HOUSE OF REPRESENTATIVES STAFF ANALYSIS

BILL #: CS/HB 1149 Carbon Sequestration
SPONSOR(S): Agriculture, Conservation & Resiliency Subcommittee, Massullo
TIED BILLS: **IDEN./SIM. BILLS:**

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

SUMMARY ANALYSIS

Carbon is the foundation of all life on Earth. Carbon helps to regulate the Earth's temperature, makes all life possible, is a key ingredient in food, and provides a major source of energy to fuel the global economy. This element is also found in our atmosphere in the form of carbon dioxide (CO_2). The carbon cycle describes the process in which carbon atoms continually travel from the atmosphere to the Earth and then back into the atmosphere. Since Earth and its atmosphere form a closed environment, the amount of carbon in this system does not change.

Carbon sequestration is the process of capturing and storing atmospheric CO_2 to reduce the amount of CO_2 in the atmosphere. There are two types of carbon sequestration: geologic and biologic. Biologic carbon sequestration particularly refers to the storage of atmospheric carbon in vegetation, soils, woody products, and aquatic environments. For example, forests and woodland ecosystems are considered to be one of the best forms of natural carbon sequestration. CO_2 binds to plants during photosynthesis, exchanging it for oxygen as a purifying emission.

The Florida Forest Service, a division within the Department of Agriculture and Consumer Services (DACS), manages more than 1 million acres of state forests and provides forest management assistance on over 17 million acres of private and community forests. In 2021, DACS launched the Sequestering Carbon and Protecting Florida Land Program (Grant Program) to help increase the state's forest cover, thereby reducing the amount of CO_2 being released into the atmosphere. The Grant Program's primary objective is to invest in carbon sequestration by offering qualified landowners incentive payments for conducting certain approved forest management practices that establish new forest stands and increase the state's forest acreage.

The bill directs DACS to conduct a study on carbon sequestration activities and programs.

The bill requires DACS to submit a report by October 1, 2023, on the results of the study to the President of the Senate and the Speaker of the House of Representatives.

The bill appropriates a nonrecurring sum of $500,000 to DACS from the General Revenue Fund for the purpose of conducting the study.

FULL ANALYSIS

I. SUBSTANTIVE ANALYSIS

A. EFFECT OF PROPOSED CHANGES:

Background

Carbon

Carbon is the foundation of all life on Earth and is required to form complex molecules like proteins and DNA. Carbon helps to regulate the Earth's temperature, makes all life possible, is a key ingredient in food, and provides a major source of energy to fuel the global economy.[1] This element is also found in our atmosphere in the form of carbon dioxide (CO_2).

The carbon cycle describes the process in which carbon atoms continually travel from the atmosphere to the Earth and then back into the atmosphere. Since Earth and its atmosphere form a closed environment, the amount of carbon in this system does not change. Therefore, where the carbon is located, in the atmosphere or on Earth, is constantly in flux.[2]

On Earth, most carbon is stored in rocks and sediments, while the rest is located in the ocean, atmosphere, and in living organisms.[3] These are the reservoirs, or sinks, through which carbon cycles. Carbon is released back into the atmosphere when organisms die, volcanoes erupt, fires blaze, fossil fuels are burned, and through a variety of other mechanisms. In the case of the ocean, carbon is continually exchanged between the ocean's surface waters and the atmosphere, or is stored for long periods of time in the ocean depths.[4]

Humans play a major role in the carbon cycle through activities such as the burning of fossil fuels or land development. As a result, the amount of CO_2 in the atmosphere is rapidly rising; it is already considerably greater than at any time in the past 3.6 million years.[5]

Carbon Sequestration

Carbon sequestration is the process of capturing and storing atmospheric CO_2 that reduces the amount of CO_2 in the atmosphere.[6] It is estimated that approximately 45 percent of CO_2 emitted by humans remains in the atmosphere.[7]

There are two types of carbon sequestration: geologic and biologic. Geologic carbon sequestration is the process of storing carbon dioxide in underground geologic formations. The CO_2 is usually pressurized until it becomes a liquid, and then it is injected into porous rock formations in geologic basins.[8] This method of carbon storage is sometimes a part of enhanced oil recovery, otherwise known as tertiary recovery, because it is used later in the life of a producing oil well. In enhanced oil recovery, the liquid CO_2 is injected into the oil-bearing formation to reduce the viscosity of the oil and allow it to flow more easily to the oil well.[9]

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[1] National Oceanic and Atmospheric Association (NOAA), *What is the carbon cycle?*, https://oceanservice.noaa.gov/facts/carbon-cycle.html#transcript (last visited March 15, 2023).
[2] *Id.*
[3] *Id.*
[4] *Id.*
[5] *Id.*
[6] United States Geological Survey (USGS), *What is carbon sequestration?*, https://www.usgs.gov/faqs/what-carbon-sequestration (last visited March 13, 2023).
[7] National Grid, *What is carbon sequestration?*, https://www.nationalgrid.com/stories/energy-explained/what-carbon-sequestration#:~:text=form%20of%20sequestration.-,Forests,oxygen%20as%20a%20purifying%20emission. (last visited March 15, 2023).
[8] USGS, *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 March 13, 2023).
[9] *Id.*

Biologic carbon sequestration refers to storage of atmospheric carbon in the natural environment.[10] This is also known as an indirect or passive form of carbon sequestration. This includes what are known as carbon sinks,[11] such as forests, grasslands, soil, oceans, and other bodies of water. For example, by encouraging the growth of plants, particularly trees, advocates hope to help reduce the amount of CO2 in the atmosphere.[12]

Department of Agriculture and Consumer Services

The Department of Agriculture and Consumer Services (DACS) supports and promotes Florida agriculture, protects the environment, safeguards consumers, and ensures the safety and wholesomeness of foods. Among other programs and activities, DACS manages over a million acres of state forest land for multiple uses, including timber, wildlife habitat, and recreation.[13]

The Forest and Resource Protection Program, via the Florida Forest Service, protects and manages the forest resources of Florida to ensure that they will be available for future generations.

The Florida Forest Service

The Florida Forest Service, a division within DACS, manages more than one million acres of state forests for multiple public uses, including timber, recreation, and wildlife habitat and offers technical information and grant programs to landowners to help them improve their forestland.[14] Additionally, the Florida Forest Service provides assistance on more than 17 million acres of private and community forests.

Sequestering Carbon and Protecting Florida Land Program

In 2021, the Commissioner of Agriculture announced the launch of the Sequestering Carbon and Protecting Florida Land Program (Grant Program) to address climate changes across the state.[15]

Forest ecosystems serve as carbon sinks, provide wildlife habitat, and supply a renewable timber resource. The $10 million Grant Program is designed to help increase the state's forest cover.[16] The Grant Program's primary objective is to invest in carbon sequestration by offering qualified landowners incentive payments for conducting certain approved forest management practices that establish new forest stands, thereby increasing the state's forest acreage and offsetting carbon emissions.[17] Applicants are limited to non-industrial private landowners; county or local governments; or legally organized and registered nonprofit organizations, entities, or institutions owning their own lands. Florida landowners with a minimum of 20 acres are encouraged to apply.

Under the Grant Program, the Florida Forest Service focuses the use of funds on providing incentive payments to landowners to encourage the implementation of approved tree establishment practices, including site preparation, seedling purchase, and planting.

Effect of the Bill

The bill directs DACS to conduct a study on carbon sequestration activities and programs. The study must, at minimum, include:

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[10] *Id.*

[11] A carbon sink is anything that absorbs more carbon from the atmosphere than it releases. Client Earth, *What is a carbon sink?*, https://www.clientearth.org/latest/latest-updates/stories/what-is-a-carbon-sink/ (last visited March 15, 2023).

[12] USGS, *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 March 13, 2023).

[13] Office of Program Policy Analysis & Government Accountability (OPPAGA) Government Program Summaries (GPS), Department of Agriculture and Consumer Services, https://oppaga.fl.gov/ProgramSummary/ProgramDetail?programNumber=4122 (last visited March 12, 2023).

[14] *Id.*

[15] Local Pulse Pensacola, *Commissioner Nikki Fried, Florida Forest Service Now Accepting Applications for Carbon Sequestration Program,* https://localpulse.com/2022/08/commissioner-nikki-fried-florida-forest-service-now-accepting-applications-for-carbon-sequestration-program/ (last visited March 13, 2023).

[16] DACS, *The Sequestering Carbon and Protecting Florida Land Program*, https://www.fdacs.gov/Forest-Wildfire/For-Landowners/Grants/Sequestering-Carbon-and-Protecting-Florida-Land-Program (last visited March 13, 2023).

[17] *Id.*

- A comprehensive list of existing state agency carbon sequestration activities and programs available to agricultural producers in the state;
- Recommendations for a state level exchange program to assist agricultural producers in participating in carbon sequestration activities; and
- Legislative recommendations for the creation of a carbon sequestration program.

The bill requires DACS to submit a report by October 1, 2023, on the results of the study to the President of the Senate and the Speaker of the House of Representatives.

The bill appropriates a nonrecurring sum of $500,000 from the General Revenue Fund to DACS for the 2023-2024 fiscal year for the purpose of conducting the study.

B. SECTION DIRECTORY:

Section 1. Creates an unnumbered section of law requiring DACS to conduct a study on carbon sequestration activities and programs.

Section 2. 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:

   See Fiscal Comments.

B. FISCAL IMPACT ON LOCAL GOVERNMENTS:

1. Revenues:

   None.

2. Expenditures:

   None.

C. DIRECT ECONOMIC IMPACT ON PRIVATE SECTOR:

None.

D. FISCAL COMMENTS:

The bill appropriates a nonrecurring sum of $500,000 for the 2023-2024 fiscal year from the General Revenue Fund to DACS for the purpose of conducting the study.

III. COMMENTS

A. CONSTITUTIONAL ISSUES:

1. Applicability of Municipality/County Mandates Provision:

   Not applicable. This bill does not appear to affect county or municipal government.

2. Other:

None.

B. RULE-MAKING AUTHORITY:

None.

C. DRAFTING ISSUES OR OTHER COMMENTS:

None.

IV. AMENDMENTS/COMMITTEE SUBSTITUTE CHANGES

On March 21, 2023, the Agriculture, Conservation & Resiliency Subcommittee adopted an amendment and reported the bill favorably as a committee substitute. The amendment changed the effective date of the bill to upon becoming a law.

This analysis is drafted to the committee substitute as approved by the Agriculture, Conservation & Resiliency Subcommittee.