2025 ANNUAL INTEGRATED MANAGEMENT PLAN REPORT:

LOWER NIOBRARA NATURAL RESOURCES DISTRICT

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NEBRASKA DEPARTMENT OF WATER, ENERGY, & ENVIRONMENT

REPORTING ON 2024 DATA AND MANAGEMENT ACTIONS

ANNUAL MEETING HELD ON NOVEMBER 6, 2025

Purpose

The Lower Niobrara Natural Resources District (LNNRD) and the Nebraska Department of Water, Energy and Environment (DWEE, formerly the Nebraska Department of Natural Resources) developed and adopted a Voluntary Integrated Management Plan (IMP), which became effective on May 1, 2014. The goal of the IMP is to jointly manage groundwater and surface water within the LNNRD to sustain a long-term balance between water use and supply. This report fulfills DWEE's annual reporting responsibilities under the IMP and provides updates on current projects and studies.

This report summarizes findings from monitoring programs, streamflow data, and related studies. This information helps track progress toward the IMP's goals and objectives, evaluate the assumptions on which the plan is based, and improve understanding of the hydrologically connected groundwater and surface water system. This report covers activities and data collected between January 1 and December 31, 2024.

Department Reporting

The Department of Water, Energy and Environment annually reports on data related to the following. Items in **bold** are required under the IMP. Other data presented in this report are collected by DWEE and shared to present a more complete picture of water management actions in the district.

- **Surface water use**
    - ◊ Breakdown of all surface water permits in LNNRD
    - ◊ **Voluntary water use reports**
- **Surface water permitting**
    - ◊ **New surface water permits issued**
    - ◊ **Surface water permits denied or cancelled**
    - ◊ Surface water transfers and modifications
    - ◊ Pumpsite inspections
- **Groundwater transfers approved**
- **Streamflow measurements**
- Surface water administration
- **Offsets provided for depletions resulting from increased consumptive use related to any of the above-listed items**

1. Surface Water Use

The Nebraska Department of Water, Energy, and Environment is responsible for issuing surface water permits in the state. In the LNNRD, approximately 70% of all surface water permits are for irrigation, either from a naturally flowing source, or from a reservoir. The remaining surface water permits allow for water storage, domestic and industrial uses, and instream flow protections. **Table 1** shows a breakdown of all active surface water permits in the district organized by use type as of December 31, 2024. It includes the total number of each permit type, acres approved for irrigation, and the cumulative rate or volume granted for each type of permit.

Table 1. Surface Water Use in the Lower Niobrara NRD as of December 31, 2024

Active Surface Water Permits in the Lower Niobrara NRD as of December 31, 2024				
Purpose of Permit	**Number of Permits**	**Acres Approved for Irrigation**	**Grant (cfs)**	**Grant (af)**
Direct Flow Irrigation: Diversion from naturally flowing source for irrigation	290	31,936.45	448.4	-
Storage Use Irrigation: Diversion from a reservoir for irrigation	97	4,269.27	-	6,469.28
Total Irrigation Permits	387	36,205.72	448.4	6,469.28
Storage of water in a reservoir	161	N/A	N/A	8,378.19
Total Storage Permits	161	N/A	N/A	8,378.19
Domestic use	9	5.9	0.166	N/A
Fish culture	1	N/A	3.57	N/A
Manufacturing	1	N/A	3.34	N/A
Livestock Watering	2	N/A	0.13	N/A
Instream basin-management	4	N/A	Varies*	N/A
Instream flow	5	N/A	Varies*	N/A
*Total cfs varies, based on the time of the year.				

2. Surface Water Permitting

In 2024, there were three new surface water permits issued by the Department (listed in **Table 2**). Additionally, five permits were cancelled in full, one permit was cancelled in part, and one permit was dismissed/denied. See **Table 3** for cancelled and dismissed permitting. **Figure 1** below shows the locations of surface water permitting actions within the District.

The IMP's monitoring section requires the Department to report on any offsets provided for depletions resulting from increased consumptive use due to activities in the District. No offsets were provided in the 2024 reporting year.

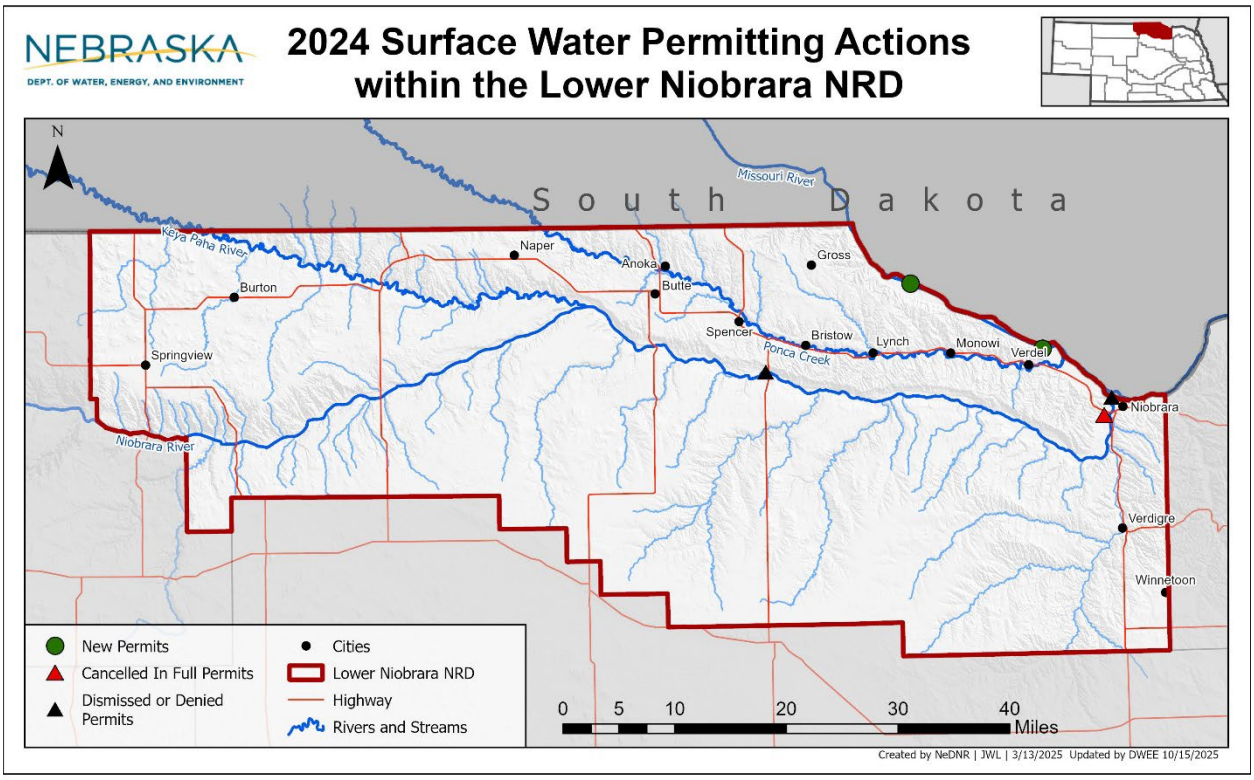


Figure 1. Surface Water Permitting Actions in the Lower Niobrara NRD.

Table 2. New Surface water permitting actions granted in 2024 within the Lower Niobrara NRD.

New Surface Water Permitting Actions							
Appropriation Number	**Approval Date**	**Point of Diversion Location**	**Use**	**Source**	**Acres**	**Grant**	**Associated Variance**
A-19788	*9/12/2024*	*S17 T33-R7W*	*Direct Flow Irrigation*	*Missouri River*	*25.0*	*0.36*	*N/A*
A-19965	*9/12/2024*	*S17 T34-R9W*	*Direct Flow Irrigation*	*Missouri River*	*107.7*	*1.54*	*N/A*

Table 3. Summary of surface water permits that expired, cancelled, or were dismissed/denied within the Lower Niobrara NRD in 2024.

Expired, Cancelled or Dismissed/Denied Permitting Actions									
Appropriation Number	**Approval Date**	**Cancelled Date**	**Status**	**Point of Diversion Location**	**Use**	**Source**	**Cancelled Acres**	**Cancelled Grant in (CFS / AF)**	**Modification**
A-19942	*8/30/2023*	*8/30/2024*	*Cancelled in Full*	*S18 T32-R6W*	*MF*	*Niobrara River*	*N/A*	*10.00 af*	*Expired*
A-10407	*N/A*	*5/1/2024*	*Dismissed*	*S30 T33-R11W*	*IF*	*Niobrara River*	*N/A*	*N/A*	*N/A*
A-19408	*N/A*	*5/1/2024*	*Dismissed*	*S30 T33-R11W*	*IF*	*Niobrara River*	*N/A*	*N/A*	*N/A*
A-19409	*N/A*	*5/1/2024*	*Dismissed*	*S30 T33-R11W*	*IF*	*Niobrara River*	*N/A*	*N/A*	*N/A*

Modifications are actions done to a surface water permit. These actions include expedited and non-expedited transfers, relinquishments, provisional relinquishments, and reassignments of irrigated acres. These actions apply to irrigation and storage permits and do not allow for any new irrigation or withdrawals from any streams or reservoirs in the District. A permit holder has up to five years after a relinquishment to reassign acres within that District. **Table 4** summarizes any modifications to the affected permits.

Table 4. Modifications to Surface Water Permits in the LNNRD from January 1, 2024 to December 31, 2024.

Modifications to Surface Water Permits January 1, 2024 to December 31, 2024				
Appropriation Number	**Approval Date**	**Cancelled Date**	**Status**	**Modification Number**
A-18800CR A-18800BR A-18800D	2/13/2024	N/A	Approved	NEX-10069
SPLT-10088	2/13/2024	N/A	Approved	SPLT-10088
DWV-10400	9/20/2024	N/A	Approved	DWV-10400

3. Pump Site Inspections

The DWEE field office staff regularly inspects pump sites of surface water diversion points as conditions allow. Not all pump sites are inspected every irrigation season, and some pump sites may be visited more than once per season. See **Table 5** and **Figure 2** below. As part of inspections, field staff collect the following data:

- Evidence of pump site
- Pumps that are running
- Crops in field
- Irrigation method

Table 5. 2024 surface water pump site inspections in the Lower Niobrara NRD.

2024 Surface Water Pump Site Inspections			
Total Number of Irrigation Permits	**Number of Pump Sites Inspected**	**Number of Pump Sites Set up for Irrigation**	**Total Observations Made***
290	287	175	287
*Can include multiple visits to the same pump site location.			

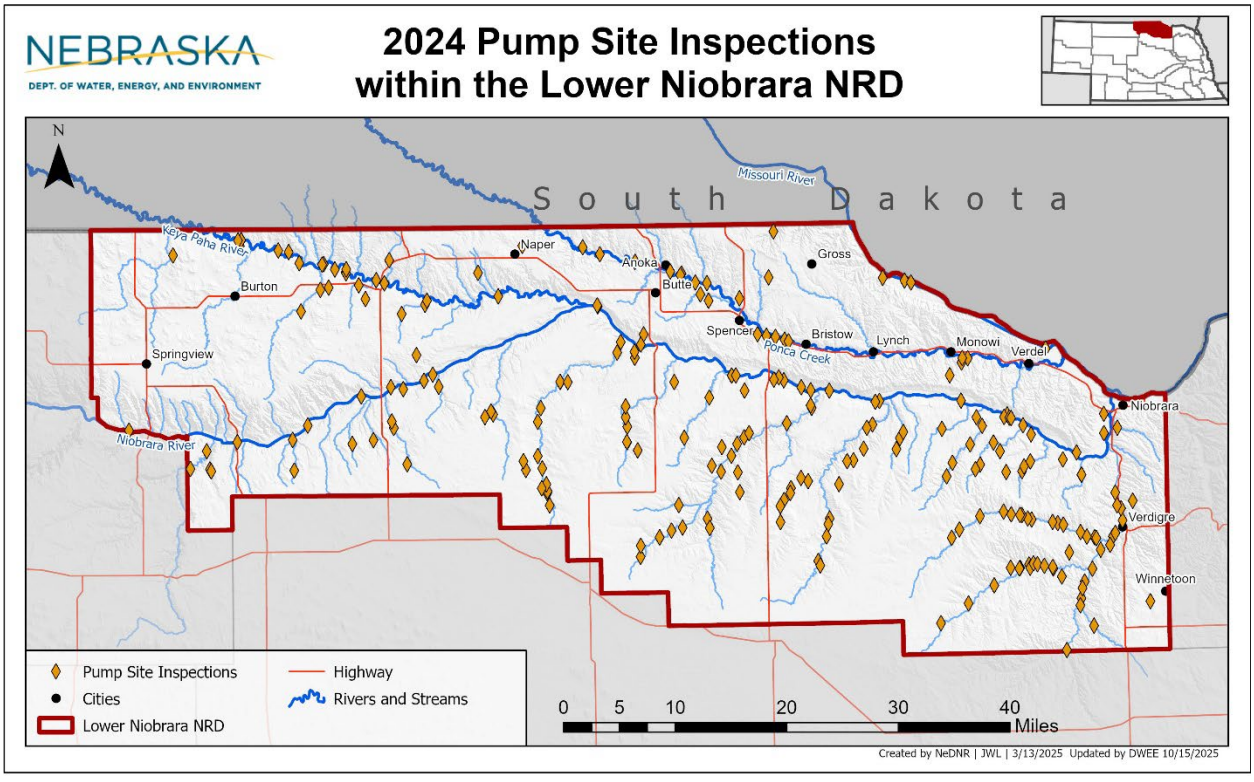


Figure 2. Pump Site Inspections within the Lower Niobrara NRD.

4. Voluntary Water Use Reporting

Currently surface water use reporting within the LNNRD occurs on a voluntary basis. DWEE requests water use data from all irrigation permit holders through surveys that contain questions about use or non-use, acres irrigated, estimated amount of water applied, and type of crops grown. **Table 6** provides a summary of LNNRD's voluntary water use survey responses.

Table 6. Voluntary surface water reporting within the Lower Niobrara NRD in 2024.

Voluntary Surface Water Reporting							
Natural Resources District	**No. of Water Rights Surveyed**	**No. of Reports Returned**	**No. of Reports SW Irrigated**	**No. of Reports Not Used**	**No. of GW Irrigated Reports**	**SW Irrigated Acres**	**SW Inches Per Acre**
Lower Niobrara	380	77	56	21	5	5,792	12.2

5. Groundwater Permitting

The Department, in accordance with Neb. Rev. Stat. § 46-613.01, §§ 46-639 - 46-653, issues groundwater transfer permits for municipal use. In 2024, there were no new groundwater transfer permits issued by DWEE in the Lower Niobrara NRD.

6. Stream Gage Measurements

There are eight active streamgages in the LNNRD, see **Table 7**. DWEE operates three gages located on the Keya Paha River south of Naper, the Niobrara River south of Butte, and Verdigre Creek north of Verdigre, see **Figure 3**.

Table 7. Active streamgages in the Lower Niobrara NRD.

Streamgage Number	Location	Operator	Years in Operation
06464900	Keya Paha River near Naper	DWEE	2004-present
06464930	Niobrara River near Butte	DWEE	2010-present
06465700	Verdigre Creek near Verdigre	DWEE	2019-present
06463720	Niobrara River at Mariaville	USGS	1990-present
06465500	Niobrara River near Verdel	USGS	1959-present
06453600	Ponca Creek at Verdel[1]	USGS	1957-present
06453620*	Missouri River below Ponca Creek near Verdel	USGS	1987-present
06466000*	Niobrara River at Niobrara	USGS	1956-present
*Stage only (discharge not recorded)			

[1] Gage was ice affected from 3 December 2024 to 1 March 2025. No mean daily discharge data available for this period.

The United State Geological Survey (USGS) operates five streamgages (**Table 7**) in the LNNRD, three of which record stage and discharge and two record stage only. Of the gages that record discharge and stage, one is located on Ponca Creek before it joins the Missouri river, and two are on the Niobrara River, along Highway 137 at Mariaville, and south of Verdel. The two stage-only gages are located on the Missouri river downstream of Ponca Creek and on the Niobrara River at Niobrara (**Figure 3**).

Yearly charts for DWEE and USGS streamgages for the 2024 water year (October 1, 2023, to September 30, 2024) can be found in **Appendix A**. Each streamgage chart contains the following information.

- Mean Daily Discharge for the previous year and gage lifetime.
- Maximum, median, and minimum cumulative volumetric discharge for gage lifetime.
- Previous years cumulative volumetric discharge

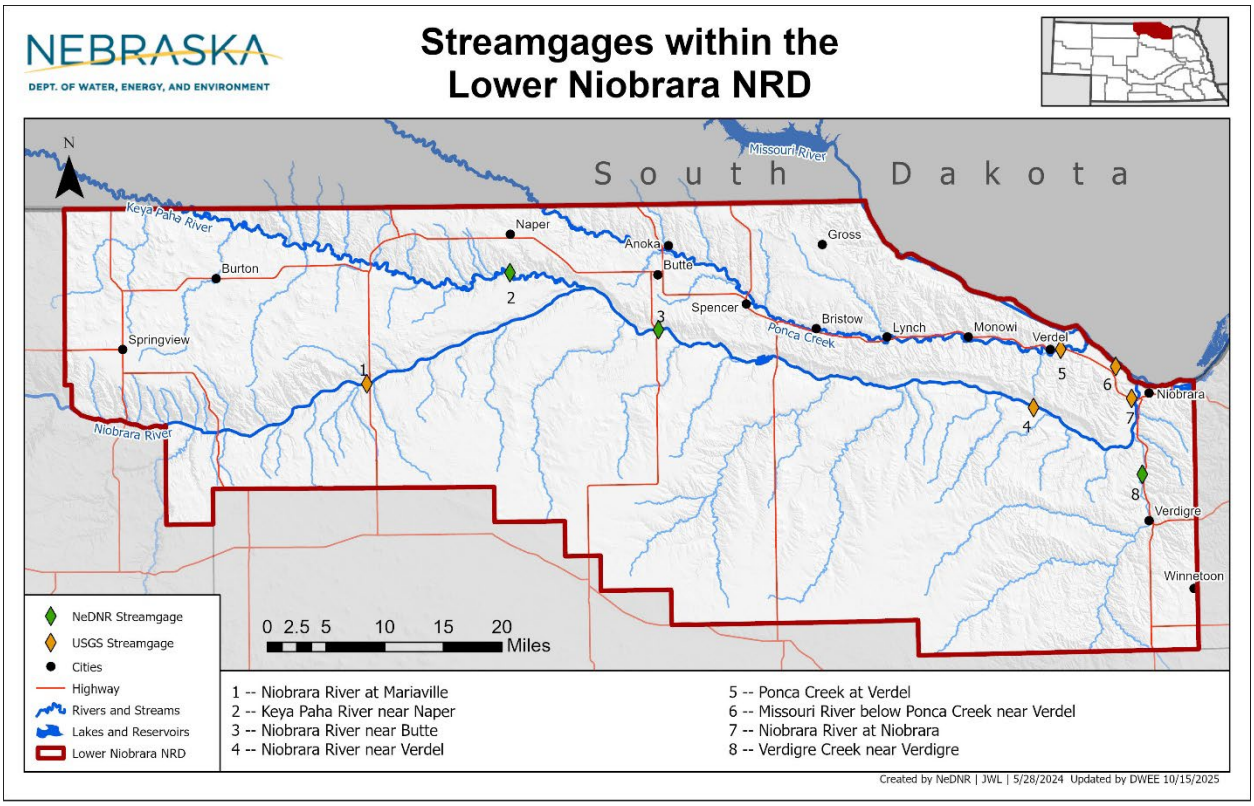


Figure 3. Location of DWEE and USGS operated stream gages in Lower Niobrara NRD.

7. Surface Water Administration

Since 1895, Nebraska has had an administrative system overseeing the orderly use of the state's surface water resources. All diversions of surface water for irrigation, hydropower, industrial use, municipal use, domestic use, storage, and other uses require a permit from the State with each having certain responsibilities, limitations, and conditions associated with it. The Department has jurisdiction over all matters pertaining to surface water rights including the distribution of available supply during times of water shortages and adjudication of established water rights. The activity of distributing the supply of surface water on a stream during shortages is called "surface water administration." Rules for surface water administration are set out in Nebraska Revised Statutes, Chapter 46, and operate on a first-in-time, first-in-right principle.

In 2024 the Niobrara Basin, below Box Butte Reservoir and above the confluence of the Niobrara and Missouri Rivers, had a total of 111 days of surface water administration for the period of May 1 to September 30. For the July 1 to August 31 the Basin had a total of 55 days of administration. See T**able 8** below for a breakdown of the surface water notices.

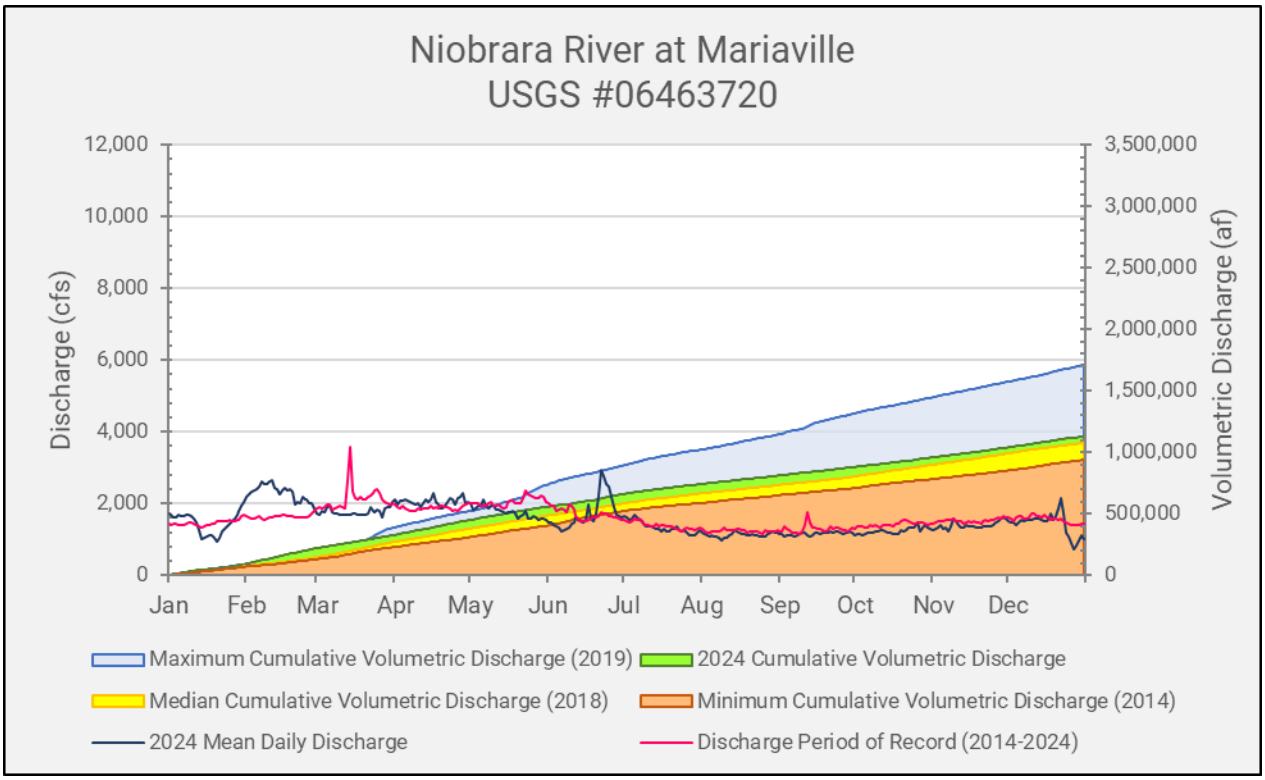
Table 8. Surface water administration in the Lower Niobrara Basin in 2024.

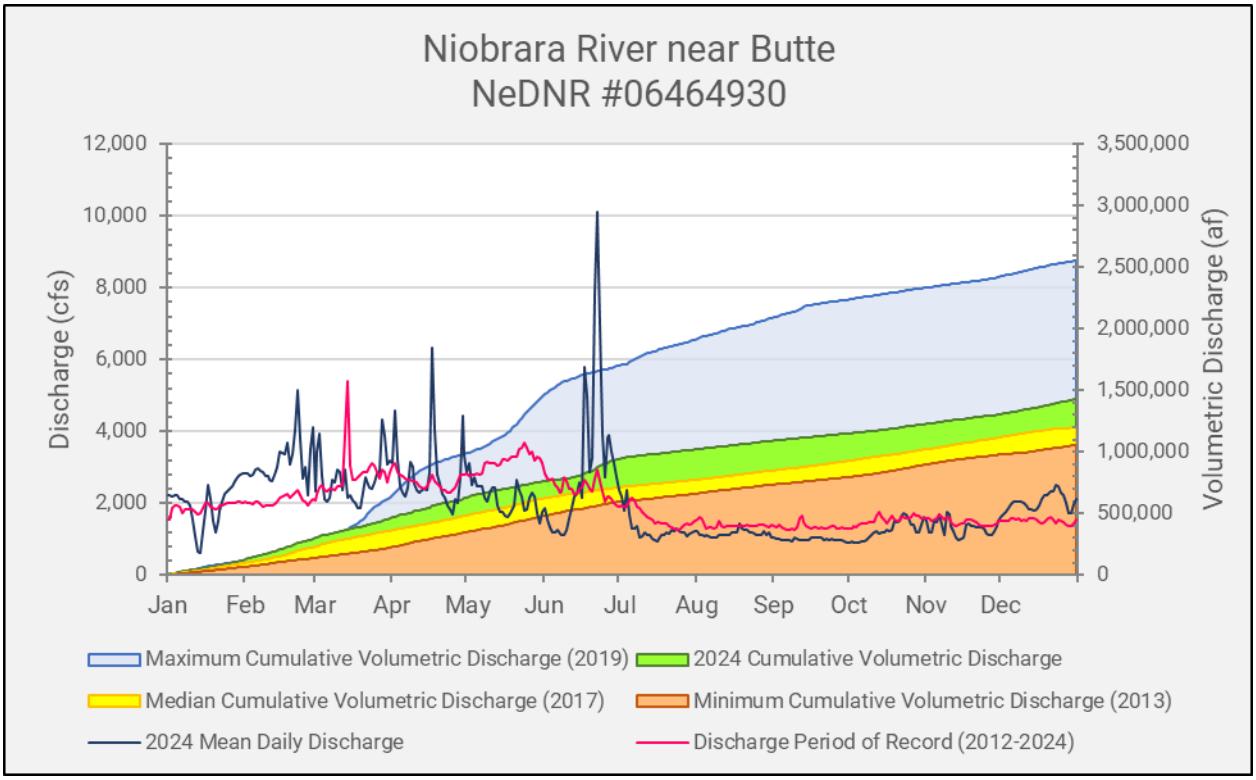
Surface Water Administration							
Water division	**Date of Closure**	**Date Reopened**	**Days Closed**	**Permit Type**	**No. affected**	**Reason for Closure**	**Reason for Reopening**
2C - Niobrara River	5/17/2024	5/22/2024	6	Direct Flow	163	Instream Basin-Management flows not being met	Instream Basin-Management flows are being met
				Storage	115		
	5/30/2024	6/18/2024	20	Direct Flow	162		
				Storage	113		
	7/8/2024	10/10/2024	85	Direct Flow	154		
				Storage	110		

8. Current Studies and Modeling

In 2020, the Department began collaborating with the USGS and National Park Service on the development of a groundwater model that would cover the District. Calibration of this model has been completed and the USGS plans to publish the model as soon as the final report is completed.

Appendix A: STREAMGAGE MEASUREMENTS





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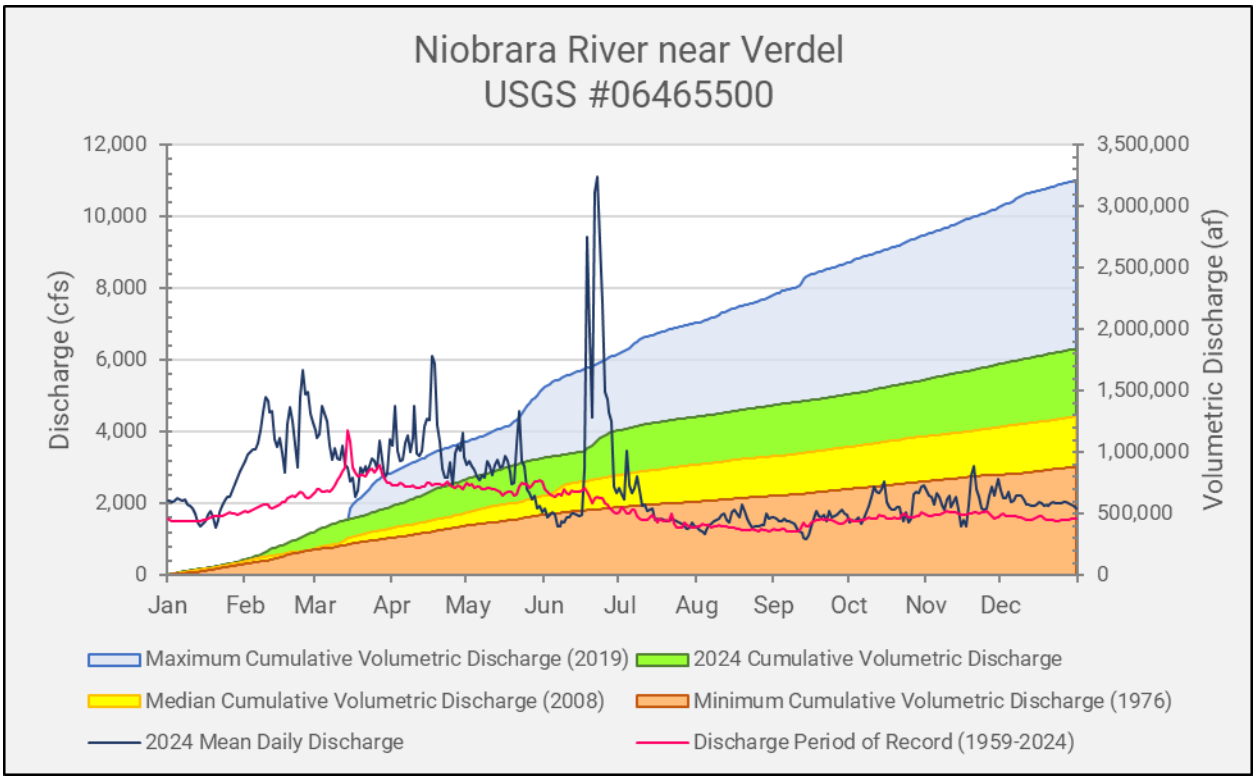

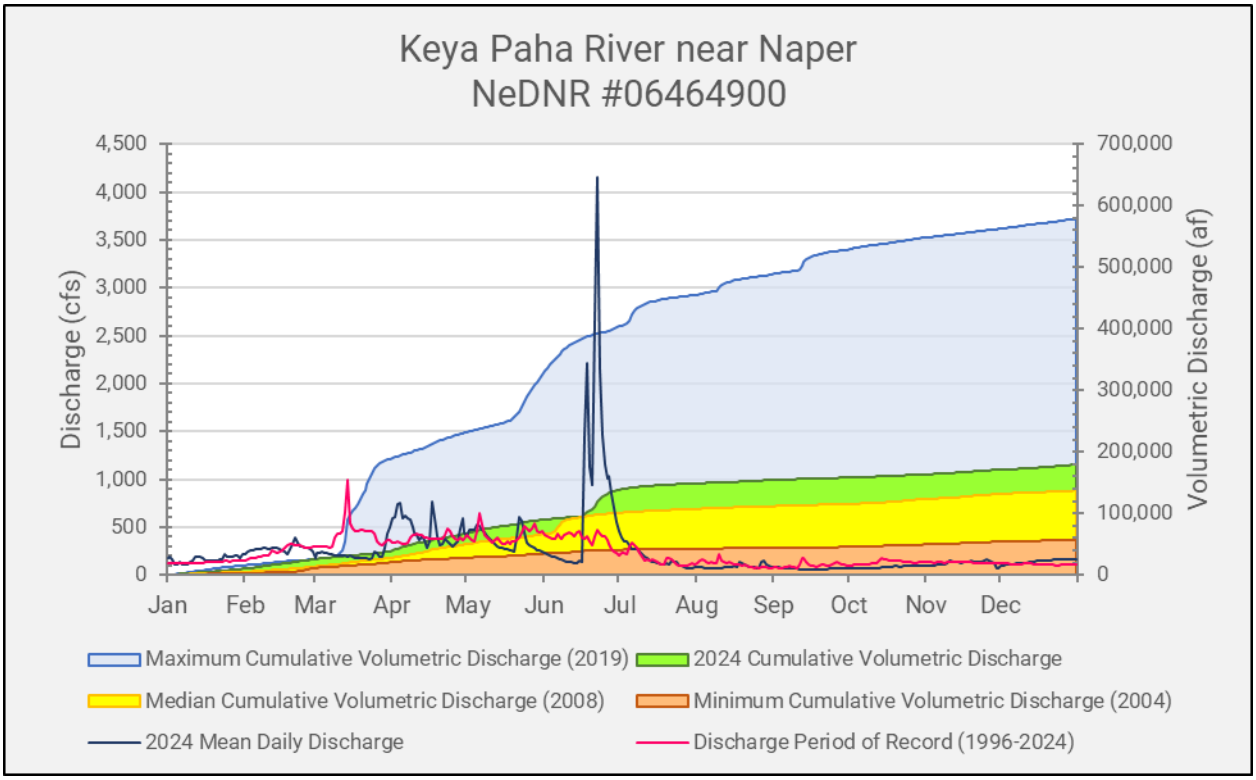

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