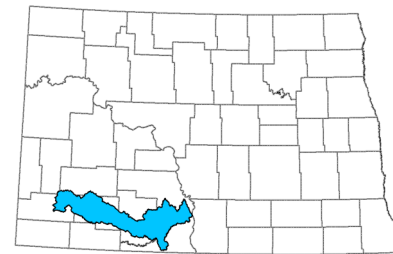


Evaluating the Cannonball River and its Watershed

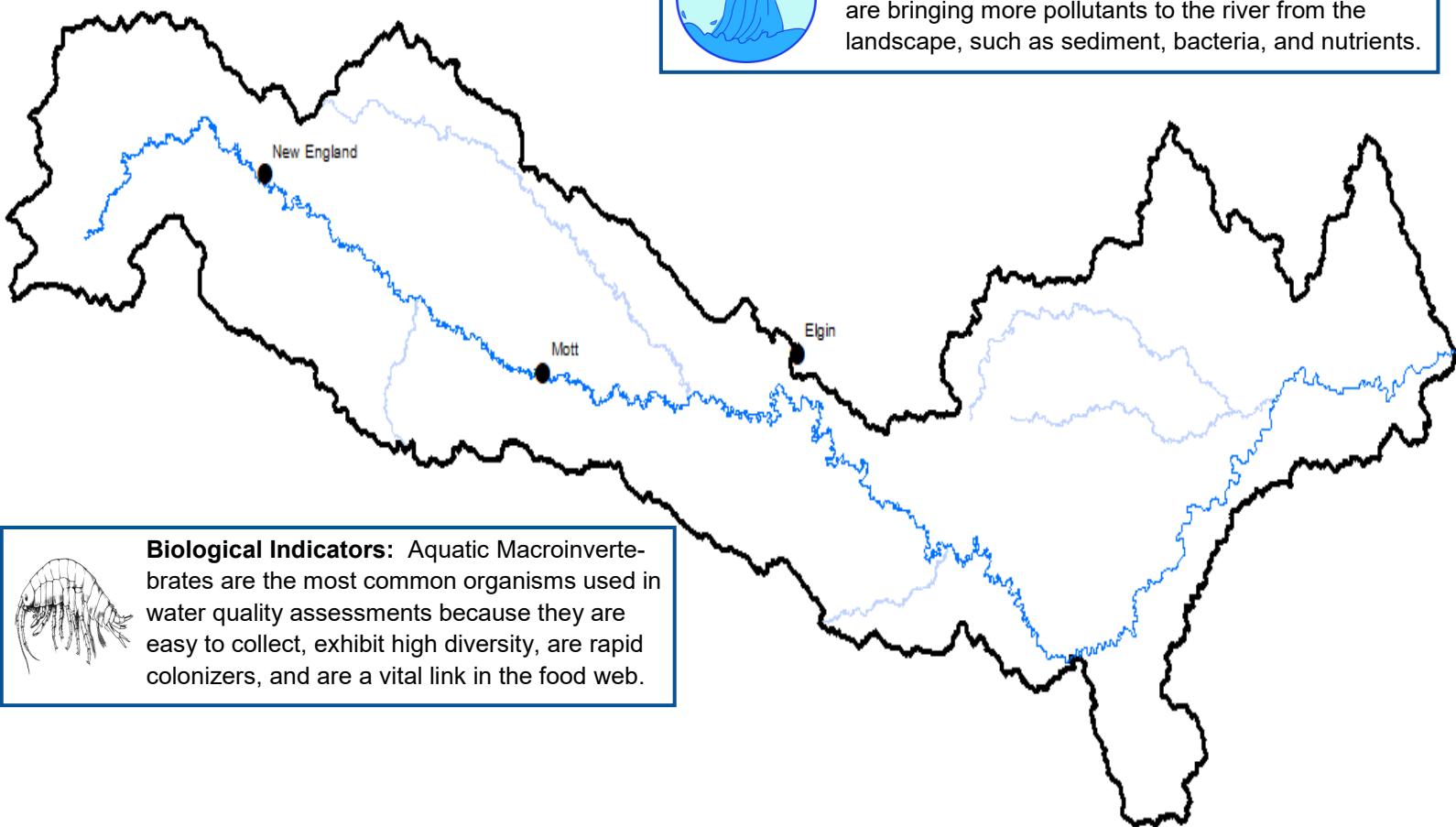
From North of Amidon, ND to the Missouri River



Fish Species: The three most abundant fish species are 1) Sand Shiner, 2) Channel Catfish, and 3) Green Sunfish.



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.



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.

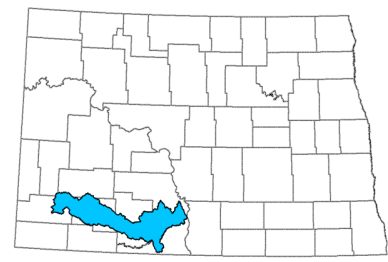


Downstream Damage: The Cannonball River is a tributary of the Missouri River. Pollutants continue flow into the Missouri River and contaminate water that flows through 5 more states downstream. What are our responsibilities to our neighbors?

NORTH
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Environmental Quality

The Big Picture



An important tributary. The Cannonball River is approximately 320 miles long, running from about Amidon, ND to the Missouri River and drains an area of 2,530 square miles.

An impacted river. Land use in the Cannonball River Basin (ND) is dominated by agriculture (39% crop cover and 45% of grassland/pasture).

Sediment. 237,906 US tons of sediment moves through the Cannonball River in North Dakota annually. That is 5,947 semi-loads!

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

Nutrients. Phosphorous loads have increased almost 50% and Nitrogen has increased 13% over the last 20 years.

Moving nutrients. On average the Cannonball River moves 55 US tons of phosphorus and 275 US tons of nitrogen through ND yearly.

Phosphorus: 1 semi-load



Nitrogen: 7 semi-loads



Harmful Algal Blooms (HABS)

Excess nutrients cause HABS to appear more frequently and with more severity. Larson Lake has recurrent blooms that result in advisories and/or warnings.



Tributaries in trouble

Many tributaries to the Cannonball 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*.

Major pollutants in the Cannonball River

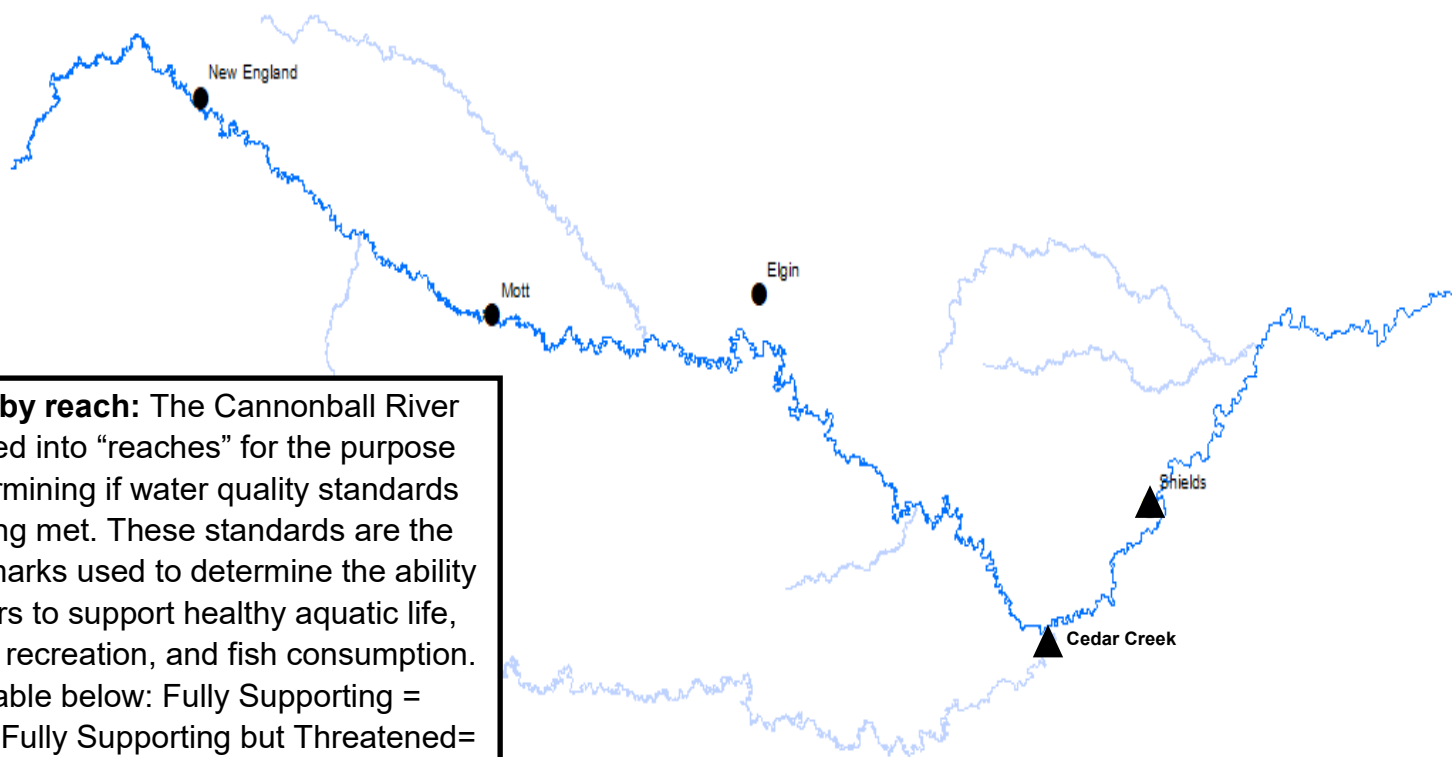
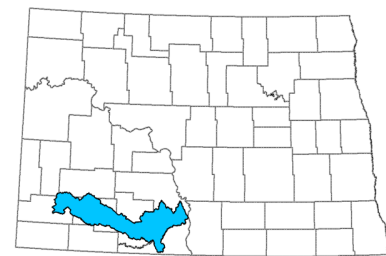
Phosphorus and Nitrogen. It fuels harmful algal blooms and excessive plant growth.

Bacteria. Mainly from cow manure.

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



The Cannonball River: Evaluating its Health



Reach by reach: The Cannonball 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	Impairment
Cannonball River from its confluence with Cedar Creek downstream to its confluence with tributary near Shields, ND	Green	Yellow	Fully Supporting, but Threatened for Recreation due to elevated <i>E. coli</i> .
Cannonball River from its confluence with Philbrick Creek downstream to its confluence with Indian Creek. Located in Hettinger and Slope County.	Blue	Yellow	Fully Supporting, but Threatened for Recreation due to elevated <i>E. coli</i> .
Cannonball River from its confluence with Dogtooth Creek, downstream to Lake Oahe. Border of Morton and Sioux County.	Blue	Red	Not Supporting for Recreation due to elevated <i>E. coli</i> .
Cannonball River from its confluence with Snake Creek, downstream to its confluence with Cedar Creek. Located in Grant County.	Green	Yellow	Fully Supporting, but Threatened for Recreation due to elevated <i>E. coli</i> .

Improving water quality in the Cannonball River Basin

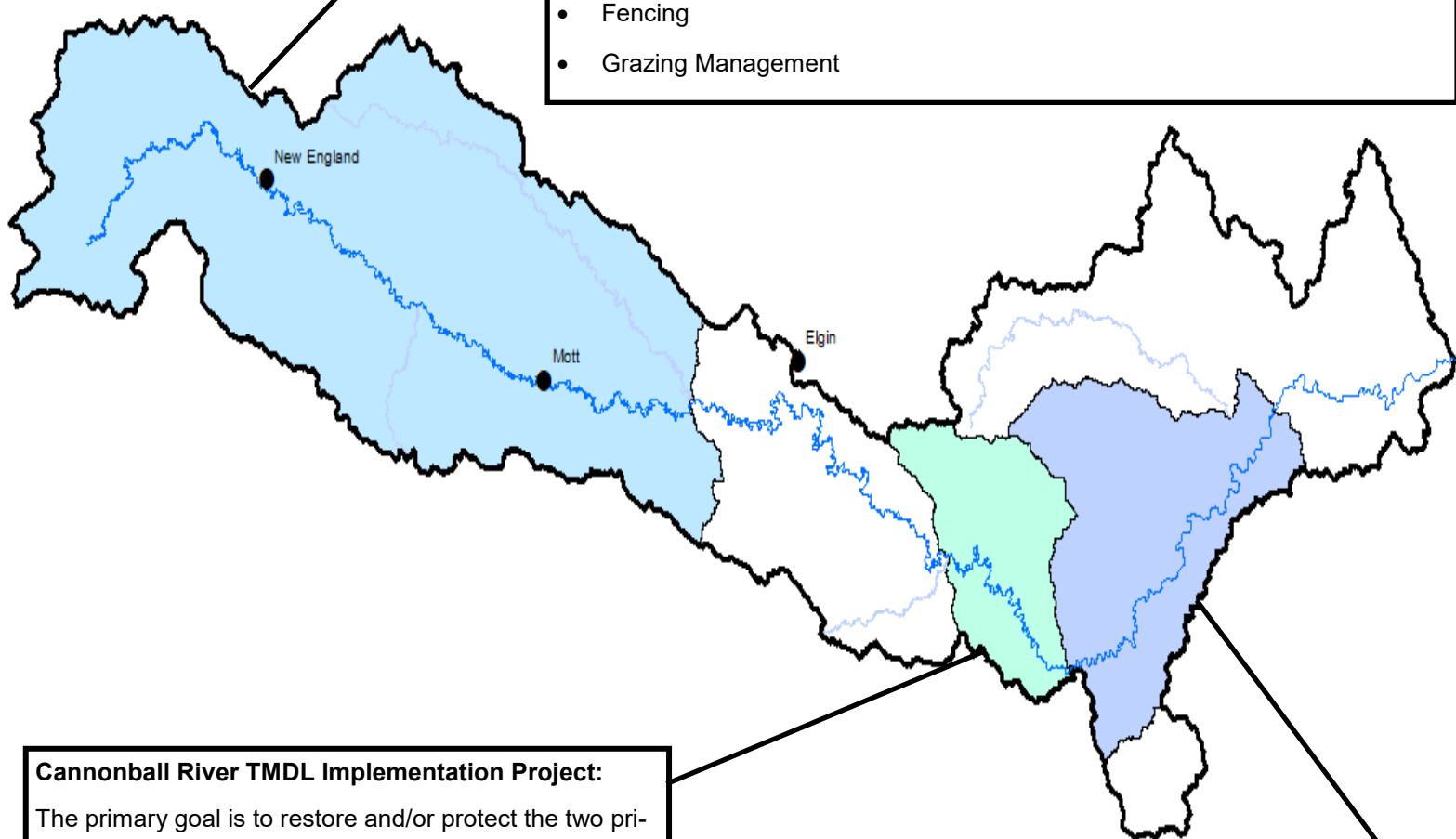
Section 319 dollars are spent to reduce nutrients and sediment entering small streams and eventually the Cannonball River. Local Soil Conservation Districts (SCDs) work with landowners to decide what best management practice (BMP) is best for their land and for the river. This is a subset of projects.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



Upper Cannonball Manure Management Implementation Project: The goal for the Upper Cannonball Watershed Manure Management Project is to restore the beneficial use of recreation to fully supporting by decreasing the amount of fecal coliform in the Upper Cannonball river system.

Practices Implemented Include:

- Manure Management Systems
- Water Tanks
- Fencing
- Grazing Management



Cannonball River TMDL Implementation Project:

The primary goal is to restore and/or protect the two primary beneficial uses (i.e. recreational and agricultural) of the Cannonball River from its confluence with Snake Creek downstream to its confluence with Cedar Creek by reducing the geometric mean concentrations of fecal coliform bacteria.

Practices Implemented Include:

- Water Well and Tank Development
- Prescribed Grazing
- Manure Management Systems
- Livestock Exclusion from Riparian Areas

The Grant County Cannonball River/Dogtooth Creek Watershed Project: The goal of this project is to improve the water quality enhancing the recreational activities available on the Cannonball River and Raleigh Reservoir and restore riparian habitat of these watersheds by implementing Best Management Practices (BMPs).

Practices Implemented Include:

- Fencing
- Water Tanks
- Cover Crops
- Manure Management Systems