

HOUSE OF REPRESENTATIVES STAFF ANALYSIS

BILL #: HB 7019 PCB EAF 21-01 Statewide Flooding and Sea Level Rise Resilience
SPONSOR(S): Environment, Agriculture & Flooding Subcommittee, Busatta Cabrera
TIED BILLS: HB 7021 **IDEN./SIM. BILLS:** SB 1954

REFERENCE	ACTION	ANALYST	STAFF DIRECTOR or BUDGET/POLICY CHIEF
Orig. Comm.: Environment, Agriculture & Flooding Subcommittee	18 Y, 0 N	Melkun	Moore
1) Agriculture & Natural Resources Appropriations Subcommittee	12 Y, 0 N	White	Pigott
2) State Affairs Committee			

SUMMARY ANALYSIS

With 1,350 miles of coastline and relatively low elevations, Florida is particularly vulnerable to coastal flooding. Coastal communities are experiencing high-tide flooding events with increasing frequency because sea level rise increases the height of high tides. In the United States, sea level rise and flooding threaten an estimated \$1 trillion in coastal real estate value, and analysts estimate that Florida could lose more than \$300 billion in property value by the year 2100.

The bill creates the Resilient Florida Grant Program, which authorizes the Department of Environmental Protection (DEP) to provide grants to local governments to fund the costs for community resilience planning to prepare for threats from flooding and sea level rise. The bill requires vulnerability assessments funded by the grant program to include an analysis of the vulnerability of and risks to critical assets, including regionally significant assets, owned or managed by the local government. Upon completion of a vulnerability assessment, the bill requires the local government to submit a report to DEP.

By July 1, 2022, the bill requires DEP to complete the development of a comprehensive flood vulnerability and sea level rise data set. By July 1, 2023, the bill requires DEP to use the data set to complete a comprehensive statewide flood vulnerability and sea level rise assessment that identifies inland and coastal infrastructure, geographic areas, and communities that are vulnerable to flooding and sea level rise and the associated risks. The bill requires DEP to update the data set and assessment at least every three years.

Beginning December 1, 2021, the bill requires DEP to annually develop a three-year Statewide Flooding and Sea Level Rise Resilience Plan and submit it to the Governor and the Legislature. The plan must consist of ranked projects that address risks of flooding and sea level rise to coastal and inland communities. DEP must implement a scoring system for assessing each project submitted for inclusion in the plan and each project must have a minimum 50 percent cost-share.

The bill authorizes counties and municipalities to enter into agreements to form regional resilience coalitions for the purpose of planning for the resilience needs of communities and coordinating intergovernmental solutions to mitigate adverse impacts of flooding and sea level rise. The bill also authorizes regional resilience coalitions to provide technical assistance to local governments.

The bill creates the Florida Flood Hub for Applied Research and Innovation within the University of South Florida College of Marine Science. The hub must organize existing data needs, coordinate research funds, establish community-based programs to improve flood monitoring and prediction, and develop opportunities to partner with other flood and sea level rise research and innovation leaders. By July 1, 2022, the hub must provide an annual report to the Governor and the Legislature that outlines its goals and its efforts and progress on reaching such goals.

The bill requires the Office of Economic & Demographic Research to include in its annual assessment of Florida's water resources and conservation lands an analysis of future expenditures by federal, state, regional, and local governments required to minimize the adverse economic effects of inland and coastal flooding.

The bill has a significant negative fiscal impact on the state and an indeterminate positive fiscal impact on local governments. Funding for the bill's provisions will be determined through the appropriations process.

FULL ANALYSIS

I. SUBSTANTIVE ANALYSIS

A. EFFECT OF PROPOSED CHANGES:

Background

Sea Level Rise and Flooding

With 1,350 miles of coastline and relatively low elevations, Florida is particularly vulnerable to coastal flooding.¹ There are three primary causes of coastal flooding: sea level rise, storm surge intensity, and rainfall intensity and frequency.² Sea level rise is an observed increase in the average local sea level or global sea level trend.³

The two major causes of global sea level rise are thermal expansion caused by the warming of the oceans and the loss of land-based ice due to melting.⁴ Since 1880, the average global sea level has risen approximately eight to nine inches, and the rate of global sea level rise has been accelerating.⁵ The National Oceanic and Atmospheric Administration (NOAA) utilizes tide gauges to measure changes in sea level and provides data on local sea level rise trends.⁶ Analysis of this data shows that some low-lying areas in the southeastern United States experience higher local rates of sea level rise than the global average.⁷

Florida's coastal communities are experiencing high-tide flooding events with increasing frequency because sea level rise increases the height of high tides.⁸ In the U.S., sea level rise and flooding threaten an estimated \$1 trillion in coastal real estate value, and analysts estimate that Florida could lose more than \$300 billion in property value by the year 2100.⁹ Sea level rise further affects the salinity of both surface water and groundwater through saltwater intrusion, posing a risk particularly for shallow coastal aquifers.¹⁰ Sea level rise also pushes saltwater further upstream in tidal rivers and streams, raises coastal groundwater tables, and pushes saltwater further inland at the margins of coastal wetlands.¹¹

Storm surge intensity and the intensity and precipitation rates of hurricanes are generally projected to increase,¹² and higher sea levels will cause storm surges to travel farther inland and impact more properties than in the past.¹³ Stronger storms and sea level rise are likely to lead to increased coastal erosion.¹⁴

¹ Florida Division of Emergency Management, *Enhanced State Hazard Mitigation Plan, State of Florida* [hereinafter "SHMP"] (2018), 107-108, 162, available at https://www.floridadisaster.org/globalassets/dem/mitigation/mitigate-fl--shmp/shmp-2018-full_final_approved.6.11.2018.pdf (last visited Jan. 25, 2021).

² *Id.* at 107.

³ Florida Department of Environmental Protection (DEP), *Florida Adaptation Planning Guidebook: Glossary* [hereinafter "DEP Guidebook"] (2018), available at <https://floridadep.gov/sites/default/files/AdaptationPlanningGuidebook.pdf> (last visited Jan. 25, 2021).

⁴ National Aeronautics and Space Administration (NASA), *Facts: Sea Level*, available at <https://climate.nasa.gov/vital-signs/sea-level/> (last visited Jan. 25, 2021).

⁵ U.S. Global Change Research Program, *Fourth National Climate Assessment* [hereinafter "NCA4"] (2018), 757, available at https://nca2018.globalchange.gov/downloads/NCA4_2018_FullReport.pdf (last visited Jan. 25, 2021).

⁶ NOAA, *What is a Tide Gauge?*, available at <https://oceanservice.noaa.gov/facts/tide-gauge.html> (last visited Jan. 25, 2021); NOAA, Tides and Currents, *Sea Level Trends*, available at <https://tidesandcurrents.noaa.gov/sltrends/> (last visited Jan. 25, 2021).

⁷ NCA4 at 757.

⁸ SHMP at 108, 101; NOAA, *High-Tide Flooding*, available at <https://toolkit.climate.gov/topics/coastal-flood-risk/shallow-coastal-flooding-nuisance-flooding> (last visited Jan. 25, 2021).

⁹ NCA4 at 324, 758.

¹⁰ SHMP at 106.

¹¹ *Id.* at 108.

¹² SHMP at 106, 141; NCA4 at 95, 97, 116-117, 1482.

¹³ NCA4 at 758; SHMP at 107.

¹⁴ NCA4 at 331, 340-341, 833, 1054, 1495; SHMP at 108, 221.

Increases in evaporation rates and water vapor in the atmosphere increase rainfall intensity and extreme precipitation events, and the sudden onset of water can overwhelm stormwater infrastructure.¹⁵ As sea levels and groundwater levels rise, low areas drain more slowly, and the combined effects of rising sea levels and extreme rainfall events are increasing the frequency and magnitude of coastal and lowland flood events.¹⁶

Sea Level Rise Projections

The following table displays projections for future sea level rise, both globally and in regions of Florida:

Sea Level Rise Projections				
Source	Scale	Years	Low (feet)	High (feet)
Intergovernmental Panel on Climate Change ¹⁷	Global	2046-2065	0.79	1.05
		2081-2100	1.28	2.32
		2100	1.41	2.76
U.S. Global Change Research Program ¹⁸	Global	2030	0.3	0.6
		2050	0.5	1.2
		2100	1	4.3
Southeast Florida Regional Climate Change Compact Sea Level Rise Work Group ¹⁹	Southeast Florida	2040	0.83	1.42
		2070	1.75	4.5
		2120	3.33	11.33
Tampa Bay Climate Science Advisory Panel ²⁰	Tampa Bay Region	2050	1	2.5
		2100	2	8.5

As seen in these projections, there are considerable variations in estimates of future sea level rise. Although some local governments and state agencies have adopted sea level rise estimates for planning purposes, Florida has no official estimates of projected sea level rise.

State, Regional, and Local Programs

Many state, regional, and local programs and policies are in place that address issues relating to sea level rise and coastal flooding.

State Programs

In January of 2019, Governor DeSantis issued Executive Order 19-12, creating the Office of Resilience and Coastal Protection within the Department of Environmental Protection (DEP) to help prepare Florida’s coastal communities and habitats for impacts from sea level rise by providing funding, technical assistance, and coordination among state, regional, and local entities.²¹ In August of 2019, the Governor appointed Florida’s first Chief Resilience Officer, who reports to the Executive Office of

¹⁵ SHMP at 99, 106, 116, 141, 181; NCA4 at 88, 762-763.

¹⁶ SHMP at 106; NCA4 at 763.

¹⁷ Intergovernmental Panel on Climate Change (IPCC), *The Ocean and Cryosphere in a Changing Climate*, SPM-7, 4-4, CCB9-21, AI-23, available at https://report.ipcc.ch/srocc/pdf/SROCC_FinalDraft_FullReport.pdf (last visited Feb. 24, 2021). These projected ranges are based on climate models using “representative concentration pathways (RCPs),” which are scenarios of future emissions and concentrations of the full suite of greenhouse gases and aerosols, and chemically active gases, as well as land use/land cover.

¹⁸ NCA4 at 406, 758.

¹⁹ Southeast Florida Regional Climate Change Compact Sea Level Rise Work Group (SFRCCC), *Unified Sea Level Rise Projection: Southeast Florida* (2019), 9, available at https://southeastfloridaclimatecompact.org/wp-content/uploads/2020/04/Sea-Level-Rise-Projection-Guidance-Report_FINAL_02212020.pdf (last visited Feb. 24, 2021). These projections are currently in the process of final review and acceptance or adoption by all four of the Compact counties. See SFRCCC, *Unified Sea Level Rise Projections*, available at <https://southeastfloridaclimatecompact.org/unified-sea-level-rise-projections/> (last visited Feb. 24, 2021).

²⁰ Tampa Bay Climate Science Advisory Panel, *Recommended Projections of Sea Level Rise in the Tampa Bay Region* (Apr. 2019), 1, 7, available at http://www.tbrpc.org/wp-content/uploads/2019/05/CSAP_SLR_Recommendation_2019.pdf (last visited Feb. 24, 2021).

²¹ Office of the Governor, *Executive Order Number 19-12*, 5 (2019), available at <https://www.flgov.com/wp-content/uploads/2019/01/EO-19-12-.pdf> (last visited Feb. 8, 2021).

the Governor and collaborates with state agencies, local communities, and stakeholders to prepare for the impacts of sea level rise and climate change.²² Currently, the role is held in interim by the Secretary of DEP.

DEP's Office of Resilience and Coastal Protection implements numerous programs related to sea level rise and coastal issues, including the Coastal Construction Control Line Program and the Beach Management Funding Assistance Program.²³ DEP also implements the Florida Resilient Coastlines Program, which helps prepare coastal communities and habitats for the effects of climate change, especially sea level rise, by offering technical assistance and funding to communities dealing with coastal flooding, erosion, and ecosystem changes.²⁴

Furthermore, DEP has published the Florida Adaptation Planning Guidebook for use by local governments to develop and update adaptation plans for sea level rise.²⁵ The guidebook breaks down the adaptation planning process into four steps: (1) context; (2) vulnerability assessment; (3) adaptation strategies; and (4) implementation. Using these four steps, the guidebook helps local governments do the following:

- Organize and engage stakeholders, and delineate the geographic boundaries of the planning area, including the assets and structures contained therein;
- Conduct an exposure analysis to determine how much sea level rise will occur and where, conduct a sensitivity analysis to provide an inventory of community assets and features located in areas at risk, and assign focus areas that will receive attention in adaptation strategies;
- Assess adaptive capacities such as planning capabilities and fiscal capacity, prioritize adaptation needs, and identify adaptation strategies, which may include protection, accommodation, retreat, and avoidance strategies; and
- Survey funding options; create a schedule of activities, actions, and actors; and monitor and evaluate adaptation strategies.²⁶

DEP also operates the Florida Coastal Management Program, which implements the Coastal Partnership Initiative. This initiative makes funding from NOAA available to Florida's 35 coastal counties, and municipalities therein, that are required to include a coastal zone protection element in their comprehensive plans.²⁷ Grant applications must benefit the management of coastal resources and meet the purpose of at least one of the initiative's priority areas, which are resilient communities, coastal resource stewardship, access to coastal resources, and working waterfronts.²⁸

Additionally, DEP incentivizes the use of living shorelines as an alternative to traditional permits for coastal armoring, which is defined as manmade structures, such as seawalls or bulkheads, that protect upland properties and structures from erosion, wave action, or currents.²⁹ Living shorelines are a nature-based approach to coastal protection, using natural elements such as ecosystems, vegetation, stone, or organic materials to increase coastal resilience and adapt to sea level rise.³⁰ DEP provides exemptions from environmental resource permitting for small-scale shoreline stabilization projects, including living shorelines projects.³¹

²² Governor Ron DeSantis, *News Releases: Governor Ron DeSantis Announces Dr. Julia Nesheiwat as Florida's First Chief Resilience Officer* (Aug. 1, 2019), available at <https://flgov.com/2019/08/01/governor-ron-desantis-announces-dr-julia-nesheiwat-as-floridas-first-chief-resilience-officer/> (last visited Feb. 8, 2021).

²³ DEP, *Beaches: About Us*, available at <https://floridadep.gov/rcp/beaches> (last visited Jan. 25, 2021).

²⁴ DEP, *Florida Resilient Coastlines Program*, available at <https://floridadep.gov/rcp/florida-resilient-coastlines-program> (last visited Jan. 25, 2021).

²⁵ DEP Guidebook at 1.

²⁶ *Id.* at 1-61.

²⁷ DEP, *Florida Coastal Management Program*, available at <https://floridadep.gov/rcp/fcmp> (last visited Feb. 8, 2021); DEP, *Coastal Partnership Initiative*, available at <https://floridadep.gov/rcp/fcmp/content/coastal-partnership-initiative> (last visited Feb. 8, 2021).

²⁸ Chapter 62S-4, F.A.C.

²⁹ Sections 161.053 and 161.085, F.S.; rr. 62B-33.0051, 62B-34.010(4), and 62B-41.002(4), F.A.C.

³⁰ Bilkovic et. al., *Living Shorelines: The Science and Management of Nature-Based Coastal Protection*, Taylor & Francis Group, 11-25 (2017); Florida Living Shorelines, *Home*, available at <http://floridalivingshorelines.com/> (last visited Feb. 8, 2021).

³¹ Rule 62-330.051(12)(e), F.A.C.

In addition to DEP, the following other state agencies are working on coastal resilience in Florida using a number of strategies:

- The Department of Transportation prepares Florida's transportation system for potential hazards by creating and updating a long-range resilience plan that provides policy guidance for all transportation partners and establishes a framework for expenditure of state and federal funding.³²
- The Department of Economic Opportunity works with DEP on the Community Resiliency Initiative, assisting communities with adaptation planning.³³
- The Fish and Wildlife Conservation Commission works as Florida's lead agency on addressing the impacts of climate change on fish and wildlife, including adaptation strategies for Florida's coastal ecosystems.³⁴
- The Division of Emergency Management maintains a statewide emergency management program, which administers federal mitigation grant programs, and serves as Florida's state coordinating agency for the National Flood Insurance Program.³⁵

Regional Programs

The water management districts (WMDs) address flood protection as a core part of their respective missions, and many of their activities are related to resilience efforts. For example, the St. John's River WMD provides resources and cost-sharing to increase community resilience.³⁶ Additionally, the South Florida WMD is implementing comprehensive plans for addressing sea level rise, including a flood protection level of service program, incorporating sea level rise projections into planning, conducting vulnerability assessments, and assisting local governments.³⁷

In 2010, through a proactive regional collaboration to address climate change, the four counties of Broward, Miami-Dade, Monroe, and Palm Beach signed on to the Southeast Florida Regional Climate Change Compact (Compact).³⁸ The Compact has developed a Regional Climate Action Plan as well as a Unified Sea Level Rise Projection.³⁹ One of the many recommendations in the regional plan is for local governments in the region to incorporate the unified sea level rise projections into their comprehensive plans, of which 45 have complied.⁴⁰

³² Department of Transportation (DOT), *Florida Transportation Plan (FTP): Resilience*, available at <http://www.floridatransportationplan.com/resilience.htm> (last visited Feb. 8, 2021); DOT, *What is the Florida Transportation Plan?*, available at http://www.floridatransportationplan.com/pdf/Standard%20FTP%20Presentation_ResilienceFocus_October2019rev2_for%20web.pdf (last visited Feb. 8, 2021).

³³ Department of Economic Opportunity, *Adaptation Planning – Planning for Coastal Flooding and Sea Level Rise*, available at <http://www.floridajobs.org/community-planning-and-development/programs/community-planning-table-of-contents/adaptation-planning> (last visited Feb. 8, 2021).

³⁴ Fish and Wildlife Conservation Commission (FWC), *What FWC is Doing*, available at <https://myfwc.com/conservation/special-initiatives/climate-change/fwc/> (last visited Feb. 9, 2021); FWC, *A Guide to Climate Change Adaptation for Conservation*, 6-81–6-108, 9-35–9-51 (2016), available at <https://myfwc.com/media/5864/adaptation-guide.pdf> (last visited Feb. 9, 2021).

³⁵ Department of Emergency Management (DEM), *Mitigation*, available at <https://www.floridadisaster.org/dem/mitigation/> (last visited Feb. 9, 2021); DEM, *State Flood Plain Management Program*, available at <https://www.floridadisaster.org/dem/mitigation/floodplain/> (last visited Feb. 9, 2021).

³⁶ St. John's River WMD, *Sea-Level Rise*, available at <https://www.sjrwmd.com/localgovernments/sea-level-rise/#projects> (last visited Feb. 9, 2021).

³⁷ South Florida WMD, *Impact of Sea Level Rise on the SFWMD Mission, Focus on Flood Protection*, 2, 6, 7-10 (June 13, 2019), available at <https://apps.sfwmd.gov/webapps/publicMeetings/viewFile/21920> (last visited Feb. 18, 2021).

³⁸ Regional Climate Leadership Summit, *SFRCCC (2010)*, available at <http://southeastfloridaclimatecompact.org/wp-content/uploads/2014/09/compact.pdf> (last visited Feb. 18, 2021); SFRCCC, *What is the Compact?*, available at <http://southeastfloridaclimatecompact.org/about-us/what-is-the-compact/> (last visited Feb. 18, 2021).

³⁹ SFRCCC, *Regional Climate Action Plan*, available at <http://southeastfloridaclimatecompact.org/regional-climate-action-plan/> (last visited Feb. 18, 2021); SFRCCC, *Unified Sea Level Rise Projection, Southeast Florida* (2015), 5, 11, 13, 33, available at <http://www.southeastfloridaclimatecompact.org/wp-content/uploads/2015/10/2015-Compact-Unified-Sea-Level-Rise-Projection.pdf> (last visited Feb. 18, 2021).

⁴⁰ SFRCCC, *ST-1: Incorporate Projections Into Plans*, available at <http://southeastfloridaclimatecompact.org/recommendations/incorporate-projections-into-plans/> (last visited Feb. 18, 2021); *see also* SFRCCC, *Integrating the Unified Sea Level Rise Projection into Local Plans*, 17-21 (2017), available at <https://southeastfloridaclimatecompact.org/wp-content/uploads/2017/01/SLRGuidance-Doc.pdf> (last visited Feb. 18, 2021).

Some of Florida's regional planning councils also have programs addressing resiliency. For example, the Tampa Bay Regional Planning Council formed the ONE BAY Resilient Communities program, which advances collaborative resilience in the Tampa Bay region.⁴¹ In addition, the East Central Florida Regional Planning Council has produced a Regional Resiliency Action Plan and formed the East Central Florida Regional Resilience Collaborative.⁴² Lastly, the Northeast Florida Regional Planning Council created and periodically updates a Regional Action Plan for sea level rise.⁴³

Local Governments

Florida law requires local governments located in coastal areas to include a coastal management element in their comprehensive plans.⁴⁴ In 2015, the Legislature passed Senate Bill 1094, known as the "peril of flood law," which required local governments to include a redevelopment component in the coastal management element of their comprehensive plans.⁴⁵ The redevelopment component must:

- Include development and redevelopment principles, strategies, and engineering solutions that reduce the flood risk in coastal areas that results from high-tide events, storm surge, flash floods, stormwater runoff, and the related impacts of sea level rise.
- Encourage the use of best practices development and redevelopment principles, strategies, and engineering solutions that will result in the removal of coastal real property from flood zone designations established by the Federal Emergency Management Agency (FEMA).
- Identify site development techniques and best practices that may reduce losses due to flooding and claims made under flood insurance policies issued in the state.
- Be consistent with, or more stringent than, the flood-resistant construction requirements in the Florida Building Code and applicable federal flood plain management regulations.
- Require that any construction activities seaward of the coastal construction control lines be consistent with ch. 161, F.S., which regulates coastal construction.
- Encourage local governments to participate in the National Flood Insurance Program Community Rating System administered by FEMA to achieve flood insurance premium discounts for their residents.⁴⁶

Additionally, Florida's Community Planning Act authorizes local governments to establish an "adaptation action area" designation in their comprehensive plans for low-lying coastal zones that are experiencing coastal flooding and are vulnerable to the impacts of sea level rise.⁴⁷ This enables local governments to develop policies and funding priorities that improve coastal resilience and to plan for sea level rise.

Flood Insurance

FEMA administers the National Flood Insurance Program, which was created to offer federally subsidized flood insurance to property owners and to encourage land-use controls in floodplains.⁴⁸ The National Flood Insurance Program makes flood insurance available to communities that adopt and enforce a floodplain management ordinance to reduce future flood risk to new construction in

⁴¹ Tampa Bay Regional Planning Council, *One Bay Resilient Communities*, available at <http://www.tbrpc.org/onebay/> (last visited Feb. 18, 2021).

⁴² East Central Florida Regional Planning Council, *East Central Florida Regional Resiliency Action Plan* (2018), available at <http://ftp.ecfrpc.org/Projects/East%20Central%20Florida%20Regional%20Resiliency%20Action%20Plan.pdf> (last visited Feb. 18, 2021); East Central Florida Regional Planning Council, *East Central Florida Regional Resilience Collaborative*, available at <https://metroplanorlando.org/wp-content/uploads/CFMPOA-MOU-presentation.pdf> (last visited Feb. 18, 2021).

⁴³ Northeast Florida Regional Council, *Strategic Regional Policy Plan 2020 Update*, available at <https://www.nefrc.org/srppupdate2020> (last visited Feb. 18, 2021).

⁴⁴ Sections 380.24 and 163.3177(6)(g), F.S.

⁴⁵ Chapter 2015-69, Laws of Fla.

⁴⁶ Section 163.3178(2)(f), F.S.

⁴⁷ Sections 163.3177(6)(g), 163.3177(10) and 163.3164(1), F.S.; ch. 2011-139, Laws of Fla.

⁴⁸ 42 U.S.C. § 4001 *et seq.*; 44 C.F.R. Ch. I, Subchap. B.; FEMA, *Flood Insurance*, available at <https://www.fema.gov/national-flood-insurance-program> (last visited Feb. 18, 2021).

floodplains.⁴⁹ Communities eligible to participate in the National Flood Insurance Program Community Rating System receive discounts on flood insurance premiums.⁵⁰

An important aspect of the National Flood Insurance Program is the flood maps that FEMA creates to support the program.⁵¹ A Flood Insurance Rate Map is an official map of a community on which FEMA has delineated both the special hazard areas and the risk premium zones applicable to the community.⁵² These maps have many applications relevant to resilience planning, including communicating base flood elevations and flood risk, establishing special flood hazard areas where flood insurance is required, and setting local floodplain and building standards.⁵³

Office of Economic & Demographic Research

The Office of Economic & Demographic Research (EDR) is a research arm of the Legislature that is principally concerned with forecasting economic and social trends that affect policymaking, revenues, and appropriations.⁵⁴ EDR publishes the official economic, demographic, revenue, and agency workload forecasts that are developed by consensus estimating conferences and makes them available to the Legislature, state agencies, universities, research organizations, and the general public.⁵⁵

In 2016, the Legislature passed Senate Bill 552, which directed EDR to conduct an annual assessment of Florida's water resources and conservation lands.⁵⁶ The assessment is conducted with the assistance of the WMDs, DEP, the Department of Agriculture and Consumer Services, the Fish and Wildlife Conservation Commission, counties, municipalities, and special districts and must be submitted by January 1 of each year.⁵⁷

Effect of the Bill

Critical Asset

The bill defines the term “critical asset” to include transportation assets and evacuation routes, critical infrastructure, critical community and emergency facilities, and natural, cultural, and historical resources.

Resilient Florida Grant Program

The bill creates the Resilient Florida Grant Program (Grant Program), which authorizes DEP to provide grants to a county or a municipality to fund the costs of community resilience planning, including projects that address the requirements of the “peril of flood” law, vulnerability assessments that identify or address risks of flooding and sea level rise, and the development of plans and policies that allow communities to prepare for threats from flooding and sea level rise.

The bill requires all vulnerability assessments funded by the Grant Program to encompass an entire county or municipality and to use the most recent publicly available Digital Elevation Model and dynamic modeling techniques, if available. The bill further requires the vulnerability assessments to include an analysis of the vulnerability of and risks to the critical assets, including regionally significant assets, owned or managed by the county or municipality.

⁴⁹ FEMA, *Flood Insurance*, available at <https://www.fema.gov/national-flood-insurance-program> (last visited Feb. 18, 2021).

⁵⁰ FEMA, *National Flood Insurance Program Community Rating System*, available at <https://www.fema.gov/floodplain-management/community-rating-system> (last visited Feb. 18, 2021).

⁵¹ FEMA, *FEMA Flood Map Service Center: Welcome!*, available at <https://msc.fema.gov/portal/home> (last visited Feb. 18, 2021).

⁵² 44 C.F.R. § 59.1.

⁵³ FEMA, *Flood Maps*, available at https://www.fema.gov/media-library-data/1516468489259-8eb4bfef27ab35159b2f140a2926e809/What_Goes_Into_a_Flood_Map.pdf (last visited Feb. 18, 2021); SHMP at 102-103; DEP Guidebook at 40-41.

⁵⁴ EDR, *Welcome*, available at <http://edr.state.fl.us/Content/> (last visited Feb. 18, 2021).

⁵⁵ EDR, *About Us*, available at <http://edr.state.fl.us/Content/about/index.cfm> (last visited Feb. 18, 2021).

⁵⁶ Chapter 2016-1, Laws of Fla.; s. 403.928, F.S.; EDR, *Natural Resources and Infrastructure*, available at <http://edr.state.fl.us/Content/natural-resources/index.cfm> (last visited Feb. 19, 2021).

⁵⁷ Sections 403.928(5) and (7), F.S.

The bill requires vulnerability assessments conducted for a county or municipality subject to the requirements of the “peril of flood” law to include:

- A peril of flood analysis that addresses the requirements provided in s. 163.3178(2)(f), F.S.
- The depth of sea level rise, calculated using the North American Vertical Datum of 1988, expected for the county or municipality using, at a minimum, all of the following:
 - Two local sea level rise scenarios, which must equal or exceed the 2017 NOAA intermediate-low and intermediate-high sea level rise projections.
 - At least two planning horizons that must be, at a minimum, 20 years and 50 years from the date of the assessment.
 - Local sea level rise data that has been interpolated between the two closest coastal tide gauges with NOAA sea level rise data.
- The depth of expected storm surge flooding using FEMA storm surge data. The storm surge flood depth used must equal or exceed the 100-year flood event and must be calculated using the North American Vertical Datum of 1988.
- The depth of potential future flooding from combinations of sea level rise, storm surge, and high tides using, at a minimum, all of the following:
 - Two local sea level rise scenarios, which must equal or exceed the 2017 NOAA intermediate-low and intermediate-high sea level rise projections.
 - At least two planning horizons that must be, at a minimum, 20 years and 50 years from the date of the assessment.
 - Local sea level rise data that has been interpolated between the two closest coastal tide gauges with NOAA sea level rise data.
 - The depth of expected storm surge flooding using FEMA storm surge data. The storm surge flood depth used must equal or exceed the 100-year flood event and must be calculated using the North American Vertical Datum of 1988.
 - Future high tide flooding, which must be derived using NOAA Technical Report NOS CO-OPS 086.

Upon completion of a vulnerability assessment, the bill requires the county or municipality to submit to DEP a report detailing the findings of the assessment, all electronic mapping data used to illustrate the sea level rise impacts identified in the vulnerability assessment, and a list of critical assets, including regionally significant assets, that are impacted by sea level rise.

Comprehensive Statewide Flood Vulnerability and Sea Level Rise Assessment

By July 1, 2022, the bill requires DEP to complete the development of a comprehensive flood vulnerability and sea level rise data set sufficient to conduct a comprehensive statewide flood vulnerability and sea level rise assessment.

The bill requires the Chief Science Officer, in coordination with necessary experts and resources, to develop statewide sea level rise projections that incorporate temporal and spatial variability, to the extent practicable, for inclusion in the data set. The bill further requires the data set to include information necessary to determine the risks to inland and coastal communities, such as elevation, tidal levels, and precipitation.

By July 1, 2023, the bill requires DEP to complete a comprehensive statewide flood vulnerability and sea level rise assessment that identifies inland and coastal infrastructure, geographic areas, and communities that are vulnerable to flooding and sea level rise and the associated risks. DEP must use the comprehensive flood vulnerability and sea level rise data set to conduct the assessment.

The bill requires the assessment to:

- Incorporate local and regional analyses of vulnerabilities and risks;
- Include an inventory of critical assets, including regionally significant assets, that are essential for critical government and business functions, national security, public health and safety, the economy, flood and storm protection, water quality management, and wildlife habitat management; and
- Identify and analyze the vulnerability of and risks to such critical assets.

The bill requires DEP to update the comprehensive statewide flood vulnerability and sea level rise data set and assessment every three years, but authorizes DEP to perform such updates more frequently if it determines that updates are necessary to maintain the validity of the data set and assessment.

Statewide Flooding and Sea Level Rise Resilience Plan

By December 1, 2021, and each December 1 thereafter, the bill requires DEP to develop a Statewide Flooding and Sea Level Rise Resilience Plan on a three-year planning horizon and submit it to the Governor, the President of the Senate, and the Speaker of the House of Representatives. The plan must consist of ranked projects that address risks of flooding and sea level rise to coastal and inland communities in the state.

The bill specifies that the plan submitted by December 1, 2021, before the comprehensive statewide vulnerability and sea level rise assessment is completed, will be a preliminary plan that addresses risks of flooding and sea level rise identified in local government vulnerability assessments. The bill further specifies that the plan submitted by December 1, 2022, will be an update to the preliminary plan. The bill requires the plan submitted by December 1, 2023, and each plan submitted by December 1 thereafter, to address risks identified in the comprehensive statewide flood vulnerability and sea level rise assessment.

For each project included in the plan, the bill requires the plan to include a description of the project, the location of the project, an estimate of how long the project will take to complete, an estimate of the cost of the project, the cost-share percentage available for the project, and a summary of the priority score assigned to the project. Each project included in the plan must have a minimum 50 percent cost-share.

By September 1, 2021, and each September 1 thereafter, the bill requires each WMD to submit to DEP a list of proposed projects for the plan that mitigate or eliminate risks of flooding or sea level rise and a corresponding evaluation of each project. The bill authorizes local governments and regional entities whose responsibilities include addressing sea level rise or flooding to submit to the WMD proposed projects that mitigate or eliminate risks of flooding or sea level rise. The bill further requires each WMD to evaluate each proposed project to assess the degree to which the project addresses threats to critical assets, including regionally significant assets; reductions of future damage costs; and risks identified in local government vulnerability assessments or the comprehensive statewide flood vulnerability and sea level rise assessment, as applicable.

Each project submitted by a WMD to DEP to consider for inclusion in the plan must include a description of the project, the location of the project, an estimate of how long the project will take to complete, an estimate of the cost of the project, and the cost-share percentage available for the project.

The bill specifies that to be eligible for inclusion in the plan, a project must address risks to a critical asset identified in a local government vulnerability assessment or the comprehensive statewide flood vulnerability and sea level rise assessment, as applicable. The bill further specifies that expenses ineligible for inclusion in the plan include, but are not limited to, expenses associated with: aesthetic vegetation; recreational structures such as piers, docks, and boardwalks; water quality components of stormwater and wastewater management systems, except expenses to prevent saltwater intrusion; maintenance and repair of over-walks; park activities and facilities, except expenses that control flooding or erosion; navigation construction, operation, and maintenance activities; and projects that provide only recreational benefits.

The bill requires DEP to implement a scoring system for assessing each project submitted by the WMDs for inclusion in the plan. The scoring system must include the following tiers and associated criteria:

- Tier 1 must account for 50 percent of the total score and consist of all of the following criteria:
 - The degree to which the project addresses the risks posed by flooding and sea level rise identified in the local government vulnerability assessments or the comprehensive statewide flood vulnerability and sea level rise assessment, as applicable.
 - The degree to which the project addresses risks to regionally significant assets.

- The degree to which the project reduces risks to areas with an overall higher percentage of vulnerable critical assets.
- Tier 2 must account for 20 percent of the total score and consist of all of the following criteria:
 - The availability of local, state, and federal matching funds, considering the cost-share percentage, the status of the funding award, and federal authorization, if applicable.
 - Previous state commitment and involvement in the project, considering previously funded phases, the total amount of previous state funding, and previous partial appropriations for the proposed project.
 - The overall readiness of the project to proceed in a timely manner, considering the project's readiness for the construction phase of development, the status of required permits, the status of any needed easement acquisition, and the availability of local funding sources.
 - The cost-effectiveness of the project.
- Tier 3 must account for 20 percent of the total score and consist of all of the following criteria:
 - The current condition of the project area, including any recent impacts from storm damage.
 - The use of practices that reduce losses due to flooding and claims made under flood insurance policies issued in the state.
 - The degree to which the project contributes to existing flooding mitigation projects that reduce upland damage costs by incorporating new or enhanced structures or restoration and revegetation projects.
 - The exceedance of the flood-resistant construction requirements of the Florida Building Code and applicable flood plain management regulations.
- Tier 4 must account for 10 percent of the total score and consist of all of the following criteria:
 - The proposed innovative technologies designed to reduce project costs and provide regional collaboration.
 - The environmental habitat enhancement or the inclusion of nature-based options for resilience, prioritizing state or federal critical habitat areas for threatened or endangered species.
 - The assistance to financially disadvantaged communities.

The bill specifies that the total amount of funding proposed for each year of the plan may not exceed \$100 million. Upon review and subject to appropriation, the Legislature must approve funding for the projects as specified in the plan. Multi-year projects that receive funding for the first year of the project must be included in subsequent plans and funded until the project is complete, provided that the project sponsor has complied with all contractual obligations and funds are available.

Regional Resilience Coalitions

The bill authorizes counties and municipalities to enter into agreements to form regional resilience coalitions for the purpose of planning for the resilience needs of communities and coordinating intergovernmental solutions to mitigate adverse impacts of flooding and sea level rise. The bill authorizes regional resilience coalitions to provide technical assistance to counties and municipalities in:

- Coordinating multijurisdictional vulnerability assessments; and
- Developing project proposals that are submitted for inclusion in the Statewide Flooding and Sea Level Rise Resilience Plan.

The bill further authorizes DEP, subject to specific legislative appropriation, to provide funding to regional resilience coalitions for the purpose of carrying out their duties.

Florida Flood Hub for Applied Research and Innovation

The bill creates the Florida Flood Hub for Applied Research and Innovation within the University of South Florida College of Marine Science to coordinate efforts between the academic and research institutions of the state. The bill requires the University of South Florida College of Marine Science to serve as the lead institution and engage other academic and research institutions, private partners, and financial sponsors to coordinate efforts to support applied research and innovation to address the state's flooding and sea level rise challenges. At a minimum, the hub must:

- Organize existing data needs for a comprehensive statewide flood vulnerability and sea level rise analysis and perform a gap analysis to determine data needs.
- Develop statewide open source hydrologic models for physically based flood frequency estimation and real-time forecasting of floods, including hydraulic models of floodplain inundation mapping, real-time compound and tidal flooding forecasts, future groundwater elevation conditions, and economic damage and loss estimates.
- Coordinate research funds from the state, the federal government, or other funding sources for related hub activities across all participating entities.
- Establish community-based programs to improve flood monitoring and prediction along major waterways, including intracoastal waterways and coastlines, of the state and to support ongoing flood research.
- Coordinate with agencies, including, but not limited to, DEP and the WMDs.
- Share its resources and expertise.
- Assist in the development of training and a workforce in the state that is knowledgeable about flood and sea level rise research, prediction, and adaptation and mitigation strategies.
- Develop opportunities to partner with other flood and sea level rise research and innovation leaders for sharing technology or research.
- Conduct its responsibilities in cooperation with various local, state, and federal government entities as well as other flood and sea level rise research centers.

The bill requires the hub to employ an executive director.

By July 1, 2022, and each July 1 thereafter, the hub must provide an annual comprehensive report to the Governor, the President of the Senate, and the Speaker of the House of Representatives that outlines its clearly defined goals and its efforts and progress on reaching such goals.

EDR Annual Assessment

The bill requires EDR, beginning with the assessment due by January 1, 2022, to include in the annual assessment of Florida's water resources and conservation lands an analysis of the future expenditures by federal, state, regional, and local governments required to achieve the Legislature's intent of minimizing the adverse economic effects of inland and coastal flooding.

The bill requires the analysis, to the extent possible, to evaluate the cost of the resilience efforts necessary to address inland and coastal flooding associated with sea level rise, high tide events, storm surge, flash flooding, stormwater runoff, and increased annual precipitation over a 50-year planning horizon. At such time that dedicated revenues are provided in law for these purposes or that recurring expenditures are made, the bill further requires the analysis to identify the gap, if any, between the estimated revenues and the projected expenditures.

B. SECTION DIRECTORY:

Section 1. Creates s. 380.093, F.S., to create the Grant Program; require DEP to conduct a comprehensive statewide flood vulnerability and sea level rise assessment; require DEP to submit a statewide flooding and sea level rise resilience plan; and authorize counties and municipalities to form regional resilience coalitions.

Section 2. Creates s. 380.0933, F.S., to create the Florida Flood Hub for Applied Research and Innovation.

Section 3. Amends s. 403.928, F.S., to require EDR to include certain information in its annual assessment.

Section 4. Provides an effective date of upon becoming a law.

II. FISCAL ANALYSIS & ECONOMIC IMPACT STATEMENT

A. FISCAL IMPACT ON STATE GOVERNMENT:

1. Revenues:

None.

2. Expenditures:

The bill has a significant negative fiscal impact on DEP. It is anticipated that DEP will need the following resources to fulfill the requirements of the bill:

- 25 full-time equivalent positions and \$2.2 million recurring in Salaries and Benefits
- \$2 million recurring to perform the Comprehensive Statewide Flood Vulnerability and Sea Level Rise Assessment
- \$2 million recurring for regional resilience coalitions
- \$2 million recurring in Contracted Services
- \$20 million recurring for Resilient Florida Planning Grants
- \$100 million recurring beginning in FY 2022-23 for Resilient Florida fixed capital outlay projects
- \$0.4 million recurring and \$0.4 million nonrecurring for other expenses

Funding for the bill's provisions will be determined through the appropriations process.

B. FISCAL IMPACT ON LOCAL GOVERNMENTS:

1. Revenues:

None.

2. Expenditures:

The bill may have an indeterminate positive fiscal impact on local governments that receive funds for community resilience planning through the Grant Program or that have projects funded through the Statewide Flooding and Sea Level Rise Resilience Plan.

The bill may also have an indeterminate positive fiscal impact on local governments that join a regional resilience coalition due to the access to funds appropriated by the Legislature and administered by DEP to aid in the duties of the coalition.

C. DIRECT ECONOMIC IMPACT ON PRIVATE SECTOR:

The bill may have an indeterminate positive fiscal impact on the private sector as a result of funding provided for resilience projects through the Grant Program and the Statewide Flooding and Sea Level Rise Resilience Plan.

D. FISCAL COMMENTS:

None.

III. COMMENTS

A. CONSTITUTIONAL ISSUES:

1. Applicability of Municipality/County Mandates Provision:

Not applicable. This bill does not appear to require counties or municipalities to spend funds or take action requiring the expenditure of funds; reduce the authority that counties or municipalities have to raise revenues in the aggregate; or reduce the percentage of state tax shared with counties or municipalities.

2. Other:

None.

B. RULE-MAKING AUTHORITY:

The bill would require DEP to adopt rules to implement scoring criteria; however, DEP currently has sufficient rulemaking authority to adopt rules to comply with the statutory changes.

C. DRAFTING ISSUES OR OTHER COMMENTS:

None.

IV. AMENDMENTS/ COMMITTEE SUBSTITUTE CHANGES

None.