

Visualizing National Water Quality Data

The Water Quality Portal (WQP) is a large national dataset of water quality measurements aggregated by the USGS and EPA.

The WQP offers a central source for a large number of water quality measurements. However, there lacks a way to quickly explore when and where measurements exist and what that data looks like.

pondr is a comprehensive tool for investigating data coverage, values, and trends from the Water Quality Portal.

Pondr's interactive functionalities are built with RShiny, a powerful web framework for presenting R-based data analyses.

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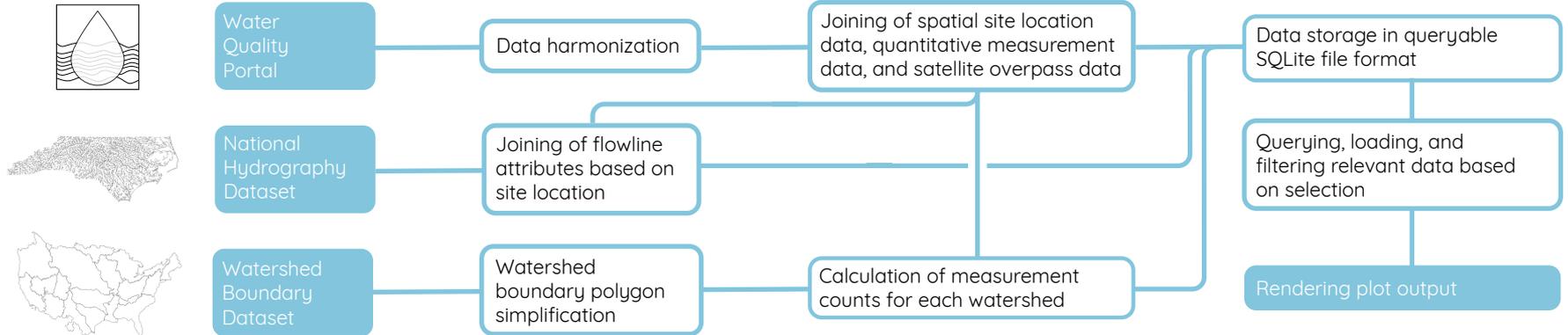
Dr. Jim Heffernan | Faculty Lead



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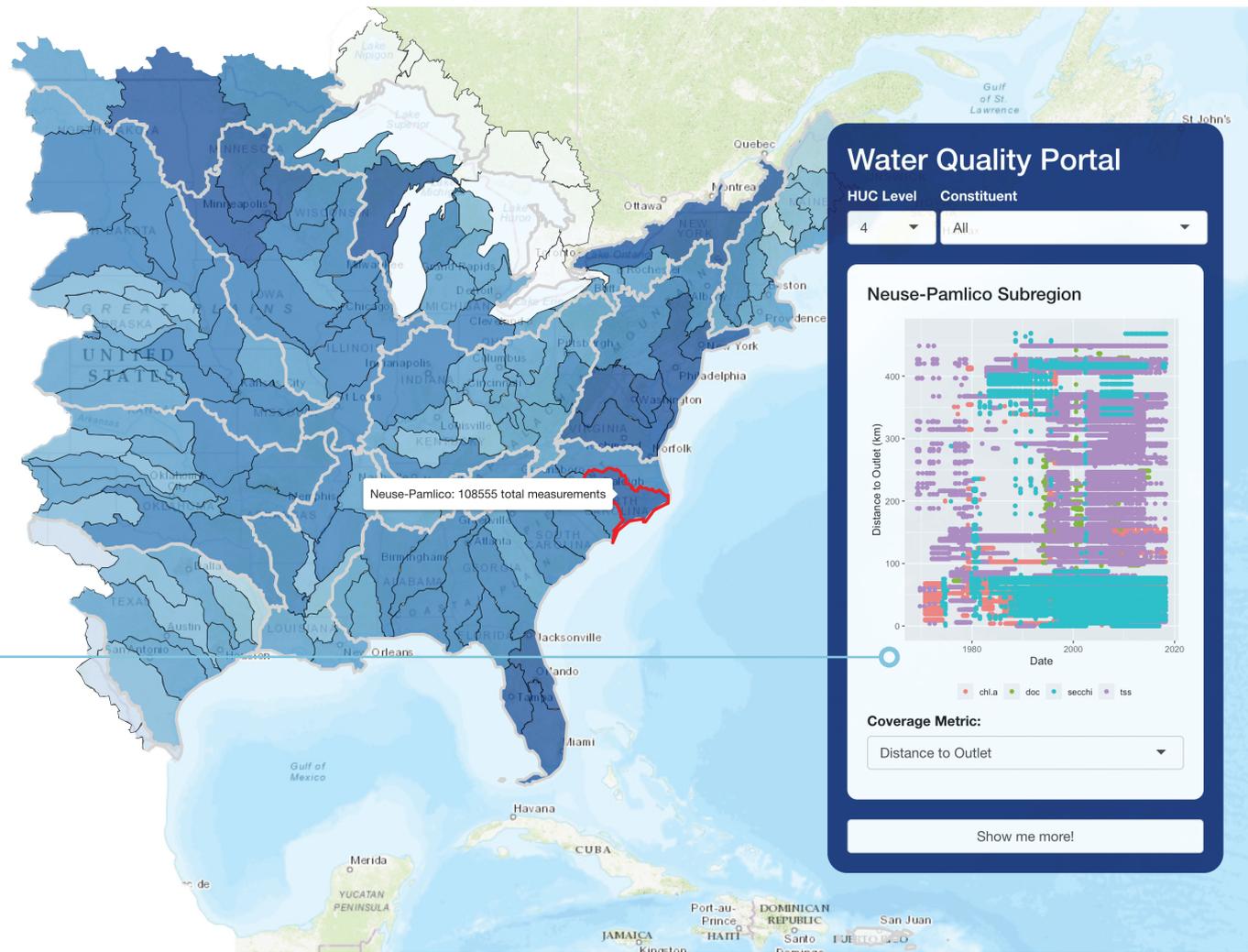
From Raw Datasets to Responsive Plots



Chloropleth map shows measurement densities for national watersheds, with darker colors representing well covered regions

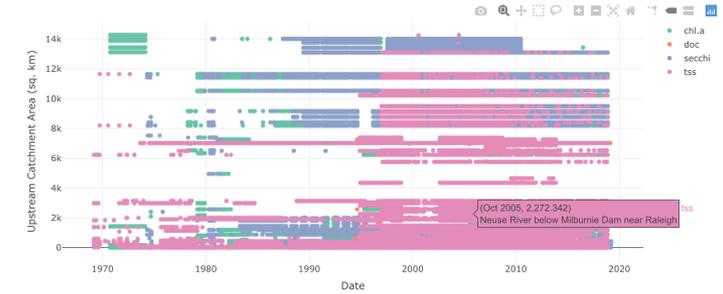
Users can select hydrologic unit code (HUC) levels and water quality parameters to reflect varying research goals and interests

A coverage plot for selected regions offers an at-a-glance overview of spatiotemporal measurement coverage



Coverage in the Neuse-Pamlico Subregion

HUC4: 0302 — 36,985.18 sq. km in the South Atlantic-Gulf Region



Measurement Site Selection

Filter by date: 1969-03-07 to 2019-04-10

Filter by upstream catchment area (sq. km): 0 to 14,276

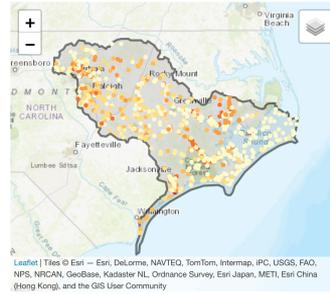
Filter by site location type: Choose a site location type

Filter by constituent: All

Filter by satellite overpass: All points

Filter by site location name: Choose a site location

Site Map



Settings

Cluster site locations

Show HUC10 Boundaries

Show HUC12 Boundaries

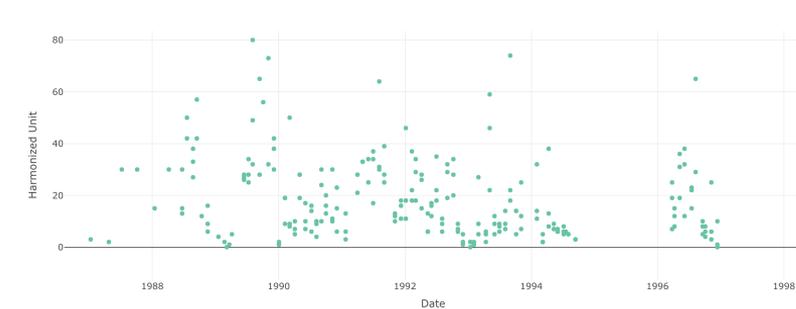
Refresh map

Coverage Metric: Upstream Catchment Area

Y-Axis: Linear

Time Series: Generate time series for selected points

Time Series



Take me back!

Y-Axis: Linear

Download filtered data

An interactive measurement site map offers further insight into spatial density across distinct water bodies within a watershed

Filters allow users to quickly narrow down their search based on parameters such as water body type and satellite overpass availability

Settings for several visualization options provide more or less granular views of data depending on scope of the search

Users can quickly extract filtered data to a CSV file with WQP SiteIDs and Landsat scene IDs for further research

Time series presents measurement values over time for selected points