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Draft Proposal: Impaired Waters

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Abstract

This project uses Tableau and ArcGIS to develop an interactive story of multiple dashboards serving as technical assistance packets for Dubuque and Jackson counties—areas selected for focus through my Iowa Nutrient Research Center grant. The dashboards will visualize private well contamination data, including positive nitrate and E. coli bacteria test results, along with public health and socioeconomic indicators better to illustrate community health impacts and water quality awareness.

ArcGIS will geocode well-testing data from January 1, 2023, to December 31, 2024, allowing for year-to-year comparison of contamination trends. Additional layers highlighting impaired rivers, lakes, and streams will also be included to enrich the local water quality context.

Tableau will house both statewide and county-specific dashboards. The story layout will begin with a broad overview and narrow to county-level insights, making the data accessible to users with different needs.

Overview

This project will utilize Tableau and ArcGIS to develop an interactive story that will combine a multitude of dashboards that function as technical assistance packets for Dubuque and Jackson counties, the selected counties of interest for my Iowa Nutrient Research Center grant. These dashboards will visualize data on private good contamination, including positive nitrate and e coli bacteria tests, alongside broader public health and socioeconomic indicators to provide an understanding of the current community health impacts and water quality awareness.

The fundamental goal of this project is to communicate the relevant data in an accessible way for the general public living within those counties. To do so, this project will utilize ArcGIS to geocode all entries from Jan 1st, 2023- December 31^{st,} 2024, to understand where positive private well tests have occurred and, furthermore, if that statistic changed between years. Previously built layers, including contaminated rivers, lakes, and streams, will be leveraged in layouts to further the understanding of water quality in those counties.

Several of the dashboards will be statewide, allowing residents to compare their county's level of water activism and socioeconomic indicators with other counties. This will be done with Tableau by combining CSV files that I have been building throughout this semester.

The layout for the Tableau Story will start with state-wide dashboards and then narrow to each county of interest. This will provide users who are just looking for broad information about the state will not become frustrated or need to search for the information they are seeking

I have collected my data, and I am in the process of cleaning it. Once I have the nitrate and bacteria layers created, I will be ready to create the dashboards. I am hopeful to have the data cleaned and complete with ArcGIS by 4/16/2025 to start in Tableau.