great lakes
observing system

Coastal Safety Mobile App

Providing safety information for swimming, fishing and boating everywhere

IOOS DMAC Annual Meeting
April 29 - May 1, 2025

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dig

Do not use - Outline

- ~~Provocative statement - drownings in the great lakes~~
- problem statement: people don't have access to real-time information on safety
  - Show pics of beach flags, NWS website, show SwimSmart solution, etc.
  - Show Seagull, Windy.com, etc. app screenshots to communicate how they don't tell the full picture
- Fact: we know that 70% of our GLOS users are mobile, not science blah blah based on user engagement survey 2024 (show screenshots/graphs)
- Solution: mobile application that is easy to use, reaches the masses, provides opportunity for quick adoption, organic growth, and blah blah
- Using IRA grant $$, GLOS partnered with DIG to design a mobile app to address these needs
- Our target audience is blah blah
- Our process is: workshop, requirements gathering,

What are we trying to fix?

People spending time on the Great Lakes need reliable, easy-to-understand information about water and coastal conditions to make safe decisions about their activities. Without accessible, experience-driven updates, they may unknowingly face serious risks and put themselves in danger.


There are approximately
100 drownings*
every year in the Great Lakes
*only represent deaths,
there are **many more**, most unreported.

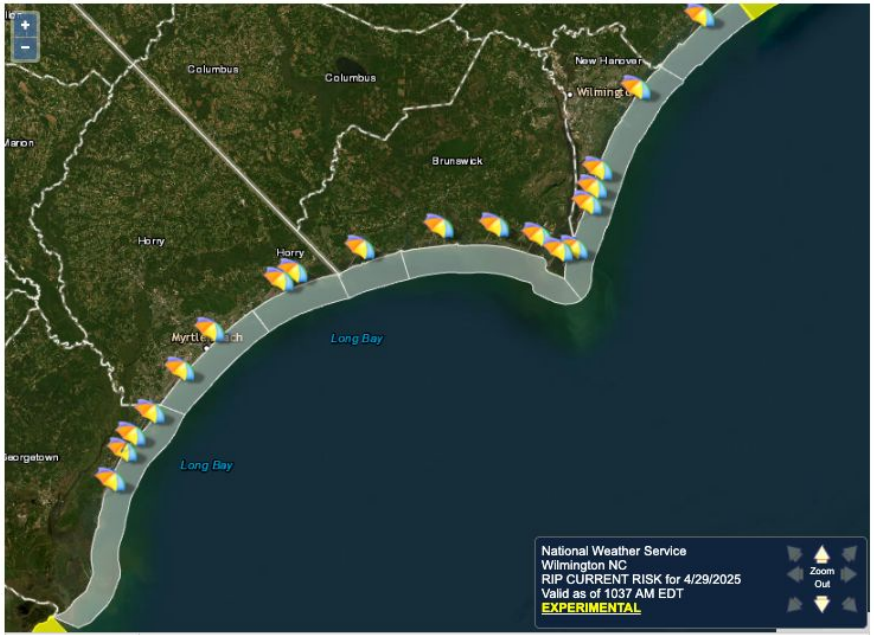
Experimental Beach Forecast Webpage

Marine, Tropical and Tsunami

Weather.gov > Marine, Tropical and Tsunami Services Branch > Experimental Beach Forecast Webpage

The map below is color-coded to indicate the forecast rip current risk level. Click on the beach area of your choice for more information, or click a beach umbrella for the detailed, beach forecast.

View the product description document for more information on the rip current graphic. Comments are currently being accepted.



Risk Level	Description
Low	The risk of rip currents is low, however, life threatening rip currents may still occur especially near groins, jetties, reefs, and piers. Always swim near a lifeguard and remember to heed the advice of the local beach patrol and flag warning systems.
Moderate	Life threatening rip currents are possible. Always swim near a lifeguard and remember to heed the advice of the local beach patrol and flag warning systems.
High	Life threatening rip currents are likely. The surf zone is dangerous for all levels of swimmers. Stay out of the water. Remember to heed the advice of the local beach patrol and flag warning systems.

National Weather Service publishes ***beach forecasts*** *in the Great Lakes*

(web page only)

Swimsmart offers beach towers with safety equipment and a lighted system

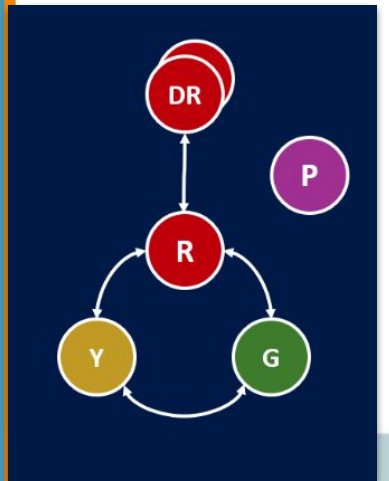
Know Before You Go - Swim Risk

High Swim Risk:
Dangerous waves & strong currents expected.
Conditions are *life-threatening to anyone* entering the water.

Moderate Swim Risk:
Moderate waves & strong cur
experienced swimmers should
water.

Low Swim Risk:
Large waves and dangerous c
expected, *however dangerous*
at any time near piers, breakw

For beach forecasts, safety, statistics, and more: weather.gov/gre



WATCH FOR
BEACH WARNING LIGHTS
LUCES DE ADVERTENCIA DE PLAYA

Red - High Hazard
Strong Currents and/or High Waves and/or Contamination
Rojo - Peligro Alto, Corrientes Fuertes o Olas o Contaminación Altas

Yellow - Medium Hazard
Moderate Currents and/or Waves and/or Contamination
Amarillo - Peligro Medio, Corrientes o Olas o Contaminación Moderadas

Green - Low Hazard
Calm Conditions, Exercise Caution
Verde - Peligro Bajo, Mar Calma, Sea Prudente

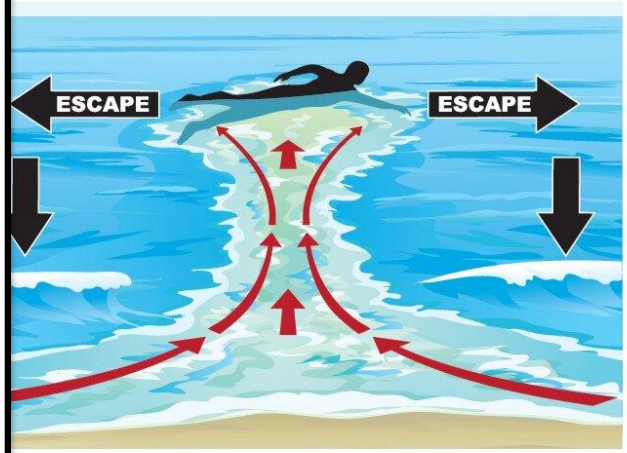
Double Red - Water Closed
No Swimming Allowed, Water Closed to Public
Doble Rojo - No Se Permite Nadar, Agua Cerrada al Público

Absence of Lights Does Not Indicate Safe Waters
La Ausencia de Luces No Indica Aguas Seguras

AMBASSADOR WRN WEATHER READY NATION
SwimSmart Warning Systems

Dangerous Currents
Avoid Dangerous Areas:

- Stay in designated swim areas.
- Avoid swimming near piers and breakwalls. Many fatalities have occurred.



If trapped in a dangerous current:

- Swim to the side, out of the current, and then to shore.
- If in danger, call for someone to throw a life ring or anything that floats.

The Great Lakes Water Safety Consortium is a community of BEST practice working together to END DROWNING in the Great Lakes. Learn more at www.GreatLakesWaterSafety.org

NOAA
GREAT LAKES WATER SAFETY CONSORTIUM

To see current conditions at this and other beaches, scan this QR code with your mobile device.

What's Out Th

Weather & Water Con

Problems:

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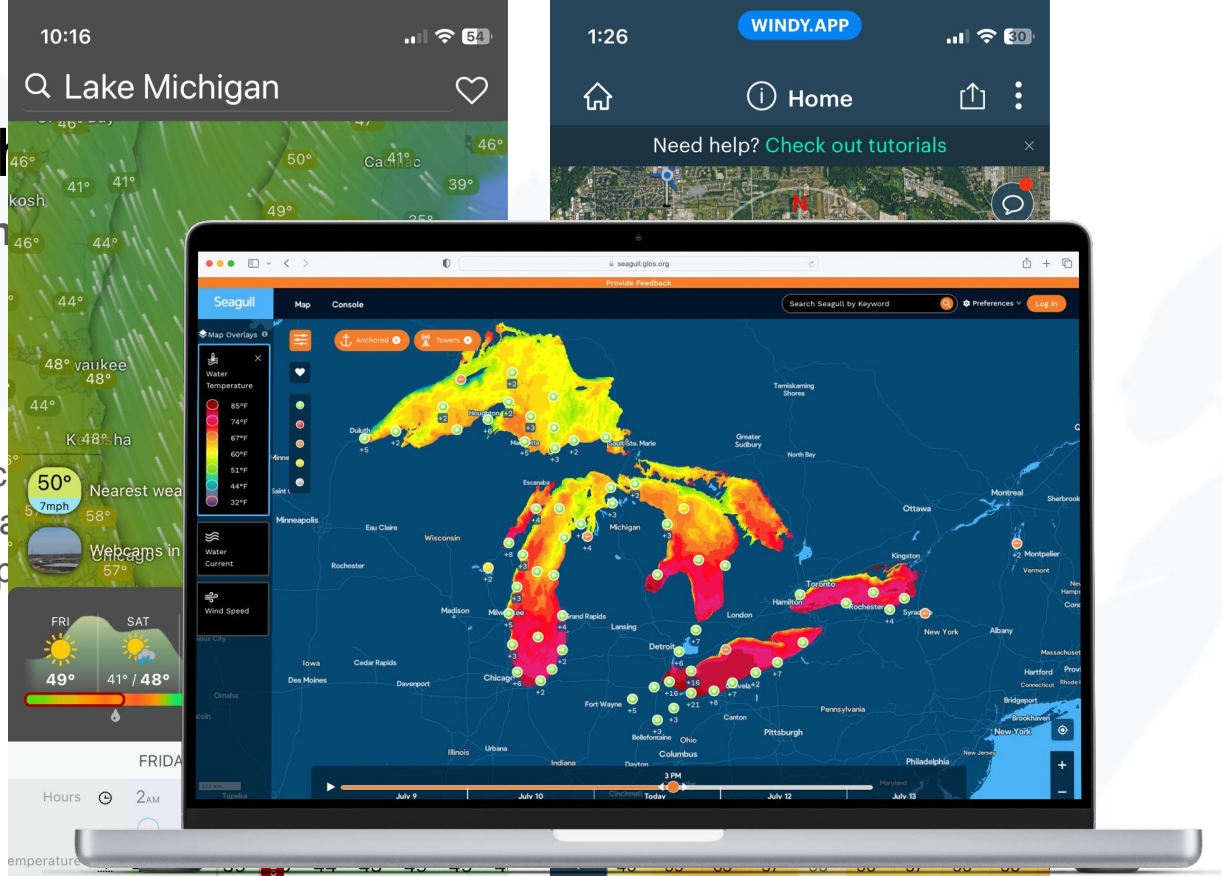
- Not geared specifica
- Don't show the full p



How Seagull Is Used

- **Of the 87% of users who interact directly with the water, 79% rely on Seagull for temperature or forecast data, and half also use it for trip planning**
  - Wave direction, height, currents, and temperature were specifically highlighted as useful throughout
- **Among users who selected “On the Shore,” 66% visit Seagull to track trend data, while only 17% use it for research purposes**
  - Forecasting coastal conditions and observing trends widely outpaced all other primary used features such as research and specific platform information
  - Trip planning ranked as the second most popular main reason for using Seagull
- **68% of users primarily use mobile devicesto access Seagull information**

The Solution

A new **coastal safety mobile application** that:

- Consolidates **scattered information into one**, easily accessible place
- Provides data in an **easily digestible format** to the average person who enjoys water and coastal activities
- Displays a **clear risk level** and forecast for entering the water
- Offers opportunity for **quick adoption**
- Generates **organic growth**

Using IRA grant allocations, GLOS partnered with DIG to design a mobile app to address these needs

Target Users

Recreational Beachgoers & Families
Want quick, authoritative swim safety guidance and simple visuals to protect children and less-experienced swimmers.

Young Adults & Adolescents
Prefer concise, mobile-friendly alerts integrated into their existing digital habits. Gamification or surf condition details can increase engagement.

Visitors & Tourists
Need contextual, location-based info that translates unfamiliar flag systems into a universal safety signal.

Water Sports Enthusiasts
Seek accurate, real-time, and localized conditions (wave height, wind speed, water temperature). Consolidated data saves them time.

Beach Managers & Lifeguards
Want quick, authoritative swim safety guidance and simple visuals to protect children and less-experienced swimmers.

What We Have Done So Far

2-Day Workshop

- Gathered with professionals in the industry and learned the who, what, and why
- Lead idea-generating activities
- Established the central problem
- Determined what is being used today, what we need, and what can be done better

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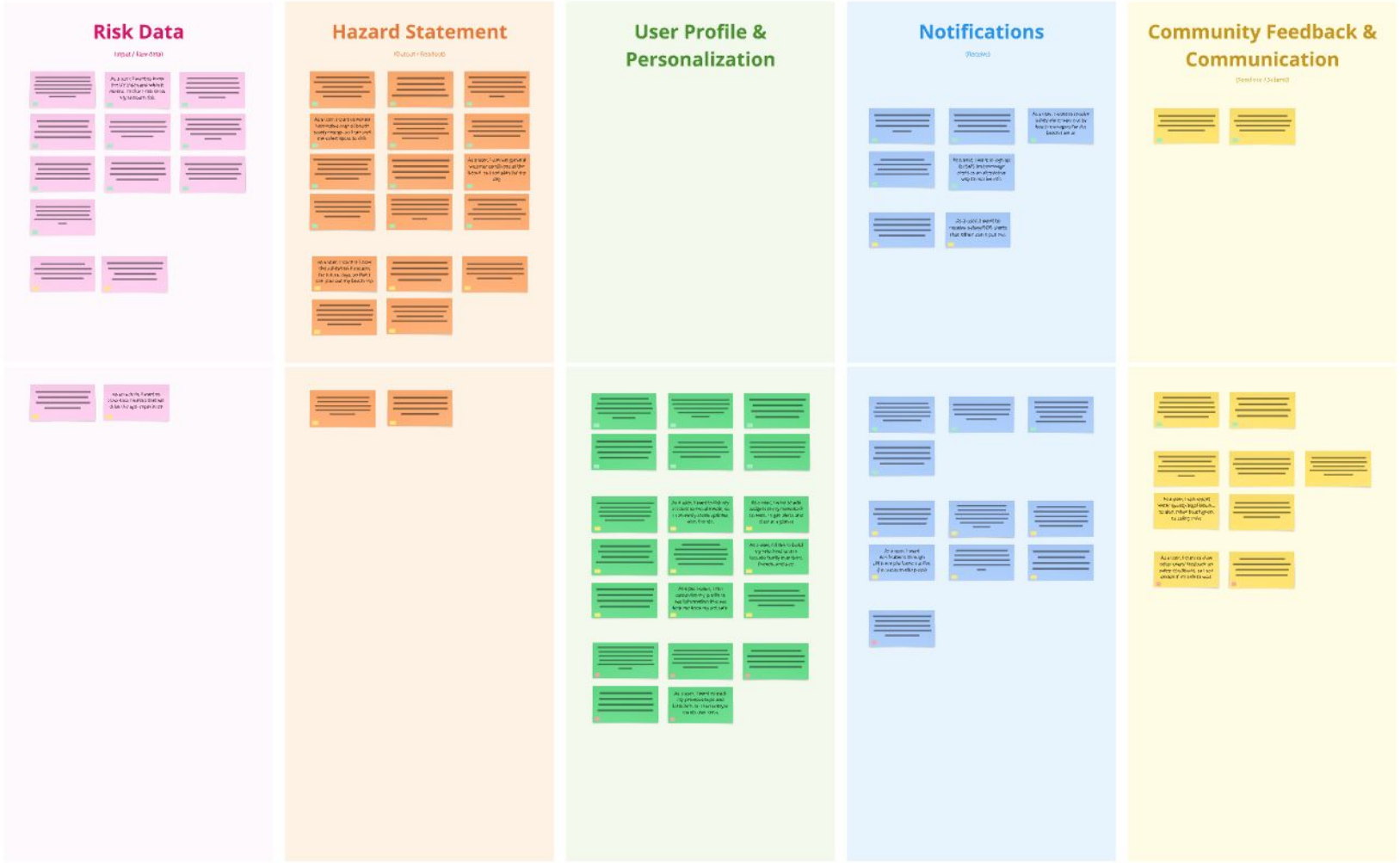
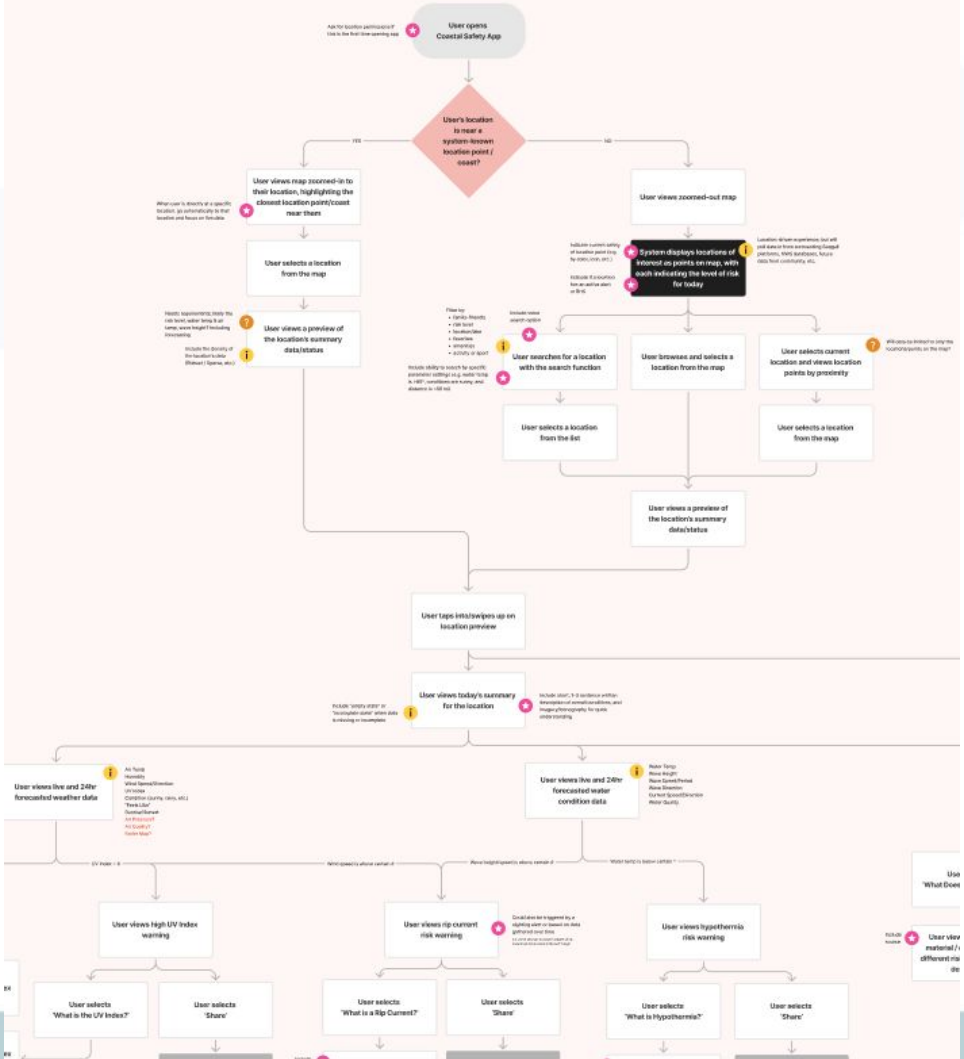


What We Have Done So Far

User Flows

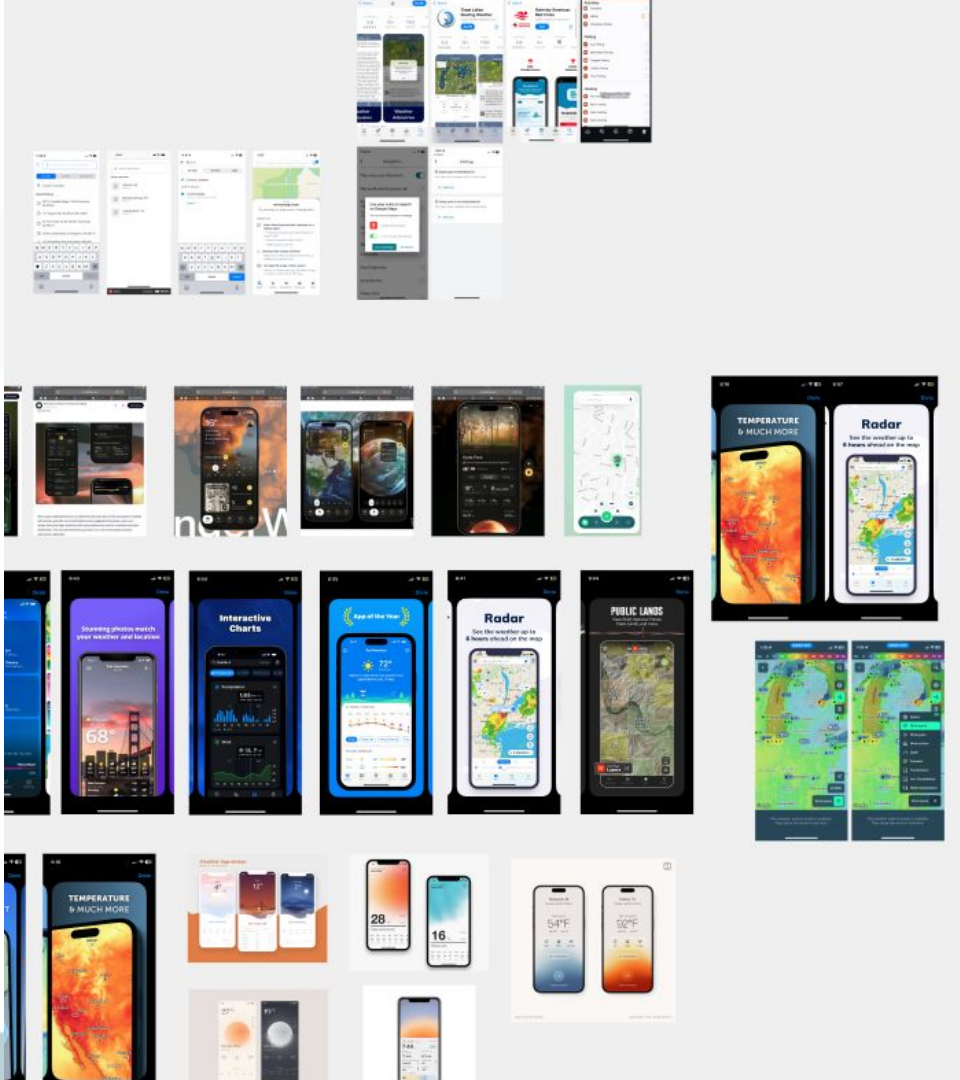
- Mapped out how users will interact with features and data in the app
- Documented requirements in detail
- Establish framework for development



What We Have Done So Far

Benchmarking Research

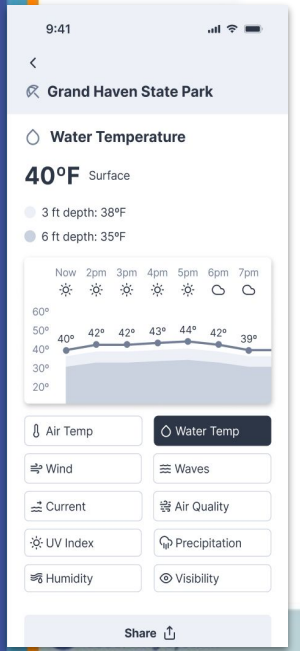
- Explored what is already in use today for interpreting data, viewing weather, interacting with a map, and communicating safety messaging
- Researched technological capabilities and best practices to incorporate

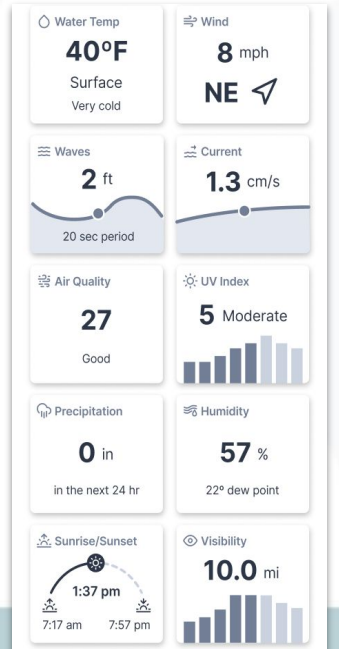


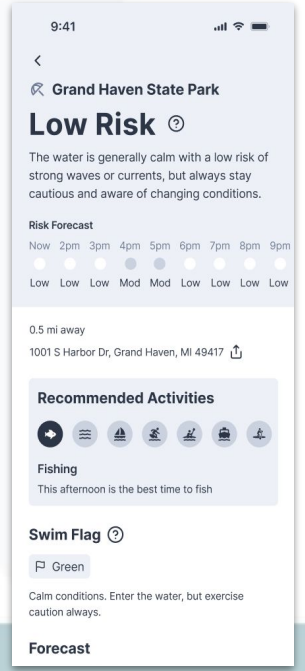
What We Have Done So Far

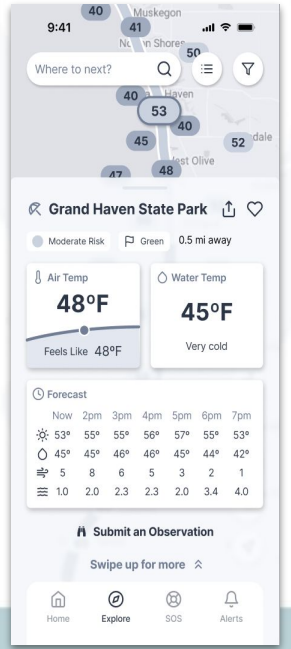
Low-Fidelity Wireframe Designs

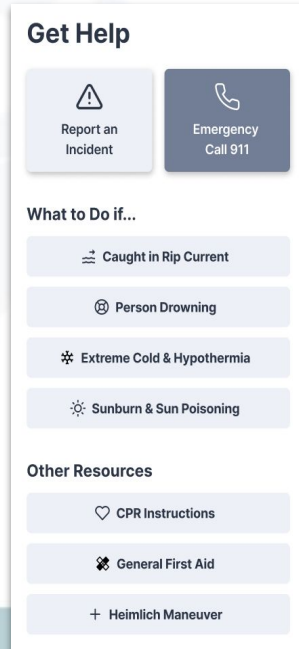
- Designed the structure and created content for the app
- Established fundamental functionality and interactivity to later come to life when branding is applied











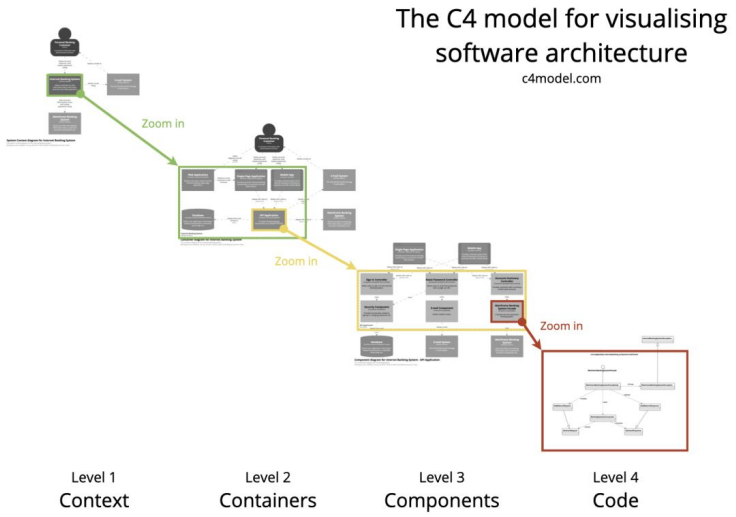
Tech: High Level Process

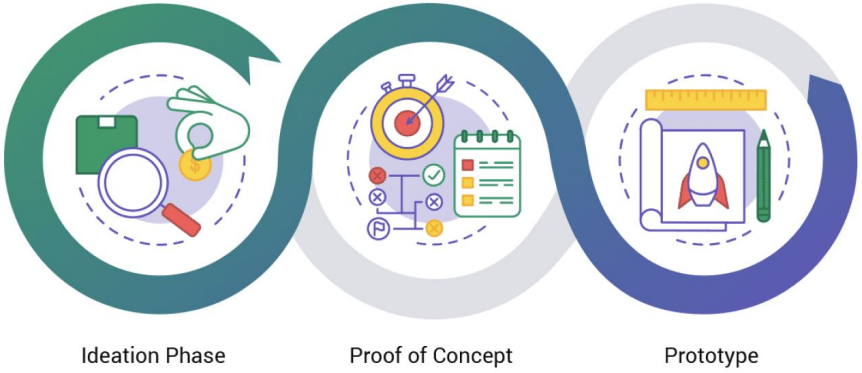
Discovery & Design: Tech Stakeholder interviews, UI/UX prototypes review, feasibility analysis and proof of concepts (POCs)

Technical Architecture: Infrastructure decisions (cloud, firmware, hybrid), stack validation

Agile Development: Sprint planning, story-based execution, continuous integration

Testing & Launch: Automated & manual QA, iterative feedback loops, scalable deployment





Tech: Domain Driven Design (DDD)

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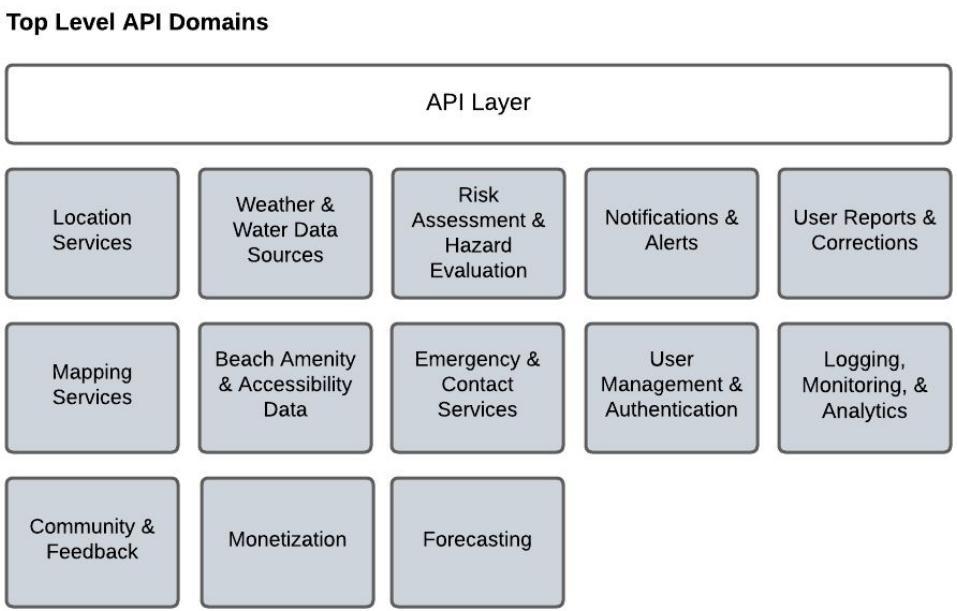
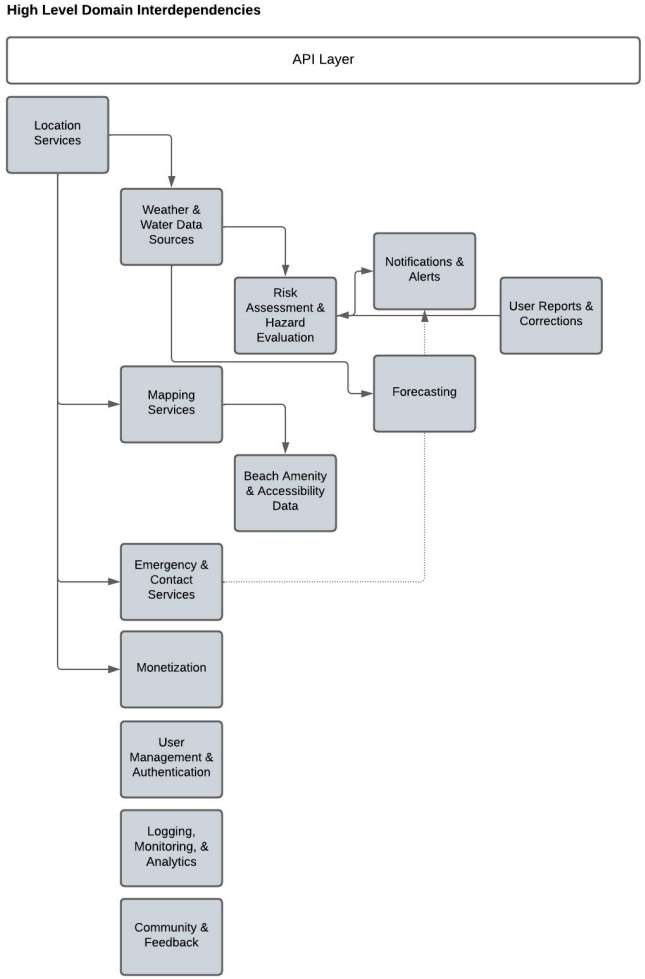
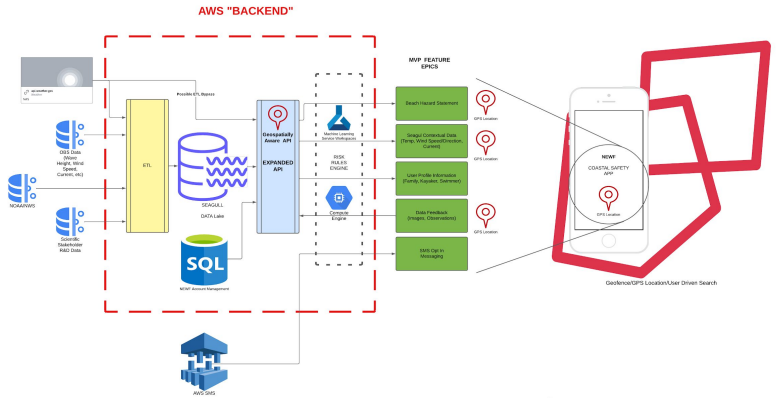


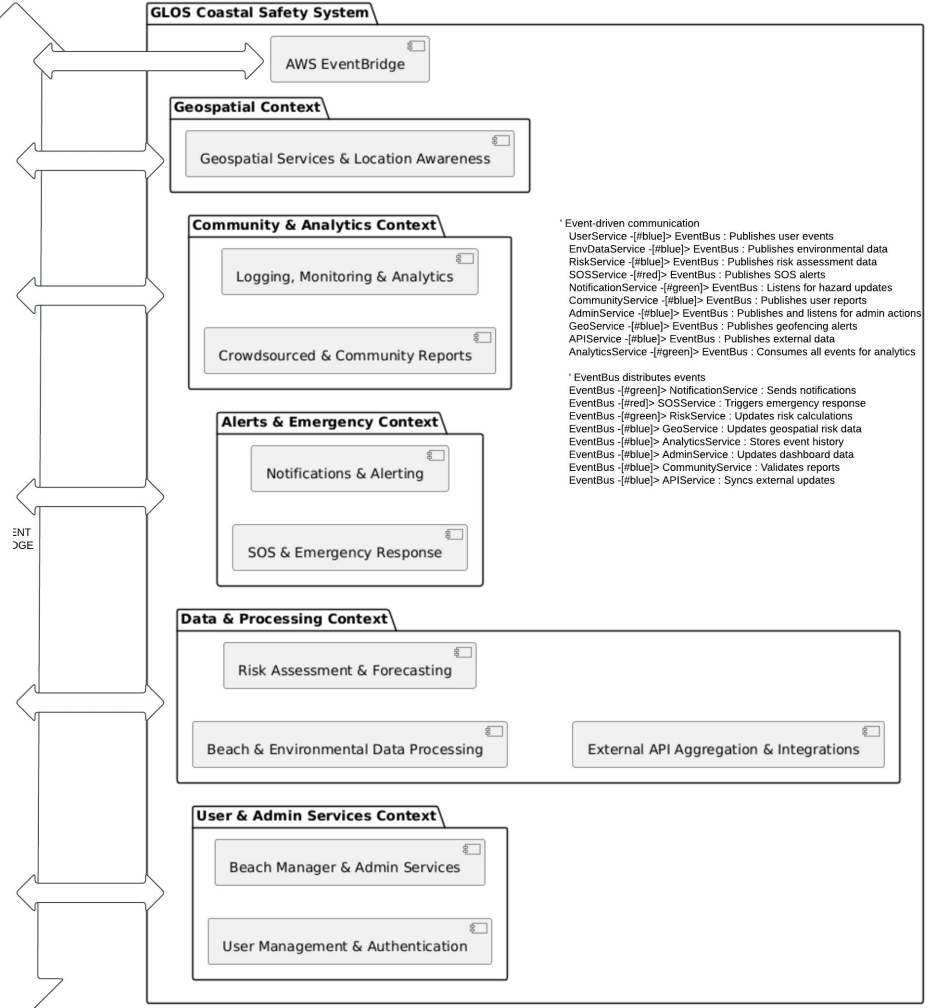


Technical POC, Right Sizing

As we refine feature requirements, our systems architecture will validate the technological feasibility of addressing the user stories. Non-production code will tested to determine how systems will interoperate, what stacks will be used, and technology choices made and tested in prep for full development.

Development environments will be stood up and CI/CD pipelines put in place.





Tech: Day to Day Agile Development

Planning: Define goals, scope, timelines, and resources. Establish feasibility and constraints

Requirements Gathering: Work with stakeholders to understand and document functional and technical needs

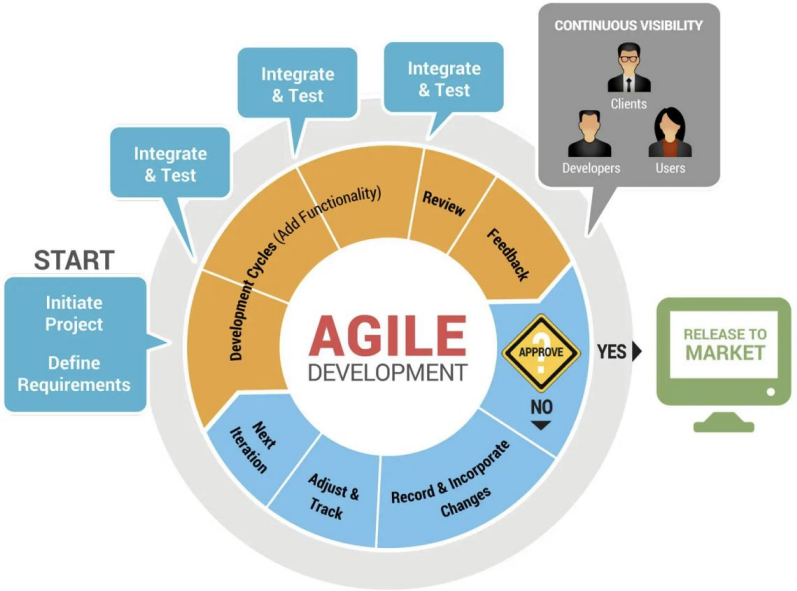
Design: Architect the system at both high and low levels—UI/UX, databases, APIs, and infrastructure

Development: Write and integrate code, typically in phases or sprints in agile environments

Testing: Run automated and manual tests to catch bugs, verify functionality, and ensure performance

Deployment: Move code to production environments, often with CI/CD pipelines

Maintenance: Monitor, update, and support the application post-launch as business needs evolve



Next Steps

- Continued design
- RFP for development (backend/frontend)
- Kick-off / Development (Aug/Sept 2025)
- Beta launch Spring 2026

DIG

About DIG:

DIG’s the go-to for digital experiences that actually connect. We help brands reach their people through smart strategy, bold ideas, and sharp tech. We've put in the work, and it shows.

What sets us apart? Our unique combo of product studio and performance marketing. It means we’re with our clients every step of the way — from the first “what if” to the final launch (and beyond).

DIG

Want to learn more about DIG works with GLOS to build products?

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Thank you.

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