**Water Quality Portal R Shiny App**

**Concept **

**Goals**

* Allow users to select location on a map and automatically draw watershed boundary
* Use watershed boundary to pull water quality monitoring sites from the Water Quality Portal
* List characteristics available in data from selected monitoring sites
* Allow user to select characteristics of interest and see where in the watershed those characteristics have been measured
* Allow users to select date range and see what monitoring sites and characteristics have data for selected date range
* *Allow users to download data from the water quality portal*
* *Show monitoring site identification to allow users to easily download data from the water quality portal using location id numbers*

**Audience**

* Researchers
* Nonprofit watershed associations and environmental groups

**App Details**

**User Interface**

* Characteristics – drop down menu that allows users to scroll and see what characteristics are available in the watershed or type in the search bar for specific characteristic
  + Characteristic drop down menu will say “First, select a watershed by clicking on the map” to start and will update when the user clicks a location on the map
  + When user selects specific characteristic(s) it will update the points on the map to only show sites with data for the selected characteristic(s)
* Date Selection – Allows user to type in date range of interest. Date selection will begin with Jan 1, 1980 – current date to allow user to see all data available.
  + When user selects a new date range it will update the points on the map to only show sites with data for the selected date range
  + Characteristics menu will also update so only characteristics available during selected date range are show
* Map – To begin pulling data from WQP, the user must select a location on the map by clicking the map. The map is currently set to be zoomed to North Carolina, but can be moved around as well as zoomed in and out.
  + When the user clicks the map, a pop up will say that the data is loading because sometimes it takes a little time to pull the watershed boundary from NHD and site data from WQP
  + Clicking the map leads the app to pull the watershed boundary from NHD, pull monitoring sites from WQP and pull characteristic names from WQP.
  + Map can be reset using the home button
  + New locations can be selected at any time

**Server**

* Pull Watershed Boundary from NHD
* Pull Monitoring sites from WQP
* Pull Data from WQP
* Update Characteristic Drop Down (Picker input) based on data from WQP
* Display Data on Map
* Temporarily save WQP data files to local system