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Web Mapping

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**Data Report: Fracking**

1. **Problem and Objectives**

* Problem
  + Fracking in California and effects on groundwater
    - Fracking causes overdrawn groundwater basins that are a water source for certain counties (diminishing potable water source)
    - Health concerns
    - Who is potentially affected
      * Population in affected areas
* Objectives
  + Educate policy makers
  + Educate and inform individuals who may be affected by fracking
  + Provide information to activist groups opposing fracking in California

1. **Datasets**

* California Geographic Boundaries
  + Link:<https://data.ca.gov/dataset/ca-geographic-boundaries>
* Population of Counties in California (2020)
  + Link: <http://worldpopulationreview.com/us-counties/ca/>
* CA Fracking Wells
  + Link: <https://drive.google.com/open?id=1kF7-pHg94COQo69L7gjEcs1co54yNLf7>
* CA Groundwater Basins
  + Link: <https://drive.google.com/open?id=1kF7-pHg94COQo69L7gjEcs1co54yNLf7>

1. **Dataset Descriptions**
   1. *Define the need for each of the datasets. How do each of the datasets help you meet your objectives?*

* California Geographic Boundaries
  + Highlight counties where fracking is occurring
* Population of Counties in California (2020)
  + Shows the amount of the population potentially impacted by fracking
* CA Fracking Wells
  + Map users can quickly glance where the highest density of fracking wells is located in CA
* CA Groundwater Basins
  + Shows location of GW basins in CA
  + Show GW basins where hydraulic fracturing is occurring
  + Show GW basins that are a potable water source and where fracking is occurring
  1. *Are there additional datasets that would help you meet your objectives? What barriers exist that prevent you from incorporating those datasets?*
* Income Data for Select Counties
  + We have a time constraint where we might not be able to include this in our final map
* Add choropleth map of total fracking well volume
  + We would need total well volumes which might take time to track down and synthesize
  + This data would provide a stronger link between fracking and diminishing GW supply

1. **Methodology** 
   1. *Describe steps required to prepare data for use in your web map. How will you need to transform the data? Do you need to combine it with other kinds of data? Does it need to be reformatted in any way?*

* Counties
  + Isolate CA counties
  + Isolate 10 desired counties
  + Only show the 10 counties along with the first paragraph of the scrollytelling map
* Population Affected
  + Get populations of all ten counties with fracking
  + Calculate total
  + Show up in popups
* CA Fracking Wells
  + Add all wells from shapefile
  + Determine if fracking wells are located in high priority GW basins (SGMA 2019 Basin Prioritization Plan)
* CA GW Basins
  + Add all CA GW basins
  + Differentiate GW basins that have fracking wells and high priority GW basins (SGMA 2019 Basin Prioritization Plan) from GW basins not expected to be impacted with different colors
  1. *For each dataset, description of how the data will be displayed on your web map. What kinds of UI elements and interactions will you need to build for your user to understand each dataset?*
* Counties
  + 10 counties that have fracking activity will be highlighted
  + Linked to a paragraph in the scrollytelling map
* Population Affected
  + Total can be in scrollytelling text
  + Population for each county can be a popup when alongside paragraph with corresponding scrollytelling text
* CA Fracking Wells
  + All fracking wells will be shown in one color and symbolized by a circle that re-adjusts in size as the map user zooms in
* CA GW Basins
  + Different colors for basins that are overdrawn versus basins not affected by fracking
  + Select GW basins will have scrollytelling text, for example, the most overdrawn GW basins (summarize report text from SGMA 2019 Basin Prioritization Plan)