The Florida Senate

BILL ANALYSIS AND FISCAL IMPACT STATEMENT

(This document is based on the provisions contained in the legislation as of the latest date listed below.)

Prepared By: The Professional Staff of the Committee on Environment and Natural Resources

BILL:	SB 1550
INTRODUCER:	Senator Rodriguez
SUBJECT:	Public Financing of Potentially At-risk Structures
DATE:	March 19, 2021
REVISED:	

	ANALYST	STAFF DIRECTOR	REFERENCE	ACTION
1.	Schreiber	Rogers	EN	**Pre-meeting**
2.			CA	
3.			AP	

I. Summary:

SB 1550 broadens the geographic applicability of the requirements, for public entities commissioning or managing coastal construction projects using funds appropriated from the state, to create sea level impact projection (SLIP) studies. The bill provides two definitions:

- "Areas at risk due to sea level rise" means an inland or coastal area where sea level rise can substantially increase flood risk, including tidal, storm surge, and groundwater inundation.
- "Potentially at-risk structure" means a major structure or nonhabitable major structure within an area at risk due to sea level rise.

In each place in s. 161.551, F.S., where the term "coastal structure" currently appears, the bill replaces it with the term "potentially at-risk structure." This expands the geographic scope of the statutory requirements relating to SLIP studies from the coastal building zone, as defined in statute, to areas at risk due to sea level rise.

The bill adds a new requirement to the standards for SLIP studies, which the Department of Environmental Protection establishes by rule, requiring a list of flood mitigation strategies evaluated as part of the design of the potentially at-risk structures, and identification of the flood mitigation strategies that have been implemented or are being considered as part of the potentially at-risk structure design.

II. Present Situation:

Sea Level Rise and Coastal Flooding

With 1,350 miles of coastline, relatively low elevations, and a porous geology, Florida is particularly vulnerable to coastal flooding.[1] Climate change[2] is influencing three drivers of coastal flooding in Florida: sea level rise, storm surge intensity, and rainfall intensity and frequency.[3]

Sea level rise is an observed increase in the average local sea level or global sea level trend.[4] Climate change is causing global sea level rise through two primary factors: the loss of land-based ice (ice sheets and glaciers) due to melting and thermal expansion caused by the warming of the oceans (water expands as it warms).[5] Global mean sea level has risen about 8–9 inches since 1880, and the rate of rise is accelerating: 0.06 inches per year throughout most of the twentieth century, 0.14 inches per year from 2006–2015, and 0.24 inches per year from 2018–2019.[6]

Sea level rise data is obtained through various scientific equipment: tide gauge stations record the local height of the surrounding water level relative to a reference point on land, and satellite laser altimeters measure the average height of the entire ocean.[7] Data is incorporated into numerous online tools for visualizing sea level rise.[8] Scientific projections of future sea level rise vary based on modeling using different scenarios of future greenhouse gas emissions and

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[1] Florida Division of Emergency Management, *Enhanced State Hazard Mitigation Plan*, 107-108, 162 (2018) [hereinafter *SHMP*], *available at* https://www.floridadisaster.org/globalassets/dem/mitigation/mitigate-fl--shmp/shmp-2018-full_final_approved.6.11.2018.pdf (last visited Feb 6, 2021). Florida has over 8,000 miles of coastline when considering intricacies such as bays, inlets, and waterways; McKinsey Global Institute, *Will Mortgages and Markets Stay Afloat in Florida?*, 10, 12, 27 (2020)[hereinafter *MGI Mortgages and Markets*], *available at* https://www.mckinsey.com/~/media/McKinsey/Business%20Functions/Sustainability/Our%20Insights/Will%20mortgages%20and%20markets%20stay%20afloat%20in%20Florida/MGI_Climate%20Risk_Case%20Studies_Florida_May2020.pdf (last visited Jan. 31, 2020). Florida's porous limestone foundation causes saltwater intrusion and seepage from underground.

[2] *See* NASA, Global Climate Change, Facts, *Effects*, https://climate.nasa.gov/effects/ (last visited Feb. 6, 2021).

[3] *See SHMP*, at 107.

[4] DEP, *Florida Adaptation Planning Guidebook*, Glossary (2018) [hereinafter *DEP Guidebook*], *available at* https://floridadep.gov/sites/default/files/AdaptationPlanningGuidebook.pdf (last visited Jan. 31, 2021).

[5] *Id.*; NOAA, *Climate Change: Ocean Heat Content*, https://www.climate.gov/news-features/understanding-climate/climate-change-ocean-heat-content (last visited Jan. 31, 2021). More than 90 percent of the warming that has happened on Earth over the past 50 years has occurred in the ocean.

[6] NOAA, *Climate Change: Global Sea Level*, https://www.climate.gov/news-features/understanding-climate/climate-change-global-sea-level (last visited Jan. 31, 2021). The melting of glaciers and ice sheets (such as the Greenland and Antarctic Ice Sheets) is accelerating, and from 2005–2013 melting caused nearly twice as much sea level rise as thermal expansion.

[7] NOAA, Tides and Currents, *Sea Level Trends*, https://tidesandcurrents.noaa.gov/sltrends/ (last visited Jan. 31, 2021). Showing trends in data from tide gauge stations around Florida; NOAA, *Is Sea Level Rising?*, https://oceanservice.noaa.gov/facts/sealevel.html (last visited Jan. 31, 2021); *see SHMP*, at 107. "Relative sea level" is measured locally using tide gauges. "Eustatic sea level" is measured globally based on the volume of water in earth's oceans.

[8] DEP, *Presentation to the Florida House of Representatives Environment, Agriculture, & Flooding Subcommittee* (Feb. 4, 2021), *available at* https://www.myfloridahouse.gov/VideoPlayer.aspx?eventID=6697 (last visited Feb 10, 2021).

atmospheric concentrations.[9] After 2050, sea level rise projections diverge significantly based on different scenarios of emissions trajectories.[10]

Rising sea levels result in gradual coastal inundation.[11] Sea level rise raises the height of high tide.[12] Since 2000, the frequency of "high tide flooding" in the U.S. has more than doubled, with data showing significant increases at tide gauge locations in Florida.[13] For example, research shows that in Miami Beach, between 1998 and 2013, the frequency of recurrent tidal flooding events quadrupled.[14] The frequency of such flooding is expected to continue to increase.[15]

Impacts of flooding from sea level rise in Florida include disruptions in transportation and impairment of infrastructure such as roads, stormwater systems, and wastewater systems.[16] Sea level rise causes saltwater intrusion of both surface water and groundwater, threatening fresh water resources including coastal aquifers.[17] It causes coastal erosion and threatens coastal ecosystems which, when healthy and allowed space for landward migration, are critical for resilience.[18] Sea level rise also raises coastal groundwater tables and pushes salt water further inland.[19] Many of these processes are exacerbated by Florida's porous limestone geology.[20]

Sea level rise is expected to increase the damage from storm surges as they will build on top of a higher base of water, travel farther inland, and impact more areas and properties than in the past.[21] Furthermore, future storms are generally expected to have increased average intensity and precipitation rates.[22] Extreme rainfall events can stress or overwhelm stormwater infrastructure,

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[9] U.S. Global Change Research Program, *Fourth National Climate Assessment*, 6, 40-43, 85-86, 338, 758 (2018)[hereinafter *NCA4*], *available at* https://nca2018.globalchange.gov/downloads/NCA4_2018_FullReport.pdf (last visited Feb. 6, 2021).
[10] *Id*. at 40-43, 85, 109; IPCC, *The Ocean and Cryosphere in a Changing Climate*, 4-9–4-10 (Sept. 2019), *available at* https://report.ipcc.ch/srocc/pdf/SROCC_FinalDraft_FullReport.pdf (last visited Jan. 31, 2021); SFRCCC, *Unified Sea Level Rise Projection Southeast Florida - 2019 Update*, 7, 25, 29 (2019)[hereinafter *SFRCCC Update*], *available at* https://southeastfloridaclimatecompact.org/wp-content/uploads/2020/04/Sea-Level-Rise-Projection-Guidance-Report_FINAL_02212020.pdf (last visited Jan. 31, 2021).
[11] *SHMP*, at 108; *SFRCCC Update*, at 17. Rapid pulses are possible.
[12] *SHMP*, at 101, 108.
[13] NOAA, *2019 State of U.S. High Tide Flooding with a 2020 Outlook*, v-3, 15-16 (2020), *available at* https://tidesandcurrents.noaa.gov/publications/Techrpt_092_2019_State_of_US_High_Tide_Flooding_with_a_2020_Outlook_30June2020.pdf (last visited Jan. 31, 2021). High tide flooding (also called "nuisance" or "sunny-day" flooding) begins to occur when coastal water levels reach heights between .5–.65 meters above the daily average highest tide.
[14] *SFRCCC Update*, at 31.
[15] NOAA, *2019 State of U.S. High Tide Flooding with a 2020 Outlook*, v, 11-12 (2020); *SFRCCC Update*, at 31-32.
[16] *See SFRCCC Update*, at 5.
[17] *SHMP*, at 106; *SFRCCC Update*, at 33-35.
[18] *SFRCCC Update*, at 35; *SHMP*, at 106, 221; *NCA4*, at 340-341, 690, 775, 833. Coastal ecosystems reduce erosion, buffer against waves and storm surge, attenuate wave energy, maintain water quality, and provide habitat for wildlife.
[19] *SHMP*, at 108.
[20] *See* Urban Land Institute, *The Business Case for Resilience - Regional Economic Benefits of Climate Adaptation*, 20 (2020) [hereinafter *Business Case for Resilience*], *available at* https://knowledge.uli.org/-/media/files/research-reports/2020/the-business-case-for-resilience-in-southeast-florida_final.pdf?rev=81609c7f6b72479d89c49aff72fea446&hash=FB2E953B8A456CFE781169A0CAA82333 (last visited Jan. 31, 2021).
[21] *SHMP*, at 100, 106-108, *available at* https://www.floridadisaster.org/globalassets/dem/mitigation/mitigate-fl--shmp/shmp-2018-full_final_approved.6.11.2018.pdf (last visited Jan. 31, 2021); *NCA4*, at 758, *available at* https://nca2018.globalchange.gov/downloads/NCA4_2018_FullReport.pdf (last visited Jan. 31, 2021).
[22] *NCA4*, at 97, 116-117, 1482; *see* Knutson et al., *Tropical Cyclones and Climate Change Assessment, Part II: Projected Response to Anthropogenic Warming*, American Meteorological Society, E317-E318 (2020), *available at*

while sea level rise impairs gravity-driven systems and reduces the discharge capacity of coastal water control structures.[23] By raising groundwater levels, sea level rise reduces the ability of rainfall to infiltrate the soil, and the reduced soil storage capacity causes flooding.[24]

Florida's 35 coastal counties contain 76% of its population, and 79% of its total economy as of 2012.[25] One study found that 20.5% of properties in Florida were at substantial risk of flooding in 2020 and 24.3% are at such risk by 2050.[26] Another study on Florida's residential property found tidal flooding could result in a total property devaluation of $10–$30 billion by 2030 and $30–$80 billion by 2050, and that real estate losses during 100-year storm surge events could reach $50–$75 billion by 2050.[27] Another analysis found that in Southeast Florida alone, by 2040, $4.2 billion in property value could be lost to daily tidal inundation and one 10-year storm tide event could cause $3.2 billion in property damage.[28] It is estimated that Florida has nine of the top ten counties in the nation for total annual risk of economic loss from flooding.[29] Despite the risks, people and capital continue to flow into exposed coastal areas in Florida.[30]

As sea level rise continues, financial impacts may include increases in flood insurance costs,[31] decreases in property sales or property values, and increased risk for lenders.[32] Coastal flooding can disrupt local economies, leading to lost revenues for the private and public sectors, and over time risks include loss or impairment of employment opportunities and public services and

https://journals.ametsoc.org/bams/article/101/3/E303/345043/Tropical-Cyclones-and-Climate-Change-Assessment (last visited Jan. 31, 2021).

[23] *NCA4*, at 763; *SFRCCC Update*, at 5, 34.

[24] *SFRCCC Update*, at 33; *SHMP*, at 106, 181.

[25] *DEP Guidebook*, at III, *available at* https://floridadep.gov/sites/default/files/AdaptationPlanningGuidebook.pdf (last visited Oct. 16, 2019); *see MGI Mortgages and Markets*, at 13. Almost 10% of the state's population is less than 4.9 feet (1.5 meters) above sea level.

[26] First Street Foundation, *The First National Flood Risk Assessment: Defining America's Growing Risk*, 39 (2020), *available at* https://assets.firststreet.org/uploads/2020/06/first_street_foundation__first_national_flood_risk_assessment.pdf (last visited Oct. 8, 2020). The study calculates substantial risk as a 1% annual risk of 1 cm of inundation or more.

[27] *MGI Mortgages and Markets*, at 15–19, *available at* https://www.mckinsey.com/~/media/McKinsey/Business%20Functions/Sustainability/Our%20Insights/Will%20mortgages%20and%20markets%20stay%20afloat%20in%20Florida/MGI_Climate%20Risk_Case%20Studies_Florida_May2020.pdf (last visited Jan. 31, 2020).

[28] *Business Case for Resilience*, at 6. In 2070, the estimated potential harm in Southeast Florida increases to $53.6 billion of lost property value from daily tidal inundation and $16.5 billion of property damage from one 10-year storm.

[29] First Street Foundation, *The Cost of Climate, America's Growing Flood Risk*, 11 (Feb. 2021), *available at* https://assets.firststreet.org/uploads/2021/02/The_Cost_of_Climate_FSF20210219-1.pdf (last visited Mar. 3, 2021).

[30] *MGI Mortgages and Markets*, at 13.

[31] First Street Foundation, *The Cost of Climate, America's Growing Flood Risk*, 39 (Feb. 2021). The report finds that if insurance prices were adjusted to account for actual current flood risk premiums for many properties in Florida would increase significantly, by as much as 4.8 to 7.7 times the current rates (depending on location), impacting property values.

[32] *MGI Mortgages and Markets*, at 22-27 (lending risks involve not only banks investing in private homes and businesses, but also potential downgrades to bond ratings for local governments that do not implement adaptation strategies); *SFRCCC Update*, at 5, *available at* https://southeastfloridaclimatecompact.org/wp-content/uploads/2020/04/Sea-Level-Rise-Projection-Guidance-Report_FINAL_02212020.pdf (last visited Jan. 31, 2021).

infrastructure.[33] Coastal flooding can cause displacement in frontline communities, and the burdens of adaptation are likely to disproportionately impact vulnerable populations.[34]

Studies show significant positive returns on investment calculated for resilience measures, including the following benefit-cost ratios: $6 for every $1 spent through federal grants on natural hazard mitigation, and, for future resilience investments in Southeast Florida, $4 for every $1 on building-level adaptations and $2 for every $1 on community-wide adaptations.[35]

Sea Level Rise Projections

Entities from the international to the local level use scientific data and modeling to create projections of future sea level rise for planning and decision-making. The Intergovernmental Panel on Climate Change (IPCC) includes 195 member countries compiling climate change science reviewed by thousands of experts around the globe and intended to reflect the full range of scientific views.[36] The National Oceanic and Atmospheric Administration (NOAA) operates tide gauges along the nation's coasts and satellites measuring changes in sea level. In 2012 and 2017, NOAA published sea level rise projections for the U.S.[37] NOAA's projections include six scenarios ranging from "low" to "extreme."[38] NOAA's projections were used in the fourth national climate assessment by the U.S. Global Change Research Program, a program of thirteen federal agencies analyzing the changing global environment.[39] The U.S. Army Corps of Engineers has developed guidance requiring consideration of three scenarios of "low," "intermediate," and "high" sea level change over a project's life cycle.[40]

Sea level rise is experienced differently in different areas, depending on many factors including ocean currents, changing land elevations, land use, and erosion.[41] The Southeast Florida Regional Climate Change Compact, a collaboration including Broward, Miami-Dade, Monroe, and Palm Beach counties, periodically assembles a technical work group of experts to produce

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[33] *Business Case for Resilience*, at 14, 19, 20, *available at* https://knowledge.uli.org/-/media/files/research-reports/2020/the-business-case-for-resilience-in-southeast-florida_final.pdf?rev=81609c7f6b72479d89c49aff72fea446&hash=FB2E953B8A456CFE781169A0CAA82333 (last visited Jan. 31, 2021).
[34] *Id*.; *NCA4* at 333-335.
[35] *Business case for Resilience*, at 26; National Institute of Building Sciences, *Natural Hazard Mitigation Saves*, 1-2 (Dec. 2019), *available at* https://cdn.ymaws.com/www.nibs.org/resource/resmgr/reports/mitigation_saves_2019/mitigationsaves2019report.pdf (last visited Feb. 10, 2021).
[36] IPCC, *About the IPCC*, https://www.ipcc.ch/about/ (last visited Feb. 2, 2021).
[37] NOAA, *Climate Change: Global Sea Level*, *available at* https://www.climate.gov/news-features/understanding-climate/climate-change-global-sea-level (last visited Feb. 2, 2021).
[38] Sweet et al., NOAA, *Global and Regional Sea Level Rise Scenarios for the United States*, 21–23 (2017), *available at* https://tidesandcurrents.noaa.gov/publications/techrpt83_Global_and_Regional_SLR_Scenarios_for_the_US_final.pdf (last visited Feb. 2, 2021).
[39] U.S. Global Change Research Program, *About USGCRP*, https://www.globalchange.gov/about (last visited Feb. 2, 2021).
[40] USACE, *Incorporating Sea Level Change in Civil Works Programs*, 2–3, B-1–B-8 (Dec. 31, 2013), *available at* https://www.publications.usace.army.mil/Portals/76/Publications/EngineerRegulations/ER_1100-2-8162.pdf?ver=2014-02-12-131510-113 (last visited Feb. 2, 2021); USACE, *Procedures to Evaluate Sea Level Change: Impacts, Responses, and Adaptation*, 13 (June 30, 2019) *available at* https://www.publications.usace.army.mil/Portals/76/Users/182/86/2486/EP-1100-2-1.pdf?ver=2019-09-13-141310-707 (last visited Feb. 2, 2021).
[41] *NCA4*, at 757, 855, 1495 *available at* https://nca2018.globalchange.gov/downloads/NCA4_2018_FullReport.pdf (last visited Feb. 6, 2021).

sea level rise projections to assist planning and decision-making in Southeast Florida.[42] In 2019, the Tampa Bay Climate Science Advisory Panel recommended a common set of sea level rise projections for use throughout the Tampa Bay region.[43]

Below is a table showing examples of sea level rise projections, including ranges of low and high estimates, both globally and in regions of Florida.

Sea Level Rise Projections				
Source	**Scale**	**Years**	**Low (feet)**	**High (feet)**
IPCC Assessment Report 5[44]	Global	2046-2065	0.72	1.25
		2081-2100	1.48	2.69
		2100	1.71	3.22
NOAA (Sweet et al., 2017), Low–Extreme[45]	Global	2040	0.43	1.35
		2070	0.72	3.94
		2100	.98	8.20
SFRCCC Unified Sea Level Rise Projection, 2019 Update[46]	Southeast Florida	2040	.83	1.42
		2070	1.75	3.33
		2120	3.33	7.67
Tampa Bay Climate Science Advisory Panel[47]	Tampa Bay Region	2050	1	2.5
		2100	2	8.5

[42] *SFRCCC Update*, at 8, *available at* https://southeastfloridaclimatecompact.org/wp-content/uploads/2020/04/Sea-Level-Rise-Projection-Guidance-Report_FINAL_02212020.pdf (last visited Feb. 2, 2021).
[43] Tampa Bay Climate Science Advisory Panel, *Recommended Projections of Sea Level Rise in the Tampa Bay Region*, 7 (Apr. 2019), *available at* http://www.tbrpc.org/wp-content/uploads/2019/05/CSAP_SLR_Recommendation_2019.pdf (last visited Feb. 2, 2021).
[44] IPCC, *Climate Change 2013: The Physical Science Basis. Contribution of Working Group I to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change*, 23, 79-81, 1180, 1461 (2013), *available at* https://www.ipcc.ch/site/assets/uploads/2018/02/WG1AR5_all_final.pdf (last visited Feb. 2, 2021). These changes in global mean sea level rise are relative to the reference period of 1986-2005. The range shown in the table represents the projections for the Representative Concentration Pathway 8.5 scenario.
[45] Sweet et al., NOAA, *Global and Regional Sea Level Rise Scenarios for the United States*, 21, 23 (2017), *available at* https://tidesandcurrents.noaa.gov/publications/techrpt83_Global_and_Regional_SLR_Scenarios_for_the_US_final.pdf (last visited Feb. 2, 2021). These global mean sea level rise scenarios are based on the year 2000 (i.e., a 1991-2009 epoch).
[46] *SFRCCC Update*, 9-10, *available at* https://southeastfloridaclimatecompact.org/wp-content/uploads/2020/04/Sea-Level-Rise-Projection-Guidance-Report_FINAL_02212020.pdf (last visited Feb. 2, 2021). These projections start from zero in year 2000 and are referenced to mean sea level at the Key West tide gauge. The range in the table shows regional applications of the IPCC Representative Concentration Pathway 8.5 Median curve and the NOAA Intermediate High curve.
[47] Tampa Bay Climate Science Advisory Panel, *Recommended Projections of Sea Level Rise in the Tampa Bay Region*, 7 (Apr. 2019), *available at* http://www.tbrpc.org/wp-content/uploads/2019/05/CSAP_SLR_Recommendation_2019.pdf (last visited Feb. 2, 2021).

The Coastal Zone Protection Act

The Coastal Zone Protection Act of 1985 (Act)[48] is intended to manage the most sensitive portion of Florida's coastal areas through the imposition of strict construction standards in order to minimize damage to the natural environment, private property, and life.[49]

The Act covers activities and construction within the "coastal building zone." The coastal building zone is the land from the seasonal high-water line[50] landward to a line 1,500 feet landward from the coastal construction control line (CCCL),[51] and for those areas where no CCCL has been established the coastal building zone is the land seaward of the most landward velocity zone (V-zone) line[52] as established by the Federal Emergency Management Agency and shown on flood insurance rate maps.[53] On coastal barrier islands, the coastal building zone is the land from the seasonal high-water line to a line 5,000 feet landward from the CCCL, or the entire island, whichever is less.[54] For coastal barrier islands on which a CCCL has not been established, the coastal building zone is the land seaward of the most landward V-zone boundary line fronting upon the Gulf of Mexico, Atlantic Ocean, Florida Bay, or Straits of Florida.[55] All land in the Florida Keys located within Monroe County is in the coastal building zone.[56]

The Act uses the term "construction" to mean either the act of construction or the result of construction, and defines construction as "the carrying out of any building, clearing, filling, excavation, or substantial improvement in the size or use of any structure or the appearance of any land."[57] The Act defines certain types of structures regulated within the coastal building zone.[58] "Major structures" are residential, commercial, or public buildings, and other construction having the potential for substantial impact on coastal zones.[59] "Nonhabitable major structures" are structures that people generally would not dwell in, such as swimming pools, water retention structures, electrical power plants, parking garages, and roads.[60]

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[48] Sections 161.52-161.58, F.S.
[49] Sections 161.53, F.S.
[50] *See* s. 161.053(5)(a)2., F.S. "Seasonal high-water line" is defined as "the line formed by the intersection of the rising shore and the elevation of 150 percent of the local mean tidal range above local mean high water"; *see* s. 177.27(14), F.S. "Mean high water" is defined, in part, as the average height of the high waters over a 19-year period.
[51] Section 161.053, F.S. A CCCL defines the portion of the beach-dune system that is subject to severe fluctuations caused by a 100-year storm surge, storm waves, or other predictable weather conditions. Generally, a permit is required for construction and excavation activities seaward of the CCCL; *see* Fla. Admin. Code Chapters 62B-33, 62B-34, and 62B-56.
[52] FEMA, *National Flood Insurance Program (NFIP), Floodplain Management Requirements, FEMA 480*, 3-22–3-23, 3-29, 5-51, 7-59 (2005), *available a*t https://www.fema.gov/sites/default/files/documents/fema-480_floodplain-management-study-guide_local-officials.pdf (last visited Feb. 4, 2021). Special Flood Hazard Areas on flood insurance rate maps include "A Zones," which are the regular base floodplain, and "V Zones," which are coastal high hazard areas, subject to more stringent regulatory requirements and different flood insurance rates, where structures must be protected from hazards such as waves, storm surges, hurricane-force winds, and erosion.
[53] Section 161.54(1), F.S.
[54] Section 161.55(4), F.S.
[55] *Id*.
[56] *Id*.
[57] Section 161.54(5), F.S.
[58] Section 161.54(6), F.S.
[59] Section 161.54(6)(a), F.S.
[60] Section 161.54(6)(c), F.S.

The Act generally requires construction to be located a sufficient distance landward of the beach to permit natural shoreline fluctuations and preserve dune stability.[61] Nonhabitable major structures must be designed to produce the minimum adverse impact on the beach and dune system.[62] At or before the sale of any interest in real property located partially or totally seaward of the CCCL, a seller must give a prospective purchaser a written disclosure statement, provided in statute, which states that the property may be subject to coastal erosion and to federal, state, or local regulations that govern coastal property.[63] The Legislature found it necessary to ensure that purchasers of interests in real property located in coastal areas partially or totally seaward of the CCCL are fully aware that such lands are subject to frequent and severe fluctuations.[64]

Sea Level Impact Projection (SLIP) Studies

In 2020, the Legislature created within the Act s. 161.551, F.S., entitled "Public financing of construction projections within the coastal building zone."[65]

Section 161.551, F.S., requires a public entity that commissions or manages a construction project on a coastal structure, using funds appropriated from the state, must conduct a sea level impact projection (SLIP) study prior to commencing construction.[66] The section defines a coastal structure as a major structure or nonhabitable major structure within the coastal building zone.[67]

Before construction commences, a state-financed constructor[68] must conduct a SLIP study meeting the statutory requirements, submit the study to the Department of Environmental Protection (DEP), and receive notification from DEP that the study has been published on DEP's website for at least 30 days.[69] DEP is required to develop by rule the specific standards for conducting a SLIP study.[70] Under the statute, DEP's SLIP study standards must, at a minimum, require state-financed constructors to do all of the following:

- Use a systematic, interdisciplinary, and scientifically accepted approach in the natural sciences and construction design in conducting the study.
- Assess the flooding, inundation, and wave action damage risks relating to the coastal structure over its expected life or 50 years, whichever is less.
    - The assessment must take into account potential relative local sea level rise and increased storm risk during the expected life of the coastal structure or 50 years, whichever is less, and, to the extent possible, account for the contribution of sea-level rise versus land subsidence to the relative local sea-level rise.

[61] Section 161.55(3), F.S. The Act makes exceptions for certain structures such as piers, beach access ramps, or shore protection structures.
[62] Section 161.55(2), F.S. Special requirements for flood proofing nonhabitable major structures exist for sewage treatment plants, public water supply systems, and underground utilities. These are intended to prevent infiltration of surface water from a 100-year storm event, or else loss of function during submersion.
[63] Section 161.57(2), F.S.
[64] Section 161.57(1), F.S.
[65] Chapter 2020-119, Laws of Fla.
[66] Section 161.551(2), F.S.
[67] Section 161.551(1)(a), F.S.
[68] Section 161.551(1)(b) and (d), F.S. "State-financed constructor" is defined as "a public entity that commissions or manages a construction project using funds appropriated from the state."
[69] Section 161.551(2), F.S.
[70] Section 161.551(3), F.S.

  - The assessment must provide scientific and engineering evidence of the risk to the coastal structure and methods used to mitigate, adapt to, or reduce this risk.
  - The assessment must use and consider available scientific research and generally accepted industry practices.
  - The assessment must provide the mean average annual chance of substantial flood damage over the expected life of the coastal structure or 50 years, whichever is less.
  - The assessment must analyze potential public safety and environmental impacts resulting from damage to the coastal structure, including, but not limited to, leakage of pollutants, electrocution and explosion hazards, and hazards resulting from floating or flying structural debris.
- Provide alternatives for the coastal structure's design and siting, and how such alternatives would impact specified risks, as well as the risk and cost associated with maintaining, repairing, and constructing the coastal structure.[71]

If a state-financed constructor commences construction of a coastal structure without complying with the SLIP study requirements, DEP is authorized to institute a civil action.[72] In such cases, DEP may:

- Seek injunctive relief to cease further construction of the coastal structure or enforce compliance with this section or with rules adopted by the department pursuant to this section.
- If the coastal structure has been completed or has been substantially completed, seek recovery of all or a portion of state funds expended on the coastal structure.[73]

DEP is authorized to enforce the requirements of s. 161.551, F.S., and required to adopt rules as necessary to administer the section.[74] Accordingly, DEP is currently in the process of holding workshops and developing draft rule language.[75] DEP is developing a web-based tool to enable state-financed constructors to create and submit SLIP study reports pursuant to the statute.[76] In addition, the web-based tool will provide resources for the benefit of the public, including policy information, a database of resilience strategies, and an interactive map for visualizing different scenarios of sea level rise and flooding.[77]

III. Effect of Proposed Changes:

Section 1 amends s. 161.551, F.S., which requires a public entity commissioning or managing certain construction projects within the coastal building zone, using funds appropriated from the state, to conduct a sea level impact projection (SLIP) study prior to commencing construction.

[71] Section 161.551(3), F.S.
[72] Section 161.551(4), F.S.
[73] *Id*.
[74] Section 161.551(6) and (7), F.S.
[75] DEP, *Resilience and Coastal Protection Rules in Development*, https://floridadep.gov/rcp/beaches-funding-program/content/resilience-and-coastal-protection-rules-development (last visited Mar. 16, 2021).
[76] DEP, *Presentation to the Florida House of Representatives Environment, Agriculture, & Flooding Subcommittee* (Feb. 4, 2021), *available at* https://www.myfloridahouse.gov/VideoPlayer.aspx?eventID=6697 (last visited Feb 10, 2021).
[77] *Id*.

The bill changes the title of s. 161.551, F.S., from "Public financing of construction projections within the coastal building zone" to "Public financing of construction projects within areas at risk due to sea level rise."

The bill creates a definition, defining "area at risk due to sea level rise" as "an inland or coastal area where sea level rise can substantially increase flood risk, including tidal, storm surge, and groundwater inundation."

The bill defines the term "potentially at-risk structure" as "a major structure or nonhabitable major structure within an area at risk due to sea level rise." This replaces the existing definition of "coastal structure" as "a major structure or nonhabitable major structure within the coastal building zone." The bill replaces the term "coastal structure" with the term "potentially at-risk structure" throughout s. 161.551, F.S. This broadens the geographic applicability of the section's requirements from the coastal building zone[78] to areas at risk due to sea level rise.

The bill increases the geographic scope of applicability of s. 161.551, F.S., from the coastal building zone to areas at risk due to sea level rise by using the term "potentially at-risk structure," as defined in the bill, for the following purposes:

- Defining "substantial flood damage" to mean "flood, inundation, or wave action, if applicable, damage resulting from a single event, such as a flood or tropical weather system, where such damage exceeds 25 percent of the market value of the potentially at-risk structure at the time of the event."
- Prohibiting a state-financed constructor from commencing construction of a potentially at-risk structure without conducting a SLIP study pursuant to statute.
- The Department of Environmental Protection (DEP) standards for SLIP studies must require that the state-financed constructor:
    - Assess the damage risks from flooding, inundation, and wave action, if applicable, to the potentially at-risk structure over its expected life or 50 years, whichever is less.
    - Account for potential relative sea level rise and increased storm risk during the expected life of the potentially at-risk structure or 50 years, whichever is less.
    - Provide scientific and engineering evidence of the risk to the potentially at-risk structure, and methods used to mitigate, adapt to, or reduce this risk.
    - Provide the mean average annual chance of substantial flood damage over the expected life of the potentially at-risk structure or 50 years, whichever is less.
    - Analyze potential public safety and environmental impacts resulting from damage to the potentially at-risk structure.

[78] Section 161.54(1), F.S. "Coastal Building Zone" is defined as "the land area from the seasonal high-water line landward to a line 1,500 feet landward from the coastal construction control line as established pursuant to s. 161.053, and, for those coastal areas fronting on the Gulf of Mexico, Atlantic Ocean, Florida Bay, or Straits of Florida and not included under s. 161.053, the land area seaward of the most landward velocity zone (V-zone) line as established by the Federal Emergency Management Agency and shown on flood insurance rate maps"; s. 161.55(4), F.S. The coastal building zone on coastal barrier islands is "the land area from the seasonal high-water line to a line 5,000 feet landward from the coastal construction control line established pursuant to s. 161.053, or the entire island, whichever is less. For coastal barrier islands on which a coastal construction control line has not been established pursuant to s. 161.053, the coastal building zone shall be the land area seaward of the most landward velocity zone (V-zone) boundary line fronting upon the Gulf of Mexico, Atlantic Ocean, Florida Bay, or Straits of Florida. All land area in the Florida Keys located within Monroe County shall be included in the coastal building zone."

  - Provide alternatives for the potentially at-risk structure's design and siting and how the alternatives would impact the risks, as well as the risk and cost associated with maintaining, repairing, and constructing the structure.
- If multiple potentially-at risk structures are to be built concurrently within one project, a state-financed constructor may conduct and submit one SLIP study for the entire project for publication by DEP.
- If a state-financed constructor commences construction of a potentially at-risk structure but has not complied with the statutory SLIP study requirements, DEP may institute a civil action to:
  - Seek injunctive relief to cease further construction of the potentially at-risk structure or enforce compliance with the statute or DEP rules.
  - If the potentially at-risk structure has been completed or substantially completed, seek recovery of all or a portion of state funds expended on the potentially-at risk structure.

The bill creates a new requirement for SLIP studies. The studies must provide a list of flood mitigation strategies evaluated as part of the design of the potentially at-risk structures, and identify the flood mitigation strategies that have been implemented or are being considered as part of the potentially at-risk structure design.

Section 161.551, F.S., requires DEP to adopt rules as necessary to administer the section. Thus, rulemaking by DEP will be necessary to implement the bill's changes to s. 161.551, F.S.

Section 2 provides an effective date of July 1, 2021.

IV. Constitutional Issues:

A. Municipality/County Mandates Restrictions:

None.

B. Public Records/Open Meetings Issues:

None.

C. Trust Funds Restrictions:

None.

D. State Tax or Fee Increases:

None.

E. Other Constitutional Issues:

None.

V. Fiscal Impact Statement:

A. Tax/Fee Issues:

None.

B. Private Sector Impact:

The bill expands the geographic applicability of procedures that identify long-term risks to coastal structures, and potentially avoid some of the large costs of mitigating and dealing with future damage to, or even loss of, potentially at-risk structures. To the extent that the bill increases the avoided costs of damage or destruction, residents and businesses may benefit.

C. Government Sector Impact:

The bill would require DEP to promulgate and administer new regulations which may cause DEP to incur additional costs.

Requiring government entities to conduct a larger number of sea-level impact project studies prior to construction may result in an indeterminate, negative fiscal impact on the government sector in the short-term. However, the bill requires procedures that identify risks and potentially avoid damage and loss for an increased range of potentially at-risk structures, at least in part, using funds appropriated from the state. This may result in state funds, or potentially federal grant money that is appropriated from the state, being used for structures that have less risk of damage or loss over time, or structures that may remain undamaged or intact for a longer period of time. Therefore, the bill may result in an indeterminate, positive impact on the government sector in the long-term.

VI. Technical Deficiencies:

None.

VII. Related Issues:

None.

VIII. Statutes Affected:

This bill substantially amends section 161.551 of the Florida Statutes.

IX. Additional Information:

A. Committee Substitute – Statement of Changes:
(Summarizing differences between the Committee Substitute and the prior version of the bill.)

None.

B. Amendments:

None.