

SEA LEVEL RISE SUBJECT BRIEF

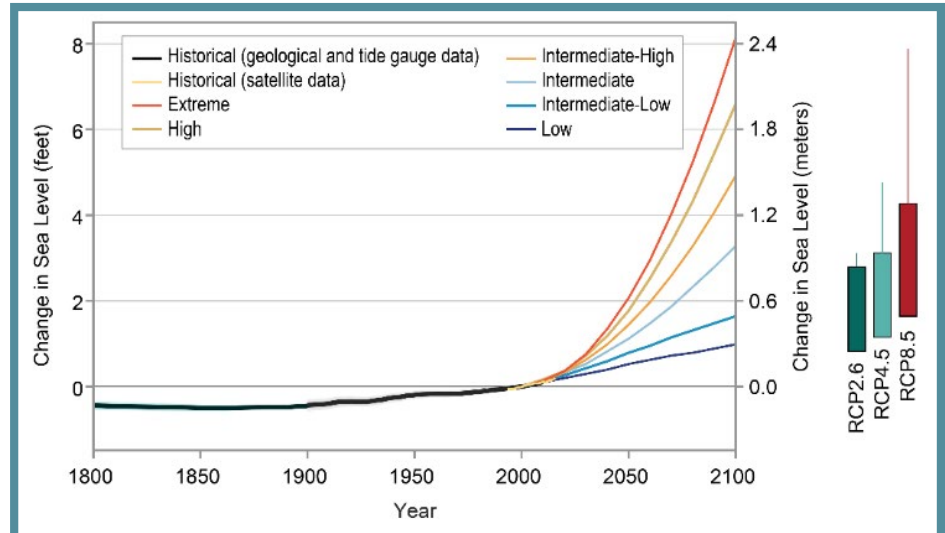


FLORIDA DEPARTMENT OF
TRANSPORTATION

What is Sea Level Rise?

According to the National Oceanic and Atmospheric Administration (NOAA), Global Sea Level Rise refers to the increase in the average Global Sea Level Trend, which is primarily attributed to changes in ocean volume due to two factors: ice melt (melting of glaciers and continental ice) and thermal expansion (expansion of sea water due to temperature increasing ocean volume). Sea level rise may be due to water rise and/or land subsidence (sinking of the ground). Local sea level, known as relative sea level change, is affected by global sea level fluctuations, changes in land elevation, winds, and ocean circulation.

The rate of sea level rise is accelerating: it has more than doubled from 0.06 inches per year throughout most of the twentieth century to 0.14 inches per year from 2006–2015. According to the US Army Corps of Engineers (USACE) and National Oceanic and Atmospheric Administration (NOAA), sea level is very likely to rise 1 to 4 feet by the end of the century relative to the year 2000. NOAA estimates that an increase of 3 feet of sea level rise by the year 2100 will affect over 2 million people in Florida.



Source: Global and Regional Sea Level Rise Scenarios for the United States, NOAA

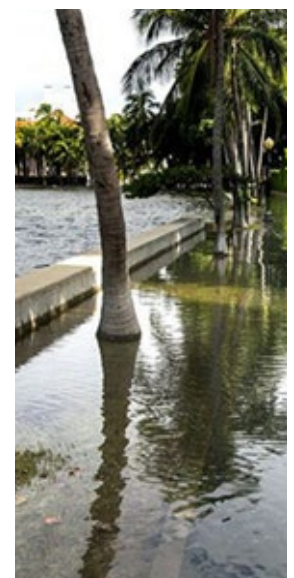
Why is Sea Level Rise a Key Consideration For Florida's Transportation System?

Transportation infrastructure projects can be programmed 20 or more years in the future, with infrastructure having life expectancies even longer. Incorporating sea level rise considerations (projections, risk tolerance, and life cycle implications) into projects and service development is important to maintain transportation facilities, mitigate risks and rising costs, and ensure continued ability to safely move people and goods.

What is FDOT's Role in Addressing Impacts of Sea Level Rise?

FDOT's policy on resilient transportation infrastructure highlights sea level rise as a key source of risk and states that the department will employ strategies to avoid, mitigate, or eliminate impacts.

The Department will continue to identify risks, particularly related to sea level rise, flooding, and storms; assess potential impacts; and employ strategies to avoid, mitigate, or eliminate impacts.



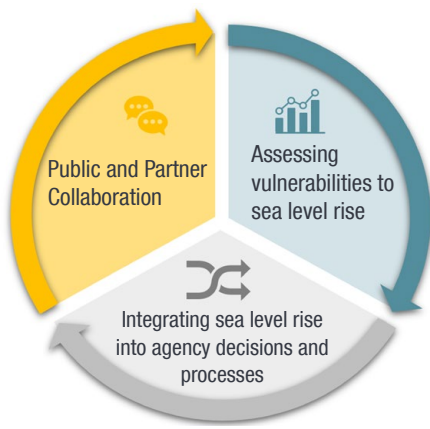
Trends to Consider

Florida is home to
**22 OF THE TOP 25 CITIES
MOST VULNERABLE
TO COASTAL
FLOODING**
in the US

Nearly
**170 COASTAL
COMMUNITIES**
in the U.S. are projected to experience
FLOODING more than
**26 TIMES
PER YEAR**
by 2035

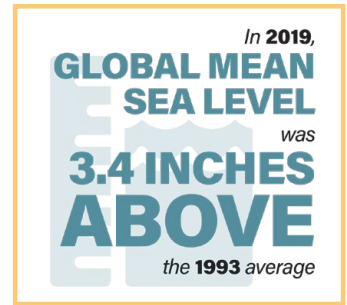
Source: These U.S. Cities Are Most Vulnerable to Major Coastal Flooding and Sea Level Rise, Climate Central

Source: When Rising Seas Hit Home, Hard Choices Ahead for Hundreds of US Coastal Communities, The Union of Concerned Scientists



Assessing Vulnerabilities to Sea Level Rise:

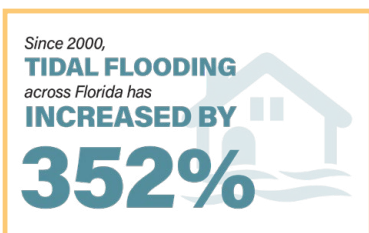
FDOT is undertaking vulnerability and risk assessments of Strategic Intermodal System facilities, including their vulnerability to sea level rise. FDOT's Sea Level Rise Scenario Sketch Planning tool is used to conduct segment and asset-level analysis of future sea level rise risk and visualize multiple scenarios spanning various time horizons.



Source: *Climate Change: Global Sea Level, The Union of Concerned Scientists*

Integrating Considerations to Potential Sea Level Rise Impacts into Agency Decisions:

- Updating the data provided in the linear projection table in the Drainage Manual and will review and include recommendations from Hydraulic Engineering Circular No. 25 (HEC 25) in a future version of the Drainage Manual
- Updating bridge replacements due to end of service - using predictions to set low member, bridge approaches
- Updating coastal roads - closed drainage system upgrades and backflow devices
- Installing stabilizing underground walls
- Supporting nature-based solutions such as beach and dune nourishment
- Raising road elevations
- Upgrading stormwater infrastructure with projects



Source: *Florida's Sea Level Is Rising, Sea Level Rise Organization*

Public and Partner Collaboration:

- Coordinating with the Department of Environmental Protection (DEP) as it prepares rulemaking for §161.551 F.S. (Senate Bill 178) that requires Sea-Level Impact Projection (SLIP) studies for projects in coastal areas.
- Coordinating with the USACE South Atlantic Coastal Study (SACS) & Coastal Storm Risk Management Studies

What are Some of the Resources Available to Learn More About This Topic?

[Sea Level Scenario Sketch Planning Tool](#)

[Public Tools Developed by USACE – Sea-Level Change](#)

[Sea-Level Curve Calculator \(Version 2019.21\)](#)

[NOAA Sea Level Rise and Coastal Flooding Impacts](#)

[SACS Tier 1 Risk Assessment Viewer](#)

[National Climate Assessment – Sea Level Rise](#)

[Sea Level Impact Projection \(SLIP\) Studies §161.551 F.S.](#)

[SB 178 SLIP Studies](#)

[U.S. Department of Transportation Federal Highway Administration Hydraulic Engineering Circular No. 25](#)



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