SCIENCE COMMUNICATION FOR ADOPT-A-FLOAT 2025 EARTH WORKSHOP

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GO-BGC Global Ocean Biogeochemistry Array

ABOUT ME

- MBARI Summer Intern for the Adopt-A-Float Program
  - Design StoryMaps for Different Age Groups

MBARI

ArcGIS StoryMaps

- Grad Student at Middlebury Institute of International Studies at Monterey (MIIS)

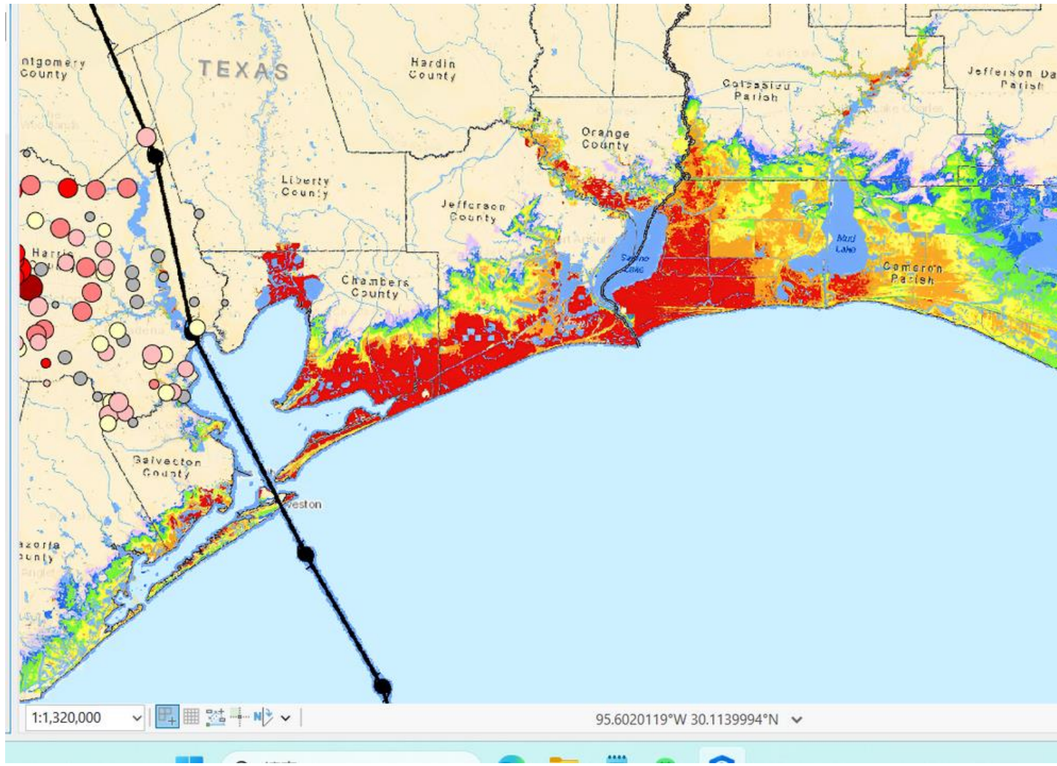
Middlebury Institute *of* International Studies at Monterey

ADOPT-A-FLOAT

- It connects classrooms with real ocean research. Students “adopt” autonomous floats deployed in oceans around the world. These floats collect data like temperature, salinity, oxygen, and pH every 10 days.
- Everyone can access the float’s data, track its journey, and use that in science lessons.

WHAT IS STORYMAP

- ArcGIS StoryMaps is developed by Esri
- It is a great platform for combining maps, data, photos, and narrative text.
- It allows students to not just read the text, but explore it interactively.

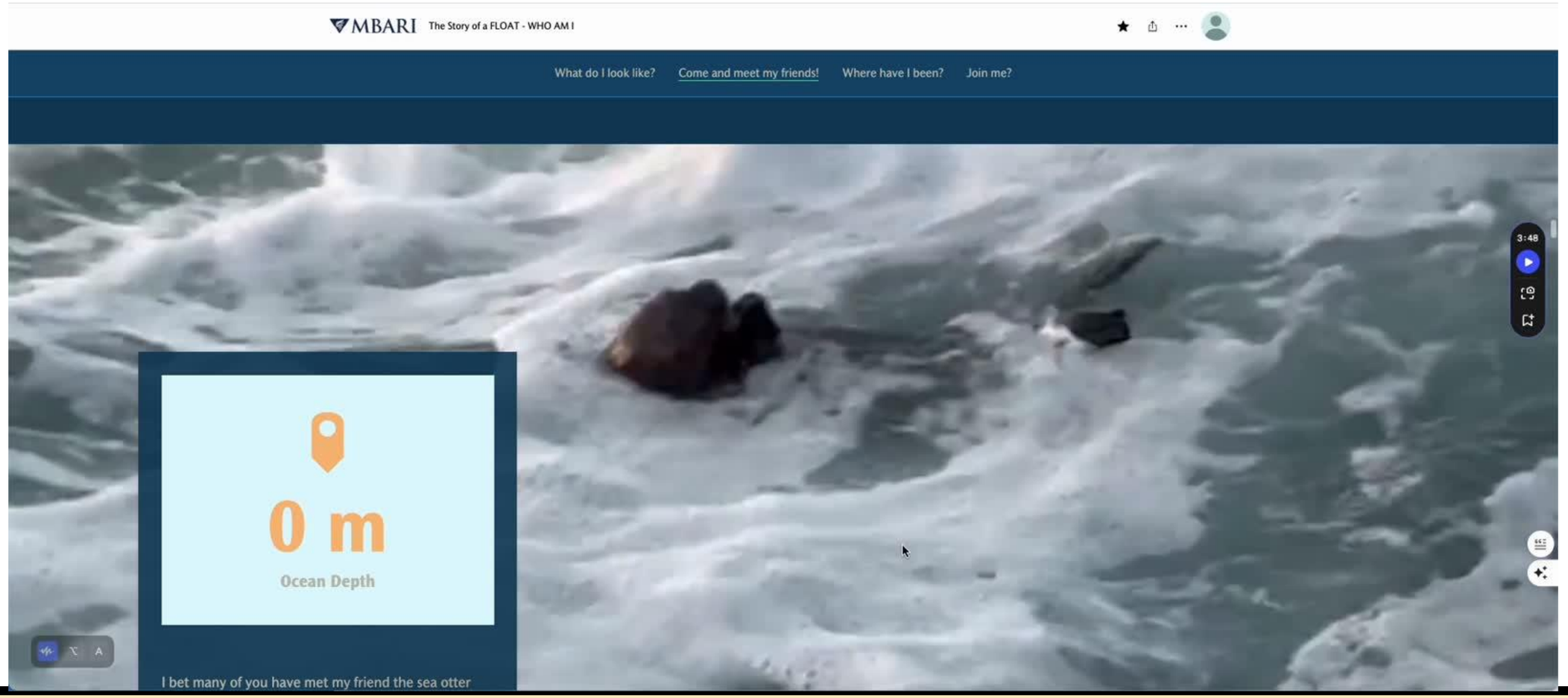


COMMONLY USED FUNCTIONS

- Sidecar
- Embed
- Media
  Action
- Navigation
- Survey123

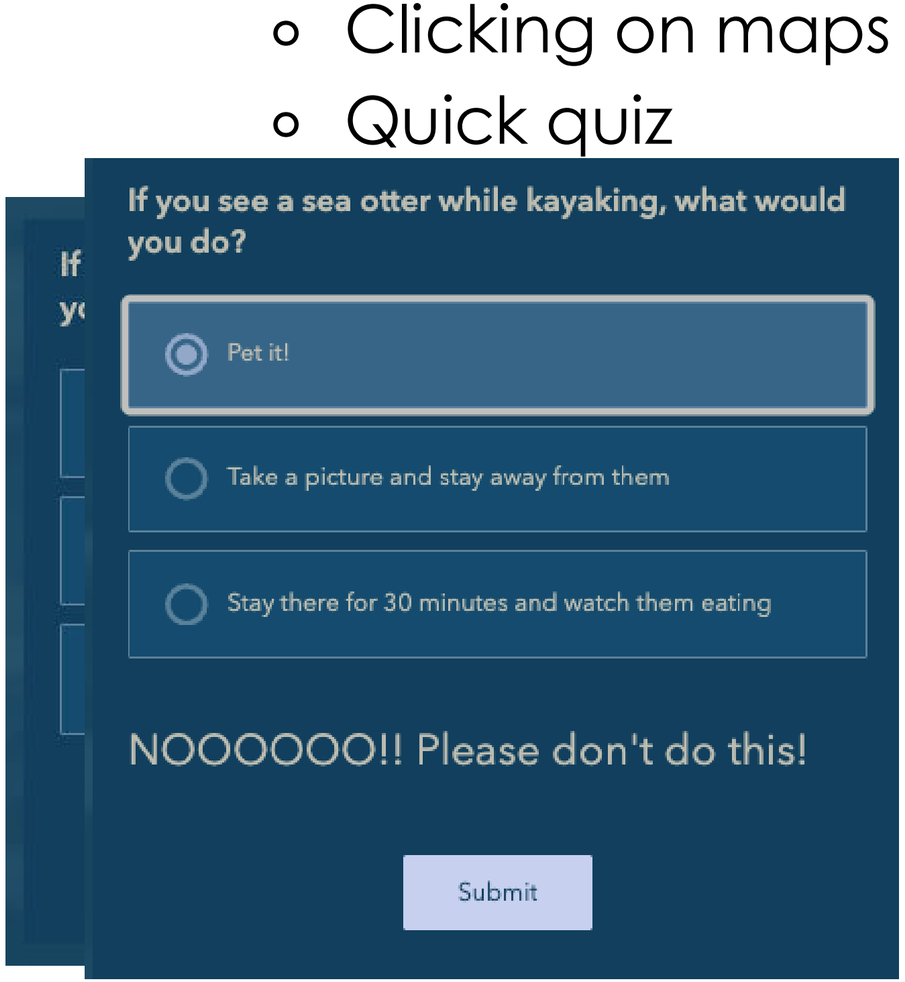
SIDECAR

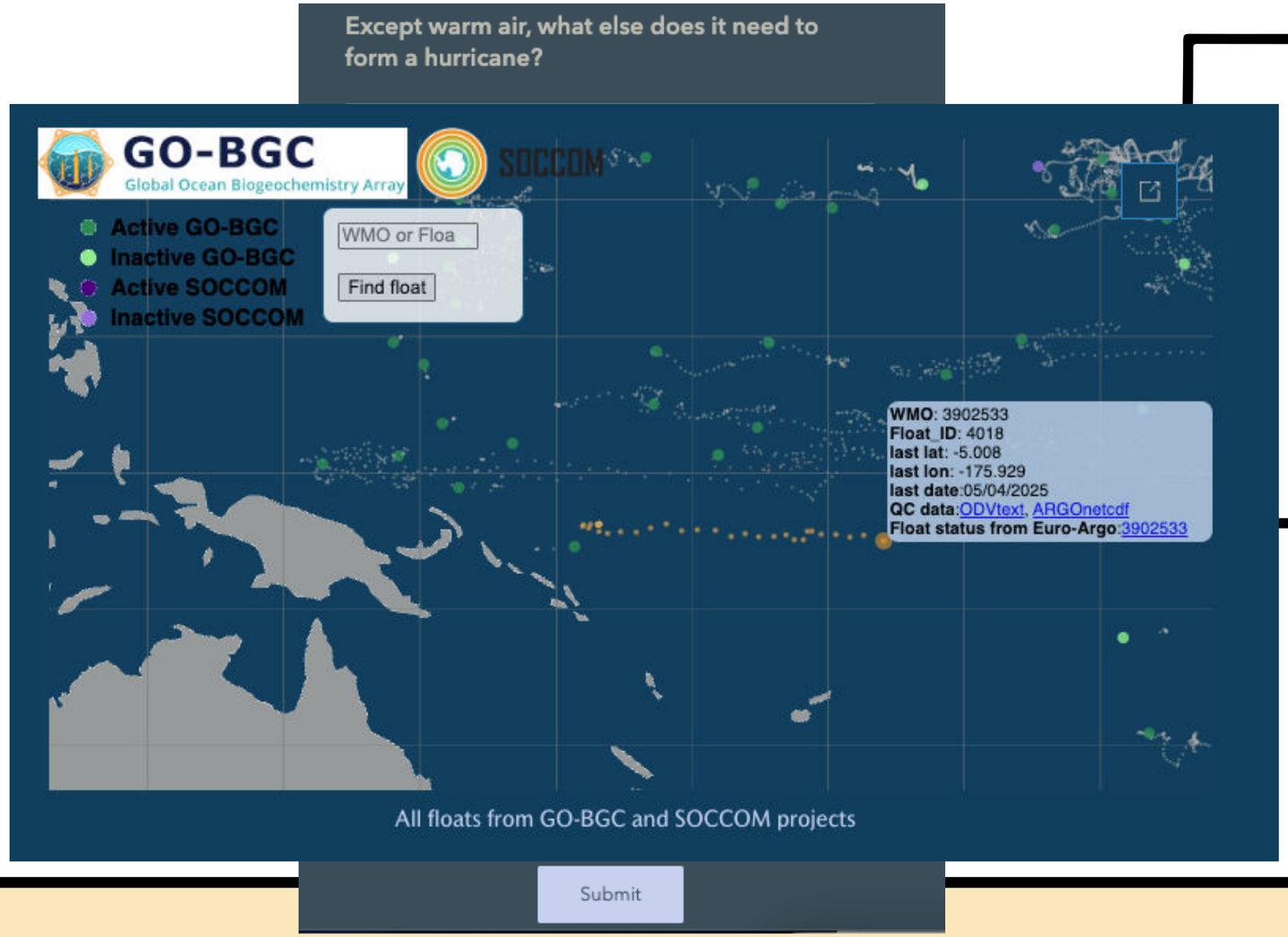
- This is an immersive function.
- Best used for telling a story, you don’t need to flip the page as a PPT, just scroll down.



EMBED

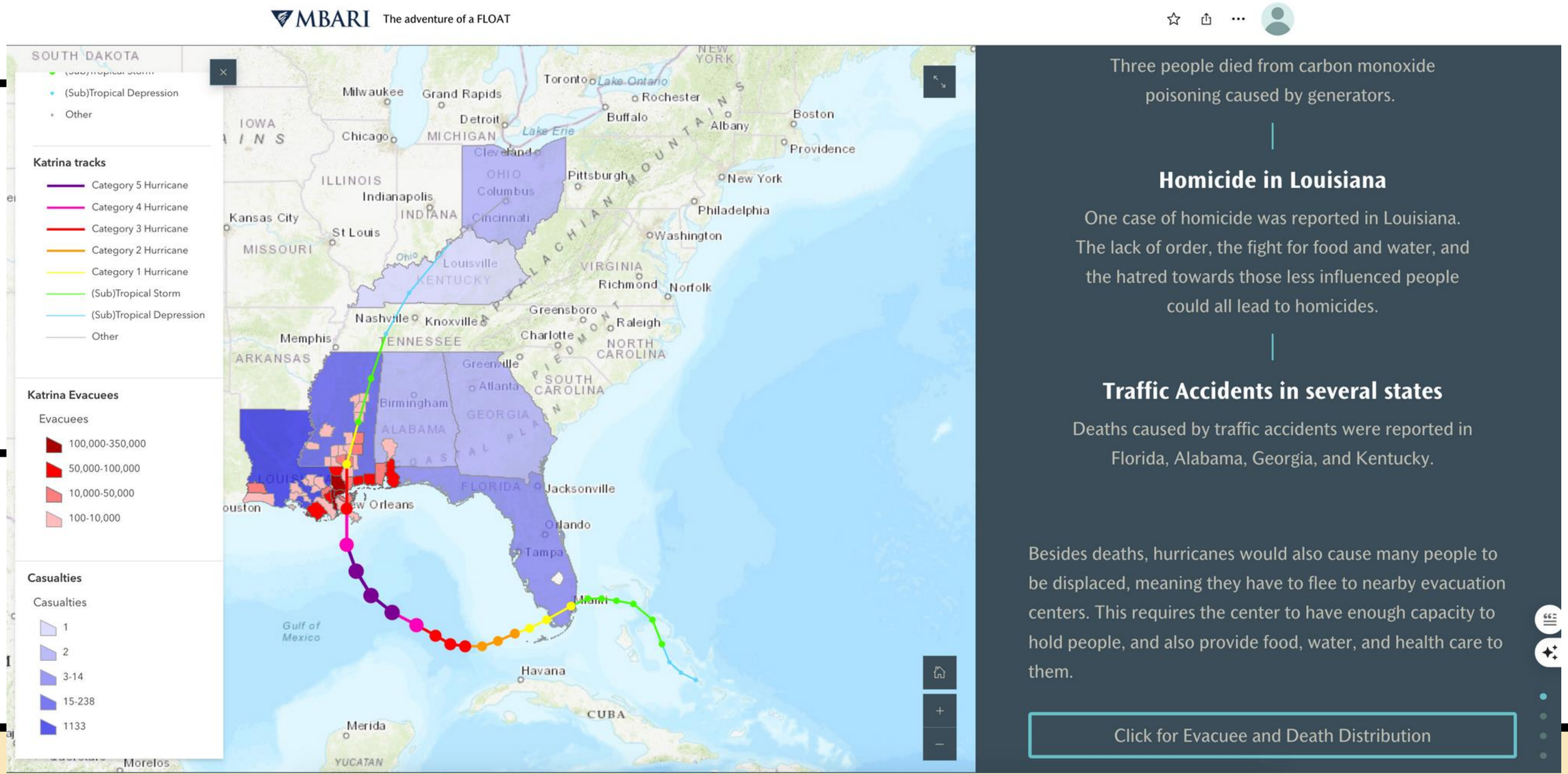
- Bring the interactive functions of the webpage to the storymap
  - Clicking on maps
  - Quick quiz





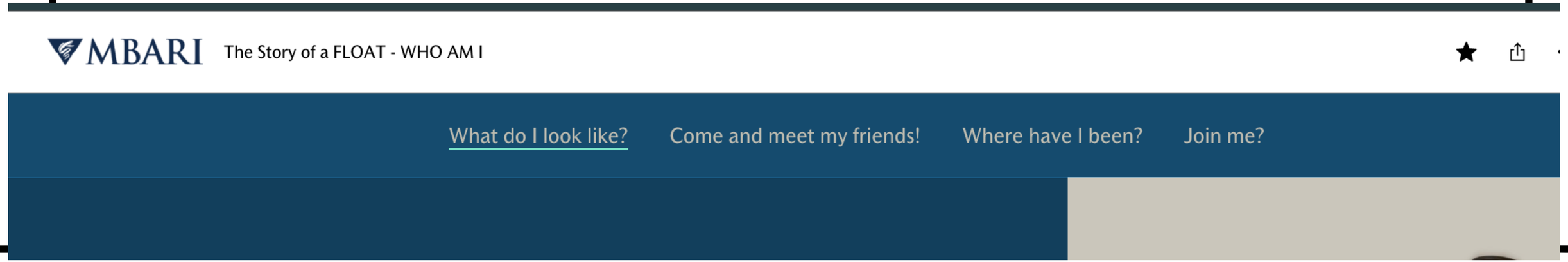
MEDIA ACTION

- A clickable button, used to change the picture or video



NAVIGATION

- Clickable buttons, directing to different sections



SURVEY123

Based on these three graphs, do you feel confident saying that more frequent storms tend to last longer overall?

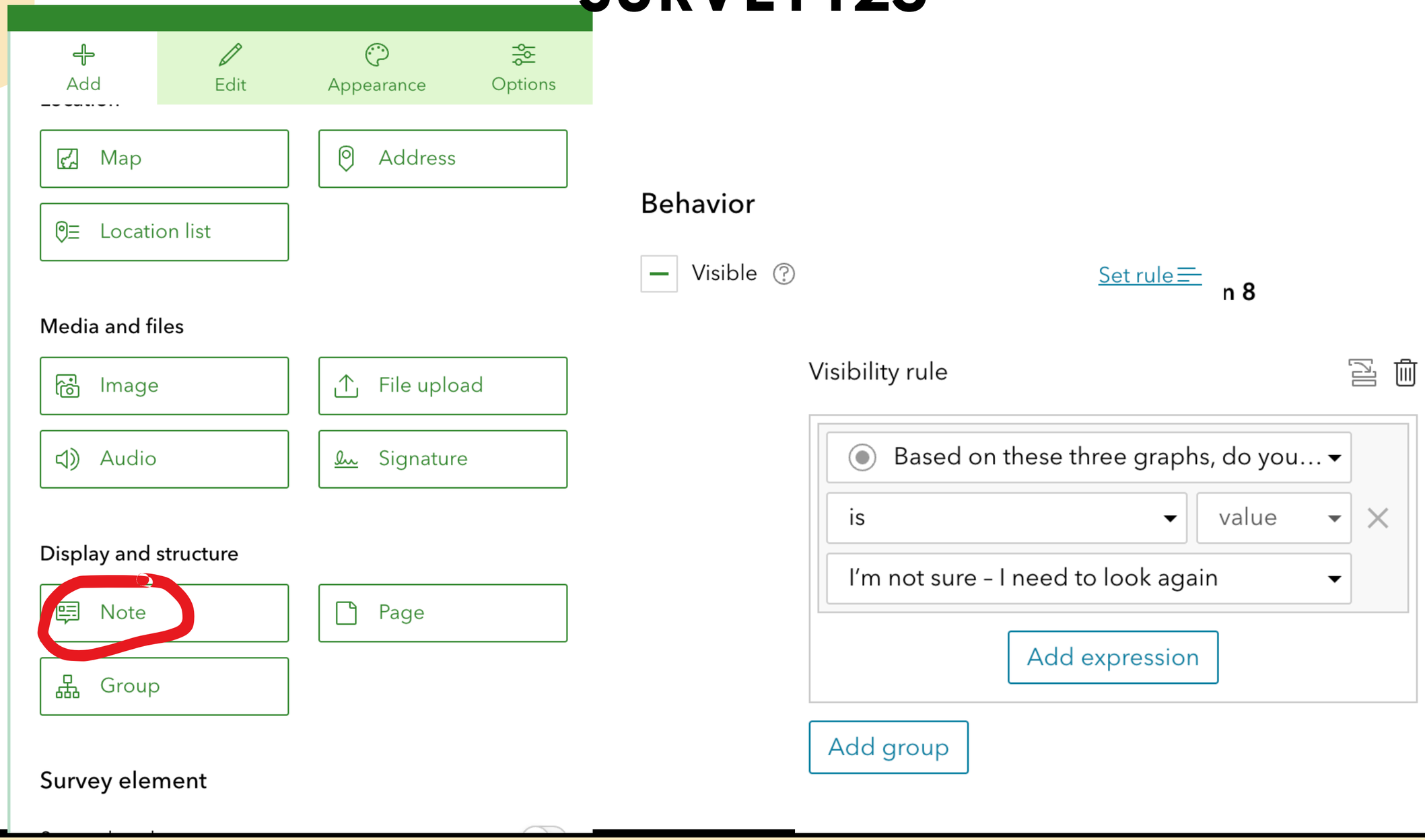
Think about whether years with more named storms/hurricanes also had a higher number of named storm/hurricane days. Was the difference (or "gap") between these two values larger in those years?

- ○ Yes – More storms usually meant more storm days
- ○ No – More storms didn't always mean more storm days
- ◉ I'm not sure – I need to look again

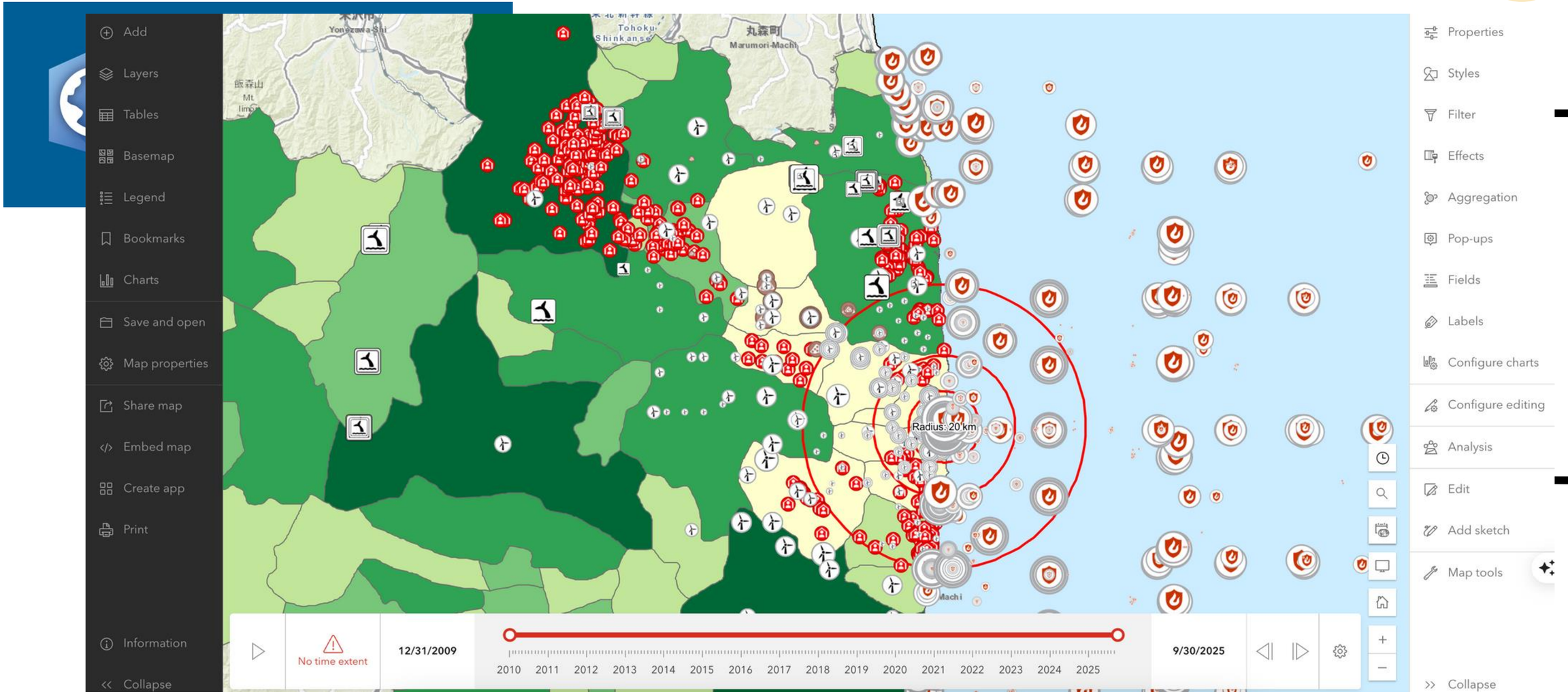
That's okay! It can be tricky. Try looking at more years in the chart to see if the pattern holds or breaks.

Submit

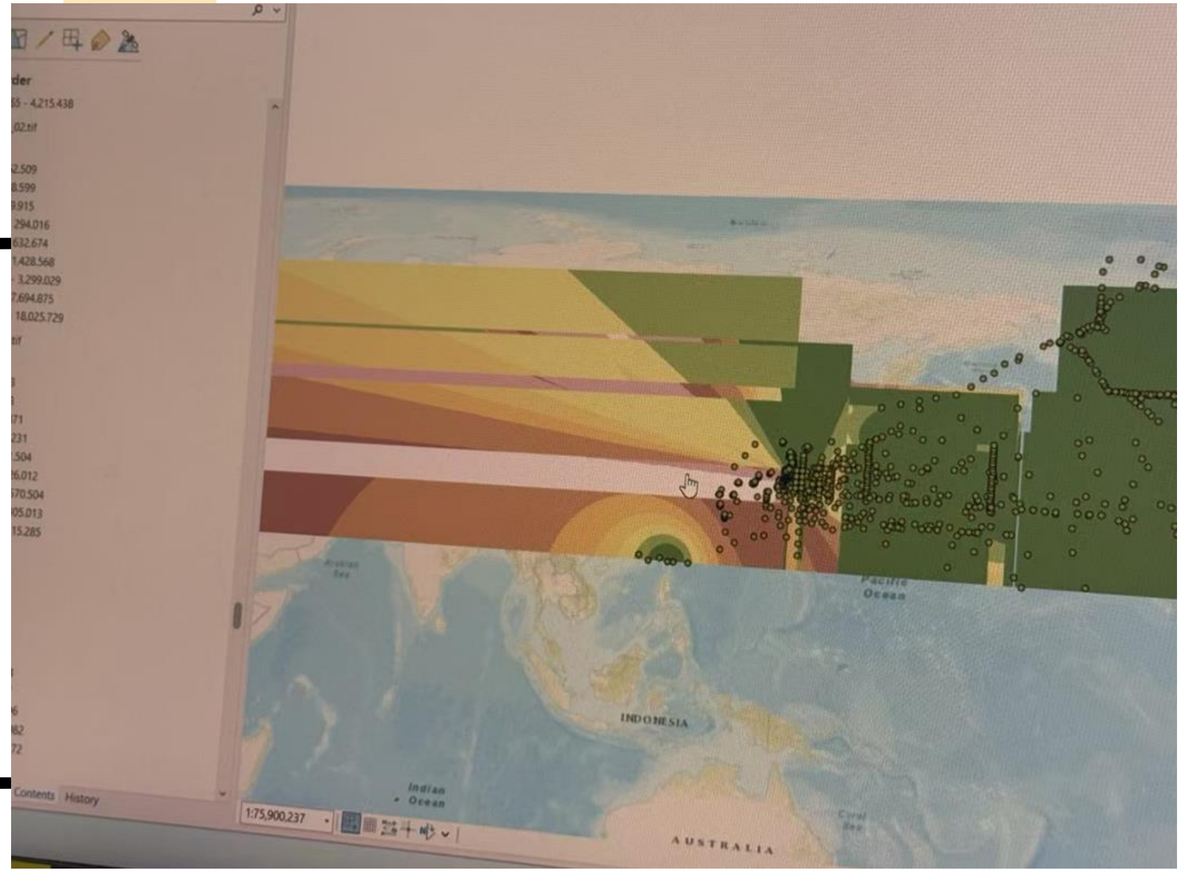
SURVEY123


Add
Edit
Appearance
Options
Map
Address
Location list
Media and files
Image
File upload
Audio
Signature
Display and structure
Note
Page
Group
Survey element
Behavior
Visible
Set rule
n 8
Visibility rule
Based on these three graphs, do you…
is
value
I'm not sure – I need to look again
Add expression
Add group

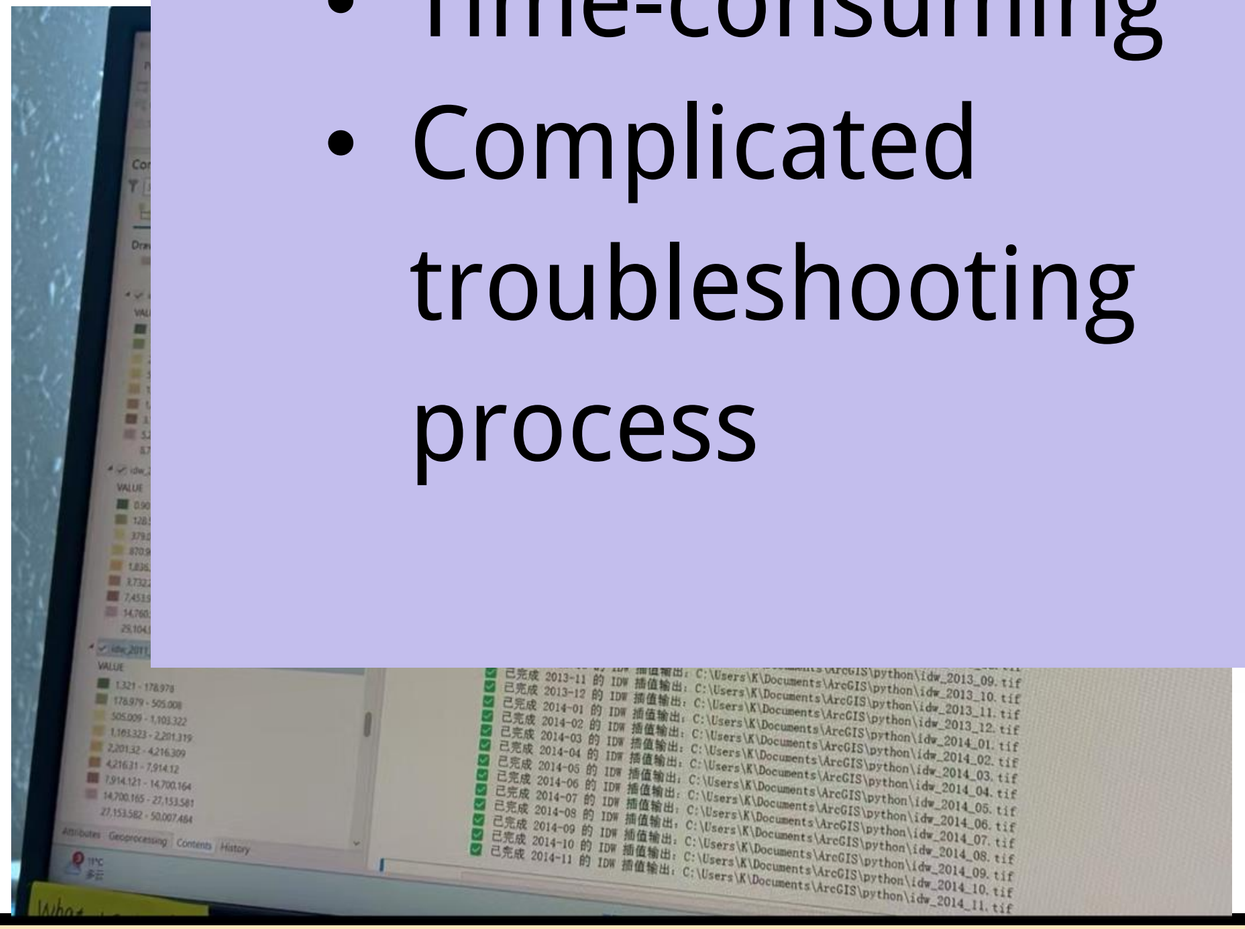
MAP - ARCGIS PRO



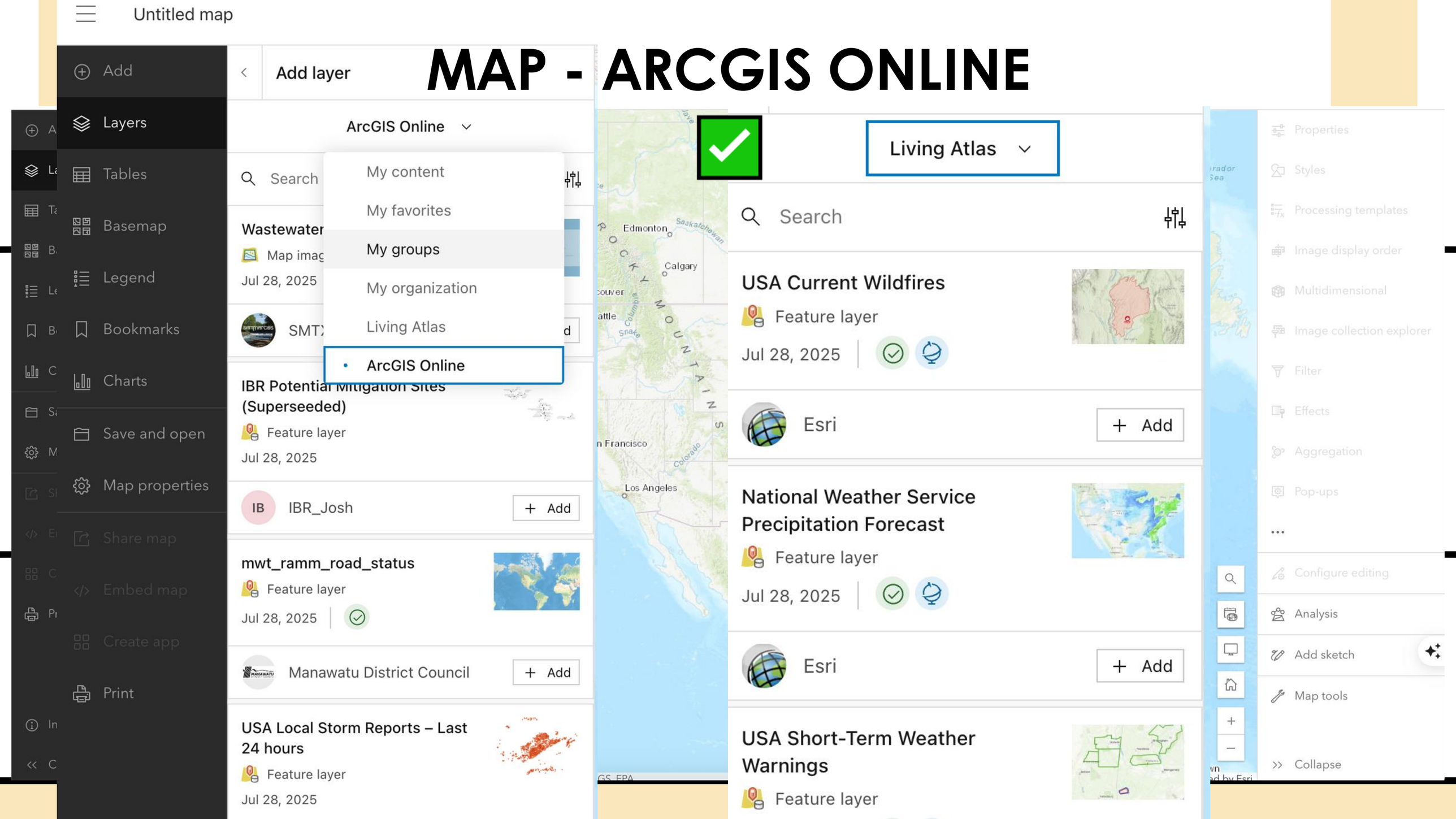
MAP - ARCGIS PRO



- Not user-friendly
- Time-consuming
- Complicated troubleshooting process

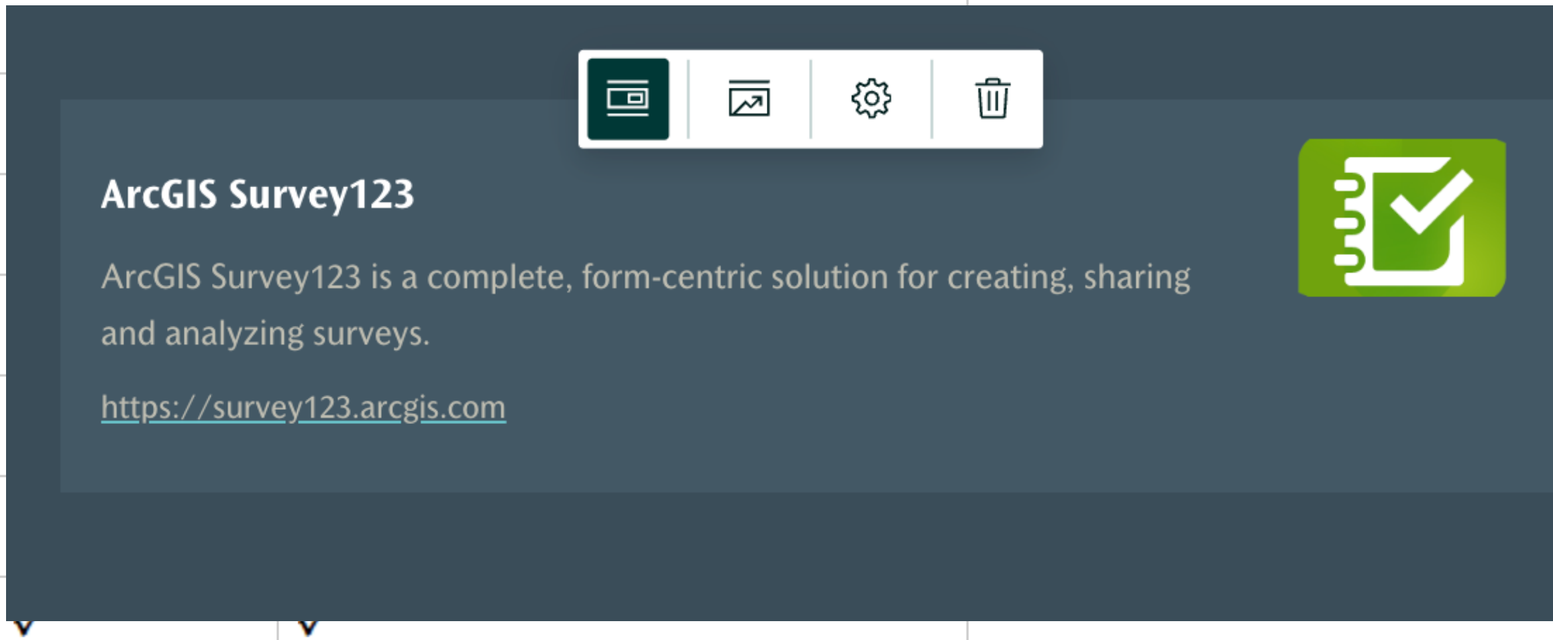


MAP - ARCGIS ONLINE



DRAWBACKS OF STORYMAP

Feature	Public account	Creator and GIS Professional user types
Media blocks		
Audio		
Embed		
Image		
Image gallery		
Use ArcGIS web maps and web scenes		
Create express maps	✓	✓
Swipe	✓	✓
Timeline		✓
Video	✓	✓



EXAMPLES

https://arcg.is/1fjHDW
https://arcg.is/1W9S401

EXAMPLES

https://arcg.is/1fjHDW

EXAMPLES

MBARI The Story of a FLOAT - WHO AM I

What do I look like? Come and meet my friends! Where have I been? Join me?

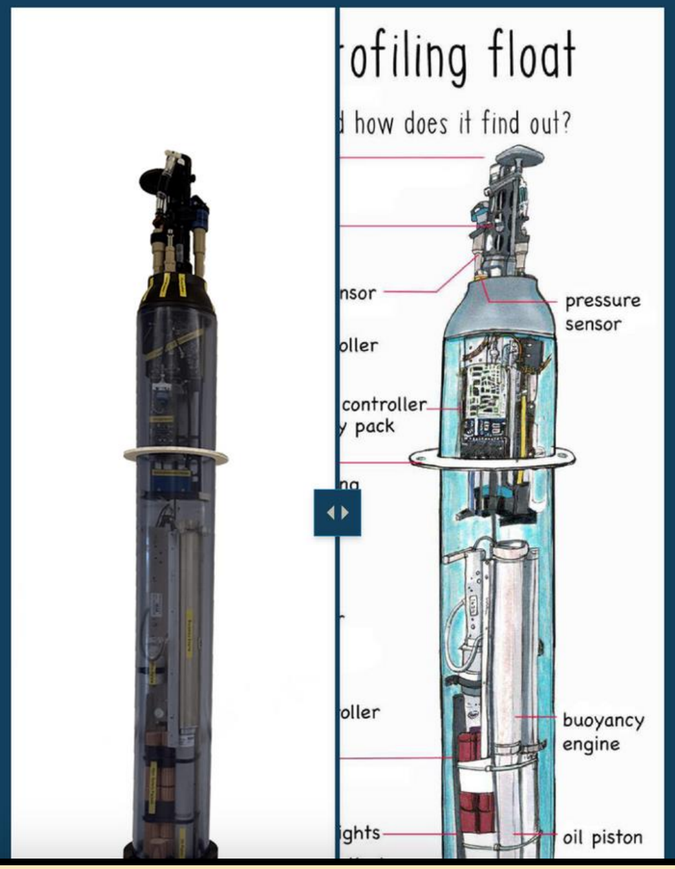
What do I look like?

That is me in the ocean!

I am FLOAT.

You could also call me the doctor of the ocean. I am responsible for checking the health condition of the ocean. Traveling in the ocean is my everyday life. My human colleagues drop me off at the sea surface. I go down to about 1000 meters, stay there for a while, then dive deeper to around 2000 meters. From there, I would go up to the surface, collecting data the whole way up. When I get back to the surface, I send everything I have to my colleagues on land via satellite.

Take a closer look at me if we are meeting for the first time!



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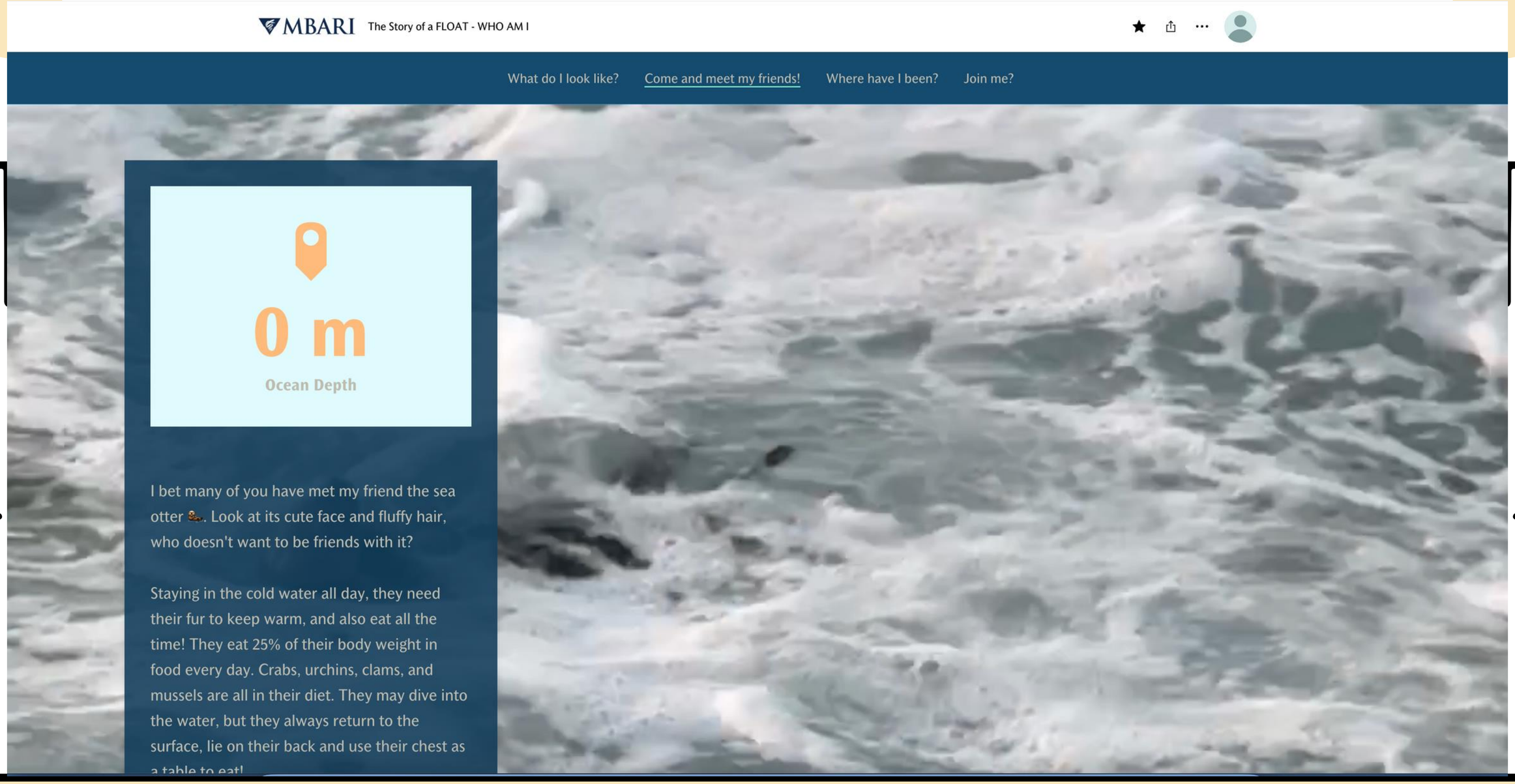
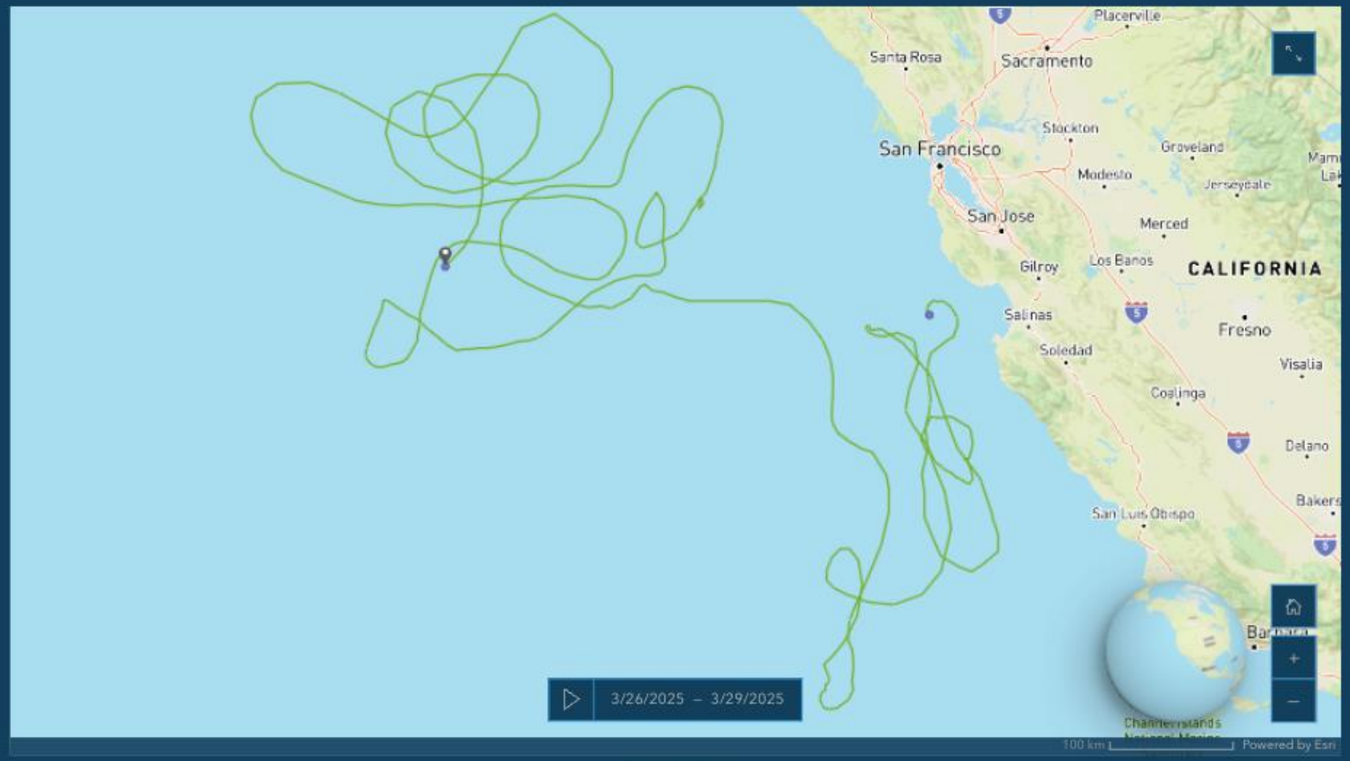

MBARI
The Story of a FLOAT - WHO AM I
What do I look like?
Come and meet my friends!
Where have I been?
Join me?
0 m
Ocean Depth
I bet many of you have met my friend the sea otter 🦦. Look at its cute face and fluffy hair, who doesn't want to be friends with it?
Staying in the cold water all day, they need their fur to keep warm, and also eat all the time! They eat 25% of their body weight in food every day. Crabs, urchins, clams, and mussels are all in their diet. They may dive into the water, but they always return to the surface, lie on their back and use their chest as

EXAMPLES

Where have I been?

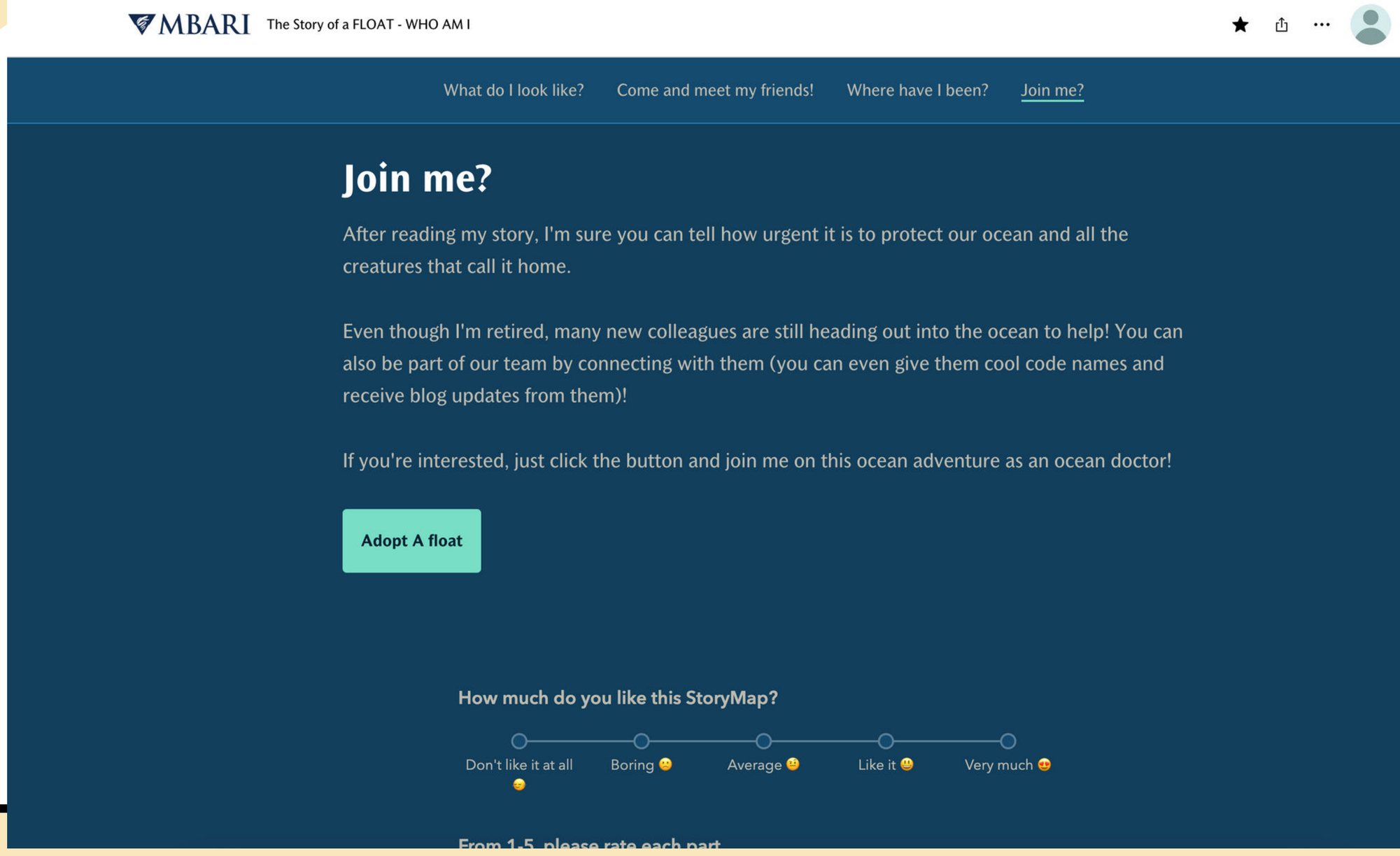
I lived a busy life as a doctor. I have been serving in the ocean for more than 3 years. Usually, in our industry, one trip will take about ten days, going down to 1000m and drifting for a while before going down further. One doctor will serve about five years before retiring. But I decided to retire early, I didn't take the ten-day drifting time. So, it only took me about 3 days to go down and up to the surface.

Click the play button to see my trips.



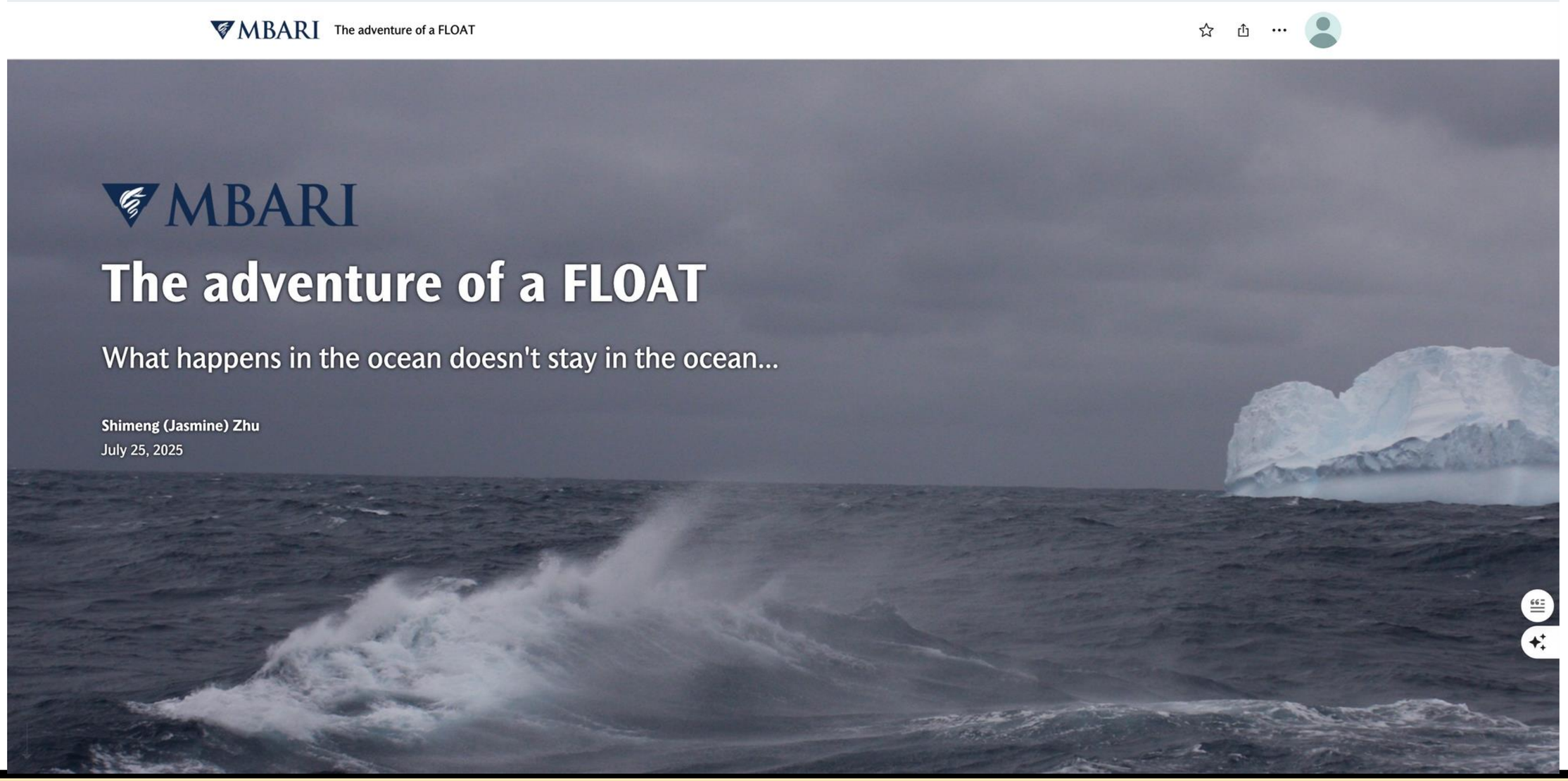
Float 4903026

EXAMPLES

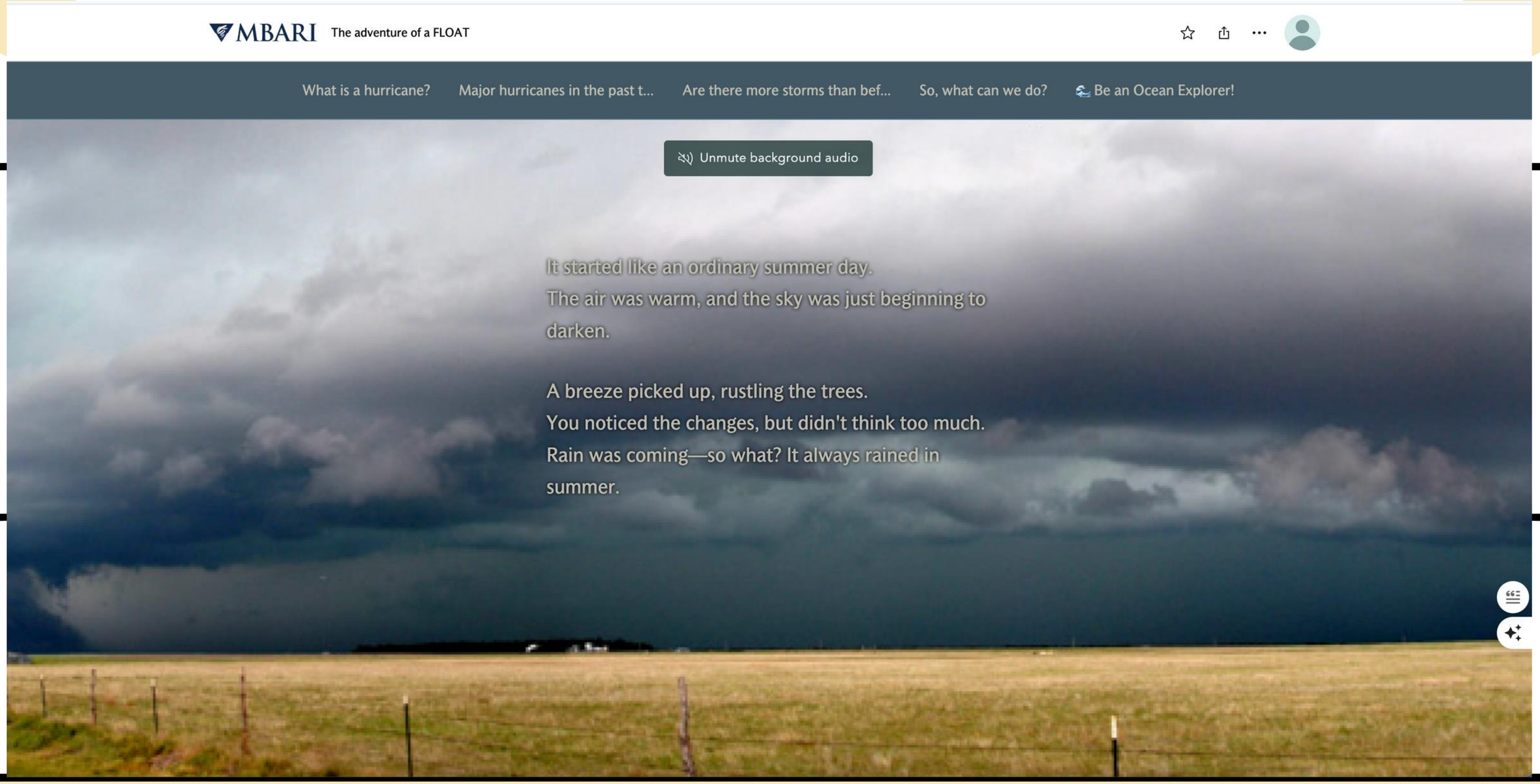

MBARI
The Story of a FLOAT - WHO AM I
What do I look like?
Come and meet my friends!
Where have I been?
Join me?
Join me?
After reading my story, I'm sure you can tell how urgent it is to protect our ocean and all the creatures that call it home.
Even though I'm retired, many new colleagues are still heading out into the ocean to help! You can also be part of our team by connecting with them (you can even give them cool code names and receive blog updates from them)!
If you're interested, just click the button and join me on this ocean adventure as an ocean doctor!
Adopt A float
How much do you like this StoryMap?
Don't like it at all
Boring
Average
Like it
Very much
From 1-5, please rate each part

EXAMPLES

https://arcg.is/1W9S401



EXAMPLES


MBARI
The adventure of a FLOAT
What is a hurricane?
Major hurricanes in the past t...
Are there more storms than bef...
So, what can we do?
Be an Ocean Explorer!
Unmute background audio
It started like an ordinary summer day.
The air was warm, and the sky was just beginning to darken.
A breeze picked up, rustling the trees.
You noticed the changes, but didn't think too much.
Rain was coming—so what? It always rained in summer.

EXAMPLES

MBARI The adventure of a FLOAT

What is a hurricane? | Major hurricanes in the past t... | Are there more storms than bef... | So, what can we do? | Be an Ocean Explorer!

What is a hurricane?

People can be easily confused by the "hurricane", "storm", "thunderstorm", "typhoon", and "tornado". It will be easier to understand if we can compare them all together.

Did you notice any similarities between hurricanes and typhoons?

Yes!

No? How could they be similar?

Hurricanes and typhoons are essentially the same weather phenomenon: tropical

What's the difference?

HURRICANE

- **Where:** Developed over the North Atlantic, central North Pacific, and eastern North Pacific
- **Wind Speed:** over 74mph
- **When:** Usually between June and November

TYPHOON

- **Where:** Developed over the Northwest Pacific
- **Wind Speed:** over 74mph
- **When:** Usually between June and November

THUNDERSTORM

- **Where:** Anywhere. The most frequent occurrence is in the southeastern states in the US.
- **Wind Speed:** Vary
- **When:** Anytime during the year, but most likely in the spring and summer months

TORNADO

- **Where:** Many parts of the world. In the US, frequently seen in the central US, particularly in an area called "Tornado Alley".
- **Wind Speed:** Over 65 mph
- **When:** Anytime of the year, but most likely to occur during meteorological spring (April, May, and June)

HAIL

- **Where:** China, Russia, India and northern Italy. In the US, Nebraska, Colorado, and Wyoming have the most hailstorms.
- **When:** Between April and Septemper, as it is usually caused by thunderstorms

EXAMPLES


MBARI The adventure of a FLOAT
What is a hurricane?
Major hurricanes in the past t...
Are there more storms than bef...
So, what can we do?
Be an Ocean Explorer!
Major hurricanes in the past two decades
2005
Hurricane Katrina -
- Costliest Hurricane
When Katrina hit the southern US in 2005, it caused different types of damage to three states, Louisiana, Mississippi, and Alabama. Many people were forced to leave their homes. In this hurricane, there were 1,392 fatalities.
But do you know which is the most fatal part of all?
Which one of the following is the biggest reason for casualties?
Direct cause (eg. drowning, or hit by falling objects etc.)
Indirect cause (eg. worsened chronic diseases, or car accidents etc.)

EXAMPLES


MBARI The adventure of a FLOAT
What is a hurricane?
Major hurricanes in the past t...
Are there more storms than bef...
So, what can we do?
Be an Ocean Explorer!
Are there more storms than before?
From Katrina to Francine, the list goes on. But what do the numbers say?
Named Storms
Number/Days
Year
Named Storm Days
Named Storms
2013 42.3 14
2014 35 8
2015 43.5 11
2016 82.3 15
2017 93 17
2018 86.8 15
2019 70 18
2020 122.8 30
2021 79.8 21
2022 55 14
2023 100.5 20
2024 77.3 18
The graph on the left shows the storms that happened from 2013 to 2024.
If there are named storms, there should be unnamed storms too. Why don't people name all the storms?
Because people cannot always come up with a name.
Because it is based on different time of the year.
Because naming is only researved for significant storms
Submit

EXAMPLES

MBARI The adventure of a FLOAT

What is a hurricane? | Major hurricanes in the past t... | Are there more storms than bef... | So, what can we do? | Be an Ocean Explorer!

So, what can we do?

Science is built on data.

Just because we can't prove something *now* doesn't mean we won't be able to in the future.

That's why ocean monitoring is critical.

Floats, like underwater explorers, travel through parts of the ocean where humans can't go.

They collect data 24/7 — measuring **temperature**, **salinity**, **oxygen**, and more.

Over time, this data helps scientists uncover ocean patterns and connect what happens *underwater* with what we see *above*, like stronger storms.

These floating sensors are changing what we know about the ocean.

If you want to know more about how the float works, you can click the button for another StoryMap.

The Story of a FLOAT

GO-BGC Global Ocean Biogeochemistry Array | SOCCOM

EXAMPLES

🌊 Be an Ocean Explorer!

We do not need to be scientists to learn about the ocean.

With the **Adopt-A-Float** program, **you** can follow a real ocean robot, see where it goes, and learn what it discovers!

These floats travel to places people can't, collecting data 24/7 to help us understand the ocean and climate change.

🎈**Adopt your own float**, give it a name, track its journey, and become part of a real science mission!

Adopt A Float

QUESTIONS?