Climate Threats to Stakeholders – Using GIS to Bridge the Gap

Dr. Jill Trepanier

Geography and Anthropology, Louisiana State University

April 25 Western States Caucus Roundtable discussion

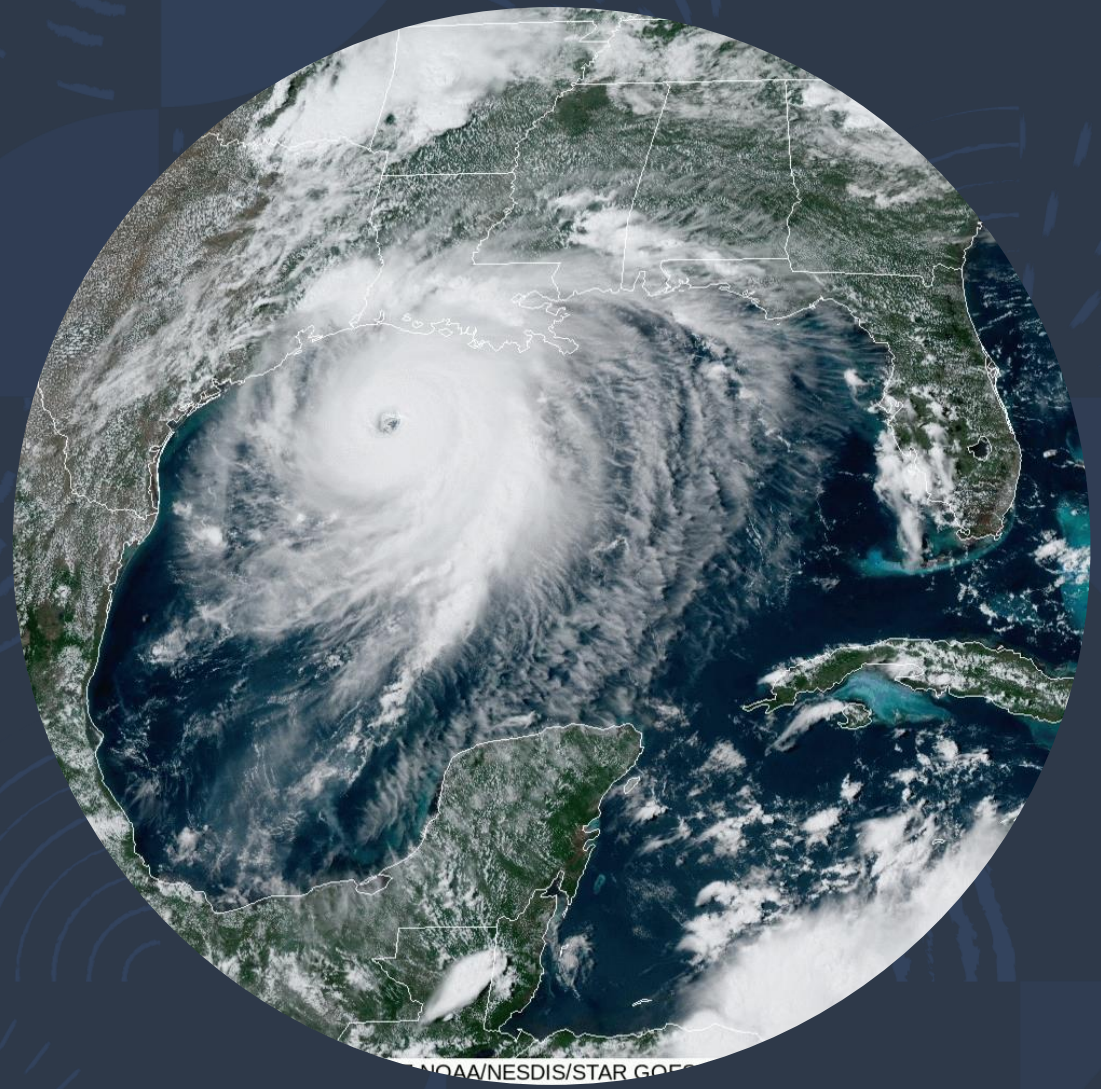
Main Takeaway Points

1. Digestible science communication is the future.
2. Scientists must become proficient in communicating in multiple ways to multiple audiences with varying skill levels
3. The future should be about solutions, not problems.
4. Multidisciplinary teams are required to answer the most complicated climate threat questions.

Meet the Presenter

Five Projects – Meet the Stakeholders

- Native American Tribal land and resource loss in the Mississippi River Delta region
- *Native American Tribal fishery changes (new)*
- U. S. Galleries, libraries, archives, and museums
- *South Louisiana farmers (new)*
- Middle and high school environmental science teachers and students



What current culturally sensitive sites will be threatened for the Chitimacha and other neighboring Tribal peoples into the future in the MS River Delta region?

Question 1

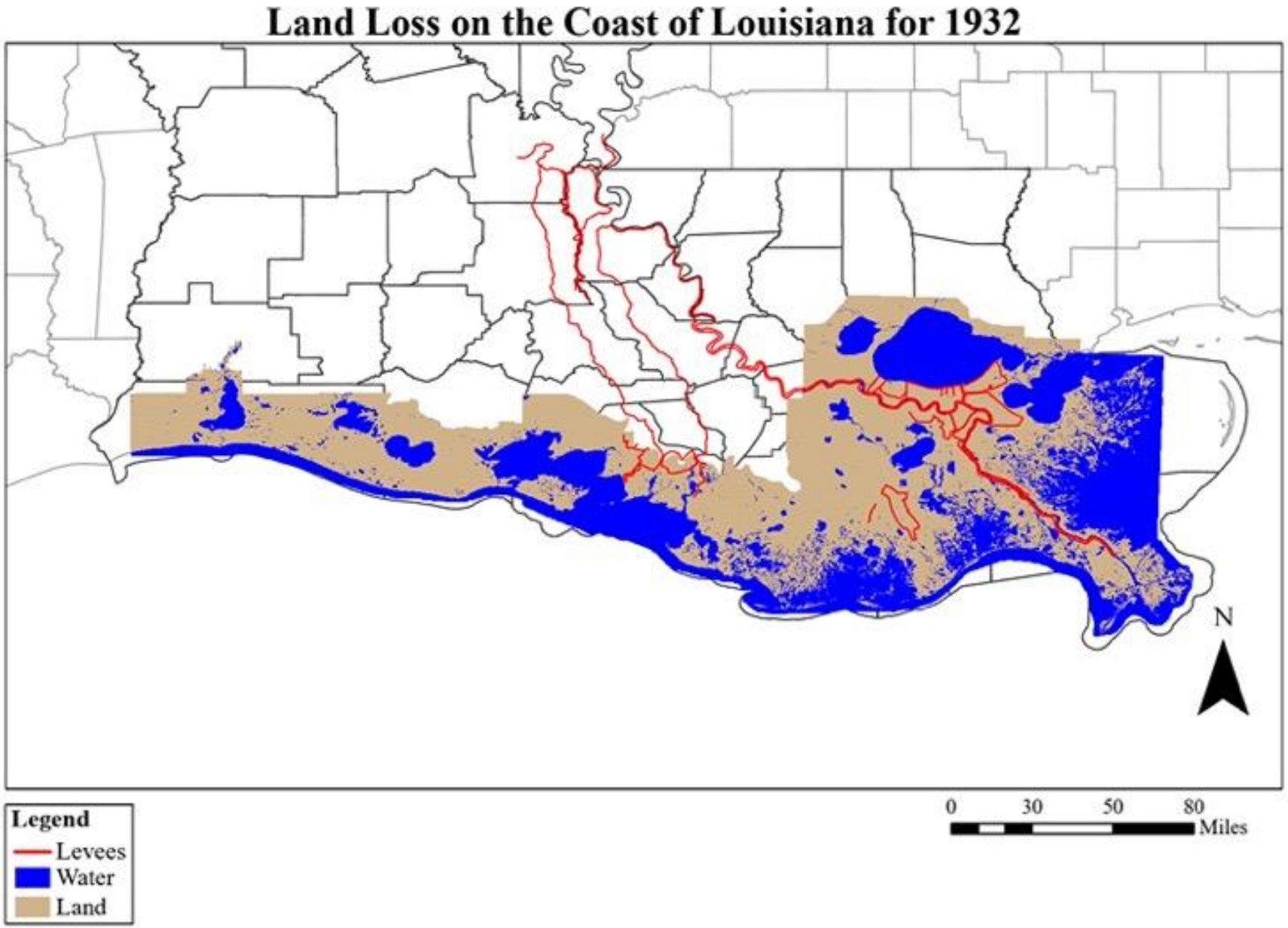
Team Members: Dr. Kory Konsoer (LSU), David Watt (Tulane, PhD Candidate), Dr. Mark Rees (ULL), Dr. Navid Jafari (LSU), Dr. Chris Rodning (Tulane), Reilly Corkran (LSU, MS Student)

Coastal erosion, land subsidence, and sea level rise are destroying cultural resources along the Gulf Coast.

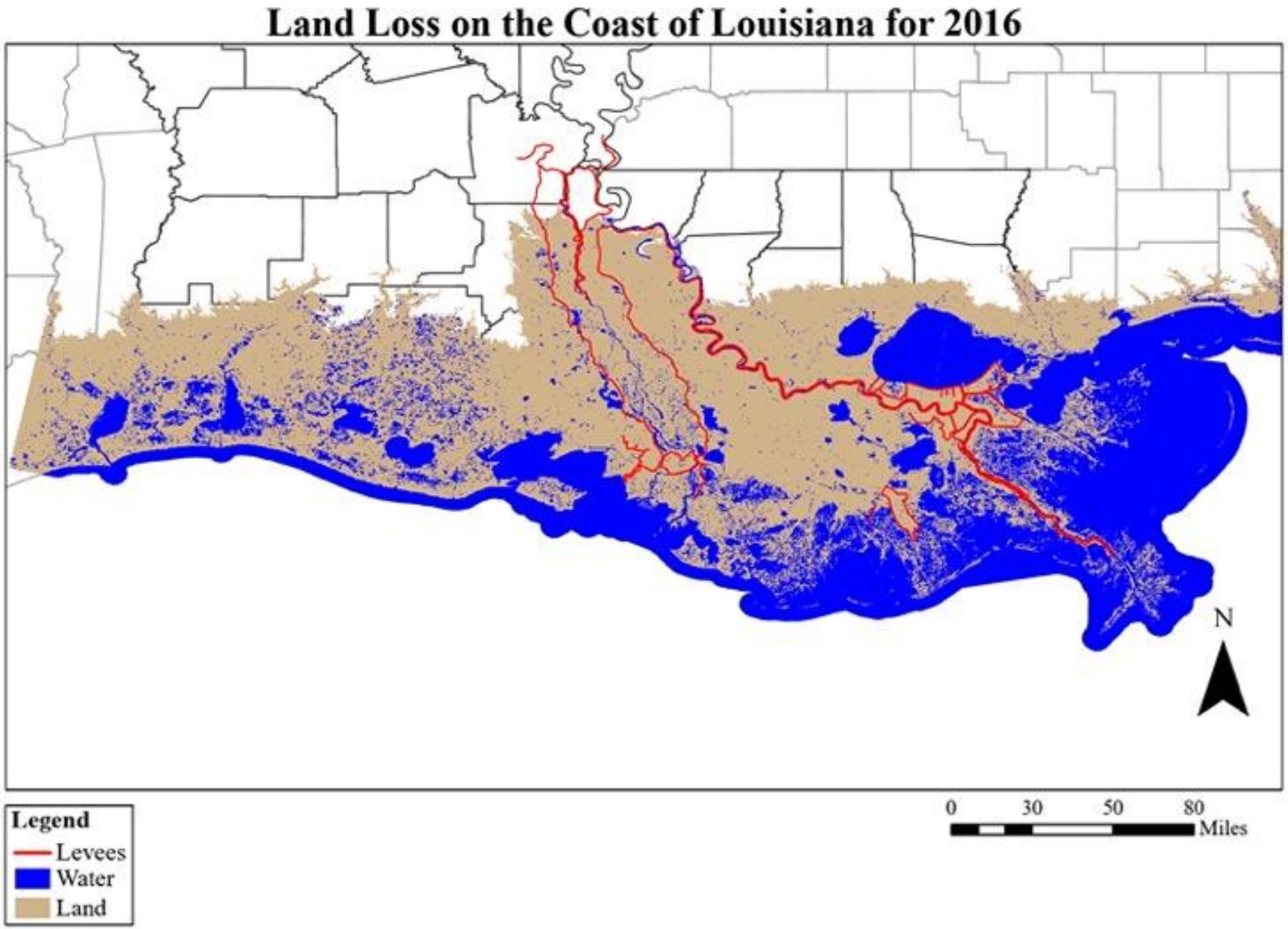
- Most adverse effects are occurring in the Mississippi River Delta region
- Working with Native American Tribes (i.e., Chitimacha), incorporating traditional ecological knowledge to future expectations of impacts

Q1: Background

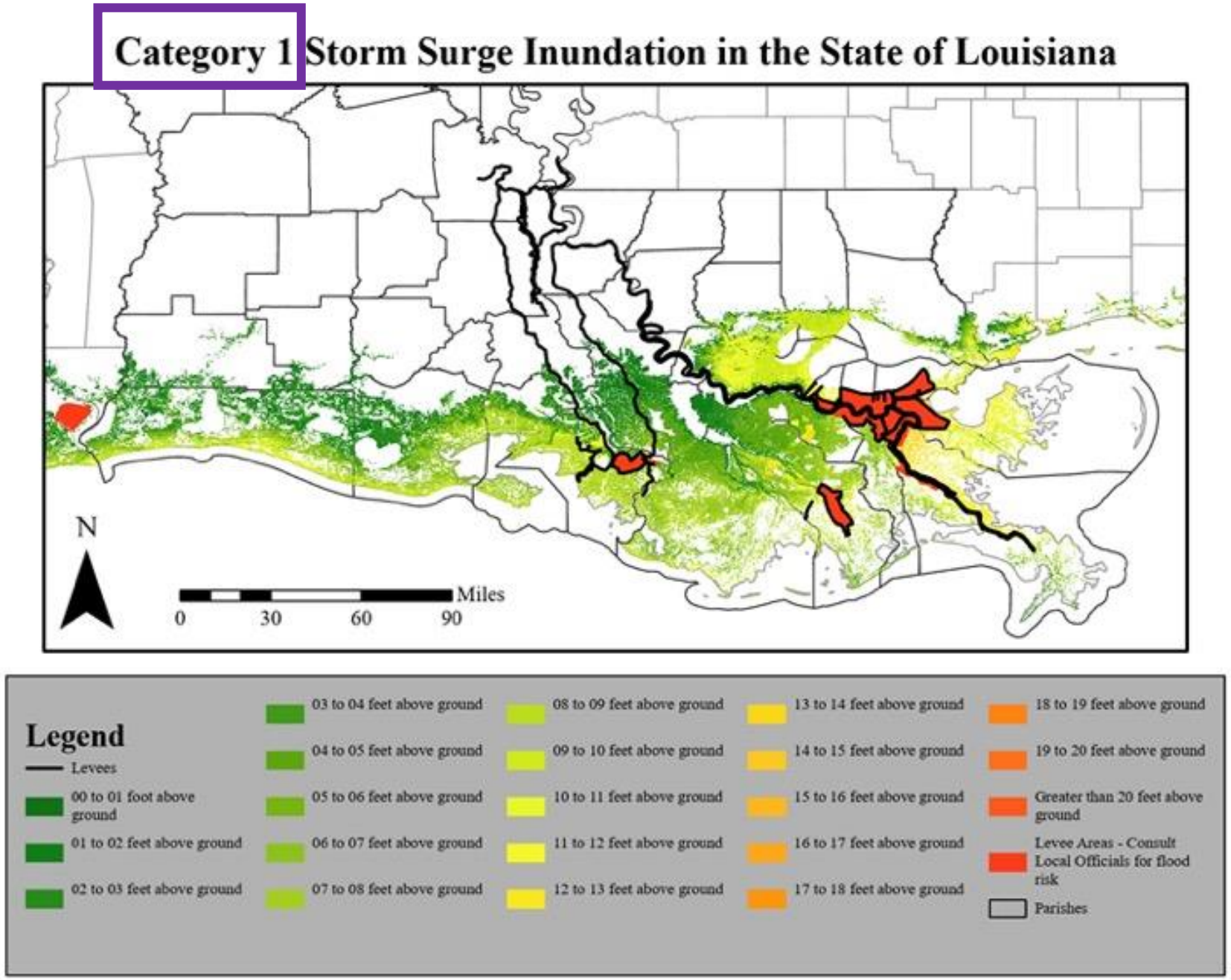
Q1 Threats: Land Loss 1932



Q1 Threats: Land Loss 2016



Q1 Threats: Hurricane Storm Surge



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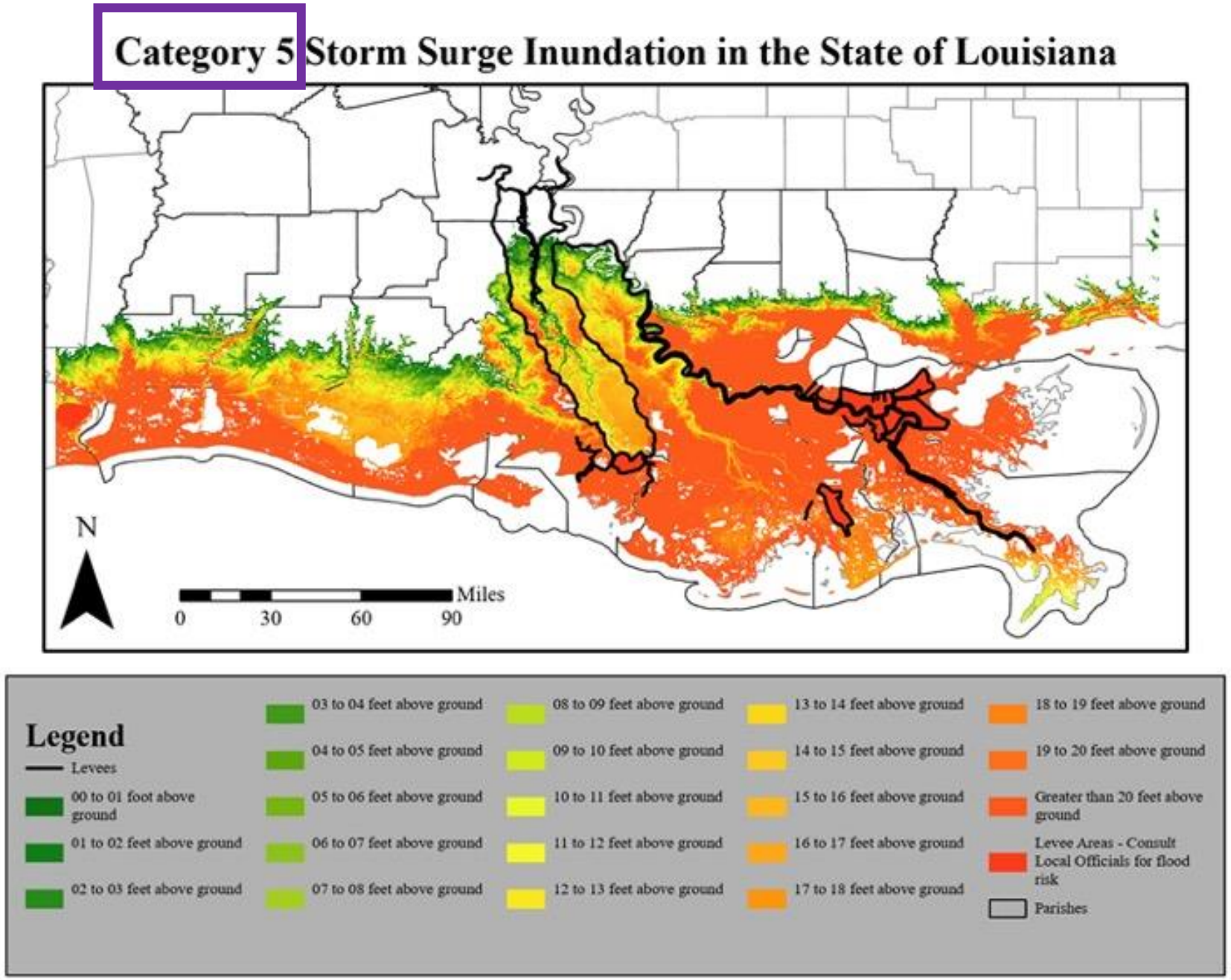


Q1: What's Next

Spring 2024

Workshops with stakeholders to hear their concerns and find ways to represent their concerns through GIS

Take existing historical data and pair with stakeholder knowledge. Create threat scale for the Chitimacha so they can use it to help protect (or move) resources

Summer 2024

Can we create a categorical climate threat scale for galleries, libraries, archives, and museums in the United States?

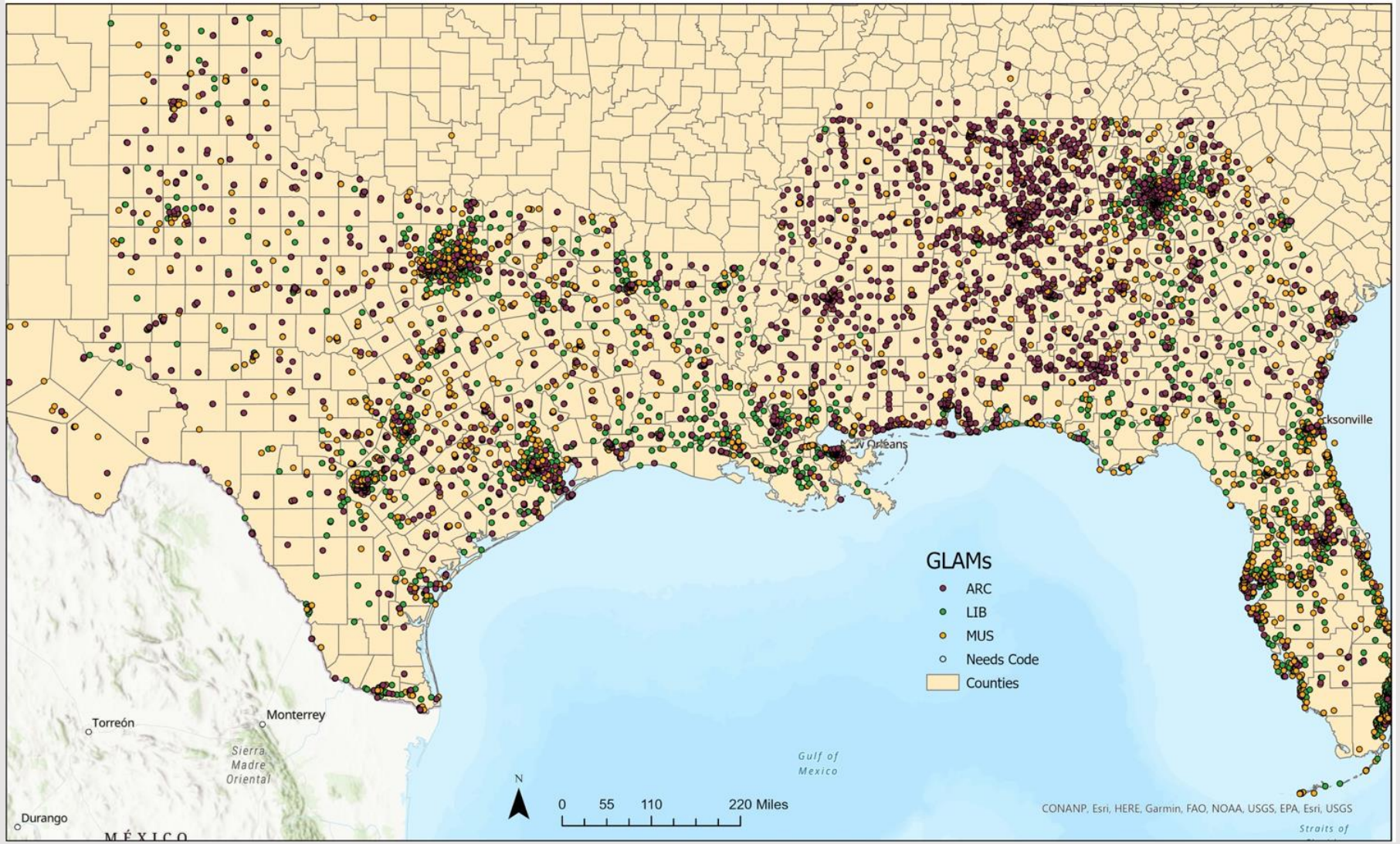
Question 2

Team Members: Dr. Ed Benoit (LSU), Dr. Jenni Vanos (ASU), Emily Fisher (LSU, MS Geography Student), Haley Moore (LSU, MA SIS Student), 35 undergraduate students

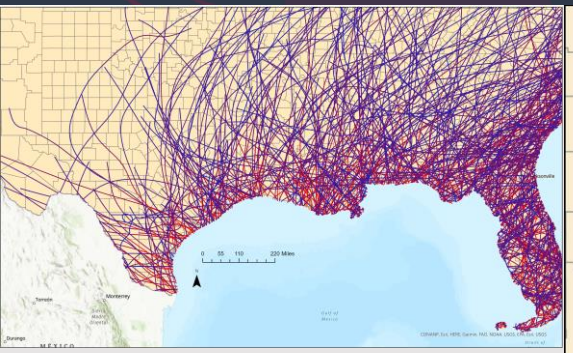
Q2: Background

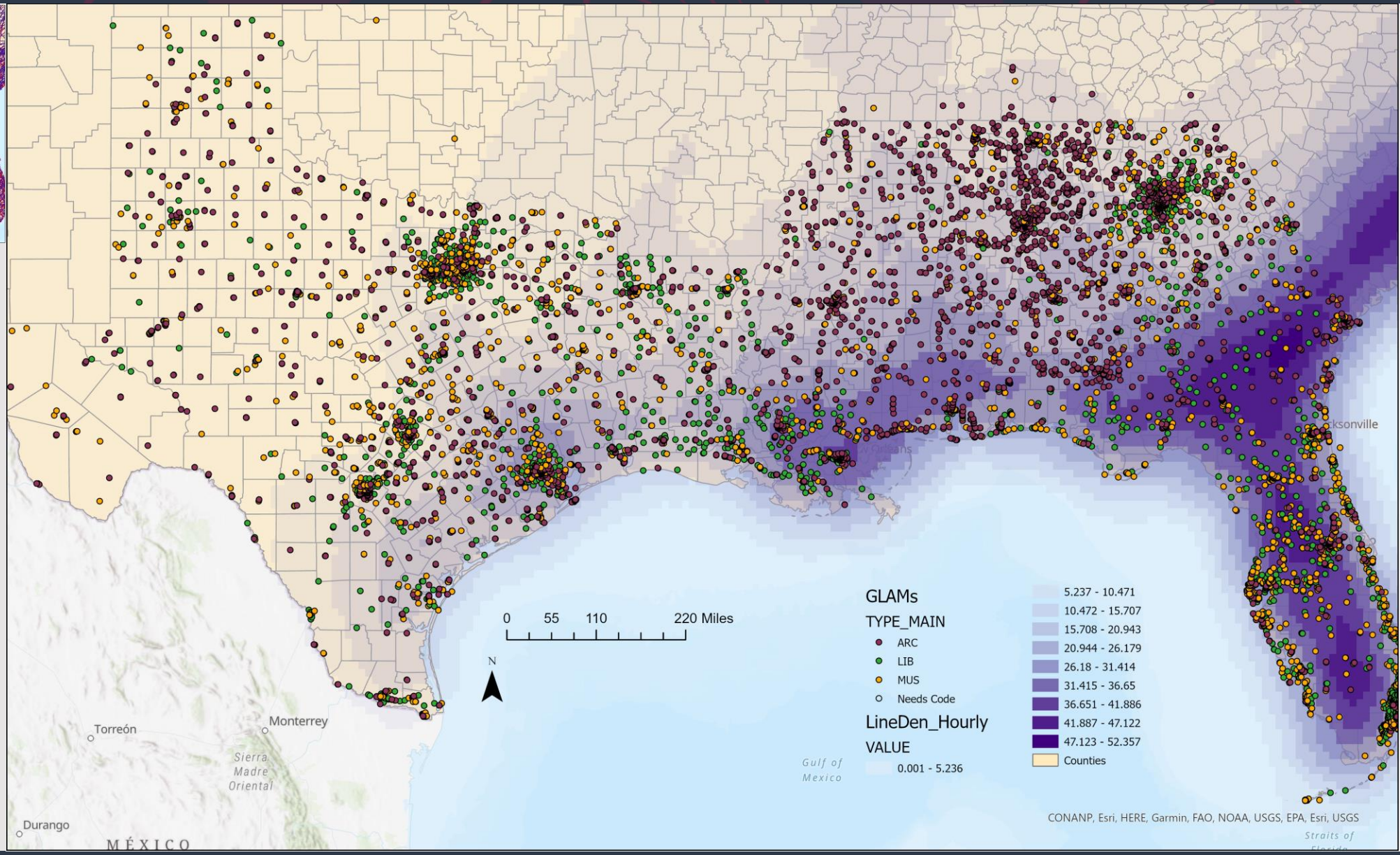
- Project_ARCC: Archivists Responding to Climate Change (2015)
- Mazurczyk, Tara, Nathan Piekielek, Eira Tansey, and Ben Goldman. "American Archives and Climate Change: Risks and Adaptation." *Climate risk management* 20 (2018): 111-125. https://doi.org/10.1016/j.crm.2018.03.005
- Baton Rouge Flood (2016) & Hurricane Ida (2021)

Q2 GLAM Locations

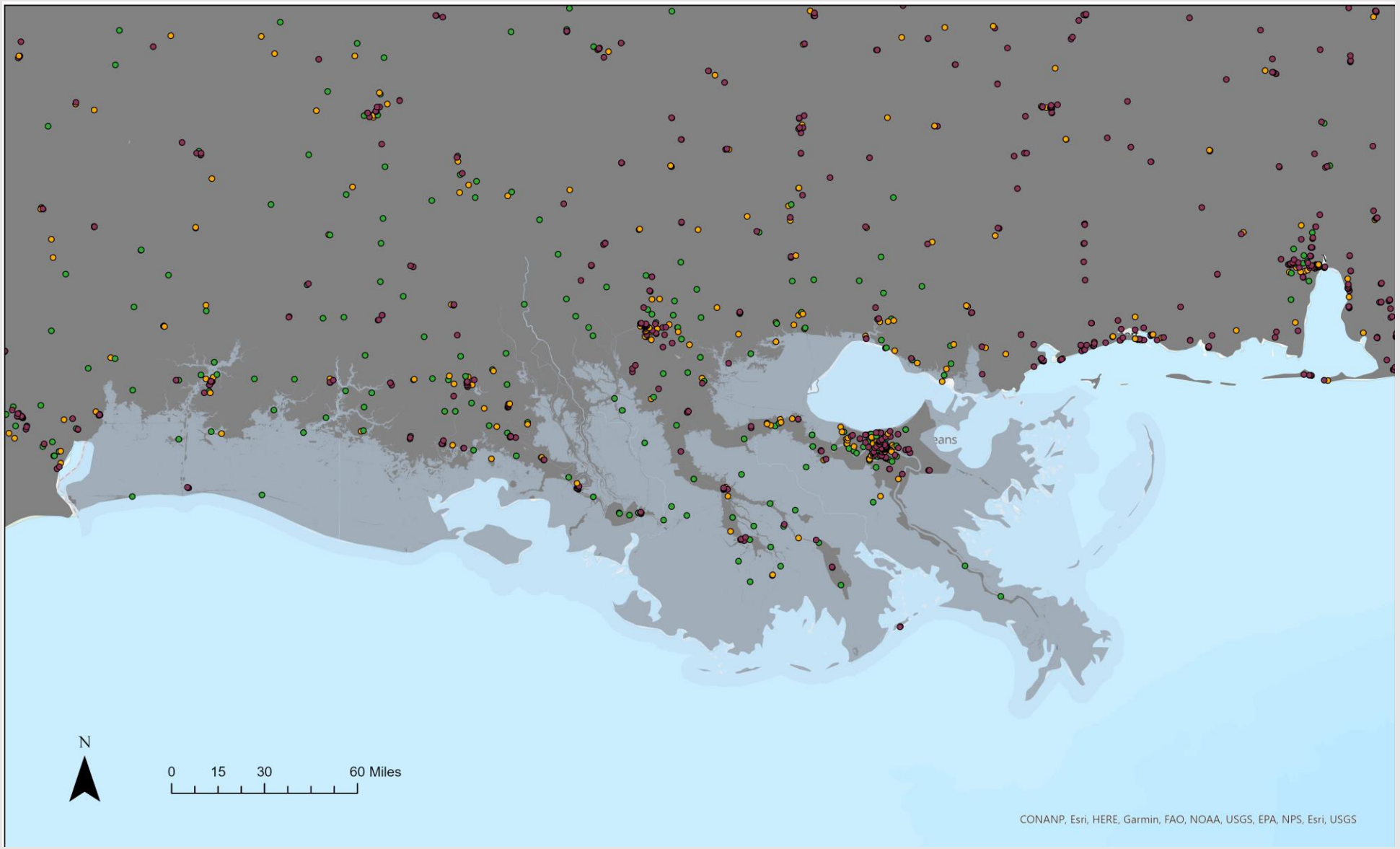


Q2 Threats: Hurricane Frequency

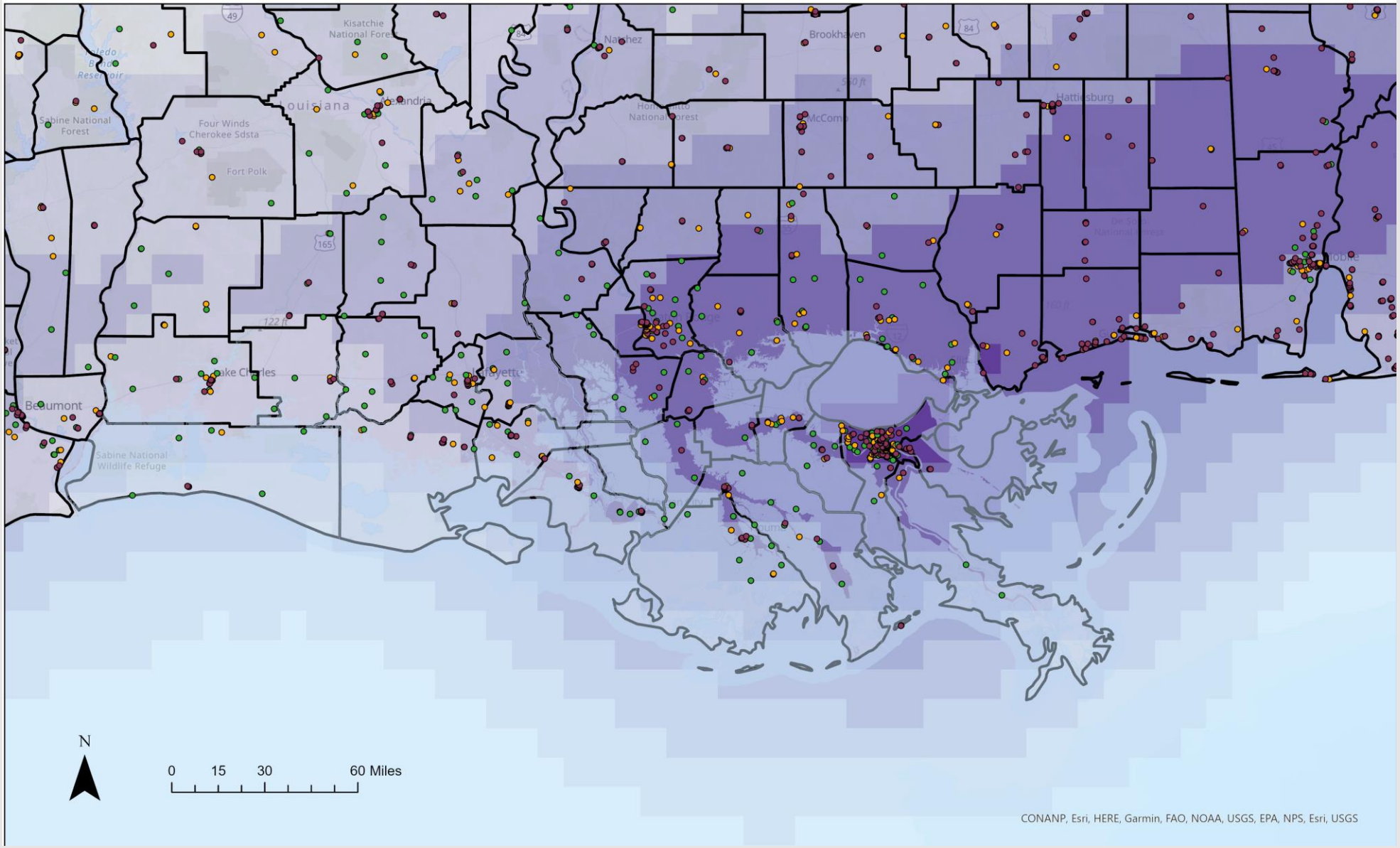




Q2 Threat: NOAA Projected Sea Level Rise – 3 feet



Q2 Combining Threats



Q2: What's Next

Spring 2024

Continuing to identify threats including:

- Varying category hurricanes and TC rainfall
- Heavy rainfall/flooding
- Humidity
- Extreme heat/cold

Summer and Fall 2024

Create threat scale, GIS Experiences, and GIS Portal for stakeholder use

Project Year 3

Institute at LSU to showcase product, gain feedback, and create ideas for next steps

Q2: Project Website and Example Story Map

Example Story-Map

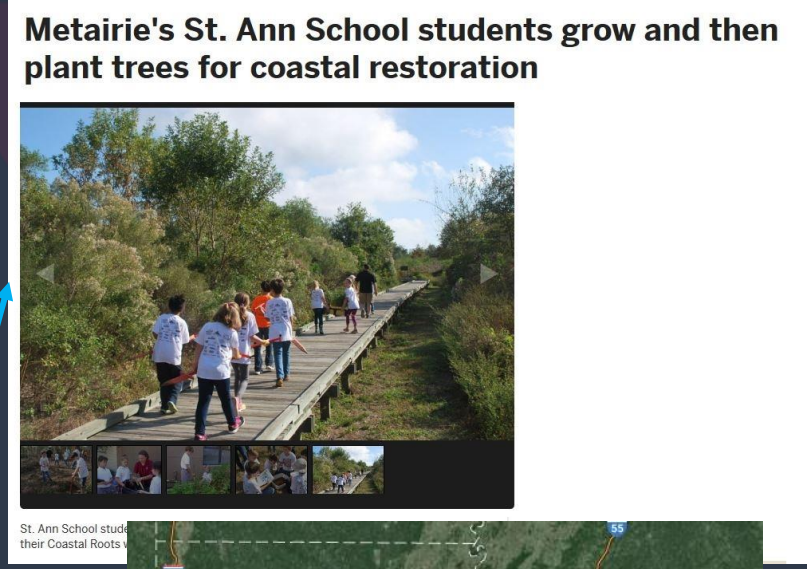
How can I bring extreme weather information to Louisiana schools to enhance environmental science learning?

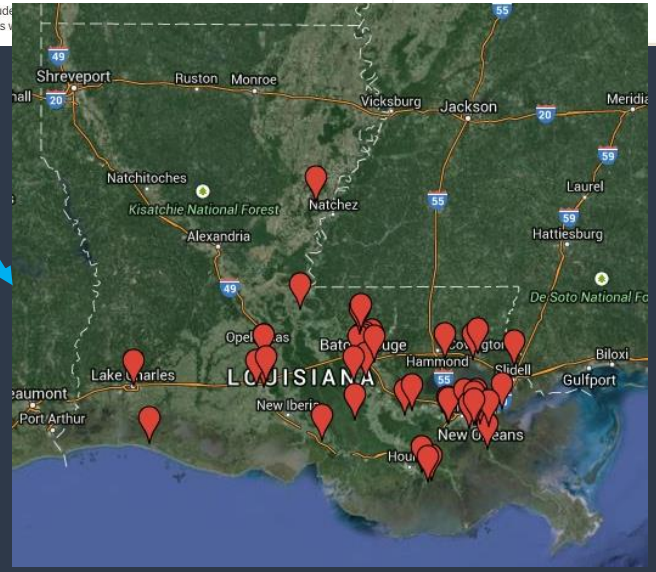
Question 3

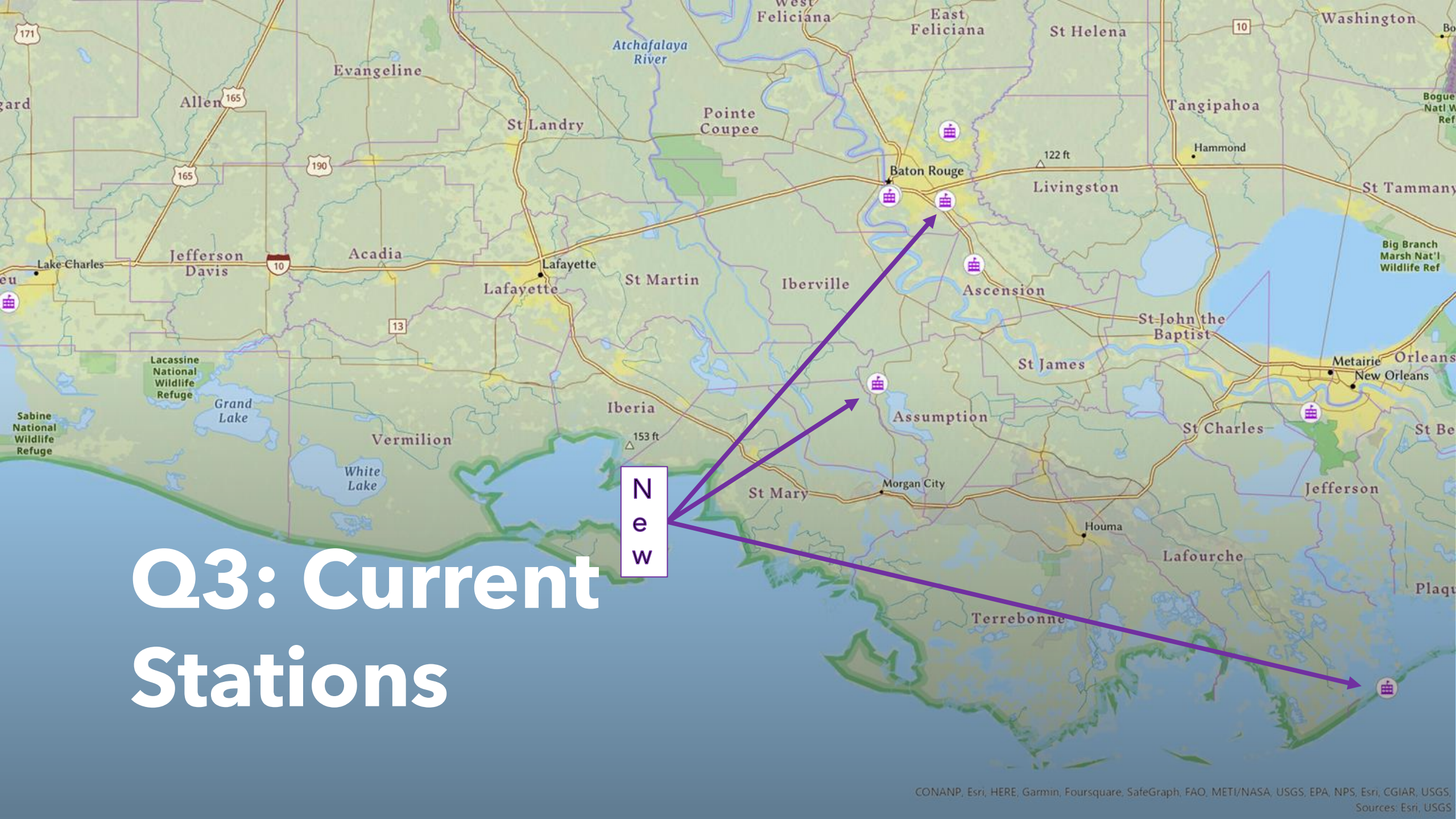
Team: Little ol’ me (and all my teachers!)

Q3: Background

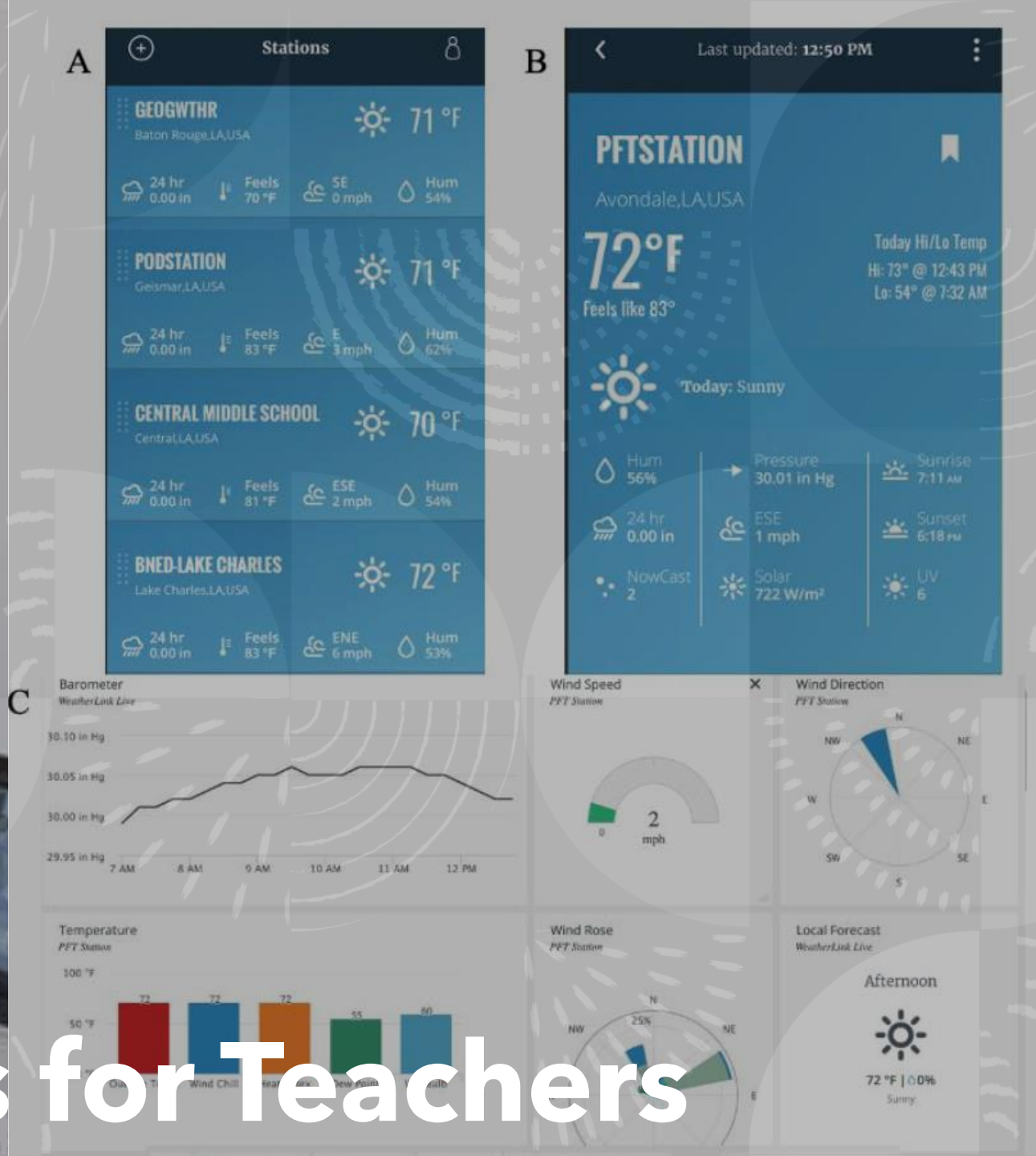
- Two things happen simultaneously:
  1. Louisiana Sea Grant Project with LSU Coastal Roots from 2018-2021 *I met some teachers*
  2. I begin to slowly collect "leftover" money and install a station on LSU campus in 2018
     1. Followed by one more near my home in 2021 prior to Ida
     2. And another at a middle school in early 2022 (bc, why not?).
     3. And two more at two high schools in late 2022; and another at LSU (across campus) in 2022.
     4. Now…I have a plan…enter four more…







Q3: Current Stations



Q3: Goodies for Teachers

Q3: What's Next

Summer 2024

Find Funds!

Side Project: McNair student will assess summer 2023 temperature and pressure data from stations and compare to historical data to be sent out for review in Summer 2024

Future - ?

Main Takeaway Points

Digestible science communication is the future.

Scientists must become proficient in communicating in multiple ways to multiple audiences with varying skill levels

The future should be about solutions, not problems.

Multidisciplinary teams are required to answer the most complicated climate threat questions.

Thank you for your attention!

Any questions??