
# *Utilizing the Projection Guidance*

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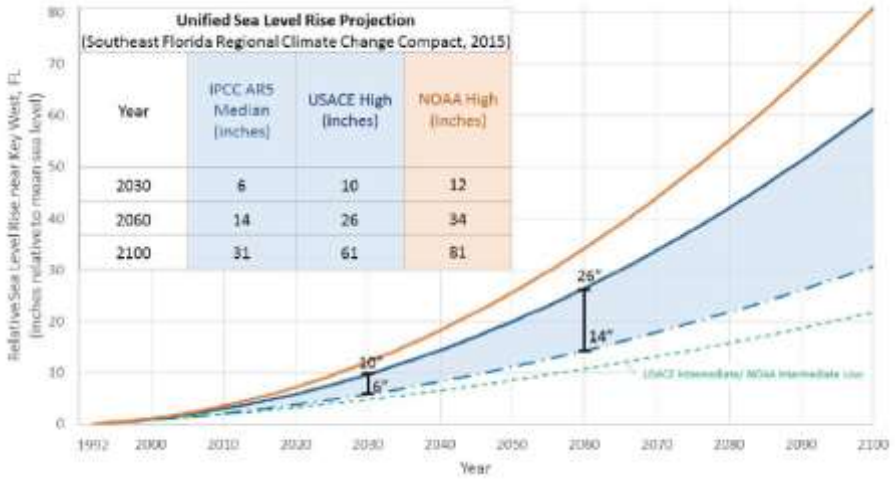
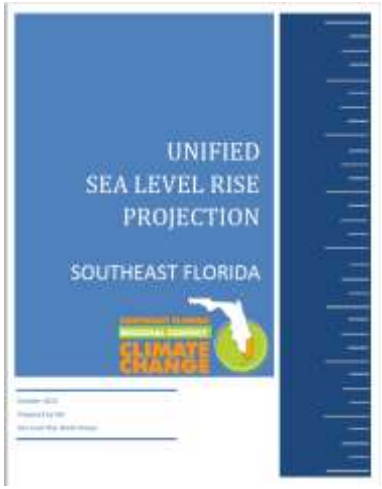
# *Using the Projection*

Topics include:

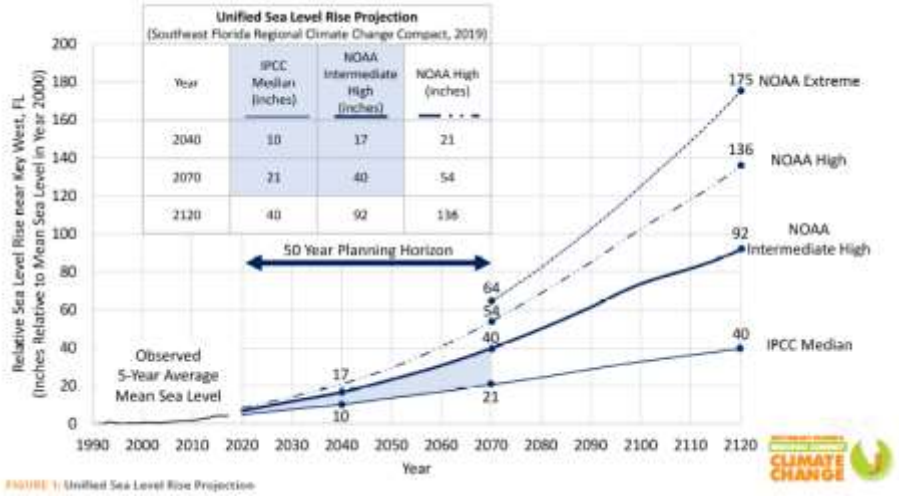
- 2015 versus 2019 Projection
- Selecting a curve
- Choosing a reference elevation
- Tools for calculating curves and visualizing SLR

# 2015 versus 2019 Projection




**How do these two projections compare?**

# 2015 versus 2019 Projection

- 1992 vs 2000 Baseline: Difference in MSL comparing 1992 to 2000 is > 1 inch

- 2015 versus 2019: Lowest curve ↑2-3 inches for 2030 planning horizon
- Higher curves↑7-22 inches after 2060 planning horizon

**TABLE 2: Comparison of Unified Projection in 2015 and 2019 at Key West**

| UNIFIED SEA LEVEL RISE PROJECTION COMPARISON | | | | | | |
|---|---|---|---|---|---|---|
| Year | High Adaptability ← | | | → | Low Adaptability | |
| | 2015 | 2019 | 2015 | 2019 | 2015 | 2019 |
| | IPCC Median Global (inches) | IPCC Median Regional (inches) | USACE High (inches) | NOAA Inermediate High (inches) | NOAA High (inches) | NOAA High (inches) |
| 2030 | 6 | 8 | 10 | 12 | 12 | 14 |
| 2060 | 14 | 17 | 26 | 31 | 34 | 41 |
| 2100 | 31 | 33 | 61 | 74 | 81 | 103 |

*Note: The NOAA Extreme curve values are not included in the table because there was not a comparable curve in the 2015 projection.*

# Selecting a Curve

**Which curve should I use when considering siting and design of infrastructure projects?**

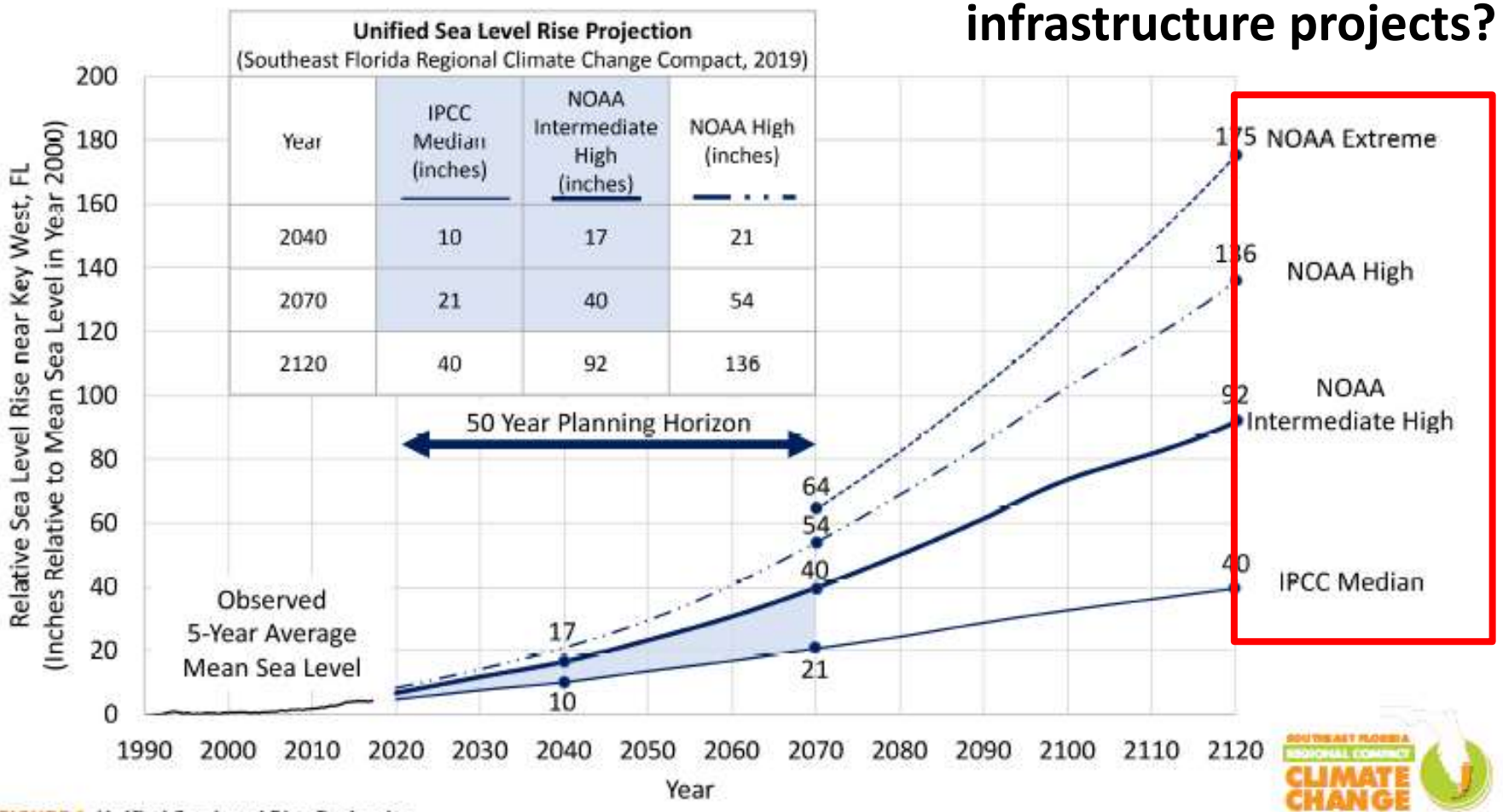



FIGURE 1: Unified Sea Level Rise Projection

# Selecting a Curve

**What is the intersection of my planning horizon and the project adaptability and risk tolerance?**

**Planning Horizon**

*Short*

*Long*

| Unified Sea Level Rise Projection (Southeast Florida Regional Climate Change Compact, 2019) | | | |
|---|---|---|---|
| Year | IPCC Median (inches) | NOAA Intermediate High (inches) | NOAA High (inches) |
| 2040 | 10 | 17 | 21 |
| 2070 | 21 | 40 | 54 |
| 2120 | 40 | 92 | 136 |

*High* ⟷ *Low*

**Adaptability/ Risk Tolerance**

# *Selecting a Curve*

## IPCC Median Curve

- **Lower range of *likely* sea level rise**
- **Infrastructure with short life span, adaptable, few interdependencies**
- **Consequences limited if fails**

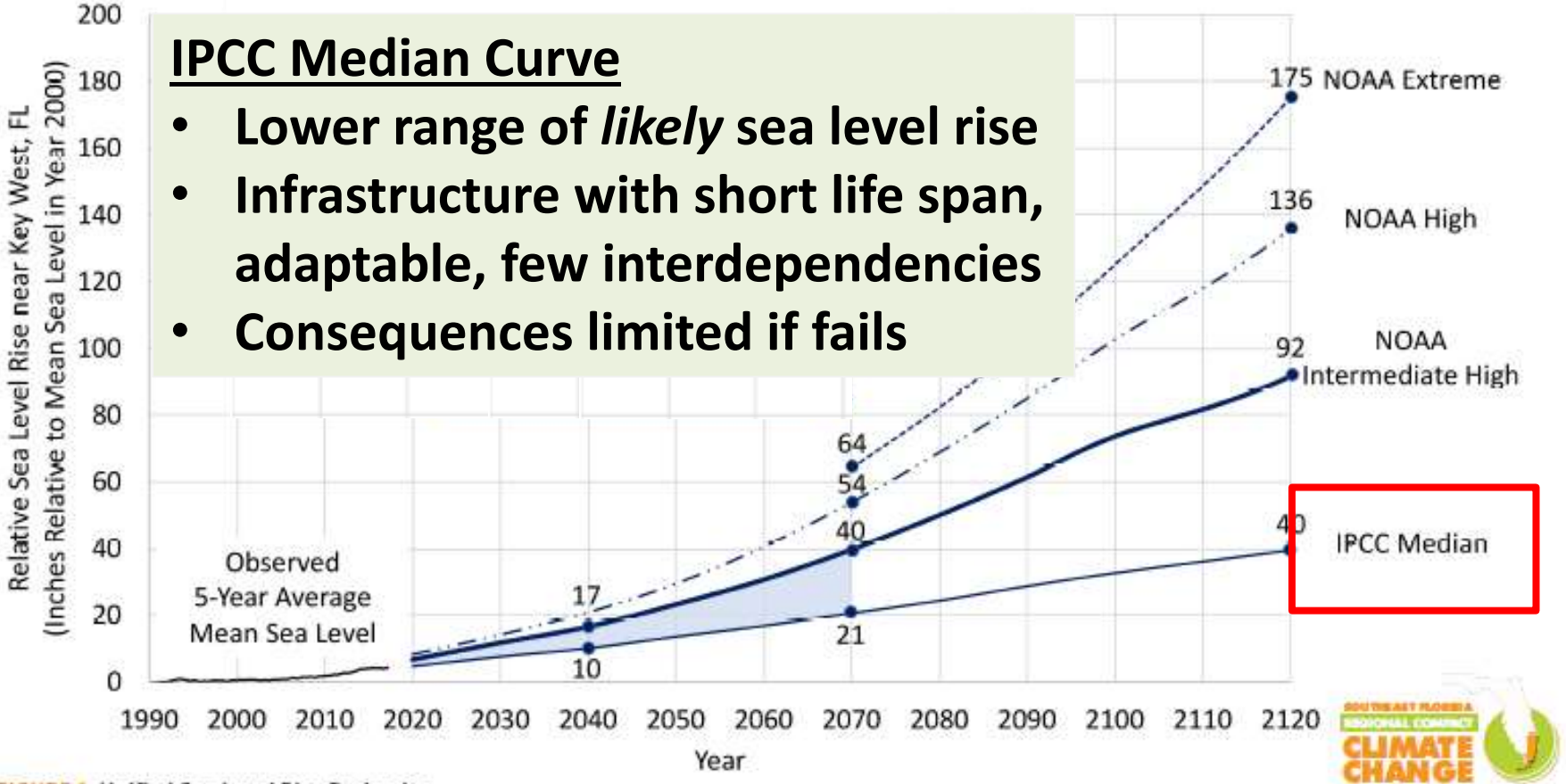



FIGURE 1: Unified Sea Level Rise Projection

# *Selecting a Curve*

## NOAA Intermediate High Curve

- **Mid range of *likely* sea level rise**
- **Important infrastructure up to a 50 year design life**
- **Projects needing a greater safety factor**

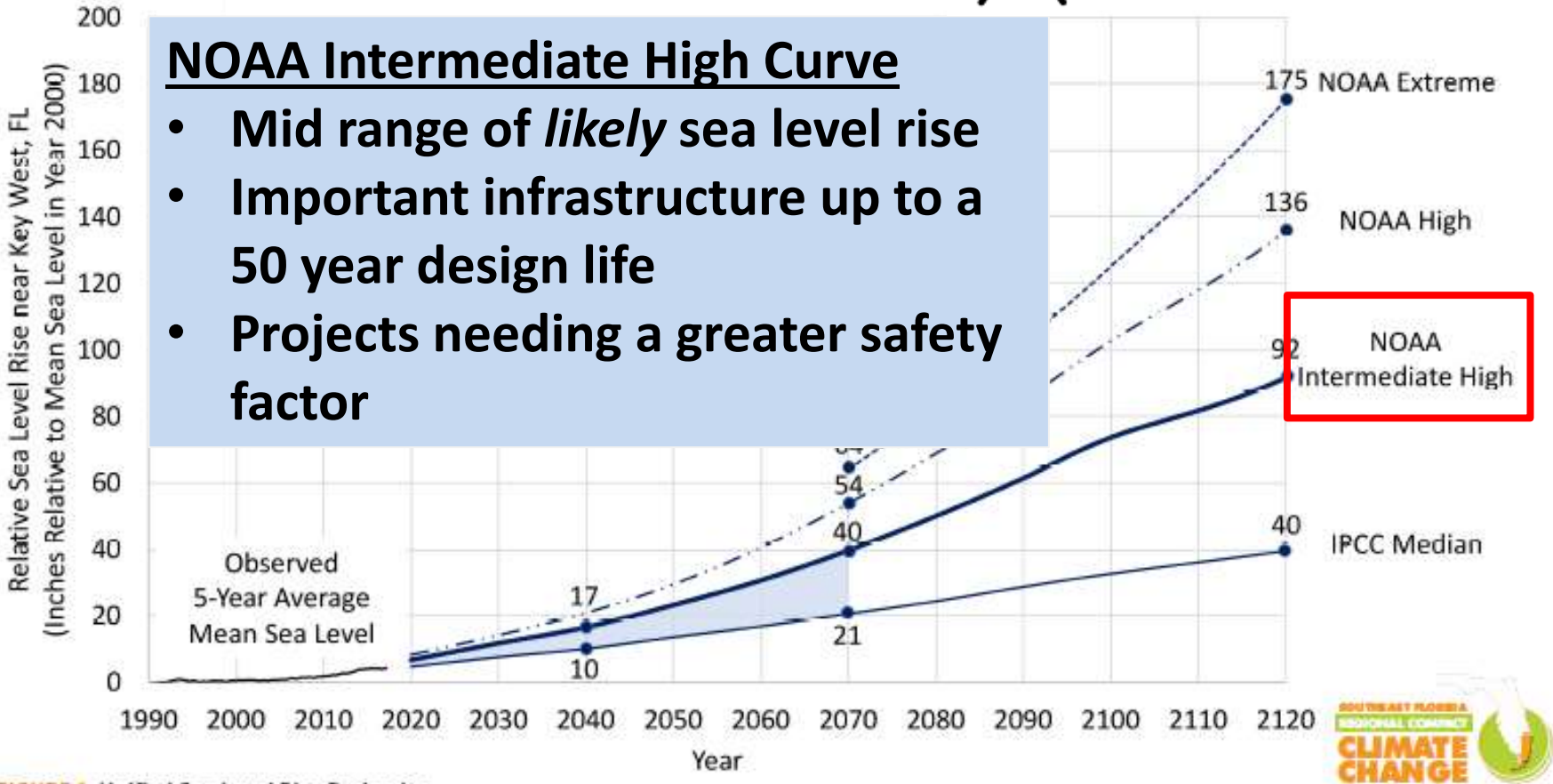



FIGURE 1: Unified Sea Level Rise Projection

# *Selecting a Curve*

## NOAA High Curve

- **Upper range of *likely* sea level rise**
- **Critical Infrastructure >50 year design life**
- **Low risk tolerance**

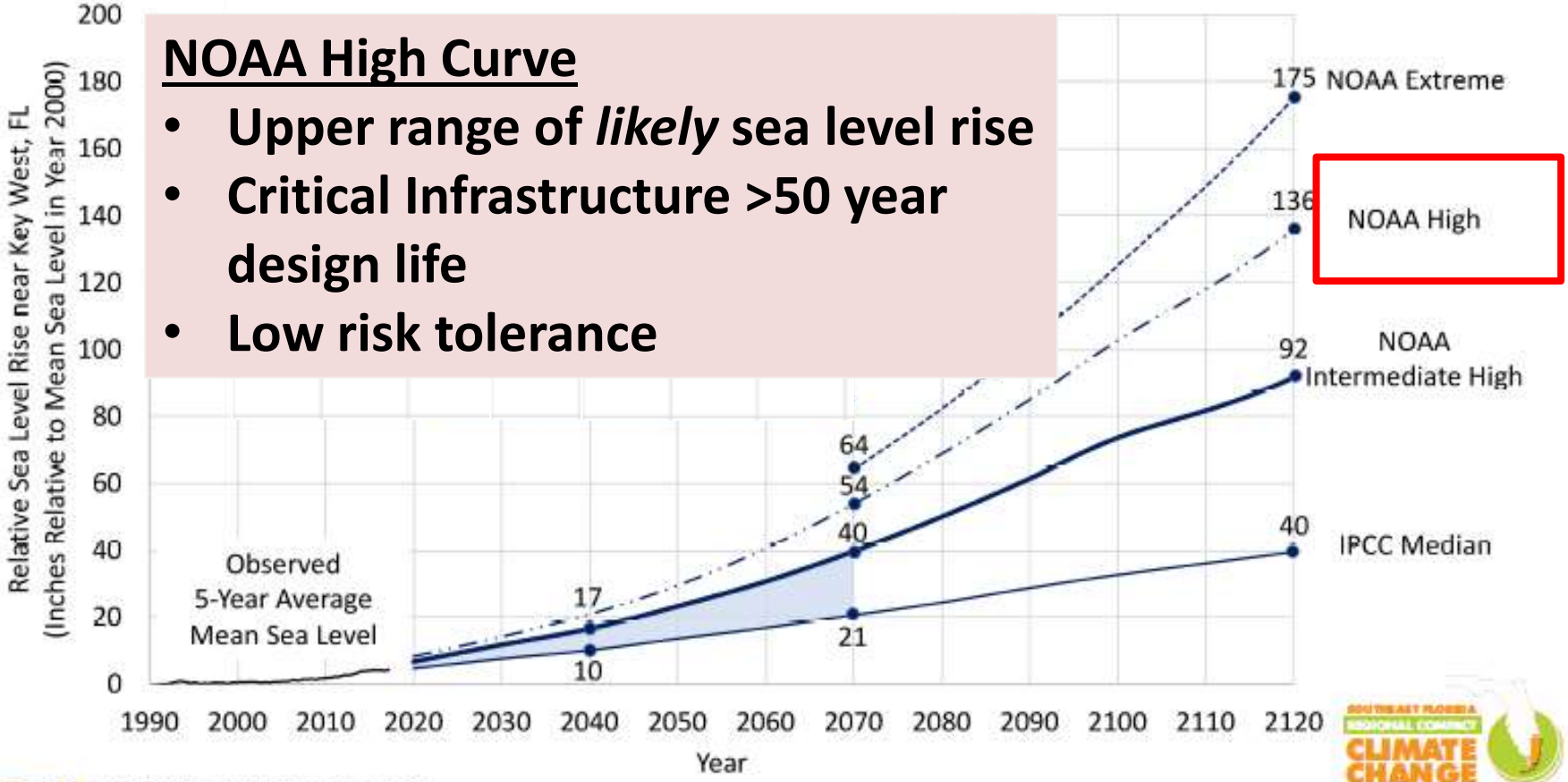



FIGURE 1: Unified Sea Level Rise Projection

# *Selecting a Curve*

## NOAA Extreme Curve

- **Upper range of *possible* sea level rise**
- **For information purposes only**

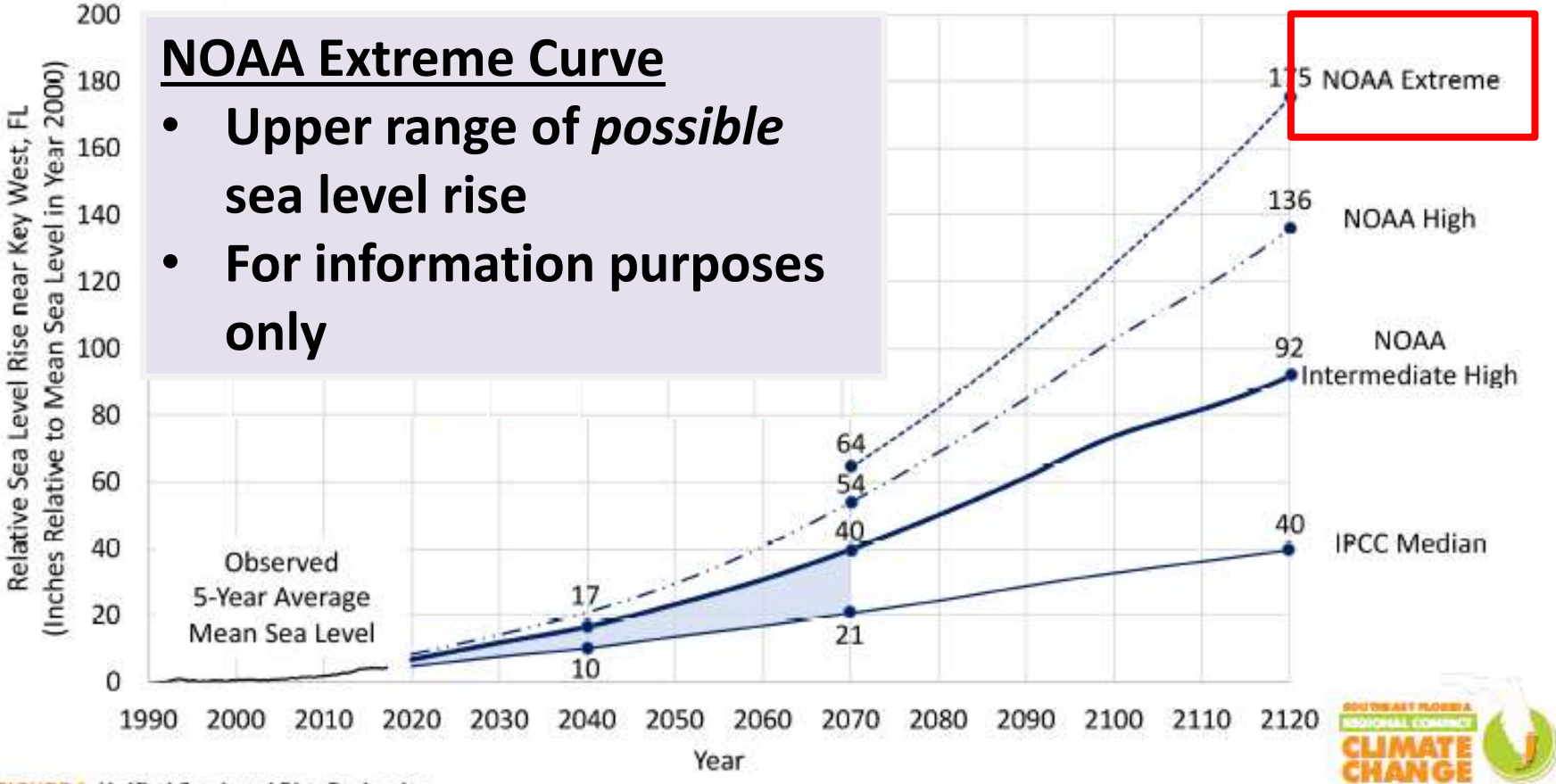


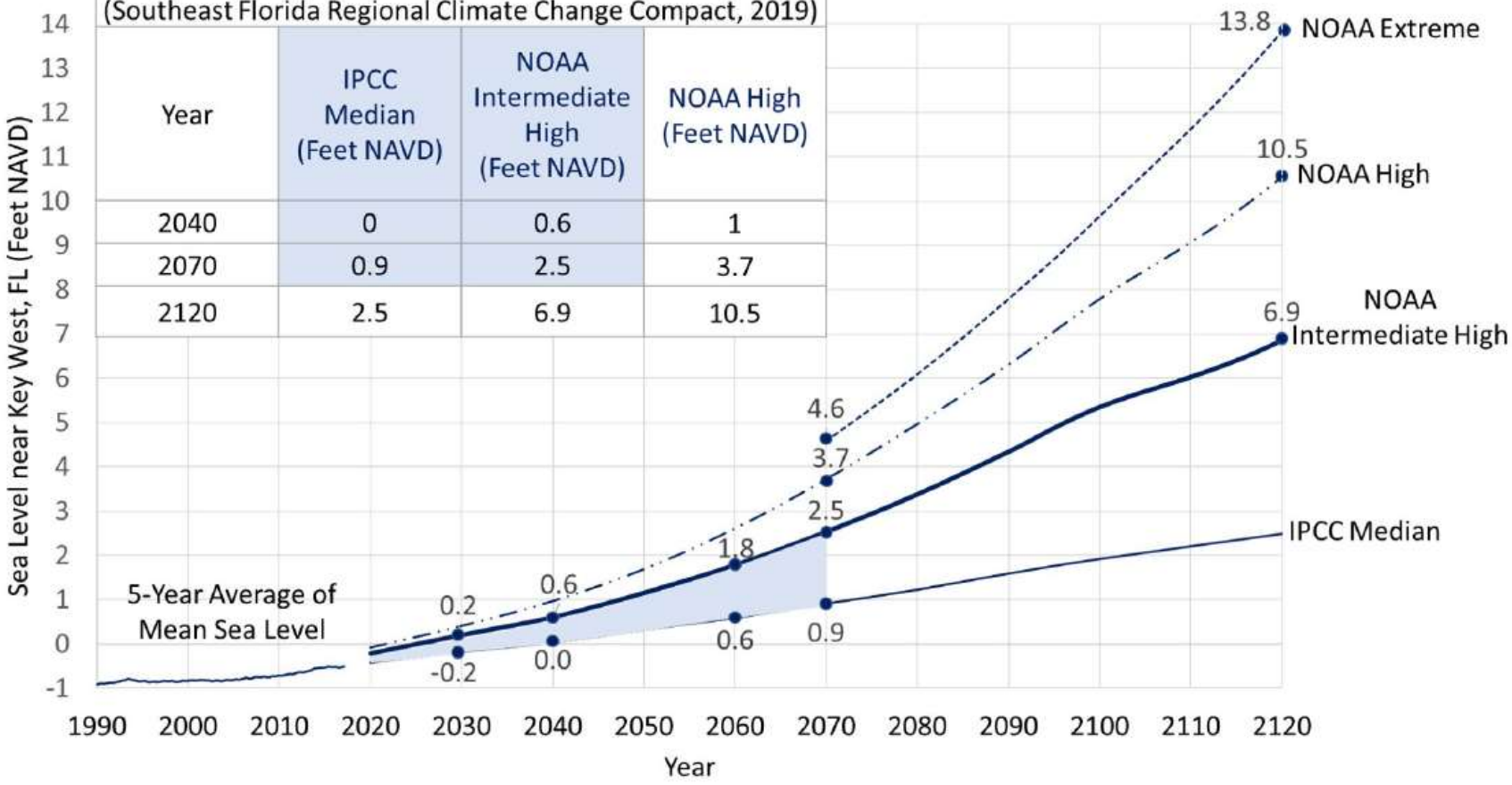

FIGURE 1: Unified Sea Level Rise Projection

# Projection in NAVD88

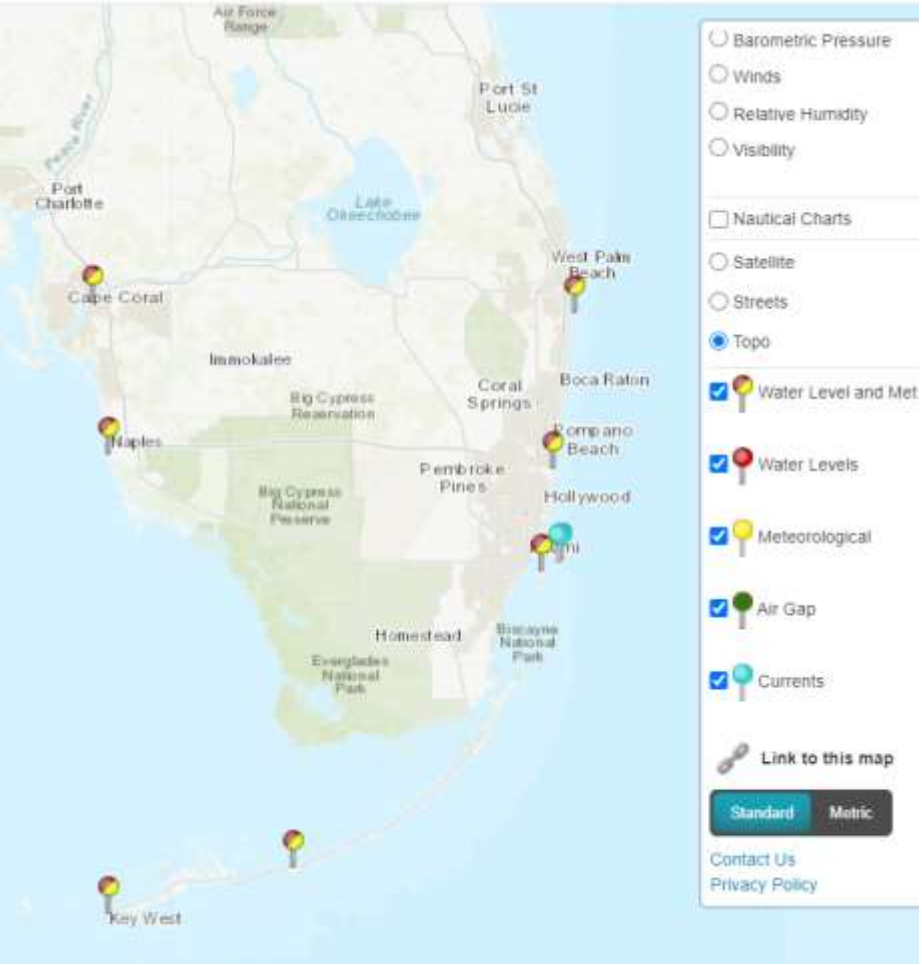
**FIGURE 2: Unified Sea Level Rise Referenced to NAVD**

**Unified Sea Level Rise Projection**
(Southeast Florida Regional Climate Change Compact, 2019)

| Year | IPCC Median (Feet NAVD) | NOAA Intermediate High (Feet NAVD) | NOAA High (Feet NAVD) |
|---|---|---|---|
| 2040 | 0 | 0.6 | 1 |
| 2070 | 0.9 | 2.5 | 3.7 |
| 2120 | 2.5 | 6.9 | 10.5 |



# Choosing a Reference Elevation



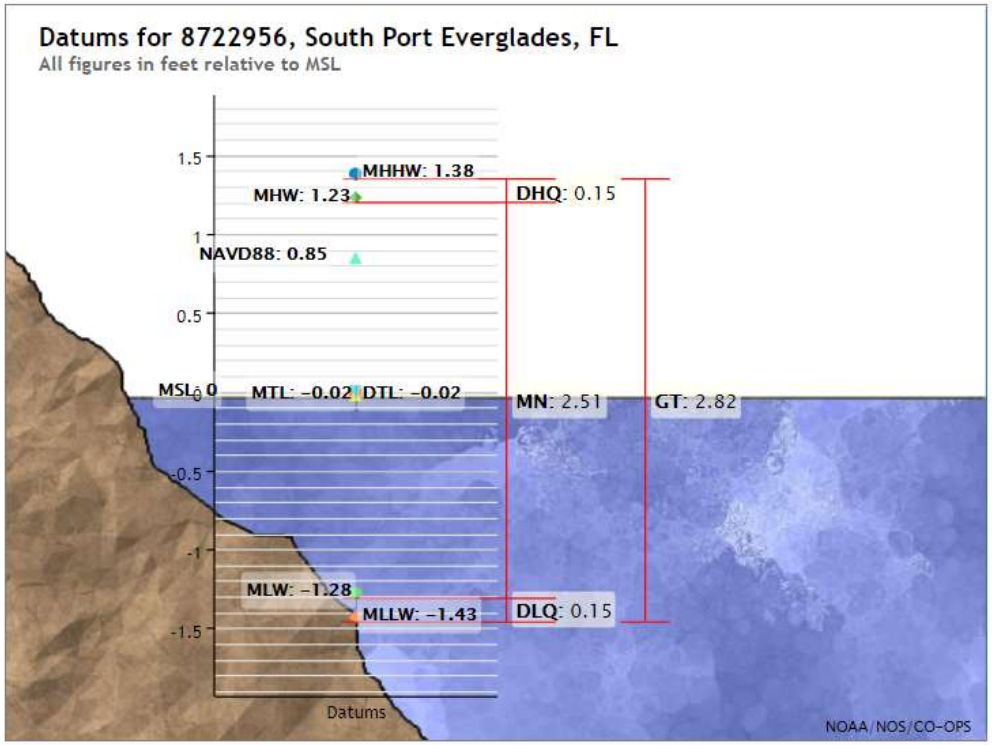

## *NOAA Tide Gauges*

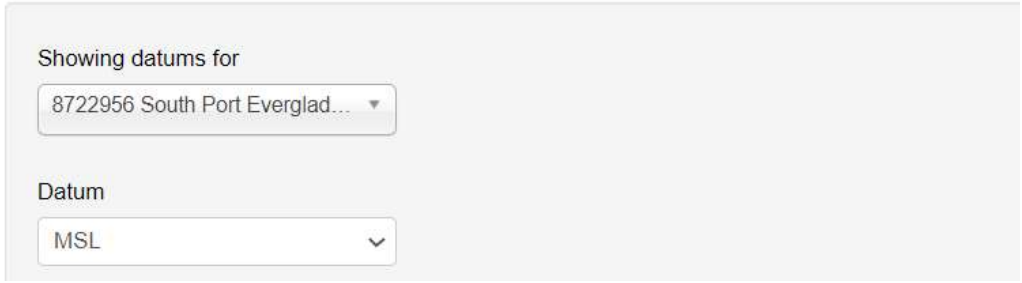
- Lake Worth Pier (Station ID 8722670) est. 1996
- S. Port Everglades (Station ID 8722956) est. 2018
- Miami Beach (Station ID 8723170) est. 2003
- Virginia Key (Station ID 8723214) est. 1994
- Vaca Key (Station ID: 8723970) est. 1970
- Key West (Station ID 8724580) est. 1913

https://tidesandcurrents.noaa.gov/map/index.html?type=active&region=Florida

# Converting Datum

## *NOAA Tide Gauges*




Each station has a page of published datum to use for converting between elevations

# Tools


Custom calculate the NOAA curves

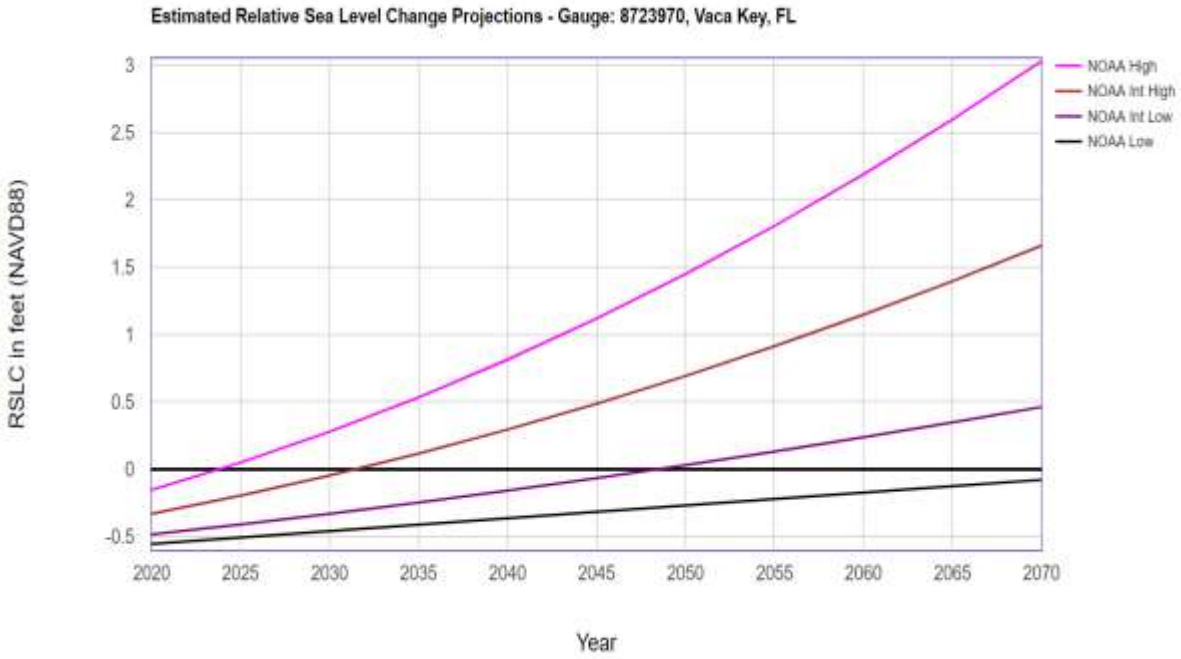

Visualizes site specific SLR projections


Visualizing inundation based on NOAA curves

# USACE SLC Calculator

Sea-Level Change Curve Calculator

US Army Corps of Engineers




8723970, Vaca Key, FL
NOAA's Regional Rate: 0.00951 feet/yr
All values are expressed in feet relative to NAVD88

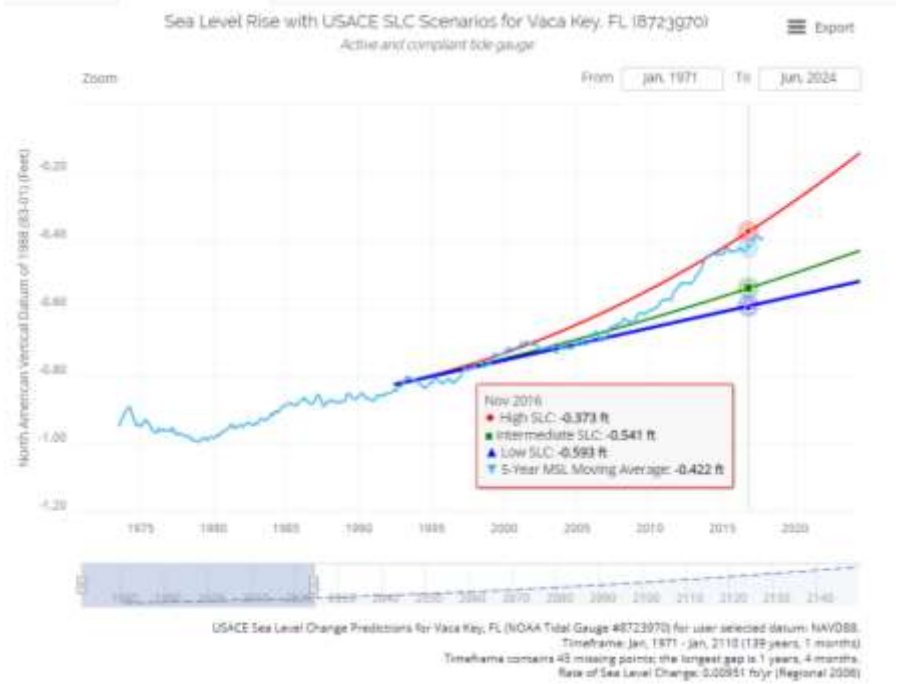
| Year | NOAA Low | NOAA Int Low | NOAA Int High | NOAA High |
|---|---|---|---|---|
| 2020 | -0.55 | -0.48 | -0.33 | -0.15 |
| 2025 | -0.51 | -0.41 | -0.20 | 0.05 |
| 2030 | -0.46 | -0.33 | -0.05 | 0.28 |
| 2035 | -0.41 | -0.25 | 0.12 | 0.53 |
| 2040 | -0.36 | -0.16 | 0.30 | 0.81 |
| 2045 | -0.32 | -0.07 | 0.49 | 1.12 |
| 2050 | -0.27 | 0.03 | 0.69 | 1.45 |
| 2055 | -0.22 | 0.13 | 0.91 | 1.81 |
| 2060 | -0.17 | 0.24 | 1.15 | 2.19 |
| 2065 | -0.13 | 0.35 | 1.40 | 2.60 |
| 2070 | -0.08 | 0.46 | 1.66 | 3.03 |

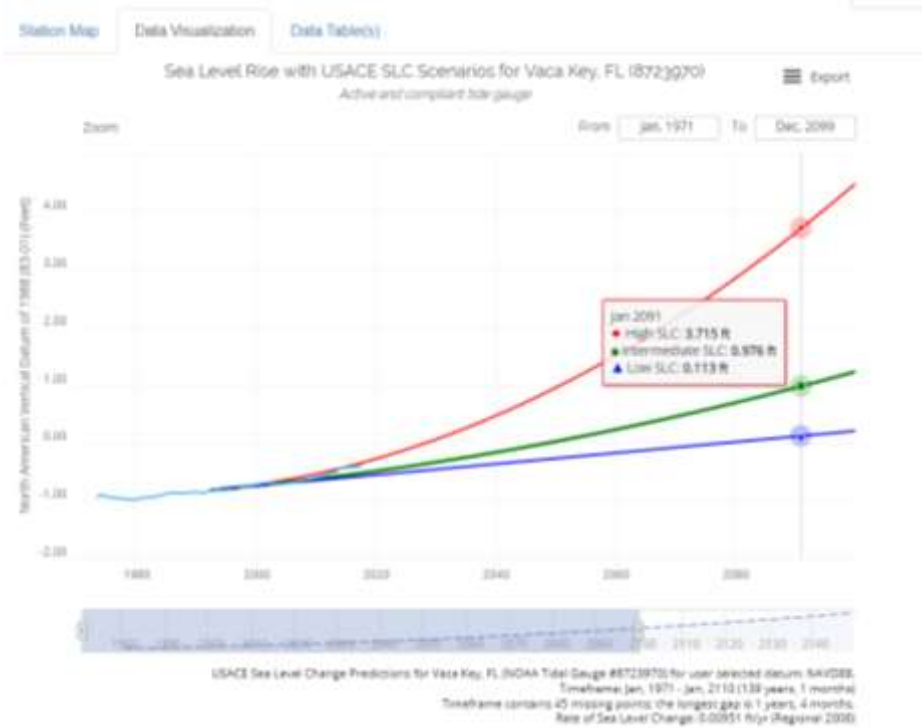
http://corpsmapu.usace.army.mil/rccinfo/slc/slcc_calc.html

# USACE SL Tracker

USACE CLIMATE PREPAREDNESS AND RESILIENCE

## Sea Level Tracker




https:// climate.sec.usace.army.mil/slr_app/.

# FL Sea Level Sketch


Florida Sea Level Sketch Planning Tool https://sls.geoplan.ufl.edu/beta/viewer/.

# *Next Steps*


Apply the Compact's 2019 projections to your projects

***Questions?***