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# Louisiana Watershed Initiative

*Sustainability and resilience through science, engineering and objective decision making*

## Objective

*Develop a common understanding of known flood risks, vulnerabilities and priorities in Region 4*

## Building on previous efforts

Region 4 planning and policy professionals have worked with LWI to identify these four priorities based on their region's flood risk and mitigation needs.

## Agenda

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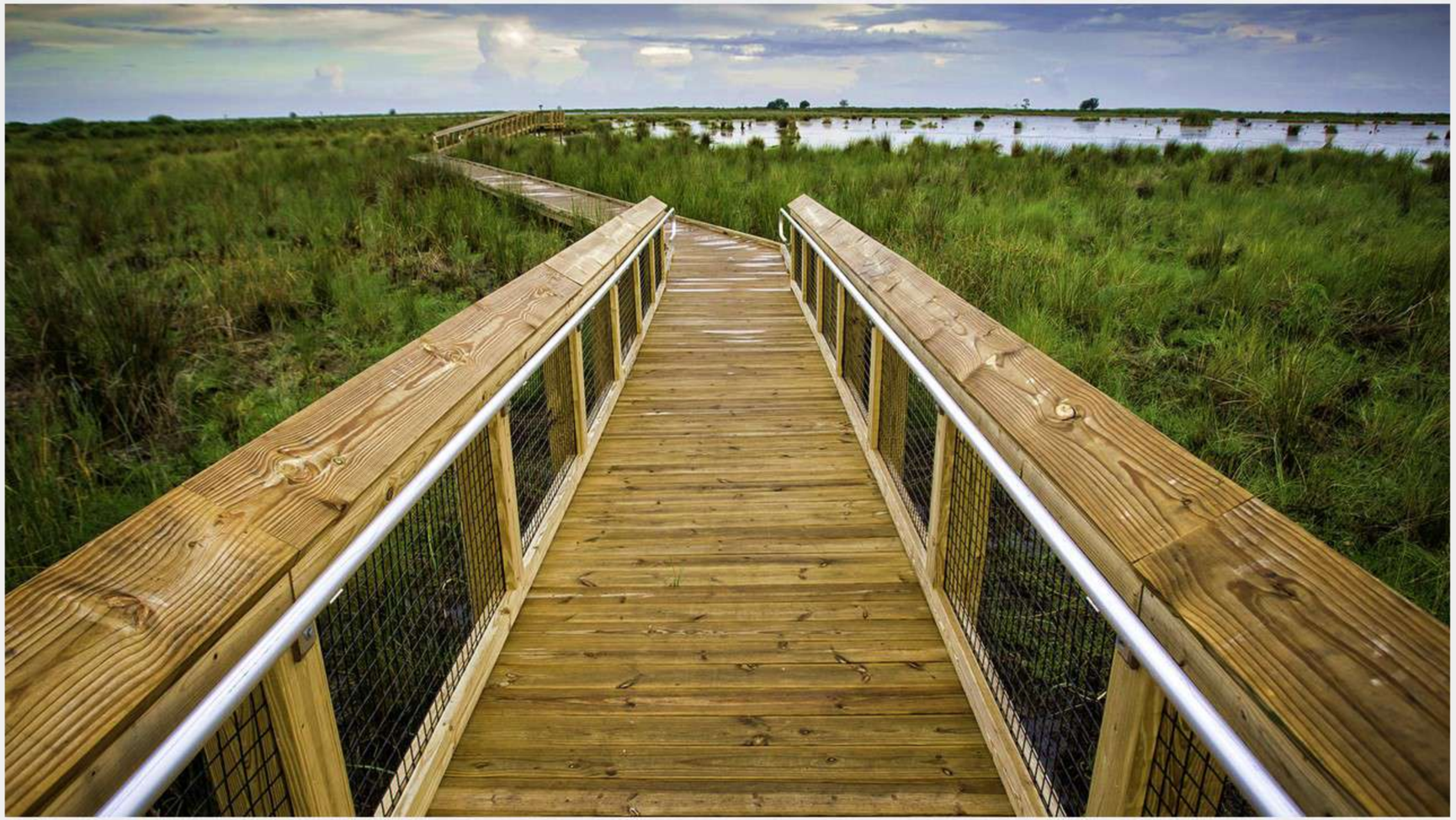
1. Region 4 flood risk assessment
2. Break
3. Group mapping exercise
4. Report out
5. Public comment

## Flood risk assessment

Each watershed region throughout Louisiana faces unique flood risks. To understand these risks and to prioritize solutions, we must accomplish the following:



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Working together to address risk at the watershed scale

- Caddo Parish
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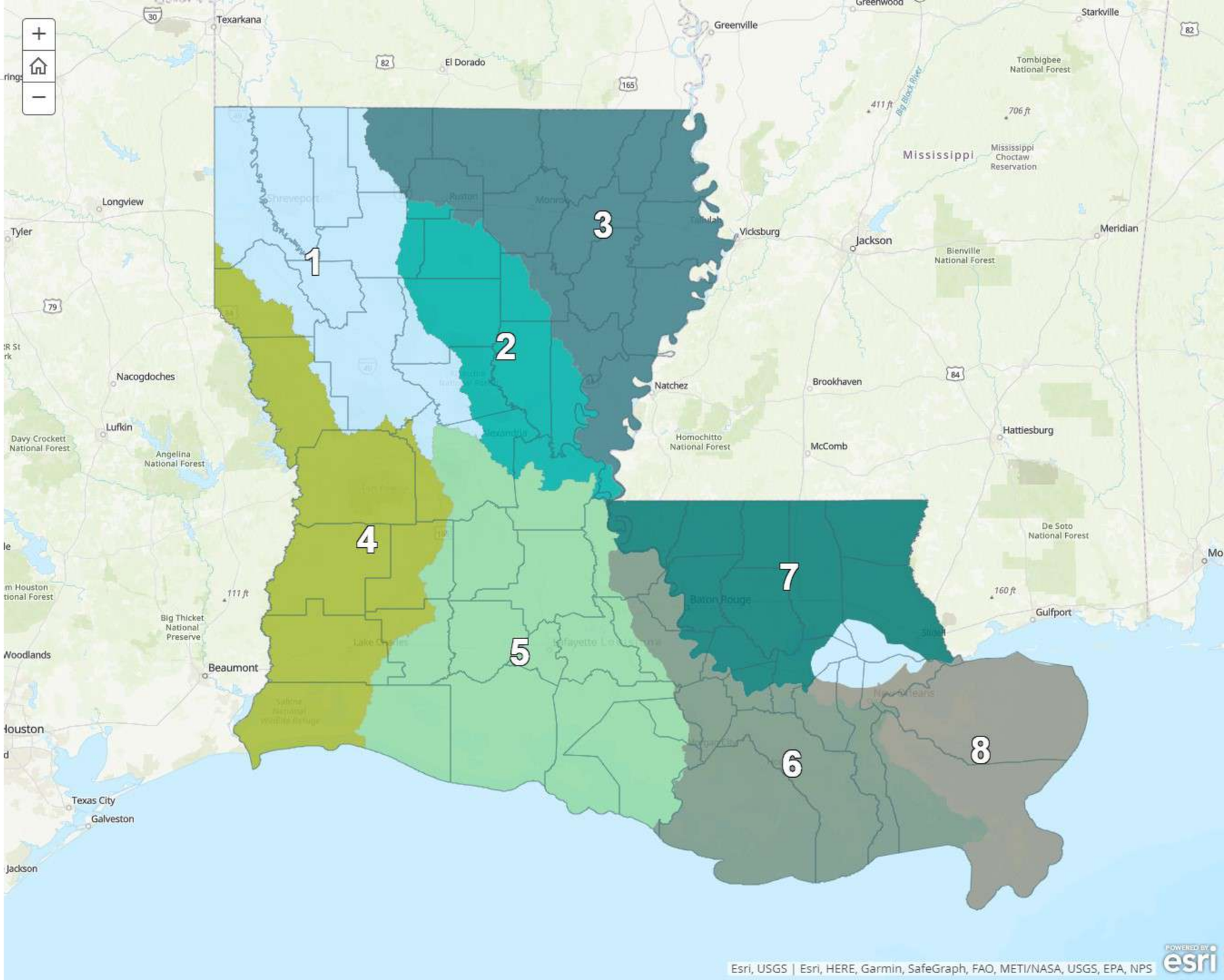

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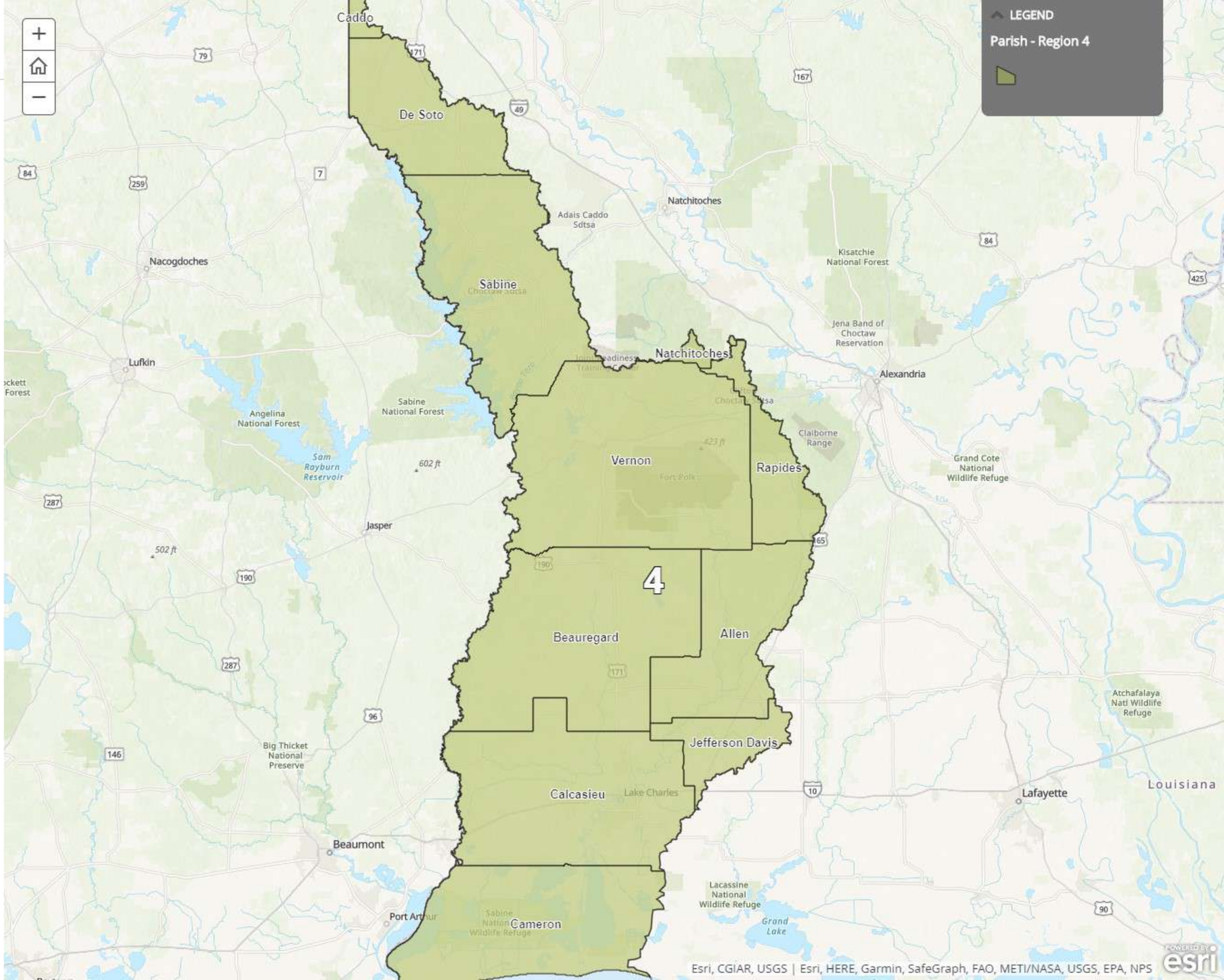
## Region 4 watersheds

**Hydrology**: a science that deals with the properties, distribution and circulation of water on and below Earth's surface and in the atmosphere

## Types of flood risk



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We must consider all types of flood risk to effectively manage flood risk within Region 4 watersheds.

Types of flood risk

- Coastal floods: surge and tidal
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Storm surge from the winds and waves of tropical storms and hurricanes causes coastal floods. The changing tides also have a compounding impact on these types of floods.

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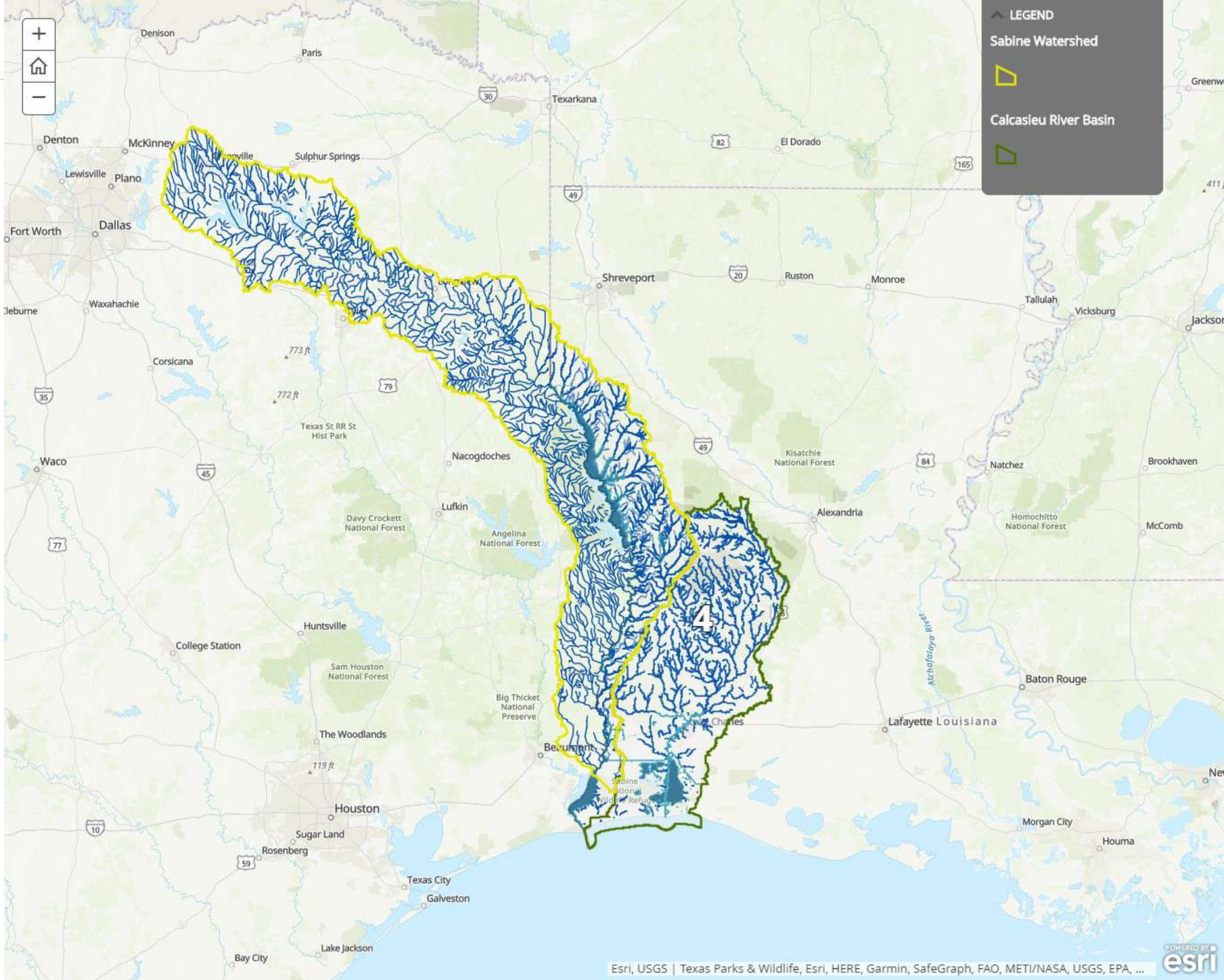

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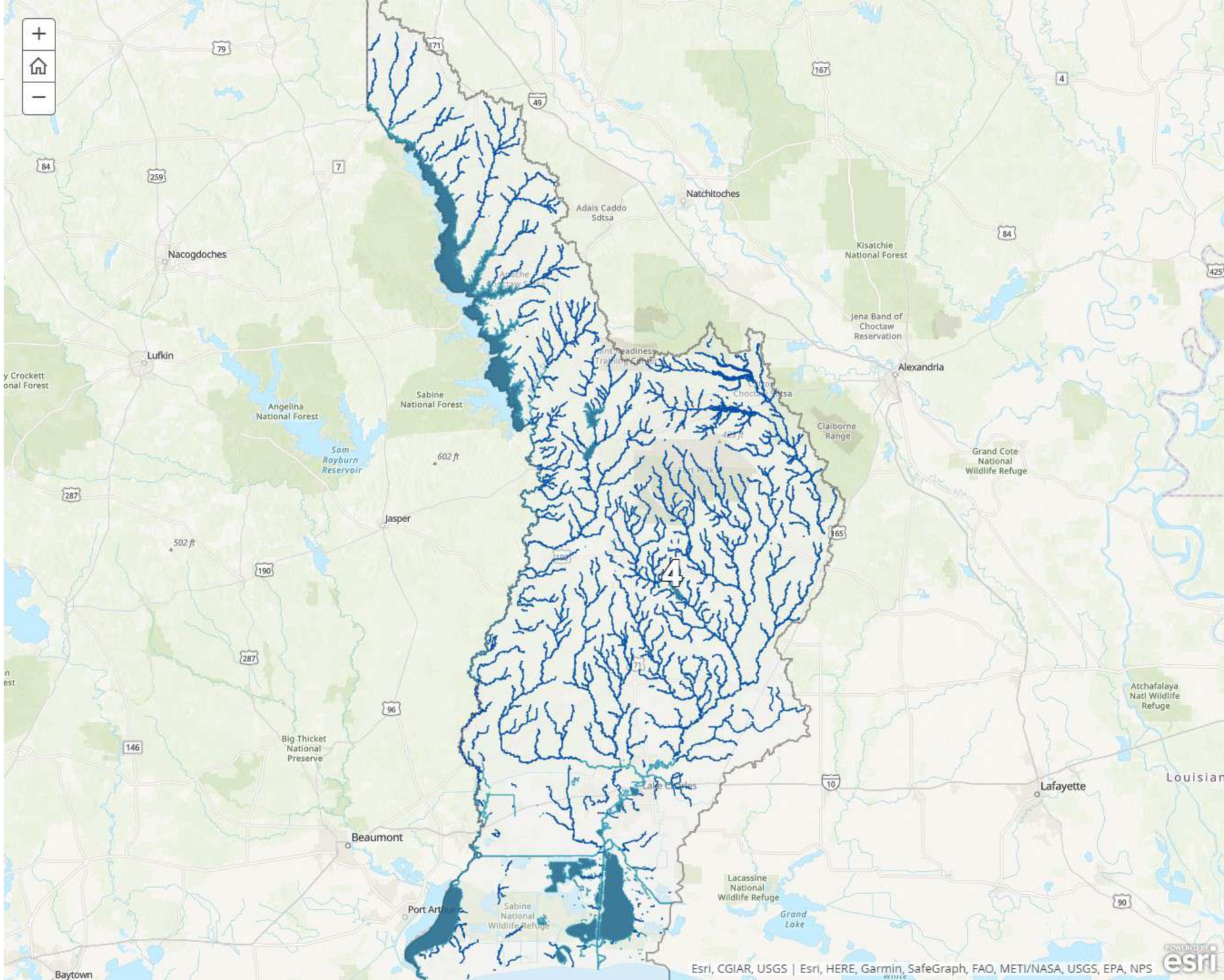

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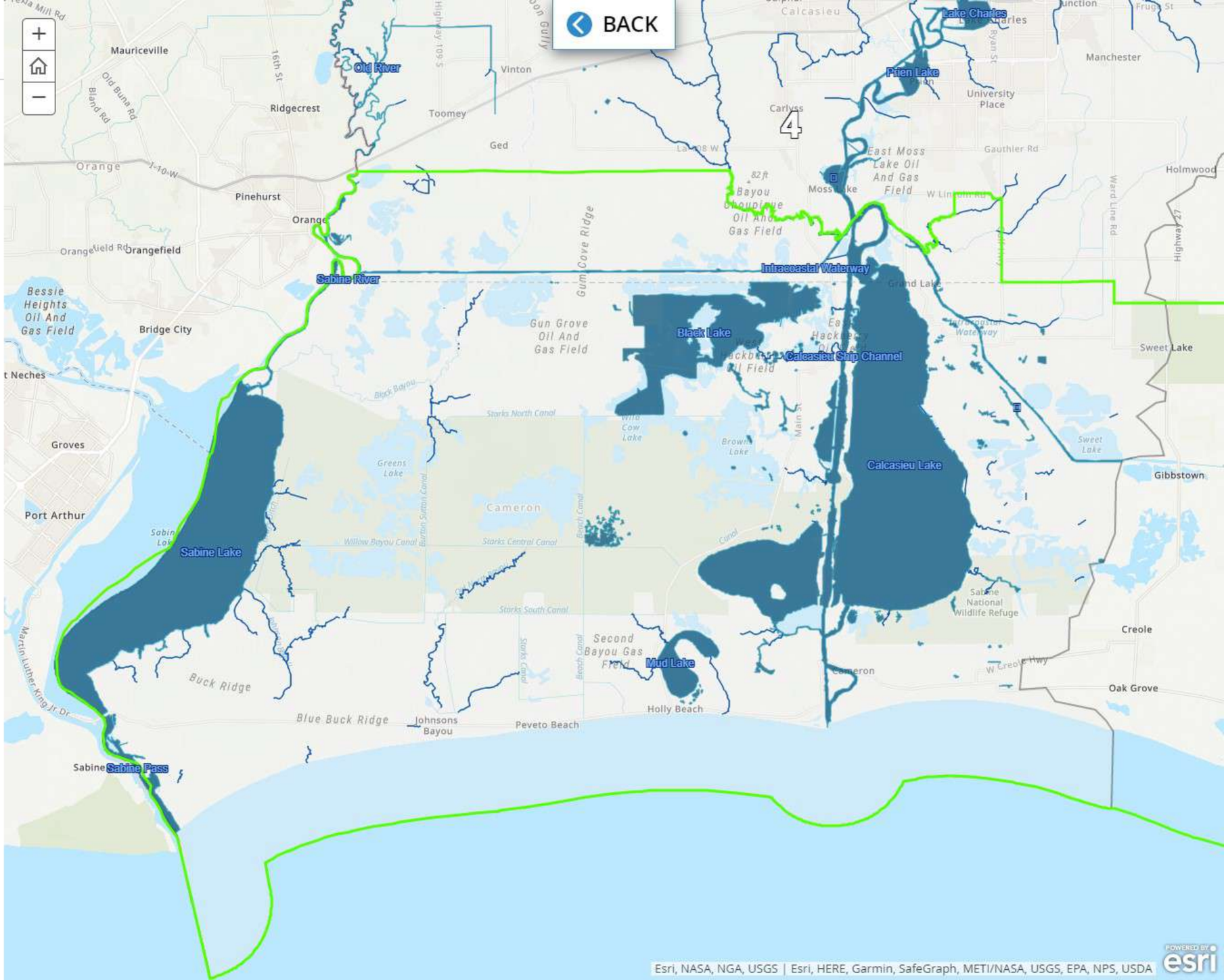

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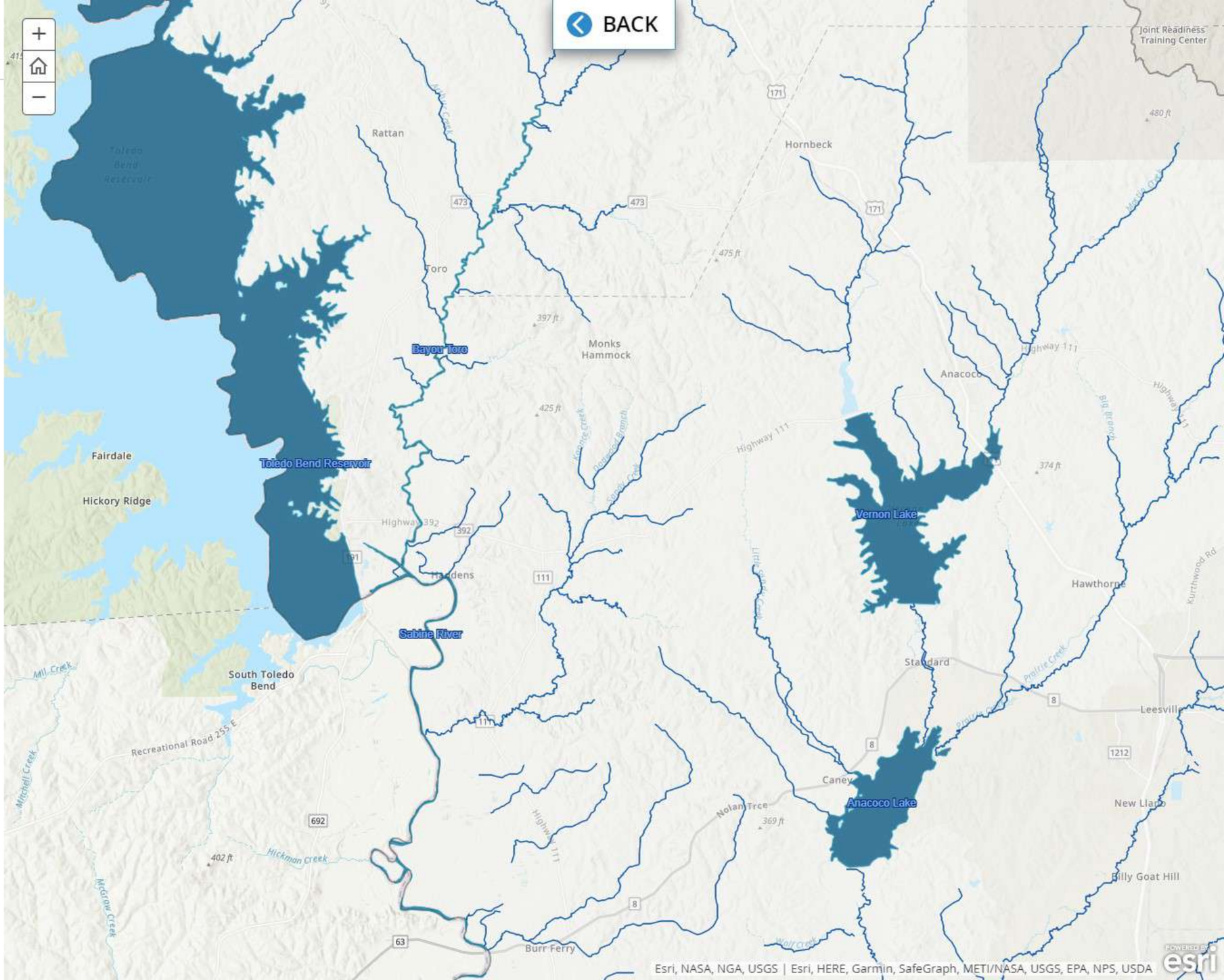

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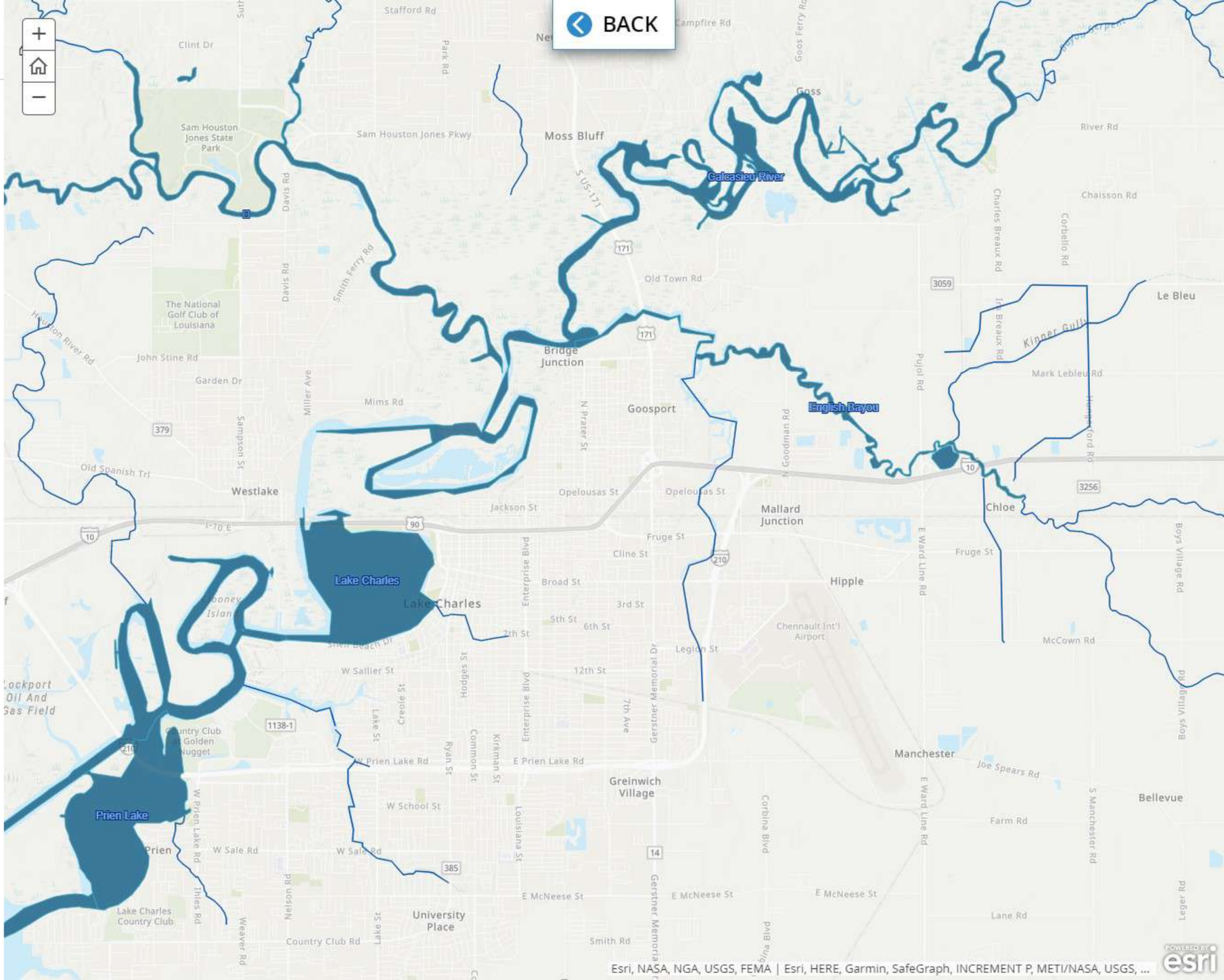

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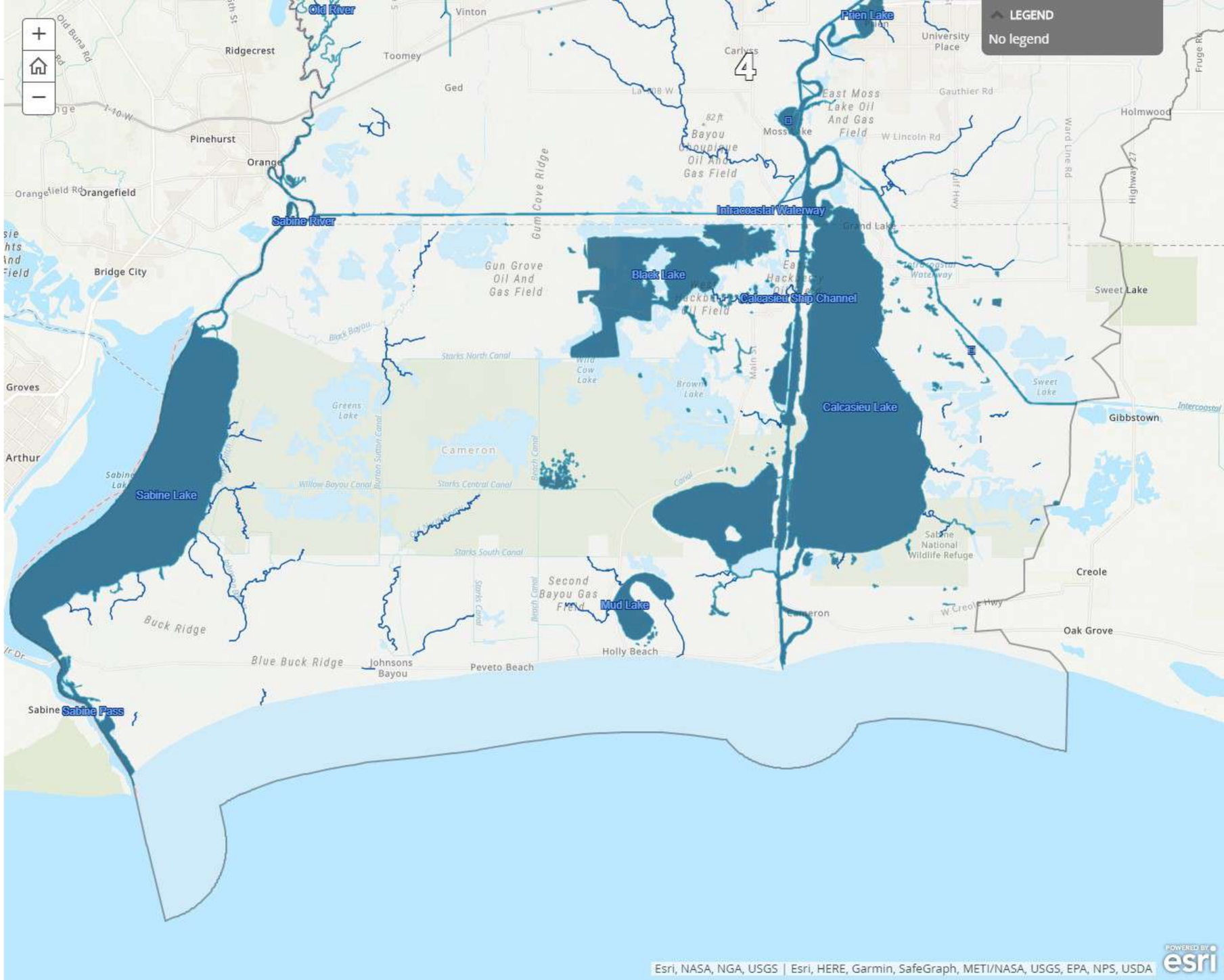

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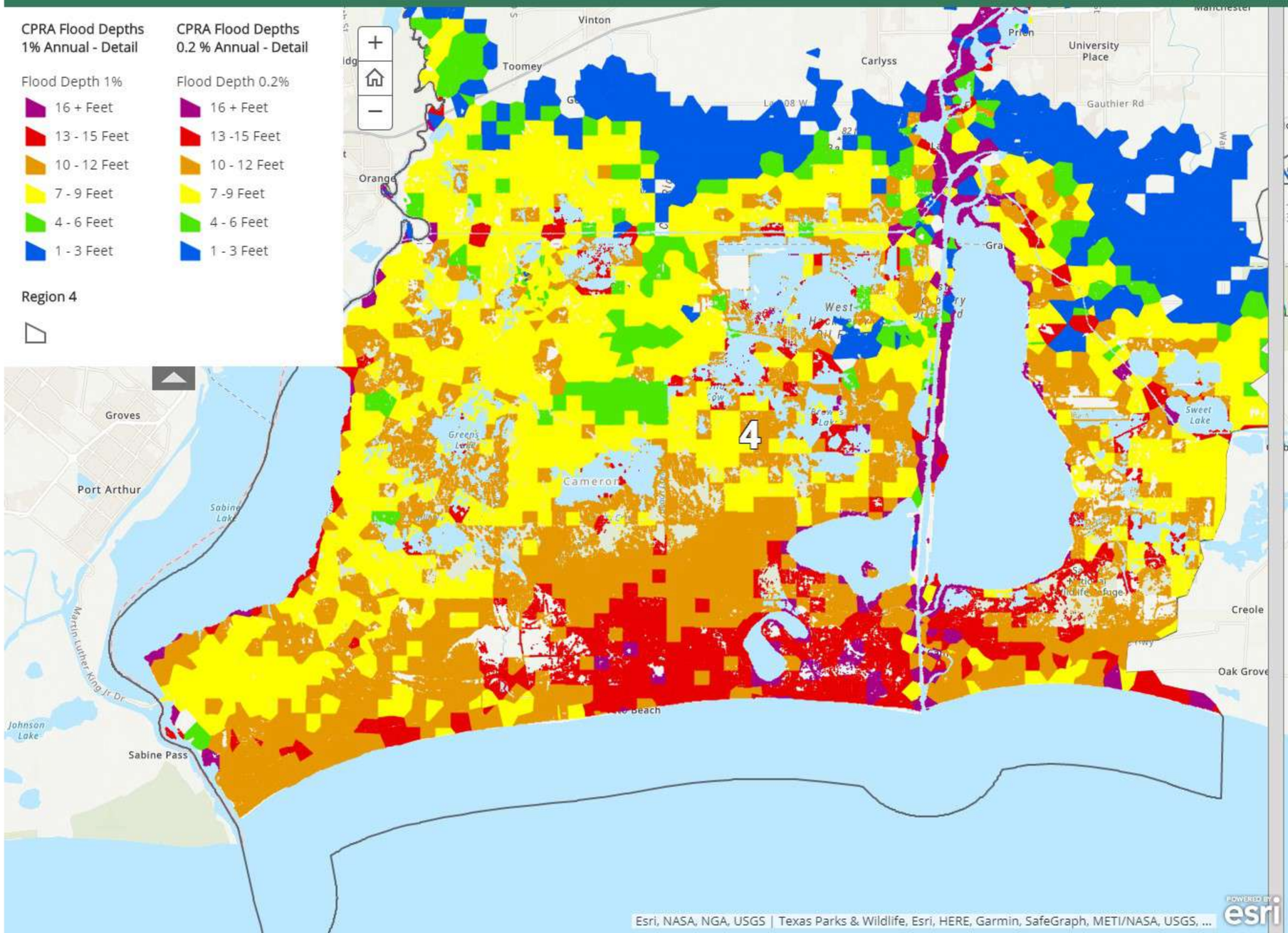
Louisiana has some of the highest rainfall rates in the country on an average statewide basis and often experiences high water levels in its major riverine systems.

Because of our flat landscape and interconnected waterways, the impact of a rainfall event in one part of the state is often felt far beyond the boundaries of where the rain falls.

Sabine and Calcasieu River Basin rainfall total
March 7 – 14, 2016

Storm Total Rainfall 2.00



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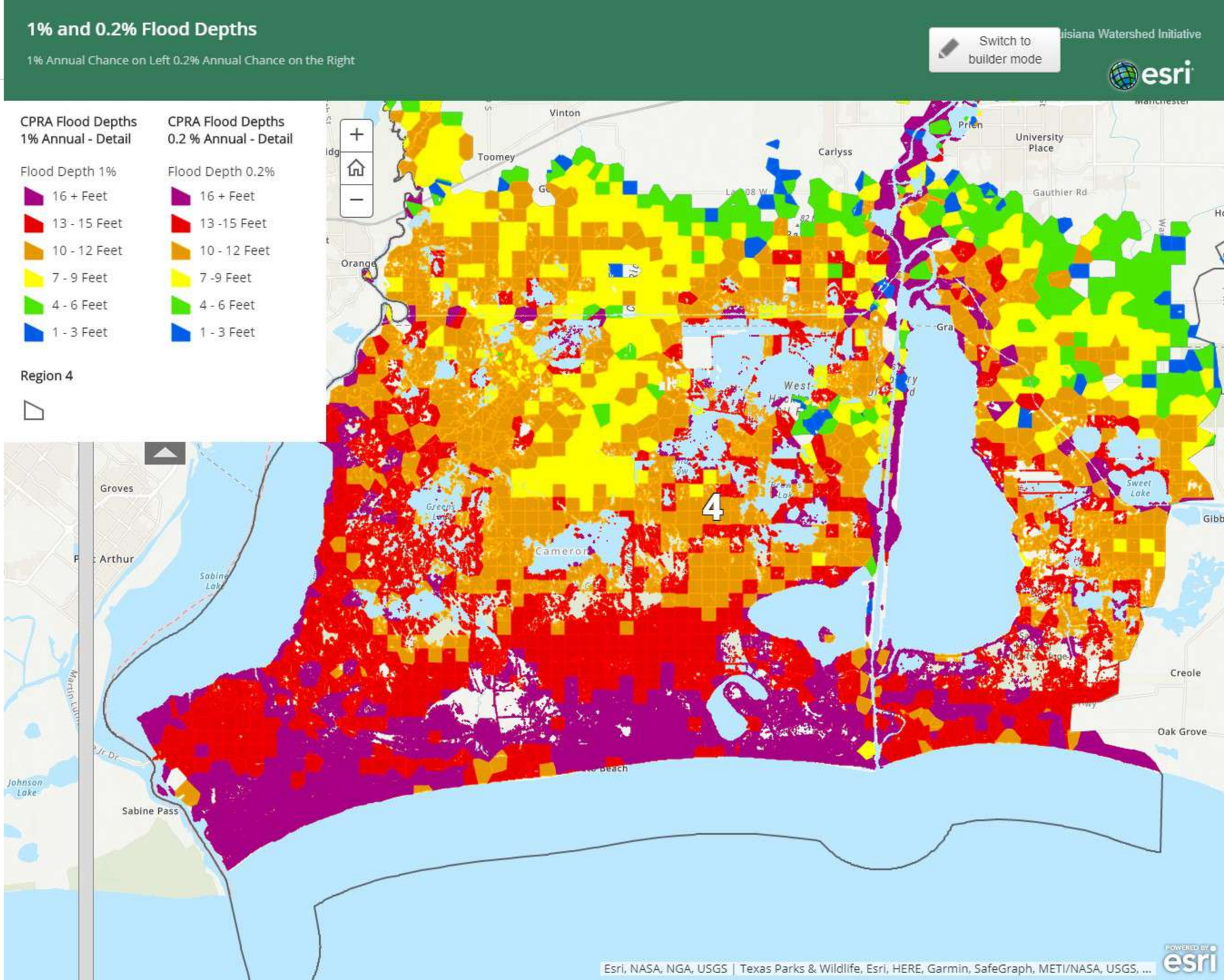

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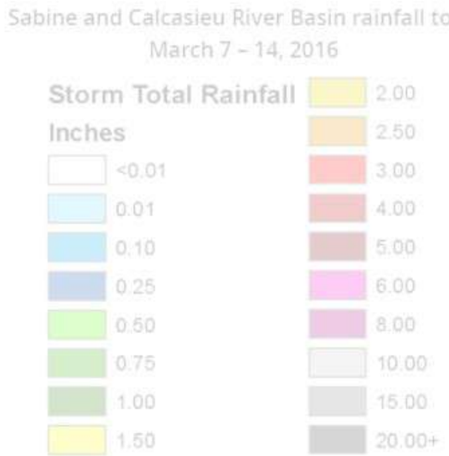


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|---|---|
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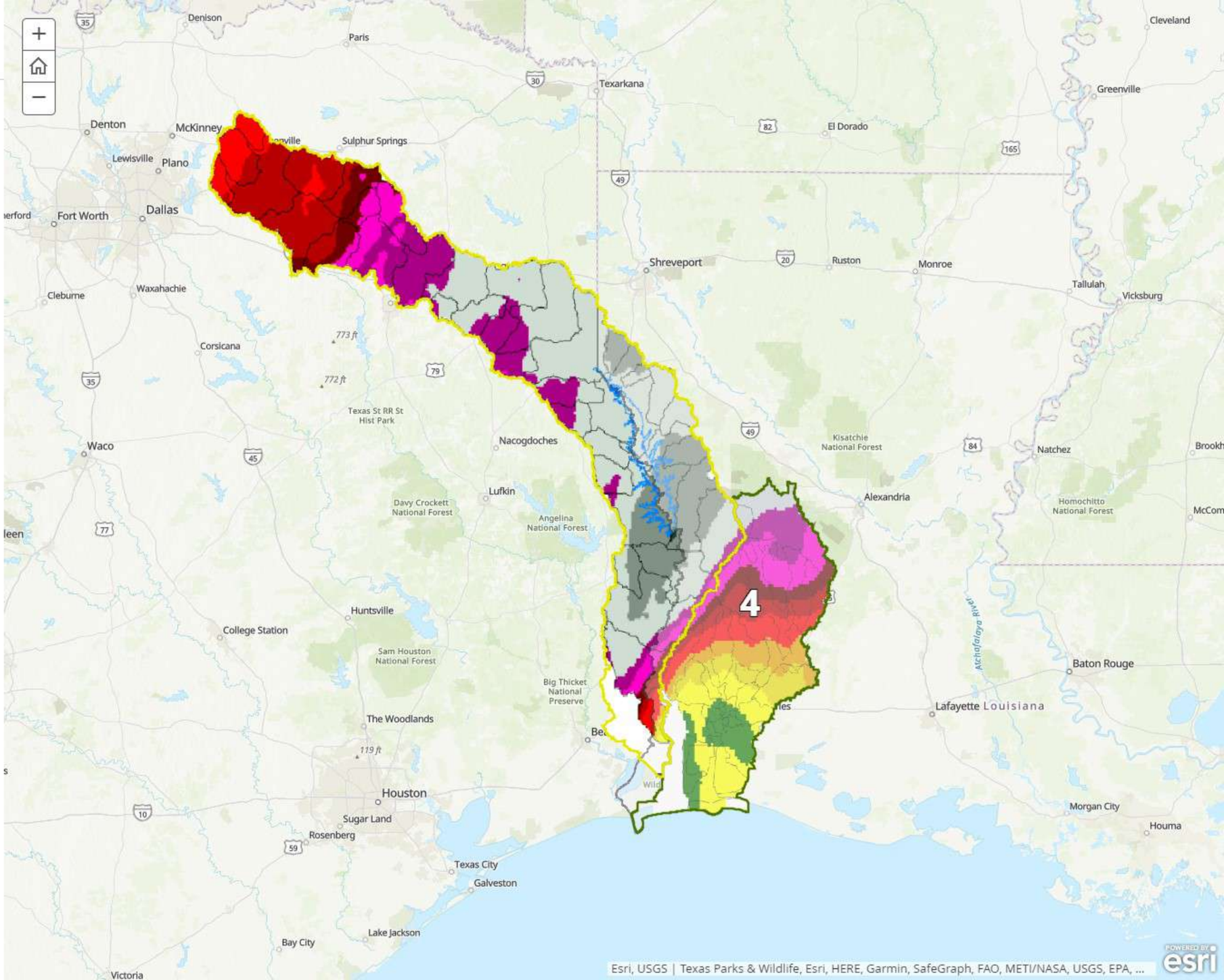
| 0.10 | 3.00 |
| 0.25 | 4.00 |
| 0.50 | 5.00 |
| 0.75 | 6.00 |
| 1.00 | 8.00 |
| 1.50 | 10.00 |
| | 15.00 |
| | 20.00+ |

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The Calcasieu River also exceeded its capacity as a result of relentless rainfall in March 2016, tying its second-highest crest level on record near Glenmora and hitting its fifth-highest crest near Oberlin. Several nearby structures, roads and homes flooded as a result.

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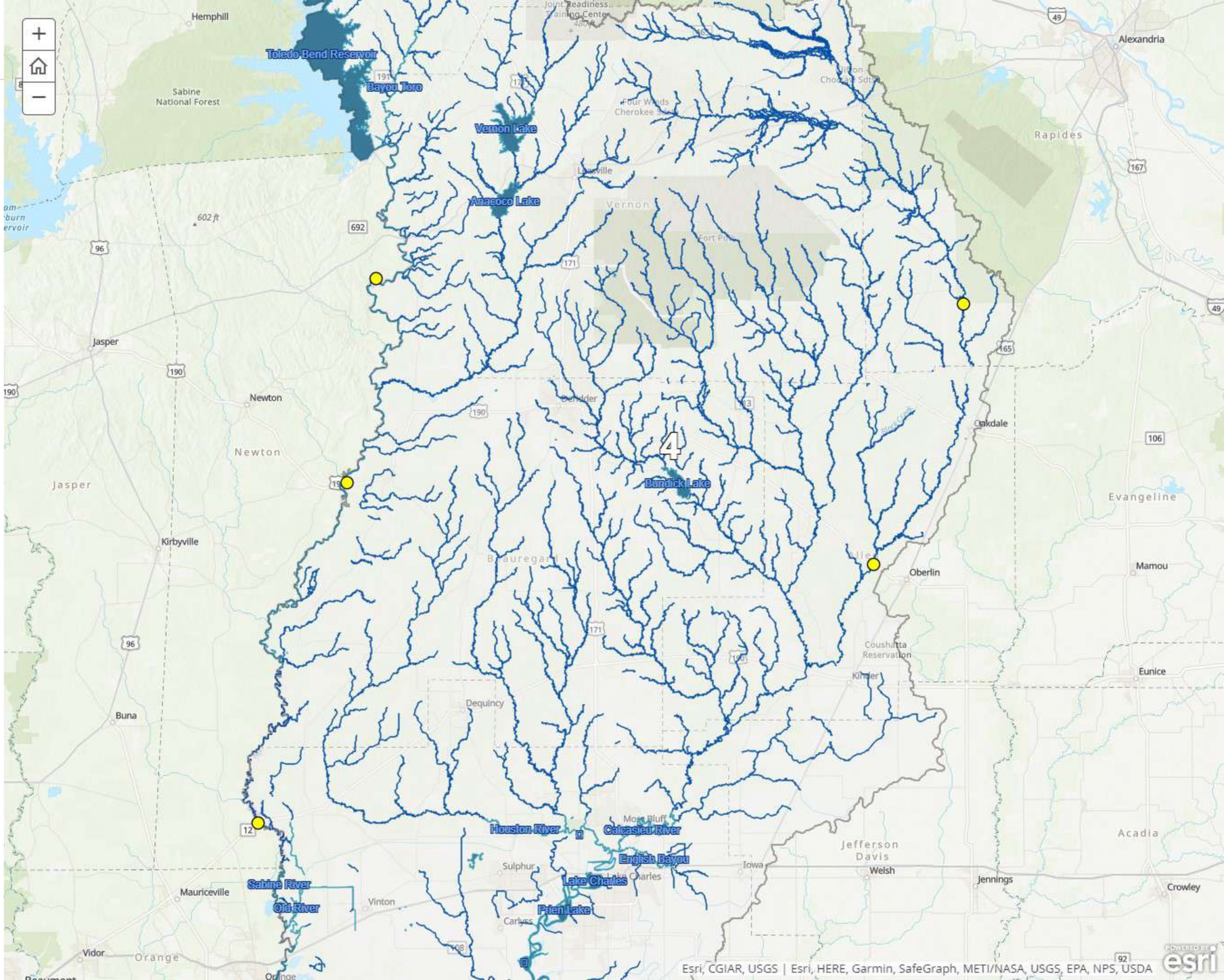
## Pluvial floods

Pluvial, or rainfall-induced, floods result from intense rain that causes surface, flash or urban flooding. These events are independent, not caused by an overflowing body of water.



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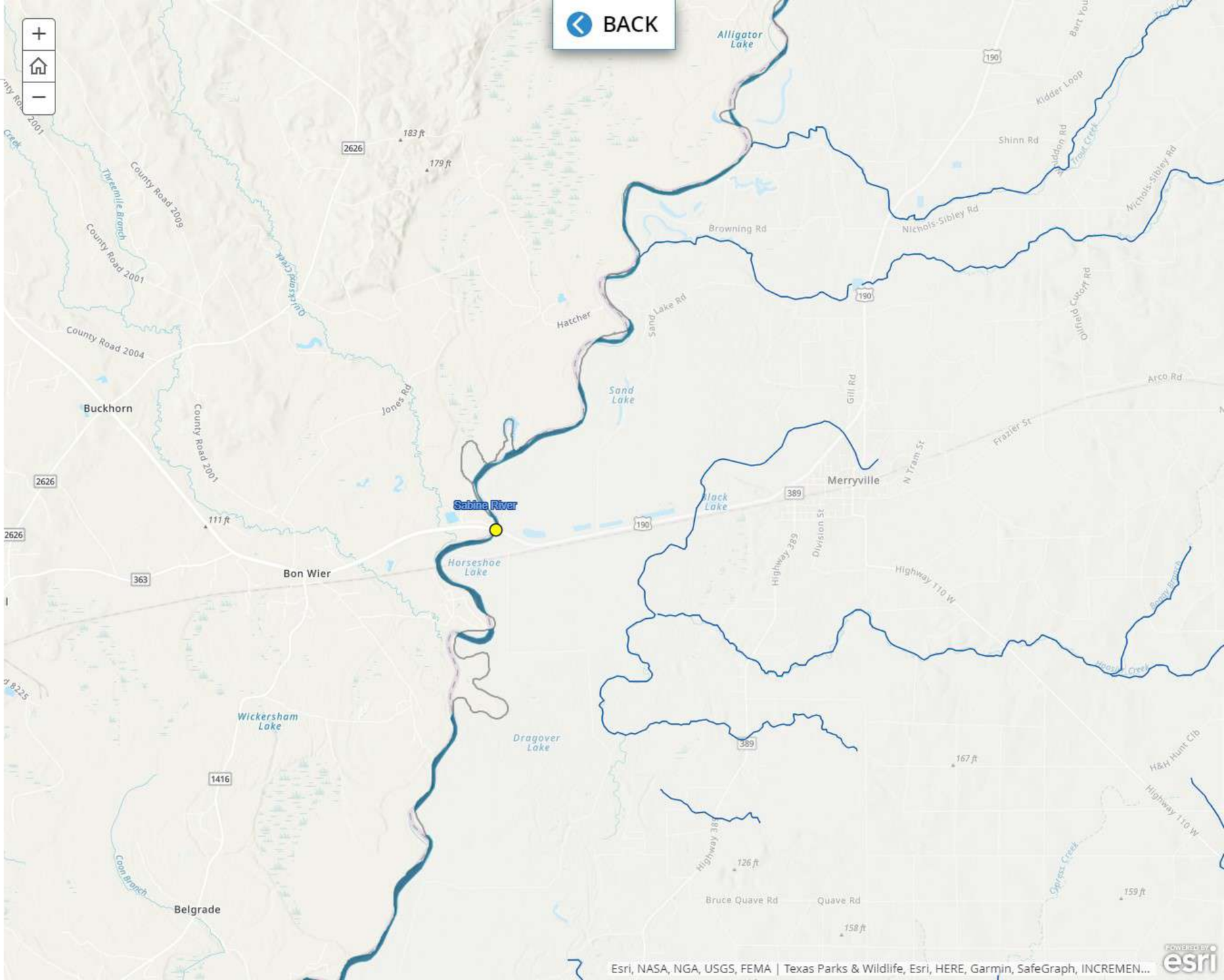

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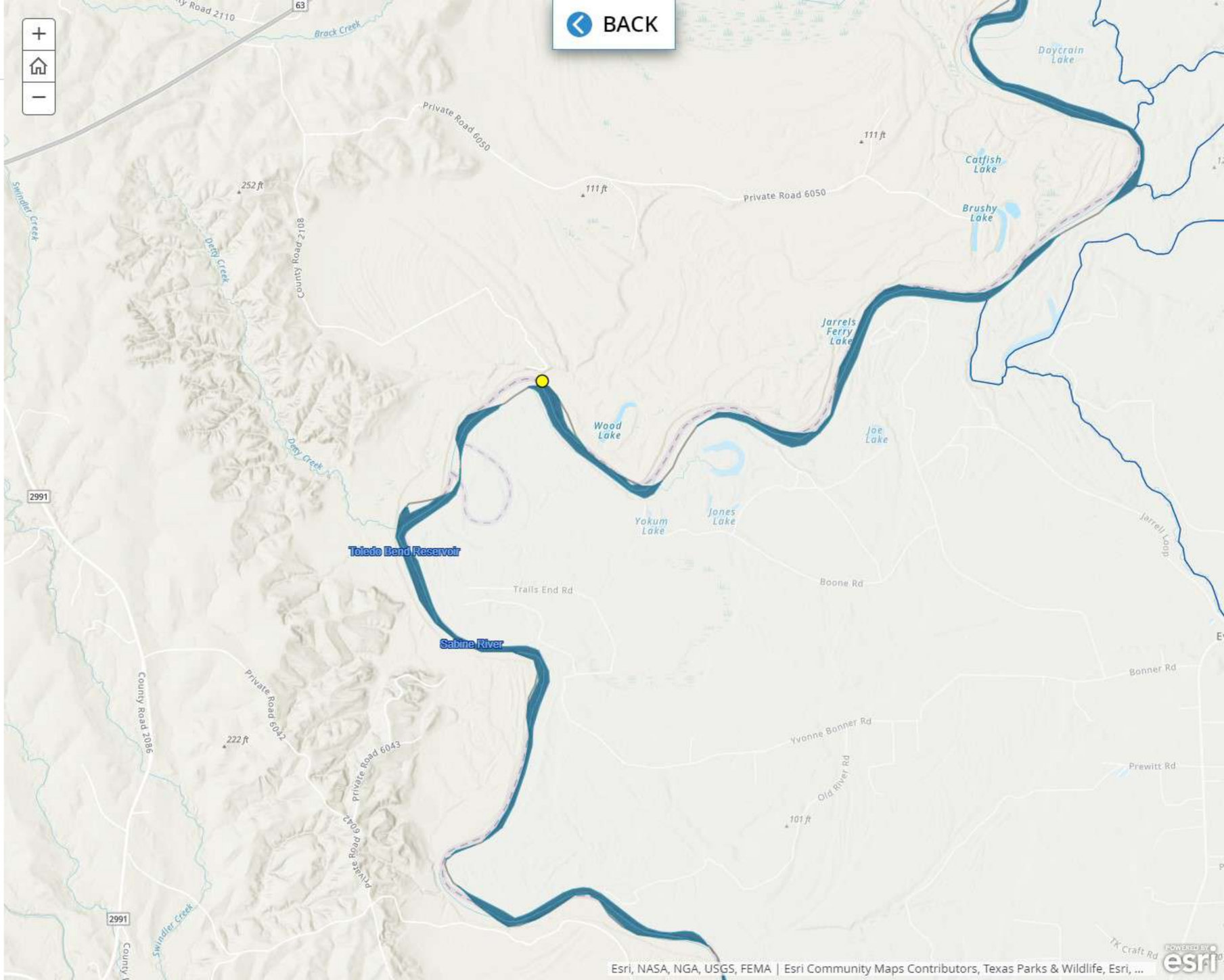

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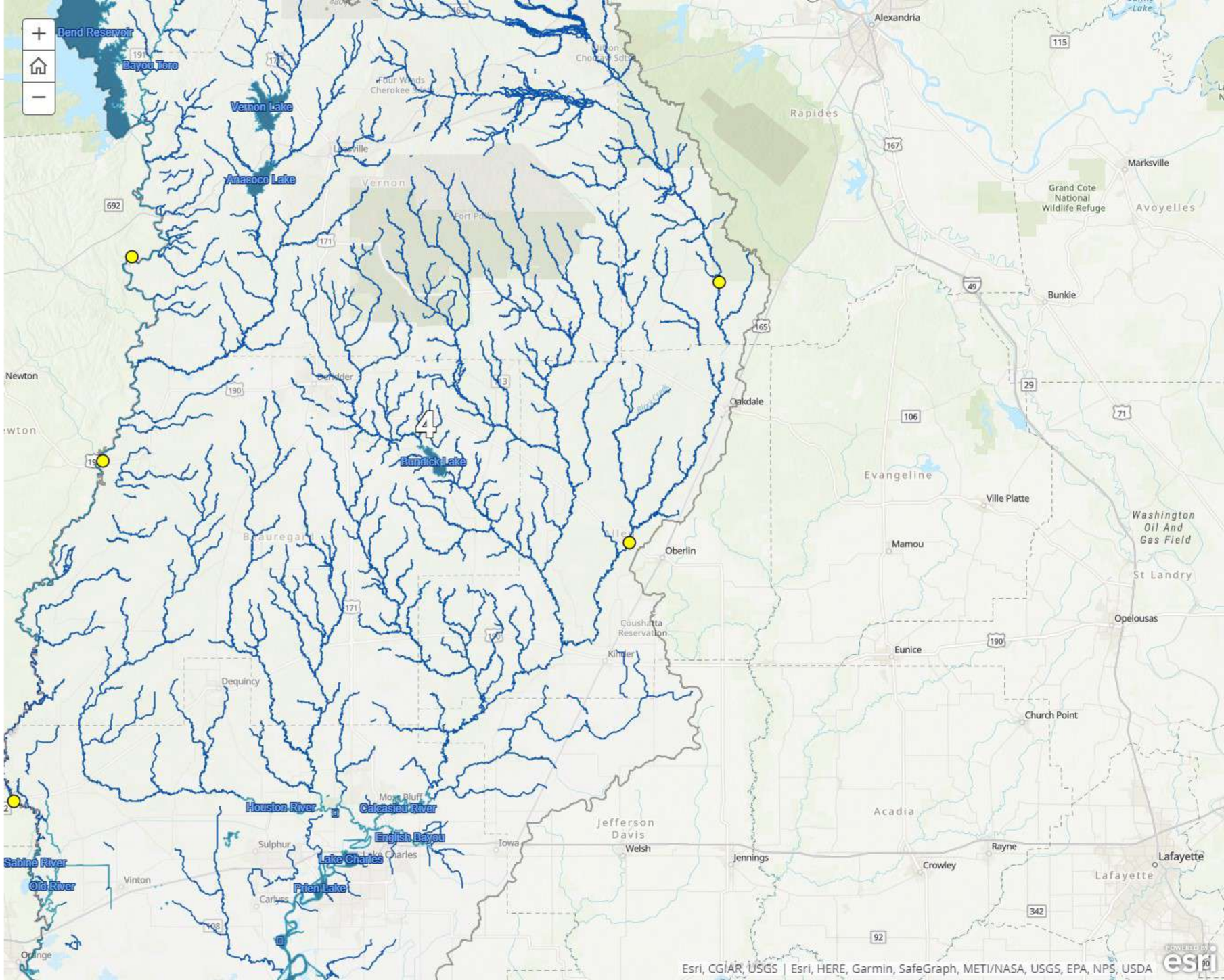

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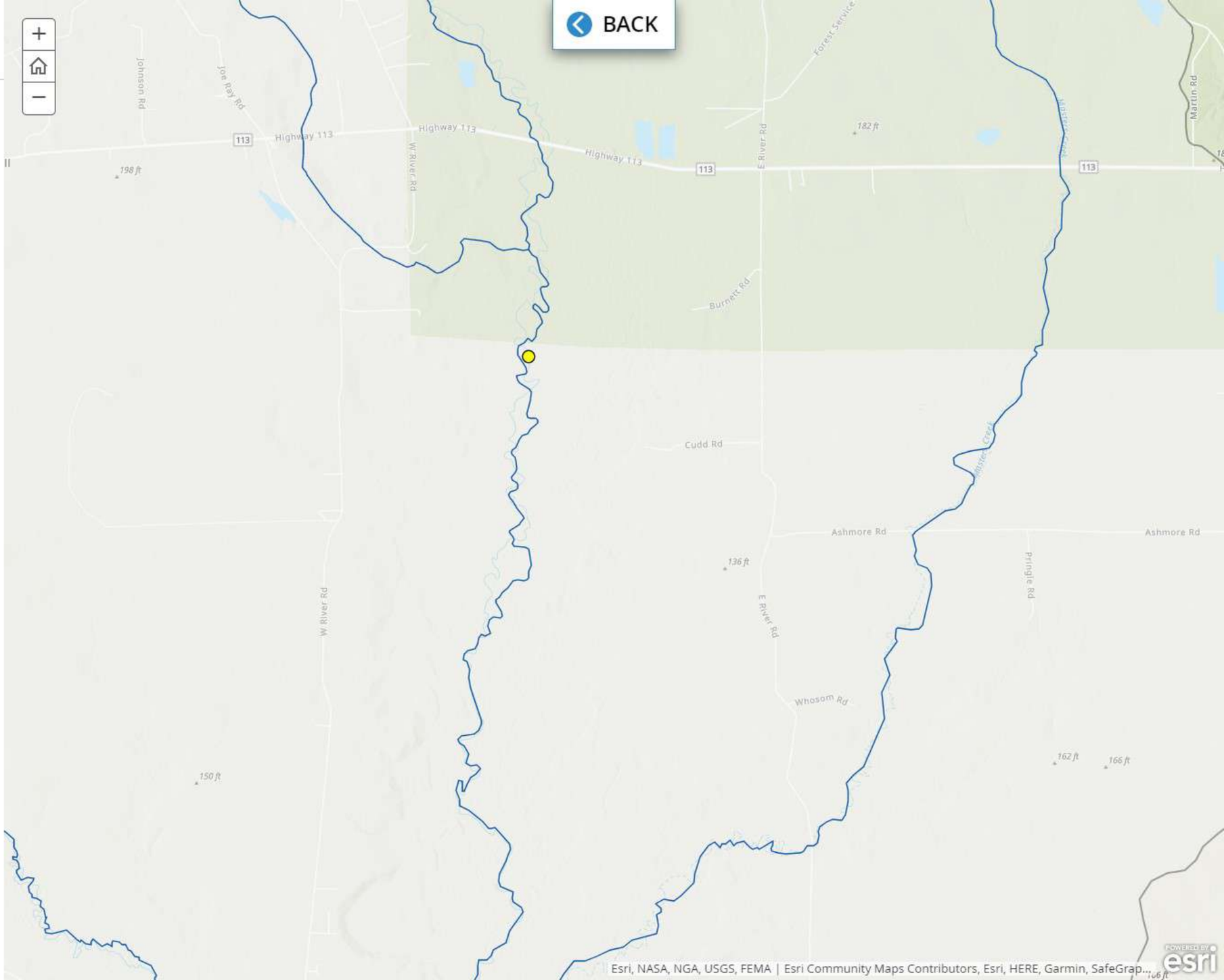

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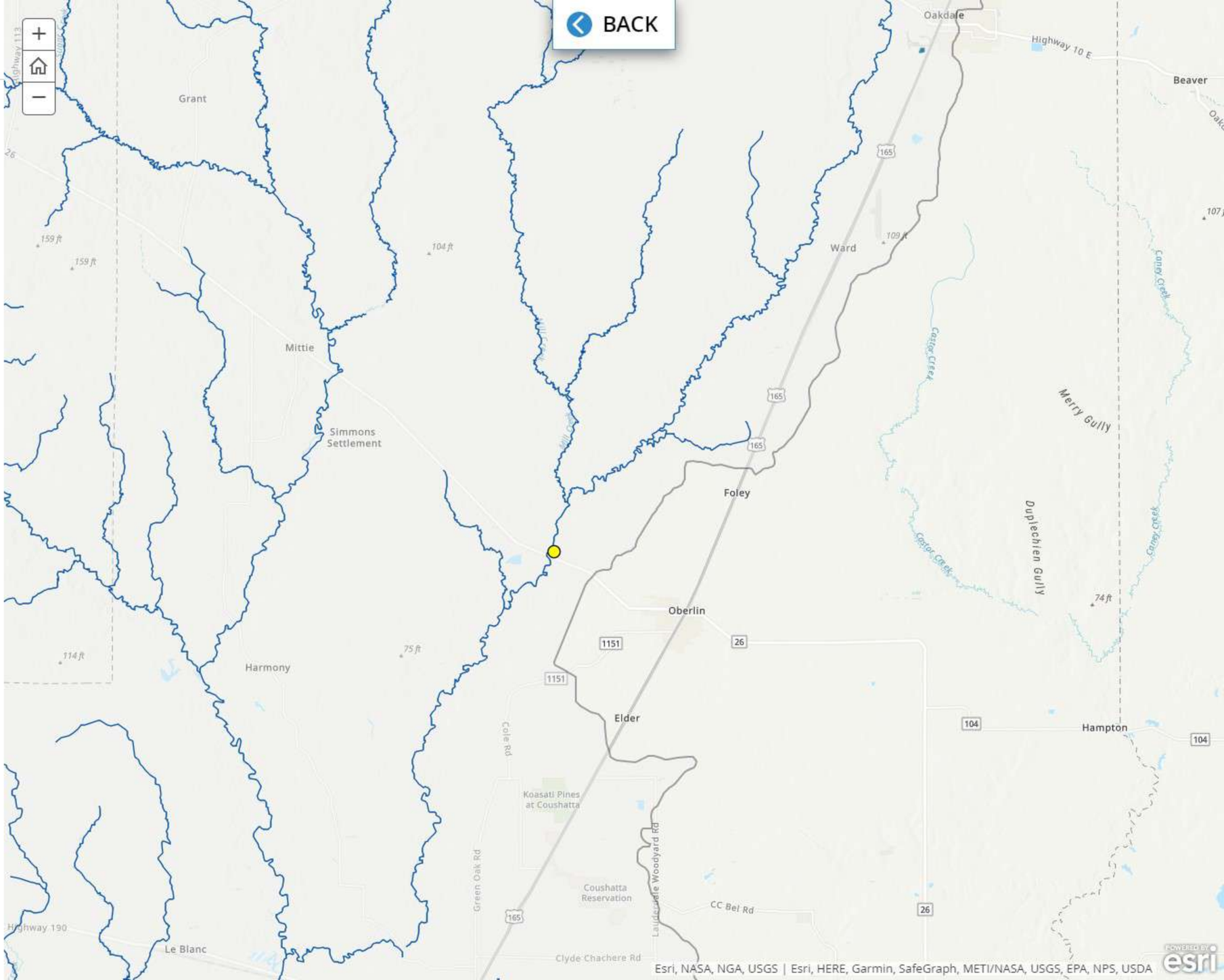

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Region 4: 40% is located in a SFHA and is subject to flooding.

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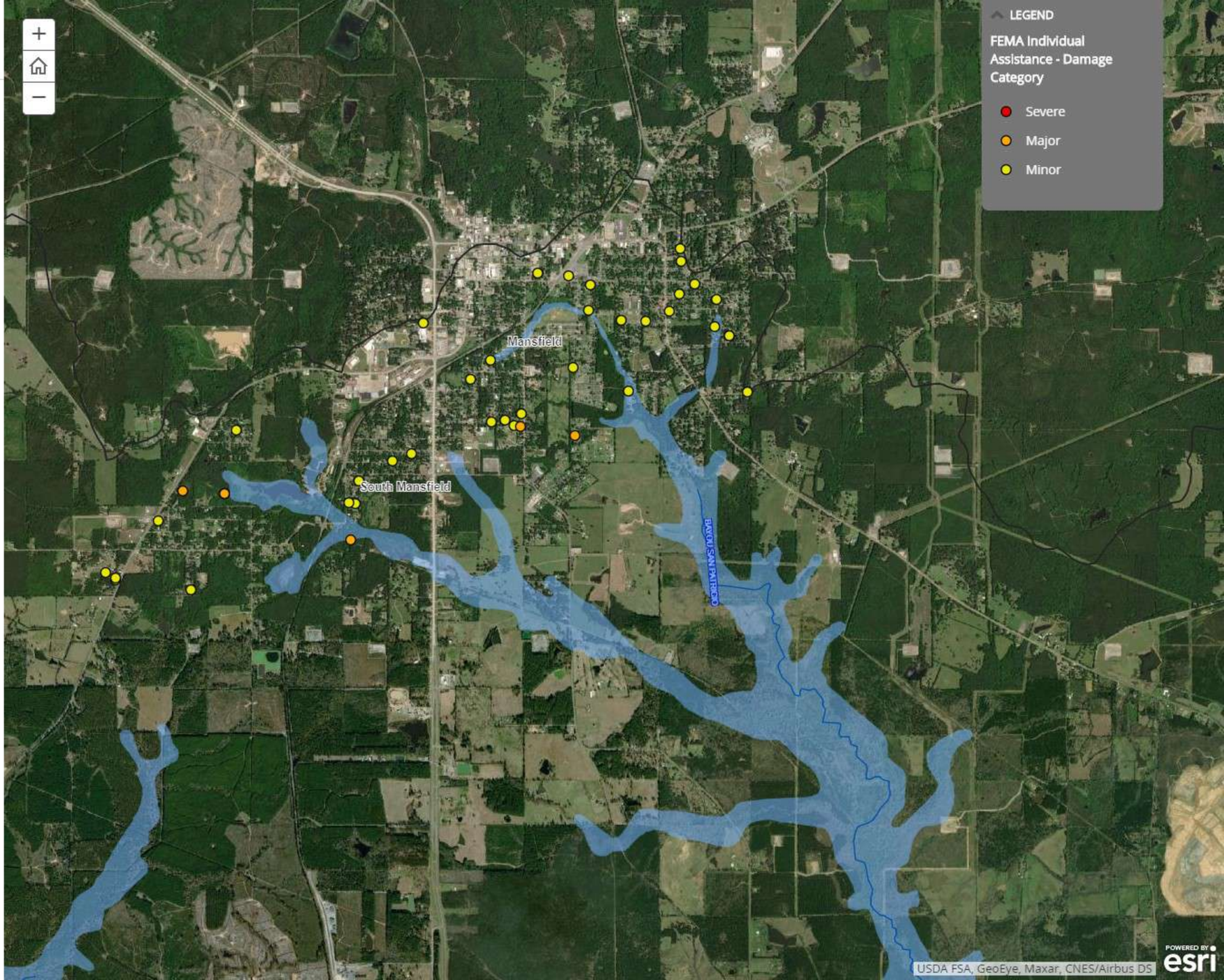

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Special Flood Hazard Areas represent the area subject to inundation by a 1% annual chance flood. Structures located within SFHA have a 26% chance of flooding during the life of a standard 30-year mortgage. Federal floodplain management regulations and mandatory flood insurance requirements apply in these zones.

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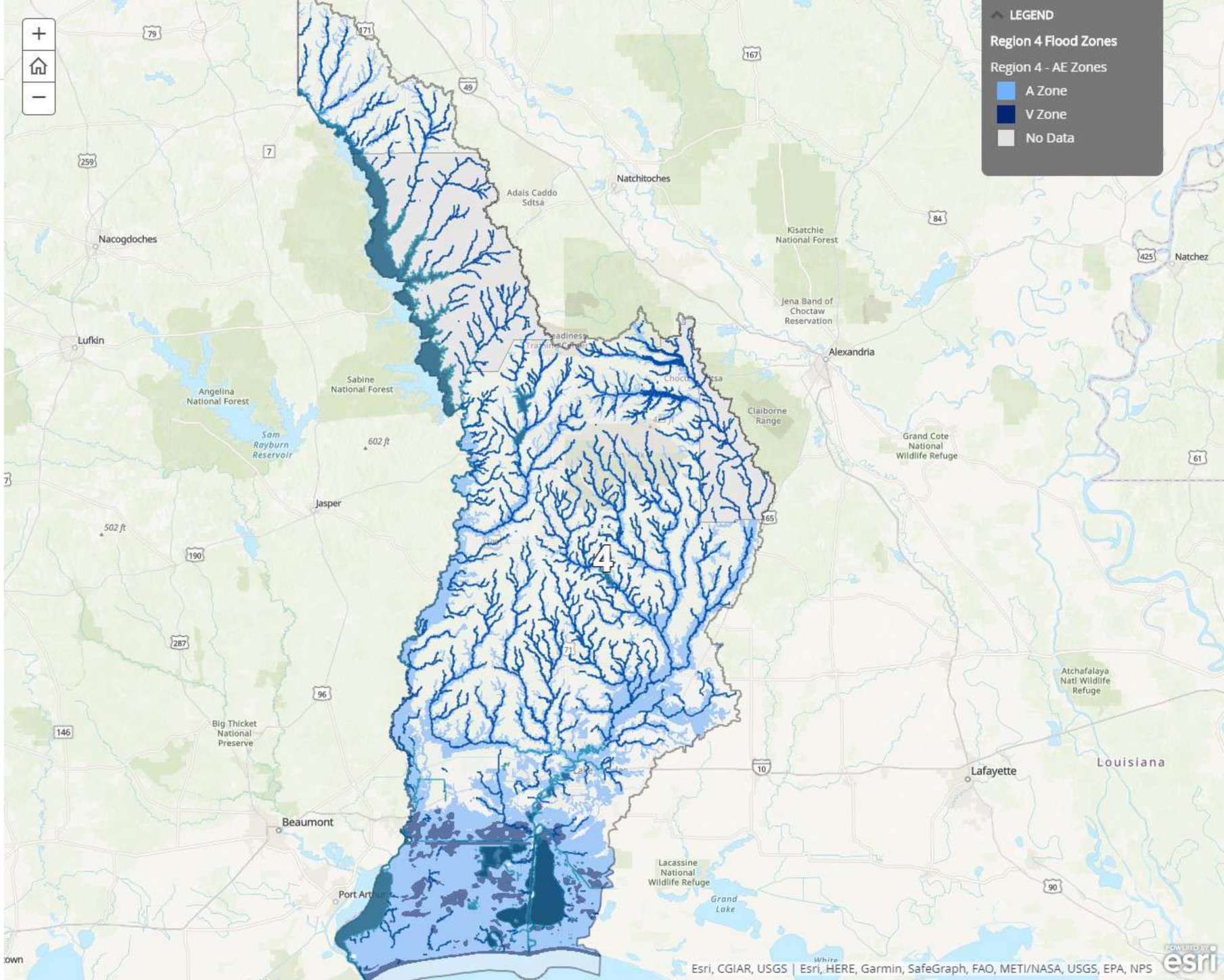

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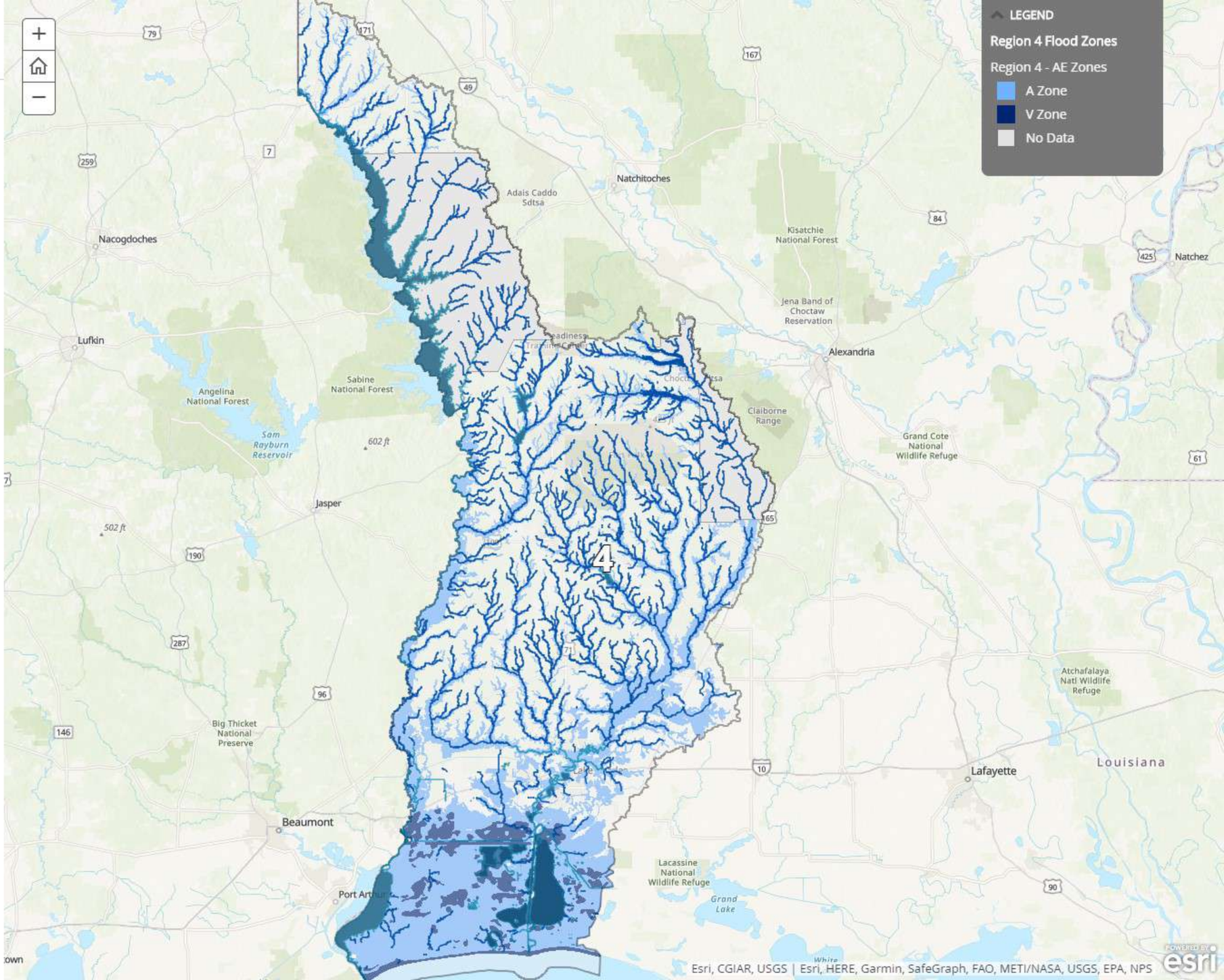
Coastal High Hazard Areas represent the area subject to inundation by a 1% annual chance flood, extending from offshore to the inland limit of a primary frontal dune along an open coast and any other area subject to high velocity wave action from storms or seismic sources. Structures located within CHHA have a 26% chance of flooding during the life of a standard 30-year mortgage. Federal floodplain management regulations and mandatory flood insurance requirements apply in these zones.

V ZONES

## Case study: March and August 2016 floods

Communities are not required to build structures to withstand the 0.2% chance event, which makes structures in and outside



# Traditional gaps in understanding flood risk

**A Zones** (shown in light blue)
**Special Flood Hazard Areas – High Risk**
Special Flood Hazard Areas represent the area subject to inundation by a 1% annual chance flood. Structures located within SFHA have a 26% chance of flooding during the life of a standard 30-year mortgage. Federal floodplain management regulations and mandatory flood insurance requirements apply in these zones.

A ZONES

**V Zones** (shown in dark blue)
**Coastal High Hazard Areas – High Risk**
Coastal High Hazard Areas represent the area subject to inundation by a 1% annual chance flood, extending from offshore to the inland limit of a primary frontal dune along an open coast and any other area subject to high velocity wave action from storms or seismic sources. Structures located within CHHA have a 26% chance of flooding during the life of a standard 30-year mortgage. Federal floodplain management regulations and mandatory flood insurance requirements apply in these zones.

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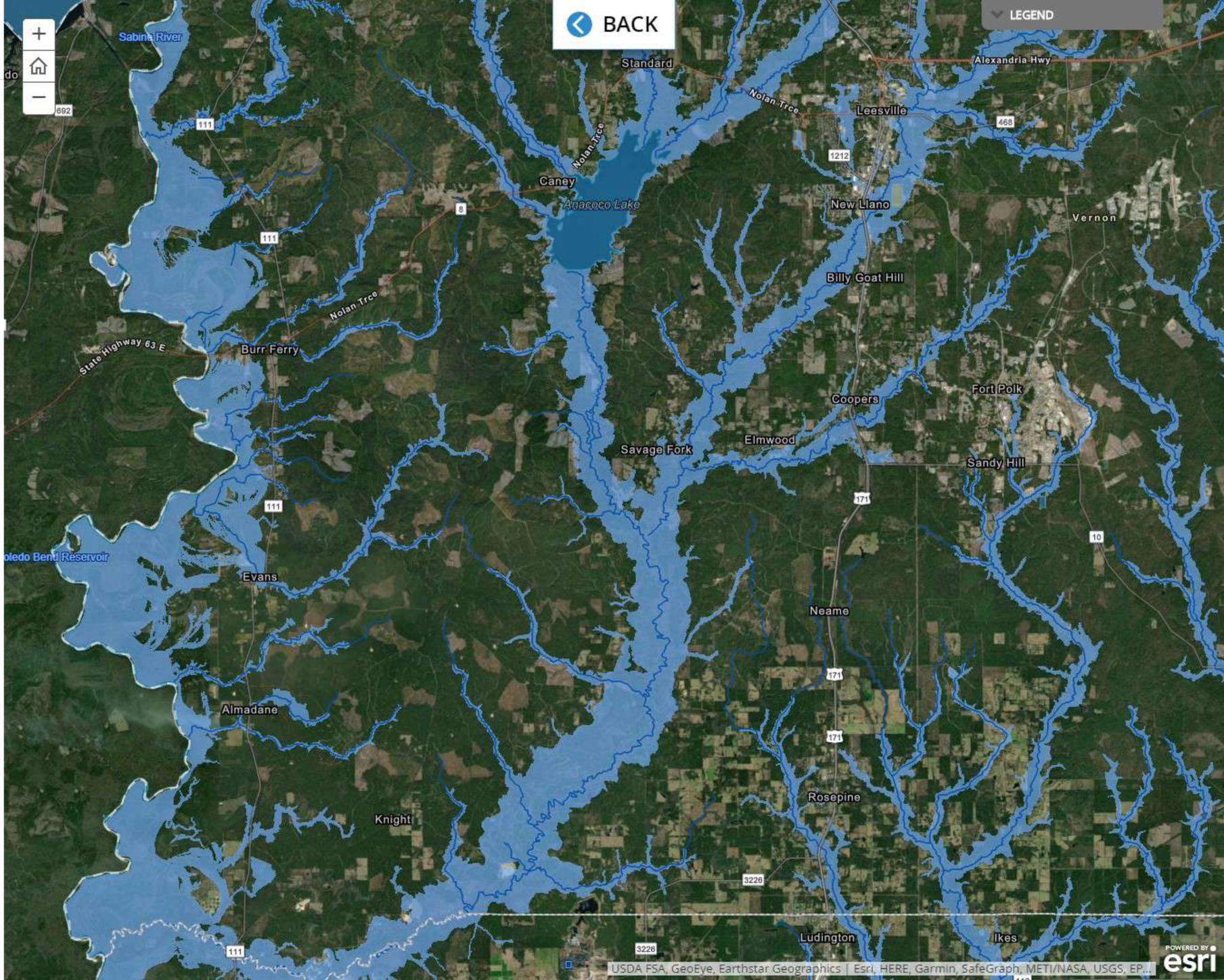

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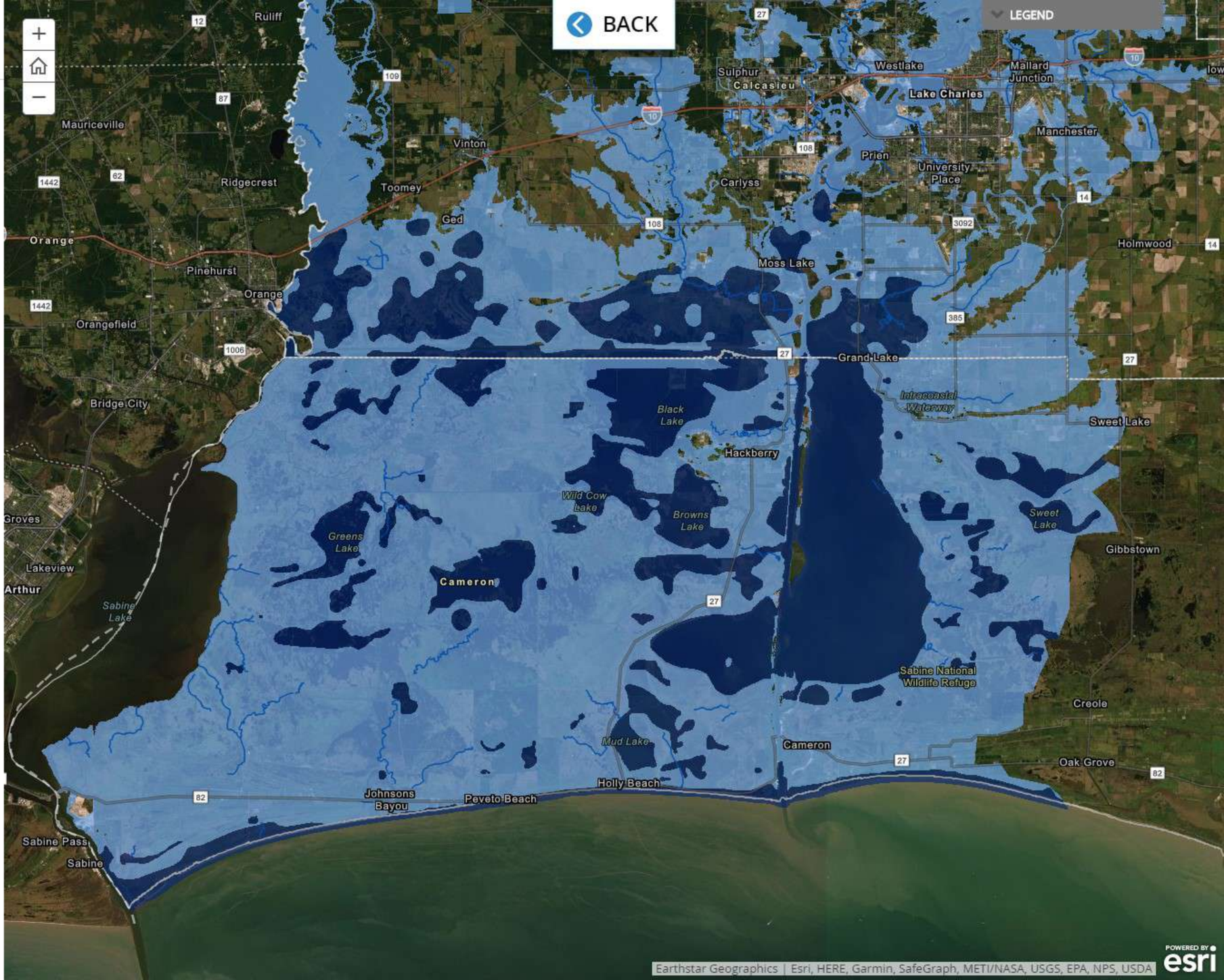


# FEMA Repetitive and Severe Repetitive Loss data

**Repetitive Loss Stucture** is an NFIP-insured structure that has had at least two paid flood losses of more than $1,000 each in any 10-year period since 1978.

**Severe Repetitive Loss is an NFIP-insured structure:**

- That has at least four NFIP claim payments (including building and contents) over $5,000 each, and the cumulative amount of such claims payments exceeds $20,000; or
- For which at least two separate claims payments (building payments only) have been made with the cumulative amount of the building portion of such claims exceeding the market value of the building.

## Case study: March and August 2016 floods

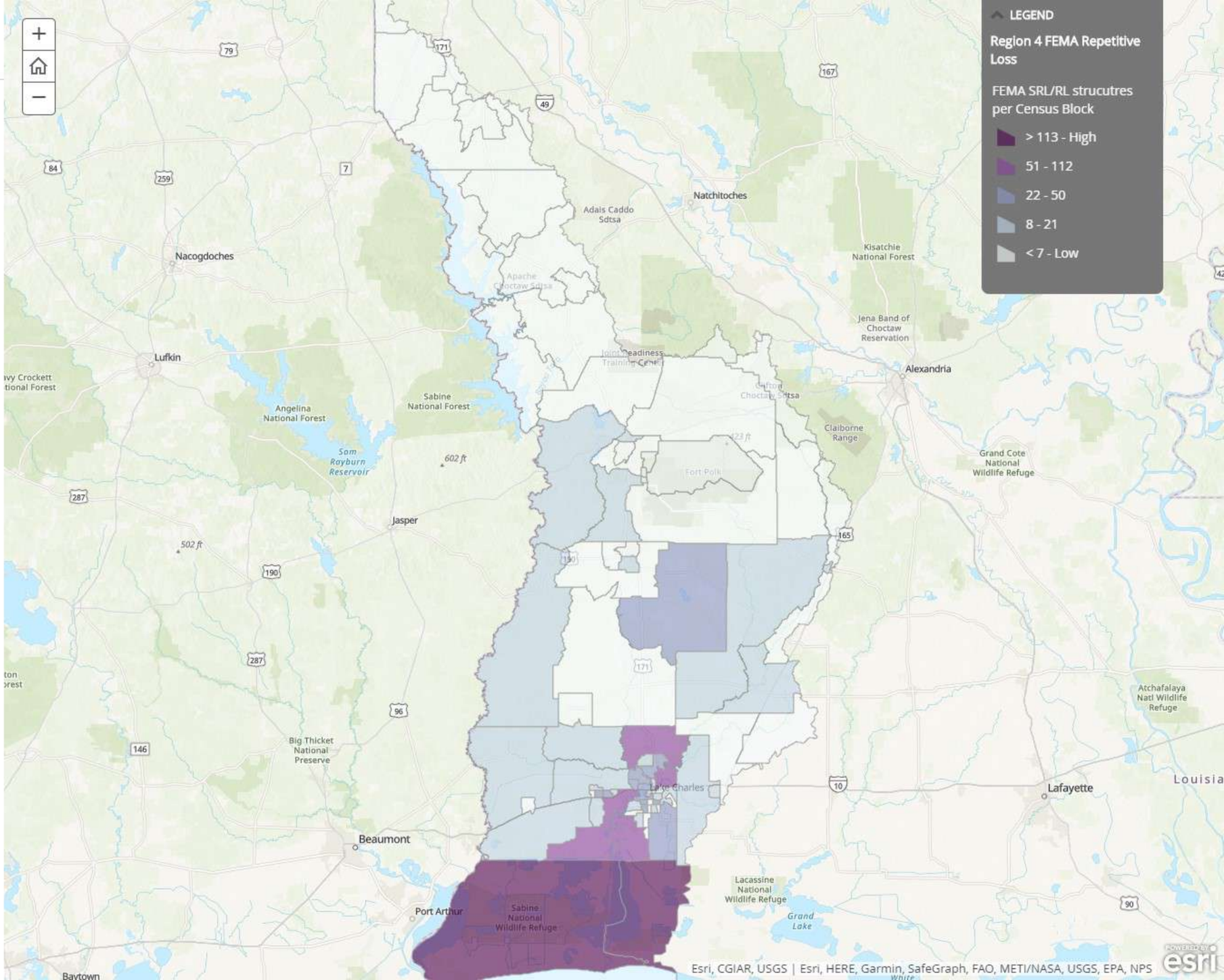
Communities are not required to build structures to withstand the 0.2% chance event, which makes structures in and outside of SFHA unprepared for these more intense events altogether.

1,172 homes impacted in Region 4

35% of structures impacted located within a SFHA

65% of structures impacted located outside of a SFHA

2016 Floods



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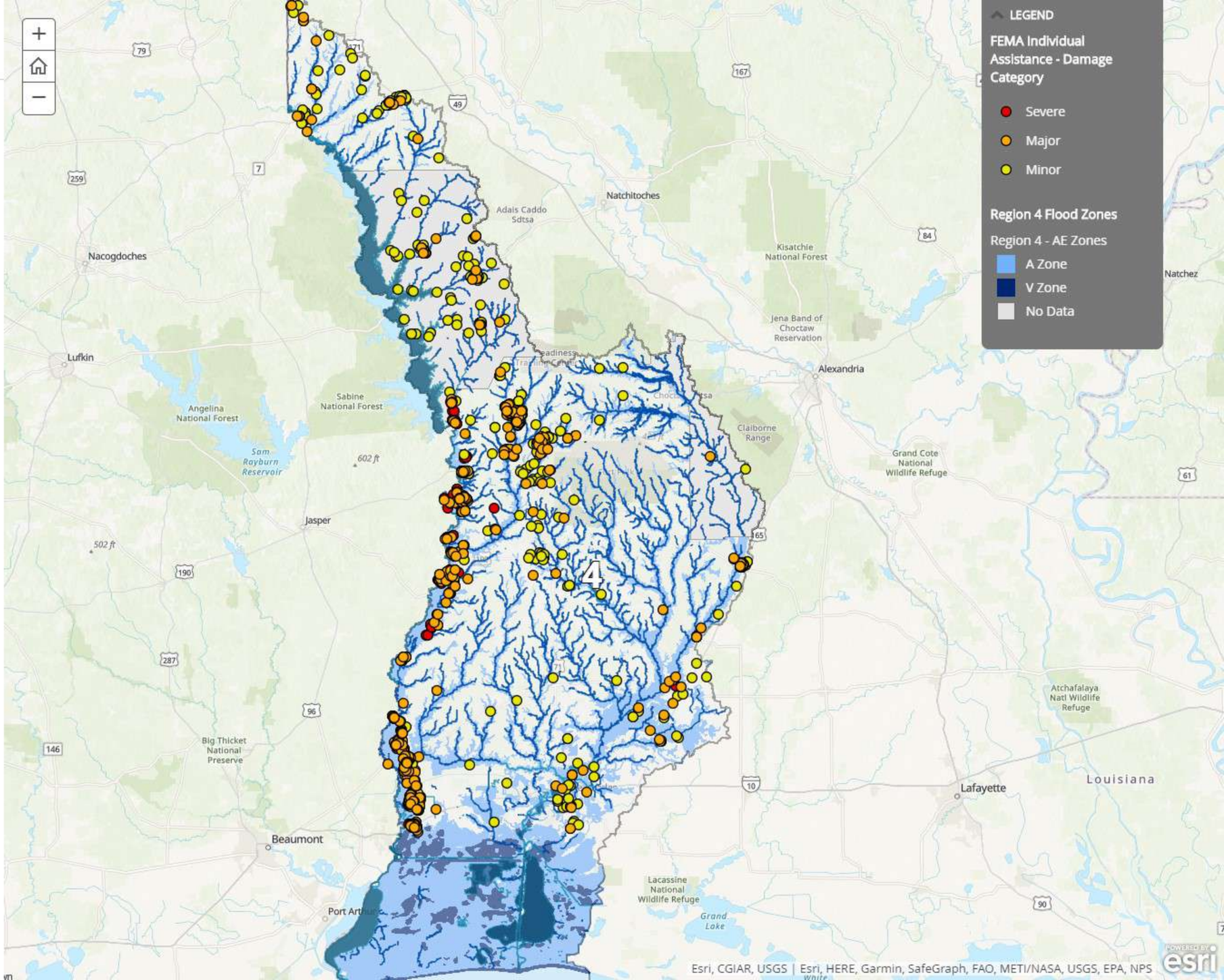
## Best practice: working with nature

Wetlands function as natural sponges that trap and slowly release surface water, rain, snowmelt, groundwater and floodwaters. Trees, root mats and other wetland vegetation also slow the speed of floodwaters and distribute them more slowly over the floodplain. This combined water storage and braking action lowers flood heights and reduces erosion.

The holding capacity of wetlands helps control floods and prevents waterlogging of crops. Preserving and restoring wetlands together with other water retention efforts can often provide the same level of flood control otherwise provided by expensive dredge operations and levees.



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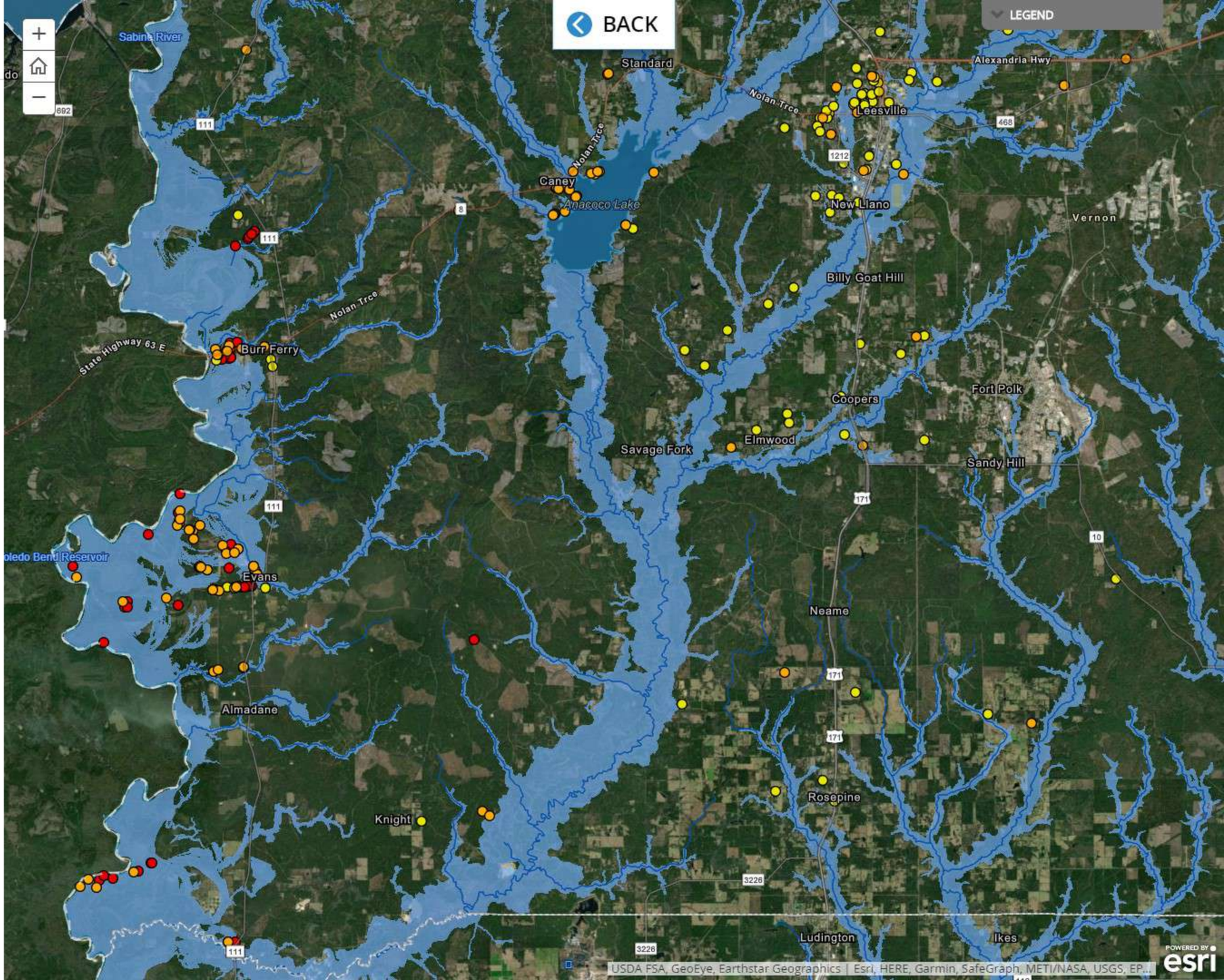

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## CDC Social Vulnerability Index

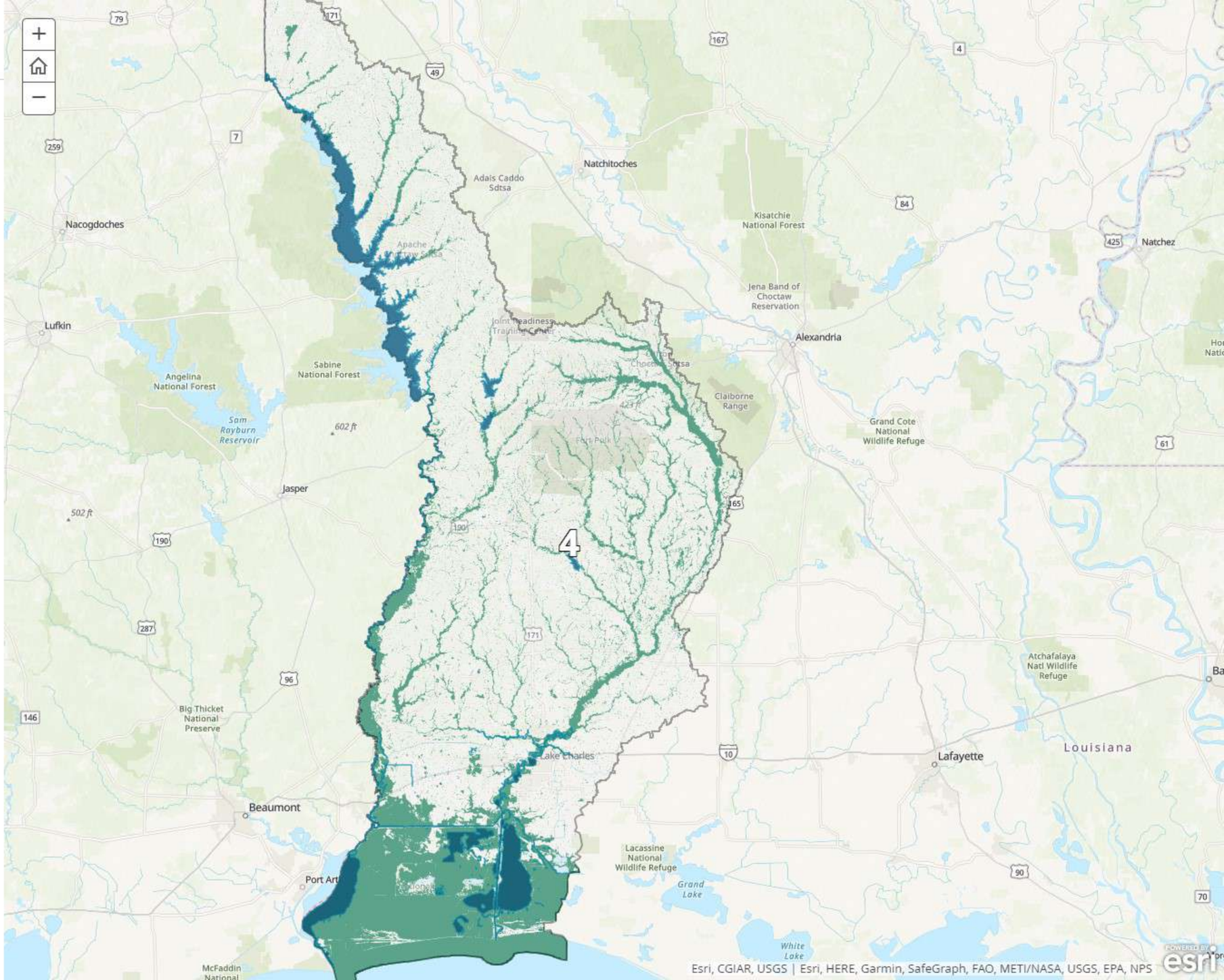
Natural disasters disproportionately impact socially vulnerable populations. Understanding and addressing vulnerability can help mitigate suffering and recovery costs.

Social vulnerability is based on the following factors:

- Socioeconomic status
- Household composition and disability
- Minority status and language
- Housing and transportation

Lake Charles area

## Break



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## Break

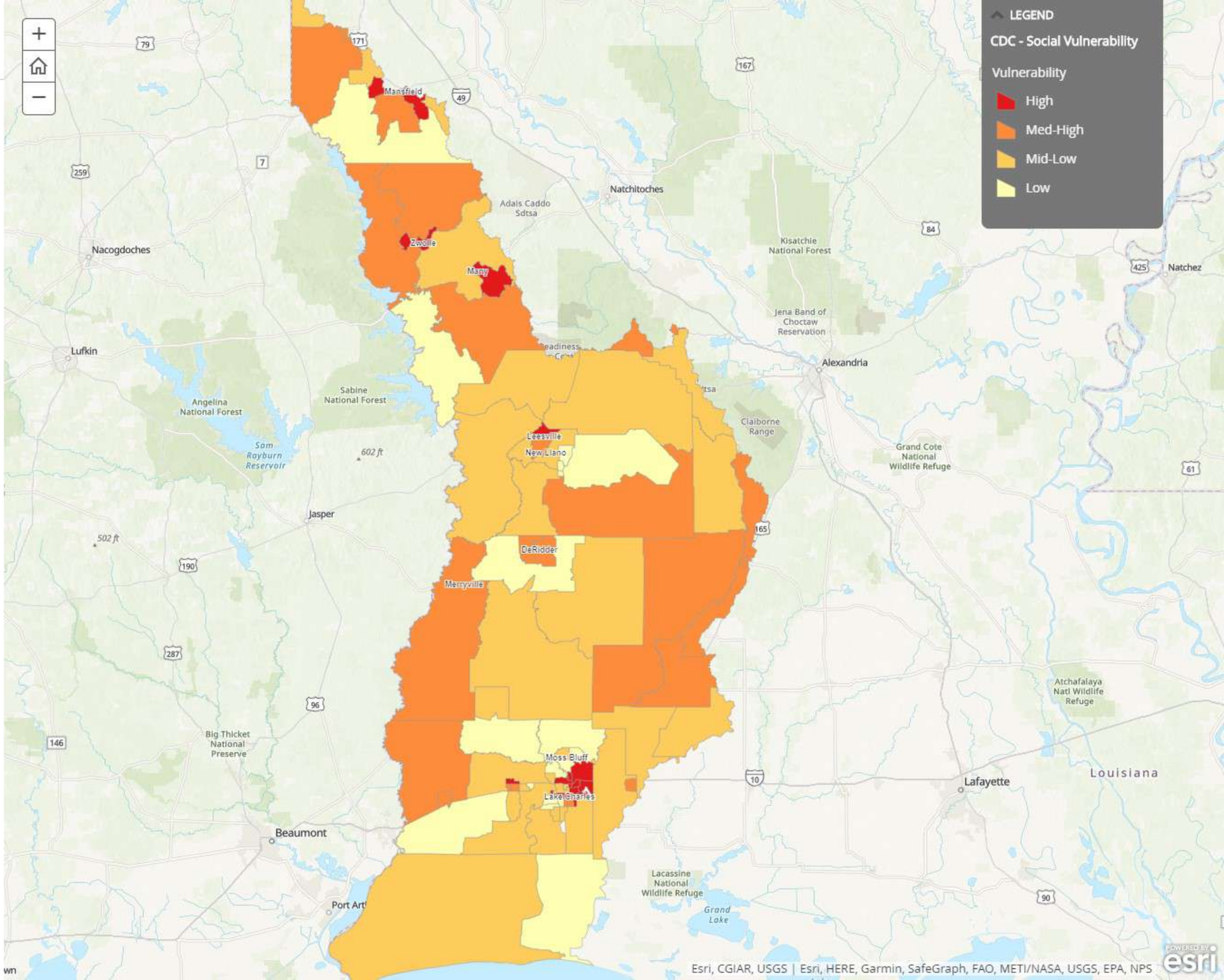
10-minute break

## Recap

Putting it all together

- Three types of flood risk
- Future coastal surge flood risk
- Special Flood Hazard Areas, A zones and V zones
- Impacts of the 2016 floods
- Wetland areas
- Social Vulnerability Index

## Mapping exercise



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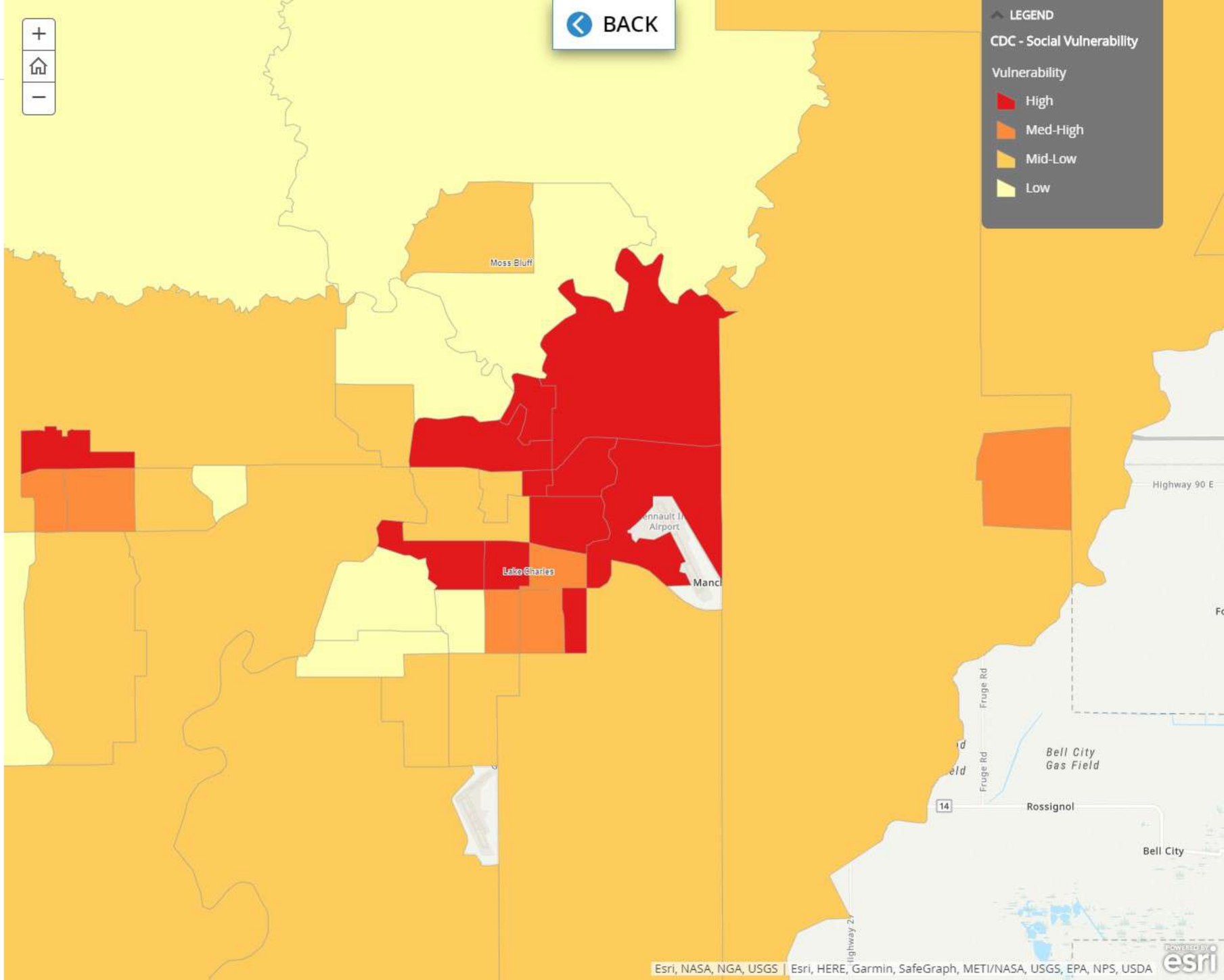

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LOUISIANA
WATERSHED
INITIATIVE

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**Legend**

FEMA Individual Assistance - Damage Category

- Severe
- Major
- Minor

CDC Social Vulnerability

Vulnerability

- High
- Med-High
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Let's Get Started!

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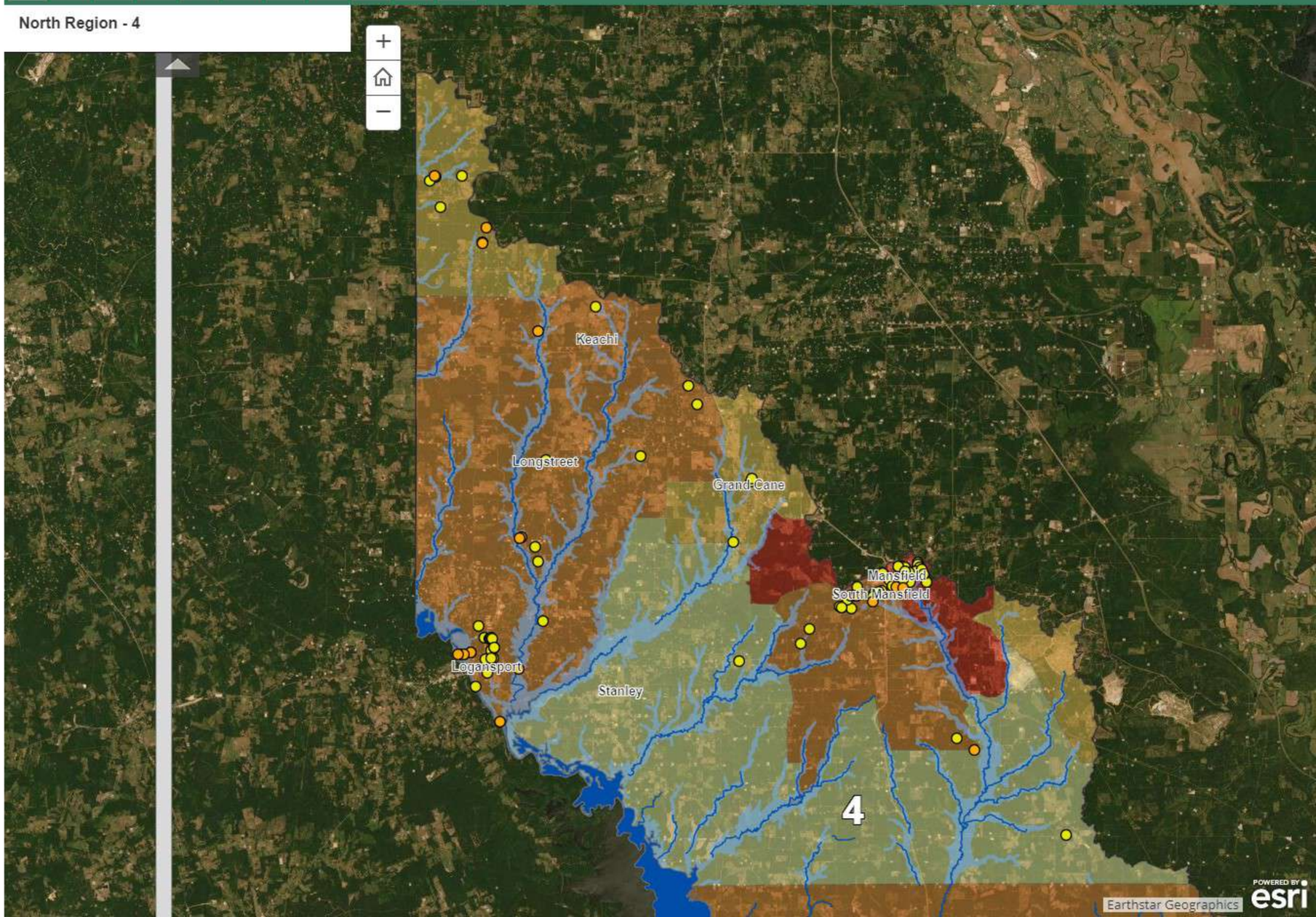
North Region - 4



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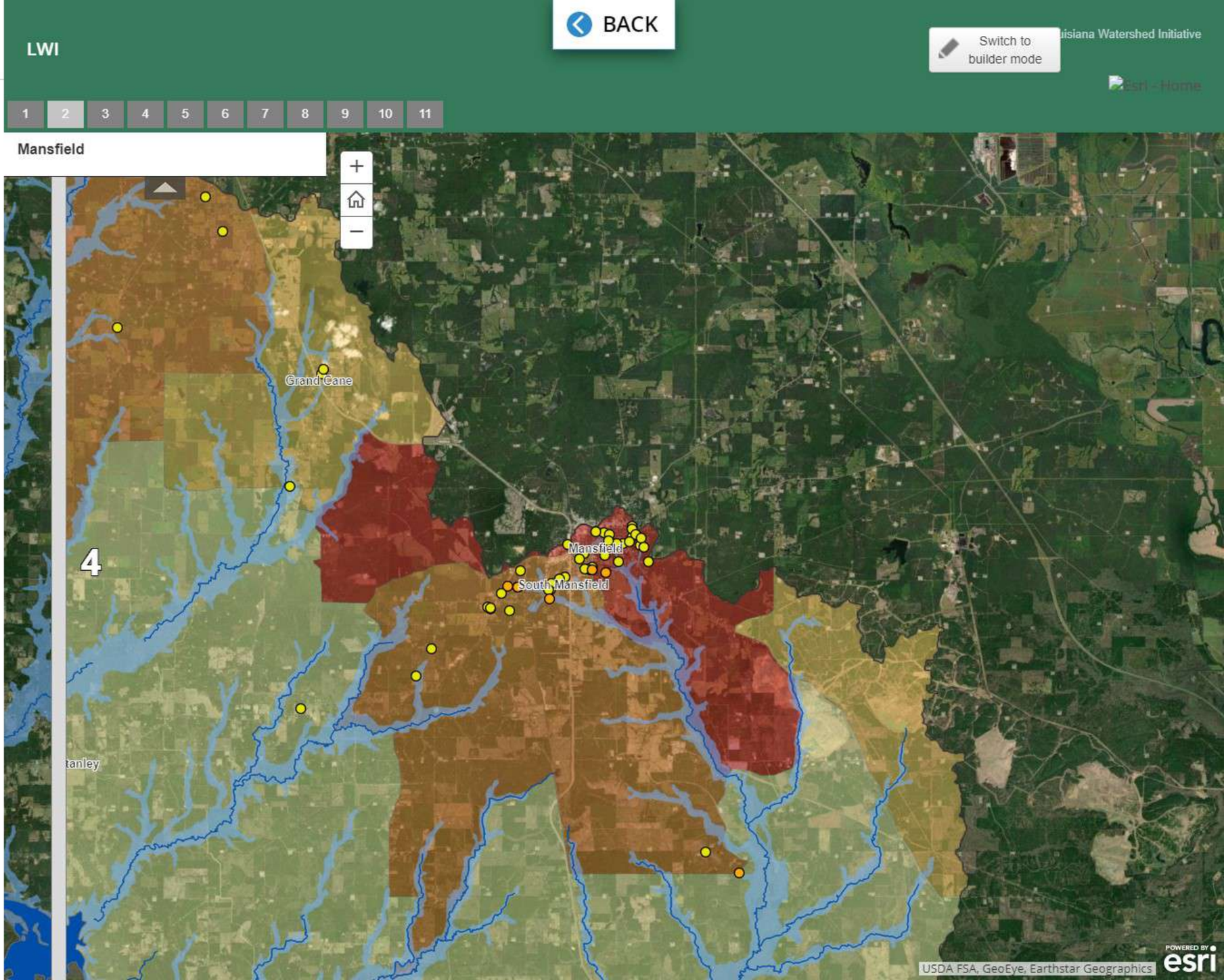

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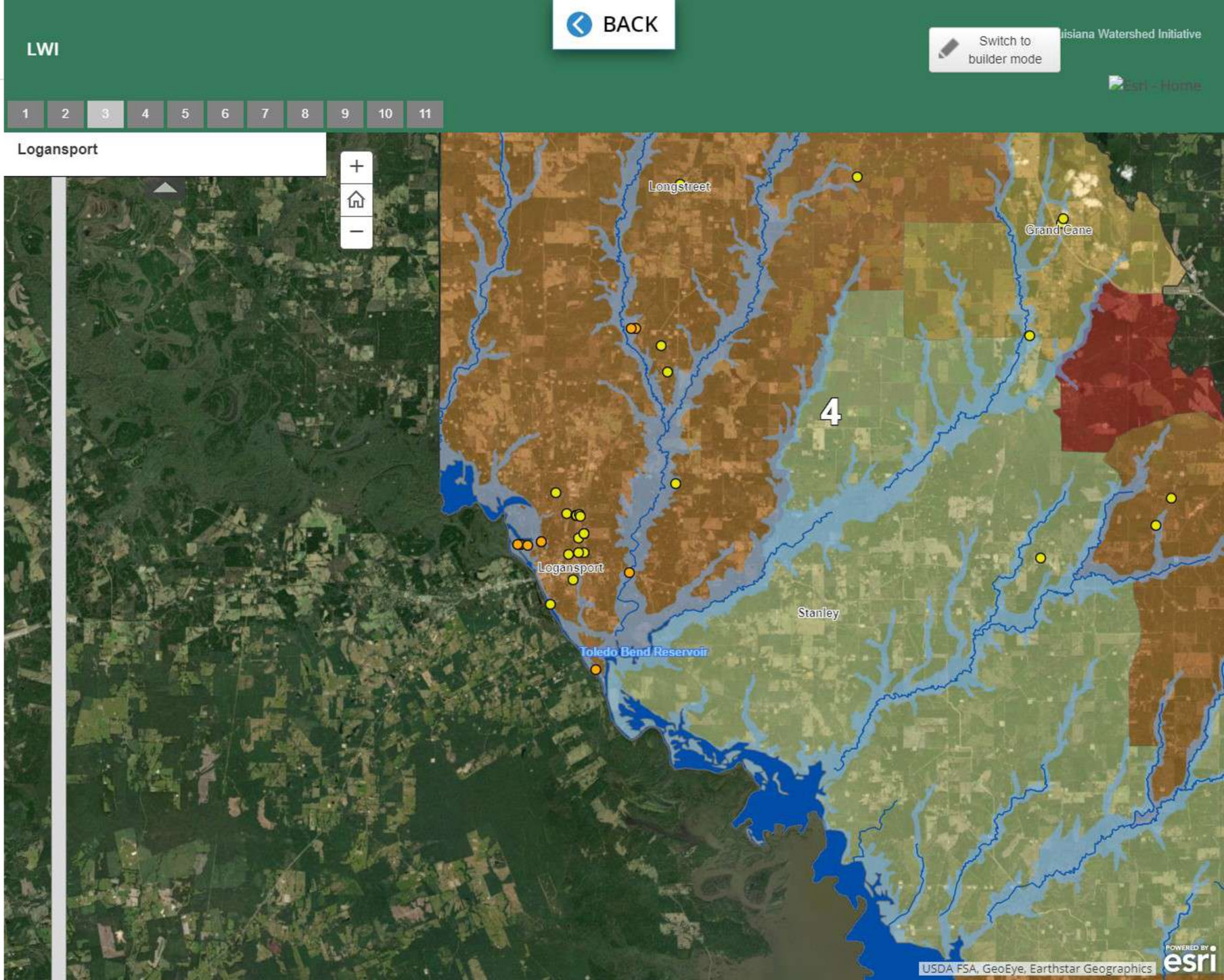

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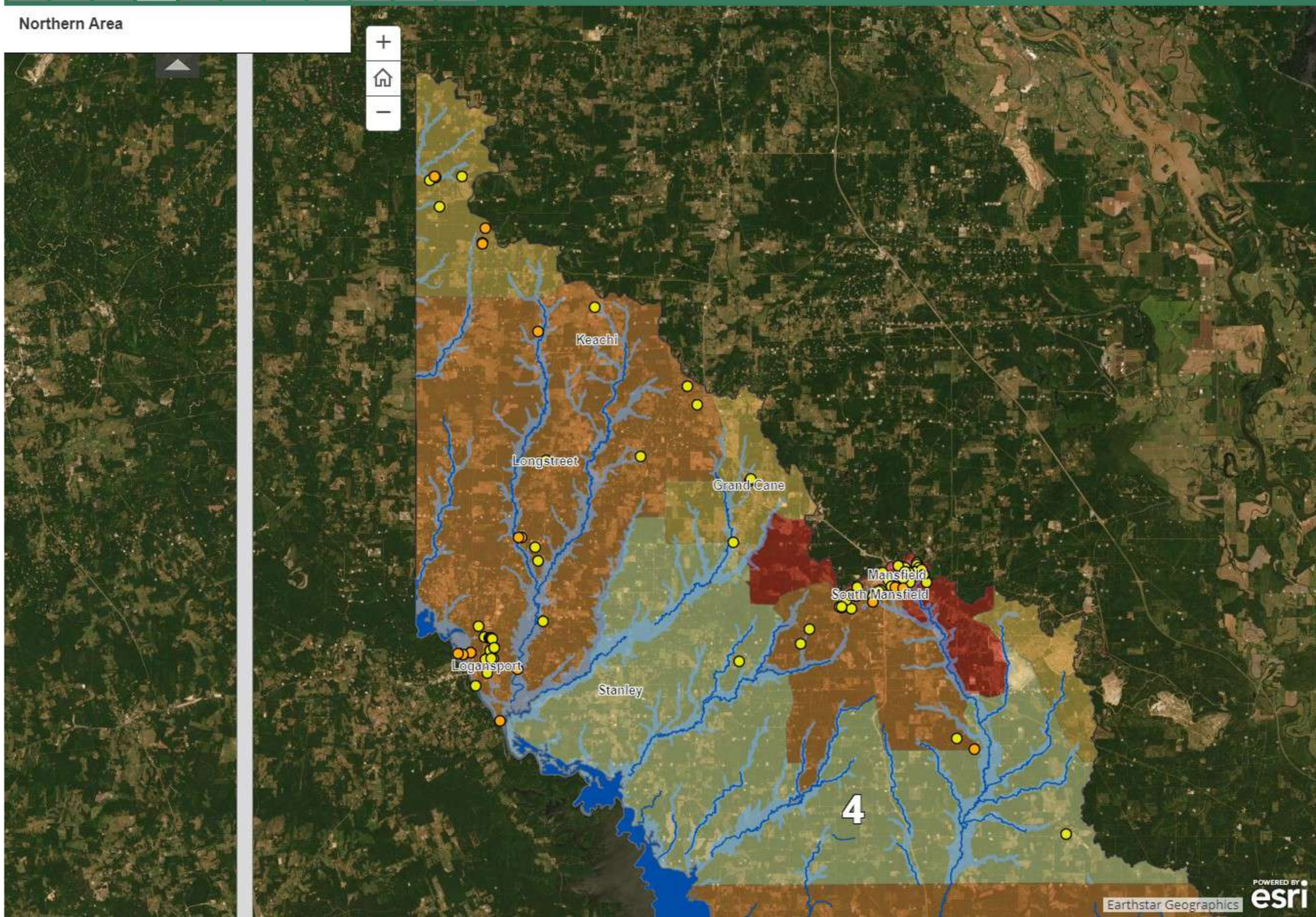

Flood Risk in Louisiana

Louisiana Watershed Initiative

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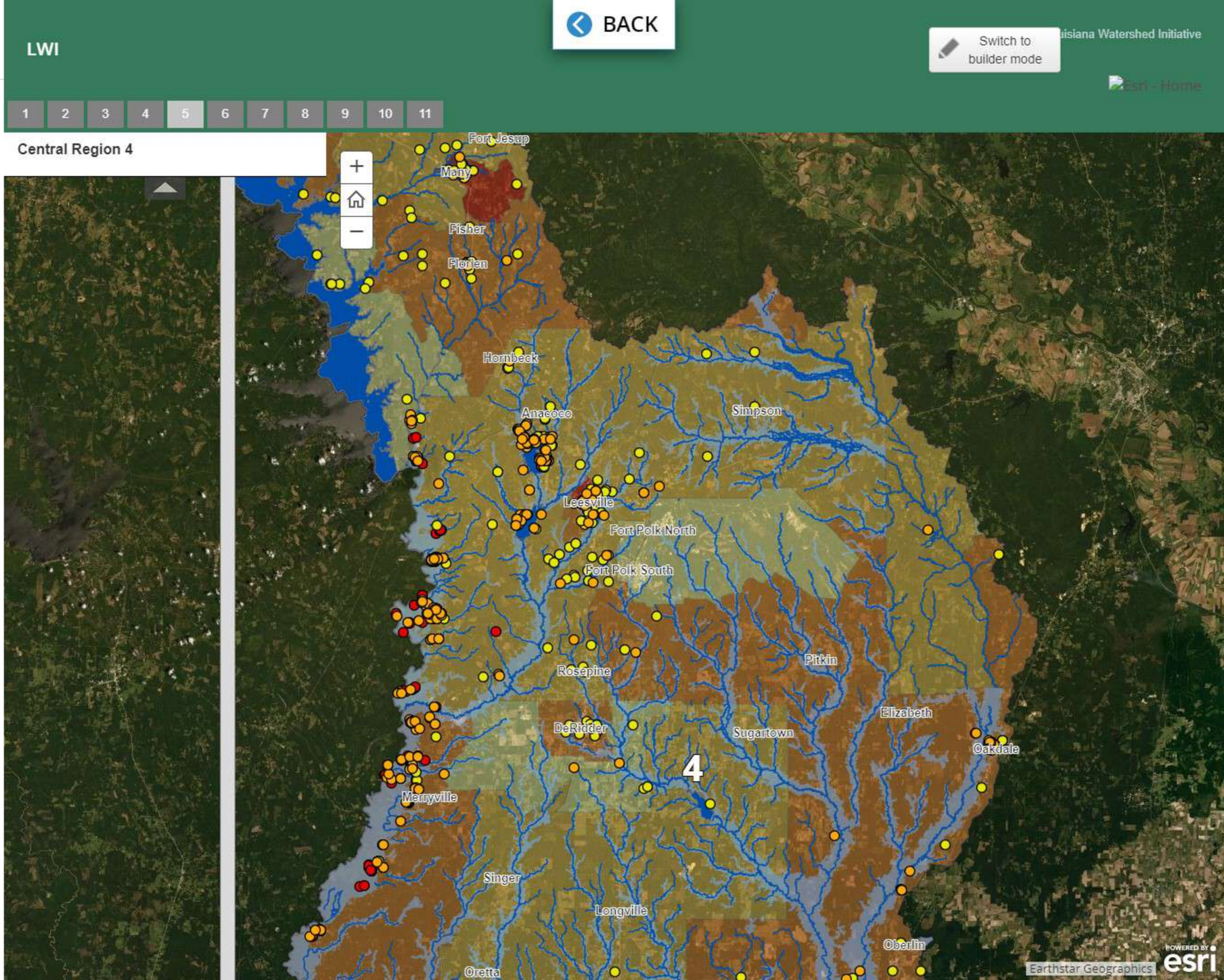

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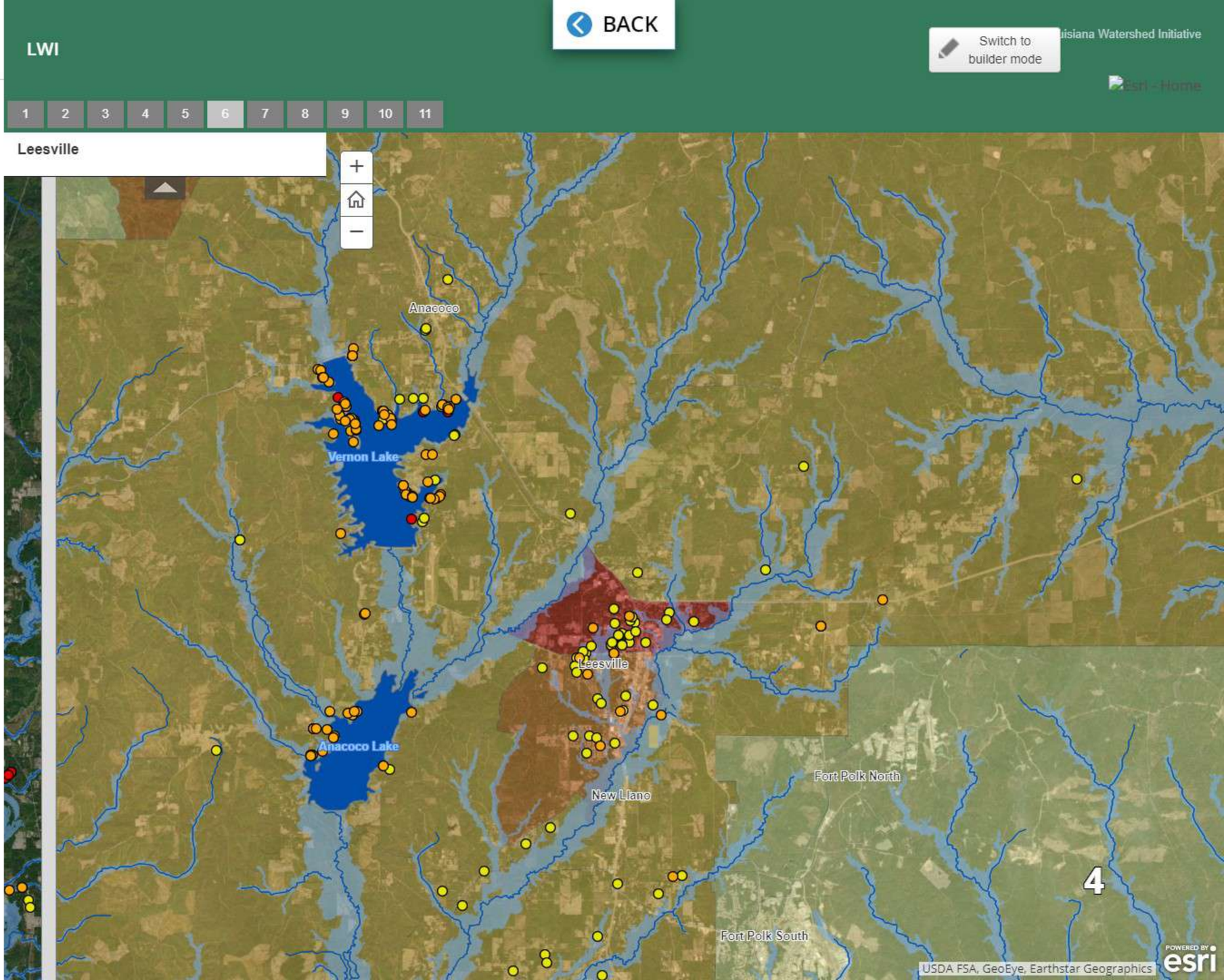

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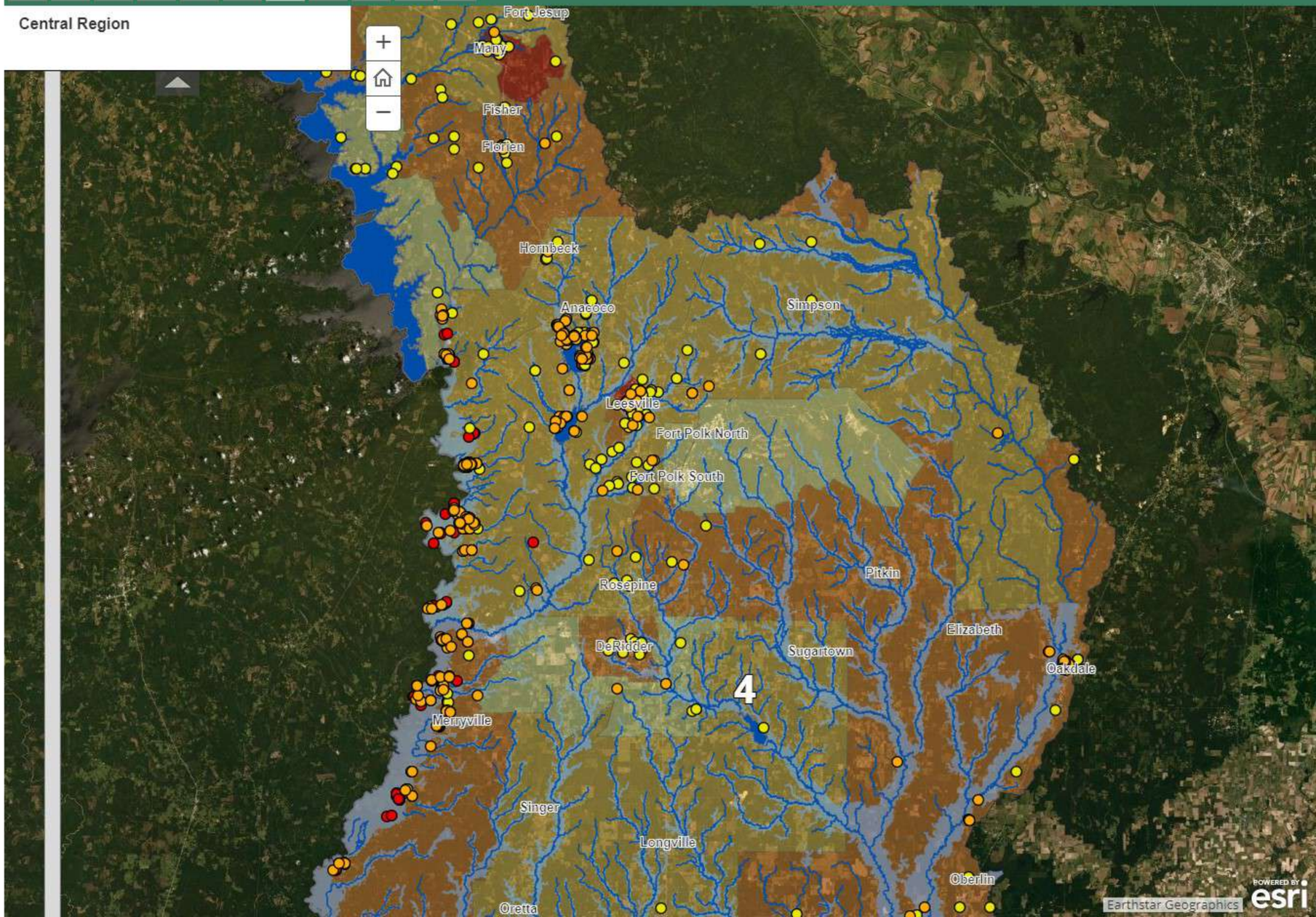

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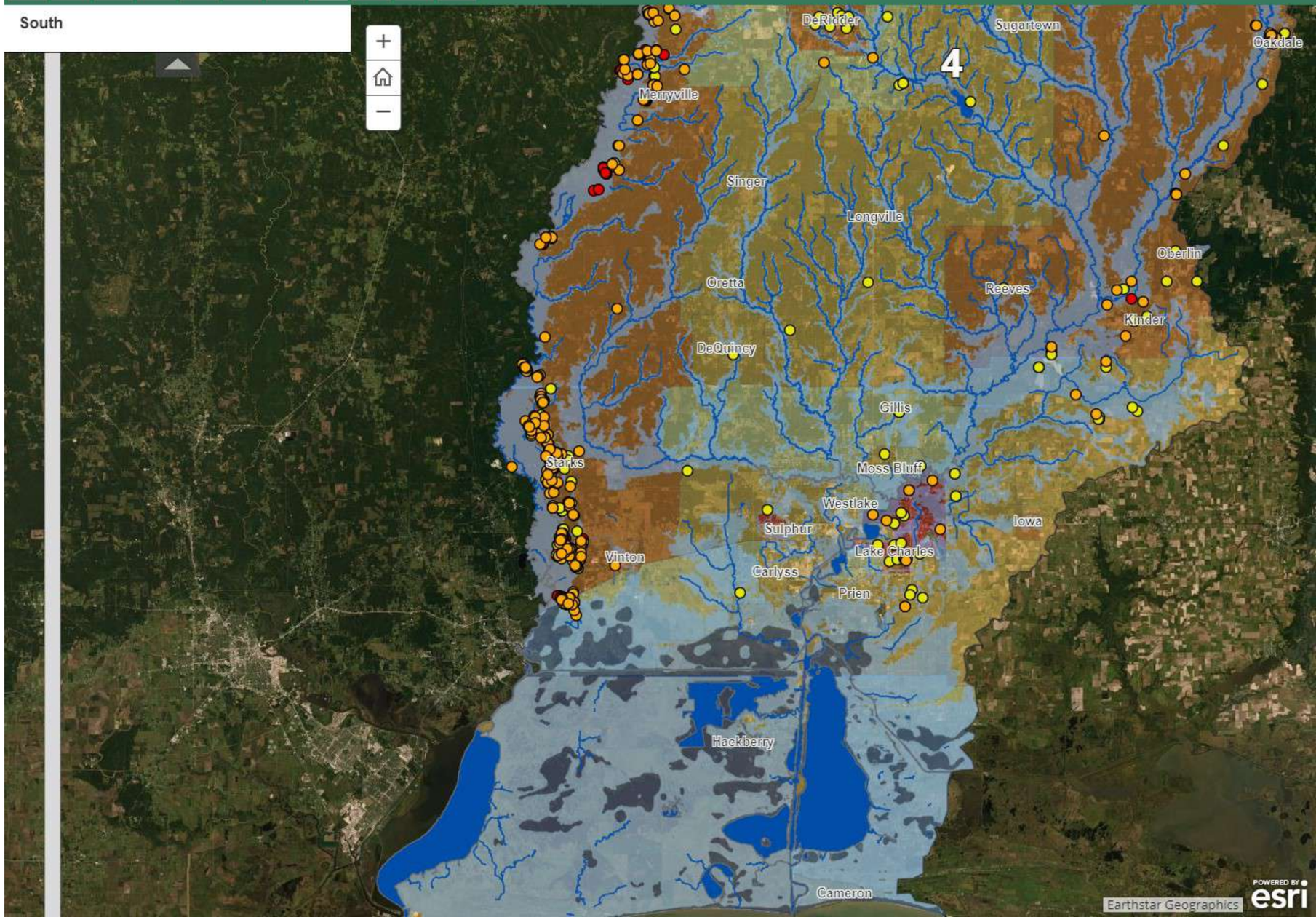

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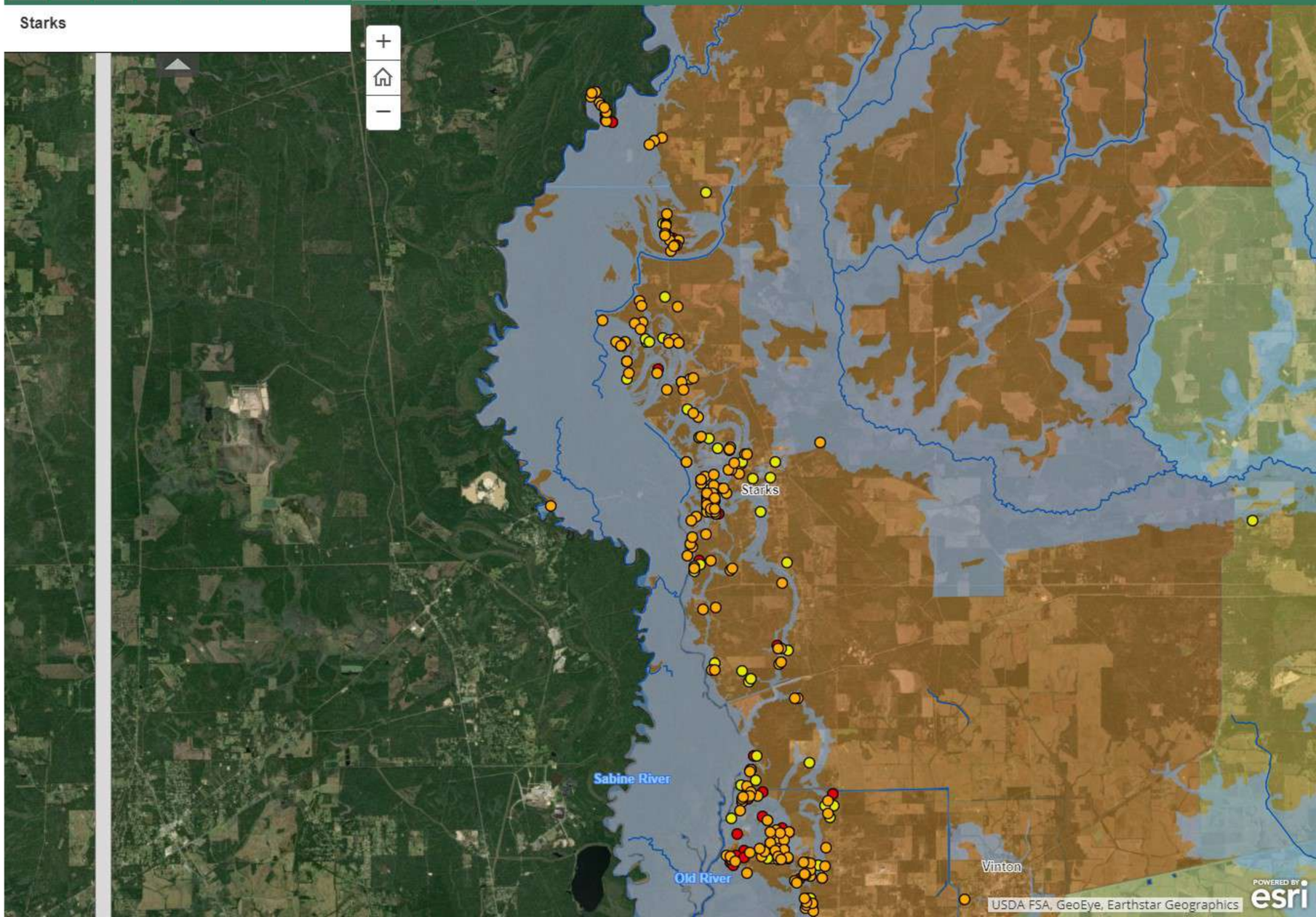
Starks



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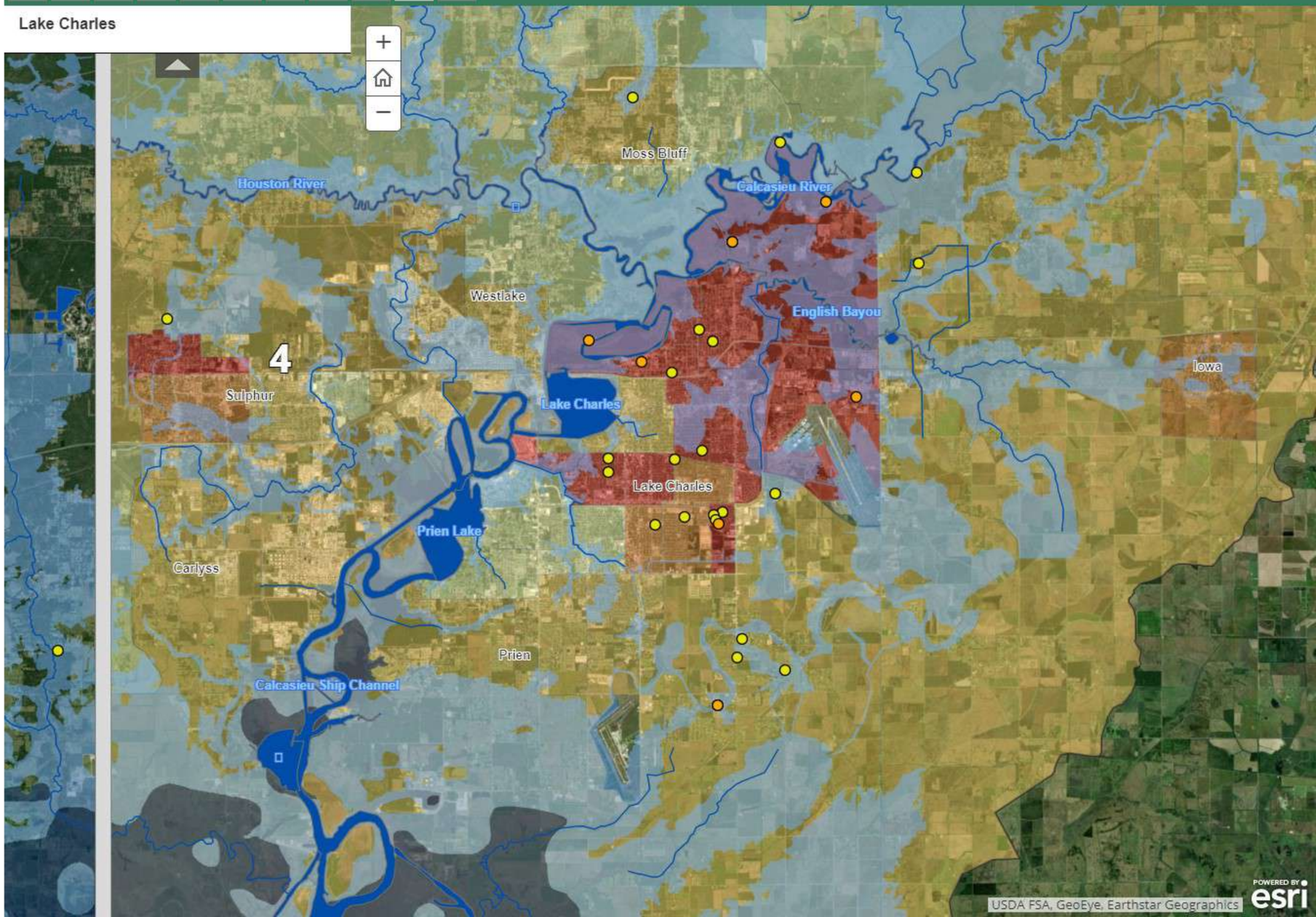

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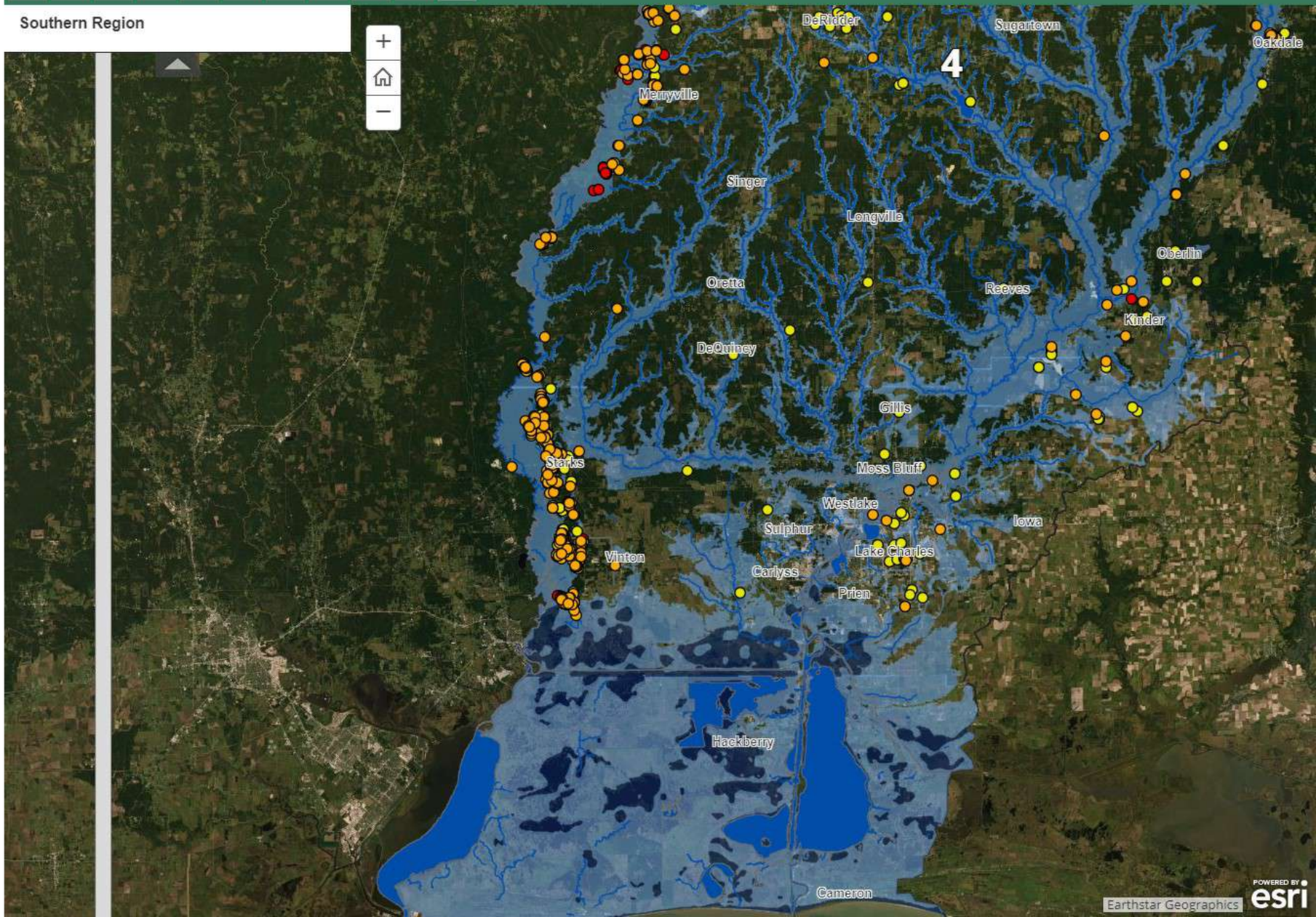
Southern Region



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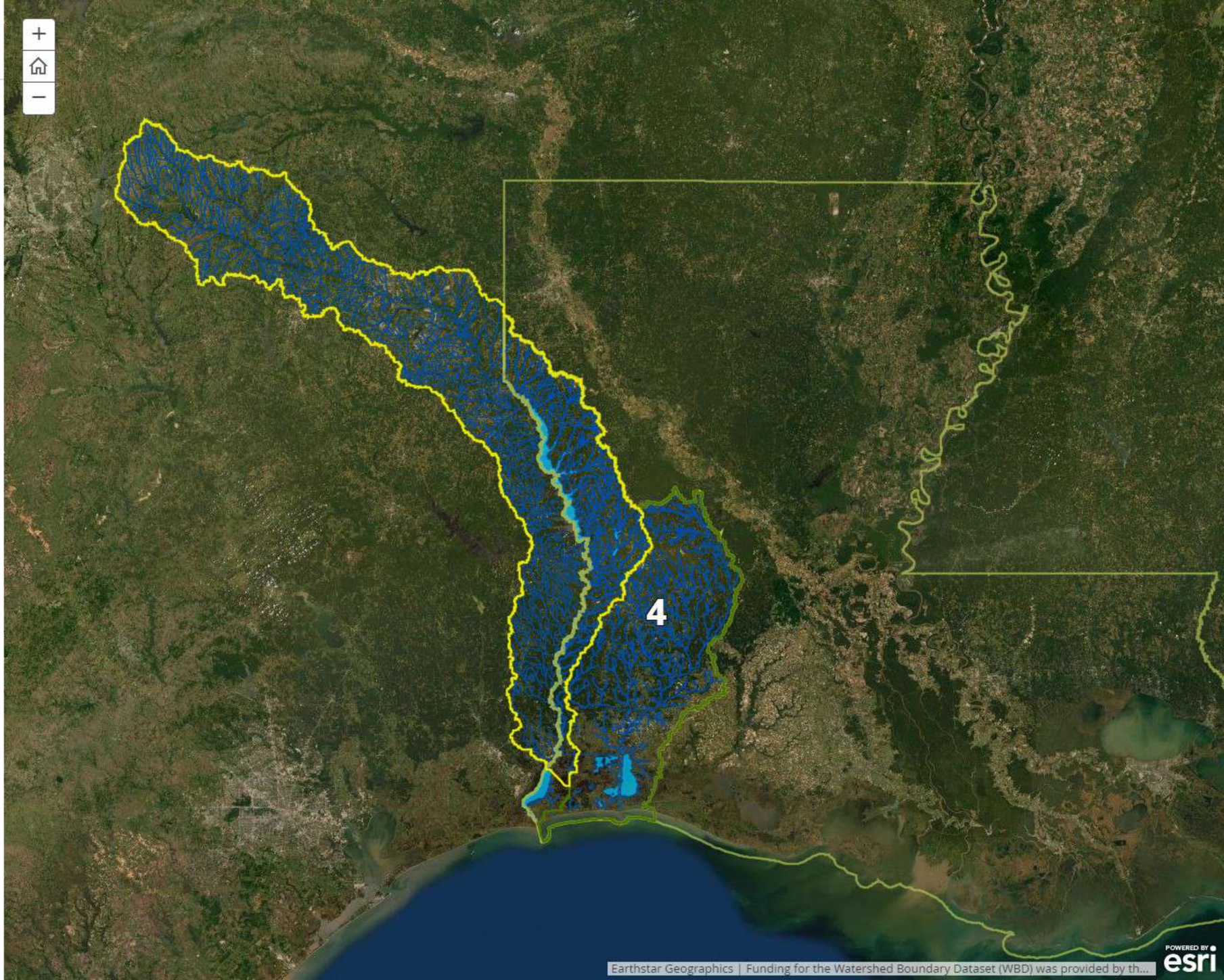

## Public comment

For additional comments or questions, you can call 504.556.9727 or email watershed@la.gov. The deadline to provide input is June 29.

This presentation recording will be available after the meeting on the LWI website.

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