) 2021 (October 1, 2020, to September 30, 2021), 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 2021 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 2021 compared to those for the median daily statistic for each day of the year.

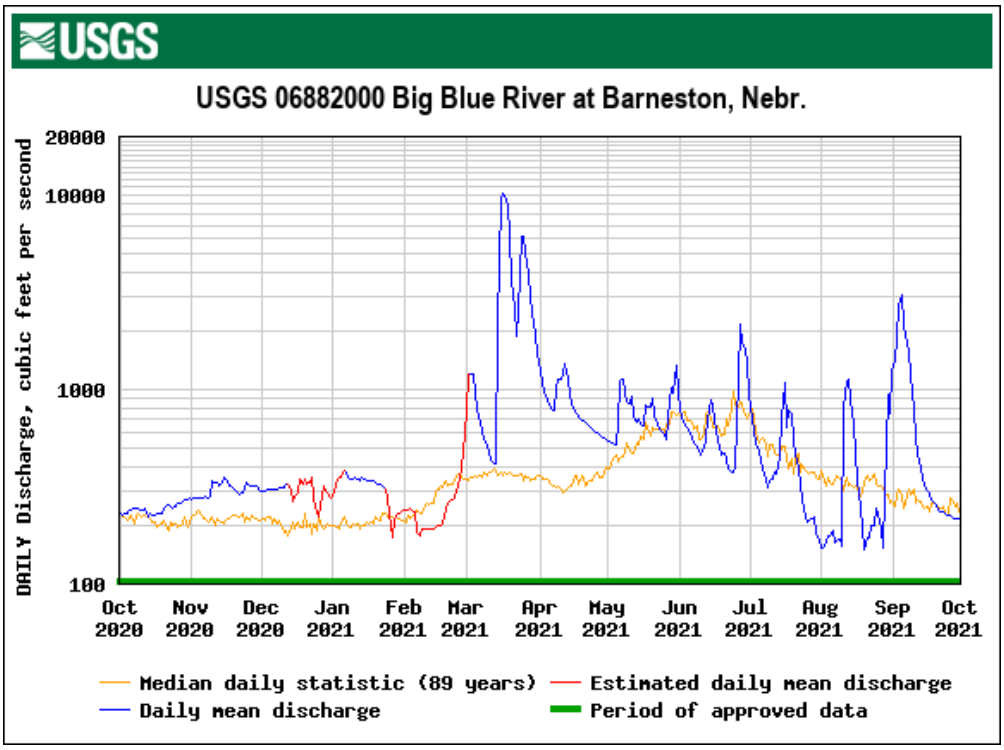
Current (real-time) and historical data on surface water, groundwater, and water quality for the Nation can be accessed and downloaded via the Water Resources of the United States website (https://www2.usgs.gov/water/) or from the Nebraska Water Science Center website (https://www.usgs.gov/centers/ne-water). 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.

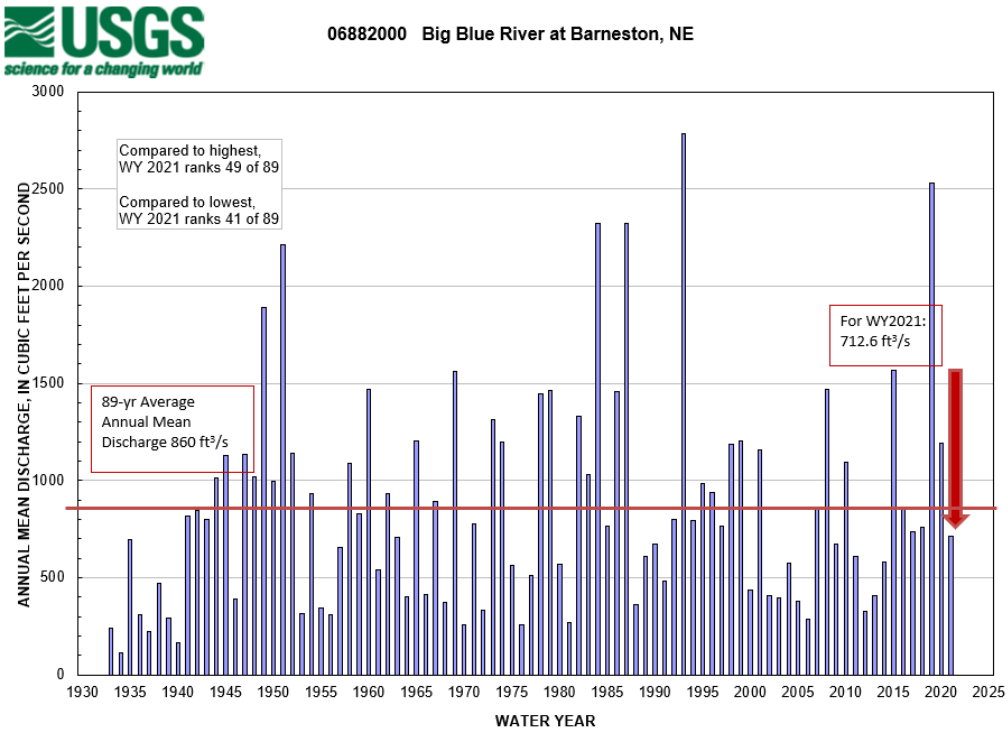
Jason Lambrecht
Deputy Director, Hydrologic Observations Chief

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)

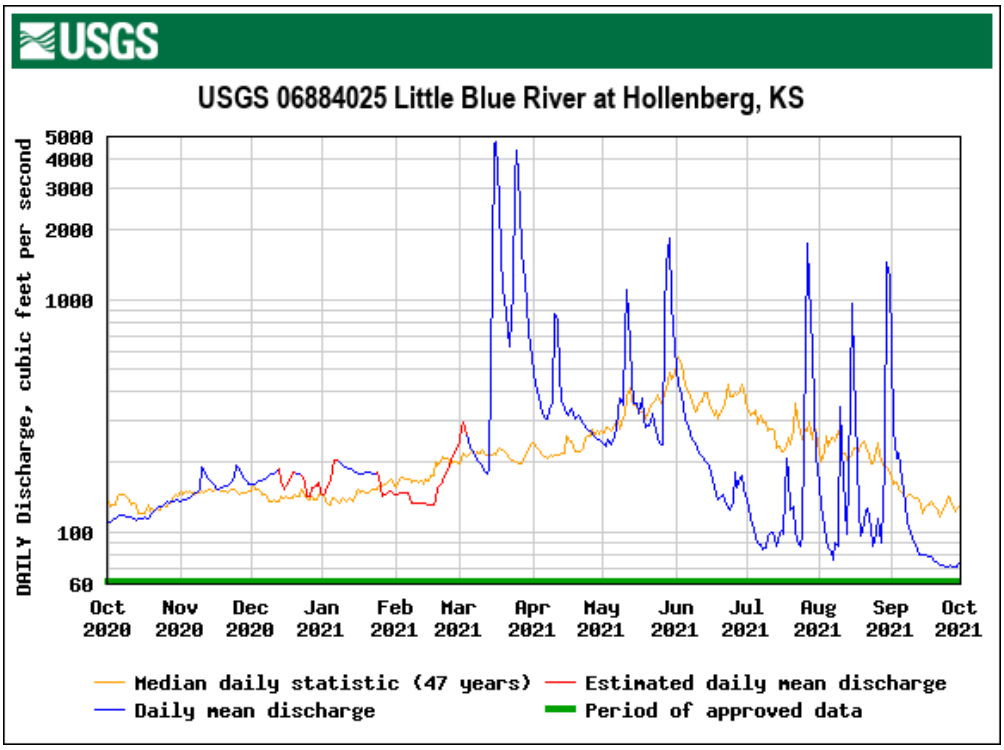
May 10, 2022

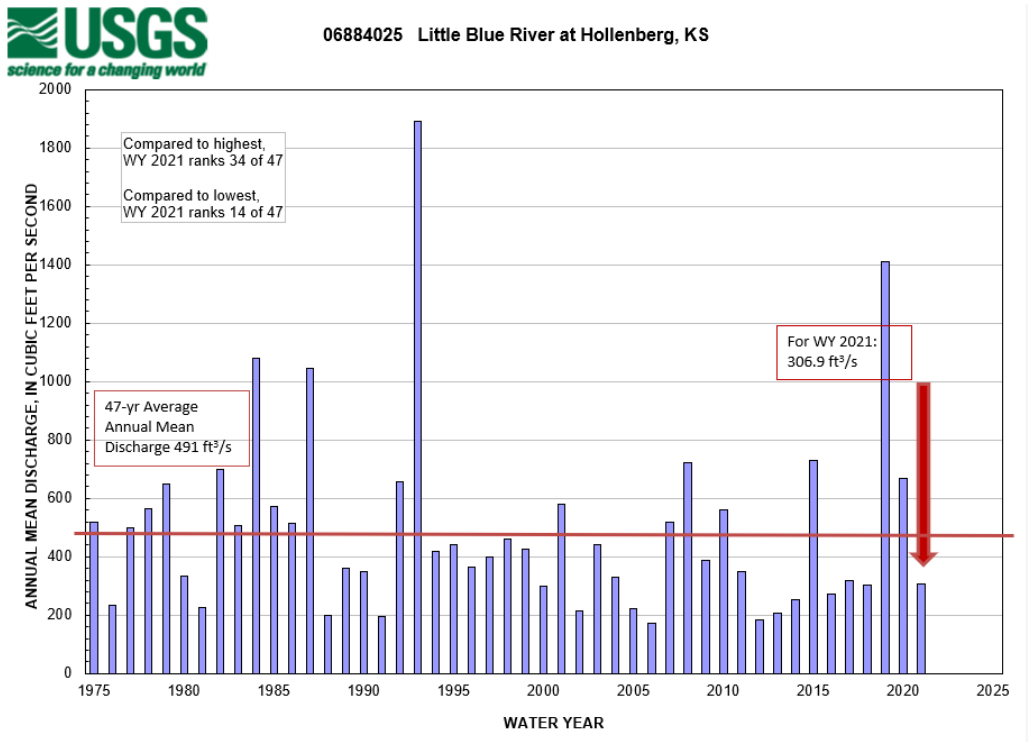
For station **06882000 Big Blue River at Barneston**, 11 discharge (and stage) measurements, ranging from 206 ft^3/s (3.62 ft stage) to 9,430 ft^3/s (14.45 ft stage), were made during WY 2021. The annual mean discharge of 712.6 ft^3/s was 1.7 times less than that of the WY 2020 mean of 1,189 ft^3/s; and 1.2 times lower than the new historical mean of 860 ft^3/s for WYs 1933–2021 (89 years of record). The maximum and minimum daily discharges were 10,300 ft^3/s on March 16, 2021 (peak of record daily mean was 50,000 ft^3/s on June 9, 1941); and 151 ft^3/s on August 20, 2021.





For station **06884025 Little Blue River at Hollenberg**, 13 discharge (and stage) measurements, ranging from 79 ft^3/s (1.86 ft stage) to 4,530 ft^3/s (7.73 ft stage), were made during WY 2021. The annual mean discharge of 306.9 ft^3/s was 2.2 times less than that of the WY 2020 mean of 667.1 ft^3/s; and 1.6 times lower than the new historical mean of 491 ft^3/s for WYs 1975–2021 (47 years of record). The maximum and minimum daily discharges were 4,730 ft^3/s on March 16, 2021 (peak of record daily mean was 39,300 ft^3/s on July 26, 1992); and 70.5 ft^3/s on September 29, 2021.





USGS Water-Year Summary 2021

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, 2022, National Water Information System data available on the World Wide Web (USGS Water Data for the Nation), accessed [May 10, 2022], https://nwis.waterdata.usgs.gov/nwis/wys_rpt?dv_ts_ids=&93783&adr_begin_date=2020-10-01&adr_end_date=2021-09-30&site_no=06882000&agency_cd=USGS

DISCHARGE, CUBIC FEET PER SECOND
YEAR 2020-10-01 to 2021-09-30
DAILY MEAN VALUES

[e, Value has been estimated.]

Day	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
	2020	2020	2020	2021	2021	2021	2021	2021	2021	2021	2021	2021
1	228	272	303	e285	e239	1,190	1,260	546	775	932	153	1,260
2	227	275	303	e292	e240	1,200	1,080	526	679	703	154	1,420
3	229	278	302	e346	e238	1,190	966	534	646	595	162	1,790
4	232	277	304	e352	e245	961	891	518	639	534	175	2,740
5	239	277	304	e352	e237	777	839	665	605	476	177	3,100
6	240	278	306	384	e236	685	796	1,110	563	433	188	2,120
7	243	280	308	365	e184	618	779	1,130	530	390	164	1,730
8	244	278	307	354	e176	556	1,020	953	505	348	167	1,520
9	246	280	311	344	e191	507	1,130	871	480	310	169	1,190
10	240	339	314	348	e192	474	1,120	847	458	338	157	777
11	240	329	312	353	e192	434	1,210	918	498	344	803	560
12	245	330	325	345	e192	419	1,360	723	553	372	1,110	458
13	221	320	324	342	e192	419	1,130	674	700	370	1,140	395
14	228	332	e309	351	e193	2,200	937	701	889	447	887	350
15	225	350	e265	348	e197	9,440	831	668	818	713	666	321
16	226	344	e285	342	e201	10,300	769	647	691	1,090	468	302
17	232	321	e292	340	e200	9,930	746	836	558	632	336	287
18	232	318	e344	339	e205	8,800	717	818	495	784	251	273
19	232	310	e325	338	e246	6,180	697	809	464	749	192	262
20	239	303	e343	331	e259	3,600	697	909	466	547	151	255
21	248	294	e326	324	e264	2,600	675	734	431	459	172	242
22	255	291	e331	325	e271	1,900	658	659	390	389	173	233
23	252	292	e350	318	e275	2,540	641	623	374	326	200	233
24	245	306	e278	307	e302	6,090	624	599	374	270	199	229
25	251	334	e230	e278	e347	6,130	606	578	391	222	245	226
26	259	320	e221	e230	e396	5,100	599	554	1,150	208	229	225
27	262	317	e256	e172	e469	3,910	584	879	2,180	214	190	221
28	265	320	e317	e214	e765	2,980	570	1,020	1,720	216	153	218
29	269	316	e301	e224		2,430	562	961	1,590	221	291	215
30	271	304	e296	e230		1,930	557	1,330	1,380	181	935	216
31	276		e278	e236		1,540		969		167	752	
Total	7,541	9,185	9,370	9,709	7,344	97,030	25,050	24,310	21,990	13,980	11,210	23,370
Mean	243	306	302	313	262	3,130	835	784	733	451	362	779
Max	276	350	350	384	765	10300	1360	1330	2180	1090	1140	3100
Min	221	272	221	172	176	419	557	518	374	167	151	215
Ac-ft	14,960	18,220	18,580	19,260	14,570	192,500	49,690	48,220	43,620	27,730	22,230	46,350

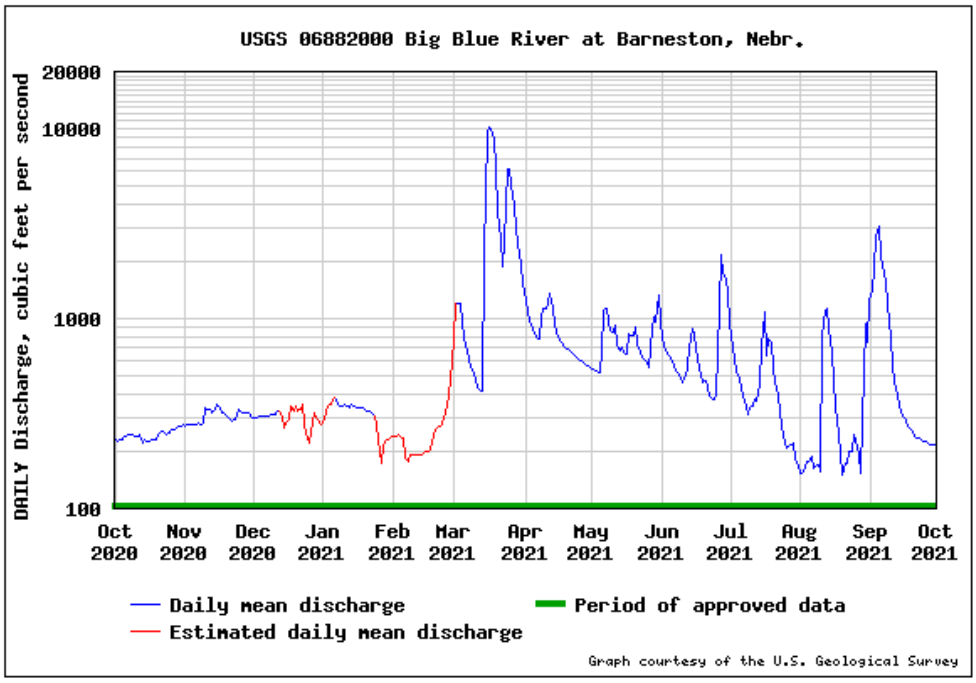
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1933 - 2021, BY WATER YEAR (WY)

	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Mean	588	309	288	302	596	1,290	810	1,411	2,088	1,227	700	705
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 2021		Water Years 1933 - 2021	
Annual total	260,100			
Annual mean	712.6		860.2	
Highest annual mean			2,781	1993
Lowest annual mean			115.0	1934
Highest daily mean	10,300	Mar 16	50,000	Jun 09, 1941
Lowest daily mean	151.0	Aug 20	1.00	Nov 30, 1945
Annual 7-day minimum	167.0	Jul 30	15.1	Aug 03, 1934
Maximum peak flow	10,500	Mar 17	57,700	Jun 09, 1941
Maximum peak stage	15.88	Mar 17	34.30[a]	Jun 09, 1941
Annual runoff (cfsm)	0.160		0.193	
Annual runoff (inches)	2.18		2.63	
10 percent exceeds	1,190		1,760	
50 percent exceeds	344.0		288.0	
90 percent exceeds	214.6		110.0	

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



USGS Water-Year Summary 2021

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, 2022, National Water Information System data available on the World Wide Web (USGS Water Data for the Nation), accessed [May 10, 2022], https://nwis.waterdata.usgs.gov/nwis/wys_rpt?dv_ts_ids=&937958&adr_begin_date=2020-10-01&adr_end_date=2021-09-30&site_no=06884025&agency_cd=USGS

DISCHARGE, CUBIC FEET PER SECOND
YEAR 2020-10-01 to 2021-09-30
DAILY MEAN VALUES

[e, Value has been estimated.]

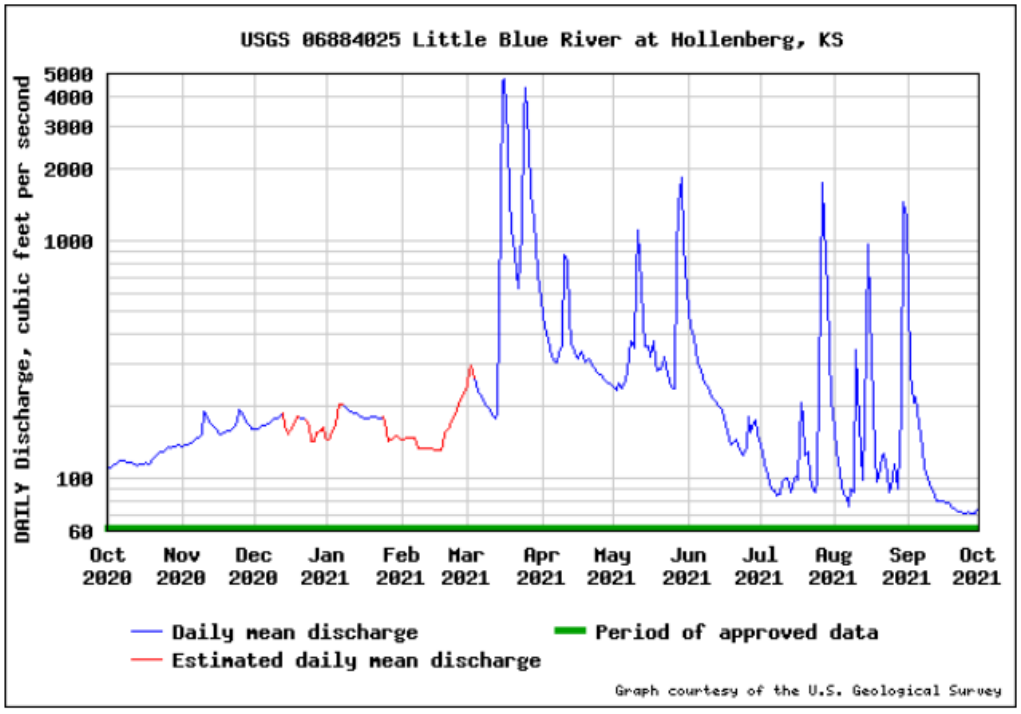
Day	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
	2020	2020	2020	2021	2021	2021	2021	2021	2021	2021	2021	2021
1	110	136	161	e145	e146	e283	485	237	505	139	161	622
2	111	139	161	e147	e145	e299	428	234	432	127	128	275
3	113	139	161	e158	e148	265	384	249	387	114	105	209
4	114	140	165	e166	e148	244	349	239	342	103	91.7	218
5	117	141	165	e184	e148	230	324	245	308	94.4	85.8	189
6	118	144	167	e205	e147	222	308	278	280	90.2	82.6	150
7	119	147	170	205	e140	212	307	334	265	88.8	76.4	131
8	118	148	171	199	e134	204	351	376	252	84.8	90.0	110
9	117	153	175	194	e133	198	359	349	241	86.2	87.3	99.0
10	116	190	177	190	e133	193	872	694	229	97.1	343	92.9
11	116	185	178	189	e133	185	812	1,100	219	98.7	238	88.6
12	115	171	185	188	e133	179	474	640	212	99.3	126	83.4
13	113	169	186	187	e133	183	373	460	203	93.3	97.8	80.2
14	114	165	e164	184	e133	1,370	341	360	196	87.6	170	80.6
15	114	160	e152	180	e132	4,720	321	355	189	98.7	961	80.1
16	115	156	e158	178	e130	4,730	319	322	178	102	515	79.3
17	116	153	e161	179	e130	2,650	341	378	159	98.7	204	78.7
18	114	155	e171	178	e137	1,520	325	309	145	209	124	78.3
19	116	156	e182	180	e156	1,120	308	283	138	179	96.0	76.5
20	120	157	181	180	e161	882	315	287	143	125	108	74.2
21	124	158	179	180	e164	726	307	299	144	129	124	72.9
22	127	162	177	177	e175	627	293	324	138	99.3	126	72.4
23	129	165	175	178	e185	1,090	283	272	127	88.7	105	72.4
24	128	173	e163	181	e195	3,250	275	254	125	87.7	86.8	70.7
25	131	194	e143	e173	e205	4,360	271	241	134	98.1	90.1	71.4
26	135	187	e143	e143	e219	2,530	265	237	182	617	115	71.6
27	134	178	e155	e146	e226	1,600	257	820	155	1,740	99.5	71.4
28	135	173	e156	e146	e246	1,190	252	1,420	173	1,180	90.5	71.2
29	136	166	e157	e150		942	250	1,830	174	608	192	70.5
30	138	162	e163	e151		724	244	964	152	338	1,440	74.0
31	137		e148	e147		571		617		216	1,250	
Total	3,760	4,822	5,150	5,387	4,415	37,500	10,790	15,010	6,526	7,418	7,610	3,614
Mean	121	161	166	174	158	1,210	360	484	218	239	245	120
Max	138	194	186	205	246	4730	872	1830	505	1740	1440	622
Min	110	136	143	143	130	179	244	234	125	84.8	76.4	70.5
Ac-ft	7,458	9,564	10,220	10,690	8,757	74,380	21,410	29,770	12,950	14,710	15,090	7,169

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1974 - 2021, BY WATER YEAR (WY)

	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Mean	345	211	204	184	288	659	445	849	965	816	484	366
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	45.3	81.1	87.2	74.0	89.1	118	117	103	151	68.1	51.5	32.0
(WY)	(1992)	(1992)	(2013)	(2018)	(2018)	(1981)	(2018)	(2018)	(1981)	(2013)	(2012)	(1991)

SUMMARY STATISTICS

	Water Year 2021		Water Years 1974 - 2021	
Annual total	112,000			
Annual mean	306.9		490.8	
Highest annual mean			1,891	1993
Lowest annual mean			172.9	2006
Highest daily mean	4,730	Mar 16	39,300	Jul 26, 1992
Lowest daily mean	70.5	Sep 29	24.2	Sep 12, 2012
Annual 7-day minimum	71.3	Sep 23	26.0	Sep 06, 2012
Maximum peak flow	5,250	Mar 15	59,200	May 07, 2015
Maximum peak stage	8.22	Mar 15	23.07	Oct 12, 1973
Annual runoff (cfsm)	0.112		0.177	
Annual runoff (inches)	1.51		2.41	
10 percent exceeds	537.4		818.9	
50 percent exceeds	169.0		190.0	
90 percent exceeds	92.4		96.6	



Water Year 2021 Discharge Measurements

Site #	Meas. #	Meas. Date & Time	Meas. Used	Meas. Party	Meas. Agency	Gage Height	Discharge	Meas. Rating	Control Condition
06882000	1493	10/15/2020 11:02	Yes	bhi	USGS	228	3.73	Fair	Clear
06882000	1494	11/19/2020 13:10	Yes	bhi	USGS	323	4.00	Fair	Clear
06882000	1495	1/7/2021 13:34	Yes	bhi	USGS	359	4.16	Poor	Clear
06882000	1496	2/19/2021 14:05	Yes	bhi	USGS	270	4.52	Poor	IceCover
06882000	1497	3/11/2021 13:27	Yes	bhi	USGS	436	4.30	Fair	Clear
06882000	1498	3/18/2021 11:38	Yes	KEK	USGS	9430	14.45	Fair	Clear
06882000	1499	4/30/2021 13:37	Yes	bhi	USGS	560	4.52	Fair	Clear
06882000	1500	6/10/2021 13:09	Yes	bhi	USGS	465	4.33	Fair	Clear
06882000	1501	7/26/2021 12:13	Yes	bhi	USGS	206	3.62	Fair	Clear
06882000	1502	8/30/2021 8:59	Yes	bhi	USGS	1100	5.44	Fair	Clear
06882000	1503	10/5/2021 9:31	Yes	bhi	USGS	211	3.64	Fair	Clear
06884025	610	10/30/2020 12:01	Yes	KEK	USGS	139	2.22	Fair	Clear
06884025	611	11/19/2020 11:19	Yes	bhi	USGS	158	2.30	Fair	Clear
06884025	612	1/7/2021 10:54	Yes	bhi	USGS	204	2.28	Fair	Clear
06884025	613	2/19/2021 11:31	Yes	bhi	USGS	159	2.62	Fair	IceCover
06884025	614	3/11/2021 10:55	Yes	bhi	USGS	186	2.14	Fair	Clear
06884025	615	3/15/2021 14:26	Yes	bhi	USGS	4530	7.73	Fair	Clear
06884025	616	4/30/2021 11:42	Yes	bhi	USGS	249	2.58	Fair	Clear
06884025	617	6/10/2021 11:19	Yes	bhi	USGS	231	2.54	Fair	Clear
06884025	618	7/8/2021 9:59	Yes	bhi	USGS	83.5	1.96	Fair	Clear
06884025	619	7/26/2021 13:51	Yes	bhi	USGS	96.9	2.02	Fair	Clear
06884025	620	8/18/2021 14:33	Yes	bhi	USGS	118	2.10	Fair	Clear
06884025	621	9/17/2021 13:17	Yes	bhi	USGS	79	1.86	Fair	Clear
06884025	622	10/5/2021 11:29	Yes	bhi	USGS	79.2	1.84	Fair	Clear

Attachment G

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

May 18, 2022

The engineering committee was not given 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 2021 data for this report.

Review of Streamflow Data

The Compact sets forth the following streamflow targets at the Stateline 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

During May through September of the Water Year 2021 (October 1, 2020 through September 30, 2021) there were no shortages for Compact target flows. The mean daily streamflow at the Barneston, NE gage on the Big Blue River (Exhibit A) and the Hollenberg, KS gage on the Little Blue River (Exhibit B) exceeded target flows throughout the year.

Real-time and historical data for these gaging stations can be found at the following websites:
Big Blue River –
https://waterdata.usgs.gov/monitoring-location/06882000/#parameterCode=00065&period=P7D

Little Blue River –
https://waterdata.usgs.gov/monitoring-location/06884025/#parameterCode=00065&period=P7D

Review of Groundwater Data

The Lower Big Blue Natural Resources District provided the groundwater levels (Exhibit C) for the Big Blue River Basin near Beatrice, NE.

Review of Wells in the Regulatory Reaches

Exhibit D is a list of the active irrigation wells within the regulatory reaches. There were no new wells drilled in the Big Blue River regulatory area and no new wells drilled in the Little Blue River regulatory area during this reporting period.

Respectively Submitted,

Jeremy F. Gehle, Chair
Nebraska

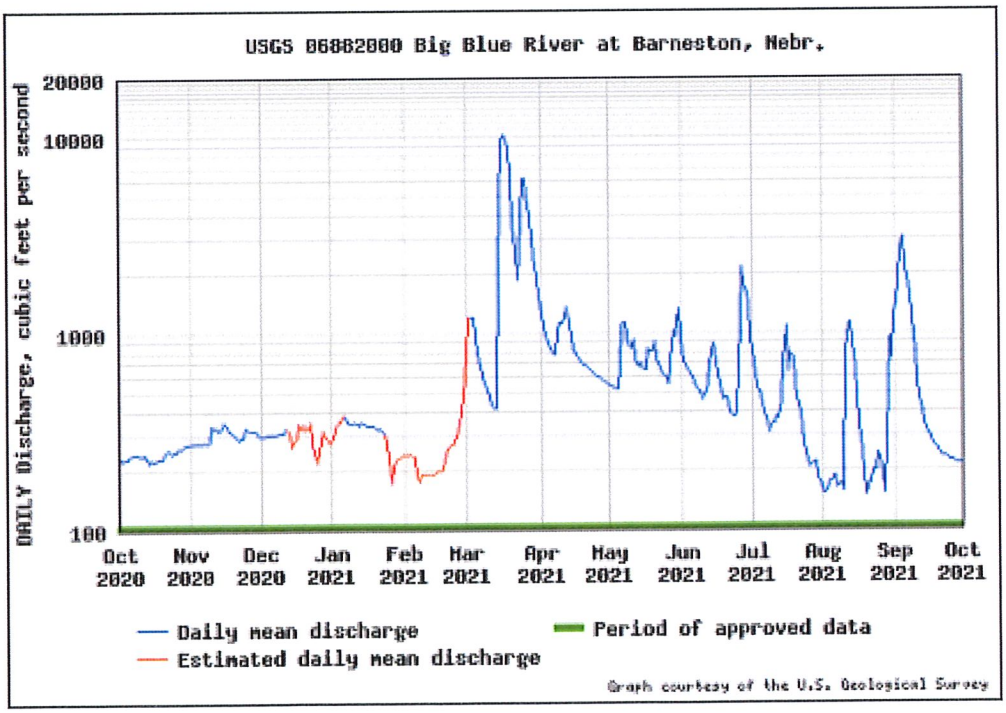
Elizabeth Hickman, I.E.
Kansas

Exhibit A

SUMMARY STATISTICS

	Water Year 2021		Water Years 1933 - 2021	
Annual total	260,100			
Annual mean	712.6		860.2	
Highest annual mean			2,781	1993
Lowest annual mean			115.0	1934
Highest daily mean	10,300	Mar 16	50,000	Jun 09, 1941
Lowest daily mean	151.0	Aug 20	1.00	Nov 30, 1945
Annual 7-day minimum	167.0	Jul 30	15.1	Aug 03, 1934
Maximum peak flow	10,500	Mar 17	57,700	Jun 09, 1941
Maximum peak stage	15.88	Mar 17	34.30[a]	Jun 09, 1941
Annual runoff (cfsm)	0.160		0.193	
Annual runoff (inches)	2.18		2.63	
10 percent exceeds	1,190		1,760	
50 percent exceeds	344.0		288.0	
90 percent exceeds	214.6		110.0	

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



SUMMARY STATISTICS

	Water Year 2021		Water Years 1974 - 2021	
Annual total	112,000			
Annual mean	306.9		490.8	
Highest annual mean			1,891	1993
Lowest annual mean			172.9	2006
Highest daily mean	4,730	Mar 16	39,300	Jul 26, 1992
Lowest daily mean	70.5	Sep 29	24.2	Sep 12, 2012
Annual 7-day minimum	71.3	Sep 23	26.0	Sep 06, 2012
Maximum peak flow	5,250	Mar 15	59,200	May 07, 2015
Maximum peak stage	8.22	Mar 15	23.07	Oct 12, 1973
Annual runoff (cfsm)	0.112		0.177	
Annual runoff (inches)	1.51		2.41	
10 percent exceeds	537.4		818.9	
50 percent exceeds	169.0		190.0	
90 percent exceeds	92.4		96.6	

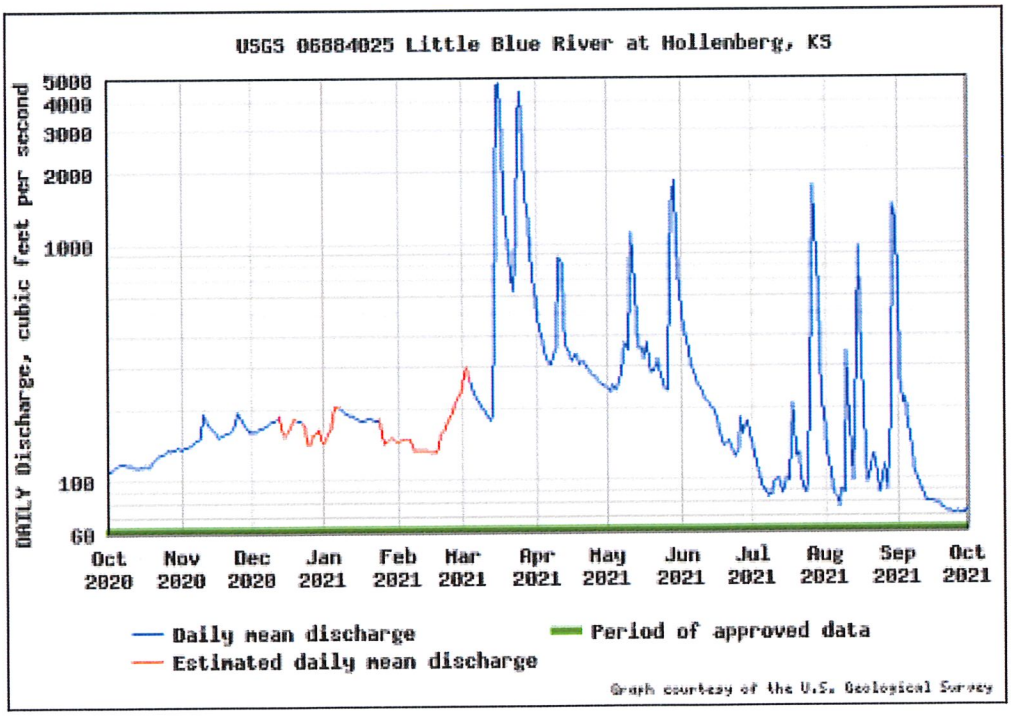


Exhibit B

BIG BLUE RIVER COMPACT STATIC WATER LEVELS 2021

LEGAL	SECT	SITE	TYPE	SPRING 2021	FALL 2021
4N-5E	2	AAAA	OW	90.46	93.76
4N-5E	2	DDAA	IW	15.61	18.86
4N-5E	4	BBBC	IW	16.78	20.29
4N-5E	9	CBCC	IW	69.4	75.33
4N-5E	10	DDAA	IW	24.85	27.27
4N-5E	11	DACA	IW	13.57	16.95
4N-5E	14	ABBB	IW	12.62	15.84
4N-5E	25	AACD	IW	17.25	18.55
5N-4E	12	ABBA	IW	15.67	19.13
5N-4E	13	BADD	IW	13.66	16.25
5N-4E	23	BABB	IW	14.96	17.26
5N-4E	24	AACD	IW	15.18	18.65
5N-5E	7	CADD	IW	57.92	62.92
5N-5E	20	BCCD	IW	16.91	19.66
5N-5E	21	DDBB	IW	52.76	57.62
5N-5E	29	CBBB	IW	11.01	14.30
5N-5E	33	AADD	IW	15.55	20.10

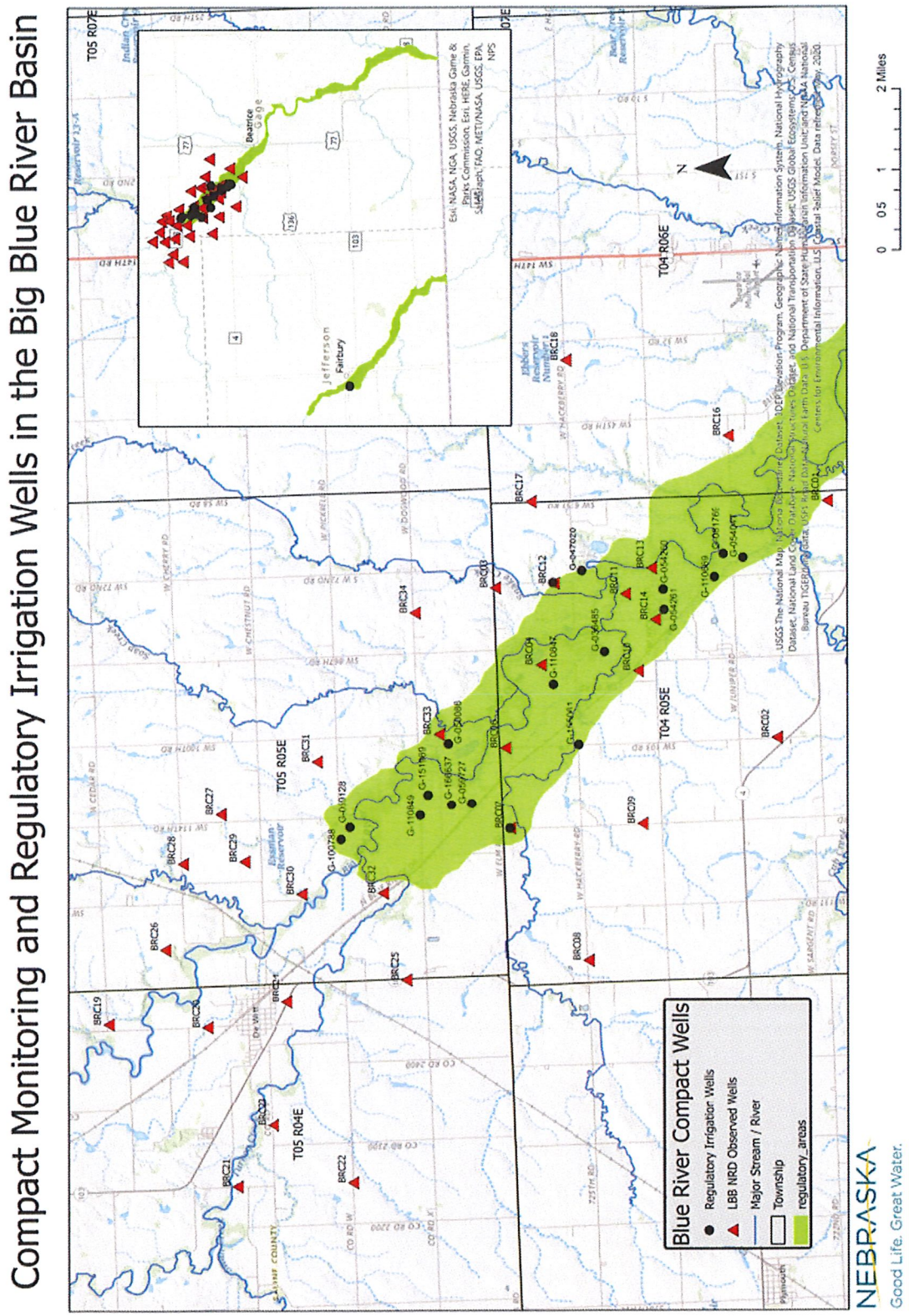
OW - OBSERVATION WELLS IW - IRRIGATION WELLS

Exhibit C

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

Exhibit D


Compact Monitoring and Regulatory Irrigation Wells in the Big Blue River Basin
Blue River Compact Wells
Regulatory Irrigation Wells
LBB NRD Observed Wells
Major Stream / River
Township
regulatory_areas
Beatrice Gage
Jefferson
Fairbury
T05 R07E
T05 R06E
T05 R05E
T05 R04E
T04 R06E
T04 R05E
N
0 0.5 1 2 Miles
NEBRASKA
Good Life. Great Water.
DEPT. OF NATURAL RESOURCES

Attachment H

RESOLUTION OF THE KANSAS-NEBRASKA BIG BLUE RIVER COMPACT ADMINISTRATION
HONORING
SHARON SCHWARTZ

WHEREAS, Ms. Sharon Schawartz served as Compact Advisor for the State of Kansas on the Kansas-Nebraska Big Blue River Compact Administration from 2003 to 2020; and

WHEREAS, Ms. Schwartz did faithfully and diligently serve the Compact Administration as a Compact Advisor for the State of Kansas, providing excellent representation of the State of Kansas and its constituents within the Big Blue River basin, as well as constructive input and a positive and collaborative attitude;

NOW THEREFORE, BE IT RESOLVED, that the Kansas-Nebraska Big Blue River Compact Administration does hereby recognize the dedicated service of Sharon Schwartz to the States of Kansas and Nebraska and expresses, on behalf of the citizens of both States, sincere appreciation and commendation for her service and extends to her best wishes for the future;

BE IT FURTHER RESOLVED, that the Administration honor Ms. Schwartz's service by entering this resolution into the records of the 2022 Annual Compact Administration Meeting Minutes and the 2022 Annual Report and that the Compact Secretary be instructed to send a copy of the 2022 Annual Report to Ms. Schwartz.

ENTERED this 18th day of May 2022, at the Forty-Ninth Annual Meeting of the Kansas-Nebraska Big Blue River Compact Administration at Beatrice, Nebraska.