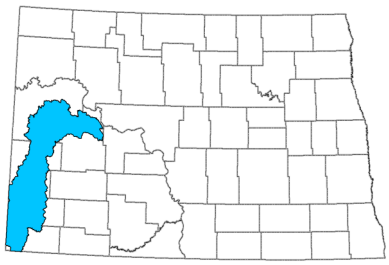
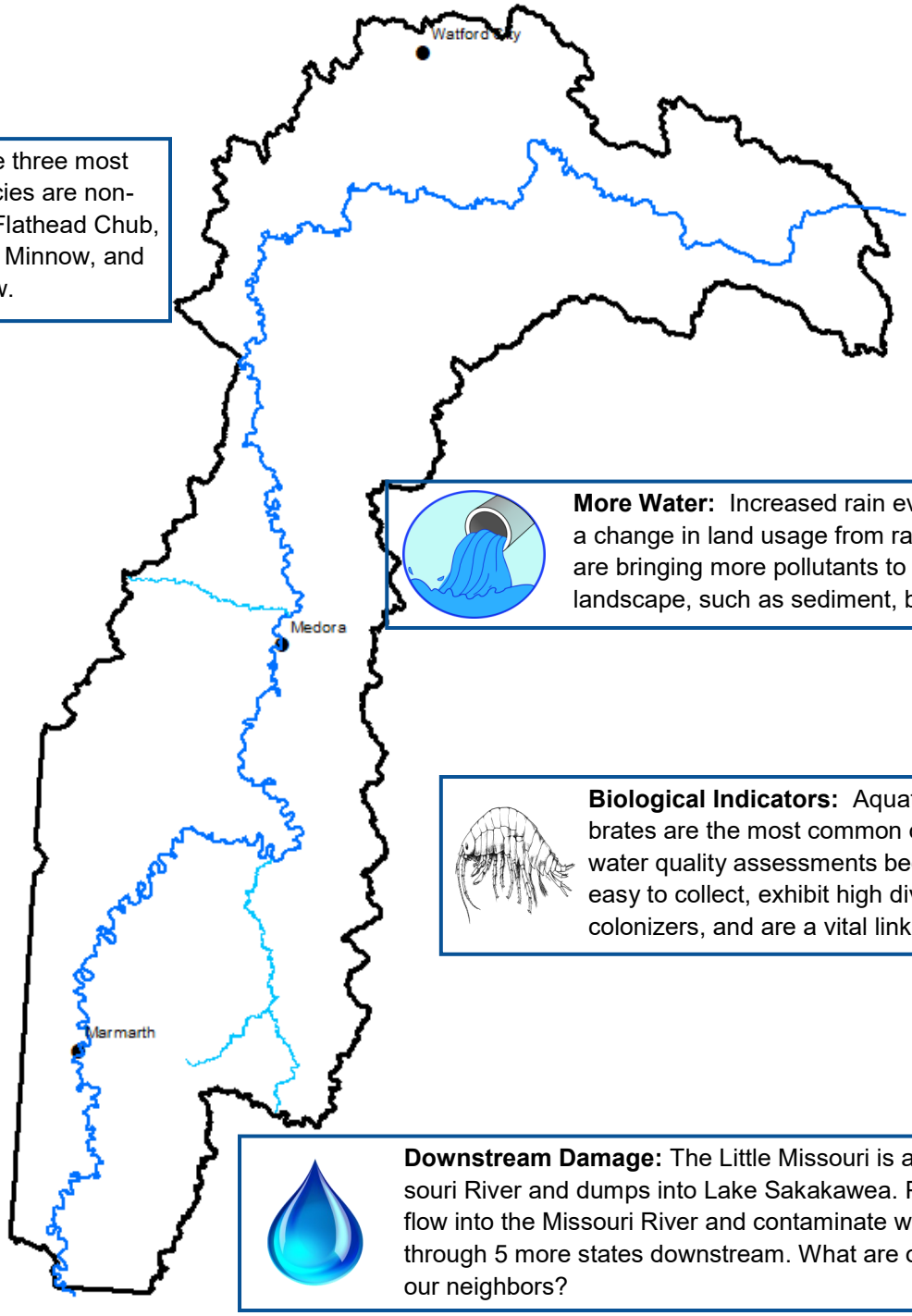
Evaluating the Little Missouri River and its Watershed

From the South Dakota Boarder to Lake Sakakawea





Fish Species: The three most abundant fish species are non-game species, 1) Flathead Chub, 2) Western Silvery Minnow, and 3) Fathead Minnow.

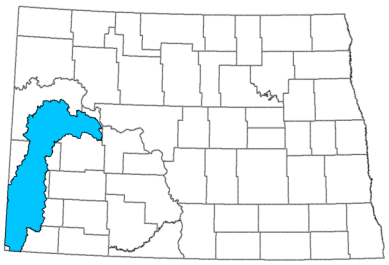
More Water: Increased rain events combined with a change in land usage from rangeland to crop land are bringing more pollutants to the river from the landscape, such as sediment, bacteria, and nutrients.

Biological Indicators: Aquatic Macroinvertebrates are the most common organisms used in water quality assessments because they are easy to collect, exhibit high diversity, are rapid colonizers, and are a vital link in the food web.

Downstream Damage: The Little Missouri is a tributary of the Missouri River and dumps into Lake Sakakawea. Pollutants continue flow into the Missouri River and contaminate water that flows through 5 more states downstream. What are our responsibilities to our neighbors?

Swimmers and Boaters Beware: Harmful Algal Blooms (HABs) are becoming more prevalent in recreational waterbodies. HABs cause toxins that can be harmful to humans, pets, and livestock.

The Big Picture



An important tributary .

The Little Missouri River is approximately 560 miles long, starting in northeastern Wyoming and running through Montana and South Dakota then into North Dakota where the river flows into Lake Sakakawea. The Little Missouri Watershed in North Dakota drains about 8,310 square miles.

A livestock dominated area. Land use in the Little Missouri River Basin (ND) is mostly Grassland and Pasture. 58% of total land cover is grassland/ pasture with only 12% cropland.

Sediment. 34,971,849 US tons of sediment moves through the Little Missouri River in North Dakota annually. That is 874,296 semi-loads!

Pesticides. In 2021 the Little Missouri River did not have any pesticide detections. *For more information on pesticides visit nd.gov/ndda

Nutrients. Phosphorus loads are high in the river but have decreased 40% over the last 20 years.

Moving nutrients.

The Little Missouri River carries a lot of nitrogen and phosphorus downstream, impacting slow-flow areas in North Dakota and reservoirs downstream. On average the Little Missouri River moves 11,477 US tons of phosphorus and 473 US tons of nitrogen through ND yearly.

Phosphorus: 287 semi-loads

Nitrogen: 12 semi-loads

*Red Semi trucks represent 100 trucks, Blue represents 10 trucks, Black represents 1 truck.

Tributaries in trouble

Many tributaries to the Little Missouri River are negatively affected by agriculture. Run off from crops and cattle are a large contributor to the high amounts of nutrients, sediment, and E. *coli*. Bank erosion is a significant contributor to high sediment loads in the Little Missouri and it's tributaries.

Major pollutants in the Little Missouri River

Phosphorus and Nitrogen. It fuels harmful algal blooms and excessive plant growth.

Bacteria. Mainly from cow manure.

Sediment. Eroding banks and fields as a result of human impact.

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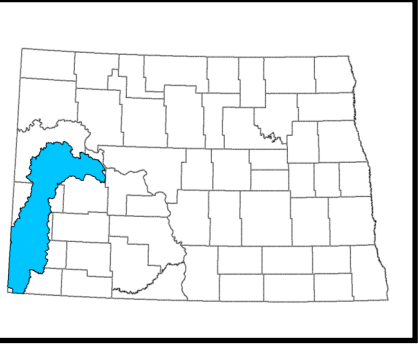
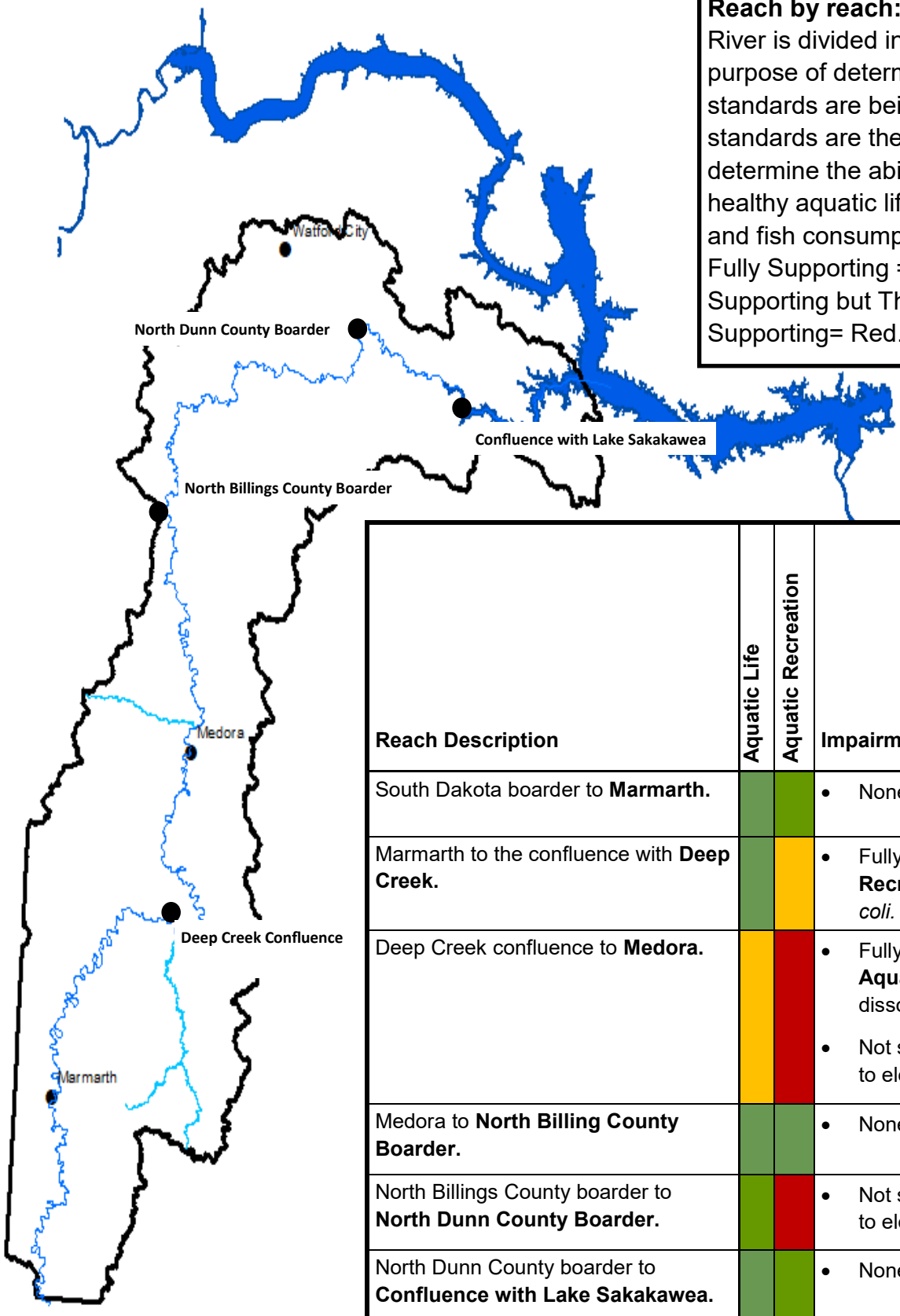
Environmental Quality

The Little Missouri River: Evaluating its Health



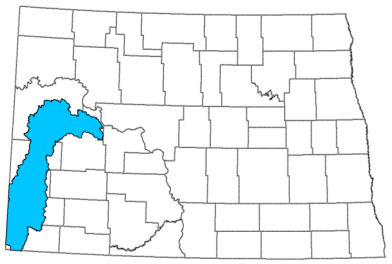
Reach by reach: The Little Missouri River is divided into “reaches” for the purpose of determining if water quality standards are being met. These standards are the benchmarks used to determine the ability of waters to support healthy aquatic life, aquatic recreation, and fish consumption. In the table below: Fully Supporting = Green, Fully Supporting but Threatened= Yellow, Not Supporting= Red.

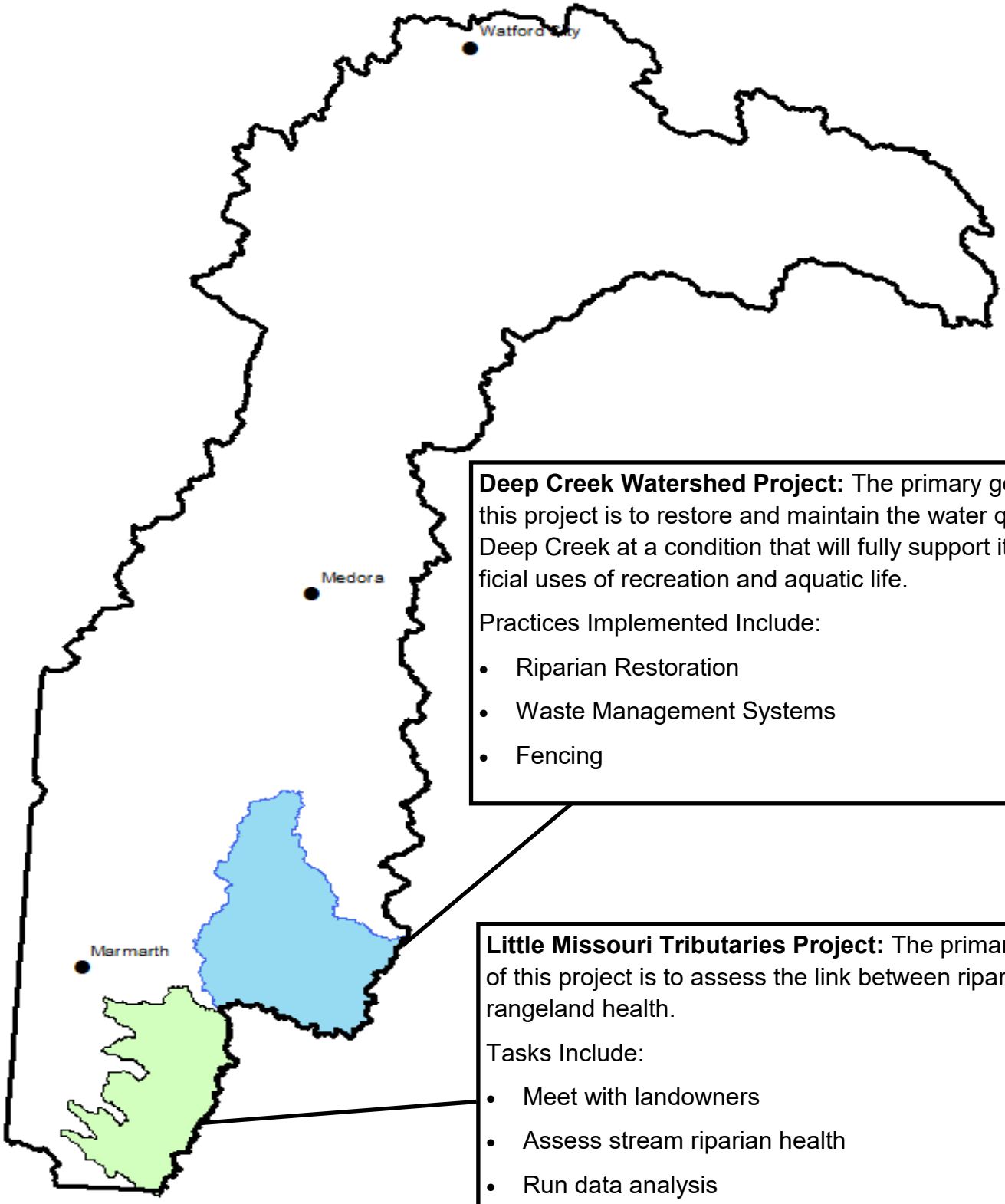


Reach Description	Aquatic Life	Aquatic Recreation	Impairments
South Dakota boarder to **Marmarth.**			• None
Marmarth to the confluence with **Deep Creek.**			• Fully supporting, but threatened **Recreation** due to elevated *E. coli.*
Deep Creek confluence to **Medora.**			• Fully supporting, but threatened **Aquatic Life** due to low dissolved oxygen. • Not supporting **Recreation** due to elevated *E. coli*.
Medora to **North Billing County Boarder.**			• None
North Billings County boarder to **North Dunn County Boarder.**			• Not supporting **Recreation** due to elevated *E. coli*.
North Dunn County boarder to **Confluence with Lake Sakakawea.**			• None

Improving water quality in the Little Missouri River Basin

Section 319 dollars are spent to reduce nutrients and sediment entering small streams and eventually the Little Missouri River. Local Soil Conservation Districts (SCDs) work with landowners to decide what best management practice (BMP) is best for their land and for the river. This is a subset of projects. For information on other 319 projects contact NDDEQ Watershed Management.





Deep Creek Watershed Project: The primary goal of this project is to restore and maintain the water quality of Deep Creek at a condition that will fully support its beneficial uses of recreation and aquatic life.

Practices Implemented Include:

- Riparian Restoration
- Waste Management Systems
- Fencing

Little Missouri Tributaries Project: The primary goal of this project is to assess the link between riparian and rangeland health.

Tasks Include:

- Meet with landowners
- Assess stream riparian health
- Run data analysis