

# Community Shocks & Stressors



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# What are Environmental Shocks?

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Sudden immediate crisis or disaster

- Earthquake
- Extreme Heat
- Flooding
- Hurricane
- Severe Weather
- Severe Winter Weather
- Tornadoes
- Wildfire

# What are Stressors?

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Long-term challenges that can affect the day-to-day

- Climate Change
- Sea Level Rise
- Affordable Housing
- Access to Healthcare
- Rising Temperatures
- Economic Status
- Transportation Accessibility

# Let's talk about Risk

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$$\text{Risk} = \frac{\text{Hazard} \times \text{Exposure} \times \text{Vulnerabilities}}{\text{Capacity}}$$



# Coastal Georgia Hazards & Risk

\*based on probability, impact, spatial extent, warning time and duration

## High Risk

- Extreme Heat
- Flooding
- Hurricane
- Severe Weather
- Sea Level Rise

## Moderate Risk

- Hail
- Lightning
- Earthquake
- Erosion

## Low Risk

- Dam Failure



## Category 1 Hurricane Scenario

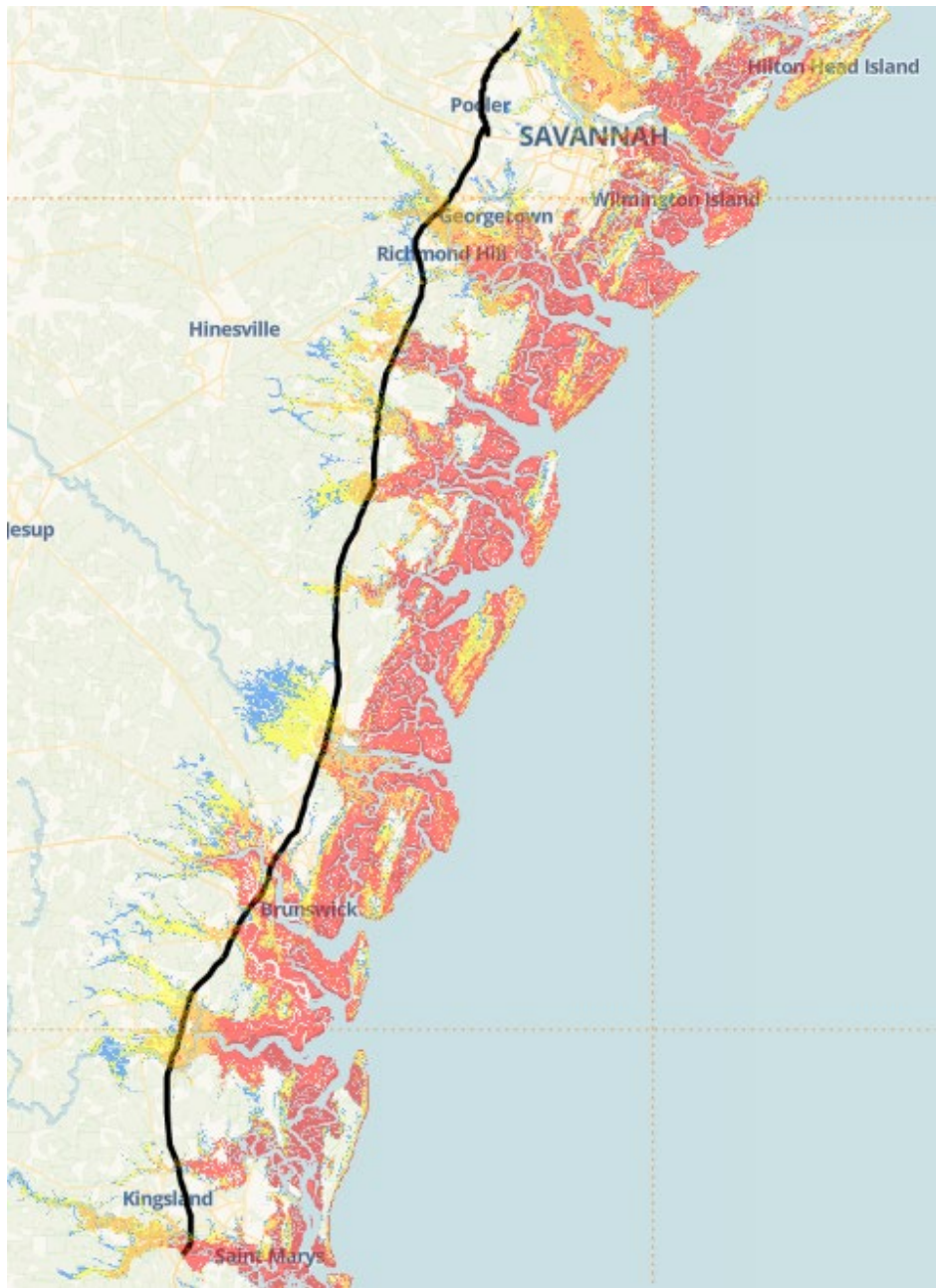
■ >9 feet

■ >6 feet

■ >3 feet

■ Up to 3 feet

\*above ground level



### Category 2 Hurricane Scenario

■ >9 feet

■ >6 feet

■ >3 feet

■ Up to 3 feet

\*above ground level



## Category 3 Hurricane Scenario

 >9 feet

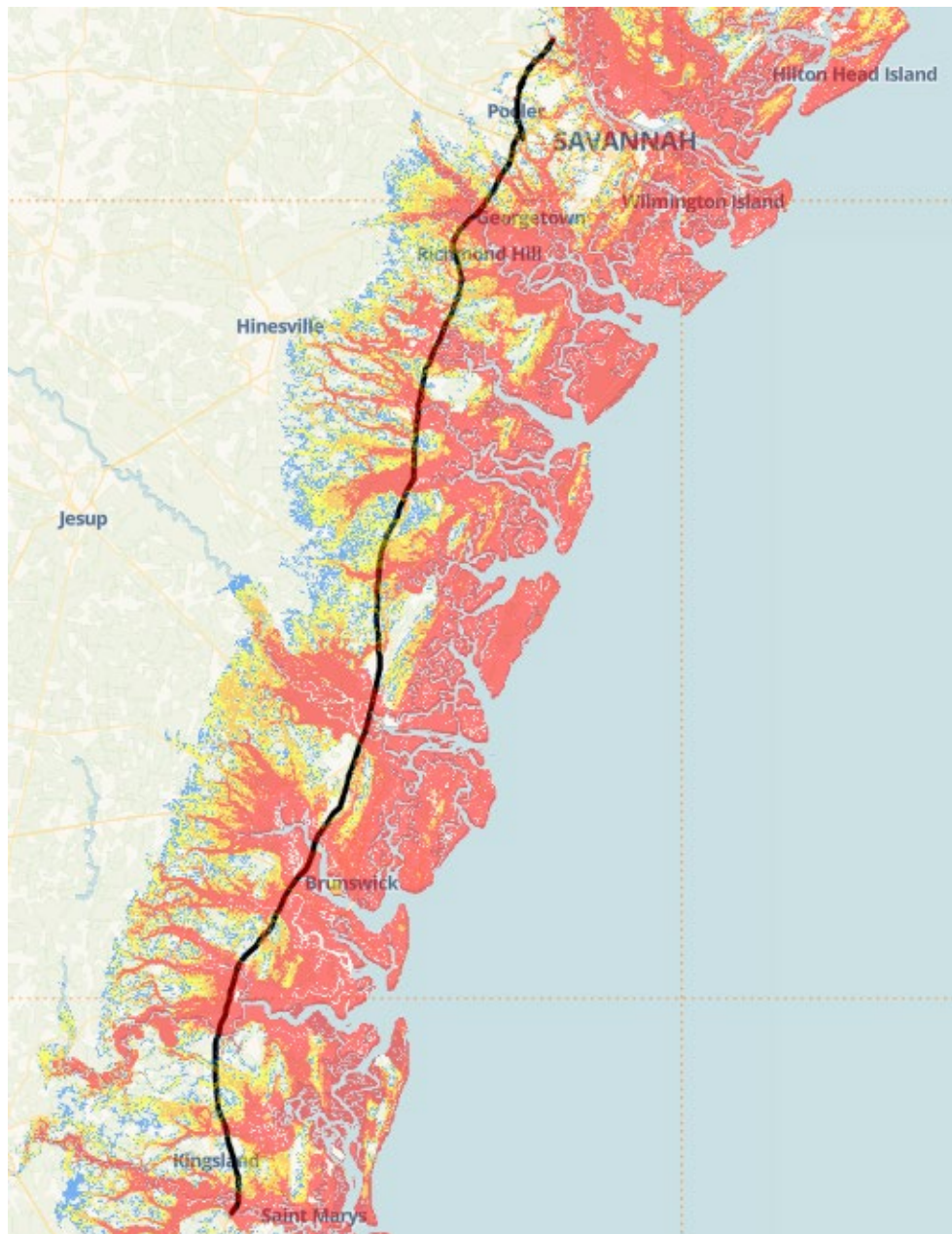
 >6 feet

 >3 feet

 Up to 3 feet

\*above ground level





## Category 4 Hurricane Scenario

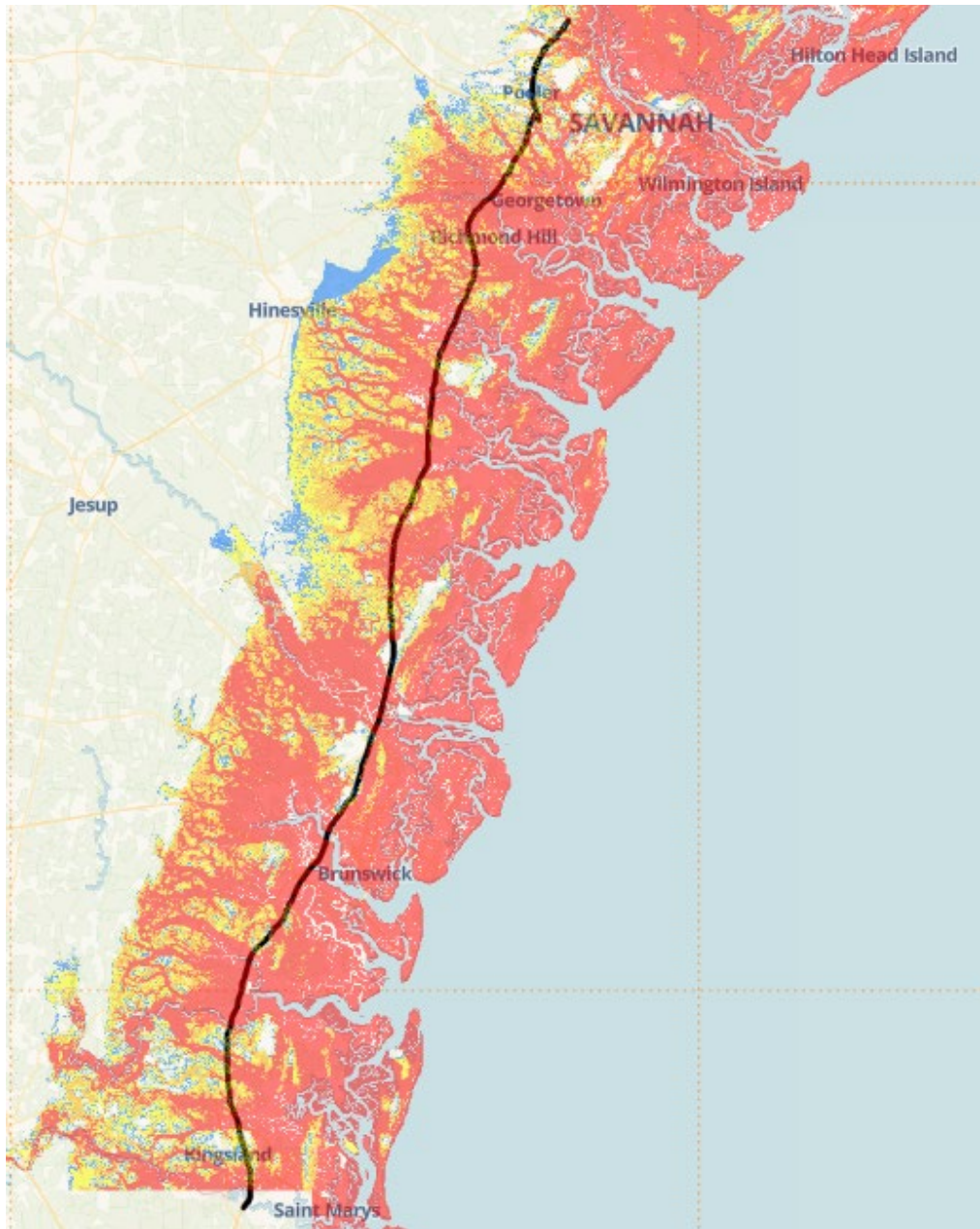
■ >9 feet

■ >6 feet

■ >3 feet

■ Up to 3 feet

\*above ground level



## Category 5 Hurricane Scenario

■ >9 feet

■ >6 feet

■ >3 feet

■ Up to 3 feet

\*above ground level

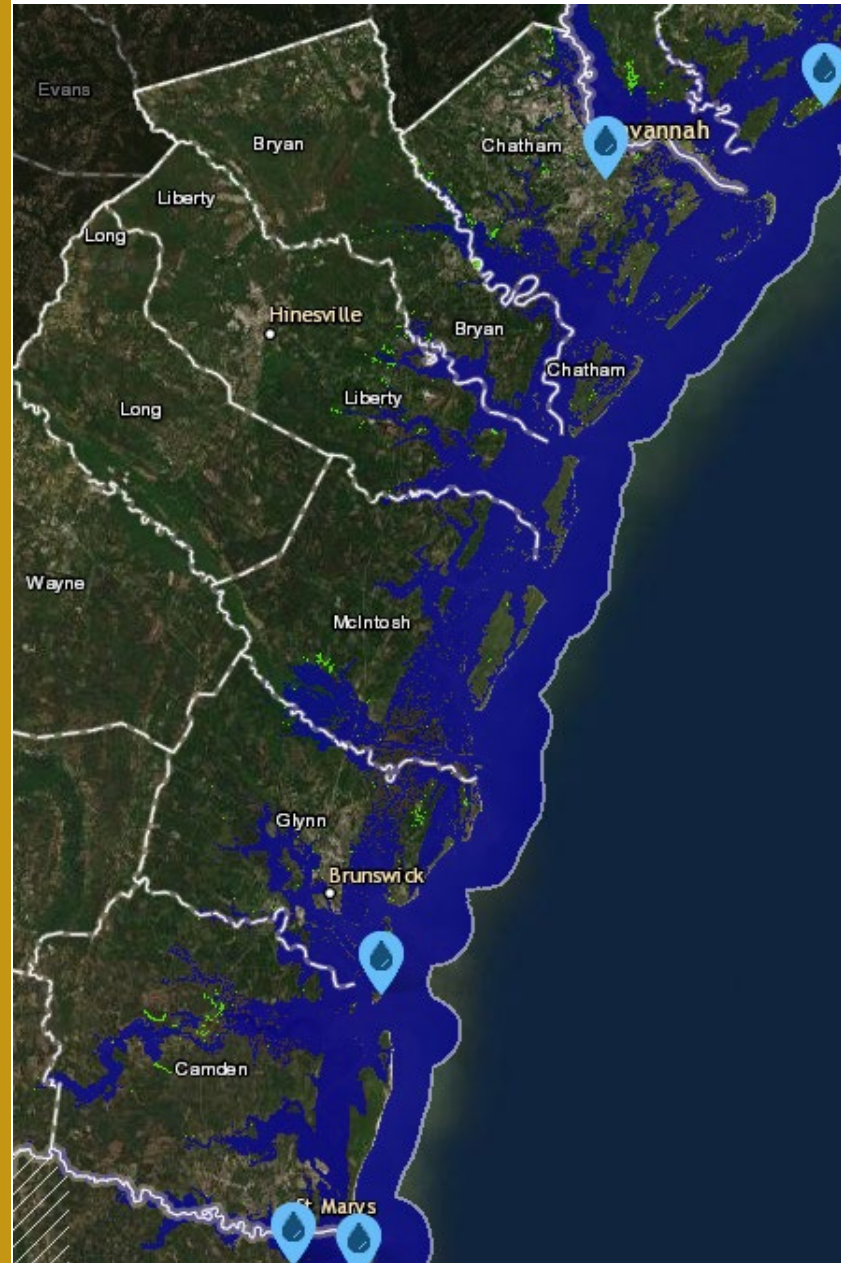
# Now let's sprinkle in some Sea Level Rise...

Observation Extrapolations	Low	Intermediate-Low	Intermediate	Intermediate-High	High	Median Bounding Scenarios
<b>Northeast</b>						
0.40 [0.30, 0.47]	0.36 [0.27, 0.45]	0.40 [0.31, 0.49]	0.43 [0.34, 0.54]	0.49 [0.38, 0.64]	0.54 [0.40, 0.69]	Int-Low
<b>Southeast</b>						
0.41 [0.32, 0.50]	0.28 [0.20, 0.35]	0.32 [0.25, 0.40]	0.36 [0.28, 0.46]	0.43 [0.32, 0.58]	0.49 [0.35, 0.64]	Int-Int-High
<b>Eastern Gulf</b>						
0.48 [0.43, 0.54]	0.30 [0.22, 0.38]	0.34 [0.26, 0.42]	0.38 [0.30, 0.48]	0.45 [0.34, 0.60]	0.51 [0.38, 0.68]	Int-High-High
<b>Western Gulf</b>						
0.59 [0.51, 0.67]	0.49 [0.41, 0.57]	0.53 [0.44, 0.62]	0.57 [0.47, 0.67]	0.63 [0.51, 0.79]	0.69 [0.56, 0.87]	Int-Int-High
<b>Southwest</b>						
0.24 [0.20, 0.29]	0.15 [0.10, 0.20]	0.20 [0.14, 0.26]	0.24 [0.18, 0.32]	0.31 [0.22, 0.45]	0.38 [0.26, 0.54]	Intermediate
<b>Northwest</b>						
0.16 [0.08, 0.24]	0.10 [0.05, 0.15]	0.15 [0.09, 0.20]	0.18 [0.12, 0.26]	0.25 [0.15, 0.39]	0.31 [0.19, 0.47]	Int-Low-Int

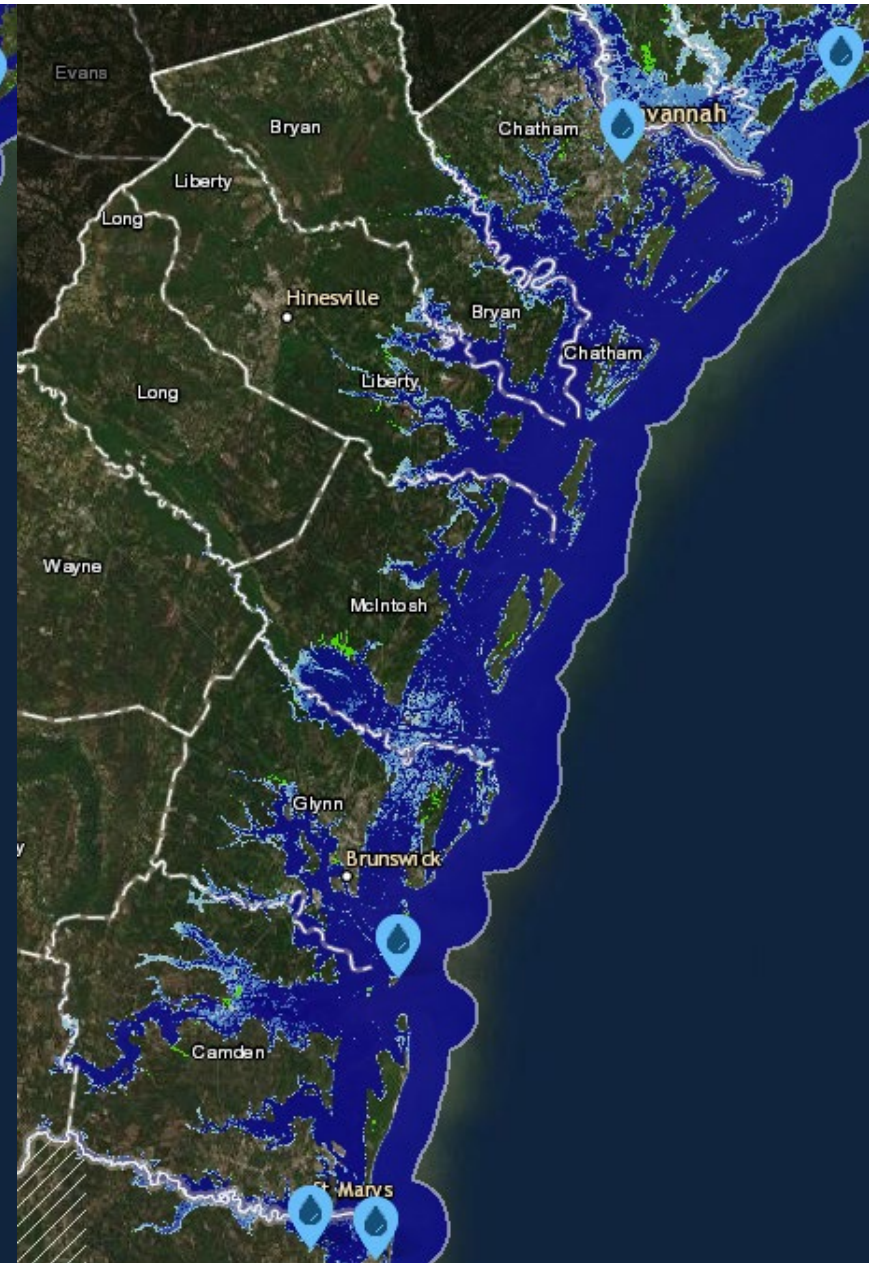
Source: 2022 Sea Level Rise Technical Report (NOAA)

# One Foot of Sea Level Rise is Projected by 2050

Source: 2022 Sea Level Rise Technical Report (NOAA)



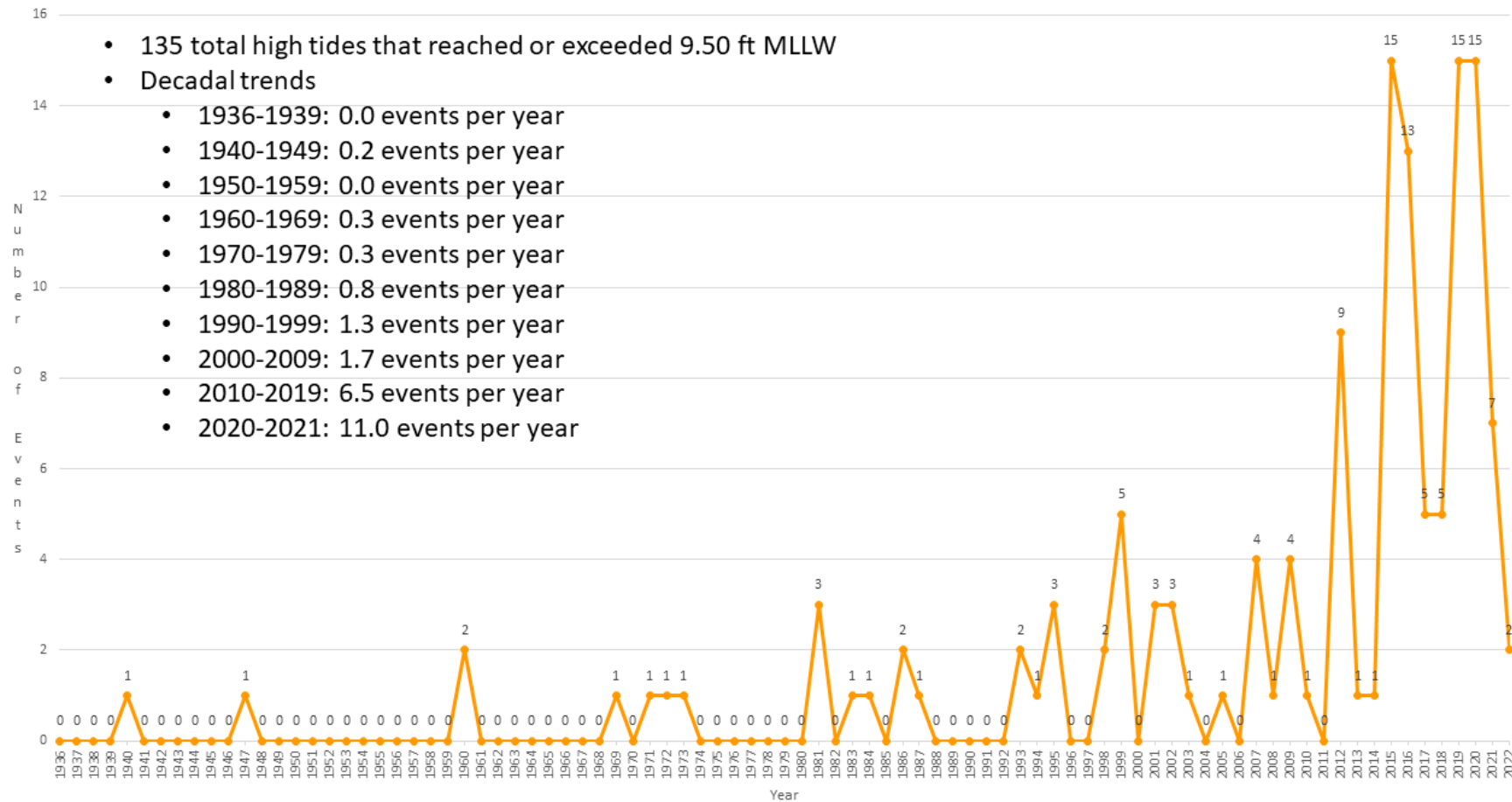
Present Day



2050

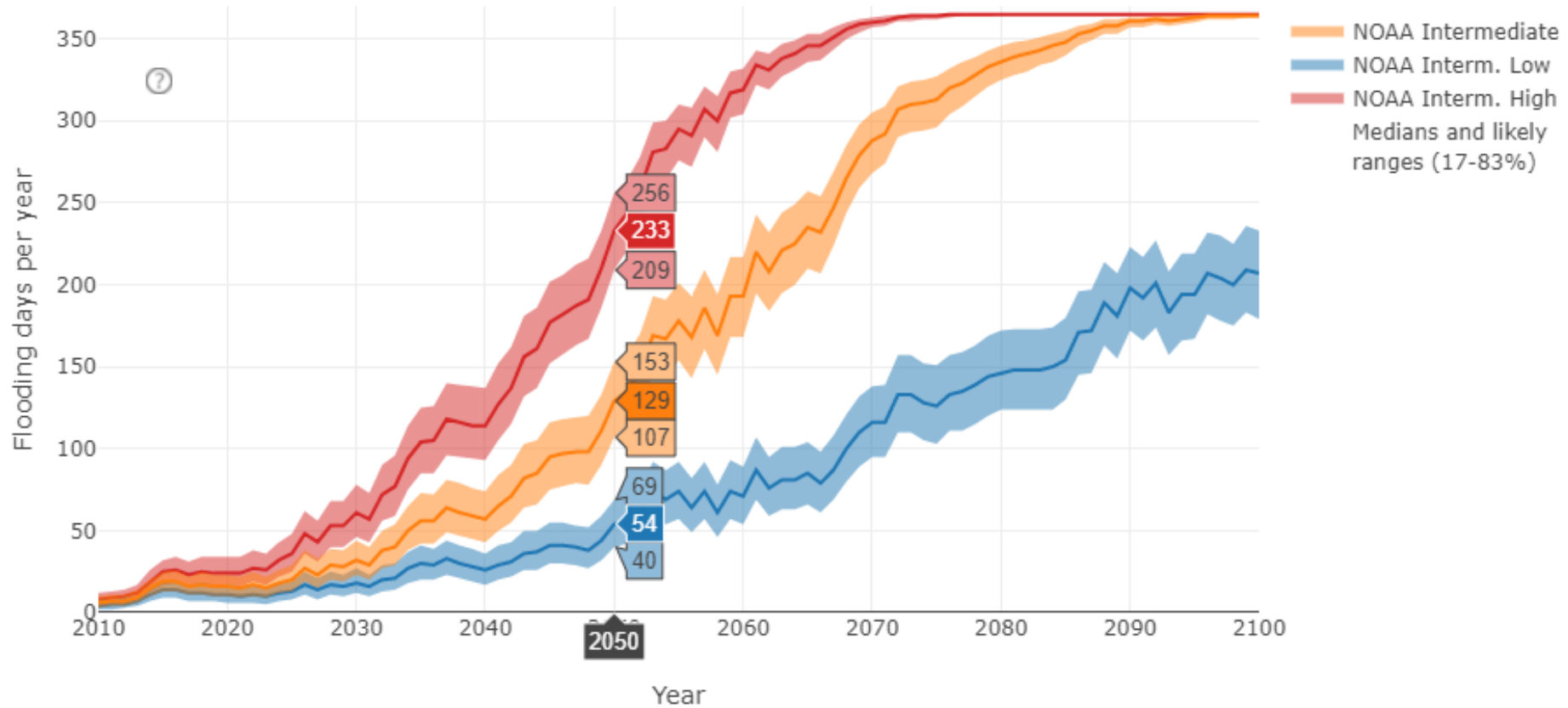
# What does that mean for us?

Fort Pulaski, GA Tide Events by Year (9.5 ft MLLW or higher)



- 135 total high tides that reached or exceeded 9.50 ft MLLW
- Decadal trends
  - 1936-1939: 0.0 events per year
  - 1940-1949: 0.2 events per year
  - 1950-1959: 0.0 events per year
  - 1960-1969: 0.3 events per year
  - 1970-1979: 0.3 events per year
  - 1980-1989: 0.8 events per year
  - 1990-1999: 1.3 events per year
  - 2000-2009: 1.7 events per year
  - 2010-2019: 6.5 events per year
  - 2020-2021: 11.0 events per year

# What does that mean for us?



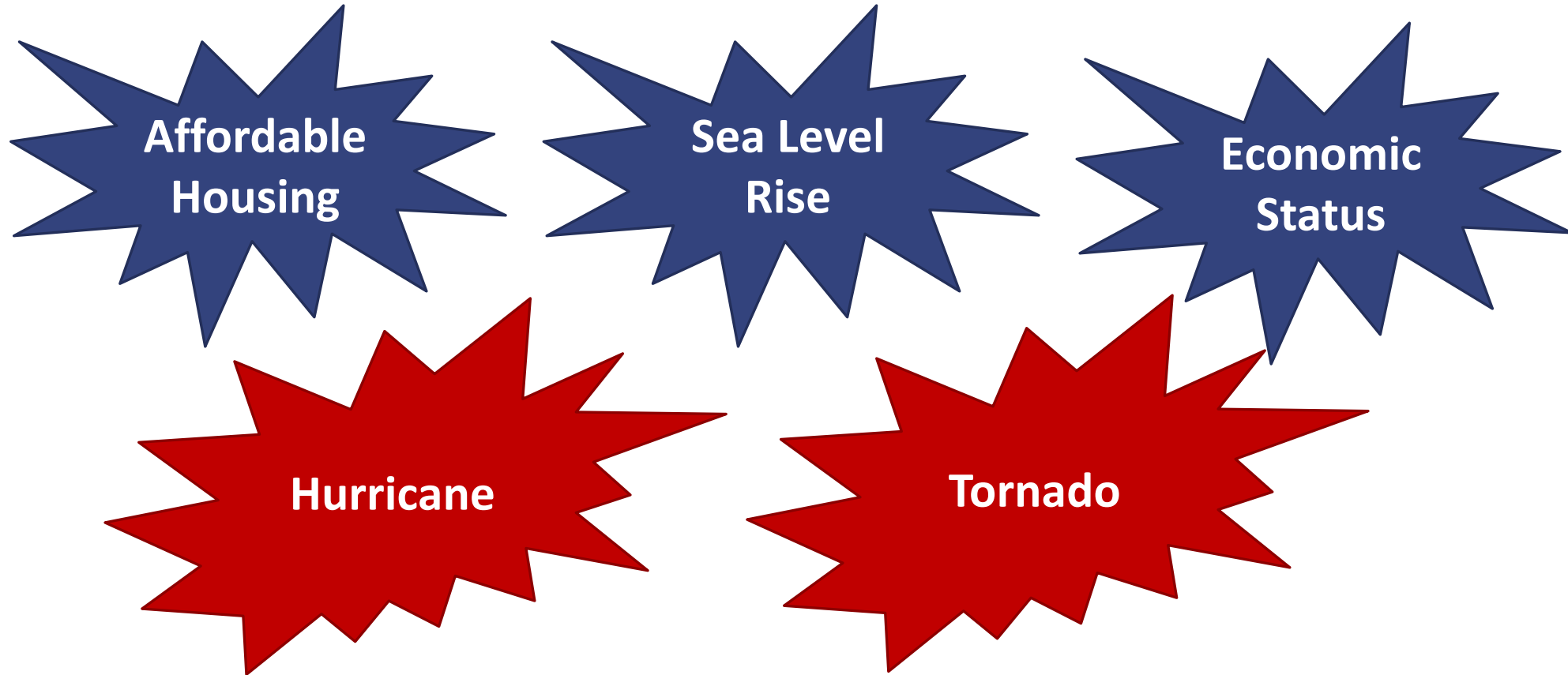
# How is risk impacted?

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$$\text{Risk} = \frac{\text{Hazard} \times \text{Exposure} \times \text{Vulnerabilities}}{\text{Capacity}}$$

# Cascading impacts of Shocks and Stressors

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# Cross-Sector Collaboration is Critical

How can we work together to achieve more?

How can we maximize co-benefits?

