

Seagrass Restoration Technology Development Initiative

Technical Advisory Council Meeting

February 16, 2024



MOTE.ORG

Meeting Agenda

- Welcome, Logistics, and Meeting Overview
- TAC Introductions and Role
- Florida Sunshine and Public Records Laws
- Seagrass Initiative Overview
- Initiative Partners
- Initiative Progress and Annual Report
- DEP Grant Agreement
- Reporting Requirements
- 10-Year Seagrass Restoration Plan
- Initiative Research Infrastructure
- Year 1 Request For Proposals
- Proposals Under Review
- Public Comments
- Research Facility Tour
- TAC Comments and Recommendations



Technical Advisory Council

Dr. Michael P. Crosby – Mote, Co-Chair

Dr. Laura Reynolds – UF, Co-Chair

Beau Williams – Governor Appt

Carter Henne – House Speaker Appt

Dr. James Douglass – Senate President Appt

Dr. Bradley Furman – FWC Appt

Scott Eastman – DEP Appt



Seagrass Restoration Technology Development Initiative – 403.93344 Florida Statutes

Technical Advisory Council

(4) The Initiative Technology Advisory Council, an advisory council as defined in s. 20.03(7), is established as part of the initiative. The advisory council's membership must include marine science, technology development, and natural resource management representatives from this state's aquatic preserves, private organizations, and public or private research institutions. The council shall meet at least twice annually.

(a) The council shall be co-chaired by the president and chief executive officer of Mote Marine Laboratory and a representative from the University of Florida and shall be composed of the following members:

1. One member from a private commercial enterprise, appointed by the Governor.
2. One member from a public or private university in this state, appointed by the President of the Senate.
3. One member from a non-university public or private marine environmental organization, appointed by the Speaker of the House of Representatives.
4. One member from the program who has expertise in seagrass ecosystems, appointed by the Secretary of Environmental Protection.
5. One member from the Fish and Wildlife Research Institute who has expertise in seagrass, appointed by the executive director of the Fish and Wildlife Conservation Commission.

(b) Council members shall serve staggered 2-year terms and may be reappointed.

(c) Council members shall serve without compensation, and each organization represented shall cover all expenses of its respective representative.



Technical Advisory Council Role

- 403.93344(4) F.S.: "There is **established within the initiative the Initiative Technology Advisory Council**, an advisory council as defined in s. 20.03(7) ...**The council shall meet at least twice annually.**
- 20.03(7)F.S.: "Council" or "advisory council" means an advisory body created by specific statutory enactment and appointed to function on a continuing basis for the study of the problems arising in a specified functional or program area of state government and **to provide recommendations** and policy alternatives.
- 403.93344(3) F.S.: The Seagrass Restoration Technology Development Initiative is established within the department as a partnership between the program, Mote Marine Laboratory, and the University of Florida.
- **DEP contracted Mote** to lead the Initiative under State Agreement M2024
- **Thus, the role of the Technical Advisory Council is to provide recommendations to Mote and partners on the Initiative.**



Florida's Sunshine Law



Florida Sunshine Law

- The **Florida Sunshine Law applies** to the Seagrass Restoration Technology Development Initiative, Technical Advisory Council.
- Florida's Sunshine Law was created to protect **every Floridian's right to public access of meetings and records** concerning government programs, which provides transparency.
- **This applies to any meeting** where official acts are to be taken or **public business will be discussed.**



Reasonable Notice of Meetings

- The **public must be given reasonable notice of meetings** that are to occur.
- DEP generally recommends notice for public advisory group meetings to be published in the **Florida Administrative Register** no less than 7 days before the meeting (posted on 2/6/24) and ensure that it is posted on the **Initiative website**.



Minutes of Meetings

- **Minutes of meetings must be taken** and documented, but do not have to be verbatim.
- This meeting's minutes will be posted on the Mote Seagrass Ecosystem Research & Restoration website.
- Advisory Boards are not required to have audio recordings of their meetings; but if a meeting is recorded by a member or staff then it is a public record.

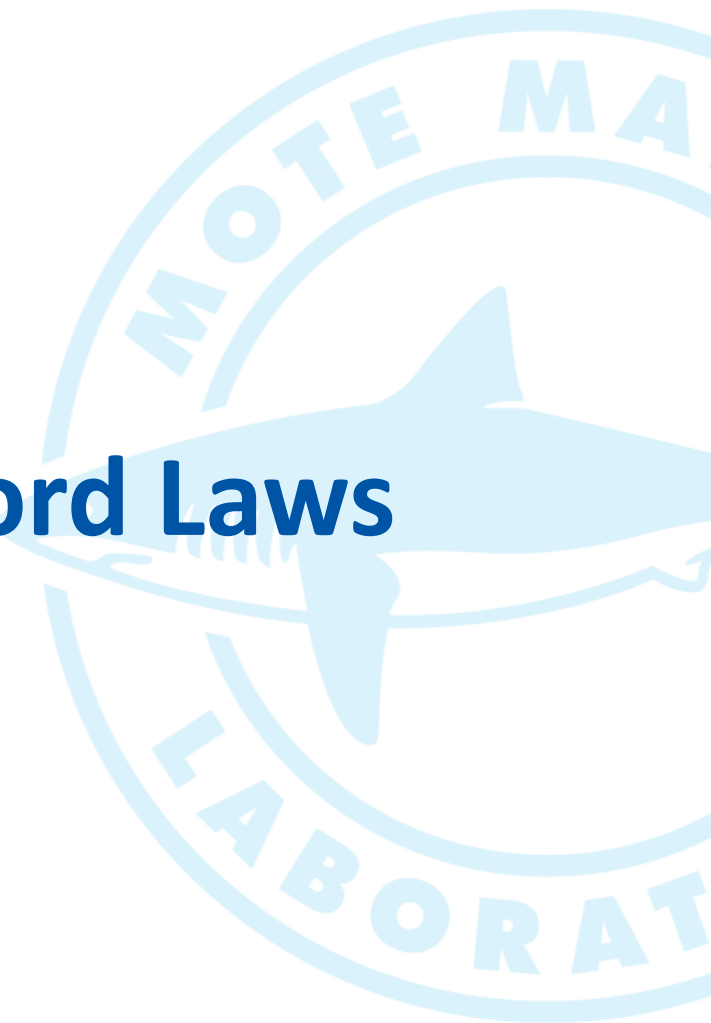


Restrictions on Outside Discussions

- Any discussion between two or more members of the Technical Advisory Council discussing a topic which may foreseeably come before their board **must occur in the sunshine.**
- You are not restricted from socializing with other members of the Council, **but you may not discuss anything that may foreseeably come before the board.**
- **Discussion of official matters outside of a public meeting is a violation of the Sunshine Law.**



Florida Public Record Laws



Public Records

- **This Technical Advisory Council is subject to Florida's Public Records Law** (even if you yourself are not a government employee), because records relating to the Seagrass Restoration Technology Development Initiative are made or received in connection with the transaction of the official business of the State.
- Public Records are **ALL** documents, papers, letters, maps, books, tapes, photographs, films, sound recordings, data processing software, etc. regardless of the physical form...or means of transmission made or received in connection with official action of an agency. Sec. 119.011(12), F.S.
- **Public records must be open and available for the public to inspect and copy.**
- **This includes emails, text messages, and social media.**



Questions or Comments from the TAC



Seagrass Restoration Technology Development Initiative Overview



Seagrass Initiative Overview

- Signed into law by Florida Governor DeSantis in July 2023
 - 403.93344 Florida Statutes
 - Partnership with DEP and UF
- \$10 million over 5 years contracted by DEP to Mote
- Legislative intent:
 - establish a collaborative and coordinated effort among public and private research entities to develop restoration technologies and approaches to address the loss of seagrass and the cascading ecological and economic impacts of that loss to communities in this state
 - department shall award funds specifically appropriated by the Legislature for the initiative to Mote Marine Laboratory, which shall function as the lead administrative component to achieve the goals of the initiative
 - initiative shall leverage state-appropriated funds with additional funds from private and federal sources
 - Mote Marine Laboratory and the University of Florida shall create a 10-year Florida Seagrass Restoration Plan to implement tools and technologies developed under the initiative



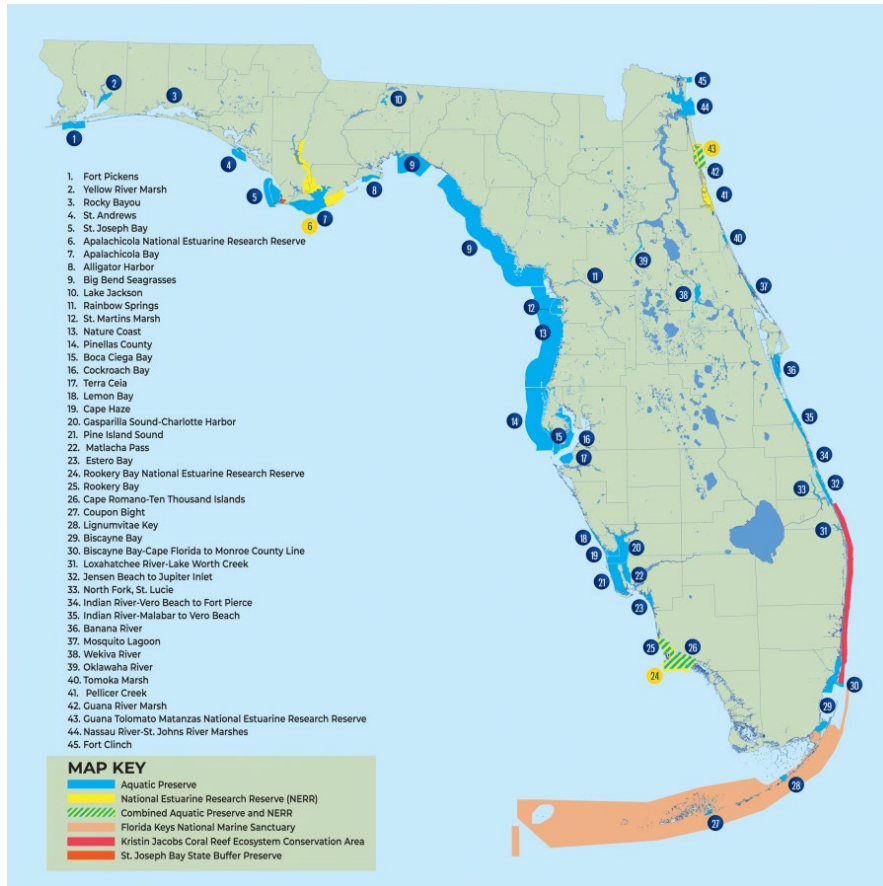
Initiative Partner: University of Florida

- Department of Soil, Water, and Ecosystem Sciences
- Coastal and Marine Ecology Laboratory
- Dr. Laura Reynolds, Assistant Professor Coastal Ecology
- Genetics Lab for Seagrass Initiative





Initiative Partner: DEP Aquatic Preserve Program



- Aquatic Preserve Act
 - 258.35-258.46 F.S
 - “Ensure continuation of natural conditions of aesthetic, biological and scientific value”
- 42 Statewide Preserves
- 2.6 Million Acres
- Place-Based Experts on:
 - Natural resources, ecological trends, stressors, research conducted/underway, recreational uses, partners, stakeholders, etc.



Seagrass Initiative Progress



SEAGRASS RESTORATION TECHNOLOGY DEVELOPMENT INITIATIVE 403.93344(3)[e] F.S.

ACCOMPLISHMENTS AND PRIORITIES REPORT JANUARY 2024

Seagrass is critically important to the ecology and economy of coastal ecosystems, providing a variety of ecosystem functions and benefits that include habitat and food for a variety of fishery species and endangered species, shoreline/sediment stabilization, nutrient cycling and removal, carbon storage, and enhanced coastal resilience. Unfortunately, seagrasses are being rapidly lost in Florida due to both indirect and direct anthropogenic impacts as well as the broader effects of global climate change.

A science-based restoration effort is needed to address diminishing seagrass habitat, distribution, and diversity on a strategic state-wide basis. This technology development and restoration initiative builds upon the ongoing partnership between seagrass nursery restoration practitioners and top marine ecology and genetic scientists to generate a sustainable source of genetically resilient, and

naturally reproducing seagrass, in both land-based nurseries and in-water seagrass field nurseries, as well as large-scale seagrass gene banks.

This report is being provided to meet the requirement of 403.93344(3)(e) Florida Statutes which states: "Beginning January 15, 2024, and each January 15 thereafter until its expiration, the initiative shall submit a report that contains an overview of its accomplishments to date and priorities for subsequent years to the Governor, the President of the Senate, the Speaker of the House of Representatives, the Secretary of Environmental Protection, and the Executive Director of the Fish and Wildlife Conservation Commission."

SEAGRASS RESTORATION TECHNOLOGY DEVELOPMENT INITIATIVE

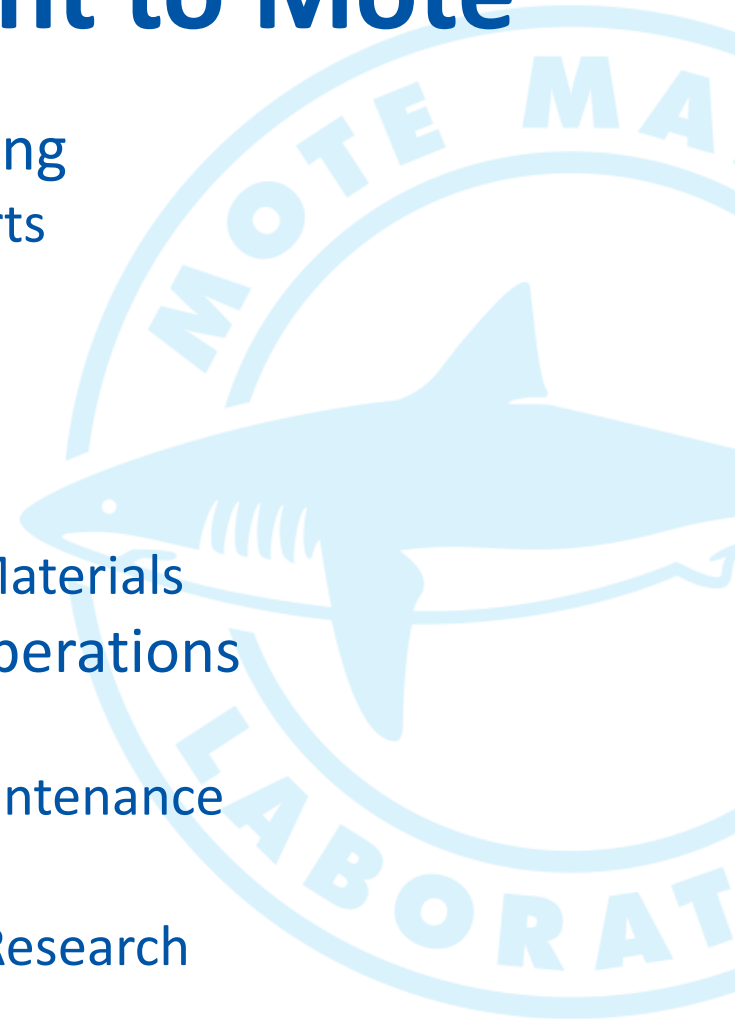
The Florida Legislature and Governor, in recognizing

- ✓ Administrative Structure
- ✓ Scientific Partners/Staff
- ✓ State Contract Drafted
- ✓ Launched Website
- ✓ Technology Advisory Council
- ✓ Request For Proposals
- ✓ Annual Report
- ✓ Greenhouse Infrastructure
- ✓ Genetics Lab Equipment
- ✓ Leveraged Funding



DEP Grant Agreement to Mote

- Administrative Oversight and Reporting
 - 6-month Technical and Financial Reports
 - Competitive RFP process
 - Annual Report
 - Technology Advisory Council
 - 10-Year Seagrass Restoration Plan
 - Education/Outreach Workshops and Materials
- Initiative Research Equipment and Operations
 - Genetics Lab and Greenhouse Nursery
 - Staffing, Equipment, Supplies, and Maintenance
- Field Operations
 - Travel for Field Seagrass and Stressor Research



Initiative Reporting Requirements

- Beginning **January 15, 2024**, and each January 15 thereafter until its expiration, **the initiative shall submit a report that contains an overview of its accomplishments** to date and priorities for subsequent years to the Governor, the President of the Senate, the Speaker of the House of Representatives, the Secretary of Environmental Protection, and the executive director of the Fish and Wildlife Conservation Commission.
- DEP Contract Technical and Financial Reports
- Public Website
- TAC Meetings – FAR, Presentations, Public Comments and Minutes
- Public Records



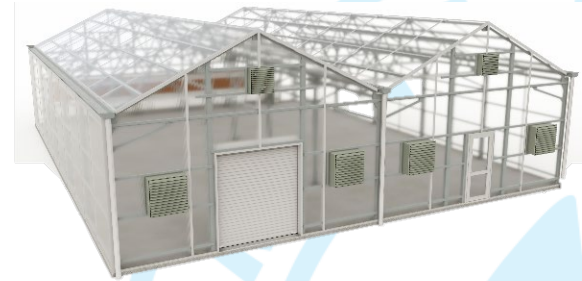
10-Year Florida Seagrass Restoration Plan

- 403.93344(3)(d) F.S.:
 - “In collaboration with the program, Mote Marine Laboratory and the University of Florida shall create a 10-year Florida Seagrass Restoration Plan to implement tools and technologies developed under the initiative.”
- DEP Grant Work Plan:
 - This work may, in part, be subcontracted by Mote to an external entity selected by Mote.
 - The Department, Mote, and University of Florida will oversee the development of the plan over the five years of the Initiative, may publish/release drafts and updates with the legislatively required Annual Report, may conduct workshops with seagrass research/restoration partners to facilitate practitioner/public input, and shall submit a Final Plan to the Department for implementation by June 30, 2028.

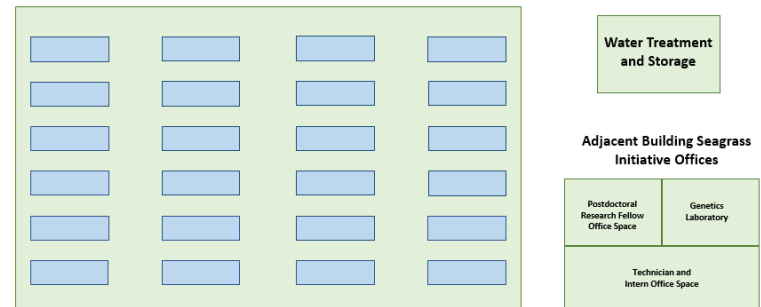


Initiative Research Infrastructure

- Provide multi-user seagrass research infrastructure for Initiative scientists
- Free of charge for Initiative projects
- Seagrass education and outreach
- Test variety of field stressors (e.g. temperature, clarity, light, salinity, nutrients, pH) in a controlled setting
- Assist determination of resilient seagrass genotypes
- Hold diversity of genotypes and ecotypes for research
- Additional raceway locations coming on-line soon in Florida Keys



Seagrass Ecosystem Research and Restoration Greenhouse
at the
Ron and Marla Wolf Center for Ocean Sustainability



 = 24 Research Raceways for independent or multi-tank testing



Initiative Research Engagement

- 403.93344(3)(C)(1): Mote Marine Laboratory may, with the concurrence of the department, use a portion of the awarded funds to facilitate additional engagement with other pertinent marine science and technology development organizations in this state and around the world to pursue applied research and technology for the successful restoration of seagrass ecosystems.



Request For Partner Research Proposals

- Open to any/all interested parties
- In accordance with Florida Sunshine and Public Record Laws
- Anticipated grant funding in year one is \$1M+
 - Likely \$50-\$250K for each grant, 4-8 organizations
 - Support not to exceed 1 year
 - may request longer in second year RFP
 - No Match Required
- Proposal guidelines/timelines:
 - Mote.org and proposals@seagrassinitiative.org
 - Opened December 1, 2023
 - Closed January 31, 2024
 - Notification of Awards in March 2024
 - Contracting in April 2024
 - Project Period May/June 2024 to May/June 2025
- Core infrastructure developed at Mote for projects
- Use of Mote facilities/infrastructure is free of charge
- Collaboration with Initiative Partners encouraged not required
- Proposal Reviewer Scientists:
 - DEP, UF, and Mote scientists
 - Each scientist will review proposals using provided questionnaire
 - Project updates will be provided during TAC meetings for comments/recommendations
- Projects will generally receive 50% of the awarded funds upon contract execution
 - 25% upon approval of the Interim Report
 - 25% upon approval of the **Final Report**



Request For Proposal Priorities

- Year 1 of the Initiative will focus on:
 - examining the **genetic diversity of seagrass populations** and associated field stressors across Florida;
 - developing a **genetic library** of Florida seagrass;
 - **testing the resilience** of different statewide seagrass populations to multiple environmental stressors in controlled lab and nursery settings;
 - **examine existing seagrass restoration technologies** and/or conduct planning efforts and pursue regulatory approval for testing novel seagrass restoration technologies;
 - **organizing and encouraging collaboration** among the scientists and restoration practitioners working on Florida seagrass genetics to achieve the goals of the Initiative (this will be partially accomplished through this RFP, the Initiative Technology Advisory Council, and a forthcoming Initiative Workshop).



Year 1 Proposals Under Review



Initiative Proposals Under Review

- Florida Atlantic University, Harbor Branch Oceanographic Institute
- *Assessment of Population Genomic Variability Associated to Stress Resistance in Florida Seagrasses*
 - Identify genetic differences among natural seagrasses that vary in environmental degradation
 - Identify specific genotypes and gene complexes that are associated with habitats of specific stressor history
 - Biscayne Bay, Palm Beach Shores, IRL
 - *Syringodium filiforme*



Initiative Proposals Under Review

- University of Georgia, University of North Florida, Florida International University
- *Testing variation in stress tolerance and restoration potential of Florida seagrass subpopulations*
 - Test the stress tolerance of different statewide seagrass subpopulations in mesocosm
 - Seek to uncover suite of proteins that could server as “fingerprint” for stress tolerance
 - Contribute to seagrass genetic library
 - Biscayne Bay and Tampa Bay ?
 - *Thalassia testudinum*



Initiative Proposals Under Review

- University of New Orleans, Vesta
- *Addressing uncertainties to facilitate restoration success of *Halodule wrightii* beds: Does seagrass genetic variation and genotypic identity enhance primary productivity and confer resilience to stressors?*
 - Map seagrass bed genetic variation and productivity across low-light and high-heat gradients
 - Field and mesocosm testing
 - *Halodule wrightii*



Initiative Proposals Under Review

- Ecosphere Restoration Institute, University of South Florida
- *Genetic Diversity of Targeted Seagrass Assemblages in Florida*
 - Collection/analysis of seagrass samples of established and restored sites while documenting stressor factors
 - Contributing to the genetic library
 - *Halodule wrightii*



Initiative Proposals Under Review

- Brevard Zoo, University of Central Florida, Florida Tech
- *Investigating Potential Effects of Caulerpa prolifera on Shoal Grass Restoration in Florida*
 - Lab, Mesocosm, and Field Experiments
 - *Halodule wrightii*



Initiative Proposals Under Review

- Ulysses Ecosystem Engineering, Florida International University
- *Developing Technology for Kilometer Scale Seagrass Restoration in Florida*
 - Optimizing/automating/field validation mechanical seed injection tool
 - Characterizing seed germination factors
 - *Syringodium filiforme*



Initiative Proposals Under Review

- Gulf Shellfish Institute, Mote
- *Assisting seagrass recovery in Southwest Florida: Evaluation of hard clam (*Mercenaria campechiensis*) facilitation and identification of resilient *Halodule wrightii* phenotypes*
 - Evaluates co-planting of clams with seagrass
 - Identifying resilient shoal grass phenotypes that can be nursery grown
 - Light stressor mesocosm experiment
 - Incorporate collections into genetic library



Initiative Proposals Under Review

- AquaTech Eco Consultants, Aquaticus Plants
- *Halodule wrightii* Genetics Library for Resiliency and Restoration
 - Determine if there is significant genetic difference between *Halodule wrightii* populations across Florida and discern if those genotypes impact survivability in adverse water conditions
 - Determine if there is a subset of ‘ecotypes’ of *Halodule wrightii* best suited for restoration
 - Nursery and Field-based approach



Initiative Proposals Under Review

- Florida International University
- *A new approach to seagrass restoration in Florida: exploring the potential for seed-based restoration*
 - Review history of Florida seagrass restoration
 - Assess suitability of fast-growing, early successional seagrass for seed based restoration
 - Investigate sexual reproduction, seed set, and seed banks in Florida Keys
 - Experimentally determine cues for promoting germination in mesocosms
 - *Syringodium filiforme*



Questions or Comments from the TAC?



Public Comments



Seagrass Research Facility Tour

