

TABLEAU: WATER ACIDITY DATA

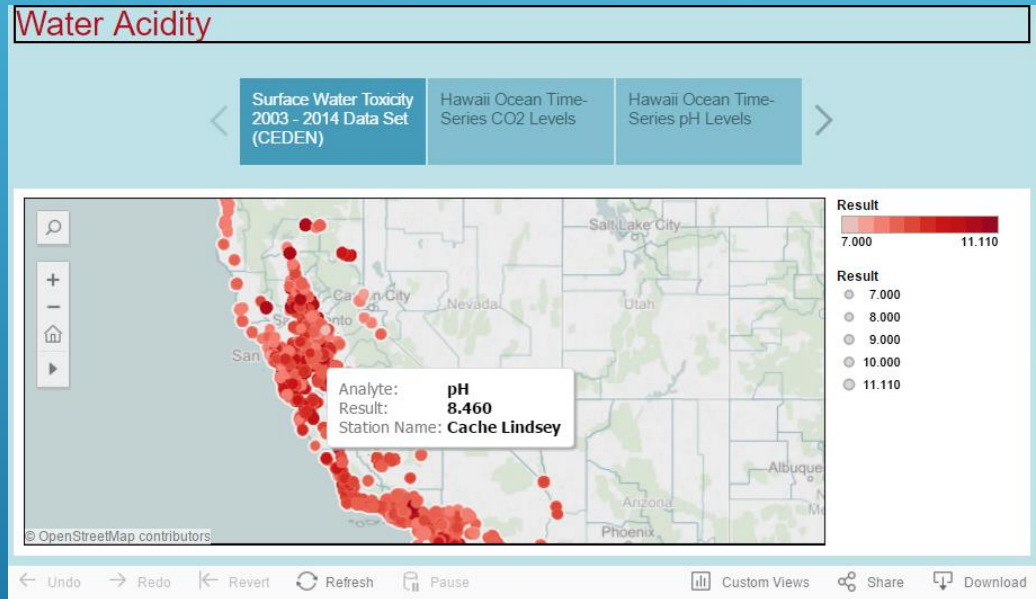
Taborda Solutions:

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USING TABLEAU SOFTWARE

- ▶ Using Tableau we were able to simply download data from public websites and create different types of visualizations that can express the data in a greater scope.
- ▶ Two types of visualizations were created.
 - ▶ 1. Using data from Green Gov Challenge website: Surface Water Toxicity 2003-2014, a map visualization was created.
 - ▶ 2. Using data from Hawaii Ocean Time-Series (HOT): Station ALOHA Surface Ocean Carbon Dioxide, two graph visualizations were created.
- ▶ Our focus is to use these visualizations to show how water acidity can be expressed through tableau and to also illustrate how water acidity is increasing in our oceans leading to implications in the future.

MAP VISUALIZATION

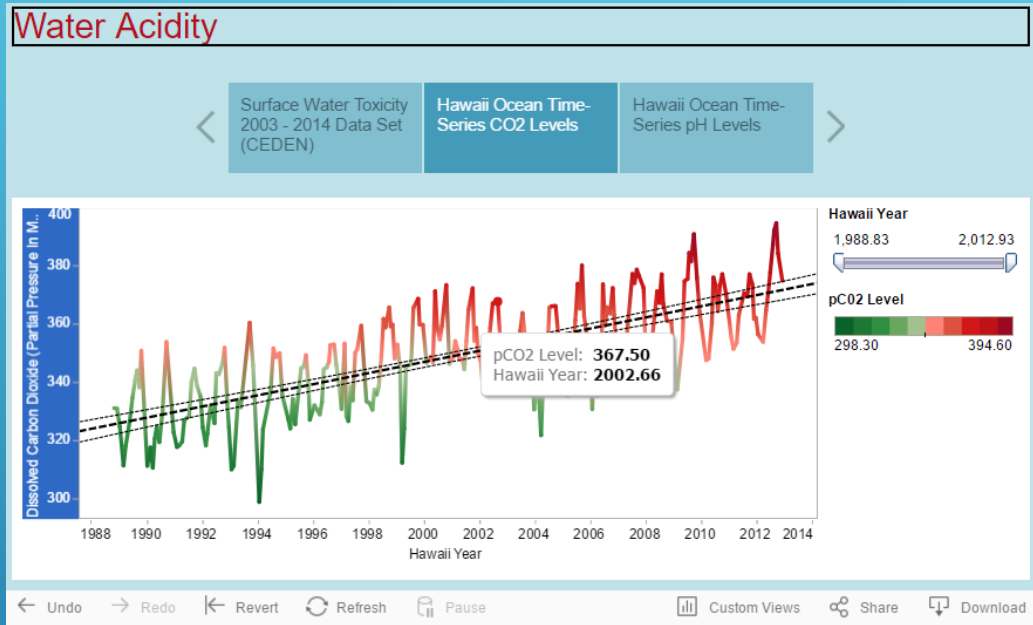


- **Data Source:** Green Gov Challenge website: Surface Water Toxicity 2003-2014
- Presents different pH levels from numerous water stations throughout California.

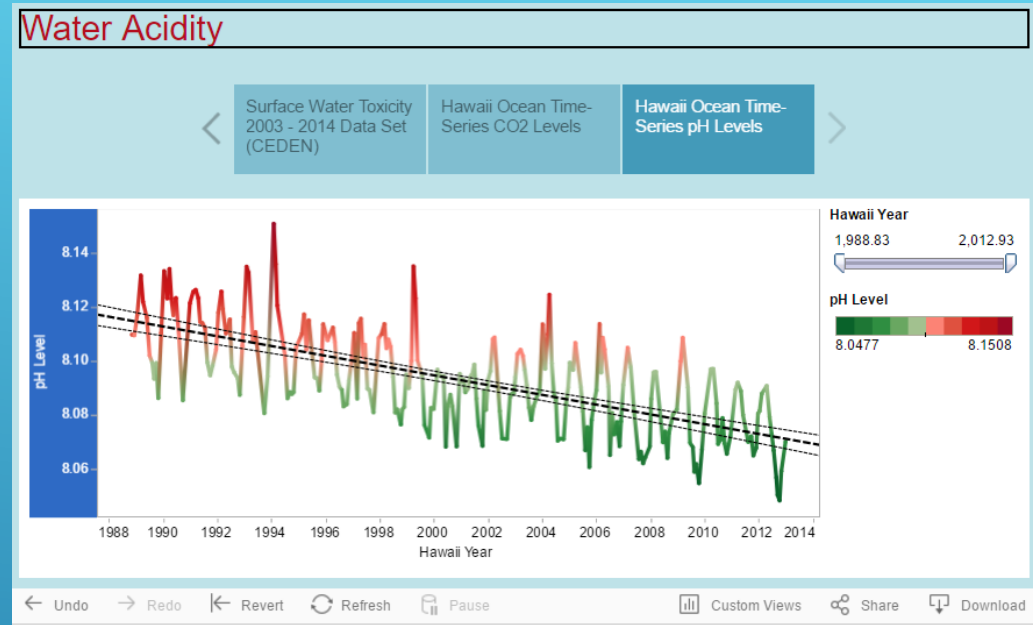
- ▶ By using longitude and latitude coordinates from the data set, tableau is able to pin point the exact location of where the water sample was collected.
- ▶ By hovering over any point on the map, the water station title is displayed along with its pH level.
- ▶ With having a visual map, the data becomes easier to illustrate what areas of California are more acidic than others.

GRAPH VISUALIZATIONS

- **Data Source:** Hawaii Ocean Time-Series (HOT): Station ALOHA Surface Ocean Carbon Dioxide



- ▶ The graph above shows the relationship between changes in ocean carbon dioxide levels over time.
- ▶ One can filter through different ranges of years using the slider.
- ▶ This analysis is important to acknowledge because over time carbon dioxide forms carbonic acid in the ocean. This carbonic acid can be hazardous to certain marine life.



- ▶ The graph above illustrates how the pH levels over time have gone down over the years due to carbonic acid.
- ▶ Like the other graph One can filter through different ranges of years using the slider.

WHAT ARE THE IMPLICATIONS OF THE INCREASING ACIDITY OCEAN LEVELS IN THE FUTURE?

- ▶ The increase of carbon dioxide dissolving in the ocean is leading to lower acidity pH levels which has been proven to inhibit shell growth in marine animals and is suspected to cause reproductive issues in some fish.
- ▶ Shell-forming animals include corals, oysters, shrimp, lobster and many planktonic organisms that are at the base of the food chain. A decrease in these types of organisms could mean a disturbance in the ocean, leading to less fish to eat.
- ▶ With more data analyses using similar Tableau visualizations we can help raise awareness of the affect man made carbon dioxide has on our oceans acidity levels.