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 1258
INTRODUCER:	Senator Rodriguez
SUBJECT:	Carbon Sequestration
DATE:	January 16, 2024
REVISED:	

	ANALYST	STAFF DIRECTOR	REFERENCE	ACTION
1.	Barriero	Rogers	EN	**Pre-meeting**
2.			AEG	
3.			FP	

I. Summary:

SB 1258 creates the Carbon Sequestration Task Force as an adjunct to the Department of Environmental Protection (DEP) to provide recommendations for the development of a statewide carbon sequestration program. The bill specifies who must be included as a member of the task force and requires the task force to convene no later than September 1, 2024.

The bill requires the task force to:

- Identify and inventory terrestrial and aquatic environments suitable for carbon sequestration in this state.
- Consider possible methods of increasing carbon sequestration within the natural environment through state land and marine resource use policies; agricultural, aquacultural, and silvicultural practices; and other practices to achieve restoration of natural resources and long-term conservation.
- Develop a standardized methodology to establish baseline carbon levels and account for increases in carbon sequestration over time.
- Evaluate additional ecosystem services and benefits of terrestrial and aquatic environments that may promote conservation and ecosystem restoration success.
- Recommend short- and long-term benchmarks for increasing carbon sequestration in terrestrial and aquatic ecosystems.
- Identify existing carbon markets and other considerations relevant to participation by the state in such markets.
- Identify potential funding mechanisms to encourage carbon sequestration practices and activities in this state.

The bill provides that, by October 1, 2026, the task force must submit to the Governor and Legislature a report that compiles the findings and recommendations of the task force. The bill also requires the task force to terminate on April 30, 2027.

In addition, the bill appropriates, for the 2024-2025 fiscal year, the sum of $350,000 in nonrecurring funds from the Operating Trust Fund to DEP for the purpose of providing administrative and support services to the task force.

II. Present Situation:

Carbon

Carbon is the foundation of all life and helps regulate the Earth's temperature. It is found in our atmosphere in the form of carbon dioxide. Carbon dioxide is produced both in nature and by human activities.[1] Human-made sources include the burning of fossil fuels such as coal, natural gas, and oil for uses in power generation and transportation. Carbon dioxide is also released through land use changes, biologically through the oceans, the decomposition of organic matter, and forest fires. The build-up of carbon dioxide and other greenhouse gases in the atmosphere can trap heat and contribute to climate change.[2]

Capturing and sequestering carbon dioxide is one way to defer the effects of atmospheric warming.[3] The scientific community views this practice as an essential part of solving climate change.[4]

Carbon Sequestration

Carbon sequestration is the storage of carbon dioxide after it is captured from industrial facilities and power plants or removed directly from the atmosphere.[5] There are two types of carbon sequestration: biologic and geologic.[6]

Biologic Carbon Sequestration

Biologic carbon sequestration involves storing carbon dioxide in places where it is stored naturally as part of the carbon cycle,[7] such as in oceans, soil, forests, and grasslands.[8] In the oceans, carbon dioxide is stored as dissolved gas in the water and carbonate sediments on the seafloor.[9] Oceans absorb roughly 25 percent of carbon dioxide emitted from human activities annually.[10] Colder and nutrient rich parts of the ocean absorb more carbon dioxide than warmer parts.[11] It has been estimated that by the end of the century, much of the global ocean will be a

[1] University of California, Davis (UC Davis), *What is Carbon Sequestration and How Does it Work?*, https://clear.ucdavis.edu/explainers/what-carbon-sequestration (last visited Jan. 10, 2024).
[2] *Id.*
[3] *Id.*
[4] *Id.*
[5] U.S. Dep't of Energy (DOE), *DOE Explains Carbon Sequestration*, https://www.energy.gov/science/doe-explainscarbon-sequestration (last visited Jan. 10, 2024).
[6] *Id.*
[7] *Id.*
[8] UC Davis, *What is Carbon Sequestration and How Does it Work?*
[9] DOE, *DOE Explains Carbon Sequestration*.
[10] UC Davis, *What is Carbon Sequestration and How Does it Work?*
[11] *Id.*

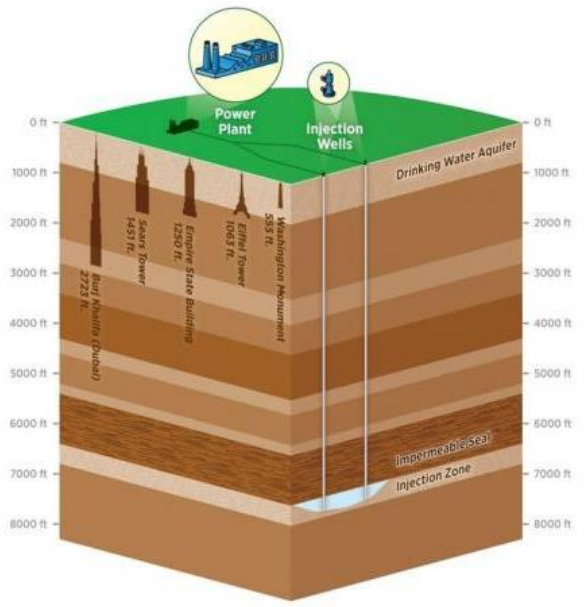
large sink of carbon dioxide, potentially altering the ocean chemistry and making the water more acidic.[12]

Through photosynthesis, plants capture carbon and store it in the form of matter called soil organic carbon.[13] Soil contains large amounts of soil organic carbon, where a portion is naturally decomposed and released back into the atmosphere as carbon dioxide; however, some of this carbon becomes stabilized and can remain sequestered in the soil for extended durations.[14] Soil can also store carbon as carbonates.[15] Carbonates are inorganic and can store carbon for more than 70,000 years, while soil organic matter typically stores carbon for several decades.[16]

About 25 percent of global carbon emissions are captured by plant-rich landscapes such as forests, grasslands, and rangelands.[17] By encouraging the growth of plants, particularly trees, advocates hope to help reduce the amount of carbon dioxide in the atmosphere.[18]

Geologic Carbon Sequestration

Geologic carbon sequestration involves storing carbon dioxide deep underground in porous rock formations.[19] In this approach, the carbon dioxide is compressed to the supercritical phase, where it behaves like a liquid. It is then injected into porous rock formations deep under the ground, where it becomes physically trapped in the pore spaces, dissolves in the fluid within the formations, and eventually reacts to form stable minerals. In another approach, carbon dioxide is dissolved into water before being injected into basaltic rock formations to mineralize. In some cases, this carbon dioxide is injected into oil-bearing rock formations, offsetting the costs of carbon capture, storing carbon dioxide, and helping to extract oil.[20]



[12] U.S. National Oceanic and Atmospheric Administration (NOAA), *Ocean-Atmosphere CO2 Exchange*, https://sos.noaa.gov/catalog/datasets/ocean-atmosphere-co2-exchange/#:~:text=By%202100%2C%20much%20of%20the,the%20pH%20of%20the%20water (last visited Jan. 10, 2024).
[13] UC Davis, *What is Carbon Sequestration and How Does it Work?*, https://clear.ucdavis.edu/explainers/what-carbon-sequestration (last visited Jan. 10, 2024).
[14] DOE, *DOE Explains Carbon Sequestration*, https://www.energy.gov/science/doe-explainscarbon-sequestration (last visited Jan. 10, 2024).
[15] UC Davis, *What is Carbon Sequestration and How Does it Work?*
[16] *Id.*
[17] *Id.*
[18] U.S. Geological Survey, *What's the difference between geologic and biologic carbon sequestration?*, https://www.usgs.gov/faqs/whats-difference-between-geologic-and-biologic-carbon-sequestration (last visited Jan. 10, 2023).
[19] DOE, *DOE Explains Carbon Sequestration*.
[20] *Id.*

Geologic sequestration of carbon dioxide could play an important role in reducing greenhouse gas (GHG) emissions, while enabling low-carbon electricity generation from power plants.[21] More than 40 percent of carbon dioxide emissions in the United States are from electric power generation. Geologic sequestration technologies are currently available and can dramatically reduce (by 80-90 percent) carbon dioxide emissions from power plants that burn fossil fuels. Applied to a 500 megawatt coal-fired power plant, the amount of GHG emissions avoided through geologic sequestration (with a 90 percent reduction efficiency) would be equivalent to:

- Planting more than 62 million trees, and waiting at least 10 years for them to grow.
- Avoiding annual electricity-related emissions from more than 300,000 homes.[22]

Carbon Markets

Carbon markets offer a promising tool to achieve net-zero emissions.[23] Farmers, ranchers, and forest landowners can generate carbon credits by adopting practices to reduce emissions or sequester carbon on their land, and carbon markets may provide them new income opportunities through carbon credit sales. Purchasing these carbon credits may also help companies achieve voluntary greenhouse gas reduction goals. The future of voluntary carbon markets will be influenced, in part, by the supply of credits which has varied significantly over time.[24]

Sequestering Carbon and Protecting Florida Land Program

In 2021, the Sequestering Carbon and Protecting Florida Land Program was established to invest in carbon sequestration by offering qualified applicants incentive payments for conducting certain approved forest management practices that establish new forest stands, increasing the state's forest acreage and thereby increasing the amount of offset carbon dioxide emissions.[25] The program will seek to increase carbon dioxide storage by an estimated 69,000 tons of carbon dioxide over the current anticipated five-year life of the program, the equivalent of removing approximately 3,000 passenger vehicles from the road every year. The program also seeks to maximize climate change mitigation and carbon sequestration while providing intangible social, cultural, civic, and workforce benefits.[26]

The program is administered by the Florida Forest Service within the Department of Agriculture and Consumer Services (DACS). Applicants are limited to non-industrial private landowners,

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[21] U.S. Environmental Protection Agency (EPA), *Carbon Dioxide Capture and Sequestration: Overview*, https://19january2017snapshot.epa.gov/climatechange/carbon-dioxide-capture-and-sequestration-overview_.html#:~:text=After%20capture%2C%20carbon%20dioxide%20(CO,train%2C%20truck%2C%20or%20ship (last visited Jan. 10, 2024) (graphic of geologic sequestration).

[22] *Id.*

[23] U.S. Department of Agriculture (USDA), *USDA Releases Assessment on Agriculture and Forestry in Carbon Markets*, https://www.usda.gov/media/press-releases/2023/10/23/usda-releases-assessment-agriculture-and-forestry-carbon-markets (last visited Jan. 12, 2024).

[24] USDA, *Report to Congress: A General Assessment of the Role of Agriculture and Forestry in U.S. Carbon Markets*, 2 (2023), *available at* https://www.usda.gov/sites/default/files/documents/USDA-General-Assessment-of-the-Role-of-Agriculture-and-Forestry-in-US-Carbon-Markets.pdf (last visited Jan. 12, 2024).

[25] Department of Agriculture and Consumer Services (DACS), *Sequestering Carbon and Protecting Florida Land Program*, https://grants.fdacs.gov/viewgrant/?id=4a8ed930-529b-ed11-aacf-001dd8098526#:~:text=The%20primary%20objective%20of%20the%20Sequestering%20Carbon%20and,thus%20increasing%20the%20amount%20of%20offset%20CO2%20emissions (last visited Jan. 10, 2024).

[26] *Id.*

county or local governments, or legally organized and registered nonprofit organizations, entities, or institutions owning their own lands. Landowners with a minimum of 20 acres (up to a maximum of 500 acres) may apply.[27]

State Advisory Bodies

A task force is an advisory body created without specific statutory enactment for a time not to exceed one year or created by specific statutory enactment for a time not to exceed three years and appointed to study a specific problem and recommend a solution or policy alternative with respect to that problem.[28] A task force terminates upon the completion of its assignment.[29]

Advisory bodies and other collegial bodies created as an adjunct to an executive agency must be established, evaluated, or maintained in accordance with the following provisions:[30]

- They may be created only when it is found to be necessary and beneficial to the furtherance of a public purpose.
- They must be terminated by the Legislature when it is no longer necessary and beneficial to the furtherance of a public purpose. The executive agency to which the advisory body is made an adjunct must advise the Legislature at the time the advisory body is no longer essential to the furtherance of a public purpose.
- The Legislature and the public must be kept informed of the numbers, purposes, memberships, activities, and expenses of advisory bodies.

An advisory body may not be created or reestablished unless:

- It meets a statutorily defined purpose;
- Its powers and responsibilities conform with the statutory definitions for governmental units;[31]
- Its members, unless expressly provided otherwise in the State Constitution, are appointed for four-year staggered terms; and
- Its members, unless expressly provided otherwise by specific statutory enactment, serve without additional compensation or honorarium, and are authorized to receive only per diem and reimbursement for travel expenses.[32]

The private citizen members of an advisory body that is adjunct to an executive agency must be appointed by the Governor, the head of the department,[33] the executive director of the department, or a Cabinet officer.[34]

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[27] DACS, *Florida Sequestering Carbon and Protecting Florida Land Program: Spring Site Preparation 2023*, 5 (2023), *available at* https://grants.fdacs.gov/_entity/sharepointdocumentlocation/4c8ed930-529b-ed11-aacf-001dd8098526/d3aacca8-314a-ed11-bba0-001dd804db73?file=Spring%202023%20Site%20Prep%20Program%20Final.pdf.
[28] Section 20.03(5), F.S.
[29] *Id.*
[30] Section 20.052, F.S.
[31] *See* section 20.03, F.S., for definitions of governmental units.
[32] Section 20.052(4), F.S.
[33] "Department" means the principal administrative unit within the executive branch of state government. Section 20.03(8), F.S.
[34] Section 20.052(5)(a), F.S.

Unless an exemption is otherwise specifically provided by law, all meetings of an advisory body, must be public.[35] Minutes, including a record of all votes cast, must be maintained for all meetings.[36]

III. Effect of Proposed Changes:

Section 1 creates s. 403.945, F.S., regarding the Carbon Sequestration Task Force. The bill contains the following legislative findings:

- Maintaining coastal and freshwater wetlands, nearshore and offshore aquatic ecosystems, conservation lands, healthy and sustainable agriculture, shellfish aquaculture, and timber and silvicultural industries is vital to the state's economy, environment, and natural resources, including significant environmental contributions to water quality and quantity, air purification, carbon sequestration, blue carbon,[37] coastal resilience, and habitat for threatened and endangered wildlife.
- The continued expansion of urban sprawl and the development of coastal areas have led to losses of the state's natural and agricultural lands and decreases in water quality and quantity that have harmed coastal ecosystems and industries, including imperiled wetlands, coral reefs, seagrasses, and shellfish aquaculture.
- To ensure healthy and sustainable agriculture, shellfish aquaculture and silvicultural industries, and natural and working lands and waters, a statewide program is necessary to provide incentives for landowners and managers to continue activities and land uses that sequester carbon.

The bill defines "carbon sequestration" as the long-term storage of carbon in plants, soils, geologic formations, and the ocean through land and aquatic habitat management.

The bill creates the Carbon Sequestration Task Force[38] as an adjunct to DEP to provide recommendations for the development of a statewide carbon sequestration program. The task force must operate in a manner consistent with the requirements of s. 20.052, F.S., regarding advisory bodies, commissions, and boards. The task force must be composed of the following members:

- The Secretary of Environmental Protection, or his or her designee.
- The Commissioner of Agriculture, or his or her designee.
- The executive director of the Fish and Wildlife Conservation Commission, or his or her designee.
- The Chief Resilience Officer, or his or her designee.

[35] Section 20.052(5)(c), F.S.
[36] *Id.*
[37] The bill defines "blue carbon" as carbon sequestered by marine and coastal ecosystems.
[38] The bill provides that "task force" has the same meaning as in s. 20.03(5), F.S., namely, an advisory body created without specific statutory enactment for a time not to exceed one year or created by specific statutory enactment for a time not to exceed three years and appointed to study a specific problem and recommend a solution or policy alternative with respect to that problem. Its existence terminates upon the completion of its assignment. Section 20.03(5), F.S.

- A representative from the National Estuary Program,[39] appointed by the Secretary of Environmental Protection.
- A member of an environmental not-for-profit, appointed by the Secretary of Environmental Protection.
- A landowner of working agricultural lands, appointed by the Commissioner of Agriculture.
- A representative from a state university with expertise in energy or sustainability, appointed by the Secretary of Environmental Protection.
- A representative from the University of Florida Institute of Food and Agricultural Sciences,[40] appointed by the Commissioner of Agriculture.
- A representative from the Florida Sea Grant Program,[41] appointed by the Commissioner of Agriculture.

The bill requires appointments to the task force be made by August 1, 2024. The bill provides that each appointed member serves at the pleasure of the appointing official. A vacancy on the task force must be filled in the same manner as the original appointment. The task force must elect a chair from among the members.

The bill provides that the task force must convene no later than September 1, 2024, and meet quarterly or upon the call of the chair. The bill also requires the task force to hold its meetings in person or through teleconference or other electronic means.

In addition, the bill provides that the duties of the task force must include all of the following:
- Identify and inventory terrestrial and aquatic environments suitable for carbon sequestration in this state.
- Consider possible methods of increasing carbon sequestration within the natural environment through state land and marine resource use policies; agricultural, aquacultural, and silvicultural practices; and other practices to achieve restoration of natural resources and long-term conservation.
- Develop a standardized methodology, including appropriate technology and existing research, to establish baseline carbon levels and account for increases in carbon sequestration over time.
- Evaluate additional ecosystem services and benefits of terrestrial and aquatic environments that may promote conservation and ecosystem restoration success, including water recharge, stormwater filtration, threatened or endangered wildlife habitat, nutrient reduction, flood mitigation and protection, coastal resilience, air quality, soil health, and food security.
- Recommend short-term and long-term benchmarks for increasing carbon sequestration in terrestrial and aquatic ecosystems.

[39] The National Estuary Program is a non-regulatory program established by Congress under the Clean Water Act to pioneer a broad and innovative approach to respond to threats to the nation's 28 estuaries. EPA, *Overview of the National Estuary Program*, https://www.epa.gov/nep/overview-national-estuary-program (last visited Jan. 10, 2024).
[40] The University of Florida's Institute of Food and Agricultural Sciences (UF/IFAS) is a federal-state-county partnership dedicated to developing knowledge in agriculture, human and natural resources, and the life sciences. UF/IFAS, *About UF/IFAS*, https://ifas.ufl.edu/about-us/ (last visited Jan. 10, 2024).
[41] Florida Sea Grant is a university-based program that supports research, education, and outreach to conserve coastal resources and enhance economic opportunities for the people of Florida. It is a partnership between the state, the state's university system, and the National Oceanic and Atmospheric Administration. Sea Grant Florida, *About Us*, https://www.flseagrant.org/about-us/ (last visited Jan. 10, 2024).

- Identify existing carbon markets and other considerations relevant to participation by the state in such markets.
- Identify potential funding mechanisms to encourage carbon sequestration practices and activities in this state.

The bill provides that, by October 1, 2026, the task force must submit to the Governor and Legislature a report that compiles the findings and recommendations of the task force. The bill also provides that the task force must terminate on April 30, 2027.

Section 2 creates an undesignated section of law providing that, for the 2024-2025 fiscal year, the sum of $350,000 in nonrecurring funds is appropriated from the Operating Trust Fund to DEP for the purpose of providing administrative and support services to the Carbon Sequestration Task Force.

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

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.

V. Fiscal Impact Statement:

A. Tax/Fee Issues:

None.

B. Private Sector Impact:

None.

C. Government Sector Impact:

The Department of Environmental Protection (DEP), the University of Florida Institute of Food and Agricultural Services, the Department of Agriculture and Consumer Services, the Fish and Wildlife Conservation Commission, and other members of the task force

may incur costs related to participating in the task force, conducting research, and preparing the report required under this bill. Such costs may be offset by appropriations provided in this bill. The bill appropriates, for the 2024-2025 fiscal year, the sum of $350,000 in nonrecurring funds from the Operating Trust Fund to DEP to provide administrative and support services to the task force.

VI. Technical Deficiencies:

The Department of Environmental Protection does not have an Operating Trust Fund.

VII. Related Issues:

None.

VIII. Statutes Affected:

This bill creates section 403.945 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.