IRL COUNCIL
CITIZENS' ADVISORY COMMITTEE

This meeting is open to the public

February 12, 2026

1:00 PM – 4:00 PM

Historic Sebastian Elementary School, 1235 Main Street, Sebastian, FL 32958

Remote Link: https://us02web.zoom.us/j/82794278654

The order of items appearing on the agenda is subject to change during the meeting and is at the discretion of the presiding officer. Anyone wishing to speak on any item is requested to complete a speaker's card.

1. **Call to Order and Pledge of Allegiance** (Frank Catino, Chair)
2. **Introductions** (Frank Catino, Chair)
3. **Elections of Officers** (Kathy Hill)

   Requested Action: Motion to elect nominated Chair and Vice Chair for the Calendar Year 2026.
4. **Agenda Revisions** (Chair)

   Note any known changes and inquire if any members have suggested revisions.
5. **Minutes Approval** (Chair) **Minutes**

   Requested Action: Approval of Minutes from the CAC meeting on November 6, 2025.
6. **Public Comment**
7. **Old Business**

   None
8. **New Business**

   a. Fiscal Year 2027 Water Quality Restoration RFP (Duane De Freese) **WQ Rankings**

   Requested Action: Motion to recommend that the IRL Council Board of Directors accept the IRLNEP Citizens Advisory Committee recommendations and approve the final ranked list of FY 2027 Water Quality Restoration proposals; fund the top proposals contingent and consistent with available funds and budgetary authority; and authorize staff to negotiate and enter into contracts with those applicants.

   b. Fiscal Year 2027 Community-Based Restoration RFP (Duane De Freese) **CBR Rankings**

   Requested Action: Motion to recommend that the IRL Council Board of Directors accept the IRLNEP Citizens Advisory Committee recommendations and approve the final ranked list of FY

2027 Community-Based Restoration proposals; fund the top proposals contingent and consistent with available funds and budgetary authority; and authorize staff to negotiate and enter contracts with those applicants.

c. Fiscal Year 2027 Science and Innovation RFP (Duane De Freese) **S&I Rankings**

Requested Action: Motion to recommend that the IRL Council Board of Directors accept the IRLNEP Citizens Advisory Committee recommendations and approve the final ranked list of FY 2027 Science and Innovation proposals; fund the top proposals contingent and consistent with available funds and budgetary authority; and authorize staff to negotiate and enter into contracts with those applicants.

d. Fiscal Year 2027 Tentative Budget (Duane De Freese) **Budget**

Requested Action: Motion to recommend that the IRL Council Board of Directors review and adopt the tentative budget for FY 2027 by Resolution 2026-01, pursuant to Florida Statutes.

e. Fiscal Year 2027 EPA Workplan (Duane De Freese)

Requested Action: Motion to recommend that the IRL Council Board of Directors authorize staff to finalize and submit the FY 2027 EPA Workplan by June 1, 2026.

f. Independent Audit Services (Duane De Freese)

Requested Action: Motion to recommend that the IRL Council Board of Directors authorize staff to develop and advertise a competitive RFP for Independent Audit services. Term of service is five years.

9. IRLNEP Staff Reports

a. Community Engagement Update (Kathy Hill)
b. Information Technology and Data Science Update (KJ Ayres-Guerra)
c. IRL Project Update (Kathy Hill)
d. Executive Director Report (Duane De Freese) **Ex Dir Summary**

10. Final Comments (Committee, Staff, Public)

11. Next Meeting

Citizens' Advisory Committee: April 30, 2026, at 1:00 p.m.
Historic Sebastian Elementary School, 1235 Main Street, Sebastian, FL 32958

12. Adjourn

NOTE: If a person decides to appeal any decision made by the Board with respect to any matter considered at such meeting or hearing, he or she will need a record of the proceedings, and that, for such purpose, he or she may need to ensure that a verbatim record of the proceedings is made, which record includes the testimony and evidence upon which the appeal is to be based. Section 286.0105, Florida Statutes (2014).

Pursuant to the provisions of the Americans with Disabilities Act, any person requiring special accommodations to participate in this workshop/meeting is asked to advise the agency at least 48 hours before the workshop/meeting by contacting: Erin Bergman at (314) 347-5854. If you are hearing or speech impaired, please contact the agency using the Florida Relay Service, 1(800) 955-8771 (TDD) or 1(800) 955-8770 (Voice). For more information, you may contact: Erin Bergman, IRL Council, 1235 Main St, Sebastian, FL 32958, (314) 347-5854, or by email at bergman@irlcouncil.org .

IRL COUNCIL
CITIZENS' ADVISORY COMMITTEE

Minutes from the meeting of

November 6, 2025

1:00 PM – 4:00 PM

Historic Sebastian Elementary School, 1235 Main Street, Sebastian, FL 32958

Remote Access: https://us02web.zoom.us/j/87054557595

Member In-person Attendance: Christine Bamberger, Greg Braun, Frank Catino, Cheryl McPhillips, Doug Patterson, Steven Schlitt, Keith Winsten

Member Online Attendance: Julie Braga, Jerome Gayman, Nickie Munroe, Suzanne Scheiber, Tess Sailor-Tynes, Julie Strickland, Jenny Tomes

Guest in-person Attendance: Caitlin Moscrip, Matthew Vatland, Merrit Kennedy, Brandy Nelson, Cortney Cortez, Maddie Drewery, Caitlin Butler

Guest Online Attendance: None

1. **Call to Order and Pledge of Allegiance** (Frank Catino, Chair)

   Captain Frank Cation called the meeting to order at 1:04 p.m. and led the committee in the Pledge of Allegiance.

2. **Introductions** (Frank Catino, Chair)

   Captain Catino led the group in introductions.

3. **Agenda Revisions** (Frank Catino, Chair)

   No agenda revisions were made.

4. **Minutes Approval** (Frank Catino, Chair)

   Requested Action: Approval of Minutes from CAC meeting on August 21, 2025.

   MOTION WAS MADE BY STEVEN SCHLITT TO APPROVE THE MEETING MINUTES FROM AUGUST 21, 2025. MOTION WAS SECONDED BY DOUG PATTERSON. MOTION PASSED UNANIMOUSLY.

5. **Public Comment**

   No public comment was made.

6. Presentations

a. *Indian River Lagoon Water Quality and Biodiversity* Small Grant Project (St. Edwards School)

Students from St. Edward's School carried out a study on the water quality and biodiversity of the Indian River Lagoon, with partial support from an IRLNEP small grant. During fieldwork at six sites, they learned sampling techniques and about lagoon ecology, focusing on key health indicators. The results indicated that areas with seagrasses supported higher biodiversity.

b. *NOAA Habitat Restoration Project Year 1 Update* (Kevin Walker, IRLNEP)

Kevin Walker from IRLNEP reviewed the progress after the first year of the NOAA Transformational Habitat Restoration grant. The project's aim is to accelerate habitat recovery in the lagoon and foster a collaborative restoration culture. Two partners have finished their deliverables and are now in the monitoring phase, while others are securing permits or actively engaged in restoration efforts.

c. *2025 Indian River Lagoon Economic Valuation* (Valerie Seidel and Cortney Cortez, The Balmoral Group)

Cortney Cortez from the Balmoral Group discussed the results of the economic valuation study of the lagoon. The study encompassed the valuation of ecosystem services associated with restoration projects financed by the NOAA Transformational Habitat Restoration grant. Also included are assessments of property value impacts, benefit-cost analyses, regional economic effects, and tax revenue. A dashboard link to county-by-county socioeconomic metrics was provided. The goal of the study was to assign monetary value to the benefits people in the region gain from a healthy habitat that provides ecosystem services.

d. *Looking Back 10 Years* (Dr. Duane De Freese, IRLNEP)

Dr. Duane De Freese, Executive Director of the IRLNEP, provided an overview of the IRLNEP's accomplishments in reorganizing over the past 10 years. Topics discussed included the creation of the Management Conference, funding, economic impact, and the development of the Comprehensive Conservation and Management Plan (CCMP). Completed projects by county were also included.

7. Old Business

None

8. New Business

a. 2026 IRL Council Meeting Calendar (Kathy Hill)

Ms. Hill presented the calendar and requested to report any conflicts on the dates.

Requested Action: Motion to recommend that the IRL Council Board of Directors accept the IRLNEP Management Conference recommendation to adopt the proposed 2026 IRL Council Board of Directors and Management Conference meeting calendar.

MOTION WAS MADE BY KEITH WINSTEN TO RECOMMEND THAT THE IRL COUNCIL BOARD OF DIRECTORS ACCEPT THE IRLNEP MANAGEMENT CONFERENCE RECOMMENDATION TO ADOPT THE PROPOSED 2026 IRL COUNCIL BOARD OF DIRECTORS AND MANAGEMENT

CONFERENCE MEETING CALENDAR. MOTION WAS SECONDED BY CHRISTINE BAMBURGER. MOTION PASSED UNANIMOUSLY.

b. Fiscal Year 2025 Final Budget Amendment (Daniel Kolodny)

Mr. Kolodny reviewed the changes attributed to benefits with the FRS System.

Requested Action: Motion to recommend that the IRL Council Board of Directors accept the IRLNEP Management Conference recommendation to approve the Fiscal Year 2025 Final Budget Amendment by Resolution 2025-05, pursuant to Florida Statutes.

MOTION WAS MADE BY GREG BRAUN TO RECOMMEND THAT THE IRL COUNCIL BOARD OF DIRECTORS ACCEPT THE IRLNEP MANAGEMENT CONFERENCE RECOMMENDATION TO APPROVE THE FISCAL YEAR 2025 FINAL BUDGET AMENDMENT BY RESOLUTION 2025-05, PURSUANT TO FLORIDA STATUTES. MOTION WAS SECONDED BY DOUG PATTERSON. MOTION PASSED UNANIMOUSLY.

9. IRLNEP Staff Reports

a. Community Engagement Update (Kathy Hill)

Ms. Hill highlighted the top social media posts and their reach. The achievements of the three Community Engagement Coordinators were reviewed, and the first-quarter engagement statistics were shared: 648 total engagements in FY 2025. The winner and runners-up of the 2026 Annual IRL Calendar were announced. Highlights from the 2025 Annual Report were also presented.

b. Information Technology and Data Science Update (K.J. Ayres-Guerra)

Ms. Ayres-Guerra announced the highlight of the quarter: the birth of her son. A review of upcoming projects was conducted, and Ms. Ayres-Guerra expressed her gratitude to the staff for their support during her leave.

c. IRL Project Update (Daniel Kolodny)

Mr. Kolodny reported that 25 CCMP projects and activities are currently underway. Twenty-one new CCMP projects are set to start. Eighteen projects were completed in the first quarter. Mr. Kolodny requested reviewers for the pending RFPs.

d. Executive Director Report (Duane De Freese)

Dr. De Freese provided a brief legislative update and shared statistics on research topics published in Frontiers in Marine Science. He announced upcoming participation in the Florida Ocean Alliance and the ANEP Fall Tech Transfer Meeting. The deadlines for the Call for Abstracts for the 2026 IRL Symposium were reviewed.

10. Final Comments (Committee, Staff, Public)

Greg Braun requested an update on the Space Center. Dr. De Freese responded that there have been no major changes since Space Florida submitted the presentation. Expect more launches.

Heather Stapleton announced that ORCA is hosting a tour on Wednesday, November 12, of the Habitat Restoration project at Riverview Park in Sebastian. Other restoration project sites to visit include Restore Our Shores Buffer Zones at Fisherman's Landing, Pineapple Park, Kelly Park, and Geiger Point. All restoration sites have received IRLNEP Funding.

Dan Kolodny announced the Small Grant timeline. The Small Grant Application will be posted on December 15, 2025. The first day to accept applications is January 5, 2026. Applications are due

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no later than 5:00 p.m. on Friday, March 6, 2026. Review and scoring will take place from March 9 through April 24, 2026.

11. Next Meeting

Citizens' Advisory Committee meeting: February 12, 2026, at 1:00 p.m.
Historic Sebastian Elementary School, 1235 Main Street, Sebastian, FL 32958

12. Adjourn

The meeting was adjourned at 3:26 p.m.

Agenda Return

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CATEGORY 1: WATER QUALITY RESTORATION										Funding Amount	Category Total Remaining
Rank	**Applicant**	**Project**	**Requested Funding**	**Cost Share Match**	**Match %**	**Total Project Cost**	**Score**	**Score %**	**Eligible? Above 75%**		**$300,000.00**
1	Fort Pierce Utilities Authority	Lagoon Vitality Enhancement through Septic-to-Sewer Conversions in Fort Pierce, FL	$203,860	$448,800	68.8	$652,660	182.5	83.0%	**Y**	$203,860	$96,140
2	Indian River County	North Sebastian Phase 2c Water and Septic-to-Sewer Project	$300,000	$8,393,618	96.5	$8,693,618	182.2	82.8%	**Y**	$96,140	$0
3	City of Port St. Lucie	Septic to Sewer Conversions to Reduce Nitrogen Pollution Generated from Aging Residential Septic Systems in Port St. Lucie Sections 3, 6, 10, and 26	$300,000	$300,000	50.0	$600,000	163.9	74.5%	**N**	$0	$0

Title of project:	
Lead organization and Partners:	Fort Pierce Utilities Authority (FPUA)
Project Location:	This project will be carried out throughout FPUA's wastewater territory in Fort Pierce, Florida - 27° 27' 0.9576" N 80° 20' 23.8236" W
Key CCMP Vital Sign (s):	Wastewater, Impaired Waters, Stormwater
IRLNEP Contribution and Source:	$203,608 IRL Council
FPUA Match:	$448,800
Total Project Cost:	**$652,480** • $203,680 (IRLNEP request) • $350,000 (FPUA WW Expansion Match) • $98,800 (Service Installation Match)

Project Description:

Fort Pierce Utilities Authority will lead a targeted septic to sewer conversion initiative to transition 38 residential properties from septic systems to central wastewater service. Eligible homes will be located in areas where sewer infrastructure already exists, enabling immediate implementation without additional design or mainline construction. Each conversion includes septic abandonment, installation of a grinder pump system, and connection to FPUA's modern conveyance network.

The project is expected to prevent approximately 716 pounds of total nitrogen and 10-12 pounds of total phosphorus from entering tributaries that drain to the Indian River Lagoon every year. These reductions occur as soon as each septic system is taken offline.

Affordability remains the primary barrier to conversion for many Fort Pierce residents, as local poverty rates exceed the state average (nearly double) and federal average (nearly triple). IRLNEP investment reduces customer cost by more than half while leveraging the significant infrastructure improvements FPUA has already completed, including expanding service into 17 neighborhoods since 2022, relocating our aging wastewater treatment plant off of the Indian River Lagoon, and lining more than 21 miles of sewer pipes. The system is fully prepared for immediate project activation once awarded.

With IRLNEP support, this initiative produces measurable, near-term water quality benefits and accelerates the long-term transition to a sewered, lagoon-protective community.

Key Outputs

- Completion of 38 septic to sewer conversions within FPUA's service territory.
- Annual reductions of about 716 pounds of total nitrogen and 10-12 pounds of total phosphorus.
- Wastewater access expanded into one additional neighborhood to support future conversion phases.

Key Outcomes

- Short-term: Immediate elimination of nutrient-rich effluent entering groundwater and canals.
- Medium-term: Improved water clarity, healthier tributaries, and strengthened conditions for seagrass recovery.
- Long-term: Reduced environmental risk during storm events, increased lagoon resilience, and sustained progress toward regional restoration goals.

Executive Summary

Lead Organization: Indian River County Department of Utility Services (IRCDUS)
Project Title: North Sebastian Phase 2c Water and Septic-to-Sewer Project
Location: North Sebastian, FL (27.843790, -80.483600)
Key CCMP Vital Sign: Wastewater
IRLNEP Contribution: $300,000
Partner Match: 71.4%
Total Project Cost: $11,751,065

Project Description

The North Sebastian Phase 2c Water and Septic-to-Sewer Project is a high-priority water-quality initiative that will reduce nutrient pollution entering the Indian River Lagoon (IRL) by converting approximately 138 residential properties from aging onsite sewage treatment and disposal systems (OSTDS) to the County's centralized wastewater collection system. The project supports the Indian River Lagoon National Estuary Program's (IRLNEP) Comprehensive Conservation and Management Plan (CCMP) and advances the nutrient-reduction goals of the Central IRL Basin Management Action Plan (BMAP).

The project scope includes construction of 13,400 linear feet of sewer pipe and 8,400 linear feet of water main, enabling full public utility service for properties within the project area. This design–bid–build effort strengthens local infrastructure, protects public health, and delivers measurable water-quality improvements.

Short-Term Outcomes include reduced exposure to failing septic systems during the transition to sewer service, enhanced community understanding of septic impacts on the IRL, and strengthened regulatory compliance through BMAP commitments.

Medium-Term Outcomes include the elimination of septic system failures and an estimated 1,548 pounds of Total Nitrogen (TN) removed annually, significantly reducing nutrient loads to groundwater and adjacent IRL waterways. These improvements support better water clarity, lower algal bloom frequency, and healthier estuarine conditions.

Long-Term Outcomes include restoration of seagrass beds, enhanced habitat for oysters, fish, and manatees, sustained public health protection, and continued progress toward IRLNEP CCMP goals and state water-quality mandates.

By replacing outdated OSTDS with modern wastewater infrastructure, the North Sebastian Phase 2c project provides lasting environmental, public health, and community benefits while reinforcing Indian River County's long-term commitment to lagoon restoration and sustainable water resource management.

Water Quality Restoration FY 27 - Executive Summary

Title of Project	Septic to Sewer Conversions to Reduce Nitrogen Pollution Generated from Aging Residential Septic Systems in Port St. Lucie Sections 3, 6, 10, and 26
Lead Organization and Partners	City of Port St. Lucie is the Lead Organization
Project Location	The project location is in central Port St. Lucie immediately west of and adjacent to the North Fork of the St. Lucie River. The project area is approximately 1,638 acres. Latitude: 27.27949 N, Longitude: -80.387995 W.
Key CCMP Vital Sign(s)	Impaired Waters, Wastewater, Contaminants, Monitoring and Data Sharing, and Citizen Engagement
IRLNEP Contribution and Source	$300,000, IRL Council
Partner Match	$300,000 cash from owners of residential properties located near the North Fork of the St. Lucie River
Total Project Cost	$600,000

Project Description
To determine sources of degraded water quality in the North Fork of the St. Lucie Estuary, the City of Port St. Lucie contracted with Harbor Branch Oceanographic Institute/Florida Atlantic University to conduct the 2018-2020 *Microbial Source Tracking of Bacteria Pollution in the St. Lucie River* study. That study confirmed elevated fecal coliform levels and nutrient concentrations in waterways throughout the City. The greatest concentrations consistently occurred in older, dense urbanized areas of the City. Aging residential septic systems in those areas are believed to contribute to nutrient concentrations and coliform bacterial count pollution.

IRLNEP funding will enable Port St. Lucie to expand its ongoing septic to sewer conversion program. The proposed grant program will support the conversion of 64 residential septic systems in the target areas to Port St. Lucie's low-pressure sanitary sewer system. Targeted properties along waterways that ultimately discharge to the North Fork of the St. Lucie River from Port St. Lucie Sections 3, 6, 10 and 26 will be eligible to participate in the City's long-standing septic conversion grant program that will cover 50% of the costs. The City will also offer 10-year interest-free connection fee loans to all participating owners to cover the balance of their conversion costs. Nutrient pollution is the main cause of toxic algal blooms in the Indian River Lagoon system. Fewer Algal blooms will protect marine life and preserve key habitat. The project is expected to benefit the Indian River Lagoon by removing 6.12 pounds of total nitrogen annually ***per*** converted septic system to help reduce Algal blooms.

Key Outputs (Deliverables)
64 homes converted from using aging septic systems to the City's sanitary sewer system; estimated to eliminate a combined total of 391.68 pounds of nitrogen annually.

Key Outcomes (Benefits to the IRL)
Short-term benefits: Enhanced community understanding of environmental risks from septic systems in the subject neighborhoods; initial nutrient reductions
Mid-term benefits: Incentivizing the conversion of 64 septic systems in the Hot Spot neighborhoods; significant nutrient reductions; improved protection of the Indian River Lagoon
Long-term benefits: Fewer algal blooms; habitat improvements; restoration of biological diversity

Map and Photos
See attached.

Agenda Return

CATEGORY 3: COMMUNITY-BASED HABITAT RESTORATION										Funding Amount	Category Total Remaining
Rank	Applicant	Project	Requested Funding	Cost Share Match	Match %	Total Project Cost	Score	Score %	Eligible? Above 75%		$75,000.00
1	East Coast Zoological Society	Piloting Supplemental Fish Habitat in Degraded Seagrass Biome through Community Engagement	$74,975	$78,040	51	$153,015	210.2	87.6%	Y	$74,975.00	$25.00
2	Ocean Research and Conservation Association	Buffered Shoreline Demonstration Project in an HOA Community: Engaging the Public & Residents in Habitat Restoration	$45,886	$19,666	30	$65,552	207.0	86.3%	Y	$0.00	$25.00

Title of Project	Piloting Supplemental Fish Habitat in Degraded Seagrass Biome through Community Engagement
Lead Organization and Partners:	Lead Organization: East Coast Zoological Society, Inc. Partners: Brevard County Natural Resources; Spartan Reef, Charlie Sembler
Project Location:	Three sites located in the Central IRL, Brevard County between the following GPS points: 28°05'00.2"N 80°35'29.5"W, 27°51'04.7"N 80°27'38.8"W
Key CCMP Vital Signs:	*One Lagoon: Habitats* - Filter Feeders (Level 2), Seagrass (Level 1*); One Lagoon: Living Resources* - Biodiversity (Level 2), Forage Fishes (Level 2), Commercial Recreational Fisheries (Level 2); and *One Voice* - Citizen Engagement (Level 2).
IRNEP Contribution and Source:	$74,975, IRL Council
Partner Match:	$78,040; 51%
Total Project Cost:	$153,015

Project Description: This fish-habitat restoration pilot project will construct artificial and oyster reef structures to improve ecosystem services. At three locations, 400 sqft of Spartan Reef© and 400 sqft of oyster habitat will be constructed with support from community volunteers. Monthly monitoring of these reef structures, nearby bare sediments, and the closest historically persistent seagrass bed to each site will be performed to determine relative fish species richness and diversity. These data will inform whether certain structures can improve fisheries in IRL regions where seagrass habitat has degraded. Monitoring will include monthly baited remote underwater video (BRUV) and fish seine net sampling. Benthic monitoring will also occur quarterly on each constructed structure. Community volunteers will be trained to pre-screen and annotate BRUV footage prior to analysis by staff. Community engagement will also occur through three field demonstrations, providing hands-on education related to IRL fish habitats.

Key Outputs:

1) Construct a total of 1,200sqft of Spartan Reef© and 1,200sqft of subtidal oyster reef distributed over 3 sites in Southern Brevard County for the purpose of creating fish habitat, engaging 320 volunteer hours.
2) Perform pre-construction, baseline, and monthly post-construction monitoring on 4 different fish habitats: both constructed habitats, bare sediment, and seagrass habitat located within 3 square miles of each site. Volunteers will be trained to support field data collection and annotate collected video footage resulting in 500 volunteer hours.
3) Host 3 volunteer training workshops, participate in 5 outreach events to engage with the community about this program, and lead 3 community-targeted field workshops with the help of trained volunteers to demonstrate fish monitoring techniques (180 volunteer hours).
4) Oversee the grant administration, distribution of grant funds, quarterly reporting, and preparation of a final technical report summarizing the results of the video surveillance and physical monitoring.

Key Outcomes: With the help of community volunteers, this project will add 2,400sqft of oyster and fish habitat to the IRL in a region with limited seagrass cover. Within the first two years, this will aid nutrient pollution mitigation, which supports seagrass recovery, and increase vital fish foraging opportunities through increased benthic diversity. In addition, the project aims to quantify how restored oyster habitat may support local fish species. ECZS will provide data to support a better understanding of fish habitat usage in multiple ecotones and the impact of seagrass habitat loss on fisheries in the project region. Lessons learned will inform mid-term strategies for future habitat restoration. Community participants will gain a better understanding of the diverse population of fish the IRL supports. Through community outreach, ECZS aims to engage with the angler community on IRL restoration, exchanging vital knowledge regarding local conservation science and historical fishing knowledge to support seagrass reliant IRL fisheries, creating a more sustainable and resilient coastal community in the future.

EXECUTIVE SUMMARY

Title of Project: Buffered Shoreline Demonstration Project in an HOA Community: Engaging the Public & Residents in Habitat Restoration	
Lead Organization and Partners:	Ocean Research & Conservation Association, Inc. (ORCA); **Partner**: Castaway Cove Condominium Association
Project Location:	Castaway Cove Condominiums (28°02'35"N 80°34'58"W)
Key CCMP Vital Sign(s):	Stormwater, Impaired Waters, Biodiversity, Citizen Engagement and Education, Monitoring and Data Sharing
IRLNEP Contribution and Source:	$45,886 from IRL Council
Match:	$9,399 from funds received through grants and donations to ORCA for education programs, citizen science, buffered shorelines, and general funds; $10,267 from in-kind volunteer time and in-kind native plants. Total match $19,666 = 30%
Total Project Cost:	$65,552

Project Description: not to exceed 250 words

ORCA proposes the creation of a community-based, scientifically monitored, 280 linear foot (2,800 feet^2) buffered shoreline demonstration project at Castaway Cove Condominiums in Palm Bay, Florida. Buffered shorelines are a land-based habitat restoration technique that replaces turf grass with native vegetative buffers to effectively slow stormwater flow and filter out sediment, nutrients, and other pollutants that typically runoff from waterfront land into the IRL. In addition to improving water quality, buffered shorelines provide vital habitat and foraging resources for a variety of terrestrial and aerial wildlife. This project provides ORCA with a unique opportunity to demonstrate the effectiveness of buffered shorelines within a homeowners association (HOA) setting. Previous ORCA data validates that this restoration technique can lead to a significant decrease of phosphorus in stormwater runoff. By implementing a high visibility, data-driven demonstration at Castaway Cove, the proposed project aims to inspire other HOAs, government agencies, and private landowners to adopt similar buffered shorelines along various property types throughout the IRL watershed. Trained citizen scientists and community volunteers will participate in all components of the project — including scientific monitoring, buffer installation and maintenance, and community education — helping foster long-term engagement and stewardship among residents and local stakeholders.

Key Outputs (Deliverables):

Deliverables will include: 1) Quarterly/final reports, 2) Buffered shoreline: conversion of 280 linear feet or 2,800 ft^2 of turf grass to vegetative buffer using approximately 450 native riparian plants, 3) Scientific pre- and post-monitoring of buffered shoreline, 4) Incorporation of approximately 65 community volunteers and citizen scientists in the overall project, with appropriate documentation of participation and of educational programs, and 5) distribution of tailored mailer to Brevard County HOA residents to further educate and motivate residents about buffered shorelines.

Key Outcomes (Benefits to the IRL):

Short term (1-2 years): Establish a resilient, self-regulating native vegetative buffer that effectively captures stormwater runoff and filters nutrients before they reach the IRL; create microhabitats for wildlife; and build community awareness and stewardship by showcasing the site as a demonstration for future buffered shoreline projects within the City of Palm Bay and local HOAs

Medium-term (3-4 years): Support continued nutrient uptake from stormwater runoff and expanded wildlife use of the buffer; continue to serve as a model for community education and future habitat restoration projects

Long-term (5-10+ years): Maintain sustained nutrient reduction and enhanced biodiversity; contribute to the establishment of additional buffered shorelines across the City of Palm Bay

Agenda Return

CATEGORY 4: SCIENCE AND INNOVATION										Funding Amount	Category Total Remaining
Rank	**Applicant**	**Project**	**Requested Funding**	**Cost Share Match**	**Match %**	**Total Project Cost**	**Score**	**Score %**	**Eligible? Above 75%**		**$150,000.00**
1	Florida Institute of Technology	Assessing environmental controls on seed viability and reproductive success of seagrasses in the Indian River Lagoon	$69,776	$30,818	30.6%	$100,594	205.5	93.4%	**Y**	$69,776	$80,224
2	Florida Institute of Technology	Mapping Hypoxia and Modeling Sediment Phosphorus Fluxes to support Lagoon Management	$79,972	$83,338	51.0%	$163,310	201.4	91.5%	**Y**	$79,972	$252
3	Florida Atlantic University	Development of Genotyped Nurseries to Enhance Seagrass Restoration Success	$63,666	$47,773	42.9%	$111,439	192.8	87.6%	**Y**		
4	University of Florida	Starting off Strong: Determining Suitable Areas for Oyster Restoration in the Southern Indian River Lagoon and St. Lucie Estuary	$98,737	$33,010	25.0%	$131,747	187.4	85.2%	**Y**		
5	Hubbs-SeaWorld Research Institute	Highly Pathogenic Avian Influenza Exposure, Health Impacts, and Novel Sampling in Marine Mammal Sentinels in the Indian River Lagoon, Florida	$56,908	$20,802	26.8%	$77,710	180.4	82.0%	**Y**		
6	Marine Resources Council	Real-Time *E. coli* and Organic Matter Fluorescence Network to Track Fecal Contaminants and Predict Harmful Algal Blooms in the Indian River Lagoon	$74,396	$45,773	38.1%	$120,169	180.2	81.9%	**Y**		

CATEGORY 4: SCIENCE AND INNOVATION										Funding Amount	Category Total Remaining
Rank	**Applicant**	**Project**	**Requested Funding**	**Cost Share Match**	**Match %**	**Total Project Cost**	**Score**	**Score %**	**Eligible? Above 75%**		**$150,000.00**
7	Florida Oceanographic Society	Using natural selection to find resilient seagrass genotypes for nursery propagation.	$69,570	$25,824	27.0%	$95,394	178.2	81.0%	**Y**		
8	Ocean Research & Conservation Association	Identification of Contaminants of Emerging Concern at Sites with Known Toxicity	$52,629	$21,074	28.6%	$73,703	174.0	79.1%	**Y**		
9	City of Stuart	Evaluation of Treatment Alternatives for Enhanced PFAS Removal	$99,997	$223,096	69.0%	$323,093	169.6	77.1%	**Y**		
10	Florida Institute of Technology	Confirmation of the Dynamic Energy Budget for *Cynoscion nebulosus* and *Macrocallista nimbosa* for IMTA Set-Up	$40,100	$23,081	36.5%	$63,181	164.3	74.7%	**N**		
11	Coastal Connections, Inc.	A Sea Turtle's Eye View of Life Underwater in the Indian River Lagoon: A pilot project assessing the ability of using animal-borne cameras in the IRL to study habitat use, water quality, anthropogenic threats, and species interactions.	$49,220	$19,608	28.5%	$68,828	141.5	64.3%	**N**		

Executive Summary

Title of Project	Evaluation of Treatment Alternatives for Enhanced PFAS Removal
Lead Organization and Partners	City of Stuart, Holtz Consulting Engineers, Inc., AECOM Technology Corporation
Project Location	Stuart Water Treatment Plant Lat 27°11'22" N / Long 80°14'17"W
Key CCMP Vital Signs	Science & Technology Innovation, Monitoring and Data, Impaired Waters, Contaminants
IRLNEP Contribution and Source	$99,997.41, IRL Council
Partner Match	$223,095.99, City of Stuart, 69%
Total Project Cost	$323,093.40

Project Description

The City of Stuart is planning to conduct an "Evaluation of Treatment Alternatives for Enhanced PFAS Removal" at their Water Treatment Plant. As technology improves and EPA monitoring guidance evolves, the City has detected the presence of short-chain PFAS compounds as part of recent routine water quality testing. These compounds appear to be breaking through the current PFAS treatment processes in place. The City is proposing a pilot study over a period of six months to determine the extent of contaminants in treated drinking water and to test alternative treatment media for their effectiveness in containing these chemicals. The City has partnered with a consultant team that provide expert knowledge and extensive experience in PFAS testing and treatment design. The data and recommendations generated by this study will be used to improve treatment processes at the Water Treatment Plant.

Key Outputs (Deliverables)

Specific water quality markers will be tracked and recorded in a customized Excel database. A final report will be produced which summarizes the data collected, evaluates the effectiveness of tested treatment media, and provides recommendations for treatment improvements.

Key Outcomes (Benefits to the IRL)

PFAS compounds are difficult to contain and break down, and have been detected in humans, within indoor environments, and throughout the natural environment. Short-chain PFAS, once thought to be less persistent, have been found to be just as pervasive and more difficult to treat. Drinking water is a significant means of exposure to PFAS, creating a domino effect to PFAS levels in human consumers, wastewater, bodies of water, and the surficial aquifer. Effective containment and treatment of PFAS in drinking water will help improve the levels of PFAS within the Lagoon.

Executive Summary

Project Title:	**A Sea Turtle's Eye View of Life Underwater in the Indian River Lagoon: A pilot project assessing the ability to use animal-borne cameras in the IRL to study habitat usage, water quality, anthropogenic threats, and species interactions.**
Lead Organization and Partners:	**Lead Organization:** Coastal Connections, Inc. (CCinc) **Partners:** University of Central Florida's Marine Turtle Research Group; Vero Tackle & Watersports
Project Location:	Indian River Lagoon (approx. 27.8312 N, -80.4395 W)
CCMP Vital Signs:	Science, Technology, and Innovation (Communicate-Collaborate-Coordinate), Species of Concern (Living Resources), Impaired Water (Water Quality), Seagrasses (Habitats), Living Shorelines (Habitats), Biodiversity (Living Resources), Trash-Free Waters (Healthy Communities), Citizen Engagement (Communicate-Collaborate-Coordinate), and Federal, State, and Local Policy opportunities (Communicate-Collaborate-Coordinate)
IRL-NEP Contribution and Source:	$49,220 IRL Council
Partner Match:	$19,608 = In-Kind Match (28.49% Match)
Total Project Cost:	$68,828

Project Description:

"A Sea Turtle's Eye View of Life Underwater in the Indian River Lagoon" is a pilot project that will test and develop a framework for using animal-borne camera technology in the Indian River Lagoon (IRL). Additionally, this project will develop a deployment and recovery plan for Custom Animal Track Solutions Cameras (CATS Cams) devices using VHF receivers and SPOT satellite tags. Pending environmental factors in the IRL, video footage taken using CATS Cams can be crucial in supporting the development of management plans to assess and better lagoon health, and useful for community outreach and engagement.

Key Outputs:

As a science and innovation project, this pilot is primarily focused on testing a novel technology currently being used in other marine habitats around the world, and assessing whether using animal-borne biologging devices is a viable approach to study sea turtle behavior, threats, habitat usage, and habitat quality within the Indian River Lagoon (IRL). Throughout the timeline of this one-year pilot project, CCinc will deploy two biologgers monthly and retrieve these cameras using both VHF and SPOT satellite tags. A comparison of retrieval methods will be conducted to determine the best methodologies for the IRL, and video data will be assessed to create a research framework outlining when camera technology can produce informative footage based on different environmental variables. Pending video quality, outreach materials, including "Features Turtle" profiles, will be created to educate and engage community members in this research, as well as in the underwater life of the IRL, creating a renewed sense of accountability for conservation.

Key Outcomes:

There will be many short-term, mid-term, and long-term benefits from this pilot project; however, many mid- and long-term benefits are dependent on the quality of the video footage. In the short-term, this pilot project will develop a framework for using animal-borne biologging in the IRL. Pending clarity of the video footage, novel outreach materials will create awareness and accountability for conservation and restoration amongst our community (mid-term). Once established, the IRC community will be more knowledgeable and empowered to continue to contribute to research initiatives and other programs that contribute to restoring the health of the IRL, and its inhabitants (long-term).

EXECUTIVE SUMMARY

Title of Project: Development of Genotyped Nurseries to Enhance Seagrass Restoration Success

Lead Organization: Florida Atlantic University- Harbor Branch Oceanographic Institute (FAU-HBOI)
PI: Iris Segura-García, Ph.D.; Co-PIs: Rachel Brewton, Ph.D. and Michael McCoy, Ph.D. (FAU-HBOI)

Partners: Florida Oceanographic Society and Brevard Zoo, partner seagrass nurseries who are actively involved in seagrass restoration in the Indian River Lagoon (IRL).

Project Location: Harbor Branch Seagrass Nursery (HBSN) 27.535430, -80.351172

Key CCMP Vital Signs: Habitat: Seagrass; Living Resources: Biodiversity, Forage Fishes and Fisheries; Communicate-Collaborate-Coordinate: Citizen Engagement, Science & Technology Innovation.

IRLNEP Contribution and Source: $63,666, IRL Council
Partner Match: $47,773, Harbor Branch Oceanographic Foundation, HBOI-FAU, and Mote Marine Lab
Total Project Cost: $111,439

Project Description: Seagrass restoration efforts have been widely implemented to address the ~95% decline in IRL seagrass; however, gains in restored areas remain minimal. This may be due to a mismatch between the genetic composition of planted material and local environmental conditions, as well as insufficient genetic diversity within restored site. Seagrass populations with higher genetic diversity tend to exhibit enhanced resistance to environmental stressors; yet current restoration efforts use uncharacterized genotypes, risking reduced genetic diversity and overlooking the evolutionary implications of indiscriminate planting.

To address these gaps, we propose to advance IRL seagrass nurseries by implementing an experimental genome-wide SNP genotyping approach to identify, track, and cultivate distinct genotypes that will strengthen ongoing restoration efforts. This approach will help to preserve natural levels of genetic diversity while enhancing seagrass nursery performance and restoration success. Through the proposed project, we will characterize the genetic diversity of seagrass stock held across IRL partner nurseries and begin developing a framework for assessing nursery genetic diversity and integrating these data into restoration planning to improve long-term outcomes.

Key Outputs (Deliverables): Approximately 20 established plants per species will be genotyped at each partner nursery, focusing on *Syringodium filiforme* and *Halodule wrightii*. A graduate student will receive training in genomic techniques, data interpretation, and restoration genetics. FAU-HBOI will host a workshop for project partners and collaborators to demonstrate and discuss how to interpret and apply the resulting genomic data to guide genotype selection and propagation for restoration. Project results will be shared through HBSN and FAU-HBOI social media, presentations at local and national meetings, and incorporated into public tours of the HBSN. A peer-reviewed scientific publication will also be produced.

Key Outcomes (Benefits to the IRL): Short-term: Healthier, more resilient nursery stock through genotype-informed management. Medium-term: Improved restoration outcomes by planting seagrass that is genetically suited to specific restoration sites, resulting in increased transplant performance and the preservation of genetic diversity and adaptive potential. Long-term: Enhanced seagrass nursery practices and expanded seagrass coverage, supporting seagrass evolutionary resilience and ecosystem recovery in the IRL. This work directly supports the IRL Council's 2027 priorities to advance science and technology for habitat restoration and promote coastal resilience.

Executive Summary

Title of Project	Dynamic Energy Budgets for Sustainable Fisheries Replenishment in the Indian River Lagoon
Lead Organization and Partners	Florida Institute of Technology, Hubbs-SeaWorld Research Institute
Project Location	Florida Institute of Technology Melbourne, FL 32935
Key CCMP vital signs	Impaired waters; filter feeders; biodiversity; fisheries, science innovation
IRLNEP contribution and source	$40,100.45 (IRL Council)
Partner match	$23,080.55 (37% match)
Total project cost	$63,181.00

Project Description:

This project will generate validated Dynamic Energy Budget (DEB) models for spotted Seatrout (*Cynoscion nebulosus*) and sunray venus clams (*Macrocallista nimbosa*), two native species with high ecological, commercial, and restoration value in the Indian River Lagoon (IRL). DEB models quantify species-specific growth, feeding needs, and nutrient-use to provide the foundational biological data needed to design sustainable aquaculture systems. These data will support future development of an Integrated Multi-Trophic Aquaculture (IMTA) approach capable of co-producing finfish and shellfish while reducing nutrient discharge and improving water quality.

The proposed work addresses a critical knowledge gap: despite active aquaculture programs for both species, their combined culture potential has never been evaluated. By experimentally determining DEB parameters and nutrient dynamics for each species, this project will refine estimates of optimal stocking densities, feeding strategies, and nutrient mitigation capacity. These insights are essential for advancing development and implementation of low-impact, aquaculture technologies in the IRL.

Through collaboration between Florida Tech and Hubbs-SeaWorld Research Institute, project findings will be shared with commercial aquaculture partners, FWC biologists, and the regional science and management community to inform future restoration and aquaculture planning.

Key Outputs (Deliverables):

Task 1**:** Develop and validate a DEB model for sunray venus clams using experimentally measured growth and feeding data and evaluate nutrient uptake relevant to aquaculture nutrient mitigation.

Task 2**:** Refine and validate the DEB model for spotted seatrout and assess species-specific nutrient demands and waste production to inform nutrient budgeting in future IMTA designs.

Key Outcomes (Benefits to the IRL):

Short-term Outcomes (1-2 years): Species-specific DEB datasets and improved quantification of nutrient uptake by sunray venus clams.

Medium-term Outcomes (3-4 years): Development of more efficient aquaculture practices that reduce nutrient loading and strengthen capacity for fisheries replenishment and commercial aquaculture production.

Long-term Outcomes (5-10+ years): Enabling IMTA systems that expand sustainable food production, support Spotted Seatrout restoration, and contribute to improved habitat conditions across the IRL.

Title of Project	Title: Suffocating Sand: Mapping Hypoxia and Modeling Sediment Phosphorus Fluxes to support Lagoon Management
Lead Organization and Partners:	**Lead Organization**: Florida Tech (Austin Fox Ph.D). **Partners (match):** Brevard County Department of Natural Resources (V. Barker and J. Allen).
Project Location	This project will be carried out in the IRL/BRL between the Eau Gallie and A1A causeways. Project centered at 28˚17'50"N, -80˚38'25"W.
Key CCMP Vital Signs:	Legacy Loads and Healthy Sediments, Filter Feeders, Harmful Algal Blooms, 21st Century Communities, Monitoring, Science & Technology Innovation
IRLNEP Contribution and Source:	$ 79,972.29 IRL Council
Partner Match:	$5,388 (FIT) + $77,950 (Brevard County) = (51% of total)
Total Project Cost:	$163,310.29

Project Description:

Increased benthic nutrient fluxes resulting from hypoxia are increasingly recognized as both a consequence and driver of ecosystem degradation (e.g., Boukortt et al., 2025; Conley et al., 2002). Data from prior phases of this project identified significant spatiotemporal extents of hypoxia in BRL and different nutrient fluxes under aerobic versus anaerobic conditions. This project will investigate time-integrated fluxes over the course of diurnal hypoxic cycles and with differing durations of hypoxia. Phosphorus fluxes increase precipitously when sediments switch from aerobic to anaerobic; upon reoxidation, sediments can reuptake some phosphorus. As a result, direct comparisons of aerobic versus anaerobic fluxes are not independent of the duration of hypoxic events and may not accurately represent the time-integrated fluxes from sediments. This study will combine high spatial and temporal resolution data for hypoxia, tracked continuously as part of this study, with data for nutrient fluxes from field and laboratory experiments to identify how nutrient fluxes respond to differing durations of hypoxia. These data will fill a critical gap in our present understanding of nutrient dynamics in the IRL and provide essential data and models to aid in lagoon management. This project is located between the Eau Gallie and A1A Causeways, supporting listed water quality monitoring within the Banana River BMAP (WBID 3057). Improved outcomes and management tools promote coastal resilience and improved water quality while addressing IRLNEP 2027 priorities, action items and 2030 CCMP priority areas and addresses needs outlined in the Science 2030 looking ahead document, while also supporting BMAPs and TMDLs.

Key Outputs (Deliverables):

Datasets and maps for bottom water hypoxia plus results and model output for nutrient fluxes into BRL.

Key Outcomes (Benefits to the IRL):

Short term: Science based internal flux data for managers, metrics to quantify hypoxia over a multi-year period and model internal phosphorus flux based on empirical field data and laboratory experiments. **Medium term:** Data to support improved lagoon management, including site selection for nutrient mitigation projects. Incorporation of sediment and water quality data into models and management tools used by resource managers (e.g., SJRWMD). **Long term:** Improved water, sediment and habitat quality plus improved public perception resulting from informed placement and enhanced success of nutrient reduction projects.

Executive Summary

Category 4: Science and Innovation Projects FY2027 (Seeds)

Title of Project	Assessing Environmental Controls on Seed Viability and Reproductive Mechanisms of Seagrasses in the Indian River Lagoon
Lead Organization and Partner(s)	Lead: Florida Institute of Technology (Florida Tech), Melbourne, FL; Austin Fox, PhD Partner(s): St. Johns River Water Management District (SJRWMD), Palm Bay, FL; Lauren Hall, M.S.
Project Location	Region: Northern and Southern IRL Location: 4 field sites centered at 27°12'44" N 80°16'18" W; Florida Tech Link Building at 28°03'54"N 80°37'22"W
Key CCMP Vital Sign(s)	Seagrasses, Monitoring & Data, Science and Technology Innovations, Species of Concern, Fisheries, Biodiversity
IRLNEP Contribution and Source	$69,776.32, IRL Council
Partner Match	$30,817.61 (31% Match)
Total Project Cost	$100,593.93

Project Description:

Seed banks play a central role in the long-term stability of seagrasses, serving as a buffer for recolonization following die-off events; *Halodule wrightii* seeds can remain viable for several years. However, seed bank strength and self-restoration cycles are dependent on variable environmental triggers, including light, temperature and salinity. While recent efforts in the Indian River Lagoon (IRL) have generated seed distribution data of *H. wrightii*, there is little data on their sexual reproduction, including viability, flowering or germination triggers. This gap limits managers' understanding of the IRL's capacity for natural seagrass recovery, reducing recovery forecast accuracy and complicating restoration site selection. This project will address the gap using complementary laboratory experiments and field monitoring with SJRWMD to reveal spatial and temporal relationships among reproductive metrics of seagrasses and habitat parameters. The four selected sites in the IRL historically report *H. wrightii* seeds and recently observed die-offs, offering a unique environment and time to observe both flowering and germination of the underlying seedbank within a single window. Laboratory mesocosms will isolate the effects of light, temperature and salinity to investigate relationships between these factors and seagrass sexual reproduction. Together, these approaches explore the IRL seed banks' properties and environmental recovery potential. These data will be used to generate an informed update to our existing seagrass Habitat Suitability Index (HSI); the finalized HSI will include a recovery probability metric for restoration, a transformative tool for identifying where active restoration may be more appropriate, directly guiding IRLNEP restoration planning.

Project Outputs (Deliverables):

This project will produce three quarterly reports to include updates on the datasets for seed viability, *H. wrightii* flowering and germination. A final report will integrate that data into the HSI map of where seagrass restoration and conservation efforts are predicted to be most effective.

Project Outcomes:

Short-term: expand knowledge about seagrass flowering and germination triggers plus seed viability. **Medium-term:** improve restoration site selection criteria. **Long-term:** improve restoration outcomes, increase seagrass communities' health and biodiversity, decrease spending.

Executive Summary

Title: Using natural selection to find resilient seagrass genotypes for nursery propagation.	
Lead Organization:	Florida Oceanographic Society
Project Location:	Florida Oceanographic Institute 890 Ocean Blvd., Stuart, Florida 34996
Key CCMP Vital Sign(s):	*Seagrass* (Level 1), *Climate Ready Estuaries* (Level 2), *Biodiversity, Monitoring, and Data Sharing* (Level 2), and *Science Technology and Innovation* (Level 3).
IRLNEP Contribution & Source:	$69,570, IRL Council
Partner Match:	$25,824, Florida Oceanographic Society
Total Project Cost:	$95,395

Project Description: Seagrass ecosystems, which are critical for coastal health, face significant threats from human activities[1]. In Florida's Indian River Lagoon (IRL), seagrass loss exceeds 50% and seagrass restoration projects often fail[2,3,4,5]. This project aims to enhance seagrass restoration success by 1) genotyping seagrass restoration out planting stocks that persisted through two mass mortality events that resulted in loss of multiple seagrass restoration sites in the IRL, and 2) selectively propagating plants with these specific genotypes. Genotyping will allow us to identify putatively resilient plants and propagation will provide specimens needed for future stress challenge experiments that will allow us to quantify levels of resilience to different environmental stressors. Once we identify the resilient genotype-stressor associations we can intentionally grow and transplant specimens that tolerate locally specific or multiple stressors. This project differs from other genomic work being conducted in the region, because we are not only identifying the genotypes of individual plants in our nursery, but we are focusing on plants from our nursery that survived large scale selection events likely driven by documented high temperature and low visibility events in the IRL. Our work will identify genotypes of *H. wrightii* that are resilient to environmental stressors and ultimately will be used to develop genotypic markers that will identify resilient genotypes in other nurseries (Data Sharing). Most restoration projects in the IRL source their seagrass from established nurseries, where grass of unknown origin and genetic background is grown together and harvested for transplantation. One commonly overlooked factor that strongly influences transplant success, growth, and resiliency is the genotype of the plants used in restoration (Science, Technology, and Innovation). We have recently sequenced the entire genome of *Halodule wrightii*, genotyped specimens that survived two independent mass mortality (i.e. selective sweep) events, and we know which plants in our nursery source stock produced the survivors. With this knowledge we will enhance IRL seagrass restoration success by:

Key Outputs:

- Sequencing the whole genome of *H. wrightii* source stock of mass mortality survivors and non-survivors.
- Set up stock monocultures within our 110 gal nursery tanks for individualized propagation.
- Develop a curated living library gene bank of resilient strains that can be tested against specific stressors and propagated for intentional genetically informed restoration.

Key Outcomes:

- Short term- we will 1) identify individual *H. wrightii* stock within our nursery that survived two independent mass mortality (selective sweep) events and set up individualized propagation tanks to keep track of each genotype in a living library so that future restoration can be genetically informed and intentional.
- Medium term- this project will facilitate our ability to begin experimentally determining which genotypes are most resilient to specific stressors and to propagate them for out planting.
- Medium term- we will develop a single nucleotide polymorphism (SNP)-based method that other nurseries can use to identify resilient stock.
- Long term- our work will help build more resilient seagrass meadows in the IRL.

INDIAN RIVER LAGOON NATIONAL ESTUARY PROGRAM
FY 2027 PROPOSAL APPLICATION: Executive Summary

Title of Project	Highly Pathogenic Avian Influenza Exposure, Health Impacts, and Novel Sampling in Marine Mammal Sentinels in the Indian River Lagoon, Florida
Lead Organization and Partners:	Lead: Hubbs-SeaWorld Research Institute; Partners: Harbor Branch Oceanographic Institute, University of Illinois Zoological Pathology Program, Cornell Animal Health Diagnostic Center, National Oceanic and Atmospheric Administration, Marine Mammal Pathology Services
Project Location	IRLNEP watershed and the IRL-Halifax Buffer Planning Boundary (29.441491, -81.115563 to 26.944258, -80.071855)
Key CCMP Vital Sign(s):	Contaminants, Monitoring and Data, Science and Technology Innovation, Species of Concern
IRLNEP Contribution and Source:	$56,908, IRL Council
Partner Match:	$20,802, 27% match by Hubbs-SeaWorld Research Institute
Total Project Cost:	$77,710

Project Description:
Since emerging in 2013, Highly Pathogenic Avian Influenza (HPAI) H5N1 clade 2.3.4.4b (i.e., bird flu) has become a global threat to human and animal health. Though birds are primarily impacted, this clade has increasingly spilled over to mammals, including marine mammals. The Indian River Lagoon (IRL) is a diverse estuary that is critical habitat for numerous wildlife, including immunocompromised common bottlenose dolphins (*Tursiops truncatus truncatus*) and millions of migratory birds. Many of these birds are HPAI reservoirs, serving as a potential source of exposure to other IRL wildlife and the public. In the winters of 2023 and 2024, outbreaks of HPAI clade 2.3.4.4b were detected in IRL dolphins, causing the death of at least eight individuals. Since HPAI was previously only reported in two dolphins worldwide, limited data currently exist on HPAI exposure risks and survivability in cetaceans. Additionally, a pre-mortem HPAI testing method is not currently available for IRL dolphins. Thus, IRL dolphin samples will be screened for current or previous HPAI infection, utilizing historical (e.g., brain, serum) and novel (e.g., respiratory secretions, aqueous humor) matrices. These findings will be compared to health and survival indicators. HPAI surveillance in IRL dolphins can alert public and wildlife health officials to an outbreak. Establishing/linking exposure data to dolphin health and survival parameters can provide vital insight in HPAI disease ecology and pathophysiology, as well as inform risk management to better protect humans and wildlife residing within the IRL and other impacted areas worldwide.

Key Outputs (Deliverables):
1) Locally and nationally disseminated data reports, 2) a peer-reviewed manuscript submission, and 3) professional presentations describing a) HPAI incidence, clinical signs, health impacts, and survivability in dolphins, b) validation of novel sample types for future HPAI screening in IRL dolphins and other cetaceans, and c) potential HPAI "hot spots" within the IRL.

Key Outcomes (Benefits to the IRL):
1) An improved understanding of HPAI-related threats to IRL dolphin health can inform management decisions of veterinarians, biologists, public health officials, and policymakers to help mitigate HPAI exposure risks to humans and wildlife (short- to long-term benefit).
2) Data regarding HPAI exposure and concurrent health impacts can inform future conservation and monitoring of the immunocompromised IRL dolphin stock (short- to long-term benefit).
3) If successfully validated, novel HPAI screening via respiratory secretions and aqueous humor can be implemented to enhance monitoring efforts and provide an early warning tool (short- to long-term benefit).
4) Local citizen scientists and students will be trained in IRL health science (short-term benefit).

Executive Summary

Title of Project	**Real-Time E. coli and Organic Matter Fluorescence Network to Track Fecal Contaminants and Predict Harmful Algal Blooms in the Indian River Lagoon**
Lead Organization and Partners	Marine Resources Council, Virridy, University of Colorado Boulder Mortenson Center in Global Engineering and Resilience, NASA Kennedy Space Center
Project Location	Turkey Creek: 28°01'59"N 80°34'48"W NASA Causeway: 28°30'59"N 80°36'45"W
Key CCMP Vital Signs:	Impaired Waters, Harmful Algal Blooms, Monitoring and Data Sharing, Science, Technology, and Innovation
IRLNEP Contribution and Source:	**$74,396, IRL Council**
Partner Match	**$45,773, 38% match**
Total Project Cost:	**$120,169**

Project Description:

This project will install a real-time water quality monitoring network at two critical locations in the Indian River Lagoon system—Turkey Creek and the NASA Causeway in the Banana River Lagoon basin—using paired tryptophan-like fluorescence (TLF) sensors at each site, one calibrated for E. coli risk and one for chlorophyll-a as an indicator of algal biomass and harmful algal bloom (HAB) risk. By replacing reliance on infrequent grab samples with continuous 15-minute measurements and machine-learning-based interpretation, this project will capture rapidly changing conditions during storms, deluge events, and other disturbance periods that currently go unobserved. Over 12 months, the project will generate a management-ready dataset that clarifies how fecal contamination and nutrient-driven algal dynamics evolve in two highly impaired areas, providing earlier warning of health and HAB risks and a scalable template for advanced water quality monitoring across the Indian River Lagoon.

Key Outputs (Deliverables):

- E.coli and chlorophyll-a sensors deployed in two imperiled waterways producing >100,000 high-frequency data points. This includes (1) continuous, 15-minute E. coli risk estimates in a fecal-impaired reach of Turkey Creek and (2) continuous 15-minute chlorophyll-a measurements at both sites to indicate algal biomass and HAB risk.
- Monitoring framework that include continuous monitoring devices (calibrated with lab-analysed grab samples) integrated with machine learning models.
- Public facing dashboard making data available to decision makers and the public.

Key Outcomes (Benefits to the IRL):

- Early-warning detection of fecal and algal surges 24–72 hours before visible blooms or exceedances.
- 20–40% improvement in temporal resolution relative to grab-sample–based programs.
- Public-facing water quality monitoring and reporting on NASA property.

EXECUTIVE SUMMARY

Title of Project: Identification of Contaminants of Emerging Concern at Sites with Known Toxicity	
Lead Organization and Partners:	Lead: Ocean Research & Conservation Association, Inc. (ORCA)
Project Location:	Sampling sites with known toxicity throughout the Indian River Lagoon Coordinates central to the sampling area: (27°38'59"N 80°22'36"W) Refer to attached map for possible sites
Key CCMP Vital Sign(s):	Contaminants of Emerging Concern, Science, Technology & Innovation, Citizen Engagement
IRLNEP Contribution and Source:	$52,629 from IRL Council
Match:	$2,474 from ORCA General Funds; In-kind contribution from Dr. Chouinard's laboratory at Clemson University ($17,280), and volunteer time ($1320) = 28%
Total Project Cost:	$73,703

Project Description: Not to exceed 250 words

ORCA is proposing research to identify and quantify CECs in representative water column samples at sites of known toxicity across the Indian River Lagoon. These samples will be more representative of the water column at a site as they will use a novel water sampling protocol to vertically sample the profile simultaneously at six depths. ORCA's documented expertise mapping and locating hotspots of pollution ensure the ability and knowledge to select appropriate sample sites, as well as the competence to conduct this study. Dr. Chouinard's laboratory team has experience with these analyses and has performed similar analyses for ORCA in the past. CECs are increasingly being monitored and detected but not much is known about their distribution and concentrations within environmental waters of the IRL. These data will fill gaps in the knowledge of these contaminants and inform the community, including resource managers, of current concentrations in the IRL through our written report, presentations, and educational materials. Identification of CECs at sites with known toxicity aligns with ORCA's mission statement. Results from this study will directly progress ORCA's goal of developing a triage protocol for water and sediment sampling to guide analyses to track pollution to its sources. Increasing CEC pollution and substantial population growth along the IRL, further exacerbating the decreasing water quality, make this proposal an essential priority for the Indian River Lagoon.

Key Outputs (Deliverables):

Deliverables will include: 1) Collection of 50 representative water column samples. 2) Untargeted analysis to determine presence/absence of CECs. 3) Targeted analysis of 80% of samples to quantify CECs. 4) Final report documenting CECs in IRL water column samples.

Key Outcomes (Benefits to the IRL):

Short-term (1-2 years): First data linking a comprehensive list of CECs to known toxicity at sampling sites; Increased knowledge about CECs in the IRL for the community and resource managers; Data to build off of for ORCA's triage protocol of pollutant sources.

Medium-term (3-4 years): Development of a triage assessment to guide analyses when determining sources of pollution. Mitigate sources of pollution by working with local landowners and resource managers.

Long-term (5-10+ years): Water quality improvements through prevention and mitigation of pollution entering the IRL. Foster future research into new CECs.

Title of Project	Starting off Strong: Determining Suitable Areas for Oyster Restoration in the Southern Indian River Lagoon and St. Lucie Estuary
Lead Organization and Partners:	Lead Organization: University of Florida, Partners: Florida Department of Environmental Protection Indian River Lagoon Aquatic Preserves
Project Location:	Multiple sites in the St. Lucie Estuary and Indian River Lagoon, Martin County and St Lucie County, FL
Key CCMP Vital Sign(s):	(Level 1) Impaired Waters; (Level 2) Filter Feeders, Living Shorelines, Monitoring and Data Sharing
IRLNEP Contribution and Source	$98,737.13 IRL Council
Partner Match	Dollars and total percent match for all partners: $18,491.00 (UF; 56%) + $14,519.04 (FDEP; 44%) = $33,010.04 (25%)
Total Project Cost:	$131,747.17

Project Description: Oyster reefs are a critical component of North American estuary systems as ecosystem engineers and filter feeders. Across the Indian River Lagoon (IRL), several factors contribute to the loss of oyster reef habitat including altered hydrology, habitat loss, sea-level rise, boating impacts, isolated populations, and invasive species[1,2]. To regain some of the ecosystem services provided by oyster reefs in the IRL, multiple organizations deployed intertidal reef restoration projects where feasible given regulatory and landowner constraints[3,4]. Due to environmental factors affecting the success of oyster settlement and survival, these restoration projects can fail to match a natural reef[5,6]. Improved understanding about the spatial variation of the drivers of oyster reef success (salinity, water quality, wave energy, elevation, and substrate) helps restoration practitioners place oyster reefs in more suitable locations[5]. This project aims to create data layers on the environmental conditions of the southern IRL and the St. Lucie Estuary (SLE) and create simple planning tools to better site artificial reef projects. The objectives of this work are as follows: **1) Evaluate estuary conditions across the southern IRL and SLE; 2) Test experimental structures to understand the best elevation for intertidal restoration project deployment; and 3) Translate estuarine conditions into a decision-making framework and outreach materials for managers and practitioners developing and siting intertidal oyster restoration projects**.

Key Outputs (Deliverables) and Outcomes (Benefits to IRL): Our project's deliverables will include the following: 1) Publicly available data and map layers for all data analyzed and processed, 2) simple spatial planning tool, StoryMap, and extension materials created to discuss the data layers and direct people in their use, and 3) a guide for building an oyster ladder (PVC structure with ladder steps – settlement tiles – at different elevations in the tidal frame) to determine suitable elevation for oyster project. This project will improve the knowledge of drivers of oyster reef success across the IRL through increasing access to data and planning tools (**short to mid-term benefits**). Ultimately, this project will increase the success of artificial reef projects, improving the oyster population and water quality of the IRL (**long-term benefit**s).

Agenda Return

RESOLUTION NO. 2026-01

A RESOLUTION OF THE BOARD OF DIRECTORS OF THE IRL COUNCIL ADOPTING THE TENTATIVE BUDGET FOR THE 2027 FISCAL YEAR

WHEREAS, the IRL Council was created via Interlocal Agreement to carry out the goals of the Indian River Lagoon National Estuary Program; and

WHEREAS, the IRL Council held a public hearing to consider the tentative Budget;

NOW, THEREFORE, BE IT RESOLVED BY THE BOARD OF DIRECTORS OF THE IRL COUNCIL, THAT:

Section 1. The Fiscal Year 2027 Tentative Budget is attached as Exhibit "A".

Section 2. The Fiscal Year 2027 Tentative Budget is hereby adopted.

Section 3. This Resolution shall become effective immediately upon passage.

DONE at_____, Florida, this_____day of_____,2026.

By: _____
Sarah Heard, IRL Council Chair

ATTEST:

_____
James Clasby, IRL Council Secretary

Approved as to legal form and sufficiency:

_____
Glen J. Torcivia
IRL Council, Legal Counsel

IRL Council
FY 2027 Tentative Budget
Exhibit A

REVENUES	
Federal Section 320	$ 850,000
IRL License Plate	$ 125,000
Member Contributions	$1,500,000
NOAA Transformational Habitat Year 3	$1,647,976
TOTAL REVENUES	$4,122,976
EXPENDITURES	
Other Expenditures	$3,170,086
IRL Council Strategic Program, IRLNEP 2027 EPA 320 Work Plan, 2027 NOAA Workplan, 2027 Revenue Unencumbered	
Salaries & Benefits	$ 700,890
Facilities Expenses	$ 40,000
Rent, Utilities, Equipment Maintenance, Communications	
Administrative Costs	$ 84,000
Postage, Office Supplies, Insurance, Printing, Travel, Licenses & Subscriptions, Dues, Professional Development	
Administrative Services	$ 128,000
Legal, Accounting, Auditing, IT Services, Legal Ads	
TOTAL EXPENDITURES	$4,122,976
Agency Balance Beginning of Year	$ 0
Fund Balance - Beginning of Year	$ 0
Fund Balance – End of Year	$ 0

FY 2027 Tentative Budget Expenditure Detail (Narrative)

- OTHER EXPENDITURES ($3,170,086)
    1. IRL Council 2027 Strategic Program ($525,000) includes the following:
        a. Water Quality Restoration Project(s) - $300,000
        b. Habitat Restoration Project(s) -$100,000
        c. Community-Based Restoration Project(s) - $75,000
        d. Small grants program - $25,000
        e. IRLNEP Technical Support of Conferences and Workshops - $25,000
    2. IRLNEP FY2027 EPA Workplan ($850,000) includes the following:
        a. Science and Innovation RFP - $150,000
        b. Communication Support: Service contracts for web/graphics/design support, scientific and other publications, other contract support as needed, and expanded social media and support for communication intern. Includes service contracts with IDEAS, Brandt Ronat, Firefly, and O'Hara - $119,914
        c. Biodiversity Inventory - $25,000
        d. 3 Atmospheric Deposition Monitoring Stations - $131,202
        e. 3 Community Engagement coordinators (Salary Only) - $238,884
        f. Harmful Algal Bloom Monitoring Contracts - $150,000
        g. Grant Writing Support - $15,000
        h. EPA Travel (mandatory) - $20,000
    3. NOAA Transformational Habitat FY2027 Workplan ($1,647,976) includes the following:
        a. Personnel - $124,000
        b. Contractual - $221,245
        c. Other - $1,251,707
        d. Supplies - $15,000
        e. Indirect - $36,024
    4. FY 2027 Revenue Unencumbered - $147,110

- SALARIES AND BENEFITS ($700,890)
    1. Salaries and 35.5% fringe rate for the Executive Director, Deputy Director, Chief Operating Officer, Administrative Coordinator, and GIS/IT Scientist.
    2. 35.5% fringe rate only for the 3 Community engagement coordinators

    Note: Additional $99,000 of staff salary is covered as part of the NOAA Transformational Habitat Workplan.

- FACILITIES EXPENSES ($40,000)
    1. Rent and Leases - $22,000
    2. Equipment Maintenance - $3,000
    3. Equipment and Communications - $15,000

- ADMINISTRATIVE COSTS ($84,000)
    1. Travel General - $25,000
    2. Postage and Mailing - $1,000
    3. Office Supplies - $5,000
    4. Dues, Licenses, and Subscriptions - $25,000
    5. Printing - $3,000
    6. Insurance - $20,000
    7. Staff Training and Professional Development - $5,000

- ADMINISTRATIVE SERVICES ($128,000)
    1. Legal - $60,000
    2. Accounting - $42,000
    3. Auditing - $25,000
    4. IT Services and Compliance - $500
    5. Legal Ads - $500

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Duane De Freese, Ph.D.
Executive Director Activity Summary (November 2025 – February 2026)

- Worked with the Association of National Estuary Programs (ANEP) and ESP Advisors to help advance Congressional reauthorization of the National Estuary Program (Section 320 Clean Water Act)
- Presentation at the National Estuary Program Fall Tech Transfer Meeting and Conference in Mobile, AL (11/11 -14/2025). All conference presentations are available online at https://www.mobilebaynep.com/anep-2025-tech-transfer/anep-2025-presentations.
- Presentation to the Archie Carr National Wildlife Refuge Working Group (12/ 5/2025)
- Interview with journalist Molly Feltner (NOAA affiliate), who is conducting research for a NOAA article about the $9.4 million IRLNEP Transformational Habitat Restoration and Coastal Resilience grant award.
- Presentation at IRL Summit with key IRL scientists and restoration organizations to provide an overview of IRL restoration efforts and recovery status to Florida Representative Monique Miller. This was an invitation-only, small group event. Dr. Jeff Eble (Hubbs-SeaWorld Research Institute) helped coordinate the meeting. Florida Tech hosted the meeting at its CAMID/Vertex applied innovation facility in Palm Bay (https://vertex.fit.edu/) (12/15/2025).
- Invited by Brevard County Board of County Commissioners to make a brief presentation about the IRLNEP at a Save Our Indian River Lagoon Workshop #1, Titusville City Council Chambers (01/05/2026)
- Invited by Space Florida as a guest to attend the NewSpace Nexus State of the Space Industrial Base (SSIB) – Commercial Launch Partner Workshop at Cape Canaveral Spaceport (01/8-9/2026)
- Invited by Brevard County Board of County Commissioners to make a brief presentation about the IRLNEP at a Save Our Indian River Lagoon Workshop #2, Palm Bay City Council Chambers (01/12/2026)
- Attended the first Spartan Patch Reef deployment funded by the NOAA habitat restoration grant at Florida Oceanographic Society, Stuart, FL (01/16/2026)
- Attended the 40th Annual Junior Achievement Business Hall of Fame Laureate Awards event and was honored to introduce Keith Winsten, CEO of East Coast Zoological Foundation/Brevard Zoo, as a 2026 Laureate. The other 2026 Laureate was Kendall Moore, Esq., Kendall Moore Law, PLLC. (01/24/2026).
- Florida Trend Executive VIP Roundtable Luncheon, Melbourne, FL (01/28/2026)

Recurring Leadership Meetings

- Association of National Estuary Programs Board and member of Government Affairs Committee (monthly)
- Southeast Coastal Ocean Observing Regional Association Advisory Board (quarterly)
- Southeast and Caribbean Disaster Recovery Partnership Advisory Board (monthly)
- Florida HAB Task Force quarterly meetings (quarterly)
- Florida Ocean Alliance Board (quarterly)

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