HARMFUL ALGAE BLOOMS

AN EXPLORATION OF RED TIDE IN SHINY

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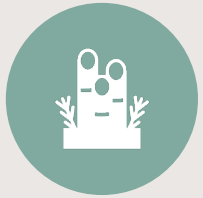
WHAT IS A HARMFUL ALGAE BLOOM?

A harmful algae bloom, or ”red tide,” is a higher-then-normal concentration of microscopic alga along the cost of the Gulf of Mexico.



Caused by an algae species called, *Karenia brevis*.

Produce toxic chemicals that effect the nervous system of marine vertebrates.

Can be broken up by waves, which releases the same toxins into the air, causing respiratory irritation in humans.

K. brevis is found almost exclusively in the Gulf of Mexico

Source: https://mote.org/news/florida-red-tide#What%20is%20Florida%20Red%20Tide

PURPOSE OF SHINY APPLICATION…

To offer a visual representation of where the most severe red tides take place by month, year, location, and water temperature.

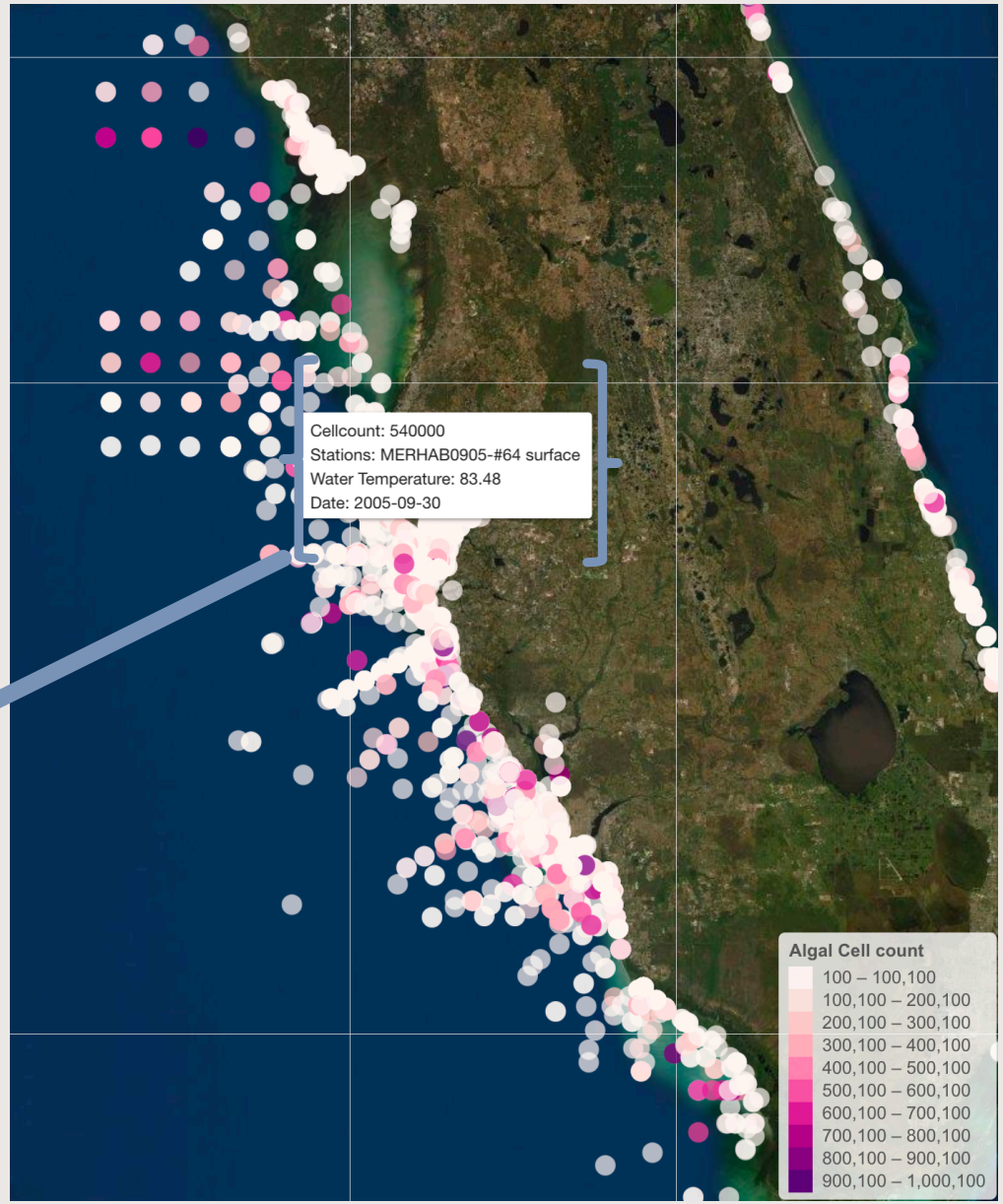
DATASET…

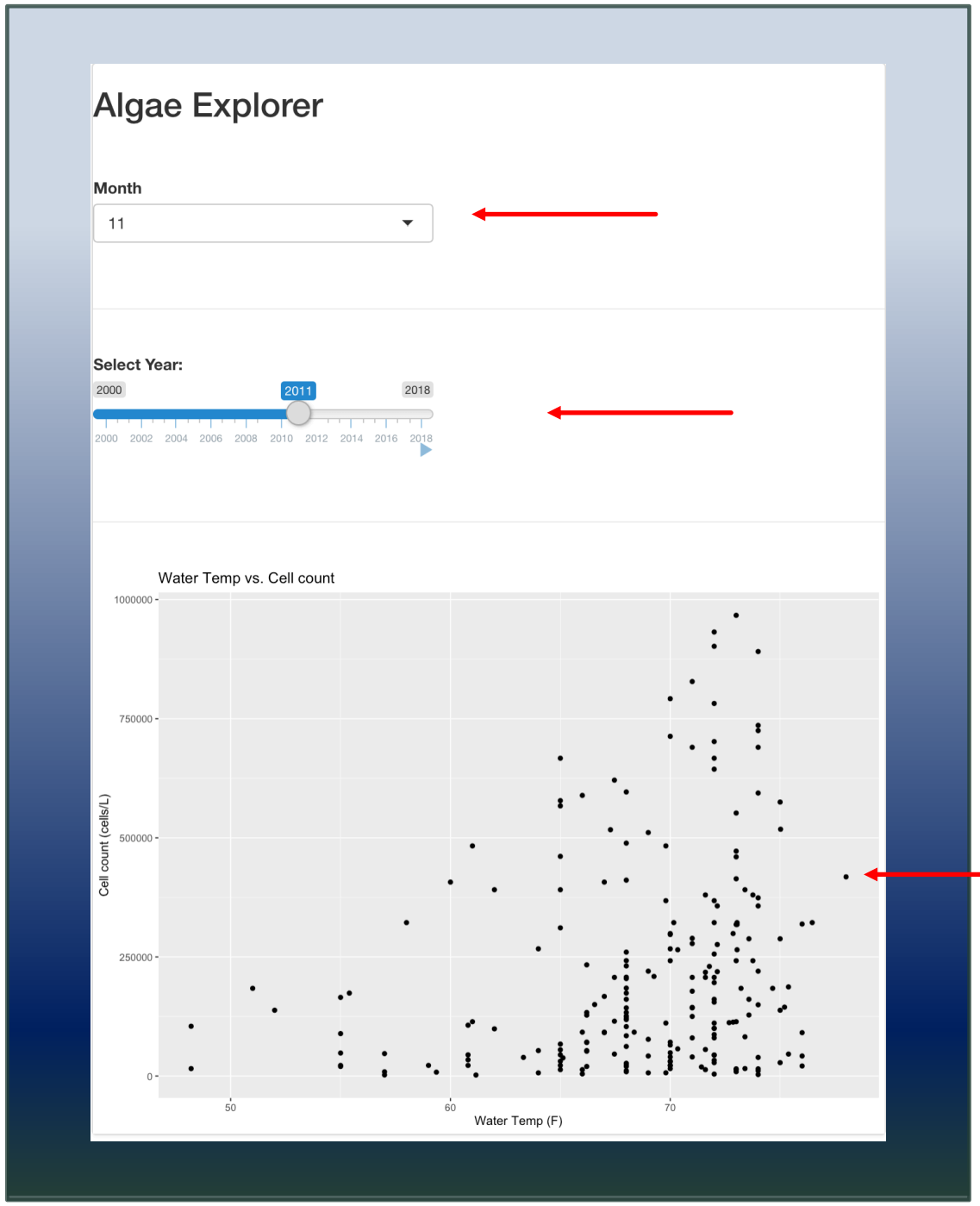
- From the National Oceanographic and Atmospheric Association (NOAA)
- The data set spans over 50 years, beginning in 1953 (N > 150,000 observations)
- Contains readings from stations all along the Gulf and Atlantic coasts of Florida, and the Gulf coast of Texas
- Factors recorded include: water temperature, salinity, date, time, location, algal cell count etc…

SNAPSHOT OF SHINY APP…

INTERACTIVE MAP

Cellcount: 540000
Stations: MERHAB0905-#64 surface
Water Temperature: 83.48
Date: 2005-09-30





SNAPSHOT OF SHINY APP…

PANEL AND PLOT

CHALLENGES AND LIMITATIONS…

- A LOT of NA values and outliers in the data. Out of the entire population, only about 7,000 observations are included in the analysis.
- Many cell count measurements did not have corresponding water temperatures. Need to consider salinity instead
- Observations were taken at multiple stations along the coasts
- Building the Shiny App was straight forward. Many resources were available
- Only issue, could not get my interactive map to change with the dates and years like the plot. Will work on it before it is published.