HOUSE OF REPRESENTATIVES STAFF ANALYSIS

BILL #: HB 1079 Coastal Construction and Assessments
SPONSOR(S): McFarland
TIED BILLS: **IDEN./SIM. BILLS:** CS/SB 298

REFERENCE	ACTION	ANALYST	STAFF DIRECTOR or BUDGET/POLICY CHIEF
1) Agriculture, Conservation & Resiliency Subcommittee	16 Y, 0 N	Mamontoff	Moore
2) Agriculture & Natural Resources Appropriations Subcommittee			
3) Infrastructure Strategies Committee			

SUMMARY ANALYSIS

Saltwater intrusion is the movement of saltwater from the ocean or estuaries into freshwater aquifers. It can occur in many ways, including through lateral encroachment from coastal waters or through the vertical movement of saltwater near discharging wells. Sea level rise, excessive groundwater pumping, and coastal flooding cause the ocean seawater level to be above groundwater level, leading saltwater to flow towards the fresh groundwater source. Saltwater intrusion is a serious threat. The landward movement of seawater threatens drinking water supplies, coastal farming, and coastal ecosystems.

The Department of Environmental Protection (DEP) regulates coastal construction to protect Florida's beaches and dunes from imprudent construction that can jeopardize the stability of the beach-dune system, accelerate erosion, provide inadequate protection to upland structures, endanger adjacent properties, or interfere with public beach access. DEP also implements the Resilient Florida Grant Program, which provides grants to local governments and water management districts to fund community resilience planning and vulnerability assessments.

The bill removes DEP's authority to delegate the establishment of coastal construction zoning and building codes to a coastal county or coastal municipality in lieu of the state established CCCL unless such codes were approved in writing on or before December 1, 2023. In addition, any exceptions to locally established coastal construction zoning or building codes may not be granted unless previously approved by DEP before December 1, 2023.

The bill expands the Resilient Florida Grant Program to allow DEP to provide grants to coastal counties for saltwater intrusion vulnerability assessments that analyze the effects of saltwater intrusion on the coastal county's water supply and the preparedness of the county to respond to such a threat. The bill also directs DEP to make information related to such assessments available on its website and update its comprehensive statewide flood vulnerability and sea level rise data set to incorporate such assessments.

The bill may have an indeterminate negative fiscal impact on DEP.

FULL ANALYSIS

I. SUBSTANTIVE ANALYSIS

A. EFFECT OF PROPOSED CHANGES:

Background

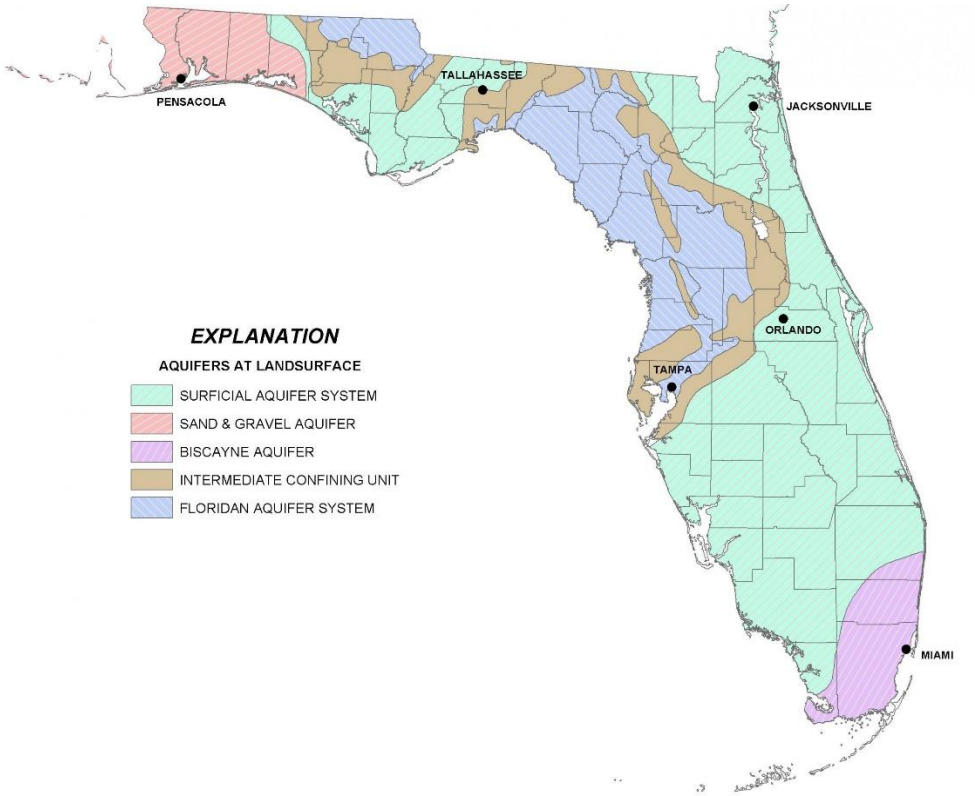
Florida's Aquifers

The primary source of Florida's drinking water supply comes from underground freshwater reserves called aquifers.[1] Florida has several prolific aquifers that yield large quantities of water to wells, streams, lakes, and springs. The principal source of groundwater for most of the state is the Floridan Aquifer,[2] but there are several other sources throughout the state.

Present across much of the state is a shallow, non-artesian surficial aquifer. The water in this shallow aquifer is derived primarily from local rainfall.[3] There is also a non-artesian, sand-and-gravel aquifer that is the major source of groundwater in the extreme western part of the Florida Panhandle.[4] Water in the sand-and-gravel aquifer is derived chiefly from local rainfall. Wells tapping this aquifer furnish most of the groundwater used in Escambia and Santa Rosa Counties, and part of Okaloosa County.

The non-artesian Biscayne Aquifer underlies an area of about 3,000 square miles in Miami-Dade, Broward, and Palm Beach Counties on Florida's lower east coast. Water in the Biscayne Aquifer is derived chiefly from local rainfall and, during dry periods, from canals ultimately linked to Lake Okeechobee.[5] The Biscayne Aquifer is an important water supply for the lower east coast Florida cities.

The following map depicts Florida's major aquifer systems at land surface:



[1] UF/IFAS, *Florida's Water Resources*, https://edis.ifas.ufl.edu/publication/FE757 (last visited Jan. 22, 2024).
[2] *Id.*
[3] *Id.*
[4] *Id.*
[5] *Id.*

Saltwater Intrusion

On Florida's coasts there exists an interface where freshwater and saltwater mix that is referred to as the zone of dispersion or the zone of transition.[6] Saltwater is denser than freshwater and exerts a constant pressure on the aquifers.[7] However, as long as freshwater levels in aquifers are above sea level, the freshwater pressure will keep the saltwater from moving inland and upward into the aquifer. This zone is a balance point between forces from land and forces from the sea.[8] For example, a push from the land side, such as heavy rainfall or high river flows, moves the balance point seaward. Conversely, a push from the seaside, such as sea level rise (SLR), storm surge, or high tides move the balance point landward.[9] However, if freshwater levels fall to or below sea level, saltwater will move in, leading to saltwater intrusion.

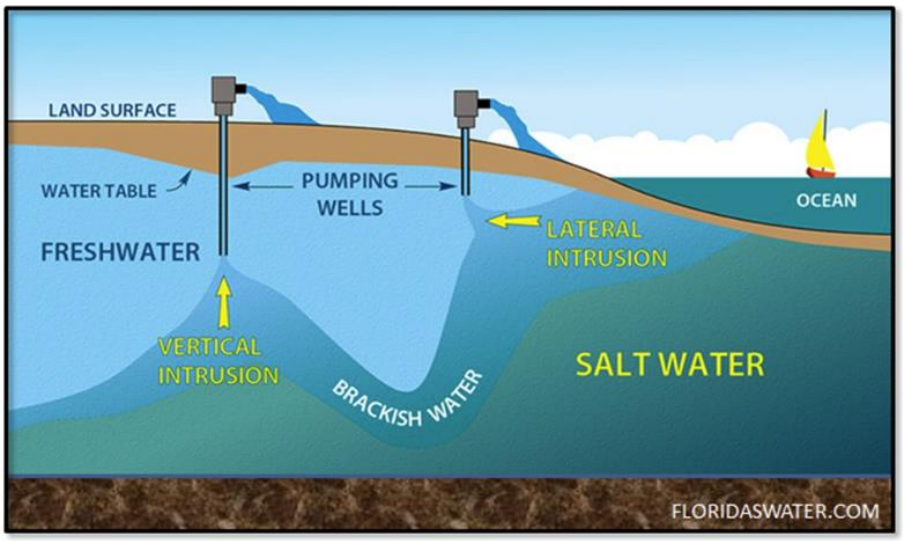


Figure 1. Causes of saltwater intrusion.
Credit: floridaswater.com

Saltwater intrusion is the movement of saltwater from the ocean or estuaries into freshwater aquifers.[10] It can occur in many ways, including through lateral encroachment from coastal waters or through the vertical movement of saltwater near discharging wells.[11] Major causes of saltwater intrusion, such as SLR, excessive groundwater pumping, and coastal flooding, cause the ocean seawater level to be higher than groundwater level, leading saltwater to flow towards the fresh groundwater source.[12]

Saltwater intrusion is a serious threat. The landward movement of seawater threatens drinking water supplies, coastal farming, and coastal ecosystems.[13] Rising seas, more frequent storms, higher tides,

[6] United States Geological Survey (USGS) *Saltwater Intrusion*, https://www.usgs.gov/mission-areas/water-resources/science/saltwater-intrusion (last visited Jan. 12, 2024).
[7] UF/IFAS, *Florida's Water Resources*, https://edis.ifas.ufl.edu/publication/FE757 (last visited Jan. 22, 2024).
[8] Scientific American, Holly Michael and The Conversation US, *Climate Change is Making Saltwater Intrusion Worse in Coastal Areas*, Oct. 13, 2023, https://www.scientificamerican.com/article/climate-change-is-making-saltwater-intrusion-worse-in-coastal-areas/ (last visited Jan. 15, 2024).
[9] *Id*.
[10] Florida Museum, *Tell me about: Saltwater intrusion in Florida*, https://www.floridamuseum.ufl.edu/earth-systems/blog/tell-me-about-saltwater-intrusion-in-florida/ (last visited Jan. 12, 2024).
[11] USGS, *Saltwater Intrusion*, https://www.usgs.gov/mission-areas/water-resources/science/saltwater-intrusion (last visited Jan. 12, 2024).
[12] UF/IFAS, *Saltwater Intrusion and Flooding: Risks to South Florida's Agriculture and Potential Management Practices*, https://edis.ifas.ufl.edu/publication/AE572 (last visited Jan. 15, 2024).
[13] Coastal Resilience Partnership, *Climate Change Vulnerability Assessment Executive Summary*, pp.7, https://discover.pbcgov.org/resilience/PDF/FINAL%20-%20Climate%20Change%20Vulnerability%20Assessment%20Report%20-%20ADA.pdf (last visited Jan. 14, 2024).

drought, and the pressure of pumping for drinking water all accelerate saltwater intrusion.[14] Saltwater intrusion decreases freshwater storage in aquifers and, in extreme cases, can result in the abandonment of wells.[15]

Saltwater Intrusion Vulnerability Assessments

Vulnerability assessments analyze how sensitive a key resource is to a threat and are important in understanding how easily an asset can change or adapt.[16] Conducting saltwater intrusion vulnerability assessments is a key analytical step in adaptation planning since it identifies both ecological and community infrastructure assets that may be impacted by saltwater intrusion.

Several assessments have already been prepared on the impact of SLR on coastal water resources. For example, the South Florida Water Management District has evaluated saltwater intrusion in the surficial aquifer system of the Big Cypress Basin and southwest Florida[17] and mapped the saltwater interface in coastal aquifers within St. Lucie, Martin, Palm Beach, Broward, Collier, and Lee counties.[18] The United States Geological Survey has conducted saltwater interface mapping for Miami-Dade and Monroe counties[19] and performed at least one evaluation of Florida's saltwater intrusion monitoring network.[20] In addition, the Northwest Florida Water Management District has commissioned a report evaluating saltwater intrusion in the Floridan Aquifer in Walton, Okaloosa, and Santa Rosa Counties.[21]

Coastal Counties

Florida has 35 coastal counties, as depicted in the map below.[22]

[14] Tampa Bay Times, *Coastal harm from invading saltwater 'happening right now'* https://www.tampabay.com/news/environment/2020/11/23/coastal-harm-from-invading-saltwater-happening-right-now (last visited Jan. 12, 2024).
[15] USGS, *Saltwater Intrusion*, https://www.usgs.gov/mission-areas/water-resources/science/saltwater-intrusion (last visited Jan. 12, 2024).
[16] Coastal Resilience Partnership, *Climate Change Vulnerability Assessment Executive Summary*, pp.7, https://discover.pbcgov.org/resilience/PDF/FINAL%20-%20Climate%20Change%20Vulnerability%20Assessment%20Report%20-%20ADA.pdf (last visited Jan. 14, 2024).
[17] USGS, Saltwater Intrusion in the Surficial Aquifer System of the Big Cypress Basin, Southwest Florida, and a Proposed Plan for Improved Salinity Monitoring: U.S. Geological Survey Open-File Report 2013-1088 (2013), http://pubs.usgs.gov/of/2013/1088/. (last visited Jan. 24, 2024).
[18] SFWMD, *Saltwater Interface Monitoring and Mapping Program*, Technical Publication WS-58, 1 (2020), https://www.sfwmd.gov/sites/default/files/documents/ws-58_swi_mapping_report_final.pdf. (last visited Jan. 23, 2024).
[19] *Id*.
[20] Scott T. Prinos, *Saltwater Intrusion Monitoring in Florida*, 79 FLORIDA SCIENTIST 4, 269 (Fall 2016), https://www.jstor.org/stable/44113190 (last visited Jan. 23, 2024).
[21] HydroGeoLogic, Inc., *Saltwater Intrusion in the Floridan Aquifer in Walton, Okaloosa and Santa Rosa Counties, Florida, Eastern Model Domain*, Final Report (Sept. 2007), https://nwfwater.com/content/download/19030/127812/2007_09_HGL_R2_ED_model_final.pdf (last visited Jan. 23, 2024).
[22] DEP, *Map of Florida's Coastal Counties*, https://floridadep.gov/sites/default/files/CPI-coastal-Florida-map.pdf (last visited Jan. 22, 2024).

The following seven coastal counties have populations of fewer than 50,000 as of April 2023:[23]

- Gulf County
- Franklin County
- Wakulla County
- Jefferson County
- Taylor County
- Dixie County
- Levy County

State, Regional, and Local Coastal Resilience Programs

There are many state, regional, and local programs and policies in place that address issues relating to SLR and coastal flooding. The Office of Resilience and Coastal Protection within the Department of Environmental Protection (DEP) implements numerous programs related to SLR and coastal issues, including the Resilient Florida Program, the Florida Resilient Coastlines Program, the Coastal Construction Control Line Program, and the Beach Management Funding Assistance Program.[24] Through the Resilient Florida Program and the Florida Resilient Coastlines Program, DEP provides technical assistance and funding to communities at risk due to flooding and SLR for vulnerability assessments and adaptation projects aimed at reducing such risks.[25]

Established within DEP in 2021, The Resilient Florida Program (Program) enhances efforts to protect Florida's inland waterways, coastlines, and shores, which serve as invaluable natural defenses against

[23] Office of Economic and Demographic Research, Florida Population Estimates by County and Municipality as of April 1, 2023, available at http://edr.state.fl.us/Content/population-demographics/data/2023_Pop_Estimates.pdf (last visited Jan. 25, 2024).

[24] DEP, *Beaches*, https://floridadep.gov/rcp/beaches (last visited Jan. 20, 2024).

[25] See s. 380.093, F.S.; DEP, *Florida Resilient Coastlines Program*, https://floridadep.gov/rcp/florida-resilient-coastlines-program (last visited Jan. 25, 2024).

SLR.[26] The Program includes a selection of grants that are available to counties, municipalities, water management districts (WMDs), flood control districts, and regional resilience entities.[27] To effectively address the impacts of flooding and SLR that the state faces, eligible applicants may receive funding assistance to analyze and plan for vulnerabilities, as well as implement projects for adaptation and mitigation. The Program creates grant funding opportunities under the Resilient Florida Grant Program and the Statewide Flooding and Sea Level Rise Resilience Plan.[28]

Under the Resilient Florida Grant Program, subject to appropriation, DEP may provide grants to a county or municipality to fund:

- Costs of community resilience planning and necessary data collection for such planning, including comprehensive plan amendments and necessary corresponding analyses that address Peril of Flood requirements;
- Vulnerability assessments that identify or address risks of inland or coastal flooding and SLR;[29]
- The development of projects, plans, and policies that allow communities to prepare for threats from flooding and SRL;
- Preconstruction activities for projects to be submitted for inclusion in the Statewide Flooding and Sea Level Rise Resilience Plan that are located in a municipality that has a population of 10,000 or fewer or a county that has a population of 50,000 or fewer; and
- Feasibility studies and permitting costs for nature-based solutions that reduce the impact of flooding and SLR.[30]

In addition, DEP may provide grants to WMDs to support local government adaptation planning, which may be conducted by the WMD or by a third party on behalf of the WMD. These grants must be used for the express purpose of supporting the Florida Flood Hub for Applied Research and Innovation (Flood Hub) and DEP through data creation and collection, modeling, and the implementation of statewide standards. Priority must be given to filling critical data gaps identified by the Flood Hub.

Regionally, many local communities have collaborated together to address impacts from SLR, flooding, and climate change.[31] For example, Broward, Miami-Dade, Monroe, and Palm Beach Counties formed the Southeast Florida Regional Climate Change Compact (Compact). The Compact's work has included developing a Regional Climate Action Plan and developing a Unified Sea Level Rise Projection.[32] Many local governments in southeast Florida have since incorporated the Compact's projections into their planning documents.

Florida's local governments in coastal areas are required to have a coastal management element in their comprehensive plans, known as a Peril of Flood Ordinance, that uses principles to reduce flood risk and eliminate unsafe development in coastal areas.[33] In certain coastal areas, local governments are authorized to establish an "adaptation action area" designation in their comprehensive plan to develop policies and funding priorities that improve coastal resilience and plan for SLR.[34]

Coastal Construction

DEP regulates coastal construction to protect Florida's beaches and dunes from imprudent construction that can jeopardize the stability of the beach-dune system, accelerate erosion, provide inadequate

[26] DEP, *Resilient Florida Program*, https://floridadep.gov/ResilientFlorida (last visited Jan. 21, 2024).
[27] DEP, *Resilient Florida Grants*, https://floridadep.gov/Resilient-Florida-Program/Grants (last visited Jan. 20, 2024).
[28] Sections 380.093(3) and 380.093(5), F.S.
[29] Sections 380.093(3)(b)(2) and 380.093(3)(c), F.S.
[30] Section 380.093(3), F.S.
[31] Regional Climate Leadership Summit, *Southeast Florida Regional Climate Change Compact* (2010), http://southeastfloridaclimatecompact.org/wp-content/uploads/2014/09/compact.pdf (last visited Jan. 21, 2024); SFRCCC, *What is the Compact?*, http://southeastfloridaclimatecompact.org/about-us/what-is-the-compact/ (last visited Jan. 21, 2024).
[32] SFRCCC, Regional Climate Action Plan, http://southeastfloridaclimatecompact.org/regional-climate-action-plan/ (last visited Jan. 21, 2024).
[33] Sections 380.24, 163.3177(6)(g), and 163.3178(2)(f), F.S.; see ch. 2015-69, Laws of Fla.
[34] Sections 163.3177(6)(g)10. and 163.3164(1), F.S.; see ch. 2011-139, Laws of Fla.

protection to upland structures, endanger adjacent properties, or interfere with public beach access.[35] Coastal construction is defined as any work or activity likely to have a material physical effect on existing coastal conditions or natural shore and inlet processes.[36] Florida's coastal local governments may also establish coastal construction zoning and building codes in lieu of the statutory requirements as long as they are approved by DEP.[37] Currently, the only local government that has had such codes approved by DEP is Pinellas County.

The coastal construction control line (CCCL) defines the portion of the beach-dune system that is subject to severe fluctuations caused by 100-year storm surge, storm waves, or other forces such as wind, wave, or water level changes. A 100-year storm is a shore-incident hurricane or any other storm with accompanying wind, wave, and storm surge intensity that has a one percent chance of being equaled or exceeded in any given year.[38] Seaward of the CCCL, new construction and improvements to existing structures generally require a CCCL permit from DEP.[39] Due to the potential environmental impacts and greater risk of hazards from wind and flood, the standards for construction seaward of the CCCL are often more stringent than those that apply to the rest of the coastal building zone.[40] Permit applicants must show that the proposed project will not result in a significant adverse impact.[41] CCCLs are set by DEP on a countywide basis and are currently established for the majority of Florida's coast.[42]

The "mean high-water line" is the point on the shore that marks the average height of the high waters over a 19-year period.[43] The mean high-water line is generally the boundary between the publicly owned shore (the land alternately covered and uncovered by the tide) and the dry sand above the line, which may be privately owned.[44] Generally, construction is prohibited within 50 feet of the mean high-water line, known as the 50-foot setback.[45] Any structures below the mean high-water line that are determined by DEP to serve no public purpose; to endanger human life, health, or welfare; or to be undesirable or unnecessary must be adjusted, altered, or removed.[46]

Above the mean high-water line is the "seasonal high-water line," which accounts for variations in the local mean high water, such as spring tides that occur twice per month.[47] The seasonal high-water line is used to create 30-year erosion projections of long-term shoreline recession based on historical measurements.[48] DEP makes 30-year erosion projections of the location of the seasonal high-water

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[35] Section 161.053(1)(a), F.S.
[36] Section 161.021(6), F.S.
[37] Section 161.053(3), F.S.
[38] Section 161.053, F.S.; r. 62B-33.005(1), F.A.C.; DEP, *The Homeowner's Guide to the Coastal Construction Control Line Program* (2017), 3, available at https://floridadep.gov/sites/default/files/Homeowner%27s%20Guide%20to%20the%20CCCL%20Program%206_2012%20%28002%29_0.pdf (last visited Feb. 15, 2023); Rule 62B-33.002(41), F.A.C.
[39] Section 161.053, F.S.; chs. 62B-33 and 62B-34, F.A.C.; DEP, *The Homeowner's Guide to the Coastal Construction Control Line Program* (2017), 3, available at https://floridadep.gov/sites/default/files/Homeowner%27s%20Guide%20to%20the%20CCCL%20Program%206_2012%20%28002%29_0.pdf (last visited Jan. 19, 2024); DEP, *ASK - Have Questions about the Coastal Construction Control Line (CCCL)?*, available at https://floridadep.gov/water/coastal-construction-control-line/content/ask-have-questions-about-coastal-construction (last visited Jan. 19, 2024).
[40] Chapter 62B-33, F.A.C.
[41] Rule 62B-33.005, F.A.C
[42] Section 161.053(2), F.S.; DEP Geospatial Open Data, Coastal Construction Control Lines (CCCL), http://geodata.dep.state.fl.us/datasets/4674ee6d93894168933e99aa2f14b923_2?geometry=-102.41%2C25.011%2C-60.596%2C31.77 (last visited Jan. 19, 2024).
[43] Section 177.27(14) and (15), F.S.
[44] Section 177.28, F.S.; ss. 161.052(1), 161.151(3), 161.161(3)-(5), and 161.191, F.S. Where an "erosion control line" is established, it serves as the mean high-water line when it is landward of the existing mean high-water line, and all lands seaward of a recorded erosion control line are deemed to be vested in the state.
[45] Rule 62B-33.002(17), F.A.C.
[46] Section 161.061, F.S.
[47] Section 161.053(5)(a)2., F.S., defines "seasonal high-water line" to mean 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; NOAA, *What Are Spring and Neap Tides?*, available at https://oceanservice.noaa.gov/facts/springtide.html (last visited Jan. 19, 2024).
[48] Rules 62B-33.024, F.A.C.

line on a site-specific basis upon receipt of a CCCL permit application.[49] With certain exceptions, DEP and local governments may not issue CCCL permits for the construction of major structures that are seaward of the 30-year erosion projection.[50]

Effect of the Bill

The bill removes DEP's authority to delegate the establishment of coastal construction zoning and building codes to a coastal county or coastal municipality in lieu of the state established CCCL unless such codes were approved in writing on or before December 1, 2023. In addition, any exceptions to locally established coastal construction zoning or building codes may not be granted unless previously approved by DEP before December 1, 2023.

The bill expands the Resilient Florida Grant Program to allow DEP to provide grants to coastal counties for saltwater intrusion vulnerability assessments that analyze the effects of saltwater intrusion on the county's water supply and the preparedness of the county to respond to such a threat.

A saltwater intrusion vulnerability assessment funded through the grant program must include an analysis on:

- The coastal county's primary water utilities;
- Current maps of the county's freshwater wellfields and latest saltwater intrusion impact lines;
- Projections of saltwater intrusion over the next decade, including specific wells that may be impacted; and
- The necessary costs to relocate freshwater wellfields anticipated to be impacted, including current projects that are underway to relocate the freshwater wellfields.

The bill directs DEP to:

- Use the information in a coastal county's saltwater intrusion vulnerability assessment to update its comprehensive statewide flood vulnerability and SLR data set.
- Make any appropriate information from a saltwater intrusion vulnerability assessment it receives publicly available on DEP's website.
- Provide 50 percent cost-share funding up to $250,000 for each grant awarded. A coastal county with a population of 50,000 or less is not required to contribute to the cost share.

B. SECTION DIRECTORY:

Section 1. Amends s. 161.053, F.S., relating to coastal construction and excavation.

Section 2. Amends s. 380.093, F.S., relating to the Resilient Florida Grant Program.

Section 3. Provides an effective date of July 1, 2024.

II. FISCAL ANALYSIS & ECONOMIC IMPACT STATEMENT

A. FISCAL IMPACT ON STATE GOVERNMENT:

1. Revenues:

   None.

2. Expenditures:

[49] *Id.*

[50] Section 161.053(5), F.S.; DEP, The Homeowner's Guide to the Coastal Construction Control Line Program (2017), 6, available at https://floridadep.gov/sites/default/files/Homeowner%27s%20Guide%20to%20the%20CCCL%20Program%206_2012%20%28002%29_0.pdf (last visited Jan 19, 2024).

The bill may have an indeterminate negative fiscal impact on DEP because it requires DEP to update its comprehensive statewide flood vulnerability and SLR data set to include a county's saltwater intrusion vulnerability assessment and make that data publicly available on its website.

B. FISCAL IMPACT ON LOCAL GOVERNMENTS:

1. Revenues:

None.

2. Expenditures:

The bill may have a positive fiscal impact on local governments of coastal counties that receive grants to conduct saltwater intrusion vulnerability assessments.

C. DIRECT ECONOMIC IMPACT ON PRIVATE SECTOR:

None.

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:

None.

C. DRAFTING ISSUES OR OTHER COMMENTS:

None.

IV. AMENDMENTS/COMMITTEE SUBSTITUTE CHANGES

None.