2020 Water Quality Integrated Report DRAFT

Nebraska Department of Environment and Energy

November 20, 2020

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1.0 Introduction

Section 303(d) of the federal Clean Water Act (CWA), which Congress enacted in 1972, requires states, territories, and authorized tribes (states) to identify and establish a priority ranking for all waterbodies where technology-based effluent limitations required by section 301 are not stringent enough to attain and maintain applicable water quality standards. Once identified, states are to establish total maximum daily loads (TMDLs) for the pollutants causing impairment in those waterbodies, and submit, from time to time, the (revised) list of impaired waterbodies and TMDLs to the U.S. Environmental Protection Agency (EPA). The requirements to identify and establish TMDLs apply to all waterbodies regardless of whether a waterbody is impaired by point sources, nonpoint sources, or a combination of both (*Pronsolino v. Marcus,* 2000 WL 356305 (N.D. Cal. March 30, 2000)).

EPA issued regulations governing identification of impaired waterbodies and establishment of TMDLs in 40 CFR 130.7 in 1985 and revised them in 1992 and again in 2000. However, on March 19, 2003, a final rule to formally and completely withdraw the 2000 regulations was published in the *Federal Register*. Therefore, the 2020 listing of impaired waters will be conducted under the 1985 TMDL regulations, as amended in 1992.

Section 305(b) of the CWA directs states to prepare a report every two (2) years that describes the status and trends of existing water quality, the extent to which designated uses are supported, pollution problems and sources, and the effectiveness of the water pollution control programs.

Section 314 of the CWA requires that each Section 305(b) submittal include an assessment of water quality trends of public owned lakes including the extent of point and nonpoint source impacts due to toxics, conventional pollutants, and acidification.

On March 21, 2011, EPA issued guidance for the 2012 waterbody assessments and reporting requirements for Section 303(d), Section 305(b), and Section 314 of the Clean Water Act. No new guidance for the 2020 waterbody assessments and reporting requirements for Section 303(d), Section 305(b), and Section 314 of the Clean Water Act have been provided; however on September 26, 2019 EPA sent a memo, "Information Concerning 2020 and 2022 Clean Water Act Sections 303(d), 305(b), and 314 Integrated Reporting and Listing Decisions." The final product is again being referred to as an Integrated Report (IR). EPA's goal for this report is to provide the general public with a comprehensive summary of state and national water quality. The Nebraska Department of Environment and Energy[1] (hereinafter NDEE or "the Department") has opted to prepare such a report not only for the general public but also for water quality management planning purposes (e.g. future monitoring, TMDL development, best management practice implementation).

To facilitate the waterbody assessment process and accommodate the above recognized needs, the Department prepared and utilized the *Methodologies for Waterbody Assessment and Developing the 2020 Integrated Report for Nebraska* (available on NDEE's website at http://dee.ne.gov). These procedures lay out the step-by-step process that was undertaken to characterize surface waterbodies.

[1] On July 1, 2019 the Nebraska Department of Environmental Quality (NDEQ) and the Nebraska Energy Office merged into the Nebraska Department of Environment and Energy. References to previously published literature in this document may refer to NDEQ, as that was the name at the time of publication.

2.0 Surface Water Waterbody Categories

Similar to the previous Integrated Reports (IRs), the 2020 IR includes multiple categories of waterbodies to present information in a descriptive and comprehensive manner. The designated uses of waterbodies are explained in Section 5. The five waterbody categories are as follows with the possibility of multiple sub-category 4 combinations and one sub-category within category 5:

Category 1 – Waterbodies where all designated uses are met.

Category 2 – Waterbodies where some of the designated uses are met but there is insufficient information to determine if all uses are being met.

Category 3 – Waterbody where there is insufficient data to determine if any beneficial uses are being met.

Category 4 – Waterbody is impaired, but a TMDL is not needed. Sub-categories 4a, 4b, 4c and 4r outline the rationale for the waters not needing a TMDL:

> ***Category 4a*** – Waterbody assessment indicates the waterbody is impaired, but all of the required TMDLs have been completed.
>
> ***Category 4b*** – Waterbody is impaired, but "other pollution control requirements" are expected to address the water quality impairment(s) within a reasonable period of time. Other pollution control requirements include but are not limited to, National Pollutant Discharge Elimination System (NPDES) permits and best management practices.
>
> ***Category 4c***[2] – Waterbody is impaired but the impairment is not caused by a pollutant. This category also includes waters where natural causes/sources have been determined to be the cause of the impairment. In general, natural causes/sources shall refer to those pollutants that originate from landscape geology and climactic conditions. It should be noted; this general description can only be utilized when appropriate justification is provided.
>
> ***Category 4r***[3] – Waterbody data exceeds the impairment threshold, however a TMDL is not appropriate at this time. The category will only be used for nutrient assessments in new or renovated lakes and reservoirs. Newly filled reservoirs usually go through a period of trophic instability – a trophic upsurge followed by the trophic decline (Holdren, et. al. 2001). Erroneous or non-representative water quality assessments are likely to occur during this period. To account for this, all new or renovated reservoirs will be placed in this category for a period not to exceed eight years following the fill or re-fill process. After the eighth year monitoring data will be assessed and the waterbody will be appropriately placed into category 1, 2, or 5.

Category 5 – Waterbody where one or more beneficial uses are determined to be impaired by one or more pollutants and all of the TMDLs have not been developed. ***Category 5 waters constitute the Section 303(d) list subject to EPA approval/disapproval***.

> ***Category 5-Alt*** – Waterbody is impaired, but "other pollution control alternatives besides a TMDL" are expected to address the water quality impairment(s) within a reasonable period of time. Other pollution control alternatives include, but are not limited to, watershed management plan development, best management practice implementation and adaptive management strategies ***Category 5-Alt waters are not approved or disapproved by EPA; however, EPA agrees to accept the alternative.***

[2] Documentation for Selenium 4c listings can be found in Appendix C.

[3] Project information on category 4r designated waters can be found in Appendix D.

3.0 Surface Water Data Sources

40 CFR Part 130.7 requires that "each state assemble and evaluate all existing and readily available water quality related data and information" to make the listing and assessment decisions. To facilitate this requirement, data was requested via email on June 28, 2019 from numerous sources, including federal, state and local agencies and other entities. A copy of the data request email will be submitted to EPA Region 7 as an attachment to this Integrated Report. Data was received from the United States Geological Survey (USGS), United States Army Corps of Engineers (USACE), and Kansas Department of Health and Environment (KDHE) and utilized in the development of the 2020 Integrated Report. Data was also received from the National Park Service (NPS) and the Nebraska Public Power District (NPPD); however NDEE was not able to utilize this data in the development of the 2020 Water Quality Integrated Report. For more information on this determination please see Appendix F.

4.0 Surface Water Assessment Outcomes and Interpretation

Based on the procedures cited above, a waterbody beneficial use assessment can have one of four outcomes:

S = Supported Beneficial Use
I = Impaired Beneficial Use
NA = Not assessed

A blank cell in the tables will indicate the beneficial use is not assigned to this waterbody in Title 117-Nebraska's Surface Water Quality Standards.

The format of the Integrated Report is set to allow the user to navigate through a river basin, similar to the tables found in Title 117 – Nebraska Surface Water Quality Standards. The tables list the waterbody identification number, name, and applicable beneficial uses.

5.0 Surface Water Waterbody Beneficial Uses

Beneficial uses are assigned to all designated surface waters within or bordering the State and descriptions of each can be found in Title 117 – Nebraska Surface Water Quality Standards (Title 117), Chapter 4. All uses are not assigned to all waters and use attainability analyses are utilized on a waterbody by waterbody basis to determine whether or not the use(s) are applicable. The beneficial uses defined by Title 117 are:

- Primary Contact Recreation
- Aquatic Life – Coldwater A, Coldwater B, Warmwater A and Warmwater B
- Water Supply – Public Drinking Water, Agricultural and Industrial
- Aesthetics

Title 117 includes 1558 designated stream segments and 553 lakes/impounded waters. Table 5.1 presents the beneficial use totals by river basin for streams and Table 5.2 presents the beneficial use totals by river basin for the lakes/impounded waters. There are 13 major river basins in Nebraska, shown in Figure 5.

Figure 5 - Nebraska's Major River Basins. Nebraska's surface water quality assessments are organized by major river basin.

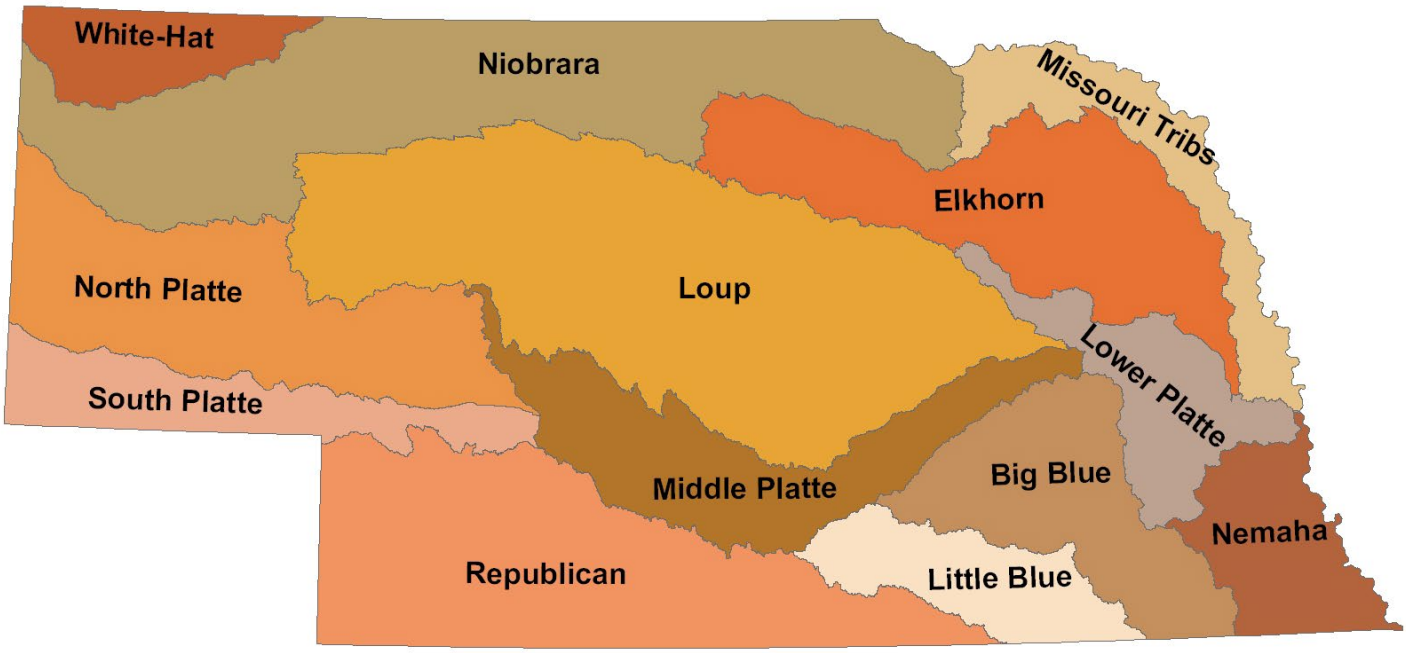


Table 5.1 – Beneficial Use Totals for Streams

	Big Blue	Elkhorn	Little Blue	Loup	Lower Platte	Middle Platte	Missouri Tributaries	Nemaha	Niobrara	North Platte	Republican	South Platte	White River-Hat Creek	Total
# of Segments	63	135	38	107	126	29	136	326	269	136	102	28	63	1558
Primary Contact Recreation	10	23	6	37	16	13	21	20	53	42	33	16	18	308
Aquatic Life – Coldwater Class A	0	0	0	0	0	0	0	0	14	21	0	1	15	51
Aquatic Life – Coldwater Class B	0	1	0	36	1	3	3	0	164	79	19	13	36	355
Aquatic Life – Warmwater Class A	16	38	14	26	13	12	15	40	15	7	24	11	1	232
Aquatic Life – Warmwater Class B	47	96	24	45	112	14	118	286	76	29	59	3	11	920
Water Supply – Public Drinking Water	0	0	1	0	2	1	2	13	0	0	0	0	7	26
Water Supply – Agriculture Class A	63	135	38	107	120	29	136	326	269	136	102	28	63	1552
Water Supply – Agriculture Class B	0	0	0	0	6	0	0	0	0	0	0	0	0	6
Water Supply – Industrial	0	0	0	0	1	1	1	1	1	1	0	4	0	10
Aesthetics	63	135	38	107	126	29	136	326	269	136	102	28	63	1558

Table 5.2 – Beneficial Use Totals for Lakes/Reservoirs

	Big Blue	Elkhorn	Little Blue	Loup	Lower Platte	Middle Platte	Missouri Tributaries	Nemaha	Niobrara	North Platte	Republican	South Platte	White River-Hat Creek	Total
# of Lakes	31	35	12	48	76	97	35	35	69	52	23	13	27	553
Primary Contact Recreation	31	35	12	48	76	97	35	35	69	52	23	13	27	553
Aquatic Life – Coldwater Class A	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Aquatic Life – Coldwater Class B	0	0	0	1	1	0	0	0	2	3	1	1	14	23
Aquatic Life – Warmwater Class A	31	35	12	47	75	97	35	35	67	49	22	12	13	531
Aquatic Life – Warmwater Class B	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Water Supply – Public Drinking Water	0	0	3	0	0	0	1	0	0	0	0	0	0	4
Water Supply – Agriculture Class A	31	35	12	48	76	97	35	35	69	52	23	13	27	553
Water Supply – Agriculture Class B	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Water Supply – Industrial	0	0	0	0	2	2	1	0	2	1	0	2	0	10
Aesthetics	31	35	12	48	76	97	35	35	69	52	23	13	27	553

6.0 Surface Water Waterbody Assessment Results

The results of the assessments by river basin and the state as a whole can be found in Table 6.1 for stream segments and 6.2 for lakes/reservoirs. Table 6.3 provides a summary of the monitoring and assessment activities for the number and sizes of waterbodies designated in Title 117.

Table 6.1 – Summary of 2018 Assessments for Streams by River Basin

Category	1	2	3	4a	4b	4c	4a/c	5	5-alt	Total
Big Blue	5	16	19	7	0	0	0	16	0	63
Elkhorn	5	29	70	6	0	0	1	24	0	135
Little Blue	1	11	16	5	0	0	0	5	0	38
Loup	9	21	48	6	0	3	3	15	2	107
Lower Platte	8	38	47	3	0	7	0	23	0	126
Middle Platte	3	3	12	1	0	0	0	10	0	29
Missouri Trib	5	32	67	5	0	1	0	26	0	136
Nemaha	10	48	247	4	0	0	0	17	0	326
Niobrara	7	24	204	5	0	3	1	25	0	269
North Platte	11	29	70	8	0	3	0	15	0	136
Republican	4	10	51	3	0	2	1	31	0	102
South Platte	4	8	6	0	0	1	0	9	0	28
White-Hat	5	11	37	0	0	0	0	10	0	63
Total	77	280	894	53	0	20	6	226	2	1558

Table 6.2 – Summary of 2018 Assessments for Lakes/Reservoirs by River Basin

Category	1	2	3	4a	4c	4r	4a/r	5	5-alt	Total
Big Blue	2	5	4	0	0	0	0	20	0	31
Elkhorn	0	11	16	0	0	0	0	8	0	35
Little Blue	0	2	0	0	0	0	0	10	0	12
Loup	0	9	27	0	0	0	0	12	0	48
Lower Platte	0	12	18	0	0	1	0	45	0	76
Middle Platte	2	26	39	0	0	0	0	30	0	97
Missouri Trib	1	8	8	1	0	0	0	17	0	35
Nemaha	0	8	16	0	0	0	0	11	0	35
Niobrara	0	21	34	0	1	0	0	13	0	69
North Platte	3	7	30	0	3	0	1	8	0	52
Republican	1	2	4	0	0	1	0	15	0	23
South Platte	0	2	1	0	0	0	0	10	0	13
White-Hat	2	2	16	0	0	0	0	7	0	27
Total	11	115	213	1	4	2	1	206	0	553

Table 6.3 – Statewide Monitoring and Assessment Summary

Streams	# of Waterbodies	% of Total Waterbodies	Size Stream = miles Lakes = acres	% of Total Size
Total	**1,558**		**16,670.34**	
Category 1	77	4.9%	1,258.59	7.5%
Category 2	280	18.0%	3,245.07	19.5%
Category 3	894	57.4%	5,073.69	30.4%
Category 4a	53	3.4%	1,426.03	8.6%
Category 4b	0	0.0%	0.00	0.0%
Category 4c	20	1.3%	406.91	2.4%
Category 4a/c	6	0.4%	163.55	1.0%
Category 5	226	14.5%	5,018.50	30.1%
Category 5-alt	2	0.1%	75.86	0.5%
Assessed	**664**	42.6%	**11594.51**	69.6%
Lakes				
Total	**553**		**134,980.23**	
Category 1	11	2.0%	26930.55	20.0%
Category 2	115	20.8%	12138.69	9.0%
Category 3	213	38.5%	9732.23	7.2%
Category 4a	1	0.2%	297.98	0.2%
Category 4b	0	0.0%	0.00	0.0%
Category 4c	4	0.7%	571.49	0.4%
Category 4r	2	0.4%	14.82	0.0%
Category 4a/r	1	0.2%	573.69	0.4%
Category 5	206	37.3%	84720.79	62.8%
Category 5-alt	0	0.0%	0.00	0.0%
Assessed	**340**	61.5%	**125248.00**	92.8%

7.0 Completed and planned TMDLs and 5-alts

Section 303(d) of the CWA required that TMDLs be established for all identified impaired waters and set at a level to achieve the applicable water quality standards and assigned beneficial uses. Over the last several listing cycles the Department has made adjustments to the TMDL program to better fit the needs of the State of Nebraska.

In 2011, EPA and State TMDL managers began developing guidance for a new Long-Term Vision for the CWA Section 303(d) program that focused on implementable TMDLs in high priority areas. Under this new vision, States outline their process for prioritizing TMDL development and identifying their top priority areas over the long term (2016—2022). Long-Term Vision plans are to be individually tailored to fit each State's needs while being a fluid document intended to adjust as their priorities change. The Long-Term Vision addresses six main focus areas that impact most States TMDL programs: Prioritization, Assessment, Protection, Alternatives, Engagement, and Integration. States may choose to include all of these focus areas or just a few in their tailored Long-Term Vision plans.

The Department has opted to include all six focus areas and utilize the renewed focus on Alternatives to develop 5-alts. 5-alts are developed with active partners planning to address water quality impairments through the development of a watershed management plan. A 5-alt provides just the pollutant assessment portion of a TMDL which will then be used in the development of the watershed management plan.

As required by 40 CFR Part 130.7, the TMDLs targeted for development within the next two years can be found in Appendix E: *Long-Term Vision for Assessment, Restoration, and Protection under the Clean Water Act Section 303(d) Program* (Long-Term Vision). The Long-Term Vision document is updated upon approval of each new IR. TMDLs may also be completed for additional waterbodies not listed in order to accompany Section 319 needs as they arise or other water quality improvement projects as prioritized by the Department. Table 7 provides a list of the completed and approved TMDLs as well as accepted 5-alts within each river basin.

Table 7 – Established TMDLs and 5-alts

River Basin	Stream and River TMDLs & 5-alts	Lake and Reservoir TMDLs & 5-alts	Total
Big Blue	28	2	30
Elkhorn	8	0	8
Little Blue	15	0	15
Loup	17	0	14
Lower Platte	12	34	46
Middle Platte	4	1	5
Missouri Tributaries	6	10	16
Nemaha	10	4	14
Niobrara	8	0	8
North Platte	21	1	22
Republican	10	0	10
South Platte	0	0	0
White-Hat	1	0	1
Total	**140**	**52**	**192**

*Note the number of completed TMDLs approved in Table 7 does not match the number of category 4A waterbodies because a waterbody may have more than one TMDL and/or 5-alt.

8.0 Surface Water Quality Trends

8.1 Streams and Rivers

In 2001, the Department re-established a fixed station ambient network whereby several streams across the state would be systematically monitored. In 2002, the network was expanded to a total of 97 fixed stations by the inclusion of additional monitoring locations.

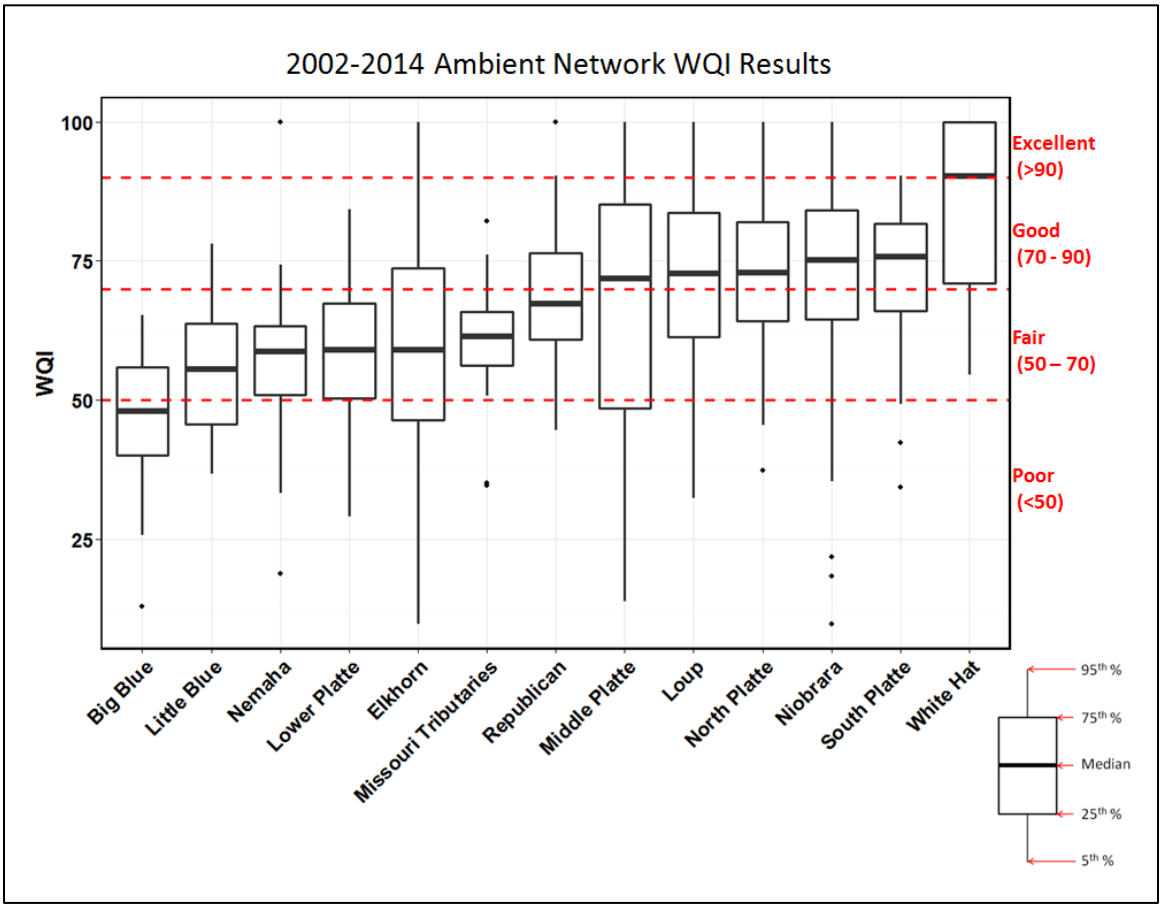
In 2004, the frequency of sampling was increased from once per month to twice per month during the months of April through September. The increase was aimed at obtaining data across the hydrograph.

For the purposes of evaluating stream water quality, two separate analyses were conducted utilizing data from the ambient network from 2002-2014. A Water Quality Index (WQI) for each river basin was created using eight parameters: atrazine, *E. coli* bacteria, pH, temperature, dissolved oxygen, total suspended solids, total nitrogen, and total phosphorus. The WQI compares parameter values to established water quality criteria, a moderate land-use model, or professional judgement (Table 8.1). Observed values were evenly weighted and placed on a scale of 0-100, where 0 represents poor and 100 represents excellent water quality conditions. Figure 8.1 is a boxplot with each box within the boxplot showing the 75th through the 25th percentile of the data and the center line representing the median value. The vertical lines represent the 95th through 5th percentile of the data. The WQI provides a snapshot of the overall water quality conditions of each river basin in a given period of time as well as a tool for comparing each of Nebraska's unique river basins to one another.

Table 8.1- WQI Parameters and Applicable Criterion

Parameter	Stream category	Source	Dates applicable	Criterion
Atrazine		NDEQ Title 117		12 µg/L
E. coli		NDEQ Title 117		126 cells/100 ml
pH		NDEQ Title 117		6.5 – 9.0
Temperature	Coldwater	NDEQ Title 117		22°C
	Warmwater	NDEQ Title 117		32°C
Dissolved oxygen	Coldwater A	NDEQ Title 117	October 1 – May 31	4 mg/L
	Coldwater A	NDEQ Title 117	June 1 – September 30	8 mg/L
	Coldwater B	NDEQ Title 117	July 1 – March 31	4 mg/L
	Coldwater B	NDEQ Title 117	April 1 – June 30	5 mg/L
	Warmwater A	NDEQ Title 117	October 1 – May 31	3 mg/L
	Warmwater A	NDEQ Title 117	June 1 – September 30	5 mg/L
	Warmwater B	NDEQ Title 117	October 1 – May 31	3 mg/L
	Warmwater B	NDEQ Title 117	June 1 – September 30	5 mg/L
Total suspended solids		Professional judgment		150 mg/L
Total nitrogen		Moderate land-use model		1518 µg/L
Total phosphorus		Moderate land-use model		379 µg/L

Figure 8.1- Ambient Network WQI Results by River Basin



A similar assessment was conducted using the same ambient network dataset as the WQI to determine the overall nutrient conditions of each river basin as well as the trends over the period of record. Figures 8.2 and 8.4 show boxplots of the total nitrogen and total phosphorus concentrations in mg/L including EPA's aquatic life criteria recommendations based on Ecoregion 6 where Figures 8.3 and 8.5 illustrate the trend over time. The results of the trend analysis can be: increasing trend observed, decreasing trend observed, and no change detected (no increasing or decreasing trend observed). The Department considers a trend to be significant when the p-value is ≤ 0.05 (the probability of the observed trend being due to random chance is less than 5%). For clarity, the highest nutrient concentrations were not shown in Figures 8.2 and 8.4.

Figure 8.2 – Ambient Network Total Nitrogen Results by River Basin

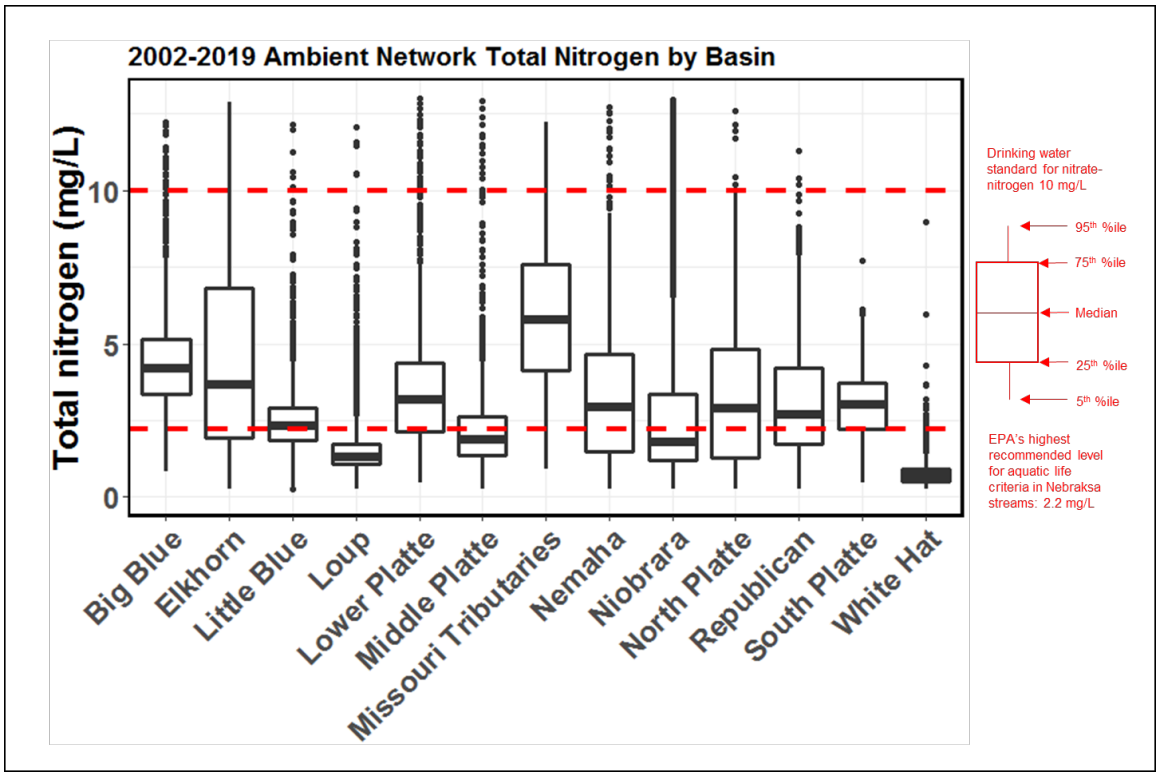


Figure 8.3 – Ambient Network (2002-2019) Total Nitrogen Trends by River Basin

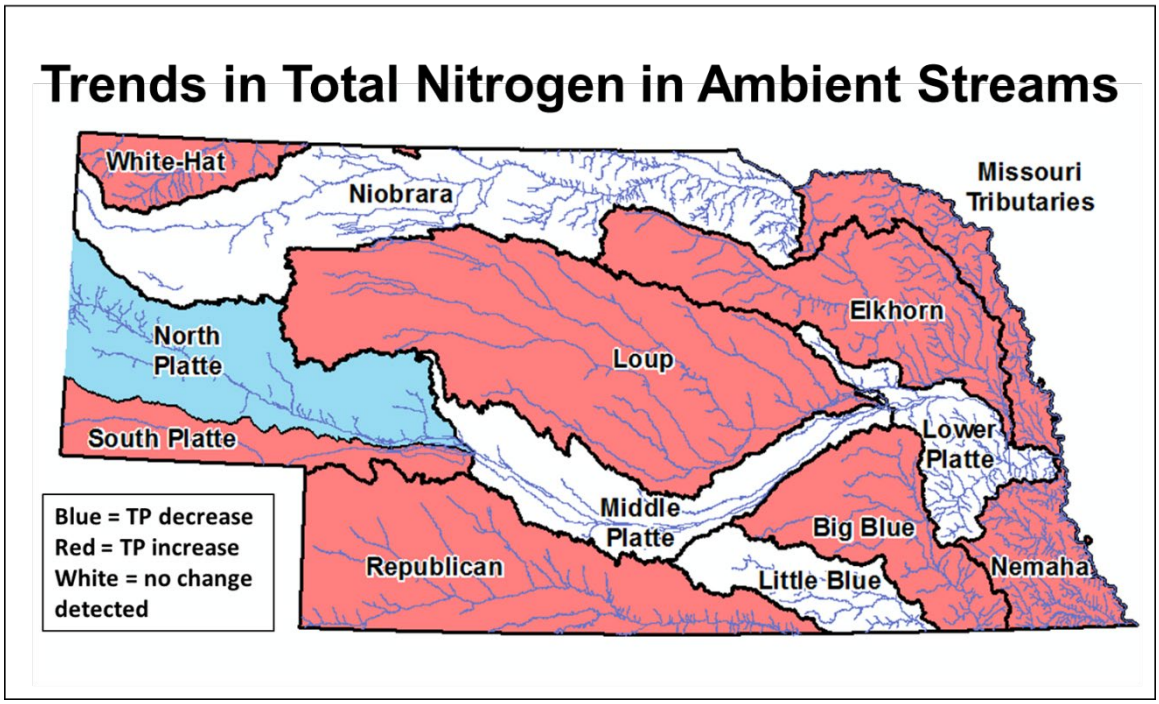


Figure 8.4 – Ambient Network Total Phosphorus Results by River Basin

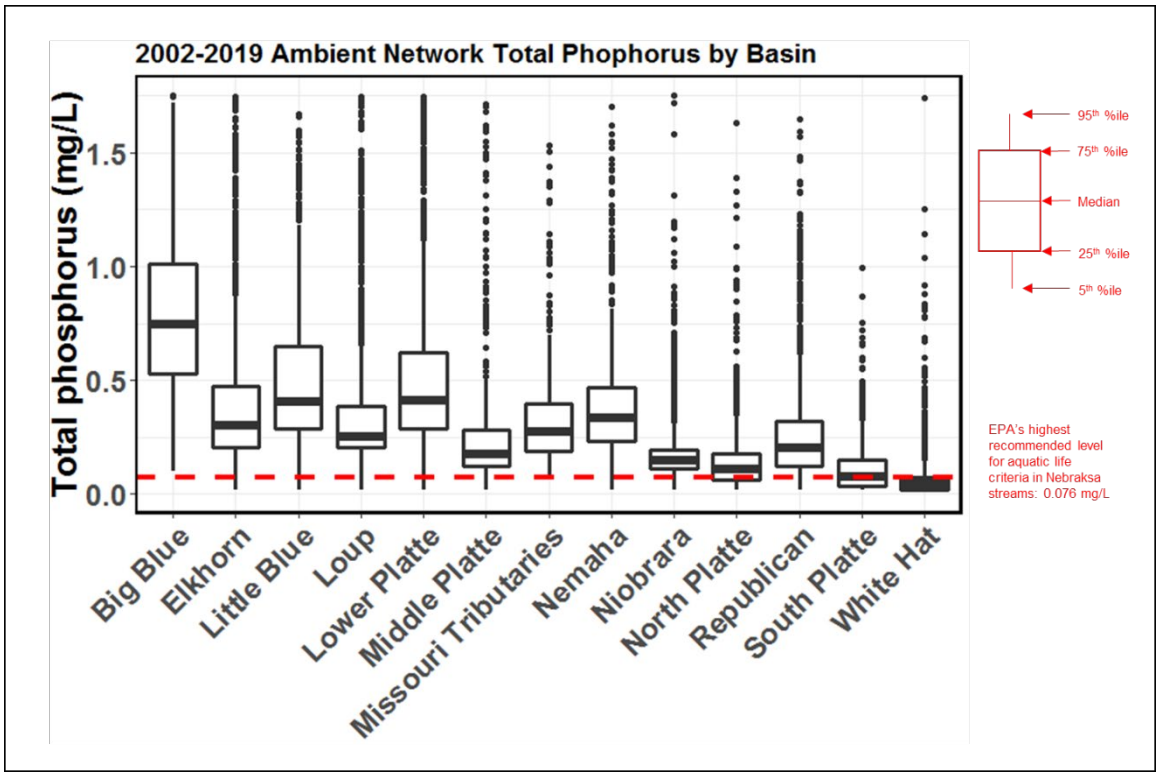
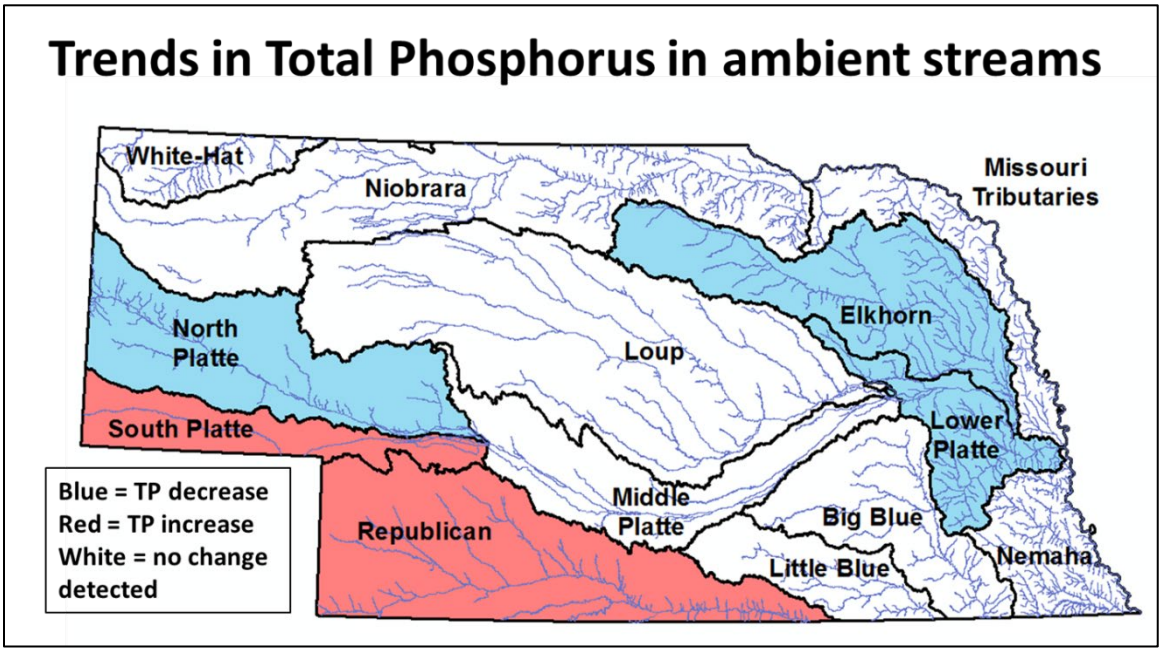


Figure 8.5 – Ambient Network (2002-2019) Total Phosphorus Trends by River Basin



8.2 Lakes and Reservoirs

Trend information was evaluated for six waterbodies based on the quality and quantity of the existing data set. Future IRs may include additional waterbodies as the data sets are updated. For the purpose of evaluating trends in lake water quality, five parameters where evaluated: Transparency, Atrazine, Chlorophyll a, Total Phosphorus, and Total Nitrogen. Trend analysis for these five parameters can be found in Table 8.2. Similar to streams, significant trends are those with a p-value of ≤0.05.

Table 8.2 Lake Water Quality Trend Information (2012-2019)

Waterbody ID	Waterbody Name	Transparency		Atrazine		Chlorophyll a		Total Phosphorus		Total Nitrogen	
		Status	p-value	Status	p-value	Status	p-value	Status	p-value	Status	p-value
LP2-L0020	Wagontrain	Decreasing	<0.001	Decreasing	0.036	Increasing	0.004	Increasing	<0.001	Increasing	<0.001
LP2-L0050	Stagecoach	Decreasing	<0.001	Decreasing	0.004	Decreasing	0.008	Increasing	0.003	Increasing	0.004
MT1-L0030	Wehrspann	Decreasing	<0.001	Decreasing	0.002	Increasing	<0.001	Decreasing	0.002	Decreasing	0.002
MT1-L0100	Standing Bear	Increasing	0.016	Decreasing	<0.001	Decreasing	0.027	Decreasing	0.018	Stable	0.735
NE2-L0040	Kirkman's Cove	Decreasing	0.031	Decreasing	0.015	Increasing	0.048	Decreasing	0.161	Increasing	<0.001

8.3 Assessment of Lake Trophic Status

Along with the reporting on the beneficial use status of lakes and reservoirs, Section 314 of the CWA requires that states submit information on the eutrophic condition of publicly owned lakes. While the Department has not monitored all classified public lakes, there is sufficient information to report on 45 waterbodies. The assessment and classification was conducted using Carlson's Trophic State Index (Carlson, 1977). Trophic classification descriptions are below and the results can be found in Table 8.3.

Classification	Nutrient Content	Biological Production	Water Clarity
Oligotrophic	Low	Low	>13 feet
Mesotrophic	Moderate	Moderate	8-13 feet
Eutrophic	High	High	3-8 feet
Hypereutrophic	Very High	Very High	<3 feet

Table 8.3 Eutrophic Conditions of Public Lakes (2012-2019) Using the Trophic State Index (TSI)

River Basin	Lakes Assessed	Oligotrophic (TSI < 40)	Mesotrophic (TSI 40-50)	Eutrophic (TSI 51-70)	Hypereutrophic (TSI > 70)
Big Blue River	4		1	1	2
Elkhorn River	2				2
Little Blue River	3				3
Loup River	3			2	1
Lower Platte River	19			3	16
Middle Platte River	1			1	
Missouri River Tributaries	6			4	2
Nemaha River	1				1
Niobrara River	2			1	1
North Platte River	1			1	
Republican River	2		1	1	
South Platte River	1			1	
Total	**45**	**0**	**2**	**15**	**28**

9.0 Cost/Benefit Assessment

A cost/benefit analysis of protecting and improving water quality is difficult to estimate. While the cost to the State can be measured using grants awarded, loans issued, and expenses incurred for various monitoring and assessment programs; the benefits received from those costs cannot be reduced to a single monetary value. Rather than attempt to assign specific monetary values to various levels of water quality, the overwhelming belief that the ecological and societal benefits of having high quality water outweigh the costs will be accepted. The following is information on some of the costs associated with water quality protection and improvement.

9.1 Clean Water State Revolving Loan Fund

The Clean Water State Revolving Loan Fund (CWSRF) provides low interest loans to municipalities for construction of wastewater treatment facilities and sanitary sewer collection systems. The sources of funding for this program include an initial state general fund appropriation, an annual capitalization grant from the United States Environmental Protection Agency (EPA) and an additional 20 percent grant match by the State through bond issuance. For the FY2019 Capitalization Grant, Nebraska received $8,109,000
from the EPA. Since 1989, the CWSRF has provided loans for 316 projects with a cumulative loan award amount of $606.8 million.

9.2 Facility Planning Grants

CWSRF administrative cash funds are used to provide financial assistance to eligible municipalities for facility planning reports for wastewater treatment system improvement projects that will seek funding through the Water Wastewater Advisory Committee (WWAC) Common Pre-application Process. This financial assistance is provided to communities to identify capital improvement needs as well as increase their readiness to proceed in accomplishing these improvements.

Facility planning grants may be provided to municipalities with populations of 10,000 or fewer people that are identified with a financial hardship, and listed on the current CWSRF Intended Use Plan (IUP). This includes any city, town, village, sanitary improvement district, natural resources district, or other public body created by or

pursuant to state law having jurisdiction over a wastewater treatment facility. Privately owned wastewater treatment systems are not eligible for assistance.

Grants are provided for up to 90% of the eligible facility plan project cost, but cannot exceed $20,000. $100,000 will be reserved for facility planning grants for the SFY2020.

9.3 Nonpoint Source Management

The Nonpoint Source Management program is an integrated statewide effort to protect and improve water quality impacted by nonpoint source pollution. The program provides grant funding through Section 319(h) of the federal Clean Water Act for implementation of nonpoint source pollution management projects. Funding is provided to units of government, educational institutions, and non-profit organizations. Section 319(h) funds in the amount of $77,073,514 have been utilized by NDEE since 1990 to implement nonpoint source management program activities and locally sponsored projects. A total of 254 large projects have been funded since 1990 with approximately 60% of projects addressing surface water, 25% addressing groundwater and 15% addressing both surface water and groundwater.

10.0 Groundwater Monitoring and Assessment

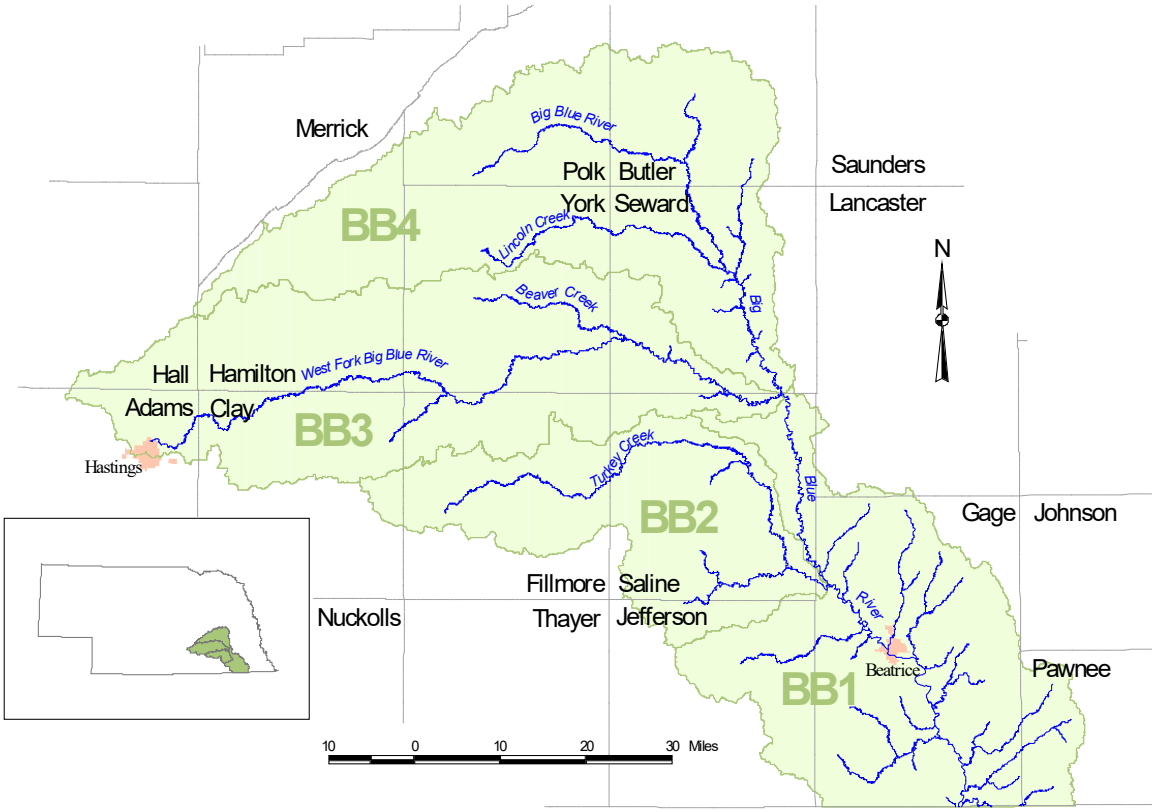
The 2001 Nebraska Legislature passed LB329 (Neb. Rev. Stat. §46-1304) which, in part, directed the Nebraska Department of Environmental Quality (now NDEE) to report on groundwater quality monitoring in Nebraska. Specifically:

"The Department of Environmental Quality shall prepare a report outlining the extent of ground water quality monitoring conducted by natural resources districts during the preceding calendar year. The department shall analyze the data collected for the purpose of determining whether or not ground water quality is degrading or improving and shall present the results to the Natural Resources Committee of the Legislature beginning December 1, 2001, and each year thereafter. The districts shall submit in a timely manner all ground water quality monitoring data collected to the department or its designee. The department shall use the data submitted by the districts in conjunction with all other readily available and compatible data for the purpose of the annual ground water quality trend analysis."

Rather than regenerate this information, a copy of the *2019 Nebraska Groundwater Quality Monitoring Report* has been included as Appendix A. It should be noted this report is updated annually therefore the most current version can be viewed on NDEE's website http://dee.ne.gov/

11.0 Public Participation

On June 28, 2019 NDEE issued a request for all existing and readily available surface water quality data to federal, state, and local agencies, members of the public and academic institutions. The draft version of this document will be available for public comments from November 20, 2020 to December 31, 2020 via the Department's website http://dee.ne.gov. NDEE's responses to public comments will be added to Appendix G following the public viewing period.



BIG BLUE RIVER BASIN (and Subbasins)

Big Blue Basin – Hydrologic Units 10270201, 10270202, 10270203, 10270204 and 10270205

The Big Blue River Basin includes 63 designated stream segments and 31 lakes/reservoirs. Beneficial uses assigned to designated water in the basin can be found in the below table.

Waterbody Type	Primary Contact Recreation	Aquatic Life CA[1]	Aquatic Life CB[1]	Aquatic Life WA[1]	Aquatic Life WB[1]	Water Supply – Public Drinking	Water Supply – Ag	Water Supply – Ind.	Aesthetics
Lakes	31	0	0	31	0	0	31	0	31
Streams	10	0	0	16	47	0	63	0	63

[1] CA = Coldwater Class A, CB = Coldwater Class B, WA = Warmwater Class A and WB = Warmwater Class B

Delisting/Changes from 2018 IR

The following are waters and or parameters that were delisted – removed from category 5 or other significant changes from the 2018 Integrated Report (IR).

BB1-L0030: Big Indian Lake (11A) – This waterbody was listed in category 4r in the 2018 IR. The Aquatic Life use was impaired for Total Nitrogen and Total Phosphorus. A 2018 Fish Consumption Assessment determined that the Aquatic Life use is now impaired for Mercury. This waterbody will be placed in category 5.

BB1-L0060: Rockford Lake – This waterbody was listed in category 5 in the 2018 IR. The Aquatic Life use was impaired due to a Fish Consumption Advisory for Mercury, Chlorophyll α, and pH caused by Total Nitrogen and

Total Phosphorus. A 2018 Fish Consumption Assessment determined that the Aquatic Life use is now supported for Mercury, and the Fish Consumption Advisory was removed. This waterbody will remain in category 5.

BB1-L0070: Leisure Lake – This waterbody was listed in category 2 in the 2018 IR. A 2018 Fish Consumption Assessment determined that the Aquatic Life use is now impaired for Mercury. This waterbody will be placed in category 5.

BB1-L0095: Wilber Reservoir No. 1 – This waterbody was added to Chapter 6 of Title 117 in June 2019 with the assigned beneficial uses of Recreation, Aquatic Life – Warmwater Class A, Agricultural Water Supply – Class A, and Aesthetics. The nutrient classification is Eastern. This lake is under the management of the City of Wilber. This waterbody will be placed in category 3.

BB1-L0100: Walnut Creek Lake – This waterbody was listed in category 5 in the 2018 IR. The Aquatic Life use was impaired due to a Fish Consumption Advisory for Hazard Index Compounds and Mercury, and due to pH caused by Total Nitrogen and Total Phosphorus. A 2018 Fish Consumption Assessment determined that the Aquatic Life use is now supported for Hazard Index Compounds. This waterbody will remain in category 5.

BB3-L0030: Waco Basin – This waterbody was removed from Chapter 6 of Title 117 in June 2019. This waterbody was restored as a wetland and no longer has lake or impounded water characteristics. As a wetland, it is covered by Chapter 7 of Title 117. This waterbody will be removed from this IR.

BB3-L0080: Recharge Lake – This waterbody was listed in category 5 in the 2018 IR. The Aquatic Life use was impaired due to a Fish Consumption Advisory for Mercury, and due to Chlorophyll α caused by Total Nitrogen and Total Phosphorus. A 2018 Fish Consumption Assessment determined that the Aquatic Life use is now supported for Mercury, and the Fish Consumption Advisory was removed. This waterbody will remain in category 5.

BB4-L0035: Oxbow Trail Reservoir – This waterbody was listed in category 5 in the 2018 IR. The Aquatic Life use was impaired due to Chlorophyll α and pH caused by Total Nitrogen and Total Phosphorus. A 2018 Fish Consumption Assessment determined that the Aquatic Life use is now impaired for Mercury. This waterbody will remain in category 5.

BB4-L0040: Pioneer Trails Lake – This waterbody was listed in category 3 in the 2018 IR. A 2018 Fish Consumption Assessment determined that the Aquatic Life use is now impaired for Mercury. This waterbody will be placed in category 5.

BB1-10000: Big Blue River – This waterbody was listed in category 5 in the 2018 IR. The Recreation use was impaired for *E. coli* bacteria, and the Aquatic Life use was impaired due to a Fish Consumption Advisory for Cancer Risk Compounds and Hazard Index Compounds, and due to May-June Atrazine. A 2018 Fish Consumption Assessment determined that the Aquatic Life use is now supported for Cancer Risk Compounds and Hazard Index Compounds, and the Fish Consumption Advisory was removed. Data submitted by the Kansas Department of Health and Environment (KDHE) determined that the Aquatic Life use is impaired for Aluminum and Lead. This waterbody will remain in category 5.

BB1-10600: Wildcat Creek – This waterbody was listed in category 3 in the 2018 IR. 2018 Basin Rotation data determined that the Aquatic Life and Agricultural Water Supply uses are supported. This waterbody will be placed in category 2.

BB1-10820: Sicily Creek – This waterbody was listed in category 3 in the 2018 IR. 2018 Basin Rotation data determined that the Aquatic Life and Agricultural Water Supply uses are supported. This waterbody will be placed in category 2.

BB1-10900: Big Indian Creek – This waterbody was listed in category 4a in the 2018 IR. The Aquatic Life use was impaired for May-June Atrazine. 2018 Basin Rotation data determined that the Recreation use is now impaired for *E. coli* bacteria. This waterbody will be placed in category 5.

BB1-11100: Mud Creek – This waterbody was listed in category 3 in the 2018 IR. 2018 Basin Rotation data determined that the Aquatic Life and Agricultural Water Supply uses are supported. This waterbody will be placed in category 2.

BB1-11300: Cedar Creek – This waterbody was listed in category 3 in the 2018 IR. 2018 Basin Rotation data determined that the Aquatic Life and Agricultural Water Supply uses are supported. This waterbody will be placed in category 2.

BB1-11900: Cub Creek – This waterbody was listed in category 1 in the 2018 IR. 2018 Basin Rotation data determined that the Aquatic Life use is now impaired for May-June Atrazine. This waterbody will be placed in category 5.

BB1-12000: Soap Creek – This waterbody was listed in category 2 in the 2018 IR. Data gathered in 2018 determined that the Aquatic Life use is impaired for Aquatic Community due to an unknown pollutant. 2018 Basin Rotation data determined that the Aquatic Life use is impaired for May-June Atrazine. This waterbody will be placed in category 5.

BB1-20000: Big Blue River – This waterbody was listed in category 4a in the 2018 IR. The Recreation use was impaired for *E. coli* bacteria and the Aquatic Life use was impaired for Atrazine. Data gathered in 2017-18 determined that the Aquatic Life use is now supported for Atrazine. This waterbody will remain in category 4a.

BB1-20100: Clatonia Creek – This waterbody was listed in category 3 in the 2018 IR. 2018 Basin Rotation data determined that the Aquatic Life and Agricultural Water Supply uses are supported. This waterbody will be placed in category 2.

BB2-10000: Turkey Creek – This waterbody was listed in category 5 in the 2018 IR. The Recreation use was impaired for *E. coli* bacteria and the Aquatic Life use was impaired for May-June Atrazine. Data gathered in 2018 determined that the Aquatic Life use is impaired for Aquatic Community due to an unknown pollutant. This waterbody will remain in category 5.

BB2-10100: Swan Creek – This waterbody was listed in category 2 in the 2018 IR. Data gathered in 2018 determined that the Aquatic Life use is impaired for Aquatic Community due to an unknown pollutant. 2018 Basin Rotation data determined that the Agricultural Water Supply use is supported. This waterbody will be placed in category 5.

BB2-20100: Spring Creek – This waterbody was listed in category 3 in the 2018 IR. 2018 Basin Rotation data determined that the Aquatic Life use is impaired for Atrazine and the Agricultural Water Supply use is supported. This waterbody will be placed in category 5.

BB3-10000: West Fork Big Blue River – This waterbody was listed in category 5 in the 2018 IR. The Recreation use was impaired for *E. coli* bacteria and the Aquatic Life use was impaired for May-June Atrazine and for Aquatic Community due to an unknown pollutant. Data gathered in 2018 determined that the Aquatic Life use is now supported for May-June Atrazine. This waterbody will remain in category 5.

BB4-20700: Plum Creek – This waterbody was listed in category 2 in the 2018 IR. Data gathered in 2018 determined that the Aquatic Life use is impaired for Aquatic Community due to an unknown pollutant, and the Agricultural Water Supply use is supported. This waterbody will be placed in category 5.

BB4-20800: Lincoln Creek – This waterbody was listed in category 1 in the 2018 IR. Data gathered in 2018 determined that the Aquatic Life use is impaired for Aquatic Community due to an unknown pollutant. 2018 Basin Rotation data determined that the Aquatic Life use is impaired for May-June Atrazine. This waterbody will be placed in category 5.

BB4-40000: Big Blue River – This waterbody was listed in category 5 in the 2018 IR. The Aquatic Life use was impaired for May-June Atrazine. Data gathered in 2017-18 determined that the Aquatic Life use is now impaired for Dissolved Oxygen due to an unknown pollutant. This waterbody will remain in category 5.

Waterbody ID	Waterbody Name	Recreation	Aquatic Life	Water Supply			Aesthetics	Overall	2020 IR	Impairments (Causes)	Comments/Actions
				Public Drinking	Agricultural	Industrial					
Lakes											
BB1-L0010	Donald Whitney Memorial Lake	I	I		S		S	I	5	Recreation (*E. coli*), Aquatic Life - Dissolved Oxygen (Total Nitrogen, Total Phosphorus)	
BB1-L0020	Diamond Lake South	I	I		S		S	I	5	Recreation (*E. coli*), Aquatic Life - Dissolved Oxygen (Total Nitrogen, Total Phosphorus)	
BB1-L0030	Big Indian Lake (11A)	S	I		S		S	I	5	Aquatic Life - Fish Consumption Advisory (Mercury), (Total Nitrogen, Total Phosphorus)	Lake Renovated 2011, Nutrient and Sediment TMDL approved 09/09, Fish Consumption Assessment completed
BB1-L0040	Arrowhead Lake	S	I		S		S	I	5	Aquatic Life - Chlorophyll α, Dissolved Oxygen (Total Nitrogen, Total Phosphorus)	
BB1-L0050	Wolf Wildcat Lake	NA	I		NA		NA	I	5	Aquatic Life - Fish Consumption Advisory (Mercury)	Fish Consumption Assessment completed
BB1-L0060	Rockford Lake	S	I		S		S	I	5	Aquatic Life - Chlorophyll α, pH (Total Nitrogen, Total Phosphorus)	Fish Consumption Assessment completed
BB1-L0065	Bear Creek Lake	NA	S		S		S	S	2		Fish Consumption Assessment completed
BB1-L0070	Leisure Lake	NA	S		NA		S	S	5	Aquatic Life - Fish Consumption Advisory (Mercury)	Fish Consumption Assessment completed
BB1-L0080	Cub Creek Lake	I	I		S		S	I	5	Recreation (*E. coli*), Aquatic Life (Total Nitrogen, Total Phosphorus)	
BB1-L0090	Clatonia Lake (3A)	NA	S		S		S	S	2		
BB1-L0095	Wilber Reservoir No. 1	NA	NA		NA		NA	NA	3		Added to Title 117 6/19

Waterbody ID	Waterbody Name	Recreation	Aquatic Life	Water Supply			Aesthetics	Overall	2020 IR	Impairments (Causes)	Comments/Actions
				Public Drinking	Agricultural	Industrial					
BB1-L0100	Walnut Creek Lake (2A)	S	I		S		S	I	5	Aquatic Life - Fish Consumption Advisory (Mercury), pH (Total Nitrogen, Total Phosphorus)	Fish Consumption Assessment completed
BB2-L0005	Swanton Lake	S	I		S		S	I	5	Aquatic Life - Fish Consumption Advisory (Mercury), pH (Total Nitrogen, Total Phosphorus)	Fish Consumption Assessment completed
BB2-L0010	Swan Creek Lake (2A)	NA	I		S		S	I	5	Aquatic Life - Dissolved Oxygen (Unknown)	TN and TP are Not Assessed, Fish Consumption Assessment completed
BB2-L0020	Swan Creek Lake (5A)	S	I		S		S	I	5	Aquatic Life - Fish Consumption Advisory (Mercury), Chlorophyll α, pH (Total Nitrogen, Total Phosphorus)	Fish Consumption Assessment completed
BB2-L0030	Friend City Park Lake	NA	NA		NA		S	S	2		
BB2-L0040	Geneva City Lake	NA	NA		NA		NA	NA	3		
BB3-L0010	Smith Creek Lake	NA	S		S		S	S	2		
BB3-L0035	Overland Trail Reservoir	NA	NA		NA		NA	NA	3		
BB3-L0040	Henderson Pond	S	I		S		S	I	5	Aquatic Life - Chlorophyll α (Total Nitrogen, Total Phosphorus)	Fish Consumption Assessment completed
BB3-L0045	Clark's Pond (Sutton)	NA	NA		NA		S	S	2		Fish Consumption Assessment completed
BB3-L0050	Lake Hastings	NA	I		S		I	I	5	Aquatic Life - Fish Consumption Advisory (Hazard Index Compounds*, Cancer Risk Compounds*), Chlorophyll α (Total Nitrogen, Total Phosphorus), Aesthetics (Sediment)	Fish Consumption Assessment completed

Waterbody ID	Waterbody Name	Recreation	Aquatic Life	Water Supply			Aesthetics	Overall	2020 IR	Impairments (Causes)	Comments/Actions
				Public Drinking	Agricultural	Industrial					
BB3-L0060	Hastings Northwest Dam Lake	S	I		S		S	I	5	Aquatic Life - Chlorophyll α, pH (Total Nitrogen, Total Phosphorus)	
BB3-L0070	Heartwell Lake	NA	NA		NA		I	I	5	Aesthetics-Algae Blooms (Unknown)	TN and TP are Not Assessed
BB3-L0080	Recharge Lake	NA	I		S		S	I	5	Aquatic Life -Chlorophyll α (Total Nitrogen, Total Phosphorus)	Fish Consumption Assessment completed
BB4-L0010	David City Park Lake	S	I		S		S	I	5	Aquatic Life - Chlorophyll α (Total Nitrogen, Total Phosphorus)	Fish Consumption Assessment completed
BB4-L0020	Seward City Park Pond (Independence Landing Pond)	S	S		S		S	S	1		Fish Consumption Assessment completed
BB4-L0030	Surprise City Lake	NA	NA		NA		NA	NA	3		
BB4-L0035	Oxbow Trail Reservoir	S	I		S		S	I	5	Aquatic Life - Fish Consumption Advisory (Mercury), Chlorophyll α, pH (Total Nitrogen, Total Phosphorus)	Fish Consumption Assessment completed
BB4-L0040	Pioneer Trails Lake	NA	I		NA		NA	NA	5	Aquatic Life - Fish Consumption Advisory (Mercury)	Fish Consumption Assessment completed
BB4-L0045	Aurora Leadership Center Lake	S	S		S		S	S	1		
Streams											
BB1-10000	Big Blue River	I	I		S		S	I	5	Recreation (*E. coli*), Aquatic Life (May-June Atrazine)	Atrazine & E. coli TMDLs approved 12/13, Fish Consumption Assessment completed
BB1-10100	Mission Creek	I	I		S		S	I	4a	Recreation (*E. coli*), Aquatic Life (May-June Atrazine)	Atrazine & E. coli TMDLs approved 12/13
BB1-10200	Mission Creek		NA		NA		NA	NA	3		

Waterbody ID	Waterbody Name	Recreation	Aquatic Life	Water Supply			Aesthetics	Overall	2020 IR	Impairments (Causes)	Comments/Actions
				Public Drinking	Agricultural	Industrial					
BB1-10300	Spring Creek		S		NA		S	S	2		
BB1-10400	Plum Creek		S		S		S	S	1		
BB1-10410	Arkeketa Creek		NA		NA		NA	NA	3		Aquatic Community Assessment completed
BB1-10500	Plum Creek		NA		NA		NA	NA	3		
BB1-10510	Tipps Creek		NA		NA		NA	NA	3		
BB1-10600	Wildcat Creek		S		S		NA	S	2		
BB1-10610	Wolf Creek		S		NA		S	S	2		
BB1-10700	Wildcat Creek		NA		NA		NA	NA	3		
BB1-10800	Big Indian Creek	I	I		S		S	I	4a	Recreation (*E. coli*), Aquatic Life (May-June Atrazine)	Atrazine & E. coli TMDLs approved 12/13, Fish Consumption Assessment completed, Aquatic Community Assessment completed
BB1-10810	Squaw Creek		NA		NA		NA	NA	3		
BB1-10820	Sicily Creek		S		S		NA	S	2		
BB1-10900	Big Indian Creek	I	I		NA		NA	I	5	Recreation (E. coli), Aquatic Life (May-June Atrazine)	Atrazine TMDL approved 12/13

Waterbody ID	Waterbody Name	Recreation	Aquatic Life	Water Supply			Aesthetics	Overall	2020 IR	Impairments (Causes)	Comments/Actions
				Public Drinking	Agricultural	Industrial					
BB1-11000	Bills Creek		NA		NA		NA	NA	3		
BB1-11100	Mud Creek		S		S		NA	S	2		Aquatic Community Assessment completed
BB1-11110	Bloody Run		S		S		S	S	1		
BB1-11200	Mud Creek		NA		NA		NA	NA	3		
BB1-11300	Cedar Creek		S		S		NA	S	2		
BB1-11400	Bear Creek		S		S		S	S	1		
BB1-11410	Pierce Creek		S		NA		S	S	2		
BB1-11500	Bear Creek		S		NA		S	S	2		
BB1-11600	Indian Creek		S		S		S	S	1		
BB1-11610	Town Creek		NA		NA		NA	NA	3		
BB1-11700	Indian Creek		S		NA		S	S	2		
BB1-11800	Bottle Creek		NA		NA		NA	NA	3		
BB1-11900	Cub Creek		I		S		S	I	5	Aquatic Life (May-June Atrazine)	

Waterbody ID	Waterbody Name	Recreation	Aquatic Life	Water Supply			Aesthetics	Overall	2020 IR	Impairments (Causes)	Comments/Actions
				Public Drinking	Agricultural	Industrial					
BB1-12000	Soap Creek		I		NA		S	S	5	Aquatic Life - Impaired Aquatic Community (Unknown), (May-June Atrazine)	Aquatic Community Assessment completed
BB1-20000	Big Blue River	I	S		S		S	I	4a	Recreation (*E. coli*)	Atrazine and E. coli TMDL approved 12/13
BB1-20100	Clatonia Creek		S		S		NA	S	2		
BB1-SXXX1	Undesignated Tributary to the Big Blue River		S				NA	S	2		Syngenta's 2008-2016 Atrazine data
BB2-10000	Turkey Creek	I	I		S		S	I	5	Recreation (*E. coli*), Aquatic Life - Impaired Aquatic Community (Unknown), (May-June Atrazine)	Atrazine and E. coli TMDL approved 12/13, Aquatic Community Assessment completed
BB2-10100	Swan Creek		I		S		S	S	5	Aquatic Life - Impaired Aquatic Community (Unknown)	Aquatic Community Assessment completed
BB2-10110	South Fork Swan Creek		S		NA		S	S	2		
BB2-10120	North Fork Swan Creek		NA		NA		NA	NA	3		
BB2-20000	Turkey Creek	I	I		S		S	I	4a	Recreation (*E. coli*), Aquatic Life (May-June Atrazine)	Atrazine and E. coli TMDL approved 12/13
BB2-20100	Spring Creek		I		S		NA	I	5	Aquatic Life (May-June Atrazine)	
BB2-30000	Turkey Creek		S		NA		S	S	2		
BB2-40000	Turkey Creek		S		NA		S	S	2		

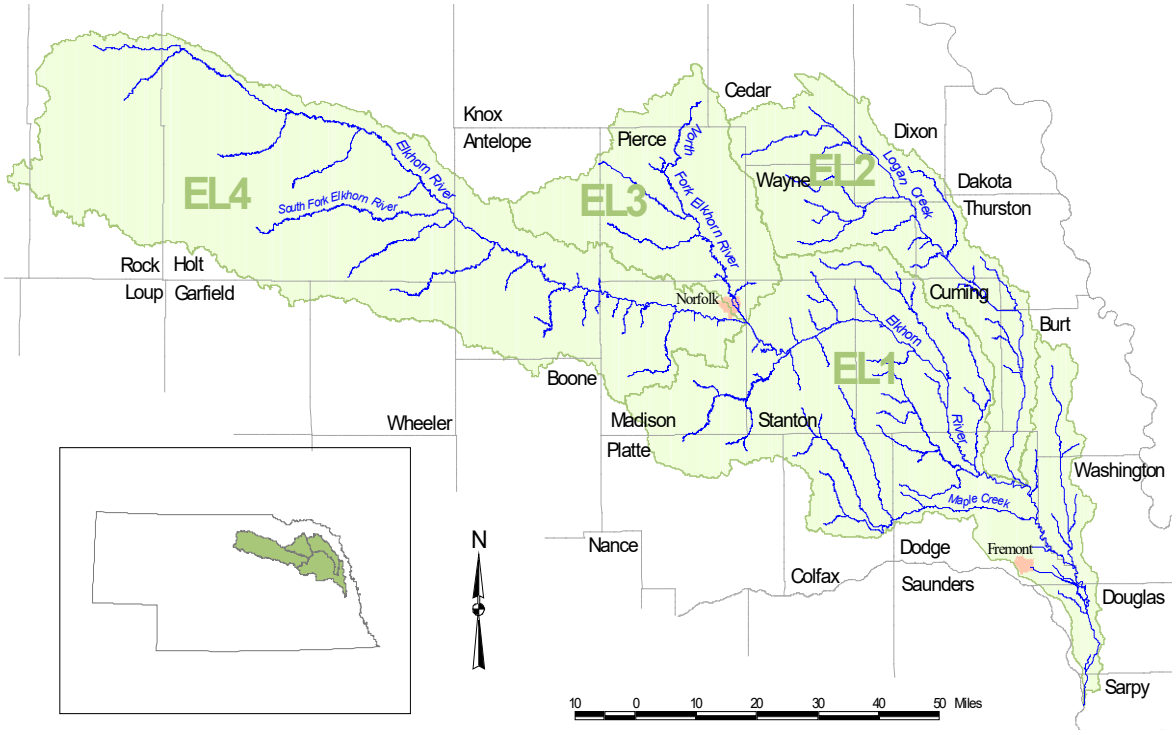
Waterbody ID	Waterbody Name	Recreation	Aquatic Life	Water Supply			Aesthetics	Overall	2020 IR	Impairments (Causes)	Comments/Actions
				Public Drinking	Agricultural	Industrial					
BB3-10000	West Fork Big Blue River	I	I		S		S	I	5	Recreation (*E. coli*), Aquatic Life - Impaired Aquatic Community (Unknown)	Atrazine and E. coli TMDL approved 12/13, Aquatic Community Assessment completed, Fish Consumption Assessment completed
BB3-10100	Johnson Creek		NA		NA		NA	NA	3		
BB3-10200	Walnut Creek		I		NA		NA	I	5	Aquatic Life - Impaired Aquatic Community (Unknown)	
BB3-10300	Beaver Creek		I		NA		S	I	4a	Aquatic Life (May-June Atrazine)	Atrazine TMDL approved 12/13
BB3-10400	Beaver Creek		I		NA		NA	I	5	Aquatic Life - Impaired Aquatic Community (Unknown)	
BB3-20000	West Fork Big Blue River	I	I		S		S	I	5	Recreation (*E. coli*), Aquatic Life - Impaired Aquatic Community (Unknown), (May-June Atrazine)	Atrazine and E. coli TMDL approved 12/13
BB3-20100	School Creek		I		S		S	I	5	Aquatic Life (May-June Atrazine)	
BB3-30000	West Fork Big Blue River		S		NA		S	S	2		
BB4-10000	Big Blue River	I	I		S		S	I	4a	Recreation (*E. coli*), Aquatic Life (May-June Atrazine)	Atrazine and E. coli TMDL approved 12/13
BB4-20000	Big Blue River	I	S		S		S	I	4a	Recreation (*E. coli*)	E. coli TMDL approved 12/13
BB4-20100	Coon Creek		NA		NA		NA	NA	3		
BB4-20200	Wolf Creek		NA		NA		NA	NA	3		

Waterbody ID	Waterbody Name	Recreation	Aquatic Life	Water Supply			Aesthetics	Overall	2020 IR	Impairments (Causes)	Comments/Actions
				Public Drinking	Agricultural	Industrial					
BB4-20300	Crooked Creek		NA		NA		NA	NA	3		
BB4-20400	Clark Creek		NA		NA		NA	NA	3		
BB4-20500	Unnamed Creek		S		NA		S	S	2		
BB4-20600	Plum Creek		S		NA		S	S	2		
BB4-20610	Big Weedy Creek		NA		NA		NA	NA	3		
BB4-20700	Plum Creek		I		S		S	S	5	Aquatic Life - Impaired Aquatic Community (Unknown)	Aquatic Community Assessment completed
BB4-20800	Lincoln Creek		I		S		S	S	5	Aquatic Life - Impaired Aquatic Community (Unknown), (May-June Atrazine)	Atrazine TMDL approved 12/13, Aquatic Community Assessment completed, Fish Consumption Assessment completed
BB4-20900	Lincoln Creek		I		NA		NA	I	5	Aquatic Life - Impaired Aquatic Community (Unknown)	
BB4-30000	Big Blue River		S		S		S	S	1		
BB4-30100	North Fork Big Blue River		NA		NA		NA	NA	3		
BB4-30200	North Fork Big Blue River		NA		NA		NA	NA	3		
BB4-40000	Big Blue River		I		S		S	I	5	Aquatic Life - (May-June Atrazine), Dissolved Oxygen (Unknown)	Atrazine TMDL approved 12/13
Wetlands											

Waterbody ID	Waterbody Name	Recreation	Aquatic Life	Water Supply			Aesthetics	Overall	2020 IR	Impairments (Causes)	Comments/Actions
				Public Drinking	Agricultural	Industrial					
BB3-WXXX1	County Line WPA		NA		NA		NA	NA	3		
BB3-WXXX2	Harvard WPA		NA		NA		NA	NA	3		
BB3-WXXX3	Real WPA		NA		NA		NA	NA	3		
BB3-WXXX4	Sininger WPA		NA		NA		NA	NA	3		
BB3-WXXX5	Wilkins WPA		NA		NA		NA	NA	3		

****Cancer risk compounds*** -Aroclor-1248 (PCB-1248), Aroclor-1254 (PCB-1254), Aroclor-1260 (PCB-1260), cis-chlordane, Chlordane, trans-chlordane, DDD, DDE, DDT, Dieldrin, Heptachlor, Heptachlor Epoxide, Hexachlorobenzene, cis-nonachlor, trans-nonachlor, Oxychlordane, Pentachloroanisole, Trifluralin
***Hazard index compounds-** Aroclor-1254 (PCB-1254), Lindane (g-BHC), cis-chlordane, Chlordane, trans-chlordane, DDT, Dieldrin, Heptachlor, Heptachlor Epoxide, Hexachlorobenzene, cis-nonachlor, trans-nonachlor, Oxychlordane, Pentachloroanisole, Trifluralin, Mercury, Cadmium, Selenium

[1] XXX# designates in Title 117 an undesignated waterbody. See Title 117 Chapter 2.



ELKHORN RIVER BASIN (and Subbasins)

Elkhorn Basin – Hydrologic Units 10220001, 10220002, 10220003 and 10220004

The Elkhorn River Basin includes 135 designated stream segments and 35 lakes/reservoirs. Beneficial uses assigned to designated water in the basin can be found in the below table.

Waterbody Type	Primary Contact Recreation	Aquatic Life CA[1]	Aquatic Life CB[1]	Aquatic Life WA[1]	Aquatic Life WB[1]	Water Supply – Public Drinking	Water Supply – Ag	Water Supply-Ind.	Aesthetics
Lakes	35	0	0	35	0	0	35	0	35
Streams	23	0	1	38	96	0	135	0	135

[1] CA = Coldwater Class A, CB = Coldwater Class B, WA = Warmwater Class A and WB = Warmwater Class B

Delisting/ Changes from 2018 IR

The following are waters and or parameters that were delisted – removed from category 5 or other significant changes from the 2018 Integrated Report (IR).

EL1-10900: Maple Creek -- This waterbody was listed in category 5 in the 2018 IR. The Recreation use was impaired for *E. coli* bacteria, and the Aquatic Life use was impaired for Selenium and for Aquatic Community due to an unknown pollutant. Data gathered in 2017-18 determined that the Aquatic Life use is now supporting for Selenium. The Recreation use remains impaired. This waterbody will remain in category 5.

EL1-20100: Pebble Creek – This waterbody was listed in category 4a/c in the 2018 IR. The Recreation use was impaired for *E. coli* bacteria, and the Aquatic Life use was impaired for Selenium. Fish tissue data from 2018

determined that the Aquatic Life use is now supporting for Selenium. The Recreation use remains impaired. This waterbody will remain in category 4a/c.

EL2-10000: Logan Creek – This waterbody was listed in category 5 in the 2018 IR. The Recreation use was impaired for *E. coli* bacteria, and the Aquatic Life use was impaired for Selenium. Data gathered in 2017-18 determined that the Agricultural Water Supply use is impaired for Selenium. The Recreation and Aquatic Life uses remain impaired. This waterbody will remain in category 5.

Waterbody ID	Waterbody Name	Recreation	Aquatic Life	Water Supply			Aesthetics	Overall	2020 IR	Impairments (Causes)	Comments/Actions
				Public Drinking	Agricultural	Industrial					
Lakes											
EL1-L0010	Highway 275 Bypass Lake No. 1	NA	NA		NA		NA	NA	3		
EL1-L0020	Highway 275 Bypass Lake No. 2	NA	NA		NA		NA	NA	3		
EL1-L0030	Highway 275 Bypass Lake No. 4 (Johnson Park Lake)	NA	S		NA		NA	S	2		
EL1-L0040	Highway 275 Bypass Lake No. 3	NA	NA		NA		NA	NA	3		
EL1-L0050	Hooper City Lake	NA	NA		NA		NA	NA	3		
EL1-L0060	West Point City Lake (Neligh Park Lake)	NA	I		S		S	I	5	Aquatic Life - Fish Consumption Advisory (Mercury), Chlorophyll α (Total Nitrogen, Total Phosphorus)	Lake renovated 2004
EL1-L0070	Pilger Reservoir	NA	S		S		S	S	2		
EL1-L0075	Red Fox Lake (WMA)	NA	S		NA		NA	S	2		
EL1-L0080	Maskenthine Reservoir	S	I		S		S	I	5	Aquatic Life - Fish Consumption Advisory (Mercury), Chlorophyll α, pH (Total Nitrogen, Total Phosphorus)	Fish Consumption Assessment completed
EL1-L0090	Leigh Tri-County Lake	NA	NA		NA		NA	NA	3		
EL1-L0095	Maple Creek Recreation Area Lake	S	I		NA		NA	I	5	Aquatic Life - Fish Consumption Advisory (Mercury)	New Lake built in 2011
EL1-L0100	Wood Duck Lake (WMA)	NA	NA		NA		NA	NA	3		

Waterbody ID	Waterbody Name	Recreation	Aquatic Life	Water Supply			Aesthetics	Overall	2020 IR	Impairments (Causes)	Comments/Actions
				Public Drinking	Agricultural	Industrial					
EL1-L0110	Loes Lake (Wood Duck WMA)	NA	NA		NA		NA	NA	3		
EL1-L0120	Pillar Lake (Wood Duck WMA)	NA	NA		NA		NA	NA	3		
EL1-L0130	Wood Duck Pond (Wood Duck WMA)	NA	NA		NA		NA	NA	3		
EL1-L0140	Dead Timber Lake	NA	S		S		S	S	2		
EL2-L0010	Lyons City Park Lake	S	NA		NA		NA	S	2		
EL2-L0020	Wayne Izaak Walton Lake	NA	NA		NA		NA	NA	3		
EL3-L0010	Willow Creek Reservoir	I	I		S		S	I	5	Recreation - Algae Toxins (Microcystin), Aquatic Life - Chlorophyll α, pH (Total Nitrogen, Total Phosphorus)	Fish Consumption Assessment completed
EL3-L0020	Pierce City Lake	NA	NA		NA		NA	NA	3		
EL4-L0005	Andy's Lake	NA	NA		NA		NA	NA	3		
EL4-L0010	Ta-Ha-Zouka Park Lagoon	NA	S		NA		NA	S	2		
EL4-L0020	Skyview Lake	S	I		S		S	I	5	Aquatic Life - Chlorophyll α (Unknown)	
EL4-L0025	Horseshoe Bend (Tilden City Lake)	I	S		S		S	I	5	Recreation (*E. coli*)	Lake renovated 2003
EL4-L0030	Antelope County Country Club Lake	NA	NA		NA		NA	NA	3		

Waterbody ID	Waterbody Name	Recreation	Aquatic Life	Water Supply			Aesthetics	Overall	2020 IR	Impairments (Causes)	Comments/Actions
				Public Drinking	Agricultural	Industrial					
EL4-L0040	Penn Park Lake (Neligh)	NA	S		NA		NA	S	2		
EL4-L0050	Goose Lake	NA	I		NA		NA	I	5	Aquatic Life - Fish Consumption Advisory (Mercury)	Fish Consumption Assessment completed
EL4-L0060	O'Neill City Lake	NA	S		NA		NA	S	2		
EL4-L0070	Atkinson Lake (SRA)	NA	I		NA		NA	I	5	Aquatic Life - Fish Consumption Advisory (Mercury)	
EL4-L0080	Swan Lake	NA	S		NA		NA	S	2		Fish Consumption Assessment completed
EL4-L0090	Overton Lake	NA	S		NA		NA	S	2		
EL4-L0100	Fish Lake	NA	S		NA		NA	S	2		
EL4-L0110	Peterson Lake	NA	NA		NA		NA	NA	3		
EL4-L0120	Twin Lake R.C. - North Lake (WMA)	NA	NA		NA		NA	NA	3		
EL4-L0130	Twin Lake R.C. - South Lake (WMA)	NA	NA		NA		NA	NA	3		
Streams											
EL1-10000	Elkhorn River	I	S		S		S	I	4a	Recreation *(E. coli*)	Se 4C justification approved 3/09†, E. coli TMDL approved 9/09
EL1-10100	Unnamed Creek		NA		NA		NA	NA	3		

Waterbody ID	Waterbody Name	Recreation	Aquatic Life	Water Supply			Aesthetics	Overall	2020 IR	Impairments (Causes)	Comments/Actions
				Public Drinking	Agricultural	Industrial					
EL1-10200	Big Slough		S		NA		S	S	2		
EL1-10300	Rawhide Creek		S		NA		S	S	2		
EL1-10400	Rawhide Creek		S		NA		S	S	2		
EL1-10500	Rawhide Creek		NA		NA		NA	NA	3		
EL1-10600	Bell Creek		S		S		S	S	1		
EL1-10610	Brown Creek		NA		NA		NA	NA	3		
EL1-10620	Little Bell Creek		NA		NA		NA	NA	3		
EL1-10630	Unnamed Creek		NA		NA		NA	NA	3		
EL1-10700	Bell Creek		I		NA		NA	I	5	Aquatic Life - Impaired Aquatic Community (Unknown)	
EL1-10800	Unnamed Creek		NA		NA		NA	NA	3		
EL1-10900	Maple Creek	I	I		S		S	I	5	Recreation (*E. coli*), Aquatic Life - Impaired Aquatic Community (Unknown)	Se 4C justification approved 3/09†, E. Coli TMDL approved 9/09
EL1-10910	Crystal Creek		NA		NA		NA	NA	3		
EL1-10920	East Fork Maple Creek		S		S		S	S	1		

Waterbody ID	Waterbody Name	Recreation	Aquatic Life	Water Supply			Aesthetics	Overall	2020 IR	Impairments (Causes)	Comments/Actions
				Public Drinking	Agricultural	Industrial					
EL1-10930	West Fork Maple Creek		S		S		NA	S	2		
EL1-10931	Dry Creek		NA		NA		NA	NA	3		
EL1-10931.1	South Fork Dry Creek		NA		NA		NA	NA	3		
EL1-10932	Dry Creek		I		NA		NA	I	5	Aquatic Life - Impaired Aquatic Community (Unknown)	
EL1-10933	Unnamed Creek		NA		NA		NA	NA	3		
EL1-10934	Unnamed Creek		NA		NA		NA	NA	3		
EL1-10940	West Fork Maple Creek		I		NA		NA	I	5	Aquatic Life - Impaired Aquatic Community (Unknown)	
EL1-11000	Clark Creek		NA		NA		NA	NA	3		
EL1-20000	Elkhorn River	I	S		S		S	I	4a	Recreation *(E. coli*)	Se 4C justification approved 3/09†, E. coli TMDL approved 9/09
EL1-20100	Pebble Creek	I	S		S		S	I	4a/c	Recreation (*E. coli*)	Se 4C justification approved 3/09†, E. Coli TMDL approved 9/09, Fish Consumption Assessment completed
EL1-20110	Silver Creek		NA		NA		NA	NA	3		
EL1-20120	Unnamed Creek		NA		NA		NA	NA	3		
EL1-20121	Unnamed Creek		I		NA		S	I	5	Aquatic Life - Impaired Aquatic Community (Unknown)	

Waterbody ID	Waterbody Name	Recreation	Aquatic Life	Water Supply			Aesthetics	Overall	2020 IR	Impairments (Causes)	Comments/Actions
				Public Drinking	Agricultural	Industrial					
EL1-20130	Unnamed Creek		S		NA		NA	S	2		
EL1-20200	Pebble Creek		NA		NA		NA	NA	3		
EL1-20210	South Branch Pebble Creek		NA		NA		NA	NA	3		
EL1-20220	North Branch Pebble Creek		NA		NA		NA	NA	3		
EL1-20300	Pebble Creek		NA		NA		NA	NA	3		
EL1-20400	Cuming Creek		S		S		NA	S	2		
EL1-20410	Willow Creek		NA		NA		NA	NA	3		
EL1-20500	Cuming Creek		NA		NA		NA	NA	3		
EL1-20600	Fisher Creek		NA		NA		NA	NA	3		
EL1-20700	Plum Creek		S		S		NA	S	2		
EL1-20800	Plum Creek		NA		NA		NA	NA	3		
EL1-20810	Dry Creek		NA		NA		NA	NA	3		
EL1-20820	Kane Creek		NA		NA		NA	NA	3		

Waterbody ID	Waterbody Name	Recreation	Aquatic Life	Water Supply			Aesthetics	Overall	2020 IR	Impairments (Causes)	Comments/Actions
				Public Drinking	Agricultural	Industrial					
EL1-20900	Plum Creek		S		NA		S	S	2		
EL1-21000	Rock Creek	I	I		S		S	I	5	Recreation (*E. coli*), Aquatic Life - Impaired Aquatic Community (Unknown)	
EL1-21100	Leisy Creek		NA		NA		NA	NA	3		
EL1-21200	Sand Creek		NA		NA		NA	NA	3		
EL1-21300	Humbug Creek		S		NA		S	S	2		
EL1-21310	South Humbug Creek		S		NA		S	S	2		
EL1-21400	Humbug Creek		NA		NA		NA	NA	3		
EL1-21500	Payne Creek		NA		NA		NA	NA	3		
EL1-21600	Cedar Creek		NA		NA		NA	NA	3		
EL1-21700	Indian Creek		NA		NA		NA	NA	3		
EL1-21800	Butterfly Creek		NA		NA		NA	NA	3		
EL1-21900	Union Creek	I	S		S		S	I	5	Recreation *(E. coli*)	
EL1-21910	Sand Creek		NA		NA		NA	NA	3		

Waterbody ID	Waterbody Name	Recreation	Aquatic Life	Water Supply			Aesthetics	Overall	2020 IR	Impairments (Causes)	Comments/Actions
				Public Drinking	Agricultural	Industrial					
EL1-21920	Meridian Creek		S		NA		S	S	2		
EL1-21921	Tracy Creek		S		NA		S	S	2		
EL1-21930	Meridian Creek		NA		NA		NA	NA	3		
EL1-22000	Union Creek	I	S		S		NA	I	5	Recreation *(E. coli*)	
EL1-22010	Taylor Creek		NA		NA		NA	NA	3		
EL1-22100	Union Creek		I		NA		NA	I	5	Aquatic Life - Impaired Aquatic Community (Unknown)	
EL1-22200	Unnamed Creek		NA		NA		NA	NA	3		
EL1-22300	Unnamed Creek		NA		NA		NA	NA	3		
EL2-10000	Logan Creek	I	I		I		S	I	5	Recreation (*E.coli*), Aquatic Life (Natural Selenium), Agricultural Water Supply (Selenium)	Se 4C justification approved 3/09†
EL2-10100	Unnamed Creek		NA		NA		NA	NA	3		
EL2-10200	Little Logan Creek		S		S		S	S	1		
EL2-10210	Unnamed Creek		NA		NA		NA	NA	3		
EL2-10300	Little Logan Creek		S		NA		S	S	2		

Waterbody ID	Waterbody Name	Recreation	Aquatic Life	Water Supply			Aesthetics	Overall	2020 IR	Impairments (Causes)	Comments/Actions
				Public Drinking	Agricultural	Industrial					
EL2-10400	Big Slough Creek		NA		NA		NA	NA	3		
EL2-20000	Logan Creek	I	S		S		S	I	5	Recreation *(E. coli*)	
EL2-20100	Rattlesnake Creek		NA		NA		NA	NA	3		
EL2-20200	Unnamed Creek		S		NA		S	S	2		
EL2-20300	Middle Creek		NA		NA		NA	NA	3		
EL2-20400	Rattlesnake Creek		I		NA		NA	I	5	Aquatic Life - Impaired Aquatic Community (Unknown)	
EL2-20500	Unnamed Creek		NA		NA		NA	NA	3		
EL2-20600	Unnamed Creek		NA		NA		NA	NA	3		
EL2-20700	Coon Creek		I		NA		S	I	5	Aquatic Life - Impaired Aquatic Community (Unknown)	
EL2-20800	South Logan Creek	I	S		S		S	I	5	Recreation *(E. coli*)	
EL2-20810	Dog Creek		S		NA		S	S	2		
EL2-20900	South Logan Creek		S		S		NA	S	2		
EL2-20910	Deer Creek		NA		NA		NA	NA	3		

Waterbody ID	Waterbody Name	Recreation	Aquatic Life	Water Supply			Aesthetics	Overall	2020 IR	Impairments (Causes)	Comments/Actions
				Public Drinking	Agricultural	Industrial					
EL2-20911	Unnamed Creek		NA		NA		NA	NA	3		
EL2-20920	Deer Creek		S		NA		S	S	2		
EL2-21000	South Logan Creek		NA		NA		NA	NA	3		
EL2-30000	Logan Creek		S		S		NA	S	2		
EL2-30100	North Logan Creek		S		S		NA	S	2		
EL2-40000	Logan Creek		S		S		NA	S	2		
EL2-40100	Baker Creek		I		NA		S	I	5	Aquatic Life - Impaired Aquatic Community (Unknown)	
EL2-40200	Middle Logan Creek		I		S		S	I	5	Aquatic Life - Impaired Aquatic Community (Unknown)	
EL2-40300	Perrin Creek		S		NA		S	S	2		
EL3-10000	North Fork Elkhorn River	I	S		NA		NA	I	5	Recreation *(E. coli*)	
EL3-10100	Spring Creek		NA		NA		NA	NA	3		
EL3-20000	North Fork Elkhorn River	I	S		S		S	I	4a	Recreation *(E. coli*)	Se 4C justification approved 3/09†, E. coli TMDL approved 3/09
EL3-20100	Hadar Creek		NA		NA		NA	NA	3		

Waterbody ID	Waterbody Name	Recreation	Aquatic Life	Water Supply			Aesthetics	Overall	2020 IR	Impairments (Causes)	Comments/Actions
				Public Drinking	Agricultural	Industrial					
EL3-20200	Willow Creek	I	S		S		S	I	5	Recreation *(E. coli*)	
EL3-20300	Willow Creek	NA	NA		NA		NA	NA	3		
EL3-20400	Dry Creek	I	S		NA		NA	I	5	Recreation *(E. coli*)	
EL3-20500	Dry Creek		S		NA		S	S	2		
EL3-30000	North Fork Elkhorn River		S		S		S	S	1		
EL3-30100	West Branch North Fork Elkhorn River		NA		NA		NA	NA	3		
EL3-30110	Breslau Creek		NA		NA		NA	NA	3		
EL3-40000	North Fork Elkhorn River		NA		NA		NA	NA	3		
EL3-SXXX1	Yankton Slough		I				S	I	5	Aquatic Life - Impaired Aquatic Community (Unknown)	
EL3-SXXX2	Undesignated Tributary to the Nork Fork Elkhorn River		S				S	S	2		
EL4-10000	Elkhorn River	I	S		S		S	I	4a	Recreation *(E. coli*)	E. coli TMDL approved 9/09
EL4-10100	Unnamed Creek		NA		NA		NA	NA	3		
EL4-10200	Unnamed Creek		NA		NA		NA	NA	3		

Waterbody ID	Waterbody Name	Recreation	Aquatic Life	Water Supply			Aesthetics	Overall	2020 IR	Impairments (Causes)	Comments/Actions
				Public Drinking	Agricultural	Industrial					
EL4-10300	Unnamed Creek		NA		NA		NA	NA	3		
EL4-10400	Battle Creek	I	S		S		S	I	5	Recreation *(E. coli*)	
EL4-10500	Battle Creek		S		NA		S	S	2		
EL4-10600	Deer Creek		NA		NA		NA	NA	3		
EL4-10700	Buffalo Creek		S		NA		S	S	2		
EL4-10800	Dry Creek		NA		NA		NA	NA	3		
EL4-10900	Al Hopkins Creek		NA		NA		NA	NA	3		
EL4-11000	Giles Creek		NA		NA		NA	NA	3		
EL4-11100	Ives Creek		NA		NA		NA	NA	3		
EL4-11200	Trueblood Creek		NA		NA		NA	NA	3		
EL4-11300	Cedar Creek	I	S		S		S	I	5	Recreation *(E. coli*)	
EL4-11310	Blacksnake Creek		NA		NA		NA	NA	3		
EL4-11400	Cedar Creek		NA		NA		NA	NA	3		

Waterbody ID	Waterbody Name	Recreation	Aquatic Life	Water Supply			Aesthetics	Overall	2020 IR	Impairments (Causes)	Comments/Actions
				Public Drinking	Agricultural	Industrial					
EL4-20000	Elkhorn River	I	S		S		S	I	4a	Recreation *(E. coli*)	E. coli TMDL approved 9/09
EL4-20100	Belmer Creek		NA		NA		NA	NA	3		
EL4-20200	Antelope Creek		NA		NA		NA	NA	3		
EL4-20300	Clearwater Creek	I	S		S		S	I	5	Recreation *(E. coli*)	
EL4-20400	Clearwater Creek		NA		NA		NA	NA	3		
EL4-20500	Cache Creek		S		S		NA	S	2		
EL4-20600	Cache Creek		S		NA		S	S	2		
EL4-20700	South Fork Elkhorn River	I	S		S		S	I	5	Recreation *(E. coli*)	
EL4-20800	South Fork Elkhorn River		S		NA		S	S	2		
EL4-30000	Elkhorn River	I	S		S		S	I	4a	Recreation *(E. coli*)	E. coli TMDL approved 9/09
EL4-30100	Willow Swamp Creek		NA		NA		NA	NA	3		
EL4-30200	Dry Creek		S		S		S	S	1		
EL4-30300	Dry Creek		NA		NA		NA	NA	3		

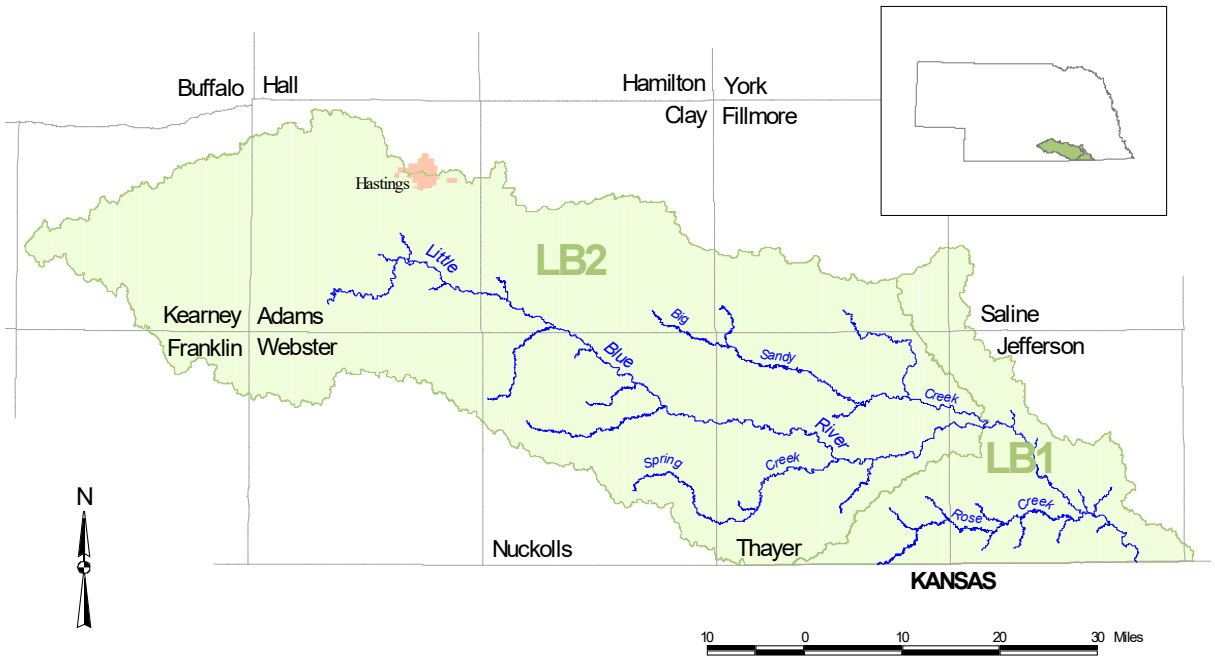
Waterbody ID	Waterbody Name	Recreation	Aquatic Life	Water Supply			Aesthetics	Overall	2020 IR	Impairments (Causes)	Comments/Actions
				Public Drinking	Agricultural	Industrial					
EL4-30400	Holt Creek		S		NA		S	S	2		
EL4-30500	Holt Creek		S		NA		S	S	2		
EL4-40000	Elkhorn River	I	S		S		S	I	5	Recreation *(E. coli*)	
EL4-40100	South Fork Elkhorn River		NA		NA		NA	NA	3		
EL4-40200	North Fork Elkhorn River		NA		NA		NA	NA	3		

****Cancer risk compounds*** -Aroclor-1248 (PCB-1248), Aroclor-1254 (PCB-1254), Aroclor-1260 (PCB-1260), cis-chlordane, Chlordane, trans-chlordane, DDD, DDE, DDT, Dieldrin, Heptachlor, Heptachlor Epoxide, Hexachlorobenzene, cis-nonachlor, trans-nonachlor, Oxychlordane, Pentachloroanisole, Trifluralin
Hazard index compounds- Aroclor-1254 (PCB-1254), Lindane (g-BHC), cis-chlordane, Chlordane, trans-chlordane, DDT, Dieldrin, Heptachlor, Heptachlor Epoxide, Hexachlorobenzene, cis-nonachlor, trans-nonachlor, Oxychlordane, Pentachloroanisole, Trifluralin, Mercury, Cadmium, Selenium

[1] XXX# designates in Title 117 an undesignated waterbody. See Title 117 Chapter 2.004.

‡ See Appendix B: Ecological Justification for Excluding Specific Bio-Indicator Results When Determining Attainment Status of the Aquatic Life Beneficial Use for Nebraska's 2014 Water Quality Integrated Report

† See AppendixC: Natural Occurrence of Selenium in the Elkhorn River Basin



LITTLE BLUE RIVER BASIN (and Subbasins)

Little Blue Basin – Hydrologic Units 10270206 and 10270207

The Little Blue River Basin includes 38 designated stream segments and 12 designated lakes/reservoirs.

Waterbody Type	Primary Contact Recreation	Aquatic Life CA[1]	Aquatic Life CB[1]	Aquatic Life WA[1]	Aquatic Life WB[1]	Water Supply – Public Drinking	Water Supply – Ag	Water Supply-Ind.	Aesthetics
Lakes	12	0	0	12	0	3	12	0	12
Streams	6	0	0	14	24	1	38	0	38

[1] CA = Coldwater Class A, CB = Coldwater Class B, WA = Warmwater Class A and WB = Warmwater Class B

Delisting/ Changes from 2018 IR

The following are waters and or parameters that were delisted – removed from category 5 or other significant changes from the 2018 Integrated Report (IR).

LB1-L0020: Crystal Springs Northwest Lake – This waterbody was listed in category 5 in the 2018 IR. The Aquatic Life use was impaired due to a Fish Consumption Advisory for Hazard Index Compounds, and due to Chlorophyll α and pH caused by Total Nitrogen and Total Phosphorus. 2018 fish tissue data determined that the Aquatic Life use is now supported for Hazard Index Compounds and impaired for Mercury, so the Fish Consumption Advisory will remain in place. This waterbody will remain in category 5.

LB1-L0050: Lone Star Reservoir (Little Sandy Creek Reservoir) – This waterbody was listed in category 5 in the 2018 IR. The Aquatic Life use was impaired due to a Fish Consumption Advisory for Hazard Index Compounds, and due to Chlorophyll α and Dissolved Oxygen caused by Total Nitrogen and Total Phosphorus. 2018 fish tissue

data determined that the Aquatic Life use is now supported for Hazard Index Compounds and impaired for Mercury, so the Fish Consumption Advisory will remain in place. This waterbody will remain in category 5.

LB2-L0050: Liberty Cove Lake – This waterbody was listed in category 5 in the 2018 IR. The Aquatic Life use was impaired due to a Fish Consumption Advisory for Hazard Index Compounds, and due to Chlorophyll α and pH caused by Total Nitrogen and Total Phosphorus. 2018 fish tissue data determined that the Aquatic Life use is now supported for Hazard Index Compounds and impaired for Mercury, so the Fish Consumption Advisory will remain in place. This waterbody will remain in category 5.

LB2-LXXX1: Siloam Lake – This waterbody was not listed in the 2018 IR. A 2018 Fish Consumption Assessment determined that the Aquatic Life use is supported. This waterbody was given a unique ID, and will remain in category 3.

LB1-10000: Little Blue River – This waterbody was listed in category 4a in the 2018 IR. The Aquatic Life use was impaired for May-June Atrazine and the Public Drinking Water use was impaired for Atrazine. 2018 fish tissue data determined that the Aquatic Life use is now impaired due to a Fish Consumption Advisory for Mercury. 2018 Basin Rotation data determined that the Recreation use is impaired for *E. coli* bacteria, and the Public Drinking Water use is impaired for Arsenic. Water quality data submitted by the Kansas Department of Health and Environment (KDHE) determined that the Aquatic Life use is impaired for Aluminum and Lead. KDHE data reinforced the Arsenic impairment and determined that the Public Drinking Water use is also impaired for Aluminum. This waterbody will be placed in category 5.
(*Note*: In a 2019 revision of Nebraska's water quality standards, the drinking water standard for Arsenic was lowered from 10 µg/L to 0.18 µg/L. Under the Safe Drinking Water Act, the EPA recommended drinking water standard for Arsenic remains at 10 µg/L.)

LB1-10800: Little Sandy Creek – This waterbody was listed in category 3 in the 2018 IR. 2018 Basin Rotation data determined that the Aquatic Life and Agricultural Water Supply uses are now supported. This waterbody will be placed in category 2.

LB2-10100: Big Sandy Creek – This waterbody was listed in category 4a in the 2018 IR. The Recreation use was impaired for *E. coli* bacteria, and the Aquatic Life use was impaired for May-June Atrazine. Data gathered in 2017-18 determined that the Aquatic Life use is now supported for Atrazine. This waterbody will remain in category 4a.

LB2-10110: Dry Sandy Creek – This waterbody was listed in category 3 in the 2018 IR. 2018 Basin Rotation data determined that the Aquatic Life and Agricultural Water Supply uses are now supported. This waterbody will be placed in category 2.

LB2-20100: Elk Creek – This waterbody was listed in category 3 in the 2018 IR. 2018 Basin Rotation data determined that the Aquatic Life use is impaired due to low Dissolved Oxygen caused by an unknown pollutant, and the Agricultural Water Supply use is now supported. This waterbody will be placed in category 5.

Waterbody ID	Waterbody Name	Recreation	Aquatic Life	Water Supply			Aesthetics	Overall	2020 IR	Impairments (Causes)	Comments/Actions
				Public Drinking	Agricultural	Industrial					
Lakes											
LB1-L0010	Buckley Reservoir (3F)	NA	I		S		S	I	5	Aquatic Life - (Total Nitrogen, Total Phosphorus)	
LB1-L0020	Crystal Springs Northwest Lake	S	I	NA	S		S	I	5	Aquatic Life - Fish Consumption Advisory (Mercury), Chlorophyll α, pH (Total Nitrogen, Total Phosphorus)	Fish Consumption Assessment completed
LB1-L0030	Crystal Springs Center Lake	S	I	NA	S		S	I	5	Aquatic Life - Chlorophyll α, pH (Total Nitrogen, Total Phosphorus)	Fish Consumption Assessment completed
LB1-L0040	Crystal Springs East Lake	I	I	NA	S		S	I	5	Recreation (E. coli), Aquatic Life - Chlorophyll α (Total Nitrogen, Total Phosphorus)	
LB1-L0050	Lone Star Reservoir (Little Sandy Creek Reservoir)	S	I		S		S	I	5	Aquatic Life - Fish Consumption Advisory (Mercury), Chlorophyll α , Dissolved Oxygen (Total Nitrogen, Total Phosphorus)	Lake renovated 2006 and has been reassessed, Fish Consumption Assessment completed
LB2-L0010	Alexandria Lake No. 1 & 2	S	I		S		S	I	5	Aquatic Life - pH (Unknown)	TN and TP are Not Assessed
LB2-L0030	Alexandria Lake No. 3	I	I		S		S	I	5	Recreation - Algae Toxins (Microcystin), Aquatic Life - Chlorophyll α, pH (Total Nitrogen, Total Phosphorus)	Fish Consumption Assessment completed
LB2-L0040	Bruning Dam Lake	NA	S		S		S	S	2		
LB2-L0050	Liberty Cove Lake	S	I		S		S	I	5	Aquatic Life - Fish Consumption Advisory (Mercury), Chlorophyll α, pH (Total Nitrogen, Total Phosphorus)	Fish Consumption Assessment completed
LB2-L0070	Crystal Lake (SRA)	S	I		S		S	I	5	Aquatic Life - Chlorophyll α, pH, Dissolved Oxygen (Total Nitrogen, Total Phosphorus)	

Waterbody ID	Waterbody Name	Recreation	Aquatic Life	Water Supply			Aesthetics	Overall	2020 IR	Impairments (Causes)	Comments/Actions
				Public Drinking	Agricultural	Industrial					
LB2-L0080	Prairie Lake (32-Mile H)	NA	I		S		S	I	5	Aquatic Life - pH (Unknown)	TN and TP are Not Assessed
LB2-L0090	Roseland (32-Mile D)	NA	S		S		S	S	2		
LB2-LXXX1	Siloam Lake	NA	S		NA		NA	S	2		Fish Consumption Assessment completed
Streams											
LB1-10000	Little Blue River	I	I	I	S		S	I	5	Recreation (*E. coli*), Aquatic Life - Fish Consumption Advisory (Mercury), (May-June Atrazine, Lead, Aluminum), Public Drinking Water Supply (Atrazine, Arsenic, Aluminum)	Atrazine & E. coli TMDLs approved 2/13, Fish Consumption Assessment completed
LB1-10100	Coon Creek		S		NA		S	S	2		
LB1-10200	Rock Creek	I	S		S		S	I	4a	Recreation (*E. coli*)	E. coli TMDL approved 2/13
LB1-10300	Smith Creek		NA		NA		NA	NA	3		
LB1-10400	Rose Creek		S		S		S	S	1		
LB1-10410	Dry Branch		S		NA		S	S	2		Aquatic Community Assessment completed
LB1-10420	Silver Creek		NA		NA		NA	NA	3		
LB1-10430	Buckley Creek		S		NA		S	S	2		

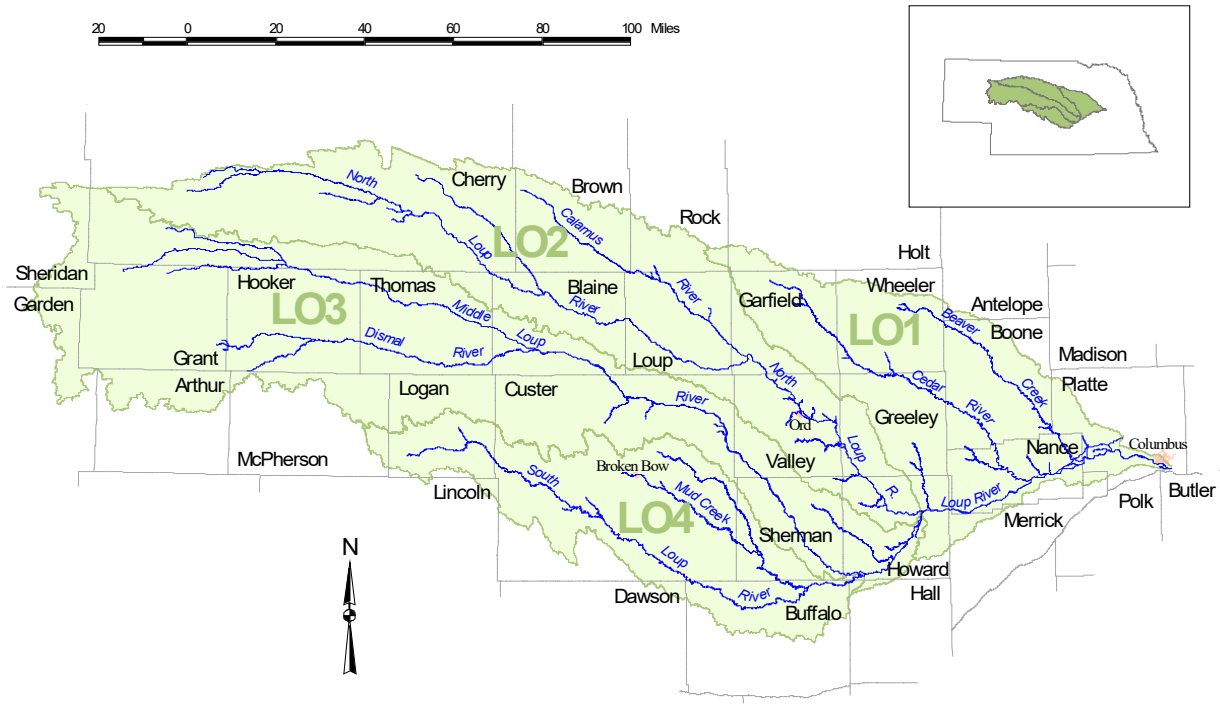
Waterbody ID	Waterbody Name	Recreation	Aquatic Life	Water Supply			Aesthetics	Overall	2020 IR	Impairments (Causes)	Comments/Actions
				Public Drinking	Agricultural	Industrial					
LB1-10500	Rose Creek		S		NA		S	S	2		
LB1-10510	Wiley Creek		NA		NA		NA	NA	3		
LB1-10520	Balls Branch		NA		NA		NA	NA	3		
LB1-10530	Spring Branch		S		NA		S	S	2		
LB1-10600	Rose Creek		NA		NA		NA	NA	3		
LB1-10700	Whisky Run		NA		NA		NA	NA	3		
LB1-10800	Little Sandy Creek		S		S		NA	S	2		
LB2-10000	Little Blue River	I	I		S		S	I	4a	Recreation (*E. coli*), Aquatic Life (May-June Atrazine)	Atrazine & E. coli TMDLs approved 2/13, Aquatic Community Assessment completed
LB2-10100	Big Sandy Creek	I	I		S		S	I	4a	Recreation (*E. coli*)	Atrazine & E. coli TMDLs approved 2/13, Aquatic Community Assessment completed, Fish Consumption Assessment completed
LB2-10110	Dry Sandy Creek		S		S		NA	S	2		
LB2-10200	Big Sandy Creek		I		S		NA	I	5	Aquatic Life - Fish Consumption Advisory (Hazard Index Compounds*, Mercury)	
LB2-10210	South Fork Big Sandy Creek		NA		NA		NA	NA	3		

Waterbody ID	Waterbody Name	Recreation	Aquatic Life	Water Supply			Aesthetics	Overall	2020 IR	Impairments (Causes)	Comments/Actions
				Public Drinking	Agricultural	Industrial					
LB2-10220	Little Sandy Creek		NA		NA		NA	NA	3		
LB2-10300	Big Sandy Creek		NA		NA		NA	NA	3		
LB2-10400	Dry Creek		S		NA		S	S	2		
LB2-10500	Spring Creek		I		S		S	I	5	Aquatic Life - Impaired Aquatic Community (Unknown)	
LB2-10510	Unnamed Creek		NA		NA		NA	NA	3		
LB2-10600	Spring Creek		I		NA		S	I	5	Aquatic Life - Impaired Aquatic Community (Unknown)	
LB2-20000	Little Blue River	I	I		S		S	I	4a	Recreation (*E. coli*), Aquatic Life (May-June Atrazine)	Atrazine & E. coli TMDLs approved 2/13, Aquatic Community Assessment completed, Fish Consumption Assessment completed
LB2-20100	Elk Creek		I		S		NA	I	5	Aquatic Life- Dissolved Oxygen (unknown)	
LB2-20200	Elk Creek		S		NA		S	S	2		
LB2-20300	Ox Bow Creek		NA		NA		NA	NA	3		
LB2-20400	Walnut Creek		NA		NA		NA	NA	3		
LB2-20500	Liberty Creek		S		NA		S	S	2		

Waterbody ID	Waterbody Name	Recreation	Aquatic Life	Water Supply			Aesthetics	Overall	2020 IR	Impairments (Causes)	Comments/Actions
				Public Drinking	Agricultural	Industrial					
LB2-30000	Little Blue River	I	S		S		S	I	4a	Recreation (*E. coli*)	E. coli TMDL approved 2/13
LB2-30100	Pawnee Creek		NA		NA		NA	NA	3		
LB2-30200	Ash Creek		NA		NA		NA	NA	3		
LB2-30300	Thirty-two Mile Creek		NA		NA		NA	NA	3		
LB2-40000	Little Blue River		S		NA		S	S	2		
LB2-40100	Scott Creek		NA		NA		NA	NA	3		
Wetlands											
LB2-WXXX1	Gleason WPA		NA		NA		NA	NA	3		
LB2-WXXX2	Massie WPA		NA		NA		NA	NA	3		
LB2-WXXX3	McMurtrey WPA		NA		NA		NA	NA	3		
LB2-WXXX4	Moger WPA		NA		NA		NA	NA	3		

Cancer risk compounds -Aroclor-1248 (PCB-1248), Aroclor-1254 (PCB-1254), Aroclor-1260 (PCB-1260), cis-chlordane, Chlordane, trans-chlordane, DDD, DDE, DDT, Dieldrin, Heptachlor, Heptachlor Epoxide, Hexachlorobenzene, cis-nonachlor, trans-nonachlor, Oxychlordane, Pentachloroanisole, Trifluralin
Hazard index compounds- Aroclor-1254 (PCB-1254), Lindane (g-BHC), cis-chlordane, Chlordane, trans-chlordane, DDT, Dieldrin, Heptachlor, Heptachlor Epoxide, Hexachlorobenzene, cis-nonachlor, trans-nonachlor, Oxychlordane, Pentachloroanisole, Trifluralin, Mercury, Cadmium, Selenium

[1] XXX# designates in Title 117 an undesignated waterbody. See Title 117 Chapter 2.004.



LOUP RIVER BASIN (and Subbasins)

Loup River Basin – Hydrologic Units 10210001, 10210002, 10210003, 10210004, 10210005, 10210006, 10210007, 10210008, 10210009 and 10210010

The Loup River Basin includes 107 designated stream segments and 49 designated lakes/reservoirs. Beneficial uses assigned to designated water in the basin can be found in the below table.

Waterbody Type	Primary Contact Recreation	Aquatic Life CA[1]	Aquatic Life CB[1]	Aquatic Life WA[1]	Aquatic Life WB[1]	Water Supply – Public Drinking	Water Supply – Ag	Water Supply-Ind.	Aesthetics
Lakes	48	0	1	47	0	0	48	0	48
Streams	37	0	36	26	45	0	107	0	107

[1] CA = Coldwater Class A, CB = Coldwater Class B, WA = Warmwater Class A and WB = Warmwater Class B

Delisting/ Changes from 2018 IR

The following are waters and or parameters that were delisted – removed from category 5 or other significant changes from the 2018 Integrated Report (IR).

LO2-L0050: Calamus Reservoir -- This waterbody was listed in category 5 in the 2018 IR. The Aquatic Life use was impaired due to a fish consumption advisory for Mercury, and due to Chlorophyll a caused by Total Phosphorus. Data gathered in 2017-18 determined that the Aquatic Life use is now also impaired for Total Nitrogen. This waterbody will remain in category 5.

LO4-L0045: Pressey Pond (WMA) – This waterbody was listed in category 5 under a temporary Waterbody ID in the 2018 IR. This waterbody was added to Chapter 6 of Title 117 and given a permanent Waterbody ID in June

2019. The Aquatic Life use is impaired due to a Fish Consumption Advisory for Mercury. This waterbody will remain in category 5.

LO1-20200: Loup River Canal – This waterbody was listed in category 1 in the 2018 IR. Updated data, originally gathered in 2013, determined that the Recreation use is impaired for *E. coli* bacteria. This waterbody will be placed in category 5.

LO2-11300: Calamus River – This waterbody was listed in category 5 in the 2018 IR. The Recreation use was impaired for *E. coli* bacteria, and the Aquatic Life use was impaired due to naturally high water temperature. Temperature data gathered in 2017-18 now supports the Aquatic Life use. The Recreation use remains impaired. This waterbody will remain in category 5.

LO4-10100: Mud Creek – This waterbody was listed in category 5 in the 2018 IR. The Recreation use was impaired for *E. coli* bacteria, and the Aquatic Life use was impaired for aquatic community due to an unknown pollutant. Data gathered in 2017-18 determined that the Aquatic Life use is impaired for May-June Atrazine. This waterbody will remain in category 5.

Waterbody ID	Waterbody Name	Recreation	Aquatic Life	Water Supply			Aesthetics	Overall	2020 IR	Impairments (Causes)	Comments/Actions
				Public Drinking	Agricultural	Industrial					
Lakes											
LO1-L0010	Columbus City Park Pond	NA	I		NA		NA	I	5	Aquatic Life - Fish Consumption Advisory (Hazard Index Compounds, Mercury)	
LO1-L0020	Columbus Izaak Walton Lake	NA	NA		NA		NA	NA	3		
LO1-L0030	Pawnee Park Lake (Columbus)	NA	NA		NA		NA	NA	3		
LO1-L0040	Stires Lake	NA	NA		NA		NA	NA	3		
LO1-L0050	Wagner's Lake	NA	NA		NA		NA	NA	3		
LO1-L0060	Loup Power District Headgate Pond No. 1	NA	NA		NA		NA	NA	3		
LO1-L0070	Loup Power District Headgate Pond No. 2	NA	NA		NA		NA	NA	3		
LO1-L0080	Loup Power District Headgate Pond No. 3	NA	NA		NA		NA	NA	3		
LO1-L0090	Loup Power District Headgate Pond No. 4	NA	NA		NA		NA	NA	3		
LO1-L0100	Loup Power District Headgate Pond No. 5	NA	NA		NA		NA	NA	3		
LO1-L0110	Stevenson's Lake	NA	NA		NA		NA	NA	3		
LO1-L0120	Wolbach City Lake	NA	NA		NA		NA	NA	3		

Waterbody ID	Waterbody Name	Recreation	Aquatic Life	Water Supply			Aesthetics	Overall	2020 IR	Impairments (Causes)	Comments/Actions
				Public Drinking	Agricultural	Industrial					
LO1-L0125	Spalding Lake	NA	NA		NA		NA	NA	3		
LO1-L0130	Pibel Lake	NA	I		S		S	I	5	Aquatic Life - Fish Consumption Advisory (Mercury), Chlorophyll α (Total Nitrogen, Total Phosphorus)	
LO1-L0140	Lake Ericson	NA	S		S		S	S	2		
LO2-L0010	North Loup Lake (SRA)	NA	S		NA		NA	S	2	-	
LO2-L0015	Davis Creek Reservoir	S	I		S		S	I	5	Aquatic Life - Fish Consumption Advisory (Mercury), (Total Phosphorus)	
LO2-L0020	Ord City Lake	NA	I		NA		S	I	5	Aquatic Life - Fish Consumption Advisory (Mercury)	
LO2-L0030	Burwell Lake	NA	NA		NA		NA	NA	3		
LO2-L0040	Burwell Park Lake	NA	NA		NA		NA	NA	3		
LO2-L0050	Calamus Reservoir	S	I		S		S	I	5	Aquatic Life - Fish Consumption Advisory (Mercury), Chlorophyll a (Total Nitrogen, Total Phosphorus)	
LO2-L0055	Willow Lake B.C.	NA	S		NA		NA	S	2		
LO2-L0060	Clear Lake	NA	S		S		S	S	2		
LO2-L0070	Enders Overflow Lake	NA	NA		NA		NA	NA	3		

Waterbody ID	Waterbody Name	Recreation	Aquatic Life	Water Supply			Aesthetics	Overall	2020 IR	Impairments (Causes)	Comments/Actions
				Public Drinking	Agricultural	Industrial					
LO2-L0080	Long Lake (SRA)	NA	S		S		S	S	2		
LO2-L0090	South Twin Lake (WMA)	NA	NA		NA		NA	NA	3		
LO2-L0100	Dew Lake (Valentine NWR)	NA	NA		NA		NA	NA	3		
LO2-L0110	Crooked Lake (Valentine NWR)	NA	NA		NA		NA	NA	3		
LO2-L0120	East Long Lake (Valentine NWR)	NA	NA		NA		NA	NA	3		
LO2-L0180	Cow Lake (Valentine NWR)	NA	NA		NA		NA	NA	3		
LO2-L0250	Coleman Lake (Valentine NWR)	NA	NA		NA		NA	NA	3		
LO2-L0260	Rat and Beaver Lake (WMA)	NA	S		NA		NA	S	2		
LO2-L0270	Mule Lake (Valentine NWR)	NA	NA		NA		NA	NA	3		
LO2-L0280	Devil's Punch Bowl Lake	NA	NA		NA		NA	NA	3		
LO2-LXXX1	Cozad Lake (South Pine WMA)	NA	S		NA		NA	S	2		
LO3-L0010	Farwell South Reservoir	NA	I		NA		NA	I	5	Aquatic Life - Fish Consumption Advisory (Mercury)	
LO3-L0020	Sherman Reservoir	S	I		S		S	I	5	Aquatic Life - Fish Consumption Advisory (Mercury), Chlorophyll a (Total Phosphorus)	

Waterbody ID	Waterbody Name	Recreation	Aquatic Life	Water Supply			Aesthetics	Overall	2020 IR	Impairments (Causes)	Comments/Actions
				Public Drinking	Agricultural	Industrial					
LO3-L0030	Bowman Lake (SRA)	NA	NA		NA		NA	NA	3		
LO3-L0040	Victoria Springs Lake (SRA)	NA	NA		NA		NA	NA	3		
LO3-L0050	Bessey Fish Pond (Nebraska National Forest)	NA	S		NA		NA	S	2		
LO3-L0060	Spring Valley Lake	NA	NA		NA		NA	NA	3		
LO3-L0070	Frye Lake	NA	I		S		S	I	5	Aquatic Life - Fish Consumption Advisory (Mercury)	
LO3-L0090	Alkali Lake	NA	S		S		S	S	2		Naturally alkaline Sandhills lake
LO4-L0010	Ravenna Lake (SRA)	NA	I		NA		NA	I	5	Aquatic Life - Fish Consumption Advisory (Mercury)	
LO4-L0020	Beaver Creek Lake (SWA)	NA	NA		NA		NA	NA	3		
LO4-L0030	Ansley City Lake	NA	I		S		S	I	5	Aquatic Life - Fish Consumption Advisory (Mercury), Chlorophyll a (Total Nitrogen)	Lake renovated 2003
LO4-L0040	Melham Park Lake (Broken Bow)	NA	I		NA		NA	I	5	Aquatic Life - Fish Consumption Advisory (Mercury)	
LO4-L0045	Pressey Pond (WMA)	NA	I		NA		NA	I	5	Aquatic Life - Fish Consumption Advisory (Mercury)	Previously listed as LO4-LXXX1, permanent Waterbody ID assigned 6/19
LO4-L0050	Arnold Lake (SRA)	NA	S		NA		NA	S	2		
Streams											

Waterbody ID	Waterbody Name	Recreation	Aquatic Life	Water Supply			Aesthetics	Overall	2020 IR	Impairments (Causes)	Comments/Actions
				Public Drinking	Agricultural	Industrial					
LO1-10000	Loup River	I	S		S		S	I	4a	Recreation (*E. coli*)	E. coli TMDL approved 1/06
LO1-10100	Barnum Creek		NA		NA		NA	NA	3		
LO1-10200	Cherry Creek		NA		NA		NA	NA	3		
LO1-10300	Unnamed Creek		NA		NA		NA	NA	3		
LO1-10400	Looking Glass Creek		S		NA		NA	S	2		
LO1-10500	Looking Glass Creek		NA		NA		NA	NA	3		
LO1-10600	Beaver Creek	I	S		S		S	I	5	Recreation (*E. coli*)	
LO1-10610	Bogus Creek		NA		NA		NA	NA	3		
LO1-10700	Beaver Creek	I	I		S		S	I	5	Recreation (*E. coli*), Aquatic Life - Impaired Aquatic Community (Unknown)	
LO1-10800	Beaver Creek		S		NA		S	S	2		
LO1-10900	Beaver Creek		S		NA		S	S	2		
LO1-10910	Unnamed Tributary		NA		NA		NA	NA	3		
LO1-11000	Beaver Creek		NA		NA		NA	NA	3		

Waterbody ID	Waterbody Name	Recreation	Aquatic Life	Water Supply			Aesthetics	Overall	2020 IR	Impairments (Causes)	Comments/Actions
				Public Drinking	Agricultural	Industrial					
LO1-20000	Loup River	NA	NA		NA		NA	NA	3		
LO1-20100	Unnamed Creek		NA		NA		NA	NA	3		
LO1-20200	Loup River Canal	I	S		S		S	I	5	Recreation (*E. coli*)	
LO1-30000	Loup River	I	S		S		S	I	4a	Recreation (*E. coli*)	E. coli TMDL approved 1/06
LO1-30100	Council Creek		NA		NA		NA	NA	3		
LO1-30200	Plum Creek		S		NA		S	S	2		
LO1-30300	Cedar River	I	S		S		S	I	4a	Recreation (*E. coli*)	E. coli TMDL approved 1/06
LO1-30310	Timber Creek		S		S		S	S	1		
LO1-30311	South Branch Timber Creek		I		NA		S	I	5	Aquatic Life - Impaired Aquatic Community (Unknown)	
LO1-30312	North Branch Timber Creek		NA		NA		NA	NA	3		
LO1-30320	Clear Creek		NA		NA		NA	NA	3		
LO1-30400	Cedar River	I	S		S		S	I	5	Recreation (*E. coli*)	
LO1-30500	Cedar River		S		NA		S	S	2		

Waterbody ID	Waterbody Name	Recreation	Aquatic Life	Water Supply			Aesthetics	Overall	2020 IR	Impairments (Causes)	Comments/Actions
				Public Drinking	Agricultural	Industrial					
LO1-30510	Dry Cedar Creek		NA		NA		NA	NA	3		
LO1-30600	Cedar River		NA		NA		NA	NA	3		
LO1-30610	Little Cedar Creek		NA		NA		NA	NA	3		
LO1-30620	Big Cedar Creek		NA		NA		NA	NA	3		
LO1-30700	Spring Creek		NA		NA		NA	NA	3		
LO1-30710	West Branch Spring Creek		NA		NA		NA	NA	3		
LO1-30800	Spring Creek		NA		NA		NA	NA	3		
LO2-10000	North Loup River	S	S		S		S	S	1	-	E. coli TMDL approved 1/06
LO2-10100	Auger Creek		NA		NA		NA	NA	3		
LO2-10200	Munson Creek		I		NA		S	I	5	Aquatic Life - Impaired Aquatic Community (Unknown)	
LO2-10300	Davis Creek		S		NA		S	S	2		
LO2-10400	Mira Creek		S		S		S	S	1		
LO2-10410	South Branch Mira Creek		S		S		S	S	1		

Waterbody ID	Waterbody Name	Recreation	Aquatic Life	Water Supply			Aesthetics	Overall	2020 IR	Impairments (Causes)	Comments/Actions
				Public Drinking	Agricultural	Industrial					
LO2-10420	North Branch Mira Creek		S		NA		S	S	2		
LO2-10500	Messenger Creek		NA		NA		NA	NA	3		
LO2-10600	Spring Creek		S		NA		S	S	2		
LO2-10700	Elm Creek		NA		NA		NA	NA	3		
LO2-10800	Unnamed Creek		NA		NA		NA	NA	3		
LO2-10900	Dane Creek		S		S		S	S	2		Aquatic Community Assessment completed, results were inconclusive - site will be reassessed†
LO2-11000	Haskell Creek		NA		NA		NA	NA	3		
LO2-11100	Turtle Creek		S		NA		S	S	2		
LO2-11200	Bean Creek		NA		NA		NA	NA	3		
LO2-11300	Calamus River	I	S		S		S	I	5	Recreation (*E. coli*)	
LO2-11310	Gracie Creek		NA		NA		NA	NA	3		
LO2-11320	Bloody Creek		NA		NA		NA	NA	3		
LO2-11330	Skull Creek		NA		NA		NA	NA	3		

Waterbody ID	Waterbody Name	Recreation	Aquatic Life	Water Supply			Aesthetics	Overall	2020 IR	Impairments (Causes)	Comments/Actions
				Public Drinking	Agricultural	Industrial					
LO2-11400	Calamus River	I	I		S		S	I	4a/c	Recreation (*E. coli*), Aquatic Life (Naturally High Temperature)	E. coli TMDL approved 1/06
LO2-11500	Calamus River	NA	NA		NA		NA	NA	3		
LO2-11600	Calamus River		S		NA		S	S	2		
LO2-20000	North Loup River	S	I		S		S	I	4c	Aquatic Life (Naturally High Temperature)	Aquatic Community Assessment completed, results were inconclusive - site will be reassessed†
LO2-20100	Goose Creek	NA	S		NA		S	S	2		
LO2-20200	Goose Creek		NA		NA		NA	NA	3		Aquatic Community Assessment completed results were inconclusive - site will be reassessed†
LO2-30000	North Loup River	I	I		S		S	I	4a/c	Recreation (*E. coli*), Aquatic Life (Naturally High Temperature)	E. coli TMDL approved 1/06
LO2-30100	Pass Creek		NA		NA		NA	NA	3		
LO2-40000	North Loup River	I	I		S		S	I	4a/c	Recreation (*E. coli*), Aquatic Life (Naturally High Temperature)	E. coli TMDL approved 1/06, Aquatic Community Assessment completed, results were inconclusive - site will be reassessed†
LO2-40100	Brush Creek		NA		NA		NA	NA	3		
LO2-40200	Big Creek		S		NA		NA	S	2		
LO2-50000	North Loup River		NA		NA		NA	NA	3		

Waterbody ID	Waterbody Name	Recreation	Aquatic Life	Water Supply			Aesthetics	Overall	2020 IR	Impairments (Causes)	Comments/Actions
				Public Drinking	Agricultural	Industrial					
LO2-60000	North Loup River		S		NA		S	S	2		
LO2-70000	North Loup River		S		NA		S	S	2		
LO2-70100	Mud Creek		NA		NA		NA	NA	3		
LO3-10000	Middle Loup River	I	S		S		S	I	4a	Recreation (*E. coli*)	E. coli TMDL approved 1/06
LO3-10100	Lake Creek		NA		NA		NA	NA	3		
LO3-10200	Turkey Creek		I		S		S	I	5	Aquatic Life (May-June Atrazine)	
LO3-10300	Oak Creek		NA		NA		NA	NA	3		
LO3-10400	Oak Creek	NA	S		NA		S	S	2	-	
LO3-20000	Middle Loup River	S	S		S		S	S	1		
LO3-30000	Middle Loup River	S	S		S		S	S	1		
LO3-40000	Middle Loup River	S	S		S		S	S	1		
LO3-40100	Unnamed Creek		NA		NA		NA	NA	3		
LO3-40200	Wagner Creek		NA		NA		NA	NA	3		

Waterbody ID	Waterbody Name	Recreation	Aquatic Life	Water Supply			Aesthetics	Overall	2020 IR	Impairments (Causes)	Comments/Actions
				Public Drinking	Agricultural	Industrial					
LO3-40300	Lillian Creek		NA		NA		NA	NA	3		
LO3-40400	Victoria Creek		NA		NA		S	S	2		Aquatic Community Assessment completed, results were inconclusive - site will be reassessed†
LO3-50000	Middle Loup River	S	S		S		S	S	1		
LO3-50100	Dismal River	S	I		S		S	I	4c	Aquatic Life (Naturally High Temperature)	
LO3-50200	Dismal River	I	S		S		S	I	5	Recreation (*E. coli*)	
LO3-50300	Dismal River	I	S		S		S	I	4a	Recreation (*E. coli*)	E. coli TMDL approved 1/06
LO3-50310	South Fork Dismal River	I	S		S		NA	I	5	Recreation (*E. coli*)	
LO3-50320	South Fork Dismal River		NA		NA		NA	NA	3		
LO3-50330	North Fork Dismal River	I	S		S		S	I	5	Recreation (*E. coli*)	
LO3-50340	North Fork Dismal River		NA		NA		NA	NA	3		
LO3-60000	Middle Loup River	S	I		S		S	I	4c	Aquatic Life (Naturally High Temperature)	
LO3-70000	Middle Loup River	I	S		S		S	I	5	Recreation (*E. coli*)	
LO3-70100	South Branch Middle Loup River		S		S		NA	S	2		

Waterbody ID	Waterbody Name	Recreation	Aquatic Life	Water Supply			Aesthetics	Overall	2020 IR	Impairments (Causes)	Comments/Actions
				Public Drinking	Agricultural	Industrial					
LO3-70200	North Branch Middle Loup River		S		NA		S	S	2		
LO3-70210	Middle Branch Middle Loup River		S		S		S	S	1		
LO3-70300	North Branch Middle Loup River		S		S		NA	S	2		
LO3-XXXX1	Deer Creek		S		NA		S		2		
LO4-10000	South Loup River	I	I		S		S	I	5	Recreation (*E. coli*), Aquatic Life - Fish Consumption Advisory (Mercury)	*E. coli* TMDL approved 1/06, *E. coli* Impairment being addressed in the South Loup WMP beginning 9/17
LO4-10100	Mud Creek	I	I		S		S	I	5	Recreation (*E. coli*), Aquatic Life - Impaired Aquatic Community (Unknown), (May-June Atrazine)	*E. coli* & Atrazine TMDLs approved 5/12
LO4-10110	Spring Branch		NA		NA		NA	NA	3		
LO4-10120	Clear Creek		NA		NA		NA	NA	3		
LO4-10200	Mud Creek	I	I		S		S	I	5	Recreation (*E. coli*), Aquatic Life - Impaired Aquatic Community (Unknown)	*E. coli* TMDL approved 5/12
LO4-10210	Dutchman Valley		NA		NA		NA	NA	3		
LO4-20000	South Loup River	I	S		S		S	I	4a	Recreation (*E. coli*)	*E. coli* TMDL approved 1/06, *E. coli* Impairment being addressed in the South Loup WMP beginning 9/17
LO4-20100	Spring Creek		NA		NA		NA	NA	3		

Waterbody ID	Waterbody Name	Recreation	Aquatic Life	Water Supply			Aesthetics	Overall	2020 IR	Impairments (Causes)	Comments/Actions
				Public Drinking	Agricultural	Industrial					
LO4-30000	South Loup River	I	S		S		S	I	5-alt	Recreation (*E. coli*)	*E. coli* Impairment being addressed in the South Loup WMP beginning 9/17
LO4-30100	Sand Creek		NA		NA		NA	NA	3		
LO4-30200	Unnamed Creek		NA		NA		NA	NA	3		
LO4-40000	South Loup River	I	S		S		S	I	5-alt	Recreation (*E. coli*)	*E. coli* Impairment being addressed in the South Loup WMP beginning 9/17
LO4-40100	North Fork South Loup River		NA		NA		NA	NA	3		
LO4-50000	South Loup River		S		S		NA	S	2		

****Cancer risk compounds*** -Aroclor-1248 (PCB-1248), Aroclor-1254 (PCB-1254), Aroclor-1260 (PCB-1260), cis-chlordane, Chlordane, trans-chlordane, DDD, DDE, DDT, Dieldrin, Heptachlor, Heptachlor Epoxide, Hexachlorobenzene, cis-nonachlor, trans-nonachlor, Oxychlordane, Pentachloroanisole, Trifluralin
Hazard index compounds- Aroclor-1254 (PCB-1254), Lindane (g-BHC), cis-chlordane, Chlordane, trans-chlordane, DDT, Dieldrin, Heptachlor, Heptachlor Epoxide, Hexachlorobenzene, cis-nonachlor, trans-nonachlor, Oxychlordane, Pentachloroanisole, Trifluralin, Mercury, Cadmium, Selenium
† See Appendix B: Ecological Justification for Excluding Specific Bio-Indicator Results When Determining Attainment Status of the Aquatic Life Beneficial Use for Nebraska's 2014 Water Quality Integrated Report

[1] XXX# designates in Title 117 an undesignated waterbody. See Title 117 Chapter 2.004.

Literature Cited:

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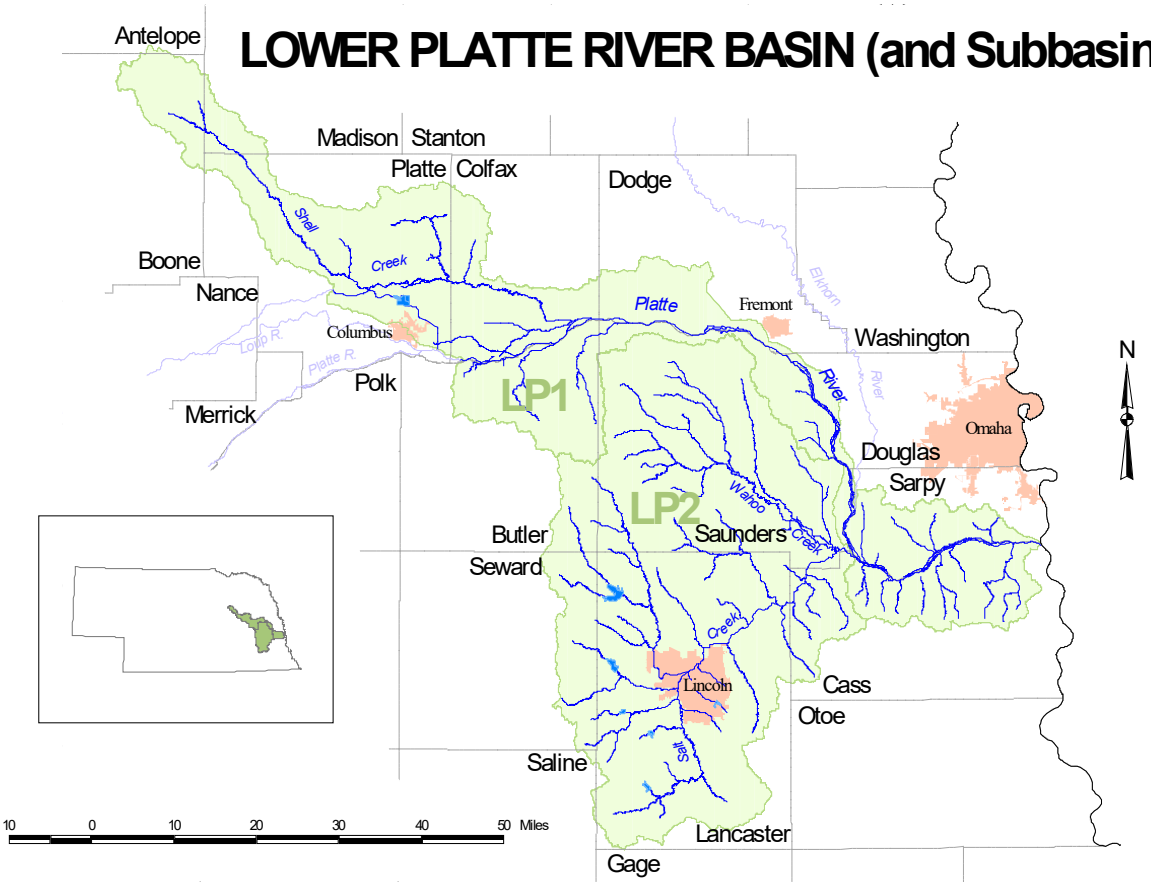


Lower Platte River Basin – Hydrologic Units 10200201, 10200202 and 10200203

The Lower Platte River Basin includes 126 designated stream segments and 76 designated lakes/reservoirs.

Waterbody Type	Primary Contact Recreation	Aquatic Life CA[1]	Aquatic Life CB[1]	Aquatic Life WA[1]	Aquatic Life WB[1]	Water Supply – Public Drinking	Water Supply –Ag	Water Supply-Ind.	Aesthetics
Lakes	76	0	1	75	0	0	76	2	76
Streams	16	0	1	13	112	2	126	1	126

[1] CA = Coldwater Class A, CB = Coldwater Class B, WA = Warmwater Class A and WB = Warmwater Class B

Delisting/ Changes from 2018 IR

The following are waters and or parameters that were delisted – removed from category 5 or other significant changes from the 2018 Integrated Report (IR).

LP1:L0060: Jenny Newman Lake (Platte River State Park) – This waterbody was listed in category 5 in the 2018 IR. The Aquatic Life use was impaired for Chlorophyll α and pH due to Total Phosphorus. Data gathered in 2017-18 determined that the Aquatic Life use is now supporting for pH. This waterbody will remain in category 5.

LP1-L0330: Fremont Lake No. 4 (SRA) – This waterbody was listed in category 4a in the 2018 IR. Upon review, while there is a completed TMDL for Phosphorus, the waterbody is also impaired for Total Nitrogen. The completed

TMDL does not address Nitrogen, therefore the waterbody should be in category 5. This error has been corrected, and the waterbody will be placed in category 5.

LP2-L0020: Hedgefield Lake (WMA) – This waterbody was listed in category 5 in the 2018 IR. The Aquatic Life use was impaired due to a Fish Consumption Advisory for Mercury. New data determined that the Aquatic Life use is now also impaired for pH. This waterbody will remain in category 5.

LP2-L0040: Holmes Lake – This waterbody was listed in category 5 in the 2018 IR. The Aquatic Life use was impaired due to a Fish Consumption Advisory for Mercury, as well as Chlorophyll α and pH due to Total Nitrogen and Total Phosphorus. New data determined that the Recreation use is now impaired for *E. coli* bacteria. This waterbody will remain in category 5.

LP2-L0150: Branched Oak Lake – This waterbody was listed in category 5 in the 2018 IR. The Aquatic Life use was impaired for Chlorophyll α and pH due to Total Nitrogen and Total Phosphorus. New data determined that the Recreation use is now impaired for *E. coli* bacteria. This waterbody will remain in category 5.

LP1-10000: Platte River – This waterbody was listed in category 5 in the 2018 IR. The Recreation use was impaired for *E. coli* bacteria, and the Aquatic Life use was impaired due to a Fish Consumption Advisory for Hazard Index Compounds. Data submitted by the United States Geological Survey concurs with the Recreation impairment. The addition of data gathered in 2017-18 determined that the Public Drinking Water Use is now impaired for Arsenic. This waterbody will remain in category 5.
(*Note*: In a 2019 revision of Nebraska's water quality standards, the drinking water standard for Arsenic was lowered from 10 µg/L to 0.18 µg/L. Under the Safe Drinking Water Act, the EPA recommended drinking water standard for Arsenic remains at 10 µg/L.)

LP1-20000: Platte River – This waterbody was listed in category 1 in the 2018 IR. The addition of data gathered in 2017-18 determined that the Public Drinking Water Use is now impaired for Arsenic. Data gathered in 2018 by the United States Geological Survey determined that the Recreation use is now impaired for *E. coli* bacteria. This waterbody will be placed in category 5.
(*Note*: In a 2019 revision of Nebraska's water quality standards, the drinking water standard for Arsenic was lowered from 10 µg/L to 0.18 µg/L. Under the Safe Drinking Water Act, the EPA recommended drinking water standard for Arsenic remains at 10 µg/L.)

Waterbody ID	Waterbody Name	Recreation	Aquatic Life	Water Supply			Aesthetics	Overall	2020 IR	Impairments (Causes)	Comments/Actions
				Public Drinking	Agricultural	Industrial					
Lakes											
LP1-L0010	Louisville Lake No. 1 (SRA)	S	NA		NA		NA	S	2		
LP1-L0020	Louisville Lake No. 1A (SRA)	NA	S		NA		NA	S	2		
LP1-L0030	Louisville Lake No. 2 (SRA)	S	S		NA		S	S	2		
LP1-L0040	Louisville Lake No. 3 (SRA)	S	NA		NA		NA	S	2		
LP1-L0050	Louisville Lake No. 2A (SRA)	S	NA		NA		NA	S	2		
LP1-L0060	Jenny Newman Lake (Platte River State Park)	NA	I		NA		NA	I	5	Aquatic Life - Chlorophyll α (Total Phosphorus)	
LP1-L0070	Schramm Park Ponds (10 Ponds) (SRA)	NA	NA		NA		NA	NA	3		
LP1-L0080	Qwest Lake (Mahoney State Park)	S	NA		NA		NA	S	2		Name changed from U.S. West Lake to Qwest Lake in 2012
LP1-L0090	Baright Lake (Mahoney State Park)	S	NA		NA		NA	S	2		Name changed from Owen Marina Lake to Baright Lake in 2012
LP1-L0100	Two Rivers Lake No. 5 (SRA)	S	S		NA		NA	S	2		
LP1-L0110	Two Rivers Carp Lake (SRA)	NA	NA		NA		NA	NA	3		
LP1-L0120	Two Rivers Lake No. 6 (SRA)	S	NA		NA		NA	S	2		

Waterbody ID	Waterbody Name	Recreation	Aquatic Life	Water Supply			Aesthetics	Overall	2020 IR	Impairments (Causes)	Comments/Actions
				Public Drinking	Agricultural	Industrial					
LP1-L0130	Two Rivers Lake No. 1 and 2 (SRA)	S	I		NA		NA	I	5	Aquatic Life - Fish Consumption Advisory (Mercury)	
LP1-L0140	Two Rivers Lake No. 3 (SRA)	S	NA		NA		NA	S	2		
LP1-L0150	Two Rivers Lake No. 4 (SRA)	S	NA		NA		S	S	2		
LP1-L0160	Fremont Lake No. 14 (SRA)	NA	NA		NA		NA	NA	3		
LP1-L0170	Fremont Lake No. 13 (SRA)	NA	NA		NA		NA	NA	3		
LP1-L0180	Fremont Lake No. 12 (SRA)	S	I		S		S	I	5	Aquatic Life - Chlorophyll α (Total Nitrogen, Total Phosphorus)	
LP1-L0190	Fremont Lake No. 19 (SRA)	NA	NA		NA		NA	NA	3		
LP1-L0200	Fremont Lake No. 15 (Victory) (SRA)	S	I		S		S	I	5	Aquatic Life - Chlorophyll α (Total Nitrogen, Total Phosphorus)	
LP1-L0210	Fremont Lake No. 11 (SRA)	NA	I		NA		NA	I	5	Aquatic Life - Fish Consumption Advisory (Mercury)	
LP1-L0220	Fremont Lake No. 18E (SRA)	S	I		S		S	I	5	Aquatic Life - Chlorophyll α (Total Nitrogen, Total Phosphorus)	
LP1-L0230	Fremont Lake No. 17 (SRA)	S	I		S		S	I	5	Aquatic Life - Chlorophyll α, pH (Total Nitrogen, Total Phosphorus)	Phosphorus TMDL to address Total Phosphorus, Chlorophyll α & pH approved 1/13
LP1-L0240	Fremont Lake No. 10 (SRA)	S	I		S		S	I	5	Aquatic Life - Chlorophyll α (Total Nitrogen, Total Phosphorus)	
LP1-L0250	Fremont Lake No. 20 (SRA)	S	I		S		S	I	5	Aquatic Life - Fish Consumption Advisory (Mercury), Chlorophyll α (Total Nitrogen, Total Phosphorus)	Phosphorus TMDL to address Algal Toxins approved 9/07

Waterbody ID	Waterbody Name	Recreation	Aquatic Life	Water Supply			Aesthetics	Overall	2020 IR	Impairments (Causes)	Comments/Actions
				Public Drinking	Agricultural	Industrial					
LP1-L0270	Fremont Lake No. 16 (SRA)	S	I		S		S	I	5	Aquatic Life - Chlorophyll α, pH (Total Nitrogen, Total Phosphorus)	Phosphorus TMDL to address Chlorophyll α & pH approved 1/13
LP1-L0280	Fremont Lake No. 9 (SRA)	S	I		S		S	I	5	Aquatic Life - Chlorophyll α (Total Nitrogen, Total Phosphorus)	
LP1-L0290	Fremont Lake No. 1 (SRA)	S	I		S		S	I	5	Aquatic Life - Fish Consumption Advisory (Mercury)	Phosphorus TMDL to address Total Phosphorus, Chlorophyll α, Dissolved Oxygen and pH approved 1/13
LP1-L0300	Fremont Lake No. 2 (SRA)	S	I		S		S	I	5	Aquatic Life - Chlorophyll α, pH (Total Nitrogen, Total Phosphorus)	Phosphorus TMDL to address Total Phosphorus & Chlorophyll α approved 1/13
LP1-L0310	Fremont Lake No. 3 (SRA)	S	I		S		S	I	5	Aquatic Life - Chlorophyll α, Dissolved Oxygen (Total Nitrogen, Total Phosphorus)	Phosphorus TMDL to address Total Phosphorus, Chlorophyll α, & Dissolved Oxygen approved 1/13
LP1-L0315	Fremont Lake No. 3A (SRA)	NA	NA		NA		NA	NA	3		
LP1-L0320	Fremont Lake No. 5 (SRA)	S	I		S		S	I	5	Aquatic Life - Chlorophyll α, pH (Total Nitrogen, Total Phosphorus)	Phosphorus TMDL to address Total Phosphorus, Chlorophyll α, pH, & Dissolved Oxygen approved 1/13
LP1-L0330	Fremont Lake No. 4 (SRA)	S	I		S		S	I	5	Aquatic Life - Chlorophyll α, pH (Total Nitrogen, Total Phosphorus)	Phosphorus TMDL to address Total Phosphorus, Chlorophyll α & pH approved 1/13
LP1-L0340	Fremont Lake No. 6 (SRA)	NA	NA		NA		NA	NA	3		
LP1-L0350	Fremont Lake No. 7 and 8 (SRA)	S	I		S		S	I	5	Aquatic Life - Chlorophyll α, pH (Total Nitrogen, Total Phosphorus)	Phosphorus TMDL to address Total Phosphorus, Chlorophyll α & pH approved 1/13
LP1-L0355	Homestead Lake	S	I		NA		NA	I	5	Aquatic Life - Fish Consumption Advisory (Mercury), Chlorophyll α (Total Nitrogen, Total Phosphorus)	

Waterbody ID	Waterbody Name	Recreation	Aquatic Life	Water Supply			Aesthetics	Overall	2020 IR	Impairments (Causes)	Comments/Actions
				Public Drinking	Agricultural	Industrial					
LP1-L0360	Schuyler East Park Pond	NA	NA		NA		NA	NA	3		
LP1-L0370	Schuyler City Lake (South Park Lake)	NA	NA		NA		I	I	4r	Aesthetics - Algae Blooms (Unknown)	Lake renovated in 2006
LP1-L0380	Camp Luther Pond	NA	NA		NA		NA	NA	3		
LP1-L0390	McAllister Lake	NA	NA		NA		NA	NA	3		
LP1-L0400	Christopher Cove Lake	NA	NA		NA		NA	NA	3		
LP1-L0410	Country Club Shores Lake	NA	NA		NA		NA	NA	3		
LP1-L0420	Columbus Country Club Lake	NA	NA		NA		NA	NA	3		
LP1-L0430	Oconee Siphon Pond	NA	NA		NA		NA	NA	3		
LP1-L0440	Lake North	S	I		S	S	S	I	5	Aquatic Life - Chlorophyll α, pH (Total Phosphorus)	
LP1-L0450	Lake Babcock	I	I		NA	S	S	I	5	Recreation (*E. coli*), Aquatic Life - Fish Consumption Advisory (Mercury)	
LP2-L0010	Memphis Lake (SRA)	S	I		S		NA	I	5	Aquatic Life - Fish Consumption Advisory (Mercury)	
LP2-L0015	Lake Wanahoo	NA	I		NA		NA	I	5	Aquatic Life - Fish Consumption Advisory (Mercury)	New lake built in 2012
LP2-L0020	Hedgefield Lake (WMA)	NA	I		NA		NA	I	5	Aquatic Life - Fish Consumption Advisory (Mercury), pH	

Waterbody ID	Waterbody Name	Recreation	Aquatic Life	Water Supply			Aesthetics	Overall	2020 IR	Impairments (Causes)	Comments/Actions
				Public Drinking	Agricultural	Industrial					
LP2-L0030	Wagon Train Lake	S	I		S		S	I	5	Aquatic Life - Chlorophyll α (Total Nitrogen, Total Phosphorus)	Phosphorus TMDL to address Total Phosphorus & Dissolved Oxygen and Sediment TMDLs approved 10/02, Lake Renovated 2001
LP2-L0040	Holmes Lake	I	I		S		S	I	5	Recreation (*E. coli*), Aquatic Life - Fish Consumption Advisory (Mercury), Chlorophyll α, pH (Total Nitrogen, Total Phosphorus)	Phosphorus TMDL to address Total Phosphorus & Dissolved Oxygen and Sediment TMDLs approved 7/03, Lake renovated 2005
LP2-L0050	Stagecoach Lake	S	I		S		I	I	5	Aquatic Life - Chlorophyll α (Total Nitrogen, Total Phosphorus), Aesthetics (Sediment)	
LP2-L0060	Oak Lake	NA	I		NA		S	I	5	Aquatic Life - Dissolved Oxygen (Unknown), (Natural Chlorides)	TN and TP not assessed, Salinity is natural.
LP2-L0065	Regional Center Pond	NA	NA		NA		NA	NA	3		
LP2-L0070	Cottontail Lake (17A)	S	I		NA		NA	I	5	Aquatic Life - Fish Consumption Advisory (Mercury)	
LP2-L0080	Killdeer Lake (WMA)	NA	S		NA		NA	S	2		
LP2-L0090	Yankee Hill Lake	S	I		S		S	I	5	Aquatic Life - Fish Tissue Advisory (Mercury), Chlorophyll α, pH (Total Nitrogen, Total Phosphorus)	Phosphorus TMDL to address Total Phosphorus and Sediment TMDLs approved 9/02, Lake Renovated in 2006 and reassessed in 2015-16
LP2-L0100	Bowling Lake	NA	I		NA		S	I	5	Aquatic Life - Fish Tissue Advisory (Mercury), Chlorophyll α, pH (Total Nitrogen, Total Phosphorus)	Sediment TMDL approved 3/01, Lake Renovated in 2006
LP2-L0110	Bluestem Lake	I	I		S		I	I	5	Recreation (*E. coli),* Aquatic Life - Chlorophyll α (Total Nitrogen, Total Phosphorus), Aesthetics (Sediment)	

Waterbody ID	Waterbody Name	Recreation	Aquatic Life	Water Supply			Aesthetics	Overall	2020 IR	Impairments (Causes)	Comments/Actions
				Public Drinking	Agricultural	Industrial					
LP2-L0120	Wildwood Lake	S	I		S		S	I	5	Aquatic Life - Fish Consumption Advisory (Mercury), Chlorophyll α, Dissolved Oxygen (Total Nitrogen, Total Phosphorus)	Lake Renovated 2004
LP2-L0130	Conestoga Lake	S	I		S		I	I	5	Aquatic Life - Chlorophyll α (Total Nitrogen, Total Phosphorus), Aesthetics (Sediment)	Lake drained for renovation in 2018
LP2-L0140	Olive Creek Lake	S	I		S		S	I	5	Aquatic Life - Fish Consumption Advisory (Mercury), Chlorophyll α, pH, Dissolved Oxygen (Total Nitrogen, Total Phosphorus)	
LP2-L0150	Branched Oak Lake	I	I		S		S	I	5	Recreation (*E. coli*), Aquatic Life - Chlorophyll α (Total Nitrogen, Total Phosphorus)	
LP2-L0160	Pawnee Lake	S	I		S		I	I	5	Aquatic Life - Fish Tissue Advisory (Mercury), Chlorophyll α (Total Nitrogen, Total Phosphorus), Aesthetics (Sediment)	Sediment TMDL approved 3/01
LP2-L0170	Merganser Lake (25A)	NA	I		NA		NA	I	5	Aquatic Life - Fish Consumption Advisory (Mercury)	
LP2-L0180	Teal Lake (27C)	NA	NA		NA		NA	NA	3		
LP2-L0190	Red Cedar Lake	S	I		NA		NA	I	5	Aquatic Life - Fish Consumption Advisory (Mercury)	
LP2-L0200	Wild Plum Lake (26A)	S	I		NA		NA	I	5	Aquatic Life - Fish Consumption Advisory (Mercury)	
LP2-L0210	Tanglewood Lake (27C)	NA	NA		NA		NA	NA	3		
LP2-L0220	Meadowlark Lake	S	I		S		S	I	5	Aquatic Life - Fish Consumption Advisory (Mercury), Chlorophyll α	Lake renovated 2006

Waterbody ID	Waterbody Name	Recreation	Aquatic Life	Water Supply			Aesthetics	Overall	2020 IR	Impairments (Causes)	Comments/Actions
				Public Drinking	Agricultural	Industrial					
										(Total Nitrogen, Total Phosphorus)	
LP2-L0230	Twin Lakes WMA Pond	NA	NA		NA		NA	NA	3		
LP2-L0240	East Twin Lake	S	I		S		S	I	5	Aquatic Life - Chlorophyll α (Total Nitrogen, Total Phosphorus)	
LP2-L0250	Timber Point Lake (6C)	S	I		NA		NA	I	5	Aquatic Life - Fish Consumption Advisory (Mercury)	
LP2-L0260	West Twin Lake	NA	I		S		S	I	5	Aquatic Life - Chlorophyll α (Total Nitrogen, Total Phosphorus), (Ammonia)	
LP2-L0270	Czechland Lake	NA	I		S		S	I	5	Aquatic Life - Fish Consumption Advisory (Mercury), Chlorophyll α, pH (Total Nitrogen, Total Phosphorus)	
LP2-L0280	Redtail Lake	NA	I		NA		NA	I	5	Aquatic Life - Fish Consumption Advisory (Mercury), Chlorophyll α (Total Phosphorus)	
Streams											
LP1-10000	Platte River	I	I	I	S		S	I	5	Recreation (*E. coli),* Aquatic Life - Fish Consumption Advisory (Hazard Index Compounds*)	E. coli TMDL approved 9/07
LP1-10100	Fourmile Creek		S		S		S	S	1		
LP1-10110	Eightmile Creek		S		NA		S	S	2		
LP1-10111	Bachelor Branch		NA		NA		NA	NA	3		

Waterbody ID	Waterbody Name	Recreation	Aquatic Life	Water Supply			Aesthetics	Overall	2020 IR	Impairments (Causes)	Comments/Actions
				Public Drinking	Agricultural	Industrial					
LP1-10200	Fourmile Creek		S		NA		S	S	2		
LP1-10210	Unnamed Creek		NA		NA		NA	NA	3		
LP1-10300	Fourmile Creek		NA		NA		NA	NA	3		
LP1-10400	Zwiebel Creek		NA		NA		NA	NA	3		
LP1-10410	Unnamed Creek		NA		NA		NA	NA	3		
LP1-10500	Zwiebel Creek		NA		NA		NA	NA	3		
LP1-10600	Turkey Creek		NA		NA		NA	NA	3		
LP1-10700	Cedar Creek		NA		NA		NA	NA	3		
LP1-10710	Unnamed Creek		NA		NA		NA	NA	3		
LP1-10800	Cedar Creek		NA		NA		NA	NA	3		
LP1-10900	Springfield Creek		S		S		NA	S	2		
LP1-11000	Buffalo Creek		S		S		NA	S	2		
LP1-11100	Mill Creek		NA		NA		NA	NA	3		

Waterbody ID	Waterbody Name	Recreation	Aquatic Life	Water Supply			Aesthetics	Overall	2020 IR	Impairments (Causes)	Comments/Actions
				Public Drinking	Agricultural	Industrial					
LP1-11200	Decker Creek	I	S		S		S	I	5	Recreation (*E. coli*)	
LP1-11300	Fountain Creek		S		S		NA	S	2		
LP1-11400	Unnamed Creek		NA		NA		NA	NA	3		
LP1-11500	Pawnee Creek		S		NA		S	S	2		
LP1-11510	West Branch Pawnee Creek		NA		NA		NA	NA	3		
LP1-11600	Pawnee Creek		S		NA		S	S	2		
LP1-11700	Western Sarpy Ditch		S		NA		S	S	2		
LP1-20000	Platte River	I	S	I	S		S	S	5	Recreation (*E. coli*), Public Drinking Water Supply (Arsenic)	E. coli TMDL approved 9/07
LP1-20100	Clear Creek		NA		NA		NA	NA	3		
LP1-20110	Upper Clear Creek		NA		NA		NA	NA	3		
LP1-20200	Clear Creek		NA		NA		NA	NA	3		
LP1-20300	Otoe Creek		NA		NA		NA	NA	3		
LP1-20400	Skull Creek		S		S		S	S	1		

Waterbody ID	Waterbody Name	Recreation	Aquatic Life	Water Supply			Aesthetics	Overall	2020 IR	Impairments (Causes)	Comments/Actions
				Public Drinking	Agricultural	Industrial					
LP1-20410	Unnamed Creek		NA		NA		NA	NA	3		
LP1-20500	Skull Creek		NA		NA		NA	NA	3		
LP1-20600	Shell Creek	I	S		S		S	I	5	Recreation (*E. coli*)	
LP1-20610	Taylor Creek		NA		NA		NA	NA	3		
LP1-20620	Loseke Creek		S		S		NA	S	2		
LP1-20621	Schaad Creek		NA		NA		NA	NA	3		
LP1-20621.1	Unnamed Creek		NA		NA		NA	NA	3		
LP1-20630	Loseke Creek		S		NA		S	S	2		
LP1-20631	Unnamed Creek		NA		NA		NA	NA	3		
LP1-20640	Loseke Creek		S		NA		S	S	2		
LP1-20700	Shell Creek		S		S		S	S	1		Atrazine TMDL approved 9/07
LP1-20710	Unnamed Creek		NA		NA		NA	NA	3		
LP1-20720	Elm Creek		S		NA		S	S	2		

Waterbody ID	Waterbody Name	Recreation	Aquatic Life	Water Supply			Aesthetics	Overall	2020 IR	Impairments (Causes)	Comments/Actions
				Public Drinking	Agricultural	Industrial					
LP1-20800	Shell Creek		I		S		S	I	5	Aquatic Life - Impaired Aquatic Community (Unknown)	
LP1-20810	North Shell Creek		NA		NA		NA	NA	3		
LP1-20900	Shell Creek		NA		NA		NA	NA	3		
LP1-21000	Lost Creek		S		S		NA	S	2		
LP1-21010	Shonka Ditch		S		NA		NA	S	2		
LP1-21100	Lost Creek		S		NA		S	S	2		
LP1-21200	Lost Creek		NA		NA		NA	NA	3		
LP1-21300	Bone Creek		S		S		NA	S	2		
LP1-21310	Unnamed Creek		NA		NA		NA	NA	3		
LP1-21400	Bone Creek		S		NA		S	S	2		
LP1-21500	Unnamed Creek		NA		NA		NA	NA	3		
LP1-21600	Deer Creek		NA		NA		NA	NA	3		
LP1-21700	Unnamed Creek		NA		NA		NA	NA	3		

Waterbody ID	Waterbody Name	Recreation	Aquatic Life	Water Supply			Aesthetics	Overall	2020 IR	Impairments (Causes)	Comments/Actions
				Public Drinking	Agricultural	Industrial					
LP1-21800	Loup River Canal	S	S		NA	S	S	S	2		
LP1-SXXX1	Unnamed Creek		I				S	I	5	Aquatic Life - Impaired Aquatic Community (Unknown)	
LP2-10000	Salt Creek	I	S				S	I	4a	Recreation (*E. coli*)	E. coli TMDL approved 9/07
LP2-10100	Wahoo Creek	I	S		S		S	I	4a	Recreation (*E. coli*)	E. coli TMDL approved 9/07
LP2-10110	Clear Creek	I	S		S		S	I	5	Recreation (*E. coli*)	
LP2-10111	Silver Creek		S		S		NA	S	2		
LP2-10120	Clear Creek		I		S		NA	I	5	Aquatic Life (Ammonia)	
LP2-10121	Johnson Creek		I		NA		NA	I	5	Aquatic Life - Impaired Aquatic Community (Unknown), (May-June Atrazine)	
LP2-10130	Clear Creek		S		S		NA	S	2		
LP2-10140	Silver Creek		I		S		S	I	5	Aquatic Life - Impaired Aquatic Community (Unknown)	
LP2-10150	Mosquito Creek		S		S		NA	S	2		
LP2-10160	Sand Creek		I		S		S	I	5	Aquatic Life (May-June Atrazine)	
LP2-10161	Duck Creek		S		S		S	S	1		

Waterbody ID	Waterbody Name	Recreation	Aquatic Life	Water Supply			Aesthetics	Overall	2020 IR	Impairments (Causes)	Comments/Actions
				Public Drinking	Agricultural	Industrial					
LP2-10170	Sand Creek		S		S		S	S	1		
LP2-10171	Spring Creek		NA		NA		NA	NA	3		
LP2-10180	Sand Creek		S		NA		S	S	2		
LP2-10200	Wahoo Creek		S		S		NA	S	2		
LP2-10210	Cottonwood Creek		I		S		NA	I	5	Aquatic Life - Impaired Aquatic Community (Unknown)	
LP2-10211	Unnamed Creek		S		NA		S	S	2		
LP2-10220	Miller Branch		S		S		S	S	1		
LP2-10230	North Fork Wahoo Creek		S		S		NA	S	2		
LP2-10231	Unnamed Creek		S		NA		S	S	2		
LP2-10240	North Fork Wahoo Creek		NA		NA		NA	NA	3		
LP2-10300	Wahoo Creek		S		S		NA	S	2		
LP2-10310	Dunlap Creek		NA		NA		NA	NA	3		
LP2-10400	Wahoo Creek		S		NA		S	S	2		

Waterbody ID	Waterbody Name	Recreation	Aquatic Life	Water Supply			Aesthetics	Overall	2020 IR	Impairments (Causes)	Comments/Actions
				Public Drinking	Agricultural	Industrial					
LP2-10500	Callahan Creek		I		NA		NA	I	4c	Aquatic Life - Iron (Naturally Elevated)	
LP2-10600	Robinson Creek		I		NA		NA	I	4c	Aquatic Life - Iron (Naturally Elevated)	
LP2-10700	Greenwood Creek		I		NA		NA	I	4c	Aquatic Life - Iron (Naturally Elevated)	
LP2-10800	Dee Creek		I		NA		S	I	4c	Aquatic Life - Iron (Naturally Elevated)	
LP2-10900	Camp Creek		I		NA		S	I	4c	Aquatic Life - Iron (Naturally Elevated)	
LP2-11000	Rock Creek		I		S		S	I	4c	Aquatic Life - Iron (Naturally Elevated)	
LP2-11010	North Fork Rock Creek		I		NA		S	I	4c	Aquatic Life - Iron (Naturally Elevated)	
LP2-11100	Rock Creek		S		NA		S	S	2		
LP2-11110	Ash Hollow Creek		NA		NA		NA	NA	3		
LP2-11120	Little Rock Creek		NA		NA		NA	NA	3		
LP2-11200	Rock Creek		NA		NA		NA	NA	3		
LP2-20000	Salt Creek	I	I				S	I	5	Recreation (E. coli), Aquatic Life (Aluminum)	E. coli TMDL approved 9/07
LP2-20100	Jordan Creek		NA		NA		NA	NA	3		

Waterbody ID	Waterbody Name	Recreation	Aquatic Life	Water Supply			Aesthetics	Overall	2020 IR	Impairments (Causes)	Comments/Actions
				Public Drinking	Agricultural	Industrial					
LP2-20200	Stevens Creek		S		S		NA	S	2		
LP2-20300	Little Salt Creek		I				S	I	5	Aquatic Life - Impaired Aquatic Community (Unknown), (Copper, Ammonia)	
LP2-20400	Dead Man's Run	I	I		S		S	I	5	Recreation (E. coli), Aquatic Life - Dissolved Oxygen (Unknown), pH (Naturally Elevated)	E. coli TMDL approved 9/07
LP2-20500	Oak Creek	I	I				S	I	5	Recreation (E. coli), Aquatic Life - Fish Consumption Advisory (Mercury), (Chloride)	E. coli TMDL approved 9/07
LP2-20510	Elk Creek		S		S		NA	S	2		
LP2-20511	West Oak Creek		NA		NA		NA	NA	3		
LP2-20520	Elk Creek		NA		NA		NA	NA	3		
LP2-20600	Oak Creek	I	I		S		S	I	5	Recreation (*E. coli*), Aquatic Life - Impaired Aquatic Community (Unknown)	
LP2-20610	North Oak Creek		S		NA		S	S	2		
LP2-20611	Wagon Tongue Creek		NA		NA		NA	NA	3		
LP2-20612	Bates Branch		S		NA		S	S	2		
LP2-20700	Oak Creek		S		NA		S	S	2		

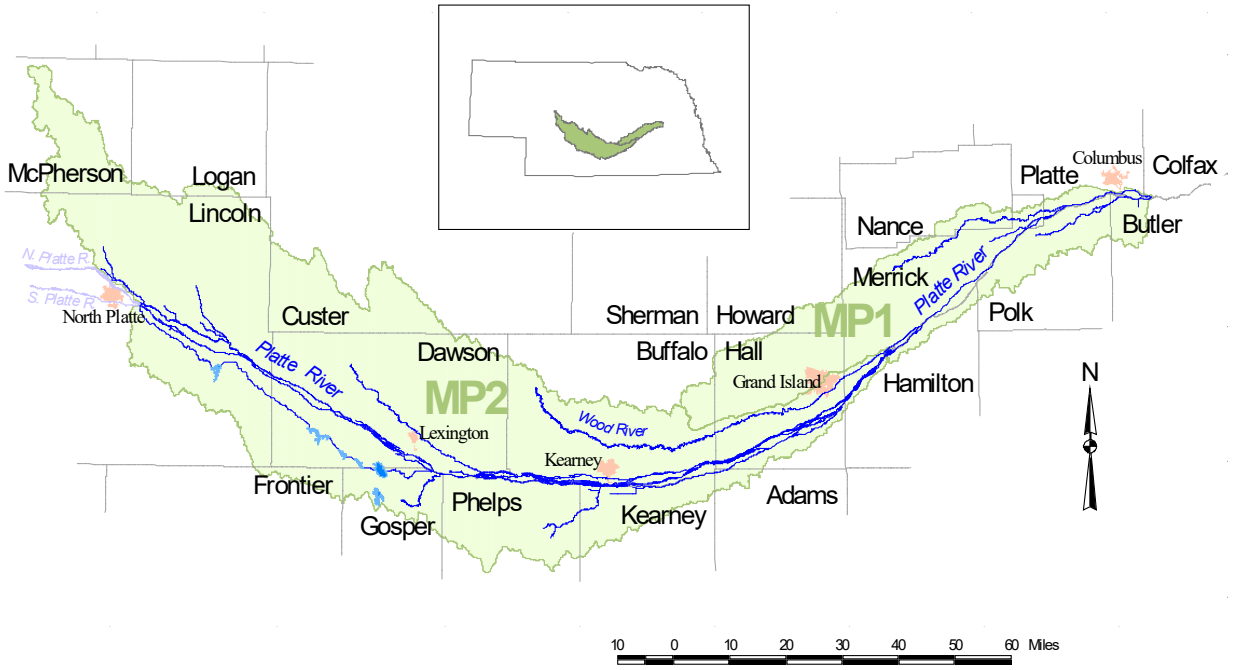
Waterbody ID	Waterbody Name	Recreation	Aquatic Life	Water Supply			Aesthetics	Overall	2020 IR	Impairments (Causes)	Comments/Actions
				Public Drinking	Agricultural	Industrial					
LP2-20710	Middle Oak Creek		I		S		S	I	5	Aquatic Life (May-June Atrazine)	
LP2-20800	Oak Creek		I		S		S	I	5	Aquatic Life (May-June Atrazine)	
LP2-20900	Antelope Creek	S	I				S	I	5	Aquatic Life (Copper)	E. coli and Ammonia TMDLs approved 9/07
LP2-21000	Middle Creek		S		S		S	S	1		
LP2-21010	South Branch Middle Creek		NA		NA		NA	NA	3		
LP2-21100	Middle Creek		I		S		S	I	4a	Aquatic Life (May-June Atrazine)	Atrazine TMDL approved 9/07
LP2-21200	Haines Branch		S				NA	S	2		
LP2-21210	Holmes Creek		S		S		S	S	1		
LP2-21300	Haines Branch		NA		NA		NA	NA	3		
LP2-21310	Cheese Creek		NA		NA		NA	NA	3		
LP2-21400	Haines Branch		NA		NA		NA	NA	3		
LP2-21500	Beal Slough	I	S		S		S	I	5	Recreation (*E. coli*)	
LP2-30000	Salt Creek	I	I		S		S	I	5	Recreation (*E. coli*), Aquatic Life - Impaired Aquatic Community (Unknown)	E. coli TMDL approved 9/07

Waterbody ID	Waterbody Name	Recreation	Aquatic Life	Water Supply			Aesthetics	Overall	2020 IR	Impairments (Causes)	Comments/Actions
				Public Drinking	Agricultural	Industrial					
LP2-30100	Cardwell Branch	I	NA		NA		NA	I	5	Recreation (*E. coli*)	
LP2-30200	Hickman Branch		S		NA		S	S	2		
LP2-40000	Salt Creek		S		S		NA	S	2		
LP2-40100	Wittstruck Creek		NA		NA		NA	NA	3		
LP2-40200	Spring Branch		NA		NA		NA	NA	3		
LP2-40300	Olive Branch		I		S		NA	I	5	Aquatic Life - Impaired Aquatic Community (Unknown)	
LP2-40310	North Branch		S		NA		S	S	2		

Cancer risk compounds -Aroclor-1248 (PCB-1248), Aroclor-1254 (PCB-1254), Aroclor-1260 (PCB-1260), cis-chlordane, Chlordane, trans-chlordane, DDD, DDE, DDT, Dieldrin, Heptachlor, Heptachlor Epoxide, Hexachlorobenzene, cis-nonachlor, trans-nonachlor, Oxychlordane, Pentachloroanisole, Trifluralin
Hazard index compounds- Aroclor-1254 (PCB-1254), Lindane (g-BHC), cis-chlordane, Chlordane, trans-chlordane, DDT, Dieldrin, Heptachlor, Heptachlor Epoxide, Hexachlorobenzene, cis-nonachlor, trans-nonachlor, Oxychlordane, Pentachloroanisole, Trifluralin, Mercury, Cadmium, Selenium

[1] XXX# designates in Title 117 an undesignated waterbody. See Title 117 Chapter 2.0

MIDDLE PLATTE RIVER BASIN (and Subbasins)



Middle Platte River Basin – Hydrologic Units 10200101, 10200102 and 10200103

The Middle Platte River Basin includes 29 designated stream segments and 95 designated lakes/reservoirs

Waterbody Type	Primary Contact Recreation	Aquatic Life CA[1]	Aquatic Life CB[1]	Aquatic Life WA[1]	Aquatic Life WB[1]	Water Supply – Public Drinking	Water Supply – Ag	Water Supply-Ind.	Aesthetics
Lakes	97	0	0	97	0	0	97	2	97
Streams	13	0	3	12	14	1	29	1	29

[1] CA = Coldwater Class A, CB = Coldwater Class B, WA = Warmwater Class A and WB = Warmwater Class B

Delisting/ Changes from 2018 IR

The following are waters and or parameters that were delisted – removed from category 5 or other significant changes from the 2018 Integrated Report (IR).

MP1-L0060: Bader Memorial Lake No. 6 – This waterbody was listed in category 3 in the 2018 IR. Upon review, it was determined that previous data for this waterbody were incorrectly stored for Bader Memorial Lake No. 2 (MP1-L0090). The error has been corrected to reflect that the Recreation, Agricultural Water Supply, and Aesthetics uses have been assessed and are supporting. This waterbody will be placed in category 2.

MP1-L0090: Bader Memorial Lake No. 2 – This waterbody was listed in category 2 in the 2018 IR. Upon review, it was determined that previous data for Bader Memorial Lake No. 6 (MP1-L0060) were incorrectly stored for this waterbody. The error has been corrected to reflect that this waterbody has not been assessed. This waterbody will be placed in category 3.

MP2-L0230: Bassway Strip Lake No. 1 (WMA) – This waterbody was listed in category 5 in the 2018 IR. The Aquatic Life use was impaired for pH due to an unknown pollutant. New data gathered in 2017-18 determined that the Aquatic Life use is now supporting for pH. This waterbody will be placed in category 2.

MP2-L0330: Yanney Park Lake – This waterbody was listed in category 5 under a temporary Waterbody ID in the 2018 IR. This waterbody was added to Chapter 6 of Title 117 and given a permanent Waterbody ID in June 2019. The Aquatic Life use is impaired due to a Fish Consumption Advisory for Mercury. This waterbody will remain in category 5.

MP2-L0360: Cottonmill Lake – This waterbody was listed in category 5 in the 2018 IR. The Aquatic Life use was impaired due to a Fish Consumption Advisory for Mercury. An assessment of the Recreation use has determined that this waterbody is supporting for *E. coli* bacteria. This waterbody will remain in category 5.

MP2-L0560: Plum Creek Lake – This waterbody was listed in category 5 in the 2018 IR. The Aquatic Life use was impaired due to a Fish Consumption Advisory for Hazard Index Compounds and Cancer Risk Compounds. An assessment of the Recreation use has determined that this waterbody is supporting for *E. coli* bacteria. This waterbody will remain in category 5.

MP2-L0795: Pawnee Slough Lake – This waterbody was listed in category 5 under a temporary Waterbody ID in the 2018 IR. This waterbody was added to Chapter 6 of Title 117 and given a permanent Waterbody ID in June 2019. The Aquatic Life use is impaired due to a Fish Consumption Advisory for Mercury. This waterbody will remain in category 5.

MP2-10000: Platte River – This waterbody was listed in category 1 in the 2018 IR. The addition of data gathered in 2017-18 determined that the Public Drinking Water Use is now impaired for Arsenic. This waterbody will be placed in category 5.
(*Note*: In a 2019 revision of Nebraska's water quality standards, the drinking water standard for Arsenic was lowered from 10 µg/L to 0.18 µg/L. Under the Safe Drinking Water Act, the EPA recommended drinking water standard for Arsenic remains at 10 µg/L.)

MP2-10200: Wood River – This waterbody was listed in category 5 in the 2018 IR. The Aquatic Life use was impaired for Ammonia and for Aquatic Community due to an unknown pollutant. Data gathered in 2017-18 determined that the Agricultural Water Supply use is impaired for Conductivity and the Aquatic Life use is impaired for May-June Atrazine. This waterbody will remain in category 5.

Waterbody ID	Waterbody Name	Recreation	Aquatic Life	Water Supply			Aesthetics	Overall	2020 IR	Impairments (Causes)	Comments/Actions
				Public Drinking	Agricultural	Industrial					
Lakes											
MP1-L0010	Lease Lake	NA	NA		NA		NA	NA	3		
MP1-L0015	Silver Creek City Pond	S	NA		NA		S	S	2		
MP1-L0020	Mormon Trail Lake (SWA)	NA	S		NA		NA	S	2		
MP1-L0030	Hord Lake East	NA	S		NA		NA	S	2		
MP1-L0040	Hord Lake West	NA	NA		NA		NA	NA	3		
MP1-L0050	Bader Memorial Lake No. 7	NA	NA		NA		NA	NA	3		
MP1-L0060	Bader Memorial Lake No. 6	S	NA		S		S	S	2		
MP1-L0070	Bader Memorial Lake No. 5	NA	NA		NA		NA	NA	3		
MP1-L0080	Bader Memorial Lake No. 4	NA	NA		NA		NA	NA	3		
MP1-L0090	Bader Memorial Lake No. 2	NA	NA		NA		NA	NA	3		
MP1-L0100	Bader Memorial Lake No. 3	NA	NA		NA		NA	NA	3		
MP1-L0110	Bader Memorial Lake No. 1	NA	NA		NA		NA	NA	3		

Waterbody ID	Waterbody Name	Recreation	Aquatic Life	Water Supply			Aesthetics	Overall	2020 IR	Impairments (Causes)	Comments/Actions
				Public Drinking	Agricultural	Industrial					
MP1-L0120	Grand Island Detention Cell	NA	S		NA		NA	S	2	-	
MP1-L0130	Cornhusker Lake (WMA)	NA	NA		NA		NA	NA	3		
MP2-L0010	Grand Island Rest Area Lake (I-80 mile 315.0 S)	NA	NA		NA		NA	NA	3		
MP2-L0020	Grand Island Pier Lake	NA	NA		NA		NA	NA	3		
MP2-L0030	Grand Island L. E. Ray Lake	NA	I		NA		NA	I	5	Aquatic Life- Fish Consumption Advisory (Mercury)	
MP2-L0040	Grand Island Sucks Lake	NA	I		S		S	I	5	Aquatic Life - Chlorophyll α (Total Nitrogen, Total Phosphorus)	
MP2-L0050	Mormon Island Lake (SWA)	NA	S		S		S	S	2		
MP2-L0060	East Mormon Island Lake (SRA)	NA	I		NA		NA	I	5	Aquatic Life- Fish Consumption Advisory (Mercury)	
MP2-L0070	West Mormon Island Lake (SRA)	S	I		S		S	I	5	Aquatic Life - Dissolved Oxygen (Unknown)	TN and TP not assessed
MP2-L0090	Alda Rest Area Lake (I-80 mile 306.0 N)	S	S		S		S	S	1		
MP2-L0100	Cheyenne Lake (SRA)	S	I		S		S	I	5	Aquatic Life- Fish Consumption Advisory (Mercury)	
MP2-L0110	West Wood River Lake (WMA)	NA	NA		NA		NA	NA	3		
MP2-L0120	War Axe (SRA)	S	I		S		S	I	5	Aquatic Life- Fish Consumption Advisory (Mercury)	

Waterbody ID	Waterbody Name	Recreation	Aquatic Life	Water Supply			Aesthetics	Overall	2020 IR	Impairments (Causes)	Comments/Actions
				Public Drinking	Agricultural	Industrial					
MP2-L0130	Windmill Lake No. 4 (SRA)	S	S		S		NA	S	2		
MP2-L0140	Windmill Lake No. 5 (SRA)	S	S		S		NA	S	2		
MP2-L0150	Windmill Lake No. 3 (SRA)	S	S		S		NA	S	2		
MP2-L0160	Windmill Lake No. 2 (SRA)	S	S		S		NA	S	2		
MP2-L0170	Windmill Lake No. 1 (SRA)	S	S		S		NA	S	2		
MP2-L0180	Windmill Lake No. 6 (SRA)	S	S		S		NA	S	2		
MP2-L0190	Bassway Strip Lake No. 5 (WMA)	NA	I		NA		NA	I	5	Aquatic Life- Fish Consumption Advisory (Mercury)	
MP2-L0200	Bassway Strip Lake No. 4 (WMA)	NA	NA		NA		NA	NA	3		
MP2-L0210	Bassway Strip Lake No. 3 (WMA)	NA	NA		NA		NA	NA	3		
MP2-L0220	Bassway Strip Lake No. 2 (WMA)	NA	NA		NA		NA	NA	3		
MP2-L0230	Bassway Strip Lake No. 1 (WMA)	NA	S		S		S	S	2		
MP2-L0240	Bufflehead Lake (WMA)	NA	I		S		S	I	5	Aquatic Life - pH (Unknown)	TN and TP not assessed
MP2-L0250	Ft. Kearny Lake No. 1	S	NA		NA		NA	S	2		

Waterbody ID	Waterbody Name	Recreation	Aquatic Life	Water Supply			Aesthetics	Overall	2020 IR	Impairments (Causes)	Comments/Actions
				Public Drinking	Agricultural	Industrial					
MP2-L0260	Ft. Kearny Lake No. 2	S	S		S		NA	S	2		
MP2-L0270	Ft. Kearny Lake No. 3	S	S		S		NA	S	2		
MP2-L0280	Ft. Kearny Lake No. 4	S	S		S		NA	S	2		
MP2-L0290	Ft. Kearny Lake No. 5	S	S		S		NA	S	2		
MP2-L0300	Ft. Kearny Lake No. 6	S	S		S		NA	S	2		
MP2-L0310	Ft. Kearny Lake No. 7	S	S		S		NA	S	2		
MP2-L0320	Kea Lake (WMA)	NA	I		NA		NA	I	5	Aquatic Life- Fish Consumption Advisory (Mercury)	
MP2-L0330	Kearney Lake	NA	NA		NA		NA	NA	3		
MP2-L0335	Yanney Park Lake	NA	I		NA		NA	I	5	Aquatic Life - Fish Consumption Advisory (Mercury)	Previously listed as MP2-LXXX1. Permanent Waterbody ID assigned 6/19.
MP2-L0340	Kea West Lake (WMA)	NA	I		NA		NA	I	5	Aquatic Life- Fish Consumption Advisory (Mercury)	
MP2-L0350	North Kearney Rest Area Lake (I-80 mile 271.0 N)	NA	NA		NA		NA	NA	3		
MP2-L0360	Cottonmill Lake	S	I		S		S	I	5	Aquatic Life- Fish Consumption Advisory (Mercury)	
MP2-L0370	South Kearney Rest Area Lake (I-80 mile 269.0 S)	NA	NA		NA		NA	NA	3		

Waterbody ID	Waterbody Name	Recreation	Aquatic Life	Water Supply			Aesthetics	Overall	2020 IR	Impairments (Causes)	Comments/Actions
				Public Drinking	Agricultural	Industrial					
MP2-L0380	East Odessa Lake (WMA)	NA	NA		NA		NA	NA	3		
MP2-L0390	Union Pacific Lake (SRA)	S	I		S		NA	I	5	Aquatic Life- Fish Consumption Advisory (Mercury)	
MP2-L0400	Coot Shallows (WMA)	S	I		S		S	I	5	Aquatic Life- Fish Consumption Advisory (Mercury)	
MP2-L0410	Blue Hole East Lake (WMA)	NA	I		S		S	I	5	Aquatic Life - Chlorophyll α, pH (Total Phosphorus)	
MP2-L0420	Sandy Channel (WMA)	S	I		S		S	I	5	Aquatic Life- Fish Consumption Advisory (Mercury)	
MP2-L0430	Blue Hole Lake (Elm Creek) (WMA)	NA	I		NA		NA	I	5	Aquatic Life- Fish Consumption Advisory (Mercury)	
MP2-L0440	West Elm Creek Lake (WMA)	NA	NA		NA		NA	NA	3		
MP2-L0450	Overton Lake (WMA)	NA	NA		NA		NA	NA	3		
MP2-L0460	Dogwood Lake (WMA)	NA	I		NA		NA	I	5	Aquatic Life- Fish Consumption Advisory (Mercury)	
MP2-L0470	Dawson County Museum Lake	NA	NA		NA		NA	NA	3		
MP2-L0480	Interstate Lake (Lexington)	NA	NA		NA		NA	NA	3		
MP2-L0490	Plum Creek Park Lake (Lexington)	NA	NA		NA		NA	NA	3		
MP2-L0500	Phillips Lake	NA	S		NA		NA	S	2		

Waterbody ID	Waterbody Name	Recreation	Aquatic Life	Water Supply			Aesthetics	Overall	2020 IR	Impairments (Causes)	Comments/Actions
				Public Drinking	Agricultural	Industrial					
MP2-L0510	Bossung Lake	NA	NA		NA		NA	NA	3		
MP2-L0520	Johnson Lake	S	I		S	S	S	I	5	Aquatic Life - Chlorophyll α (Total Nitrogen, Total Phosphorus)	Fecal Coliform TMDL approved 9/04
MP2-L0530	Buffalo Creek Lake	NA	NA		NA		NA	NA	3		
MP2-L0540	Elwood Reservoir	S	I		S		S	I	5	Aquatic Life- Fish Consumption Advisory (Mercury)	
MP2-L0550	Darr Lake (WMA)	NA	I		NA		NA	I	5	Aquatic Life- Fish Consumption Advisory (Mercury)	
MP2-L0560	Plum Creek Lake	S	I		NA		NA	I	5	Aquatic Life - Fish Consumption Advisory (Hazard Index Compounds*, Cancer Risk Compounds)	
MP2-L0570	Gallagher Canyon Reservoir	NA	I		S		S	I	5	Aquatic Life (Total Phosphorus)	
MP2-L0580	Cozad Lake (WMA)	NA	I		S		S	I	5	Aquatic Life - Fish Consumption Advisory (Mercury), pH (Unknown)	TP & TN not assessed
MP2-L0590	West Cozad Lake (WMA)	NA	I		NA		NA	I	5	Aquatic Life - Fish Consumption Advisory (Mercury)	
MP2-L0600	East Willow Island Lake (WMA)	NA	NA		NA		NA	NA	3		
MP2-L0610	Willow Island Lake (WMA)	NA	NA		NA		NA	NA	3		
MP2-L0620	Midway Lake (8 Lakes)	NA	S		NA		NA	S	2		
MP2-L0630	East Gothenburg Lake (WMA)	NA	I		NA		NA	I	5	Aquatic Life - Fish Consumption Advisory (Mercury)	

Waterbody ID	Waterbody Name	Recreation	Aquatic Life	Water Supply			Aesthetics	Overall	2020 IR	Impairments (Causes)	Comments/Actions
				Public Drinking	Agricultural	Industrial					
MP2-L0640	Little Canyon Lake No. 2	NA	NA		NA		NA	NA	3		
MP2-L0650	Lake Helen	S	I		S		S	I	5	Aquatic Life - pH (Total Nitrogen, Total Phosphorus)	
MP2-L0660	Little Canyon Lake No. 1	NA	NA		NA		NA	NA	3		
MP2-L0680	West Gothenburg Lake (WMA)	S	S		S		S	S	1		
MP2-L0690	Brady Lake (WMA)	NA	S		S		S	S	2		
MP2-L0700	Chester Island Lake (WMA)	NA	NA		NA		NA	NA	3		
MP2-L0710	Jeffrey Reservoir	NA	S		S	S	S	S	2		
MP2-L0720	West Brady Lake (WMA)	NA	S		NA		NA	S	2		
MP2-L0730	Snell Canyon Lake No. 2	NA	NA		NA		NA	NA	3		
MP2-L0740	Snell Canyon Lake No. 1	NA	NA		NA		NA	NA	3		
MP2-L0750	Maxwell Rest Area Lake (I-80 mile 194.0 N)	NA	S		NA		NA	S	2		
MP2-L0760	Target Lake	NA	NA		NA		NA	NA	3		
MP2-L0770	Ft. McPherson Lake (SWA)	S	I		S		NA	I	5	Aquatic Life - Fish Consumption Advisory (Mercury)	

Waterbody ID	Waterbody Name	Recreation	Aquatic Life	Water Supply			Aesthetics	Overall	2020 IR	Impairments (Causes)	Comments/Actions
				Public Drinking	Agricultural	Industrial					
MP2-L0780	Cottonwood Canyon Lake	NA	NA		NA		NA	NA	3		
MP2-L0790	I-80 BLM Lake	NA	NA		NA		NA	NA	3		
MP2-L0795	Pawnee Slough Lake	NA	I		NA		NA	I	5	Aquatic Life - Fish Consumption Advisory (Mercury)	Previously listed as MP2-LXXX2. Permanent Waterbody ID assigned 6/19.
MP2-L0800	West Maxwell Lake (WMA)	NA	NA		NA		NA	NA	3		
MP2-L0810	Box Elder Canyon Lake	NA	NA		NA		NA	NA	3		
MP2-L0820	Crystal Lake	NA	NA		NA		NA	NA	3		
MP2-L0840	Fremont Slough Lake (WMA)	NA	I		NA		NA	I	5	Aquatic Life - Fish Consumption Advisory (Mercury)	
Streams											
MP1-10000	Platte River	I	S		S		S	I	4a	Recreation (*E. coli*)	Fecal coliform TMDL approved 5/03
MP1-10100	Clear Creek	I	I		S		S	I	5	Recreation (*E. coli*), Aquatic Life (Naturally High Temperature)	
MP1-10110	Wilson Creek		NA		NA		NA	NA	3		
MP1-10120	South Channel Platte River		NA		NA		NA	NA	3		
MP1-10200	Loup Power Canal	I	NA		NA		NA	I	5	Recreation (*E. coli*)	

Waterbody ID	Waterbody Name	Recreation	Aquatic Life	Water Supply			Aesthetics	Overall	2020 IR	Impairments (Causes)	Comments/Actions
				Public Drinking	Agricultural	Industrial					
MP1-20000	Platte River	I	S		S		S	I	5	Recreation (*E. coli*)	Fecal coliform TMDL approved 5/03
MP1-20100	Prairie Creek		I		S		S	I	5	Aquatic Life - Dissolved Oxygen (Unknown)	
MP1-20200	Silver Creek		NA		NA		NA	NA	3		
MP1-20300	Silver Creek		NA		NA		S	S	2		Aquatic Community Assessment completed, results were inconclusive - site will be reassessed†
MP2-10000	Platte River	S	S	I	S		S	I	5	Public Drinking Water Supply (Arsenic)	
MP2-10100	Wood River		NA		NA		NA	NA	3		
MP2-10200	Wood River		I		I		S	I	5	Aquatic Life - Impaired Aquatic Community (Unknown), (Ammonia, May-June Atrazine), Agricultural Water Supply (Conductivity)	
MP2-10300	Wood River		I		I		I	I	5	Aquatic Life - Dissolved Oxygen (Unknown), (Ammonia, Chloride), Ag Water Supply (Conductivity), Aesthetics (Unknown)	Strong sulfur smell, water is an opaque white and green color
MP2-10400	Crooked Creek		NA		NA		NA	NA	3		
MP2-20000	Platte River	S	S		S		S	S	1		Fecal coliform TMDL approved 5/03
MP2-20100	North Dry Creek		S		NA		S	S	2		

Waterbody ID	Waterbody Name	Recreation	Aquatic Life	Water Supply			Aesthetics	Overall	2020 IR	Impairments (Causes)	Comments/Actions
				Public Drinking	Agricultural	Industrial					
MP2-20110	Whiskey Slough		NA		NA		NA	NA	3		
MP2-20120	Unnamed Creek		NA		NA		NA	NA	3		
MP2-20200	Turkey Creek	NA	NA		NA		NA	NA	3		
MP2-20300	Spring Creek	I	I		S		S	I	5	Recreation (*E. coli*), Aquatic Life (Ammonia)	Aquatic Community Assessment completed, results were inconclusive - site will be reassessed†
MP2-20400	Plum Creek		I		S		S	I	5	Aquatic Life - Impaired Aquatic Community (Unknown)	
MP2-20500	Tri-County Canal	S	I		S	S	S	I	5	Aquatic Life - Fish Consumption Advisory (Hazard Index Compounds*)	
MP2-30000	Platte River	S	S		S		S	S	1	-	
MP2-40000	Platte River	S	S		S		S	S	1		Fecal coliform TMDL approved 5/03
MP2-40100	Pawnee Creek		S		NA		S	S	2		
MP2-40200	Pawnee Slough	NA	NA		NA		NA	NA	3		
MP2-40300	Unnamed Slough		NA		NA		NA	NA	3		
MP2-40400	White Horse Creek	NA	NA		NA		NA	NA	3		
MP2-40410	Unnamed Creek		NA		NA		NA	NA	3		

Waterbody ID	Waterbody Name	Recreation	Aquatic Life	Water Supply			Aesthetics	Overall	2020 IR	Impairments (Causes)	Comments/Actions
				Public Drinking	Agricultural	Industrial					
MP2-SXXX1	Buffalo Creek		NA		NA		S	S	2		Aquatic Community Assessment completed, results were inconclusive - site will be reassessed†
Wetlands											
MP2-WXXX1	Cottonwood WPA		NA		NA		NA	NA	3		
MP2-WXXX2	Linder WPA		NA		NA		NA	NA	3		

***** ***Cancer risk compounds*** -Aroclor-1248 (PCB-1248), Aroclor-1254 (PCB-1254), Aroclor-1260 (PCB-1260), cis-chlordane, Chlordane, trans-chlordane, DDD, DDE, DDT, Dieldrin, Heptachlor, Heptachlor Epoxide, Hexachlorobenzene, cis-nonachlor, trans-nonachlor, Oxychlordane, Pentachloroanisole, Trifluralin.
Hazard index compounds- Aroclor-1254 (PCB-1254), Lindane (g-BHC), cis-chlordane, Chlordane, trans-chlordane, DDT, Dieldrin, Heptachlor, Heptachlor Epoxide, Hexachlorobenzene, cis-nonachlor, trans-nonachlor, Oxychlordane, Pentachloroanisole, Trifluralin, Mercury, Cadmium, Selenium.

†See Appendix B: Ecological Justification for Excluding Specific Bio-Indicator Results When Determining Attainment Status of the Aquatic Life Beneficial Use for Nebraska's 2014 Water Quality Integrated Report

[1] XXX# designates in Title 117 an undesignated waterbody. See Title 117 Chapter 2.004.

MISSOURI TRIBUTARIES RIVER BASIN

Missouri Tributaries Basin – Hydrologic Units 10170101, 10230001 and 10230006

The Missouri Tributaries Basin includes 136 designated stream segments and 35 designated lakes. The waterbody assessment also included a lake that has not been identified in Title 117 – Nebraska Surface Water Quality Standards.

Waterbody Type	Primary Contact Recreation	Aquatic Life CA[1]	Aquatic Life CB[1]	Aquatic Life WA[1]	Aquatic Life WB[1]	Water Supply – Public Drinking	Water Supply – Ag	Water Supply-Ind.	Aesthetics
Lakes	35	0	0	35	0	1	35	1	35
Streams	21	0	3	15	118	2	136	1	136

[1] CA = Coldwater Class A, CB = Coldwater Class B, WA = Warmwater Class A and WB = Warmwater Class B

Delisting/ Changes from 2018 IR

The following are waters and or parameters that were delisted – removed from category 5 or other significant changes from the 2018 Integrated Report (IR).

MT1-L0025: Walnut Creek Lake – This waterbody was listed in category 5 in the 2018 IR. The Recreation use was impaired for *E. coli*. The Aquatic Life use was impaired due to a Fish Consumption Advisory for Mercury, and due to Chlorophyll α caused by Total Nitrogen and Total Phosphorus. Upon review, it was determined that the *E. coli* dataset used to impair the Recreation use was not the correct dataset for this waterbody. This error has been corrected to reflect that the Recreation use is supported. This waterbody will remain in category 5.

MT1-L0050: Ed Zorinsky Lake – This waterbody was listed in category 5 in the 2018 IR. The Aquatic Life use was impaired for Chlorophyll α due to Total Nitrogen and Total Phosphorus. Data gathered in 2017-18 determined that the Aquatic Life use is now supported for Total Nitrogen. This waterbody will remain in category 5.

MT1-L0063: Heartland Park Lake – This waterbody was added to Chapter 6 of Title 117 in June 2019 with the assigned beneficial uses of Recreation, Aquatic Life – Warmwater Class A, Agricultural Water Supply – Class A, and Aesthetics. The nutrient classification is Eastern. This lake is under the management of the City of Omaha. This waterbody will be placed in category 3.

MT1-L0067: Lawrence Youngman Lake – This waterbody was listed in category 5 under a temporary Waterbody ID in the 2018 IR. This waterbody was added to Chapter 6 of Title 117 and given a permanent Waterbody ID in June 2019. The Aquatic Life use is impaired due to a Fish Consumption Advisory for Mercury. This waterbody will remain in category 5.

MT1-L0090: Carter Lake – This waterbody was listed in category 4a in the 2018 IR. The Aquatic Life use was impaired due to Chlorophyll α caused by Total Nitrogen and Total Phosphorus, and the Aesthetics use was impaired due to Algae Blooms. An assessment completed in 2018 determined that the Aesthetics use is supported. This waterbody will remain in category 4a.

MT1-L0095: Flanagan Lake (Omaha) – This waterbody was added to Chapter 6 of Title 117 in June 2019 with the assigned beneficial uses of Recreation, Aquatic Life – Warmwater Class A, Agricultural Water Supply – Class A, and Aesthetics. The nutrient classification is Eastern. This lake is under the management of the City of Omaha. This waterbody will be placed in category 3.

MT1-L0100: Standing Bear Lake (Site No. 16) – This waterbody was listed in category 5 in the 2018 IR. The Aquatic Life use was impaired due to a Fish Consumption Advisory for Mercury, and due to Chlorophyll α caused by Total Nitrogen and Total Phosphorus. The Aesthetics use was impaired for Sediment. Data gathered in 2017-18 determined that the Aquatic Life use is now supported for Total Nitrogen. This waterbody will remain in category 5.

MT1-L0150: Summit Lake – This waterbody was listed in category 5 in the 2018 IR. The Recreation use was impaired for *E. coli*. The Aquatic Life use was impaired due to a Fish Consumption Advisory for Mercury, and due to Chlorophyll α caused by Total Nitrogen and Total Phosphorus. Upon review, it was determined that the *E. coli* dataset used to impair the Recreation use was not the correct dataset for this waterbody. This error has been corrected to reflect that the Recreation use is supported. This waterbody will remain in category 5.

MT1-L0185: Kramper Lake – This waterbody was incorrectly listed in category 4r in the 2018 IR. A 2016 Fish Consumption Assessment supported the Aquatic Life use, and the waterbody will not be assessed for chemical parameters until after the 8-year holding period granted to newly built lakes (Kramper Lake was built in 2014). This error has been corrected, and this waterbody will be placed in category 2.

MT1-10000: Missouri River – This waterbody was listed in category 5 in the 2018 IR. The Recreation use was impaired for *E. coli*, and the Public Drinking Water Supply use was impaired for Sulfate. Data submitted by the US

Army Corps of Engineers and the United States Geological Survey determined that the Public Drinking Water Supply use is now impaired for Arsenic. This waterbody will remain in category 5.
(*Note*: In a 2019 revision of Nebraska's water quality standards, the drinking water standard for Arsenic was lowered from 10 µg/L to 0.18 µg/L. Under the Safe Drinking Water Act, the EPA recommended drinking water standard for Arsenic remains at 10 µg/L.)

MT2-10000: Missouri River – This waterbody was listed in category 5 in the 2018 IR. The Public Drinking Water Supply use was impaired for Sulfate. Data submitted by the US Army Corps of Engineers and the United States Geological Survey determined that the Public Drinking Water Supply use is now impaired for Arsenic. This waterbody will remain in category 5.
(*Note*: In a 2019 revision of Nebraska's water quality standards, the drinking water standard for Arsenic was lowered from 10 µg/L to 0.18 µg/L. Under the Safe Drinking Water Act, the EPA recommended drinking water standard for Arsenic remains at 10 µg/L.)

MT2-12400: Bazile Creek – This waterbody was listed in category 5 in the 2018 IR. The Recreation use was impaired for *E. coli*. Data gathered in 2017-18 determined that the Aquatic Life use is impaired for Selenium. This waterbody will remain in category 5.

Waterbody ID	Waterbody Name	Recreation	Aquatic Life	Water Supply			Aesthetics	Overall	2020 IR	Impairments (Causes)	Comments/Actions
				Public Drinking	Agricultural	Industrial					
Lakes											
MT1-L0010	Offutt Lake	NA	I		NA		NA	I	5	Aquatic Life - Fish Consumption Advisory (Hazard Index Compounds*)	
MT1-L0020	Haworth Park Lake (Bellevue)	S	S		S		NA	S	2		
MT1-L0023	Halleck Park (Papillion)	NA	S		NA		S	S	2		
MT1-L0025	Walnut Creek Lake	S	I		S		S	I	5	Aquatic Life - Fish Consumption Advisory (Mercury), Chlorophyll α (Total Nitrogen, Total Phosphorus)	
MT1-L0027	Prairie Queen Lake	NA	I		NA		NA	I	5	Aquatic Life - Fish Consumption Advisory (Mercury)	New lake in 2015
MT1-L0030	Wehrspann Lake (Site No. 20)	S	I		S		S	I	5	Aquatic Life - Fish Consumption Advisory (Mercury), Chlorophyll α (Total Nitrogen, Total Phosphorus)	
MT1-L0040	Hitchcock Park Lake (Omaha)	S	I		S		S	I	5	Aquatic Life - pH (Unknown)	TN and TP not assessed
MT1-L0050	Ed Zorinsky Lake (site No. 18)	S	I		S		S	I	5	Aquatic Life - Chlorophyll α (Total Phosphorus)	Sediment and Nutrient TMDLs approved 2002
MT1-L0060	Hanscom Park Lake (Omaha)	NA	S		NA		NA	S	2		
MT1-L0063	Heartland Park Lake	NA	NA		NA		NA	NA	3		Added to Title 117 6/19
MT1-L0067	Lawrence Youngman Lake	NA	I		NA		NA	I	5	Aquatic Life - Fish Consumption Advisory (Mercury)	New lake in 2011. Previously listed as MT1-LXXX2. Permanent Waterbody ID assigned 6/19.
MT1-L0070	Fontenelle Park Lake (Omaha)	NA	NA		NA		NA	NA	3		

Waterbody ID	Waterbody Name	Recreation	Aquatic Life	Water Supply			Aesthetics	Overall	2020 IR	Impairments (Causes)	Comments/Actions
				Public Drinking	Agricultural	Industrial					
MT1-L0080	Benson Park Lake	S	NA		NA		NA	S	2		
MT1-L0090	Carter Lake	S	I		S		S	I	4a	Aquatic Life - Chlorophyll α (Total Nitrogen, Total Phosphorus)	Phosphorous TMDL to address Total Phosphorus, Nitrogen, Chlorophyll α, pH & Algal Toxins approved 9/07
MT1-L0095	Flanagan Lake (Omaha)	NA	NA		NA		NA	NA	3		Added to Title 117 6/19
MT1-L0100	Standing Bear Lake (Site No. 16)	S	I		S		I	I	5	Aquatic Life - Fish Consumption Advisory (Mercury), Chlorophyll α (Total Phosphorus), Aesthetics (Sediment)	Sediment and Phosphorus TMDL to address Total Phosphorus & Dissolved Oxygen approved 7/03
MT1-L0110	Miller Park Lake (Omaha)	S	I		S		NA	I	5	Aquatic Life - pH (Unknown)	TN and TP not assessed
MT1-L0120	Glenn Cunningham Lake (Site No. 11)	S	I		S		S	I	5	Aquatic Life - Fish Consumption Advisory (Mercury), Chlorophyll α (Total Nitrogen, Total Phosphorus)	Lake renovated 2009 and reassessed in 2018
MT1-L0130	Papio D-4 Lake	NA	NA		NA		NA	NA	3		
MT1-L0135	Prairie View Lake	NA	I		NA		NA	I	5	Aquatic Life - Fish Consumption Advisory (Mercury)	Previously assessed as MT1-LXXXX[1] Lake Bennington
MT1-L0140	DeSoto Lake (DeSoto NWR)	NA	S		NA		NA	S	2		
MT1-L0150	Summit Lake	S	I		S		S	I	5	Aquatic Life - Fish Consumption Assessment (Mercury), Chlorophyll α (Total Nitrogen, Total Phosphorus)	
MT1-L0160	Mud Creek SCS Pond	NA	NA		NA		NA	NA	3		
MT1-L0170	Middle Decatur Bend Lake (WMA)	NA	NA		NA		NA	NA	3		

Waterbody ID	Waterbody Name	Recreation	Aquatic Life	Water Supply			Aesthetics	Overall	2020 IR	Impairments (Causes)	Comments/Actions
				Public Drinking	Agricultural	Industrial					
MT1-L0180	Omadi Bend Lake (WMA)	NA	NA		NA		NA	NA	3		
MT1-L0185	Kramper Lake	NA	S		NA		NA	S	2		New Lake built in 2014
MT1-L0190	Gateway Lake	S	NA		NA		NA	S	2		
MT1-L0200	Crystal Cove Lake (South Sioux City)	S	S		S		S	S	1		
MT1-LXXX1	Candlewood Lake	S	S		NA		I	I	5	Aesthetics (Sediment)	
MT2-L0005	Powder Creek Lake	NA	I		S		S	I	5	Aquatic Life - Chlorophyll α (Total Nitrogen, Total Phosphorus)	
MT2-L0010	Buckskin Hills Lake	S	I		S		S	I	5	Aquatic Life - Fish Consumption Advisory (Mercury), Chlorophyll α (Total Phosphorus)	
MT2-L0020	Chalkrock Lake	NA	I		S		S	I	5	Aquatic Life - Chlorophyll α (Total Nitrogen, Total Phosphorus)	
MT2-L0030	Cottonwood Lake (Lake Yankton)	S	S		NA		S	S	2		
MT2-L0040	Lewis and Clark Lake	I	I	NA	S	S	S	I	5	Recreation (*E. coli*), Aquatic Life - Chlorophyll α (Unknown)	TN and TP not assessed
MT2-L0050	Crofton City Lake	NA	NA		NA		NA	NA	3		
MT2-L0060	Plainview Country Club Lake	I	NA		NA		NA	I	5	Recreation (*E. coli*)	
Streams											

Waterbody ID	Waterbody Name	Recreation	Aquatic Life	Water Supply			Aesthetics	Overall	2020 IR	Impairments (Causes)	Comments/Actions
				Public Drinking	Agricultural	Industrial					
MT1-10000	Missouri River	I	S	I	S	S	S	I	5	Public Drinking Water Supply (Sulfate, Arsenic), Recreation (*E. coli*)	
MT1-10100	Papillion Creek	I	S		S		S	I	4a	Recreation (*E. coli*)	E. coli TMDL approved 9/09
MT1-10110	Big Papillion Creek	I	S		S		S	I	4a	Recreation (*E. coli*)	E. coli TMDL approved 9/09
MT1-10111	Little Papillion Creek	I	S		S		S	I	4a	Recreation (*E. coli*)	E. coli TMDL approved 9/09
MT1-10111.1	Cole Creek	I	I		S		S	I	5	Recreation (E. coli), Aquatic Life - Dissolved Oxygen (Unknown)	E. coli TMDL approved 9/09
MT1-10111.2	Thomas Creek		I		NA		NA	I	5	Aquatic Life - Impaired Aquatic Community (Unknown)	
MT1-10112	Little Papillion Creek		S		S		S	S	1		
MT1-10120	Big Papillion Creek	I	S		S		S	I	4a	Recreation (*E. coli*)	E. coli TMDL approved 9/09
MT1-10121	Butter Flat Creek		NA		NA		NA	NA	3		
MT1-10130	Big Papillion Creek		NA		NA		NA	NA	3		
MT1-10131	Unnamed Creek		NA		NA		NA	NA	3		
MT1-10132	Northwest Branch		NA		NA		NA	NA	3		
MT1-10140	Big Papillion Creek		S		NA		S	S	2		

Waterbody ID	Waterbody Name	Recreation	Aquatic Life	Water Supply			Aesthetics	Overall	2020 IR	Impairments (Causes)	Comments/Actions
				Public Drinking	Agricultural	Industrial					
MT1-10200	Papillion Creek	I	NA		NA		NA	I	4a	Recreation (*E. coli*)	E. coli TMDL approved 9/09
MT1-10210	Walnut Creek		I		S		S	I	5	Aquatic Life - Impaired Aquatic Community (Unknown)	
MT1-10220	Hell Creek		NA		NA		NA	NA	3		
MT1-10230	South Papillion Creek		NA		NA		NA	NA	3		
MT1-10231	Unnamed Creek		S		S		S	S	2		
MT1-10240	South Papillion Creek		I		S		NA	I	5	Aquatic Life - Impaired Aquatic Community (Unknown)	
MT1-10250	West Papillion Creek		S		S		NA	S	2		
MT1-10251	Boxelder Creek		S		S		S	S	1		
MT1-10252	North Branch West Papillion Creek		I		NA		I	I	5	Aquatic Life - Impaired Aquatic Community (Unknown), Aesthetics (Trash in the stream)	
MT1-10260	West Papillion Creek		NA		NA		NA	NA	3		
MT1-10300	Ponca Creek		I		NA		S	I	5	Aquatic Life - Impaired Aquatic Community (Unknown)	
MT1-10400	Deer Creek		NA		NA		NA	NA	3		
MT1-10500	Turkey Creek		NA		NA		NA	NA	3		

Waterbody ID	Waterbody Name	Recreation	Aquatic Life	Water Supply			Aesthetics	Overall	2020 IR	Impairments (Causes)	Comments/Actions
				Public Drinking	Agricultural	Industrial					
MT1-10600	Moores Creek		NA		NA		NA	NA	3		
MT1-10700	Long Creek		S		NA		S	S	2		
MT1-10710	Mill Creek		NA		NA		NA	NA	3		
MT1-10800	Long Creek		I		NA		NA	I	4c	Aquatic Life - Impaired Aquatic Community (In-stream structures prevent fish passage)	
MT1-10900	Cameron Ditch		S		S		NA	S	2		
MT1-10910	Couble Creek		NA		NA		NA	NA	3		
MT1-10920	South Creek		NA		NA		NA	NA	3		
MT1-10930	North Creek		NA		NA		NA	NA	3		
MT1-10940	Stuart Creek		NA		NA		NA	NA	3		
MT1-11000	Cameron Ditch		NA		NA		NA	NA	3		
MT1-11100	Hill Creek		NA		NA		NA	NA	3		
MT1-11110	New York Creek		S		S		NA	S	2		
MT1-11120	Carr Creek		NA		NA		NA	NA	3		

Waterbody ID	Waterbody Name	Recreation	Aquatic Life	Water Supply			Aesthetics	Overall	2020 IR	Impairments (Causes)	Comments/Actions
				Public Drinking	Agricultural	Industrial					
MT1-11121	Davis Creek		NA		NA		NA	NA	3		
MT1-11200	Hill Creek		NA		NA		NA	NA	3		
MT1-11300	Combination Ditch		NA		NA		NA	NA	3		
MT1-11400	Combination Ditch		NA		NA		NA	NA	3		
MT1-11500	Tekamah Creek		NA		NA		NA	NA	3		
MT1-11510	Silver Creek		I		S		NA	I	5	Aquatic Life - Impaired Aquatic Community (Unknown)	
MT1-11600	Tekamah Creek		S		NA		S	S	2		
MT1-11700	Elm Creek		S		NA		S	S	2		
MT1-11710	Lone Tree Creek		NA		NA		NA	NA	3		
MT1-11800	Wood Creek		S		NA		S	S	2		
MT1-11900	Blackbird Creek	NA	NA		NA		NA	NA	3		
MT1-11910	South Blackbird Creek		NA		NA		NA	NA	3		
MT1-11920	South Blackbird Creek		NA		NA		NA	NA	3		

Waterbody ID	Waterbody Name	Recreation	Aquatic Life	Water Supply			Aesthetics	Overall	2020 IR	Impairments (Causes)	Comments/Actions
				Public Drinking	Agricultural	Industrial					
MT1-11930	North Blackbird Creek		NA		NA		NA	NA	3		
MT1-11931	Unnamed Creek		S		NA		NA	S	2		
MT1-11940	North Blackbird Creek		NA		NA		NA	NA	3		
MT1-12000	Omaha Creek	I	S		S		S	I	5	Recreation (*E. coli*)	
MT1-12100	Omaha Creek		S		S		S	S	1		
MT1-12110	Fiddlers Creek		NA		NA		NA	NA	3		
MT1-12120	Wigle Creek		NA		NA		NA	NA	3		
MT1-12130	Turtle Creek		NA		NA		NA	NA	3		
MT1-12140	Morgan Creek		NA		NA		NA	NA	3		
MT1-12150	North Omaha Creek		I		NA		NA	I	5	Aquatic Life - Impaired Aquatic Community (Unknown)	
MT1-12151	Unnamed Creek		NA		NA		NA	NA	3		
MT1-12152	Unnamed Creek		NA		NA		NA	NA	3		
MT1-12160	North Omaha Creek		NA		NA		NA	NA	3		

Waterbody ID	Waterbody Name	Recreation	Aquatic Life	Water Supply			Aesthetics	Overall	2020 IR	Impairments (Causes)	Comments/Actions
				Public Drinking	Agricultural	Industrial					
MT1-12170	South Omaha Creek		NA		NA		NA	NA	3		
MT1-12171	Cow Creek		S		NA		S	S	2		
MT1-12180	South Omaha Creek		NA		NA		NA	NA	3		
MT1-12200	Pigeon Creek		S		NA		S	S	2		
MT1-12300	Pigeon Creek		S		NA		S	S	2		
MT2-10000	Missouri River	S	S	I	S		S	I	5	Public Drinking Water Supply (Sulfate, Arsenic)	
MT2-10100	Elk Creek	I	S		S		S	I	5	Recreation (*E. coli*)	
MT2-10200	Elk Creek		S		NA		S	S	2		
MT2-10210	Otter Creek		NA		NA		NA	NA	3		
MT2-10211	Minnow Creek		S		NA		S	S	2		
MT2-10220	Otter Creek		S		S		NA	S	2		
MT2-10300	Elk Creek		S		NA		S	S	2		
MT2-10310	Pigeon Creek		NA		NA		NA	NA	3		

Waterbody ID	Waterbody Name	Recreation	Aquatic Life	Water Supply			Aesthetics	Overall	2020 IR	Impairments (Causes)	Comments/Actions
				Public Drinking	Agricultural	Industrial					
MT2-10400	Elk Creek		I		NA		NA	I	5	Aquatic Life - Impaired Aquatic Community (Unknown)	
MT2-10500	Aowa Creek	I	S		S		S	I	5	Recreation (*E. coli*)	
MT2-10510	Badger Creek		S		NA		S	S	2		
MT2-10520	South Creek	I	I		S		S	I	5	Recreation (*E. coli*), Aquatic Life - Impaired Aquatic Community (Unknown)	
MT2-10521	Daily Branch	I	S		S		S	I	5	Recreation (*E. coli*)	
MT2-10530	South Creek	I	S		S		S	I	5	Recreation (*E. coli*)	
MT2-10531	Jordan Creek		S		NA		S	S	2		
MT2-10540	South Creek		I		NA		NA	I	5	Aquatic Life - Impaired Aquatic Community (Unknown)	
MT2-10600	Aowa Creek		S		NA		S	S	2		
MT2-10610	Silver Creek		NA		NA		NA	NA	3		
MT2-10620	Powder Creek		NA		NA		NA	NA	3		
MT2-10700	Aowa Creek		I		NA		S	I	5	Aquatic Life - Impaired Aquatic Community (Unknown)	
MT2-10800	Turkey Creek		NA		NA		NA	NA	3		

Waterbody ID	Waterbody Name	Recreation	Aquatic Life	Water Supply			Aesthetics	Overall	2020 IR	Impairments (Causes)	Comments/Actions
				Public Drinking	Agricultural	Industrial					
MT2-10900	Walnut Creek		NA		NA		NA	NA	3		
MT2-11000	Lime Creek		S		NA		S	S	2		
MT2-11010	West Branch Lime Creek		NA		NA		NA	NA	3		
MT2-11100	Lime Creek		NA		NA		NA	NA	3		
MT2-11200	Ames Creek		NA		NA		NA	NA	3		
MT2-11300	Bow Creek	I	S		S		S	I	5	Recreation (*E. coli*)	
MT2-11310	West Bow Creek	I	S		S		S	I	5	Recreation (*E. coli*)	
MT2-11311	Second Bow Creek		NA		NA		NA	NA	3		
MT2-11311.1	Unnamed Creek		NA		NA		NA	NA	3		
MT2-11312	Second Bow Creek		NA		NA		NA	NA	3		
MT2-11320	West Bow Creek		S		NA		S	S	2		
MT2-11400	Bow Creek	I	S		S		S	I	5	Recreation (*E. coli*)	
MT2-11410	East Bow Creek	I	S		S		S	I	5	Recreation (*E. coli*)	

Waterbody ID	Waterbody Name	Recreation	Aquatic Life	Water Supply			Aesthetics	Overall	2020 IR	Impairments (Causes)	Comments/Actions
				Public Drinking	Agricultural	Industrial					
MT2-11411	Unnamed Creek		NA		NA		NA	NA	3		
MT2-11412	Unnamed Creek		NA		NA		NA	NA	3		
MT2-11420	East Bow Creek		NA		NA		NA	NA	3		
MT2-11500	Bow Creek		S		NA		S	S	2		
MT2-11510	Dead Creek		NA		NA		NA	NA	3		
MT2-11520	Norwegian Bow Creek		S		NA		S	S	2		
MT2-11521	Unnamed Creek		S		NA		S	S	2		
MT2-11600	Bow Creek		NA		NA		NA	NA	3		
MT2-11610	Pearl Creek		NA		NA		NA	NA	3		
MT2-11611	Kerloo Creek		NA		NA		NA	NA	3		
MT2-11620	Pearl Creek		S		NA		S	S	2		
MT2-11700	Bow Creek		S		NA		S	S	2		
MT2-11710	Unnamed Creek		NA		NA		NA	NA	3		

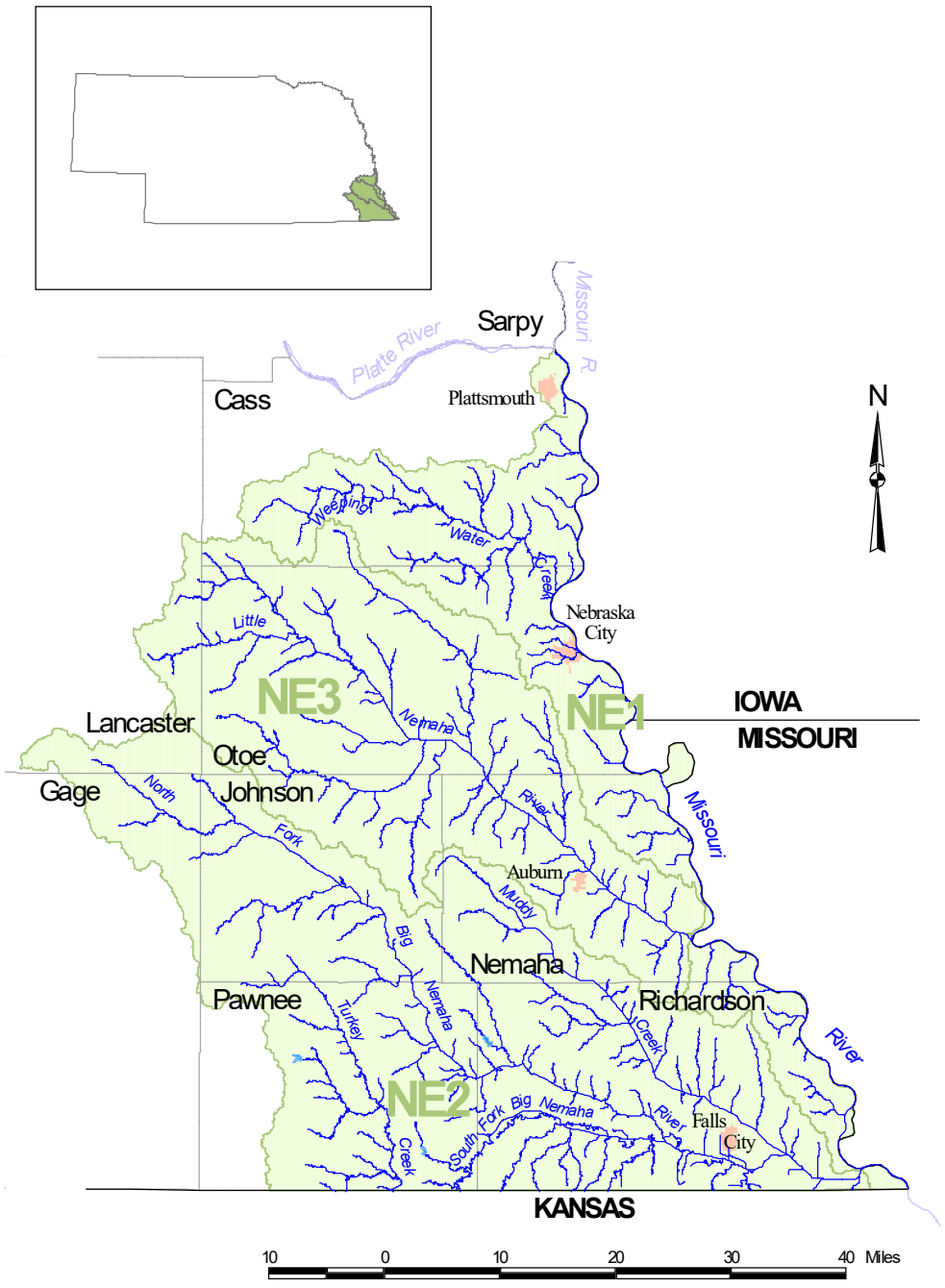
Waterbody ID	Waterbody Name	Recreation	Aquatic Life	Water Supply			Aesthetics	Overall	2020 IR	Impairments (Causes)	Comments/Actions
				Public Drinking	Agricultural	Industrial					
MT2-11800	Antelope Creek		I		S		NA	I	5	Aquatic Life - Impaired Aquatic Community (Unknown)	
MT2-11900	Beaver Creek		NA		NA		NA	NA	3		
MT2-12000	Beaver Creek		S		NA		S	S	2		
MT2-12100	Weigand Creek		S		S		NA	S	2		
MT2-12200	Devils Nest Creek		NA		NA		NA	NA	3		
MT2-12300	Cooks Creek		NA		NA		NA	NA	3		
MT2-12400	Bazile Creek	I	S		S		S	I	5	Recreation (*E. coli*), Aquatic Life (Selenium)	
MT2-12410	Lost Creek		NA		NA		NA	NA	3		
MT2-12420	Howe Creek		S		S		S	S	1		
MT2-12421	Unnamed Creek		NA		NA		NA	NA	3		
MT2-12500	Bazile Creek	I	S		S		S	I	5	Recreation (*E. coli*)	
MT2-12510	Little Bazile Creek		S		NA		S	S	2		
MT2-12511	Unnamed Creek		NA		NA		NA	NA	3		

Waterbody ID	Waterbody Name	Recreation	Aquatic Life	Water Supply			Aesthetics	Overall	2020 IR	Impairments (Causes)	Comments/Actions
				Public Drinking	Agricultural	Industrial					
MT2-12520	Little Bazile Creek		S		NA		S	S	2		
MT2-12600	Bazile Creek		S		S		S	S	1		
MT2-12610	Spring Creek		NA		NA		NA	NA	3		
MT2-12620	Unnamed Creek		S		NA		S	S	2		
MT2-12630	Unnamed Creek		NA		NA		NA	NA	3		
MT2-12700	Bazile Creek		NA		NA		NA	NA	3		

Cancer risk compounds -Aroclor-1248 (PCB-1248), Aroclor-1254 (PCB-1254), Aroclor-1260 (PCB-1260), cis-chlordane, Chlordane, trans-chlordane, DDD, DDE, DDT, Dieldrin, Heptachlor, Heptachlor Epoxide, Hexachlorobenzene, cis-nonachlor, trans-nonachlor, Oxychlordane, Pentachloroanisole, Trifluralin
Hazard index compounds- Aroclor-1254 (PCB-1254), Lindane (g-BHC), cis-chlordane, Chlordane, trans-chlordane, DDT, Dieldrin, Heptachlor, Heptachlor Epoxide, Hexachlorobenzene, cis-nonachlor, trans-nonachlor, Oxychlordane, Pentachloroanisole, Trifluralin, Mercury, Cadmium, Selenium

† See Appendix B: Ecological Justification for Excluding Specific Bio-Indicator Results When Determining Attainment Status of the Aquatic Life Beneficial Use for Nebraska's 2014 Water Quality Integrated Report

[1] XXX# designates in Title 117 an undesignated waterbody. See Title 117 Chapter 2.004.



NEMAHA RIVER BASIN (and Subbasins)

Nemaha Basin – Hydrologic Units 10240001, 10240005, 10240006 and 10240007

The Nemaha River Basin includes 326 designated stream segments and 35 designated lake/reservoirs.

Waterbody Type	Primary Contact Recreation	Aquatic Life CA[1]	Aquatic Life CB[1]	Aquatic Life WA[1]	Aquatic Life WB[1]	Water Supply – Public Drinking	Water Supply – Ag	Water Supply-Ind.	Aesthetics
Lakes	35	0	0	35	0	0	35	0	35
Streams	20	0	0	40	286	13	326	1	326

[1] CA = Coldwater Class A, CB = Coldwater Class B, WA = Warmwater Class A and WB = Warmwater Class B

Delisting/Changes from 2018 IR

The following are waters and or parameters that were delisted – removed from category 5 or other significant changes from the 2018 Integrated Report (IR).

NE1-L0003: Buck Creek Lake – This waterbody was added to Chapter 6 of Title 117 in June 2019 with the assigned beneficial uses of Recreation, Aquatic Life – Warmwater Class A, Agricultural Water Supply – Class A, and Aesthetics. The nutrient classification is Eastern. This lake is under the management of the Nemaha Natural Resources District. This waterbody will be placed in category 3.

NE1-L0007: Duck Creek Lake – This waterbody was added to Chapter 6 of Title 117 in June 2019 with the assigned beneficial uses of Recreation, Aquatic Life – Warmwater Class A, Agricultural Water Supply – Class A, and Aesthetics. The nutrient classification is Eastern. This lake is under the management of the Nemaha Natural Resources District. This waterbody will be placed in category 3.

NE3-L0045: Wirth Brothers Lake (Site 27) – This waterbody was listed in category 5 in the 2018 IR. The Aquatic Life use was impaired due to a Fish Consumption Advisory for Mercury. Data gathered in 2017-18 determined that the Recreation use is impaired for *E. coli*. This waterbody will remain in category 5.

NE2-L0090: Iron Horse Trail (WMA) – This waterbody was incorrectly listed in category 4r in the 2018 IR. The Aquatic Life use was impaired due to a Fish Consumption Advisory for Mercury and Chlorophyll α due to Total Nitrogen and Total Phosphorus. The Aesthetics use was impaired for sediment. Due to the Mercury impairment, this waterbody should have been listed in category 5, as category 4r only applies to the nutrient-related impairments. This error has been corrected, and this waterbody will be placed in category 5.

NE1-10000: Missouri River – This waterbody was listed in category 5 in the 2018 IR. The Recreation use was impaired for *E. coli*, and the Aquatic Life use was impaired due to a Fish Consumption Advisory for Mercury. Data submitted by the US Army Corps of Engineers determined that the Public Drinking Water Supply use is impaired for Arsenic. This waterbody will remain in category 5.
(*Note*: In a 2019 revision of Nebraska's water quality standards, the drinking water standard for Arsenic was lowered from 10 µg/L to 0.18 µg/L. Under the Safe Drinking Water Act, the EPA recommended drinking water standard for Arsenic remains at 10 µg/L.)

NE1-12100: Fourmile Creek – This waterbody was listed in category 3 in the 2018 IR. Data submitted by the Kansas Department of Health and Environment determined that the Aquatic Life use is impaired for Aluminum. This waterbody will be placed in category 5.

NE2-11000: Walnut Creek – This waterbody was listed in category 3 in the 2018 IR. Data submitted by the Kansas Department of Health and Environment determined that the Aquatic Life use is impaired for Aluminum. This waterbody will be placed in category 5.

NE2-11200: Pony Creek – This waterbody was listed in category 5 in the 2018 IR. The Recreation use was impaired for *E. coli*. Data submitted by the Kansas Department of Health and Environment determined that the Aquatic Life use is impaired for Aluminum. This waterbody will remain in category 5.

NE3-10000: Little Nemaha River – This waterbody was listed in category 4a in the 2018 IR. The Recreation use was impaired for *E. coli*. The Public Drinking Water Supply beneficial use was assigned in 2019. New and

previously collected data were assessed against public drinking water standards, and it was determined that the Public Drinking Water Supply use is impaired for May-June Atrazine and Arsenic. This waterbody will be placed in category 5.
(*Note*: In a 2019 revision of Nebraska's water quality standards, the drinking water standard for Arsenic was lowered from 10 µg/L to 0.18 µg/L. Under the Safe Drinking Water Act, the EPA recommended drinking water standard for Arsenic remains at 10 µg/L.)

Waterbody ID	Waterbody Name	Recreation	Aquatic Life	Water Supply			Aesthetics	Overall	2020 IR	Impairments (Causes)	Comments/Actions
				Public Drinking	Agricultural	Industrial					
Lakes											
NE1-L0003	Buck Creek Lake	NA	NA		NA		NA	NA	3		Added to Title 117 6/19
NE1-L0007	Duck Creek Lake	NA	NA		NA		NA	NA	3		Added to Title 117 6/19
NE1-L0010	Steinhart Park Lake (Nebraska City)	S	I		NA		NA	I	5	Aquatic Life - Fish Consumption Advisory (Mercury)	
NE1-L0020	Weeping Water City Lake	S	S		NA		S	S	2		
NE1-L0030	Plattsmouth City Lake	S	NA		NA		NA	S	2		
NE1-L0040	Randall Schilling Lake No. 1 (WMA)	NA	NA		NA		NA	NA	3		
NE1-L0050	Randall Schilling Lake No. 2 (WMA)	NA	NA		NA		NA	NA	3		
NE2-L0010	Falls City Lake (Stanton Lake)	S	S		NA		NA	S	2		
NE2-L0020	Verdon Lake (SRA)	S	S		NA		S	S	2		
NE2-L0030	Humboldt City Lake	S	NA		NA		NA	S	2		
NE2-L0040	Kirkman's Cove Lake	I	I		S		I	I	5	Recreation (*E. coli),* Aquatic Life - Fish Consumption Advisory (Mercury), Chlorophyll α, pH (Total Nitrogen, Total Phosphorus), Aesthetics (Sediment)	Phosphorus TMDL to address Total Phosphorus and Dissolved Oxygen approved 10/02

Waterbody ID	Waterbody Name	Recreation	Aquatic Life	Water Supply			Aesthetics	Overall	2020 IR	Impairments (Causes)	Comments/Actions
				Public Drinking	Agricultural	Industrial					
NE2-L0060	Twin Oaks Lake No. 9 (WMA)	NA	NA		NA		NA	NA	3		
NE2-L0070	Twin Oaks Lake No. 7 (WMA)	NA	NA		NA		NA	NA	3		
NE2-L0080	Prairie Knoll Lake (WMA)	NA	I		NA		NA	I	5	Aquatic Life - Fish Consumption Advisory (Mercury)	
NE2-L0090	Iron Horse Trail (WMA)	S	I		S		I	I	4r	Aquatic Life - Fish Consumption Advisory (Mercury), Chlorophyll α (Total Nitrogen, Total Phosphorus), Aesthetics (Sediment)	Lake renovated 2011, Phosphorus and Sediment TMDL approved 1/06
NE2-L0100	Pawnee City Lake	S	I		S		S	I	5	Aquatic Life - Chlorophyll α (Total Nitrogen, Total Phosphorus)	
NE2-L0110	Tecumseh City Lake	S	NA		NA		S	S	2		
NE2-L0115	Osage Lake No. 3 (WMA)	NA	NA		NA		NA	NA	3		WBID changed from NE3-L0060
NE2-L0120	Burchard Lake (WMA)	NA	I		S		S	I	5	Aquatic Life - Fish Consumption Advisory (Mercury), Chlorophyll α (Total Nitrogen, Total Phosphorus)	
NE2-L0130	Pawnee Prairie Lake No. 3 (WMA)	NA	NA		NA		NA	NA	3		
NE2-L0140	Pawnee Prairie Lake No. 6 (WMA)	NA	NA		NA		NA	NA	3		
NE2-L0150	Pawnee Prairie Lake No. 8 (WMA)	NA	NA		NA		NA	NA	3		
NE2-L0160	Pawnee Prairie Lake No. 10 (WMA)	NA	NA		NA		NA	NA	3		

Waterbody ID	Waterbody Name	Recreation	Aquatic Life	Water Supply			Aesthetics	Overall	2020 IR	Impairments (Causes)	Comments/Actions
				Public Drinking	Agricultural	Industrial					
NE2-L0170	Pawnee Prairie Lake No. 1 (WMA)	NA	NA		NA		NA	NA	3		
NE2-L0180	Pawnee Prairie Lake No. 7 (WMA)	NA	NA		NA		NA	NA	3		
NE2-L0190	Pawnee Prairie Lake No. 9 (WMA)	NA	NA		NA		NA	NA	3		
NE2-L0195	Mayberry Lake (WMA)	NA	I		NA		NA	I	5	Aquatic Life - Fish Consumption Advisory (Mercury)	Previously listed as NE2-LXXX[1] Mayberry Lake (WMA)
NE2-L0200	Site 41-B Lake	NA	NA		NA		NA	NA	3		
NE2-L0210	Big Nemaha Lake (27R)	S	NA		NA		NA	S	2		
NE3-L0010	Auburn City Park Lake	S	I		NA		NA	I	5	Aquatic Life - Fish Consumption Advisory (Mercury)	
NE3-L0020	Gritztka Lake (Talmage)	S	NA		NA		NA	S	2		
NE3-L0030	Prairie Owl Lake	S	I		S		S	I	5	Aquatic Life (Total Phosphorus)	
NE3-L0040	Wilson Creek Lake 2X (WMA)	S	I		NA		NA	I	5	Aquatic Life - Fish Consumption Advisory (Mercury)	
NE3-L0045	Wirth Brothers Lake (Site 27)	I	I		S		NA	I	5	Recreation (*E. coli*), Aquatic Life - Fish Consumption Advisory (Mercury)	
NE3-L0050	Osage Lake No. 1 (WMA)	NA	NA		NA		NA	NA	3		
Streams											

Waterbody ID	Waterbody Name	Recreation	Aquatic Life	Water Supply			Aesthetics	Overall	2020 IR	Impairments (Causes)	Comments/Actions
				Public Drinking	Agricultural	Industrial					
NE1-10000	Missouri River	I	I	I	S	S	S	I	5	Recreation (*E. coli*), Aquatic Life - Fish Consumption Advisory (Mercury), Public Drinking Water Supply (Arsenic)	E. coli TMDL approved 9/07
NE1-10100	Winnebago Creek		NA		NA		NA	NA	3		
NE1-10110	Bean Creek		NA		NA		NA	NA	3		
NE1-10200	Winnebago Creek		I		S		S	I	5	Aquatic Life - Impaired Aquatic Community (Unknown)	
NE1-10210	Unnamed Creek		NA		NA		NA	NA	3		
NE1-10220	Unnamed Creek		NA		NA		NA	NA	3		
NE1-10300	Unnamed Creek		NA		NA		NA	NA	3		
NE1-10400	Unnamed Creek		NA		NA		NA	NA	3		
NE1-10500	Cottier Creek		S		NA		S	S	2		
NE1-10510	Wine Branch		NA		NA		NA	NA	3		
NE1-10600	Cottier Creek		NA		NA		NA	NA	3		
NE1-10610	Unnamed Creek		NA		NA		NA	NA	3		

Waterbody ID	Waterbody Name	Recreation	Aquatic Life	Water Supply			Aesthetics	Overall	2020 IR	Impairments (Causes)	Comments/Actions
				Public Drinking	Agricultural	Industrial					
NE1-10700	Unnamed Creek	NA	NA		NA		NA	NA	3		
NE1-10800	Beadow Creek		NA		NA		NA	NA	3		
NE1-10810	Unnamed Creek	NA	NA		NA		NA	NA	3		
NE1-10900	Beadow Creek		NA		NA		NA	NA	3		
NE1-10910	Unnamed Creek		NA		NA		NA	NA	3		
NE1-11000	Deroin Creek		NA		NA		NA	NA	3		
NE1-11100	Unnamed Creek		NA		NA		NA	NA	3		
NE1-11200	Unnamed Creek		NA		NA		NA	NA	3		
NE1-11300	Honey Creek		S		S		NA	S	2		
NE1-11400	Honey Creek		NA		NA		NA	NA	3		
NE1-11410	Unnamed Creek		NA		NA		NA	NA	3		
NE1-11500	Honey Creek		S		NA		S	S	2		
NE1-11600	Buck Creek		S		S		NA	S	2		

Waterbody ID	Waterbody Name	Recreation	Aquatic Life	Water Supply			Aesthetics	Overall	2020 IR	Impairments (Causes)	Comments/Actions
				Public Drinking	Agricultural	Industrial					
NE1-11610	Duck Creek		S		S		S	S	1		
NE1-11700	Buck Creek		S		S		S	S	1		
NE1-11800	Camp Creek		NA		NA		NA	NA	3		
NE1-11810	South Branch Camp Creek		NA		NA		NA	NA	3		
NE1-11900	Camp Creek		NA		NA		NA	NA	3		
NE1-12000	Fourmile Creek		NA		NA		NA	NA	3		
NE1-12100	Fourmile Creek		I		NA		NA	I	5	Aquatic Life (Aluminum)	
NE1-12110	Threemile Creek		NA		NA		NA	NA	3		
NE1-12200	Fourmile Creek		NA		NA		NA	NA	3		
NE1-12300	South Table Creek		NA		NA		NA	NA	3		
NE1-12310	Unnamed Creek	I	S		S		S	I	5	Recreation (*E. coli*)	
NE1-12400	South Table Creek		NA		NA		NA	NA	3		
NE1-12500	North Table Creek		NA		NA		NA	NA	3		

Waterbody ID	Waterbody Name	Recreation	Aquatic Life	Water Supply			Aesthetics	Overall	2020 IR	Impairments (Causes)	Comments/Actions
				Public Drinking	Agricultural	Industrial					
NE1-12600	Walnut Creek		S		NA		S	S	2		
NE1-12700	Squaw Creek		NA		NA		NA	NA	3		
NE1-12800	Weeping Water Creek		S		S		S	S	1		
NE1-12810	Wolf Creek		NA		NA		NA	NA	3		
NE1-12820	Coal Creek		NA		NA		NA	NA	3		
NE1-12830	South Branch Weeping Water Creek		S		S		NA	S	2		
NE1-12831	Big Slough		S		NA		S	S	2		
NE1-12832	Goose Creek		NA		NA		NA	NA	3		
NE1-12840	South Branch Weeping Water Creek		S		NA		S	S	2		
NE1-12841	Jordan Creek		NA		NA		NA	NA	3		
NE1-12842	Flood Creek		NA		NA		NA	NA	3		
NE1-12843	Wilson Creek		NA		NA		NA	NA	3		
NE1-12850	South Branch Weeping Water Creek		NA		NA		NA	NA	3		

Waterbody ID	Waterbody Name	Recreation	Aquatic Life	Water Supply			Aesthetics	Overall	2020 IR	Impairments (Causes)	Comments/Actions
				Public Drinking	Agricultural	Industrial					
NE1-12851	Unnamed Creek		NA		NA		NA	NA	3		
NE1-12860	Tyson Creek		S		NA		S	S	2		
NE1-12870	North Branch Weeping Water Creek		S		S		NA	S	2		
NE1-12871	Unnamed Creek		NA		NA		NA	NA	3		
NE1-12880	North Branch Weeping Water Creek		S		NA		S	S	2		
NE1-12881	Unnamed Creek		NA		NA		NA	NA	3		
NE1-12900	Weeping Water Creek		S		S		NA	S	2		
NE1-12910	Unnamed Creek		NA		NA		NA	NA	3		
NE1-12920	South Cedar Creek		S		NA		S	S	2		
NE1-13000	Weeping Water Creek	I	S		S		S	I	5	Recreation (*E. coli*)	
NE1-13010	Cascade Creek		NA		NA		NA	NA	3		
NE1-13020	Unnamed Creek		NA		NA		NA	NA	3		
NE1-13030	Unnamed Creek		NA		NA		NA	NA	3		

Waterbody ID	Waterbody Name	Recreation	Aquatic Life	Water Supply			Aesthetics	Overall	2020 IR	Impairments (Causes)	Comments/Actions
				Public Drinking	Agricultural	Industrial					
NE1-13040	Unnamed Creek		NA		NA		NA	NA	3		
NE1-13050	Unnamed Creek		NA		NA		NA	NA	3		
NE1-13060	Unnamed Creek		NA		NA		NA	NA	3		
NE1-13070	Unnamed Creek		NA		NA		NA	NA	3		
NE1-13080	Unnamed Creek		NA		NA		NA	NA	3		
NE1-13090	Unnamed Creek		NA		NA		NA	NA	3		
NE1-13100	Beaver Creek		NA		NA		NA	NA	3		
NE1-13110	Stove Creek		NA		NA		NA	NA	3		
NE1-13200	Weeping Water Creek		NA		NA		NA	NA	3		
NE1-13300	East Chute		NA		NA		NA	NA	3		
NE1-13400	Ervine Creek		S		NA		S	S	2		
NE1-13500	Rakes Creek		S		NA		S	S	2		
NE1-13600	Unnamed Creek		NA		NA		NA	NA	3		

Waterbody ID	Waterbody Name	Recreation	Aquatic Life	Water Supply			Aesthetics	Overall	2020 IR	Impairments (Causes)	Comments/Actions
				Public Drinking	Agricultural	Industrial					
NE1-13700	Rock Creek		NA	NA	NA		NA	NA	3		
NE1-13710	Squaw Creek		NA		NA		NA	NA	3		
NE1-13800	Unnamed Creek		NA		NA		NA	NA	3		
NE2-10000	Big Nemaha River	I	I		S		S	I	5	Recreation (*E. coli*), Aquatic Life - Impaired Aquatic Community (Unknown)	E. coli & Atrazine TMDL approved 9/07
NE2-10100	Roys Creek		NA		NA		NA	NA	3		
NE2-10200	Noharts Creek		NA		NA		NA	NA	3		
NE2-10300	Mooney Creek		NA		NA		NA	NA	3		
NE2-10400	Snake Creek		NA		NA		NA	NA	3		
NE2-10500	Canada Creek		NA		NA		NA	NA	3		
NE2-10600	Muddy Creek	I	I		S		S	I	5	Recreation (*E. coli*), Aquatic Life - Impaired Aquatic Community (Unknown)	E. coli TMDL approved 9/07
NE2-10610	Berard Creek		NA		NA		NA	NA	3		
NE2-10620	Halfbreed Creek		NA		NA		NA	NA	3		
NE2-10630	Silver Creek		NA		NA		NA	NA	3		

Waterbody ID	Waterbody Name	Recreation	Aquatic Life	Water Supply			Aesthetics	Overall	2020 IR	Impairments (Causes)	Comments/Actions
				Public Drinking	Agricultural	Industrial					
NE2-10640	Goolsby Branch		NA		NA		NA	NA	3		
NE2-10641	Temple Creek		NA		NA		NA	NA	3		
NE2-10650	Unnamed Creek		NA		NA		NA	NA	3		
NE2-10660	Mackelroy Creek		NA		NA		NA	NA	3		
NE2-10670	Unnamed Creek		NA		NA		NA	NA	3		
NE2-10680	Unnamed Creek		NA		NA		NA	NA	3		
NE2-10690	Unnamed Creek		NA		NA		NA	NA	3		
NE2-10700	Sardine Creek		NA		NA		NA	NA	3		
NE2-10710	Wolf Creek		NA		NA		NA	NA	3		
NE2-10711	Spring Creek		NA		NA		NA	NA	3		
NE2-10720	Wolf Creek		NA		NA		NA	NA	3		
NE2-10730	Deer Creek		NA		NA		NA	NA	3		
NE2-10740	Unnamed Creek		NA		NA		NA	NA	3		

Waterbody ID	Waterbody Name	Recreation	Aquatic Life	Water Supply			Aesthetics	Overall	2020 IR	Impairments (Causes)	Comments/Actions
				Public Drinking	Agricultural	Industrial					
NE2-10750	Little Muddy Creek	I	S		S		S	I	5	Recreation (*E. coli*)	
NE2-10751	Whiskey Run		S		NA		S	S	2		
NE2-10751.1	Dry Branch		NA		NA		NA	NA	3		
NE2-10751.2	Porter Branch		NA		NA		NA	NA	3		
NE2-10752	Whiskey Run		NA		NA		NA	NA	3		
NE2-10760	Little Muddy Creek		S		NA		S	S	2		
NE2-10761	Unnamed Creek		NA		NA		NA	NA	3		
NE2-10770	Little Muddy Creek		S		NA		S	S	2		
NE2-10800	Muddy Creek		S		S		S	S	1		
NE2-10810	Hoosier Creek		S		NA		S	S	2		
NE2-10820	Unnamed Creek		NA		NA		NA	NA	3		
NE2-10830	Unnamed Creek		NA		NA		NA	NA	3		
NE2-10840	Unnamed Creek		NA		NA		NA	NA	3		

Waterbody ID	Waterbody Name	Recreation	Aquatic Life	Water Supply			Aesthetics	Overall	2020 IR	Impairments (Causes)	Comments/Actions
				Public Drinking	Agricultural	Industrial					
NE2-10850	Unnamed Creek		NA		NA		NA	NA	3		
NE2-10860	Unnamed Creek		NA		NA		NA	NA	3		
NE2-10870	Unnamed Creek		NA		NA		NA	NA	3		
NE2-10880	Unnamed Creek		NA		NA		NA	NA	3		
NE2-10881	Unnamed Creek		NA		NA		NA	NA	3		
NE2-10900	Muddy Creek		NA		NA		NA	NA	3		
NE2-11000	Walnut Creek		I		NA		NA	I	5	Aquatic Life (Aluminum)	
NE2-11010	Unnamed Creek		NA		NA		NA	NA	3		
NE2-11020	Unnamed Creek		NA		NA		NA	NA	3		
NE2-11100	Unnamed Creek		NA		NA		NA	NA	3		
NE2-11200	Pony Creek	I	I		S		S	I	5	Recreation (*E. coli*), Aquatic Life (Aluminum)	
NE2-11300	Unnamed Creek		NA		NA		NA	NA	3		
NE2-11400	Unnamed Creek		NA		NA		NA	NA	3		

Waterbody ID	Waterbody Name	Recreation	Aquatic Life	Water Supply			Aesthetics	Overall	2020 IR	Impairments (Causes)	Comments/Actions
				Public Drinking	Agricultural	Industrial					
NE2-11500	Unnamed Creek		NA		NA		NA	NA	3		
NE2-11600	Unnamed Creek		NA		NA		NA	NA	3		
NE2-11700	Wildcat Creek		NA		NA		NA	NA	3		
NE2-11800	Old Channel Big Nemaha River		NA		NA		NA	NA	3		
NE2-11900	South Fork Big Nemaha River	S	S		S		S	S	1		
NE2-11910	Unnamed Creek		NA		NA		NA	NA	3		
NE2-11920	Rock Creek		S		NA		S	S	2		
NE2-11921	Contrary Creek		NA		NA		NA	NA	3		
NE2-11922	Rabbit Creek		NA		NA		NA	NA	3		
NE2-11930	Old Channel South Fork Big Nemaha River		NA		NA		NA	NA	3		
NE2-11940	Unnamed Creek		NA		NA		NA	NA	3		
NE2-11950	Honey Creek		NA		NA		NA	NA	3		
NE2-11960	Old Channel South Fork Big Nemaha River		NA		NA		NA	NA	3		

Waterbody ID	Waterbody Name	Recreation	Aquatic Life	Water Supply			Aesthetics	Overall	2020 IR	Impairments (Causes)	Comments/Actions
				Public Drinking	Agricultural	Industrial					
NE2-11970	Holy Creek		NA		NA		NA	NA	3		
NE2-11980	Rattlesnake Creek		S		NA		S	S	2		
NE2-11981	Easly Creek		NA		NA		NA	NA	3		
NE2-11982	Spring Creek		S		NA		S	S	2		
NE2-11990	Rattlesnake Creek		NA		NA		NA	NA	3		
NE2-12000	Fourmile Creek		S		NA		S	S	2		
NE2-12010	Unnamed Creek		NA		NA		NA	NA	3		
NE2-12020	Unnamed Creek		NA		NA		NA	NA	3		
NE2-12100	South Fork Big Nemaha River	I	S		S		S	I	4a	Recreation (*E. coli*)	E. coli TMDL approved 9/07
NE2-12110	Lores Branch		S		NA		S	S	2		
NE2-12120	Negro Branch		NA		NA		NA	NA	3		
NE2-12130	Turkey Creek	I	S		S		S	I	4a	Recreation (*E. coli*)	E. coli TMDL approved 9/07
NE2-12131	Unnamed Creek		NA		NA		NA	NA	3		

Waterbody ID	Waterbody Name	Recreation	Aquatic Life	Water Supply			Aesthetics	Overall	2020 IR	Impairments (Causes)	Comments/Actions
				Public Drinking	Agricultural	Industrial					
NE2-12132	Johnson Creek		S		S		S	S	1		
NE2-12132.1	Beebe Creek		NA		NA		NA	NA	3		
NE2-12132.2	Wildcat Creek		NA		NA		NA	NA	3		
NE2-12133	Johnson Creek		NA		NA		NA	NA	3		
NE2-12134	Chatawa Creek		S		NA		S	S	2		
NE2-12135	West Branch Turkey Creek		S		S		S	S	1		
NE2-12135.1	Balls Branch		S		S		S	S	1		
NE2-12135.11	Unnamed Creek		NA		NA		NA	NA	3		
NE2-12135.12	Unnamed Creek		NA		NA		NA	NA	3		
NE2-12135.2	Balls Branch		NA		NA		NA	NA	3		
NE2-12135.21	Unnamed Creek		S		NA		S	S	2		
NE2-12136	West Branch Turkey Creek		NA		NA		NA	NA	3		
NE2-12140	Turkey Creek		S		S		S	S	1		

Waterbody ID	Waterbody Name	Recreation	Aquatic Life	Water Supply			Aesthetics	Overall	2020 IR	Impairments (Causes)	Comments/Actions
				Public Drinking	Agricultural	Industrial					
NE2-12141	Unnamed Creek		S		NA		S	S	2		
NE2-12142	Unnamed Creek		NA		NA		NA	NA	3		
NE2-12143	Unnamed Creek		NA		NA		NA	NA	3		
NE2-12144	Unnamed Creek		NA		NA		NA	NA	3		
NE2-12145	Rock Creek		NA		NA		NA	NA	3		
NE2-12150	Turkey Creek		S		S		S	S	1		
NE2-12151	Sampson Branch		NA		NA		NA	NA	3		
NE2-12152	Unnamed Creek		NA		NA		NA	NA	3		
NE2-12200	North Fork Big Nemaha River	I	S		S		S	I	4a	Recreation (*E. coli*)	E. coli TMDL approved 9/07
NE2-12210	Unnamed Creek		NA		NA		NA	NA	3		
NE2-12220	Deer Branch		NA		NA		NA	NA	3		
NE2-12230	Unnamed Creek		S		NA		S	S	2		
NE2-12240	Unnamed Creek		NA		NA		NA	NA	3		

Waterbody ID	Waterbody Name	Recreation	Aquatic Life	Water Supply			Aesthetics	Overall	2020 IR	Impairments (Causes)	Comments/Actions
				Public Drinking	Agricultural	Industrial					
NE2-12250	Bradley Branch		NA		NA		NA	NA	3		
NE2-12260	Barneys Branch		NA		NA		NA	NA	3		
NE2-12270	Unnamed Creek		NA		NA		NA	NA	3		
NE2-12280	Cottonwood Creek		NA		NA		NA	NA	3		
NE2-12290	Unnamed Creek		NA		NA		NA	NA	3		
NE2-12300	Unnamed Creek		NA		NA		NA	NA	3		
NE2-12310	Unnamed Creek		NA		NA		NA	NA	3		
NE2-12320	Unnamed Creek		NA		NA		NA	NA	3		
NE2-12330	Long Branch Creek	I	I		S		S	I	5	Recreation (*E. coli*), Aquatic Life - Impaired Aquatic Community (Unknown)	E. coli TMDL approved 9/07
NE2-12331	Kirkham Creek		NA		NA		NA	NA	3		
NE2-12340	Unnamed Creek		NA		NA		NA	NA	3		
NE2-12350	Round Grove Creek		NA		NA		NA	NA	3		
NE2-12360	Dry Branch		NA		NA		NA	NA	3		

Waterbody ID	Waterbody Name	Recreation	Aquatic Life	Water Supply			Aesthetics	Overall	2020 IR	Impairments (Causes)	Comments/Actions
				Public Drinking	Agricultural	Industrial					
NE2-12370	Unnamed Creek		NA		NA		NA	NA	3		
NE2-12380	Unnamed Creek		NA		NA		NA	NA	3		
NE2-12390	Unnamed Creek		NA		NA		NA	NA	3		
NE2-12400	Unnamed Creek		NA		NA		NA	NA	3		
NE2-12410	Unnamed Creek		NA		NA		NA	NA	3		
NE2-12420	Taylor Branch		NA		NA		NA	NA	3		
NE2-12421	Unnamed Creek		NA		NA		NA	NA	3		
NE2-12430	Taylor Branch		NA		NA		NA	NA	3		
NE2-12440	Clear Creek		NA		NA		NA	NA	3		
NE2-12441	Coopers Branch		NA		NA		NA	NA	3		
NE2-12450	Clear Creek		NA		NA		NA	NA	3		
NE2-12460	Unnamed Creek		NA		NA		NA	NA	3		
NE2-12470	Robinson Creek		NA		NA		NA	NA	3		

Waterbody ID	Waterbody Name	Recreation	Aquatic Life	Water Supply			Aesthetics	Overall	2020 IR	Impairments (Causes)	Comments/Actions
				Public Drinking	Agricultural	Industrial					
NE2-12480	Todd Creek		S		S		NA	S	2		
NE2-12481	Elk Creek		NA		NA		NA	NA	3		
NE2-12490	Todd Creek		NA		NA		NA	NA	3		
NE2-12500	North Fork Big Nemaha River	I	S		S		S	I	4a	Recreation (*E. coli*)	E. coli TMDL approved 9/07
NE2-12510	Unnamed Creek		NA		NA		NA	NA	3		
NE2-12520	Corson Branch		NA		NA		NA	NA	3		
NE2-12530	Town Branch		NA		NA		NA	NA	3		
NE2-12540	Badger Branch		NA		NA		NA	NA	3		
NE2-12541	Unnamed Creek		NA		NA		NA	NA	3		
NE2-12550	Badger Branch		NA		NA		NA	NA	3		
NE2-12560	Unnamed Creek		NA		NA		NA	NA	3		
NE2-12570	Yankee Creek		S		NA		S	S	2		
NE2-12571	Brewers Branch		NA		NA		NA	NA	3		

Waterbody ID	Waterbody Name	Recreation	Aquatic Life	Water Supply			Aesthetics	Overall	2020 IR	Impairments (Causes)	Comments/Actions
				Public Drinking	Agricultural	Industrial					
NE2-12572	Lost Branch		S		NA		S	S	2		
NE2-12580	Yankee Creek		NA		NA		NA	NA	3		
NE2-12590	Hooker Creek		NA		NA		NA	NA	3		
NE2-12600	Middle Branch Big Nemaha River		S		NA		NA	S	2		
NE2-12601	Shaw Creek		NA		NA		NA	NA	3		
NE2-12610	Middle Branch Big Nemaha River		S		NA		S	S	2		
NE2-12700	North Fork Big Nemaha River		S		NA		S	S	2		
NE3-10000	Little Nemaha River	I	S	I	S		S	I	5	Recreation (*E. coli*), Public Drinking Water Supply (May-June Atrazine, Arsenic)	E. coli TMDL approved 9/07, Public Drinking Water Supply use assigned 6/19
NE3-10100	Whiskey Run		NA		NA		NA	NA	3		
NE3-10200	Jarvis Creek		NA		NA		NA	NA	3		
NE3-10210	Unnamed Creek		NA		NA		NA	NA	3		
NE3-10220	Unnamed Creek		NA		NA		NA	NA	3		
NE3-10300	Jarvis Creek		NA		NA		NA	NA	3		

Waterbody ID	Waterbody Name	Recreation	Aquatic Life	Water Supply			Aesthetics	Overall	2020 IR	Impairments (Causes)	Comments/Actions
				Public Drinking	Agricultural	Industrial					
NE3-10400	Happy Hollow Creek		NA		NA		NA	NA	3		
NE3-10500	Swartz Run		NA		NA		NA	NA	3		
NE3-10510	Unnamed Creek		NA		NA		NA	NA	3		
NE3-10600	Swartz Run		NA		NA		NA	NA	3		
NE3-10700	Indian Creek		NA		NA		NA	NA	3		
NE3-10800	Indian Creek		S		NA		S	S	2		
NE3-10900	Unnamed Creek		NA	NA	NA		NA	NA	3		Public Drinking Water Supply use assigned 6/19
NE3-11000	Hughes Creek		NA	NA	NA		NA	NA	3		Public Drinking Water Supply use assigned 6/19
NE3-11100	Codington Creek		NA	NA	NA		NA	NA	3		Public Drinking Water Supply use assigned 6/19
NE3-11200	Unnamed Creek		NA	NA	NA		NA	NA	3		Public Drinking Water Supply use assigned 6/19
NE3-11300	Unnamed Creek		NA	NA	NA		NA	NA	3		Public Drinking Water Supply use assigned 6/19
NE3-11400	Longs Creek		S	NA	S		NA	S	2		Public Drinking Water Supply use assigned 6/19
NE3-11410	Scotch Branch		NA	NA	NA		NA	NA	3		Public Drinking Water Supply use assigned 6/19

Waterbody ID	Waterbody Name	Recreation	Aquatic Life	Water Supply			Aesthetics	Overall	2020 IR	Impairments (Causes)	Comments/Actions
				Public Drinking	Agricultural	Industrial					
NE3-11500	Longs Creek		NA	NA	NA		NA	NA	3		Public Drinking Water Supply use assigned 6/19
NE3-11600	Willow Creek		NA	NA	NA		NA	NA	3		Public Drinking Water Supply use assigned 6/19
NE3-11700	Ord Creek		NA	NA	NA		NA	NA	3		Public Drinking Water Supply use assigned 6/19
NE3-11800	Rock Creek		S		S		NA	S	2		
NE3-11810	Plum Run		NA		NA		NA	NA	3		
NE3-11820	Unnamed Creek		NA		NA		NA	NA	3		
NE3-11900	Rock Creek		NA		NA		NA	NA	3		
NE3-11910	Unnamed Creek		NA		NA		NA	NA	3		
NE3-11920	Unnamed Creek		S		NA		S	S	2		
NE3-11930	Unnamed Creek		NA		NA		NA	NA	3		
NE3-12000	Rock Creek		NA		NA		NA	NA	3		
NE3-12100	Unnamed Creek		NA		NA		NA	NA	3		
NE3-12200	Unnamed Creek		NA		NA		NA	NA	3		

Waterbody ID	Waterbody Name	Recreation	Aquatic Life	Water Supply			Aesthetics	Overall	2020 IR	Impairments (Causes)	Comments/Actions
				Public Drinking	Agricultural	Industrial					
NE3-12210	Unnamed Creek		NA		NA		NA	NA	3		
NE3-12300	Unnamed Creek		NA		NA		NA	NA	3		
NE3-12400	Houchen Creek		NA		NA		NA	NA	3		
NE3-12500	Unnamed Creek		NA		NA		NA	NA	3		
NE3-12600	Piper Creek		NA		NA		NA	NA	3		
NE3-12700	Sand Creek		S		NA		S	S	2		
NE3-12710	Unnamed Creek		NA		NA		NA	NA	3		
NE3-12800	Sand Creek		NA		NA		NA	NA	3		
NE3-12900	Jones Creek		NA		NA		NA	NA	3		
NE3-12910	East Branch Jones Creek		NA		NA		NA	NA	3		
NE3-13000	Jones Creek		NA		NA		NA	NA	3		
NE3-13100	North Fork Little Nemaha River	I	S		S		S	I	5	Recreation (*E. coli*)	
NE3-13110	Unnamed Creek		NA		NA		NA	NA	3		

Waterbody ID	Waterbody Name	Recreation	Aquatic Life	Water Supply			Aesthetics	Overall	2020 IR	Impairments (Causes)	Comments/Actions
				Public Drinking	Agricultural	Industrial					
NE3-13120	Unnamed Creek		NA		NA		NA	NA	3		
NE3-13130	Fox Creek		NA		NA		NA	NA	3		
NE3-13140	Wilson Creek		NA		NA		NA	NA	3		
NE3-13150	Deer Creek		NA		NA		NA	NA	3		
NE3-13200	North Fork Little Nemaha River		S		S		NA	S	2		
NE3-13210	Unnamed Creek		NA		NA		NA	NA	3		
NE3-13220	Unnamed Creek		NA		NA		NA	NA	3		
NE3-13300	North Fork Little Nemaha River		NA		NA		NA	NA	3		
NE3-20000	Little Nemaha River	I	S		S		S	I	5	Recreation (*E. coli*)	
NE3-20100	Spring Creek		S		NA		S	S	2		
NE3-20110	Ayres Creek		NA		NA		NA	NA	3		
NE3-20120	Manns Branch		NA		NA		NA	NA	3		
NE3-20200	Spring Branch		NA		NA		NA	NA	3		

Waterbody ID	Waterbody Name	Recreation	Aquatic Life	Water Supply			Aesthetics	Overall	2020 IR	Impairments (Causes)	Comments/Actions
				Public Drinking	Agricultural	Industrial					
NE3-20300	South Fork Little Nemaha River	I	S		S		S	I	5	Recreation (*E. coli*)	
NE3-20310	Coon Creek		S		NA		S	S	2		
NE3-20320	Unnamed Creek		NA		NA		NA	NA	3		
NE3-20330	Turkey Creek		NA		NA		NA	NA	3		
NE3-20400	South Fork Little Nemaha River		I		S		S	S	5	Aquatic Life (May-June Atrazine)	
NE3-20410	Silver Creek		NA		NA		NA	NA	3		
NE3-20420	Saunders Creek		NA		NA		NA	NA	3		
NE3-20421	Unnamed Creek		NA		NA		NA	NA	3		
NE3-20430	Saunders Creek		NA		NA		NA	NA	3		
NE3-20500	South Fork Little Nemaha River		S		NA		S	S	2		
NE3-20510	Unnamed Creek		NA		NA		NA	NA	3		
NE3-20520	Unnamed Creek		NA		NA		NA	NA	3		
NE3-30000	Little Nemaha River	I	S		S		S	I	5	Recreation (*E. coli*)	

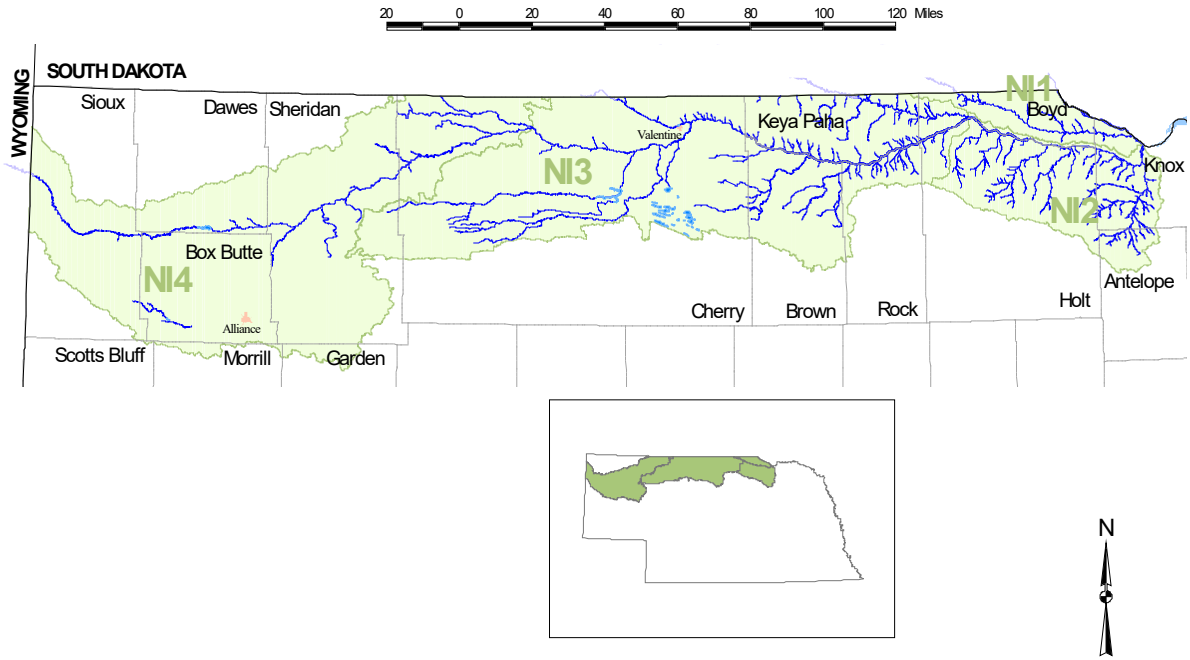
Waterbody ID	Waterbody Name	Recreation	Aquatic Life	Water Supply			Aesthetics	Overall	2020 IR	Impairments (Causes)	Comments/Actions
				Public Drinking	Agricultural	Industrial					
NE3-30100	Unnamed Creek		NA		NA		NA	NA	3		
NE3-30200	Muddy Creek		S		NA		S	S	2		
NE3-30210	Little Muddy Creek		S		NA		S	S	2		
NE3-30300	Brownell Creek		NA		NA		NA	NA	3		
NE3-30310	Unnamed Creek		NA		NA		NA	NA	3		
NE3-30400	Brownell Creek		NA		NA		NA	NA	3		
NE3-30500	Boxelder Creek		NA		NA		NA	NA	3		
NE3-30600	Unnamed Creek		NA		NA		NA	NA	3		
NE3-30700	Ziegler Creek		NA		NA		NA	NA	3		
NE3-30800	Wolf Creek		NA		NA		NA	NA	3		
NE3-30810	Owl Creek		NA		NA		NA	NA	3		
NE3-30900	Wolf Creek		NA		NA		NA	NA	3		
NE3-30910	Unnamed Creek		NA		NA		NA	NA	3		

Waterbody ID	Waterbody Name	Recreation	Aquatic Life	Water Supply			Aesthetics	Overall	2020 IR	Impairments (Causes)	Comments/Actions
				Public Drinking	Agricultural	Industrial					
NE3-31000	Russell Creek		NA		NA		NA	NA	3		
NE3-31100	Henry Creek		NA		NA		NA	NA	3		
NE3-31200	Hooper Creek		S		NA		S	S	2		
NE3-31210	Unnamed Creek		NA		NA		NA	NA	3		
NE3-31220	Unnamed Creek		NA		NA		NA	NA	3		
NE3-31230	Unnamed Creek		NA		NA		NA	NA	3		
NE3-31300	Hooper Creek		NA		NA		NA	NA	3		
NE3-31310	Unnamed Creek		NA		NA		NA	NA	3		
NE3-31320	Unnamed Creek		NA		NA		NA	NA	3		
NE3-40000	Little Nemaha River		S		S		NA	S	2		
NE3-40100	Silver Creek		NA		NA		NA	NA	3		
NE3-50000	Little Nemaha River		S		NA		S	S	2		
NE3-50100	Unnamed Creek		NA		NA		NA	NA	3		

Waterbody ID	Waterbody Name	Recreation	Aquatic Life	Water Supply			Aesthetics	Overall	2020 IR	Impairments (Causes)	Comments/Actions
				Public Drinking	Agricultural	Industrial					
NE3-50200	Unnamed Creek		NA		NA		NA	NA	3		
NE3-50300	Unnamed Creek		NA		NA		NA	NA	3		

****Cancer risk compounds*** -Aroclor-1248 (PCB-1248), Aroclor-1254 (PCB-1254), Aroclor-1260 (PCB-1260), cis-chlordane, Chlordane, trans-chlordane, DDD, DDE, DDT, Dieldrin, Heptachlor, Heptachlor Epoxide, Hexachlorobenzene, cis-nonachlor, trans-nonachlor, Oxychlordane, Pentachloroanisole, Trifluralin
Hazard index compounds- Aroclor-1254 (PCB-1254), Lindane (g-BHC), cis-chlordane, Chlordane, trans-chlordane, DDT, Dieldrin, Heptachlor, Heptachlor Epoxide, Hexachlorobenzene, cis-nonachlor, trans-nonachlor, Oxychlordane, Pentachloroanisole, Trifluralin, Mercury, Cadmium, Selenium

[1] XXX# designates in Title 117 an undesignated waterbody. See Title 117 Chapter 2.004.



Niobrara River Basin (and Subbasins)

Niobrara River Basin – Hydrologic Units 10150001, 10150002, 10150003, 10150004, 10150005, 10150006, 10150007 and 10140203

The Niobrara River Basin includes 269 designated stream segments and 69 designated lakes/reservoirs.

Waterbody Type	Primary Contact Recreation	Aquatic Life CA[1]	Aquatic Life CB[1]	Aquatic Life WA[1]	Aquatic Life WB[1]	Water Supply – Public Drinking	Water Supply – Ag	Water Supply-Ind.	Aesthetics
Lakes	69	0	2	67	0	0	69	2	69
Streams	53	14	164	15	76	0	269	1	269

[1] CA = Coldwater Class A, CB = Coldwater Class B, WA = Warmwater Class A and WB = Warmwater Class B

Delisting/ Changes from 2018 IR

The following are waters and or parameters that were delisted – removed from category 5 or other significant changes from the 2018 Integrated Report (IR).

NI2-L0070: Spencer Hydro Dam Lake – Spencer Dam failed as a result of flooding in 2019. The remains of the dam are slated for removal, and the dam will not be rebuilt. Therefore this waterbody will be removed from Chapter 6 of Title 117 during the next triennial review, and will be removed from future IRs.

NI3-L0063: Cozad Lake (South Pine WMA) – This waterbody was added to Chapter 6 of Title 117 in June 2019 with the assigned beneficial uses of Recreation, Aquatic Life – Warmwater Class A, Agricultural Water Supply – Class A, and Aesthetics. The nutrient classification is Sandhills. This lake is under the management of the Nebraska Game and Parks Commission. This waterbody will be placed in category 3.

NI3-L0067: Tower Lake (Yellowthroat WMA) – This waterbody was listed in category 2 under a temporary Waterbody ID in the 2018 IR. This waterbody was added to Chapter 6 of Title 117 and given a permanent Waterbody ID in June 2019. This waterbody will remain in category 2.

NI3-L0270: Pelican Lake (Valentine NWR) – This waterbody was listed in category 2 in the 2018 IR. Data gathered in 2017-18 determined that the Aquatic Life use in impaired for pH due to an unknown pollutant. This waterbody will be placed in category 5.

NI3-L0335: Lord Lake (McKelvie National Forest) – This waterbody was listed in category 2 under a temporary Waterbody ID in the 2018 IR. This waterbody was added to Chapter 6 of Title 117 and given a permanent Waterbody ID in June 2019. This waterbody will remain in category 2.

NI4-L0040: Smith Lake (WMA) – This waterbody was listed in category 5 in the 2018 IR. The Aquatic Life use was impaired due to a Fish Consumption Advisory for Mercury. Data gathered in 2017-18 determined that the Aquatic Life use is impaired for pH due to an unknown pollutant.

Waterbody ID	Waterbody Name	Recreation	Aquatic Life	Water Supply			Aesthetics	Overall	2020 IR	Impairments (Causes)	Comments/Actions
				Public Drinking	Agricultural	Industrial					
Lakes											
NI1-L0010	Hull Lake (WMA)	NA	S		NA		NA	S	2		
NI2-L0010	Creighton Rod and Gun Club Lake	NA	NA		NA		NA	NA	3		
NI2-L0020	Niobrara State Park Lake No. 1	NA	NA		NA		NA	NA	3		
NI2-L0030	Niobrara State Park Lake No. 2	NA	NA		NA		NA	NA	3		
NI2-L0050	Grove Sandpit Lake (WMA)	NA	NA		NA		NA	NA	3		
NI2-L0060	Grove Lake (WMA)	NA	I		S		S	I	5	Aquatic Life - Chlorophyll α (Total Nitrogen, Total Phosphorus)	
NI2-L0070	Spencer Hydro Dam Lake	NA	NA		NA	S	NA	S	2		Dam failed during 2019 flooding, will be removed from T117 in next review
NI3-L0010	F. Peterson Pond	NA	NA		NA		NA	NA	3		
NI3-L0020	Keller Park Lake No. 1 (SRA)	NA	S		NA		NA	S	2		
NI3-L0030	Keller Park Lake No. 2 (SRA)	NA	S		NA		NA	S	2		
NI3-L0040	Keller Park Lake No. 3 (SRA)	NA	NA		NA		NA	NA	3		
NI3-L0050	Keller Park Lake No. 4 (SRA)	NA	NA		NA		NA	NA	3		

Waterbody ID	Waterbody Name	Recreation	Aquatic Life	Water Supply			Aesthetics	Overall	2020 IR	Impairments (Causes)	Comments/Actions
				Public Drinking	Agricultural	Industrial					
NI3-L0060	Keller Park Lake No. 5 (SRA)	NA	NA		NA		NA	NA	3		
NI3-L0063	Cozad Lake (South Pine WMA)	NA	NA		NA		NA	NA	3		Added to Title 117 6/19
NI3-L0067	Tower Lake (Yellowthroat WMA)	NA	S		NA		NA	S	2		Previously listed as NI3-LXXX3. Permanent Waterbody ID assigned 6/19.
NI3-L0070	Cub Creek Lake	NA	I		S		S	I	5	Aquatic Life - Fish Consumption Advisory (Mercury), Chlorophyll α (Total Nitrogen, Total Phosphorus)	
NI3-L0080	Williams Pond	NA	NA		NA		NA	NA	3		
NI3-L0090	Cornell Dam Lake	NA	NA		NA	S	NA	S	2		
NI3-L0100	North Marsh Lake (Valentine NWR)	NA	NA		NA		NA	NA	3		
NI3-L0110	Middle Marsh (Valentine NWR)	NA	S		S		S	S	2		
NI3-L0120	South Marsh Lake (Valentine NWR)	NA	NA		NA		NA	NA	3		
NI3-L0130	East Twin Lake (Valentine NWR)	NA	S		S		S	S	2		
NI3-L0140	Valentine Fish Hatchery Lake	NA	NA		NA		NA	NA	3		
NI3-L0150	Calf Camp Marsh (Valentine NWR)	NA	NA		NA		NA	NA	3		
NI3-L0160	Little Hay Lake (Valentine NWR)	NA	NA		NA		NA	NA	3		

Waterbody ID	Waterbody Name	Recreation	Aquatic Life	Water Supply			Aesthetics	Overall	2020 IR	Impairments (Causes)	Comments/Actions
				Public Drinking	Agricultural	Industrial					
NI3-L0170	Valentine Mill Pond	I	I		S		S	I	5	Recreation (*E. coli),* Aquatic Life - Fish Consumption Advisory (Mercury), Chlorophyll α (Total Phosphorus)	
NI3-L0180	Ballards Marsh (WMA)	NA	NA		NA		NA	NA	3		
NI3-L0181	Twenty-one Lake (Valentine NWR)	NA	NA		NA		NA	NA	3		
NI3-L0182	Center Lake (Valentine NWR)	NA	S		S		S	S	2		
NI3-L0183	Lee Lake (Valentine NWR)	NA	NA		NA		NA	NA	3		
NI3-L0184	Pony Lake (Valentine NWR)	NA	S		S		S	S	2		
NI3-L0185	East Sweetwater Lake (Valentine NWR)	NA	NA		NA		NA	NA	3		
NI3-L0190	West Twin Lake (Valentine NWR)	NA	S		S		S	S	2		
NI3-L0191	Round Lake (Tom's Lake) (Valentine NWR)	NA	NA		NA		NA	NA	3		
NI3-L0192	Homestead Lake (Valentine NWR)	NA	NA		NA		NA	NA	3		
NI3-L0193	Campbell Lake (Valentine NWR)	NA	NA		NA		NA	NA	3		
NI3-L0194	Lost Lake (Valentine NWR)	NA	NA		NA		NA	NA	3		

Waterbody ID	Waterbody Name	Recreation	Aquatic Life	Water Supply			Aesthetics	Overall	2020 IR	Impairments (Causes)	Comments/Actions
				Public Drinking	Agricultural	Industrial					
NI3-L0195	Dad's Lake (Valentine NWR)	NA	NA		NA		NA	NA	3		
NI3-L0196	Baker Lake (Valentine NWR)	NA	NA		NA		NA	NA	3		
NI3-L0200	Hackberry (Valentine NWR)	NA	S		S		S	S	2		
NI3-L0210	Willow Lake (WMA)	NA	S		NA		NA	S	2		
NI3-L0220	Big Alkali Lake (WMA)	NA	I		I		S	I	5	Aquatic Life - Chlorophyll α (Total Nitrogen, Total Phosphorus), Agriculture Water Supply - Conductivity (Naturally Elevated)	Sandhills lakes have naturally elevated conductivity
NI3-L0230	McKeel Lake (Valentine NWR)	NA	NA		NA		NA	NA	3		
NI3-L0240	Dewey Lake (Valentine NWR)	NA	S		S		S	S	2		
NI3-L0250	School Lake (Valentine NWR)	NA	NA		NA		NA	NA	3		
NI3-L0260	Clear Lake (Valentine NWR)	NA	S		S		S	S	2		
NI3-L0270	Pelican Lake (Valentine NWR)	NA	I		S		S	S	5	Aquatic Life - pH (Unknown)	
NI3-L0280	Whitewater Lake (Valentine NWR)	NA	NA		NA		NA	NA	3		
NI3-L0290	Watts Lake (Valentine NWR)	NA	S		S		S	S	2		

Waterbody ID	Waterbody Name	Recreation	Aquatic Life	Water Supply			Aesthetics	Overall	2020 IR	Impairments (Causes)	Comments/Actions
				Public Drinking	Agricultural	Industrial					
NI3-L0300	West Long Lake (Valentine NWR)	NA	S		S		S	S	2		
NI3-L0310	Rice Lake (Valentine NWR)	NA	NA		NA		NA	NA	3		
NI3-L0320	Duck Lake (Valentine NWR)	NA	I		S		S	I	5	Aquatic Life - Fish Consumption Advisory (Mercury)	
NI3-L0330	Merritt Reservoir	S	I		S		S	I	5	Aquatic Life - Fish Consumption Advisory (Hazard Index Compounds*, Mercury), Chlorophyll α, pH (Total Nitrogen, Total Phosphorus)	
NI3-L0335	Lord Lake (McKelvie National Forest)	NA	S		NA		NA	S	2		Previously listed as NI3-LXXX1. Permanent Waterbody ID assigned 6/19.
NI3-L0340	Cody Lake	NA	S		NA		NA	S	2		
NI3-L0350	Shaup Lake	NA	S		S		S	S	2		
NI3-L0360	Medicine Lake	NA	NA		NA		NA	NA	3		
NI3-L0370	Round Lake	NA	S		I		S	I	4c	Agriculture Water Supply - Conductivity (Naturally Elevated)	Sandhills lakes have naturally elevated conductivity
NI3-L0374	Home Valley Lake (WMA)	NA	NA		NA		NA	NA	3		
NI3-L0375	Cottonwood/Steverson Lake (WMA)	NA	S		NA		NA	S	2		
NI3-L0380	Three Corners Lake	NA	NA		NA		NA	NA	3		

Waterbody ID	Waterbody Name	Recreation	Aquatic Life	Water Supply			Aesthetics	Overall	2020 IR	Impairments (Causes)	Comments/Actions
				Public Drinking	Agricultural	Industrial					
NI3-LXXX2	Schoolhouse Lake	NA	I		NA		NA	I	5	Aquatic Life - Fish Consumption Advisory (Mercury)	
NI4-L0010	Cottonwood Lake (SRA)	NA	I		NA		NA	I	5	Aquatic Life - Fish Consumption Advisory (Mercury), pH (Unknown)	
NI4-L0020	Shell Lake	NA	I		NA		NA	I	5	Aquatic Life - Fish Consumption Advisory (Mercury)	
NI4-L0030	Leistrintz-Meyer Lake	NA	NA		NA		NA	NA	3		
NI4-L0040	Smith Lake (WMA)	NA	I		NA		NA	I	5	Aquatic Life - pH (Unknown), Fish Consumption Advisory (Mercury)	
NI4-L0050	Walgren Lake (SRA)	NA	I		S		S	I	5	Aquatic Life - Fish Consumption Advisory (Mercury)	
NI4-L0060	Laing Lake	NA	NA		NA		NA	NA	3		Name changed from Alliance City lake to Laing Lake in 2019.
NI4-L0080	Box Butte Reservoir	S	I		S		S	I	5	Aquatic Life - Fish Consumption Advisory (Mercury)	
NI4-L0090	Kilpatrick Lake	NA	I		S		S	I	5	Aquatic Life - pH (Unknown)	TN and TP are supporting
Streams											
NI1-10000	Missouri River	S	I		S		S	I	5	Aquatic Life - Fish Consumption Advisory (Mercury)	
NI1-10100	Ponca Creek	I	S		S		S	I	5	Recreation (*E. coli*)	
NI1-10110	Unnamed Creek		NA		NA		NA	NA	3		

Waterbody ID	Waterbody Name	Recreation	Aquatic Life	Water Supply			Aesthetics	Overall	2020 IR	Impairments (Causes)	Comments/Actions
				Public Drinking	Agricultural	Industrial					
NI1-10120	Unnamed Creek		NA		NA		NA	NA	3		
NI1-10130	Unnamed Creek		NA		NA		NA	NA	3		
NI1-10140	Unnamed Creek		NA		NA		NA	NA	3		
NI1-10150	Whiskey Creek		NA		NA		NA	NA	3		
NI1-10151	Silver Creek		NA		NA		NA	NA	3		
NI1-10160	Whiskey Creek		NA		NA		NA	NA	3		
NI1-10170	Unnamed Creek		NA		NA		NA	NA	3		
NI1-10180	Beaver Creek	NA	NA		NA		NA	NA	3		
NI1-10200	Ponca Creek		S		NA		S	S	2		
NI1-10210	Unnamed Creek		NA		NA		NA	NA	3		
NI1-10220	Unnamed Creek		NA		NA		NA	NA	3		
NI1-10230	Unnamed Creek		S		NA		S	S	2		
NI1-10240	Unnamed Creek		NA		NA		NA	NA	3		

Waterbody ID	Waterbody Name	Recreation	Aquatic Life	Water Supply			Aesthetics	Overall	2020 IR	Impairments (Causes)	Comments/Actions
				Public Drinking	Agricultural	Industrial					
NI1-10250	Unnamed Creek		NA		NA		NA	NA	3		
NI1-10260	Unnamed Creek		NA		NA		NA	NA	3		
NI2-10000	Niobrara River	I	S		S	S	S	I	4a	Recreation (*E. coli*)	E. coli TMDL approved 1/06
NI2-10100	Verdigre Creek	I	I		S		S	I	5	Recreation (E. coli), Aquatic Life - Impaired Aquatic Community (Unknown)	
NI2-10110	Unnamed Creek		NA		NA		NA	NA	3		
NI2-10120	Unnamed Creek		NA		NA		NA	NA	3		
NI2-10130	Unnamed Creek		NA		NA		NA	NA	3		
NI2-10140	North Branch Verdigre Creek	I	I		S		S	I	5	Recreation (*E. coli*), Aquatic Life - Temperature (Naturally Elevated)	
NI2-10141	Unnamed Creek		NA		NA		NA	NA	3		
NI2-10142	Unnamed Creek		S		NA		S	S	2		
NI2-10143	Unnamed Creek		NA		NA		NA	NA	3		
NI2-10144	Unnamed Creek		NA		NA		NA	NA	3		
NI2-10200	Verdigre Creek	I	S		S		S	I	5	Recreation (*E. coli*)	

Waterbody ID	Waterbody Name	Recreation	Aquatic Life	Water Supply			Aesthetics	Overall	2020 IR	Impairments (Causes)	Comments/Actions
				Public Drinking	Agricultural	Industrial					
NI2-10210	Unnamed Creek		NA		NA		NA	NA	3		
NI2-10220	Unnamed Creek		NA		NA		NA	NA	3		
NI2-10221	Unnamed Creek		NA		NA		NA	NA	3		
NI2-10222	Unnamed Creek		NA		NA		NA	NA	3		
NI2-10230	Middle Branch Verdigre Creek	I	I		S		S	I	5	Recreation (*E. coli*), Aquatic Life - Temperature (Naturally Elevated)	
NI2-10231	Unnamed Creek		NA		NA		NA	NA	3		
NI2-10232	Unnamed Creek		NA		NA		NA	NA	3		
NI2-10233	Unnamed Creek		NA		NA		NA	NA	3		
NI2-10234	Unnamed Creek		NA		NA		NA	NA	3		
NI2-10235	Unnamed Creek		NA		NA		NA	NA	3		
NI2-10236	Lamb Creek		NA		NA		NA	NA	3		
NI2-10237	Unnamed Creek		NA		NA		NA	NA	3		
NI2-10238	Unnamed Creek		NA		NA		NA	NA	3		

Waterbody ID	Waterbody Name	Recreation	Aquatic Life	Water Supply			Aesthetics	Overall	2020 IR	Impairments (Causes)	Comments/Actions
				Public Drinking	Agricultural	Industrial					
NI2-10239	Unnamed Creek		S		NA		S	S	2		
NI2-10240	Unnamed Creek		NA		NA		NA	NA	3		
NI2-10250	Unnamed Creek		NA		NA		NA	NA	3		
NI2-10260	Unnamed Creek		NA		NA		NA	NA	3		
NI2-10270	Merriman Creek	I	I		S		S	I	5	Recreation (*E. coli*), Aquatic Life - Temperature (Naturally Elevated)	
NI2-10271	Unnamed Creek		S		NA		S	S	2		
NI2-10280	Merriman Creek		NA		NA		NA	NA	3		
NI2-10281	Unnamed Creek		NA		NA		NA	NA	3		
NI2-10290	Cottonwood Creek		NA		NA		NA	NA	3		
NI2-10300	South Branch Verdigre Creek	I	S		S		S	I	5	Recreation (*E. coli*)	
NI2-10310	East Branch Verdigre Creek	NA	NA		NA		NA	NA	3		
NI2-10311	Hay Creek		NA		NA		NA	NA	3		
NI2-10320	East Branch Verdigre Creek	I	S		S		S	I	5	Recreation (*E. coli*)	

Waterbody ID	Waterbody Name	Recreation	Aquatic Life	Water Supply			Aesthetics	Overall	2020 IR	Impairments (Causes)	Comments/Actions
				Public Drinking	Agricultural	Industrial					
NI2-10330	Unnamed Creek		NA		NA		NA	NA	3		
NI2-10340	Unnamed Creek		NA		NA		NA	NA	3		
NI2-10350	Big Springs Creek		NA		NA		NA	NA	3		
NI2-10351	Hathoway Slough		NA		NA		NA	NA	3		
NI2-10352	Unnamed Creek		NA		NA		NA	NA	3		
NI2-10400	Schindler Creek		NA		NA		NA	NA	3		
NI2-10500	Unnamed Creek		NA		NA		NA	NA	3		
NI2-10600	Soldier Creek		NA		NA		NA	NA	3		
NI2-10610	Unnamed Creek		NA		NA		NA	NA	3		
NI2-10700	Pishel Creek		NA		NA		NA	NA	3		
NI2-10800	Steel Creek	I	S		S		S	I	5	Recreation (*E. coli*)	
NI2-10810	Long Gulch		NA		NA		NA	NA	3		
NI2-10900	Squaw Creek		NA		NA		NA	NA	3		

Waterbody ID	Waterbody Name	Recreation	Aquatic Life	Water Supply			Aesthetics	Overall	2020 IR	Impairments (Causes)	Comments/Actions
				Public Drinking	Agricultural	Industrial					
NI2-11000	Unnamed Creek		NA		NA		NA	NA	3		
NI2-11100	Sand Creek		NA		NA		NA	NA	3		
NI2-11200	Louse Creek	NA	NA		NA		NA	NA	3		
NI2-11300	Louse Creek		S		S		S	S	1		
NI2-11400	Redbird Creek	I	I		S		S	I	5	Recreation (*E. coli*), Aquatic Life - Temperature (Naturally Elevated)	
NI2-11410	Unnamed Creek		NA		NA		NA	NA	3		
NI2-11420	Spring Creek		NA		NA		S	S	2		Aquatic Community Assessment completed, results were inconclusive - site will be reassessed†
NI2-11430	Blackbird Creek		NA		NA		NA	NA	3		
NI2-11500	Redbird Creek		NA		NA		NA	NA	3		
NI2-11510	Unnamed Creek		NA		NA		NA	NA	3		
NI2-11520	Unnamed Creek		NA		NA		NA	NA	3		
NI2-11600	Unnamed Creek		NA		NA		NA	NA	3		
NI2-11700	Eagle Creek	I	S		S		S	I	5	Recreation (*E. coli*)	

Waterbody ID	Waterbody Name	Recreation	Aquatic Life	Water Supply			Aesthetics	Overall	2020 IR	Impairments (Causes)	Comments/Actions
				Public Drinking	Agricultural	Industrial					
NI2-11710	Camp Creek		NA		NA		NA	NA	3		
NI2-11720	Unnamed Creek		NA		NA		NA	NA	3		
NI2-11730	Honey Creek		NA		NA		NA	NA	3		
NI2-11740	Unnamed Creek		NA		NA		NA	NA	3		
NI2-11750	Oak Creek		NA		NA		NA	NA	3		
NI2-11760	Unnamed Creek		NA		NA		NA	NA	3		
NI2-11770	East Branch Eagle Creek		NA		NA		NA	NA	3		
NI2-11771	Unnamed Creek		NA		NA		NA	NA	3		
NI2-11772	Unnamed Creek		NA		NA		NA	NA	3		
NI2-11780	Middle Branch Eagle Creek	I	NA		S		S	I	5	Recreation (*E. coli*)	Aquatic Community Assessment completed, results were inconclusive - site will be reassessed†
NI2-11781	North Branch Eagle Creek	I	S		S		S	I	5	Recreation (*E. coli*)	
NI2-11781.1	Unnamed Creek		NA		NA		NA	NA	3		
NI2-11781.2	Unnamed Creek		NA		NA		NA	NA	3		

Waterbody ID	Waterbody Name	Recreation	Aquatic Life	Water Supply			Aesthetics	Overall	2020 IR	Impairments (Causes)	Comments/Actions
				Public Drinking	Agricultural	Industrial					
NI2-11781.3	Unnamed Creek		NA		NA		NA	NA	3		
NI2-11782	Unnamed Creek		NA		NA		NA	NA	3		
NI2-11783	Unnamed Creek		NA		NA		NA	NA	3		
NI2-11784	Unnamed Creek		NA		NA		NA	NA	3		
NI2-11800	Unnamed Creek		NA		NA		NA	NA	3		
NI2-11900	Turkey Creek		S		NA		S	S	2		
NI2-12000	Brush Creek		NA		NA		NA	NA	3		
NI2-12010	Spring Creek		NA		NA		NA	NA	3		
NI2-12020	Unnamed Creek		NA		NA		NA	NA	3		
NI2-12030	Unnamed Creek		NA		NA		NA	NA	3		
NI2-12040	Unnamed Creek		NA		NA		NA	NA	3		
NI2-12041	Unnamed Creek		NA		NA		NA	NA	3		
NI2-12100	Brush Creek		NA		NA		NA	NA	3		

Waterbody ID	Waterbody Name	Recreation	Aquatic Life	Water Supply			Aesthetics	Overall	2020 IR	Impairments (Causes)	Comments/Actions
				Public Drinking	Agricultural	Industrial					
NI2-12200	Little Sandy Creek		NA		NA		NA	NA	3		
NI2-12300	Big Sandy Creek	NA	S		NA		S	S	2		
NI2-12310	Unnamed Creek		NA		NA		NA	NA	3		
NI2-12320	Unnamed Creek		NA		NA		NA	NA	3		
NI2-12330	Unnamed Creek		NA		NA		NA	NA	3		
NI2-12340	Unnamed Creek		NA		NA		NA	NA	3		
NI2-12350	Spring Creek		NA		NA		NA	NA	3		
NI2-12400	Big Sandy Creek	NA	NA		NA		NA	NA	3		
NI2-12410	Unnamed Creek		NA		NA		NA	NA	3		
NI3-10000	Niobrara River	I	S		S		S	I	4a	Recreation (*E. coli*)	E. coli TMDL approved 1/06
NI3-10100	Keya Paha River	I	S		S		S	I	5	Recreation (*E. coli*)	
NI3-10110	Morse Creek		NA		NA		NA	NA	3		
NI3-10111	Unnamed Creek		NA		NA		NA	NA	3		

Waterbody ID	Waterbody Name	Recreation	Aquatic Life	Water Supply			Aesthetics	Overall	2020 IR	Impairments (Causes)	Comments/Actions
				Public Drinking	Agricultural	Industrial					
NI3-10120	Big Creek		NA		NA		NA	NA	3		
NI3-10130	Meglin Creek		NA		NA		NA	NA	3		
NI3-10140	Oak Creek		NA		NA		NA	NA	3		
NI3-10141	Unnamed Creek		NA		NA		NA	NA	3		
NI3-10142	Unnamed Creek		NA		NA		NA	NA	3		
NI3-10150	Alkali Creek		NA		NA		NA	NA	3		
NI3-10160	Spotted Tail Creek		NA		NA		NA	NA	3		
NI3-10170	Coon Creek		NA		NA		NA	NA	3		
NI3-10171	Unnamed Creek		NA		NA		NA	NA	3		
NI3-10180	Wolf Creek		NA		NA		NA	NA	3		
NI3-10190	Spring Creek		S		S		S	S	1		
NI3-10200	Dry Creek		NA		NA		NA	NA	3		
NI3-10210	Buffalo Creek		NA		NA		NA	NA	3		

Waterbody ID	Waterbody Name	Recreation	Aquatic Life	Water Supply			Aesthetics	Overall	2020 IR	Impairments (Causes)	Comments/Actions
				Public Drinking	Agricultural	Industrial					
NI3-10211	Unnamed Creek		NA		NA		NA	NA	3		
NI3-10220	Burton Creek		S		S		S	S	1		
NI3-10230	Lute Creek		NA		NA		NA	NA	3		
NI3-10240	Jordan Creek		NA		NA		NA	NA	3		
NI3-10250	Holt Creek		S		NA		S	S	2		
NI3-10251	East Branch Holt Creek		NA		NA		NA	NA	3		
NI3-10260	Holt Creek		NA		NA		NA	NA	3		
NI3-10261	Unnamed Creek		NA		NA		NA	NA	3		
NI3-10270	Timber Creek		NA		NA		NA	NA	3		
NI3-10280	Cottonwood Creek		NA		NA		NA	NA	3		
NI3-10290	Lost Creek		NA		NA		NA	NA	3		
NI3-10300	Shadley Creek		NA		NA		NA	NA	3		
NI3-10400	Beaver Creek		NA		NA		NA	NA	3		

Waterbody ID	Waterbody Name	Recreation	Aquatic Life	Water Supply			Aesthetics	Overall	2020 IR	Impairments (Causes)	Comments/Actions
				Public Drinking	Agricultural	Industrial					
NI3-10500	Clay Creek		NA		NA		NA	NA	3		
NI3-10510	West Branch Clay Creek		NA		NA		NA	NA	3		
NI3-10600	Unnamed Creek		NA		NA		NA	NA	3		
NI3-10700	Otter Creek		NA		NA		NA	NA	3		
NI3-10800	Unnamed Creek		NA		NA		NA	NA	3		
NI3-10900	Simpson Creek		NA		NA		NA	NA	3		
NI3-10910	Unnamed Creek		NA		NA		NA	NA	3		
NI3-11000	Big Anne Creek		NA		NA		NA	NA	3		
NI3-11010	Haughin Creek		NA		NA		NA	NA	3		
NI3-11011	Unnamed Creek		NA		NA		NA	NA	3		
NI3-11100	Ash Creek		NA		NA		NA	NA	3		
NI3-11110	Unnamed Creek		NA		NA		NA	NA	3		
NI3-11120	Unnamed Creek		NA		NA		NA	NA	3		

Waterbody ID	Waterbody Name	Recreation	Aquatic Life	Water Supply			Aesthetics	Overall	2020 IR	Impairments (Causes)	Comments/Actions
				Public Drinking	Agricultural	Industrial					
NI3-11200	Oak Creek		NA		NA		NA	NA	3		
NI3-11210	Unnamed Creek		NA		NA		NA	NA	3		
NI3-11220	Unnamed Creek		NA		NA		NA	NA	3		
NI3-11300	Willow Creek		NA		NA		NA	NA	3		
NI3-11310	Sand Creek		NA		NA		NA	NA	3		
NI3-11400	Unnamed Creek		NA		NA		NA	NA	3		
NI3-11500	Rock Creek		NA		NA		NA	NA	3		
NI3-11600	Unnamed Creek		NA		NA		NA	NA	3		
NI3-11700	West Branch Laughing Water Creek		NA		NA		NA	NA	3		
NI3-11710	East Branch Laughing Water Creek		NA		NA		NA	NA	3		
NI3-11720	Middle Branch Laughing Water Creek		NA		NA		NA	NA	3		
NI3-11800	Coon Creek		NA		NA		NA	NA	3		
NI3-11900	Elk Creek		NA		NA		NA	NA	3		

Waterbody ID	Waterbody Name	Recreation	Aquatic Life	Water Supply			Aesthetics	Overall	2020 IR	Impairments (Causes)	Comments/Actions
				Public Drinking	Agricultural	Industrial					
NI3-12000	Wyman Creek		NA		NA		NA	NA	3		
NI3-12100	Sand Creek		NA		NA		NA	NA	3		
NI3-12200	Long Pine Creek	I	S		S		S	I	4a	Recreation (*E. coli*)	E. coli TMDL approved 1/06
NI3-12210	Short Pine Creek		S		NA		S	S	2		
NI3-12220	Bone Creek	I	I		S		S	I	5	Recreation (*E. coli*), Aquatic Life - Temperature (Naturally Elevated)	
NI3-12221	Sand Draw	I	I		S		S	I	5	Recreation (*E. coli*), Aquatic Life - Temperature (Naturally Elevated)	
NI3-12222	Unnamed Creek		NA		NA		NA	NA	3		
NI3-12230	Bone Creek		S		S		S	S	1		
NI3-12300	Long Pine Creek	NA	NA		NA		NA	NA	3		
NI3-12310	Willow Creek		S		NA		S	S	2		
NI3-12400	Long Pine Creek	I	S		S		S	I	5	Recreation (*E. coli*)	
NI3-12500	Thomas Creek		NA		NA		NA	NA	3		
NI3-12600	Prosser Creek		NA		NA		NA	NA	3		

Waterbody ID	Waterbody Name	Recreation	Aquatic Life	Water Supply			Aesthetics	Overall	2020 IR	Impairments (Causes)	Comments/Actions
				Public Drinking	Agricultural	Industrial					
NI3-12700	Jewett Creek		NA		NA		NA	NA	3		
NI3-12800	Dutch Creek		NA		NA		NA	NA	3		
NI3-12900	Rock Creek		NA		NA		NA	NA	3		
NI3-12910	Unnamed Creek		NA		NA		NA	NA	3		
NI3-13000	Plum Creek	S	I		S		S	I	4c	Aquatic Life - Temperature (Naturally Elevated)	E. coli TMDL approved 1/06
NI3-13010	Little Minnie Creek		NA		NA		NA	NA	3		
NI3-13020	Evergreen Creek		NA		NA		NA	NA	3		
NI3-13021	Cedar Creek		NA		NA		NA	NA	3		
NI3-13021.1	Dry Creek		NA		NA		NA	NA	3		
NI3-13100	Plum Creek	S	S		S		S	S	1	-	E. coli TMDL approved 1/06
NI3-13110	North Branch Plum Creek		NA		NA		NA	NA	3		
NI3-13111	Brush Creek		NA		NA		NA	NA	3		
NI3-13120	South Branch Plum Creek		S		NA		S	S	2		

Waterbody ID	Waterbody Name	Recreation	Aquatic Life	Water Supply			Aesthetics	Overall	2020 IR	Impairments (Causes)	Comments/Actions
				Public Drinking	Agricultural	Industrial					
NI3-20000	Niobrara River	S	S		S		S	S	1		
NI3-20100	Cub Creek		NA		NA		NA	NA	3		
NI3-20110	Unnamed Creek		NA		NA		NA	NA	3		
NI3-20200	Chimney Creek		NA		NA		NA	NA	3		
NI3-20210	Unnamed Creek		S		NA		S	S	2		
NI3-20300	Turkey Creek		NA		NA		NA	NA	3		
NI3-20400	Middle Creek		NA		NA		NA	NA	3		
NI3-20410	East Middle Creek		NA		NA		NA	NA	3		
NI3-20500	Fairfield Creek	NA	S		NA		S	S	2		
NI3-20510	South Fork Fairfield Creek		NA		NA		NA	NA	3		
NI3-20600	McGill Creek		NA		NA		NA	NA	3		
NI3-20700	Muleshoe Creek		S		NA		S	S	2		
NI3-20800	Coleman Creek		NA		NA		NA	NA	3		

Waterbody ID	Waterbody Name	Recreation	Aquatic Life	Water Supply			Aesthetics	Overall	2020 IR	Impairments (Causes)	Comments/Actions
				Public Drinking	Agricultural	Industrial					
NI3-20900	Unnamed Creek		NA		NA		NA	NA	3		
NI3-21000	Clapp Creek		NA		NA		NA	NA	3		
NI3-21100	Unnamed Creek		NA		NA		NA	NA	3		
NI3-21200	Unnamed Creek		NA		NA		NA	NA	3		
NI3-21300	Unnamed Creek		NA		NA		NA	NA	3		
NI3-21400	Unnamed Creek		NA		NA		NA	NA	3		
NI3-21500	Crooked Creek		NA		NA		NA	NA	3		
NI3-21600	Little Beaver Creek		NA		NA		NA	NA	3		
NI3-21700	Big Beaver Creek		NA		NA		NA	NA	3		
NI3-21800	Coon Creek		NA		NA		NA	NA	3		
NI3-21900	Minnechaduza Creek	I	I		S		S	I	4a/c	Recreation (*E. coli*), Aquatic Life - Temperature (Naturally Elevated)	E. coli TMDL approved 1/06
NI3-21910	Spring Creek		NA		NA		NA	NA	3		
NI3-21920	Fishberry Creek		NA		NA		NA	NA	3		

Waterbody ID	Waterbody Name	Recreation	Aquatic Life	Water Supply			Aesthetics	Overall	2020 IR	Impairments (Causes)	Comments/Actions
				Public Drinking	Agricultural	Industrial					
NI3-21930	Dry Creek		NA		NA		NA	NA	3		
NI3-22000	Minnechaduza Creek	NA	S		NA		S	S	2		
NI3-22010	Bull Creek		NA		NA		NA	NA	3		
NI3-22100	Schlagel Creek	NA	S		NA		S	S	2		
NI3-22200	Gordon Creek		I		S		S	I	4c	Aquatic Life - Temperature (Naturally Elevated)	
NI3-22210	Betsy Creek		NA		NA		NA	NA	3		
NI3-22300	Gordon Creek	NA	NA		NA		S	S	2		Aquatic Community Assessment completed, results were inconclusive - site will be reassessed†
NI3-22310	Arkansas Flats		NA		NA		NA	NA	3		
NI3-22320	Sandy Richards Creek		NA		NA		NA	NA	3		
NI3-22400	Snake River	S	S		S		S	S	1		
NI3-22500	Snake River	I	S		S		S	I	4a	Recreation (*E. coli*)	E. coli TMDL approved 1/06
NI3-22510	Boardman Creek	I	NA		S		S	I	5	Recreation (*E. coli*)	Aquatic Community Assessment completed, results were inconclusive - site will be reassessed†
NI3-22511	Unnamed Creek		NA		NA		NA	NA	3		

Waterbody ID	Waterbody Name	Recreation	Aquatic Life	Water Supply			Aesthetics	Overall	2020 IR	Impairments (Causes)	Comments/Actions
				Public Drinking	Agricultural	Industrial					
NI3-22520	Clifford Creek	NA	S		NA		S	S	2		
NI3-22521	Willow Creek		NA		NA		NA	NA	3		
NI3-22600	Snake River		S		NA		S	S	2		
NI3-30000	Niobrara River	I	S		S		S	I	5	Recreation (*E. coli*)	
NI3-30100	Unnamed Creek		NA		NA		NA	NA	3		
NI3-30200	McCann Canyon		NA		NA		NA	NA	3		
NI3-30300	Medicine Creek		NA		NA		NA	NA	3		
NI4-10000	Niobrara River	I	S		S		S	I	4a	Recreation (*E. coli*)	E. coli TMDL approved 1/06
NI4-10100	Bear Creek	I	S		S		S	I	5	Recreation (*E. coli*)	
NI4-10110	Dry Creek	NA	NA		NA		S	S	2		Aquatic Community Assessment completed, results were inconclusive - site will be reassessed†
NI4-10120	Dry Creek	NA	NA		NA		NA	NA	3		
NI4-10121	Unnamed Creek		NA		NA		NA	NA	3		
NI4-10200	Leander Creek	NA	S		NA		S	S	2		

Waterbody ID	Waterbody Name	Recreation	Aquatic Life	Water Supply			Aesthetics	Overall	2020 IR	Impairments (Causes)	Comments/Actions
				Public Drinking	Agricultural	Industrial					
NI4-10300	Hay Creek		NA		NA		NA	NA	3		
NI4-10400	Antelope Creek		NA		NA		NA	NA	3		
NI4-10500	Pole Creek		NA		NA		NA	NA	3		
NI4-10600	Rush Creek		NA		NA		S	S	2		Aquatic Community Assessment completed, results were inconclusive - site will be reassessed†
NI4-10700	Deer Creek	NA	NA		NA		NA	NA	3		
NI4-10800	Pine Creek	I	S		S		S	I	5	Recreation (*E. coli*)	
NI4-10900	Pine Creek		S		NA		S	S	2		
NI4-11000	Box Butte Creek		NA		NA		NA	NA	3		
NI4-20000	Niobrara River	I	S		S		S	I	5	Recreation (*E. coli*)	
NI4-20100	Pepper Creek		NA		NA		NA	NA	3		
NI4-20200	Cottonwood Creek		NA		NA		NA	NA	3		
NI4-20300	Snake Creek		NA		NA		NA	NA	3		
NI4-20310	Spring Creek		NA		NA		NA	NA	3		

Waterbody ID	Waterbody Name	Recreation	Aquatic Life	Water Supply			Aesthetics	Overall	2020 IR	Impairments (Causes)	Comments/Actions
				Public Drinking	Agricultural	Industrial					
NI4-20320	North Branch Snake Creek		NA		NA		NA	NA	3		
NI4-20330	South Branch Snake Creek		NA		NA		NA	NA	3		
NI4-30000	Niobrara River	S	I		S		S	I	4c	Aquatic Life - Temperature (Naturally Elevated)	
NI4-40000	Niobrara River	I	S		S		S	I	5	Recreation (*E. coli*)	
NI4-40100	Whistle Creek		NA		NA		NA	NA	3		
NI4-50000	Niobrara River	S	I		S		S	I	5	Aquatic Life - Dissolved Oxygen (Unknown)	

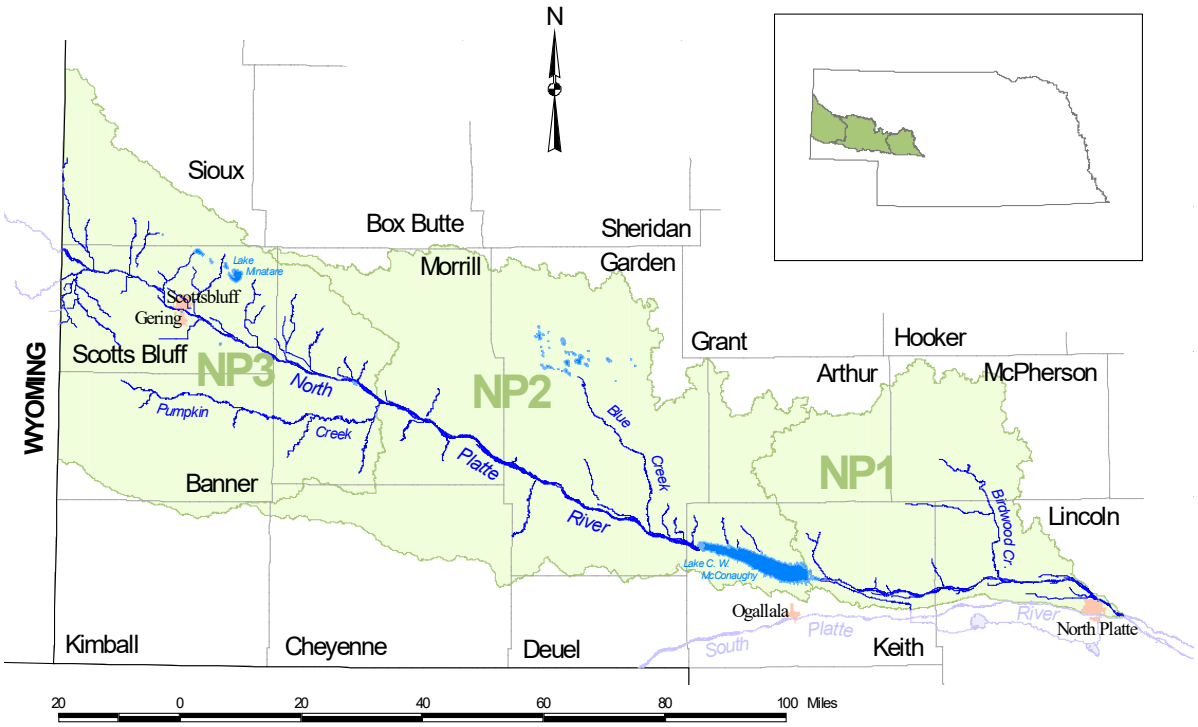
Cancer risk compounds -Aroclor-1248 (PCB-1248), Aroclor-1254 (PCB-1254), Aroclor-1260 (PCB-1260), cis-chlordane, Chlordane, trans-chlordane, DDD, DDE, DDT, Dieldrin, Heptachlor, Heptachlor Epoxide, Hexachlorobenzene, cis-nonachlor, trans-nonachlor, Oxychlordane, Pentachloroanisole, Trifluralin
Hazard index compounds- Aroclor-1254 (PCB-1254), Lindane (g-BHC), cis-chlordane, Chlordane, trans-chlordane, DDT, Dieldrin, Heptachlor, Heptachlor Epoxide, Hexachlorobenzene, cis-nonachlor, trans-nonachlor, Oxychlordane, Pentachloroanisole, Trifluralin, Mercury, Cadmium, Selenium

Literature Cited:

McCarraher, D. B. 1964. Limnology of carbonate – bicarbonate lakes in Nebraska. Nebraska Game and Parks Commission: White Papers and Manuscripts. http://digitalcommons.unl.edu/nebgamewhitepap/8.

McCarraher, D. B. 1977. Nebraska's Sandhills Lakes. Nebraska Game and Parks Commission. Lincoln, NE.

NORTH PLATTE RIVER BASIN (and Subbasins)



North Platte River Basin – Hydrologic Units 10180009, 10180012, 10180013 and 10180014

The North Platte River Basin includes 136 designated stream segments and 52 designated lakes/reservoirs.

Waterbody Type	Primary Contact Recreation	Aquatic Life CA[1]	Aquatic Life CB[1]	Aquatic Life WA[1]	Aquatic Life WB[1]	Water Supply – Public Drinking	Water Supply – Ag	Water Supply-Ind.	Aesthetics
Lakes	52	0	3	49	0	0	52	1	52
Streams	42	21	79	7	29	0	136	1	136

[1] CA = Coldwater Class A, CB = Coldwater Class B, WA = Warmwater Class A and WB = Warmwater Class B

Delisting/ Changes from 2018 IR

The following are waters and or parameters that were delisted – removed from category 5 or other significant changes from the 2018 Integrated Report (IR).

NP2-L0010: Lake C. W. McConaughy – This waterbody was listed in category 5 in the 2018 IR. The Aquatic Life use was impaired due to a Fish Consumption Advisory for Hazard Index Compounds and Mercury, and due to Chlorophyll α. A 2017 Fish Consumption Assessment determined that the Aquatic Life use is now supported for Hazard Index Compounds and Mercury, and the Fish Consumption Advisory was removed. Data gathered in 2017-18 determined that the Aquatic Life use is now supported for Chlorophyll α. This waterbody will be placed in category 1.

NP2-L0095: Crescent Lake – This waterbody was listed in category 5 in the 2018 IR. The Aquatic Life use was impaired due to a Fish Consumption Advisory for Mercury. Data gathered in 2017-18 determined that the Aquatic Life use is impaired for pH due to Total Nitrogen and Total Phosphorus. This waterbody will remain in category 5.

NP2-L0150: Blue Lake (Crescent Lake NWR – This waterbody was listed in category 4c in the 2018 IR. The Aquatic Life use was impaired for low Dissolved Oxygen, which occurs naturally in highly productive lakes of the Sandhills. A 2017 Fish Consumption Assessment determined that the Aquatic Life use is impaired for Mercury. This waterbody will be placed in category 5.

NP2-L0290: Smith Lake (Crescent Lake NWR) – This waterbody was listed in category 5 in the 2018 IR. The Aquatic Life use was impaired due to a Fish Consumption Advisory for Hazard Index Compounds and Mercury. A 2017 Fish Consumption Assessment determined that the Aquatic Life use is supported for Hazard Index Compounds. This waterbody will remain in category 5.

NP2-LXXX2: Morrill Sandpit (North) – This waterbody was listed in category 5 in the 2018 IR. The Aquatic Life use was impaired due to a Fish Consumption Advisory for Hazard Index Compounds and Mercury. A 2017 Fish Consumption Assessment determined that the Aquatic Life use is supported for Hazard Index Compounds. This waterbody will remain in category 5.

NP3-L0130: University Lake – This waterbody was listed in category 3 in the 2018 IR. A 2017 Fish Consumption Assessment determined that the Aquatic Life use is supported. This waterbody will be placed in category 2.

NP3-L0140: South Morrill Sandpit – This waterbody was listed in category 5 under a temporary Waterbody ID in the 2018 IR. This waterbody was added to Chapter 6 of Title 117 and given a permanent Waterbody ID in June 2019. The Aquatic Life use is impaired due to a Fish Consumption Advisory for Mercury. This waterbody will remain in category 5.

NP3-L0150: Middle Morrill Sandpit – This waterbody was added to Chapter 6 of Title 117 in June 2019 with the assigned beneficial uses of Recreation, Aquatic Life – Warmwater Class A, Agricultural Water Supply – Class A, and Aesthetics. The nutrient classification is Western. This lake is owned by the Village of Morrill. This waterbody will be placed in category 3.

NP3-L0160: North Morrill Sandpit – This waterbody was listed in category 5 under a temporary Waterbody ID in the 2018 IR. This waterbody was added to Chapter 6 of Title 117 and given a permanent Waterbody ID in June 2019. The Aquatic Life use was impaired due to a Fish Consumption Advisory for Hazard Index Compounds and Mercury. A 2017 Fish Consumption Assessment determined that the Aquatic Life use is supported for Hazard Index Compounds. This waterbody will remain in category 5.

NP1-10000: North Platte River – This waterbody was listed in category 5 in the 2018 IR. The Aquatic Life use was impaired due to a Fish Consumption Advisory for Hazard Index Compounds and Mercury. A 2017 Fish Consumption Assessment determined that the Aquatic Life use is supported for Hazard Index Compounds and Mercury. This waterbody will be placed in category 1.

NP1-10110: Ditch No. 2 – This waterbody was listed in category 3 in the 2018 IR. Data gathered in 2017 determined that the Recreation use is impaired for *E. coli* bacteria, and the Aquatic Life and Agricultural Water Supply uses are supported. This waterbody will be placed in category 5.

NP1-10200: Scout Creek – This waterbody was listed in category 3 in the 2018 IR. Data gathered in 2017 determined that the Aquatic Life use is impaired for Aquatic Community due to an unknown pollutant. This waterbody will be placed in category 5.

NP1-20200: Unnamed Creek -- This waterbody was listed in category 3 in the 2018 IR. Data gathered in 2017 determined that the Aquatic Life use is impaired for Aquatic Community due to an unknown pollutant. This waterbody will be placed in category 5.

NP1-20500: Birdwood Creek – This waterbody was listed in category 1 in the 2018 IR. Data gathered in 2017 determined that the Recreation use is impaired due to *E. coli* bacteria. This waterbody will be placed in category 5.

NP1-20510: West Birdwood Creek – This waterbody was listed in category 3 in the 2018 IR. Data gathered in 2017 determined that the Recreation use is impaired for *E. coli* bacteria, and the Aquatic Life and Agricultural Water Supply uses are supported. This waterbody will be placed in category 5.

NP2-11300: Blue Creek – This waterbody was listed in category 2 in the 2018 IR. Data gathered in 2017 determined that the Recreation and Agricultural Water Supply uses are supported. This waterbody will be placed in category 1.

NP2-11900: Cedar Creek – This waterbody was listed in category 3 in the 2018 IR. A 2017 Aquatic Community Assessment determined that the Aquatic Life use is supported. This waterbody will be placed in category 2.
NP3-10911: Wildhorse Canyon – This waterbody was listed in category 3 in the 2018 IR. A 2017 Aquatic Community Assessment determined that the Aquatic Life use is supported. This waterbody will be placed in category 2.

NP3-10920: Wildhorse Drain – This waterbody was listed in category 2 in the 2018 IR. Data gathered in 2017 determined that the Recreation use is impaired for *E. coli* bacteria, and the Aquatic Life and Agricultural Water Supply uses are supported. This waterbody will be placed in category 5.

NP3-11400: Bayard Drain – This waterbody was listed in category 3 in the 2018 IR. Data gathered in 2017 determined that the Recreation use is impaired for *E. coli* bacteria, and the Aquatic Life and Agricultural Water Supply uses are supported. This waterbody will be placed in category 5.

NP3-11410: Stuckenhole Drain – This waterbody was listed in category 3 in the 2018 IR. A 2017 Aquatic Community Assessment determined that the Aquatic Life use is impaired for Aquatic Community due to an unknown pollutant. This waterbody will be placed in category 5.

NP3-11800: Ninemile Creek – This waterbody was listed in category 3 in the 2018 IR. Data gathered in 2017 determined that the Recreation use is impaired for *E. coli* bacteria, and the Aquatic Life and Agricultural Water Supply uses are supported. This waterbody will be placed in category 5.

NP3-11810: Moffat Drain – This waterbody was listed in category 3 in the 2018 IR. Data gathered in 2017 determined that the Aquatic Life and Agricultural Water Supply uses are supported. This waterbody will be placed in category 2.

NP3-11820: Alliance Drain – This waterbody was listed in category 3 in the 2018 IR. A 2017 Aquatic Community Assessment determined that the Aquatic Life use is supported. This waterbody will be placed in category 2.

NP3-13110: Hiersche Drain – This waterbody was listed in category 3 in the 2018 IR. Data gathered in 2017 determined that the Recreation use is impaired for *E. coli* bacteria, and the Aquatic Life and Agricultural Water Supply uses are supported. This waterbody will be placed in category 5.

NP3-20600: Dry Spottedtail Creek – This waterbody was listed in category 3 in the 2018 IR. Data gathered in 2017 determined that the Aquatic Life and Agricultural Water Supply uses are supported. This waterbody will be placed in category 2.

NP3-30200: Sheep Creek – This waterbody was listed in category 3 in the 2018 IR. A 2017 Aquatic Community Assessment determined that the Aquatic Life use is supported. This waterbody will be placed in category 2.

NP3-30300: Sheep Creek – This waterbody was listed in category 3 in the 2018 IR. Data gathered in 2017 determined that the Recreation, Aquatic Life, and Agricultural Water Supply uses are supported. This waterbody will be placed in category 2.

NP3-30621: Dry Creek – This waterbody was listed in category 3 in the 2018 IR. A 2017 Aquatic Community Assessment determined that the Aquatic Life use is supported. This waterbody will be placed in category 2.

NP3-30630: Owl Creek – This waterbody was listed in category 3 in the 2018 IR. A 2017 Aquatic Community Assessment determined that the Aquatic Life use is supported. This waterbody will be placed in category 2.

Waterbody ID	Waterbody Name	Recreation	Aquatic Life	Water Supply			Aesthetics	Overall	2020 IR	Impairments (Causes)	Comments/Actions
				Public Drinking	Agricultural	Industrial					
Lakes											
NP1-L0010	Cody Park Lake (North Platte)	NA	NA		NA		NA	NA	3		
NP1-L0020	North Platte City Lake	NA	NA		NA		NA	NA	3		
NP1-L0030	Lake Ogallala	NA	I		S		S	I	4a/r	Aquatic Life - Chlorophyll α, Dissolved Oxygen (Total Nitrogen, Total Phosphorus)	Dissolved Oxygen TMDL approved 9/07, Lake renovated 2010, Fish Consumption Assessment completed
NP2-L0010	Lake C. W. McConaughy	S	S		S	S	S	S	1		TN and TP are fully supporting, Fish Consumption Assessment completed
NP2-L0020	Camp Valley Lake (Crescent Lake NWR)	NA	NA		NA		NA	NA	3		
NP2-L0030	Phillips Flats Lake (Crescent Lake NWR)	NA	NA		NA		NA	NA	3		
NP2-L0040	Upper East Jones Lake (Crescent Lake NWR)	NA	NA		NA		NA	NA	3		
NP2-L0050	Lower West Jones Lake (Crescent Lake NWR)	NA	NA		NA		NA	NA	3		
NP2-L0060	Swede Lake (Crescent Lake NWR)	NA	NA		NA		NA	NA	3		
NP2-L0070	Deer Lake (Crescent Lake NWR)	NA	NA		NA		NA	NA	3		
NP2-L0080	Christ Lake (Crescent Lake NWR)	NA	NA		NA		NA	NA	3		
NP2-L0090	Crane Lake (Crescent Lake NWR)	NA	S		S		S	S	2		

Waterbody ID	Waterbody Name	Recreation	Aquatic Life	Water Supply			Aesthetics	Overall	2020 IR	Impairments (Causes)	Comments/Actions
				Public Drinking	Agricultural	Industrial					
NP2-L0095	Crescent Lake	NA	I		NA		NA	I	5	Aquatic Life - pH (Total Nitrogen, Total Phosphorus), Fish Consumption Advisory (Mercury)	Fish Consumption Assessment completed
NP2-L0100	Hackberry Lake (Crescent Lake NWR)	NA	S		S		S	S	2		
NP2-L0110	Island Lake (Crescent Lake NWR)	NA	I		S		S	I	5	Aquatic Life - Fish Consumption Advisory (Mercury)	Fish Consumption Assessment completed
NP2-L0120	Shafer Lake (Crescent Lake NWR)	NA	NA		NA		NA	NA	3		
NP2-L0130	Roundup Lake (Crescent Lake NWR)	NA	S		S		S	S	2		
NP2-L0140	Mallard Arm (Crescent Lake NWR)	NA	NA		NA		NA	NA	3		
NP2-L0150	Blue Lake (Crescent Lake NWR)	NA	I		S		S	I	5	Aquatic Life - Fish Consumption Advisory (Mercury), Dissolved Oxygen (Naturally Lowered)	Low dissolved oxygen occurs naturally in highly productive lakes of the Sandhills, Fish Consumption Assessment completed
NP2-L0160	Duck Slough (Crescent Lake NWR)	NA	NA		NA		NA	NA	3		
NP2-L0170	Gimlet Lake (Crescent Lake NWR)	NA	NA		NA		NA	NA	3		
NP2-L0180	Goose Lake (Crescent Lake NWR)	NA	S		I		S	I	4c	Agriculture Water Supply - Conductivity (Naturally Elevated)	Sandhill lakes have naturally elevated conductivity
NP2-L0190	West Jones Lake (Crescent Lake NWR)	NA	NA		NA		NA	NA	3		
NP2-L0200	Swan Lake (Crescent Lake NWR)	NA	NA		NA		NA	NA	3		

Waterbody ID	Waterbody Name	Recreation	Aquatic Life	Water Supply			Aesthetics	Overall	2020 IR	Impairments (Causes)	Comments/Actions
				Public Drinking	Agricultural	Industrial					
NP2-L0210	Boyd Pond (Crescent Lake NWR)	NA	NA		NA		NA	NA	3		
NP2-L0220	Lost Lake (Crescent Lake NWR)	NA	NA		NA		NA	NA	3		
NP2-L0230	Lower Harrison Lake (Crescent Lake NWR)	NA	NA		NA		NA	NA	3		
NP2-L0240	Upper Harrison Lake (Crescent Lake NWR)	NA	NA		NA		NA	NA	3		
NP2-L0250	Redhead Lake (Crescent Lake NWR)	NA	NA		NA		NA	NA	3		
NP2-L0260	Perrin Lake (Crescent Lake NWR)	NA	NA		NA		NA	NA	3		
NP2-L0270	Tree Claim Lake (Crescent Lake NWR)	NA	S		I		S	I	4c	Agriculture Water Supply - Conductivity (Naturally Elevated)	Sandhill lakes have naturally elevated conductivity
NP2-L0280	Upper Tree Claim Lake (Crescent Lake NWR)	NA	NA		NA		NA	NA	3		
NP2-L0290	Smith Lake (Crescent Lake NWR)	NA	I		S		S	I	5	Aquatic Life - Fish Consumption Advisory (Mercury)	Fish Consumption Assessment completed
NP2-L0300	Border Lake (Crescent Lake NWR)	NA	I		I		S	I	4c	Aquatic Life - Dissolved Oxygen (Naturally Lowered), Agriculture Water Supply - Conductivity (Naturally Elevated)	Low dissolved oxygen and high conductivity occur naturally in Sandhill lakes
NP2-L0310	Ramelli Lake (Crescent Lake NWR)	NA	NA		NA		NA	NA	3		
NP2-L0320	Martin Lake (Crescent Lake NWR)	NA	NA		NA		NA	NA	3		

Waterbody ID	Waterbody Name	Recreation	Aquatic Life	Water Supply			Aesthetics	Overall	2020 IR	Impairments (Causes)	Comments/Actions
				Public Drinking	Agricultural	Industrial					
NP3-L0010	Bridgeport Southeast Lake (SRA)	NA	S		S		S	S	2		
NP3-L0020	Bridgeport Northeast Lake (SRA)	NA	NA		NA		NA	NA	3		
NP3-L0030	Bridgeport Middle Lake (SRA)	S	I		S		S	I	5	Aquatic Life - Fish Consumption Advisory (Mercury)	Fish Consumption Assessment completed
NP3-L0040	Bridgeport Southwest Lake (SRA)	NA	NA		NA		NA	NA	3		
NP3-L0050	Bridgeport Northwest Lake (SRA)	S	S		S		S	S	1		
NP3-L0060	Lake Minatare (North Platte NWR)	S	S		S		S	S	1		Fish Consumption Assessment completed
NP3-L0070	Winters Creek Lake (North Platte NWR)	NA	S		NA		NA	S	2		Fish Consumption Assessment completed
NP3-L0080	Cochran Lake	NA	I		S		S	I	5	Aquatic Life - pH (Unknown)	TN and TP not assessed
NP3-L0090	Little Lake Alice (No. 2) (North Platte NWR)	NA	NA		NA		NA	NA	3		
NP3-L0100	Buffalo Springs Lake (WMA)	NA	NA		NA		NA	NA	3		
NP3-L0110	Lake Alice (North Platte NWR)	S	NA		NA		NA	S	2		
NP3-L0120	Terry's Pit Lake	NA	S		NA		NA	S	2		Fish Consumption Assessment completed
NP3-L0130	University Lake	NA	NA		NA		NA	NA	3		

Waterbody ID	Waterbody Name	Recreation	Aquatic Life	Water Supply			Aesthetics	Overall	2020 IR	Impairments (Causes)	Comments/Actions
				Public Drinking	Agricultural	Industrial					
NP3-L0140	South Morrill Sandpit	NA	I		NA		NA	I	5	Aquatic Life - Fish Consumption Advisory (Mercury)	Fish Consumption Assessment completed, Permanent WBID assigned 6/19
NP3-L0150	Middle Morrill Sandpit	NA	NA		NA		NA	NA	3		Added to Title 117 6/19
NP3-L0160	North Morrill Sandpit	NA	I		NA		NA	I	5	Aquatic Life - Fish Consumption Advisory (Mercury)	Fish Consumption Assessment completed, Permanent WBID assigned 6/19
Streams											
NP1-10000	North Platte River	S	S		S		S	S	1	-	E. coli TMDL approved 5/12, Fish Consumption Assessment completed
NP1-10100	Scout Creek	NA	NA		NA		NA	NA	3		
NP1-10110	Ditch No. 2	I	S		S		NA	I	5	Recreation (*E. coli*)	Aquatic Community Assessment completed
NP1-10200	Scout Creek		I		NA		NA	I	5	Aquatic life - Impaired Aquatic Community (Unknown)	Aquatic Community Assessment completed
NP1-20000	North Platte River	S	S		S		S	S	1		Fecal coliform TMDL approved 10/03
NP1-20100	Unnamed Creek		S		NA		S	S	2		
NP1-20200	Unnamed Creek		I		NA		NA	I	5	Aquatic life - Impaired Aquatic Community (Unknown)	Aquatic Community Assessment completed
NP1-20300	Unnamed Creek		NA		NA		NA	NA	3		
NP1-20400	Ditch No. 3		NA		NA		NA	NA	3		

Waterbody ID	Waterbody Name	Recreation	Aquatic Life	Water Supply			Aesthetics	Overall	2020 IR	Impairments (Causes)	Comments/Actions
				Public Drinking	Agricultural	Industrial					
NP1-20500	Birdwood Creek	I	S		S		S	I	5	Recreation (*E. coli*)	Fecal coliform TMDL approved 10/03, Aquatic Community Assessment completed
NP1-20510	West Birdwood Creek	I	S		S		NA	I	5	Recreation (*E. coli*)	
NP1-20520	North Fork Birdwood Creek		S		NA		S	S	2		
NP1-20521	Squaw Creek		NA		NA		NA	NA	3		
NP1-20530	North Fork Birdwood Creek		NA		NA		NA	NA	3		
NP1-30000	North Platte River	S	I		S		S	I	4c	Aquatic Life - Temperature (Naturally Elevated)	
NP1-30100	Bull Ditch		NA		NA		NA	NA	3		
NP1-30200	East Clear Creek		S		NA		S	S	2		
NP1-30300	Unnamed Drain		NA		NA		NA	NA	3		
NP1-30400	Unnamed Drain		NA		NA		NA	NA	3		
NP1-30500	Cedar Creek		NA		NA		NA	NA	3		
NP1-30600	Lake Creek		NA		NA		NA	NA	3		
NP1-30700	Unnamed Drain		NA		NA		NA	NA	3		

Waterbody ID	Waterbody Name	Recreation	Aquatic Life	Water Supply			Aesthetics	Overall	2020 IR	Impairments (Causes)	Comments/Actions
				Public Drinking	Agricultural	Industrial					
NP1-30800	Sand Creek		NA		NA		NA	NA	3		
NP1-30900	Whitetail Creek	I	I		S		S	I	5	Recreation (*E. coli*), Aquatic Life - Temperature (Naturally Elevated)	
NP1-30910	Unnamed Creek		NA		NA		NA	NA	3		
NP1-31000	Whitetail Creek		NA		NA		NA	NA	3		
NP1-40000	North Platte River	S	I		S		S	I	4c	Aquatic Life - Temperature (Naturally Elevated)	
NP1-40100	Unnamed Drain		NA		NA		NA	NA	3		
NP1-40200	Sutherland Canal	NA	S		NA		NA	S	2		
NP2-10000	North Platte River	S	S		S		S	S	1		E. coli TMDL approved 5/12
NP2-10100	Lonergan Creek		NA		NA		NA	NA	3		
NP2-10200	Sand Creek		NA		NA		NA	NA	3		
NP2-10300	Otter Creek	S	S		S		S	S	1		E. coli TMDL approved 5/12
NP2-10400	Clear Creek		NA		NA		NA	NA	3		
NP2-10500	Plum Creek		NA		NA		NA	NA	3		

Waterbody ID	Waterbody Name	Recreation	Aquatic Life	Water Supply			Aesthetics	Overall	2020 IR	Impairments (Causes)	Comments/Actions
				Public Drinking	Agricultural	Industrial					
NP2-10600	Plum Creek		NA		NA		NA	NA	3		
NP2-10700	Ash Creek		S		NA		S	S	2		
NP2-10800	Blue Creek		I		S		S	I	4c	Aquatic Life - Temperature (Naturally Elevated)	Aquatic Community Assessment completed
NP2-10900	Blue Creek	NA	NA		NA		NA	NA	3		
NP2-11000	Blue Creek	NA	S		NA		S	S	2		
NP2-11100	Blue Creek	NA	NA		NA		NA	NA	3		
NP2-11200	Blue Creek	NA	S		NA		S	S	2		
NP2-11300	Blue Creek	S	S		S		S	S	1		Aquatic Community Assessment completed
NP2-11400	Blue Creek	NA	NA		NA		NA	NA	3		
NP2-11500	Lost Creek		NA		NA		NA	NA	3		
NP2-11600	Rush Creek		S		NA		NA	S	2		
NP2-11700	Coldwater Creek		NA		NA		NA	NA	3		
NP2-11800	Cedar Creek		S		NA		S	S	2		

Waterbody ID	Waterbody Name	Recreation	Aquatic Life	Water Supply			Aesthetics	Overall	2020 IR	Impairments (Causes)	Comments/Actions
				Public Drinking	Agricultural	Industrial					
NP2-11900	Cedar Creek		S		NA		NA	S	2		Aquatic Community Assessment completed
NP2-12000	Deep Holes Creek		NA		NA		NA	NA	3		
NP2-12100	Lower Dugout Creek		I		NA		NA	I	5	Aquatic life - Impaired Aquatic Community (Unknown)	
NP2-12200	Silvernail Drain		NA		NA		NA	NA	3		
NP3-10000	North Platte River	S	I		S		S	I	5	Aquatic Life - Fish Consumption Advisory (Hazard Index Compounds*, Mercury)	E.coli TMDL approved 5/12
NP3-10100	Pumpkin Creek		S		S		S	S	1		
NP3-10200	Pumpkin Creek		NA		NA		NA	NA	3		
NP3-10210	Greenwood Creek		NA		NA		NA	NA	3		
NP3-10300	Pumpkin Creek	NA	NA		NA		NA	NA	3		
NP3-10310	Lawrence Fork		NA		NA		NA	NA	3		
NP3-10400	Pumpkin Creek		NA		NA		NA	NA	3		
NP3-10410	Big Horn Gulch		NA		NA		NA	NA	3		
NP3-10500	Pumpkin Creek		NA		NA		NA	NA	3		

Waterbody ID	Waterbody Name	Recreation	Aquatic Life	Water Supply			Aesthetics	Overall	2020 IR	Impairments (Causes)	Comments/Actions
				Public Drinking	Agricultural	Industrial					
NP3-10510	Willow Creek		NA		NA		NA	NA	3		
NP3-10600	Upper Dugout Creek		I		NA		NA	I	5	Aquatic life - Impaired Aquatic Community (Unknown)	
NP3-10700	Indian Creek		S		NA		S	S	2		
NP3-10800	DeGraw Drain		NA		NA		NA	NA	3		
NP3-10900	Red Willow Creek	I	S		S		S	I	4a	Recreation (*E. coli*)	E. coli TMDL approved 5/12, Aquatic Community Assessment completed
NP3-10910	Wildhorse Drain		S		NA		S	S	2		
NP3-10911	Wildhorse Canyon		S		NA		NA	S	2		Aquatic Community Assessment completed
NP3-10920	Wildhorse Drain	I	S		S		S	I	5	Recreation (*E. coli*)	
NP3-11000	Red Willow Creek		S		NA		S	S	2		
NP3-11100	Red Willow Creek		S		NA		NA	S	2		
NP3-11110	West Water Creek		NA		NA		NA	NA	3		
NP3-11200	Red Willow Creek		S		S		S	S	1		
NP3-11300	Bayard Drain		NA		NA		NA	NA	3		

Waterbody ID	Waterbody Name	Recreation	Aquatic Life	Water Supply			Aesthetics	Overall	2020 IR	Impairments (Causes)	Comments/Actions
				Public Drinking	Agricultural	Industrial					
NP3-11400	Bayard Drain	I	S		S		NA	I	5	Recreation (*E. coli*)	Aquatic Community Assessment completed
NP3-11410	Stuckenhole Drain		I		NA		NA	I	5	Aquatic life - Impaired Aquatic Community (Unknown)	Aquatic Community Assessment completed
NP3-11500	Bayard Drain		NA		NA		NA	NA	3		
NP3-11600	Cleveland Drain		NA		NA		NA	NA	3		
NP3-11700	Ninemile Creek	I	S		S		S	I	4a	Recreation (*E. coli*)	Fish Consumption Assessment completed, E. coli TMDL approved 5/12
NP3-11800	Ninemile Creek	I	S		S		NA	I	5	Recreation (*E. coli*)	
NP3-11810	Moffat Drain		S		S		NA	S	2		
NP3-11820	Alliance Drain	NA	S		NA		NA	S	2		Aquatic Community Assessment completed
NP3-11900	Ninemile Creek	S	S		S		S	S	1		
NP3-11910	East Ninemile Creek		NA		NA		NA	NA	3		
NP3-12000	Ninemile Creek	S	I		S		S	I	5	Aquatic Life - Dissolved Oxygen (Unknown)	
NP3-12100	Fairfield Seep		NA		NA		NA	NA	3		
NP3-12200	Melbeta Drain		NA		NA		NA	NA	3		

Waterbody ID	Waterbody Name	Recreation	Aquatic Life	Water Supply			Aesthetics	Overall	2020 IR	Impairments (Causes)	Comments/Actions
				Public Drinking	Agricultural	Industrial					
NP3-12300	Scottsbluff Drain No. 2		NA		NA		NA	NA	3		
NP3-12400	Gering Drain	I	S		S		S	I	4a	Recreation (*E. coli*)	E. coli TMDL approved 5/12
NP3-12500	Gering Drain		S		NA		S	S	2		
NP3-12600	Winters Creek	I	S		S		S	I	4a	Recreation (*E. coli*)	E. coli TMDL approved 5/12
NP3-12610	Scottsbluff Drain No. 1		NA		NA		NA	NA	3		
NP3-12620	Dunham Andrews Drain		NA		NA		NA	NA	3		
NP3-12700	Winters Creek		S		S		S	S	1		
NP3-12800	Unnamed Creek		NA		NA		NA	NA	3		
NP3-12900	Tub Springs Drain	NA	S		NA		NA	S	2		
NP3-12910	Unnamed Creek		NA		NA		NA	NA	3		
NP3-12911	Unnamed Creek		NA		NA		NA	NA	3		
NP3-13000	Tub Springs Drain	I	S		S		S	I	4a	Recreation (*E. coli*)	E. coli TMDL approved 5/12, Aquatic Community Assessment completed
NP3-13010	Sunflower Drain		NA		NA		NA	NA	3		

Waterbody ID	Waterbody Name	Recreation	Aquatic Life	Water Supply			Aesthetics	Overall	2020 IR	Impairments (Causes)	Comments/Actions
				Public Drinking	Agricultural	Industrial					
NP3-13100	Tub Springs Drain	NA	S		NA		NA	S	2		
NP3-13110	Hiersche Drain	I	S		S		NA	I	5	Recreation (*E. coli*)	
NP3-13200	Tub Spring Drain		NA		NA		NA	NA	3		
NP3-20000	North Platte River	I	S		S		S	I	4a	Recreation (*E. coli*)	E. coli TMDL approved 5/12
NP3-20100	Unnamed Creek		NA		NA		NA	NA	3		
NP3-20200	Mitchell Drain		NA		NA		NA	NA	3		
NP3-20300	Spottedtail Creek		S		NA		NA	S	2		
NP3-20310	Unnamed Creek		NA		NA		NA	NA	3		
NP3-20400	Spottedtail Creek		NA		NA		NA	NA	3		
NP3-20500	Browns Canyon		NA		NA		NA	NA	3		
NP3-20600	Dry Spottedtail Creek		S		S		NA	S	2		Aquatic Community Assessment completed
NP3-20610	Unnamed Drain		NA		NA		NA	NA	3		
NP3-20700	Dry Spottedtail Creek		S		NA		S	S	2		

Waterbody ID	Waterbody Name	Recreation	Aquatic Life	Water Supply			Aesthetics	Overall	2020 IR	Impairments (Causes)	Comments/Actions
				Public Drinking	Agricultural	Industrial					
NP3-30000	North Platte River	I	S		S		S	I	4a	Recreation (*E. coli*)	E. coli TMDL approved 5/12
NP3-30100	Unnamed Drain		NA		NA		NA	NA	3		
NP3-30200	Sheep Creek		S		NA		NA	S	2		Aquatic Community Assessment completed
NP3-30300	Sheep Creek	S	S		S		NA	S	2		
NP3-30310	Dry Sheep Creek	NA	NA		NA		NA	NA	3		
NP3-30400	Sheep Creek	S	S		S		S	S	1		
NP3-30410	Unnamed Creek		NA		NA		NA	NA	3		
NP3-30500	Sheep Creek		S		NA		S	S	2		
NP3-30600	Horse Creek	I	S		S		S	I	4a	Recreation (*E. coli*)	E. coli TMDL approved 5/12
NP3-30610	Unnamed Drain		NA		NA		NA	NA	3		
NP3-30620	Owl Creek		NA		NA		NA	NA	3		
NP3-30621	Dry Creek		S		NA		NA	S	2		Aquatic Community Assessment completed
NP3-30621.1	Dry Creek-Branch A		NA		NA		NA	NA	3		

Waterbody ID	Waterbody Name	Recreation	Aquatic Life	Water Supply			Aesthetics	Overall	2020 IR	Impairments (Causes)	Comments/Actions
				Public Drinking	Agricultural	Industrial					
NP3-30621.2	Dry Creek-Branch B		NA		NA		NA	NA	3		
NP3-30622	Dry Creek		NA		NA		NA	NA	3		
NP3-30622.1	Unnamed Drain		NA		NA		NA	NA	3		
NP3-30623	Kiowa Creek		S		NA		S	S	2		
NP3-30623.1	Kiowa Creek-Branch B		NA		NA		NA	NA	3		
NP3-30624	Kiowa Creek		NA		NA		NA	NA	3		
NP3-30630	Owl Creek		S		NA		NA	S	2		Aquatic Community Assessment completed
NP3-30640	Owl Creek		NA		NA		NA	NA	3		
NP3-40000	North Platte River	NA	NA		NA		NA	NA	3		
NP3-50000	North Platte River	S	S		S		S	S	1		E.coli TMDL approved 5/12

****Cancer risk compounds*** -Aroclor-1248 (PCB-1248), Aroclor-1254 (PCB-1254), Aroclor-1260 (PCB-1260), cis-chlordane, Chlordane, trans-chlordane, DDD, DDE, DDT, Dieldrin, Heptachlor, Heptachlor Epoxide, Hexachlorobenzene, cis-nonachlor, trans-nonachlor, Oxychlordane, Pentachloroanisole, Trifluralin
Hazard index compounds- Aroclor-1254 (PCB-1254), Lindane (g-BHC), cis-chlordane, Chlordane, trans-chlordane, DDT, Dieldrin, Heptachlor, Heptachlor Epoxide, Hexachlorobenzene, cis-nonachlor, trans-nonachlor, Oxychlordane, Pentachloroanisole, Trifluralin, Mercury, Cadmium, Selenium

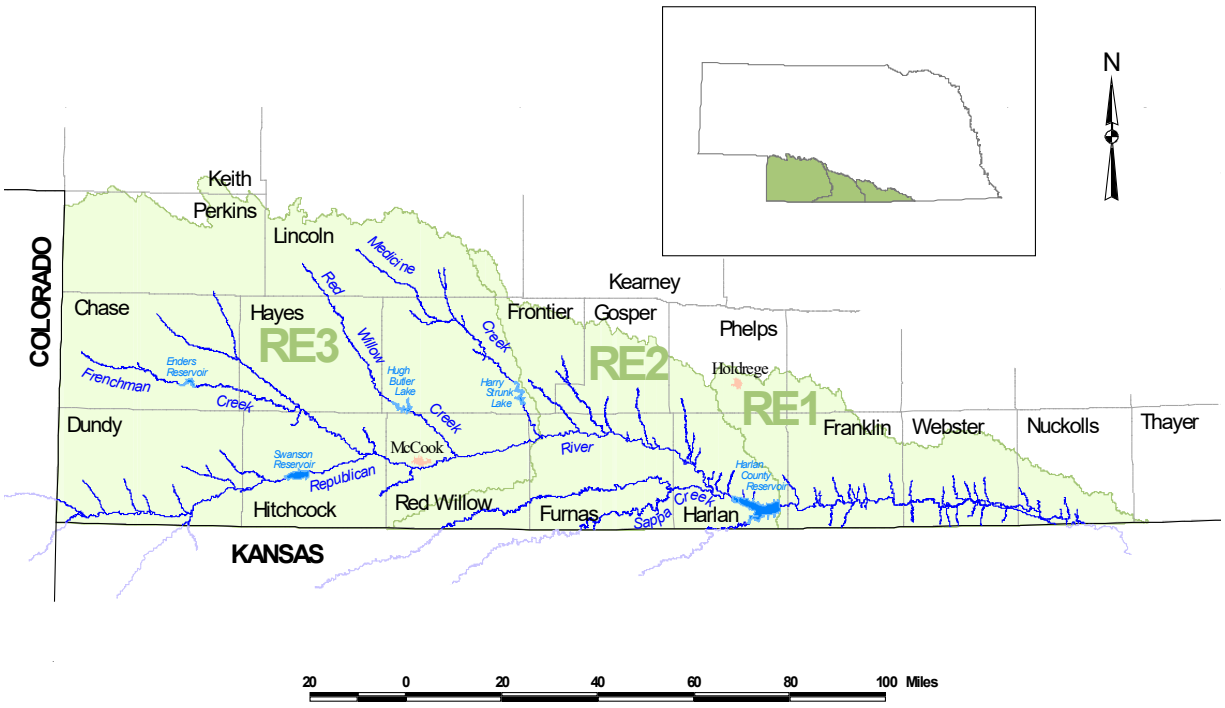
[1] XXX# designates in Title 117 an undesignated waterbody. See Title 117 Chapter 2.004.

Literature Cited:

McCarraher, D. B. 1964. Limnology of carbonate – bicarbonate lakes in Nebraska. Nebraska Game and Parks Commission: White Papers and Manuscripts. http://digitalcommons.unl.edu/nebgamewhitepap/8/

McCarraher, D. B. 1977. Nebraska's Sandhills Lakes. Nebraska Game and Parks Commission. Lincoln, NE.

REPUBLICAN RIVER BASIN (and Subbasins)



Republican River Basin – Hydrologic Units 10250001, 10250002, 10250003, 10250004, 10250006, 10250007, 10250008, 10250009, 10250011, 10250014, 10250015 and 0250016

The Republican River basin includes 102 designated stream segments and 23 designated lakes/reservoirs.

Waterbody Type	Primary Contact Recreation	Aquatic Life CA[1]	Aquatic Life CB[1]	Aquatic Life WA[1]	Aquatic Life WB[1]	Water Supply – Public Drinking	Water Supply – Ag	Water Supply-Ind.	Aesthetics
Lakes	23	0	1	22	0	0	23	0	23
Streams	33	0	19	24	59	0	102	0	102

[1] CA = Coldwater Class A, CB = Coldwater Class B, WA = Warmwater Class A and WB = Warmwater Class B

Delisting/ Changes from 2018 IR

The following are waters and or parameters that were delisted – removed from category 5 or other significant changes from the 2018 Integrated Report (IR).

RE1-L0040: Holdrege Park Lake – This waterbody was listed in category 5 in the 2018 IR. The Aquatic Life use was impaired due to a Fish Consumption Advisory for Hazard Index Compounds and due to pH caused by an unknown pollutant. A 2018 Fish Consumption Assessment determined that the Aquatic Life use is now supported for Mercury, and the Fish Consumption Advisory was removed. This waterbody will remain in category 5.

RE1-LXXXX: Lincoln Park Lake – This waterbody was not listed in the 2018 IR. A 2018 Fish Consumption Assessment determined that the Aquatic Life use is supported. This waterbody will be given a unique ID and placed in category 2.

RE2-L0020: Oxford City Lake – This waterbody was listed in category 5 in the 2018 IR. The Aesthetics use was impaired due to algae blooms caused by an unknown pollutant. This waterbody was reassessed, and the Aesthetics use is supported. A 2018 Fish Consumption Assessment determined that the Aquatic Life use is impaired for Mercury. This waterbody will remain in category 5.

RE3-L0010: Harry Strunk Lake (Medicine Creek Reservoir) – This waterbody was listed in category 5 in the 2018 IR. The Aquatic Life use was impaired due to a Fish Consumption Advisory for Mercury and due to Chlorophyll α caused by Total Nitrogen and Total Phosphorus. A 2018 Fish Consumption Assessment determined that the Aquatic Life use is supported for Mercury, and the Fish Consumption Advisory was removed. This waterbody will remain in category 5.

RE3-L0084: Frenchman West Lake (WMA) – This waterbody was listed in category 3 in the 2018 IR. Upon review, it was determined that the assessment for this waterbody was mistakenly applied to Frenchman Middle Lake (RE3-L0085). This error has been corrected to reflect that the Aquatic Life use is impaired for Mercury. This waterbody will be placed in category 5.

RE3-L0085: Frenchman Middle Lake (WMA) – This waterbody was listed in category 5 in the 2018 IR. Upon review, it was determined that the assessment for Frenchman West Lake (RE3-L0084) was mistakenly applied to this waterbody, which had not been assessed and should have been listed in category 3. This error has been corrected. However, a 2018 Fish Consumption Assessment determined that the Aquatic Life use is impaired for Mercury. This waterbody will placed in category 5.

RE3-L0086: Frenchman East Lake (WMA) – This waterbody was listed in category 3 in the 2018 IR. A 2018 Fish Consumption Assessment determined that the Aquatic Life use is impaired for Mercury. This waterbody will be placed in category 5.

RE3-L0090: Swanson Reservoir – This waterbody was listed in category 5 in the 2018 IR. The Aquatic Life use was impaired for Chlorophyll α caused by Total Nitrogen and Total Phosphorus. A 2018 Fish Consumption Assessment determined that the Aquatic Life use is impaired for Mercury. This waterbody will remain in category 5.

RE1-10000: Republican River – This waterbody was listed in category 1 in the 2018 IR. Data gathered in 2018 determined that the Recreation use is impaired for *E. coli* bacteria. Data submitted by the Kansas Department of Health and Environment determined that the Aquatic Life use is impaired for Aluminum. This waterbody will be placed in category 5.

RE1-30100: Elm Creek – This waterbody was listed in category 5 in the 2018 IR. The Aquatic Life use was impaired for Aquatic Community due to an unknown pollutant. A 2018 Aquatic Community Assessment determined that the Aquatic Life use is now supported. This waterbody will be placed in category 1.

RE2-10300: Prairie Dog Creek – This waterbody was listed in category 5 in the 2018 IR. The Recreation use was impaired for *E. coli* bacteria. Data submitted by the Kansas Department of Health and Environment determined that the Aquatic Life use is impaired for Aluminum. This waterbody will remain in category 5.

RE2-10600: Sappa Creek – This waterbody was listed in category 1 in the 2018 IR. Data gathered in 2018 determined that the Aquatic Life use is impaired for Aquatic Community due to an unknown pollutant. Data submitted by the Kansas Department of Health and Environment determined that the Aquatic Life use is impaired for Aluminum. This waterbody will be placed in category 5.

RE2-11100: Turkey Creek – This waterbody was listed in category 1 in the 2018 IR. Data gathered in 2018 determined that the Aquatic Life use is impaired for Aquatic Community due to an unknown pollutant. This waterbody will be placed in category 5.

RE3-10310: Brushy Creek – This waterbody was listed in category 3 in the 2018 IR. Data gathered in 2018 determined that the Aquatic Life use is impaired for Aquatic Community due to an unknown pollutant. This waterbody will be placed in category 5.

RE3-30000: Republican River – This waterbody was listed in category 2 in the 2018 IR. 2018 Basin Rotation data determined that the Recreation use is impaired for *E. coli* bacteria. This waterbody will be placed in category 5.

Waterbody ID	Waterbody Name	Recreation	Aquatic Life	Water Supply			Aesthetics	Overall	2020 IR	Impairments (Causes)	Comments/Actions
				Public Drinking	Agricultural	Industrial					
Lakes											
RE1-L0005	Big Indian Pond (WMA)	NA	S		S		S	S	2		
RE1-L0010	Sacramento-Wilcox No. 1	NA	S		S		S	S	2		
RE1-L0020	Sacramento-Wilcox No. 2	NA	NA		NA		NA	NA	3		
RE1-L0030	Sacramento-Wilcox No. 3	NA	NA		NA		NA	NA	3		
RE1-L0040	Holdrege Park Lake	NA	I		S		S	I	5	Aquatic Life - pH (Unknown)	Fish Consumption Assessment completed
RE1-L0050	Limestone Bluffs Lake (WMA)	NA	NA		NA		NA	NA	3		
RE1-LXXXX	Lincoln Park Lake	NA	S		NA		NA	S	2		Fish Consumption Assessment completed
RE2-L0010	Harlan County Reservoir	S	I		S		S	I	5	Aquatic Life - Chlorophyll α (Total Nitrogen, Total Phosphorus)	Fish Consumption Assessment completed
RE2-L0020	Oxford City Lake	NA	I		NA		S	I	5	Aquatic Life - Fish Consumption Advisory (Mercury)	Fish Consumption Assessment completed, TN and TP not assessed
RE3-L0010	Harry Strunk Lake (Medicine Creek Reservoir)	S	I		S		S	I	5	Aquatic Life - Chlorophyll α (Total Nitrogen, Total Phosphorus)	Fish Consumption Assessment completed
RE3-L0020	Bartley Diversion Dam Lake (WMA)	I	S		S		NA	I	5	Recreation (*E. coli*)	
RE3-L0030	Curtis City Pond	NA	I		S		S	I	4r	Aquatic Life - (Total Nitrogen, Total Phosphorus)	Lake renovated 2008, Waterbody ID was reassigned to Curtis City Pond from Hansen Memorial Reserve Lake in 2009

Waterbody ID	Waterbody Name	Recreation	Aquatic Life	Water Supply			Aesthetics	Overall	2020 IR	Impairments (Causes)	Comments/Actions
				Public Drinking	Agricultural	Industrial					
RE3-L0040	Red Willow Diversion Dam Lake (WMA)	NA	NA		NA		NA	NA	3		
RE3-L0050	Barnett Park Lake (McCook)	S	S		I		S	I	5	Agriculture Water Supply - Conductivity (Unknown)	Fish Consumption Assessment completed
RE3-L0060	Hugh Butler Lake (Red Willow Reservoir)	S	I		S		S	I	5	Aquatic Life - Dissolved Oxygen (Total Phosphorus)	Fish Consumption Assessment completed
RE3-L0070	Wellfleet Lake	S	I		S		S	I	5	Aquatic Life - Dissolved Oxygen (Unknown)	TN and TP are supporting, Fish Consumption Assessment completed
RE3-L0080	Camp Hayes Lake (WMA)	NA	I		S		S	I	5	Aquatic Life - Fish Consumption Advisory (Mercury), Chlorophyll α (Unknown)	Fish Consumption Assessment completed
RE3-L0084	Frenchman West Lake (WMA)	NA	I		NA		NA	I	5	Aquatic Life - Fish Consumption Advisory (Mercury)	Fish Consumption Assessment completed
RE3-L0085	Frenchman Middle Lake (WMA)	NA	I		NA		NA	I	5	Aquatic Life - Fish Consumption Advisory (Mercury)	Fish Consumption Assessment completed
RE3-L0086	Frenchman East Lake (WMA)	NA	I		NA		NA	I	5	Aquatic Life - Fish Consumption Advisory (Mercury)	Fish Consumption Assessment completed
RE3-L0090	Swanson Reservoir	S	I		S		S	I	5	Aquatic Life - Fish Consumption Advisory (Mercury), Chlorophyll α (Total Nitrogen, Total Phosphorus)	Fish Consumption Assessment completed
RE3-L0100	Enders Reservoir	S	I		S		S	I	5	Aquatic Life - Chlorophyll α (Total Phosphorus)	Fish Consumption Assessment completed
RE3-L0110	Champion Mills Pond (SRA)	S	S		S		S	S	1		
RE3-L0120	Rock Creek Lake (SRA)	S	I		S		S	I	5	Aquatic Life - Fish Consumption Advisory (Mercury)	Fish Consumption Assessment completed
Streams											

Waterbody ID	Waterbody Name	Recreation	Aquatic Life	Water Supply			Aesthetics	Overall	2020 IR	Impairments (Causes)	Comments/Actions
				Public Drinking	Agricultural	Industrial					
RE1-10000	Republican River	I	I		S		S	I	5	Recreation (*E. coli*), Aquatic Life - (Aluminum)	E. coli TMDL approved 3/05, Fish Consumption Assessment completed
RE1-10100	Blakely Creek		NA		NA		NA	NA	3		
RE1-10110	Oak Creek		NA		NA		NA	NA	3		
RE1-10200	Lost Creek	I	I		NA		NA	I	5	Recreation (*E. coli*), Aquatic Life - Dissolved Oxygen (Unknown)	
RE1-10300	Unnamed Creek		NA		NA		NA	NA	3		
RE1-10400	Cottonwood Creek		NA		NA		NA	NA	3		
RE1-10500	Beaver Creek		NA		NA		NA	NA	3		
RE1-20000	Republican River	I	S		S		S	I	4a	Recreation (*E. coli*)	E. coli TMDL approved 3/05
RE1-20100	Rankin Creek		NA		NA		NA	NA	3		
RE1-20200	Willow Creek		NA		NA		NA	NA	3		
RE1-20300	Courtland Canal	I	NA		NA		NA	I	5	Recreation (*E. coli*)	
RE1-30000	Republican River	I	S		S		S	I	5	Recreation (*E. coli*)	Aquatic Community Assessment completed
RE1-30100	Elm Creek		S		S		S	S	1		Aquatic Community Assessment completed, Fish Consumption Assessment completed

Waterbody ID	Waterbody Name	Recreation	Aquatic Life	Water Supply			Aesthetics	Overall	2020 IR	Impairments (Causes)	Comments/Actions
				Public Drinking	Agricultural	Industrial					
RE1-30200	Lost Creek		NA		NA		NA	NA	3		
RE1-30300	Hicks Creek		S		NA		S	S	2		
RE1-30400	Dry Creek		NA		NA		NA	NA	3		
RE1-30500	Crooked Creek		I		S		S	I	4c	Aquatic Life - Temperature (Naturally Elevated)	
RE1-30600	Cedar Creek		NA		NA		NA	NA	3		
RE1-30700	Indian Creek		NA		NA		NA	NA	3		
RE1-30800	East Penny Creek		S		NA		S	S	2		
RE1-30900	Louisa Creek		NA		NA		NA	NA	3		
RE1-31000	Walnut Creek		NA		NA		NA	NA	3		
RE1-31100	Farmers Creek		S		NA		S	S	2		
RE1-31200	Thompson Creek	I	I		S		S	I	5	Recreation (*E. coli*), Aquatic Life - Temperature (Naturally Elevated)	Aquatic Community Assessment completed
RE1-40000	Republican River	I	S		S		S	I	5	Recreation (*E. coli*)	Fish Consumption Assessment completed
RE1-40100	Wortham Creek		NA		NA		NA	NA	3		

Waterbody ID	Waterbody Name	Recreation	Aquatic Life	Water Supply			Aesthetics	Overall	2020 IR	Impairments (Causes)	Comments/Actions
				Public Drinking	Agricultural	Industrial					
RE1-40200	Lovely Creek		NA		NA		NA	NA	3		
RE1-40300	Reams Creek		NA		NA		NA	NA	3		
RE1-40400	Coates Creek		NA		NA		NA	NA	3		
RE1-40410	Wasp Creek		NA		NA		NA	NA	3		
RE1-40500	Calumet Creek		NA		NA		NA	NA	3		
RE1-40600	Walnut Run		NA		NA		NA	NA	3		
RE1-40700	Center Creek		S		NA		S	S	2		
RE1-40800	Lost Creek		NA		NA		NA	NA	3		
RE1-40900	Little Cottonwood Creek		NA		NA		NA	NA	3		
RE1-41000	Cottonwood Creek		S		NA		S	S	2		
RE1-41100	Turkey Creek		NA		NA		NA	NA	3		
RE1-50000	Republican River	I	I		S		S	I	5	Recreation (*E. coli*), Aquatic Life (May-June Atrazine), Dissolved Oxygen (Unknown)	
RE2-10000	Republican River	I	S		S		S	I	4a	Recreation (*E. coli*)	Fish Consumption Assessment completed, E. coli TMDL approved 3/05, Aquatic Community Assessment

Waterbody ID	Waterbody Name	Recreation	Aquatic Life	Water Supply			Aesthetics	Overall	2020 IR	Impairments (Causes)	Comments/Actions
				Public Drinking	Agricultural	Industrial					
											completed
RE2-10100	Methodist Creek	I	S		S		S	I	5	Recreation (*E. coli*)	
RE2-10200	Cook Creek	I	S		S		S	I	5	Recreation (*E. coli*)	
RE2-10300	Prairie Dog Creek	I	I		S		S	I	5	Recreation (*E. coli*), Aquatic Life (Aluminum)	
RE2-10400	Rope Creek		NA		NA		NA	NA	3		
RE2-10500	Flag Creek		S		NA		S	S	2		
RE2-10600	Sappa Creek		I		S		S	I	5	Aquatic life - Impaired Aquatic Community (Unknown), (Aluminum)	Aquatic Community Assessment completed
RE2-10610	Beaver Creek	I	I		S		S	I	5	Recreation (*E. coli*), Aquatic Life - Dissolved Oxygen (Unknown)	
RE2-10620	Sheep Creek		NA		NA		NA	NA	3		
RE2-10630	Dutch Creek		NA		NA		NA	NA	3		
RE2-10700	Milrose Creek		NA		NA		NA	NA	3		
RE2-10800	Foster Creek		NA		NA		NA	NA	3		
RE2-10900	Spring Creek		I		S		S	I	5	Aquatic life - Impaired Aquatic Community (Unknown)	

Waterbody ID	Waterbody Name	Recreation	Aquatic Life	Water Supply			Aesthetics	Overall	2020 IR	Impairments (Causes)	Comments/Actions
				Public Drinking	Agricultural	Industrial					
RE2-10910	Deep Creek		NA		NA		NA	NA	3		
RE2-11000	Swartz Creek		NA		NA		NA	NA	3		
RE2-11100	Turkey Creek		I		S		S	I	5	Aquatic life - Impaired Aquatic Community (Unknown)	Aquatic Community Assessment completed
RE2-11200	Dry Creek		NA		NA		NA	NA	3		
RE2-11300	Elk Creek		NA		NA		NA	NA	3		
RE2-11400	Muddy Creek		S		S		S	S	1	-	
RE2-11410	West Muddy Creek		NA		NA		NA	NA	3		
RE2-11500	Muddy Creek		S		NA		S	S	2		
RE2-11600	Deer Creek		S		NA		S	S	2		
RE3-10000	Republican River	I	S		S		S	I	4a	Recreation (*E. coli*)	Fish Consumption Assessment completed, E. coli TMDL approved 3/05
RE3-10100	Medicine Creek	S	I		S		S	I	5	Aquatic Life - Dissolved Oxygen (Unknown)	Aquatic Community Assessment completed, results were inconclusive - site will be reassessed†
RE3-10200	Medicine Creek	I	S		S		S	I	5	Recreation (*E. coli*)	Aquatic Community Assessment completed, Fish Consumption Assessment completed
RE3-10210	Cedar Creek		NA		NA		NA	NA	3		

Waterbody ID	Waterbody Name	Recreation	Aquatic Life	Water Supply			Aesthetics	Overall	2020 IR	Impairments (Causes)	Comments/Actions
				Public Drinking	Agricultural	Industrial					
RE3-10220	Spring Creek		NA		NA		NA	NA	3		
RE3-10230	Curtis Creek		NA		NA		NA	NA	3		
RE3-10240	Fox Creek		NA		NA		NA	NA	3		
RE3-10241	Cut Canyon		NA		NA		NA	NA	3		
RE3-10300	Medicine Creek	I	S		S		S	I	5	Recreation (*E. coli*)	
RE3-10310	Brushy Creek		I		NA		NA	I	5	Aquatic life - Impaired Aquatic Community (Unknown)	Aquatic Community Assessment completed
RE3-10400	Medicine Creek	I	S		S		S	I	5	Recreation (*E. coli*)	
RE3-10500	Red Willow Creek	I	S		S		S	I	5	Recreation (*E. coli*)	
RE3-10600	Red Willow Creek	I	I		S		S	I	5	Recreation (*E. coli*), Aquatic Life - Impaired Aquatic Community (Unknown)	
RE3-10700	Red Willow Creek		NA		NA		NA	NA	3		
RE3-10800	Driftwood Creek		S		S		S	S	1		
RE3-20000	Republican River	I	I		S		S	I	5	Recreation (*E.coli*), Aquatic Life - Dissolved Oxygen (Unknown)	
RE3-20100	Blackwood Creek		NA		NA		NA	NA	3		

Waterbody ID	Waterbody Name	Recreation	Aquatic Life	Water Supply			Aesthetics	Overall	2020 IR	Impairments (Causes)	Comments/Actions
				Public Drinking	Agricultural	Industrial					
RE3-20200	Frenchman Creek	I	S		S		S	I	5	Recreation (*E. coli*)	Aquatic Community Assessment completed
RE3-20210	Bobtail Creek		NA		NA		NA	NA	3		
RE3-20220	Stinking Water Creek	I	I		S		S	I	5	Recreation (*E. coli*), Aquatic Life - Temperature (Naturally Elevated)	
RE3-20221	Spring Creek		S		NA		S	S	2		
RE3-20300	Frenchman Creek	I	I		S		S	I	4a/c	Recreation (*E. coli*), Aquatic Life - Temperature (Naturally Elevated)	E. coli TMDL approved 3/05
RE3-20400	Frenchman Creek	I	I		S		S	I	5	Recreation (*E. coli*), Aquatic Life - Temperature (Naturally Elevated)	
RE3-20410	Sand Draw		NA		NA		NA	NA	3		
RE3-20500	Frenchman Creek	NA	S		NA		NA	S	2		
RE3-30000	Republican River	I	S		NA		S	I	5	Recreation (*E. coli*)	
RE3-40000	Republican River	I	S		S		S	I	5	Recreation (*E. coli*)	Aquatic Community Assessment completed
RE3-40100	Muddy Creek		NA		NA		NA	NA	3		
RE3-40200	Burntwood Creek		NA		NA		NA	NA	3		
RE3-40300	Indian Creek		NA		NA		NA	NA	3		

Waterbody ID	Waterbody Name	Recreation	Aquatic Life	Water Supply			Aesthetics	Overall	2020 IR	Impairments (Causes)	Comments/Actions
				Public Drinking	Agricultural	Industrial					
RE3-40310	Rock Canyon		NA		NA		NA	NA	3		
RE3-40400	Indian Creek		NA		NA		NA	NA	3		
RE3-40500	South Fork Republican River	I	S		S		S	I	5	Recreation (*E. coli*)	
RE3-40510	Big Timber Creek		NA		NA		NA	NA	3		
RE3-40600	Spring Creek		NA		NA		NA	NA	3		
RE3-40700	Horse Creek		NA		NA		NA	NA	3		
RE3-40800	Rock Creek	S	I		S		S	I	4c	Aquatic Life - Temperature (Naturally Elevated)	Aquatic Community Assessment completed
RE3-50000	Republican River	I	S		S		S	I	5	Recreation (*E. coli*)	
RE3-50100	Buffalo Creek		S		S		S	S	1		
RE3-50200	Buffalo Creek		NA		NA		NA	NA	3		
RE3-50300	North Fork Republican River	I	S		S		S	I	5	Recreation (*E. coli*)	
RE3-50400	Arikaree River	I	S		S		S	I	5	Recreation (*E. coli*)	
Wetlands											

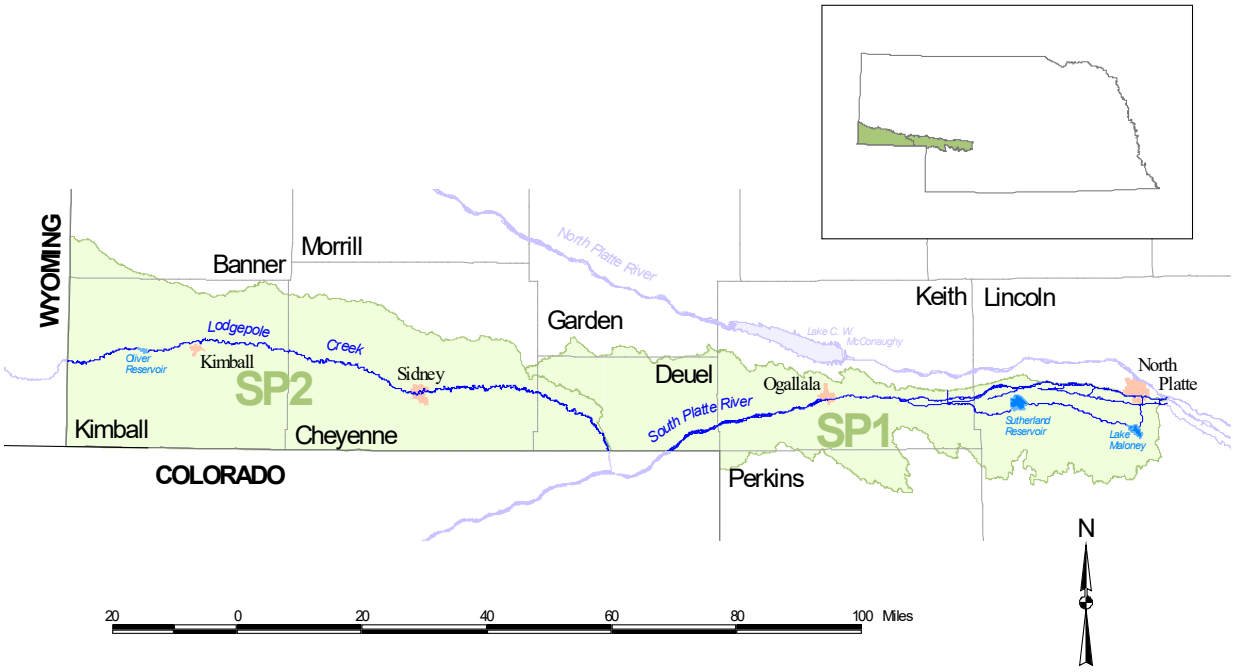
Waterbody ID	Waterbody Name	Recreation	Aquatic Life	Water Supply			Aesthetics	Overall	2020 IR	Impairments (Causes)	Comments/Actions
				Public Drinking	Agricultural	Industrial					
RE1-WXXX1	Killdeer WPA		NA		NA		NA	NA	3		
RE1-WXXX2	Prairie Dog WPA		NA		NA		NA	NA	3		
RE1-WXXX3	Atlanta WPA		NA		NA		NA	NA	3		
RE1-WXXX4	Jones WPA		NA		NA		NA	NA	3		

******Cancer risk compounds*** -Aroclor-1248 (PCB-1248), Aroclor-1254 (PCB-1254), Aroclor-1260 (PCB-1260), cis-chlordane, Chlordane, trans-chlordane, DDD, DDE, DDT, Dieldrin, Heptachlor, Heptachlor Epoxide, Hexachlorobenzene, cis-nonachlor, trans-nonachlor, Oxychlordane, Pentachloroanisole, Trifluralin
Hazard index compounds- Aroclor-1254 (PCB-1254), Lindane (g-BHC), cis-chlordane, Chlordane, trans-chlordane, DDT, Dieldrin, Heptachlor, Heptachlor Epoxide, Hexachlorobenzene, cis-nonachlor, trans-nonachlor, Oxychlordane, Pentachloroanisole, Trifluralin, Mercury, Cadmium, Selenium

† See Appendix B: Ecological Justification for Excluding Specific Bio-Indicator Results When Determining Attainment Status of the Aquatic Life Beneficial Use for Nebraska's 2014 Water Quality Integrated Report

[1] XXX# designates in Title 117 an undesignated waterbody. See Title 117 Chapter 2.004.

SOUTH PLATTE RIVER BASIN (and Subbasins)



South Platte Basin – Hydrologic Units 10190012, 10190015, 10190016, 10190017 and 10190018

The South Platte River Basin includes 28 designated stream segments and 13 designated lakes/reservoirs.

Waterbody Type	Primary Contact Recreation	Aquatic Life CA[1]	Aquatic Life CB[1]	Aquatic Life WA[1]	Aquatic Life WB[1]	Water Supply – Public Drinking	Water Supply – Ag	Water Supply-Ind.	Aesthetics
Lakes	13	0	1	12	0	0	13	2	13
Streams	16	1	13	11	3	0	28	4	28

[1] CA = Coldwater Class A, CB = Coldwater Class B, WA = Warmwater Class A and WB = Warmwater Class B

Delisting/ Changes from 2018 IR

The following are waters and or parameters that were delisted – removed from category 5 or other significant changes from the 2018 Integrated Report (IR).

SP1-L0030: Birdwood Lake (WMA) – This waterbody was listed in category 5 in the 2018 IR. The Aquatic Life use was impaired due to a Fish Consumption Advisory for Mercury. A 2017 Fish Consumption Assessment determined that the Aquatic Life use is now supported for Mercury, and the Fish Consumption Advisory was removed. This waterbody will be placed in category 2.

SP1-L0050: Hershey Lake (WMA) – This waterbody was listed in category 5 in the 2018 IR. The Aquatic Life use was impaired due to a Fish Consumption Advisory for Mercury, and due to pH caused by Total Nitrogen and Total

Phosphorus. Data gathered in 2017-18 determined that the Aquatic Life use is supported for pH. This waterbody will remain in category 5.

SP1-L0090: Ogallala City Park Lake – This waterbody was listed in category 5 in the 2018 IR. The Aquatic Life use was impaired due to a Fish Consumption Advisory for Cancer Risk Compounds. A 2017 Fish Consumption Assessment determined that the Aquatic Life use is supported for Cancer Risk Compounds, but is impaired for Hazard Index Compounds. This waterbody will remain in category 5.

SP1-LXXX1: Sutherland Cooling Pond – This waterbody was listed in category 5 in the 2018 IR. The Aquatic Life use was impaired due to a Fish Consumption Advisory for Hazard Index Compounds and Mercury. A 2017 Fish Consumption Assessment determined that the Aquatic Life use is now supported for Hazard Index Compounds. This waterbody will remain in category 5.

SP2-L0010: Chappell Interstate Lake – This waterbody was listed in category 5 in the 2018 IR. The Aquatic Life use was impaired due to a Fish Consumption Advisory for Hazard Index Compounds and Mercury, and due to pH caused by an unknown pollutant. A 2017 Fish Consumption Assessment determined that the Aquatic Life use is now supported for Hazard Index Compounds. This waterbody will remain in category 5.

SP2-L0030: Oliver Reservoir – This waterbody was listed in category 5 in the 2018 IR. The Aquatic Life use was impaired due to Chlorophyll α caused by Total Nitrogen and Total Phosphorus. Data gathered in 2017-18 determined that the Aquatic Life use is now supported for Total Nitrogen. This waterbody will remain in category 5.

SP1-10400: Fremont Slough – This waterbody was listed in category 3 in the 2018 IR. Data gathered in 2017 determined that the Aquatic Life use is impaired for Aquatic Community due to an unknown pollutant.

SP1-10500: Maloney Outlet Canal – This waterbody was listed in category 5 in the 2018 IR. The Aquatic Life use was impaired due to a Fish Consumption Advisory for Cancer Risk Compounds, Hazard Index Compounds, and Mercury. A 2017 Fish Consumption Assessment determined that the Aquatic Life use is now supported for Cancer Risk Compounds. This waterbody will remain in category 5.

SP1-30000: South Platte River – This waterbody was listed in category 3 in the 2018 IR. New data determined that the Recreation, Aquatic Life, and Agricultural Water Supply uses are supported. This waterbody will be placed in category 2.

SP1-30200: Unnamed Creek – This waterbody was listed in category 2 in the 2018 IR. Data gathered in 2017 determined that the Recreation use is impaired for *E. coli* bacteria. This waterbody will be placed in category 5.

SP1-60000: South Platte River – This waterbody was listed in category 2 in the 2018 IR. New data determined that the Recreation and Agricultural Water Supply uses are supported. This waterbody will be placed in category 1.

Waterbody ID	Waterbody Name	Recreation	Aquatic Life	Water Supply			Aesthetics	Overall	2020 IR	Impairments (Causes)	Comments/Actions
				Public Drinking	Agricultural	Industrial					
Lakes											
SP1-L0010	Interstate Lake (North Platte)	S	I		S		NA	I	5	Aquatic Life - Fish Consumption Advisory (Mercury)	Fish Consumption Assessment completed
SP1-L0020	Lake Maloney	S	I		S		S	I	5	Aquatic Life - Chlorophyll α (Unknown)	Fish Consumption Assessment completed
SP1-L0030	Birdwood Lake (WMA)	NA	S		S		S	I	2	-	Fish Consumption Assessment completed
SP1-L0040	East Hershey Lake (WMA)	NA	I		NA		NA	I	5	Aquatic Life - Fish Consumption Advisory (Mercury)	Fish Consumption Assessment completed
SP1-L0050	Hershey Lake (WMA)	NA	I		S		S	I	5	Aquatic Life - Fish Consumption Advisory (Mercury)	Fish Consumption Assessment completed, TN and TP assessed.
SP1-L0060	West Hershey Lake (WMA)	NA	NA		NA		NA	NA	3		
SP1-L0070	East Sutherland Lake (WMA)	NA	I		NA		NA	I	5	Aquatic Life - Fish Consumption Advisory (Mercury)	Fish Consumption Assessment completed
SP1-L0080	Sutherland Reservoir	S	I		S	S	S	I	5	Aquatic Life - Fish Consumption Advisory (Hazard Index Compounds*)	Fish Consumption Assessment completed
SP1-L0090	Ogallala City Park Lake	NA	I		NA		S	I	5	Aquatic Life - Fish Consumption Advisory (Hazard Index Compounds*)	Fish Consumption Assessment completed
SP1-L0095	Big Springs Community Lake	NA	NA		NA		S	S	2		Lake renovated 2010
SP1-L0100	Goldeneye Pond (WMA)	NA	S		I		S	I	5	Agriculture Water Supply - Conductivity (Unknown)	Fish Consumption Assessment completed
SP1-LXXX1	Sutherland Cooling Pond	NA	I		NA		NA	I	5	Aquatic Life - Fish Consumption Advisory (Mercury)	Fish Consumption Assessment completed

Waterbody ID	Waterbody Name	Recreation	Aquatic Life	Water Supply			Aesthetics	Overall	2020 IR	Impairments (Causes)	Comments/Actions
				Public Drinking	Agricultural	Industrial					
SP2-L0010	Chappell Interstate Lake	S	I		S		S	I	5	Aquatic Life - Fish Consumption Advisory (Mercury), pH (Unknown)	TN and TP not assessed, Fish Consumption Assessment completed
SP2-L0030	Oliver Reservoir	S	I		S		S	I	5	Aquatic Life - Chlorophyll α (Total Phosphorus)	Fish Consumption Assessment completed
Streams											
SP1-10000	South Platte River	S	I		S		S	I	5	Aquatic Life - Fish Consumption Advisory (Hazard Index Compounds*)	
SP1-10100	Fremont Slough	NA	NA		NA		NA	NA	3		
SP1-10200	Fremont Slough	S	I		S		S	I	4c	Aquatic Life - Temperature (Naturally Elevated)	
SP1-10300	Fremont Slough		S		NA		S	S	2		
SP1-10400	Fremont Slough		I		NA		NA	I	5	Aquatic Life - Impaired Aquatic Community (Unknown)	
SP1-10500	Maloney Outlet Canal	S	I		NA	S	NA	I	5	Aquatic Life - Fish Consumption Advisory (Hazard Index Compounds*, Mercury)	Fish Consumption Assessment completed
SP1-10600	Sutherland Outlet Canal	NA	I		NA	S	NA	I	5	Aquatic Life - Fish Consumption Advisory (Hazard Index Compounds*)	Fish Consumption Assessment completed
SP1-10700	Sutherland Canal	NA	NA		NA		NA	NA	3		
SP1-10710	South Platte River Supply Canal		NA		NA	NA	NA	NA	3		
SP1-20000	South Platte River	S	S		S		S	S	1		Aquatic Community Assessment completed, Fish Consumption Assessment completed

Waterbody ID	Waterbody Name	Recreation	Aquatic Life	Water Supply			Aesthetics	Overall	2020 IR	Impairments (Causes)	Comments/Actions
				Public Drinking	Agricultural	Industrial					
SP1-20100	Fremont Slough	NA	S		NA		S	S	2		
SP1-20200	Fremont Slough		NA		NA		NA	NA	3		Aquatic Community Assessment completed
SP1-30000	South Platte River	S	S		S		NA	S	2		Aquatic Community Assessment completed
SP1-30100	Fremont Slough		S		NA		S	S	2		
SP1-30200	Unnamed Creek	I	S		S		S	S	5	Recreation (*E. coli*)	
SP1-40000	South Platte River	NA	S		NA		S	S	2		
SP1-40100	Unnamed Creek		NA		NA		NA	NA	3		
SP1-50000	South Platte River	NA	S		NA		NA	S	2		
SP1-60000	South Platte River	S	S		S		S	S	1		
SP1-70000	South Platte River	S	S		S		S	S	1		Aquatic Community Assessment completed
SP1-80000	South Platte River	S	S		I		S	I	5	Agriculture Water Supply - Conductivity (Unknown)	Aquatic Community Assessment completed
SP1-90000	South Platte River	S	I		I		S	I	5	Agriculture Water Supply - Conductivity (Unknown)	Fish Consumption Assessment completed
SP2-10000	Lodgepole Creek		I		S		S	I	5	Aquatic life - Impaired Aquatic Community (Unknown)	

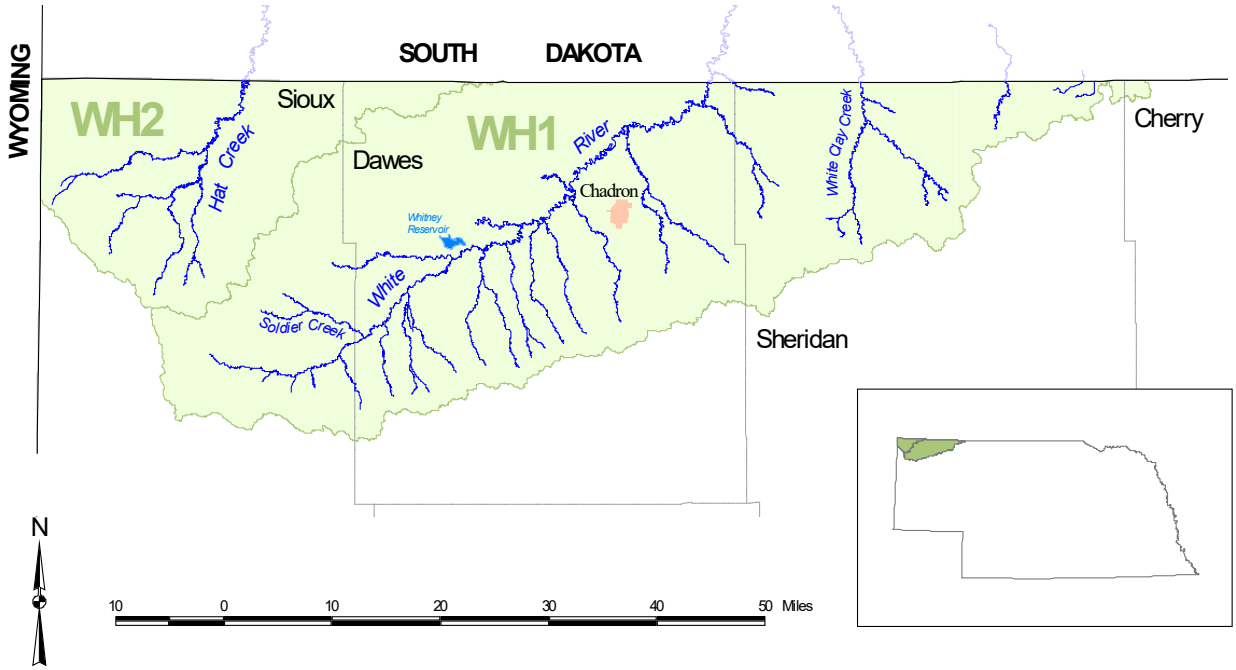
Waterbody ID	Waterbody Name	Recreation	Aquatic Life	Water Supply			Aesthetics	Overall	2020 IR	Impairments (Causes)	Comments/Actions
				Public Drinking	Agricultural	Industrial					
SP2-20000	Lodgepole Creek		I		NA		NA	I	5	Aquatic life - Impaired Aquatic Community (Unknown)	Aquatic Community Assessment completed
SP2-30000	Lodgepole Creek		S		NA		S	S	2		
SP2-40000	Lodgepole Creek		S		NA		S	S	2		
SP2-50000	Lodgepole Creek		S		S		S	S	1		Aquatic Community Assessment completed
SP2-60000	Lodgepole Creek		NA		NA		NA	NA	3		

******Cancer risk compounds*** -Aroclor-1248 (PCB-1248), Aroclor-1254 (PCB-1254), Aroclor-1260 (PCB-1260), cis-chlordane, Chlordane, trans-chlordane, DDD, DDE, DDT, Dieldrin, Heptachlor, Heptachlor Epoxide, Hexachlorobenzene, cis-nonachlor, trans-nonachlor, Oxychlordane, Pentachloroanisole, Trifluralin
Hazard index compounds- Aroclor-1254 (PCB-1254), Lindane (g-BHC), cis-chlordane, Chlordane, trans-chlordane, DDT, Dieldrin, Heptachlor, Heptachlor Epoxide, Hexachlorobenzene, cis-nonachlor, trans-nonachlor, Oxychlordane, Pentachloroanisole, Trifluralin, Mercury, Cadmium, Selenium

† See Appendix B: Ecological Justification for Excluding Specific Bio-Indicator Results When Determining Attainment Status of the Aquatic Life Beneficial Use for Nebraska's 2014 Water Quality Integrated Report

[1] XXX# designates in Title 117 an undesignated waterbody. See Title 117 Chapter 2.004.

WHITE RIVER - HAT CREEK BASIN (and Subbasins)



White River-Hat Creek Basin – Hydrologic Units 10120108, 10120108 and 10140201

The White River-Hat Creek Basin includes 63 designated stream segments and 27 designated lake/reservoirs

Waterbody Type	Primary Contact Recreation	Aquatic Life CA[1]	Aquatic Life CB[1]	Aquatic Life WA[1]	Aquatic Life WB[1]	Water Supply – Public Drinking	Water Supply – Ag	Water Supply-Ind.	Aesthetics
Lakes	27	0	14	13	0	0	27	0	27
Streams	18	15	36	1	11	7	63	0	63

[1] CA = Coldwater Class A, CB = Coldwater Class B, WA = Warmwater Class A and WB = Warmwater Class B

Delisting/ Changes from 2018 IR

The following are waters and or parameters that were delisted – removed from category 5 or other significant changes from the 2018 Integrated Report (IR).

WH1-L0010: Isham Lake – This waterbody was listed in category 5 in the 2018 IR. The Aquatic Life use was impaired due to a Fish Consumption Advisory for Hazard Index Compounds and Mercury, and due to pH caused by an unknown pollutant. A 2017 Fish Consumption Assessment determined that the Aquatic Life use is supported for Hazard Index Compounds. This waterbody will remain in category 5.

WH1-L0170: Grabel Pond No. 5 (Ft. Robinson State Park) – This waterbody was listed in category 5 in the 2018 IR. The Aquatic Life use was impaired due to a Fish Consumption Advisory for Hazard Index Compounds and

Mercury. A 2017 Fish Consumption Assessment determined that the Aquatic Life use is supported for Hazard Index Compounds. This waterbody will remain in category 5.

WH1-L0200: Lake Carter P. Johnson (Ft. Robinson State Park) – This waterbody was listed in category 5 in the 2018 IR. The Aquatic Life use was impaired due to a Fish Consumption Advisory for Hazard Index Compounds and Mercury. A 2017 Fish Consumption Assessment determined that the Aquatic Life use is supported for Hazard Index Compounds. This waterbody will remain in category 5.

WH2-L0020: Agate Pond – This waterbody was listed in category 5 in the 2018 IR. The Recreation use was impaired for *E. coli* bacteria, and the Aquatic Life use was impaired for pH due to an unknown pollutant. Data gathered in 2017-18 determined that the Recreation use is supported for *E. coli.* This waterbody will remain in category 5.

WH2-L0030: Meng Lake – This waterbody was listed in category 5 in the 2018 IR. The Recreation use was impaired for *E. coli* bacteria, the Aquatic Life use was impaired for pH due to an unknown pollutant, and the Agricultural Water Supply use was impaired for Conductivity due to an unknown pollutant. Data gathered in 2017-18 determined that the Recreation use is now supported for *E. coli*. This waterbody will remain in category 5.

WH1-10000: White River – This waterbody was listed in category 1 in the 2018 IR. Data gathered in 2017-18 determined that the Public Drinking Water Supply use is impaired for Arsenic. This waterbody will be placed in category 5.

WH1-10400: White Clay Creek – This waterbody was listed in category 3 in the 2018 IR. Data gathered in 2017-18 determined that the Aquatic Life and Agricultural Water Supply uses are supported. This waterbody will be placed in category 2.

WH1-10420: Larabee Creek – This waterbody was listed in category 5 in the 2018 IR. The Aquatic Life use was impaired for Aquatic Community due to an unknown pollutant. Data gathered in 2017 determined that the Aquatic Life use is supported for Aquatic Community and the Agricultural Water Supply use is supported. This waterbody will be placed in category 2.

WH1-11110: Little Bordeaux Creek – This waterbody was listed in category 3 in the 2018 IR. Data gathered in 2017 determined that the Recreation use is impaired for *E. coli* bacteria, and the Aquatic Life and Agricultural Water Supply uses are supported. This waterbody will be placed in category 5.

WH1-11300: Chadron Creek – This waterbody was listed in category 5 in the 2018 IR. The Recreation use was impaired for *E. coli* bacteria. Data gathered in 2017-18 determined that the Public Drinking Water Supply use is impaired for Arsenic. This waterbody will remain in category 5.

WH1-11600: Big Cottonwood Creek – This waterbody was listed in category 3 in the 2018 IR. Data gathered in 2017 determined that the Aquatic Life use is impaired for Aquatic Community due to an unknown pollutant.

WH1-20000: White River – This waterbody was listed in category 4a in the 2018 IR. The Recreation use was impaired for *E. coli* bacteria. Data gathered in 2017-18 determined that the Public Drinking Water Supply use is impaired for Arsenic. This waterbody will be placed in category 5.

WH1-20120: Squaw Creek – This waterbody was listed in category 3 in the 2018 IR. Data gathered in 2017 determined that the Recreation, Aquatic Life, and Agricultural Water Supply uses are supported. This waterbody will be placed in category 2.

WH1-20300: Soldier Creek – This waterbody was listed in category 1 in the 2018 IR. Data gathered in 2017-18 determined that the Public Drinking Water Supply use is impaired for Arsenic. This waterbody will be placed in category 5.

WH1-20310: Middle Fork Soldier Creek – This waterbody was listed in category 5 in the 2018 IR. The Aquatic Life use was impaired for Aquatic Community due to an unknown pollutant. Data gathered in 2017 determined that the Aquatic Life use is supported for Aquatic Community. This waterbody will be placed in category 1.

WH1-30000: White River – This waterbody was listed in category 5 in the 2018 IR. The Recreation use was impaired for *E. coli* bacteria. Data gathered in 2017-18 determined that the Public Drinking Water Supply use is impaired for Arsenic. This waterbody will be remain in category 5.

WH1-30100: Dead Man's Creek – This waterbody was listed in category 3 in the 2018 IR. Data gathered in 2017 determined that the Recreation use is impaired for *E. coli* bacteria, and the Aquatic Life and Agricultural Water Supply uses are supported. This waterbody will be placed in category 5.

WH2-10220: Sowbelly Creek – This waterbody was listed in category 3 in the 2018 IR. Data gathered in 2017 determined that the Aquatic Life use is supported. This waterbody will be placed in category 2.

Waterbody ID	Waterbody Name	Recreation	Aquatic Life	Water Supply			Aesthetics	Overall	2020 IR	Impairments (Causes)	Comments/Actions
				Public Drinking	Agricultural	Industrial					
Lakes											
WH1-L0010	Isham Lake	NA	I		S		S	I	5	Aquatic Life - Fish Consumption Advisory (Mercury), pH (Unknown)	TN and TP not assessed, Fish Consumption Assessment completed
WH1-L0020	Chadron City Reservoir South	S	S		S		S	S	1		Fish Consumption Assessment completed
WH1-L0030	Chadron City Reservoir North	S	S		S		S	S	1		Fish Consumption Assessment completed
WH1-L0040	Chadron State Park Pond	NA	NA		NA		NA	NA	3		
WH1-L0050	Snus Lake	NA	NA		NA		NA	NA	3		
WH1-L0060	Whitney Reservoir	NA	I		S		S	I	5	Aquatic Life - Fish Consumption Advisory (Mercury)	Fish Consumption Assessment completed
WH1-L0070	Dodd Dam Lake	NA	NA		NA		NA	NA	3		
WH1-L0080	Rock Bass Dam Lake	NA	S		S		S	S	2		
WH1-L0090	Lake Crawford (Ft. Robinson State Park)	NA	NA		NA		NA	NA	3		
WH1-L0100	Cherry Creek Pond (Ft. Robinson State Park)	NA	NA		NA		NA	NA	3		
WH1-L0105	Cherry Creek Diversion Pond (Ft. Robinson State Park)	NA	NA		NA		NA	NA	3		
WH1-L0110	Lower Ice House Pond (Ft. Robinson State Park)	NA	S		NA		NA	S	2		

Waterbody ID	Waterbody Name	Recreation	Aquatic Life	Water Supply			Aesthetics	Overall	2020 IR	Impairments (Causes)	Comments/Actions
				Public Drinking	Agricultural	Industrial					
WH1-L0120	Ice House Diversion Pond (Ft. Robinson State Park)	NA	NA		NA		NA	NA	3		
WH1-L0130	Upper Ice House Pond (Ft. Robinson State Park)	NA	NA		NA		NA	NA	3		
WH1-L0140	Grabel Pond No 1 (Ft. Robinson State Park)	NA	NA		NA		NA	NA	3		
WH1-L0150	Grabel Pond No 2 (Ft. Robinson State Park)	NA	NA		NA		NA	NA	3		
WH1-L0160	Grabel Pond No 3 (Ft. Robinson State Park)	NA	NA		NA		NA	NA	3		
WH1-L0170	Grabel Pond No 5 (Ft. Robinson State Park)	NA	I		NA		NA	I	5	Aquatic Life - Fish Consumption Advisory (Mercury)	Fish Consumption Assessment completed
WH1-L0180	Boardgate Pond	NA	I		S		S	I	5	Aquatic Life - pH (Unknown)	TN and TP not assessed
WH1-L0190	Crazy Horse Lake (Ft. Robinson State Park)	NA	NA		NA		NA	NA	3		
WH1-L0200	Lake Carter P. Johnson (Ft. Robinson State Park)	S	I		S		S	I	5	Aquatic Life - Fish Consumption Advisory (Mercury)	Fish Consumption Assessment completed, TN and TP assessed
WH1-L0210	Beaver Dam Pond	NA	NA		NA		NA	NA	3		
WH2-L0005	Round Top Pond	NA	NA		NA		NA	NA	3		WBID changed from WH1-L0220
WH2-L0010	Lundy Pond	NA	NA		NA		NA	NA	3		
WH2-L0020	Agate Pond	S	I		S		S	I	5	Aquatic Life - pH (Unknown)	TN and TP not assessed

Waterbody ID	Waterbody Name	Recreation	Aquatic Life	Water Supply			Aesthetics	Overall	2020 IR	Impairments (Causes)	Comments/Actions
				Public Drinking	Agricultural	Industrial					
WH2-L0030	Meng Lake	S	I		I		S	I	5	Aquatic Life - pH (Total Phosphorus), Agriculture Water Supply - Conductivity (Unknown)	
WH2-L0040	Gilbert Baker Pond (WMA)	NA	NA		NA		NA	NA	3		
Streams											
WH1-10000	White River		S	I	S		S	I	5	Public Drinking Water Supply (Arsenic)	Aquatic Community Assessment completed, results were inconclusive - site will be reassessed†
WH1-10100	Unnamed Creek		NA		NA		NA	NA	3		
WH1-10200	Unnamed Creek		NA		NA		NA	NA	3		
WH1-10300	Wounded Knee Creek		NA		NA		NA	NA	3		
WH1-10400	White Clay Creek		S		S		NA	S	2		
WH1-10410	Patton Creek		NA		NA		NA	NA	3		
WH1-10420	Larabee Creek		S		S		NA	S	2	-	Aquatic Community Assessment completed, Fish Consumption Assessment completed
WH1-10421	Unnamed Creek		NA		NA		NA	NA	3		
WH1-10422	Unnamed Creek		NA		NA		NA	NA	3		
WH1-10430	Larabee Creek		NA		NA		NA	NA	3		

Waterbody ID	Waterbody Name	Recreation	Aquatic Life	Water Supply			Aesthetics	Overall	2020 IR	Impairments (Causes)	Comments/Actions
				Public Drinking	Agricultural	Industrial					
WH1-10500	White Clay Creek		NA		NA		NA	NA	3		
WH1-10510	Unnamed Creek		NA		NA		NA	NA	3		
WH1-10600	White Clay Creek		NA		NA		NA	NA	3		
WH1-10610	Unnamed Creek		NA		NA		NA	NA	3		
WH1-10700	Limekiln Creek		NA		NA		NA	NA	3		
WH1-10800	Beaver Creek		NA		NA		NA	NA	3		
WH1-10810	Little Beaver Creek		NA		NA		NA	NA	3		
WH1-10900	Beaver Creek		S		NA		S	S	2		
WH1-11000	Alkali Creek		NA		NA		NA	NA	3		
WH1-11100	Bordeaux Creek		S		NA		NA	S	2		
WH1-11110	Little Bordeaux Creek	I	S		S		NA	I	5	Recreation (*E. coli*)	Aquatic Community Assessment completed
WH1-11120	Big Bordeaux Creek		S		S		S	S	1		
WH1-11200	Lone Tree Creek		NA		NA		NA	NA	3		

Waterbody ID	Waterbody Name	Recreation	Aquatic Life	Water Supply			Aesthetics	Overall	2020 IR	Impairments (Causes)	Comments/Actions
				Public Drinking	Agricultural	Industrial					
WH1-11300	Chadron Creek	I	S	I	S		S	I	5	Recreation (*E. coli*), Public Drinking Water Supply (Arsenic)	Aquatic Community Assessment completed
WH1-11400	Dead Horse Creek	NA	S		NA		S	S	2		
WH1-11500	Trunk Butte Creek	NA	NA		NA		NA	NA	3		
WH1-11600	Big Cottonwood Creek	NA	I		NA		NA	I	5	Aquatic life - Impaired Aquatic Community (Unknown)	Aquatic Community Assessment completed
WH1-11700	Indian Creek	NA	NA		NA		NA	NA	3		
WH1-11710	Cunningham Creek	NA	NA		NA		NA	NA	3		
WH1-11800	Ash Creek		NA		NA		NA	NA	3		
WH1-11810	East Ash Creek	NA	S		NA		S	S	2		Aquatic Community Assessment completed
WH1-11820	West Ash Creek	I	S		S		S	I	5	Recreation (*E. coli*)	
WH1-11900	Little Cottonwood Creek		NA		NA		NA	NA	3		
WH1-12000	Little Cottonwood Creek	NA	NA		NA		NA	NA	3		
WH1-20000	White River	I	S	I	S		S	I	5	Recreation (*E. coli*), Public Drinking Water Supply (Arsenic)	E. coli TMDL approved 1/06, Aquatic Community Assessment completed
WH1-20100	White Clay Creek	I	S		S		S	I	5	Recreation (*E. coli*)	

Waterbody ID	Waterbody Name	Recreation	Aquatic Life	Water Supply			Aesthetics	Overall	2020 IR	Impairments (Causes)	Comments/Actions
				Public Drinking	Agricultural	Industrial					
WH1-20110	Squaw Creek		NA		NA		NA	NA	3		
WH1-20111	English Creek		NA		NA		NA	NA	3		
WH1-20120	Squaw Creek	S	S		S		NA	S	2		
WH1-20130	Unnamed Creek	NA	NA		NA		NA	NA	3		
WH1-20200	Bozle Creek		NA		NA		NA	NA	3		
WH1-20300	Soldier Creek		S	I	S		S	I	5	Public Drinking Water Supply (Arsenic)	
WH1-20310	Middle Fork Soldier Creek		S		S		S	S	1	-	Aquatic Community Assessment completed
WH1-20400	Soldier Creek		NA		NA		NA	NA	3		
WH1-30000	White River	I	S	I	S		S	I	5	Recreation (*E. coli*), Public Drinking Water Supply (Arsenic)	Aquatic Community Assessment completed
WH1-30100	Dead Man's Creek	I	S	S	S		NA	I	5	Recreation (*E. coli*)	
WH1-30200	Deep Creek		S		NA		S	S	2		
WH1-30300	Bull Creek		NA		NA		NA	NA	3		
WH1-30400	Kyle Creek		NA		NA		NA	NA	3		

Waterbody ID	Waterbody Name	Recreation	Aquatic Life	Water Supply			Aesthetics	Overall	2020 IR	Impairments (Causes)	Comments/Actions
				Public Drinking	Agricultural	Industrial					
WH1-40000	White River		S	S	S		S	S	1		Aquatic Community Assessment completed
WH2-10000	Hat Creek	NA	S		S		S	S	2		
WH2-10100	Squaw Creek	NA	NA		NA		NA	NA	3		
WH2-10110	West Squaw Creek		NA		NA		NA	NA	3		
WH2-10200	Warbonnet Creek		S		NA		S	S	2		
WH2-10210	Sowbelly Creek		NA		NA		NA	NA	3		
WH2-10220	Sowbelly Creek		S		NA		NA	S	2		Aquatic Community Assessment completed
WH2-10230	Monroe Creek		NA		NA		NA	NA	3		
WH2-10240	Monroe Creek		S		S		S	S	1		Aquatic Community Assessment completed
WH2-20000	Hat Creek		NA		NA		NA	NA	3		
WH2-30000	Hat Creek		S		S		S	S	1		
WH2-30100	East Hat Creek		NA		NA		NA	NA	3		
WH2-30200	West Hat Creek		NA		NA		NA	NA	3		

Waterbody ID	Waterbody Name	Recreation	Aquatic Life	Water Supply			Aesthetics	Overall	2020 IR	Impairments (Causes)	Comments/Actions
				Public Drinking	Agricultural	Industrial					
WH2-30300	West Hat Creek		NA		NA		NA	NA	3		

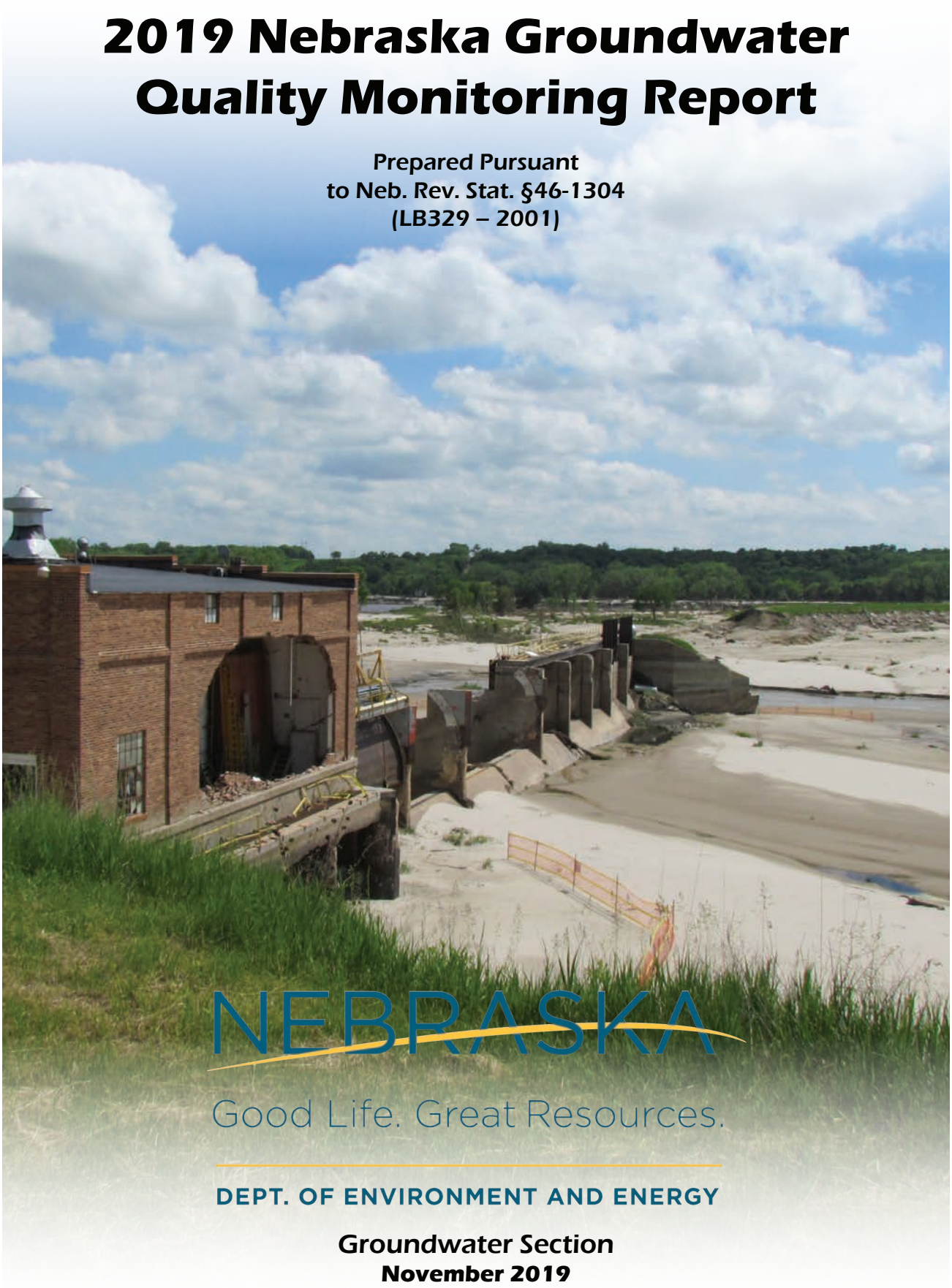
******Cancer risk compounds*** -Aroclor-1248 (PCB-1248), Aroclor-1254 (PCB-1254), Aroclor-1260 (PCB-1260), cis-chlordane, Chlordane, trans-chlordane, DDD, DDE, DDT, Dieldrin, Heptachlor, Heptachlor Epoxide, Hexachlorobenzene, cis-nonachlor, trans-nonachlor, Oxychlordane, Pentachloroanisole, Trifluralin
Hazard index compounds- Aroclor-1254 (PCB-1254), Lindane (g-BHC), cis-chlordane, Chlordane, trans-chlordane, DDT, Dieldrin, Heptachlor, Heptachlor Epoxide, Hexachlorobenzene, cis-nonachlor, trans-nonachlor, Oxychlordane, Pentachloroanisole, Trifluralin, Mercury, Cadmium, Selenium

† See Appendix B: Ecological Justification for Excluding Specific Bio-Indicator Results When Determining Attainment Status of the Aquatic Life Beneficial Use for Nebraska's 2014 Water Quality Integrated Report.

Appendix A: 2019 Nebraska Groundwater Quality Monitoring Report

2019 Nebraska Groundwater Quality Monitoring Report

Prepared Pursuant
to Neb. Rev. Stat. §46-1304
(LB329 – 2001)



NEBRASKA

Good Life. Great Resources.

DEPT. OF ENVIRONMENT AND ENERGY

Groundwater Section
November 2019

Photo on front cover:

Connie McCarthy, Lower Niobrara Natural Resources District.

Acknowledgements:

This report would not be possible without the cooperation of the agencies and organizations contributing groundwater data to the "Quality-Assessed Agrichemical Contaminant Database for Nebraska Groundwater", most notably the State's 23 Natural Resources Districts. The University of Nebraska must be thanked for their on-going work on the Database and attention to detail in assessing the quality of data presented for inclusion. Thanks to Sam Capps, Tatiana Davila, and Ryan Chapman, NDEE, for most of the maps and data analysis for this report, while Marty Link, helped with editing. Direct any questions regarding this report to David Miesbach, Groundwater Section, NDEQ, at (402) 471-4982.

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2019 Nebraska Groundwater Quality Monitoring Report

Introduction

The 2001 Nebraska Legislature passed LB329 (Neb. Rev. Stat. §46-1304) which, in part, directed the Nebraska Department of Environmental Quality (NDEQ) to report on groundwater quality monitoring in Nebraska. Reports have been issued annually since December 2001. The text of the statute applicable to this report follows:

"The Department of Environmental Quality shall prepare a report outlining the extent of ground water quality monitoring conducted by natural resources districts during the preceding calendar year. The department shall analyze the data collected for the purpose of determining whether or not ground water quality is degrading or improving and shall present the results to the Natural Resources Committee of the Legislature beginning December 1, 2001, and each year thereafter. The districts shall submit in a timely manner all ground water quality monitoring data collected to the department or its designee. The department shall use the data submitted by the districts in conjunction with all other readily available and compatible data for the purpose of the annual ground water quality trend analysis."

The section following the statute quoted above (§ 46-1305), requires the State's Natural Resources Districts to submit an annual report to the legislature with information on their water quality programs, including financial data. That report has been prepared by the Nebraska Association of Resources Districts and is being issued concurrently with this groundwater quality report.

This report is prepared by the NDEE (Agency), which was formerly known as the Nebraska Department of Environmental Quality (NDEQ) until July 1, 2019 when LB302 (2019) became law thereby creating a new agency by merging the NDEQ and the Nebraska Energy Office to form the NDEE. For the purposes of this report, references to "NDEQ" and "NDEE" are synonymous.

Grant County (Lexi Hingtgen, Upper Loup NRD)

Groundwater in Nebraska

Groundwater can be defined as water that occurs in the open spaces below the surface of the earth (Figure 1). In Nebraska (as in many places worldwide), useable groundwater occurs in voids or pore spaces in various layers of geologic material such as sand, gravel, silt, sandstone, and limestone. These layers are referred to as aquifers where such geologic units yield sufficient water for human use. In parts of the state, groundwater may be encountered just a few feet below the surface, while in other areas, it may be a few hundred feet underground. This underground water "surface" is usually referred to as the water table, while water which soaks downward through overlying rocks and sediment to the water table is called recharge as shown in Figure 2. The amount of water that can be obtained from a given aquifer may range from a few gallons per minute (which is just enough to supply a typical household) to many hundreds or even thousands of gallons per minute (which is the yield of large irrigation, industrial, or public water supply wells).

Depth & Velocity of Groundwater

The depth to groundwater plays a very important role in Nebraska's valuable water resource. A shallow well is cheaper to drill, construct, and pump. However, shallow groundwater is more at-risk from impacts from human activities. Surface spills, application of agricultural chemicals, effluent from septic tank leach fields, and other sources of contamination will impact shallow groundwater more quickly than groundwater found at depth. The map in Figure 3 shows the great variation of depth to water across the State.

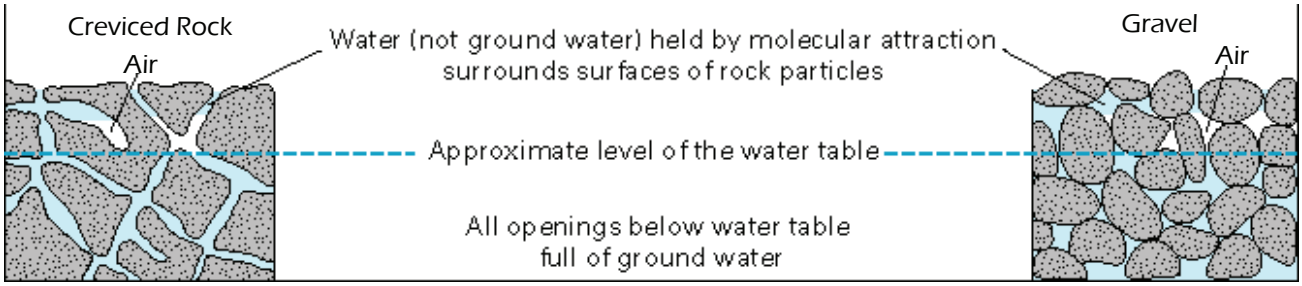


Figure 1. Basic aquifer concepts (U.S. Geological Survey).

In general, groundwater flows very slowly, especially when compared to the flow of water in streams and rivers. Many factors determine the speed of groundwater and most of these factors cannot be measured or observed directly. Basic groundwater features are shown in Figures 1 and 2. The most important geologic characteristics that impact groundwater movement are as follows:

The sediment in the saturated zone of the aquifer. Groundwater generally flows faster through gravel sediments than clay sediments.

- The 'sorting' of the sediment. Groundwater in aquifers with a mix of clay, sand, and gravel (poor sorting) generally does not flow as fast as in aquifers that are composed of just one sediment, such as gravel (good sorting).
- The 'gradient' of the water table. Groundwater flows from higher elevations toward lower elevations under the force of gravity. In areas of high relief, groundwater flows faster. A typical groundwater gradient in Nebraska is 10 feet of drop over a mile (0.002 ft/ft).
- Well pumping influences. In areas of the State with numerous high capacity wells (mainly irrigation wells), groundwater velocity and direction can be changed seasonally as water is pumped.

Ultimately, groundwater scientists have determined that groundwater in Nebraska can flow as fast as one to two feet per day in areas like the Platte River valley and as slow as one to two inches per year in areas like the Pine Ridge in northwest Nebraska or the glacially deposited sediments in southeast Nebraska.

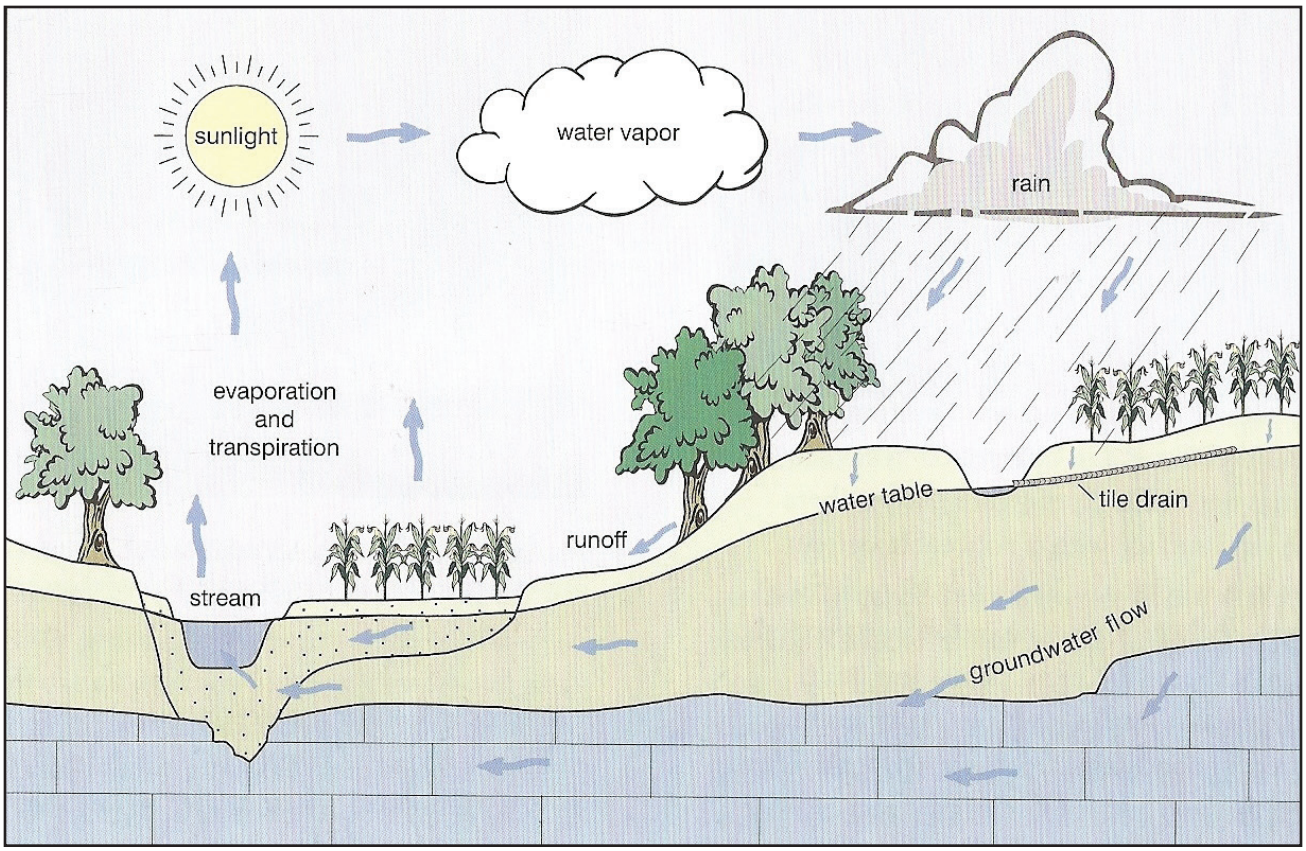


Figure 2. Generalized hydrologic cycle. (Prior, 2003).

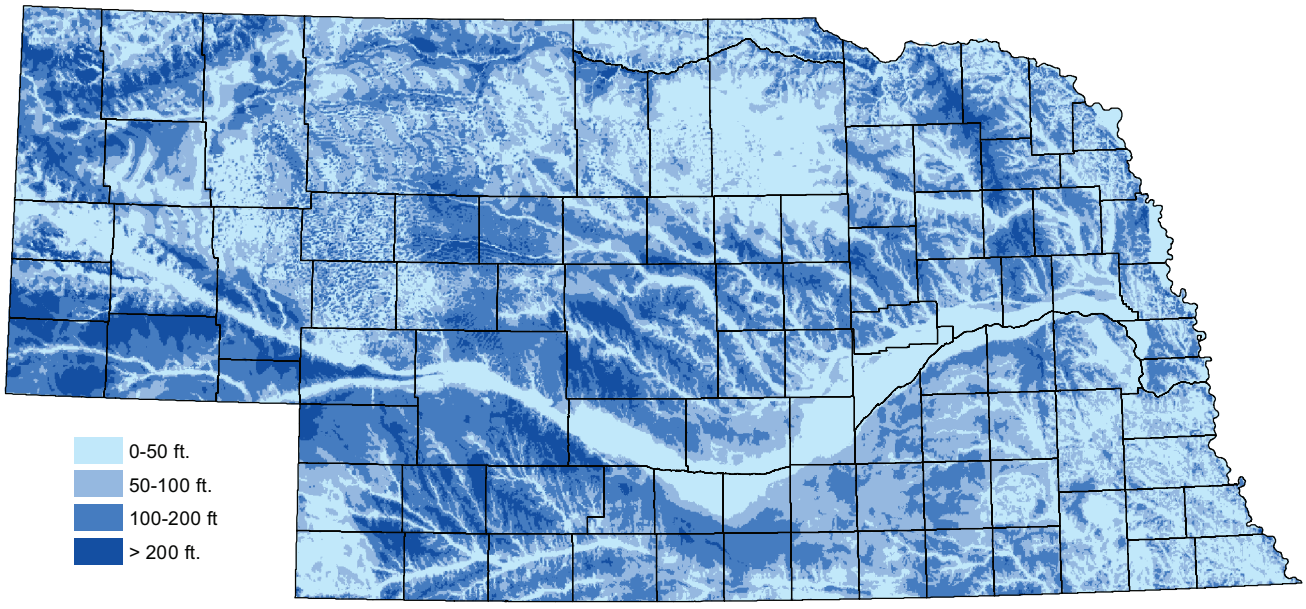


Figure 3. Generalized depth to groundwater.
(Source: University of Nebraska, Conservation and Survey Division, 1998)

Geology and Groundwater

Nebraska has been "underwater" most of its history. Ancient seas deposited multiple layers of marine sediments that eventually formed sandstone, shale, and limestone. These geologic units are now considered "bedrock" and underlie the entire State. Limited fresh water supplies can be found in this bedrock mainly in the eastern portion of the State. After the seas retreated, huge river systems deposited sand and gravel eroded from mountain building to the west to form groundwater bearing formations such as the lower Chadron, Ogallala (Figures 4 and 5) and Broadwater. Next, the combination of erosion (statewide) and glaciation in the east introduced new material that was deposited by wind, water, and ice to form the remainder of the High Plains Aquifer (Figure 4 and 5).

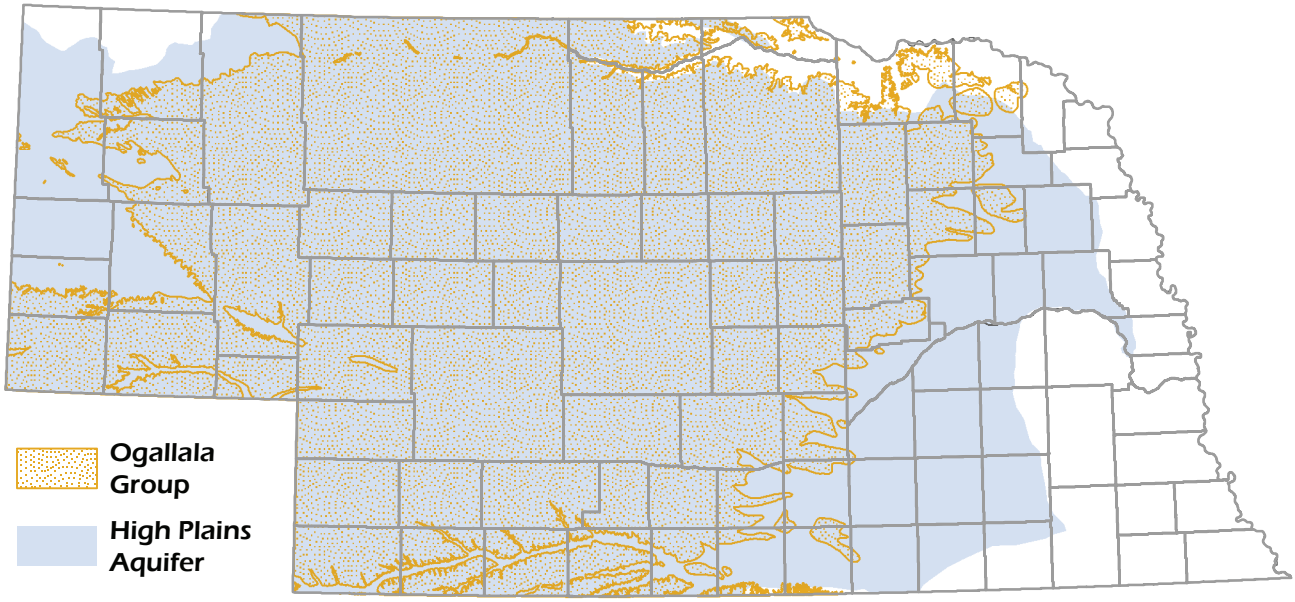


Figure 4. Map of the High Plains aquifer identifying the Ogallala Group. (Source: University of NE, Conservation and Survey Division, 2013)

The High Plains Aquifer is a conglomeration of many separate groundwater bearing formations such as the Brule, Arikaree, Ogallala, Broadwater, and many more recent unnamed deposits (including the Sand Hills). Many of the unnamed deposits are found mainly within the stream valleys (recent or ancient) and are a common source of groundwater (Figure 6, left pane). No single formation completely covers the entire state. However, when these numerous formations and deposits are combined, they form the High Plains Aquifer, covering almost 90% of Nebraska.

There are parts of eastern Nebraska where the High Plains Aquifer is not present. These areas rely heavily on groundwater from buried ancient river channels or recent alluvial valleys (Missouri, Platte, and Nemaha Rivers) (Figure 6, right pane).

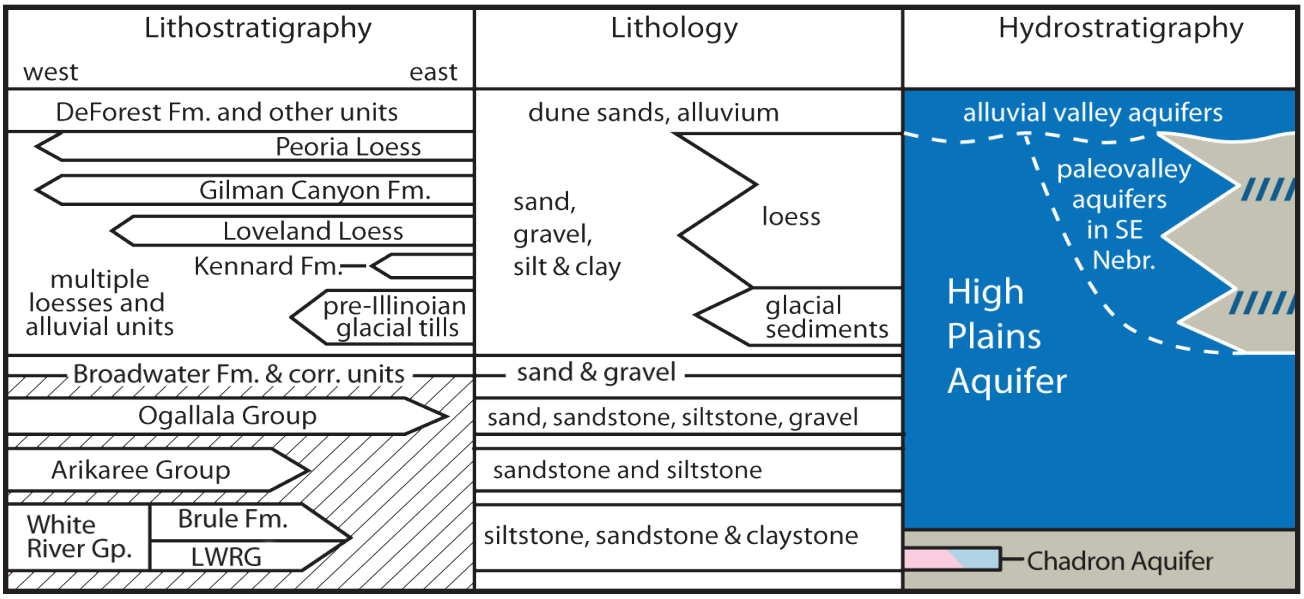


Figure 5. Excerpts from the generalized geologic and hydrostratigraphic framework of Nebraska. (Source: University of Nebraska, Conservation and Survey Division, 2013)

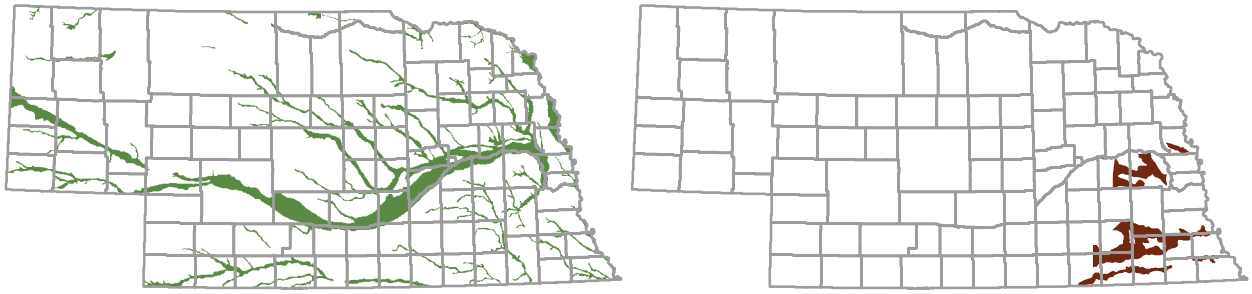
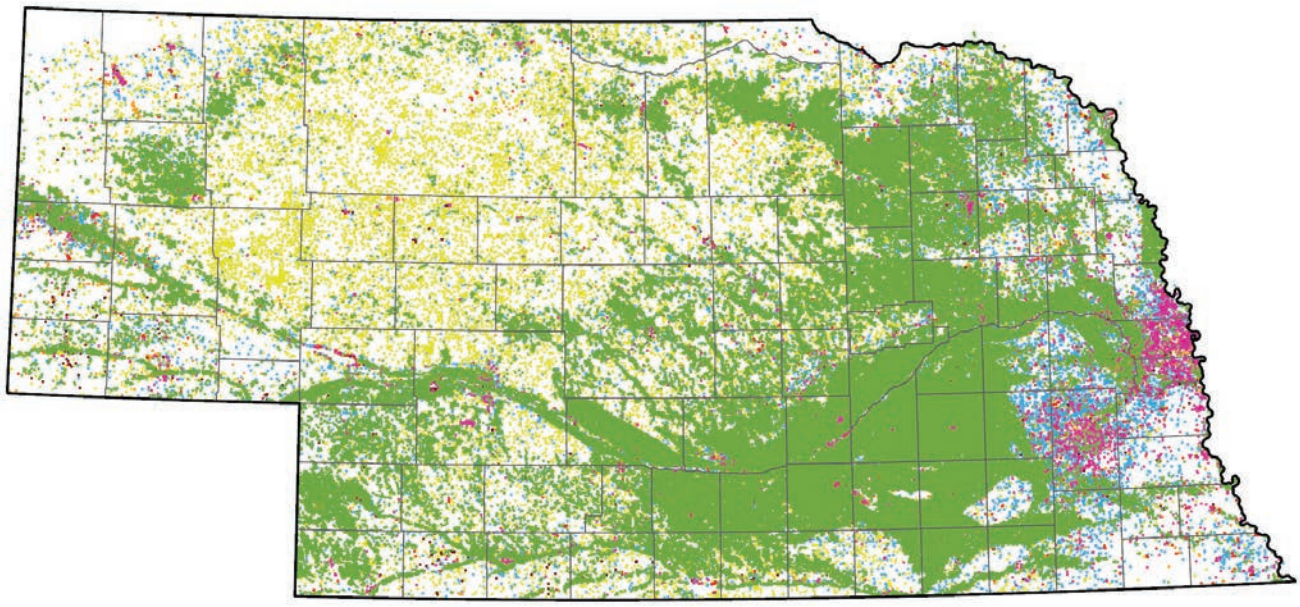


Figure 6. Map of the valleys topographic region (left) and paleovalley aquifers (right). (Source: University of Nebraska, Conservation and Survey Division, 2013)

Importance of Groundwater

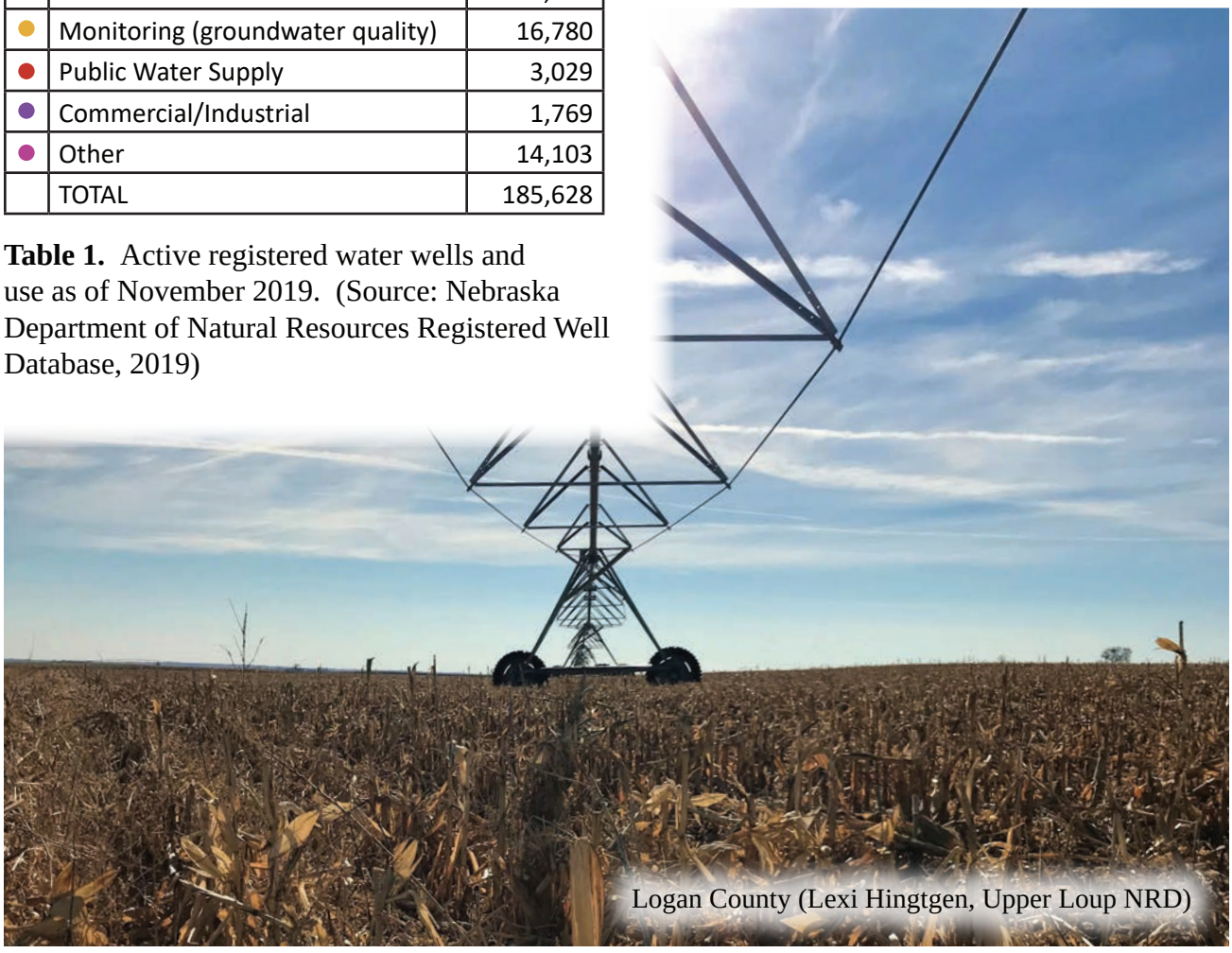
Nebraska is one of the most groundwater-rich states in the United States. Approximately 88% of the state's residents rely on groundwater as their source of drinking water. If the public water supply for the Omaha metropolitan area (which gets about a third of its water supply from the Missouri River) isn't counted, this rises to nearly 99%. Essentially all of the rural residents of the state use groundwater for their domestic supply. Not only does Nebraska depend on groundwater for its drinking water supply, the state's agricultural industry utilizes vast amounts of groundwater to irrigate crops and water livestock. Most of Nebraska experiences variable amounts of precipitation throughout the year, so irrigation is used, where possible, to ensure adequate amounts of moisture for raising such crops as corn, soybeans, alfalfa, and edible beans. As of November 2019, the Nebraska Department of Natural Resources (NeDNR) listed 96,265 active irrigation wells and 31,661 active domestic wells registered in the state. Domestic wells were not required to be registered with the state prior to September 1993, therefore thousands of domestic wells exist that are not registered with the NeDNR. Figures 7 and 8 and information shown in Table 1 help illustrate this.



	Water Use	Active
●	Irrigation	96,265
●	Domestic	31,661
●	Livestock	22,048
●	Monitoring (groundwater quality)	16,780
●	Public Water Supply	3,029
●	Commercial/Industrial	1,769
●	Other	14,103
	TOTAL	185,628

Table 1. Active registered water wells and use as of November 2019. (Source: Nebraska Department of Natural Resources Registered Well Database, 2019)

Figure 7. Active registered water wells as of November 2019. (Source: Nebraska Department of Natural Resources Registered Well Database, 2019)



Logan County (Lexi Hingtgen, Upper Loup NRD)

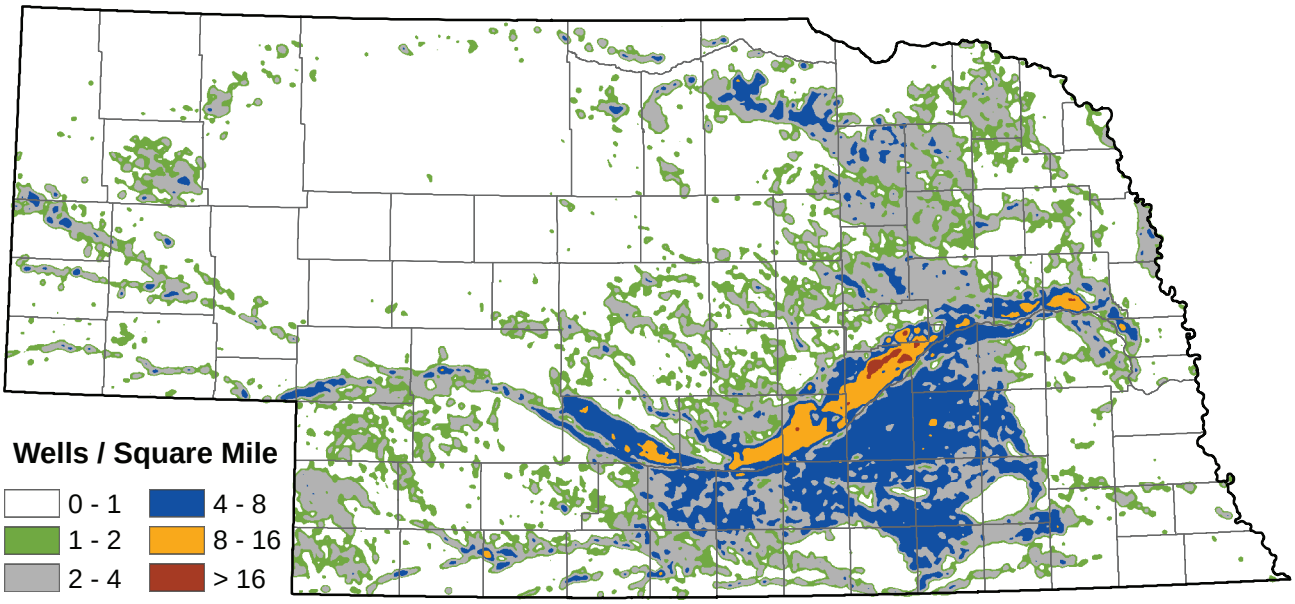


Figure 8. Density of active registered irrigation wells as of November 2013. (Source: Nebraska Department of Natural Resources Registered Well Database, 2013)

Groundwater Monitoring

The previous information clearly shows that groundwater is vital to the well-being of all Nebraskans. Fortunately, our state has a long tradition of progressive action in monitoring, managing, and protecting this most precious resource. Many entities perform monitoring of groundwater for a variety of purposes.

Those entities include:
Natural Resources Districts (23)
Nebraska Department of Agriculture
Nebraska Department of Environmental Quality
Nebraska Department of Health and Human Services
Public Water Suppliers
University of Nebraska-Lincoln
United States Geological Survey

Groundwater monitoring performed by these organizations meets a variety of needs, and therefore is not always directly comparable. For instance, the state's 23 Natural Resources Districts (NRDs) perform groundwater monitoring primarily to address contaminants over which they have some authority; mainly nitrates and agricultural chemicals. In contrast, the state's 1339 public water suppliers monitor groundwater for a large number of possible pollutants which could impact human health. These include basic field parameters, agricultural compounds, and industrial chemicals. Not only are these samples analyzed for many different parameters, the methods used for sampling and analysis vary widely as well.

(Charlie Pierce, Nemaha NRD)

Partly in response to this situation, the Nebraska Departments of Agriculture (NDA) and Environmental Quality and the University of Nebraska - Lincoln (UNL) began a project in 1996 to develop a centralized data repository for groundwater quality information that would allow comparison of data obtained at different times and for different purposes. The result of this project is the Quality-Assessed Agrichemical Contaminant Database for Nebraska Groundwater (referred to as the Database in this publication). The Database brings together groundwater data from many different sources and provides public access to this data.

The Database serves two primary functions. First, it provides to the public the results of groundwater monitoring for agricultural compounds in Nebraska as performed by a variety of entities. At present, agricultural contaminants (mainly nitrate and pesticides) are the focus of the Database because of their widespread use, and also because historical data suggests that these compounds pose the greatest threat to the quality of groundwater across Nebraska. Second, the Database provides an indicator of the methodologies that were used in sampling and analysis for each of the results. UNL staff examine the methods used for sampling and analysis to assign a quality "flag" consisting of a number from 1 to 5 to each of the sample results. The flag depends upon the amount and type of quality assurance/quality control (QA/QC) that was identified in obtaining each of the results. The higher the "flag" number, the better the QA/QC, and the higher the confidence in that particular result.

During the past several years, UNL staff have worked vigorously to establish contact with all the entities performing groundwater monitoring of agricultural chemicals (nitrate and pesticides) in Nebraska. Groundwater data is submitted to UNL by these entities each year, where it is assigned a quality "flag" and entered into the Database. The updated information is then forwarded to the Nebraska Department of Natural Resources (NeDNR), which places the data on its website (http://dnr.nebraska.gov/ or more specifically http://clearinghouse.nebraska.gov). The Database can be accessed and searched at NeDNR's website for numerous subsets of data, sorted by county, type of well, Natural Resources District, etc. (refer to Appendix C).

Groundwater Quality Data

Groundwater quality data presented in the remainder of this report reflect the data present in the Database as of October 1, 2019. The dates for these data range from mid-1974 to 2018. Groundwater results from some of the agencies working in Nebraska have not been submitted to UNL to be entered into the Database, but NDEE is confident that the information presented represents the majority of sample results available. Table 2 lists each agency producing groundwater quality data for this report.

Agency	
Central Platte NRD	Nebraska Department of Environment and Energy
Hastings Utilities	Nebraska Department of Health and Human Services
Lewis & Clark NRD	Nemaha NRD
Lincoln-Lancaster County Health Department	North Platte NRD
Little Blue NRD	Papio-Missouri River NRD
Lower Big Blue NRD	South Platte NRD
Lower Elkhorn NRD	Tri-Basin NRD
Lower Loup NRD	Twin Platte NRD
Lower Niobrara NRD	U.S. Geological Survey
Lower Platte North NRD	University of Nebraska
Lower Platte South NRD	Upper Big Blue NRD
Lower Republican NRD	Upper Elkhorn NRD
Middle Niobrara NRD	Upper Loup NRD
Middle Republican NRD	Upper Niobrara-White NRD
Nebraska Department of Agriculture	Upper Republican NRD

Table 2. Various agencies providing groundwater analyses in Nebraska to be used in the Database. (Source: Quality-Assessed Agrichemical Database for Nebraska Groundwater, 2019)

NEBRASKA Good Life. Great Resources. DEPT. OF ENVIRONMENT AND ENERGY

NEBRASKA Good Life. Great Mission. DEPT. OF HEALTH AND HUMAN SERVICES

NEBRASKA Good Life. Great Roots. DEPARTMENT OF AGRICULTURE

Nebraska's Natural Resources Districts www.nrdnet.org Protecting Lives • Protecting Property • Protecting the Future

University of Nebraska Lincoln

USGS science for a changing world

Types of Wells Sampled

The data summarized in Table 3 represent the quantity of water samples analyzed from a variety of well types. Historically, most wells that have been sampled are irrigation or domestic supply wells. Irrigation and domestic wells are constructed to yield adequate supplies of water, not to provide water quality samples (longer screens across large portions of the aquifer). However, in recent years, monitoring agencies have been installing increasing numbers of dedicated groundwater monitoring wells designed and located specifically to produce samples (shorter screens in distinct portions of the aquifer). By utilizing such varied sources, groundwater data from a wide range of geologic conditions can be obtained.

Well Type	Number of Analyses
Monitoring	258,107
Irrigation	122,111
Domestic	77,260
Public Water Supply	40,159
Commercial/Industrial	2,548
Livestock/Other	2,122
Heat Pump (GW Source)	8
Total	502,315

Table 3. Total number of groundwater analyses by well type. (Source: Quality-Assessed Agrichemical Database for Nebraska Groundwater, 2019)

Grant County (Lexi Hingtgen, Upper Loup NRD)

Monitoring Parameters

As already mentioned, numerous entities across Nebraska have been monitoring groundwater quality for many years, for a wide variety of possible contaminants. However, much of this monitoring has been for area-specific (part of an NRD), or at most, regional purposes (entire NRDs), and it has been difficult to assess data on a statewide basis for more than a short period of time. Creation of the Database has provided an important tool for such analysis. Appendix A lists the compounds for which groundwater has been sampled and analyzed since 1974. Table 4 lists the compounds from Appendix A for which at least 50 samples exceeded the **Reporting Limit***. This gives an indication of which compounds are most commonly detected in Nebraska's groundwater. Only 12 of the 241 compounds sampled met the criteria.

***Reporting Limit** refers to the concentration a laboratory has indicated their analysis method can be validated. For example, if a contaminant were at a level below the reporting limit, the laboratory's analysis method could not detect it and the concentration would be reported as "below the reporting limit".*

Throughout this report, the number of sample analyses for any one contaminant refers only to the number of analyses as reported **in the Quality-Assessed Agrichemical Contaminant Database for Nebraska Groundwater**, and not for the total number of analyses for that contaminant taken in the state. As already mentioned, data which are currently in the process of being submitted to UNL to be entered into the database are not reflected in this report. In addition, there are undoubtedly samples for various contaminants taken by entities other than the agencies referred to in this report (for instance, private consulting firms, or other programs within some of the reporting agencies), which are not included in the Database.

The table in Appendix A shows a wide variety of compounds for which groundwater samples have been analyzed, all of which are used in agricultural production. As mentioned previously, there is also a significant effort in monitoring groundwater for other, non-agricultural contaminants. Examples of such compounds include petroleum products and additives, industrial chemicals, hazardous wastes, contaminants associated with landfills and other waste disposal sites, and effluent from wastewater treatment facilities. Such issues are beyond the scope of §46-1304, and information about such monitoring data is not contained in any centralized database at present.

Compound	Total Samples Collected	Number of Samples that exceed the Reporting Limit	Percent of Samples that exceed the Reporting Limit
nitrate-N	126,645	116,441	91.94%
alachlor ethane sulfonic acid	136	71	52.21%
deethylatrazine	5,847	1,571	26.87%
atrazine	10,768	2,291	21.28%
metolachlor	9,838	1,065	10.83%
deisopropylatrazine	5,159	381	7.39%
cyanazine	10,300	422	4.10%
alachlor	10,338	305	2.95%
propazine	5,741	119	2.07%
simazine	6,309	125	1.98%
prometon	6,095	55	0.90%
metribuzin	10,194	59	0.58%

Table 4. Compounds more commonly found in wells monitored in Nebraska. More than 50 samples analyzed for each compound were greater than the reporting limit. (Source: Quality-Assessed Agrichemical Database for Nebraska Groundwater, 2019)

Discussion and Analysis

The information presented previously in this report shows that a considerable amount of effort has gone into monitoring groundwater quality in Nebraska since the mid-1970s, especially in areas that are heavily farmed. **The majority of samples taken show that groundwater in the State is of very high quality.** A comparison of Appendix A and Table 4 shows that only a small percentage of parameters analyzed have been detected above the Reporting Limit (12 of 241). However, these same data show that several contaminants have been detected in numerous samples throughout the monitoring period. Levels and distribution of these compounds are issues of concern to Nebraskans.

As Table 4 shows, the compounds that have been detected above the Reporting Limit more than 50 times throughout the monitoring period include nitrate-nitrogen (nitrate-N), atrazine, metolachlor, and degradation products of atrazine, alachlor, and metolachlor. Nitrate is a form of nitrogen common in human and animal waste, plant residue, and commercial fertilizers. Atrazine, alachlor, and metolachlor are herbicides used for weed control in crops such as corn and sorghum while deethylatrazine, deisopropylatrazine, alachlor ethane sulfonic acid are degradation products or metabolites of atrazine and alachlor. Cyanazine is a trizine herbicide similar to atrazine, but its use has been discontinued. In addition to atrazine and metolachor, the Nebraska Department of Agriculture identified two other priority compounds (alachlor and simazine) for development of pesticide State Management Plans, following guidance produced by the U.S. Environmental Protection Agency.

Occurrence of elevated levels of nitrate and herbicides in groundwater has been associated with the practice of irrigated agriculture, especially corn production (Exner and Spalding 1990).

Grant County (Lexi Hingtgen, Upper Loup NRD)

Keya Paha River at Highway 12, Keya Paha County (Connie McCarthy, Lower Niobrara NRD)

The Natural Resources Districts have instituted Groundwater Management Areas (GWMAs) over all or parts of nearly all of the 23 districts based on NRD and NDEQ groundwater sampling. The NRDs' implementation of these GWMAs indicates a concern and recognition of nonpoint source groundwater contamination. Additionally, NDEQ's Groundwater Management Area program has completed 20 studies across the state since 1988, identifying areas of nonpoint source contamination mainly from the widespread application of commercial fertilizer and animal waste.

The State of Nebraska has a geographic area of over 77,000 square miles. Accurately characterizing the quality of Nebraska's groundwater in a complex aquifer system has always been difficult. The acquisition of more data is increasing the validity of a trend analysis. However, it is still common practice to sample the "problem areas", which skews the data and makes it very difficult to show the areas in Nebraska where the contaminant levels are decreasing through better management and farming practices.

Another difficulty is obtaining the resources and the logistics of collecting groundwater samples. There are over 185,500 active registered wells in Nebraska and there have been only enough resources to collect samples from 3,100 (1.7%) to 4,700 (2.5%) annually (since 2000). Also, not all samples collected are evenly distributed throughout the state (Appendix B).

Nitrate Trends Utilizing the Database

Nitrate monitoring data have been collected from wells for many years, and the purpose of collection has varied by the agency or organization performing the work. For instance, public water supply operators sample their drinking water wells to ensure that the public is offered good quality water through the municipal system. NRDs have been tasked by the Nebraska legislature to manage groundwater quality and quantity in order to preserve its usefulness into the future. Additionally, shallow groundwater may have different natural chemical characteristics than deep groundwater and is more easily and quickly affected by activities on the surface than deeper groundwater.

The Database makes accessing and reviewing data relatively simple. One must use caution, though, when utilizing the vast Database because differences in wells may result in incorrect assumptions. Data may be collected from:
deep wells (bottom of the aquifer) vs. shallow wells (top of the aquifer) or
irrigation wells (potentially screened across multiple aquifers) vs. dedicated monitoring wells (with perhaps only 10 feet of screen) or
wells used for measuring water levels (observation) vs. wells used for water quality.

Several different methods have been used to present and interpret the nitrate data collected since the early 70s. The median (center of the data set) of the data is presented in tables (Figures 9 and 10) for the entire data set (1974-2018) and for the years with consistent sample events and locations (1999-2018). Simple trends are also shown on Figures 9 and 10.

Elevator at Anoka, NE, Boyd County (Connie McCarthy, Lower Niobrara NRD)

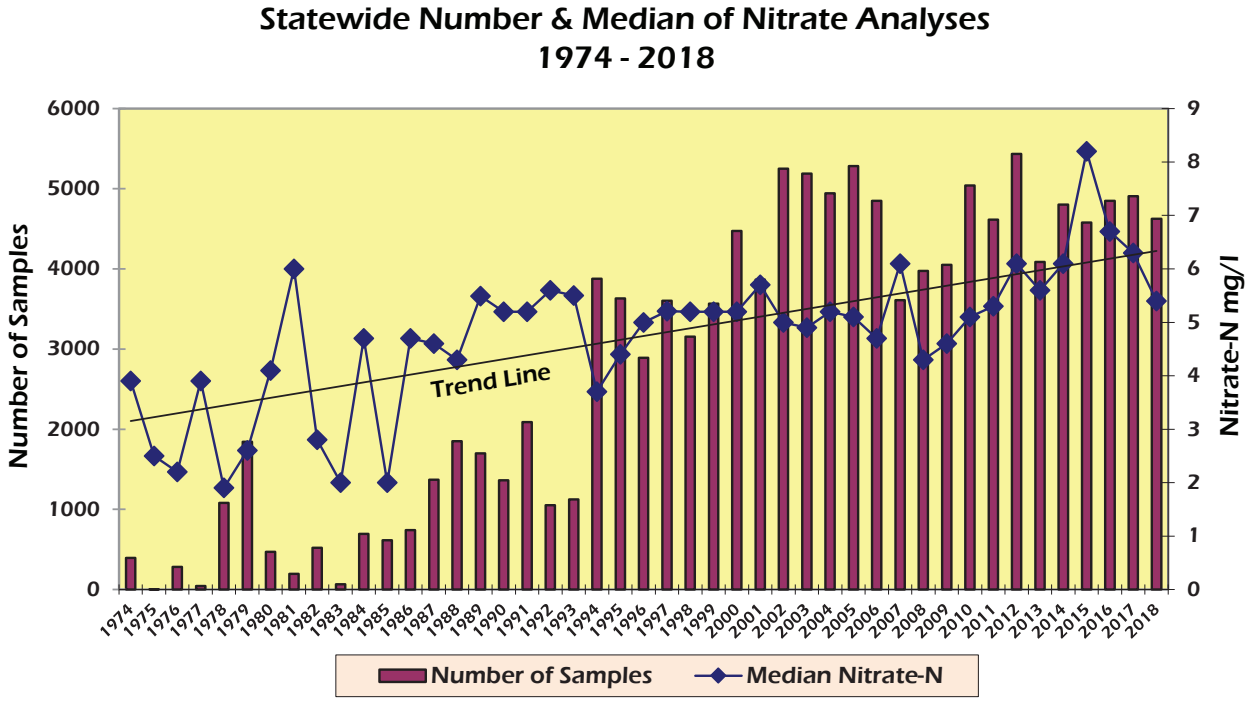


Figure 9. All 134,862 analyses and median nitrate-nitrogen levels for Nebraska, 1974-2018. (Source: Quality-Assessed Agrichemical Database for Nebraska Groundwater, 2019)

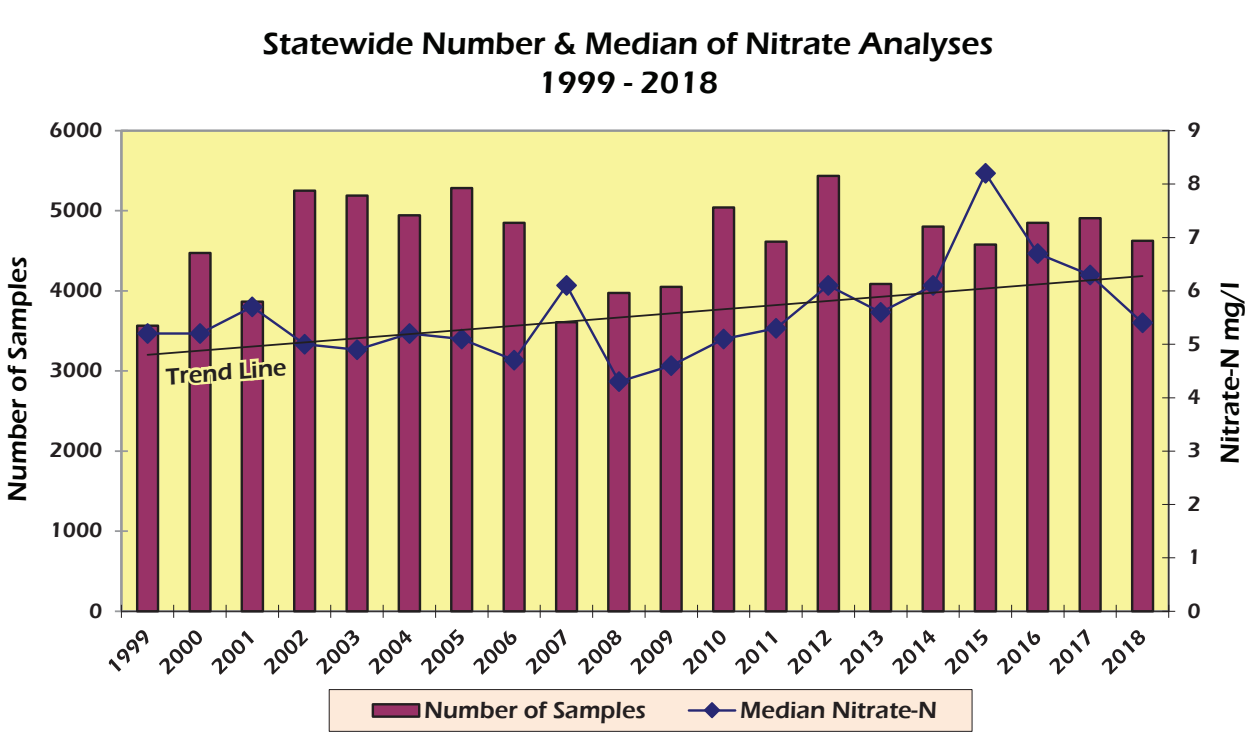


Figure 10. All 91,994 analyses and median nitrate-nitrogen levels for Nebraska, 1999-2018. (Source: Quality-Assessed Agrichemical Database for Nebraska Groundwater, 2019)

Most Recent Nitrate-N Concentrations

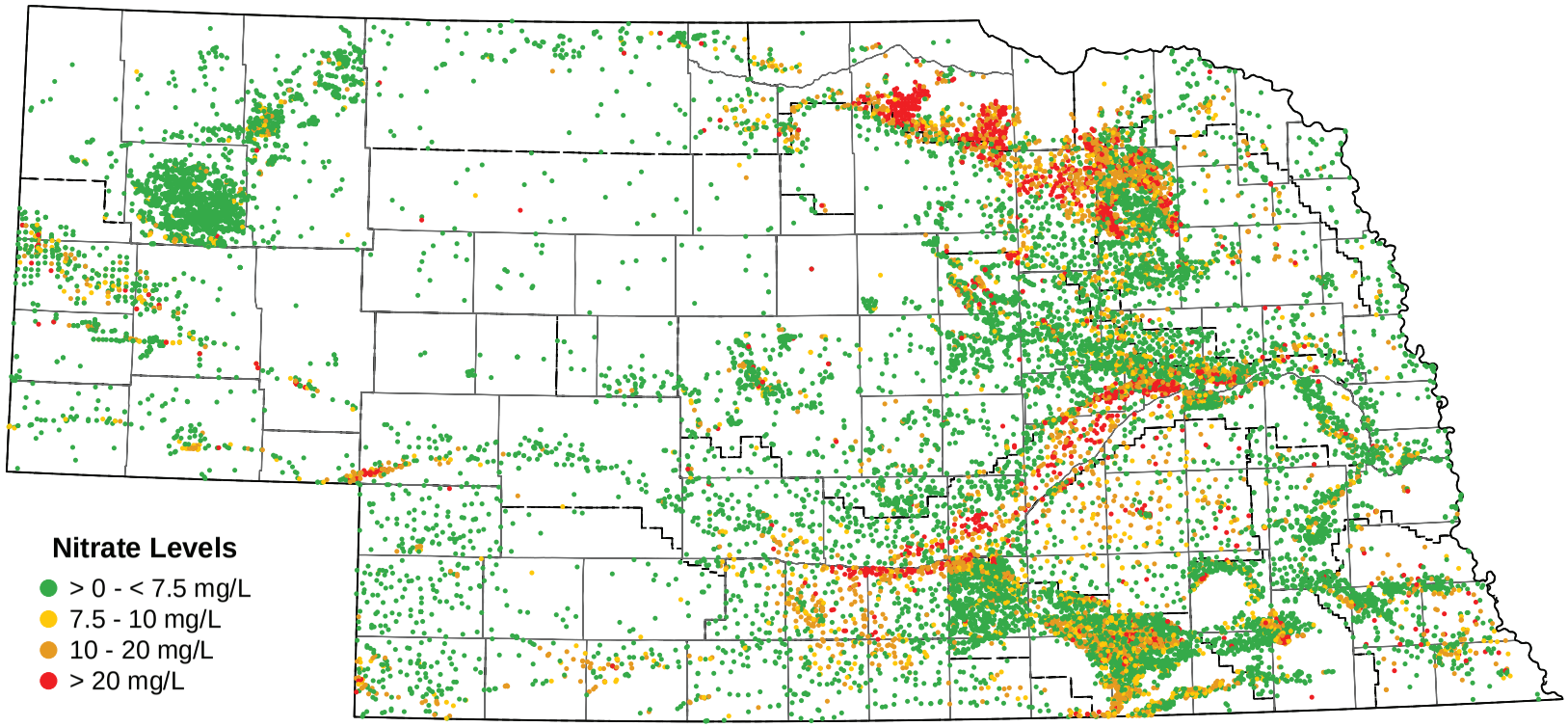


Figure 11. Most recent recorded Nitrate-N concentrations of 18,299 wells from 1999-2018. (Source: Quality-Assessed Agrichemical Database for Nebraska Groundwater, 2019) *Empty areas indicate no data reported, not the absence of nitrate in groundwater.*

Nitrate-N Concentrations of Wells Sampled in 2018

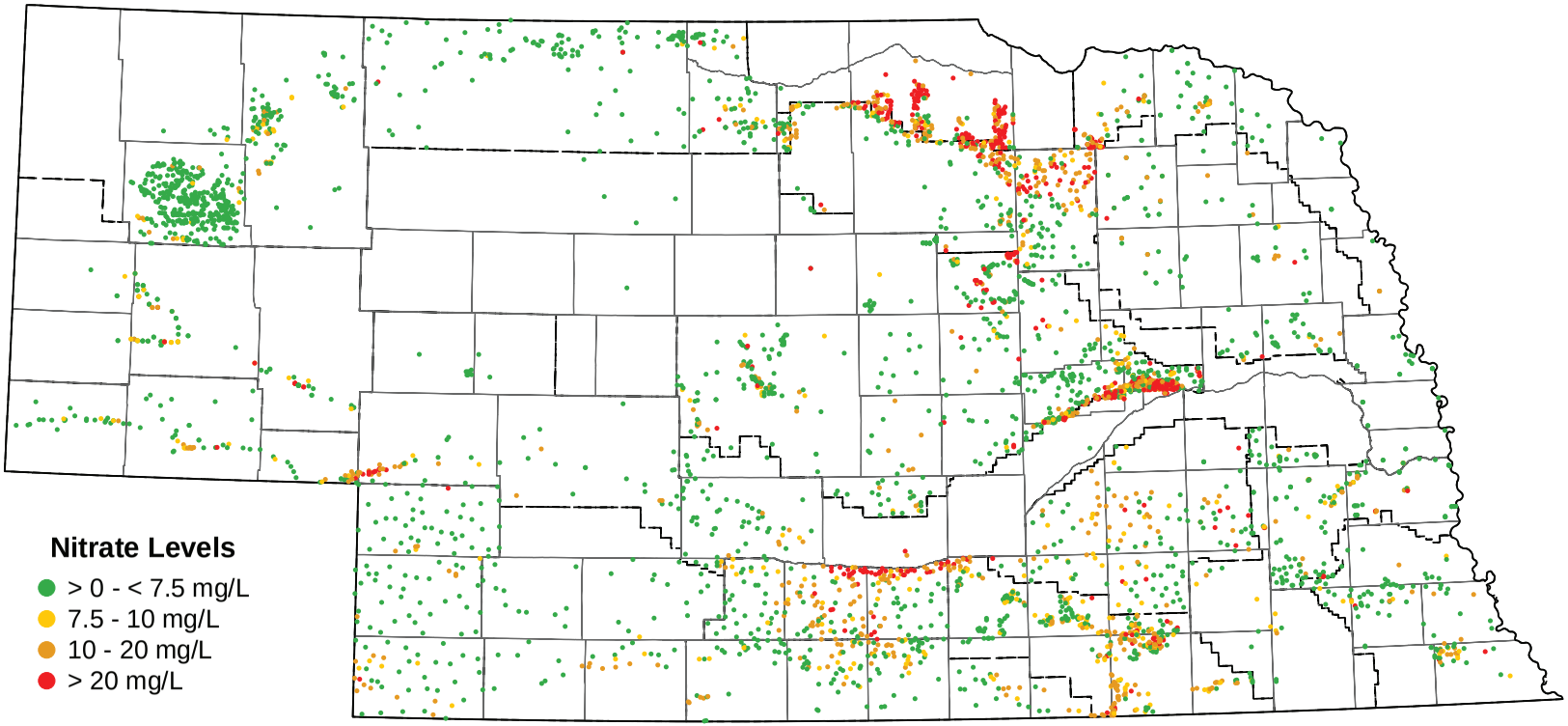


Figure 12. Most recent recorded Nitrate-N concentrations of 4,625 wells sampled in 2018.
(Source: Quality-Assessed Agrichemical Database for Nebraska Groundwater, 2019)
Empty areas indicate no data reported, not the absence of nitrate in groundwater.

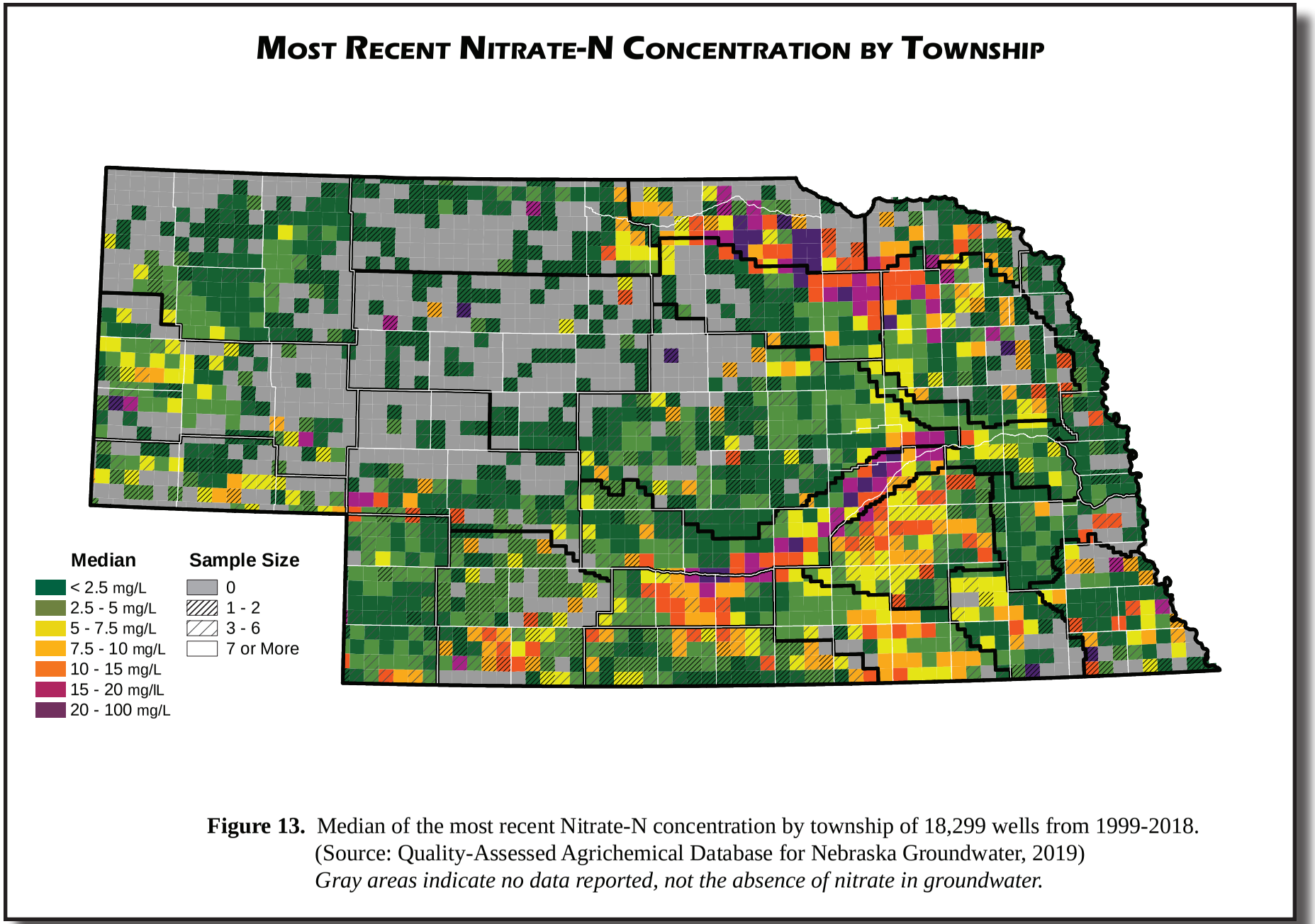


Figure 13. Median of the most recent Nitrate-N concentration by township of 18,299 wells from 1999-2018. (Source: Quality-Assessed Agrichemical Database for Nebraska Groundwater, 2019)
Gray areas indicate no data reported, not the absence of nitrate in groundwater.

Twin Buttes, Boyd County (Connie McCarthy, Lower Niobrara NRD)

Maps are used to help "see" the data and were generated using the entire Database data set in an attempt to show "current" statewide groundwater quality (see Figure 11) from the most recent time the well had been sampled (aiming to show the most current water quality at that location). A township (36 square miles) map was also developed again in this report using the same data from Figure 12. The most recent sample for each well analyzed since 1999 was used to calculate the median value of nitrate for each township (Figure 13). One of the best ways to use the entire data set is to refer to the maps found in Appendix B, which show the results of sampling done each year, and compare the monitoring data over time. These maps give the reader an idea of where there are reoccurring "problem" areas. For example, the reader is directed to look at the samples collected over the years in parts of Phelps, Kearney, Merrick, Nance, Platte, Holt, and Antelope Counties as shown in Figures 11, 12, and 13. These are all locations with sandy soils, shallow groundwater, and high nitrate.

In 2002, the NRDs and NDEQ began discussing a Statewide Monitoring Network (a defined subset of wells from the Database identified as the Network) with regularly sampled wells to help better assess Nebraska's groundwater quality and better develop and analyze trends for this report. Unfortunately, over the last several years, resources were not always available to the NRDs or new problem areas were identified, and not all of the wells were sampled. Starting in 2016, the NDEQ and the NRDs began working on reviewing the Network based not only on location, but in which aquifer they are screened. No trend analysis was completed this year using the Network.

Nitrate in Public Water Supplies

In an effort to protect the drinking water quality of America's public water systems, the federal Safe Drinking Water Act authorizes the EPA to set national drinking water standards. These standards include maximum contaminant levels based on health effects due to exposure of both naturally occurring and man-made contaminants. When a Public Water System (PWS) exceeds the Maximum Contaminant Level (MCL) for a regulated contaminant, Public Notification to the customers of the system is mandatory. If exceedances continue, an Administrative Order (AO) will be issued. This AO will mandate that the PWS make changes to their water system to bring the contaminant results consistently below the MCL for that contaminant.

Reverse Osmosis treatment plant to remove nitrate (Seward, NE).

The MCL for nitrate-nitrogen is 10 mg/l, but PWS systems with wells or intakes testing over 5 mg/l may be required to perform quarterly sampling. Of the nearly 550 groundwater based community PWS systems in Nebraska that supply their own water, 99 of those must perform quarterly sampling for nitrate. If a PWS exceeds the nitrate-nitrogen MCL two times in a rolling 9 month period, an AO will be issued. A nitrate AO will mandate that the PWS take steps to bring their nitrate results consistently below the MCL such as drilling a new or deeper well, hooking on to a neighboring water system, blending, or building a water treatment plant. Figure 14 shows the location of active

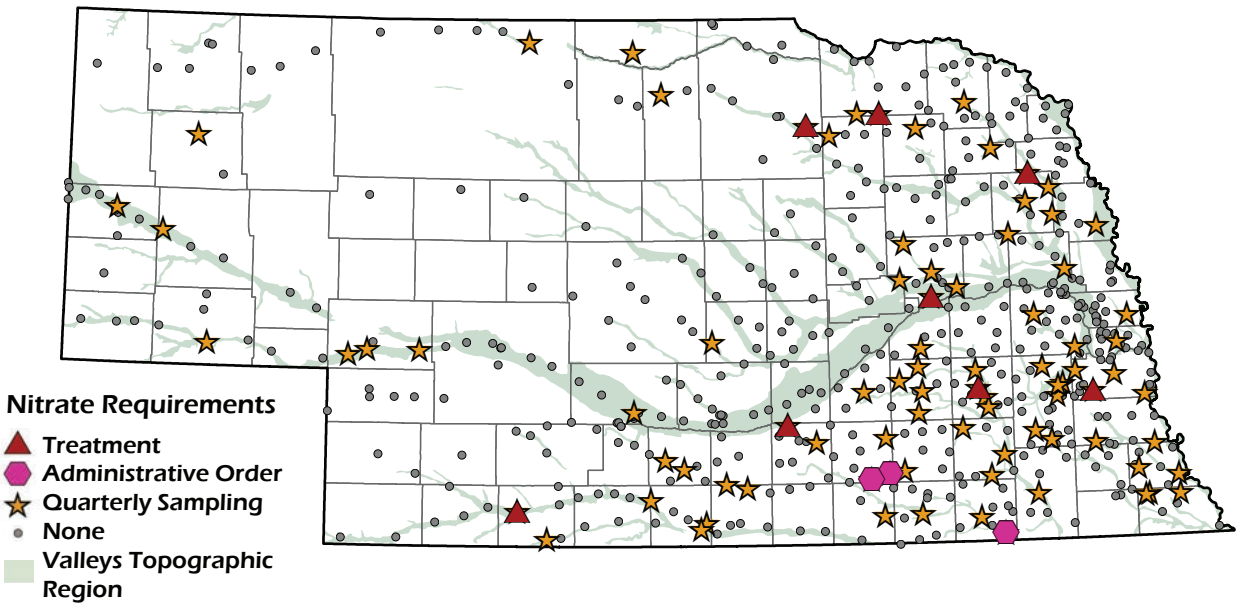


Figure 14. Community public water supply systems with requirements for nitrate. (Source: Nebraska Department of Health & Human Services, November 2019)

community PWS systems that have their own source of water. Colors indicate if there is an administrative order for nitrate, systems required to perform quarterly sampling, and systems treating water because of high levels of nitrate. AOs due to high levels of nitrate do not necessarily fall in the areas of highest nitrate problems, as indicated in Figures 11 and 12 and the figures in Appendix B.

Several recent studies considered the relationship of nitrate leaching into the subsurface and uranium concentrations found in groundwater. Research indicates that natural uranium in the subsurface may be oxidized and mobilized as the nitrate (in many forms) moves through the root zone and eventually to groundwater. Uranium is found naturally in sediment deposited mainly by streams and rivers.

Some public water supply systems treat not only nitrate, but also uranium. The MCL for uranium is 0.030 mg/L. Figure 15 shows the location of active community public water systems with uranium requirements.

Ion Exchange plant to remove uranium (McCook, NE).

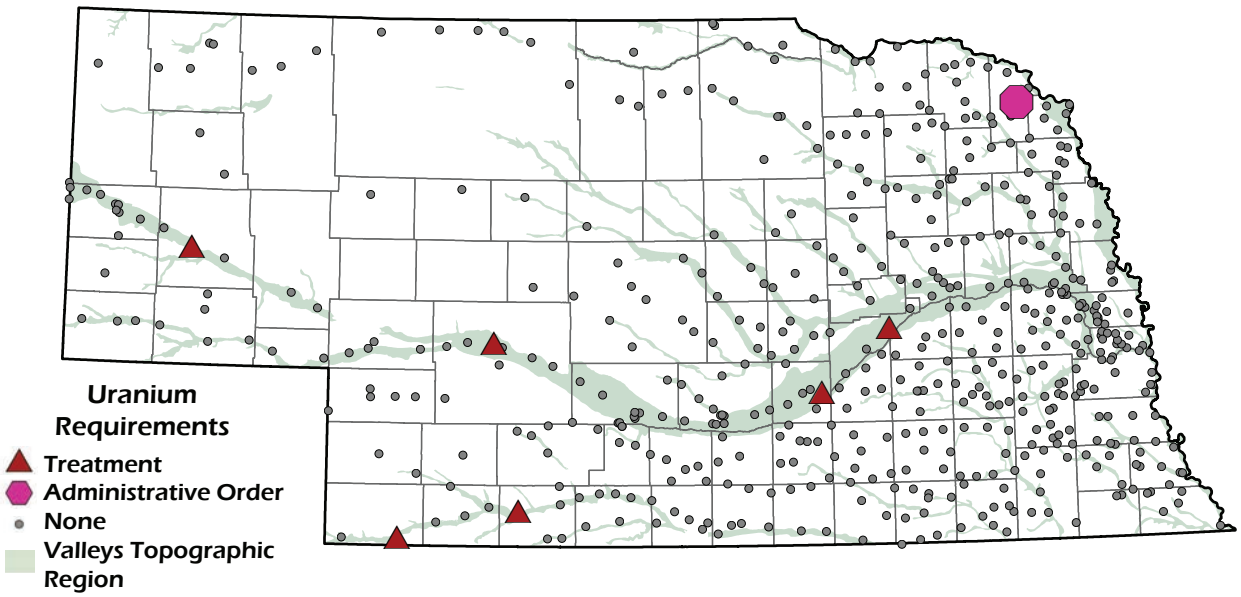


Figure 15. Community public water supply systems with requirements for uranium. (Source: Nebraska Department of Health & Human Services, November 2019)

Herbicides

Atrazine

Atrazine is used as an herbicide to eradicate broad leaf weeds. Commercial trademark names include Aatrex and Bicep. There have been 19,656 samples collected for Atrazine since 1974. There was one sample with a concentration above the reporting limit for the 178 samples collected since 2017.

The mean atrazine concentration calculated from the Database for the entire record since 1974 is 0.8 µg/L, compared to the USEPA's MCL of 3 µg/L.

Alachlor

Alachor is used as an herbicide to eradicate broad leaf weeds and grasses. Commercial trademark names include Lasso, Bullet, and Lariat. There have been 19,220 samples collected since 1974 and only one sample with a concentration above the reporting limit for Alachlor in the 2,104 samples collected since 2004.

The mean alachlor concentration calculated from the Database for the entire record since 1974 is 0.008 µg/L, compared to the USEPA's MCL of 6 µg/L.

Metolachlor

Metoloachlor is used as an herbicide to eradicate broad leaf weeds. Commercial trademark names include Bicep and Dual. There have been 18,725 samples collected since 1974 and an average concentration of 0.004 µg/L for the 1,491 samples collected since 2007.

The mean metolachlor concentration calculated from the Database for the entire record since 1974 is 0.16 µg/L. There is no USEPA MCL for metolachlor.

Simazine

Simazine is used as an herbicide to eradicate broad leaf weeds. Commercial trademark names include Princep and Aladdin. There have been 14,747 samples collected and only one sample with a concentration above the reporting limit for Simazine in the 2,102 samples collected since 2004.

The mean simazine concentration calculated from the Database for the entire record since 1974 is 0.004 µg/L, compared to the USEPA's MCL of 4 µg/L.

Alternative Laboratory Methods

In mid-2004, the NRDs, working with NDEQ and the Nebraska Department of Agriculture (NDA), began new monitoring efforts. Using funding from USEPA Region 7, NDEQ and NDA placed in-house equipment for the analysis of priority herbicides (atrazine and metolachlor) in several NRD offices. In 2005, NDEQ obtained additional funding from USEPA to place herbicide units in other NRD offices for a total of 14.

Monitoring for these parameters using these in-house methods continues as resources allow. The herbicide data received from this project can be considered qualitative or semi-quantitative, and the results have been roughly similar to the pattern of detections from the Database.

The herbicide data has been compiled by the NDA and is available at: http://clearinghouse.nebraska.gov/ClearinghouseELISA.aspx

Herbicide Trends

An in-depth analysis of statewide trends for any of the herbicides has not been attempted this year because the number of detections in separate wells for these compounds is too small to permit a reliable trend analysis. Many of the detections for these compounds are in the same wells or a series of closely spaced wells. Therefore, an analysis for trends in these parameters would not be valid. In general, the greater numbers of detections of herbicides in groundwater follows the same overall pattern of higher nitrate in groundwater (i.e. varying combinations of pesticide use, soil textures, depth to groundwater, irrigation, etc.).

The Nebraska Department of Agriculture (NDA) has authority to manage pesticides under the Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA). The NDA can be contacted at (402) 471-2351 and their periodic Pestcides of Interest Evaluation report can be found at http://www.nda.nebraska.gov/pesticide/gwater.html.

North Loup River, Blaine County (Lexi Hingtgen, Upper Loup NRD)

Conclusions

Groundwater is a valuable Nebraska resource. The majority of Nebraska's residents rely on groundwater for drinking water, as does agriculture, and industry. Most public water supplies that utilize groundwater do not require any form of treatment for drinking water before serving it to the public. There are some limited areas in Nebraska where the nitrate concentration is greater than the drinking water standard of 10 mg/L. The state's reliance on groundwater suggests that it is important to continue to monitor groundwater quality and to coordinate and share monitoring techniques. This will enable decision makers to make more informed management decisions.

The Quality-Assessed Agrichemical Contaminant Database for Nebraska Groundwater has been invaluable to decision makers in managing Nebraska's groundwater resource. This report authorized by Neb. Rev. Stat. § 46-1304 (LB 329, 2001) would be impossible to prepare without the Database. The Database has made it possible to quickly and confidently retrieve both recent and historic groundwater quality data for the entire State. These data are utilized to make regulatory decisions to protect groundwater quality, and are used by the private sector to identify alternate sources of groundwater for drinking water purposes. Most of the 23 NRDs and several state and federal agencies are conducting groundwater monitoring, resulting in a large number of analyses spread across the entire state. The Database must continue to be implemented and updated for the foreseeable future.

Nebraska's Natural Resources Districts are conducting extensive groundwater quality monitoring, focusing on nitrate and pesticides, and have instituted many Groundwater Management Areas (GWMAs). Most of the NRDs have submitted groundwater quality monitoring data to the Database. The other NRDs are submitting data through a cooperative agreement with USGS. The NRDs have also participated in a Statewide Groundwater Monitoring Network that has been sampled for ten years. The NRDs' data are vital to the Database, and their implementation of GWMAs is essential in the protection of groundwater quality in Nebraska. NRDs with GWMAs have encouraged and in some places, required farm operator certification, soil testing for nitrogen, irrigation water management, and other best management practices. It will be through these GWMAs and related practices that Nebraskans will see a decrease in contaminants such as nitrate over the next several decades.

Concentrations and trends of contaminants. Looking back at previous reports (Figures 9 and 10, page 15) in which the median nitrate concentration in groundwater for each year was utilized in a simple trend analysis, these data also indicated that there was no clear trend after 2000. However, there are still areas in Nebraska where the median nitrate concentration in groundwater is approaching the drinking water MCL of 10 mg/l. Once the Network has been redefined, a trend analysis for nitrates will be conducted. There is not enough recent data statewide for atrazine, alachlor, metolachlor, or simazine to conduct any trend analyses.

The Future. There has been a significant amount of time and effort expended to populate the Database and the importance of its merits cannot be emphasized enough. The NRDs' Statewide Groundwater Monitoring Network has been very useful and consists of many dedicated monitoring wells. Continued attention and resources (i.e. local and state staff time, and funding) directed toward groundwater monitoring and implementation of the Statewide Groundwater Monitoring Network will be crucial for the successful management of Nebraska's valuable natural resource, groundwater. Future fertilizer application rates may need to be regulated in order to see any reduction of the nitrate concentration in groundwater.

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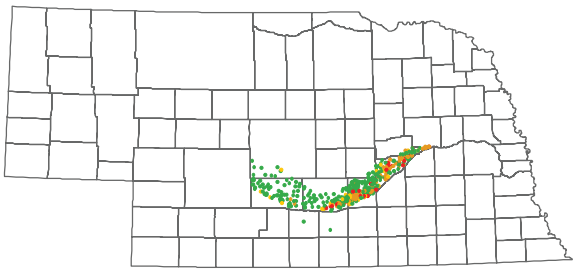
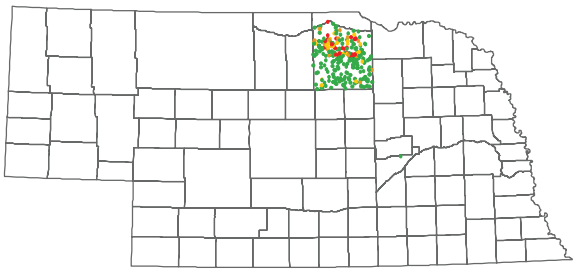
Compound	Compound	Compound
1,1,1-trichloroethane	aldicarb sulfoxide	dechloroacetochlor
1,2,4-trichlorobenzene	aldrin	dechloroalachlor
1,2-dibromo-3-chloropropane	alpha-HCH	dechlorodimethenamid
1,2-dibromoethane	ametryn	dechlorometolachlor
1,2-dichlorobenzene	atrazine	deethylatrazine
1,2-dichloroethane	azinphos-methyl	deethylcyanazine
1,2-dichloropropane	azinphos-methyl oxon	deethylcyanazine acid
1,3-dichloropropane	bendiocarb	deethylcyanazine amid
1,4-dichlorobenzene	benfluralin	deethylhydroxyatrazine
1-naphthol	benomyl	deisopropylatrazine
2,4,5-T	bensulfuron-methyl	deisopropylhydroxyatrazine
2,4,6-trichlorophenol	bentazon	delta-HCH
2,4-D	benzo(a)pyrene	demethylfluometuron
2,4-D methyl ester	beta-HCH	desulfinylfipronil
2,4-DB	bromacil	desulfinylfipronil amide
2,4-dinitrophenol	bromomethane	di(2-ethylhexyl)adipate
2,6-diethylaniline	bromoxynil	di(2-ethylhexyl)phthalate
2-[(2-ethyl-6-methylphenyl) amino]-1-propanol	butachlor	diazinon
	butylate	diazoxon
2-[(2-ethyl-6-methylphenyl) amino]-2-oxoethane sulfonic acid	carbaryl	dicamba
	carbofuran	dichlobenil
2-chloro-2',6'-diethylacetanilide	carbon disulfide	dichlorprop
2-ethyl-6-methlyaniline	carbon tetrachloride	dichlorvos
3,4-dichloroaniline	carboxin	dicrotophos
3,5-dichloroaniline	chloramben methyl ester	didealkyl atrazine
3-hydroxycarbofuran	chlordane	dieldrin
4,6-dinitro-o-cresol	chlorimuron-ethyl	dimethenamid
4-chloro-2-methylphenol	chloroform	dimethenamid ethane sulfonic acid
4-chloro-3-methylphenol	chlorothalonil	
4-nitrophenol	chlorpyrifos	dimethenamid oxalinic acid
acenaphthene	chlorpyrifos oxon	dimethoate
acetochlor	cis-1,3-dichloropropene	dinoseb
acetochlor ethane sulfonic acid	cis-permethrin	diphenamid
acetochlor oxanilic acid	clopyralid	disulfoton
acetochlor sulfynilacetic acid	cyanazine	disulfoton sulfone
acifluorfen	cyanazine acid	diuron
acrylonitrile	cyanazine amide	endosulfan I
alachlor	cycloate	endosulfan II
alachlor ethane sulfonic acid	cyfluthrin	endosulfan sulfate
alachlor ethane sulfonic acid, secondary amide	cypermethrin	endrin
	cyprazine	endrin aldehyde
alachlor oxanilic acid	DCPA	EPTC
alachlor sulfynilacetic acid	DCPA monoacid	esfenvalerate
aldicarb	DDD	ethalfluralin
aldicarb sulfone	DDT	ethion

Appendix A. Compounds for which groundwater samples have been analyzed

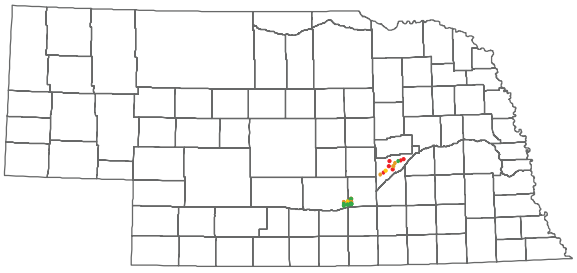
Compound	Compound	Compound
ethion monoxon	lindane	phorate
ethoprop	linuron	phorate oxon
ethyl parathion	malathion	phosmet
fenamiphos	malathion oxon	phosmet oxon
fenamiphos sulfone	MCPA	picloram
fenamiphos sulfoxide	MCPB	prometon
fenuron	metalaxyl	prometryn
fipronil	methidathion	propachlor
fipronil sulfide	methiocarb	propachlor ethane sulfonic acid
fipronil sulfone	methomyl	propachlor oxalinic acid
flufenacet	methoxychlor	propanil
flufenacet ethane sulfonic acid	methyl paraoxon	propargite
flufenacet oxalinic acid	methyl parathion	propazine
flumetsulam	methylene chloride	propham
fluometuron	metolachlor	propiconazole
fonofos	metolachlor ethane	propoxur
fonofos oxon	sulfonic acid	propyzamide
heptachlor	metolachlor oxalinic acid	siduron
heptachlor epoxide	metribuzin	silvex
hexachlorobenzene	metsulfuron-methyl	simazine
hexachlorocyclopentadiene	molinate	simetryn
hexazinone	myclobutanil	sulfometuron-methyl
hydroxyacetochlor	naphthalene	tebuthiuron
hydroxyalachlor	napropamide	terbacil
hydroxyatrazine	neburon	terbufos
hydroxydimethenamid	nicosulfuron	terbufos oxon sulfone
hydroxymetolachlor	nitrate-N	terbuthylazine
hydroxysimazine	norflurazon	terbutryn
imazaquin	oryzalin	tetrachloroethene
imazethapyr	oxadiazon	thiobencarb
imidacloprid	oxamyl	toxaphene
iodomehtane	oxyfluorfen	trans-1,3-dichloropropene
iprodione	p,p'-DDE	triallate
isofenphos	pebulate	trichloroethene
isoxaflutole	pendimethalin	triclopyr
isoxaflutole benzoic acid	pentachlorophenol	trifluralin
isoxaflutole diketonitrile	permethrin	vernolate



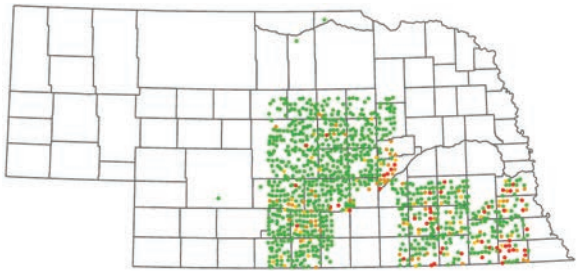
1974 - 1975 (397 wells, 397 analyses)



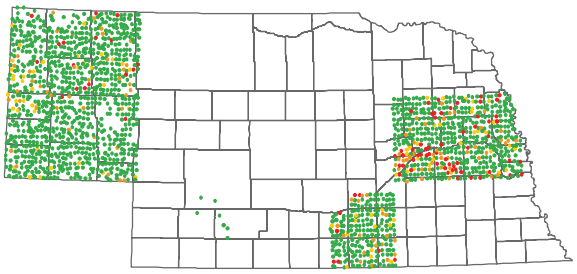
1976 (283 wells, 283 analyses)



1977 (45 wells, 45 analyses)



1978 (1056 wells, 1081 analyses)

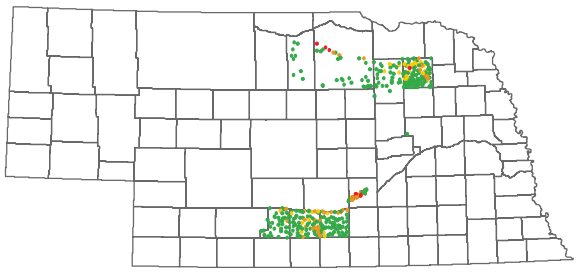


1979 (1843 wells, 1844 analyses)

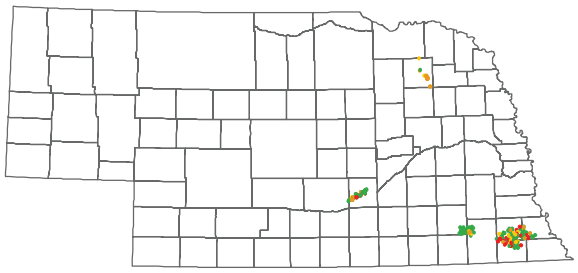
Figure B-1
Nitrate analyses for years 1974 - 1979
(Source: Quality-Assessed Agrichemical Contaminant Database for Nebraska Groundwater)

Nitrate Levels
- **< 7.5 mg/l**
- **7.5 – 10 mg/l**
- **10 – 20 mg/l**
- **> 20 mg/l**

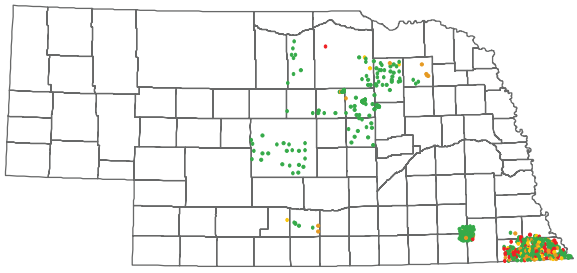
Empty areas indicate no data reported. These Maps were provided to give you a snapshot of the data. To see them better, view the report on NDEE's web site (http://dee.ne.gov) and use your Adobe Acrobat reader to enlarge individual maps.



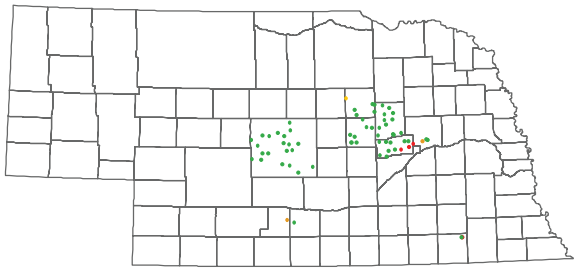
1980 (402 wells, 469 analyses)



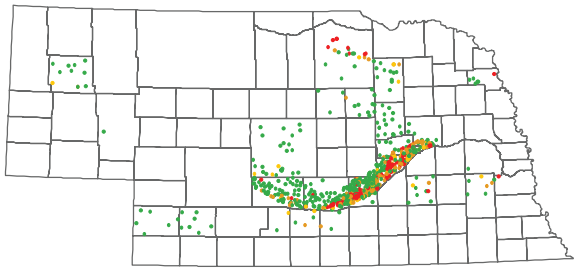
1981 (143 wells, 197 analyses)



1982 (506 wells, 519 analyses)



1983 (65 wells, 67 analyses)

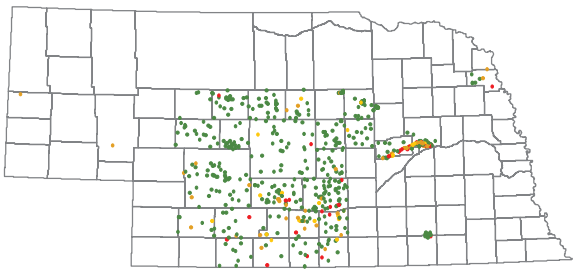


1984 (691 wells, 695 analyses)

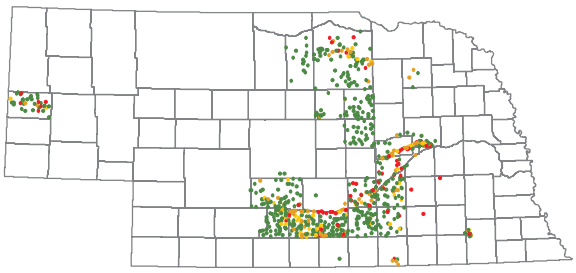
Figure B-2
Nitrate analyses for years 1980 - 1984
(Source: Quality-Assessed Agrichemical Contaminant Database for Nebraska Groundwater)

Nitrate Levels
- **< 7.5 mg/l**
- **7.5 – 10 mg/l**
- **10 – 20 mg/l**
- **> 20 mg/l**

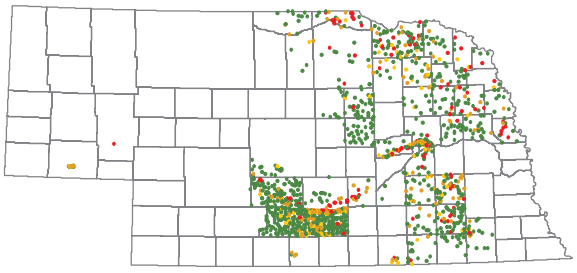
Empty areas indicate no data reported. These Maps were provided to give you a snapshot of the data. To see them better, view the report on NDEE's web site (http://dee.ne.gov) and use your Adobe Acrobat reader to enlarge individual maps.



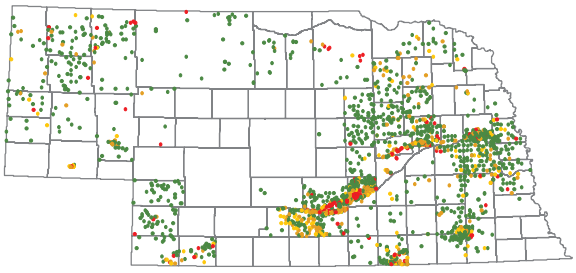
1985 (614 wells, 614 analyses)



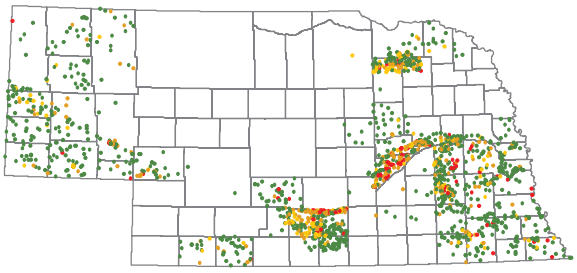
1986 (741 wells, 741 analyses)



1987 (1322 wells, 1370 analyses)



1988 (1793 wells, 1849 analyses)

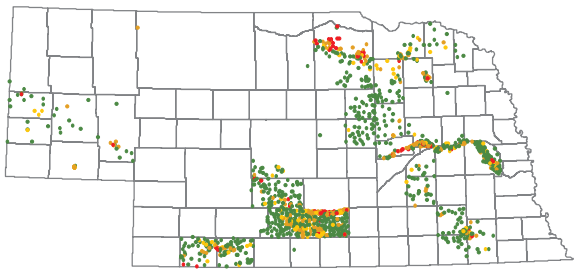


1989 (1663 wells, 1698 analyses)

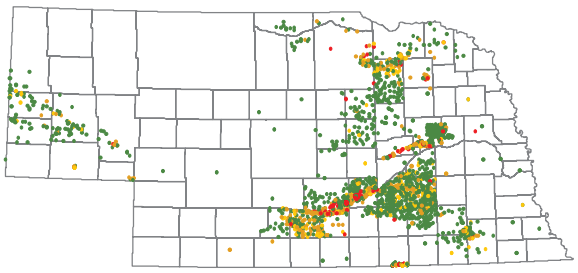
Figure B-3
Nitrate analyses for years 1985 - 1989
(Source: Quality-Assessed Agrichemical Contaminant Database for Nebraska Groundwater)

Nitrate Levels
- **< 7.5 mg/l**
- **7.5 – 10 mg/l**
- **10 – 20 mg/l**
- **> 20 mg/l**

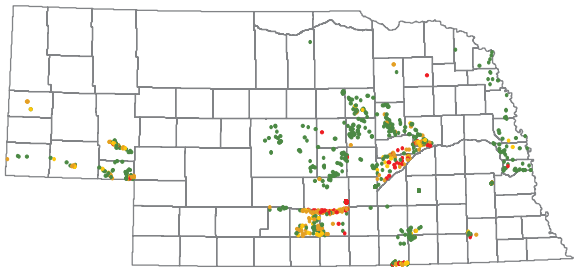
Empty areas indicate no data reported. These Maps were provided to give you a snapshot of the data. To see them better, view the report on NDEE's web site (http://dee.ne.gov) and use your Adobe Acrobat reader to enlarge individual maps.



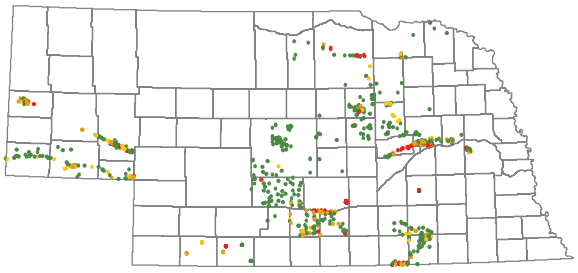
1990 (1334 wells, 1363 analyses)



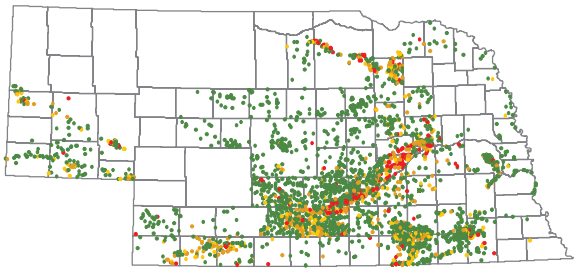
1991 (2341 wells, 2869 analyses)



1992 (1327 wells, 2490 analyses)



1993 (1435 wells, 2860 analyses)

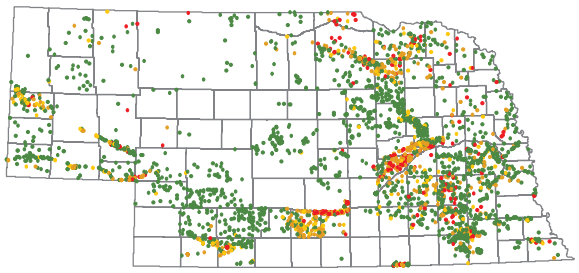


1994 (3774 wells, 5715 analyses)

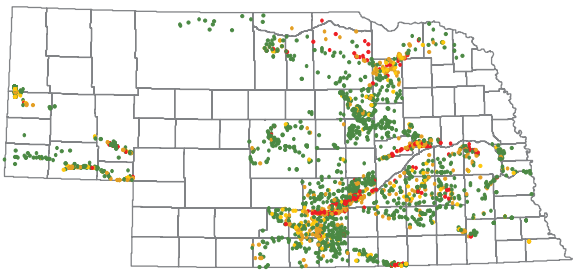
Figure B-4
Nitrate analyses for years 1990 - 1994
(Source: Quality-Assessed Agrichemical Contaminant Database for Nebraska Groundwater)

Nitrate Levels
- **< 7.5 mg/l**
- **7.5 – 10 mg/l**
- **10 – 20 mg/l**
- **> 20 mg/l**

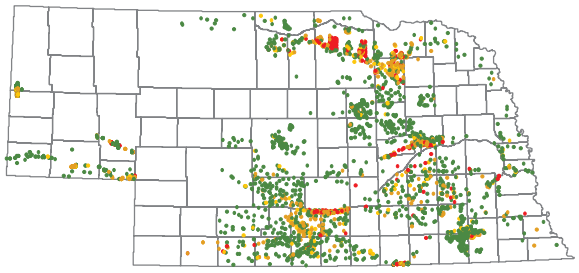
Empty areas indicate no data reported. These Maps were provided to give you a snapshot of the data. To see them better, view the report on NDEE's web site (http://dee.ne.gov) and use your Adobe Acrobat reader to enlarge individual maps.



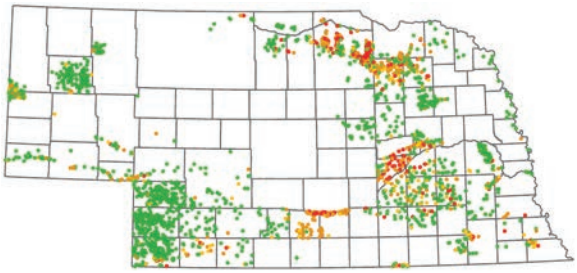
1995 (3386 wells, 4741 analyses)



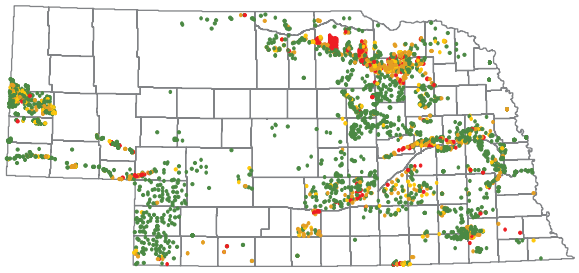
1996 (2575 wells, 4201 analyses)



1997 (2623 wells, 3604 analyses)



1998 (2424 wells, 3156 analyses)

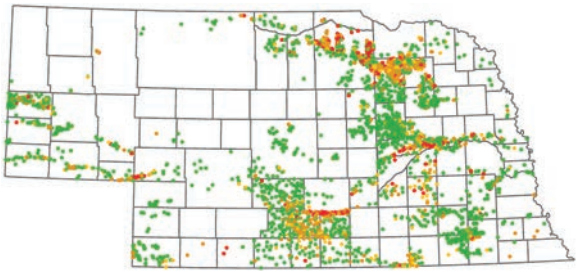


1999 (2883 wells, 3565 analyses)

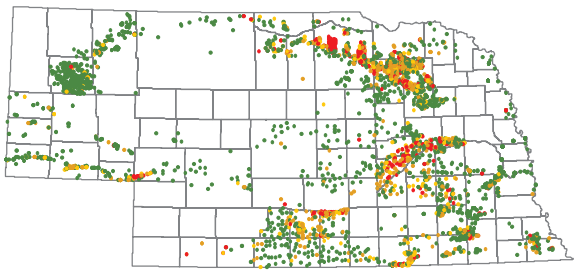
Figure B-5
Nitrate analyses for years 1995 - 1999
(Source: Quality-Assessed Agrichemical Contaminant Database for Nebraska Groundwater)

Nitrate Levels
- **< 7.5 mg/l**
- **7.5 – 10 mg/l**
- **10 – 20 mg/l**
- **> 20 mg/l**

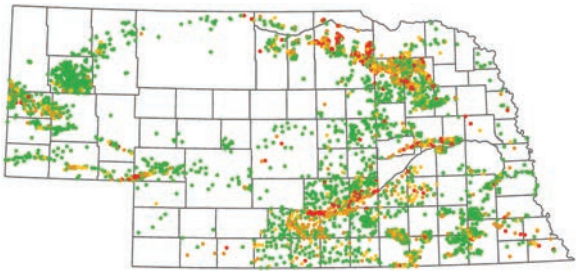
Empty areas indicate no data reported. These Maps were provided to give you a snapshot of the data. To see them better, view the report on NDEE's web site (http://dee.ne.gov) and use your Adobe Acrobat reader to enlarge individual maps.



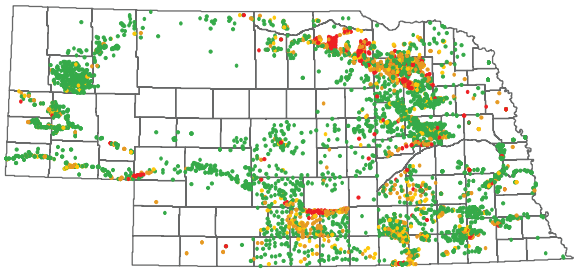
2000 (3502 wells, 4473 analyses)



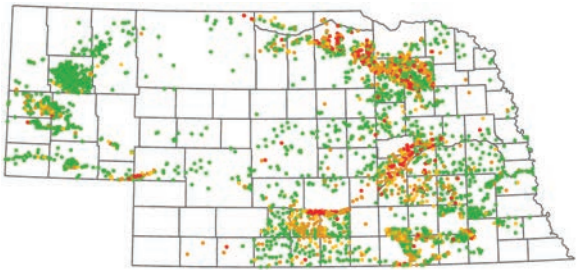
2001 (3243 wells, 3866 analyses)



2002 (4322 wells, 5250 analyses)



2003 (4422 wells, 5190 analyses)

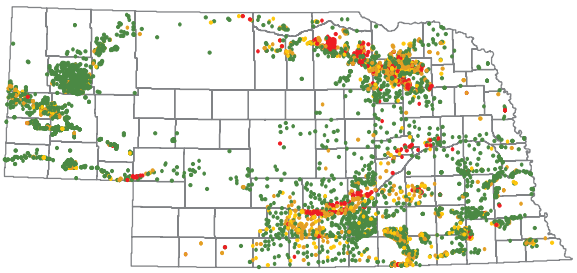


2004 (3977 wells, 4944 analyses)

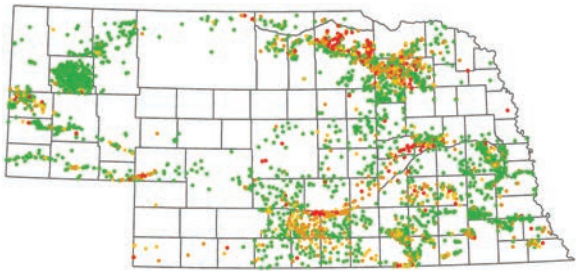
Figure B-6
Nitrate analyses for years 2000 - 2004
(Source: Quality-Assessed Agrichemical Contaminant Database for Nebraska Groundwater)

Nitrate Levels
- **< 7.5 mg/l**
- **7.5 – 10 mg/l**
- **10 – 20 mg/l**
- **> 20 mg/l**

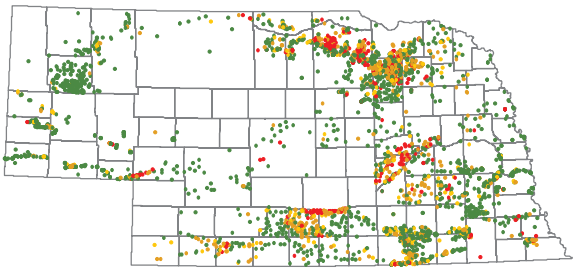
Empty areas indicate no data reported. These Maps were provided to give you a snapshot of the data. To see them better, view the report on NDEE's web site (http://dee.ne.gov) and use your Adobe Acrobat reader to enlarge individual maps.



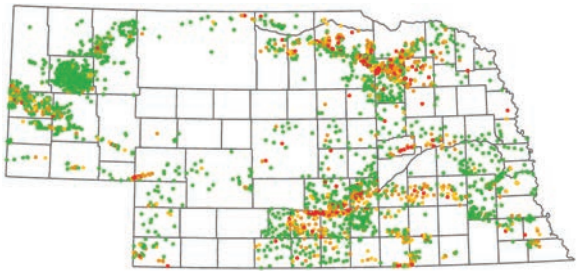
2005 (4275 wells, 5284 analyses)



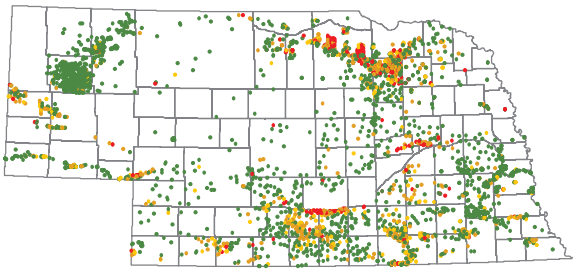
2006 (3892 wells, 4848 analyses)



2007 (3099 wells, 3610 analyses)



2008 (3462 wells, 3973 analyses)

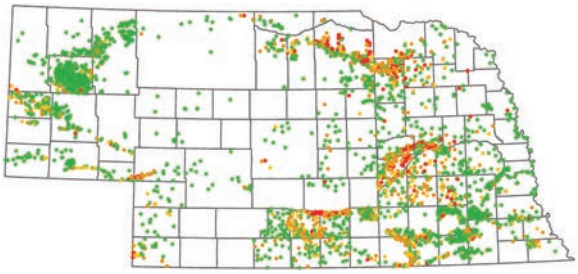


2009 (3428 wells, 4051 analyses)

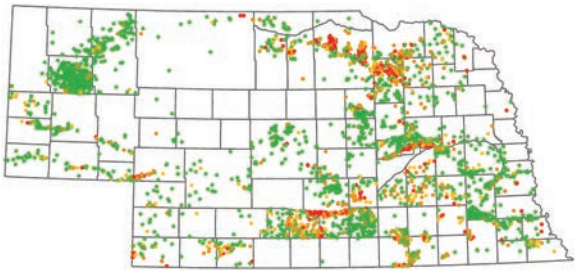
Figure B-7
Nitrate analyses for years 2005 - 2009
(Source: Quality-Assessed Agrichemical Contaminant Database for Nebraska Groundwater)

Nitrate Levels
- **< 7.5 mg/l**
- **7.5 – 10 mg/l**
- **10 – 20 mg/l**
- **> 20 mg/l**

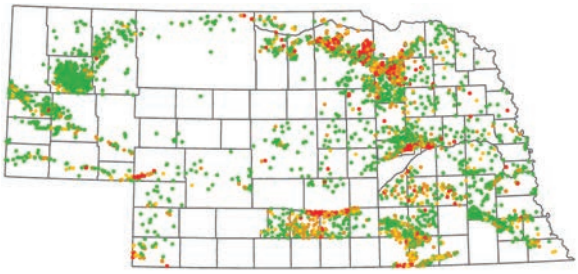
Empty areas indicate no data reported. These Maps were provided to give you a snapshot of the data. To see them better, view the report on NDEE's web site (http://dee.ne.gov) and use your Adobe Acrobat reader to enlarge individual maps.



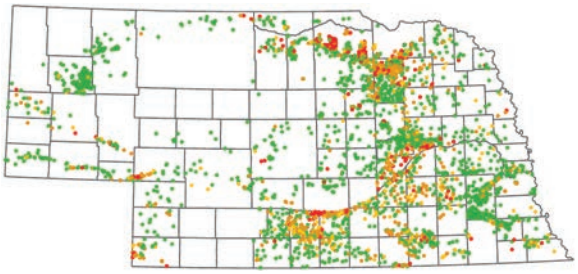
2010 (4489 wells, 5042 analyses)



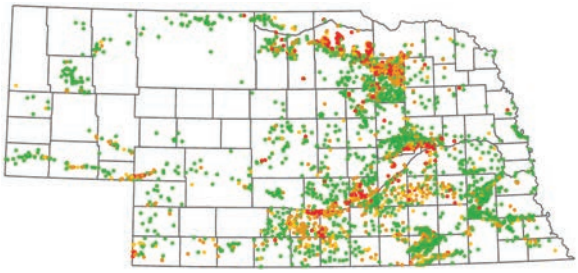
2011 (4115 wells, 4613 analyses)



2012 (4741 wells, 5436 analyses)



2013 (3543 wells, 4088 analyses)

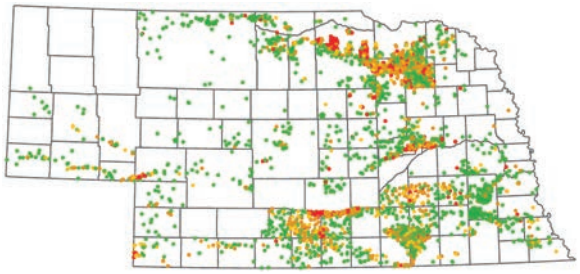


2014 (4343 wells, 4803 analyses)

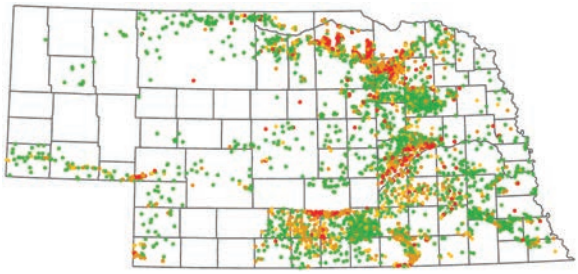
Figure B-8
Nitrate analyses for years 2010 - 2014
(Source: Quality-Assessed Agrichemical Contaminant Database for Nebraska Groundwater)

Nitrate Levels
- **< 7.5 mg/l**
- **7.5 – 10 mg/l**
- **10 – 20 mg/l**
- **> 20 mg/l**

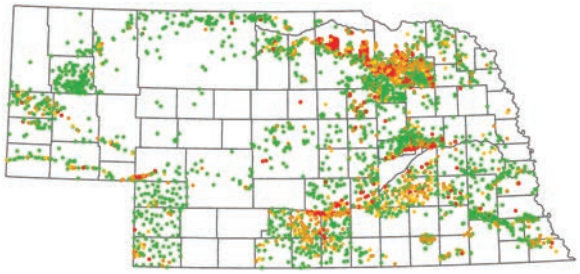
Empty areas indicate no data reported. These Maps were provided to give you a snapshot of the data. To see them better, view the report on NDEE's web site (http://dee.ne.gov) and use your Adobe Acrobat reader to enlarge individual maps.



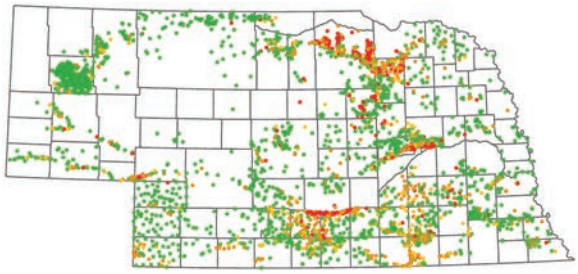
2015 (4253 wells, 4577 analyses)



2016 (4277 wells, 4848 analyses)



2017 (4636 wells, 4908 analyses)



2018 (4175wells, 4625 analyses)

Figure B-9
Nitrate analyses for years 2015 - 2018
(Source: Quality-Assessed Agrichemical Contaminant Database for Nebraska Groundwater)

Nitrate Levels
- **< 7.5 mg/l**
- **7.5 – 10 mg/l**
- **10 – 20 mg/l**
- **> 20 mg/l**

Empty areas indicate no data reported. These Maps were provided to give you a snapshot of the data. To see them better, view the report on NDEE's web site (http://dee.ne.gov) and use your Adobe Acrobat reader to enlarge individual maps.

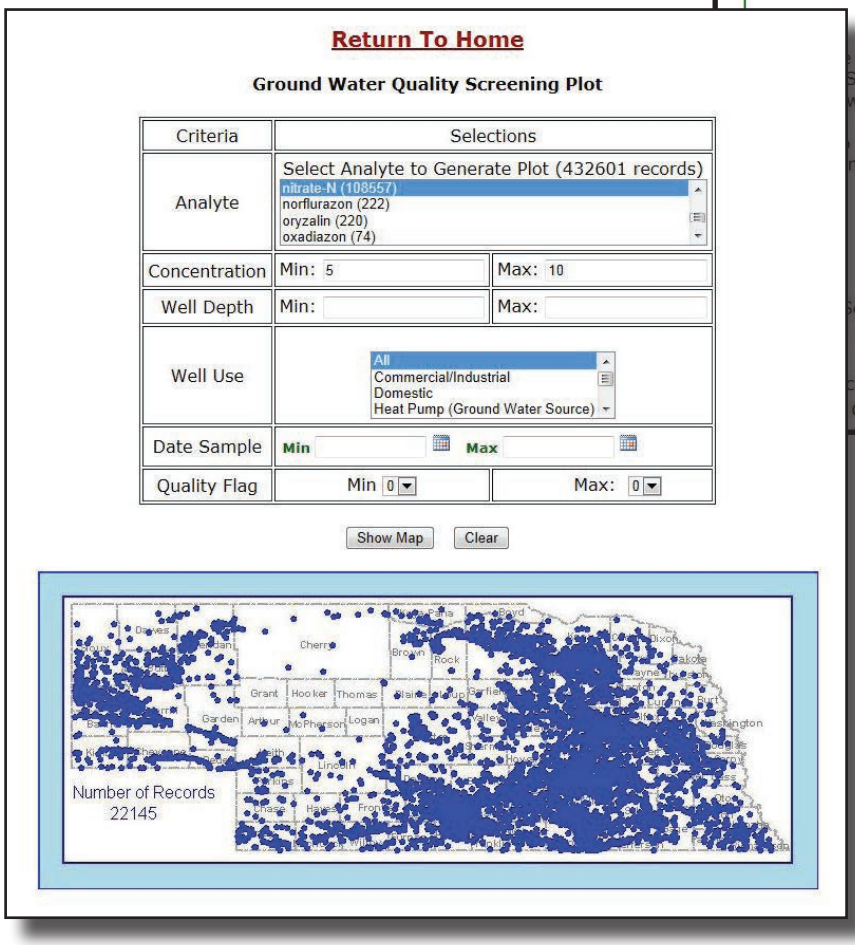
The Quality-Assessed Agrichemical Contaminant Database for Nebraska Ground Water (a.k.a the Database) contains thousands of herbicide and nitrate sample analyses results from across the state. These date back to the early 1970s through the present. Thanks to the joint efforts of the Nebraska Department of Environmental Quality (NDEQ), Nebraska Department of Agriculture (NDA), University of Nebraska – Lincoln (UNL), and Nebraska Department of Natural Resources (NDNR), these data are available in a database that can be queried by several pre-determined and common queries. Alternately, the data user can download the entire database and develop their own queries. Alternately, on NDNR's website (http://dnr.

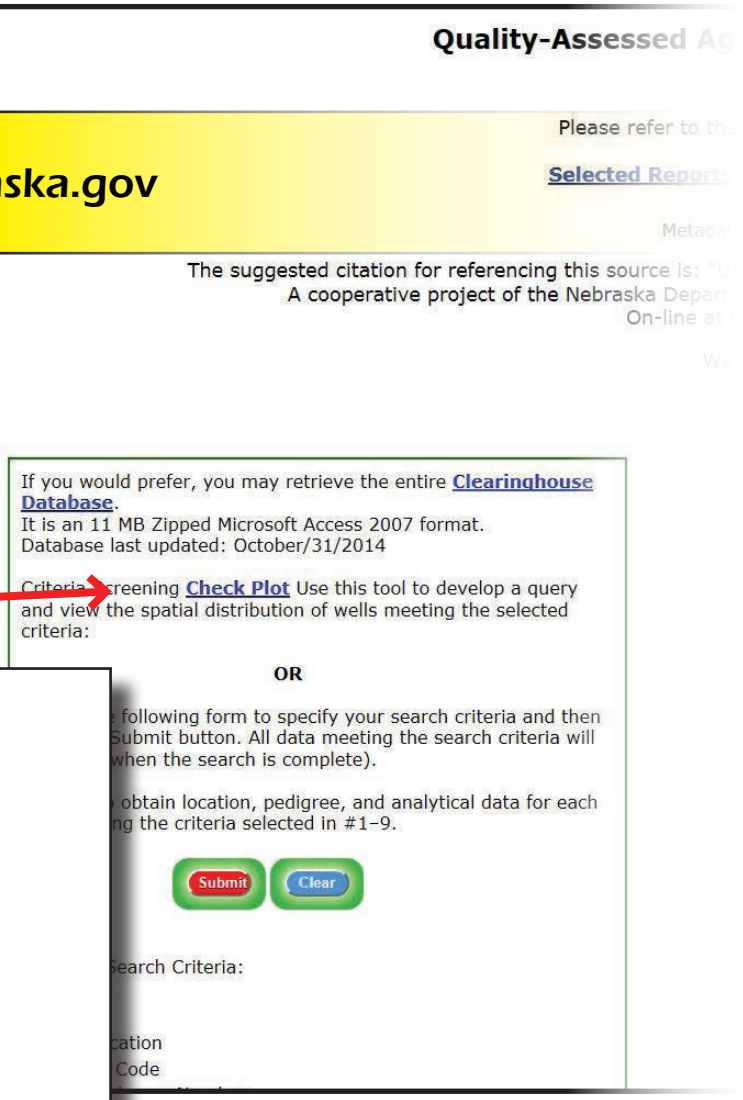
Web Address: http://clearinghouse.nebraska.gov

nebraska.gov) click on the header "DATA". On the Navigation, click "GROUNDWATER DATA" then "Quality-Assessed Agrichemical Contaminant Database".

A quick map can be made using the "Check Plot" option.

More Detailed Data Search





This is the quick result of asking for all the nitrate data between 5 and 10 ppm.

More Detailed Data Search

In the area below the Check Plot, you can search for more detailed information. You can choose one search criteria or multiple. Options Include:

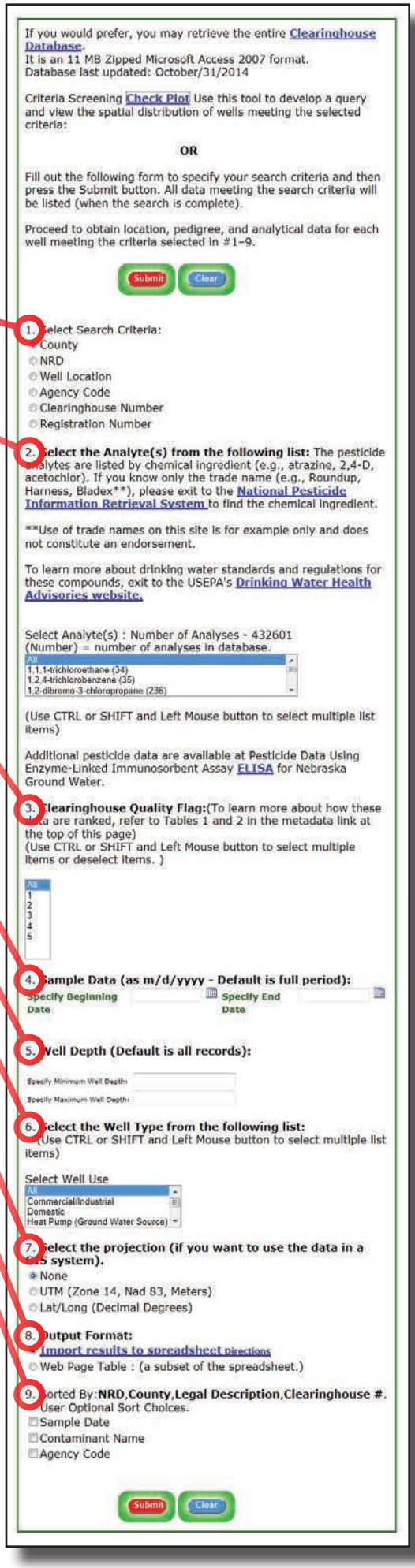
1. Select Search Criteria (Location)
2. Select the Analyte(s)
3. Clearinghouse Quality Flag
4. Sample Data (date)
5. Well Depth
6. Select Well Type
7. Select the projection (for GIS)
8. Output Format
9. Sorted by

Go through all the options, narrowing your search as needed, then click on the Submit button.

In the Check Plot and the more detailed data search (located below the Check Plot) you can select just one analytes, multiple analytes, or all the analytes. For example, if you just want nitrate-N data, type 'n' when you have clicked in the "Select Analyte(s)" box, then scroll to nitrate-N.

In the same manner, you can select Hall County (in search option 1) by typing 'h' in the county box.

Metadata describing how the data were obtained, complied, and how the quality flag was assigned is available on-line as well. A link to the metadata is at the top of the Clearinghouse page.



Appendix B: Ecological Justification for Excluding Specific Bio-Indicator Results When Determining Attainment Status of the Aquatic Life Beneficial Use for Nebraska's 2020 Water Quality Integrated Report.

Waterbody ID	Waterbody Name	Sampling Date	Impairment*	Justification†	2020 IR Category
LO2-10900	Dane Creek	7/30/2013	ICI	Extreme flow events	2
LO2-20000	North Loup River	8/2/2013	ICI	Extreme flow events	4c
LO2-20200	Goose Creek	8/14/2008	ICI	Unique system	3
LO2-40000	North Loup River	8/14/2008	ICI	Unique system	4a/c
LO3-40400	Victoria Creek	8/13/2013	IBI	Low flow	2
MP1-20300	Silver Creek	7/9/2013	IBI	Low flow	2
MP2-20300	Spring Creek	7/30/2013	IBI	Low flow	5
MP2-SXXX1	Buffalo Creek	7/16/2013	IBI	Low flow	2
NI2-11420	Spring Creek	8/13/2014	ICI	Extreme flow events	2
NI2-11780	Middle Branch Eagle Creek	8/14/2014	ICI	Extreme flow events	5
NI3-22300	Gordon Creek	7/16/2014	ICI	Unique system	2
NI3-22510	Boardman Creek	7/30/2014	ICI	Unique system	5
NI4-10110	Dry Creek	6/26/2014	ICI	Unique system	2
NI4-10600	Rush Creek	6/26/2014	ICI	Low flow	2
RE3-10100	Medicine Creek	8/31/2007	ICI	Low flow	5
SP1-20200	Fremont Slough	7/26/2017	ICI	Unique system	3
SP1-70000	South Platte River	7/26/2017	ICI	Low flow	1
SP1-80000	South Platte River	7/26/2017	ICI	Low flow	5
SP2-20000	Lodgepole Creek	7/26/2017	ICI	Low flow/Good IBI	5
WH1-10000	White River	7/08/2008	IBI	Low flow	5

* The bio-indicator metric that scored the waterbody as impaired. **ICI**-(Invertebrate Community Index) Uses macroinvertebrate community data as a bio-indicator of ecosystem health. **IBI**-(Index of Biotic Integrity) Uses fish community data as a bio-indicator of ecosystem health.

† The ecological explanation for the poor bio-metric score. Each waterbody is discussed in more detail in the following sections.

LO2-10900: Dane Creek – IBI score = Poor
Dane Creek is surrounded by a high quality mixture of forest and grassland. There were some cattle present, but grazing pressure was only modest. The stream was cool and slightly turbid, and had macrophytes such as pondweed and arrowhead lily. Most likely this stream had a poor fish community because of a recent rain event. This stream was placed into category 2.

LO2-20000: North Loup River – ICI score = Poor
This stream was sampled during an extreme high water period after a storm (see Attachment A). This stream had high quality mixed grasses on the stream banks and a very diverse fish community with 18 species collected. It is our opinion that the macroinvertebrate scores of this stream would be acceptable under normal flow conditions. This stream was placed into category 4c.

LO2-20200: Goose Creek – ICI score = Poor
Field data sheets and watershed land use data indicate that the poor ICI score was not due to pollution. Field data sheets document that the substrate was 100% shifting sand and that very little in-stream or near

shore invertebrate habitat was present. Also, the field data sheets documented that the stream was experiencing little anthropogenic disturbance and showed no obvious signs of pollution. Numerous fish species were captured, including several pollution sensitive species (IBI score=excellent), all water quality parameters met Nebraska water quality standards, and the ecological integrity of the site was sufficient to score it as a possible reference site. Furthermore, examination of the land use finds that there is no row-crop agriculture, no industry, and no town or village within this 150,000 acre watershed (see Attachments B and C). This watershed is located in the Nebraska Sandhills, one of the least disturbed regions in the Great Plains. The ICI score is a reflection of the unique ecological conditions within the Sandhills and not the water quality of this stream (McCarraher 1960, 1964, and 1977). NDEE is currently refining its biological assessment criteria to better address the unique ecological conditions in the Sandhills (See Attachment C: Loup Basin). This stream was placed into category 3.

LO2-40000: North Loup River – ICI Score = Poor
Field data sheets and watershed land use data indicate that the poor ICI score was not due to pollution. The substrate in this river was 100% shifting sand and very little in-stream or near shore invertebrate habitat was present. The field data sheets documented that the river was experiencing little anthropogenic disturbance and showed no obvious signs of pollution. Numerous fish species were captured, including several pollution sensitive species (IBI score=excellent). All water quality parameters met Nebraska water quality standards, and the ecological integrity of the site was sufficient to score it as a possible reference site. Furthermore, examination of the land use finds that there is no row-crop agriculture, no industry, and no town or village within this 400,000 acre watershed (see Attachment C). This watershed is located in the Nebraska Sandhills, one of the least disturbed regions in the Great Plains. The ICI score is a reflection of the unique ecological conditions within the Sandhills and not the water quality of this stream (McCarraher 1960, 1964, and 1977). For the reasons listed above, the ICI score was not considered when determining the attainment status of the aquatic life use in this stream (See Attachment C: Loup Basin). This stream was placed into category 4a/c.

LO3-40400: Victoria Creek – IBI = Poor
This is a cool water stream with excellent in-stream habitat and riparian structure, including mixed woodlands and grasslands surrounding the stream and excellent overhanging vegetation cover for aquatic organisms. There was also a diverse community of macroinvertebrates at the time of sampling. This stream was assessed as a supporting stream in the previous sampling trip, but is placed into the non-assessed category for the most recent sampling event because the fish community was likely still in recovery from the strong drought of the summer of 2012. This stream was placed into category 2.

MP1-20300: Silver Creek – IBI = Poor
Review of the field and data sheets indicate that this stream was most likely impaired by the severe drought of 2012. Hydrologic data show there was little or no flow in this stream between July 2012 and May 2013(see Attachment D). There was significant cropland surrounding this stream, and the water has high growths of filamentous algae. However, the water itself was clear and cool with much emergent vegetation present, including water cress. It is our opinion that this stream would have a healthy fish community under normal hydrologic conditions. This stream was placed into category 2.

MP2-20300: Spring Creek 2013– IBI Score = Poor
This stream may have been impacted both by the severe drought in 2012. Hydrologic data show this stream had little or no flow between September 2012 and May 2013 (see Attachment E), giving the fish community only two months to recover. There was a high diversity of grasses on the stream bank that created stability and habitats. The water was slightly turbid, and the substrate was mostly deep silt. Given the high quality habitat and riparian structure, we believe this stream should not be considered impaired. This stream was placed into category 5.

MP2-SXXX1: Buffalo Creek – IBI score = Poor
This stream experienced little to no flow between September 2012 and May 2013 (see Attachment F). There was excellent habitat quality and riparian structure and the stream was full of crayfish, but the water was turbid and the bottom was silted. However, it is our opinion that this stream would not be listed as impaired under normal hydrologic conditions. This stream was placed into category 2.

NI2-11420: Spring Creek – ICI Score = Poor
Review of the field data sheets, climatologic, and hydrologic data indicate that the poor ICI score was due to low water levels and a lack of in-stream habitat and not due to pollution. Field data sheets document that there was little in-stream invertebrate habitat and the stream filled only a portion of the stream channel (wetted width 2.1m, bank full width 6.6m). The field data sheets also document that the stream was experiencing little anthropogenic disturbance and showed no obvious signs of pollution. For example, all water quality parameters met Nebraska water quality standards, pollution sensitive fish species were captured (IBI score=good), and the ecological integrity of the site was sufficient to score it as a possible reference site. For the reasons listed above, the ICI score was not considered when determining the attainment status of the aquatic life use in this stream (see Attachment G for the hydrograph of a nearby station). This stream was placed into category 2.

NI2-11780: Middle Branch Eagle Creek – ICI Score = Poor
Review of the field data sheets and hydrologic data indicate that the poor ICI score was due to low water levels and a lack of in-stream habitat and not due to pollution. Field data sheets document that there was little in-stream invertebrate habitat and the stream filled only a portion of the stream channel (wetted width 3.4m, bank full width 6.9m). The field data sheets also document that the stream was experiencing little anthropogenic disturbance and showed no obvious signs of pollution. For example, all water quality parameters met Nebraska water quality standards, pollution sensitive fish species were captured (IBI score=good), and the ecological integrity of the site was sufficient to score it as a possible reference site. For the reasons listed above, the ICI score was not considered when determining the attainment status of the aquatic life use in this stream (see Attachment G for the hydrograph of a nearby station). This stream was placed into category 5.

NI3-22300: Gordon Creek – ICI Score = Poor
Field data sheets and watershed land use data indicate that the poor ICI score was due to a lack of in-stream habitat and not pollution. Field data sheets document that the substrate in this creek is 100% shifting sand and that very little in-stream or near shore invertebrate habitat was present. The field data sheets also documented that the stream was experiencing little anthropogenic disturbance and showed no obvious signs of pollution. For example, nine fish species were captured, including six pollution sensitive species (IBI score=excellent), all measured water quality parameters met Nebraska water quality standards, and the ecological integrity of the site was sufficient to score it as a possible reference site. Furthermore, examination of the land use finds that there is no row-crop agriculture, no industry, and no town or village within this 55,000 acre watershed. This stream was placed into category 2.

NI3-22510: Boardman Creek – ICI Score = Poor
Field data sheets and watershed land use data indicate that the poor ICI score was due to a lack of in-stream habitat and not pollution. Field data sheets document that the substrate in this creek is 100% shifting sand and that very little in-stream or near shore invertebrate habitat was present. The field data sheets also documented that the stream was experiencing little anthropogenic disturbance and showed no obvious signs of pollution. For example, the most common fish species captured was a pollution sensitive species (IBI score=good), all measured water quality parameters met Nebraska water quality standards, and the ecological integrity of the site was sufficient to score it as a possible reference site.

Furthermore, examination of the land use finds that there is no row-crop agriculture, no industry, and no town or village within this 40,000 acre watershed. This stream was placed into category 5.

NI4-10110: Dry Creek – ICI Score = Poor
Field data sheets and watershed land use data indicate that the poor ICI score was due to a lack of in-stream habitat and not pollution. Field data sheets document that the substrate in this creek is 100% shifting sand and the stream was experiencing low flows (wetted width 1.8m, bank full width 3.1m, see Attachment G for the hydrograph of a nearby station). The field data sheets also documented that the stream was experiencing little anthropogenic disturbance and showed no obvious signs of pollution. For example, all measured water quality parameters met Nebraska water quality standards, the fish community score was good (IBI=good), and the ecological integrity of the site was sufficient to score it as a possible reference site. Furthermore, examination of the land use finds that there is no row-crop agriculture, no industry, and only one village (Merriman) within this 30,000 acre watershed. This stream was placed into category 2.

NI4-10600: Rush Creek – ICI Score = Poor
Review of the field data sheets and climatologic data indicate that the poor ICI score was due to low water levels and not pollution. Field data sheets document that at its deepest this stream was 0.45ft deep, and filled only a portion of the stream channel (wetted width 1.0m, channel width 2.0m), and had very little in-stream invertebrate habitat. Climatologic data shows that the Rush Creek watershed was abnormally dry during the summer of 2014 (see Attachment G for the hydrograph of a nearby station). The field data sheets also documented that the stream was experiencing little anthropogenic disturbance and showed no obvious signs of pollution. For the reasons listed above, the ICI score was not considered when determining the attainment status of the aquatic life use in this stream. The stream was placed in category 2.

RE3-10100 Medicine Creek – ICI Score = Poor
Field data sheets and hydrologic data indicate that the poor ICI score was due to a lack of in-stream habitat and not pollution. Field data sheets document that at its deepest this stream was 0.5ft deep, filled only a portion of the stream channel (wetted width 4.6m, channel width 19.0m), and had very little in-stream invertebrate habitat. This sampling site is located approximately two miles downstream of the 34,700 acre-feet Medicine Creek Reservoir and flow within this stream is dictated by the discharge from the reservoir. Hydrologic data from Medicine Creek documents a large discharge from the reservoir in early June 2007, followed by very low flow conditions during the time of sample collection (discharge June 3, 2007 was 777 cfs, discharge August 31, 2007 was 0.33 cfs, see Attachment J). Lastly, the stream showed no obvious signs of pollution. All water quality parameters measured at the time of sample collection met Nebraska water quality standards, and 16 fish species were identified during the collection (IBI score=excellent). For the reasons listed above, the ICI score was not considered when determining the attainment status of the aquatic life use in this stream. This stream was placed into category 5.

SP1-20200: Fremont Slough south of Hershey -- ICI Score = Poor
The segment was impaired for having too few intolerant macroinvertebrate taxa and for having 75% tolerant macroinvertebrates with poor Shannon diversity and FBI scores. The segment was dominated by the snail genus *Physella* (46% of all individuals), which is highly tolerant to pollution and low dissolved oxygen. Other macroinvertebrate taxa were much less represented, with Hyalellidae, crayfish, and dragonflies of the family Coenagrionidae being among the most common. However, the character of this segment is that of a wetland or marsh, with clear water and dense vegetation. Decaying vegetation formed a thick layer of organic sediments on the stream bottom with submerged macrophytes present. The fish community was quite healthy, with white suckers, brook stickleback, and longnose dace present, and tolerant species such as fathead minnows and mosquitofish having very low abundances. It is the opinion

of NDEE that this segment received poor macroinvertebrate scores because the metrics were not calibrated for marshy systems like this one. This waterbody was placed in category 3.

SP1-70000: South Platte River south of Roscoe -- ICI Score = Poor
This segment of the South Platte River received poor macroinvertebrate scores because of 64% of all macroinvertebrates were pollution-tolerant, and values for Shannon diversity, FBI, and the percentage of scraping taxa were unacceptable. The midge family Chironomidae dominated this macroinvertebrate assemblage comprising 901 of the 1100 individuals collected. A single genus, *Robackia*, comprised 31% of all individual macroinvertebrates. However, it is the opinion of NDEE that the macroinvertebrates collected from this segment reflected the low-flow conditions of the river rather than human impairments. The hydrograph in Attachment K shows that the macroinvertebrate collection from 07/26/2017 occurred during a dramatic period of decreasing flows. In the South Platte River, this causes the river to become separated from the vegetated banks that occur along this segment, and which are quite important for a healthy macroinvertebrate community. This separation phenomenon can be seen in Attachment L, in which the river consisted of braided channels flowing over sand. With some time at full baseflow, we are confident that the macroinvertebrate assemblage meets the necessary water quality standards of a healthy river. This waterbody was placed in category 1 due to all assigned uses being met.

SP1-80000: South Platte River at Big Springs -- ICI Score = Poor
This segment of the Platte River received an impaired score for macroinvertebrates because of the presence of only on intolerant taxon, a marginally too high percentage of intolerant macroinvertebrates at 38%, and a low percentage of scrapers. It is the opinion of NDEE that this segment failed to meet macroinvertebrate assemblage standards because of low flow conditions rather than from any human impact. See the explanation for SP1-70000 for more details. This waterbody was placed in category 5 due to other impairments.

SP2-20000: Lodgepole Creek northeast of Whitney -- ICI Score = Poor
This segment was impaired for macroinvertebrates because of very low taxa richness at 22, zero intolerant taxa, 56% pollution-tolerant macroinvertebrates, and poor scores for Shannon diversity and the FBI. Of the 242 individual macroinvertebrates collected, 36% were *Physella* snails. It seems likely that dewatering and water table reductions have impacted this stream, causing it to lose some of the previously coldwater character that supported trout populations. That being said, the fish assemblage in this segment of Lodgepole Creek was excellent, with white sucker, orangethroat darter, and brook stickleback well represented, and the state species of concern plains topminnow being the most numerous fish species collected. Given the degree of healthiness of the fish assemblage, we do not recommend that this segment be listed as impaired. This waterbody was listed in category 5 due to other impairments.

WH1-10000: White River – IBI Score = Poor
Review of the field data sheets, hydrologic, and climatologic data indicate that the poor IBI score was due to low water levels and a lack of in stream habitat not pollution. The field data sheets documented the following habitat limitations: little in-stream vegetation or woody debris, a wetted channel width of 2.3 m with a bankfull width was 5.3 m, and a maximum depth of 1.0 feet. The field data sheets also document little anthropogenic disturbance and no obvious signs of pollution. For example, all measured water quality parameters met Nebraska water quality standards, numerous invertebrate taxa were captured (ICI score=excellent), and the ecological integrity of the site was sufficient to score it as a possible reference site. This stream segment is also part of NDEE's ambient stream monitoring program and monthly water quality samples have been collected from this segment since January, 2001. Analysis of the ambient monitoring water quality data shows this stream to be meeting the Nebraska water quality standards for all parameters collected. For the reasons listed above, the IBI score was not considered when determining the attainment status of the aquatic life use in this stream (see Attachments M and N). The stream was placed in category 5 due to other impairments.

Field data sheets are available for review, contact Tom Heatherly at (402) 471- 2192 or tom.heatherly@nebraska.gov to arrange a viewing.

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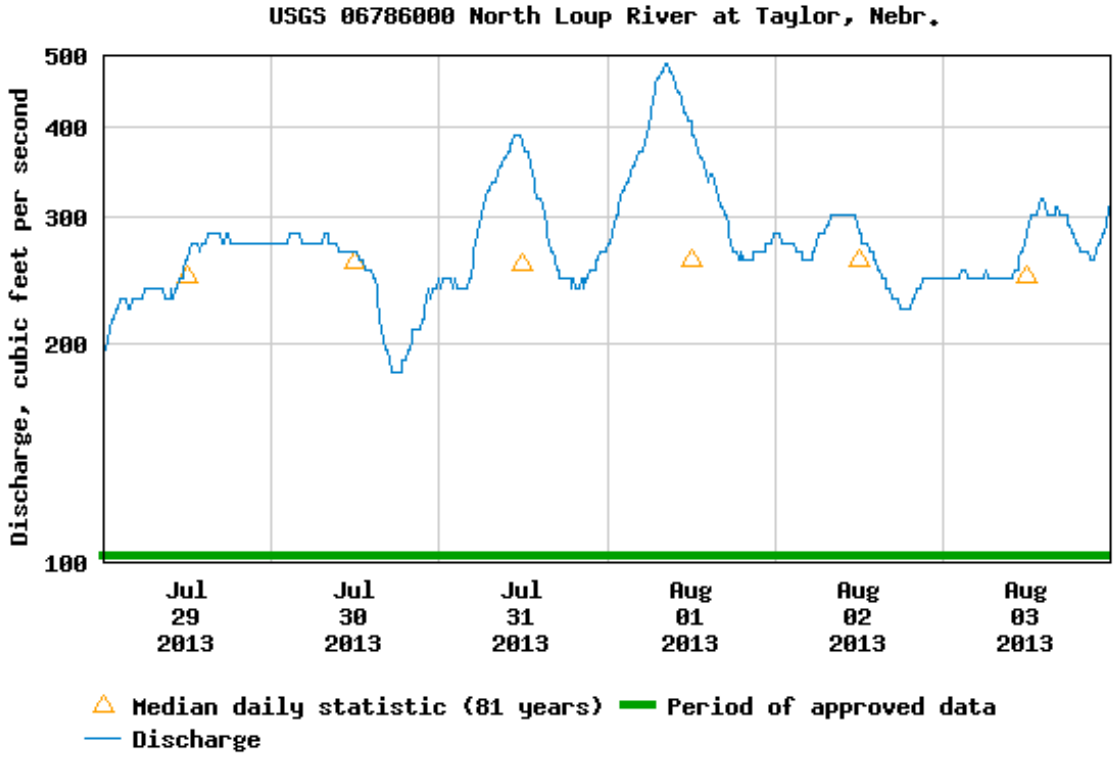
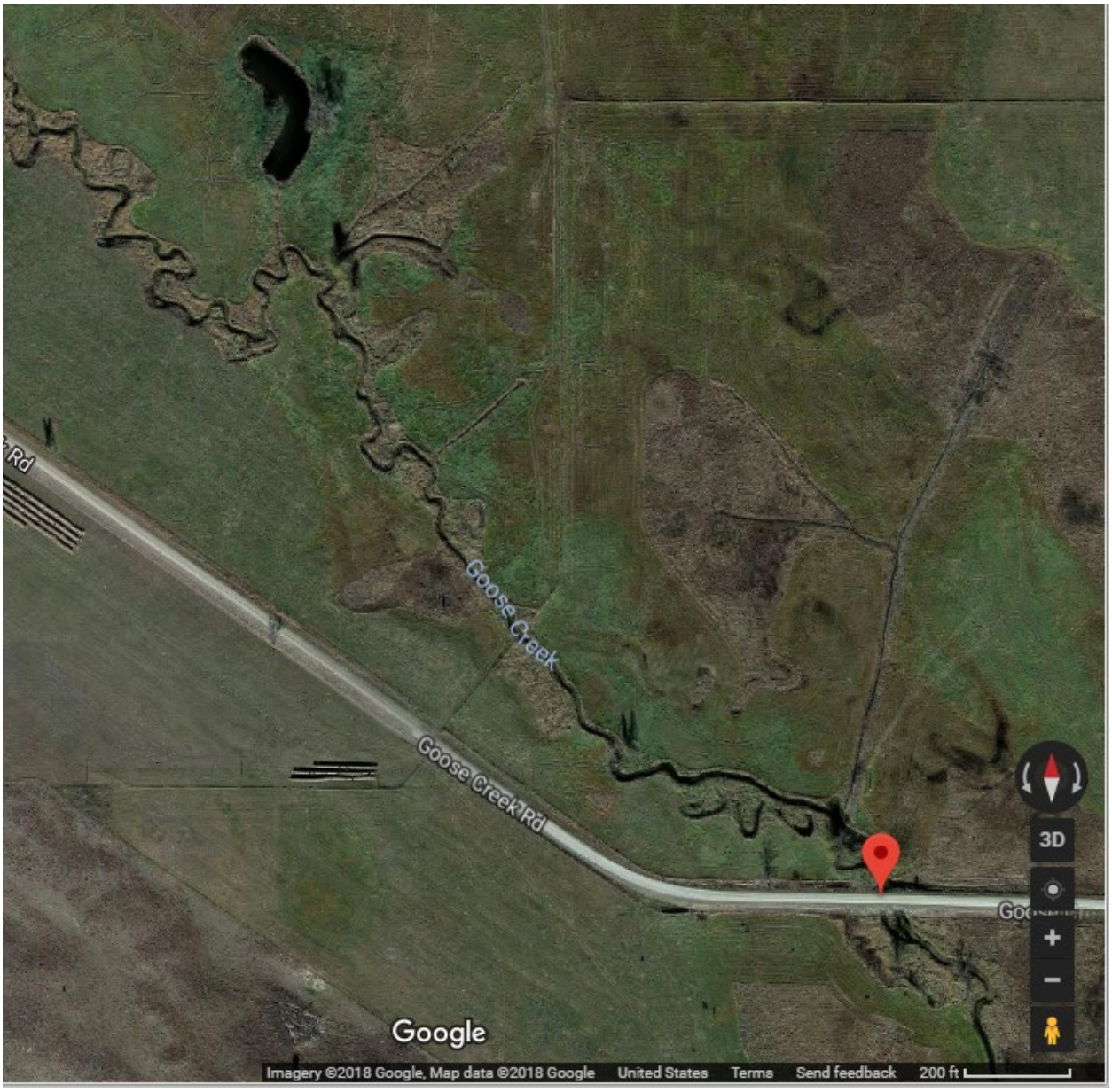
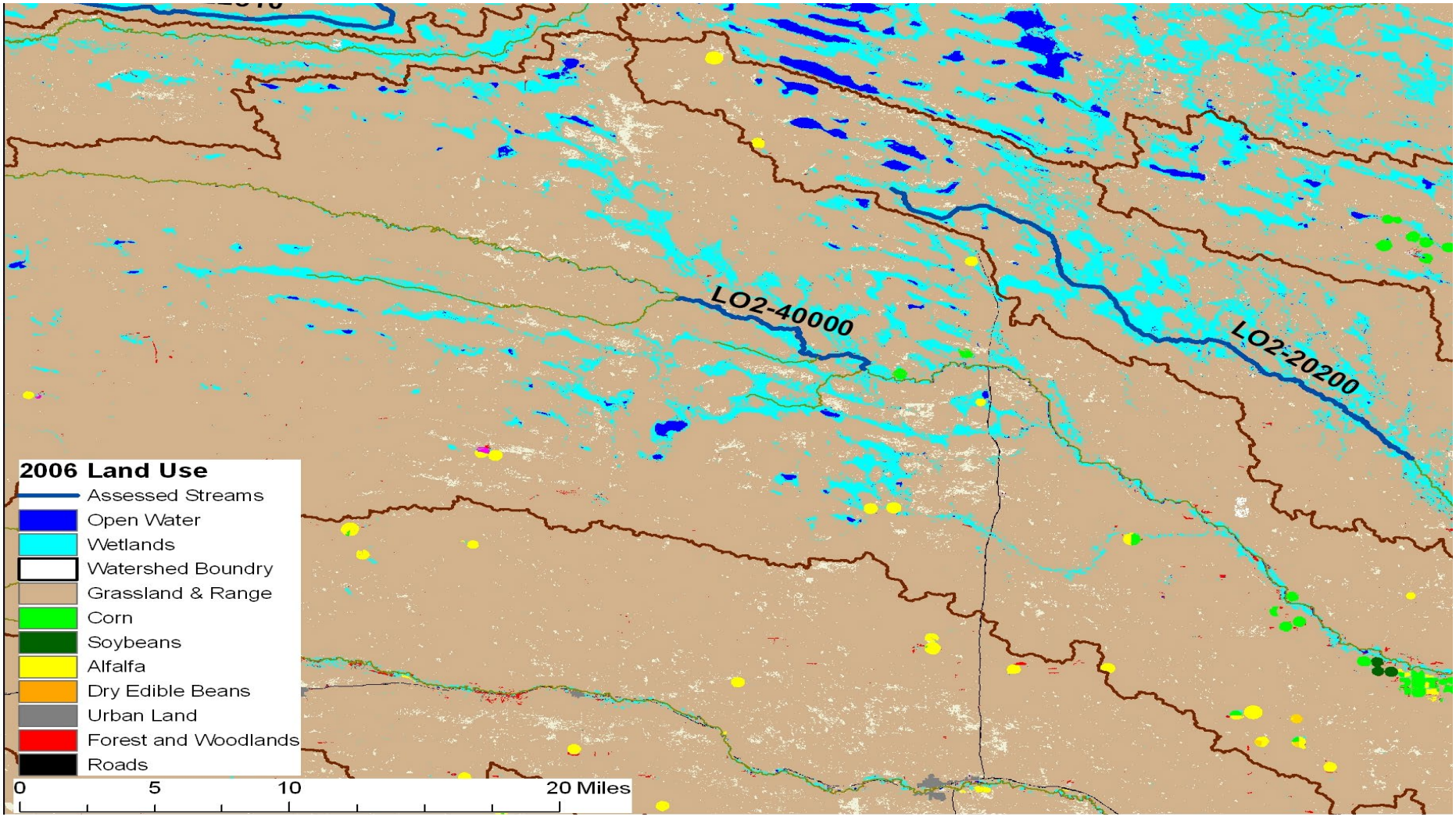
Attachment A: Hydrograph of LO2-20000: North Loup River. The stream gage at Taylor, NE was closest to our sample location. The hydrograph shows the high discharge that occurred on 8/1/2013, NDEE sampling occurred on 8/3/2013.



Attachment B: Areal photograph of the area surrounding LO2-20200 Goose Creek. This photo shows that the landscape within the basin of Goose Creek was composed of grassland and some hay fields.

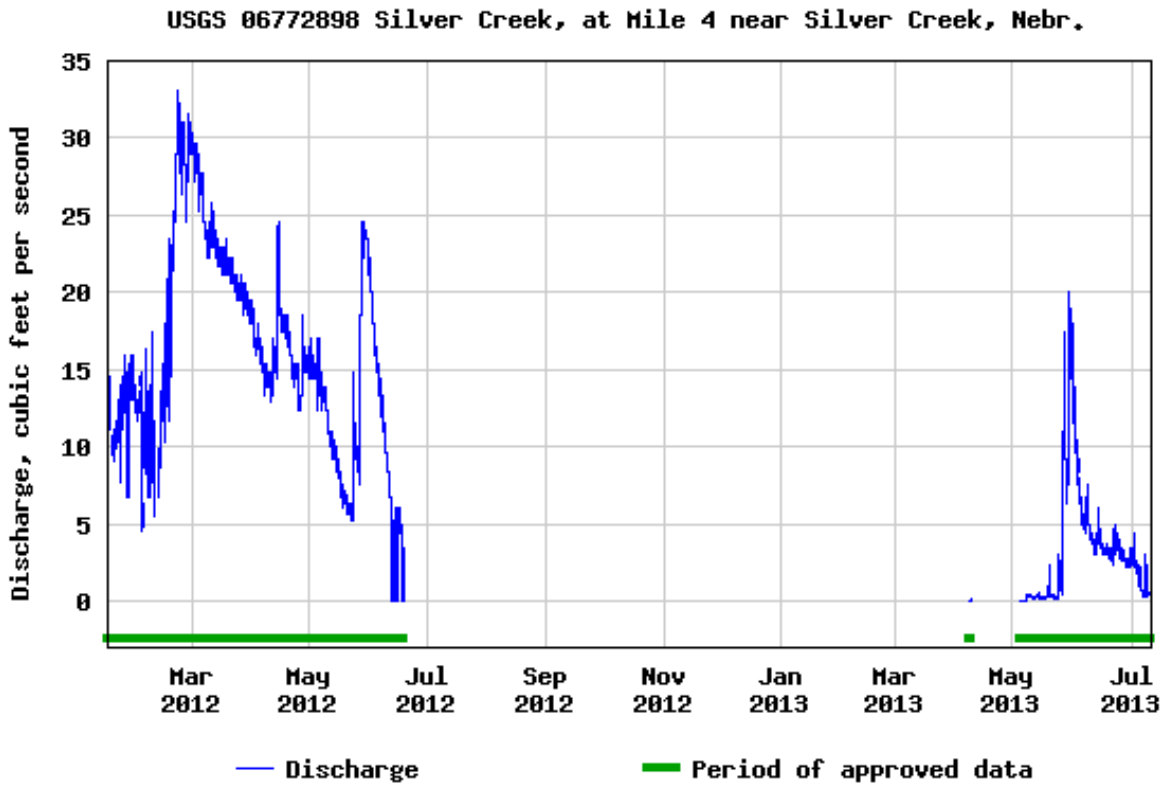


Attachment C: Land usage map of the Loup Basin (LO2-20200 Goose Creek & LO2-40000 North Loup River). The map below shows that Goose Creek and the North Loup River segments are within grassland and range land usage types.

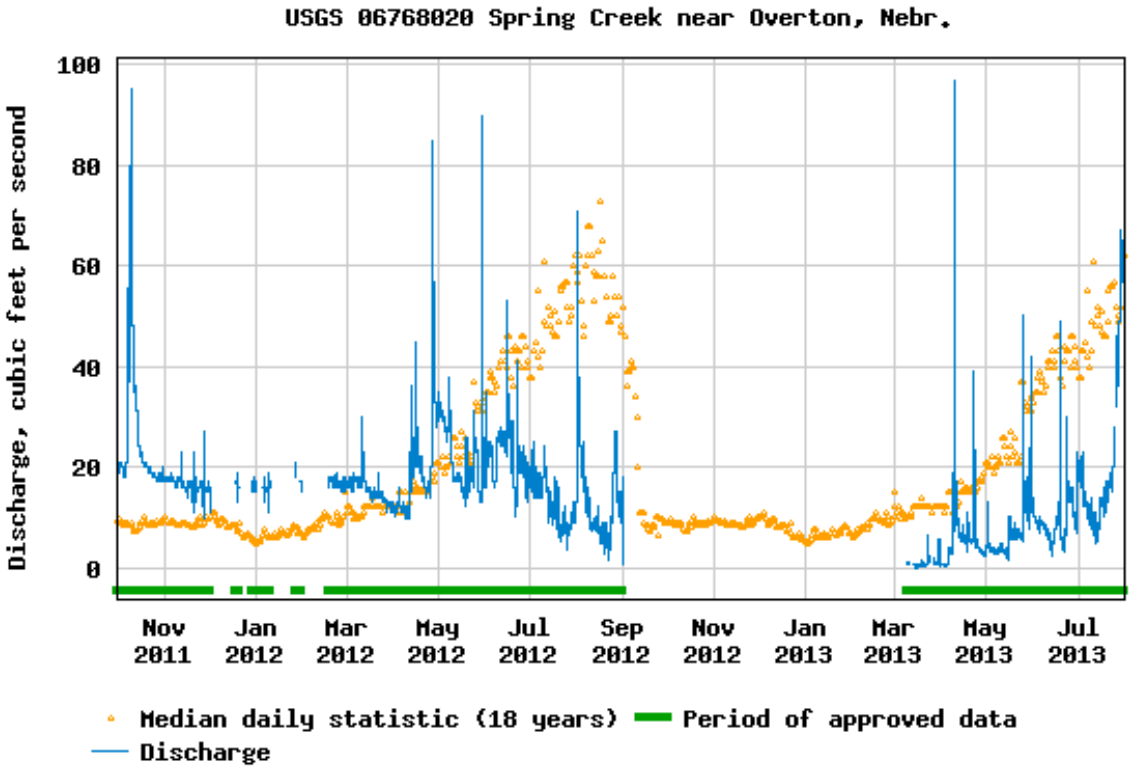


Land use data courtesy Center for Advanced Land Management Information Technologies

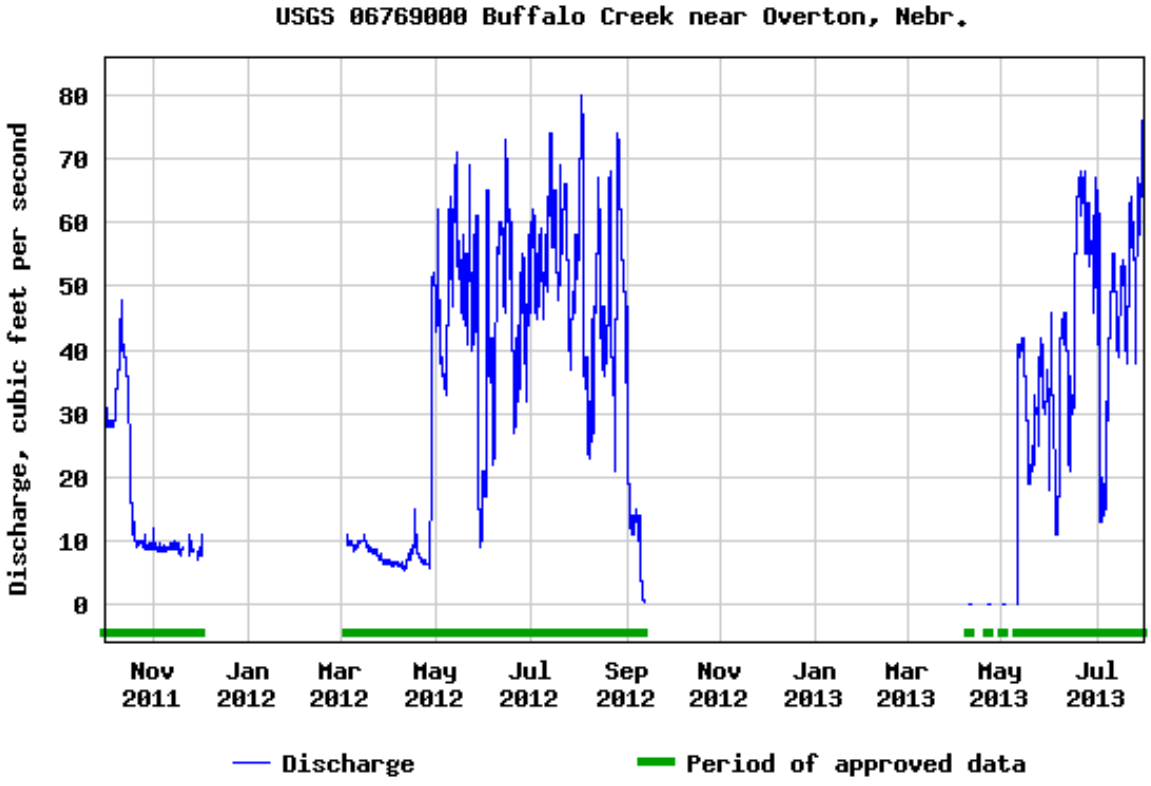
Attachment D: Hydrograph of MP1-20300 Silver Creek. The hydrograph shows the lack of flow prior to NDEE sampling that occurred on 7/9/2013.



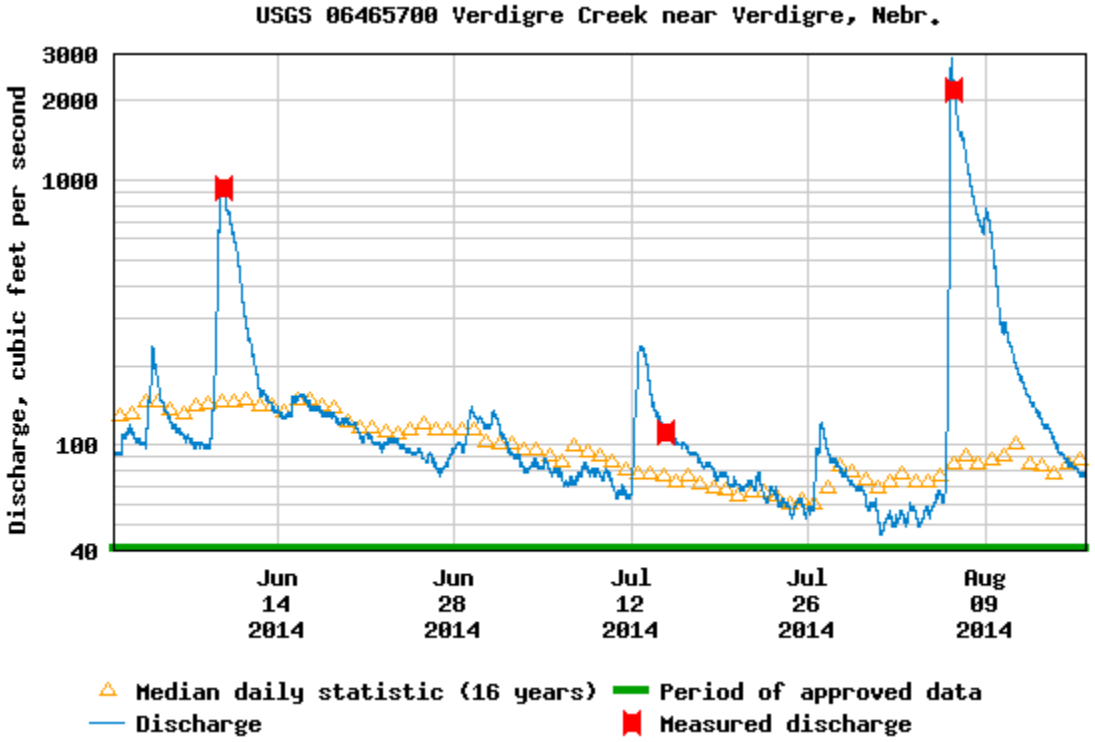
Attachment E: Hydrograph of MP2-20300 Spring Creek. The hydrograph shows the lack of flow prior to NDEE sampling that occurred on 7/30/2013.



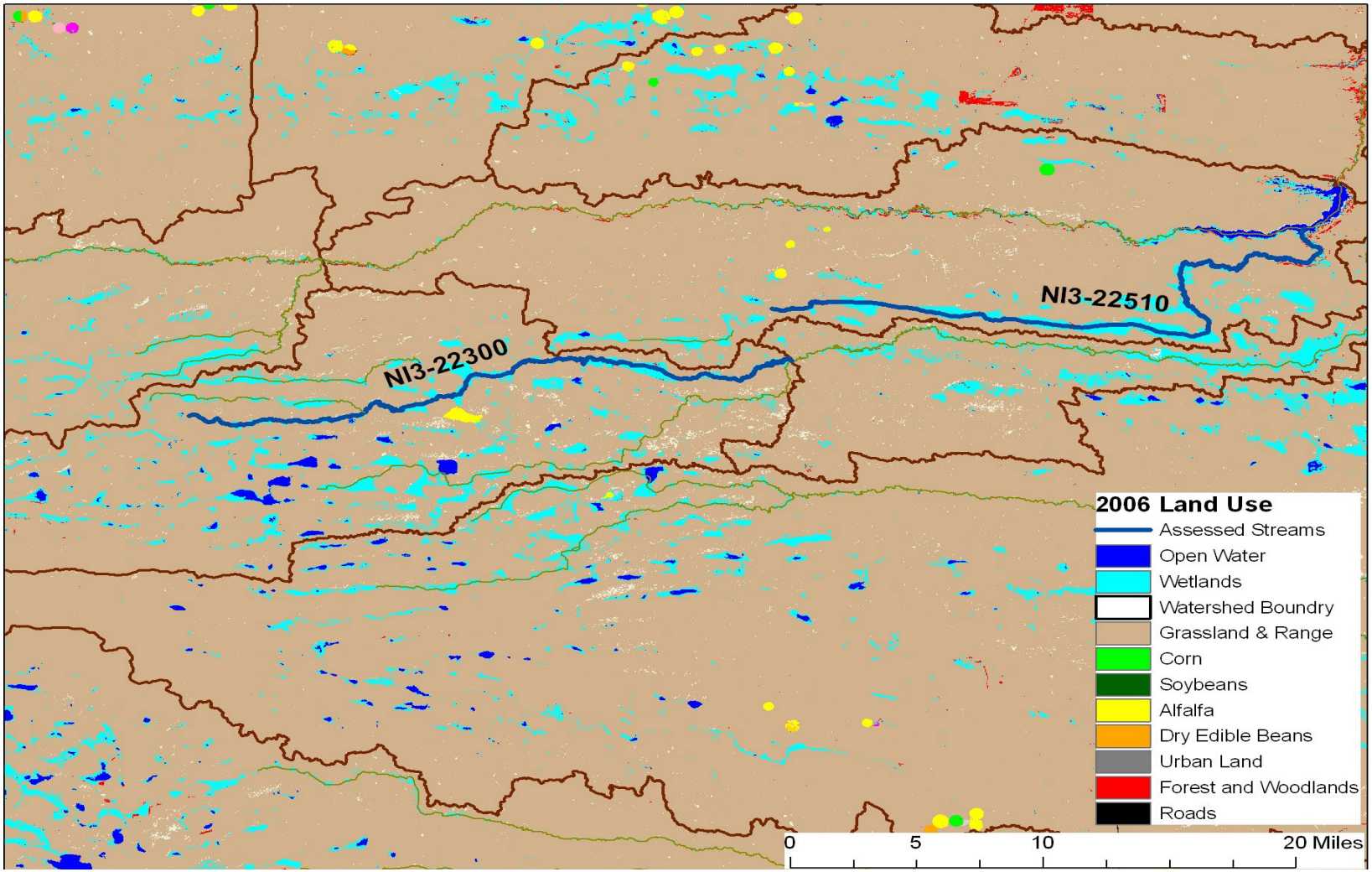
Attachment F: Middle Platte Basin (MP2-00000 Buffalo Creek)



Attachment G: Hydrograph of Verdigre Creek within the Niobrara River basin. This hydrograph is meant to demonstrate the low water conditions of the region in 2014 followed by a scouring rain event.

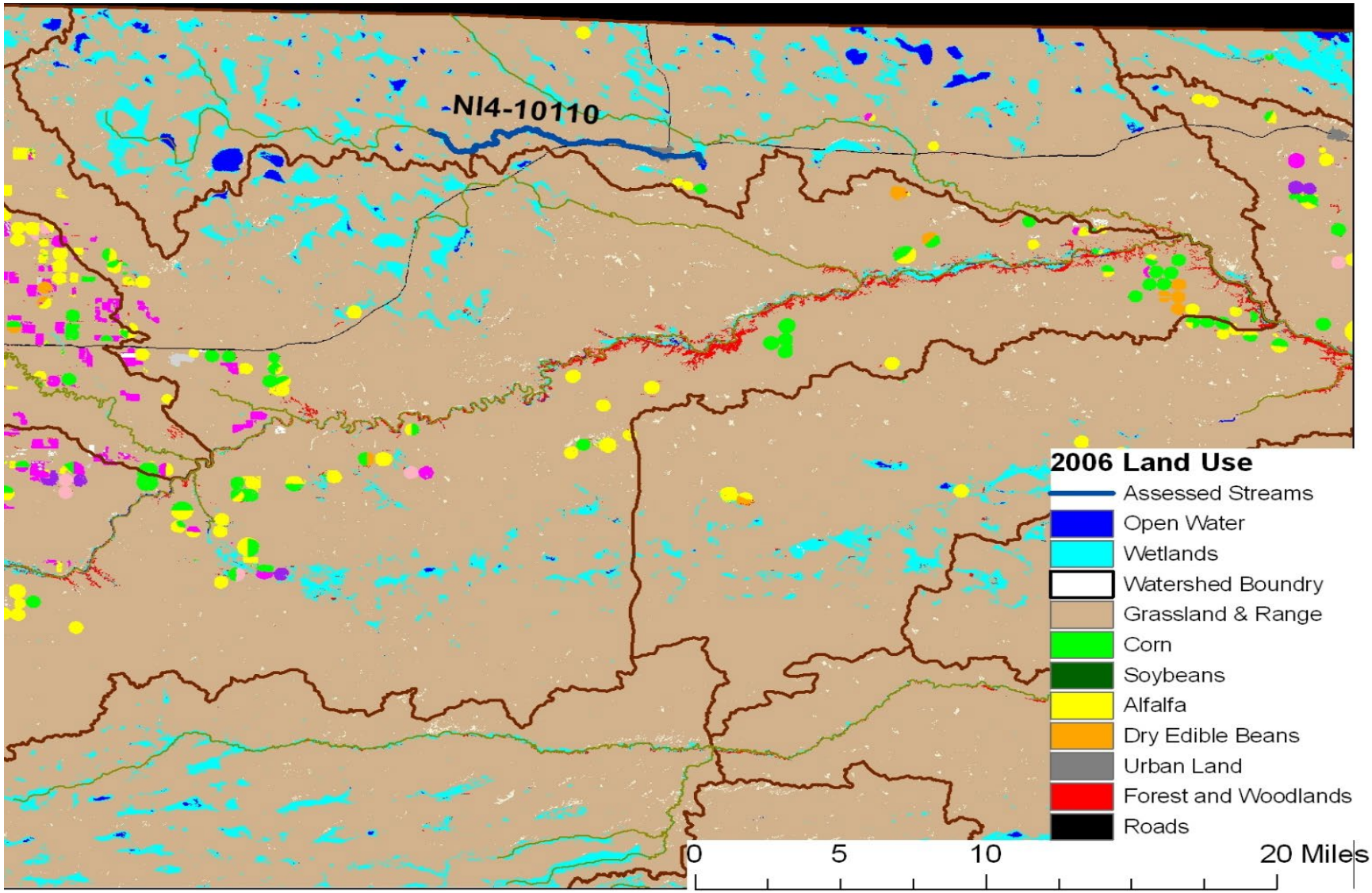


Attachment H: Niobrara Basin (NI3-22300 Gordon Creek & NI3-22510 Boardman Creek)



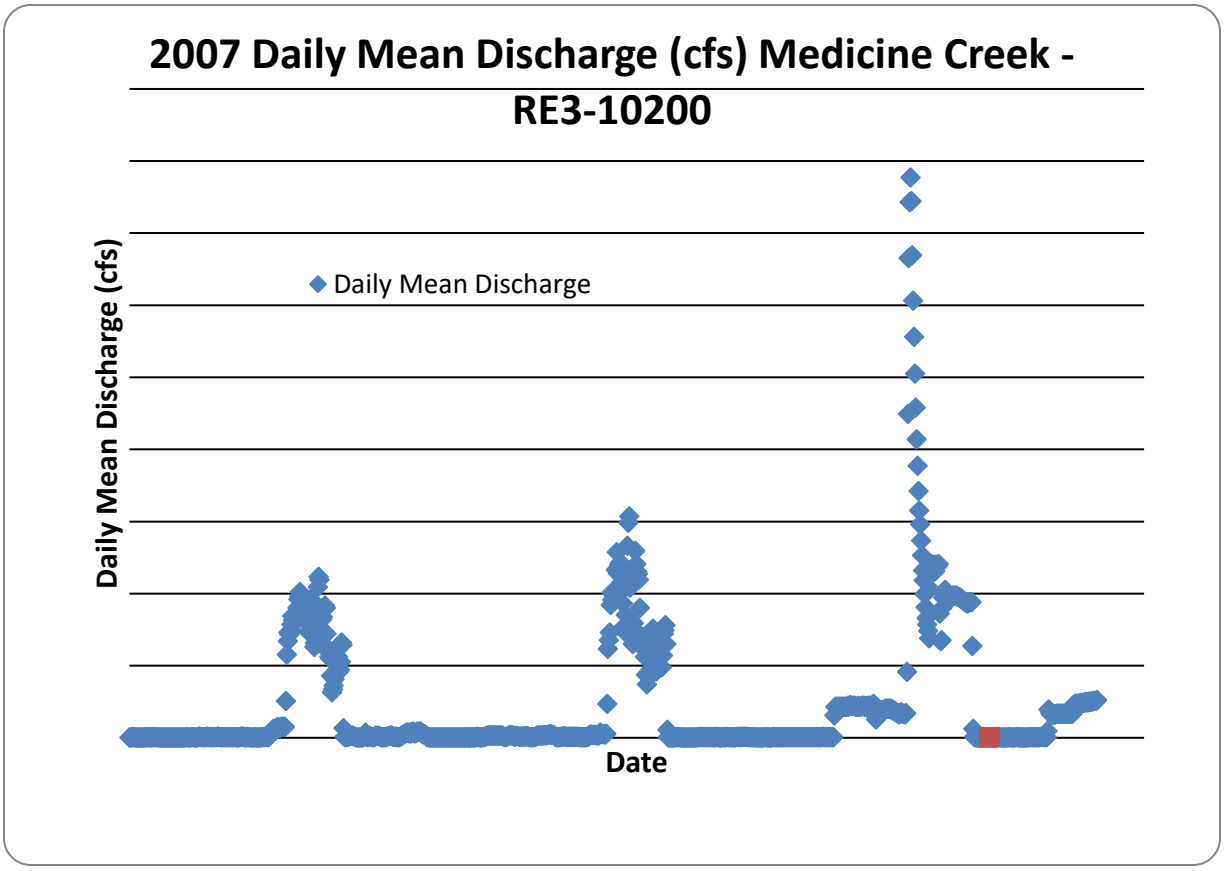
Land use data courtesy Center for Advanced Land Management Information Technologies

Attachment E: Niobrara Basin (NI4-10110 Dry Creek)



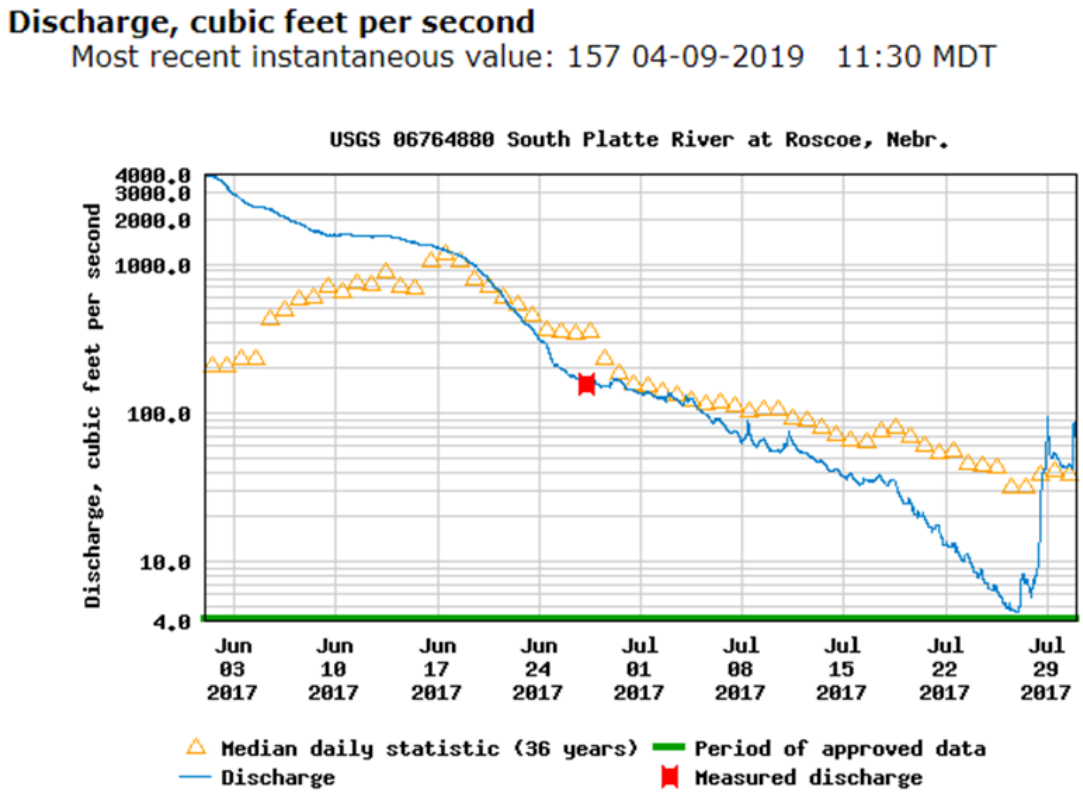
Land use data courtesy Center for Advanced Land Management Information Technologies

Attachment J: Republican Basin (RE3-10100 Medicine Creek)



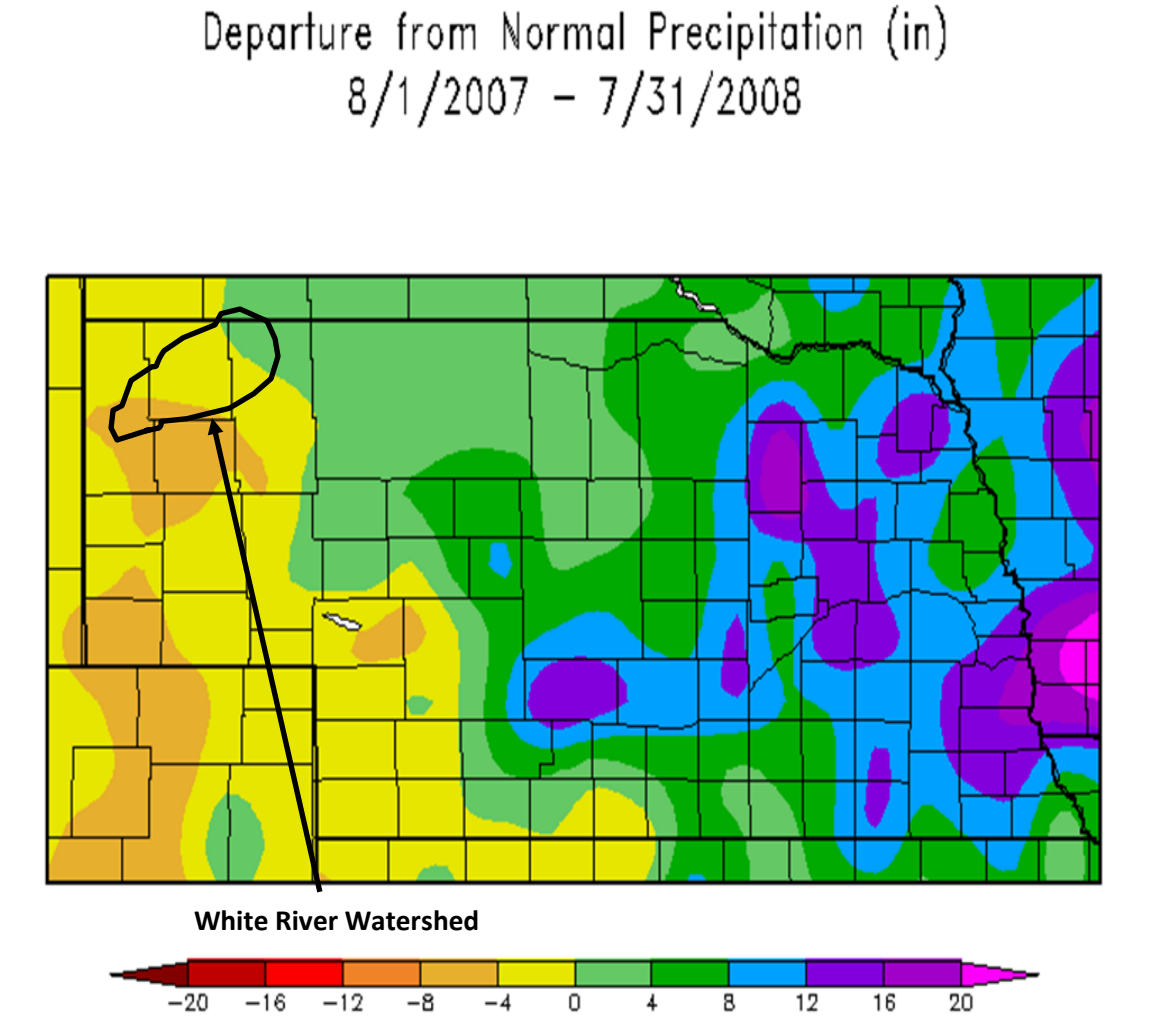
Discharge data courtesy USGS and NDNR

Attachment K: Hydrograph of South Platte River near Roscoe.

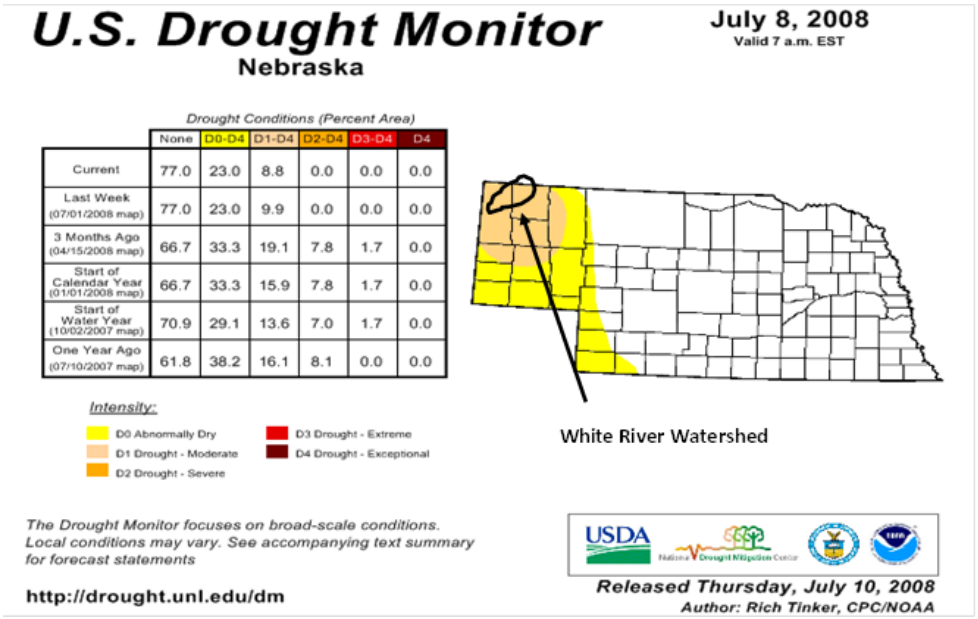


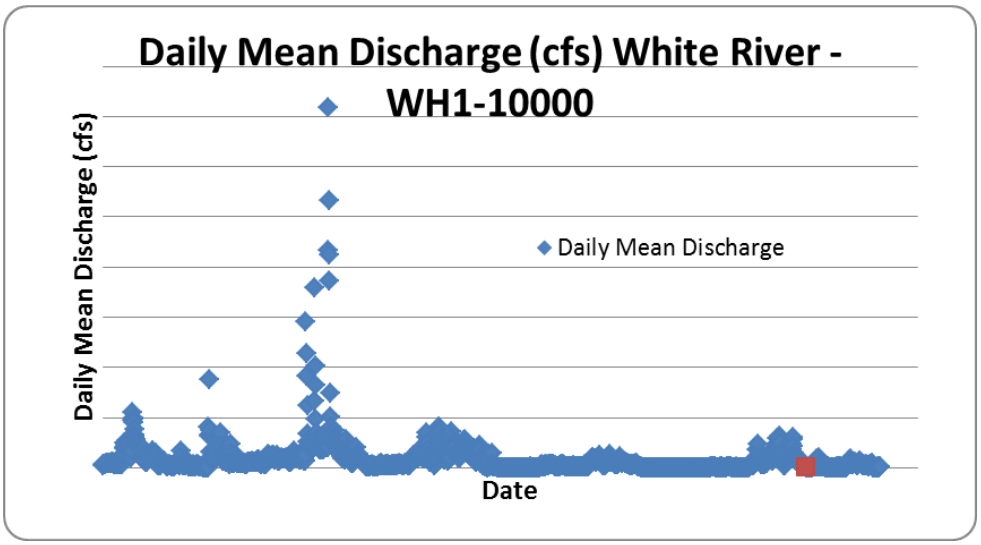
Attachment L: Counting fish collected from the South Platte River south of Roscoe on 7/26/2017.

Attachment M: White Basin (WH1-10000 White River)

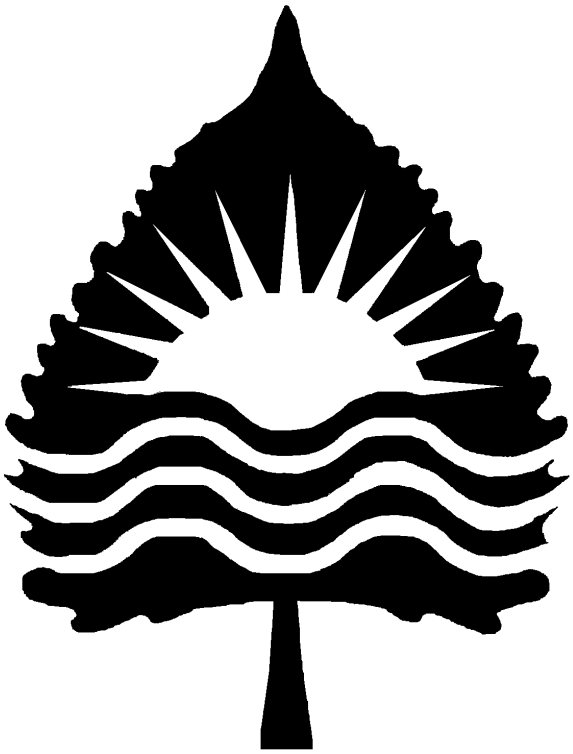


Attachment N: White Basin (WH1-10000 White River)





Appendix C: Documentation for Elkhorn River Basin 4C Listings



Nebraska Surface Water Quality Integrated Report Category Change for Waters in the Elkhorn River Basin Impaired by Selenium

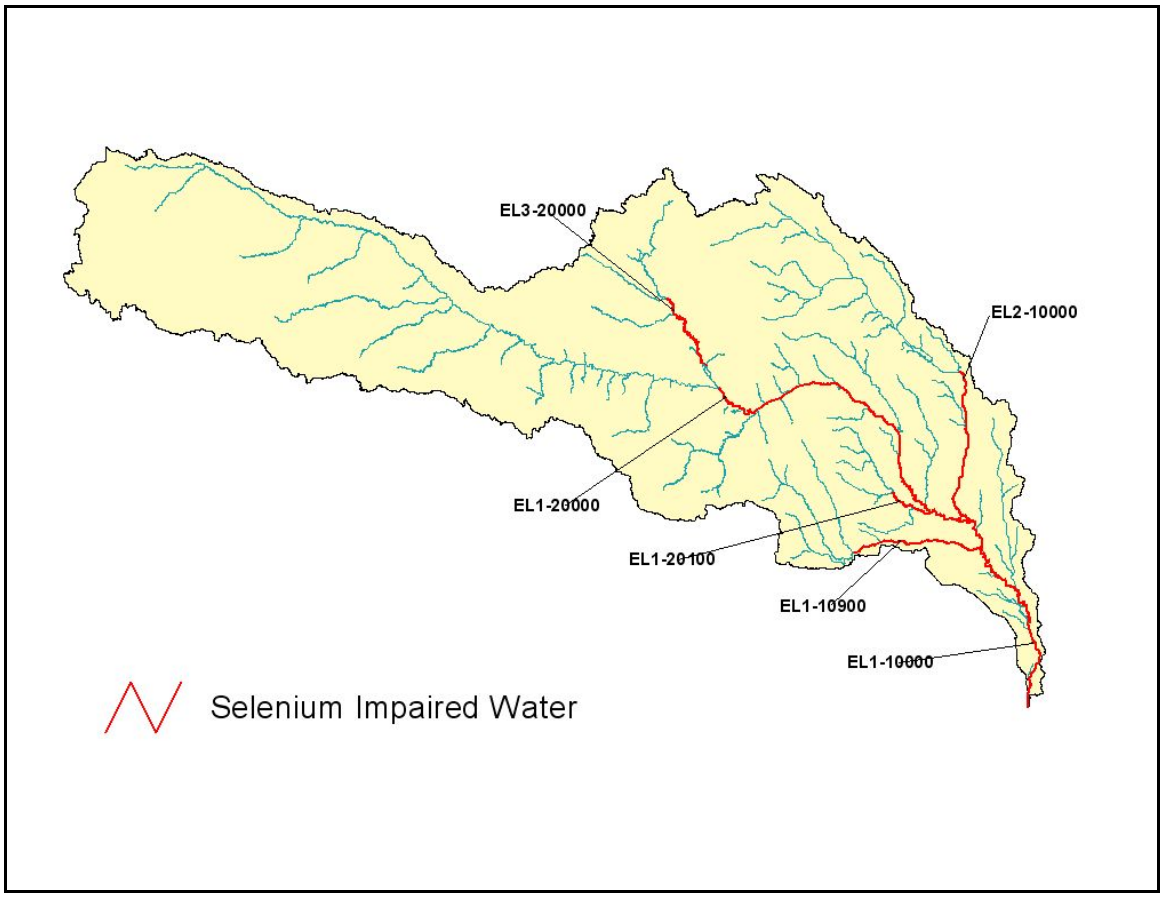
Water Quality Planning Unit
Water Quality Division
Nebraska Department of Environmental Quality

March 2009

Introduction

The 2008 Nebraska Water Quality Integrated Report (IR) identified five waterbodies in the Elkhorn River Basin as impaired by excessive selenium (Figure 1). Initially, and in accordance with EPA guidance, the waterbodies were included in category 5 – waters needing a TMDL. Further investigation has indicated the excess selenium is not the result of anthropogenic pollutants rather a function of the geology of the area. The purpose of this document is to provide the information necessary to document the natural condition of the Elkhorn Basin and the justification to include the selenium impairments as Category 4C candidates in future IRs.

Figure 1 Selenium Impaired Segments in the Elkhorn River Basin



EPA Guidance and Title 117

The *Guidance for 2006 Assessment, Listing and Reporting Requirements Pursuant to Section 303(d), 305(b) and 314 of the Clean Water Act* provides information on the placement of waters into category 4C. Specifically:

"Segments should be placed in Category 4c when the state demonstrates that the failure to meet an applicable water quality standard is not caused by a pollutant, but instead is caused by other types of pollution. Segments placed in Category 4c do not require the development of a TMDL. Pollution, as defined by the CWA is "the man-made or man-induced alteration of the chemical, physical, biological, and radiological integrity of water" (section 502(19)). In some cases, the pollution is caused by the presence of a pollutant and a TMDL is required. In other cases, pollution does not result from a pollutant and a TMDL is not required. States should schedule these segments for monitoring to confirm that there continues to be no pollutant associated with the failure to meet the water quality standard and to support water quality management actions necessary to address the cause(s) of the impairment. Examples of circumstances where an impaired segment may be placed in Category 4c include segments impaired solely due to lack of adequate flow or to stream channelization.

EPA encourages the state to collect or assemble additional data and/or information to verify the initial placement of the segment, and to re-categorize the segment based on the assessment of the additional data and/or information where appropriate."

As well, Title 117 Nebraska Surface Water Quality Standards (Title 117) does include a definition of natural background. The definitions states: "natural background shall mean quantifiable measurements of water quality existing in the absence of water pollution."

Water pollution in turn is defined as: "the manmade or man-induced alteration of the chemical, physical, biological, and radiological integrity of water."

Assessment and Reporting Methodologies

Historic water quality data and assessments have presented situations where the data indicates criteria are not being met however the parameter exceedance is not the result of a pollution source. Because of these, the "*Methodologies for Waterbody Assessments and Development of the 2008 Integrated Report for Nebraska*", as well as the 2004-06 versions included a category for placement and identification of these types of waterbodies. Consistent with the EPA guidance, Category 4C is the identified category and is defined to be:

"Waterbody is impaired but the impairment is not caused by a pollutant. This category also includes waters where natural causes/sources have been determined to be the cause of the impairment. In general, natural causes/sources shall refer to those pollutants that originate from landscape geology and climactic conditions. It should be noted, this definition is not inclusive."

Title 117 and the assessment methodologies do not contain specific implementation language for the use or identification of natural background. It is the Department's intent to address situations independently as the circumstances will differ given the diverse nature of Nebraska's geology, land use, water policies and climate.

Current and Historic Water Quality Data

As indicated, the 2008 Integrated Report included six waterbodies as impaired by excessive selenium. A summary of the assessments can be found in Table 1 and boxplots of the data can be found in Figure 2. The assessments and subsequent impairment status was based on the comparison to the aquatic life beneficial use and the chronic criteria of 5 µg/l.

Water quality data used in the assessment was obtained through the Nebraska Ambient Stream Monitoring Network. Within the Elkhorn Basin there are ten waterbodies included in the network. As shown above six of the ten are considered impaired. The remaining four are not and monitoring and analysis have not detected selenium in any samples (n=75). Figure 3 provides a comparison of the data from impaired versus non-impaired segments. The data has been separated into above and below (Title 117) EL3-10000 which is also the boundaries of sub-basins EL1, EL3 and EL4

Table 1 Water Quality Data Assessments of Selenium Impaired Elkhorn River Basin Segments

Waterbody Title 117 ID	Waterbody Name	Data Period of Record	Number of Observations	Number >5 µg/l	Minimum needed for Impaired Assessment	Maximum Value (µg/l)
EL1-10000	Elkhorn River	2001-06	24	24	5	11.57
EL1-10900	Maple Creek	2002-06	17	17	4	19.35
EL1-20000	Elkhorn River	2002-06	16	9	4	7.02
EL1-20100	Pebble Creek	2001-06	23	22	5	19.06
EL2-10000	Logan Creek	2002-06	18	18	4	27.39
EL3-20000	N. Fork Elkhorn River	2002-06	17	17	4	11.71

From the surface water quality data and analysis the 4C justification will only be applied to specified waterbodies in the Elkhorn sub-basins EL1, EL2 and EL3. The area is shown in Figure 3.

Historic data and information was retrieved from the United States Geological Survey (USGS) for comparison to the current information. Three sites/sources of information were located in the USGS data base; two are similar to the NDEQ ambient stream locations and one is upstream of a NDEQ ambient site. The sites are as follows:

- Elkhorn River @ Waterloo (EL1-10000)
- Elkhorn River @ West Point (EL1-20000)
- Logan Creek @ Pender (EL2-20000)

Figure 1 Boxplots of the Elkhorn River Basin Selenium Impaired Waters

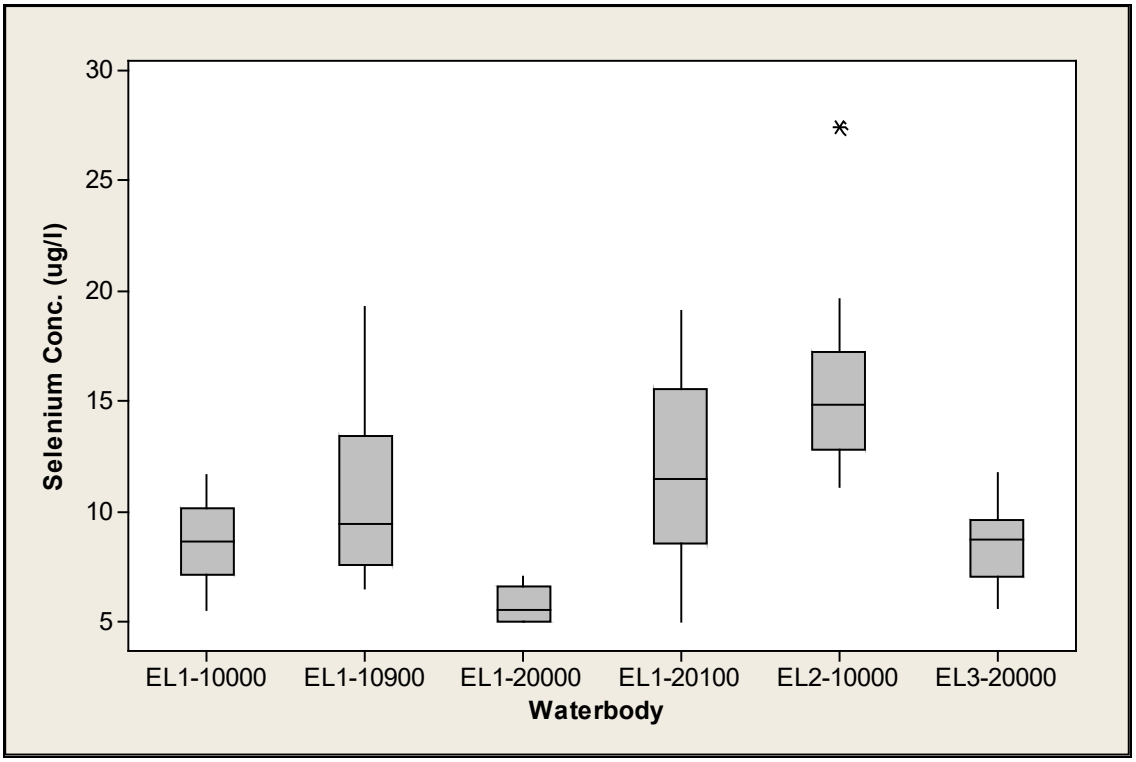
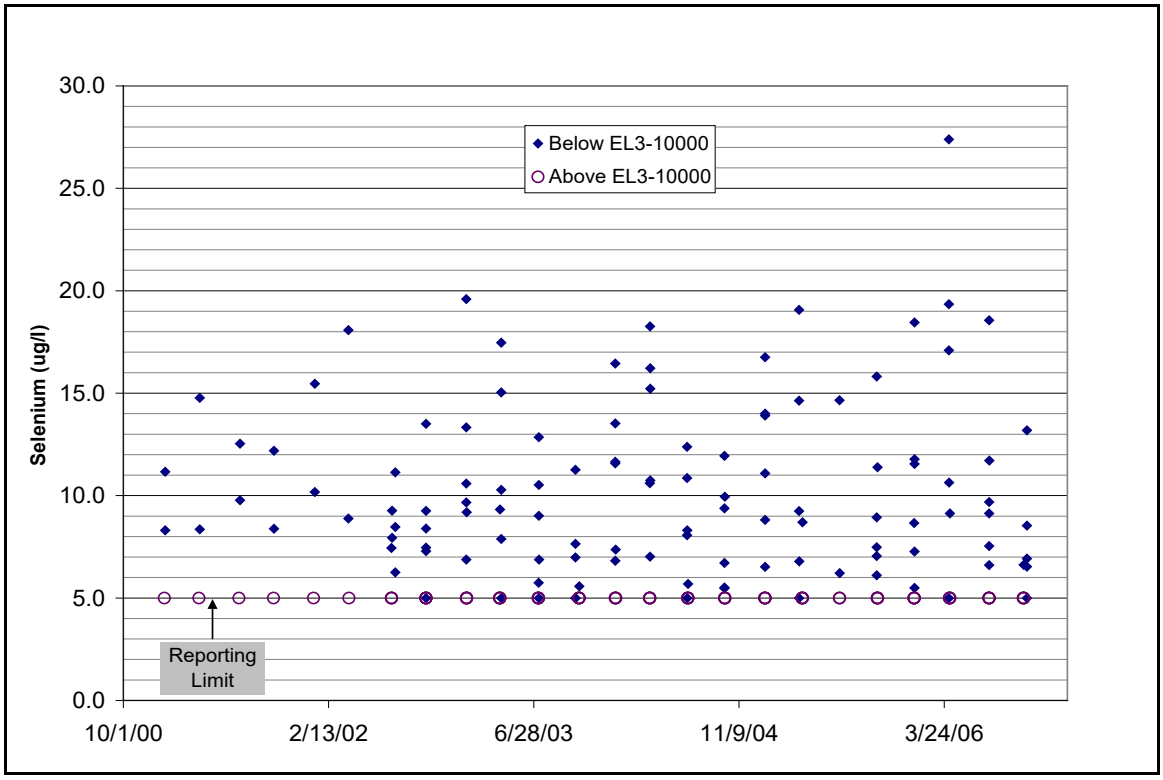


Figure 2 Elkhorn River Basin Selenium Concentrations



Although the data and information is collected from two similar sites, a direct comparison is not appropriate based on several factors including:

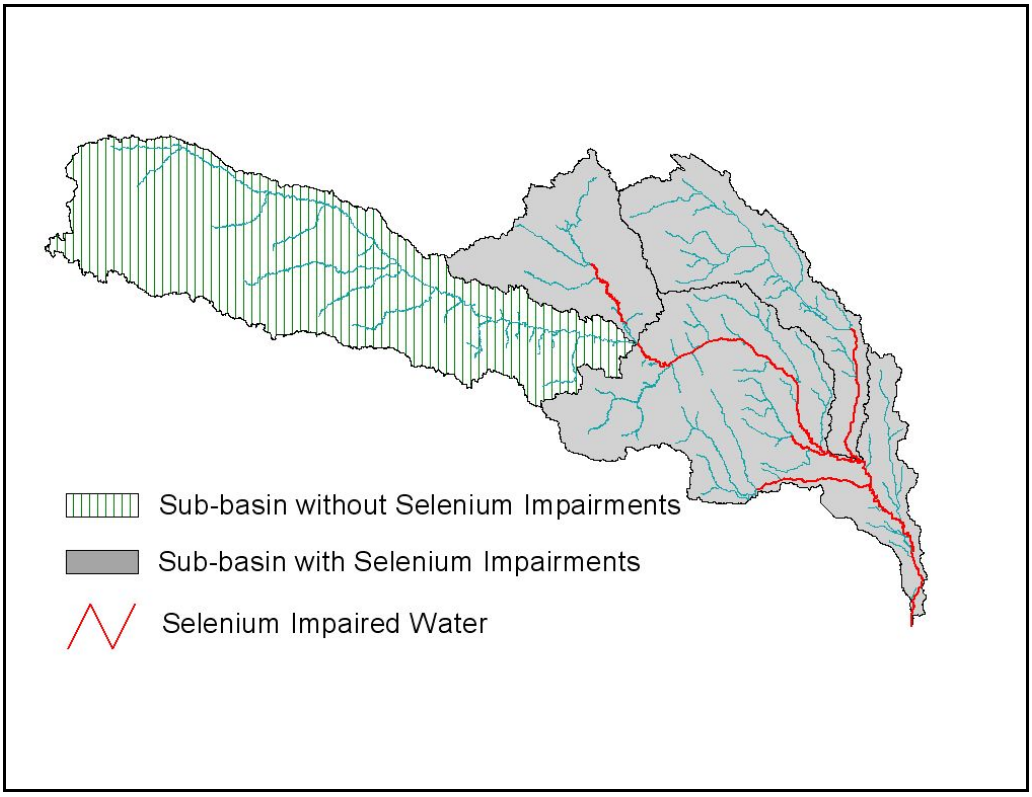
- sample type (width and depth integrated vs. centroid grab)
- stream flow conditions
- Analytical techniques and differing reporting and/or method detection limits

While a direct comparison will not be conducted, the data can be used to illustrate the long-term selenium conditions in the Elkhorn River Basin. The period of record for the historic data from the three sites is 1973-89, contains 81 observations and is shown in Figure 4.

Geologic Considerations

Selenium in surface and ground water can be ascribed to both natural and human sources. Natural sources include soils, plant decay, and aquifer materials, while human sources include waste products from uranium, bentonite, or coal mining, oil refinery wastewater, and irrigation wastewater (Engberg and Spalding, 1978; Stanton and Qi, 2007). The Elkhorn River basin in Nebraska exhibits several features associated with natural sources of selenium, and little in the way of human-induced sources.

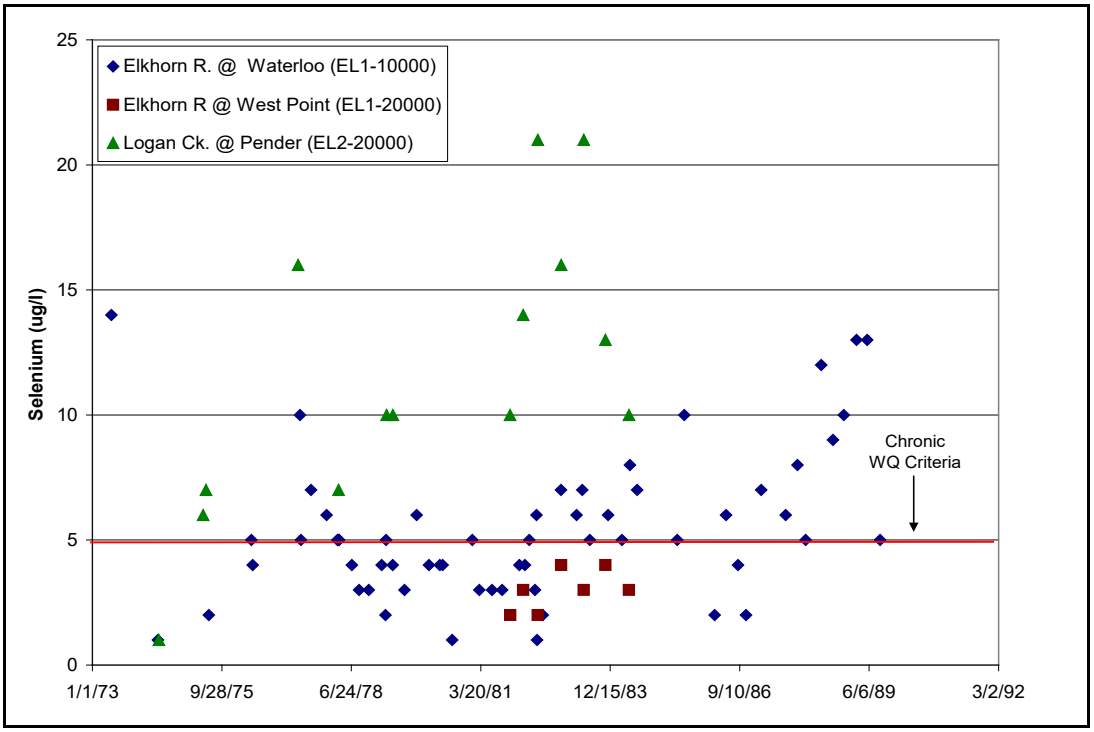
Figure 3 Elkhorn River Basin 4C Sub-basins



Most selenium near the Earth's surface is the result of volcanic activity (Engberg and Spalding, 1978). Volcanic activity in the Late Cretaceous and Tertiary Periods contributed considerable amounts of selenium to marine sediments accumulating in the Cretaceous, and to terrestrial sediments generated during the Tertiary (Engberg and Spalding, 1978). Seleniferous volcanic ash deposited along with these sediments was then incorporated into the resulting bedrock. The bedrock units of the Elkhorn River basin in Nebraska include several Upper Cretaceous marine units associated with elevated selenium, especially the Pierre Shale, Niobrara Formation, Carlile Shale, Greenhorn-Graneros Formation, and Dakota Group (Burchett *et al.,* 1986; Engberg and Spalding, 1978; Seiler *et al.,* 1999; see Figure 5).

In most cases, naturally-occurring levels of selenium rarely exceed 1 µg/ℓ (Hem, 1989). In the upper portion of the Elkhorn River Basin in Nebraska, existing surface water quality sample results are generally at this level or below as described above. However, sample results from further downstream in the basin tend to increase, in some cases reaching levels of a few tens of µg/ℓ (Figure 2). This is to be expected as near-surface bedrock in the upper portion of the basin consists mostly of the Tertiary Ogallala Group, a variable unit of sand, sandstone, gravel, and conglomerate with localized volcanic ash deposits (Stanton and Qi, 2007). Such localized deposits would be expected to supply only limited amounts of selenium to runoff and/or baseflow. Also, in this portion of the basin (roughly above Pierce and western Madison Counties), the Ogallala is frequently covered by varying thicknesses of eolian dune sand, which is also not a source for selenium in runoff or baseflow. However, in the lower portion of the basin, the Ogallala thins out and disappears, and eolian dune sand is generally not present. Existing ground water quality data from the U.S. Geological Survey indicates that ground water samples from the upper portion of the Elkhorn River Basin, where wells are completed primarily in the Ogallala, exhibit levels of dissolved selenium generally below 2 µg/ℓ (USGS ground water data for Nebraska available online at: http://groundwaterwatch.usgs.gov/StateMaps.asp?sc=31).

Figure 4 1973-89 Selenium Data from Three Elkhorn River Basin Sites



The nearsurface bedrock in the lower portion of the basin consists of upper Cretaceous units known to exhibit considerable selenium content (Engberg and Spalding, 1978). In addition, the surficial deposits in the lower portion of the basin consist largely of glacial till which often contains rock debris from the underlying Cretaceous bedrock units (Engberg and Spalding, 1979). It is illustrative to note that the highest levels of selenium in ground water from the Elkhorn basin in the USGS' online database range from about 55 to 129 µg/ℓ; these are shallow wells completed in a local aquifer composed of glacial till (USGS ground water data available at http://groundwaterwatch.usgs.gov/StateMaps.asp?sc=31) and shown in Figure 6. Thus, both the bedrock units (which can supply some baseflow to streams) and the surficial sediments (over which runoff flows and from which plants take up nutrients) are likely to exhibit elevated selenium concentrations as compared to the upper portion of the basin. As a result, it appears that the major input of selenium in the lower portion of the Elkhorn River Basin is derived from naturally occurring bedrock, soil, and plant sources.

Industrial Sources

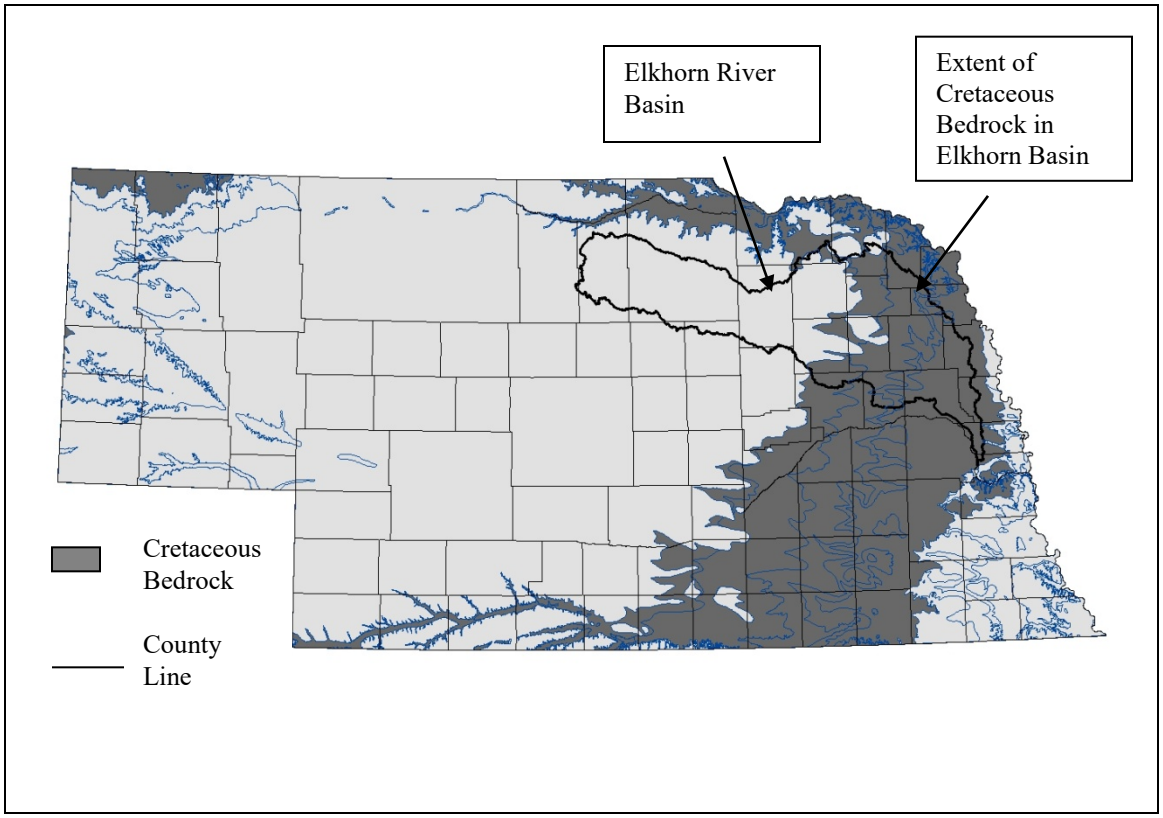
As stated above, industrial selenium sources include waste products from uranium, bentonite, coal mining, or oil refinery wastewater. Nebraska does have deposits of bentonite present at a few locations however, these deposits are not located in the lower Elkhorn River basin. Also, there has been no major mining of bentonite deposits in Nebraska (Burchett 1990).

Irrigation Water

Irrigation with groundwater is important to crop production in the Elkhorn River Basin. According to the Nebraska Department of Natural Resources, there are approximately 5,800 irrigation wells in the Lower Elkhorn Natural Resource District (LENRD) (NDNR 2008). The area of concern identified mostly lies in the LENRD.

While groundwater use is widespread in the LENRD, Nebraska state statute §46-663.02 requires each person to who uses groundwater to take action to control or prevent runoff. The same statute requires the NRDs to adopt rules and regulations to necessary to control or prohibit surface runoff of water derived from groundwater irrigation including the ability to issue cease and desist orders.

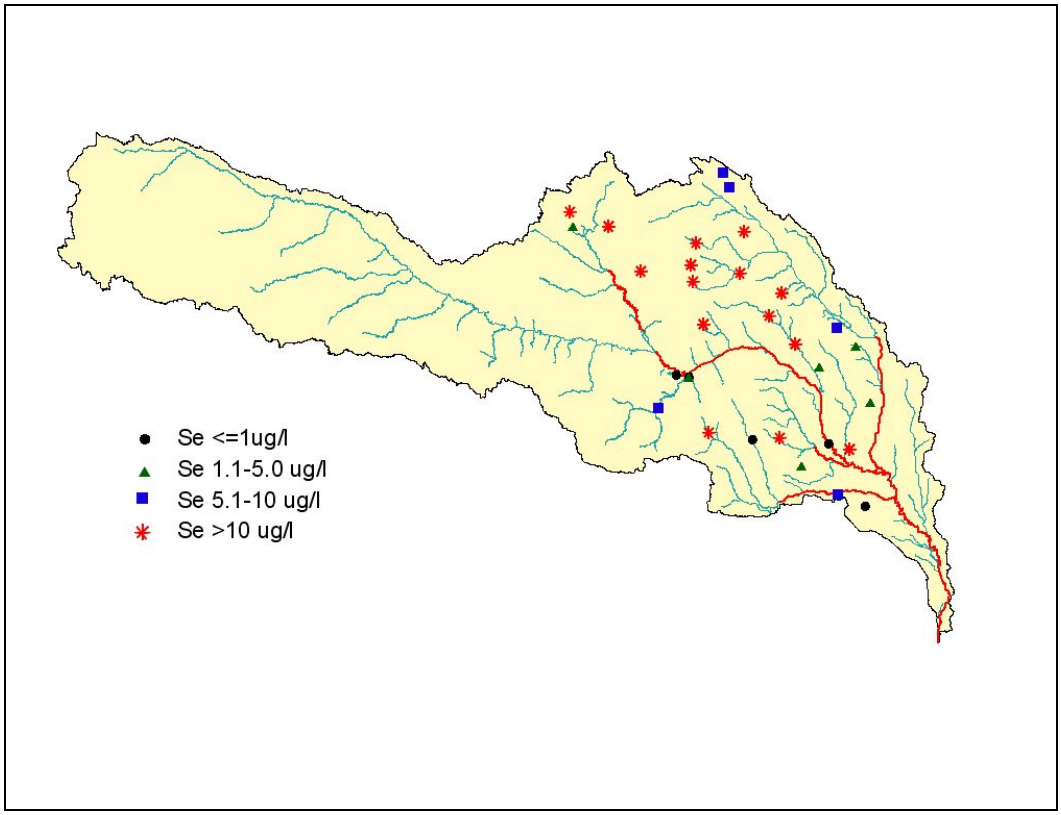
Figure 5 Simplified geologic bedrock map showing extent of Cretaceous bedrock units in Nebraska and Elkhorn River Basin. Modified from Conservation & Survey Division, University of Nebraska-Lincoln, 1996. (NOTE: irregular blue lines indicate boundaries between various bedrock units; specific units not differentiated for purposes of this figure.)



The LENRD has adopted the rules and regulation necessary to control and prohibit surface runoff of groundwater derived irrigation water. Specifically; the LENRD's Administrative Policy No. 10. defines improper irrigation runoff to be the occurrence of irrigation runoff water that…causes or contributes to the deterioration of water quality by depositing sediment and/or associated chemicals ins surface waters within the area. The policy includes procedures for issuing cease and desist orders.

While irrigation return flow and runoff of irrigation water is regulated, a concern could exist over the build-up of selenium in the soils as a result of irrigation practices. Specifically, as water is lost through evaporation or evapotranspiration the selenium will remain in the soil. In response to these concerns in the semiarid and arid western states, the USGS developed methods to predict where selenium contamination is likely. The methods are documented in the publication entitled *"Methods to Identify Areas Susceptible to Irrigation Induced Selenium Contamination in the Western United States".*

Figure 6 Groundwater Selenium Concentrations in the Lower Elkhorn Basin



Two methods were devised to identify areas susceptible with the first using a decision tree and the second based one based on a map that combines geologic and climatic data (Seiler , 1999). Use of the decision tree considers an evaporation index (annual free water surface evaporation/annual precipitation) where areas ≥2.5 are considered likely candidates. The Elkhorn Basin evaporation index in less than 2.5 and thus selenium contamination is considered to be unlikely.

Conclusion

While selenium can be a function of anthropogenic activities, geologic circumstances appear to be the overwhelming source in surface water of the lower Elkhorn basin and are supported by:

- Selenium is not detected in surface water above EL3-10000;
- Historic surface water quality data is consistent with the current data;
- Cretaceous bedrock underlies the area where the impairments occur;
- Groundwater data from the area of concern frequently exceeds the 5 µg/l surface water quality criteria;

The evidence above demonstrates that selenium a concentration in surface water is naturally occurring, not a pollutant and a candidate for Nebraska Water Quality Report – Category 4C designation.

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Conservation and Survey Division, University of Nebraska-Lincoln. 1996. *Digitized version of the bedrock geology of Nebraska*. ArcExport file (*bedrock.e00*) available online at http://snr.unl.edu/Data/NebrGIS.asp#BedrockGeology.

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Appendix D: Project Information for Category 4R Designated Waters

*Waters listed in categories other than 4R due to other impaired uses.

Big Indian Lake (11A) - BB1-L0030*

- Watershed management plan
- Constructed 3 sediment dikes
- Created in-lake breakwaters
- Shoreline stabilized
- Completed in 2011
- Reassessment will be conducted in 2022-2023

Cub Creek Lake – BB1-L0080

- Lake is drained
- Renovation planning is underway

Schuyler City Lake (South Park Lake) - LP1-L0370

- Lake drained in 2005
- Groundwater well to supplement lake was drilled in 2005
- Bank stabilization occurred in 2006
- Sediment excavated in 2006
- Rock waterfall for aeration was installed in 2006
- Construction was completed in May 2006
- Will be targeted for reassessment due to algae blooms in 2021

Bowling Lake - LP2-L0100*

- Lake drained in 2005
- Sediment excavation in 2006
- Lake re-filled in 2006
- Will be targeted for reassessment due to nutrients in 2021

Conestoga Lake - LP2-L0130*

- Lake drained in 2015
- Sediment excavation in 2016 and 2017
- Installed 3 sediment control structures in 2017
- Created 4 in-lake breakwaters in 2017
- Renovation completed in 2019
- Reassessment will begin in 2026

Meadowlark Lake - LP2-L0220*

- Lower Platte South NRD performed a renovation in 2006
- Will be targeted for reassessment as funds re available.

Iron Horse Trail (WMA) - NE2-L0090

- Sediment excavated
- Sediment control structures
- Shoreline stabilization
- Grade control structure
- Construction finished in 2011
- Reassessment will be conducted in 2020-2021

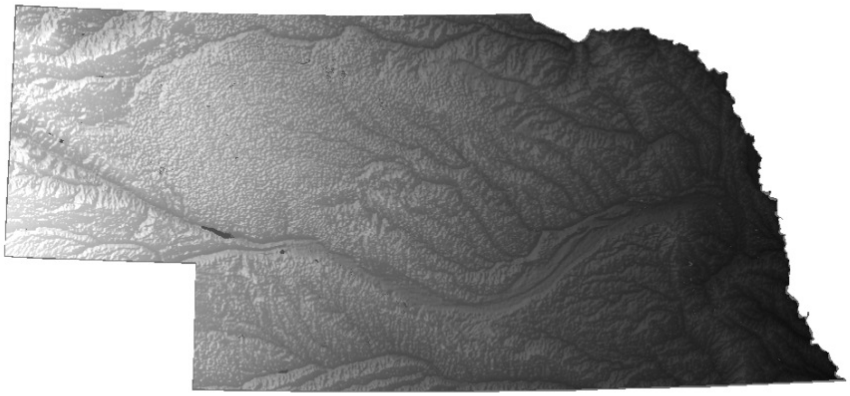
Lake Ogallala - NP1-L0030

- Sediment excavation for a re-circulating channel in 2009
- Constructed in-lake wetlands in 2009
- Will be targeted for reassessment as funding is available

Curtis City Pond - RE3-L0030

- Lake drained in 2006
- Sediment excavation in 2007
- Shoreline stabilization in 2007
- Wetland development in 2007
- Aeration installed in 2007
- Lake re-filled in 2008
- Will be targeted for reassessment due to nutrients in 2021

Appendix E: Long-Term Vision for Assessment, Restoration, and Protection under the Clean Water Act Section 303(d) Program



NEBRASKA

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DEPT. OF ENVIRONMENT AND ENERGY

November 19, 2020

Introduction

The Nebraska Department of Environment and Energy (NDEE, formerly NDEQ), as required by the Clean Water Act (CWA) Sections 305(b) and 303(d), must report biennially the status of all assessed waterbodies as well as list impaired waterbodies including their causes of impairment and the status of actions taken to restore the waterbody. The 305(b) report summarizes water quality of all waters in Nebraska where monitoring data is available and assessed against Title 117, Nebraska Water Quality Standards. The 303(d) report summarizes the impaired waters list, for which Total Maximum Daily Loads (TMDL) are required to be developed. A TMDL is a technical document outlining possible sources and the extent of pollution impairing a waterbody as well as the load reductions necessary to meet water quality standards. In 2001, the federal Environmental Protection Agency (EPA) issued guidance to States encouraging them to integrate the 305(b) and 303(d) reports into a single Integrated Report (IR). Efforts to combine these separate reports came as a result of many states submitting contradictory water quality data and assessment results. In the past, emphasis was placed on the number of TMDLs States developed and EPA approved. However, in 2011 EPA and State TMDL managers, under pressure to show what steps have been taken to restore impaired waters, began developing guidance for a new "Long-Term Vision" for the CWA Section 303(d) program that focused on implementable TMDLs in high priority areas.

Under this new vision, States outline their process for prioritizing TMDL development and identifying their top priority areas over the long term (2016—2022). "Long-Term Vision" plans are to be individually tailored to fit each State's needs while being a fluid document intended to adjust as their priorities change. The "Long-Term Vision" addresses six main focus areas that impact most States TMDL programs: Prioritization, Assessment, Protection, Alternatives, Engagement, and Integration. States may choose to include all of these focus areas or just a few in their tailored "Long-Term Vision" plans.

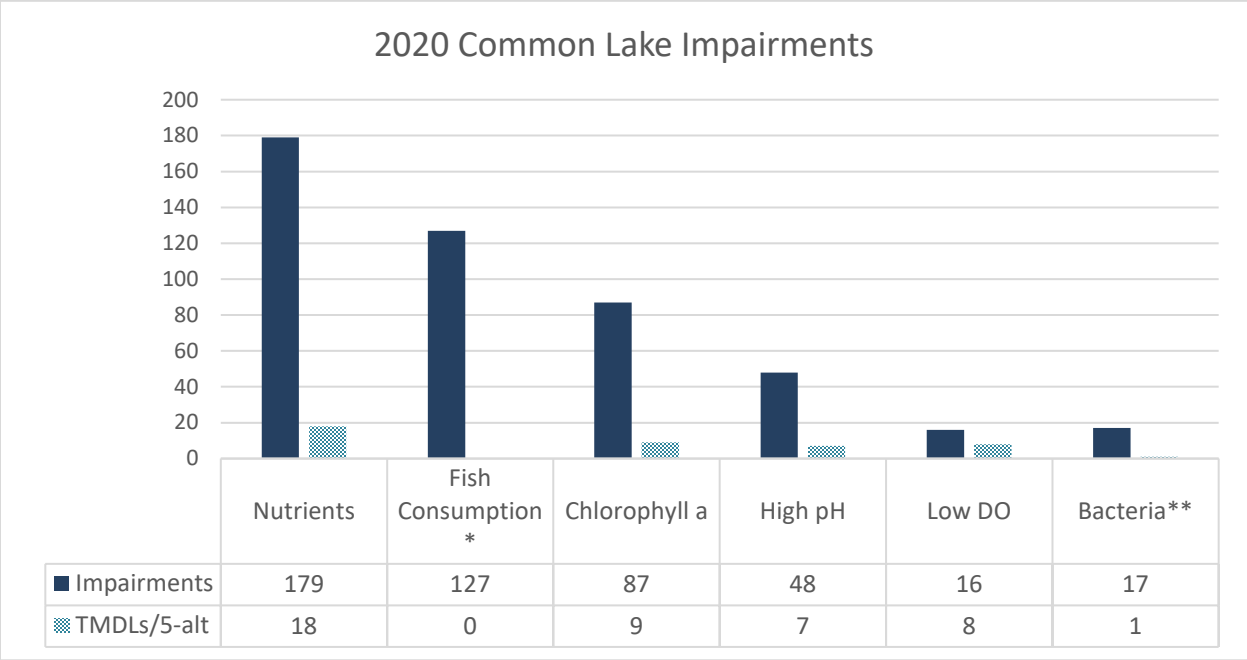
Over the past few years, EPA and the States have collaborated on the development of two new CWA Section 303(d) Measures, referred to as WQ-27 and WQ-28, in line with the "Long-Term Vision". The purpose of these new measures is to provide a common unit by which EPA can report national summaries and measures nationwide. The WQ-27 measure will reflect EPA approved TMDLs as well as alternative restoration approaches and protection plans agreed to by EPA within States priority areas where as the WQ-28 measure reflects the entire state. EPA will translate State priorities to National Hydrography Dataset version 2 (NHD*Plus* V2) catchments and then calculate the area of catchments to determine the State's progress.

Nebraska's approach to TMDL development decisions is unique in that NDEE considers input from many internal programs as well as other key local, state, and federal

organizations and interest groups in order to address water quality issues in a cohesive and efficient manner. It is the intent of NDEE to address waterbodies listed on the 303(d) list that are also of interest and concern to State residents and other water resource agencies and groups. Nebraska's distinct water laws give authority to manage groundwater and surface water quality and quantity to separate agencies. The NDEE, along with the Nebraska Department of Natural Resources (NeDNR), co-manage surface water; NeDNR has authority over water quantity and NDEE has authority over water quality. In 1972, Nebraska's Natural Resources Districts (NRDs) were created by the Nebraska Legislature to manage the State's ground water resources. The interconnection between surface water and groundwater was not legally recognized until 1996. LB108 legally put the hydrologic connection into state statute and NDEE/NeDNR were able to start more integrated planning. Many streams in Nebraska are gaining streams, meaning groundwater feeds into the stream to provide base flow. However the reverse is true for many other streams, mainly those in the upper portion of the South Platte, lower end of the Middle Platte, and the Lower Platte river basins.

Nebraska has 553 lakes and 1558 stream segments designated in Title 117. According to the 2020 IR, 340 lakes and 664 stream segments have been assessed. Of those, 206 or 61% of the lakes and 226 or 34% of the stream segments are listed in Category 5 in the 2020 IR. The most common impairments are shown in Figures 1 and 2 with the total number of EPA approved TMDLs or agreed to alternatives to a TMDL (5-alt) for each type of impairment. It must be noted that waterbodies can be impaired for more than one pollutant, therefore, these numbers will not correspond to the total impaired stream segments and lakes listed in the 2020 IR.

Figure 1. 2020 Integrated Report Lake Results

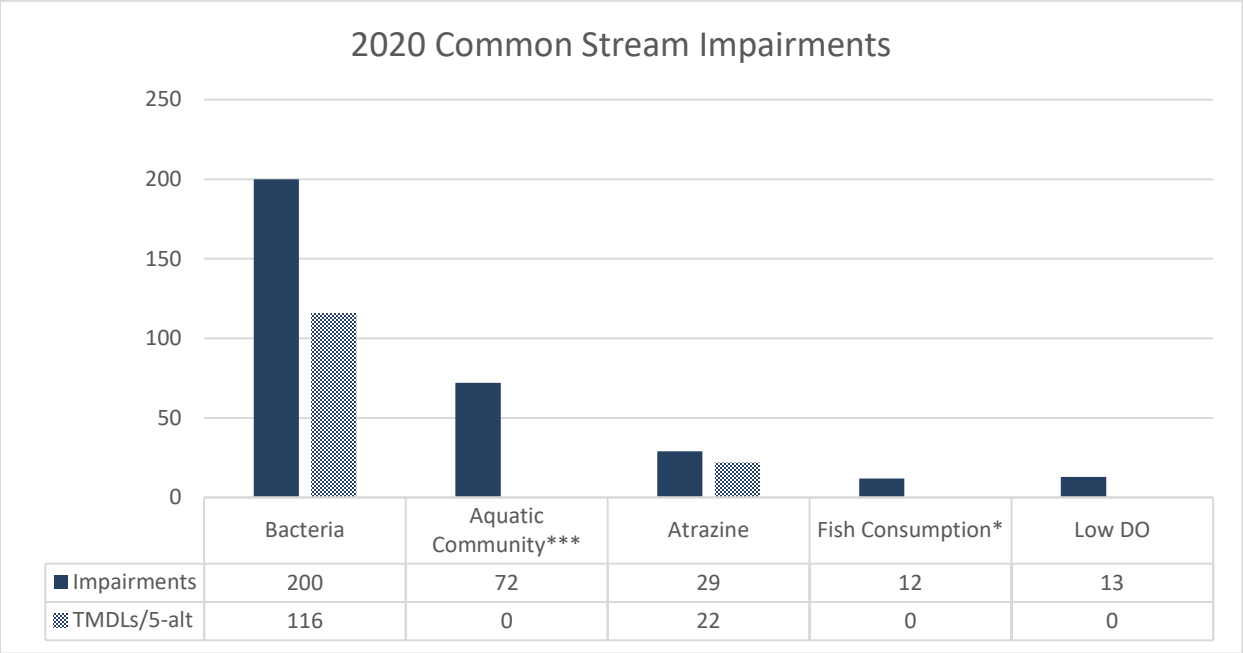


	Nutrients	Fish Consumption *	Chlorophyll a	High pH	Low DO	Bacteria**
Impairments	179	127	87	48	16	17
TMDLs/5-alt	18	0	9	7	8	1

*Fish Consumption impairments have been listed for Mercury, Hazard Index compounds, Cancer Risk compounds or a combination of all three. Historically, a total of 22 contaminants with a tendency to bio-accumulate in fish tissue were analyzed using a complex risk assessment formula. In 2013, EPA's Region VII rescinded analysis of all parameters with the exception of mercury due to continued low concentrations, non-detects, declining trends, and limited resources. In addition, because mercury has diffuse sources and an intricate and variable global cycle, NDEE will not prioritize the development of mercury TMDLs at this time. For more information see NDEE's Regional Ambient Fish Tissue Program Report at http://deq.ne.gov/NDEQProg.nsf/OnWeb/FTMP.

**Bacteria impairments for lakes only include E.coli bacteria. Two additional lakes were also impaired by bacteria due to Microcystin.

Figure 2. 2020 Integrated Report Stream Results



*Fish Consumption impairments have been listed for Mercury, Hazard Index compounds, Cancer Risk compounds or a combination of all three. Historically, a total of 22 contaminants with a tendency to bio-accumulate in fish tissue were analyzed using a complex risk assessment formula. In 2013, EPA's Region VII rescinded analysis of all parameters with the exception of mercury due to continued low concentrations, non-detects, declining trends, and limited resources. In addition, because mercury has diffuse sources and an intricate and variable global cycle, NDEE will not prioritize the development of mercury TMDLs at this time. For more information see NDEE's Regional Ambient Fish Tissue Program Report at http://deq.ne.gov/NDEQProg.nsf/OnWeb/FTMP.

***Aquatic Community impairments are due to a deficiency in either the fish or the macroinvertebrate populations and a lack of habitat where the pollutant is unknown. These bio-assessments are compared to reference sites with similar sizes (small, medium, or large) as well as waterbody types (warm water or cold water). A waterbody is considered impaired if the multimetric index scores are below the average reference site score. These assessments are used as an indication of the watershed health and the need for additional water quality monitoring. Aquatic Community impairments will not be prioritized for TMDL development due to the nature of this monitoring program, however, the NPS program considers aquatic habitat impairments as a justification for writing a watershed management plan.

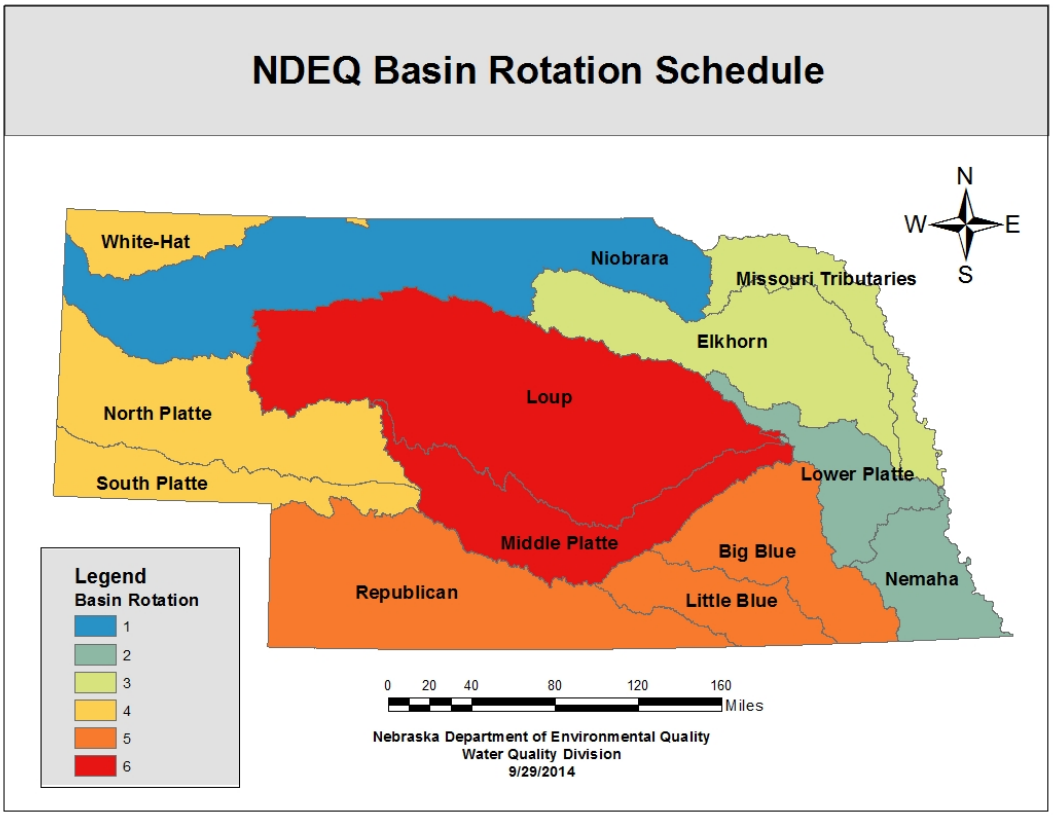
NDEE utilizes the system described below in determining where to focus TMDL development in the next two years following each new IR. In the past NDEE included a short description within the IR outlining priority ranking considerations but fell short of listing the actual waterbodies where TMDLs were being planned. In addition to expanding the TMDL prioritization description to fully explain how NDEE prioritizes, NDEE will also list the waterbodies prioritized for TMDL development and include them in the IR.

Prioritization – *For the 2016 Integrated Reporting cycle and beyond, States shall review, systematically prioritize, and report priority watersheds or water for restoration and*

protection in their biennial Integrated Reports to facilitate State strategic planning for achieving water quality goals.

The "Basin Rotation Approach" in conjunction with the "Social Impact and Implementation Matrix" was used to facilitate prioritizing TMDL development, shown in Figures 3 and 4. The NDEE's six year basin rotation monitoring schedule divides the State's thirteen river basins into a systematic monitoring scheme. Monitoring occurs at both random and ambient sites throughout the basins providing data for previously unassessed waterbodies as well as long term data sets to gauge water quality trends. In an effort to use the most recent data possible, NDEE prefers to work within the river basins of the previous basin rotation when writing TMDLs and 5-alts.

Figure 3. Basin Rotation Map



Nebraska utilizes a matrix which considers the likelihood of TMDL implementation as well as the social impact of the impaired designated use. The matrix puts a higher emphasis on TMDLs supported by local government and active local interest groups. These TMDLs are more likely to be implemented due to the capacity of these groups to provide funding as well as write grant proposals to develop watershed management plans and implement on-the-ground projects. The other matrix consideration is the social impact of the impaired use. NDEE gives priority to TMDL development which addresses waterbodies impaired for

public drinking water supply uses. These impairments have the highest social impact and pose the greatest risk and cost to our residents.

The NDEE is also committed to working with neighboring States to ensure downstream public water supply uses beyond the Nebraska state line are not being impaired even when that use is not designated or impaired in Nebraska. Nebraska's rivers and lakes provide an abundance of recreational opportunities for residence and visitors alike. The condition and sustainability of these water resources not only drives the recreational season's economy, but it also provides an indication of overall soil system health of the watershed. For instance, a stream that is unable to support a healthy macroinvertebrate population will not be able to support a healthy fish population. Often times these sites are found to be highly disturbed and/or the stream bed is covered in silt and the water may be highly turbid. This is an indication of soil erosion and may be associated with non-point source pollution including high levels of pesticides and bacteria from the use of organic fertilizers. A waterbody's aquatic life designated use is important not only for sportsmen and tourism, but also for the ecological integrity of the natural resource in and of itself. Special consideration will be given to waterbodies that support sensitive aquatic species, federally threatened and endangered species, as well as aquatic life unique to Nebraska's varied geographic regions. In addition to considering the type of designated use for which a waterbody is impaired, special characteristics of the waterbody as well as the length and severity of the impairment will also be taken into consideration.

Figure 4. TMDL Development Matrix

			Social Impact of the Imapired Use			
			High			Low
			Public Drinking Water	Recreation	Aquatic Life	Other
Likelyhood of TMDL Implemented	High	Local Government Interested				
		Active Local group interested				
	Low	No Interested parties				

Assessment – *By 2020, States shall identify the extent of impaired, threatened, and healthy waters in each State's priority areas through site-specific assessments, which may be supplemented by on-going state-wide statistical surveys that have been initiated by 2014.*

NDEE utilizes a Basin Rotation Monitoring Approach to more heavily monitor each basin every six years. The Basin Rotation Monitoring Program network consists of several different kinds of sites monitored monthly for trend analysis and threatened waters identification. Integrator sites represent water quality conditions in large heterogeneous basins affected by complex combinations of land use settings, point sources, and natural influences. Basin Integrator sites are located at the downstream-most gaging station of each river basin and reflect environmental factors occurring throughout the entire river basin. Stream Integrator sites are located at the downstream-most gaging station of all major tributary systems to capture the most significant contaminant sources in the basin. Ecoregion Indicator sites represent water quality in a single ecoregion with more than 90% of its area in relatively homogenous land use. Point Source Indicator sites are located downstream of specific major point sources whereas Urban Indicator sites are located downstream of a major urban area and represent their influence on water quality. NDEE's Surface Water Assessment Unit works collaboratively with the TMDL and Integrated Report programs each year to identify data gaps for the next basin rotation efforts. Nebraska utilizes the Biological Stream Monitoring Program to provide an indication of the overall health of the watershed. If the waterbody is determined to not be supporting healthy fish and macroinvertebrate populations, it will be listed as impaired and targeted for a complete chemistry analysis during the next year NDEE is in that basin. Fish kills, algal blooms, and aesthetic issues are also used to identify a need for more in-depth monitoring.

Protection – *For the 2016 reporting cycle and beyond, in addition to the traditional TMDL development priorities and schedules for waters in need of restoration, States shall identify protection planning priorities and schedules for healthy waters, in a manner consistent with each State's systematic prioritization.*

Nebraska is not currently prioritizing the development of protection TMDLs for Title 117 designated State Resource Waters (SRW), which constitutes an outstanding State or National resource or possesses an existing quality which exceeds levels necessary to maintain recreational or aquatic life uses. Should interest in developing a protection plan for a SRW arise, NDEE's NPS program will consider working with the interested party at that time.

The field of water quality management is constantly evolving as technology advances, new products are developed and utilized by consumers and management practices inevitably adapt. For example, Nebraska is continuing to research nutrient levels in streams and rivers to create scientifically defensible and economically feasible management options. Should a new water quality priority develop, the TMDL Program will work with EPA and state water programs in modifying TMDL development priorities. Furthermore, NDEE is

committed to working with other state and local agencies to address water quality deficiencies where flexibility is required to take advantage of time sensitive projects and funding abilities. With that said, Nebraska reserves the right to substitute projects, aiming for the total catchment area agreed upon with EPA by 2022 rather than a static list of priorities.

Alternatives – *By 2018, States shall use alternative approaches, in addition to TMDLs, that incorporate adaptive management and are tailored to specific circumstances where such approaches are better suited to implement priority watershed or water actions that achieve the water quality goals of each state, including identifying and reducing nonpoint sources of pollution.*

Pollutant sources that are determined to be solely of natural or point source causes will not be prioritized for TMDL development; rather a more appropriate alternative approach will be utilized. Naturally occurring pollution will be analyzed and justified in a 4c document while point sources will be addressed with National Pollution Discharge Elimination System (NPDES) permit limits and moved to category 4b. EPA has created a new 5-alt category for impaired waterbodies where the State feels it would be more effective to restore the waterbody with a plan. In cases where the alternative plan option was chosen, the plan must address all pollution sources and outline actions required to meet water quality standards. EPA will not take action to approve or disapprove an alternative to a TMDL plan. However, if EPA agrees to the plan, Nebraska will reclassify the category 5 waterbody to a category 5-alt meaning the waterbody is impaired but a plan to meet WQS is being pursued in lieu of a TMDL at this time.

Engagement – *By 2014, EPA and the States shall actively engage the public and other stakeholders to improve and protect water quality, as demonstrated by documented, inclusive, transparent, and consistent communication; requesting and sharing feedback on proposed approaches; and enhanced understanding of program objectives.*

Nebraska's TMDL and Nonpoint Source (NPS) Programs are designed to complement each other. The NPS program considered EPA's National and Regional priorities as well as state priorities in the development of Nebraska's NPS State Management Plan. The NPS State Management Plan then lists NDEE's priority waters for restoration and protection and is put on public notice for 30 days seeking input from the public and other state and federal agencies. Input is again sought in the Integrated Report public review processes. The Integrated Report not only provides the public a central location for all of the assessed and impaired waters in Nebraska but also references this document which includes an updated list of TMDL development priorities.

Integration – *By 2016, EPA and the States shall identify and coordinate implementation of key point source and nonpoint source control actions that foster effective integration across CWA programs, other statutory programs (e.g., CERCLA, RCRA, SDWA, CAA), and the water quality efforts other Federal departments and agencies (e.g., Agriculture, Interior, Commerce) to achieve the water quality goals of each state.*

NDEE holds a biennial TMDL priorities meeting with the development of each new IR. Nebraska works collaboratively across internal NDEE programs where input is sought from the Groundwater, Surface Water, and Planning Programs including the Water Quality Division (WQD) Director, as well as liaisons from the Nebraska Association of Resources Districts (NARD), the University of Nebraska-Lincoln (UNL) Extension and the USDA Natural Resources Conservation Service (NRCS). The intention of Nebraska's TMDL program is to compliment the Nebraska NPS State Management Plan which considered EPA's National and Regional priorities in the development of state priorities.

The NARD represents the collective interest of Nebraska's 23 NRDs which are individually governed by locally elected board members from within each District. Each NRD has taxing authority which enables them to provide matching funds and personnel to sponsor CWA Section 319 grants. The NARD/NDEE liaison provides the Department with areas of interest from each District, as well as informing the Districts about NDEE programs and grants that may complement their efforts. Many NRDs manage area lakes and work jointly with NDEE's "Beach Watch Program" to provide the public with up to date toxic algae and bacteria alerts and beach closures. The NRDs are major sponsors of NPS projects for both planning and implementation of on-the-ground projects.

The UNL Extension is a trusted source of both human and environmental health research information. Many residents tune into UNL Extension's Backyard Farmer television and podcast programs, seek expert advice from their local County Extension Educators, and reference NebGuides and mobile apps for everything from Early Child Development to the latest CropWatch publications. UNL Extension facilitates Nebraska's 4H programs, County and State Fairs in addition to assisting with multiple environmental field day events for school age children across the state. The NDEE/UNL Extension liaison plays a vital role providing NDEE with public engagement opportunities, the latest information on UNL's priorities and projects as well as new research and tools available to assist NDEE. The liaison communicates NDEE's program updates and grant opportunities to not only the University's staff and students but also the general public.

The NRCS's designated National Water Quality Initiative (NWQI) Hydrologic Unit Codes (HUCs) are also factored into NDEE's TMDL prioritization decisions. In anticipation of NWQI HUCs remaining in the program for several years, NDEE prefers to work collaboratively not only with TMDL development but also through our NPS, Community

Lakes, and Wellhead Protection programs. NDEE's liaison with NRCS is key to facilitating these inter-agency relationships. Once a waterbody has been assessed and is placed on the 303(d) list, NRCS looks at areas where there is public interest in the form of either a community based watershed management plan or an active NPS project that runs through the HUC or is upstream of an impairment to make their NWQI HUC selections.

TMDL Development Priorities

Nebraska's TMDL priorities are listed below for the next two years following each new IR. Due to NDEE's prioritization process it is not possible to provide a static long term list.

2020-2021 TMDL Priorities (4A)			
Waterbody ID	**Waterbody Name**	**Impaired Use**	**Pollutant**
RE1-10200	Lost Creek	Recreation	E.coli
RE1-20000 (Phase II)	Republican River	Recreation	E.coli
RE1-20300	Courtland Canal	Recreation	E.coli
RE1-30000	Republican River	Recreation	E.coli
RE1-30100 (Protection)	Elm Creek	Use Not Designated	E.coli
RE1-30500 (Protection)	Crooked Creek	Use Not Designated	E.coli
RE1-31200	Thompson Creek	Recreation	E.coli
RE1-40000	Republican River	Recreation	E.coli
RE1-50000	Republican River	Recreation	E.coli
RE2-10000 (Phase II)	Republican River	Recreation	E.coli
RE2-10100	Methodist Creek	Recreation	E.coli
RE2-10200	Cook Creek	Recreation	E.coli
RE2-10300	Prairie Dog Creek	Recreation	E.coli
RE2-10600 (Protection)	Sappa Creek	Use Not Designated	E.coli
RE2-10610	Beaver Creek	Recreation	E.coli
RE2-10900 (Protection)	Spring Creek	Use Not Designated	E.coli
RE3-10000 (Phase II)	Republican River	Recreation	E.coli
RE3-10500	Red Willow Creek	Recreation	E.coli
RE3-10600	Red Willow Creek	Recreation	E.coli
RE3-20000	Republican River	Recreation	E.coli
RE3-20200	Frenchman Creek	Recreation	E.coli
RE3-20400	Frenchman Creek	Recreation	E.coli
RE3-40000	Republican River	Recreation	E.coli
RE3-50000	Republican River	Recreation	E.coli
RE3-50300	North Fork Republican River	Recreation	E.coli
RE3-50400	Arikaree River	Recreation	E.coli

2020-2021 TMDL Alternative Priorities (5-Alt)			
Waterbody ID	**Waterbody Name**	**Impaired Use(s)**	**Pollutant(s)**
WH1-11300	Chadron Creek	Recreation	E.coli

Appendix F: Determination for not utilizing National Park Service data submitted to NDEE for the purpose of developing the 2020 Water Quality Integrated Report.

The National Park Service (NPS) responded to NDEE's request for surface water quality data collected between 2009 and 2018 on July 8, 2019 informing the Department of the availability of the Niobrara National Scenic River dataset from EPA's WQX/STORET database.

In regards to the information submitted, NDEE recognizes the needs of the NPS are unique to the Niobrara National Scenic River and don't necessary align with the needs of the Department for Clean Water Act water quality assessment and listing purposes. The objective of gathering this data was to evaluate locations where park visitors may be recreating in and around rivers, streams, and waterfalls.

A 2018 comparison of NPS and NDEE datasets collected on the Niobrara National Scenic River revealed discrepancies in the laboratory testing methods and results for certain pollutants. When it is not possible to compare results from different testing procedures, NDEE will utilize internal datasets that have been collected according to the Department's approved quality assurance monitoring plan. NDEE is working with NPS to develop such a plan for the Niobrara National Scenic River.

Appendix G: NDEE Response to Public Comments on the Draft 2020 Nebraska Water Quality Integrated Report

In compliance with 40 CFR 130.7(a), NDEE issued a 30 day public notice on November 20, 2020 on the NDEE website, announcing the availability of the 2020 Draft Water Quality Integrated Report for public review and comment. Following EPA's *Guidance for 2006 Assessment, Listing, and Reporting Requirements Pursuant to Sections 303(d), 305(b) and 314 of the Clean Water Act,* NDEE's responses to public comments will be found here following the public review period.