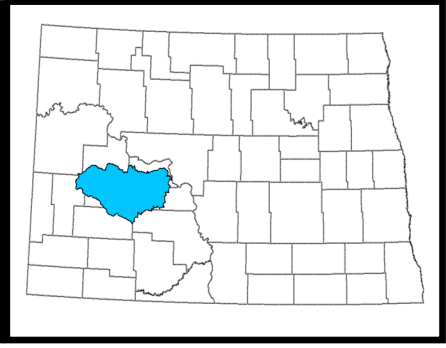
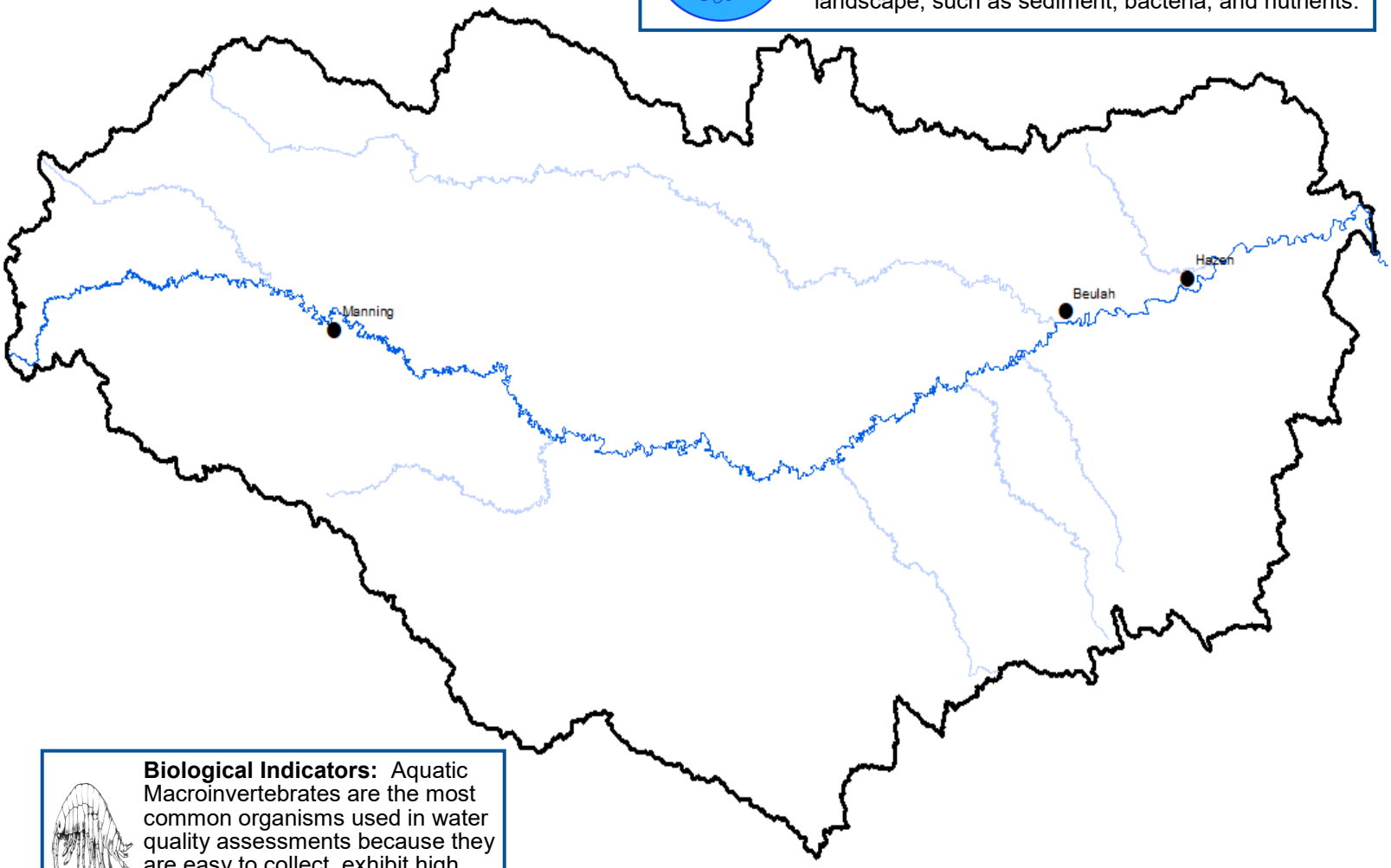
Evaluating the Knife River and its Watershed

From North of Belfield, ND to the Missouri River



Fish Species: The three most abundant fish species are non-game species, 1) Sand Shiner, 2) Longnose Dace, and 3) White Sucker.

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.

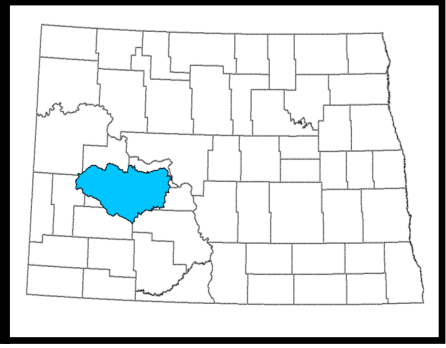


Biological Indicators: Aquatic Macroinvertebrates are the most common organisms used in water quality assessments because they are easy to collect, exhibit high diversity, are rapid colonizers, and are a vital link in the food web.

Downstream Damage: The Knife River is a tributary of the Missouri River. 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 Knife River is approximately 90 miles long, running from north of Belfield, ND to the Missouri River near Stanton, and drains an area of 2,503 square miles.

An impacted river. Land use in the Knife River Basin less agricultural than many other watersheds in the state (27% crop cover and 18% of grassland/ pasture).

Sediment. 148,805 US tons of sediment moves through the Knife River in North Dakota annually. That is 3,720 semi-loads!

Pesticides. In 2021 the Knife River had 1 pesticide detection. The detection did not exceed the Aquatic Life Benchmark. * For more information on pesticides visit nd.gov/ndda

Nutrients. Nutrient loads have decreased 5-10% over the last 20 years. This is likely due to the land use in the watershed.

Moving nutrients.

On average the Knife River moves 84 US tons of phosphorus and 211 US tons of nitrogen through ND yearly.

Phosphorus: 2 semi-loads

Nitrogen: 5 semi-loads

Harmful Algal Blooms (HABS)

Excess nutrients cause HABs to appear more frequently and with more severity. There are no lakes in the Knife River Watershed that have been on NDDEQ's HABs advisory or warning list.

Tributaries in trouble

Many tributaries to the Knife River are negatively affected by agriculture. Run off from crops and cattle are a large contributor to nutrients, sediment, and E. *coli*.

Major pollutants in the Knife River

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

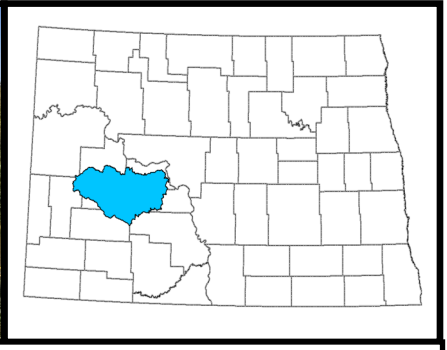
Bacteria. Mainly from cow manure.

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

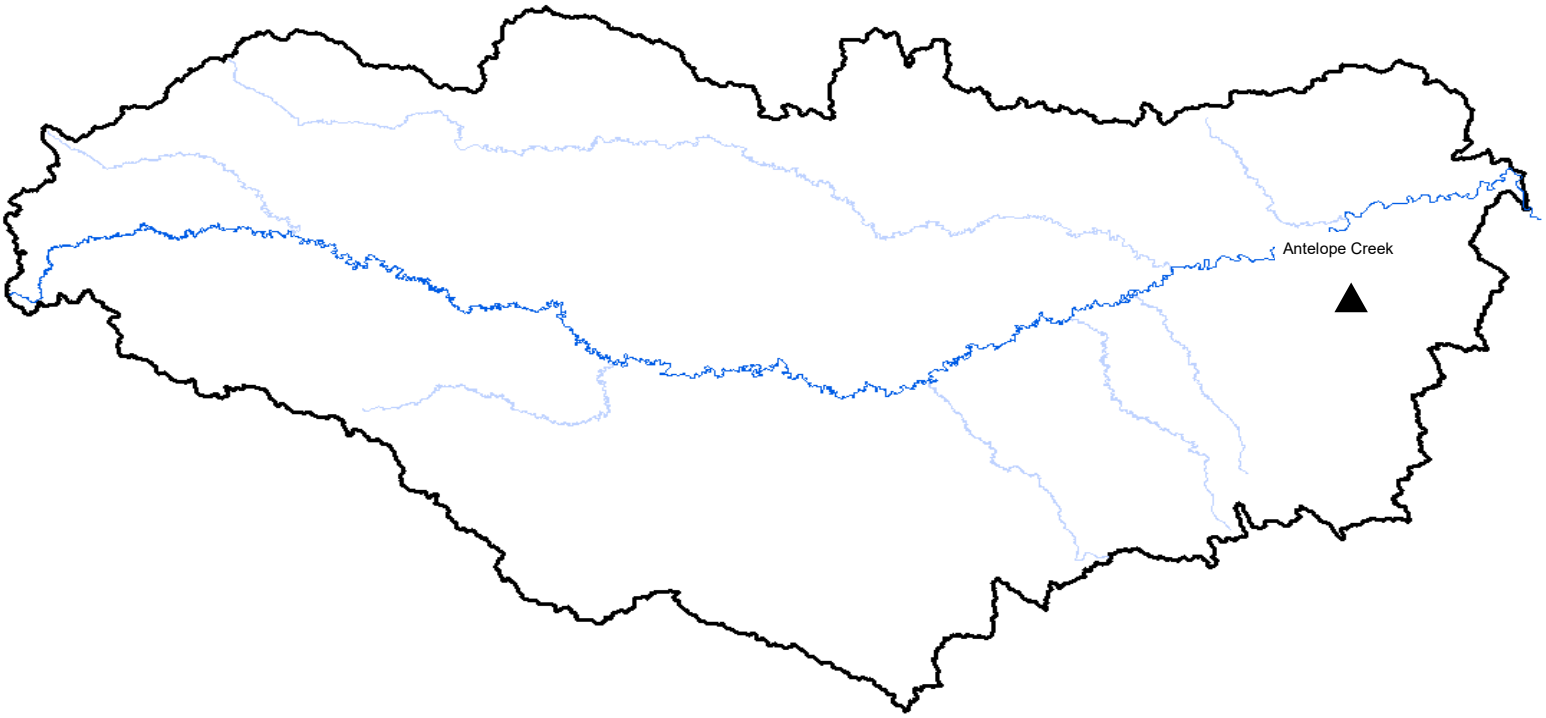
NORTH Dakota Be Legendary.™

Environmental Quality

The Knife River: Evaluating its Health



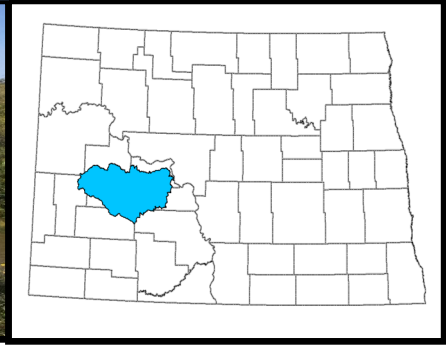
Reach by reach: The Knife River is divided into “reaches” for the purpose of determining if water quality standards are being met. These standards are the benchmarks used to determine the ability of waters to support healthy aquatic life, aquatic recreation, and fish consumption. In the table below: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



Reach Description	Aquatic Life	Recreation	Impairments
Knife River from it’s confluence with Antelope Creek downstream to its confluence with the Missouri River. Located in Mercer County.			• Not Supporting **Recreation** due to elevated *E. coli.*
Knife River from its confluence with Spring Creek downstream to its confluence with Antelope Creek. Located in Mercer County.			• Not Supporting **Recreation** due to elevated *E. coli.*
Knife River from its confluence with Coyote Creek downstream to its confluence with Spring Creek. Located in Mercer County.			• Fully Supporting, but Threatened **Recreation** due to elevated *E. coli.*
Knife River from its confluence with Branch Knife River downstream to its confluence with Coyote Creek. Located in Dunn and Mercer Counties.			• Not Supporting **Recreation** due to elevated *E. coli.*

Improving water quality in the Knife River Basin

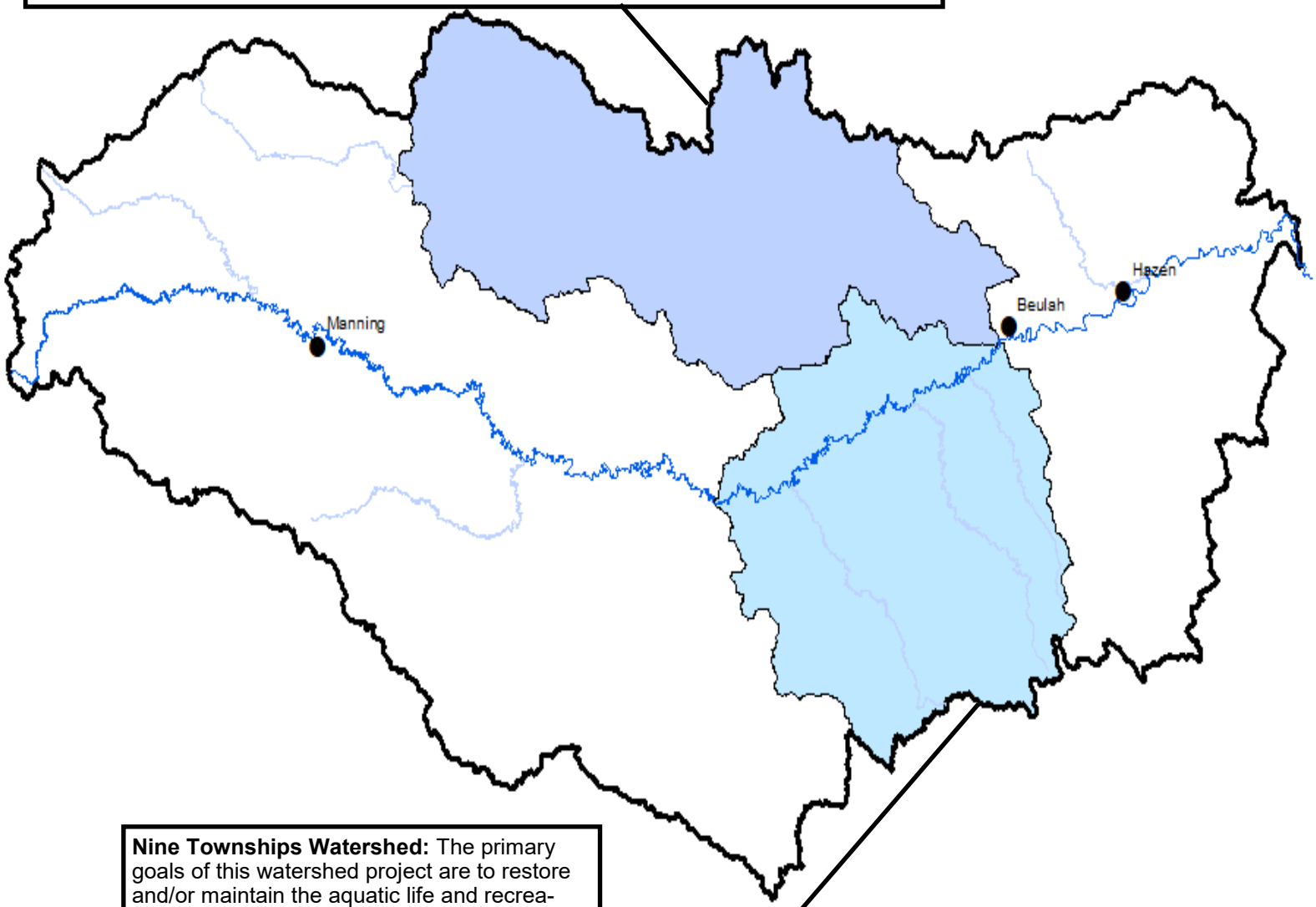
Section 319 dollars are spent to reduce nutrients and sediment entering small streams and eventually the Knife River. Local Soil Conservation Districts (SCDs) work with land-owners to decide what best management practice (BMP) is best for their land and for the river. This is a subset of projects. For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



Spring Creek Watershed: The primary goal of this watershed project is to restore and/or maintain the aquatic life and recreational uses of the Spring Creek and its tributaries within the project area.

Practices Implemented Include:

- Grazing Management
- Vegetative Buffers
- Manure Management Systems



Nine Townships Watershed: The primary goals of this watershed project are to restore and/or maintain the aquatic life and recreational uses of the Knife River tributaries within the project area.

Practices Implemented Include:

- No Till
- Grazing Management
- Manure Management Systems