

September 15, 2023

North Dakota Department of Environmental Quality
Division of Water Quality
918 East Divide Avenue
Bismarck, ND 58501-1947

RE: August 2023 Devils Lake Outlets Monthly Discharge and Water Quality Report

Division of Water Quality:

The monthly discharge report for the Devils Lake Outlets for the month of August 2023 is enclosed. The Devils Lake West End Outlet was operated at a design capacity of 200 cfs. Due to overflow issue at the Josephine standpipe, the West End Outlet was not able to be operated at the full capacity of 250 cfs. The average rate of discharge from the West End Outlet was 194 cfs with a total discharge volume of 11,943 acre-feet in August. The East End Outlet started with 150 cfs, which was reduced to 75 cfs on August 25 due to the downstream water quality constraint. The East End Outlet operated at an average rate of 127cfs with a total discharge volume of 7,797 acre-feet in August. The combined total discharge volume from both West and East End Outlet was 19,740 acre-feet in August.

The attached tables contain daily outlet discharges measured from the flow meters and water quality results from samples collected from the outlets and the corresponding upstream and downstream locations. Also included are average daily stream flow data and conductivity data obtained from the USGS gaging stations located upstream and downstream of the outlets.

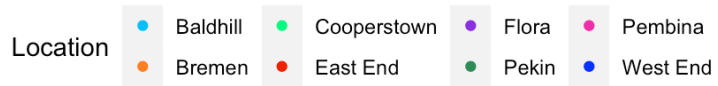
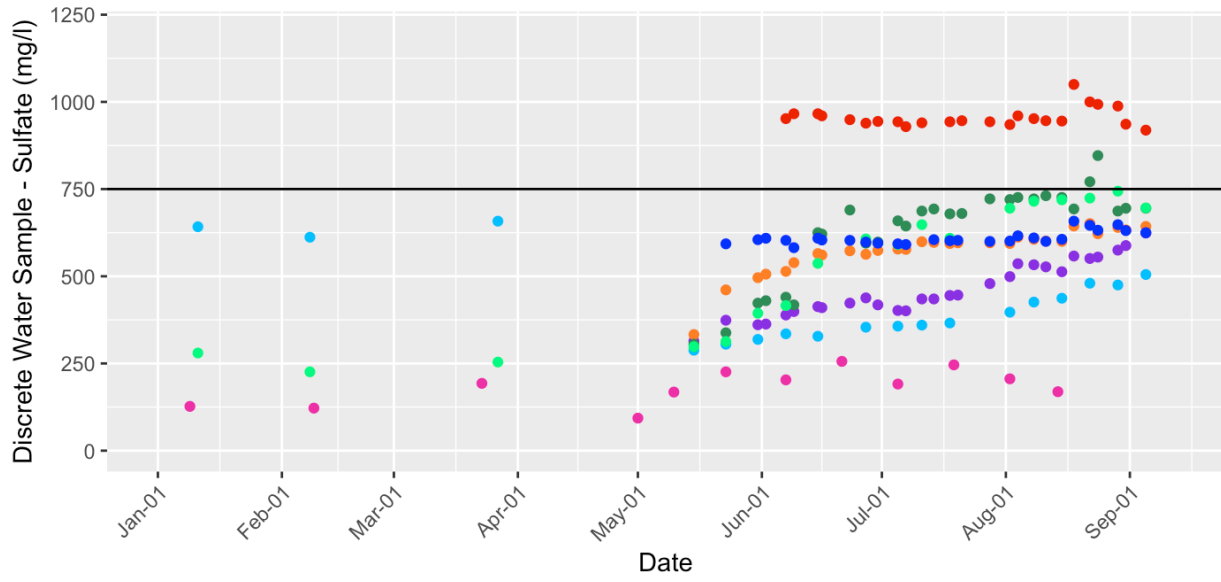
If you have any questions, please contact me at (701) 328-9049.

Sincerely,

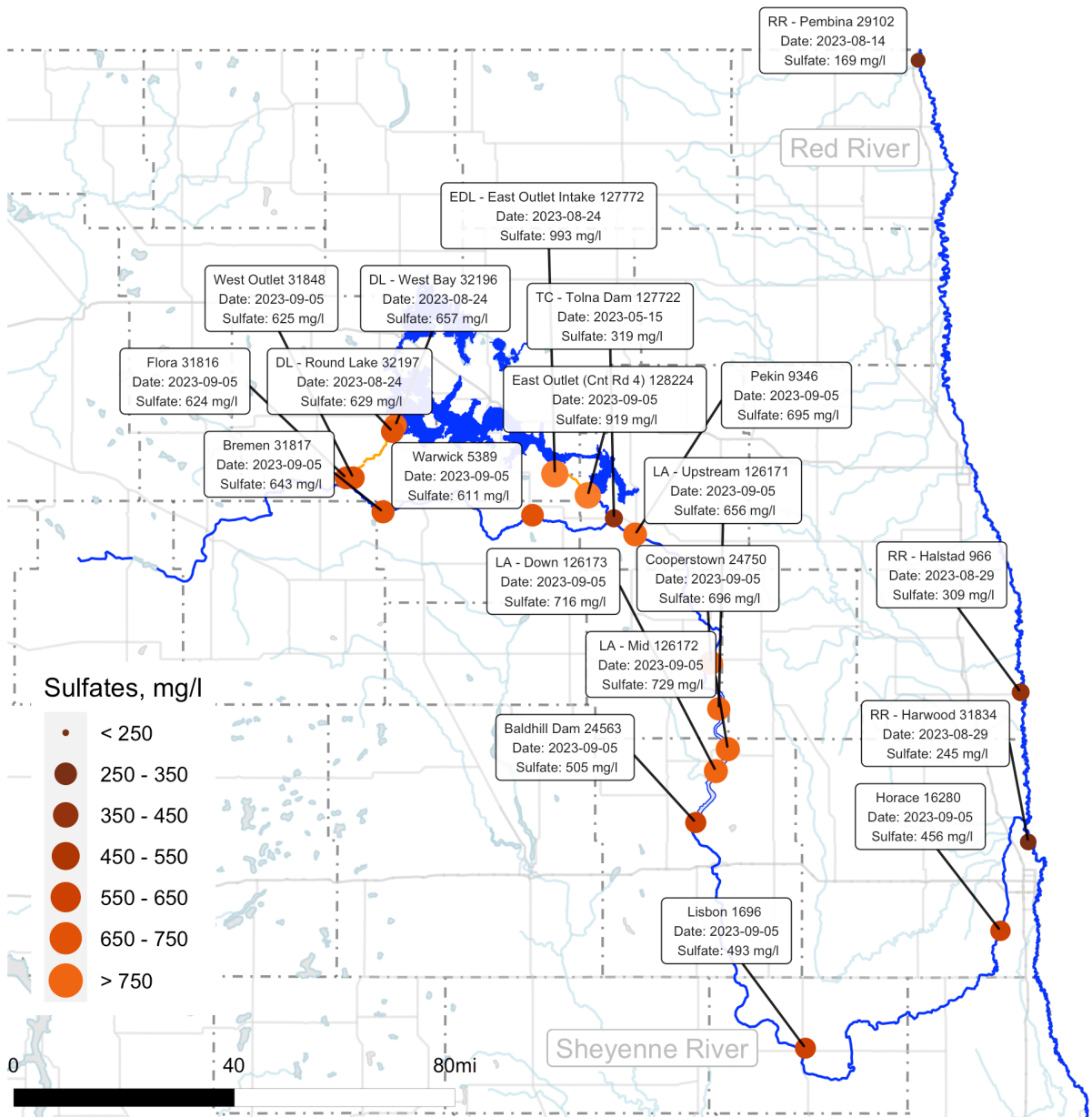


Yaping Chi, P.E.
Water Resource Engineer, Water Development
YC:/416-10
Enclosure

2023 Devils Lake Outlet Sulfate Trends



Devils Lake Outlet Operations Preliminary Sulfate Concentrations 09/11/2023



OUTLET OPERATOR NAME/ADDRESS
 NAME: ND Dept. of Water Resources
 ADDRESS: 1200 Memorial Highway,
 Bismarck ND 58504

MONTHLY DISCHARGE REPORT


LOCATION: WEST END OUTLET

FACILITY: Devils Lake Outlet Project

MONITORING PERIOD	
START DATE	END DATE
8/1/23	8/31/23

LOCATION: Benson Co, ND

Devils Lake West Outlet 11943 ac-ft over 31 Days

PARAMETER	MINIMUM	MAXIMUM	AVERAGE	UNITS	SAMPLING FREQUENCY	TYPE
pH	8.63	8.8	8.71	SU	2 X Week	GRAB
SULFATE	600	658	625	mg/l	2 X Week	GRAB
7 DAY AVERAGE OF SULFATE	601	652	623	mg/L	Average	GRAB
OUTLET DISCHARGE	154	205	194	cfs	Continuous	Recorder
SIGNATURE				9/11/23	701-328-9049	
NAME AND TITLE	YAPING CHI, WATER RESOURCES ENGINEER, WATER DEVELOPMENT DIVISION			DATE	TELEPHONE NUMBER	
COMMENT AND EXPLANATION OF ANY VIOLATIONS						
A summary of individual sample results and flow data for both outlets, and upstream & downstream monitoring location is attached.						

Notes:

- ac-ft - Acre feet
- SU - Standard Units
- µS/cm - microsiemens per Centimeter at 25 degrees Celsius
- mg/L - milligrams per liter or parts per million
- cfs - cubic feet per second

OUTLET OPERATOR NAME/ADDRESS
 NAME: ND Dept. of Water Resources
 ADDRESS: 1200 Memorial Highway,
 Bismarck ND 58504

MONTHLY DISCHARGE REPORT


LOCATION: EAST END OUTLET

FACILITY: Devils Lake Outlet Project

MONITORING PERIOD	
START DATE	END DATE
8/1/23	8/31/23

LOCATION: Ramsey, Benson, Nelson Co, ND

Devils Lake East Outlet 7797 ac-ft over 31 Days

PARAMETER	MINIMUM	MAXIMUM	AVERAGE	UNITS	SAMPLING FREQUENCY	TYPE
pH	8.38	8.74	8.64	SU	2 X Week	GRAB
SPECIFIC CONDUCTANCE	2770	3060	2892	µS/cm	Continuous	Recorder
SULFATE	935	1050	971	mg/L	2 X Week	GRAB
7 DAY AVERAGE OF SULFATE	935	1025	971	mg/l	Average	GRAB
OUTLET DISCHARGE	43.2	162	127	cfs	Continuous	Recorder
SIGNATURE				9/11/23	701-328-9049	
NAME AND TITLE	YAPING CHI, WATER RESOURCES ENGINEER, WATER DEVELOPMENT DIVISION			DATE	TELEPHONE NUMBER	
COMMENT AND EXPLANATION OF ANY VIOLATIONS						

Notes:

- ac-ft - Acre feet
- SU - Standard Units
- µS/cm - microsiemens per Centimeter at 25 degrees Celsius
- mg/L - milligrams per liter or parts per million
- cfs - cubic feet per second

OUTLET OPERATOR NAME/ADDRESS
 NAME: ND Dept. of Water Resources
 ADDRESS: 1200 Memorial Highway,
 Bismarck ND 58504


MONTHLY DISCHARGE REPORT

LOCATION: UPSTREAM OF THE WEST END OUTLET (FLORA)

FACILITY: Devils Lake Outlet Project

LOCATION: Benson, ND

MONITORING PERIOD	
START DATE	END DATE
8/1/23	8/31/23

PARAMETER	MINIMUM	MAXIMUM	AVERAGE	UNITS	SAMPLING FREQUENCY	TYPE
pH	8.16	8.43	8.32	SU	2 X Week	GRAB
SPECIFIC CONDUCTANCE	1820	1900	1868	µS/cm	Continuous	Recorder
SULFATE	499	588	544	mg/L	2 X Week	GRAB
7 DAY AVERAGE OF SULFATE	499	582	539	mg/l	Average	GRAB
FLOW, INSTREAM	2.1	12.1	4.3	cfs	Continuous	Recorder
SIGNATURE				9/11/23	701-328-9049	
NAME AND TITLE	YAPING CHI, WATER RESOURCES ENGINEER, WATER DEVELOPMENT DIVISION			DATE	TELEPHONE NUMBER	
COMMENT AND EXPLANATION OF ANY VIOLATIONS						
A summary of individual sample results and flow data for both outlets, and upstream & downstream monitoring location is attached						

Notes:

- ac-ft - Acre feet
- SU - Standard Units
- µS/cm - microsiemens per Centimeter at 25 degrees Celsius
- mg/L - milligrams per liter or parts per million
- cfs - cubic feet per second

OUTLET OPERATOR NAME/ADDRESS
 NAME: ND Dept. of Water Resources
 ADDRESS: 1200 Memorial Highway,
 Bismarck ND 58504


MONTHLY DISCHARGE REPORT

**LOCATION: DOWNSTREAM OF THE WEST END OUTLET (BREMEN)
 UPSTREAM OF THE EAST END OUTLET**

FACILITY: Devils Lake Outlet Project

LOCATION: Eddy Co, ND

MONITORING PERIOD	
START DATE	END DATE
8/1/23	8/31/23

PARAMETER	MINIMUM	MAXIMUM	AVERAGE	UNITS	SAMPLING FREQUENCY	TYPE
pH	8.61	8.84	8.73	SU	2 X Week	GRAB
SPECIFIC CONDUCTANCE	1930	2070	2013	µS/cm	Continuous	Recorder
SULFATE	594	651	620	mg/L	2 X Week	GRAB
7 DAY AVERAGE OF SULFATE	594	648	619	mg/l	Average	GRAB
FLOW, INSTREAM	165	225	182	cfs	Continuous	Recorder
SIGNATURE				9/11/23	701-328-9049	
NAME AND TITLE	YAPING CHI, WATER RESOURCES ENGINEER, WATER DEVELOPMENT DIVISION			DATE	TELEPHONE NUMBER	
COMMENT AND EXPLANATION OF ANY VIOLATIONS						
A summary of individual sample results and flow data for both outlets, and upstream & downstream monitoring location is attached						

Notes:

- ac-ft - Acre feet
- SU - Standard Units
- µS/cm - microsiemens per Centimeter at 25 degrees Celsius
- mg/L - milligrams per liter or parts per million
- cfs - cubic feet per second

OUTLET OPERATOR NAME/ADDRESS
 NAME: ND Dept. of Water Resources
 ADDRESS: 1200 Memorial Highway,
 Bismarck ND 58504


MONTHLY DISCHARGE REPORT

LOCATION: DOWNSTREAM OF BOTH OUTLETS (PEKIN)

FACILITY: Devils Lake Outlet Project

MONITORING PERIOD	
START DATE	END DATE
8/1/23	8/31/23

LOCATION: Nelson Co, ND

PARAMETER	MINIMUM	MAXIMUM	AVERAGE	UNITS	SAMPLING FREQUENCY	TYPE
pH	8.49	8.68	8.59	SU	2 X Week	GRAB
SULFATE	687	846	732	mg/L	2 X Week	GRAB
7 DAY AVERAGE OF SULFATE	691	809	733	mg/L	Average	GRAB
FLOW, INSTREAM	NA	NA	NA	cfs	Continuous	Recorder
SIGNATURE				9/11/23	701-328-9049	
NAME AND TITLE	YAPING CHI, WATER RESOURCES ENGINEER, WATER DEVELOPMENT DIVISION			DATE	TELEPHONE NUMBER	
COMMENT AND EXPLANATION OF ANY VIOLATIONS						
A summary of individual sample results and flow data for both outlets, and upstream & downstream monitoring location is attached						

Notes:

- ac-ft - Acre feet
- SU - Standard Units
- µS/cm - microsiemens per Centimeter at 25 degrees Celsius
- mg/L - milligrams per liter or parts per million
- cfs - cubic feet per second
- NA - Not available

OUTLET OPERATOR NAME/ADDRESS
 NAME: ND Dept. of Water Resources
 ADDRESS: 1200 Memorial Highway,
 Bismarck ND 58504


MONTHLY DISCHARGE REPORT

LOCATION: DOWNSTREAM OF BOTH OUTLETS (COOPERSTOWN)

FACILITY: Devils Lake Outlet Project

MONITORING PERIOD	
START DATE	END DATE
8/1/23	8/31/23

LOCATION: Griggs Co, ND

PARAMETER	MINIMUM	MAXIMUM	AVERAGE	UNITS	SAMPLING FREQUENCY	TYPE
pH	8.55	8.6	8.57	SU	2 X Week	GRAB
SPECIFIC CONDUCTANCE	2410	2410	2410	µS/cm	Continuous	Recorder
SULFATE	695	744	719	mg/L	2 X Week	GRAB
7 DAY AVERAGE OF SULFATE	695	744	719	mg/l	Average	GRAB
FLOW, INSTREAM	298	431	368	cfs	Continuous	Recorder
SIGNATURE				9/11/23	701-328-9049	
NAME AND TITLE	YAPING CHI, WATER RESOURCES ENGINEER, WATER DEVELOPMENT DIVISION			DATE	TELEPHONE NUMBER	
COMMENT AND EXPLANATION OF ANY VIOLATIONS						
A summary of individual sample results and flow data for both outlets, and upstream & downstream monitoring location is attached						

Notes:

ac-ft - Acre feet
 SU - Standard Units
 µS/cm - microsiemens per Centimeter at 25 degrees Celsius
 mg/L - milligrams per liter or parts per million
 cfs - cubic feet per second

Date	Above West End Outlet - Sheyenne River near Flora		West End Outlet		Below West End Outlet/Above East End Outlet -Sheyenne River near Bremen		East End Outlet		Below East End Outlet - Tolna Coulee near Tolna		Below East End Outlet - Sheyenne River near Cooperstown		Sum of Outlets	
	Average Streamflow USGS Gage (cfs)	Average Specific Conductance USGS Gage (µS/cm)	Average Daily Outlet Discharge (cfs)	Total Daily Volume (ft3)	Average Streamflow USGS Gage (cfs)	Average Specific Conductance USGS Gage (µS/cm)	Average Daily Outlet Discharge (cfs)	Total Daily Volume (ft3)	Average Streamflow USGS Gage (cfs)	Average Specific Conductance USGS Gage (µS/cm)	Average Streamflow USGS Gage (cfs)	Average Specific Conductance USGS Gage (µS/cm)	Average Daily Outlet Discharge (cfs)	Total Daily Volume (ft3)
8/1/2023	12.1	1860	205	17672000	225	1990	162	13972000	167	2830	424	-	366	31644000
8/2/2023	5.17	1870	154	13317000	190	1990	161	13889000	164	2790	429	-	315	27206000
8/3/2023	4.93	1900	157	13563000	165	1980	161	13921000	165	2790	431	-	318	27484000
8/4/2023	4.83	1900	188	16221000	167	1970	162	13972000	167	2770	431	-	349	30193000
8/5/2023	6.14	1890	197	17012000	185	1960	162	13962000	168	2770	427	-	358	30974000
8/6/2023	7.41	1900	198	17118000	191	1960	154	13276000	165	2780	420	-	352	30394000
8/7/2023	8.11	1900	197	17048000	192	1990	130	11233000	130	2770	402	-	327	28281000
8/8/2023	7.64	1900	198	17098000	193	1980	150	12991000	162	2840	382	-	348	30089000
8/9/2023	7.17	1900	197	17048000	193	1980	148	12779000	153	2830	379	-	345	29827000
8/10/2023	6.87	1880	197	17052000	194	1940	161	13951000	175	2820	379	2410	359	31003000
8/11/2023	6.08	1860	200	17278000	191	1930	154	13313000	171	2880	394	2360	354	30591000
8/12/2023	5.41	1850	199	17220000	188	1930	152	13110000	155	2880	392	2350	351	30330000
8/13/2023	5.98	1850	200	17296000	197	1930	156	13517000	178	2840	398	2360	357	30813000
8/14/2023	4.29	1840	201	17355000	198	2010	151	13061000	160	2940	395	2370	352	30416000
8/15/2023	3.45	1840	187	16137000	189	2010	147	12686000	154	2940	394	2410	334	28823000
8/16/2023	2.83	1840	191	16535000	177	2010	50.8	4390000	-	-	401	2360	242	20925000
8/17/2023	3.21	1820	199	17197000	181	2020	114	9858000	-	-	395	2360	313	27055000
8/18/2023	2.85	1820	198	17111000	188	2040	155	13426000	166	3060	387	2360	353	30537000
8/19/2023	2.14	1830	199	17151000	186	2090	128	11094000	162	2980	349	2330	327	28245000
8/20/2023	2.11	1830	198	17134000	182	2090	86.1	7439000	71.3	2980	319	2310	284	24573000
8/21/2023	2.29	1820	195	16864000	189	2060	156	13487000	165	2950	355	-	351	30351000
8/22/2023	2.2	1840	193	16705000	187	-	156	13520000	166	2930	357	-	350	30225000
8/23/2023	2.24	1850	197	16978000	184	2060	160	13806000	172	2940	331	-	356	30784000
8/24/2023	2.26	-	197	16995000	185	2070	140	12067000	165	2970	364	-	336	29062000
8/25/2023	2.76	1860	198	17142000	189	2060	59.7	5160000	71.2	2960	385	-	258	22302000
8/26/2023	2.86	1870	198	17070000	186	2060	81.4	7030000	74.6	2950	391	-	279	24100000
8/27/2023	2.61	1870	197	17011000	186	2070	77.9	6730000	78.4	2930	382	-	275	23741000
8/28/2023	2.34	1880	198	17121000	185	2070	52.6	4545000	68.5	2910	340	-	251	21666000
8/29/2023	2.6	1880	198	17091000	185	2060	43.2	3733000	-	-	320	-	241	20824000
8/30/2023	2.73	1890	197	17056000	186	2060	76.6	6621000	69.7	2880	314	2240	274	23677000
8/31/2023	2.43	1900	193	16661000	186	2070	82.2	7106000	81.9	2850	298	2220	275	23767000
Minimum	2.1	1820	154	13317000	165	1930	43.2	3733000	68.5	2770	298	2220	197	17050000
Maximum	12.1	1900	205	17672000	225	2090	162	13972000	178	3060	431	2410	366	31644000
Average	4.3	1805	194	16782484	182	1949.677419	127	10956290	136	2785	368	2174	321	27738774
			Total (Mgal)	3868			Total (Mgal)	2541					Total (Mgal)	6432
			Total (Ac-ft)	11943			Total (Ac-ft)	7797					Total (Ac-ft)	19740

Notes:

- cfs - cubic feet per second
- µS/cm - Microsiemens per Centimeter at 25 degrees Celsius
- ft3 - cubic feet
- Mgal - Millions of Gallons
- Ac ft - Acre Feet
- USGS streamflow and specific conductance data are preliminary and courtesy of the USGS

Sheyenne River Upstream of West End Outlet Near Flora
Monthly Water Quality Summary
Devils Lake Outlet Discharge Report

Date	Time	Specific Conductance USGS Gage (μ S/cm)	pH	Sulfate (mg/L)	7 Day Rolling Average of Sulfate (mg/L)	Total Suspended Solids (mg/L)	Number of samples included in 7- day Average
8/1/23	-	-	-	-	-	-	-
8/2/23	8:15:00 AM	1870	8.31	499	499	NA	1
8/3/23	-	-	-	-	-	-	-
8/4/23	10:20:00 AM	1900	8.21	536	518	NA	2
8/5/23	-	-	-	-	-	-	-
8/6/23	-	-	-	-	-	-	-
8/7/23	-	-	-	-	-	-	-
8/8/23	8:05:00 AM	1900	8.35	533	535	NA	2
8/9/23	-	-	-	-	-	-	-
8/10/23	-	-	-	-	-	-	-
8/11/23	8:40:00 AM	1860	8.16	527	530	NA	2
8/12/23	-	-	-	-	-	-	-
8/13/23	-	-	-	-	-	-	-
8/14/23	-	-	-	-	-	-	-
8/15/23	8:15:00 AM	1840	8.32	513	520	70	2
8/16/23	-	-	-	-	-	-	-
8/17/23	-	-	-	-	-	-	-
8/18/23	7:25:00 AM	1820	8.43	558	536	NA	2
8/19/23	-	-	-	-	-	-	-
8/20/23	-	-	-	-	-	-	-
8/21/23	-	-	-	-	-	-	-
8/22/23	8:10:00 AM	1840	8.42	551	555	NA	2
8/23/23	-	-	-	-	-	-	-
8/24/23	9:25:00 AM	-	8.3	555	553	NA	2
8/25/23	-	-	-	-	-	-	-
8/26/23	-	-	-	-	-	-	-
8/27/23	-	-	-	-	-	-	-
8/28/23	-	-	-	-	-	-	-
8/29/23	8:10:00 AM	1880	8.32	575	565	NA	2
8/30/23	-	-	-	-	-	-	-
8/31/23	9:35:00 AM	1900	8.38	588	582	NA	2
Minimum		1820	8.16	499	499	70	
Maximum		1900	8.43	588	582	70	
Average		1868	8.32	544	539	70	

Notes:

μ S/cm - microsiemens per Centimeter at 25 degrees Celsius
mg/L - milligrams per liter or parts per million
NA - Not analyzed
USGS specific conductance data courtesy of the USGS
USGS data are provisional and subject to revision

**West End Outlet
Monthly Water Quality Summary
Devils Lake Outlet Discharge Report**

Date	Time	Specific Conductance from Telemetry System ($\mu\text{S}/\text{cm}$)	pH	Sulfate (mg/L)	7 Day Rolling Average of Sulfate (mg/L)	Total Suspended Solids (mg/L)	Number of samples included in 7-day Average
8/1/23	-	-	-	-	-	-	-
8/2/23	8:30:00 AM	-	8.67	601	601	NA	1
8/3/23	-	-	-	-	-	-	-
8/4/23	10:35:00 AM	-	8.79	616	609	NA	2
8/5/23	-	-	-	-	-	-	-
8/6/23	-	-	-	-	-	-	-
8/7/23	-	-	-	-	-	-	-
8/8/23	8:20:00 AM	-	8.8	610	613	NA	2
8/9/23	-	-	-	-	-	-	-
8/10/23	-	-	-	-	-	-	-
8/11/23	8:30:00 AM	-	8.63	600	605	NA	2
8/12/23	-	-	-	-	-	-	-
8/13/23	-	-	-	-	-	-	-
8/14/23	-	-	-	-	-	-	-
8/15/23	8:25:00 AM	-	8.66	606	603	8	2
8/16/23	-	-	-	-	-	-	-
8/17/23	-	-	-	-	-	-	-
8/18/23	7:10:00 AM	-	8.64	658	632	NA	2
8/19/23	-	-	-	-	-	-	-
8/20/23	-	-	-	-	-	-	-
8/21/23	-	-	-	-	-	-	-
8/22/23	8:25:00 AM	-	8.7	646	652	NA	2
8/23/23	-	-	-	-	-	-	-
8/24/23	9:10:00 AM	-	8.75	632	639	NA	2
8/25/23	-	-	-	-	-	-	-
8/26/23	-	-	-	-	-	-	-
8/27/23	-	-	-	-	-	-	-
8/28/23	-	-	-	-	-	-	-
8/29/23	8:20:00 AM	-	8.66	648	640	NA	2
8/30/23	-	-	-	-	-	-	-
8/31/23	9:20:00 AM	-	8.79	631	640	NA	2
Minimum			8.63	600	601	8	
Maximum			8.8	658	652	8	
Average			8.71	625	623	8	

Notes:

$\mu\text{S}/\text{cm}$ - microsiemens per Centimeter at 25 degrees Celsius
mg/L - milligrams per liter or parts per million
NA - Not analyzed

Sheyenne River Downstream of West End Outlet/Upstream of East End Outlet (Bremen)
Monthly Water Quality Summary
Devils Lake Outlet Discharge Report

Date	Time	Specific Conductance USGS Gage (μ S/cm)	pH	Sulfate (mg/L)	7 Day Rolling Average of Sulfate (mg/L)	Total Suspended Solids (mg/L)	Number of samples included in 7- day Average
8/1/23	-	-	-	-	-	-	-
8/2/23	7:45:00 AM	1990	8.7	594	594	NA	1
8/3/23	-	-	-	-	-	-	-
8/4/23	9:30:00 AM	1970	8.82	612	603	NA	2
8/5/23	-	-	-	-	-	-	-
8/6/23	-	-	-	-	-	-	-
8/7/23	-	-	-	-	-	-	-
8/8/23	7:35:00 AM	1980	8.79	606	609	NA	2
8/9/23	-	-	-	-	-	-	-
8/10/23	-	-	-	-	-	-	-
8/11/23	9:00:00 AM	1930	8.66	601	604	NA	2
8/12/23	-	-	-	-	-	-	-
8/13/23	-	-	-	-	-	-	-
8/14/23	-	-	-	-	-	-	-
8/15/23	7:47:00 AM	2010	8.68	600	601	31	2
8/16/23	-	-	-	-	-	-	-
8/17/23	-	-	-	-	-	-	-
8/18/23	7:45:00 AM	2040	8.77	644	622	NA	2
8/19/23	-	-	-	-	-	-	-
8/20/23	-	-	-	-	-	-	-
8/21/23	-	-	-	-	-	-	-
8/22/23	7:40:00 AM	-	8.67	651	648	NA	2
8/23/23	-	-	-	-	-	-	-
8/24/23	9:45:00 AM	2070	8.78	622	637	NA	2
8/25/23	-	-	-	-	-	-	-
8/26/23	-	-	-	-	-	-	-
8/27/23	-	-	-	-	-	-	-
8/28/23	-	-	-	-	-	-	-
8/29/23	7:44:00 AM	2060	8.61	640	631	NA	2
8/30/23	-	-	-	-	-	-	-
8/31/23	9:55:00 AM	2070	8.84	633	637	NA	2
Minimum		1930	8.61	594	594	31	
Maximum		2070	8.84	651	648	31	
Average		2013	8.73	620	619	31	

Notes:

μ S/cm - microsiemens per Centimeter at 25 degrees Celsius

mg/L - milligrams per liter or parts per million

NA - Not analyzed

USGS specific conductance data courtesy of the USGS

USGS data are provisional and subject to revision

**East End Outlet
Monthly Water Quality Summary
Devils Lake Outlet Discharge Report**

Date	Time	Specific Conductance USGS Gage (μ S/cm)	pH	Sulfate (mg/L)	7 Day Rolling Average of Sulfate (mg/L)	Total Suspended Solids (mg/L)	Number of samples included in 7- day Average
8/1/23	-	-	-	-	-	-	-
8/2/23	9:50:00 AM	2790	8.69	935	935	NA	1
8/3/23	-	-	-	-	-	-	-
8/4/23	7:45:00 AM	2770	8.69	960	948	NA	2
8/5/23	-	-	-	-	-	-	-
8/6/23	-	-	-	-	-	-	-
8/7/23	-	-	-	-	-	-	-
8/8/23	9:35:00 AM	2840	8.74	952	956	NA	2
8/9/23	-	-	-	-	-	-	-
8/10/23	-	-	-	-	-	-	-
8/11/23	10:25:00 AM	2880	8.55	946	949	NA	2
8/12/23	-	-	-	-	-	-	-
8/13/23	-	-	-	-	-	-	-
8/14/23	-	-	-	-	-	-	-
8/15/23	9:45:00 AM	2940	8.62	945	946	15	2
8/16/23	-	-	-	-	-	-	-
8/17/23	-	-	-	-	-	-	-
8/18/23	9:15:00 AM	3060	8.65	1050	998	NA	2
8/19/23	-	-	-	-	-	-	-
8/20/23	-	-	-	-	-	-	-
8/21/23	-	-	-	-	-	-	-
8/22/23	9:43:00 AM	2930	8.62	1000	1025	NA	2
8/23/23	-	-	-	-	-	-	-
8/24/23	11:05:00 AM	2970	8.71	993	997	NA	2
8/25/23	-	-	-	-	-	-	-
8/26/23	-	-	-	-	-	-	-
8/27/23	-	-	-	-	-	-	-
8/28/23	-	-	-	-	-	-	-
8/29/23	9:10:00 AM	-	8.38	988	991	NA	2
8/30/23	-	-	-	-	-	-	-
8/31/23	11:25:00 AM	2850	8.74	936	962	NA	2
Minimum		2770	8.38	935	935	15	
Maximum		3060	8.74	1050	1025	15	
Average		2892	8.64	971	971	15	

Notes:

μ S/cm - microsiemens per Centimeter at 25 degrees Celsius

mg/L - milligrams per liter or parts per million

NA - Not analyzed

USGS specific conductance data courtesy of the USGS

USGS data are provisional and subject to revision

**Sheyenne River Downstream of Both Outlets Near Pekin
Monthly Water Quality Summary
Devils Lake Outlet Discharge Report**

Date	Time	Specific Conductance Laboratory Analysis (µS/cm)	pH	Sulfate (mg/L)	7 Day Rolling Average of Sulfate (mg/L)	Total Suspended Solids (mg/L)	Number of samples included in 7-day Average
8/1/23	-	-	-	-	-	-	-
8/2/23	10:15:00 AM	-	8.61	720	720	NA	1
8/3/23	-	-	-	-	-	-	-
8/4/23	7:20:00 AM	-	8.56	726	723	NA	2
8/5/23	-	-	-	-	-	-	-
8/6/23	-	-	-	-	-	-	-
8/7/23	-	-	-	-	-	-	-
8/8/23	10:05:00 AM	-	8.57	722	724	NA	2
8/9/23	-	-	-	-	-	-	-
8/10/23	-	-	-	-	-	-	-
8/11/23	10:00:00 AM	-	8.49	731	727	NA	2
8/12/23	-	-	-	-	-	-	-
8/13/23	-	-	-	-	-	-	-
8/14/23	-	-	-	-	-	-	-
8/15/23	10:05:00 AM	-	8.57	726	729	51	2
8/16/23	-	-	-	-	-	-	-
8/17/23	-	-	-	-	-	-	-
8/18/23	8:50:00 AM	-	8.66	693	710	NA	2
8/19/23	-	-	-	-	-	-	-
8/20/23	-	-	-	-	-	-	-
8/21/23	-	-	-	-	-	-	-
8/22/23	10:05:00 AM	-	8.57	771	732	NA	2
8/23/23	-	-	-	-	-	-	-
8/24/23	10:45:00 AM	-	8.62	846	809	NA	2
8/25/23	-	-	-	-	-	-	-
8/26/23	-	-	-	-	-	-	-
8/27/23	-	-	-	-	-	-	-
8/28/23	-	-	-	-	-	-	-
8/29/23	10:20:00 AM	-	8.58	687	767	NA	2
8/30/23	-	-	-	-	-	-	-
8/31/23	11:00:00 AM	-	8.68	695	691	NA	2
Minimum			8.49	687	691	51	
Maximum			8.68	846	809	51	
Average			8.59	732	733	51	

Notes:

µS/cm - microsiemens per Centimeter at 25 degrees Celsius

mg/L - milligrams per liter or parts per million

NA - Not analyzed

Bold font denotes sample sulfate concentration exceeds 750 mg/L

Sheyenne River Downstream of Both Outlets Near Cooperstown
Monthly Water Quality Summary
Devils Lake Outlet Discharge Report

Date	Time	Specific Conductance USGS Gage (μ S/cm)	pH	Sulfate (mg/L)	7 Day Rolling Average of Sulfate (mg/L)	Total Suspended Solids (mg/L)	Number of samples included in 7- day Average
8/1/23	-	-	-	-	-	-	-
8/2/23	11:05:00 AM	-	8.55	695	695	NA	1
8/3/23	-	-	-	-	-	-	-
8/4/23	-	-	-	-	-	-	-
8/5/23	-	-	-	-	-	-	-
8/6/23	-	-	-	-	-	-	-
8/7/23	-	-	-	-	-	-	-
8/8/23	10:53:00 AM	-	8.6	715	715	NA	1
8/9/23	-	-	-	-	-	-	-
8/10/23	-	-	-	-	-	-	-
8/11/23	-	-	-	-	-	-	-
8/12/23	-	-	-	-	-	-	-
8/13/23	-	-	-	-	-	-	-
8/14/23	-	-	-	-	-	-	-
8/15/23	11:00:00 AM	2410	8.58	719	719	109	1
8/16/23	-	-	-	-	-	-	-
8/17/23	-	-	-	-	-	-	-
8/18/23	-	-	-	-	-	-	-
8/19/23	-	-	-	-	-	-	-
8/20/23	-	-	-	-	-	-	-
8/21/23	-	-	-	-	-	-	-
8/22/23	11:00:00 AM	-	8.57	724	724	NA	1
8/23/23	-	-	-	-	-	-	-
8/24/23	-	-	-	-	-	-	-
8/25/23	-	-	-	-	-	-	-
8/26/23	-	-	-	-	-	-	-
8/27/23	-	-	-	-	-	-	-
8/28/23	-	-	-	-	-	-	-
8/29/23	11:05:00 AM	-	8.56	744	744	NA	1
8/30/23	-	-	-	-	-	-	-
8/31/23	-	-	-	-	-	-	-
Minimum		2410	8.55	695	695	109	
Maximum		2410	8.6	744	744	109	
Average		2410	8.57	719	719	109	

Notes:

μ S/cm - microsiemens per Centimeter at 25 degrees Celsius

mg/L - milligrams per liter or parts per million

NA - Not analyzed

USGS specific conductance data courtesy of the USGS

USGS data are provisional and subject to revision