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South Carolina State Hazard Mitigation Plan 2023

An Overview

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Agenda

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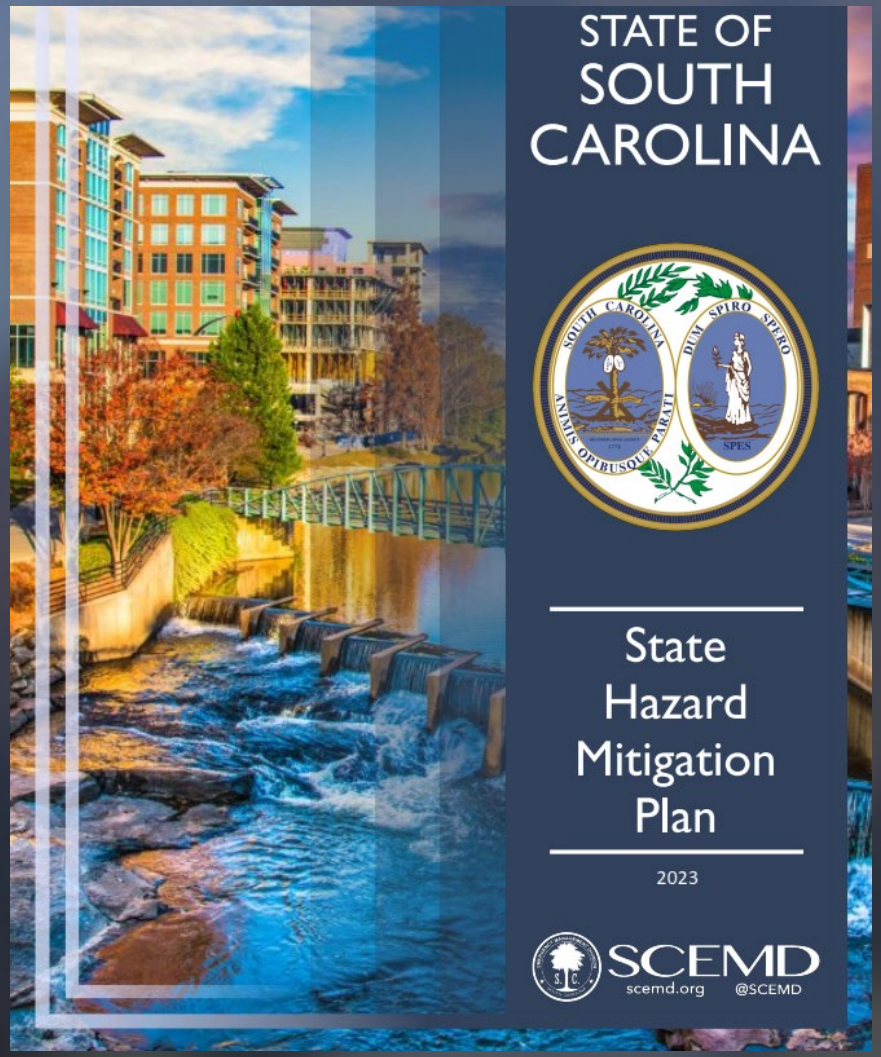
- Purpose of the State Hazard Mitigation Plan
- Changes in Planning Guidance
- Elements of the State Hazard Mitigation Plan
- Hazard Identification and Risk Analysis (HIRA)



Purpose of Mitigation Planning

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- Guides state's efforts to reduce effects of hazards
- Identify hazards and vulnerabilities
- Identify long-term actions and activities to reduce losses
- Establish a coordinated process to implement the plan using a wide range of resources

Changes to Mitigation Planning

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In 2022, FEMA updated content requirements for state and local hazard mitigation plans.

New State Hazard Mitigation Planning Requirements

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State mitigation plan policy changes:

- Requires consideration of equity and climate change impacts
- Outlines participants in the state planning process including community lifelines, climate change experts, underserved communities

New State Hazard Mitigation Planning Requirements (cont'd)

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Requires states to describe building code adoption and enforcement, land use, National Flood Insurance Program administration and flood risk mapping in the capability assessment.

Elements of the SHMP

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- Planning Process
- State Profile
- Hazard Identification and Risk Analysis (HIRA)
- Integration of Local Hazard Mitigation Plans
- State Capability Assessment
- Local Capability Assessment
- Mitigation Strategy (goals and objectives)
- Plan Maintenance
- Supporting Appendices

State Profile

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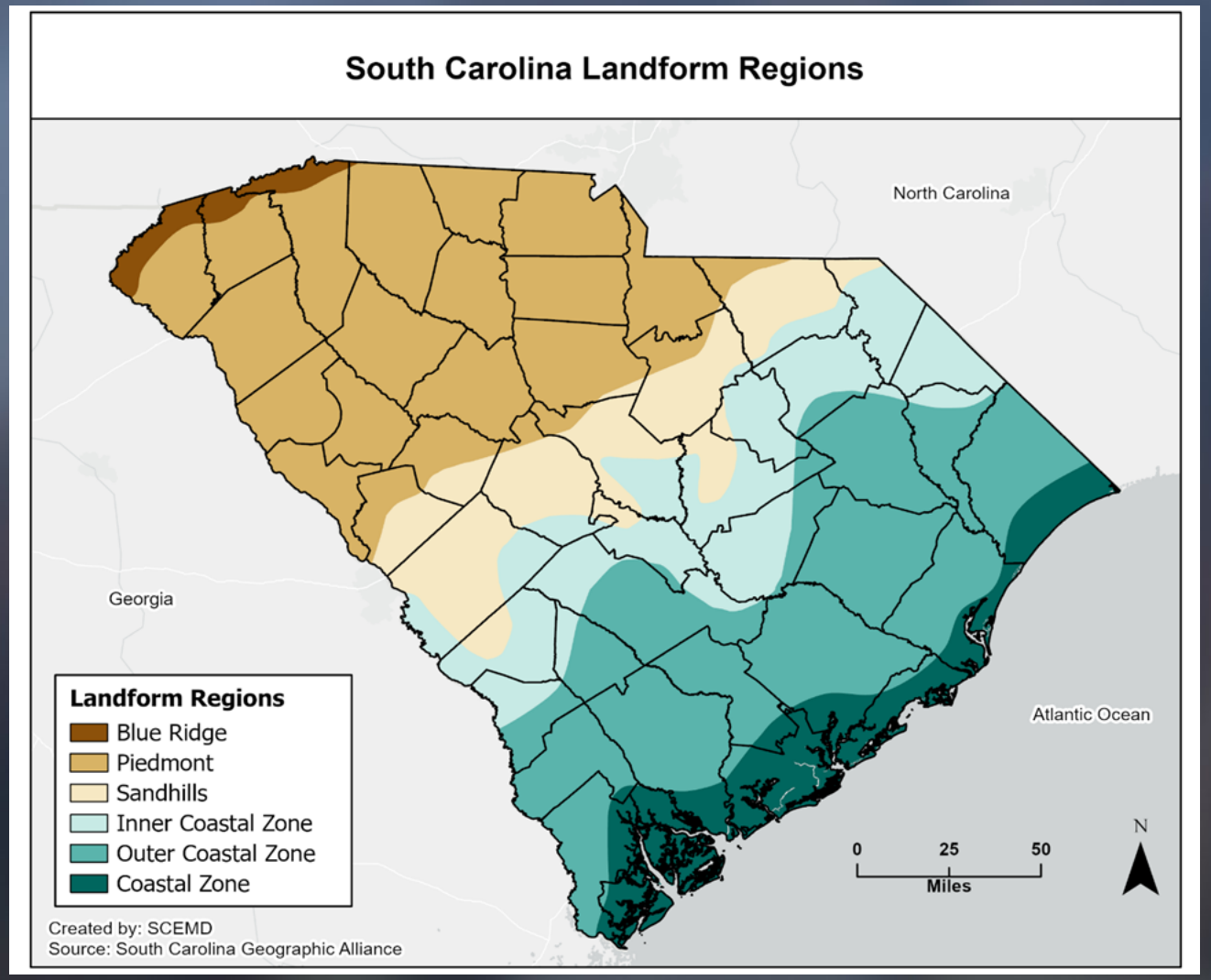
- Geographic and environmental characteristics
- Population demographics
- Land use
- State asset vulnerability
- Declared disasters



Hazard Identification and Risk Analysis (HIRA)

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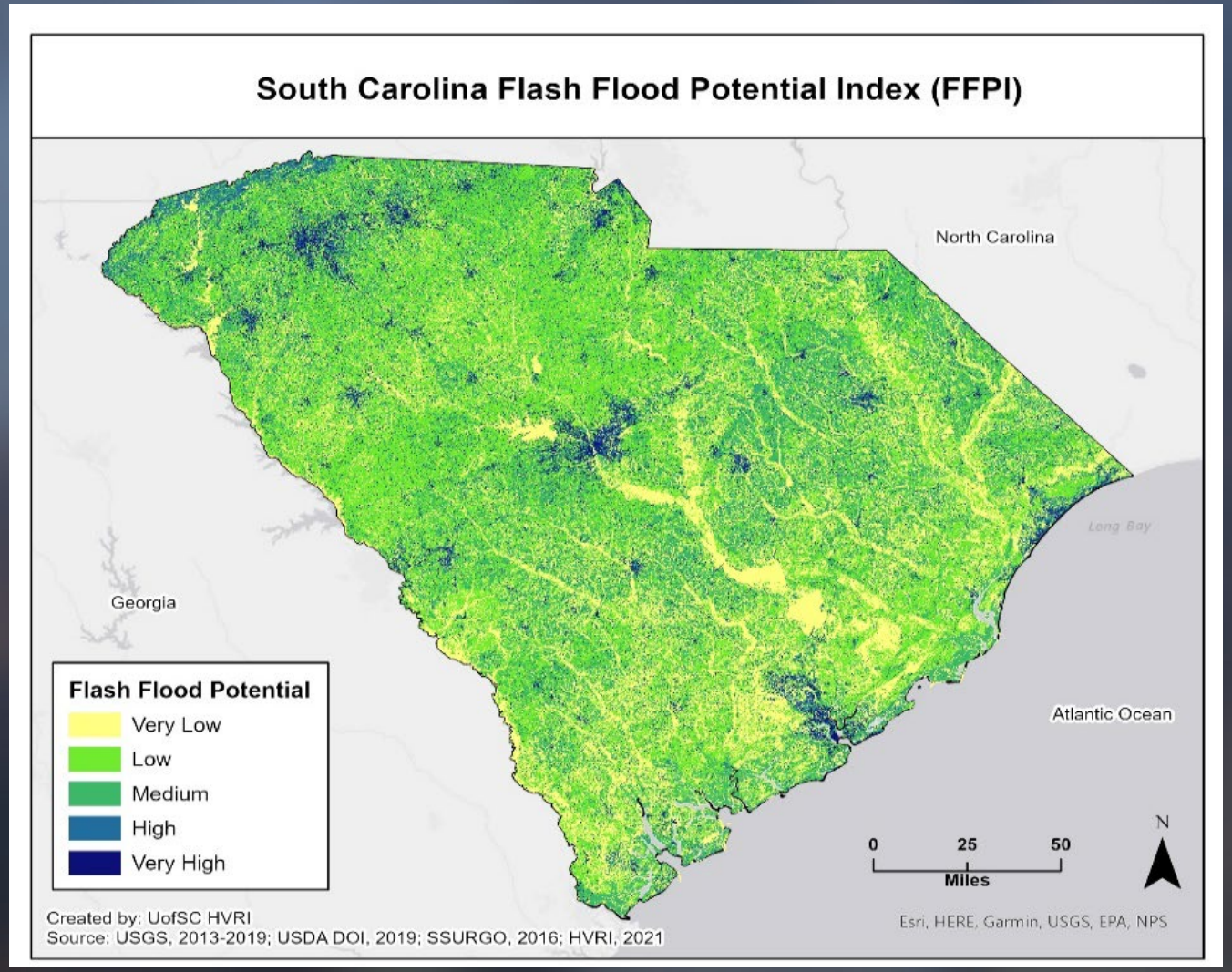
- 19 total hazards
- Approximately 110 different categories of hazard-related data



HIRA (cont'd)

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- Coastal Hazards
- Drought
- Earthquake
- Extreme Cold
- Extreme Heat
- Flood
- Hail
- Hazardous Materials
- Infectious Disease
- Landslide and Mass Wasting
- Lightning
- Nuclear Facilities
- Severe Thunderstorms
- Terrorism and Mass Violence
- Tornado
- Tropical Cyclones
- Wildfire
- Wind
- Winter Weather

HIRA (cont'd)

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Data Sources

- Hazards Vulnerability and Resilience Institute (HVRI)
- SHELDUS
- NCEI Storm Events Database
- US Census Bureau
- South Carolina State Climatology Office
- US Geological Survey (USGS)
- Center for Disease Control (CDC)

HIRA (cont'd)

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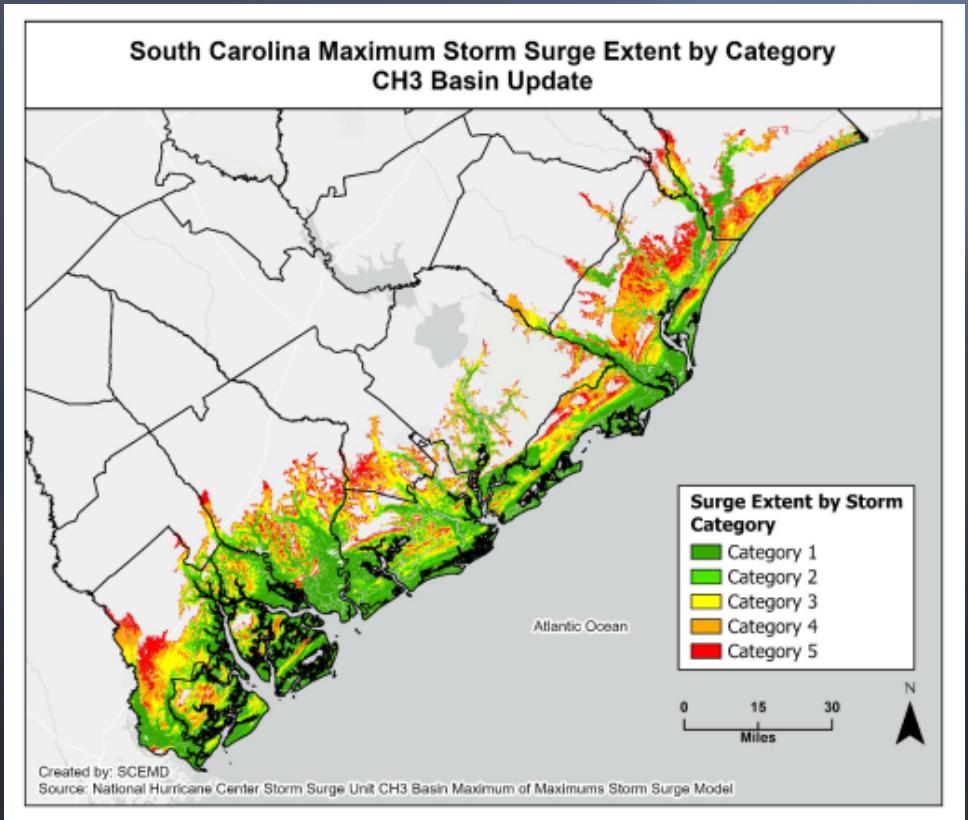
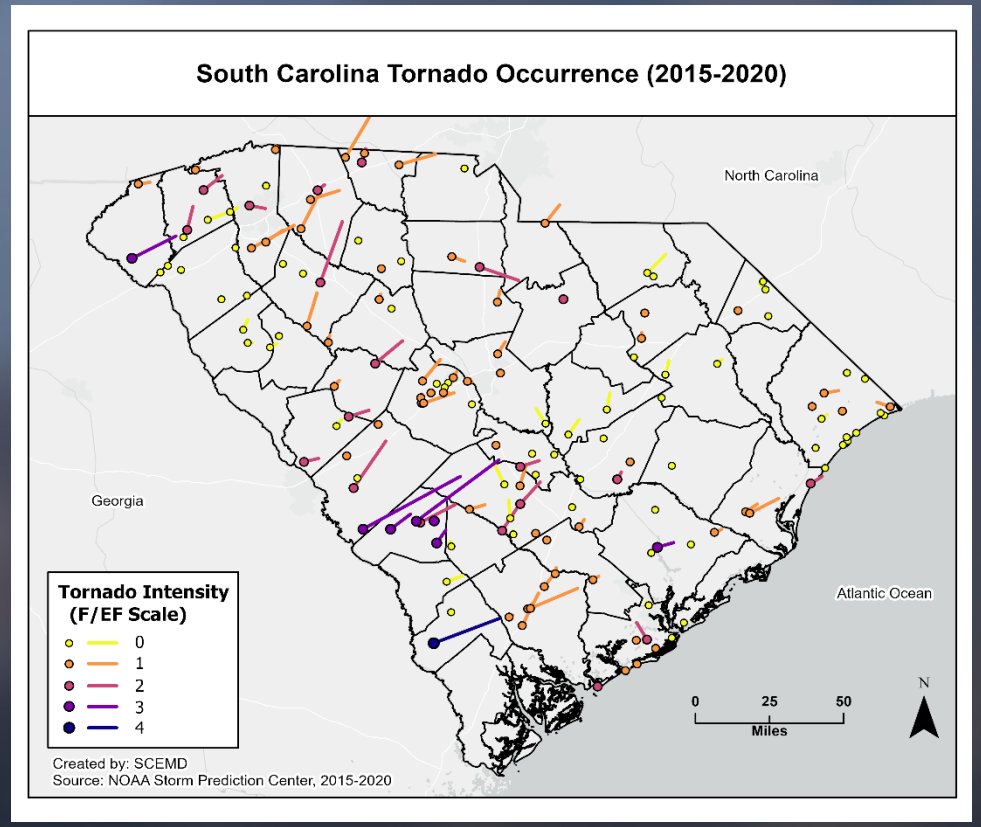
Historic occurrences and modeling





HIRA (cont'd)

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- Conditions for occurrence/development
- Probability/likelihood
- Vulnerability
- Impacts
- Historical occurrences
- Climate change considerations

Flood

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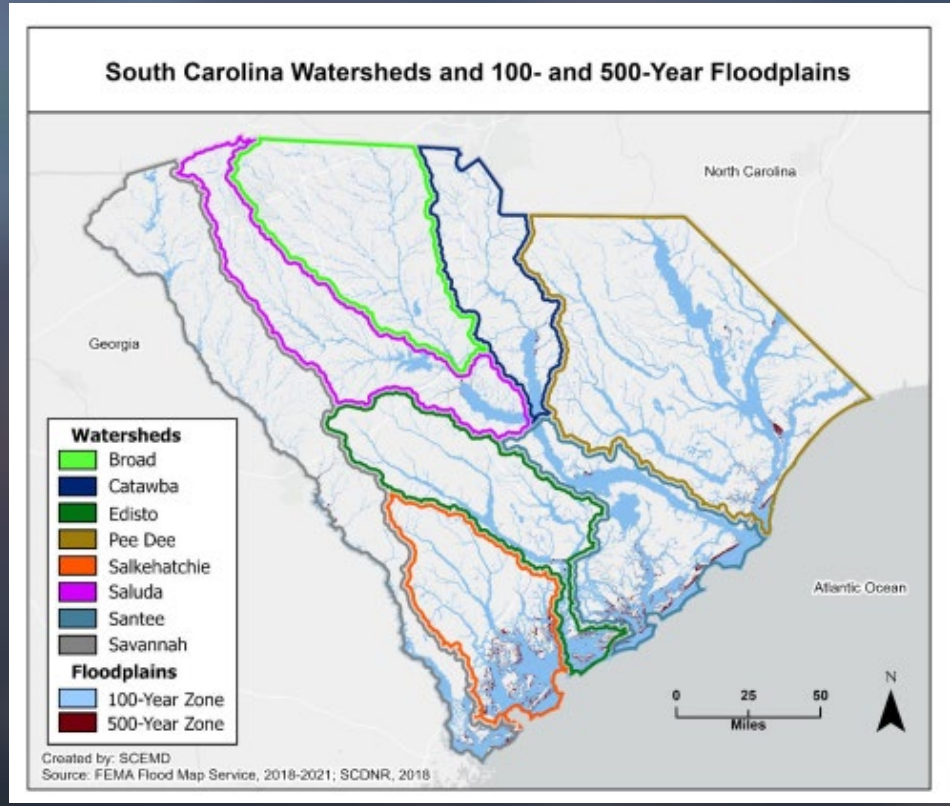
- Based on 1996-2020 data, counties with the highest annual probability of flood events are:
  - Anderson
  - Berkeley
  - Charleston
  - Dorchester
  - Greenville
  - Horry
  - Richland
  - Spartanburg
- Five counties account for 60% of the state's repetitive flood loss properties: Beaufort, Charleston, Dorchester, Georgetown, and Horry



Earthquake

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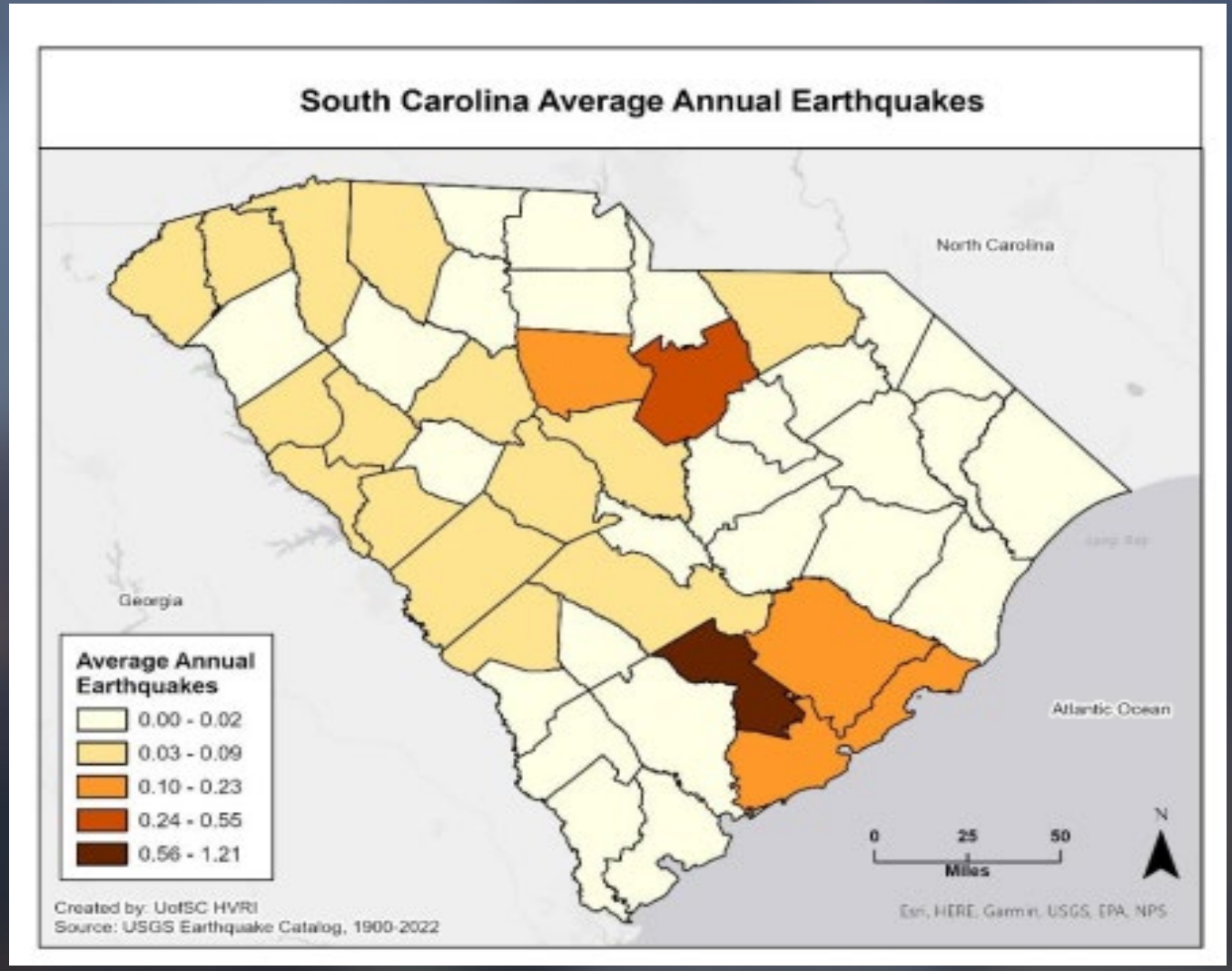
- Looked at annual earthquake average by county, 1900-July 2022
- Had to stop counting Elgin-area earthquakes at some point to complete HIRA



Earthquake Profiles

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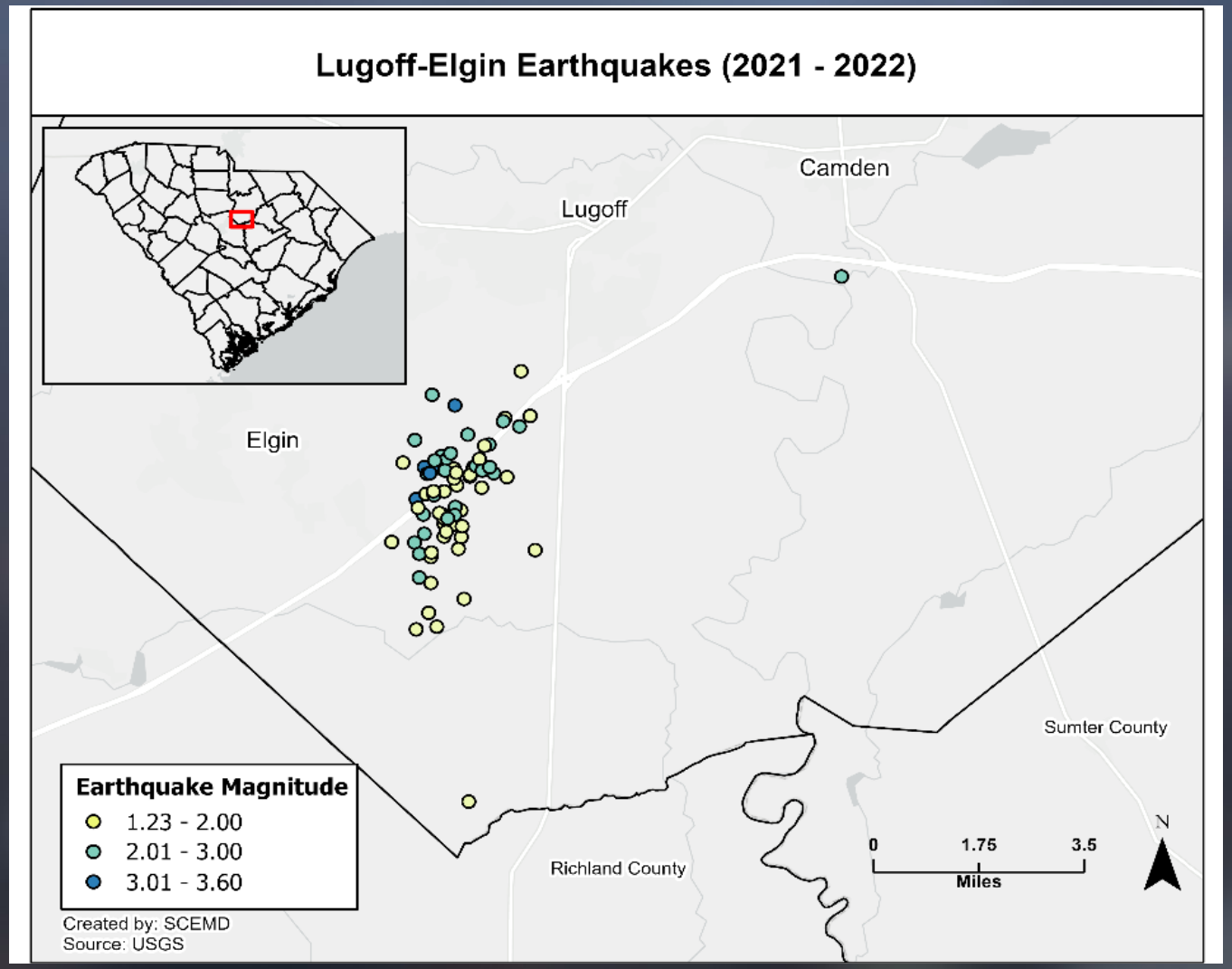

Earthquake Profiles (cont'd)

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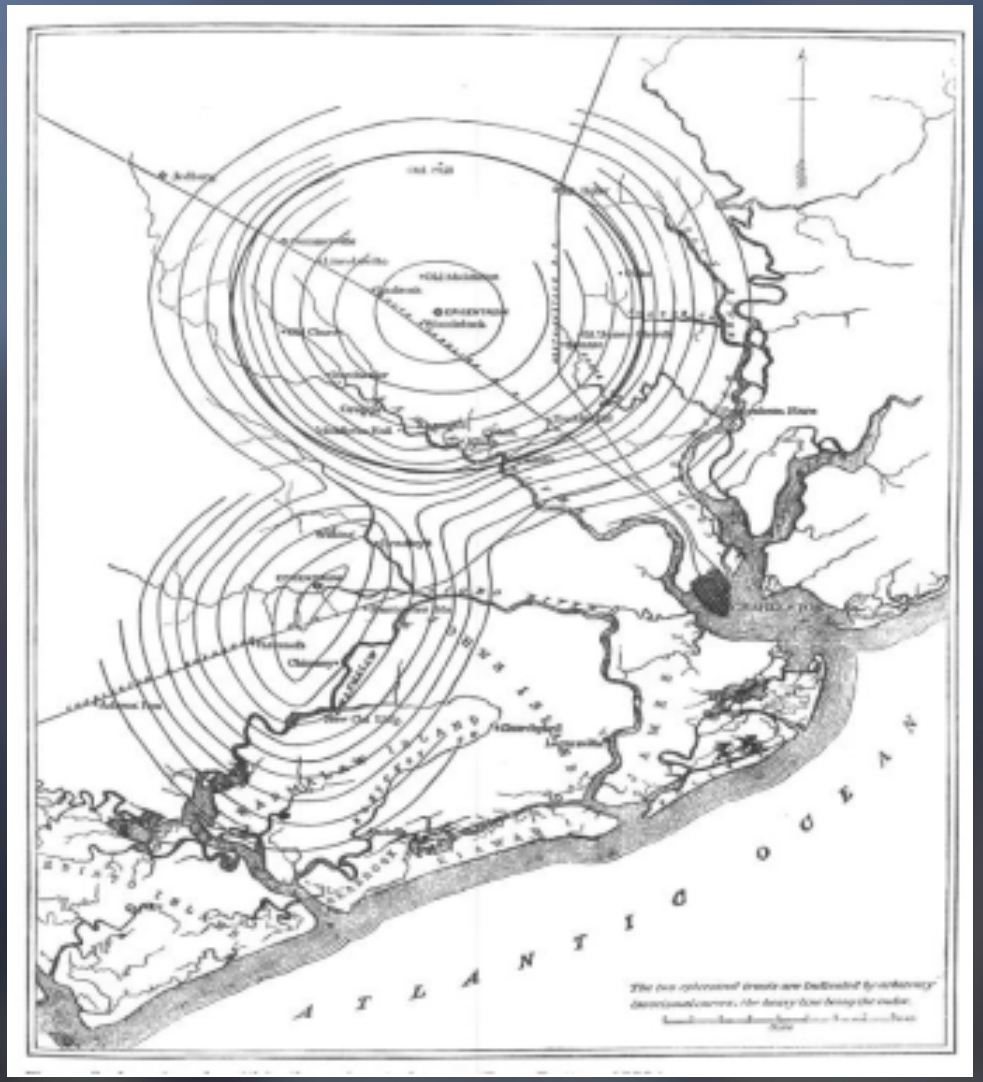
Largest earthquake in SC recorded history was Charleston earthquake of 1886

HISTORIC MODEL – CHARLESTON EARTHQUAKE (1886), 7.1 MAGNITUDE					
	None	Slight	Moderate	Extensive	Complete
Residential	1,508,015	182,068	101,998	30,733	10,606
Commercial	70,517	9,332	7,612	3,157	1,303
Industrial	20,706	2,357	2,101	957	448
Other	19,469	2,488	1,816	718	297
Total	1,618,707	196,245	113,527	35,565	12,654



Hazmat

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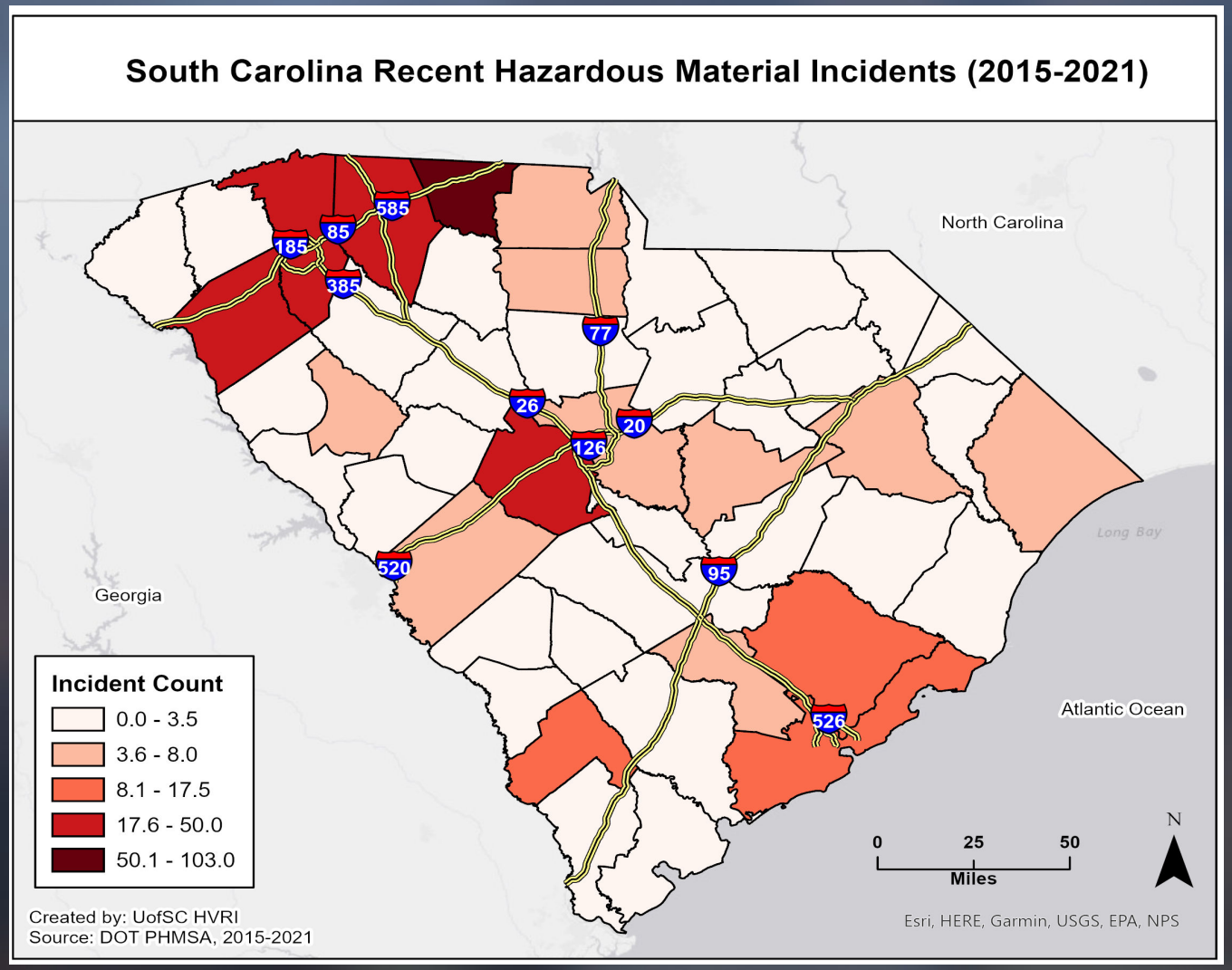
Analysis includes:

- Fixed
- Rail
- Roadway

$1.4 million statewide annualized costs/losses (2000-2021 data)



Hazard Risk

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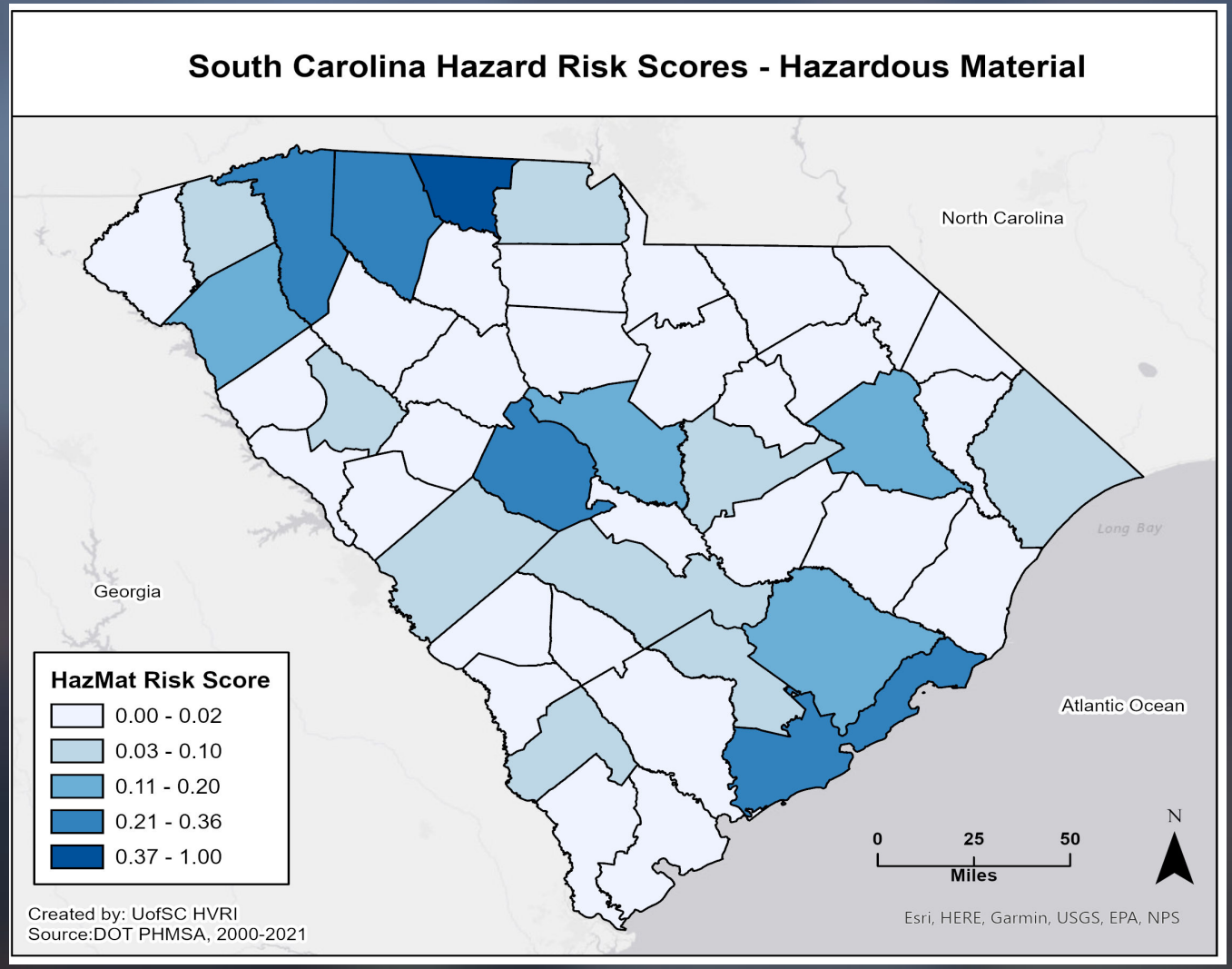
Maps displaying relative risk for each hazard by county



Depends on timeframe?

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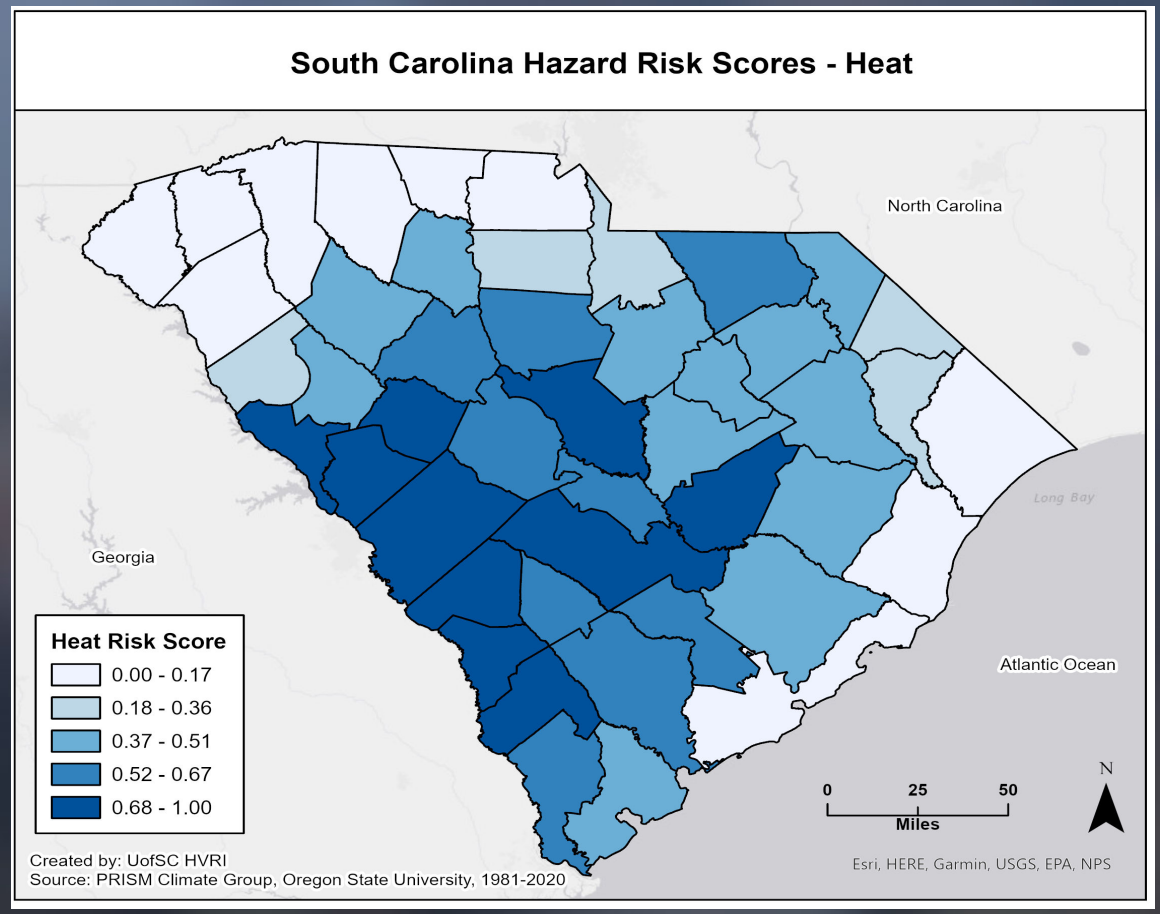
Based on past occurrences:

- Highest # incidents causing damage/injury
  - Extreme temperatures
- Most damage
  - Tropical cyclones
- Most deaths
  - Winter storms



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Giant caveat: past returns may not be an indicator of future performance.

Overall Hazard Risk

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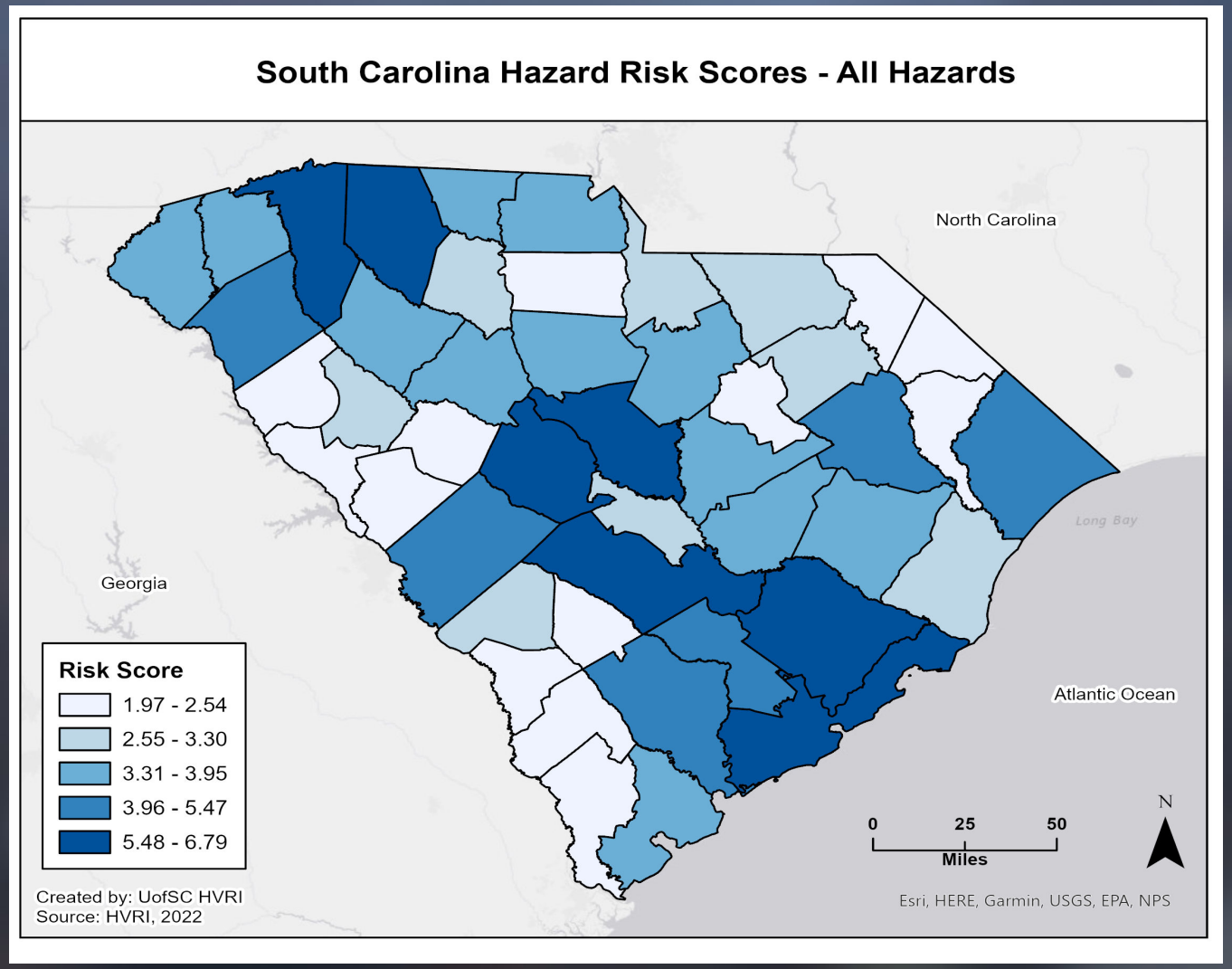

Overall Risk Scores by County

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- Generated using risk scores for key hazards
- Used as risk rating for Emergency Management Performance Grant (EMPG)

South Carolina Hazard Risk Scores by County															
County	Coastal	Earthquake	Extreme Cold	Extreme Heat	Flood	Hail	Hazardous Materials	Lightning	Severe Thunderstorm	Tornado	Tropical Storm / Hurricane	Wildfire	Wind	Winter Weather	Grand Total
ABBEVILLE	0.00	0.05	0.68	0.36	0.11	0.12	0.00	0.16	0.29	0.22	0.00	0.13	0.07	0.27	**2.46**
AIKEN	0.00	0.03	0.39	0.94	0.09	0.38	0.10	0.23	0.56	0.53	0.38	0.68	0.59	0.09	**4.98**
ALLENDALE	0.00	0.01	0.26	0.79	0.01	0.00	0.01	0.07	0.10	0.14	0.48	0.01	0.12	0.00	**1.98**
ANDERSON	0.00	0.01	0.65	0.17	0.47	0.46	0.17	0.44	0.34	0.49	0.05	0.08	0.65	0.44	**4.42**
BAMBERG	0.00	0.01	0.22	0.62	0.04	0.09	0.00	0.02	0.33	0.27	0.57	0.06	0.09	0.04	**2.37**
BARNWELL	0.00	0.04	0.28	0.71	0.05	0.08	0.00	0.12	0.32	0.34	0.43	0.07	0.15	0.04	**2.63**
BEAUFORT	0.17	0.01	0.00	0.39	0.24	0.25	0.02	1.00	0.14	0.24	0.71	0.13	0.60	0.00	**3.91**
BERKELEY	0.00	0.19	0.23	0.45	0.44	0.73	0.11	0.42	0.48	0.42	0.95	0.81	0.51	0.02	**5.78**
CALHOUN	0.00	0.01	0.29	0.60	0.03	0.10	0.01	0.02	0.70	0.27	0.52	0.10	0.13	0.09	**2.88**
CHARLESTON	1.00	0.10	0.00	0.05	0.99	0.65	0.25	0.91	0.27	0.59	1.00	0.17	0.76	0.04	**6.79**
CHEROKEE	0.00	0.00	0.94	0.00	0.10	0.21	1.00	0.28	0.21	0.19	0.10	0.05	0.18	0.57	**3.82**
CHESTER	0.00	0.02	0.86	0.24	0.09	0.16	0.02	0.02	0.24	0.14	0.19	0.04	0.13	0.30	**2.46**
CHESTERFIELD	0.00	0.03	0.59	0.55	0.19	0.21	0.02	0.05	0.25	0.31	0.24	0.41	0.22	0.24	**3.30**
CLARENDON	0.00	0.01	0.39	0.72	0.09	0.21	0.01	0.07	0.55	0.37	0.57	0.49	0.27	0.09	**3.82**
COLLETON	0.23	0.01	0.17	0.56	0.12	0.23	0.00	0.12	0.55	0.32	0.81	0.62	0.99	0.01	**4.74**
DARLINGTON	0.00	0.01	0.45	0.45	0.14	0.20	0.01	0.07	0.15	0.32	0.48	0.40	0.34	0.17	**3.18**
DILLON	0.00	0.01	0.43	0.34	0.02	0.10	0.02	0.02	0.03	0.20	0.67	0.18	0.09	0.15	**2.26**
DORCHESTER	0.00	1.00	0.16	0.54	0.33	0.37	0.04	0.37	0.33	0.20	0.71	0.25	0.56	0.02	**4.88**
EDGEFIELD	0.00	0.03	0.49	1.00	0.00	0.10	0.01	0.02	0.24	0.19	0.19	0.02	0.13	0.11	**2.54**
FAIRFIELD	0.00	0.16	0.84	0.61	0.01	0.13	0.01	0.00	0.55	0.36	0.19	0.13	0.25	0.18	**3.43**
FLORENCE	0.00	0.00	0.36	0.43	0.21	0.32	0.18	0.37	0.39	0.46	0.71	0.71	0.38	0.17	**4.70**
GEORGETOWN	0.04	0.00	0.22	0.02	0.26	0.16	0.02	0.40	0.10	0.15	0.90	0.33	0.09	0.09	**2.77**
GREENVILLE	0.00	0.04	1.00	0.15	1.00	1.00	0.35	0.28	0.49	0.49	0.10	0.10	0.73	1.00	**6.73**
GREENWOOD	0.00	0.03	0.62	0.47	0.18	0.19	0.03	0.23	0.33	0.14	0.05	0.05	0.22	0.26	**2.80**
HAMPTON	0.00	0.00	0.14	0.73	0.05	0.02	0.03	0.05	0.14	0.08	0.62	0.24	0.28	0.00	**2.39**
HORRY	0.13	0.00	0.36	0.13	0.45	0.80	0.03	0.86	0.00	0.73	1.00	0.51	0.37	0.10	**5.47**

Social Vulnerability Analysis

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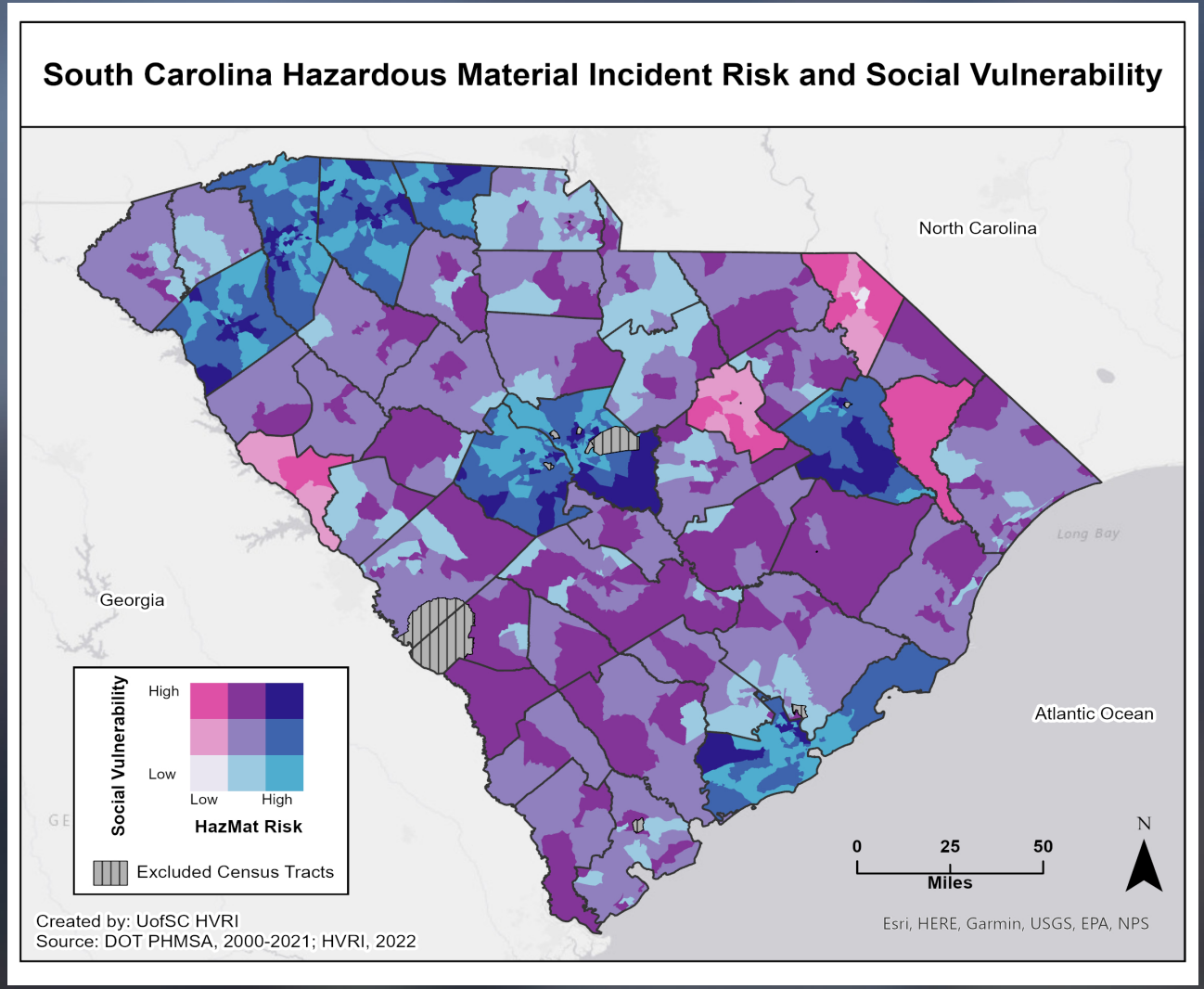
Considers characteristics of population to understand increased vulnerability because of demographic factors like income, age, disability, literacy, and transportation dependency.



Climate Change Considerations

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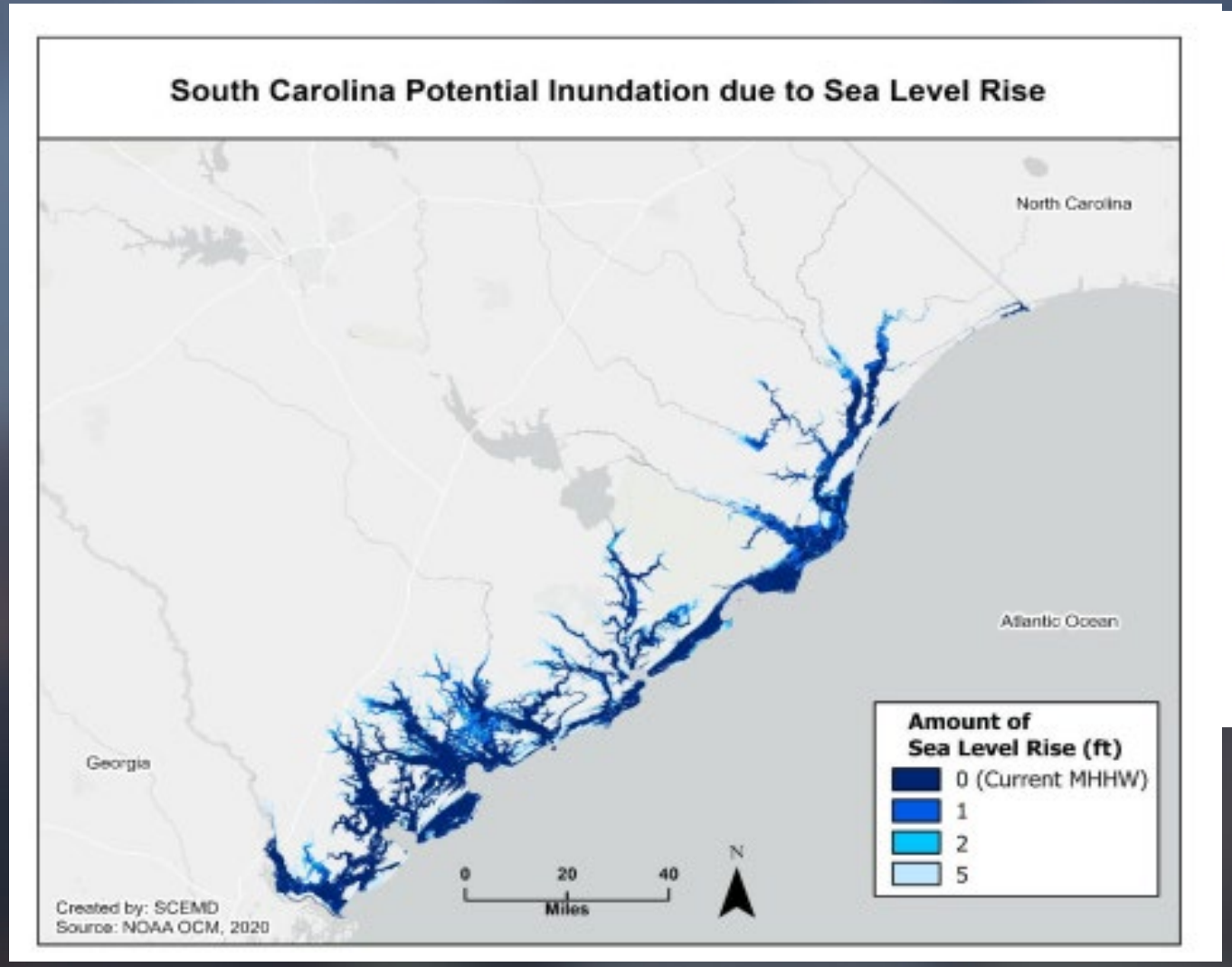
Climate change considerations for each hazard for which it may be relevant.



MitigationSC (Coming Soon)

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- Web platform based in Palmetto EOC
- Hazard data available in GIS layers to support local risk analysis and mitigation and resilience planning
- Includes local hazard mitigation planning portal and mapped hazard mitigation projects

Contact Us

SCEMD

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