

Douglas Creek Watershed Project

IMPLEMENTATION PLAN
GACKLE, DANIEL - FPAC-NRCS, ND

WEST MCLEAN SOIL CONSERVATION DISTRICT | 140 5TH AVE SW, Garrison, ND 58540

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West McLean Soil Conservation District

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Project Information

State: North Dakota

Watershed: Douglas Creek Watershed

Hydrologic Unit Code;
1011010133 & 1011010132

High Priority Watershed: Yes

Project Type: Watershed

Waterbody Type: Rivers, Streams

NPS Category: Agriculture

Project Location: McLean County North Dakota

Overall Goal:

The goal is to improve the water quality of the Douglas Creek system to benefit aquatic life and recreational uses. This will be accomplished by providing technical, educational, and financial assistance to landowners within the watershed to help implement Best Management Practices (BMP's) on the land that improve water quality. The secondary goal is to provide educational opportunities to help create awareness about benefit of water quality practices.

Project Description:

To achieve our overall Non-Point Source (NPS) water quality goals within the Douglas Creek Watershed, the West McLean Soil Conservation District, NRCS, FSA, and other State Conservation Partners will provide technical, educational, and financial assistance to implement BMPs that improve water quality. The plan on addressing the project goals is as follows.

1). Efficient targeting of BMPs to achieve the highest impact when implementing BMPs in the project area, outreach will be targeted on land units that are within the NRCS minimum planning distance for practices that trap non-point pollution to improve water quality. These practices include Riparian Herbaceous Cover (391), Riparian Forest Buffer (391), Filter Strip (393), Vegetative Buffer (601), Access Control (472), Pasture & Hayland Planting (512), Prescribed Grazing (528), Fencing (382). Other approved practices outlined in the Non-Point Source Management Program's (NPS Program) BMP Guidelines which support NPS mitigation adjacent to the waterbody will also be considered.

2). Conservation Community The project's water quality goals are too immense for West McLean SCD (WMSCD) to address and remediate alone, however as part of the project we will continue to build our relationships with other conservation partners in the district and broaden our scope of conservation partners to help promote BMPs. The hope is that we will continue relationship building to find partners who are able to contribute technical and financial resources, thus potentially driving down the costs on the BMPs that will have the greatest impact.

3.) Landowner and Community Education To achieve our long-term water quality goals the project will also provide informational and educational programming opportunities with the objective of increasing public awareness to the causes, effects, and solutions to non-point source pollution. These opportunities would come in the form of landowner field days highlighting BMP projects in the watershed, educational workshops with conservation partner organizations focused on treating resource problems with BMP solutions, and informational mailings such as newsletters and postcards.

4.) Measure and Monitor Quality of Water To assess the impact of the implemented BMPs we will continue to collect water samples and track the trends of the water quality in the Douglas Creek. It will be critical to monitor the benefits of the proposed practices, so that we can double down on efforts that provide positive impacts or change course and develop alternatives should we observe the need. We will also be monitoring the changes in land management practices and how implemented BMPs reward wildlife, landowner's resources, and water quality alike. As we verify the results of implementing these practices, we can use this data to promote the practices to other landowners in the watershed.

Douglas Creek Funding Allocation:

FY 24 Section 319 Funds Requested – \$ 418,950 Match – \$ 279,300

Other Federal Funds Requested - \$ 650,000

Total Project Costs Requested - \$ 1,373,000

2.0 – Statement of Need

2.1 – Project Need

The West McLean Soil Conservation District's (WMSCD) mission is to provide local leadership in the conservation of our natural resources to the people in the WMSCD by promoting conservation education and providing technical assistance to help plan and install these practices on the land. In keeping with our mission, the district monitored water quality in the Douglas Creek during 2 seasons which was supported with CWA Section 604(b) funding administered by the North Dakota Department of Environmental Quality (NDDEQ). The Douglas Creek is the largest watershed in our district and empties into Lake Sakakawea, which is an important recreational resource in our District. The parameters that were sampled and analyzed include Nutrients Complete (i.e., total nitrogen, total Kjeldahl nitrogen, nitrate-nitrite, ammonia, total phosphorus), Total Suspended Solids (TSS), and E. coli bacteria (recreation season only). According to the NDDEQ's Douglas Creek Water Quality summary all sites are "Not Supporting" for recreational uses during a month or multiple months throughout the sampling season due to elevated E. Coli levels.

2.2 – Waterbody Description - Douglas Creek Watershed

The Douglas Creek project area consists of two subwatersheds, West Branch Douglas Creek and Douglas Creek, Hydraulic Unit Codes (HUCs) 1011010132 and 1011010133, respectively. These are sub-watersheds of the Lake Sakakawea watershed (10110101). This project focuses on the three main tributaries in the Douglas Creek HUC10 boundaries, which flow into the North side of Lake Sakakawea. The tributaries include East Branch Douglas Creek (380317), Middle Branch Douglas Creek (380316 & 380318), and West Branch Douglas Creek (380315). Combined these watersheds encompass nearly 200,000 acres (118,143.71 acres and 77,902.08 acres for Douglas Creek and West Branch Douglas Creek, respectively) of the Upper Missouri Basin.

The Douglas Creek is classified as a class II stream, which states that the quality of waters in this class shall permit the propagation and life of resident fish species and other aquatic biota. The quality of water shall also permit its use for recreation, irrigation, livestock watering, and wildlife use. The creek is used primarily for agricultural purposes including the watering of livestock and wildlife. No local cities obtain drinking water from the creek. There are limited opportunities for recreation on the creek.

2.3 – Maps – Appendix A

2.4 – General Information

Douglas Creek is a tributary of the Missouri River System and lies within the level III North Western Glaciated Plains (42) Ecoregion. The Northwestern Glaciated Plains ecoregion (42) marks the westernmost extent of the continental glaciation. The youthful morainal landscape has significant surface irregularity and high concentrations of wetlands. The rise in elevation along the eastern boundary defines the beginning of the great plains. Land use is transitional between the intensive dryland farming and cattle ranching.

The West branch of the Douglas creek system is primarily comprised of Missouri Coteau Slope (42c). This region is composed of simple drainage patterns and fewer wetland depressions. Due to the level of gently rolling topography, there is more cropland than on the Missouri Coteau Ecoregion(42a). Cattle graze on the steeper land that occurs along drainages. There is a small area of Ecoregion (42a) in the Northern portion of the West Branch.

The Middle and East branch of the Douglas Creek is an equal mix of Missouri Coteau (42a), Collapsed Glacial Outwash (42b), Missouri Coteau Slope (42c), and River Breaks (43c).

Missouri Coteau (42a) is described as rolling hummocks that enclose countless wetland depressions or potholes. During its slow retreat, the Wisconsinian glacier stalled on the Missouri escarpment for thousands of years, melting slowly beneath a mantle of sediment to create the characteristic pothole topography of the Coteau. The wetland of the Missouri Coteau and the neighboring prairie pothole regions are the major waterfowl production areas in North America. Land use on the coteau is a mixture of tilled agriculture in flatter areas and grazing land on steeper slopes.

Collapsed Glacial Outwash (42b) formed from the gravel and sand deposited by glacial meltwater and precipitation runoff over stagnant ice. Many large shallow lakes are found in these areas; these lakes and wetlands tend to be slightly to very alkaline depending upon the flow path of groundwater moving through the permeable outwash deposits. They attract birds preferring large areas of open water, such as white pelicans, black terns, and fosters terns, as well as those living in brackish water such as avocets and tundra swans.

River Breaks (43c) form broken terraces and uplands that descend to the Missouri River and its major tributaries. They have formed particularly in soft, easily erodible strata, such as Pierre shale. The dissected topography, wooded draws and uncultivated areas provide a haven for wildlife. Riparian gallery forests of cottonwood and green ash persist along major tributaries, but they have been largely eliminated along the Missouri River by impoundments.

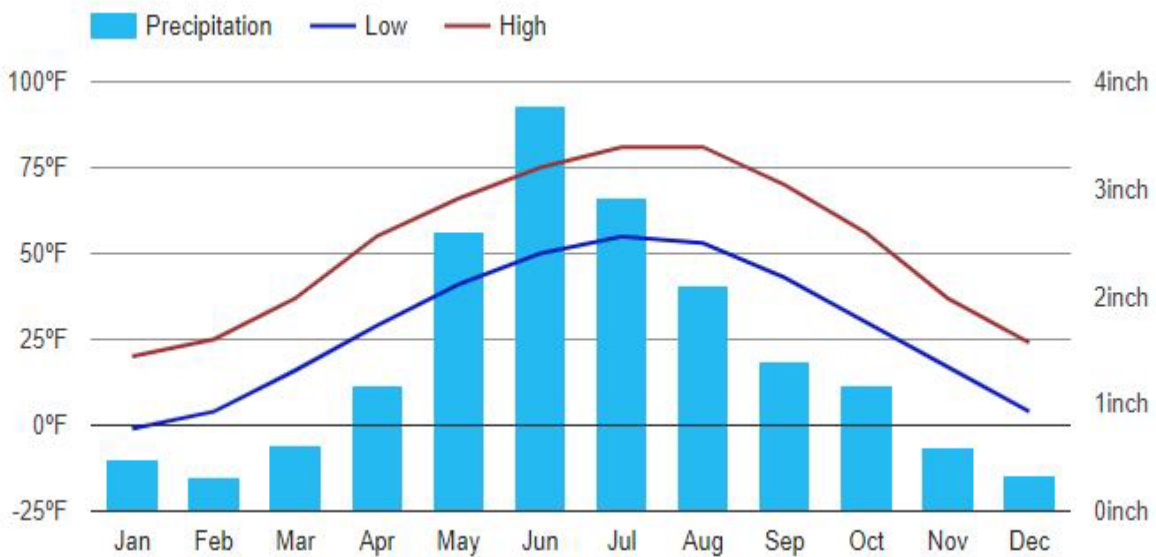
Dominate Soil Associations in the project area are C210 Williams Bowbells Loams, C164 William Falkirk Loams, C132 Williams Zahl Loams. These prime farmland soils lend the project area to be primarily composed of cropland. According to the 2021 National Agricultural Statistical Service Land Survey, the project area of 195,00 acres breaks down roughly to the following *150,000 cropland acres, *39,000

Pasture/Range acres, * 6,000 Herbaceous/ Woody Wetlands acres. Crops commonly grown include, spring wheat, soybeans, corn, canola, barley, edible beans, peas, sunflowers, flax, oats, lentils.

Most livestock operations in the project area are primarily beef cattle and graze them season long during the growing season, returning them to the home stock yard usually in October. According to the 2022 USDA Ag. Census, Mclean County has over 34,500 cattle.

Based on the Köppen climate classification the regions climate is predominantly a Humid Continental Climate (Dfb) with warm to hot somewhat humid summers and cold windy winters. This is defined as climate where there is at least one month colder than -3°C and precipitation is generally the same throughout the year. This climate is usually found between 45° and 55° latitude but may extend up to 60° latitude. A small portion of the project area blends into the climate classification Semi-Arid Continental Climate (Dwb). This climate experiences less precipitation and less humidity but similar temperature profiles.

Average annual precipitation is approximately 15 to 17 inches. During and average year around 86% of the precipitation will fall from April to October. Average approximate snowfall is 36 inches.



2.5 – Water Quality Problem Definition

Four sites on the Douglas Creek were monitored for 2 years. The parameters that were sampled and analyzed include Nutrients Complete (i.e., total nitrogen, total Kjeldahl nitrogen, nitrate-nitrite, ammonia, total phosphorus), Total Suspended Solids (TSS), and E. coli bacteria (recreation season only).

Upon review of the data in this report nitrogen, phosphorus, and total suspended solids trends at the four sampling sites varied from slightly decreasing/steady to moderately increasing throughout the sampling season. According to these results, E. coli is the parameter of greatest concern due to its notable fluctuations throughout the recreational season (increasing trends at all sites) and sample results greatly exceeding the threshold level (greater than 409 CFU/100 mL). All sites are “Not Supporting for recreational uses during a month or multiple months throughout the sampling seasons.”

Appendix C: Water Quality Summary

3.1- Overall Goal

The project’s overall environmental goal is to restore the water quality by reducing the overall non-point source pollutants from agriculture entering the Douglas Creek System. These pollutants include total nitrogen, total phosphorus, and E. coli bacteria. The goal of .866mg/L for total nitrogen (TN) and 0.07mg/L for total phosphorus (TP) will be used. These values are often used as targets or limits in water quality management. High levels of nitrogen and phosphorus in water bodies can lead to nutrient pollution, which can cause problems like algal blooms and low oxygen levels in the water. The target concentrations will follow the ND Water Quality Standards, E. Coli Bacteria are 126 organisms/ 100mL with less than 10% of the samples exceeding 409 CFU/100mL. This goal will be achieved with the environmental objective of implementing BMPs in the project area. BMP technical assistance and implementation of practices will be targeted at two different priority areas. The highest priority group are land units on the main branches of the West, Middle, and East Douglas Creeks that are within the 30ft minimum planning distance for buffer practices. The high priority group are land units that are within the 30ft minimum planning distance of any Douglas Creek water feature.

During the course of the project, WMSCD will also work towards achieving our programmatic goal of promoting grazing best management practices to reduce the amount of nutrients, E. Coli, and sediment entering the Douglas Creek. These grassland BMP’s include prescribed grazing, exclusion fencing, and alternative watering systems. This goal will also include educating the public about project success stories and general water quality benefits of the 319 programs. The projects programmatic objects include newsletter, field days, youth education, and producer educational programs.

Given the ambitious TMDL target goals, this project has a long-term view of the overall project and understanding that these goals will take multiple phases of watershed projects. Over the long term of educating, implementing, and promoting the water quality management practices we will help landowners adopt water quality management practices that reduce E. Coli Bacteria, estimated sediment, and nutrient loads from land within the project area.

In summary, our overall objectives would be: 1). To provide educational, technical, and financial resources to landowners to help conservation plan for landowners and implement best management practices on the land. 2). Increase public awareness to the causes, effects, and solutions to NPS pollution.

3.2 Objectives, Tasks, Product, Costs

Objective 1: Install BMPS to reduce pollutants. - The project's overall environmental goal is to restore the water quality by reducing the non-point source pollutants from agriculture entering the Douglas Creek System. The project will benefit recreational uses and aquatic life in the Douglas Creek. The project goals will be accomplished by reducing E. coli bacteria, Total Nitrogen, Total Phosphorus, and Total Suspended Solids.

- Task 1: Employ one full time watershed coordinator to provide
 - Product: Project coordinator to manage day-to-day project activities; provide technical assistance to landowners/producers; organize and conduct informational and educational events; and coordinate with NRCS Field office staff, Extension Service, and other resource management entities to promote and install BMP
 - Cost: \$222,840

- Task 2: Improve vegetative conditions along riparian corridors
 - Product: Provide technical and financial support to landowners to install practices on cropland and grasslands within the watershed. In instances where the land intersects directly with the creek buffer practices will be utilized to trap the pollutants before they enter the creek. On grassland acres practices promoted will include cross fencing, prescribed grazing, and water development. Cropland practices will be limited to cover crop and nutrient management in tandem, and conversion of marginal cropland to hay land or pasture plantings.
 - Cost: \$175,110

Objective 2: Secure additional cost share opportunities for Douglas Creek watershed producers in the High and Highest Priority acres to improve water quality and riparian areas.

- Task 1: Coordinate with organizations/agencies, such as NRCS, FSA, NDSU Extension, Ducks Unlimited, Pheasants Forever, and Audubon Dakota to find additional technical and financial resources to implement BMPs
 - Product: Included in Objective 1
 - Cost: Included Objective 1- Task 1

Objective 3: Increase Landowner awareness to the problems and solutions to NPS pollution.

- Task 1: Prepare newsletter articles and direct mailings to local land users, public and media to promote project and disseminate information on water.
 - Products - Minimum of 15 newsletters, 5 press releases, and 5 direct mailings.
 - Cost – \$12,000

- Task 2: Hold educational workshops that highlight BMPs that include partners from other conservation organizations.
 - Products - 2 educational opportunities that focus on BMPs with presenters from partner organizations and paid experts in the conservation field.
 - Cost – \$6,000

 - Products – Coordinate with organizations/agencies, such as NDSU Extension Service and NRCS to conduct 4 field days addressing manure management, soil health, soil salinity, range management, cover crops, and/or riparian management.
 - Cost – \$3,000

3.3 – Milestones

See Milestones table- Appendix B

3.4 – Permits

All necessary permits will be acquired. These may include CWA section 404 permits. Project will work with the NDDEQ to determine if North Dakota Pollution Discharge Elimination System permits are needed for proposed livestock manure systems. Cultural Resource concerns and issues will be addressed by following the procedures of the NDDEQ in consulting with the North Dakota State Historical Preservation Officer

3.5 - Appropriateness of the Lead Sponsors

The West McLean County Soil Conservation District is the appropriate entity to coordinate and implement this project. The SCD is a locally elected volunteer conservation organization that serves all the people in the district. They are able to employ the necessary personnel to carry out the project, as well as manage the funds involved.

3.6 – Operation and Maintenance

The WMSCD will be responsible for auditing Operation & Maintenance Agreements (O&M) on BMPs after completion through yearly status reviews of EPA-319 contracts. The lifespan of each BMP will be listed in the individual contracts to ensure longevity of the practices. The producer signs the “EPA 319 Funding Agreement Provisions” form which explains in detail the consequences of destroying a BMP before the completion of its lifespan.

4.0 Coordination Plan

4.1 Identify Agency Roles

This project is sponsored by the West McLean Soil Conservation District (WMSCD). The project partners will be Natural Resources Conservation Service, ND Department of Water Quality, Farm Service Agency, McLean Water Resource Board, and NDSU County Extension Service. Additional project outreach partners will include Ducks Unlimited, Audubon Great Plains, ND Grazing Lands Coalition, ND Natural Resources Trust, Pheasants Forever, and North Dakota Game and Fish.

1. *West McLean SCD*

West McLean Soil Conservation District (WMSCD) – The lead project sponsor is the WMSCD. The North Dakota Department of Environmental Quality will hold a contract with the district. Land use assessment, BMP implementation project administration, computer entry, landowner contacts, water sampling, and water quality education will be the responsibility of the district.

2. USDA NRCS

The NRCS will provide day to day assistance in conservation planning, plan writing, contract writing, and technical assistance for construction and installation of planned BMPs. NRCS personnel will conduct quality review and compliance checks of BMPs that are designed by NRCS personnel. Standards and Specifications for approved BMPs will be provided by local NRCS personnel from the NRCS Technical Guide. Environment Quality Incentive Program funds will also be available in limited amounts. (NRCS will aid by facilitating local involvement and participating in educational outreach programs during the project period.) An annual review will be conducted with the NRCS District Conservationist and the SCD to reconfirm and acknowledge NRCS’s ability to commit to the project. Letter of support submitted.

3. ND Department of Environmental Quality

The NDDEQ will oversee 319 funding as well as provide training for proper water quality sample collection, preservation, and transportation to ensure reliable data is obtained. The NDDEQ will provide the sponsor oversight to ensure proper management and expenditures of Section 319 funds. They will assist NRCS and the West McLean SCD personnel in review of O & M requirements for Section 319 funded BMPs.

4. USDA Farm Service Agency

Programs available through FSA will be pursued for cost share assistance. Letter of support submitted.

5. Water Resources Board

McLean County Water Resource Board will be involved in the project by acting as advisors. McLean County WRB will contribute technical assistance for the project and promote the project in McLean County.

6. NPS BMP Team

Engineering and technical assistance is available and will be pursued for project assistance when appropriate.

7. NDSU Cooperative Extension Service

To complement the project's information and education activities, local and state Extension personnel will contribute in-kind assistance. This will entail workshops and field tours. The specific role will be dependent on the type of information/education activity being implemented and availability of staff and materials.

8. North Dakota Game and Fish

Programs and technical assistance are available and will be pursued for project assistance when appropriate.

9. Ducks Unlimited

Programs and technical assistance are available and will be pursued for project assistance when appropriate.

10. Audubon Great Plains

Programs and technical assistance are available and will be pursued for project assistance when appropriate.

11. ND Natural Resources Trust

Programs and technical assistance are available and will be pursued for project assistance when appropriate.

12. Pheasants Forever

Programs and technical assistance are available and will be pursued for project assistance when appropriate.

13. ND Grazing Lands Coalition

Technical assistance is available and will be pursued for project assistance when appropriate.

4.2 Local Support

The West McLean Soil Conservation District plans to devote a page of our quarterly newsletter to the Douglas Creek Watershed Project. This page will include updates about potential opportunities, project successes, and surveys. These tools will help us build relationships with landowners in the project area to help aid in BMP adoption. Letters of support for the project from local sponsors attached in the letter of support appendix. See Appendix C.

4.3 See attached letters of Support.

Letters of support are on file at the West McLean Soil Conservation District office. A list of those submitting letters of support can be found in Appendix C.

4.4 Other Watershed Projects

No other 319 watershed projects have been conducted in the Douglas Creek Watershed Project Area.

5.0 Evaluation and Monitoring Plan

The sampling and analysis plan (SAP) for the project will be finalized by the NDDEQ after the Project Implementation Plan (PIP) is approved. An approved SAP will be included in the final project implementation plan.

6.0 Budget

See Appendix B - Part 1 – Budget Sources, Part II – 319 Detailed (Federal / Non-Federal), and Supplemental BMP Budget Table

7.0 Public Involvement

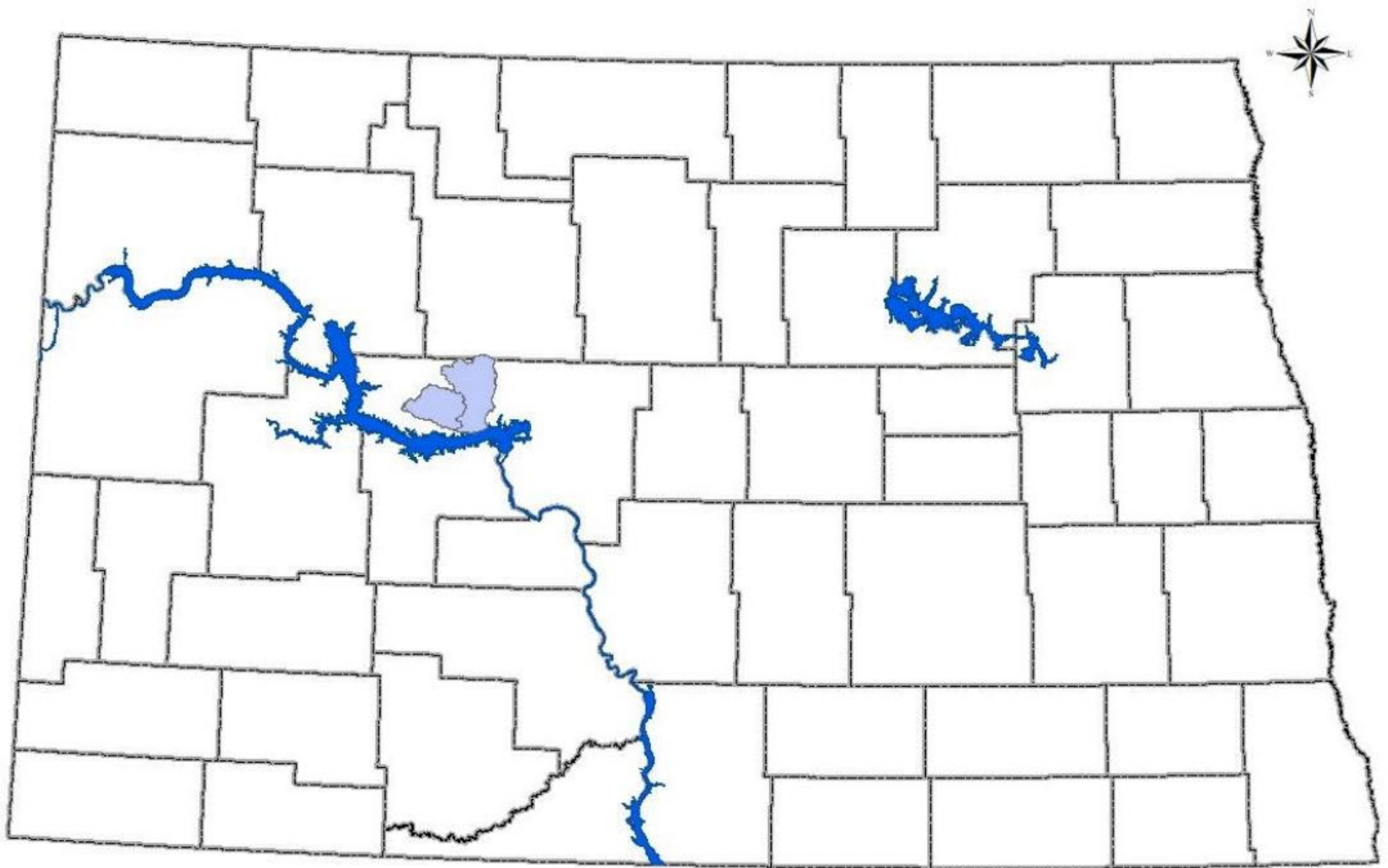
The West McLean Soil Conservation District plans to devote a page of our quarterly newsletter to the Douglas Creek Watershed Project. This page will include updates about potential opportunities, project successes, and surveys. These tools will help us build relationships with landowners in the project area to help aid in BMP adoption. As previously mentioned, educational and informational meetings will continue to be conducted to keep the public informed. The WMSCD's website will be updated on a

regular basis with any pertinent information. WMSCD County also maintains a Facebook account which will be utilized to disperse information regarding the program. The project will make use of advertisements in local newspapers to spread word of the project and host informational meetings to recruit interested parties.

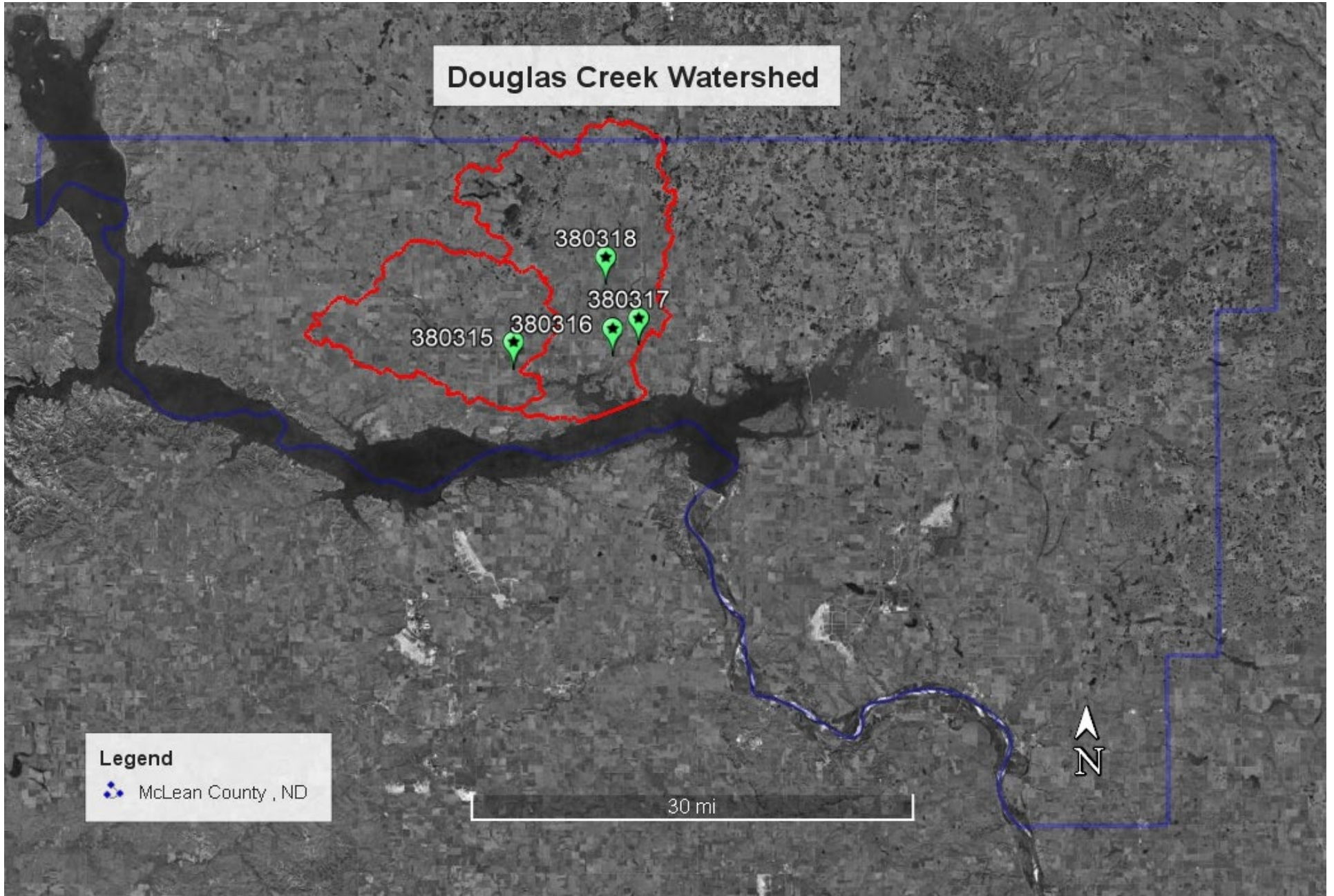
Appendix A

Maps

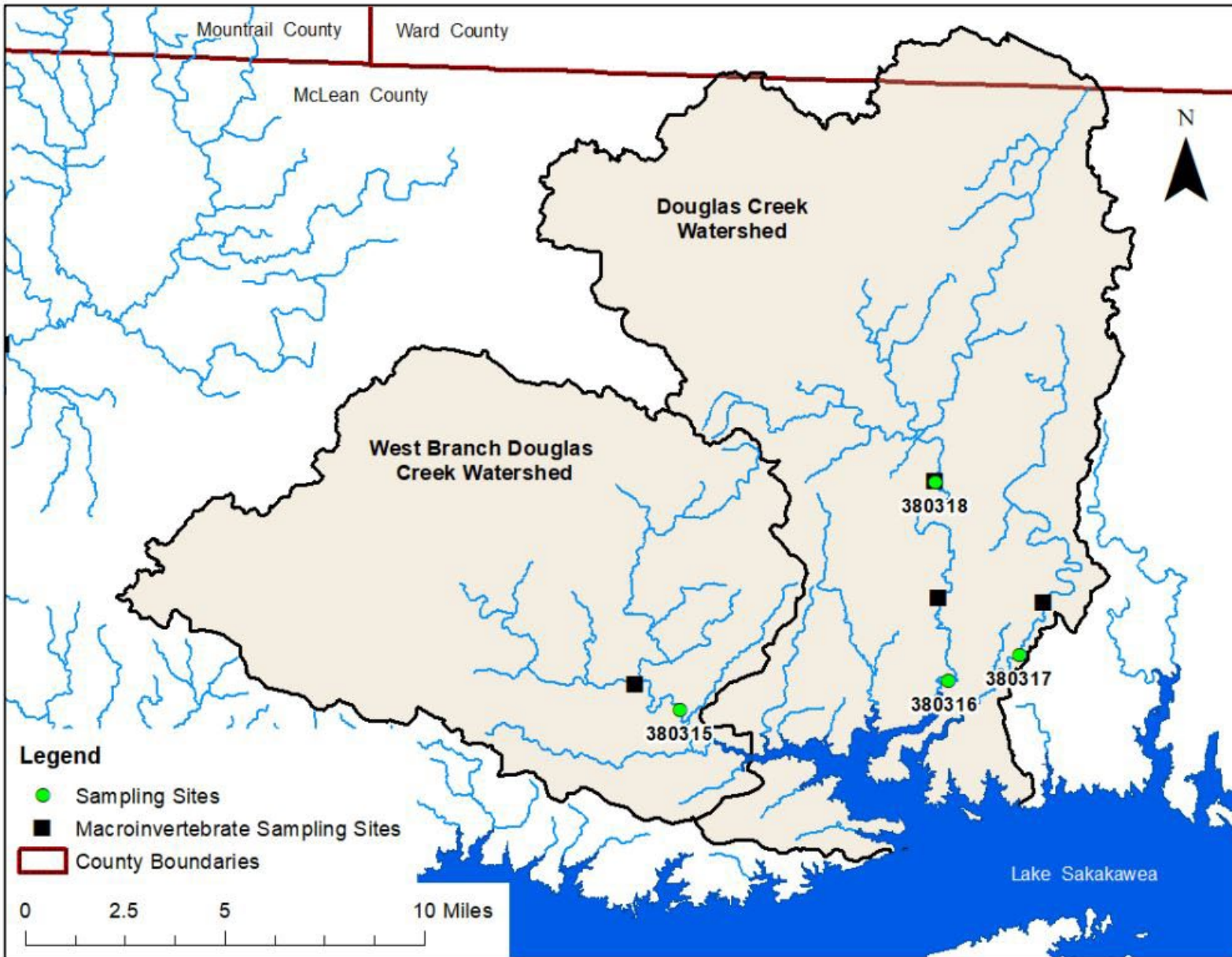
- 1 – Statewide Overview
- 2 – McLean County Overview
- 3 – Branch Overview
- 4 – Water Features Overview
- 5 – Land Cover
- 6 – High Priority Cropland
- 7 – High Priority Grassland
- 8 – Main Branch Overview
- 9 – Highest Priority Cropland
- 10 Highest Priority Grassland



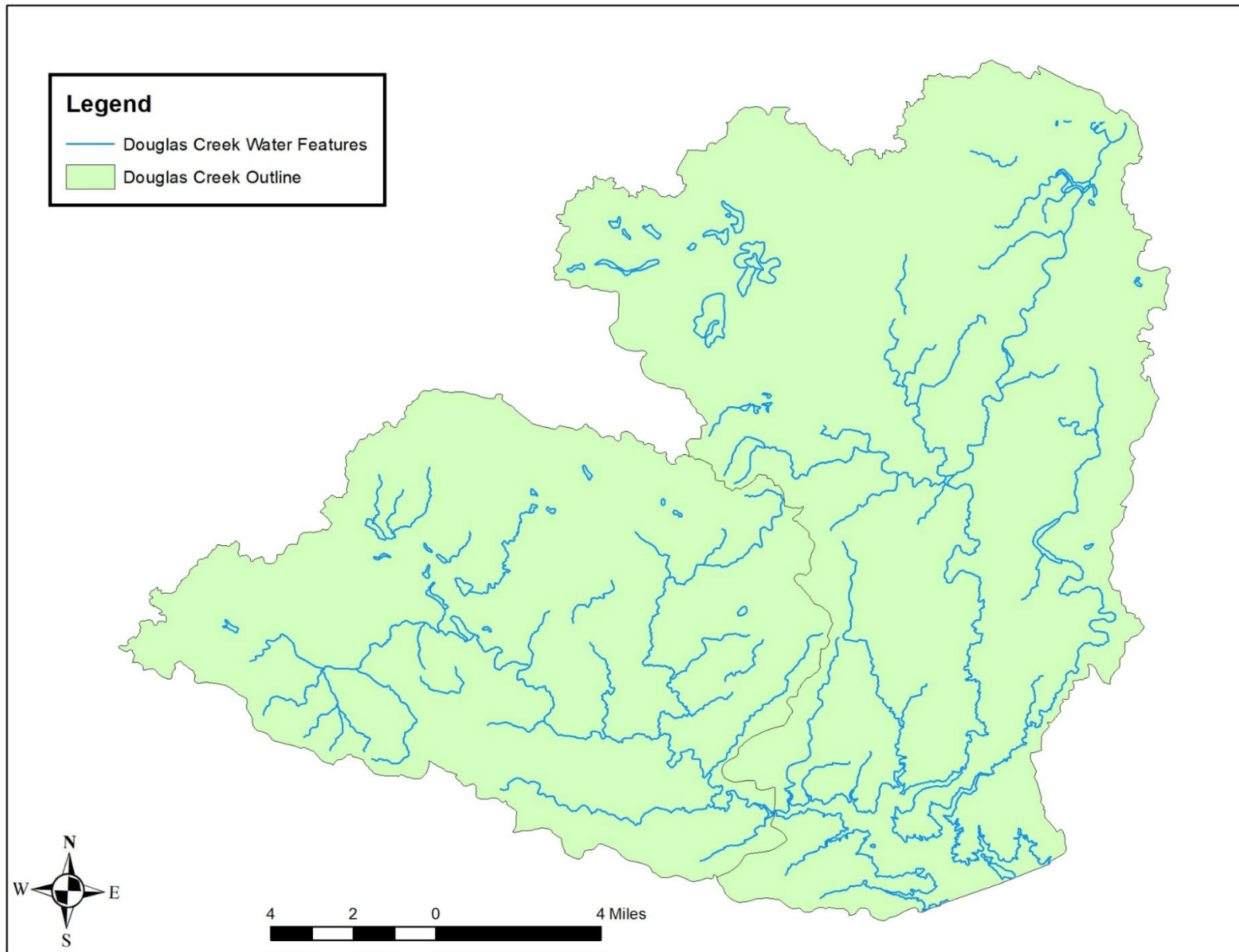
Douglas Creek Watershed – Statewide Overview



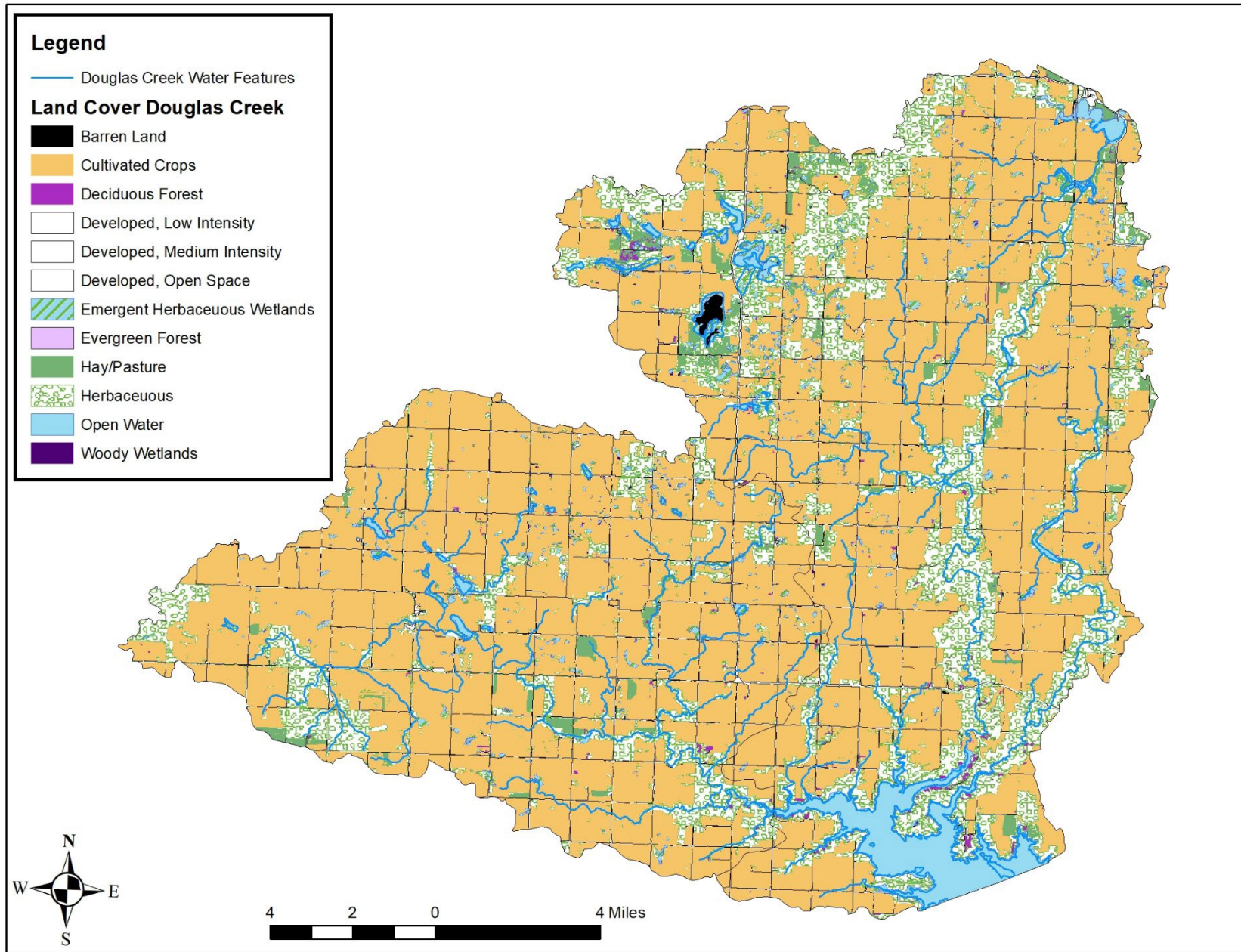
Douglas Creek Watershed – McLean County Overview with Sampling Locations



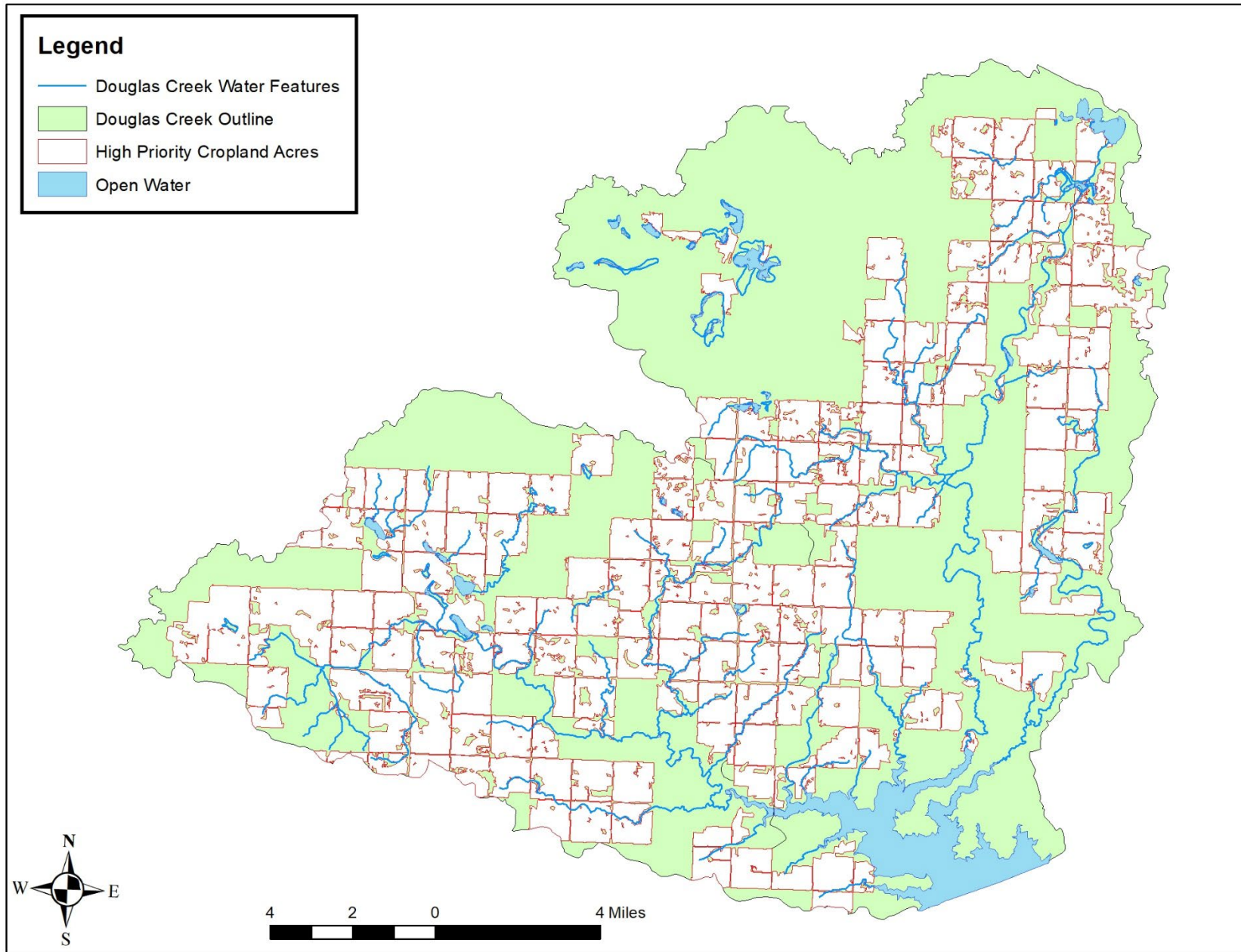
Douglas Creek Watershed – Stream Branch and Sample Locations



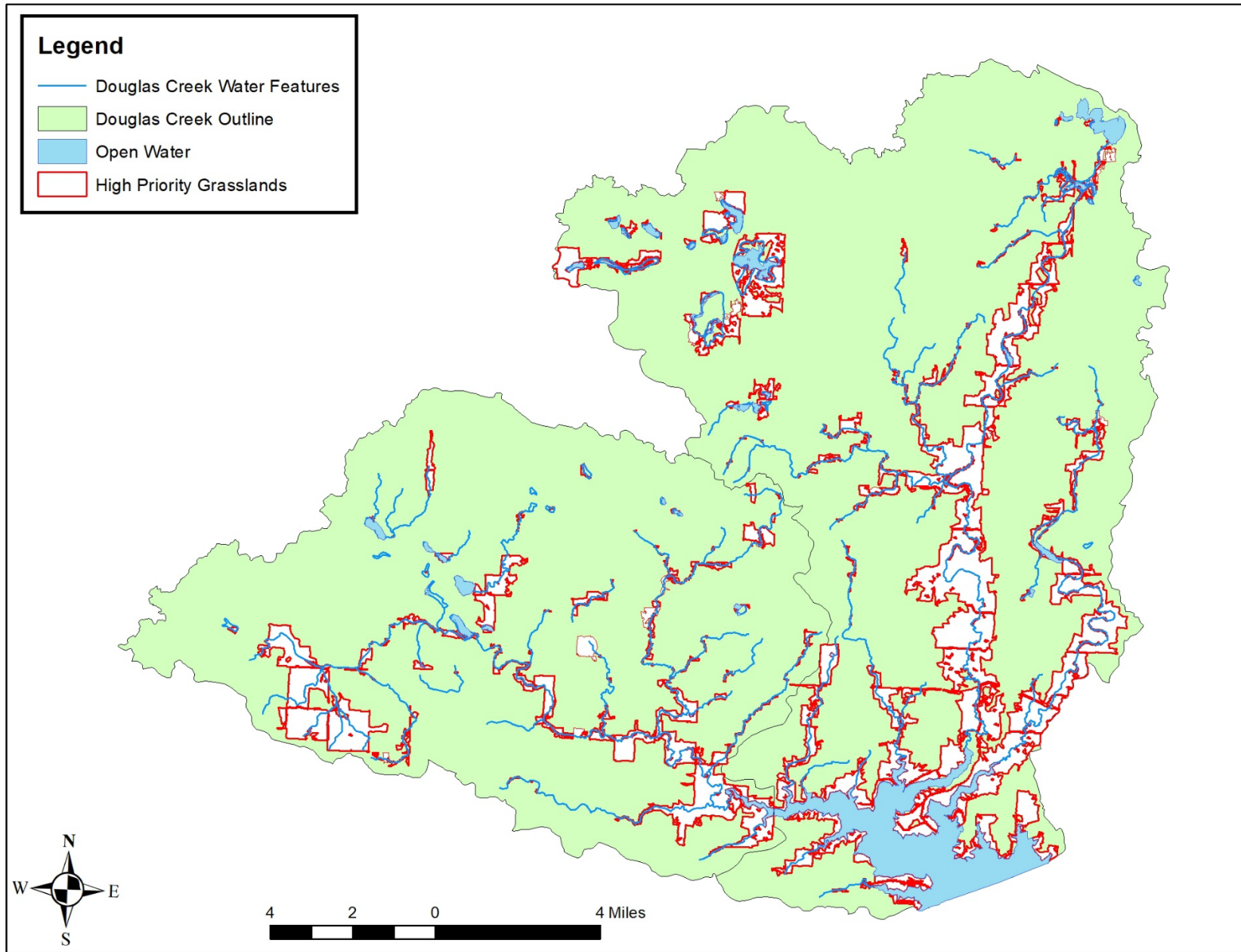
Douglas Creek Watershed – Douglas Creek Water Features



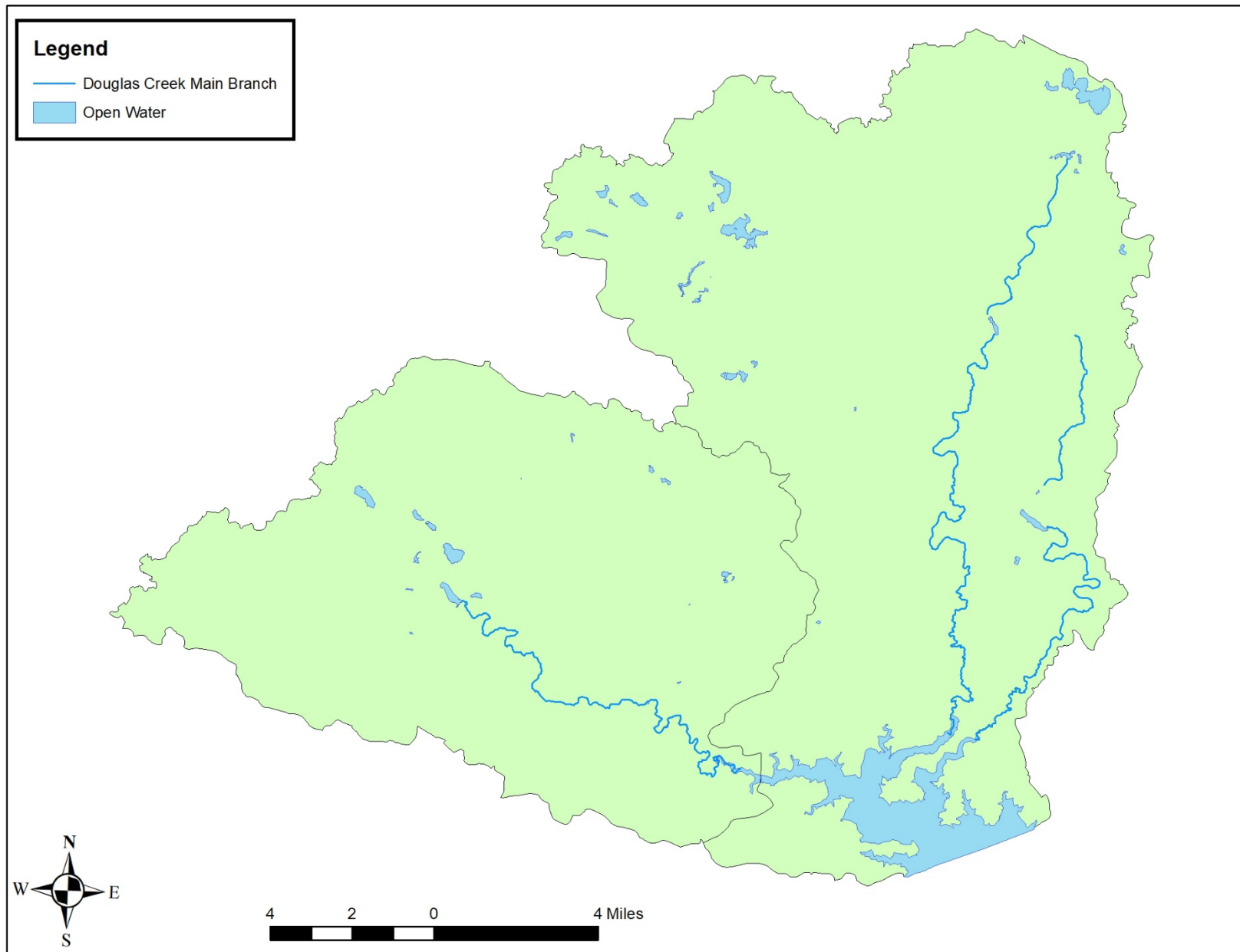
Douglas Creek Watershed – Land Cover



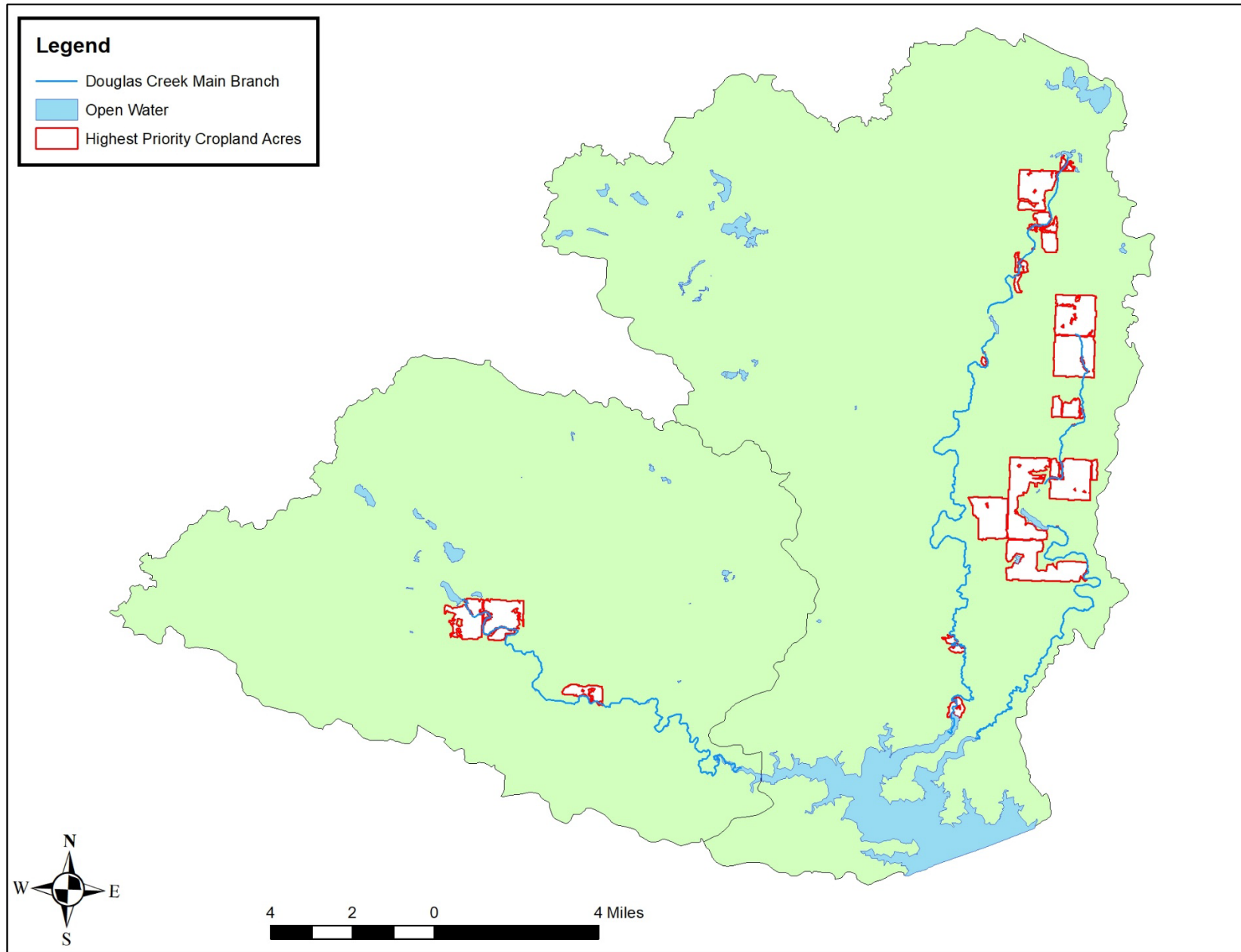
Douglas Creek Watershed – High Priority Cropland Acres – 30ft within Douglas Water Features



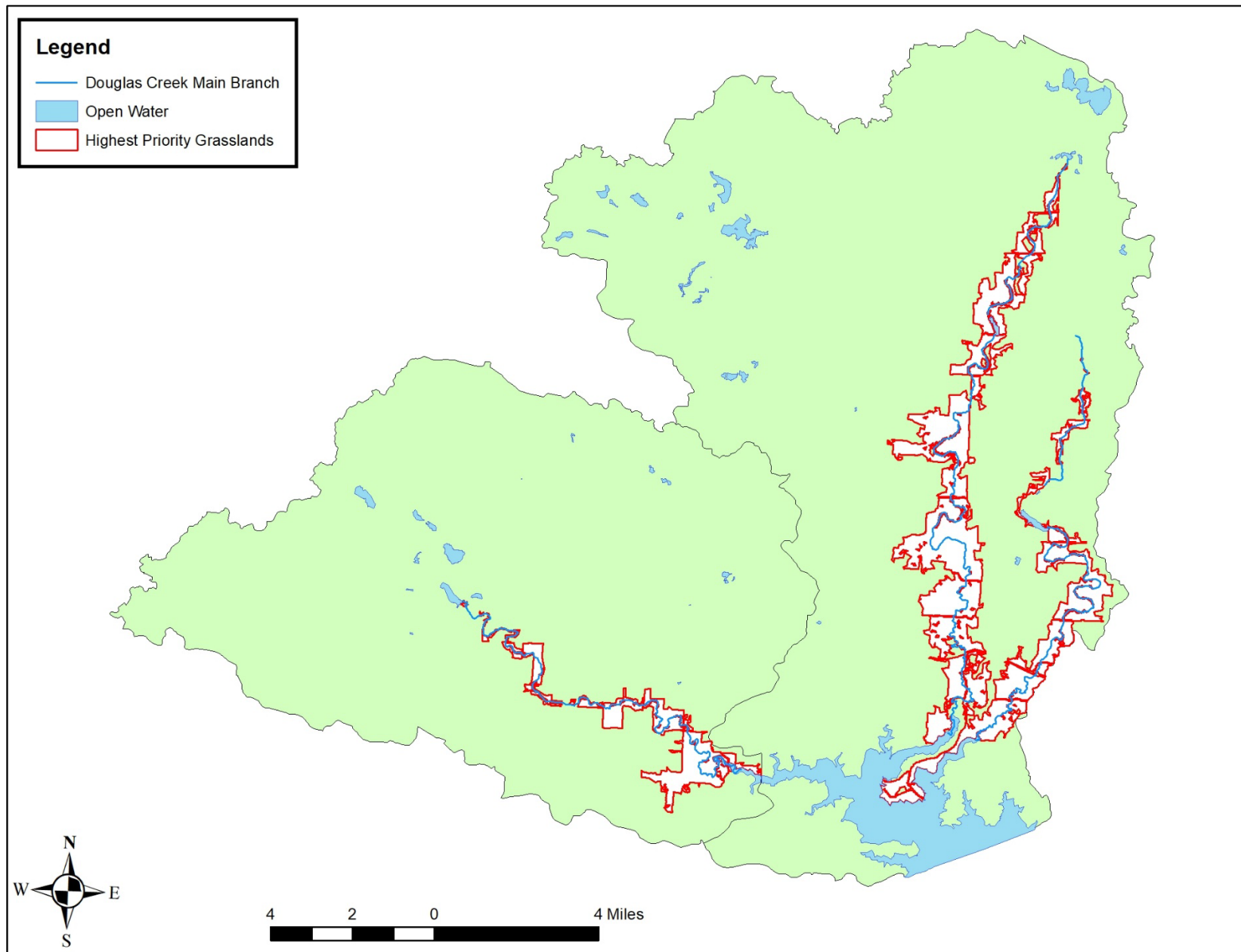
Douglas Creek Watershed – High Priority Grassland Acres – 30ft within Douglas Creek Water Features



Douglas Creek Watershed – Main Branch Overview



Douglas Creek Watershed – Highest Priority Cropland – 30ft within Douglas Creek Main Branch



Douglas Creek Watershed – Highest Priority Grasslands – 30ft within Douglas Creek Main Branch

Appendix B

Budget & Milestones

1–Budget Sources

2 – 319 Detailed (Federal / Non- Federal)

3- Supplemental BMP Budget Table

Part 1.: Funding Sources						
	2024	2025	2026	2027	2028	Total
EPA SECTION 319 FUNDS						
1)FY24 Funds (FA)	\$40,173	\$77,823	\$94,788	\$103,278	\$102,888	\$418,950
OTHER FEDERAL FUNDS						
1) Natural ResourceCS (TA, EQIP, CSP, OTHER PROGRAMS)	\$125,000	\$125,000	\$125,000	\$125,000	\$125,000	\$625,000
2) Farm Service Agency (TA, CRP)	\$5,000	\$5,000	\$5,000	\$5,000	\$5,000	\$25,000
Subtotals	\$130,000	\$130,000	\$130,000	\$130,000	\$130,000	\$650,000
TOTAL FEDERAL BUDGET						
	\$170,173	\$207,823	\$224,788	\$233,278	\$232,888	\$1,068,950
STATE/LOCAL MATCH						
1) West McLean SCD (TA & FA)	\$20,592	\$32,992	\$34,192	\$35,392	\$35,392	\$158,560
2) Landowners (FA)	\$6,190	\$16,890	\$29,000	\$31,460	\$33,200	\$116,740
4) NDSU Extension Service (TA)	\$750	\$750	\$750	\$750	\$750	\$3,750
5) McLean County Water Resource District (TA)	\$5,000	\$5,000	\$5,000	\$5,000	\$5,000	\$25,000
Subtotals	\$32,532	\$55,632	\$68,942	\$72,602	\$74,342	\$304,050
TOTAL BUDGET	\$202,705	\$263,455	\$293,730	\$305,880	\$307,230	\$1,373,000

FA:Financial Assistance

TA: Technical Assistance

SCD: Soil Conservation District

EQIP: Environmental Quality Incentive Programs

CRP: Conservation Reserve Programs

CSP: Conservation Stewardship Program

NDSU: North Dakota State University

Part 2.: 319 Detailed (Federal / Non-Federal)

	2024	2025	2026	2027	2028	Total	Cash	In Kind	319 Funds
Objective 1: BMP Implementation									
Task 1 - Hire Full Time Watershed Coordinator									
1)Salary - FICA & Benefits	\$38,000	\$69,000	\$72,000	\$75,000	\$75,000	\$329,000	\$131,600		\$197,400
2)Travel / Training	\$2,500	\$2,500	\$2,500	\$2,500	\$2,500	\$12,500	\$5,000		\$7,500
3)Telephone / Wifi	\$1,980	\$1,980	\$1,980	\$1,980	\$1,980	\$9,900	\$3,960		\$5,940
4)Equipment / Supplies	\$2,500	\$2,500	\$2,500	\$2,500	\$2,500	\$12,500	\$5,000		\$7,500
5) Sample Transport Postage	\$1,500	\$1,500	\$1,500	\$1,500	\$1,500	\$7,500	\$3,000		\$4,500
Task 2 - Improve vegetative conditions along riparian corridors									
1)Grassland Mgmt Systems	\$15,475	\$35,475	\$60,000	\$60,000	\$60,000	\$230,950	\$92,380		\$138,570
2)Cropland Mgmt Systems.	\$0	\$6,750	\$12,500	\$16,000	\$20,000	\$55,250	\$22,100		\$33,150
3)Buffers	\$0	\$0		\$2,650	\$3,000	\$5,650	\$2,260		\$3,390
4)Prescribed Grazing (InKind)	\$0					\$0	\$0		\$0
Objective 2: Provide Landowner with additional sources of technical and financial support									
1) Additional funding		\$0	\$0	\$0	\$0	\$0	\$0		\$0
Objective 3: Landowner and Community Education									
Task 1 - Newsletters									
1)Newsletter	\$4,000	\$4,000	\$4,000	\$4,000	\$4,000	\$20,000	\$8,000		\$12,000
Task 2 - Educational Workshops									
1)Workshop	\$0	\$5,000	\$0	\$5,000	\$0	\$10,000	\$4,000		\$6,000
Task 3 - Producer Outreach									
Field Days & Producer Meetings	\$1,000	\$1,000	\$1,000	\$1,000	\$1,000	\$5,000	\$2,000		\$3,000
TOTAL BUDGET									
	\$66,955	\$129,705	\$157,980	\$172,130	\$171,480	\$698,250	\$279,300	\$0	\$418,950
319 Budget	\$40,173	\$77,823	\$94,788	\$103,278	\$102,888	\$418,950			
SCD Share	\$20,592	\$32,992	\$34,192	\$35,392	\$35,392	\$158,560			
Producer BMP Cost Share	\$6,190	\$16,890	\$29,000	\$31,460	\$33,200	\$116,740			
Total Local Cost Share	\$26,782	\$51,882	\$63,192	\$68,852	\$68,592	\$279,300			

Supplemental Potential BMP Budget Table

BMP Practice	Cost /Unit	Estimated Units	319 Cost	Producer Match	Total Cost
340 - Cover Crop	\$20/ac.	1250 ac.	\$15,000	\$10,000	\$25,000
391 - Riparian Forest Buffer	\$350/ac.	2 ac.	\$420	\$280	\$700
516 - Pipelines	\$3.31/ft.	20,000 ft	\$39,720	\$26,480	\$66,200
614 - Tank / Trough	\$2,100/unit	10 tanks	\$12,600	\$8,400	\$21,000
642 - Well	\$12,000/well	5 wells	\$36,000	\$24,000	\$60,000
382 - Fencing	\$2.00/ft.	20,000 ft.	\$24,000	\$16,000	\$40,000
001- Cultural Resources	\$1,500/ review	10 items	\$9,000	\$6,000	\$15,000
512 - Pasture & Hayland Planting	\$55/ac.	150 ac.	\$4,950	\$3,300	\$8,250
390 - Riparian Herbaceous Cover	\$325/ac.	10 ac.	\$1,950	\$1,300	\$3,250
393 - Filter Strip	\$170/ac.	10 ac.	\$1,020	\$680	\$1,700
528 - Prescribed Grazing	\$5.00/ac		\$0	\$0	
472 - Access Control / Use Exculsion (Livestock Only)	\$25.00/ac	10 ac.	\$1,500	\$1,000	\$2,500
590 - Nutrient Mangement	\$27/ac.	1250 ac.	\$20,250	\$13,500	\$33,750
Bufers			\$3,390	\$2,260	\$5,650
Grasslands Total			\$138,570	\$92,380	\$230,950
Cropland Total			\$40,200	\$26,800	\$67,000
Total			\$182,160	\$121,440	\$303,600

Appendix C

Letters of Support & Water Quality Data

1–Letters of Support

2 – Water Quality Data



June 28, 2023

Natural Resources
Conservation Service

Garrison Field Office
140 5th Ave SW
Garrison, ND
58540

Voice 701.463.2267

Dan Gackle
Watershed Coordinator
West McLean SCD
140 5th Ave SW
Garrison, ND 58540

The Natural Resources Conservation Service (NRCS) provides technical and financial assistance support to producers, landowners and other individuals who offer to install conservation practices and enhancements to address resource concerns on any or all land uses. Your application to develop a 319 supported watershed project on Douglas Creek addresses water quality concerns which is a strategic NRCS resource concern at local, state, and national levels. NRCS has long supported the development and implementation of watershed projects as a local method of assessing and addressing water quality needs.

The Garrison NRCS field office and staff fully support the development and implementation of the Douglas Creek watershed project. NRCS is willing to provide support with producer education, soil/water quality assessments, conservation planning, and technical support for conservation practice design, installation, and certification.

Sincerely,

Megan Schwarz
District Conservationist
NRCS, Garrison ND

October 4, 2023

West McLean County Soil Conservation District
Dan Gackle, District Manager/Technician
140 5th Ave SW
Garrison, ND 58540

Thank you for inviting the Farm Service Agency to comment on your Douglas Creek Watershed Project.

The McLean County FSA is interested in supporting natural resource projects like yours that address water quality needs and concerns for McLean County. We can provide financial assistance to landowners through a variety of practices under the Continuous Conservation Reserve Program, CRP. FSA can support the watershed project, if the land is not encumbered by a restrictive easement, or other restriction imposed by County or State Law, that prohibits the production of an Ag Commodity or restricts any of the terms of the CRP-1, such as management and maintenance of the conservation cover. Our staff will work collaboratively with you to assess watershed needs and assist landowners in this area. Landowners can apply for this assistance at their local county FSA office.

The McLean County contact for the CRP Program is Hanna Talbott or Becky Beetz. Hanna or Becky can assist you in explaining the different practices available under the Continuous CRP Provisions. Please let us know if we can be of further assistance in advancing your project.

Sincerely,



Kaitlin Dillard
McLean County Executive Director

Douglas Creek Watershed Water Quality Summary 2022

Completed: February 2023

Prepared for:

West McLean Soil Conservation
District
140 5th Ave NE SW,
Garrison, ND 58540

Prepared by:

Emilee J. Lachenmeier
N.D. Dept. of Environmental Quality
Division of Water Quality
Normandy Building, 3rd Floor
4201 Normandy Street
Bismarck, ND 58503-1324

The goals for the Douglas Creek Watershed Assessment is to collect water samples to assess the current water quality conditions of Douglas Creek in Northwest McLean County. Through this assessment, the water quality impairments (if any) on Douglas Creek will be identified. Preliminary results from year one of the two year assessment project are outlined in the following report.

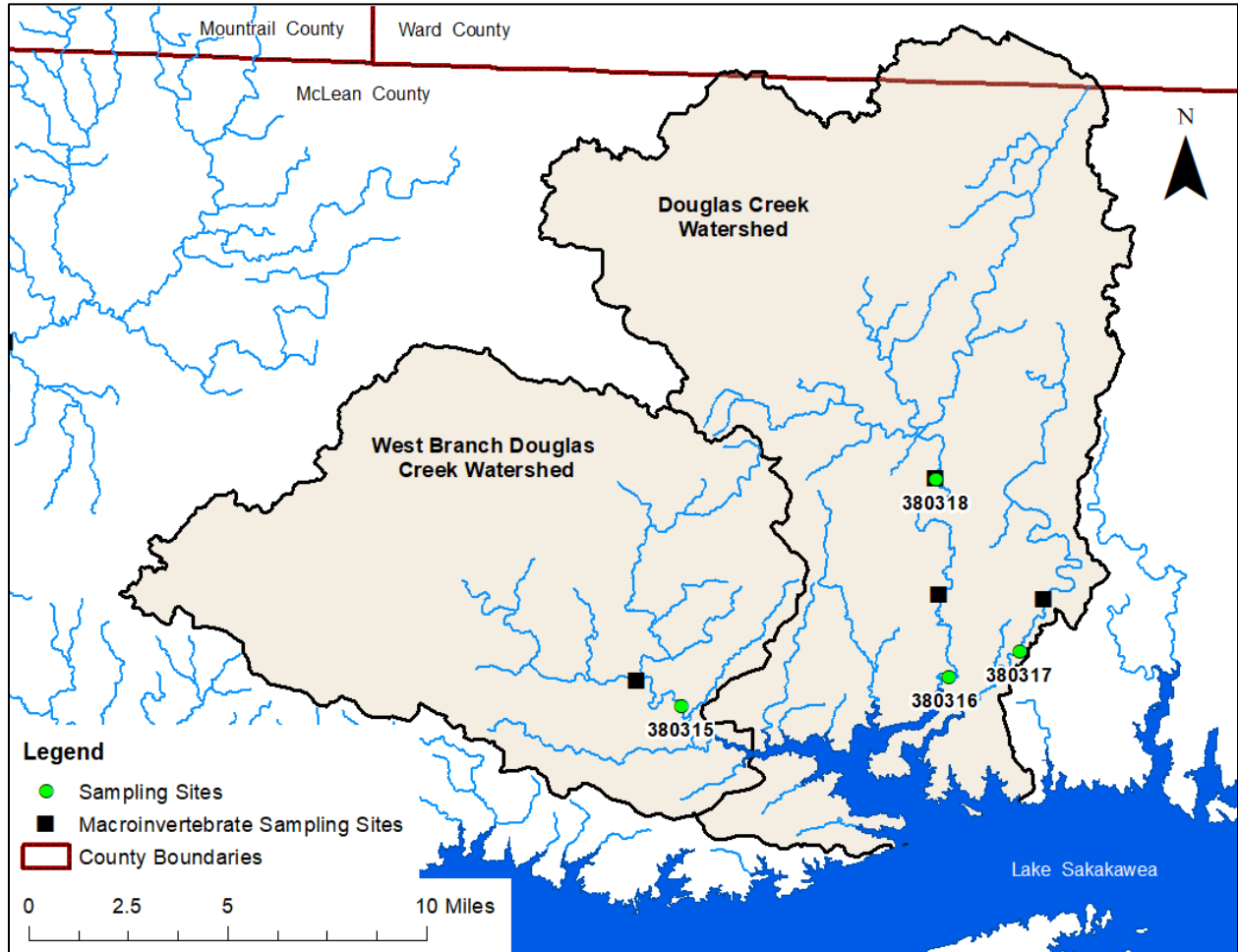


Figure 1. Map showing the locations of the five monitoring sites of the Knife River Tributaries Nine Townships assessment.

The Douglas Creek Assessment project area consists of two subwatersheds, West Branch Douglas Creek and Douglas Creek (figure 1), Hydraulic Unit Codes (HUCs) 1011010132 and 1011010133, respectively. These are a sub-watersheds of the Lake Sakakawea watershed (10110101). This project focuses on the three main tributaries in the Douglas Creek HUC10 boundaries which flow into the North side of Lake Sakakawea. The tributaries include East Branch Douglas Creek (380317), Middle Branch Douglas Creek (380316 & 380318), and West Branch Douglas Creek (380315) (Site IDs correspond to locations in figure 1).

The parameters that were sampled and analyzed include Nutrients Complete (i.e., total nitrogen, total Kjeldahl nitrogen, nitrate-nitrite, ammonia, total phosphorus), Total Suspended Solids (TSS), and E. coli bacteria (recreation season only). The following summary details the trends of these parameters from April of 2022 to November of 2022.

For each parameter, a scatter plot line graph was used to visualize sample results throughout the season. A red, linear trend line was added to show the seasonal trend. Tables were used to denote seasonal variations in E. coli. Sites were determined to be fully supporting, fully supporting but threatened or not supporting for recreational uses based on 1) the monthly geomean (Five samples required for this calculations) and 2) the percentage of samples per month whose concentration exceeded 409 CFU/100 mL. If the geomean was below the threshold of 126 CFU/100 mL and less than 10% of samples exceeded 409 CFU/100 mL, the waterbody is considered fully supporting. If the geomean was below the threshold of 126 CFU/100 mL and more than 10% of samples exceeded 409 CFU/100 mL, the waterbody is considered fully supporting but threatened. If neither criteria is met, the waterbody is not supporting.

Upon review of the data in this report, nitrogen (figures 2, 6, 10, and 14), phosphorus (figures 3, 7, 11 and 15) and total suspended solids (figures 4, 8, 12, and 16) trends at the four sampling sites varied from slightly decreasing/steady to moderately increasing throughout the sampling season. Further sampling is necessary to determine if these parameters are being impacted by nonpoint sources in the watershed. According to these results, E. coli (figures 5, 9, 13, and 17) is the parameter of greatest concern due to its notable fluctuations throughout the recreational season (increasing trends at all sites) and sample results greatly exceeding the threshold level (greater than 409 CFU/100 mL). All sites are "Not Supporting for recreational uses during a month or multiple months throughout the sampling season (tables 1, 2, 3, and 4).

Continued analysis into 2023 is necessary to further assess these parameters and determine waterbody impairments on Douglas Creek. If impairments persist in the multi-year dataset, an implementation level project and the use of Best Management Practices (BMP) to address parameters of concern on Douglas Creek would be highly recommended by the department.

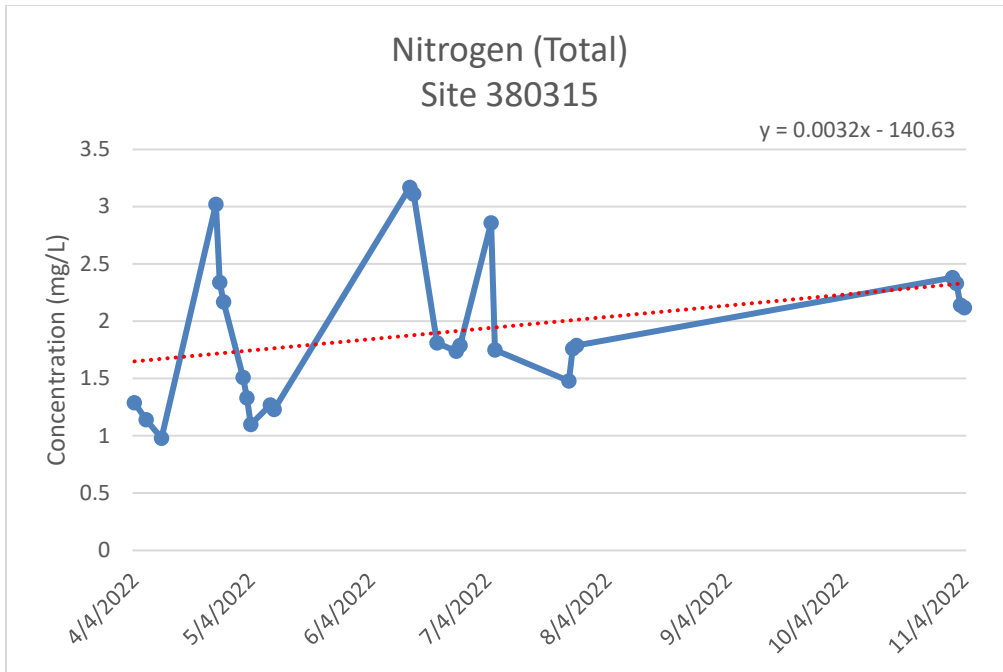


Figure 2. Trends in total nitrogen at site 380315.

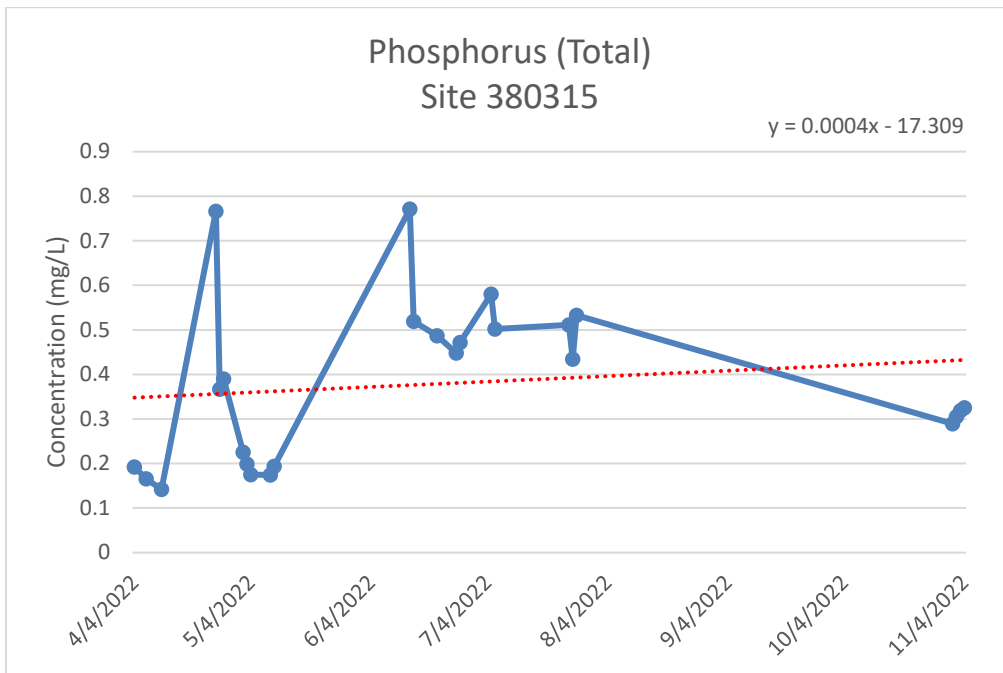


Figure 3. Trends in total phosphorus at site 380315.

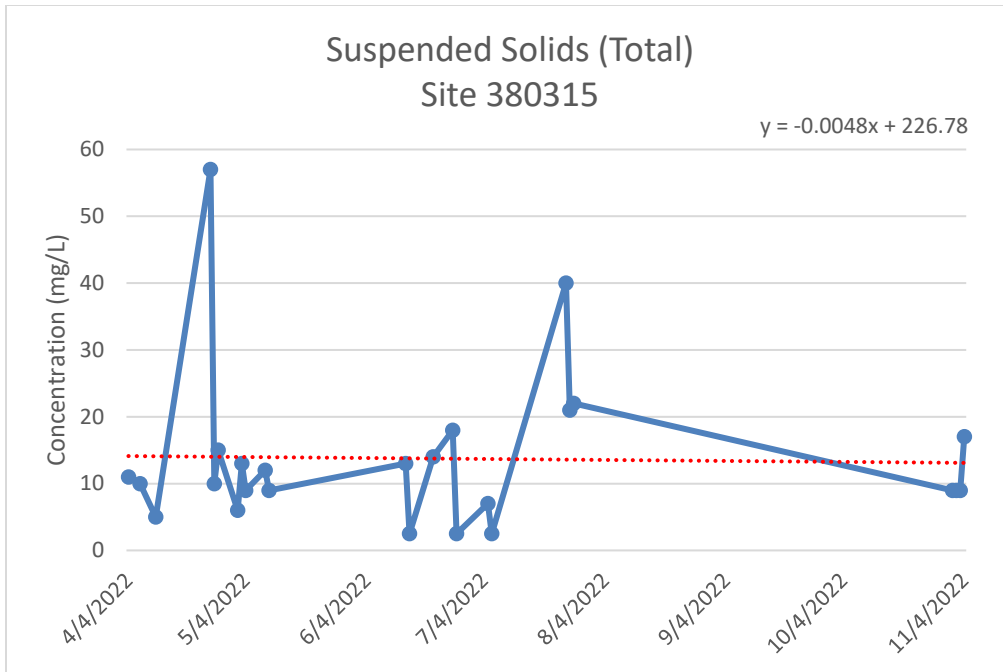


Figure 4. Trends in total suspended solids (TSS) at site 380315.

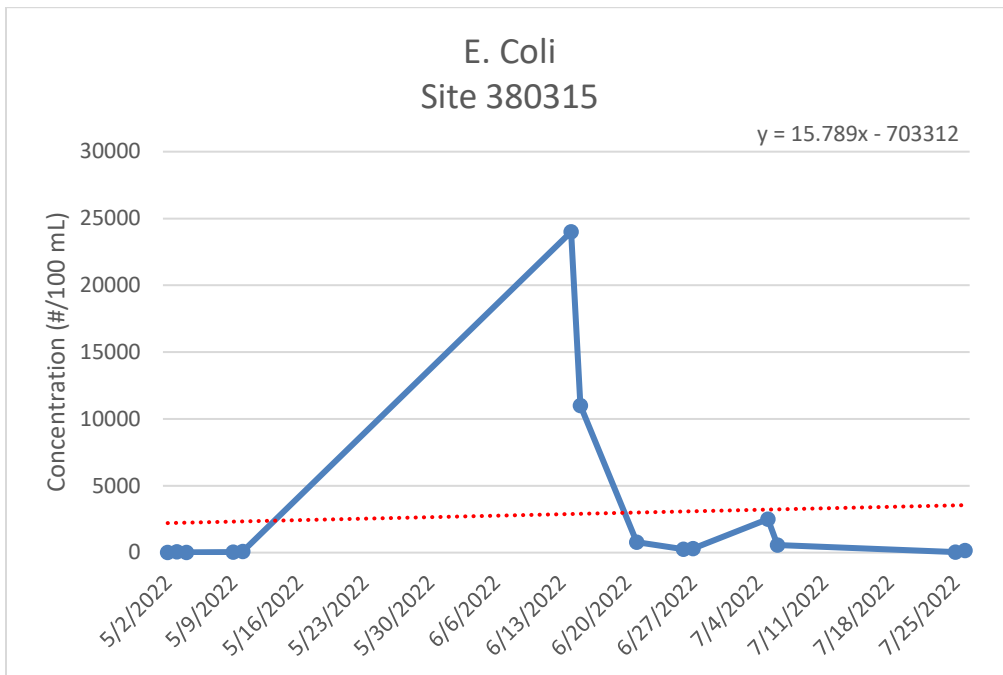


Figure 5. Trends in E. coli bacteria at site 380315.

Table 1. Monitoring Site 380315 – E. coli Bacteria 30-day Geometric Mean, Percent Exceedance of 409 CFU and Support Status

Site 380315 – E. coli Concentrations by Month – 2022									
May	#/100 mL	June	#/100 mL	July	#/100 mL	August	#/100 mL	September	#/100 mL
5/2/2022	20	6/14/2022	24000	7/5/2022	2500				
5/3/2022	63	6/15/2022	11000	7/6/2022	560				
5/4/2022	20	6/21/2022	790	7/25/2022	52				
5/9/2022	31	6/27/2022	300	7/26/2022	150				
5/10/2022	85	6/26/2022	260						
Site 380315 Summary									
	May	June	July*	August	September				
Number of Samples	5	5	4	0	0				
Geometric Mean CFU/100 mL	36.68	1746.89	323.26	Insufficient Data	Insufficient Data				
% > 409 CFU/100 mL	0.0 %	60.0 %	50.0 %	Insufficient Data	Insufficient Data				
Recreational Use Assessment	Fully Supporting	Not Supporting	Not Supporting*	Unknown	Unknown				

* Calculation for geometric mean and percentage of samples in exceedance of 409 CFU/100 mL is done with less than 5 samples to represent the month.

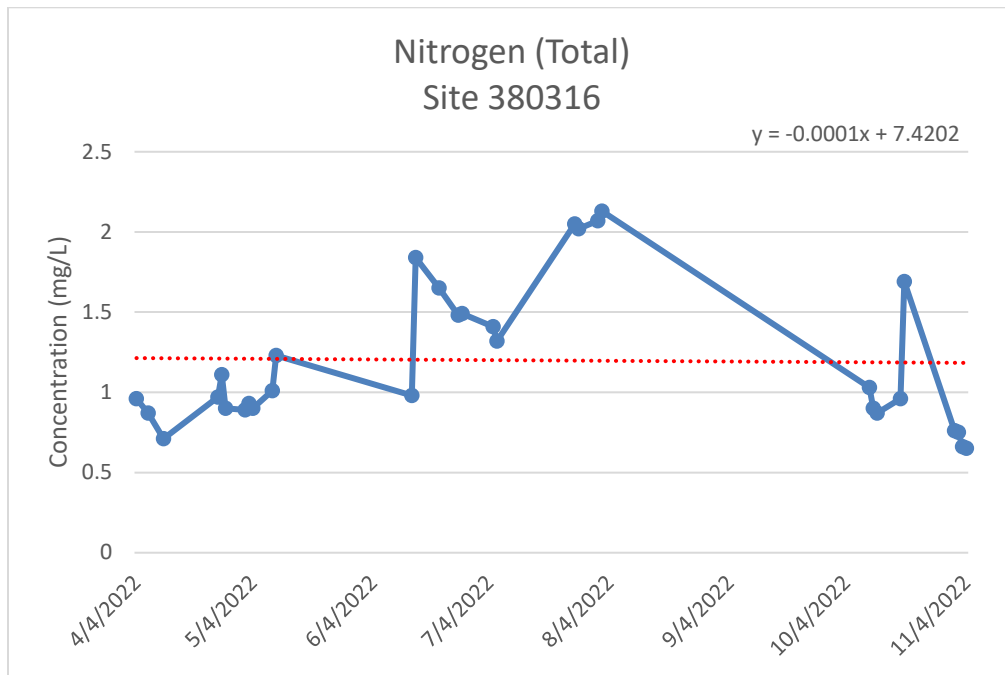


Figure 6. Trends in total nitrogen at site 380316.

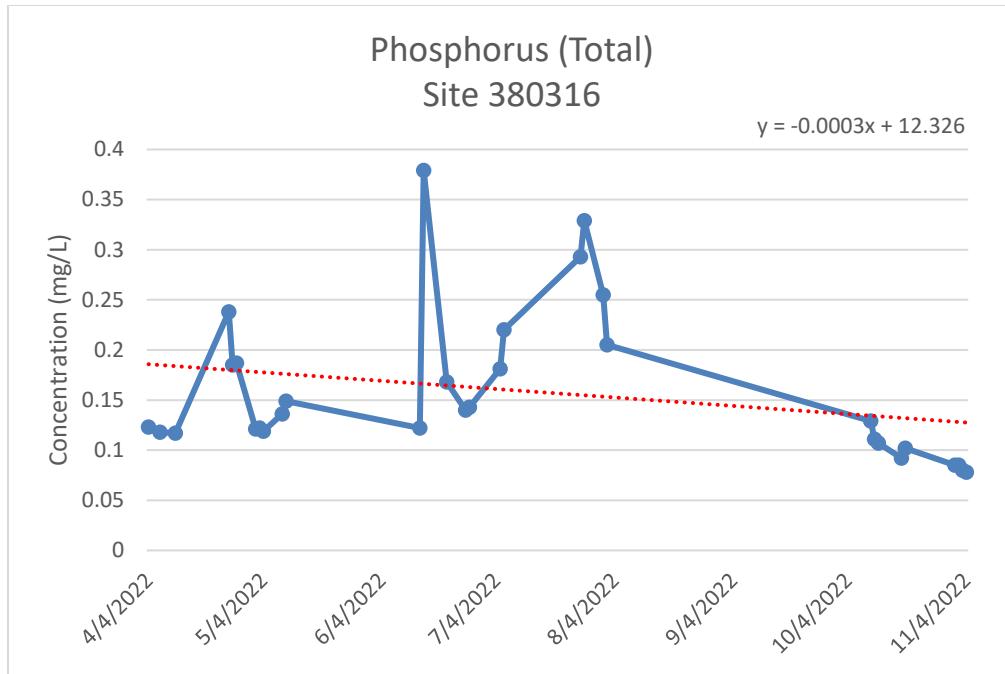


Figure 7. Trends in total phosphorus at site 380316.

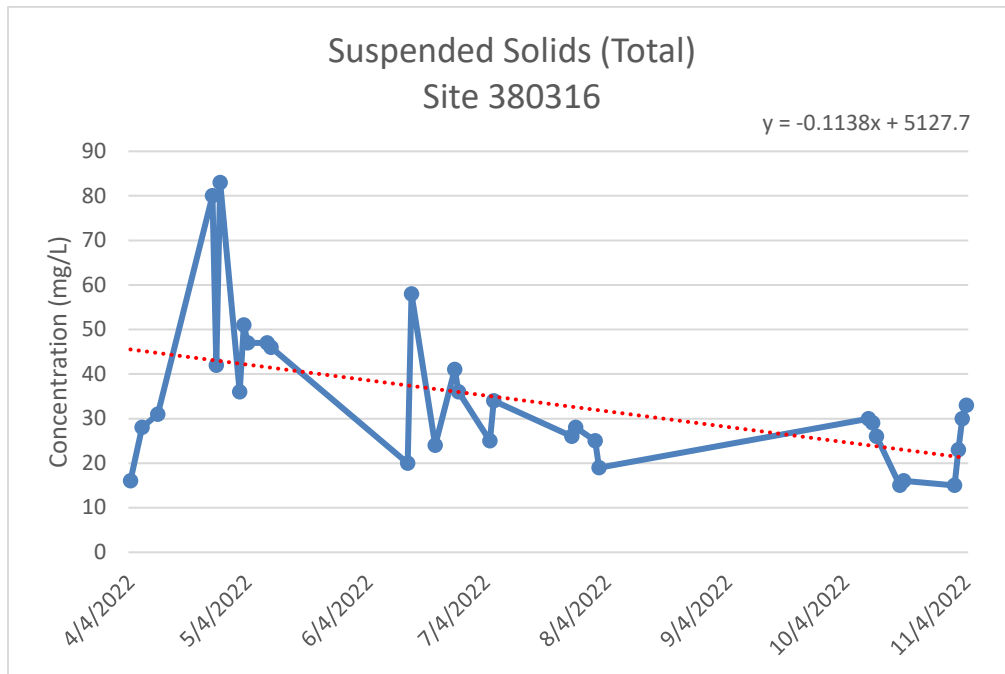


Figure 8. Trends in total suspended solids (TSS) at site 380316.

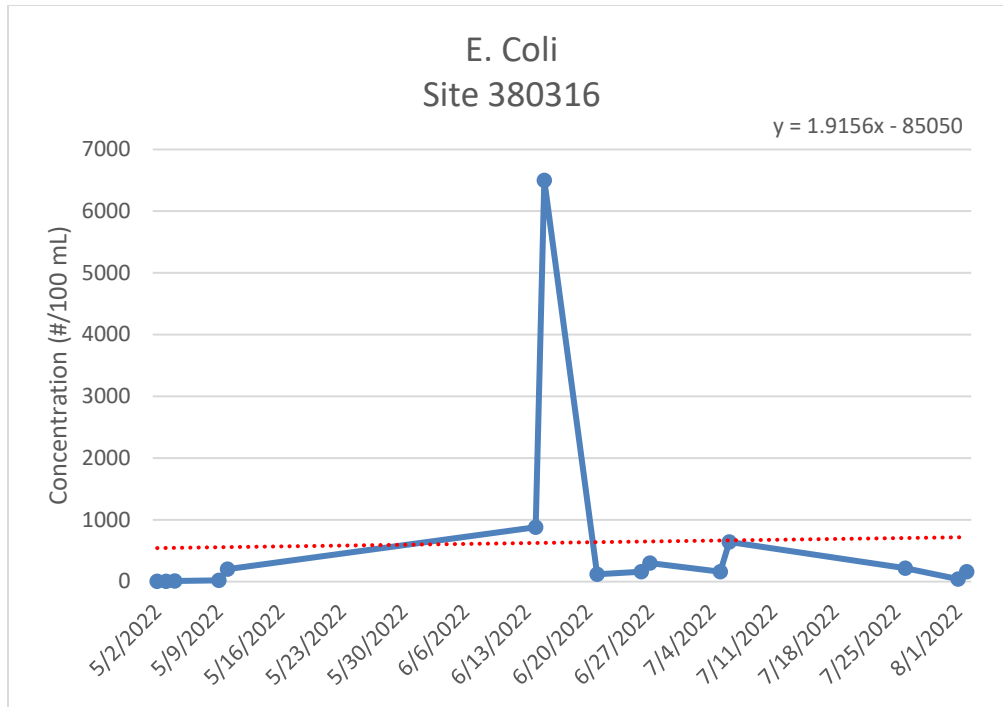


Figure 9. Trends in E. coli bacteria at site 380316.

Table 2. Monitoring Site 380316 – E. coli Bacteria 30-day Geometric Mean, Percent Exceedance of 409 CFU and Support Status

Site 380316 – E. coli Concentrations by Month – 2022									
May	#/100 mL	June	#/100 mL	July	#/100 mL	August	#/100 mL	September	#/100 mL
5/2/2022	5	6/14/2022	880	7/5/2022	160	8/1/2022	41		
5/3/2022	5	6/15/2022	6500	7/6/2022	640	8/2/2022	160		
5/4/2022	10	6/21/2022	120	7/26/2022	220				
5/9/2022	20	6/27/2022	300						
5/10/2022	200	6/26/2022	160						
Site 380316 Summary									
	May	June	July*	August*	September				
Number of Samples	5	5	3	2	0				
Geometric Mean CFU/100 mL	15.85	505.32	282.43	80.99	Insufficient Data				
% > 409 CFU/100 mL	0.0 %	40.0 %	33.3 %	0.0 %	Insufficient Data				
Recreational Use Assessment	Fully Supporting	Not Supporting	Not Supporting	Fully Supporting	Unknown				

* Calculation for geometric mean and percentage of samples in exceedance of 409 CFU/100 mL is done with less than 5 samples to represent the month.

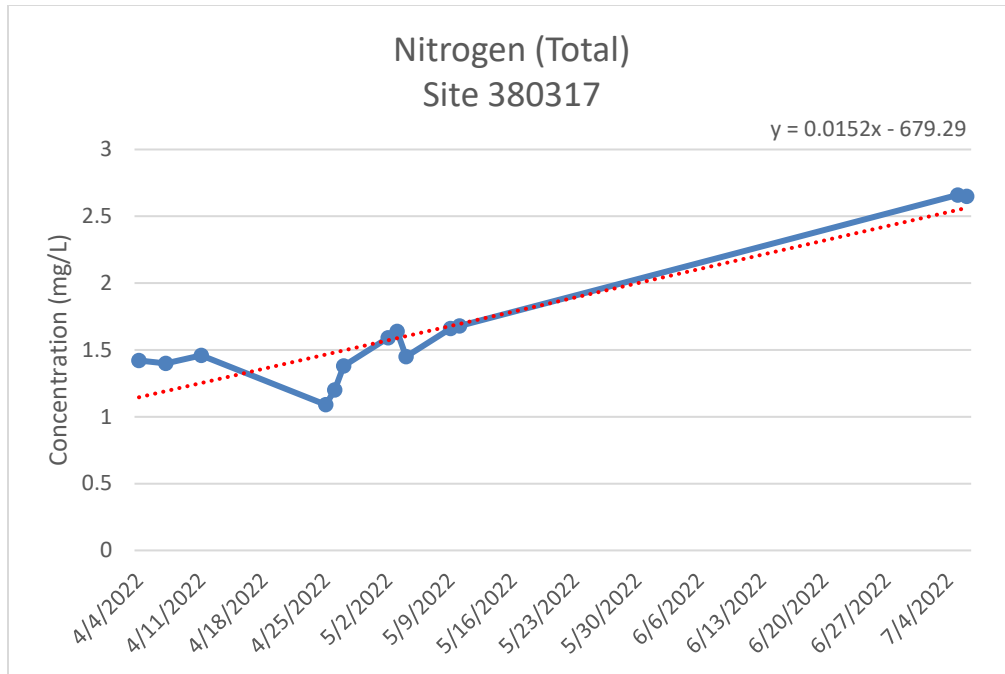


Figure 10. Trends in total nitrogen at site 380317.

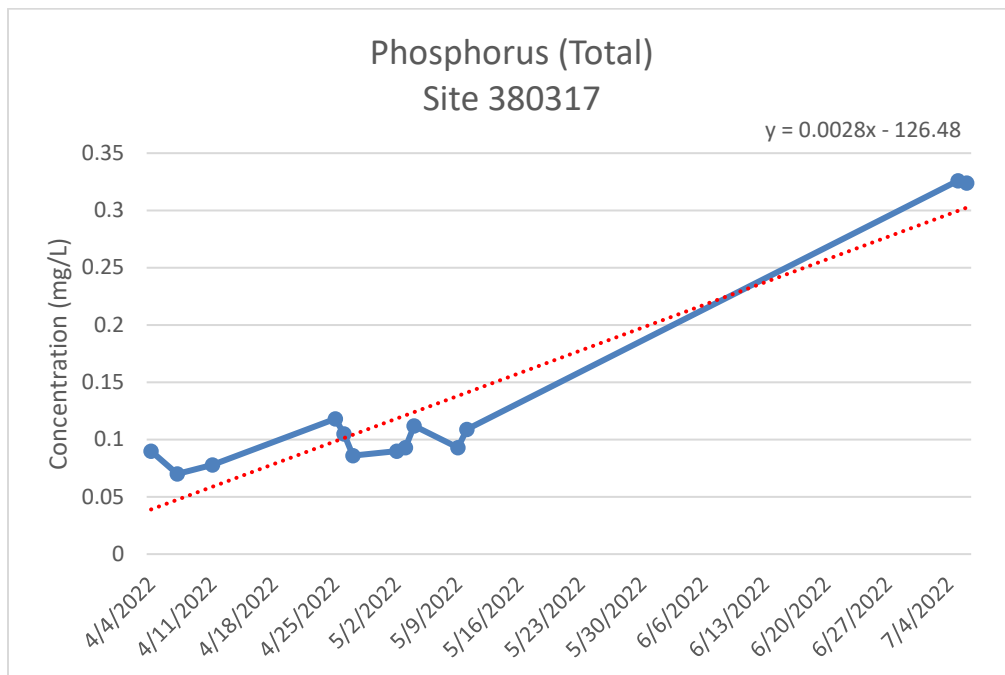


Figure 11. Trends in total phosphorus at site 380317.

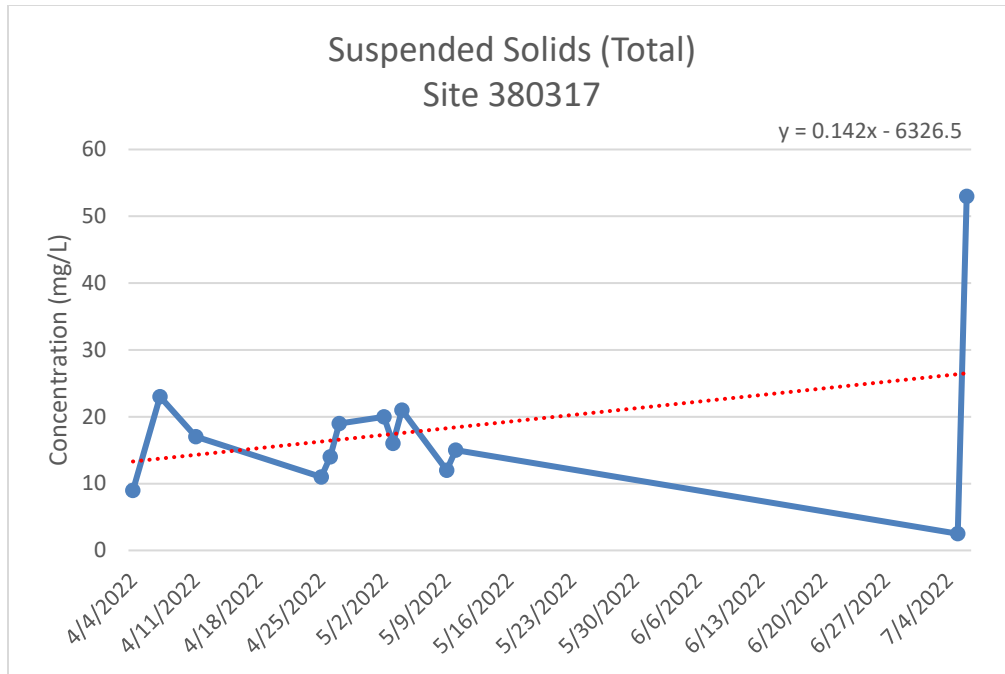


Figure 12. Trends in total suspended solids (TSS) at site 380317.

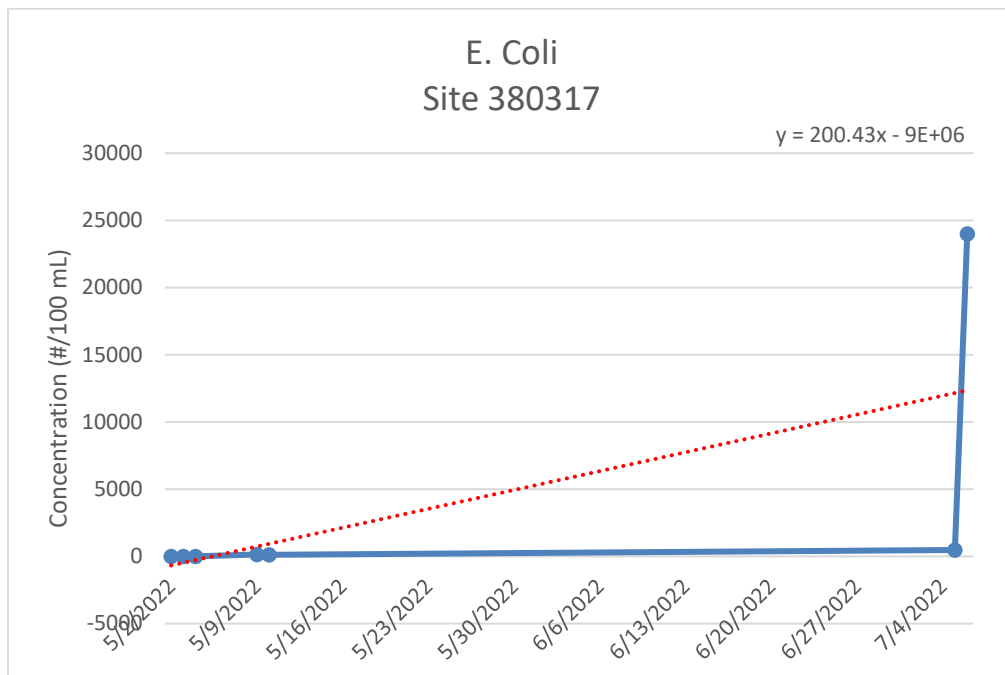


Figure 13. Trends in E. coli bacteria at site 380317.

Table 3. Monitoring Site 380317 – E. coli Bacteria 30-day Geometric Mean, Percent Exceedance of 409 CFU and Support Status

Site 380317 – E. coli Concentrations by Month – 2022									
May	#/100 mL	June	#/100 mL	July	#/100 mL	August	#/100 mL	September	#/100 mL
5/2/2022	5			7/5/2022	480				
5/3/2022	5			7/6/2022	24000				
5/4/2022	5								
5/9/2022	150								
5/10/2022	120								
Site 380317 Summary									
	May	June	July	August	September				
Number of Samples	5	0	2	0	0				
Geometric Mean CFU/100 mL	18.64	Insufficient Data	3394.11	Insufficient Data	Insufficient Data				
% > 409 CFU/100 mL	0.0 %	Insufficient Data	100.0 %	Insufficient Data	Insufficient Data				
Recreational Use Assessment	Fully Supporting	Unknown	Not Supporting	Unknown	Unknown				

* Calculation for geometric mean and percentage of samples in exceedance of 409 CFU/100 mL is done with less than 5 samples to represent the month.

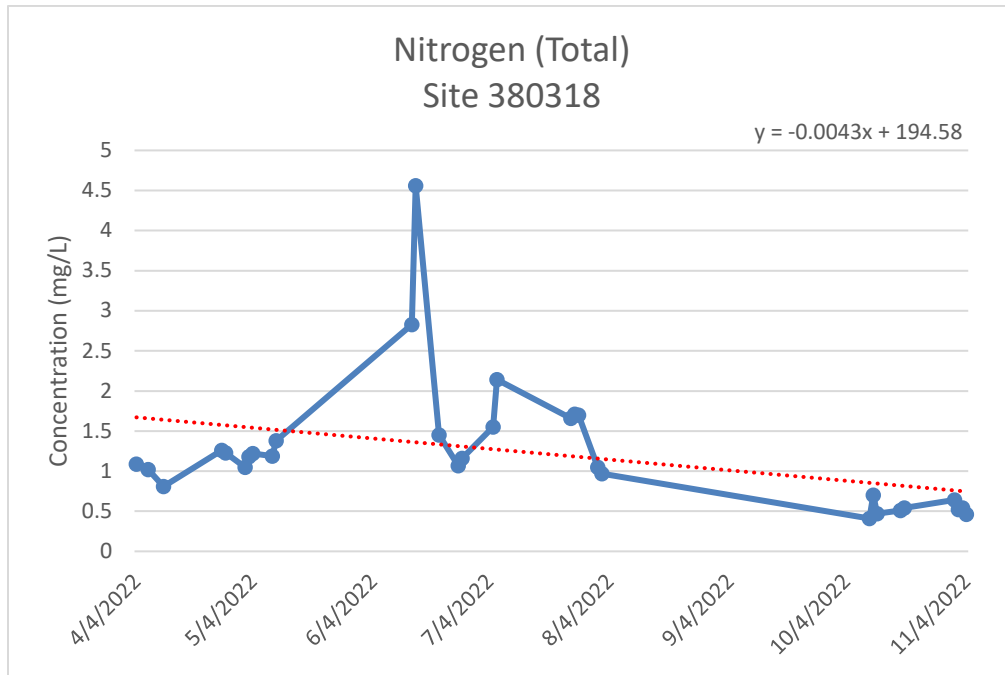


Figure 14. Trends in total nitrogen at site 380318.

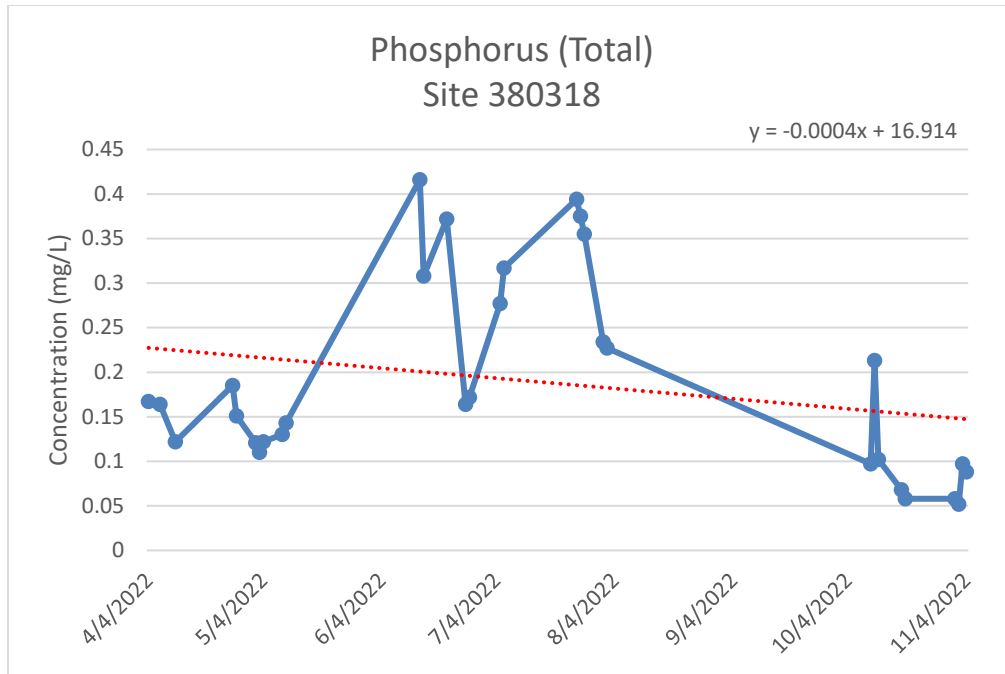


Figure 15. Trends in total phosphorus at site 380318.

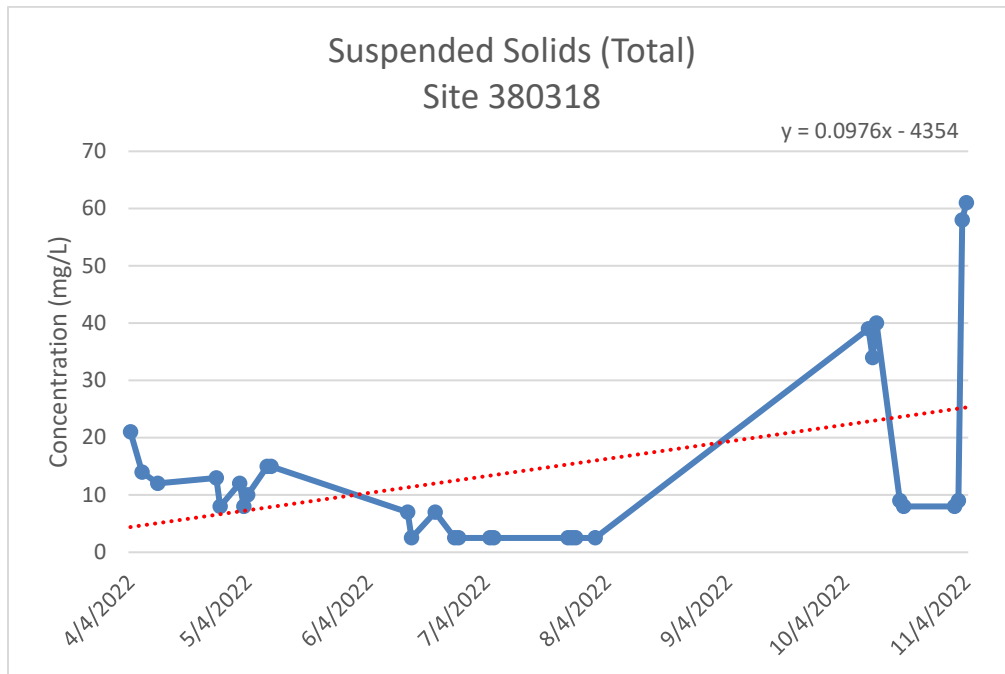


Figure 16. Trends in total suspended solids (TSS) at site 380318.

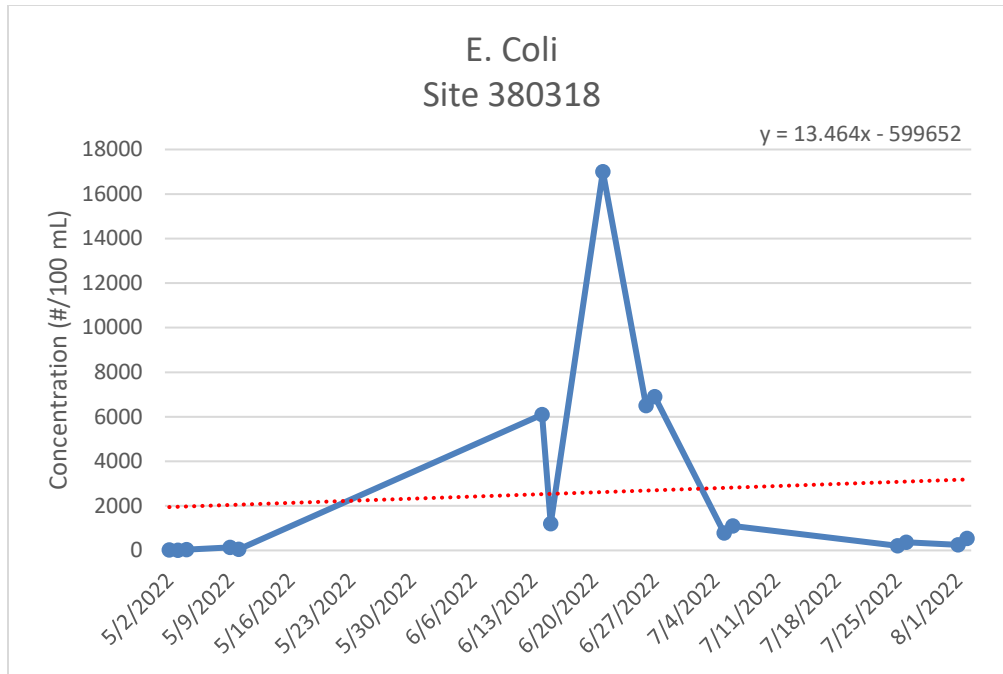


Figure 17. Trends in E. coli bacteria at site 380318.

Table 4. Monitoring Site 380318 – E. coli Bacteria 30-day Geometric Mean, Percent Exceedance of 409 CFU and Support Status

Site 380318 – E. coli Concentrations by Month – 2022									
May	#/100 mL	June	#/100 mL	July	#/100 mL	August	#/100 mL	September	#/100 mL
5/2/2022	20	6/14/2022	6100	7/5/2022	780	8/1/2022	250		
5/3/2022	10	6/15/2022	1200	7/6/2022	1100	8/2/2022	540		
5/4/2022	31	6/21/2022	17000	7/25/2022	210				
5/9/2022	140	6/27/2022	6900	7/26/2022	360				
5/10/2022	52	6/26/2022	6500						
Site 380318 Summary									
	May	June	July*	August*	September				
Number of Samples	5	5	4	2	0				
Geometric Mean CFU/100 mL	33.96	5614.93	504.66	367.42	Insufficient Data				
% > 409 CFU/100 mL	0.0 %	100.0 %	50.0 %	50.0%	Insufficient Data				
Recreational Use Assessment	Fully Supporting	Not Supporting	Not Supporting*	Not Supporting*	Unknown				

* Calculation for geometric mean and percentage of samples in exceedance of 409 CFU/100 mL is done with less than 5 samples to represent the month.