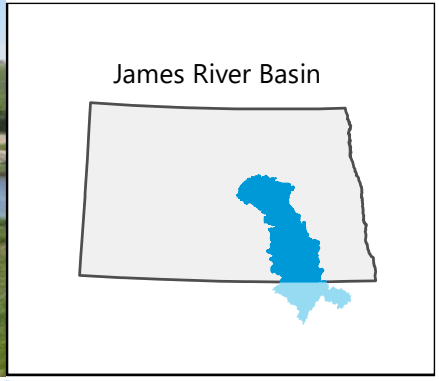
Evaluating the James River and its Watershed

From Hurdsfield, ND to the South Dakota Border



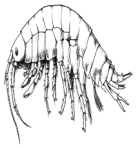
Harvey

New Rockford

Hurdsfield

Carrington

Coopers town



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.

Fish Species: The three most abundant fish species are non-game species, 1) fathead minnow, 2) sand shiner, and 3) white sucker.

Jamestown

Valley City

More Water: Increased rain events combined with an ag dominated landscape brings more pollutants to the river from the landscape, such as sediment, bacteria, and nutrients.

Downstream Damage: The river doesn't stop at the boarder. Pollutants continue south and flow into South Dakota. What are our responsibilities to our neighbors?

Oakes

Ellendale

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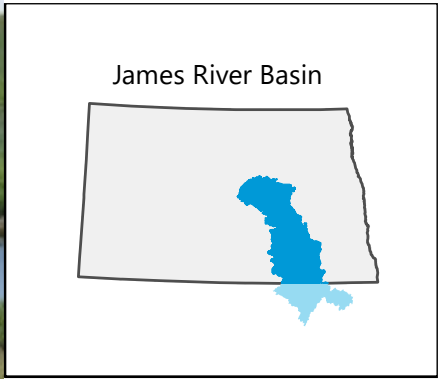
The Big Picture



A long river. The James River is about 710 miles long, running from Hurdsfield, ND to Yankton, SD, and drains an area of 20,942 square miles.

An impacted river. Land use in the James River Basin (ND) is dominated by agriculture (70% of all cover).

Sediment. 25,723 US tons of sediment moves through the James River in North Dakota annually. That is 643 semi-loads!

Pesticides. In 2021 the James River had 12 pesticide detections. 6 of those detections met or exceeded the Aquatic Life Benchmark (ALB). *For more information on pesticides visit nd.gov/ndda

Nutrients. Nutrient loads have been decreasing over the last 20 years.

Moving nutrients.

The James River carries a lot of nitrogen and phosphorus downstream, impacting slow-flow areas in North Dakota and reservoirs downstream. On average the James River moves 252 US tons of phosphorus and 660 US tons of nitrogen through ND yearly.

Phosphorus: 6 semi-loads

Nitrogen: 16.5 semi-loads

Harmful Algal Blooms (HABS)

Excess nutrients cause HABs to appear more frequently and with more severity. Lake LaMoure and Jamestown Reservoir have recurrent blooms that result in advisories and/or warnings.

Tributaries in trouble

Many tributaries to the James 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 James

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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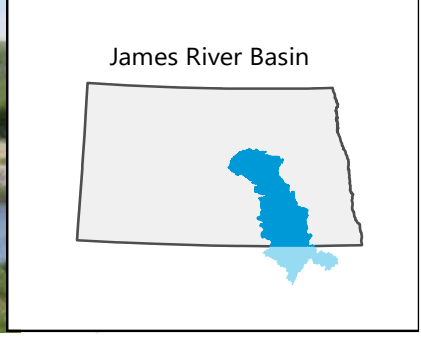
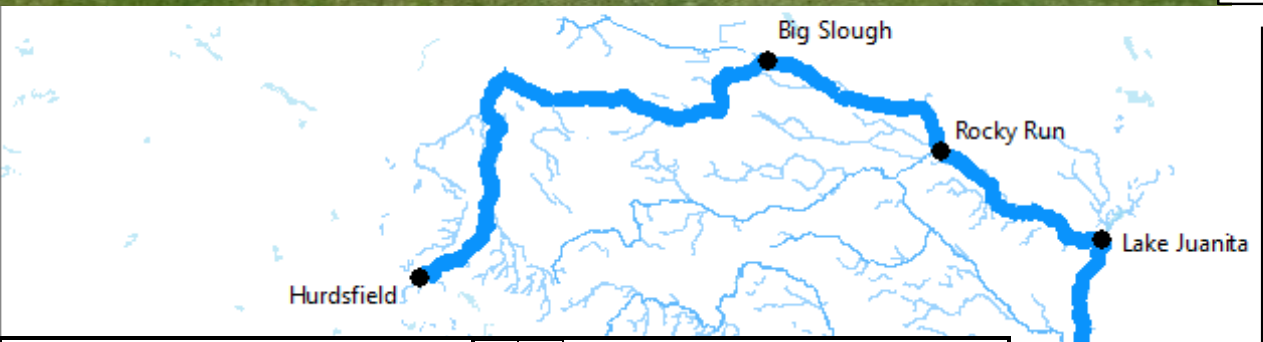
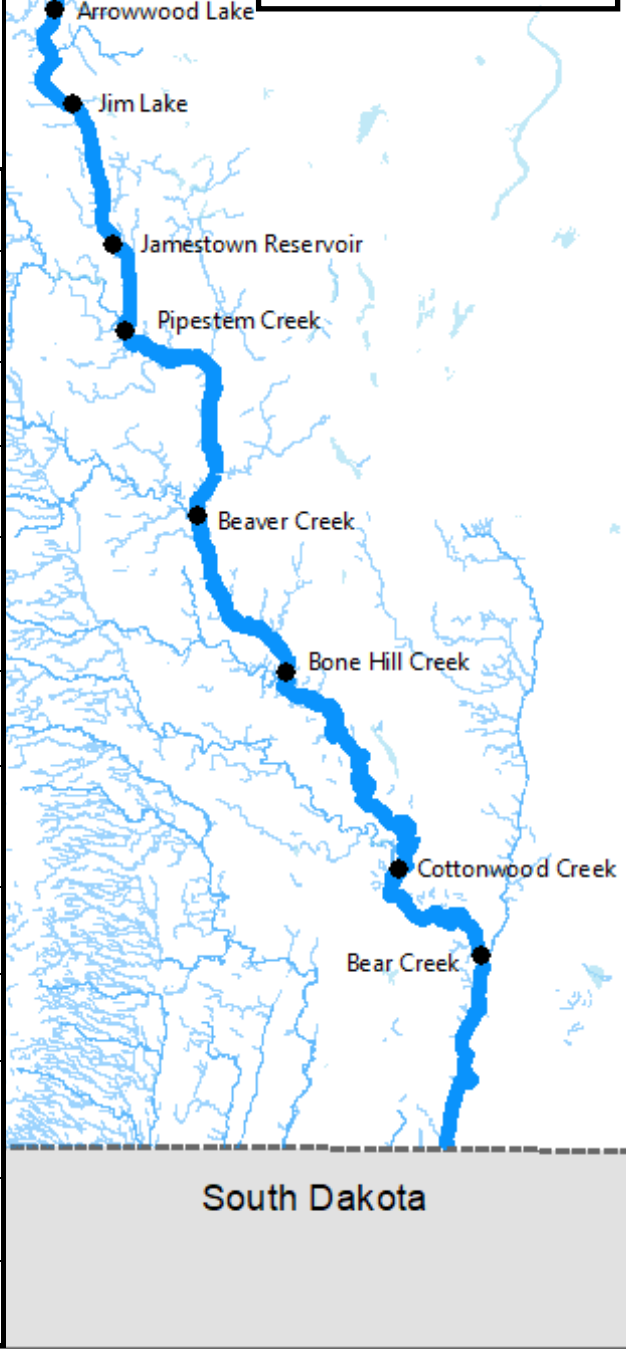
The James River: Evaluating its Health





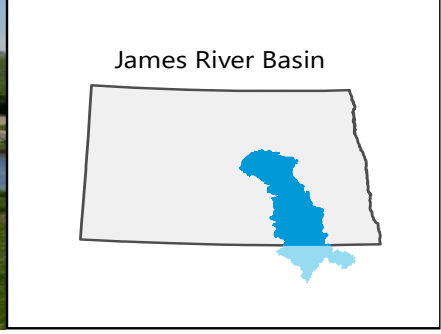
Reach by reach: The James River is divided into "reaches" for the purpose of determining if water quality standards are being met. These standards are the benchmarks used to determine the ability of waters to support healthy aquatic life, aquatic recreation, and fish consumption. In the table below: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

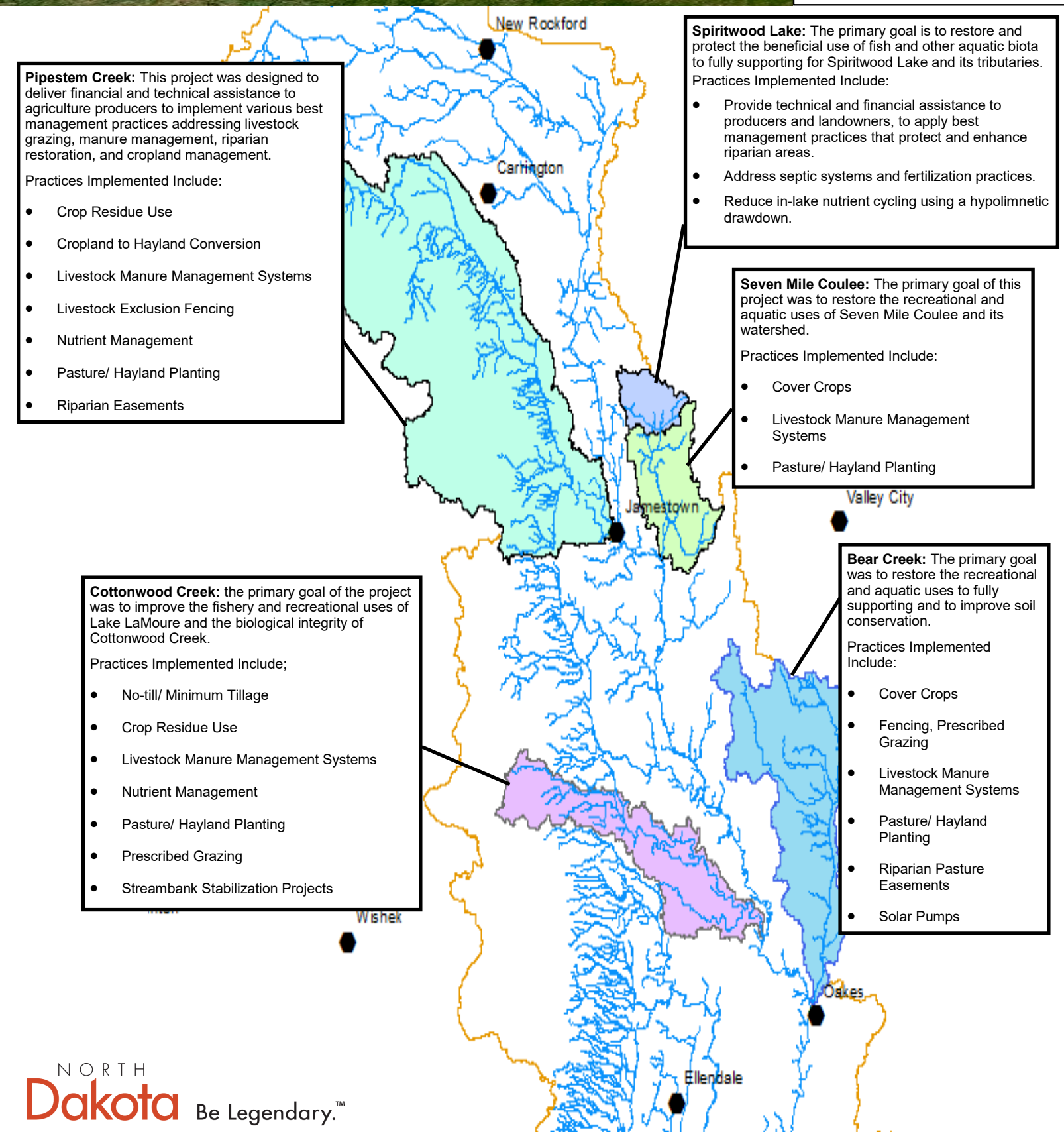
Reach Description	Aquatic Life	Recreation	Impairments
Headwaters From near Hurdsfield to Confluence with **Big Slough**			None
Rocky Run From confluence with Big Slough to confluence with Rocky Run			• Not supporting **Recreation** due to elevated *E. coli*
Lake Juanita From confluence with Rocky Run downstream to the Lake Juanita outlet			• Not supporting **Recreation** due to elevated *E. coli*
Arrowwood Lake From Lake Juanita outlet to Arrowwood Lake inlet			None
Jim Lake From Arrowwood Lake outlet to Jim Lake inlet			• Fully supporting, but threatened **Fish and Aquatic Biota** due to low dissolved oxygen
Jamestown Reservoir From Jim Lake outlet to Jamestown Reservoir inlet			• Fully supporting, but threatened **Recreation** due to *E. coli*
Pipestem Creek From Jamestown Reservoir outlet downstream to confluence with Pipestem Creek			• Fully supporting, but threatened **Fish and Aquatic Biota** due to benthic macroinvertebrate bioassessments
Beaver Creek From confluence with Pipestem Creek to confluence with Beaver Creek			None
Bone Hill Creek From confluence with Beaver Creek to confluence with Bone Hill Creek			None.
Cottonwood Creek From confluence with Bone Hill Creek to confluence with Cottonwood Creek			None.
Bear Creek From confluence with Cottonwood Creek to confluence with Bear Creek			None.
South Dakota Border From confluence with Bear Creek to South Dakota border			None.



Improving water quality in the James River basin

Section 319 dollars are spent to reduce nutrients and sediment entering small streams and eventually the James 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.





Pipestem Creek: This project was designed to deliver financial and technical assistance to agriculture producers to implement various best management practices addressing livestock grazing, manure management, riparian restoration, and cropland management.

Practices Implemented Include:

- Crop Residue Use
- Cropland to Hayland Conversion
- Livestock Manure Management Systems
- Livestock Exclusion Fencing
- Nutrient Management
- Pasture/ Hayland Planting
- Riparian Easements

Spiritwood Lake: The primary goal is to restore and protect the beneficial use of fish and other aquatic biota to fully supporting for Spiritwood Lake and its tributaries.

Practices Implemented Include:

- Provide technical and financial assistance to producers and landowners, to apply best management practices that protect and enhance riparian areas.
- Address septic systems and fertilization practices.
- Reduce in-lake nutrient cycling using a hypolimnetic drawdown.

Seven Mile Coulee: The primary goal of this project was to restore the recreational and aquatic uses of Seven Mile Coulee and its watershed.

Practices Implemented Include:

- Cover Crops
- Livestock Manure Management Systems
- Pasture/ Hayland Planting

Cottonwood Creek: the primary goal of the project was to improve the fishery and recreational uses of Lake LaMoure and the biological integrity of Cottonwood Creek.

Practices Implemented Include;

- No-till/ Minimum Tillage
- Crop Residue Use
- Livestock Manure Management Systems
- Nutrient Management
- Pasture/ Hayland Planting
- Prescribed Grazing
- Streambank Stabilization Projects

Bear Creek: The primary goal was to restore the recreational and aquatic uses to fully supporting and to improve soil conservation.

Practices Implemented Include:

- Cover Crops
- Fencing, Prescribed Grazing
- Livestock Manure Management Systems
- Pasture/ Hayland Planting
- Riparian Pasture Easements
- Solar Pumps

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