

Identifying water quality risks in the Missouri River Bioregional watershed

Overview

The Yankton Sioux tribe in South Dakota are developing a long-range project to define and understand water quality on their reservation, in partnership with the Center for Health, Environment and Justice. The tribe wants to develop a co-management plan for the Missouri River Bioregional (MRB) watershed that will restore traditional Native practices of water and land management. To realize this goal, an inventory is needed of the plants, wildlife, water, aquatic life, and cultural and ceremonial sites. An important part of this effort is to define the water quality in the Missouri River Bioregion with an initial focus on the approximately 150 mile stretch of the Missouri River between Lower Brule Reservation and the city of Yankton. The first steps in achieving this goal is the following:

1. Identify existing water quality data in the targeted region.
2. Identify pollution sources in the targeted region on both reservation and non-reservation land.
3. Identify non-point pollution sources in the targeted region on both reservation and non-reservation land.

We are looking for help with each of these steps – identifying existing water quality data and pollution sources including non-point pollution sources in the targeted region on both reservation and non-reservation land. This means evaluating existing water quality data bases to pull out data that is relevant to the targeted bioregion, looking for Superfund sites, RCRA sites, and other industrial sites with a water, solid waste or air permit along this stretch of the river. This project **can be part of a thesis or internship**, please discuss with your advisor.

Overall goal is to create an interactive map of the region across different databases at different sites.

Skills

The most suitable candidate would have the following skills:

- Strong proficiency in Microsoft Word and Excel
- Knowledge of and interest in water quality databases
- Proficiency in or interest in data management and storage
- Proficiency in or interest in ArcGIS or QGIS for layer management

Data to collect

- Owner/Name of Database
- Live link/location of database
- Description of type of data available (e.g., WQ - e-coli; oil spill location/amt; etc.)
- Location of data point (this can be a text location description rather than transcribing the GPS coordinates; we should be able to import the GIS layer as one unit)
- Date Range of available data

- Last edited
- Monitoring Frequency (this might be a 1-time data report like an oil spill, or it might be monthly data or 1x/year, etc.)
- What parameters are being monitored (nutrients; metals, flow, etc.)
- GIS Layer available (Yes/No)/Notes/Comments

Please contact Kyle Monahan at kyle.monahan@tufts.edu for more information. Interested applicants should get in touch by April 30th, 2019.