

JOINTLY DEVELOPED BY

Upper Elkhorn
 Natural Resources District

NEBRASKA
 DEPT. OF NATURAL RESOURCES

IMP Annual Review of 2023 Activities

June 2024

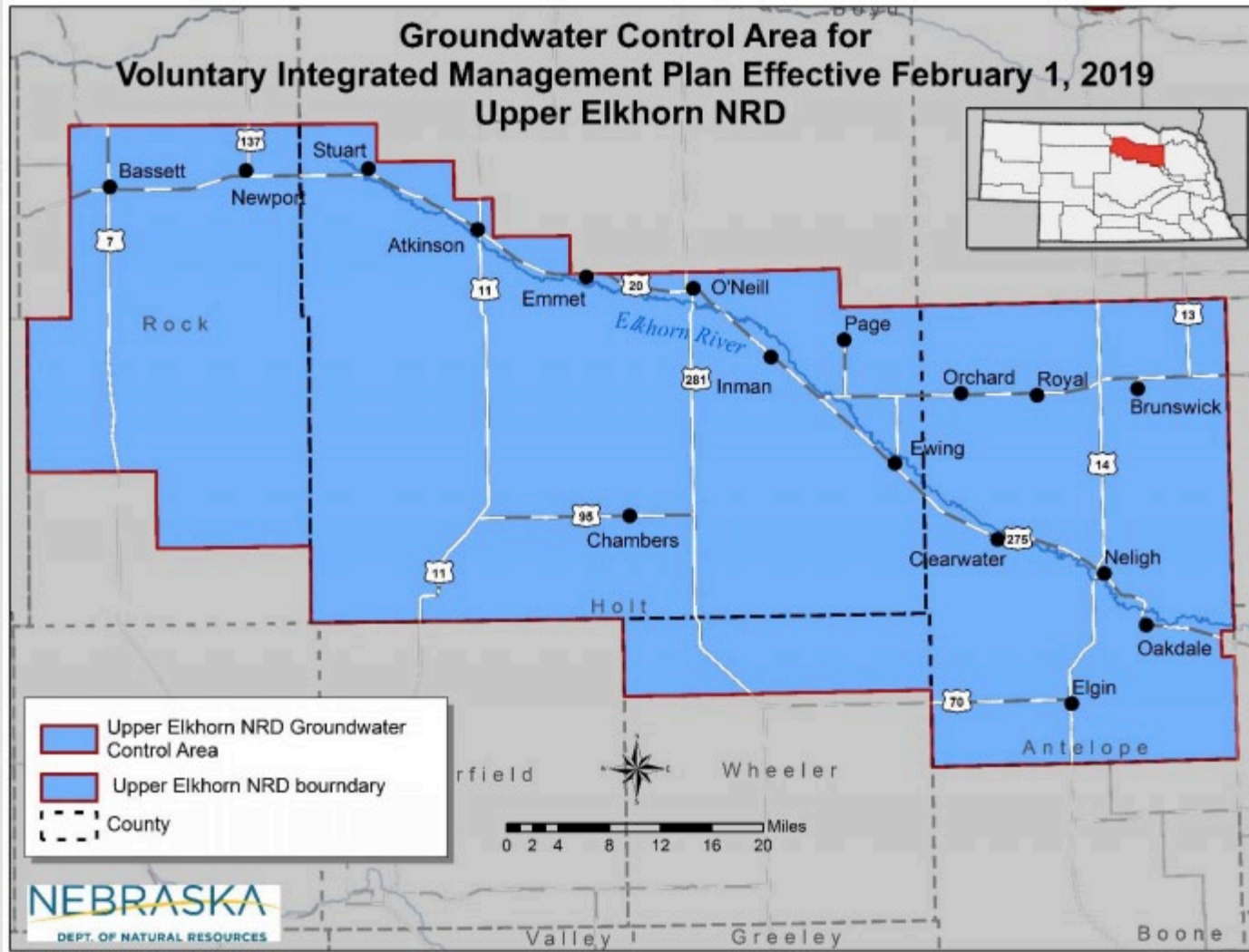
Overview

- Reporting of UENRD Data
- Reporting of NeDNR Data
- Lower Platte River Basin Coalition Activities
- Evaluation of data reporting & communication
- Review of IMP Goals/Objectives/Action Items
 - Any changes needed moving forward

Groundwater Controls

1. Certification of groundwater irrigated acres
2. Establish a limit on the expansion of groundwater irrigated acres

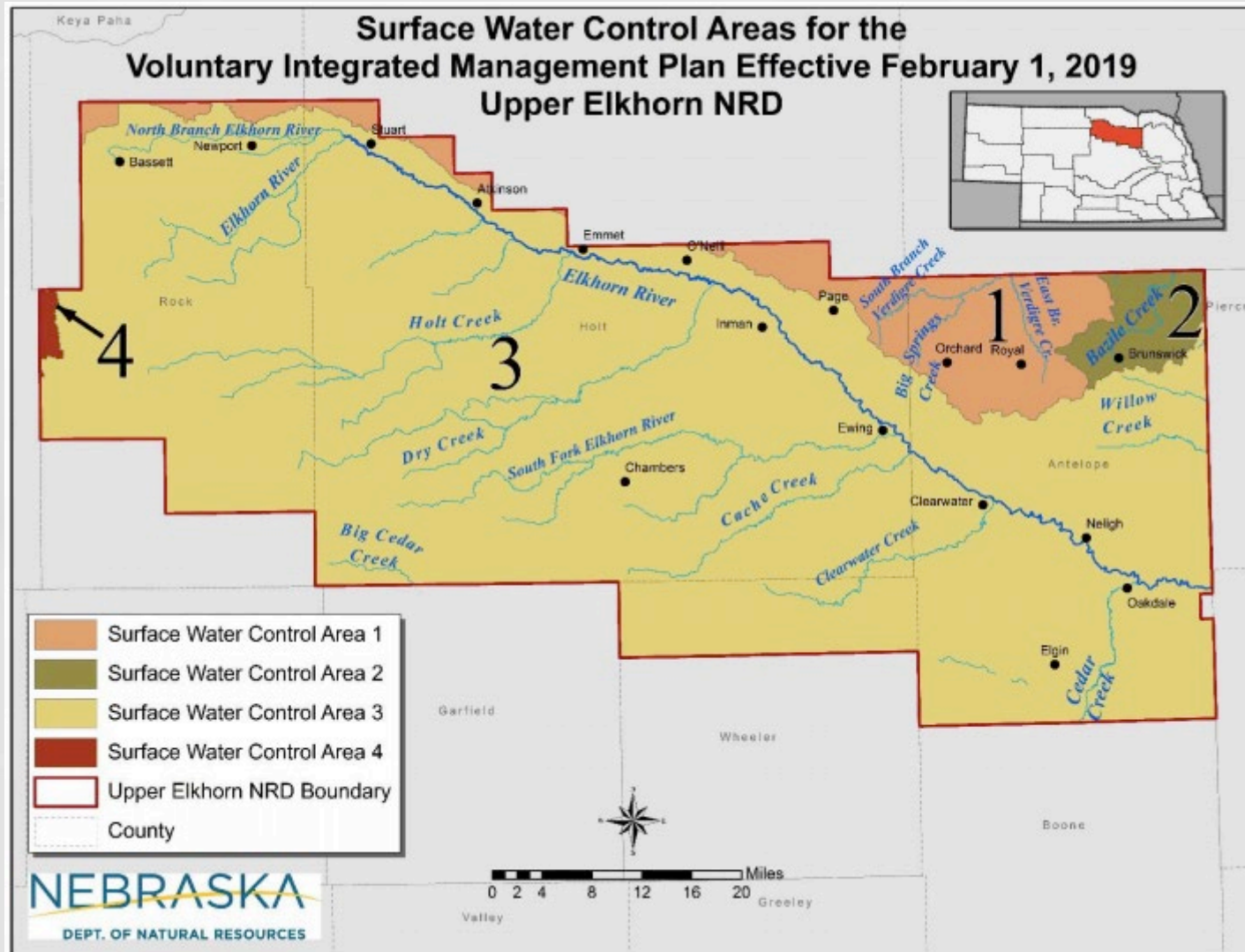
Groundwater Controls



Surface Water Controls

1. Surface Water Control Area 1 (Lower Niobrara Basin)
 - Moratorium or restriction on additional surface water irrigated acres
2. Surface Water Control Area 2 (Upper Missouri Tributaries Basin)
 - Education
3. Surface Water Control Area 3 (Lower Platte Basin)
 - Limitation on expansion of surface water irrigation
4. Surface Water Control Area 4 (Middle Niobrara Basin)
 - Temporary stay on development of surface water irrigation (expired 2/4/2020)

Surface Water Controls Areas Map





DATA COLLECTION & MONITORING

Data Collection and Monitoring

- NRD Monitoring
 - Expansion of irrigated acres
 - Groundwater level measurements
 - Municipal water use
- NeDNR Monitoring
 - Surface water permitting activities
 - Groundwater Permitting
 - Water administration activity
 - Voluntary water use survey
 - Surface water pumpsite inspections
 - NeDNR streamgage measurements

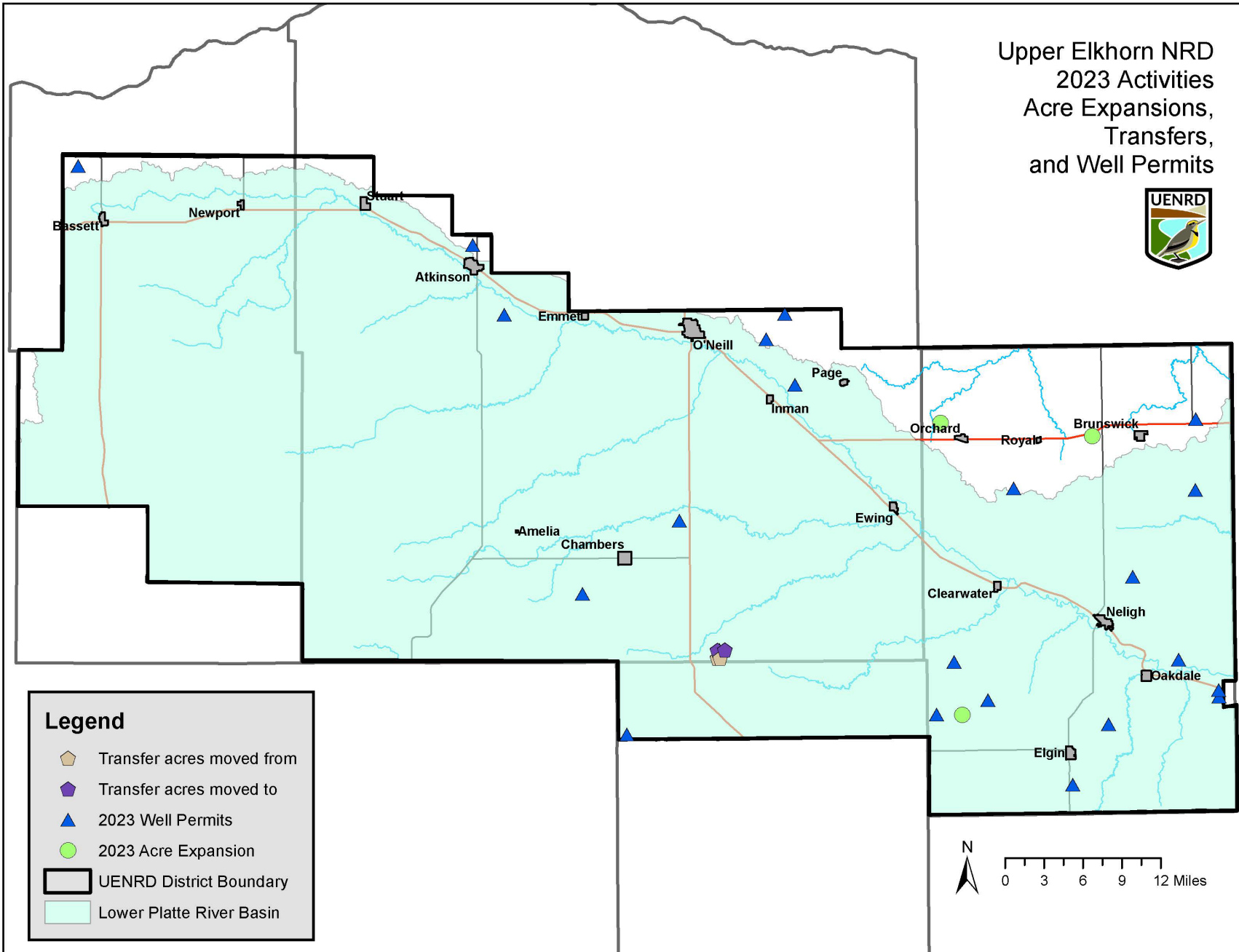


Groundwater monitoring and data collection

- 22 well permits issued
 - 14 New
 - 8 Replacement
- Static water level monitoring at 365 monitoring and irrigation wells in Spring & Fall 2023.
- Nitrate sample collection from 683 irrigation wells
- Certification of groundwater irrigated acres
 - As part of the V-IMP Groundwater Controls the UENRD will certify all groundwater irrigated acres by February 2021.
 - As of February 9, 2024, **486,325** acres have been certified.

Upper Elkhorn NRD 2023 Activities

Upper Elkhorn NRD
2023 Activities
Acre Expansions,
Transfers,
and Well Permits



Groundwater Acre Transfers*

	Number of Acres	Transfer FROM	FROM Depletion Estimate (AF)	Transfer TO	TO Depletion Estimate (AF)	Change in Depletion
	48.61	SW 33-25-11	0.79	NW 33-25-11	0.79	0.00
	48.61	SW 33-25-11	0.79	NE 33-25-11	0.79	0.00
TOTAL	97.22					0.00

2 acre transfer applications were approved.

*Reported as submitted for LPRBC annual report. Not all of UENRD is in LPRB.

Groundwater Acre Expansions*

Legal	Number of Acres	NIR (ft)	SDF %	% Depletion	Depletion Estimate (AF)
NE 28-24-08	5.45	0.65	0.29	0.3	0.30
	5.45				0.30

3 acre expansion applications were approved; 1 application shown in chart*

*Reported as submitted for LPRBC annual report. Not all of UENRD is in LPRB.

Municipal Water Use

Municipality	1/1/23 - 12/31/23 Gallons Pumped	Per Capita Use (gals/person/day)	Population Served	2020 Census Data	2006 - 2015 Average Annual Gallons Pumped	Baseline Pumping Rate	Number of Wells
Atkinson	102,601,000	215.06	1,306	1,298	98,922,370	218	3
Bassett	57,027,000	223.04	700	538	54,020,000	239	3
Brunswick*	16,688,000	304.60	150	154	NA*	NA*	2
Chambers ⁴				268	NA ¹	NA ¹	3
Clearwater	29,775,200	254.75	320	320	NA ¹	NA ¹	2
Elgin	69,988,000	267.75	717	712	NA ²	NA ²	3
Ewing	32,337,500	229.37	386	377	41,170,250	291	3
Neligh	83,544,700	143.68	1,592	1,516	NA ¹	NA ¹	4
Newport	7,864,000	269.13	80	69	NA ¹	NA ¹	2
Oakdale ⁴				322	NA ¹	NA ¹	2
O'Neill	239,279,000	176.87	3,704	3,547	233,851,800	173	5
Orchard*	58,884,000	425.37	379	362	NA*	NA*	2
Page	5,335,400	88.00	166	167	NA ¹	NA ¹	2
Royal* ⁴			45	56	NA*	NA*	1
Stuart	58,033,600	326.93	486	482	67,884,530	315	3
Summerland Public School ³	4,679,875 ³	23.30 ³	550	NA ³	NA ³	NA ³	1

Per Capita Use was estimated using 01/01/2023 – 12/31/2023 gallons pumped, divided by the population served in that period, divided by 365.25 days (1 year). Baseline Pumping Rates was estimated using 2006 – 2015 (10 year) average annual gallons pumped, divided by the 2010 Census Data, divided by 365.25 days. All data provided by municipalities.

*Not part of LPRBC, 3rd year collecting data


¹ Several municipalities are still working on getting previous years pumping data to UENRD: Chambers, Clearwater, Neligh, Newport, Oakdale, and Page.

² Elgin's data only went back to 2009, so an average annual baseline pumping rate (2006 – 2015) was unable to be calculated.

³ Summerland Public School's well was new in August 2021 so there is no data before this time. Also not part of census.

⁴ 2023 pumping data has not been reported to UENRD.

Data Collection and Monitoring

- NRD Monitoring
 - Expansion of irrigated acres
 - Groundwater level measurements
 - Municipal water use
 - NeDNR Monitoring
 - Surface water permitting activities
 - Groundwater Permitting
 - Water administration activity
 - Voluntary water use survey
 - Surface water pumpsite inspections
 - NeDNR stream gage measurements
- 

NeDNR Surface Water Permitting Actions

January 1, 2023, to December 31, 2023

- New surface water applications approved = 1
- Cancellations of surface water appropriations = 2
- Transfers of surface water appropriations = 0

NeDNR Surface Water Permitting Actions

January 1, 2023, to December 31, 2023

- Approved one surface water application

Surface Water Applications Approved Within the UENRD between January 1, 2023, to December 31, 2023

Appropriation Number	Date Approved	Source	Location of Diversion/ Reservoir (S-T-R)	Use	Grant in cfs	Grant in af	Acres	New Acres
A-18673	4/17/2023	Elkhorn River and Salt Creek	S9-T24N-R7W	ST	N/A	30.9	N/A	N/A

NeDNR Groundwater Permitting Actions

January 1, 2023, to December 31, 2023

- Groundwater permits cancelled = 0
- Groundwater permits issued = 0

Includes groundwater permits for the following uses

- *Application to Drill Without Regard to Spacing*
- *Industrial Groundwater Transfers*
- *Industrial Transfer Notice*
- *Municipal Groundwater Transfers*
- *Municipal Notice of Intent*
- *Permit to Violate Well Spacing*
- *Permit to Transfer to Adjoining State*

NeDNR Water Administration Actions

Water Year 2023

Surface Water Administration in Elkhorn River Basin in 2023						
Water Divison	Date of Close	Date Reopened	Permit Type	No. Affected	Reason for Closure	Reason for Reopening
2B - Elkhorn River Basin	21-Aug	26-Sep	Natural flow	64	Not enough water for NGPC instream flow right	Water for NGPC instream flow right has been exceeded
			Storage	86		
	4-Oct	16-Oct	Natural flow	64		
			Storage	86		

Pumpsite Inspections 2023

As time and conditions allow, the NeDNR field office staff visit pumpsites (as mapped) for each appropriation to check for compliance and collect various data.

UENRD contains a total of 86 surface water irrigation rights. During 2023, a total of 84 site inspections were completed, 21 were found to have pumps set up and nine were in operation at the time of the inspection.

Pumpsite Inspections				
	Surface Water Rights	Site Inspections	Pumps Set Up	Pumps Running
Upper Elkhorn	86	84	21	9

Voluntary Water Right Use Reporting

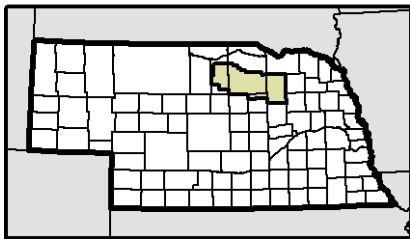
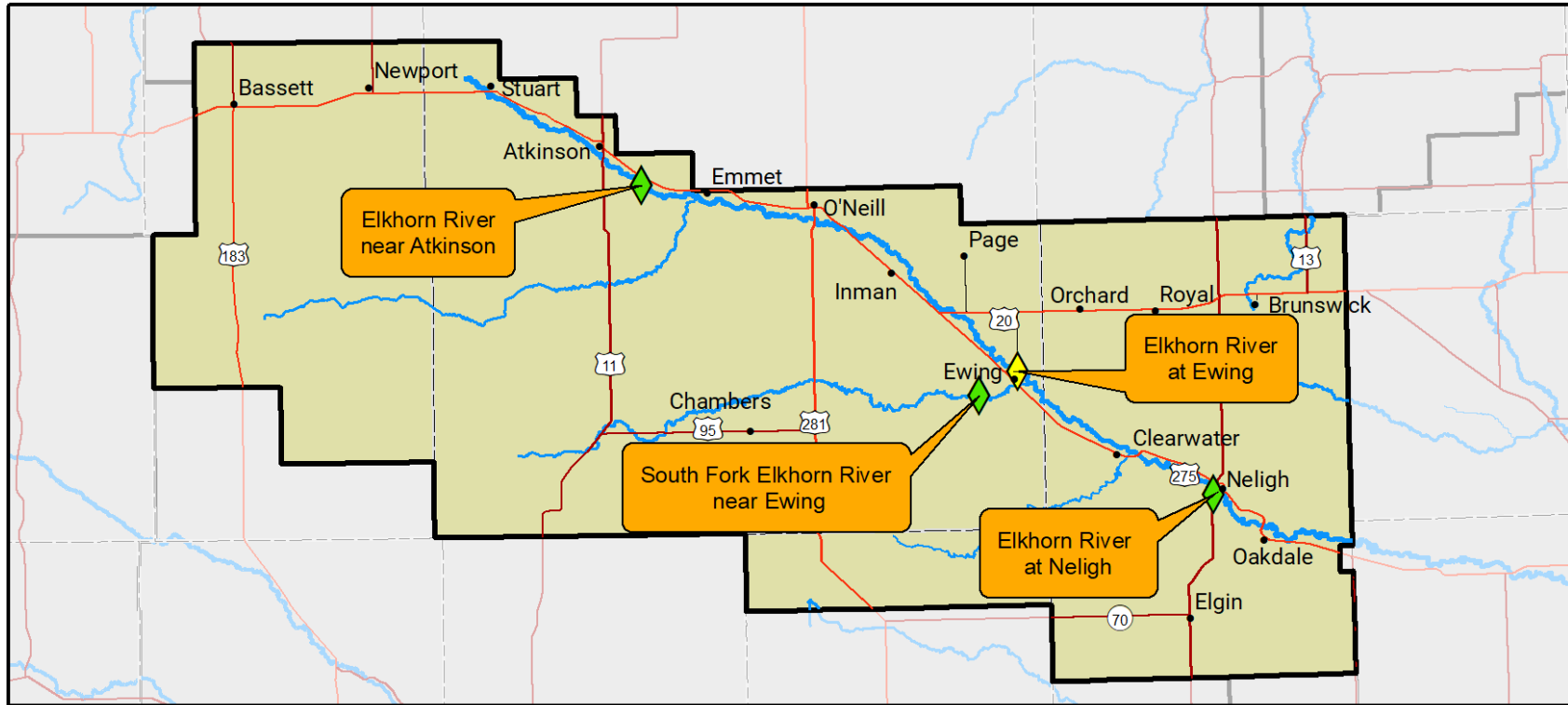
The Department received responses on 17 out of 86 sent for the voluntary water use survey in the UENRD. These appropriators provided information for the year 2023 as follows:

Of the 8 appropriations that reported use, all were irrigation from a naturally flowing source. No reservoir use was reported in 2023

Upper Elkhorn Voluntary Water Right Use			
Water Type	Appropriators	Surface Water Irrigation (acres)	Average Inches per Acre
Surface	8	438	3.7
Ground Water Only	6		
Dryland	3		

Streamgauge Locations in UENRD

Streamgages in the Upper Elkhorn NRD IMP Area



Created by NeDNR | Updated by AJP 6/15/2021

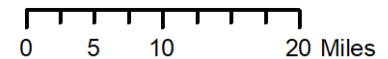
Active Streamgauge Operator

- ◆ USGS, with funding provided by UENRD
- ◆ NeDNR

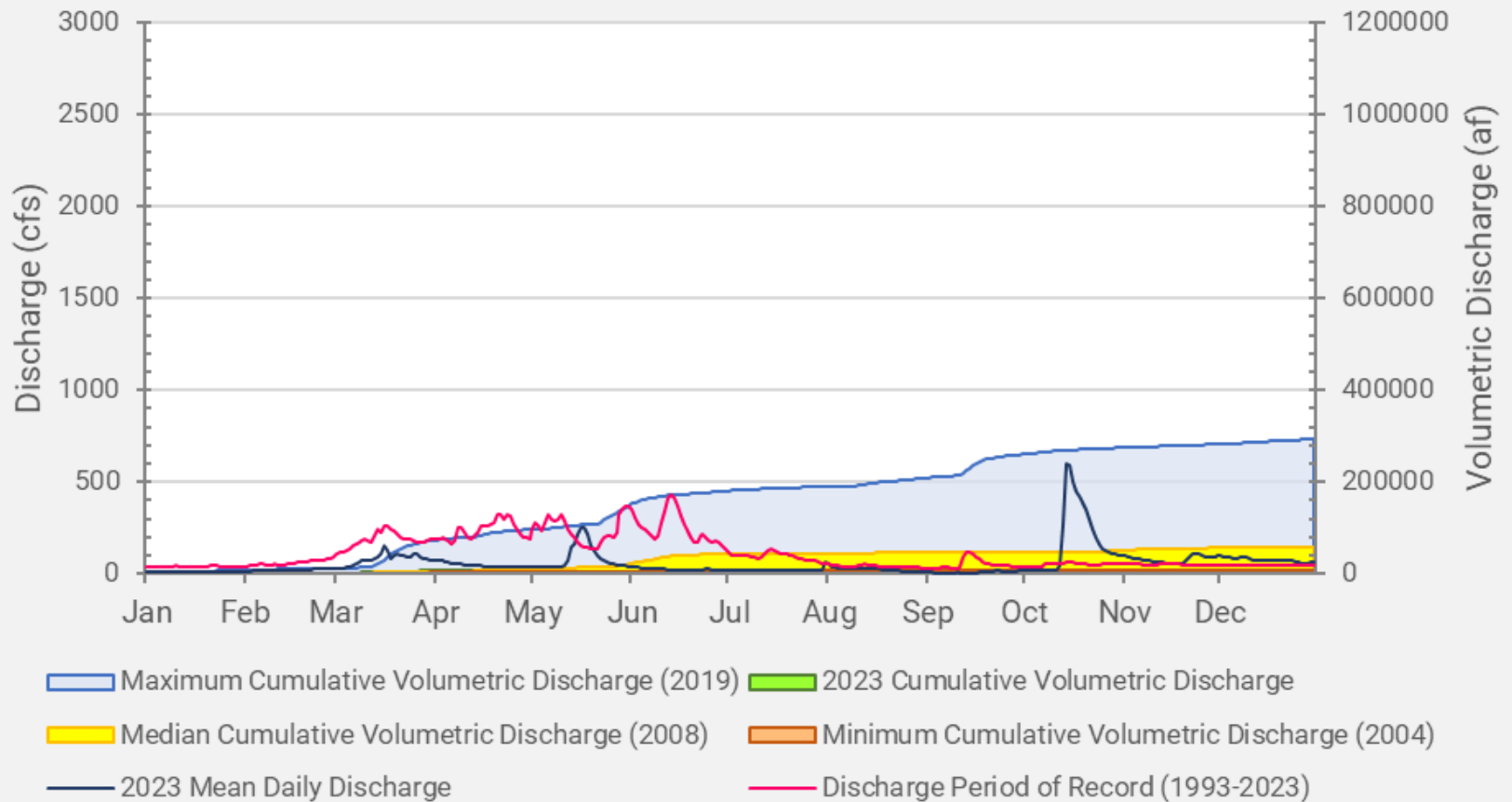
+ Upper Elkhorn NRD

- Cities
- ~ River/Stream
- NE Hwy
- US Hwy

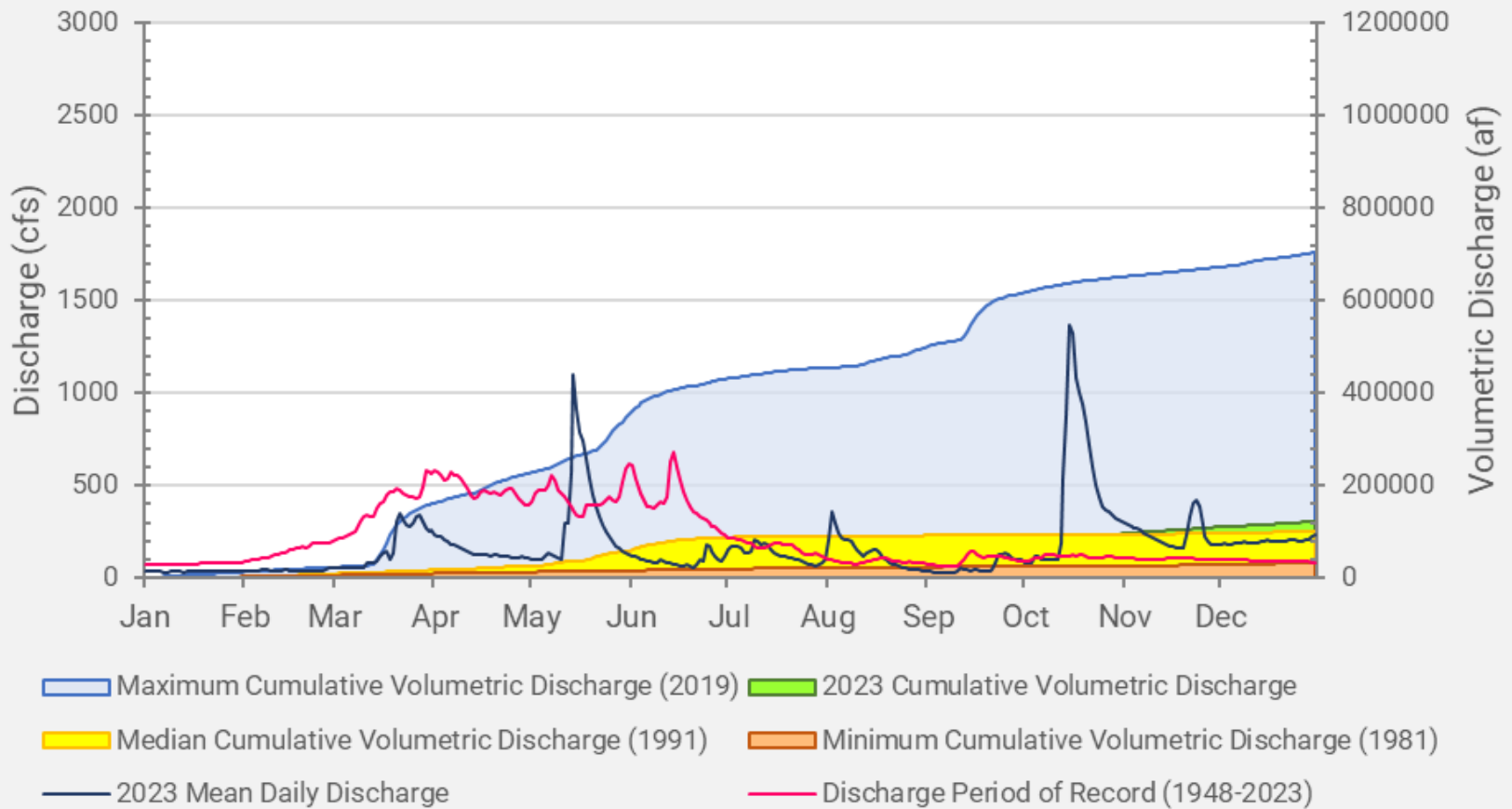
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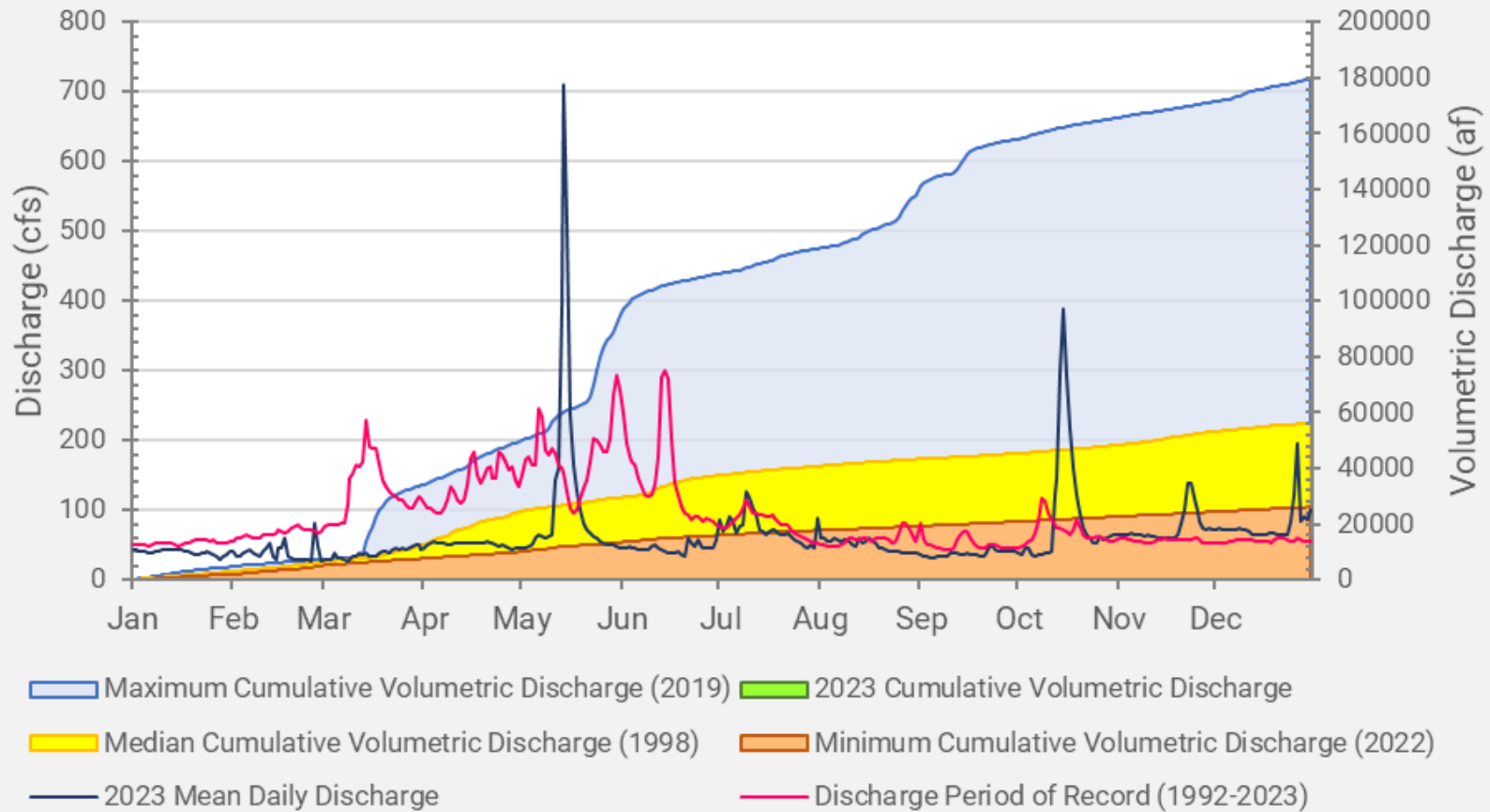
Elkhorn River near Atkinson NeDNR #06796973



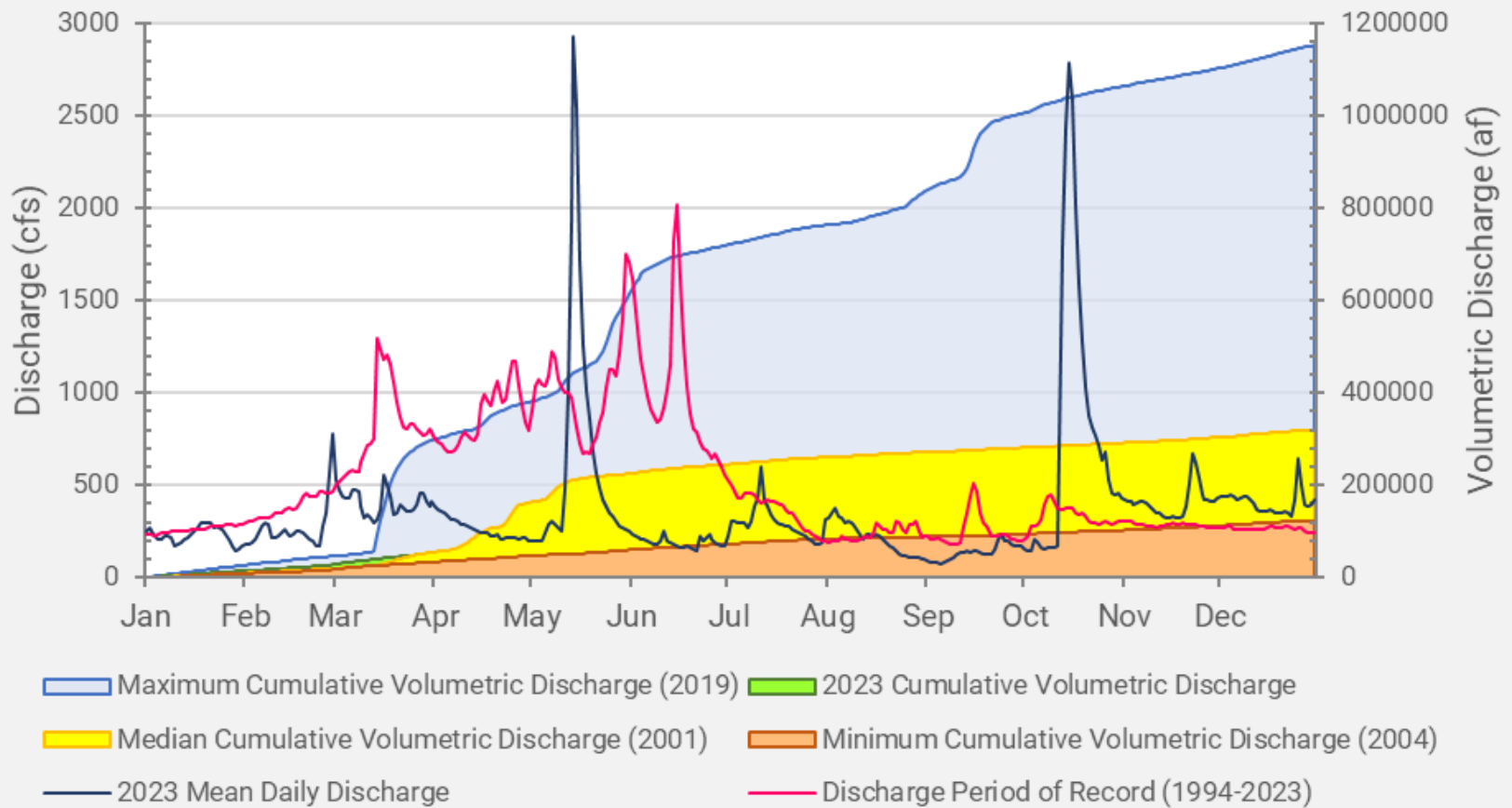
Elkhorn River at Ewing USGS #06797500



South Fork Elkhorn River near Ewing NeDNR #06798000



Elkhorn River at Neligh NeDNR #06798500





LOWER PLATTE RIVER BASIN-WIDE ACTIVITIES

Lower Platte River Basin Activities

- Both UENRD and NeDNR participate in the Lower Platte River Basin Coalition (LPRBC)
 - Managers' and Technical Team meetings
 - Annual reporting (see next slide)
 - Annual Reporting Database
 - Tool to report and store annual water use data
 - Lower Platte Missouri Tributaries Model
 - Tool to analyze aquifer-stream interactions – includes Elkhorn and Lower Platte Rivers

New Depletions Accounting

Lower Platte River Basin Second Increment 2023

TABLE 1 - PEAK SEASON DEPLETIONS

NRD	PEAK SEASON 5-YR ALLOWABLE DEPLETION (AF)	2023 NRD Reported NET Depletion (AF)	NRD - Percent of Allowable	2023 NeDNR Reported Depletion (AF)	NeDNR - Percent of Allowable	Combined Percent of Allowable
Upper Loup NRD	5393.46	39.5	0.7%	0.0	0.0%	0.7%
Lower Loup NRD	11928.68	-11.7	-0.1%	26.9	0.2%	0.1%
Upper Elkhorn NRD	2927.25	0.3	0.0%	0.0	0.0%	0.0%
Lower Elkhorn NRD	8356	305.9	3.7%	-38.0	-0.5%	3.2%
Papio-Missouri River NRD	1811.4	88.5	4.9%	0.0	0.0%	4.9%
Lower Platte South NRD	2065.526	-0.9	0.0%	0.0	0.0%	0.0%
Lower Platte North NRD	3790.808	205.4	5.4%	14.0	0.4%	5.8%
TOTALS	36,273	627	1.7%	2.9	0.0%	1.7%

TABLE 2 - PEAK SEASON DEPLETIONS AND CONSUMPTIVE USE

NRD	PEAK SEASON 5-YR ALLOWABLE DEPLETION (AF)	2023 NRD Reported NET Depletion (AF)	NeDNR Reported Depletion (AF)	NRD Prior Years Peak Season Consumptive Use (AF)	2023 NRD Peak Season Consumptive Use (AF)	NRD Total Peak Season Consumptive Use (AF)	NeDNR Total Peak Season Consumptive Use (AF)	Total New Peak Season Depletions	Total New Peak Season Consumptive Use	Remaining 5-YR Allowable Depletion (AF)	Percent of Remaining 5-YR Allowable Depletion
Upper Loup NRD	5393.46	39.5	0.0	959.6	134.2	1093.8	0.0	39.5	1093.8	5354.0	99.3%
Lower Loup NRD	11928.68	-11.7	26.9	2347.9	-69.6	2278.3	26.9	15.2	2305.2	11913.5	99.9%
Upper Elkhorn NRD	2927.25	0.3	0.0	686.1	1.1	687.2	0.0	0.3	687.2	2927.0	100.0%
Lower Elkhorn NRD	8356	305.9	-38.0	2826.6	605.5	3432.1	-38.0	267.9	3394.0	8088.1	96.8%
Papio-Missouri River NRD	1811.4	88.5	0.0	87.5	66.4	153.9	0.0	88.5	153.9	1722.9	95.1%
Lower Platte South NRD	2065.526	-0.9	0.0	26.6	-0.1	26.5	0.0	-0.9	26.5	2066.5	100.0%
Lower Platte North NRD	3790.808	205.4	14.0	1847.5	322.2	2169.7	14.0	219.4	2183.7	3571.4	94.2%
TOTALS	36,273	627	3	8,782	1,060	9,841	3	630	9,844	35,643	98%

Education and Outreach Activities in 2023

NeDNR

- Sandhills Ranch Expo

UENRD

- KBRX Home Show
- Antelope County Home Show
- Sandhills Ranch Expo

Jointly Identified Actions for Next Two Years

- Continue to monitor progress made in reaching targets described in the goals and objectives of the IMP
 - Reevaluate and revise, as necessary
- Continue to participate in basin-wide efforts such as the Lower Platte River Basin Coalition (LPRBC)
- Continue effort to develop depletion/consumptive use tracking database as a part of LPRBC
- UENRD will continue process of certifying groundwater irrigated acres.
- Participate in public outreach opportunities in the UENRD area, as they are available.
 - Sandhills Ranch Expo 2024
- Review data from local studies, as available
 - Comparison of CENEB and ELM models

Thank you!

Dennis Schueth

DSschueth@UENRD.org

Upper Elkhorn NRD

Tyler Martin

Tyler.Martin@nebraska.gov

Nebraska Department of Natural Resources