

Kevin Crowe
Geog 576
Midterm project proposal
Spring 2024

Project

A web application to explore flood risk and report flood events in Mobile County, Alabama.

Abstract

Coastal communities in the Southern U.S. are facing several threats when it comes to flooding. Sea level rise in the Gulf of Mexico has exacerbated high tide flooding in low-lying communities, and overall increasing frequencies of extreme precipitation are causing problems inland. Should those two forces combine – a very high tide and an extreme precipitation event – the resulting compound floods can be disastrous.

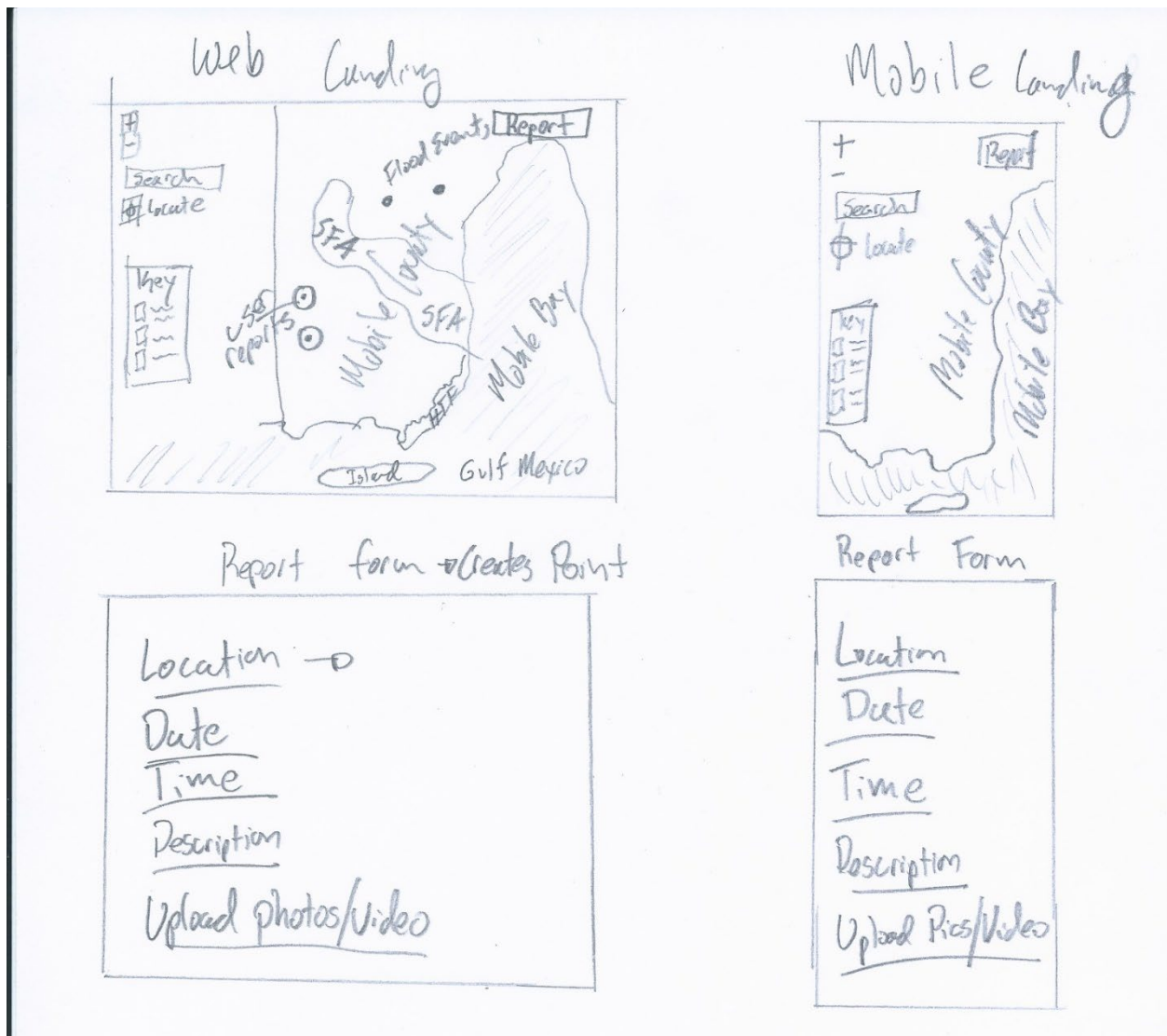
While there are myriad datasets that track these trends and illustrate the risks, many of them are kept separately on government websites or require special software to explore. I aim to bring a few of the most important datasets to regular people in a straightforward format that allows them to explore risks in their communities and report flood events when they happen.

The application I will develop will contain several layers of data related to floods, such as FEMA special flood hazard maps, flood events data from the National Weather Service, and high tide flood areas from the National Oceanic and Atmospheric Administration. The application will also allow users to add data by reporting areas they know firsthand to have flooded or are flooding in real time.

The resulting tool will serve several purposes. First, regular people will be able to see some of the most significant risk areas in their community. Second, they will be able to report flood events. Local officials involved in community planning will be able to evaluate the user-generated data in their decision-making processes, such as whether to approve a new subdivision in the flood-prone area or whether a road needs to be elevated.

Prospective homebuyers could also be potential users since there is a severe lack of information about residential flooding available to them. People searching for homes or real estate in a community could use the information to determine whether that area carries too much flood risk.

Wireframes



Data Sources	Description	Source
Special Flood Hazard Area	The special flood hazard area is the space where the National Flood Insurance Program's floodplain management regulations must be enforced. Most properties with mortgages are required to carry flood insurance.	FEMA
Flood events	Flood and flash flood events as reporting by federal agencies and local data gathering partners. This is a point layer with data from 2007-2022.	NOAA/NWS
High Tide Flood Files	These are areas where high tides will flood land areas along the coast.	NOAA
OSM Terrain with Labels	Basemap	OpenStreetMap

Entity Relationship Diagram

