

# CO River Basin Water Supply Second Segment

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# Why did we select this topic?

Water is one of our most precious resources because humanity couldn't exist without it. In addition to its key role in our survival, water is essential in nearly every facet of modern life from industrial processes to domestic pursuits. However, water is omnipresent and so we don't always take the time to consider how much we use, when and where we use it, and why we need it. We selected this topic due to its high importance and relevance to our society. We want to predict how our water usage and supply might look in the future to make recommendations for conservation and preparation.

# Datasource Description

The USGS, U.S. Geological Survey, website maintains national data bases of water-use information. The data are collected and compiled every five years for each State, the District of Columbia, Puerto Rico, and the U.S. Virgin Islands. We have compiled the datasets from 1985-2015, 7 total, into a csv file and have sorted by the 4 states in the upper CO basin. The data contains water-use information that looks at how each of the 4 states uses water, the total amount of water withdrawals, and withdrawals broken down by type of water (fresh or saline) and withdrawal type (groundwater and surface water). The amount of withdrawals for water-use categories is also listed. All numbers are measured in million gallons per day (Mgal/d).

# Questions:

When will the water run out?

What is the predicted decrease of water levels?

How are other areas water levels compared to Colorado river water levels?

Which factors have the most impact in water reduction?

# Description of the data exploration phase of the project

The group continues to clean, append and merge datasets. Our data has a significant number of columns and we have spent time determining which of these columns have data pertinent to our project and getting rid of the ones that do not.

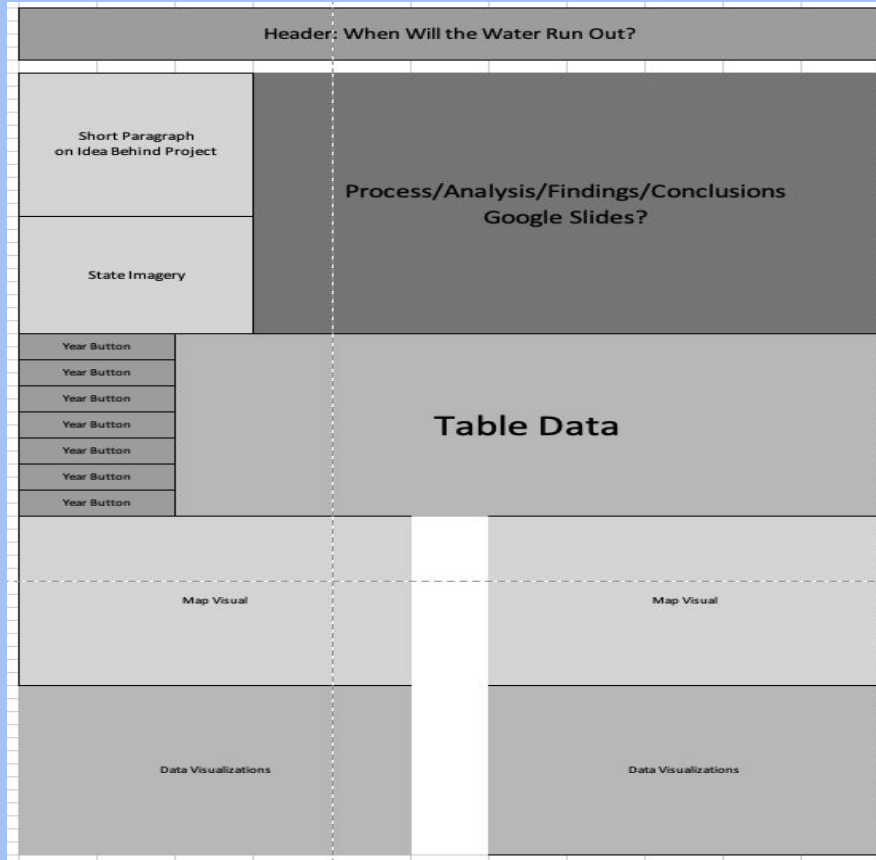
We are reviewing our data to see what exactly it can tell us and if any additional datasets are needed to help predict and analyze results.

We are also prepping code for machine learning and trying to determine whether our project is better suited for a linear regression to analyze correlation, or time series model to analyze forecasting.

# Description of the analysis phase of the project

The states we are analyzing are Colorado, California, Arizona, Utah, Wyoming, Nevada, and New Mexico. All 7 states are part of the Colorado River Basin. The Colorado River flows for approx. 1,450 miles and provides water to all 7 states. The years we are analyzing are 1985, 1990, 1995, 2000, 2005, 2010, and 2015. The analysis phase of the project will involve analyzing the total withdrawals and total domestic water use in million gallons per day (Mgal/d) per state and per year. We will look at how each state uses water by looking at withdrawals and withdrawal type (groundwater and surface water).

# Storyboard Blueprint



Website Rough Draft - building using HTML, Javascript and CSS. Incorporating Tableau Visualizations, Google Slides and Open Source Imagery.

# Description of the tools used to create the final dashboard

The geographic nature of our data lends well to using maps created in Tableau to show analysis and predictions based on usage and availability. We will also use Tableau to create charts relevant to our findings, and incorporate all of these visuals into Google Slides to pair with our analysis.



# Description of interactive elements

We will also use interactive elements in our website design in relation to a table, buttons to select individual states and/or years to see a set of maps, or possibly a drop down or search filter.