



New Orleans East

Climate Vulnerability Assessment & Green Infrastructure Project

*Introduction to Adaptation &
Climate Change in New Orleans East*



CLIMATE CHANGE ADAPTATION



Adaptation: Adjusting what we do or how we live so we're less harmed by current or future climate change effects.

Adaptation is not just about survival - it's about building *resilient communities* that can thrive in a changing climate.

We can all play a role in shaping a future that learns, adapts, and grows with the planet.

Adaptation is for everyone.

WHAT IS VULNERABILITY

IN THE CONTEXT OF CLIMATE CHANGE

Climate change vulnerability: The degree to which a community or resource is susceptible to and unable to cope with the adverse impacts of climate change.

EXPOSURE is a measure of *how much change* in climate that a resource or community is likely to experience

SENSITIVITY is a measure of *whether and how* something is likely to be affected by a given change in climate factors

Climate IMPACTS are the *effects* of climate change on nature and society

ADAPTIVE CAPACITY is a measure of ability to *accommodate or cope* with climate change impacts with minimal disruption

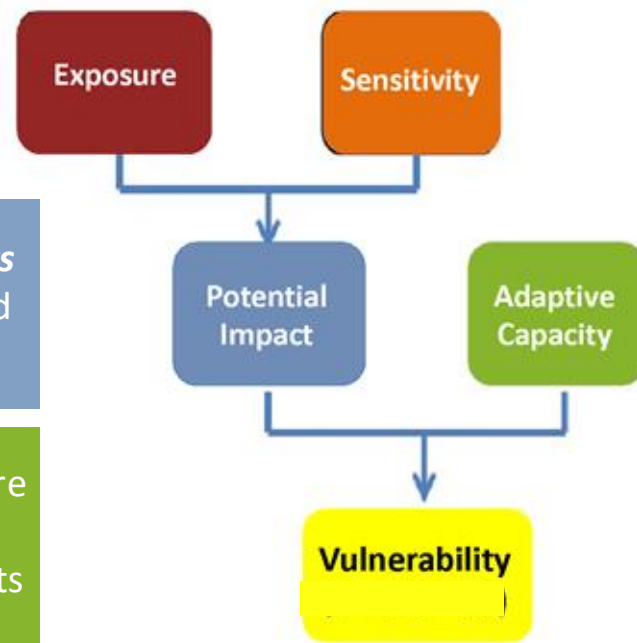


Figure adapted from Glick et al. 2011

CLIMATE CHANGE VULNERABILITY ASSESSMENTS

Vulnerability assessment: A process that identifies who and what are most at risk from climate impacts, why they're vulnerable, and what can build resilience.

- Helps prioritize where adaptation efforts are most needed
- Informs policies, urban planning, and community resilience projects
- Develop strategies to address climate change
- Efficiently allocate resources
- Ensures adaptation is targeted and equitable

Identify ***what*** is most vulnerable and ***why***

CLIMATE CHANGE STRESSORS



A change in climate (*like **hotter days, extreme flooding, rising seas, or stronger storms***) that puts pressure on people, nature, and the things we build, making problems more likely or more severe.

PROJECTIONS & STRESSORS

NEW ORLEANS EAST



- Higher average temperatures and **more extreme heat**
- Increased intensity of **hurricanes** and **extreme precipitation** events
- **Sea level rise** and more frequent high-tide flooding
- Increased inland and **coastal flooding**

EXTREME PRECIPITATION & FLOODING



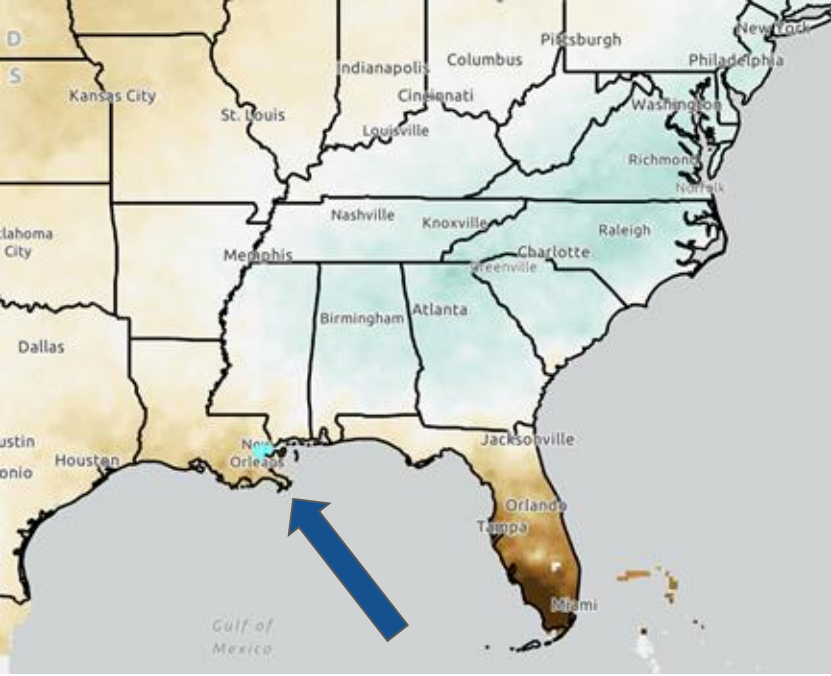
- **Louisiana is expected to see more frequent heavy-rainfall events, and the intensity of the heaviest events is increasing.**
- New Orleans East is low-lying, and **an increase in heavy rainfall** (especially short-duration intense rain) **means a higher risk of urban flooding** and water pooling/flowing where it shouldn't in the community.

EXTREME PRECIPITATION



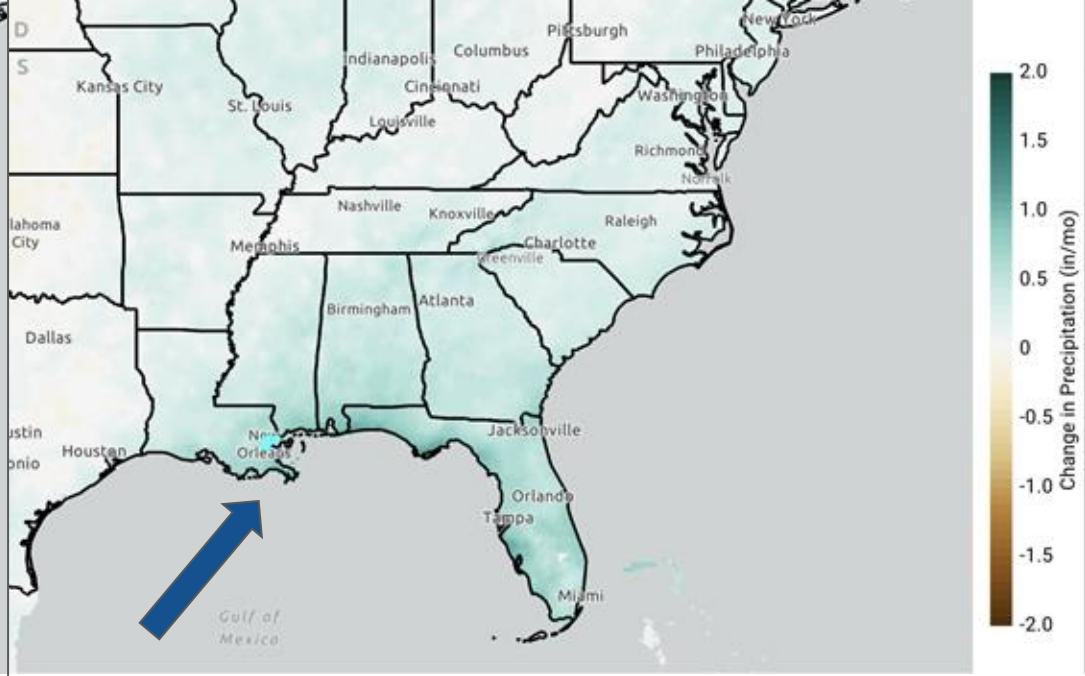
- **Annual Average Precipitation** (inches/month)
 - Historic: 4.97
 - 2050-2074: 5.03 (+0.06 from historic)
 - 2075-2099: 5.02 (+0.05 from historic)
- **Fall Average Precipitation** (inches/month)
 - Historic: 4.26
 - 2050-2074: 4.57 (+0.31 from historic)
 - **2075-2099: 4.87 (+0.61 from historic)**





Summer average precipitation

- 2075-2099 (inches/month)
 - Historical: 5.98
 - Future: 5.5
 - **Change: -0.48**



Fall average precipitation

- 2075-2099 (inches/month)
 - Historical: 4.26
 - Future: 4.87
 - **Change: 0.61**

EXTREME WEATHER EVENTS



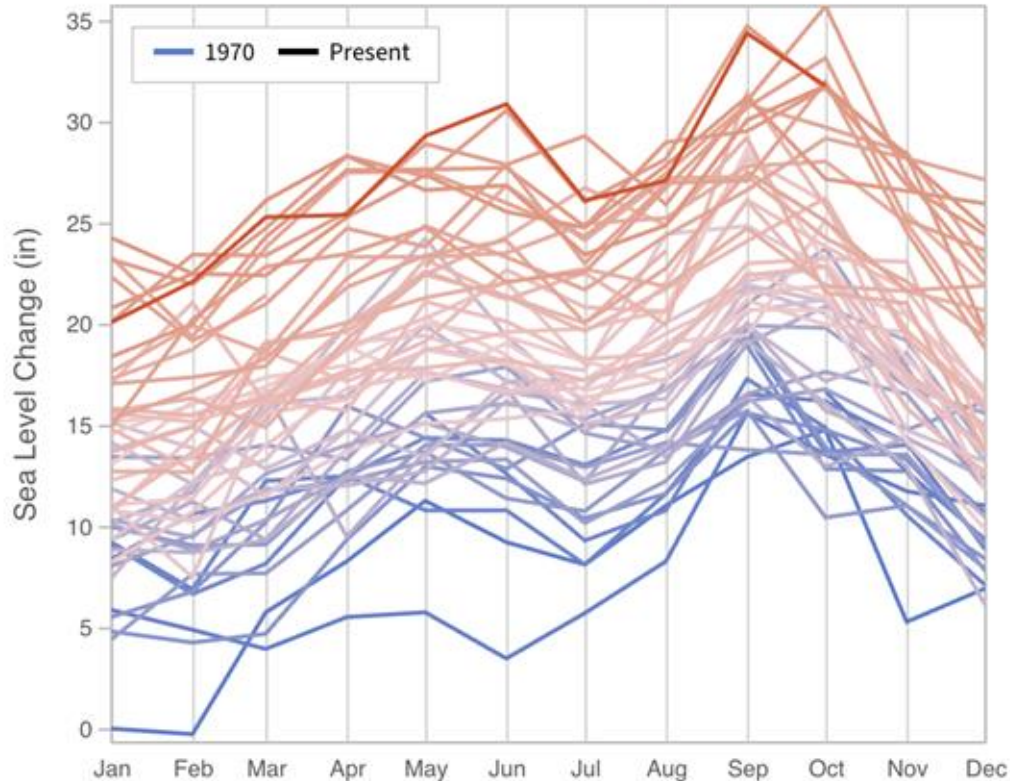
- Climate change is making more favorable conditions for **hurricanes** to **strengthen** more quickly
- Hurricanes are traveling more slowly, increasing damage potential
- **From 2019-2023 wind speed of hurricanes increased by about 80 percent**, which is about 18 miles per hour



SEA LEVEL RISE



Total sea level rise: 1970 - Present, 16.5 inches



Change in sea level over time in Louisiana relative to the 1970s average.



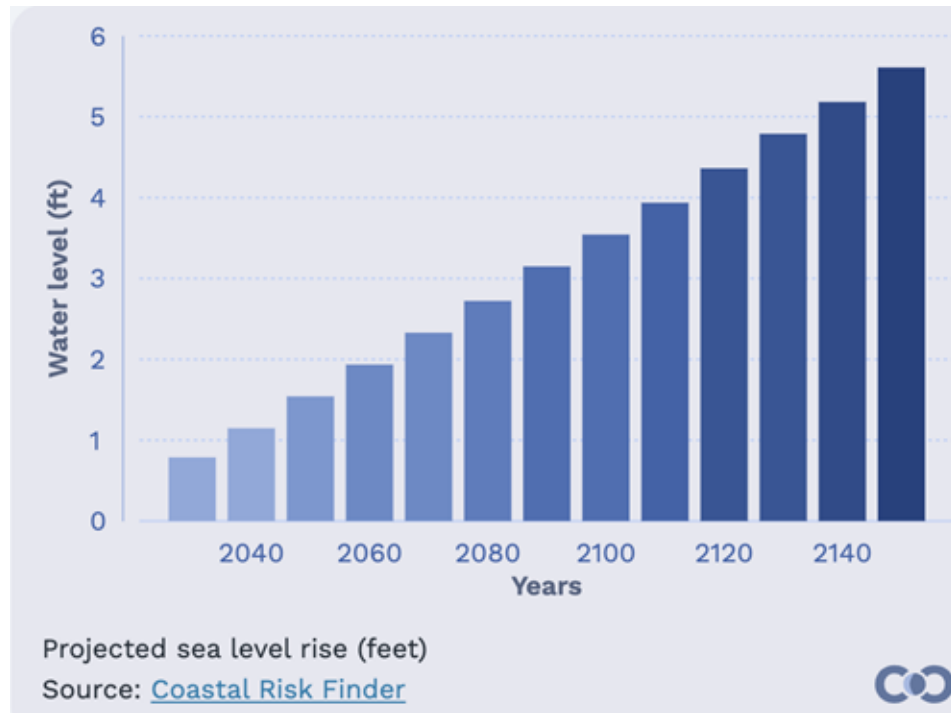
Increasing flood risk driven by a **warming climate, is causing sea levels to rise**, pushing tides and storm surges higher and farther inland.

SEA LEVEL RISE

From 2020-2050, sea levels along the U.S. coastline could **rise by as much as 11 inches**.

This is as much as the sea level rose during the last 100 years. **Because of this, coastal flooding would occur five to ten times more often by 2050 than in 2020.**

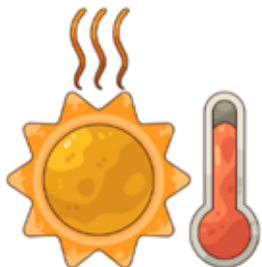
Sea level in New Orleans is projected to rise 1.5 feet by 2050 and 3.5 by 2100.



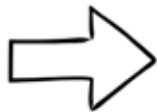
IMPACTS OF CLIMATE CHANGE

Climate Impact: The effects that a climate stressor has on people, the places we live (*home, roads, power, water*), the things we do, and the nature around us.

Climate Stressor



Higher temperatures



Climate Impact



Increased energy costs

Climate Stressor



Rising sea levels



Climate Impact



Recreation areas are
inaccessible

WHAT IS GREEN INFRASTRUCTURE

Green infrastructure is a strategically planned network of natural, semi-natural, and built systems (*such as forests, wetlands, urban tree canopies, green roofs, parks, and bioswales*) that **integrate green and blue spaces to deliver essential ecosystem services.**

They can be implemented at different scales and with different approaches (*regional, neighborhood, site; street features, building features, landscape features*). **Green infrastructure is very adaptable.**



GREEN INFRASTRUCTURE SOLUTIONS

Coastal cities like New Orleans face sea level rise, heat stress, and storm surges. **Here is where green infrastructure crosses over with climate change adaptation** and support community resilience.

- Slow floodwaters and store stormwater
- Reduce urban temperatures & provide cooling benefits
- Buffer against wind and storm surge

GREEN ROOFS

BIORETENTION & BIOSWALES

PERMEABLE PAVEMENTS

URBAN FORESTRY

RAIN GARDENS

BUILDING AN URBAN TREE CANOPY

- Tree roots stabilize soils and reduce **coastal erosion**.
- Shade and cooling reduce **energy demand** in coastal urban areas.
- Strengthens **community resilience** by improving mental and physical health.
- Trees reduce the **urban heat island effect**
- **Slow and drain runoff** and ease stress on drainage systems

