

HOUSE OF REPRESENTATIVES STAFF ANALYSIS

BILL #: CS/HB 1565 Florida Red Tide Mitigation and Technology Development Initiative

SPONSOR(S): Agriculture & Natural Resources Appropriations Subcommittee, Grant

TIED BILLS: **IDEN./SIM. BILLS:** SB 1360

REFERENCE	ACTION	ANALYST	STAFF DIRECTOR or BUDGET/POLICY CHIEF
1) Water Quality, Supply & Treatment Subcommittee	15 Y, 0 N	Curtin	Curtin
2) Agriculture & Natural Resources Appropriations Subcommittee	13 Y, 0 N, As CS	Byrd	Pigott
3) Infrastructure Strategies Committee		Curtin	Harrington

SUMMARY ANALYSIS

The proliferation of a toxic or nuisance algae, known as a harmful algal bloom (HAB), produces toxic or harmful effects on humans, fish, shellfish, marine mammals, and birds. One of the most commonly known HABs are red tides, which have been documented in the Gulf of Mexico since the 1700s. *Karenia brevis*, the organism that causes red tides, can result in the deaths of marine mammals, sea turtles, and sea birds and, for humans, neurotoxic shellfish poisoning and respiratory impacts, particularly for those with asthma and other chronic respiratory conditions.

The Florida Red Tide Mitigation and Technology Development Initiative (Initiative) was established by the Legislature in 2019 to coordinate efforts amongst public and private entities to develop technologies to address the serious negative impacts of red tide on Florida. The Initiative is a partnership between the Fish and Wildlife Research Institute and Mote Marine Laboratory, and is set to expire on June 30, 2025.

The bill requires the Initiative to, upon successful completion of science-based laboratory testing of prevention, control, and mitigation approaches and technologies, develop field trial deployment technologies for those approaches and technologies, and further requires the Initiative to, when it develops a field trial deployment technology, submit a report with its findings to the Department of Environmental Protection (DEP).

The bill requires DEP to, within 30 business days after receipt of the report submitted by the Initiative, review the technology and approve, approve with conditions, or deny with explanation the use of the technology in state waters exhibiting red tide bloom concentrations of greater than 10,000 cells per liter.

The bill provides that if DEP fails to approve, approve with conditions, or deny with explanation a field trial deployment technology within 30 business days after receipt of the report, the technology shall be deemed approved for use in state waters exhibiting red tide bloom concentrations of greater than 10,000 cells per liter.

The bill eliminates the expiration date of the Initiative.

The bill may have an indeterminate positive fiscal impact on local governments and the private sector. See Section II., below.

FULL ANALYSIS

I. SUBSTANTIVE ANALYSIS

A. EFFECT OF PROPOSED CHANGES:

Background

Florida boasts 825 miles of stunning coastline fronting the Atlantic Ocean, the Gulf of Mexico, and the Straits of Florida.¹ Beaches and the nearby waters are an integral part of Florida's economy and environment.² Residents and tourists³ alike visit the waters adjacent to beaches to engage in boating, fishing, diving and other recreational activities.⁴ In addition, many Floridians depend on those waters for their livelihoods, and Florida's commercial and recreational fishing industries provide thousands of jobs and billions of dollars in economic benefits.⁵

Harmful Algal Blooms

Thousands of algae, simple photosynthetic organisms, live in marine and fresh waters.⁶ These species provide an important source of the oxygen we breathe and form the basis of the food web and while the majority of them are harmless to humans and animals, "a growing number of species are being found worldwide that produce toxins that can make humans sick and cause widespread ecological and economic harm."⁷ The proliferation of a toxic or nuisance algae, known as a harmful algal bloom (HAB),⁸ produces toxic or harmful effects on humans, fish, shellfish, marine mammals, and birds⁹ and, consequently, the economy.

Red Tides

One of the most commonly known HABs are red tides, which have been documented in the southern Gulf of Mexico since the 1700s¹⁰ and along Florida's Gulf coast since the 1840s,¹¹ and even Spanish explorers recorded fish kills near Tampa Bay.¹² Red tides occur nearly every year in the Gulf of Mexico,¹³ generally in late summer or early fall.¹⁴ Red tides develop offshore, are brought inshore by winds and currents, and they may turn water color red to brown.¹⁵ *Karenia brevis* (*K. brevis*), the organism that causes red tides, "can result in:

- massive fish kills;
- the deaths of marine mammals, sea turtles, and sea birds; and
- for humans — neurotoxic shellfish poisoning and respiratory impacts, especially for those with asthma and other chronic respiratory conditions."¹⁶

¹ Department of Environmental Protection (DEP), *Beaches*, <https://floridadep.gov/rcp/beaches> (last visited Jan. 20, 2024).

² *Id.*

³ Office of Economic & Demographic Research (EDR), *Economic Evaluation of Florida's Investment in Beaches*, p.9 (Jan. 2015, revised), <http://edr.state.fl.us/Content/returnoninvestment/BeachReport.pdf> (last visited Jan. 20, 2024). The most important feature of Florida's brand are its beaches and, while the state has numerous appealing features, in terms of attracting tourists beaches have the strongest effect. "It may be noted that, while beaches are the most attractive feature to visitors, they generally do not directly generate revenue. Instead, they facilitate an array of expenditures that collectively comprise the cost of the tourism experience."

⁴ *Id.*

⁵ National Oceanic and Atmospheric Administration (NOAA), *Fisheries Economics of the United States 2020*, p. 10 (Feb. 2023), <https://media.fisheries.noaa.gov/2023-09/FEUS-2020-final2-web-0.pdf> (last visited Jan. 21, 2024).

⁶ NOAA, *Harmful Algal Blooms - Tiny Organisms with a Toxic Punch*, <https://oceanservice.noaa.gov/hazards/hab/> (last visited Jan. 21, 2024).

⁷ Mote Marine Laboratory (Mote), *Florida Red Tide*, <https://mote.org/pages/florida-red-tide1> (last visited Jan. 21, 2024).

⁸ Fish and Wildlife Conservation Commission (FWC), *HAB General Information*, <https://myfwc.com/research/redtide/general/> (last visited Jan. 21, 2024).

⁹ NOAA, *supra* note 6.

¹⁰ FWC, *Red Tide FAQ*, <https://myfwc.com/research/redtide/faq/> (last visited Jan. 22, 2024).

¹¹ Department of Health, *Red Tide* (last updated Feb. 24, 2023), <https://sarasota.floridahealth.gov/programs-and-services/our-gulf-env/water-quality/red-tide/index.html> (last visited Jan. 21, 2024).

¹² FWC, *supra* note 10.

¹³ NOAA, *What is a red tide?*, <https://oceanservice.noaa.gov/facts/redtide.html> (last visited Jan. 21, 2024).

¹⁴ FWC, *About Red Tides in Florida*, <https://myfwc.com/research/redtide/general/about/> (last visited Jan. 21, 2024).

¹⁵ FWC, *Karenia brevis Fact Sheet*, <https://myfwc.com/media/12422/karenia-brevis-factsheet.pdf> (last visited Jan. 22, 2024).

¹⁶ Mote, *supra* note 7.

The “2018 Bloom”

The red tide bloom that began in October of 2017 and lasted until January of 2019 is also referred to as the 2018 bloom.¹⁷ In 2018, then-Governor Scott issued executive orders declaring a state of emergency in 14 counties associated with red tide blooms¹⁸ and designated the Department of Environmental Protection (DEP) the lead agency responsible for crisis management activities related to the emergency.¹⁹

The negative effects from the 2018 bloom were numerous. It took several years for fish stocks to rebound from Anna Maria Island near Tampa Bay south to Ten Thousand Islands,²⁰ and it has been estimated that there were approximately \$184 million in losses in the tourism sector and the consequent contraction in the Airbnb market corresponded to the loss of nearly 2,900 jobs throughout Florida.²¹

A recently released study commissioned by the Conservancy of Southwest Florida, Sanibel-Captiva Conservation Foundation, and Captains for Clean Water analyzed the impacts of poor water quality on Southwest Florida.²² “The study found if what happened surrounding 2018 happens again in 2024 or 2025 it would result in the loss of \$460 million in commercial and recreational fishing, more than 43,000 jobs, \$5.2 billion in local economic output, \$17.8 billion in property values, and the related loss of \$60 million in property tax revenue.”²³

The Florida Red Tide Mitigation and Technology Development Initiative

The Florida Red Tide Mitigation and Technology Development Initiative (Initiative) was established by the Legislature in 2019²⁴ to coordinate efforts amongst public and private entities to develop technologies to address the serious negative impacts of red tide on Florida.²⁵ The Initiative is a partnership between the Fish and Wildlife Research Institute (FWRI) and Mote Marine Laboratory (Mote).²⁶

“The goal of the [I]nitiative is to develop, test, and implement innovative, effective, and environmentally sustainable technologies and approaches for controlling and mitigating the impacts of red tide.”²⁷ The Initiative is required to submit an annual report to the Governor, the President of the Senate, the Speaker of the House of Representatives, the Secretary of DEP, and the executive director of the Fish and Wildlife Conservation Commission (FWC) that provides a synopsis of its accomplishments to date and priorities for coming years.²⁸

The Initiative expires on June 30, 2025.

FWC and the FWRI

The FWRI is the research division within FWC.²⁹ FWC is empowered to exercise a number of the regulatory and executive powers of the state, including those powers related to marine life.³⁰ “FWRI . . . employs more than 600 people who work at its St. Petersburg headquarters and more than 20 field

¹⁷ Nadine Slimak, *Quantifying the Economic Costs of Red Tide*, Gulf of Mexico Coastal Ocean Observing System (Mar. 17, 2022), <https://gcoos.org/red-tide-costs/> (last visited Jan. 21, 2024). Also occurring in 2018, Lake Okeechobee and the Caloosahatchee River were inundated with blue-green algae.

¹⁸ Fla. Exec. Order Nos. 18-221 (Aug. 13, 2018), 18-275 (Oct. 4, 2018), and 18-282 (Oct. 17, 2018).

¹⁹ Fla. Exec. Order No. 18-221 (Aug. 13, 2018).

²⁰ Tom Bayles, *SWFL environmental groups say economic damage from next major algae bloom will total billions*, WGCU (Jan. 17, 2024), <https://news.wgcu.org/section/environment/2024-01-17/swfl-environmental-groups-say-economic-damage-from-next-major-algae-bloom-will-total-billions> (last visited Jan. 21, 2024).

²¹ Slimak, *supra* note 17.

²² Bayles, *supra* note 20.

²³ *Id.*

²⁴ Ch. 2019-114, Laws of Fla.

²⁵ S. 379.2273(1), F.S.

²⁶ S. 379.2273(2), F.S.

²⁷ S. 379.2273(2)(b), F.S.

²⁸ S. 379.2273(2)(d), F.S.

²⁹ FWC, *About FWRI*, <https://myfwc.com/research/about/> (last visited Jan. 22, 2024).

³⁰ Art. IV s. 9, Fla. Const.; ss. 379.1025 and 20.331, F.S.

laboratories and offices situated at key inland and coastal locations statewide.”³¹ The FWRI provides research and technical knowledge to a wide array of entities including governments, universities, commercial and recreational fishing interests, and nongovernmental organizations.³² The FWRI employs a number of strategies to advance its mission, including identifying, monitoring, and providing technical support related to red tides and other HABs.³³ FWC is authorized to provide grants and contracts to Mote to conduct research.³⁴

Mote

Mote is a non-profit, independent research institution³⁵ which is funded by foundations, individual donors, and federal, state and local grants.³⁶ For nearly 70 years Mote has conducted cutting-edge marine research³⁷ and it has decades of experience with red tide science.³⁸ What began as a one-room building on Florida’s west coast³⁹ is today a global leader in marine research, with nearly 300 staff members,⁴⁰ and scientists who conduct research on all seven continents.⁴¹

In 2018, Mote established the Red Tide Institute with a mission to “reduc[e] adverse impacts of Florida red tide on public health, coastal marine ecosystems and Florida’s economy via the rigorous testing and application of a ‘tool box’ of science-based mitigation and control technologies and strategies.” To further its research of red tide, Mote created “a cutting-edge red tide mitigation testing facility . . . [that] uses over 150,000 gallons of treated and recirculated seawater” for research, “along with ample lab space for water quality, marine species, and toxin testing.”⁴² Funding of the Initiative has allowed Mote to continue to expand vital testing of products to find those that kill the algae and minimize the impact of the *K. brevis* toxin.⁴³

Mote operates under the principle that mitigation or control strategies must do no further harm than that already inflicted by red tide.⁴⁴ As of January of this year, Initiative funding has allowed Mote to examine more than 300 chemicals and compounds and many of the funded projects are ready for field testing.”⁴⁵

Effect of the Bill

The bill requires the Initiative to:

- Upon successful completion of science-based laboratory testing of prevention, control, and mitigation approaches and technologies, develop field trial deployment technologies for those approaches and technologies.
- When it develops a field trial deployment technology for the approaches and technologies, submit a report with its findings to DEP.

The bill requires DEP to, within 30 business days after receipt of the report submitted by the Initiative, review the technology and approve, approve with conditions, or deny with explanation the use of the technology in state waters exhibiting red tide bloom concentrations of greater than 10,000 cells per liter.

³¹ FWC, *History of the Institute*, <https://myfwc.com/research/about/history/> (last visited Jan. 22, 2024)

³² FWC, *Fish and Wildlife Research Institute (FWRI)*, <https://myfwc.com/about/inside-fwc/fwri/> (last visited Jan. 21, 2024).

³³ *Id.*

³⁴ S. 379.2202, F.S.

³⁵ Mote, *About Us*, <https://mote.org/about-us> (last visited Jan. 21, 2024).

³⁶ Mote, *Mote Marine Laboratory & Aquarium*, <https://mote.org/locations/details/mote-marine-laboratory-aquarium> (last visited Jan. 22, 2024).

³⁷ Mote, *Mission and Vision*, <https://mote.org/about-us/mission-vision> (last visited Jan. 21, 2024).

³⁸ Mote, *supra* note 27.

³⁹ *Id.*

⁴⁰ *Id.*

⁴¹ Mote, *History*, <https://mote.org/about-us/history> (last visited Jan. 21, 2024).

⁴² Florida Red Tide Mitigation and Technology Development Initiative (Initiative), *Accomplishments and Priorities Report*, p. 2 (Jan. 2023), https://mote.org/media/uploads/files/RedTideInitiative_AccomplishmentsPrioritiesReport2022_ffw.pdf (last visited Jan. 22, 2024).

⁴³ *Id.*, at p. 5.

⁴⁴ Mote, *Red Tide Institute*, <https://mote.org/research/program/red-tide-institute> (last visited Jan. 22, 2024).

⁴⁵ Initiative, *supra* note 43, at p. 5.

The bill provides that if DEP fails to approve, approve with conditions, or deny with explanation a field trial deployment technology within 30 business days after receipt of the report, the technology shall be deemed approved for use in state waters exhibiting red tide bloom concentrations of greater than 10,000 cells per liter.

The bill eliminates the expiration date of the Initiative.

B. SECTION DIRECTORY:

Section 1. Amends provisions in s. 379.2273, F.S., relating to the Florida Red Tide Mitigation and Technology Development Initiative.

Section 2. 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:

None.

B. FISCAL IMPACT ON LOCAL GOVERNMENTS:

1. Revenues:

Red tide negatively impacts Florida's economy by decreasing property values and tax revenues collected by local governments. If the Initiative creates technologies or approaches that prevent or mitigate red tide and its impacts, it may reduce the negative impacts to tax revenues collected by local governments. Therefore, this bill may have an indeterminate positive fiscal impact on local governments.

2. Expenditures:

None.

C. DIRECT ECONOMIC IMPACT ON PRIVATE SECTOR:

Red tide negatively impacts Florida's economy by harming industries such as commercial fisheries, recreation, and tourism. If the Initiative creates technologies or approaches that prevent or mitigate red tide and its impacts, it may reduce the negative impacts to such industries. Therefore, this bill may have an indeterminate positive fiscal impact on the private sector.

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

On February 5, 2024, the Agriculture & Natural Resources Appropriations Subcommittee considered one amendment, which was adopted, and reported the bill favorably as a committee substitute. The amendment eliminates the expiration date in s. 379.2273, F.S. and removes the appropriations from the bill.

The analysis is drafted to the committee substitute as approved by the Agriculture & Natural Resources Appropriations Subcommittee.