

# Capstone Project *Long Marine Stranding Map*

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## Abstract

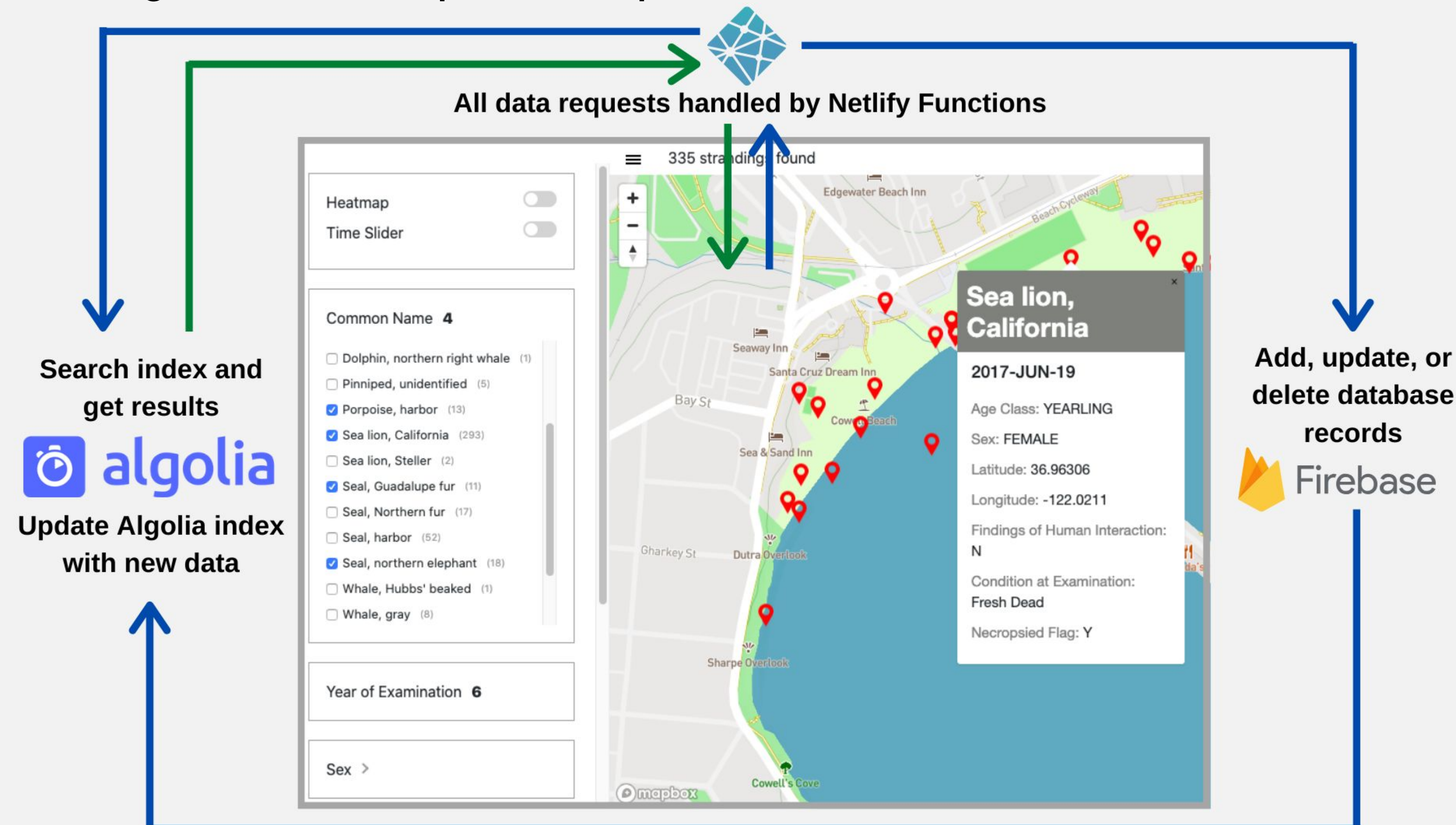
The stranding map is a web application to visualize marine mammal strandings of Santa Cruz county. This tool's features include multi-attribute filtering, marker clustering, heatmap layer, time series animation, and data upload. This allows both the Long Marine Lab and the public to look at stranding data in a more intuitive and effective way.

## Approach

- **Firestore** stores the stranding data. This can be updated easily when new strandings are reported.
- **Mapbox** displays all the marine mammal strandings on the map with their GPS coordinates and creates the heatmap view.
- **Algolia** allows us to achieve fast multi-attribute querying for the filter.
- **Netlify** hosts the web app and some of the backend code.

## Overview

To drive many of its research projects, the UCSC Long Marine Lab (LML) collects data from examining strandings: an event in which a marine mammal has washed ashore, living or deceased. With this tool, lab technicians can view the data they've collected over the years on an interactive map. As a scientific tool, the stranding map opens up new avenues of data analysis for the lab and provides geospatial visualization for LML's research in marine life, coastal conservation, and climate change. Making the map public can improve collaborative planning efforts and promote public involvement.



Check it out at [lmlstrandingmap.netlify.app](https://lmlstrandingmap.netlify.app)



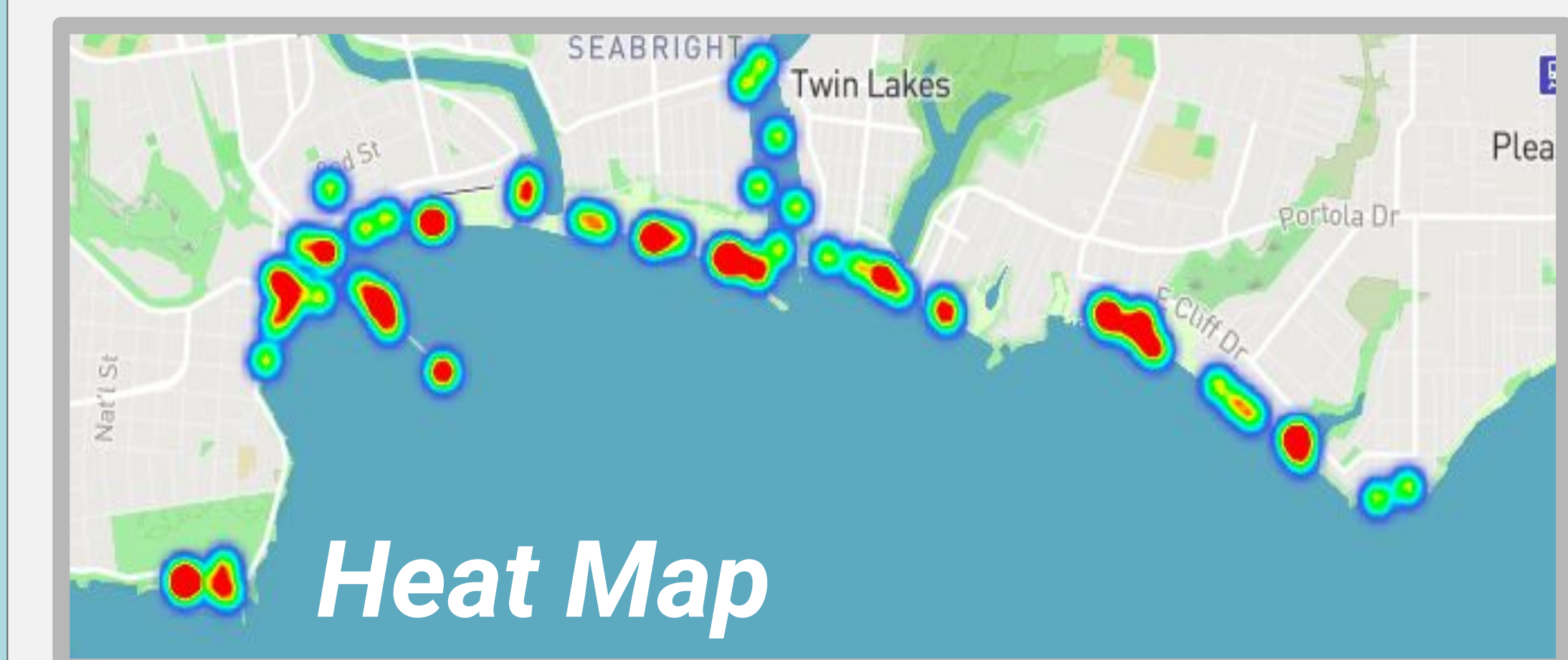
## Acknowledgments

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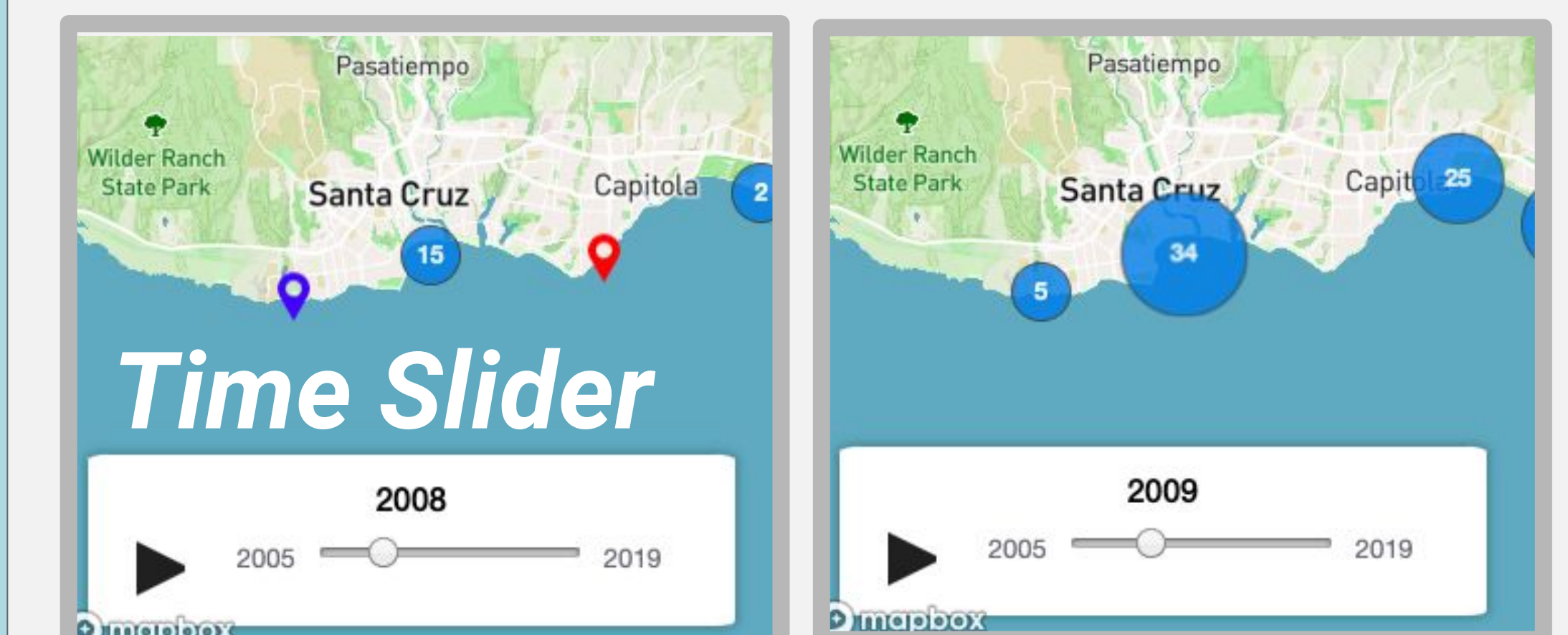
## Features



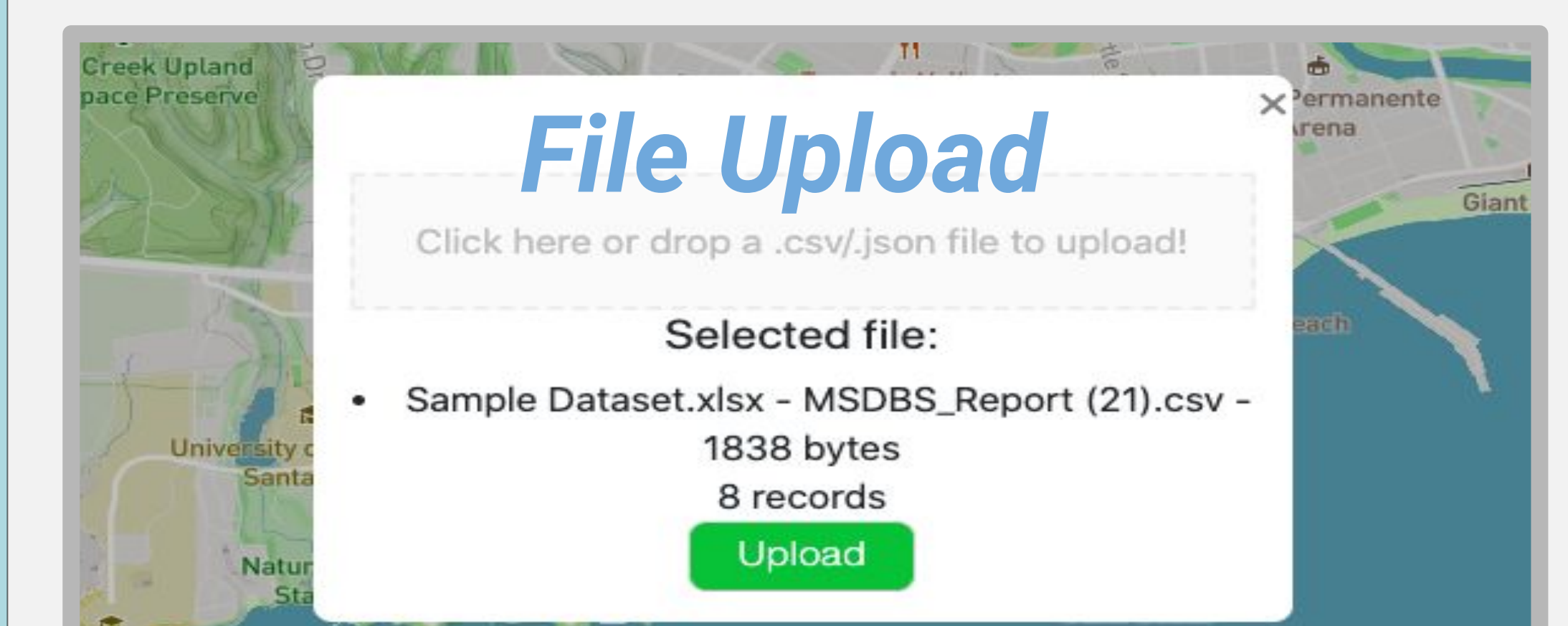
- Groups data points together and shows count of strandings when zoomed out



- Highlights density and magnitude of strandings in a particular area



- Illustrates how stranding occurrences change over years



- After logging in, lab technicians can upload new strandings to the database