Thursday, February 10, 2022  
1:30 pm – 4:30 pm

Sebastian City Hall Council Chambers, 1225 Main Street, Sebastian, FL

*This meeting is open to the public*  
***Masks are encouraged***

The order of items appearing on the agenda is subject to change during the meeting and is at the discretion of the presiding officer.

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

2. **Introductions & Public Comments** (Frank Catino, Chair)

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

4. **Approval of Minutes** (Frank Catino, Chair)  
   **Requested Action:** Approval of minutes from the meeting of May 6, 2021, August 12, 2021, and November 18, 2021.

5. **Old Business**
   
a. Quorum Reduction Discussion (Duane De Freese)  
   **Requested Action:** Discussion and recommendation to the IRL Council Board of Directors regarding meeting quorum and potential by-law change.

6. **New Business**
   
a. Election of Chair and Vice Chair (Duane De Fresse)  
   **Requested Action:** Elect Chair and Vice Chair to serve on the Citizens’ Advisory Committee in calendar year 2022.

   b. Review and Accept Small Grants Application Packet (Daniel Kolodny)  
   **Requested Action:** Recommend that the IRL Council Board of Directors authorize staff to release FY 2022 Small Grants application.

   c. Fiscal Year 2023 RFPs (Daniel Kolodny)  
   **Requested Action:** Motion to recommend that the IRL Council Board of Directors
accept the IRLNEP Management Conference recommendations and approve the final ranked list of 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 EPA Workplan and IRLNEP Business Plan (Daniel Kolodny)

**Requested Action:** Authorize staff to finalize and submit the FY 2023 EPA Workplan and complete the IRLNEP Business Plan.

e. Planning Congressional Infrastructure Investment and Jobs Law (Duane De Freese)

**Requested Action:** Discussion of procedures for identifying and funding eligible projects; recommend that the IRL Council Board of Directors authorize staff to develop and release a Request for Proposal or Request for Qualifications as appropriate.

7. IRLNEP Staff Reports
   a. IRL Project Update (Daniel Kolodny)
   b. Communications Report (Kathy Hill)
   c. Executive Director Report (Duane De Freese)

8. General Public Comments

9. Adjourn

   Next Meeting: Thursday, May 5, 2022

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: Ashley Malcolm at (860) 416-3102. 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, contact: Ashley Malcolm, IRL Council, 1235 Main St, Sebastian, FL 32958, (860) 416-3102, or by email at malcolm@irlcouncil.org.
1. **Call to Order and Pledge of Allegiance** (Jessy Wayles, Vice-Chair)
   JESSY WAYLES CALLED THE MEETING TO ORDER AT 1:33 P.M.

2. **Introductions & Public Comments** (Jessy Wayles, Vice-Chair)
   NEW MEMBER INTRODUCTION: CHRISTINE BAMBERGER AND JEROME GAYMAN.

3. **Agenda Revisions** (Jessy Wayles, Vice-Chair)
   NONE

4. **Approval of Minutes** (Jessy Wayles, Vice-Chair)
   **Requested Action:** Approval of minutes from the meeting of February 11, 2021.
   
   MOTION BY JEROME GAYMAN, SECONDED BY FRANK BROWNELL FOR APPROVAL OF MINUTES FROM THE CITIZENS ADVISORY COMMITTEE MEETING ON FEBRUARY 11, 2021. MOTION CARRIED UNANIMOUSLY.

5. **Old Business**
   2021 Small Grants Program Proposal Scores and Funding (Kathy Hill)
   **Requested Action:**
   Motion to accept the final ranked list of proposals and recommend that the IRL Council Board of Directors approve funding the top proposals contingent and consistent with available funds and budgetary authority. Authorize staff to negotiate and enter into contracts with those applicants.
KATHY HILL PRESENTED THE SMALL GRANTS PROPOSAL RANKINGS AND EXPLAINED THAT PROPOSALS 3-6 ARE TIED WITH THE SAME REVIEWER SCORES AND ASKED THE COMMITTEE MEMBERS TO RESCORE THE PROPOSALS. DANIEL KOLODNY EXPLAINED WE CURRENTLY HAVE ENOUGH RESERVE TO FUND ALL OF THE TOP 6 PROPOSALS. THE COMMITTEE CONCLUDED NOT TO RECOMMEND FUNDING FOR PROPOSAL NUMBER 6 DUE TO IT NOT MATCHING THE EDUCATION OR RESTORATION CATEGORY.

MOTION BY HEATHER STAPLETON, SECONDED BY JESSY WAYLES TO ACCEPT THE TOP 5 PROPOSALS AND TO RECOMMEND THAT THE IRL COUNCIL BOARD OF DIRECTORS APPROVES FULL FUNDING FOR PROPOSALS 1-5 CONTINGENT AND CONSISTENT WITH AVAILABLE FUNDS AND BUDGETARY AUTHORITY. AUTHORIZE STAFF TO NEGOTIATE AND ENTER INTO CONTRACTS WITH THOSE APPLICANTS. MOTION CARRIED UNANIMOUSLY.

COMMITTEE MEMBERS DISCUSSED WAYS TO IMPROVE THE SMALL GRANT SCORING PROCESS AND CRITERIA FOR FY 2022. THE CAC AUGUST AGENDA WILL INCLUDE ‘RFP AND WORKSHOP’ AS AN AGENDA ITEM.

6. New Business

a. FY 2022 Final Budget Adoption (Daniel Kolodny)

   **Requested Action:** Recommend that the IRL Council Board of Directors adopt FY 2022 final budget by Resolution 2021-03.

   MOTION BY GREG BRAUN, SECONDED BY JEROME GAYMAN TO RECOMMEND THAT THE IRL COUNCIL BOARD OF DIRECTORS ADOPT FY 2022 FINAL BUDGET BY RESOLUTION 2021-03. MOTION CARRIED UNANIMOUSLY.

b. EPA Workplan modification – EPA mandatory travel funds (Daniel Kolodny)

   **Requested Action:** Recommend that the IRL Council Board of Directors reallocate funds in the approved FY 2021 EPA Workplan as allowable by EPA in response to the Covid pandemic.

   MOTION BY HEATHER STAPLETON, SECONDED BY JEROME GAYMAN TO RECOMMEND THAT THE IRL COUNCIL BOARD OF DIRECTORS REALLOCATE FUNDS IN THE APPROVED FY 2021 EPA WORKPLAN AS ALLOWABLE BY EPA IN RESPONSE TO THE COVID PANDEMIC. MOTION CARRIED UNANIMOUSLY.

c. Discussion of white paper on funding an education RFP (Kathy Hill)

   **Requested Action:** CAC discussion of strategy for funding education RFP.

   THE WHITE PAPER WILL BE PROVIDED TO CAC MEMBERS IN THE NEXT WEEKS. IT WILL BE OPENED FOR COMMENT AND KATHY HILL ASKED
MEMBERS TO PROVIDE THEIR FEEDBACK THEN. THE PAPER WILL REFLECT CAC’S GENERAL CONSENSUS FROM THE CAC WORKSHOP HELD ON APRIL 12, 2021 NOT TO FUND EDUCATION RFPS WITH CATEGORY 2 FUNDS.

7. IRLNEP Staff reports
   a. Project update (Daniel Kolodny)
   b. Communication Report (Kathy Hill)
   c. Executive Director Report (Duane De Freese)

8. General Public Comments

   ADAM LOCKE INFORMED THE COMMITTEE ABOUT THE CITY OF TITUSVILLE WANTING TO HARDEN THE SHORELINE AT PARRISH PARK ON THE NORTH SIDE OF THE CAUSEWAY, WHICH IS AN IMPORTANT HORSESHOE CRAB HABITAT. APPARENTLY, INDIVIDUALS USING THE AREA ARE BEING PUSHED ASIDE AND THE CITY OF TITUSVILLE SEEMS TO BE MOVING FORWARD WITH PLANS OF CREATING A PARKING LOT, WHICH WOULD NO LONGER PERMIT THE AREA TO REMAIN A RECREATIONAL DESTINATION NOR A HABITAT FOR HORSESHOE CRABS AND BIRDS.

   ADAM LOCKE ALSO STATED THAT FEMA IS PRESSING TO COUNTIES THAT THEY ARE WILLING TO FUND HARDENING OF SHORELINES, WHICH WOULD ELIMINATE RECREATIONAL ACCESS TO MANY PLACES THROUGHOUT THE LAGOON.

   THE COMMITTEE DISCUSSED OPTIONS TO ENGAGE. DUANE DE FRESESE REMINDED THAT CAC MEMBERS CANNOT SPEAK FOR THE IRL NEP BUT CAN MAKE RECOMMENDATIONS THROUGH THE MANAGEMENT CONFERENCE.

   MOTION BY ADAM LOCKE, SECONDED BY GREG BRAUN FOR A RECOMMENDATION FROM THE CAC TO BE BROUGHT THROUGH THE MANAGEMENT CONFERENCE TO SEE IF THE COUNCIL WANTS TO ENGAGE WITH A LETTER OR RESOLUTION FOR HABITAT PROTECTION TO APPROPRIATE ENTITIES. MOTION CARRIED UNANIMOUSLY.

9. Adjourn
   THE MEETING WAS ADJOURNED AT 3:14 P.M.
Meeting Minutes
August 13, 2021, 1:30 pm
Sebastian City Hall, 1225 Main Street, Sebastian, FL 32958

NO QUORUM WAS PRESENT

Attendance: Frank Brownell, Libby Lavette, Jessy Wayles, Mike Conneen, Doug Patterson, Cynthia V. Hall, Keith Winsten, Cheryl McPhillips, Frank Catino

Guests: None

1. Call to Order and Pledge of Allegiance (Frank Catino, Chair)
   
   FRANK CANTINO CALLED THE MEETING TO ORDER AT 1:35 P.M.

2. Agenda Revisions (Frank Catino, Chair)

   THERE WERE NO REVISIONS TO THE AGENDA.

3. Introductions & Public Comments (Frank Catino, Chair)

   ROUNDTABLE INTRODUCTIONS OF EVERYONE IN ATTENDANCE.

4. Approval of Minutes (Frank Catino, Chair)

   Requested Action: Approval of minutes from the meeting of May 6, 2021.

   THIS ITEM HAS BEEN TABLED UNTIL THE NOVEMBER 2021 MEETING AS A QUORUM WAS NOT PRESENT.

5. Presentations

   a. The Aquarium Project (Keith Winsten, Director, Brevard Zoo)

   KEITH WINSTEN, EXECUTIVE DIRECTOR, BREVARD ZOO, PRESENTED THE AQUARIUM PROJECT. THE OPPORTUNITY HAS COME ALONG TO BUILD A
MAJOR AQUARIUM OFF OF I-95 IN PORT CANAVERAL ON 14-ACRES OF
LAND. DUE TO THE PROXIMITY TO THE SPACE CENTER, THERE IS ALSO AN
OPPORTUNITY TO DISCUSS TECHNOLOGY AND OCEANS IN A VERY UNIQUE
WAY. WE ALSO MUST ACTIVELY MANAGE THE INDIAN RIVER LAGOON AND
THE AQUARIUM WOULD FIT THIS NEED. THE PROPERTY FOR THE
AQUARIUM IS SOUTH OF 528 AND WOULD BE LEASING 14-ACRES OF
PROPERTY, IF NOT MORE. THE SITE IS RIGHT OFF OF THE HIGHWAY AND
IT IS ON THE BANANA RIVER, WHICH MAKES THIS A DREAM LOCATION.
THERE WILL BE A CONSERVATION HUB WHICH WOULD BE A SHARED
FACILITY THAT HOUSES CONSERVATION STAFF AND POSSIBLE NEP OR
ALIKE MEETINGS. IT WILL TRACK THREE WATERWAYS: BEACH, INDIAN
RIVER LAGOON, AND ST. JOHNS RIVER. THEY ESTIMATE OVER HALF A
MILLION PEOPLE A YEAR WILL COME THROUGH AND HAVE PLEDGED
$1.00 PER PAID ADMISSION TO THE NEP AS A GRANTOR. THEY WANT THIS
TO MAKE AN IMPACT FOR THE ENTIRETY OF THE LAGOON. ABOUT 900
JOBS WILL BE CREATED WITH THE NEW PROJECT AND WILL ALSO
ATTRACT TOURISM DOLLARS. THE CURRENT ESTIMATE FOR THIS PROJECT
IS ABOUT 85 MILLION DOLLARS WITH ALREADY A 30% COMMITMENT
WITHOUT BEGINNING A CAMPAIGN.

6. Old Business

a. RFP for Community Engagement (Kathy Hill)

KATHY HILL LED A ROUNDTABLE DISCUSSION ABOUT THE COMMUNITY
ENGAGEMENT RPF. SEVERAL IDEAS WERE MENTIONED INCLUDING
PUBLIC COMMUNICATION VIA A MARKETING/ADVERTISING CAMPAIGN,
EDUCATIONAL COMMUNICATIONS, AND MASS PUBLIC UPDATES AND
ENGAGEMENT (FOR EXAMPLE, AN IRL ONE LAGOON APP) OF IRL COUNCIL
AND LAGOON-WIDE PROJECTS. EXPERIENCE AND INTERACTIVE-BASED
EVENTS WERE ALSO MENTIONED. A STRAW POLL WAS CONDUCTED TO
DETERMINE IF THE RPF SHOULD BE WRITTEN AS AN OPEN CALL FOR
PROJECTS, OR AS A DIRECTED RFP TO IMPLEMENT A SPECIFIC PROJECT.
THE STRAW POLL WAS EIGHT TO ONE IN FAVOR OF WRITING THE RFP TO
OFFER A DIRECTED RFP THAT WOULD IMPLEMENT A PROJECT TO ENLIST
A MARKETING FIRM TO COMPILE PROJECT INFORMATION INTO AN APP
THAT COULD ASSIST STAKEHOLDERS IN BATTLING THE NOTION THAT
NOTHING IS BEING DONE TO HELP IMPROVE THE IRL. STAFF ALSO
DISTRIBUTED A SCORING RUBRIC FOR THE COMMITTEE TO CONSIDER
AND RETURN REGARDING HOW THIS RFP SHOULD BE SCORED.

Requested Action: Discussion of RFP priorities and content for the new category.
Recommendation to the IRL Council Board of Directors to add a Community
Engagement category to RFP announcements for FY 2023.

NO ACTION WAS TAKEN AS A QUORUM WAS NOT PRESENT. A CONSENSUS OF
THOSE PRESENT FAVORED RECOMMENDING THAT THE BOARD OF DIRECTORS
APPROVE THE ADDITION OF A COMMUNITY ENGAGEMENT RFP FOR FY 2023.
7. New Business

a. FY 2023 RFP categories and financial allocations for FY 2023 budget (Daniel Kolodny)

DANIEL KOLODNY REVIEWED THE PROPOSED ALLOCATIONS FOR THE ANNUAL FUNDING CYCLE: $600K FOR WATER QUALITY; $200K FOR HABITAT RESTORATION; $200 K FOR COMMUNITY-BASED RESTORATION; $100K FOR RESEARCH/INNOVATION; $50K FOR ENGAGEMENT AND EDUCATION; AND $25K FOR SMALL GRANTS.

**Requested Action:** Recommend that the IRL Council Board of Directors approve financial allocations for FY 2023 RFPs and authorize staff to develop and release competitive RFPs by November 2021.

NO ACTION WAS TAKEN AS A QUORUM WAS NOT PRESENT. A CONSENSUS OF THOSE PRESENT FAVORED RECOMMENDING THAT THE BOARD OF DIRECTORS APPROVE THE ALLOCATIONS.

b. FY 2021 Final Budget Amendment (Daniel Kolodny)

DANIEL KOLODNY REVIEWED THIS RESOLUTION AND EXPLAINED HOW IT RECONCILES THE FY 2020 AUDIT RESULT AND BRINGS BALANCES FORWARD INTO FY 2021. ONCE EVERYTHING IS COMPLETED, THE FUND BALANCE WILL ROLL INTO THE 2023 RFPS. THERE IS A NOTE THAT $242,000.00 OF THE $550,000.00 IS RESTRICTED LICENSE PLATE FUNDS.

**Requested Action:** Recommend that the IRL Council Board of Directors adopt amendments to the FY 2021 budget by Resolution 2021 - 04 pursuant to Florida Statutes.

NO ACTION WAS TAKEN. A CONSENSUS OF THOSE PRESENT WERE IN FAVOR OF THE BOARD OF DIRECTORS ADOPTING AMENDMENTS TO THE FY 2021 FINAL BUDGET BY RESOLUTION 2021 – 04.

c. FY 2022 Budget Amendment (Daniel Kolodny)

DANIEL KOLODNY EXPLAINED HOW THIS RESOLUTION WILL BRING THE $550,000.00 FROM THE PROJECTED END OF FY 2021 SHOULD EVERY EXPENSE BE FULLY EXPENDED. THERE HAVE BEEN ADJUSTMENTS TO STAFF SALARIES DUE TO RFS’ INCREASE BEGINNING JULY 1ST, 2021.

**Requested Action:** Recommend that the IRL Council Board of Directors adopt amendments to the FY 2022 final budget by Resolution 2021 – 05 pursuant to Florida Statutes.
NO ACTION WAS TAKEN. A CONSENSUS OF THOSE PRESENT WERE IN FAVOR OF THE BOARD OF DIRECTORS ADOPTING AMENDMENTS TO THE FY 2022 FINAL BUDGET BY RESOLUTION 2021 – 05.

8. IRLNEP Staff Reports

a. Project Update (Daniel Kolodny)

Daniel Kolodny reviewed the projects in progress and featured several projects that had closed in the previous quarter.

b. Communication Report (Kathy Hill)

Kathy Hill reviewed the performance of the program’s social media and highlighted a new set of ads that were pilot tested as paid, 15-seconds ads for YouTube. We are happy to send these MP4 files to any partner organization for sharing on websites and government television. The program has also designed a new IRL lagoon license plate which will be vetted through the management conference prior to final approval.

c. Executive Director Report (Duane De Freese)

Kathy Hill presented on behalf of Dr. Duane De Freese. Duane is doing well and working as much as he is able. Federally, there is money in the infrastructure bill that would bring about 1 million dollars per NEP for five years, above and beyond our regular allocation for water quality.

9. General Public Comments

Doug Patterson thanked everyone in attendance for their hard-word and dedication to the lagoon.

Cynthia Hall has acquired some local art of the lagoon and lagoon life that she would be happy to donate in-kind to the IRL council.

Mike Conneen is conducting a day in the life on the Indian River lagoon on October 7th, 2021. He is in need of volunteers. Location and time to be announced.

10. Adjourn

The meeting was adjourned at 3:10 P.M.

The next meeting of the citizens’ advisory committee is November 18th, 2021 at 1:30 P.M.

Guests: None

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

   FRANK CATINO CALLED THE MEETING TO ORDER AT 1:35 PM AND LED THE PLEDGE OF ALLIGIANCE.

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

   THERE WERE NO AGENDA REVISIONS.

3. **Introductions & Public Comments** (Frank Catino, Chair)

   INTRODUCTIONS; NO PUBLIC COMMENTS.

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

   **Requested Action:** Approval of minutes from the meeting of May 6, 2021 and August 12, 2021.

   ITEM TABLED AS QUORUM WAS NOT PRESENT.

5. **Presentations**
   a. *The Importance of High Confidence Data to Geospatial Analysis for Environmental Management for the Indian River Lagoon* (Kirsten Jo Ayres, IRLNEP)

   Ms. Ayres presented on her background with the GeoCollaborate project and her responsibilities for the QA/QC process.
6. Old Business

a. Review the Marketing RFP for FY 2023 (Daniel Kolodny for Kathy Hill)

Mr. Kolodny on behalf of Kathy Hill presented the Marketing RFP for Fiscal Year 2023 based on the discussion from the August 2021 meeting. Page two is the priority on how the IRLNEP anticipates this working by targeting marketing professionals who can help breach the gap between knowledge and action.

**Requested Action:** Information Only.

**NO ACTION REQUIRED; CONSENSUS WAS TO RELEASE THE RFP.**

7. New Business

a. Planning for the FY 2023 IRLNEP Workforce Analysis (Duane De Freese)

Dr. De Freese summarized the proposed IRLNEP Workforce Analysis which would include adding in a full-time position for a GIS Specialist and three Community Engagement Coordinators that would be positioned in the North, Central and South IRL regions. These Engagement Coordinators would be present at meetings and events, perform outreach, and coordinate projects.

**Requested Action:** Review, discussion, and recommendation that the IRL Council Board of Directors adopts the Workforce Analysis.

THE CITIZEN’S ADVISORY COMMITTEE RECOMMENDED, VIA CONSENSUS OF THOSE PRESENT THAT THE WORKFORCE ANALYSIS BE APPROVED.

b. IRL Council Leadership Transition Policy (Duane De Freese)

Dr. De Freese reviewed the IRL Council Leadership Transition Policy which is a policy document which guides the first 30 - 90 days of a leadership transition and outlines a series of steps with the Board of Directors on how to move forward with internal/external recruitment.

**Requested Action:** Review, discussion, and recommendation that the IRL Council Board of Directors adopts the Leadership Transition Policy.

A QUORUM WAS NOT PRESENT; THE CAC RECOMMENDED VIA CONSENSUS OF THOSE PRESENT.

c. 2022 Meeting Calendar (Ashley Malcolm)

Ashley Malcolm presented the proposed 2022 Meeting dates. The CAC discussed moving the May date to May 5th, 2022 to allow an extra week to discuss Small Grants.

**Requested Action:** Recommend that the IRL Council Board of Directors
reviews and adopts the proposed 2022 Meeting Calendar.

A QUORUM WAS NOT PRESENT; THE 2022 MEETING CALENDAR WAS APPROVED, WITH EDITS, BY A CONSENSUS OF THOSE PRESENT.

8. IRLNEP Staff reports

a. IRL Project Update (Daniel Kolodny)

Mr. Kolodny reviewed the end of year (2021) project list including 28 CCMP projects and activities completed in 2021 and 17 projects and activities were completed in quarter four alone in 2021.

b. Communication Report (Duane De Freese for Kathy Hill)

On behalf of Ms. Hill, Dr. Duane De Freese reviewed the communications report and reported good numbers and engagement with the 10-second YouTube Ads. Facebook is performing well Instagram is performing moderately, And Twitter is still proving to be a challenge.

c. Executive Director Report (Duane De Freese)

Dr. De Freese reviewed 2021 for the IRLNEP which included $2.64 million dollars in IRLNEP revenue, 28 completed projects, and $963,470.00 secured through a FDEP Innovation Grant. Additionally, the IRLNEP completed two EPA concurrence documents and one Climate Ready Estuary report completed. He further discussed the 5 Year EPA Program Evaluation and how the PE is used by EPA to assess how NEPs are making progress in achieving program and environmental results through implementation of the CCMP. The EPA PE visit will be scheduled in May 2022.

9. General Public Comments

Captain Frank Catino discussed “Hook Kids on Fishing” from Anglers for Conservation expanding into the IRLNEP. They are looking to do programs in each of our counties with outside partnerships. Currently, they have served approximately 25,000 kids since its inception. Captain Frank Catino will bring back additional details at our next meeting for further discussion.

10. Adjourn

THE MEETING WAS ADJOURNED AT 3:47 P.M.

NEXT CITIZEN’S ADVISORY MEETING: Tuesday, February 10th, 2022*
*Contingent on adoption of the 2022 Meeting Calendar.
Quorum Options

• No change. Keep working to get attendance. Wait to see if attendance rebounds after COVID subsides.
• Reduce quorum attendance requirement in each committee.
• Change advisory committees to fact finding only. Committee reports to Executive Director.
• Seek legislative exemption for the IRL Council advisory committees
IRLNEP Small Grants Program at a Glance:
The Indian River Lagoon National Estuary Program (IRLNEP) is accepting grant applications from schools, local citizen groups and non-profit organizations for projects that support community engagement/education and restoration projects focused on the Indian River Lagoon (IRL). The guiding objective of the small grants program is to mobilize as many segments of the public as possible to focus on IRL protection and restoration. Projects selected for funding are those that help foster a Lagoon-Friendly ethic and promote community stewardship of the IRL. Projects must engage local communities located within the IRL watershed and may involve engagement/education activities, restoration activities, or both.

Goal:
The IRLNEP Small Grants Program supports action plans of the IRLNEP Comprehensive Conservation and Management Plan (CCMP) – Looking ahead to 2030 through community-based education and small restoration projects focusing on the Indian River Lagoon. Empowering citizens through programs such as this helps foster an environmental ethic and promotes community stewardship of the IRL. The CCMP is available online at: https://onelagoon.org/management-plan/

Funding available: $500 - $5,000 per grant. $25,000 budgeted for FY 2022.

Deadline for submissions: April 8, 2022 by 5pm.

Award Date: Funding will be made available on or after May 16, 2022

Eligibility:
Community groups and organizations from within the IRLNEP watershed planning boundary are eligible to apply for funding. All projects must be implemented within IRLNEP watershed planning boundary (see map, page 8). Eligible applicants include:

- Teachers, school districts, student clubs (as sponsored by a school);
- Community clubs and organizations (scouting groups, civic groups, churches, etc.);
- Homeowner's and neighborhood associations;
- Non-profit groups;
- Small businesses, business organizations;
- Local governments and agencies IF a strong volunteer or community involvement component is outlined in the proposal.

Proposal Limitations:
Organizations may submit no more than one (1) proposal per funding cycle. Should an organization have several proposals under consideration, it is advised that an internal competition be held to select the one to be submitted.

Implementation period:
Project must begin within 6 months of the award date and be completed within 1 year of award date.

INTRODUCTION
The Indian River Lagoon National Estuary Program: The health of estuaries is threatened by land use changes, habitat loss, pollution, resource conflicts and other issues. In 1987, Congress established the National Estuary Program (NEP) as a non-regulatory, community-based program to protect and restore the water quality of estuaries. The U.S. Environmental Protection Agency (EPA) administers the NEP.

The Indian River Lagoon was nominated as an Estuary of National Significance and joined the NEP in 1990 under the sponsorship of the St. Johns and South Florida Water Management Districts. In 2015, the IRLNEP became sponsored by the IRL Council, an independent special district of Florida. The IRL Council includes representatives of five counties bordering the Lagoon (Volusia, Brevard, Indian River, St. Lucie and Martin counties), the St. Johns River and South Florida Water Management Districts, and the Florida Department of Environmental Protection (DEP). The U.S. EPA provides guidance to the Council.

Additional background information about the Indian River Lagoon National Estuary Program is available online at www.onelagoon.org.

IRLNEP Small Grants Program:
The IRLNEP Small Grants Program is intended as a means of engaging and educating local citizens and involving them in the restoration and recovery of the IRL. The Program seeks applications for projects addressing IRL education or restoration projects in Volusia, Brevard, Indian River, St. Lucie and Martin Counties. Projects must address IRL issues and priorities as identified in the Proposal Categories listed below. They should promote public involvement in solutions for Lagoon protection and restoration.

Proposals focused on restoration should:
- Be focused on IRL water or habitat quality.
- Define the restoration area clearly, including size and location. Maps and GPS coordinates are encouraged. All restoration projects must take place on the IRL watershed.
- Describe how volunteers and/or partner organizations will participate.
- Describe how and how often maintenance and monitoring of the project area will be conducted, and who will do it.
- Have letter(s) of support from the landowner of the area to be restored. All IRLNEP Small Grants Program projects must take place on community-owned, public-owned or conservation easement lands. For projects planned on public lands or facilities, applicants must obtain permission for access to or use of those lands or facilities. Projects designed to be implemented on private residential property (i.e.: a single-family home) will not be funded. However, properties such as churches or HOA properties may be considered if a strong community engagement component exists in the envisioned project. Permission for use of private property not controlled by the applicant is also required.

Proposals focused on community engagement/education should:
- Be focused on the IRL (issues, stressors, solutions).
- Clearly define target audience(s) and include a plan for how success of the project will be measured.
- Describe what activities will be performed to engage the community and what the expected educational outcomes are.

Proposal Categories:
All of the CCMP Vital Signs. Please refer to the IRLNEP CCMP at onelagoon.org. Some Examples are as follows:

- **Lagoon Awareness and Education**: Examples: Providing programs for schools, YMCA groups, boy scouts, girl scouts or other youth organizations; programs involving youth in finding solutions to Lagoon problems; programs for disadvantaged youth, etc.

- **Improving Water Quality/Reducing Nutrient Loading from Urban Landscapes**: Examples: Fertilizer reduction campaign, native plant gardening, rain gardens, rain barrels, citizen science to monitor ponds and outfalls, etc.

- **Habitat Restoration and Protection**: Examples: Restoration of natural shorelines, oyster restoration, enhancement of seawalls, projects addressing seagrasses, mangroves, coastal and freshwater wetlands, and marine debris and microplastics reduction/recycling initiatives.

- **Trash Free Waters and Wildlife Conservation**: Examples: Improving awareness of threats to wildlife from monofilament line; coastal cleanups, protection of seagrass beds; education about fish and wildlife habitats, etc.

- **Invasive Species**: Examples: Eradication of invasive plants or animals; education about harmful aquatic invasive species and how to prevent their spread; discouraging release of unwanted exotic pets, etc.

**Grant Eligibility**:
IRLNEP Small Grants are directed toward schools, businesses, community groups and organizations wishing to involve the public in IRL education and restoration programs. An organization’s tax identification number is used by the IRLNEP to issue a contract for the awarded grant funds. Individuals are not eligible to receive grants funded under this program and are encouraged to partner with an appropriate organization to submit a proposal for funding consideration.

**Procurement**:
The IRLNEP will issue a contract to grant recipients that reimburses expenses awarded under the Small Grants Program. Funding is reimbursable only. Recipients may purchase only items listed in the approved budget for the project. The IRLNEP will reimburse only the organization listed on the contract. At the conclusion of the project, recipient will submit a single invoice and receipts for all expenses to be reimbursed. Grant recipients must submit an invoice on their organization’s stationary (letterhead) and include receipts as documentation for the full amount of the invoice. Only direct expenses are eligible for reimbursement. NO indirect costs are eligible for reimbursement. Any reimbursement of expenses will be in accordance with Florida Statutes. Grant recipients may not begin purchasing items for their projects, print materials to publicize the project, or begin spending money in any way (such as postage, supplies, etc.) until the IRLNEP’s fully executed contract is in hand.

**Expenses**:
Items the IRLNEP may pay for include (but are not limited to):

- tool rentals
- native landscaping plants
- meeting room rentals
- film and photo processing
- materials (i.e. water quality sampling kits, supplies to produce educational materials)
- volunteer food within reason (i.e. light lunches, refreshments, bottled water)
- postage
- project-related printing
- portable toilet rentals
- project-related signage
If the Small Grant project includes printing of materials (brochures, flyers, signage, etc.), an IRLNEP representative must review all printed materials, including signage prior to printing. The IRLNEP logo must appear on all print or web materials distributed in association with the funded project.

**Unbudgeted expenses:**
Purchases for items, other than those specified in the line-item budget, will require the IRLNEP grants administrator's approval before they are incurred.

**OTHER INFORMATION:**

**Public Entity Crimes:**
As provided in the IRL Council Operating Procedures Manual, a person or affiliate who has been placed on the Convicted Proposers list following a conviction for a public entity crime may not submit a proposal on a contract to provide any goods or services to a public entity; may not submit a proposal on a contract with a public entity for the construction or repair of a public building or public work; may not submit proposals on leases of real property to a public entity; may not be successful or perform work as a contractor, supplier, subcontractor, or consultant under a contract with any public entity.

**Non-Lobbying:**
Pursuant to section 216.347, Fla. Stat., as amended, funds received from the IRL Council under this Agreement shall not be used for the purpose of lobbying the Legislature or any other state agency.

**Right to Protest:**
Any actual proposer aggrieved in connection with the solicitation or award of a contract may file a written protest in accordance with the procedures outlined in the IRL Council Operating Procedures Manual.

**Right to Accept or Reject:**
The IRL Council reserves the right to accept or reject any or all proposals, in whole or in part, with or without cause, to waive any irregularities and/or technicalities, and to award the contracts on such coverage and terms it deems will best serve the interests of the Board.

**Funding Contingencies and Restrictions:**
Project funding from the IRL Council is subject to annual funding received from IRL Council local stakeholder contributions, Congressional appropriation to the U.S. EPA under Section 320 of the Clean Water Act for the National Estuary Program, and projected revenues from the sales of Indian River Lagoon license plates.

Strategic decisions related to IRLNEP work plan funding are determined annually by the IRLNEP Management Conference with final decision for project priorities and budget allocations by the IRL Council Board of Directors (Board).

Funding of proposals selected under this Request for Proposals (RFP) is contingent upon availability of funds. There is no guarantee that sufficient funds will be available to make awards for all qualified projects. The exact amount of funds awarded for each project will be determined in pre-award negotiations between the applicant and IRL Council staff with final award decisions by the IRL Council Board of Directors.

Proposals accepted for funding may have their requested amounts reduced based on Management Conference recommendations or availability of funding. In the event that a proposal is selected for funding but becomes subject to funding reduction, IRLNEP staff will notify applicants in advance of any reductions and will meet with proposers to provide an opportunity to consider the effect(s) funding reduction will have on the project scope and deliverables.
Projects will only be considered IF the project has secured any and all additional funding in addition to this request to the IRL Council that is needed to complete the project.

The IRL Council is under no obligation to expend all funds allocated within a proposal category.

**Proposal Submission Instructions:**
Complete an Application Form using the form provided beginning on page 9 of this document. Include a line-item budget form, provided on page 12, that includes:

- All estimated expenditures.
- All sources and amounts of funding (include if you are applying to other funding agencies for the same project, and if so, who you are applying to and the status of that grant).

Attachment A- Budget Examples provide sample budgets having, and lacking, adequate detail. Please craft the budget for your proposal with enough detail that it can be properly evaluated by the reviewing team.

**Save these documents in PDF format and email your complete proposal to:**
Ashley Malcolm, Administrative Coordinator, Indian River Lagoon National Estuary Program 
Malcolm@irlcouncil.org with a copy to Daniel Kolodny, kolodny@irlcouncil.org. Questions may be directed to Ashley at (860)416-3102 until the proposal deadline.

**Submission Checklist:**
- Proposals are due in IRLNEP offices by **April 8, 2022**.
- Proposals will be accepted only as PDFs submitted via email.
- Proposals must be completed in their entirety.
- Late proposals and materials submitted after the deadline will not be accepted.

**Reporting Requirements:**
IRLNEP Small Grants Program award recipients will be required to submit a written final report upon completion of the project. Final reports must include: (1) digital copy and (1) hard copy of all final products of print and/or web publications (i.e., brochures, videos, manuals, signage, etc.).

If your project is restoration-oriented and does not have a final product, “before and after photos” and/or a video must be submitted with the final report.

If your project is educational in nature and does not have a final product, a copy of all training materials, manuals, information, etc. must be submitted with your report.

Deliverables, including the final report, must be submitted before final payment is made unless authorized by the IRLNEP Small Grants Program administrator.

All projects, concepts, artwork, photos, videos and other products of these grants may be reproduced at the discretion of the IRLNEP for possible use with future educational programs, at no cost to the IRLNEP, and must carry an approved IRLNEP logo and/or credit line acknowledging Program funding of the project.

**Selection Criteria:**
Proposals submitted to the IRLNEP Small Grants Program will be evaluated according to the following criteria.
a) **Strength of Proposal (30%)** -- Specifically, the strength of the project will be evaluated on how well the project contributes towards restoring or improving the IRL, or advancing education, and the extent to which it addresses a need based on health concern level as identified in the CCMP. Applicant’s proposal must meet one or more of the CCMP Vital Signs.

b) **Ability of the Applicant (20%)** -- The project team must demonstrate a reasonable ability to successfully complete the proposed project.

c) **Cost Justification (10%)** -- Cost justification means that the proposal and the budget must give enough detail to show that costs are appropriate to the scope of work.

d) **Demonstration of How Project Will Help the IRL (20%)** -- The project’s goals and objectives must explicitly state how the project will target lagoon issues that result in the education of community members, restoration outcomes, or protection of the IRL. Achievable measures of success must clearly be identified.

e) **Demonstration of Community Support (20%)** -- All proposals, regardless of scope, should reflect some measure of community support through either implementation, maintenance and/or monitoring of the project (Example: if a rain garden is funded, how will it be maintained, by whom, and for how long?).

**Selection Process:**
The IRLNEP Citizens’ Advisory Committee will review each proposal. Recommendations will be forwarded to the Program’s Management and Policy Boards for final approval. IRLNEP staff will be assigned to serve as grant administrators. IRLNEP’s grant administrator or its representative, may request to visit the recipient or the project location during or after the grant is completed.

[REMAINDER OF PAGE INTENTIONALLY LEFT BLANK]
FAQ’s (Frequently Asked Questions)

Q. What is the implementation period?

A. Funding for awarded projects will be made available on or after **May 16, 2022** via a contract that authorizes reimbursement of approved expenses for the project. The project must begin within six months of the execution date of the contract and must be completed within one year of the execution date. Upon awarding of the grant, recipients will submit a “Scope of Work.” Upon receipt and approval of the scope, applicants will then be issued a contract. After the contract has been fully executed, work may begin on the project.

Q. Who can apply? Can a government agency apply?

A. Groups and organizations from within the IRLNEP watershed planning boundary may apply. Both non-profit and for-profit organizations are eligible. Individuals are not eligible but are encouraged to partner with an appropriate organization to develop and implement projects for funding. Projects must take place within the IRL watershed. Local governments and government agencies may apply if there is strong volunteer or community involvement that supports the spirit of the program. The IRLNEP Small Grants Program is not designed as a funding source for government projects.

Q. What kind of projects will be funded?


Projects involving installation of plants must use plants that are native to Florida or considered “Florida-Friendly” by the University of Florida IFAS Florida-Friendly Landscaping™ Program. Plants should be installed according to the Nine Principles of Florida-Friendly Landscaping™ found at: [http://fyn.ifas.ufl.edu/homeowners/nine_principles.htm](http://fyn.ifas.ufl.edu/homeowners/nine_principles.htm)

Information about native and Florida-Friendly plants can be found at:

- Florida Yards: [http://floridayards.org/](http://floridayards.org/)
- Florida Native Plant Society: [http://fnps.org/plants](http://fnps.org/plants) and [www.floridata.com](http://www.floridata.com)

Plants listed on the noxious weed list: [http://plants.usda.gov/java/noxious?rptType=Federal](http://plants.usda.gov/java/noxious?rptType=Federal) or the Florida Exotic Pest Plant Council’s list [https://www.fleppc.org/](https://www.fleppc.org/) may **not** be installed using funds from IRLNEP Small Grants:

Q. What project types won’t be funded?

A. Proposals seeking funds for ongoing administrative support of established programs will not receive consideration. Costs not allowed include but are not limited to: reimbursement for costs outside the grant’s scope of work, purchase of **commercial** software and hardware, indirect costs, contingency funds, depreciation, entertainment, purchase or printing of T-shirts or other clothing, fines and penalties, bad debts, interest and financial costs of borrowing, attendance at conferences and meetings, lobbying expenses. Grant funds will not fund projects on private residential property. Faith-based organizations are eligible to apply for small grants. However, funding may not be used to support religious worship, instruction, or proselytization activities.

Q. Are matching funds required?
A. No; matching funds are not required, but proposals showing matching fund commitment through in-kind services will receive special consideration. An example of in-kind services are volunteer hours.

Q. What if I’m not sure how much it will cost to do the project?

A. Talk to potential suppliers of the items or services you think you will need for the project. Get the best estimates possible to include in the proposal. If the project is approved, the grant award you receive will be based on the budget as outlined in the proposal.

Q. What is the maximum amount an applicant can request?

A. Grant requests may not exceed $5,000. The IRLNEP may choose to fund a project at less than 100 percent of the requested budget.

Map of IRLNEP watershed. Only projects located in the watershed and northern planning boundary (orange outline) will be considered for funding.

If you have questions about your project location, you may contact Ashley Malcolm at (860) 416-3102.
Indian River Lagoon National Estuary Program
2022 Small Grants Program Application

Project Name: [Blank]
Organization Name: [Blank]
Street Address: [Blank]
City/County/Zip: [Blank]
Organization Executive Director Name: [Blank]
Phone: [Blank]  E-mail: [Blank]
Project Lead/Manager: [Blank]
Phone: [Blank]  E-mail: [Blank]
Organization Type (School, Business, HOA, etc.): [Blank]
Other participating organizations: [Blank]
Total Amount Requested (not to exceed $5,000): [Blank]
The IRLNEP receives more grant requests than we have available money to fund. Briefly explain how partial funding might impact or affect this project:

Planned Project Beginning and Completion Dates: [Blank]

Have you applied to any other organizations to receive grant funds for this project?  ☐ Yes  ☐ No

If yes, please provide organization(s) name, amount requested, and status (awarded/declined).

What city and county will the project take place in?

Where is the physical location of your project (address or GPS coordinates)? [Blank]

Return completed applications as PDFs via email by 5pm on April 8, 2022 to Ashley Malcolm, malcolm@irlcouncil.org with a copy to Daniel Kolodny, Kolodny@irlcouncil.org

Indian River Lagoon National Estuary Program

How did you hear about the Small Grants Program?

Answer the following questions clearly and completely.
1. Is this proposal for:
   - [ ] EDUCATION
   - [ ] RESTORATION
   - [ ] BOTH

2. Summarize the proposed project in 300 words or less. Please include in the summary how your project will contribute towards restoring or improving the IRL.

3. List organizations, groups, volunteers and/or partners that will participate in the activities and how you will recruit them.

4. Describe (300 words or less) why you and/or your organization will be successful at implementing your proposal. What are your organization’s qualifications?

IRLNEP recommends letters of support from all partners/cooperators in the project.

5. How many people do you estimate your project will reach?
6. How will you measure the success of your project? Please be specific (e.g., follow-up monitoring of a habitat restoration site).

7. What will participants learn from participating in this project? How will they use that knowledge to benefit the Lagoon?

8. What materials or supplies (if applicable) will you provide to the people participating in your project?

9. Is your project part of an ongoing project?
   • If yes, how does this grant project fit into the overall effort?
   • If no, do you plan to continue this project in the future?

Budget for ____________________________________________________________
**ITEM** | **IRLNEP SHARE** | **MATCH**
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**TOTAL (NOT TO EXCEED $5,000):**

* Please indicate if matching funds listed above are federal, local, state or private.

---

**Attachment A – Budget Examples**

**Sample Budget With Adequate Detail:**
<table>
<thead>
<tr>
<th>ITEM</th>
<th>IRLNEP Funds</th>
<th>*MATCH</th>
<th>TOTAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bus Transportation (2 buses @ $150 per trip x 10 trips)</td>
<td>$ 1,500.00</td>
<td>$ 1,500.00</td>
<td>$ 3,000.00</td>
</tr>
<tr>
<td>Instructor Costs ($50 per day x 10 days)</td>
<td>$ 250.00</td>
<td>$250.00</td>
<td>500.00</td>
</tr>
<tr>
<td>Teaching Materials and Supplies (Native plant handbook, pocket folders 30 students/day x 10 days @ $5 ea.)</td>
<td>$ 1,500.00</td>
<td>$ 0.00</td>
<td>$ 1,500.00</td>
</tr>
<tr>
<td>65 - 1 gal. beautyberry @ $2.00 ea.</td>
<td>$ 65.00</td>
<td>$ 65.00</td>
<td>$ 130.00</td>
</tr>
<tr>
<td>600 - gopher apple @ $1.25 ea.</td>
<td>$ 750.00</td>
<td>$ 0.00</td>
<td>$ 750.00</td>
</tr>
<tr>
<td>230 - Florida paintbrush @ $1.25 ea.</td>
<td>$ 187.50</td>
<td>$100.00</td>
<td>$ 287.50</td>
</tr>
<tr>
<td><strong>TOTAL Project Costs</strong></td>
<td><strong>$ 4,252.50</strong></td>
<td><strong>$ 1,915.00</strong></td>
<td><strong>$ 6,167.50</strong></td>
</tr>
</tbody>
</table>

* Please indicate if matching funds listed above are federal, local, state or private.

Matching funds of $1,915.00 provided in cash by the Local Neighborhood Association.

**Sample Budget Lacking Adequate Detail:**

<table>
<thead>
<tr>
<th>ITEM</th>
<th>IRLNEP Funds</th>
<th>*MATCH</th>
<th>TOTAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Transportation</td>
<td>$ 1,500.00</td>
<td>$ 1,500.00</td>
<td>$ 3,000.00</td>
</tr>
<tr>
<td>Administration</td>
<td>$ 250.00</td>
<td>$250.00</td>
<td>500.00</td>
</tr>
<tr>
<td>Supplies</td>
<td>$ 1,500.00</td>
<td>$ 0.00</td>
<td>$ 1,500.00</td>
</tr>
<tr>
<td>Plants</td>
<td>1002.50</td>
<td>$165.00</td>
<td>$ 1167.50</td>
</tr>
<tr>
<td><strong>TOTAL Project Costs</strong></td>
<td><strong>$ 4,252.50</strong></td>
<td><strong>$ 1,915.00</strong></td>
<td><strong>$ 6,167.50</strong></td>
</tr>
</tbody>
</table>

* Please indicate if matching funds listed above are federal, local, state or private.
Category 1: Water Quality Restoration Proposals
<table>
<thead>
<tr>
<th>Rank</th>
<th>Applicant</th>
<th>Project</th>
<th>Requested Funding</th>
<th>Cost Share Match</th>
<th>Match %</th>
<th>Total Project Cost</th>
<th>Score</th>
<th>Above 70%?</th>
<th>Eligible?</th>
<th>Funding Amount</th>
<th>Category Total Remaining</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Martin County</td>
<td>The Martin County Connect to Protect Septic to Sewer Nutrient Removal Program Y3</td>
<td>$200,000.00</td>
<td>$640,400.00</td>
<td>76</td>
<td>$840,400.00</td>
<td>192</td>
<td>87%</td>
<td>Y</td>
<td>$200,000.00</td>
<td>$400,000.00</td>
</tr>
<tr>
<td>2</td>
<td>Florida Institute of Technology</td>
<td>Continued Application and Optimization of an Environmentally Friendly, Biological Denitrification Bioreactor Developed for Use in the Indian River Lagoon Using Repurposed Materials.</td>
<td>$74,865.00</td>
<td>$92,000.00</td>
<td>55</td>
<td>$166,865.00</td>
<td>181</td>
<td>82%</td>
<td>Y</td>
<td>$74,865.00</td>
<td>$325,135.00</td>
</tr>
<tr>
<td>3</td>
<td>City of Cocoa</td>
<td>Dixon Blvd at Indian River Drive WQ and Resiliency Project (D&amp;E)</td>
<td>$40,000.00</td>
<td>$40,000.00</td>
<td>50</td>
<td>$80,000.00</td>
<td>177</td>
<td>80%</td>
<td>Y</td>
<td>$40,000.00</td>
<td>$285,135.00</td>
</tr>
<tr>
<td>4</td>
<td>City of Fort Pierce</td>
<td>Moore's Creek Distinctive Communities Project</td>
<td>$106,500.00</td>
<td>$106,500.00</td>
<td>50</td>
<td>$213,000.00</td>
<td>154</td>
<td>70%</td>
<td>Y</td>
<td>$106,500.00</td>
<td>$178,635.00</td>
</tr>
</tbody>
</table>
EXECUTIVE SUMMARY

Martin County is submitting the **Rio East-Crossroads Hill Nitrogen & Phosphorus Removal Project** grant application for the Indian River Lagoon Council (IRLC) and Indian River Lagoon National Estuary Program (IRLNEP) FY2023 IRLNEP Category-1: Water Quality Restoration grant opportunity. The following Table outlines the critical information for this application:

<table>
<thead>
<tr>
<th>Table 1: Key Project Details</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Title of Project:</strong></td>
</tr>
<tr>
<td><strong>Lead Organization &amp; Partners:</strong></td>
</tr>
<tr>
<td><strong>Project Location:</strong></td>
</tr>
<tr>
<td><strong>IRLNEP Contribution &amp; Source:</strong></td>
</tr>
<tr>
<td><strong>Partner Match:</strong></td>
</tr>
<tr>
<td><strong>Total Project Cost:</strong></td>
</tr>
</tbody>
</table>

PROJECT DESCRIPTION

Martin County’s Connect-to-Protect Program is a 10-year septic-to-sewer conversion initiative launched in the spring of 2019. The goal is to connect homes to the Martin County Utilities (MCU) wastewater collection and treatment system, abandon septic systems, and improve the health of local waterways, with a focus on the Indian River Lagoon (IRL) and the St. Lucie Estuary. The next prioritized project in the initial 5-year work plan is the Rio East-Crossroads Hill Sewer Project submitted for funding from the FY2023 IRLNEP Water Quality Grant Program. The request is to partially fund the construction of the force mains that will connect approximately 382 residences to the MCU sewer system. The work will be completed within the 12-month period as required by the Program.

MAP AND PHOTOS - Attachment A- Rio East & Crossroads Hill Maps; Attachment B Photo

KEY OUTPUTS (DELIVERABLES)

Project deliverables will include 1) preliminary design, 2) final design plans and specifications, 3) engineer’s opinion of probable construction cost, 4) contract documents delivered at the 30, 60, 90, and 100% project segments.

KEY OUTCOMES (BENEFITS TO THE IRL)

The Rio East-Crossroads Hill Sewer Project, part of Martin County’s Connect-to-Protect Program, will connect 382 residences to the MCU central sewer system. Key benefits are 1) Improved water quality and ecosystem health; 2) Reduced nutrients, BOD, and fecal coliform concentrations to the IRL; 3) Elimination of 382 septic tanks will reduce the total nitrogen (TN) by about 4,900 lbs TN/yr and total phosphorus (TP) loads by about 725 lbs TP/yr to the IRL based on cited literature; 4) Aligns strongly with the CCMP IRL Vital Signs, and 5) Supports healthy waterways and ecosystem.
Executive Summary
CATEGORY 1: Water Quality Restoration Projects

<table>
<thead>
<tr>
<th>Title of Project</th>
<th>Continued Application and Optimization of an Environmentally Friendly, Biological Denitrification Bioreactor Developed for Use in the Indian River Lagoon Using Repurposed Materials.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lead Organization and Partners:</td>
<td><strong>Lead Organization:</strong> Florida Institute of Technology (Florida Tech - Austin Fox Ph.D.). <strong>Project Partners:</strong> Oxsolve and Lapin Services (Dan Young).</td>
</tr>
<tr>
<td>Project Location</td>
<td>This project will be carried out in the Indian River lagoon associated with a canal located in Turkey Creek (WBID 3098A) at 28°01'52&quot;N and 80°34'47&quot;W on the Florida Tech Rivers Edge Property.</td>
</tr>
<tr>
<td>Key CCMP Vital Signs:</td>
<td>Impaired waters, legacy loads, stormwater, contaminants, harmful algal blooms, 21st century communities, monitoring and data, science &amp; technology innovation plus citizen engagement</td>
</tr>
<tr>
<td>IRLNEP Contribution and Source:</td>
<td>$74,865, IRL Council</td>
</tr>
<tr>
<td>Partner Match:</td>
<td>$92,000, Lapin Services (55% of total)</td>
</tr>
<tr>
<td>Total Project Cost:</td>
<td>$166,865</td>
</tr>
</tbody>
</table>

**Project Description:** We propose to continue the use and optimization of the currently funded (IRLNEP 2021-2022), simple and innovative biological denitrification bioreactor to remove nitrogen (N) and phosphorus (P) from stormwater in Turkey Creek located within the Central IRL BMAP. The system was developed at Florida Tech based on a thorough search of the literature plus examination of existing wastewater, aquaculture and aquarium systems, followed by extensive laboratory and field-testing in the IRL. Environmental conditions (e.g., dissolved oxygen) in a bioreactor containing denitrification media are managed to promote the growth and proliferation of denitrifying and/or anammox bacteria found naturally in IRL water and sediments. Following extensive testing of various media, the use of repurposed plastics (BPA-free bottle caps), similar in function to plastic Bioballs used in home and large commercial aquaria, have yielded up to or greater than 70% ammonium nitrogen (N) and 80% phosphate (P) decreases from IRL water and dredge material. To date, the system also significantly improves turbidity and decreases microplastic counts with treatment. Data from field and laboratory testing will be used to adapt the system for stormwater use and to improve treatment efficiencies. Continued use and advancement of this system will not only benefit the lagoon but could provide a relatively simple and inexpensive method for treatment of natural waters globally and in underrepresented communities while also promoting awareness and providing a way for the public to get involved in lagoon research and restoration.

**Map and Photo(s):** Attached JPEG image per proposal guidelines (Figures ES1 and ES2, Attachment A).

**Key Outputs (Deliverables):** The primary deliverable is the treatment of stormwater (5,000-7,000 gallons per day) in Turkey Creek by promoting natural, ecosystem services in a developed and already mobilized denitrification bioreactor with community support and engagement.

**Key Outcomes (Benefits to the IRL):** **Short term:** Removal of hundreds of pounds of N and associated P from the IRL using an innovative and environmentally friendly bioreactor, helping to reduce the occurrence and severity of HABs and subsequent hypoxia and improve overall water quality while promoting community outreach and engagement. **Medium term:** Incorporating enhanced biological denitrification systems into city and county level stormwater and muck management plans. **Long term:** Improved water, habitat and sediment quality with fewer and less severe algal blooms, establishing a healthier ecosystem while promoting the success of other restoration efforts.

ES
**Executive Summary**

<table>
<thead>
<tr>
<th>Dixon Blvd at Indian River Drive Water Quality and Resiliency Project</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Lead Organization and Partners:</strong></td>
</tr>
<tr>
<td>City of Cocoa</td>
</tr>
<tr>
<td><strong>Project Location</strong></td>
</tr>
<tr>
<td>Eastern Terminus of Dixon Blvd at the intersection of</td>
</tr>
<tr>
<td>Indian River Drive, in Cocoa, Florida.</td>
</tr>
<tr>
<td>Lat: 28°22’52.21&quot;N Lon: 80°44’10.72&quot;W</td>
</tr>
<tr>
<td><strong>Key CCMP Vital Sign(s):</strong></td>
</tr>
<tr>
<td>Impaired Waters, Stormwater, Trash-Free Waters, Climate-</td>
</tr>
<tr>
<td>Ready Estuary</td>
</tr>
<tr>
<td>Citizen Engagement and Education</td>
</tr>
<tr>
<td><strong>IRLNEP Contribution and Source:</strong></td>
</tr>
<tr>
<td>$40,000</td>
</tr>
<tr>
<td><strong>Partner Match:</strong></td>
</tr>
<tr>
<td>$40,000</td>
</tr>
<tr>
<td><strong>Total Project Cost:</strong></td>
</tr>
<tr>
<td>$80,000</td>
</tr>
</tbody>
</table>

**Project Description:**

This project will provide stormwater treatment and resiliency at Dixon and Indian River Drive (IRD). The project will elevate the roadway providing resiliency and safety. Also, an existing 19”x30” drainage pipe will be transitioned from a direct untreated outfall to the Indian River to a NRFS Baffle Box. This project will also seek to tie in additional untreated outfalls on IRD to treat stormwater prior to entering the Indian River. This should provide treatment to two or more direct outfalls, out of the over 65 within the City of Cocoa, to the Indian River. This project helps to address four of the CCMP Vitals, which are listed in the table above. The NRFS will help treat stormwater and remove trash before entering into an impaired body of water. The City of Cocoa anticipates including a small pedestrian and bicycle lookout at the discharge location. This will provide a much-needed rest stop for both bicyclists and pedestrians using the Indian River Scenic Drive. An educational display will be included showing the benefits of this project and by providing resources to users on what they can do to help achieve our goal of a clean lagoon. The preliminary design of this project is currently underway. The requested funding within this proposal is for the final design and permitting needed prior to construction.

Area Treated: Approximately +/- 37 Acres
TN & TP removed: 98.36/15.538 #/year, respectively
*Note: these are preliminary numbers that would be finalized at the conclusion of the preliminary design phase.

**Key Outputs (Deliverables):**
- Preliminary Design – In-progress. The anticipated completion is Spring 2022.
- Final Design and Permitting – Anticipated start/finish is Fall 2022/Spring 2023.
- Construction – Anticipated start/finish is Fall 2023/Spring 2024.

**Key Outcomes (Benefits to the IRL):**
The three key benefits of this project include water quality, education, and resiliency. This project has the potential to treat roughly 37 acres of vacant, multi-family, and single-family land-uses. This would result in approximately 98.36 lb/yr and 15.538 lb/yr of TN and TP removed, respectively.
Executive Summary

<table>
<thead>
<tr>
<th>Title of Project</th>
<th>Moore’s Creek Distinctive Communities Project: Striving Towards Trash-Free Connected Waters</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lead Organization and Partners:</td>
<td>Lead Organization: City of Fort Pierce Partners: SWORD Outreach, Treasure Coast Food Bank; Habitat for Humanity; Lincoln Park Main Street</td>
</tr>
<tr>
<td>Project Location:</td>
<td>17th and 29th Street Sections of Moore’s Creek</td>
</tr>
<tr>
<td>Key CCMP Vital Sign (s):</td>
<td>Impaired Waters; Trash Free Waters; Harmful Algae Bloom, Seagrasses, Distinctive Lagoon Communities, Vibrant 21st Century Communities, Connected Waters &amp; Watersheds, Contaminants of Concern, Storm Water, Monitoring and Data Sharing.</td>
</tr>
<tr>
<td>IRLNEP Contribution and Source:</td>
<td>$50K-95,000, IRL Council</td>
</tr>
<tr>
<td>Partner Match:</td>
<td></td>
</tr>
<tr>
<td>Total Project Cost:</td>
<td></td>
</tr>
</tbody>
</table>

**Project Description:**

The Moore’s Creek Distinctive Communities Project calls for the installation of a series of watershed trash traps to be installed at two sections of Moore’s Creek where large amounts of trash from stormwater runoff, trail users, and the surrounding residential communities, lands in the watershed and ultimately flows towards and into the Indian River Lagoon. The netting attached to each trash trap would continuously capture debris immediately as the debris flows through the culverts, preventing further travel through the watershed. Once the nets fill, they would be emptied by the City’s Public Works Department and the trash would be properly discarded. This project would immediately improve the aesthetics of the Creek’s waters and the surrounding community and would ward off hundreds of pounds of trash from ever reaching the IRL.

**Map and Photos: (attached to email)**

**Key Outputs (Deliverables):**

<table>
<thead>
<tr>
<th>Deliverable</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>Project initiated; RFP issued; contractors selected (if applicable)</td>
<td>Copy of RFP, signed contract, and statement of reasoning for contractor selection</td>
</tr>
<tr>
<td>Site locations and boundaries identified Design considerations and permit needs; water quality improvement needs/objectives</td>
<td>Location maps of problem areas Site Design Report, permits, water quality improvement objective and goals; project summaries &amp; water quality improvement.</td>
</tr>
<tr>
<td>100% Design Complete</td>
<td>Finalized Design Report</td>
</tr>
<tr>
<td>Determination of Operation and Maintenance</td>
<td>O &amp; M Report</td>
</tr>
<tr>
<td>Assessment Complete</td>
<td>Final Assessment Report</td>
</tr>
<tr>
<td>Monthly watershed trash reduction</td>
<td>3-4 hundred pounds of trash removed monthly</td>
</tr>
<tr>
<td>Ongoing maintenance and upkeep of traps</td>
<td>Official designation of personnel or dept. responsible for ongoing upkeep and maintenance of traps.</td>
</tr>
</tbody>
</table>

**Key Outcomes (Benefits to the IRL):**

<table>
<thead>
<tr>
<th>Outcome</th>
<th>Duration</th>
<th>Benefits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Installation of Trash Traps</td>
<td>Short</td>
<td>Blocks trash as small as 5mm without interrupting the Creek’s waterflow</td>
</tr>
<tr>
<td>Traps are Emptied at frequent intervals</td>
<td>Short-Medium</td>
<td>Removal of products containing oil and other contaminants that contribute to toxic waters; flood mitigation</td>
</tr>
<tr>
<td>Informational Kiosks / Community Outreach</td>
<td>Short/long</td>
<td>Engages community; offers informative water protection information; encourages proper trash disposal</td>
</tr>
<tr>
<td>Cleaning the waters; improving water quality</td>
<td>Short/medium long</td>
<td>Minimize dangers posed to marine and human life</td>
</tr>
</tbody>
</table>
Category 2: Habitat Restoration Proposals
<table>
<thead>
<tr>
<th>Rank</th>
<th>Applicant</th>
<th>Project</th>
<th>Requested Funding</th>
<th>Cost Share Match</th>
<th>Match %</th>
<th>Total Project Cost</th>
<th>Score</th>
<th>Above 70%?</th>
<th>Eligible?</th>
<th>Funding Amount Remaining</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>University of Florida</td>
<td>Restoration of Clam Populations in the Indian River Lagoon for Water Quality Improvement Y4</td>
<td>$197,892.00</td>
<td>$441,716.00</td>
<td>50.5</td>
<td>$639,608.00</td>
<td>182</td>
<td>83%</td>
<td>Y</td>
<td>$197,892.00</td>
</tr>
<tr>
<td>2</td>
<td>City of Stuart</td>
<td>SE Illinois Avenue Living Shoreline Project</td>
<td>$85,000.00</td>
<td>$85,000.00</td>
<td>50</td>
<td>$170,000.00</td>
<td>169</td>
<td>77%</td>
<td>Y</td>
<td>$85,000.00</td>
</tr>
<tr>
<td>3</td>
<td>Indian River County</td>
<td>Phase 4 Restoration for the Lost Tree Island Conservation Area</td>
<td>$50,000.00</td>
<td>$165,804.08</td>
<td>76.8</td>
<td>$215,804.08</td>
<td>160</td>
<td>73%</td>
<td>Y</td>
<td>$50,000.00</td>
</tr>
<tr>
<td>4</td>
<td>Bethune-Cookman University</td>
<td>IRL Seagrass Restoration using Mosquito Control Impoundment</td>
<td>$32,500.00</td>
<td>$37,630.00</td>
<td>53.7</td>
<td>$70,130.00</td>
<td>158</td>
<td>72%</td>
<td>Y</td>
<td>$0.00</td>
</tr>
</tbody>
</table>

- Staff recommends applying surplus funds from Category 1 to fund all Eligible projects in Category 2.
- $165,392 is needed to fund the 3 remaining projects.
Executive Summary

<table>
<thead>
<tr>
<th>Title of Project</th>
<th>Category 2 Habitat Restoration Proposal: Restoration of clam populations in the Indian River Lagoon for water quality improvement</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lead Organization and Partners</td>
<td>University of Florida (lead), St. Johns River Water Management District, Florida Fish and Wildlife Conservation Commission, Coastal Conservation Association, Riverside Conservancy, Blair Wiggins Outdoors, Florida Oceanographic Society</td>
</tr>
<tr>
<td>Project Location</td>
<td>Titusville-Sebastian-Ft. Pierce, and Banana River (80° 48’ W, 28° 43’ N, to 80° 11’ 53” 27° 12’ 02” W)</td>
</tr>
<tr>
<td>Key CCMP Vital Signs</td>
<td>Habitats, Filter Feeders &amp; Seagrasses Living Resources, Fisheries &amp; Harmful Algal Blooms, Water Quality, Impaired Waters, Legacy Loads, and Contaminants</td>
</tr>
<tr>
<td>IRLNEP Contribution and Source</td>
<td>$197,892 IRL Council</td>
</tr>
<tr>
<td>Partner Match</td>
<td>$441,716 – UF (3.5%) SJRWMD (3.1%) CCA (7.7%) FWC (79.2%) RC (6.3%) (total match rate 69%)</td>
</tr>
<tr>
<td>Total Project Cost</td>
<td>$639,608</td>
</tr>
</tbody>
</table>

**Project Description:** Hard clams have historically been significant contributors to healthy water quality in the Indian River Lagoon (IRL) via filter-feeding that both reduces turbidity from algae and detritus and removes organic nutrients from the water column and deposits them in sediments. Unfortunately, overfishing and environmental degradation have led to the collapse of native clam populations in the IRL. We propose to leverage recent environmental stressors (algal blooms, hypoxia) that have naturally selected for the hardiest, most stress resistant filter-feeding bivalves in the IRL, by collecting surviving individuals of historically abundant species (e.g., hard clam, Mercenaria mercenaria / campechiensis) in these environmentally stressed areas for use in ecosystem restoration.

**Key Outputs:** We propose to continue our ongoing efforts (yr 1&2 funded by IRLNEP) to restore filter feeding clam populations in the IRL by: (1) spawning broodstock collected previously from areas identified as highly stressed by deleterious environmental conditions in recent years, making them exceptional genetic stock from which to produce IRL specific stress resistant clams; (2) growing clams to out-plant size in nursery facilities; and (3) repatriating nursery raised native clam populations to selected locations at densities necessary to support successful reproduction, (5) co-planting seagrasses with clams (4) reporting.

**Key Outcomes:** Restoration of clam populations will result in: (1) reduced turbidity and improved water quality, (2) nutrient reduction, (3) improved condition for seagrass recruitment (4) improved performance of co-planted seagrass.
Executive Summary

<table>
<thead>
<tr>
<th>Title of Project</th>
<th>SE Illinois Avenue Living Shoreline Project</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lead Organization and Partners:</td>
<td>City of Stuart, Tim Voelker, P.E.</td>
</tr>
<tr>
<td>Project Location:</td>
<td>The project is located at the north end of SE Illinois Avenue in Stuart, FL Latitude 27°11’57.81”N, Longitude 80°14’42.70”W</td>
</tr>
<tr>
<td>Key CCMP Vital Signs(s)</td>
<td>Living Shorelines, Impaired Waters, and Stormwater</td>
</tr>
<tr>
<td>IRLNEP Contribution and Source:</td>
<td>$85,000.00, IRL Council</td>
</tr>
<tr>
<td>Partner Match:</td>
<td>$85,000.00 (50%) Match</td>
</tr>
<tr>
<td>Total Project Cost:</td>
<td>$170,000.00</td>
</tr>
</tbody>
</table>

Project Description:
The project is in the City of Stuart, Florida, in the St. Lucie River drainage basin. With this project, a Living Shoreline will be installed to protect against erosion and to provide habitat for marine species and wading birds. The Living Shoreline plantings will also provide nutrient removal from the existing stormwater discharge entering the river at this location. A Buffered Shoreline will be constructed at the north end of SE Illinois Avenue to provide filtration for stormwater runoff from the northern portion of the SE Illinois Avenue right-of-way and adjacent properties. The project is important for the City of Stuart to continue progress towards resiliency and meeting BMAP requirements for the St. Lucie River. The conceptual design of this project is complete.

Map and Photo(s):
As instructed, a Project Location Map and Photo are attached to this application.

Key Outputs (Deliverables):
Living Shorelines-1: RESEARCH and REPORT science-based siting, planning, design, and construction criteria.
Living Shorelines-3: RESEARCH and REPORT on living shoreline information.
Impaired Waters-2: Work with BMAP Partners and DEP to support implementation of BMAPs and track progress, compliance, and implementation challenges.
Stormwater-5: Upgrade existing urban and agricultural stormwater infrastructure networks to reduce freshwater discharges, nutrient loads, and other pollutants to the IRL.

Key Outputs Benefits:
Short term (1-2 years): This project will also serve as a model project for future Living Shoreline projects within the City of Stuart and is part of the City of Stuart’s continuing effort to implement strategies to improve the quality of runoff entering the St. Lucie River and to advance toward BMAP goals.
Medium-term (3-4 years): Continuing to provide erosion protection, and restoring natural shoreline habitat, and to serve as a model project for future City of Stuart Living Shoreline projects.
Long-term (5-10+ years): Continuing to provide erosion control benefits and provide shoreline habitat, in addition to serving as a model project for other City of Stuart Living Shoreline projects.
**PHASE 4 RESTORATION FOR THE LOST TREE ISLAND CONSERVATION AREA (EARMAN ISLAND)**

<table>
<thead>
<tr>
<th>Lead Organization</th>
<th>Indian River County</th>
</tr>
</thead>
<tbody>
<tr>
<td>Project Location</td>
<td>508-acre site is located in Indian River County at 27°40'21.86&quot;N &amp; 80°22'42.60&quot;W in the Central IRL.</td>
</tr>
<tr>
<td>Key CCMA Vital Sign(s)</td>
<td>Wetlands 4; Spoil Island 2; Land 1; Biodiversity 1,3; Species of Concern 4; Invasive Species 1,2; Climate-ready Estuary 2; Trash-Free waters 1; Communicate 1.</td>
</tr>
<tr>
<td>IRLNEP Contribution and Source</td>
<td>$50,000, IRL Council</td>
</tr>
<tr>
<td>Partner Match</td>
<td>$165,804.08</td>
</tr>
<tr>
<td>Total Project Cost</td>
<td>$215,804.08</td>
</tr>
</tbody>
</table>

**Project Description:** In 2019 the IRLC provided funding for the development of design and engineering plans and construction specifications for the ecological enhancement of the three large islands within the LTICA. These islands include: Duck Head Island ~ 60.4 Acres; Joe Earman Island ~ 68.6 Acres; and Hog’s Head Island ~ 48.4 Acres. This completed design is planned to be submitted to obtain required permits for construction in early 2022. To accelerate the restoration process, the County is moving forward with enhancement work that does not require State or federal permits.

Restoration phases 1 through 3 on Duck Head Island are underway. This IRLNEP 2022/23 application includes Phase 4, which is planned to occur on Earman Island. The 13.7 acres of restoration work on Earman Island will follow a similar approach as planned for Phases 1 and 2 on Duck Head Island. Portions of the western side of Earman Island will be mechanically treated and re-vegetated with native species. The mechanically treated areas will be managed to minimize establishment of opportunistic undesirable species within the mulched areas for a period of at least six months prior to planting. A diverse array of native plants will be installed in mulched areas within transitional wetland and hammock areas. Re-vegetation is planned to coincide with the wet season (June to September) to maximize survivorship of planted materials. Phase 4 also will include the treatment of exotics within the existing mangroves fringing Earman Island.

**Key Outputs:** The deliverable for the project will be completion of the 13.7 acres of upland enhancement, which will be summarized in the interim and final reports provided to the IRLC. The enhanced uplands will be monitored and maintained by County staff and contractors. The initial report will provide a detailed description and photographs documenting the pre-restoration conditions; representative photos of mechanical treatment completed; photographs of the restoration areas prior to planting; and photographs of the re-vegetated areas. Interim and final reports will be provided to provide updates on the progress of the restoration.

**Key Outcomes:** The project will provide resource benefits to the IRL via the creation and enhancement of transitional wetlands, coastal hammock, and estuarine wetlands. These communities will provide many ecological and public benefits to the IRL including the short-term and medium-term outcomes such as: increased biodiversity; creation of potential spoil island habitat not common to the area; the removal of exotic species; providing potential refuge for protected wildlife species; sustainable communities; re-vegetating with native upland species; and debris removal. Added long-term benefits of the project include: wetland restoration and enhancement, and expanded public educational opportunities.
Title of Project (Montserrat Font) | IRL Seagrass Restoration using Mosquito Control Impoundment
---|---
Lead Organization and Partners: | Bethune-Cookman Univ., Brevard County Mosquito Control, Florida Fish & Wildlife Conservation Commission
Project Location | North Siphon Impoundment in Indian River Lagoon Preserve State Park (27.94352229, -80.50403877)
Key CCMP Vital Sign(s): | Seagrasses, Connected Waters, Species of Concern, Biodiversity, Science & Technology Innovation, State of The Lagoon, Monitoring and Data
IRLNEP Contribution and Source: | $32,500, IRL Council
Partner Match: | Total $37,630.15 (53.66%); $9,399 (BCU in-kind); $3,271.14 (BCMC in-kind) $24,960 (FWC-cash-pending)
Total Project Cost: | $70,130.15

**Project Description:** This proposed project will (1) establish a population of a native seagrass species *Ruppia maritima* in a mosquito impoundment; (2) monitor the restored impoundment to assess its character as a natural seagrass nursery and a source for IRL seagrass re-colonization and succession; and (3) develop and share protocol of guide and strategy toward IRL seagrass restoration using impoundment hydrology and *Ruppia* phenology. Success measures will be made through estimating production of reproductive shoots, flowers, seeds from the transplants as well as expansion of the transplanted area along the seasonal hydrologic regime.

**Map and Photo(s):** Attached. North Siphon Impoundment is located in Indian River Lagoon Preserve Park in Brevard County. The total surface impounded area is 17 acres with a 1.11 acres reservoir in the south; of which, the southwestern portion has shallower water and sandy substrates (~0.55 acres). *Ruppia maritima* will be transplanted in the shallow sandy substrates during a low water period (Jan-Mar 2013) and will be monitored.

**Key Outputs (Deliverables):**

1. **Restoration of seagrass in the mosquito control impoundment** A total of 4,000 mechanical planting units (MPU; see attached photo) will be installed on 0.5-meter (~20 in.) centers in the impoundment. The total restoration area will be around 11,000 sq. ft. Once rooted and mature, the transplants will establish a seagrass source population for IRL.

2. **Protocol and Technical transfer:** This proposed restoration method employs unique natures of seasonal impoundment hydrology and biology of *Ruppia maritima*. A protocol of the technique using *Ruppia* and impoundments will be developed and published both electronically and in prints, which will be also shared through a workshop, invited lectures, conference presentations, and a journal publication.

**Key Outcomes (Benefits to the IRL):**

1. Natural dispersal of *Ruppia* seeds and reproductive shoots from backwaters into main estuarine areas has been documented in other locations (short-term benefits); and both natural and controlled dispersal from the proposed restored area into IRL is expected as a result of this project (medium- to long-term benefits). This fast-growing seagrass promotes ecological succession by reducing turbidity/erosion for growth of other seagrass-dependent organisms that require stable habitat conditions (medium- and long-term benefits). 

2. The protocol and technique developed will be applicable in other locations within IRL for broader adoption and implementation in other impoundments (short-, medium- and long-term benefits).
Category 3: Community-Based Restoration Projects
### CATEGORY 3: COMMUNITY-BASED HABITAT RESTORATION

<table>
<thead>
<tr>
<th>Rank</th>
<th>Applicant</th>
<th>Project</th>
<th>Requested Funding</th>
<th>Cost Share Match</th>
<th>Match %</th>
<th>Total Project Cost</th>
<th>Score</th>
<th>Above 70%?</th>
<th>Eligible?</th>
<th>Funding Amount</th>
<th>Category Total Remaining</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Marine Discovery Center</td>
<td>Enhancement of Habitat and Biodiversity with Non-Plastic Restoration Materials in Mosquito Lagoon</td>
<td>$99,000</td>
<td>$170,722</td>
<td>63.3</td>
<td>$269,722</td>
<td>224</td>
<td>93</td>
<td>Y</td>
<td>$99,000.00</td>
<td>$101,000.00</td>
</tr>
<tr>
<td>2</td>
<td>Brevard Zoo</td>
<td>Restore Our Shores: Community-Based Seagrass Restoration in the Indian River Lagoon</td>
<td>$60,000</td>
<td>$124,496</td>
<td>67.5</td>
<td>$184,496</td>
<td>197</td>
<td>82</td>
<td>Y</td>
<td>$60,000.00</td>
<td>$41,000.00</td>
</tr>
<tr>
<td>Category 3 - Community-Based Restoration Proposal: Enhancement of Habitat Health and Biodiversity with Non-Plastic Restoration Materials in Mosquito Lagoon</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>---</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
| **Lead Organization & Partners:** | Jessy Wayles, Marine Discovery Center (Lead Organization)  
Dr. Linda Walters, University of Central Florida  
Dr. Melinda Donnelly, University of Central Florida |
| **Project Location:** | Mosquito Lagoon for 800’ living shoreline stabilization and 4 restored oyster reefs (29°04’18.97"N, 80°54’58.15"W; 28°44’16.1"N, 80°45’08.21"W), Shuck & Share based at Marine Discovery Center, New Smyrna Beach, FL (29°03’61.29"N, 80°91’80.38"W). |
| **Key CCMP Vital Signs:** | Filter Feeder, Living Shorelines, Biodiversity, Climate-Ready Estuaries, Trash Free Waters, Citizen Engagement and Education, Monitoring and Data Sharing |
| **IRLNEP Contribution & Source:** | $99,000 |
| **Partner Match:** | $170,772 |
| **Total Project Cost:** | $269,772 |

**Project Description:** This project will improve water quality (reduce nutrients, increase clarity) and increase resiliency of IRL to sea level rise and storm surge by restoring 4 (~0.25 acre) oyster reefs and stabilizing 800 feet of eroded shoreline in Mosquito Lagoon. We will continue our highly successful, community-based, and partner-driven restoration and monitoring efforts; oyster restoration has run continuously since 2007 and living shoreline stabilization since 2010. Marine Discovery Center has worked with 4,300+ volunteers on the Shuck and Share program, collecting 700,000 lbs of shell and producing 11,000 more efficient restoration and less plastic deployed in the IRL.

**Map and Photos:** Map of restoration/stabilization locations and photos of materials provided as attachments.

**Key Outputs (Deliverables):**

- **Deliverable 1:** 4 restored oyster reefs (~0.25-acre footprint) in Mosquito Lagoon using BESE™ biodegradable mesh with oyster shell attached with stainless wire or pH-balanced cement/jute patties.
- **Deliverable 2:** 800 linear feet of living shoreline in Mosquito Lagoon with cement/jute-based volcano shaped breakwaters or steel mesh bags filled with oyster shell designed specifically for IRL waters.
- **Deliverable 3:** Recycle 90,000 pounds of oyster shell through the Shuck & Share Program.
- **Deliverable 4:** A minimum of 20 community restoration preparation events and 10 deployment events
- **Deliverable 5:** Quarterly and final reports to IRLNEP with project progress and pre- and post-monitoring results.

**Key Outcomes (Benefits to the IRL):**

- **Restored oyster reefs in Mosquito Lagoon:** Short-term: 10,000 live oysters; Mid-term: 20,000 live oysters; Long-term: 40,000 live oysters
- **Living shoreline in Mosquito Lagoon:** Short-term: 1000 plants and 0.5 cm accretion of sediment; Mid-term: Plant retention and 1-2 cm accretion; Long-term: Retention of reproductive plants and 4 cm accretion
- **Recycle and distribute oyster shell through the Shuck & Share Program:** Short-term: Reduction of waste in landfills; Mid-term: Increased capacity for oyster-based restoration projects in IRL; Long-term: Stable source of shell for regional IRL restoration.
- **Community events:** Short-term: Community stakeholder engagement of 500+ individuals (2000 hours) in entire restoration process from shell recycling to deployment and monitoring; Mid-term: Enhanced protection of IRL through volunteer education; Long-term: Increased water quality and shoreline and oyster reef habitats.
- **Quarterly and final reports:** Short-term: Evaluation of oyster reef and living shoreline success and biodegradable materials effectiveness in IRL; Mid-term: Increased awareness of the effectiveness of biodegradable restoration materials and methods; Long-term: More efficient restoration and less plastic deployed in the IRL.
Executive Summary

<table>
<thead>
<tr>
<th>Title of Project:</th>
<th>Restore Our Shores: Community-Based Seagrass Restoration in the Indian River Lagoon</th>
</tr>
</thead>
</table>
| Lead Organization and Partners: | **Lead:** East Coast Zoological Society of Florida d/b/a Brevard Zoo (ECZS)  
Contact: Luke Dumas, 8225 N Wickham Rd, Melbourne, FL 32940, 321-354-9453 ext. 508, LDumas@brevardzoo.org  
**Partners:** Seagrass Ecosystems Analysts; Don Deis, Independent Contractor; Hubbs-SeaWorld Research Institute (HSWRI) |
| Project Location: | Seagrass nursery will be constructed on HSWRI property at 4020 S. Hwy A1A, Melbourne Beach, FL 32951. Seagrass planting will take place throughout the Brevard County portion of the Indian River Lagoon, at or around 28°23’09.6"N 80°41’31.1"W. |
| Key CCMP Vital Sign(s): | “Seagrasses” (Level 1: Critical); “Citizen Engagement and Education” (Level 2: Serious) |
| IRLNEP Contribution and Source: | $60,000, IRL Council |
| Partner Match: | ECZS - $82,896 (45%)  
Seagrass Ecosystems Analysts - $20,800 (11%)  
Don Deis, Independent Contractor - $20,800 (11%)  
Hubbs-SeaWorld Research Institute - $0 (0%) |
| Total Project Cost: | $184,496 |

**Project Description:**
East Coast Zoological Society of Florida (ECZS) will stabilize seagrass populations in the Indian River Lagoon (IRL) through a two-pronged approach to seagrass restoration: (1) ECZS will construct a seagrass nursery at the Hubbs-SeaWorld Research Institute using starter stock from a third-party restoration group. This nursery will include multiple tanks and a pump setup that utilizes lagoon water, and will be capable of producing 4,800 square feet of seagrass annually. (2) Using seagrass from the nursery, ECZS will plant 24 seagrass beds, totaling 4,800 square feet, throughout the IRL.

**Map and Photo(s):**
Please see attached.

**Key Outputs (Deliverables):**
- Construction of a sustainable seagrass nursery capable of producing 4,800 square feet of seagrass per year.
- Planting of 24 seagrass beds throughout IRL totaling 4,800 square feet.
- Report of findings/replicable model that highlights best practices for site selection and planting seagrass.
- 50 volunteers engaged in 300 hours of seagrass planting, monitoring, and water quality data collection.

**Key Outcomes (Benefits to the IRL):**
- **Short-Term (1-2 years):**
  - 4,800 square feet of habitat restored.
  - Report of findings/replicable model including science-based site identification and planting techniques.
  - Creation of seagrass nursery to provide seagrass for restoration project for years to come.
  - Removal of 4.656 pounds of nitrogen from Indian River Lagoon annually.
- **Medium-Term (3-4 years):** Continued provision of 4,800 square feet of seagrass for restoration in the IRL.
- **Long-Term (5-10+ years):**
  - Reestablishment of lost seagrass beds.
  - Decrease in Florida manatee deaths reported by FWC.
Category 4: Science and Innovation Projects
### CATEGORY 4: SCIENCE AND INNOVATION

<table>
<thead>
<tr>
<th>Rank</th>
<th>Applicant</th>
<th>Project</th>
<th>Requested Funding</th>
<th>Cost Share</th>
<th>Match %</th>
<th>Total Project Cost</th>
<th>Score</th>
<th>Above 70%?</th>
<th>Eligible?</th>
<th>Category Total Remaining</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Florida Institute of Technology</td>
<td>A Preliminary Characterization of Microcystin in Coastal-Dwelling Mammals in the Indian River Lagoon, Florida</td>
<td>$30,039.00</td>
<td>$30,039.00</td>
<td>50</td>
<td>$60,078.00</td>
<td>173.2</td>
<td>79%</td>
<td>Y</td>
<td>$30,039.00</td>
</tr>
<tr>
<td>2</td>
<td>Florida Institute of Technology</td>
<td>Suffocating Sand; Mapping Hypoxia and its Impacts on Benthic Nutrient Fluxes in the IRL</td>
<td>$73,898.00</td>
<td>$36,900.00</td>
<td>33.3</td>
<td>$110,798.00</td>
<td>173.1</td>
<td>79%</td>
<td>Y</td>
<td>$69,961.00</td>
</tr>
<tr>
<td>3</td>
<td>University of Florida</td>
<td>Enhancing Living Shorelines: How can we manipulate Spartina alterniflora plantings to improve impaired waters by stabilizing sediment and reducing nutrients?</td>
<td>$99,618.00</td>
<td>$34,601.00</td>
<td>25.8</td>
<td>$134,219.00</td>
<td>161.9</td>
<td>74%</td>
<td>Y</td>
<td>$119,059.00</td>
</tr>
<tr>
<td>4</td>
<td>University of Central Florida</td>
<td>Unintended Consequences: Are Non-Plastic Materials Now Used in Coastal Restoration Always Better for the Indian River Lagoon?</td>
<td>$60,435.00</td>
<td>$20,208.00</td>
<td>25</td>
<td>$80,643.00</td>
<td>156.0</td>
<td>71%</td>
<td>Y</td>
<td>$80,643.00</td>
</tr>
<tr>
<td>5</td>
<td>The Manatee Observation and Education Center</td>
<td>Manatee Observation and Education Center Seagrass Restoration Project</td>
<td>$39,875.00</td>
<td>$79,184.00</td>
<td>66.5</td>
<td>$119,059.00</td>
<td>155.5</td>
<td>71%</td>
<td>Y</td>
<td>$119,059.00</td>
</tr>
<tr>
<td>6</td>
<td>Ocean Research &amp; Conservation Association, Inc.</td>
<td>A Novel Approach to Distinguish Among Human Waste Sources Using a Pollutant Source Tree Model</td>
<td>$45,000.00</td>
<td>$19,590.00</td>
<td>30.3</td>
<td>$64,590.00</td>
<td>140</td>
<td>64%</td>
<td>N</td>
<td>$64,590.00</td>
</tr>
<tr>
<td>7</td>
<td>Nature Folk Inc.</td>
<td>Inclusion of St. Lucie Watershed into Go Hydrology</td>
<td>$6,000.00</td>
<td>$9,000.00</td>
<td>60</td>
<td>$15,000.00</td>
<td>69</td>
<td>31%</td>
<td>N</td>
<td>$15,000.00</td>
</tr>
</tbody>
</table>

- Staff recommends fully funding project 2 with the surplus from category 1 funding and recommends projects 3-5 be funded as IRL Council funding becomes available from BIL funding being allocated to projects already in progress with Council Funds.
Executive Summary

Title of Project: A Preliminary Characterization of Microcystin in Coastal-Dwelling Mammals in the Indian River Lagoon, Florida

Lead Organization and Partners: Lead: Florida Institute of Technology; Partners: Hubbs SeaWorld Research Institute, Harbor Branch Oceanographic Institute

Project Location: IRLNEP watershed and the IRL-Halifax Buffer Planning Boundary

Key CCMP Vital Sign(s): Harmful Algal Blooms, Monitoring and Data, Science and Technology Innovation

IRLNEP Contribution and Source: $ 30,039, IRL Council

Partner Match: 50% match by Florida Institute of Technology

Total Project Cost: $ 60,078

Project Description: Aquatic mammals inhabiting the Indian River Lagoon (IRL) can serve as indicators of human and environmental health by exposing the presence and deleterious effects of harmful algal bloom (HAB) toxins. Microcystin (MC), a potent hepatotoxin produced by the cyanobacteria *Microcystis*, is a toxin of emerging concern in the IRL. However, susceptible aquatic mammals are not routinely evaluated for MC toxicity, severely limiting our understanding of the occurrence and health consequences of chronic exposure. The study will measure MC levels in tissues and bodily fluid and correlate findings to health biomarkers in stranded bottlenose dolphins and river otters in the IRL. Findings of this study will serve as a critical preliminary step to describe exposure risks and inform future research and monitoring for the safety of humans and wildlife that utilize IRL waters. Expected outcomes for publication include 1) MC quantification in IRL aquatic mammal liver tissue, the primary target organ for toxicity and screening, 2) MC quantification in subcutaneous tissue and respiratory secretions, potential novel sample sites for future, minimally-invasive screening in free-ranging wildlife populations, 3) correlation of MC exposure with the incidence and degree of systemic injury and stress for use as health biomarkers, and 4) establishment of a preliminary chronic MC toxicity profile considering sample type and seasonal variations as a barometer for current interventions and future research within the IRL.

Maps and Photo(s): See attached

Key Outputs (Deliverables):
1) Peer-reviewed manuscript submissions, 2) locally disseminated data reports, and 3) professional presentations describing the following findings in IRL aquatic mammals: a) MC detectability, load, and trends, establishing preliminary reference ranges based on sample type, b) systemic health status correlated to MC load, c) "proof of concept" evaluation of utilizing novel, minimally-invasive sample sites for future MC screening in free-ranging populations.

Key Outcomes (Benefits to the IRL):
1) An improved understanding of the health challenges faced by coastal-dwelling mammals inhabiting the IRL can inform management decisions of veterinarians, biologists, public health officials, and policymakers to help reduce MC exposure risks (short-term)
2) Data regarding MC bodily load and concurrent health state can serve as a foundation for future biomonitoring (short- to long-term)
3) Support for future implementation of novel MC screening in free-ranging aquatic mammals using subcutaneous biopsy and respiratory secretions (short- to long-term)
4) Training of citizen scientists and students in laboratory methods and wildlife health (short-term)
Title of Project: Suffocating Sand; Mapping Hypoxia and its Impacts on Benthic Nutrient Fluxes in the IRL.

Lead Organization and Partners:
- **Lead Organization:** Florida Tech (Austin Fox Ph.D).
- **Partners:** Brevard County Department of Natural Resources (Virginia Barker); Brevard Zoo (Tyler Provoncha); Cocoa Beach (Kelsey Mack).

Project Location:
This project will be carried out in the IRL/BRL between the Eau Gallie and the Cocoa Beach causeways (Figure ES1, Attachment A). 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:
- $73,898, IRL Council

Partner Match:
- $12,000 (FIT) + 24,900 (Brevard County) = (33% of total)

Total Project Cost:
- $110,798

Project Description:
One of the most far-reaching and ubiquitous perturbations in the lagoon has been largely understudied and is not yet well understood; the expanding extent and duration of hypoxia with associated impacts to nutrient cycling, eutrophication and loss of ecosystem services. This study will use a relatively low-cost network of continuous monitoring stations to track the extent, duration and movement of bottom water dissolved oxygen (DO) and hypoxia in the IRL. Resulting data coupled with nutrient fluxes determined using benthic chambers at sites co-located with DO monitors will help link nutrient cycling to changes in DO. Previous efforts have shown that during hypoxic events, healthy sediments switch from a sink to a source of nitrogen and can release large pulses of phosphorus. This study will focus on degraded areas between the Eau Gallie and Cocoa Beach Causeways supporting listed water quality monitoring efforts (nutrient and DO) within the Central IRL and Banana River BMAPs (WBID 2963C). This study will leverage and build upon limited monitoring carried out as part of partner and cost-share projects and will use the collective dataset to evaluate trends for DO against variations in lagoon morphology, muck distribution and circulation patterns. These synergistic efforts plus high resolution data and interpretations will help project partners and others to better select restoration sites with higher probabilities of success (e.g., Oyster Habitat Suitability Index) thereby promoting greater coastal resilience and improved water quality while addressing the IRLNEP 2023 priorities, action items and the 2030 CCMP priority areas.

Map and Photo(s): Attached JPEG image per proposal guidelines (Figure ES1, Attachment A).

Key Outputs (Deliverables):
Publicly available datasets for DO and reports showing the extent and duration of hypoxia plus N and P fluxes in relation to lagoon morphology, bottom composition and circulation patterns.

Key Outcomes (Benefits to the IRL):
- **Short term:** quantifying the extent and duration of hypoxia in sub-basins of the IRL.
- **Medium term:** enhanced site selection for restoration (e.g., determination of HSI) by project partners plus others and developing a mechanisms to track the success of restoration projects.
- **Long term:** improved water, sediment and habitat quality resulting from informed placement and enhanced success of restoration projects.
Title of Project: Enhancing living shorelines: How can we manipulate *Spartina alterniflora* (smooth cordgrass) plantings to improve impaired waters by stabilizing sediment and reducing nutrients?

Lead Organization and Partners: University of Florida, FL SeaGrant, with logistic support from FL Fish and Wildlife Commission

Project Location: Living Shorelines and natural marshes within the Indian River Lagoon Estuary Program, including New Smyrna Beach (29.0367333333, -80.9180638889), and North Peninsula State Park (29.406142, -81.098354).

Key CCMP Vital Sign(s): Project addresses several priority vital signs, including *Impaired Waters*, *Seagrass*, and *Harmful Algal Blooms*, and addresses other vital signs; *Living Shorelines*, *Climate Ready Estuaries*, and *Biodiversity*.

IRLNEP Contribution: $99,618.00

Partner Match: UF: $34,601.00 (35%)

Total Project Cost: $134,219.00

**Project Description:** This project will help optimize living shoreline (LSL) functions by identifying planting design specifications that promote sediment trapping and habitat. We will model how vegetation traits and planting design affect those goals, and assess how plant source, spacing, and density impact goals. Project locations include LSLs and natural marshes within the boundaries of the Indian River Lagoon National Estuary Program Watershed Boundary and the IRL-Halifax Buffer Planning Boundary, and include the New Smyrna Beach Saltmarsh Restoration and the North Peninsula State Park (additional sites selected using the Florida DEP Living Shoreline database¹ and the Shoreline Restoration Suitability Model²). Resulting guidance specifying optimal planting density, spatial arrangement, and plant material, will be co-developed and disseminated with managers.

**Map and Photo(s):** Two key sites will support the plant survey work for this proposal: New Smyrna Beach, planted with Spartina in 2014 and currently serving as a Spartina nursery for other projects and North Peninsula State Park, planted in 2010, 2012, 2013 and 2015. (map and photos attached to email submission).

**Key Outputs (Deliverables):** Increased nutrient reduction and sediment trapping for future LSL projects in the IRL (quantification will be a component of this project).

**Key Outcomes (Benefits to the IRL):** Short term: needed tools to optimally implement LSLs. Medium term: increased sediment trapping, nutrient retention and habitat. Long term: improved water quality (less *Impaired Waters*, fewer *Harmful Algal Blooms*, increased *Seagrass*), improved habitat (for *Biodiversity*), and enhanced function for *Living Shorelines*.
EXECUTIVE SUMMARY

**Title of Project:** Category 4 Science and Innovation Proposal: Unintended Consequences: Are Non-Plastic Materials Now Used in Coastal Restoration Always Better for the Indian River Lagoon?

**Lead Organization & Partners:** University of Central Florida

**Project Location:** Mosquito Lagoon (28°54’24”N, 80°49’16”W)

**Key CCMP Vital Sign(s):** ONE LAGOON; Water Quality: Contaminants of Concern; Habitat Quality: Filter Feeders, Living Shorelines; ONE COMMUNITY: Trash-Free Waters; ONE VOICE: Monitoring and Data Sharing

**IRLNEP Contribution & Source:** $60,435, IRL Council

**Partner Match:** $20,208 from UCF (25.06%)

**Total Project Cost:** $80,643

**Project Description:** Many estuarine restoration projects have utilized aquaculture grade plastics. Use of plastic materials has recently come into question due to research documenting the prevalence and negative effects of plastics in estuaries, with the IRL being a hotspot for microplastics in waters and filter-feeding animals. To address this concern, Florida’s restoration practitioners have embraced non-plastic alternatives and this shift in materials is supported by FL DEP and State Aquatic Preserves. Funding agencies, including IRLNEP and FL FWCC, likewise discourage new projects using plastics, further expanding deployment of alternative materials. However, we are currently missing the critical step of assessing the ecological impacts of these alternative materials before these new innovations are widely utilized. Many non-plastic materials are designed from organic substances to be biodegradable; thus, these materials release compounds into estuarine waters and sediments as the materials decompose. Our team was the first to quantify releases of substantial carbon, nitrogen, and phosphorous from BESE™ elements (Sustainability, July 2021). However, nothing is known about the contribution of BESE™ and other new materials to estuarine nutrient and heavy metal loads over longer time periods. Our study addresses this knowledge gap by conducting chemical analyses of compounds released by non-plastic materials used in restoration throughout the IRL. With continued expansion of restoration utilizing non-plastic materials, there is an urgent need to investigate potential nutrients and chemical compounds being introduced into our estuaries by these materials. This knowledge will prevent unintentional consequences to IRL’s physical and biological communities.

**Map and Photos:** A) Map: The project location spans multiple oyster reefs and living shoreline stabilization sites within Mosquito Lagoon (ML). B) Photos: Non-plastic materials deployed in ML.

**Key Outputs (Deliverables):** 1: Chemical analyses of components released during breakdown of non-plastic materials used in estuarine restoration. 2: Dissemination of research findings through peer-reviewed publications. 3: Quarterly/final reports.

**Key Outcomes (Benefits to the IRL):** Deliverable 1: Short, identification of biodegradable materials with limited vs substantial nutrient and heavy metal impacts on IRL; Mid, data to compare to other novel materials; Long, large-scale adoption of the optimal biodegradable materials in the IRL. 2: Short, dissemination of results to scientific community; Mid, data-informed restoration projects in the IRL; Long, improved quality of water, sediments, and restored habitats. 3: Short, communication of results and progress to IRLNEP; Mid, new knowledge base for IRLNEP management decisions and prioritization; Long, fuel for additional research by others about the ecological effects of non-plastic restoration materials.
Executive Summary

<table>
<thead>
<tr>
<th>Title of Project</th>
<th>Manatee Observation and Education Center Seagrass Restoration Project</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lead Organization and Partners:</td>
<td>The Manatee Observation and Education Center (MOEC) and Sea &amp; Shoreline, LLC</td>
</tr>
<tr>
<td>Project Location:</td>
<td>The project takes place in the tidal portion of Moores Creek and along the adjacent shoreline - 27°27'5.25&quot;N 80°19'24.14&quot;W</td>
</tr>
<tr>
<td>Key CCMP Vital Sign(s):</td>
<td>Seagrasses, Biodiversity, Species of Concern, Science &amp; Technology Innovation</td>
</tr>
<tr>
<td>IRLNRP Contribution and Source:</td>
<td>$39,875, IRL Council</td>
</tr>
<tr>
<td>Partner Match:</td>
<td>$58,750, TCMF</td>
</tr>
<tr>
<td></td>
<td>$20,434 (in-kind), MOEC</td>
</tr>
<tr>
<td>Total Project Cost:</td>
<td>$119,059</td>
</tr>
</tbody>
</table>

Project Description: This project aims to restore approximately one acre of seagrass to Moores Creek, a tributary to the IRL, and enhance an additional 0.5 acres of adjacent seagrass community. The project also aims to examine the effectiveness of several cost-effective seagrass restoration methods to assist in the design and scalability of large-scale seagrass restoration projects in the IRL. These methods include supplemental planting, bioturbation control, and a sediment amending growth enhancement (SAGE) treatment.

Key Outputs (Deliverables):

1. The restoration of one acre of seagrass habitat in Moores Creek, a tributary to the IRL.
2. An increase in biomass of seagrass communities found adjacent to the project site.
3. Data demonstrating the effectiveness of three cost-effective seagrass restoration/biomass enhancement techniques that can be replicable in large-scale restoration efforts.
4. Data analyzing changes in manatee visitation frequency and behavior before, during, and after seagrass restoration in Moore's Creek.

Key Outcomes (Benefits):

1. The short-term benefit is the restoration of approximately 1.5 acres of seagrass communities within the IRL. Restored seagrass meadows will provide many ecosystem benefits including habitat and foraging for a diverse group of marine organisms.
2. The medium-term benefit is the creation of self-sustaining seagrass meadows in the IRL as a result of many restoration projects that build off the data collected through pilot efforts such as this project.
3. The long-term benefit is an improvement to the health of the IRL as seagrass meadows from restoration projects continue to have positive feedback on existing seagrass habitat until critical thresholds for seagrass occurrence in the IRL are met. Restored seagrass meadows contribute towards biodiversity, water clarity, and nutrient sequestration.
A novel approach to distinguish among human waste sources using a pollutant source decision tree model

Lead Organization and Partners
Ocean Research & Conservation Association, Inc. (ORCA)

Project Location
Entire Lagoon (156 miles)

Key CCMP Vital Sign(s)
One Lagoon: Water Quality - Wastewater, Impaired Waters, & Contaminants
Habitats - Connected Waters
Living Resources - Harmful Algal Blooms
One Voice: Communicate - Collaborate - Coordinate - Science & Technology Innovation

IRLNRP Contribution and Sources
$45,000

Partner Match
$19,590

Total Project Cost
$64,590

**Project Description**
Our goal is to create a standardized protocol for distinguishing between septic tank output and wastewater sources, including raw sewage, reclaimed water, and biosolids. The established method will help pinpoint sources of anthropogenic waste entering the lagoon. These products are known to contain contaminants and nutrients which can lead to harmful algal blooms.

**Key Outputs**
Identification of Pollution Sources: ORCA will identify numerous compounds that are not being removed through current treatment by septic systems and at wastewater facilities. ORCA plans to categorize these compounds based on their use: pharmaceuticals and personal care products (PPCBs), endocrine disruptor chemicals (EDCs), artificial sweeteners, heavy metals, etc. Simultaneously, compounds will be grouped by the product they were identified in: raw sewage, on-site sewage systems (i.e. septic systems), reclaimed water, and biosolids.

Analyzing Ratios: ORCA will examine ratios of nutrients and contaminants to aid in identifying sources in environmental water samples.

Decision Tree Model: Based on the previously identified sources and ratios of pollutants leaving septic tanks and WWTPs, ORCA will produce a decision tree model to distinguish among most likely sources of contaminants.

Analysis of Treatment Types: Due to the nature of this study, ORCA will be able to compare wastewater treatment types. ORCA can then provide information regarding the best strategies for the health of the IRL and its inhabitants.

**Key Outcomes**
Short-Term Benefits: This project will assist in identifying sources of pollution entering the IRL. The information provided will permit decision-makers to better prioritize the funding needed to stop pollution at its source.

Long-Term Benefits: The decision tree produced by this project can easily be adjusted to fit localized needs. It can also evolve as new technologies develop thereby ensuring the longevity of this significant tool for reducing pollution loads entering the IRL.
Executive Summary
Inclusion of St. Lucie Watershed into Go Hydrology
Nature Folk Inc, a 501(c)(3) non-profit organization
Submitted in December 2020

<table>
<thead>
<tr>
<th>Title of Project</th>
<th>Inclusion of St. Lucie Watershed into Go Hydrology</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lead Organization</td>
<td>Nature Folk Inc, a 501(c)(3) non-profit organization</td>
</tr>
<tr>
<td>Project Location</td>
<td>St. Lucie River and Watershed</td>
</tr>
<tr>
<td>Key CCMP Vital Signs</td>
<td>Hydrology and Hydrodynamics, Connected Waters and Watersheds, Monitoring and Data Sharing</td>
</tr>
<tr>
<td>IRLNNEP Contribution and Source</td>
<td>$6,000</td>
</tr>
<tr>
<td>Partner and Match</td>
<td>Nature Folk Inc</td>
</tr>
<tr>
<td>Total Project Cost</td>
<td>$15,000</td>
</tr>
</tbody>
</table>

Project Description
The proposed project will bring the St. Lucie water cycle to life using Go Hydrology’s (https://gohydrology.org) “water cycle” approach, brought to you by the overarching 501(c)(3) non-profit organization called Nature Folk Inc (https://naturefolk.net). The great advantage to the “water cycle” approach is in addition to creating a common framework for technical experts and lay enthusiasts to tap into, it uses the water cycle as a proxy for the seasons. This is a vital yet underutilized gateway for connecting people to the water in Florida. Unlike continental north where the four seasons are distinct, Florida’s seasons are more subtle. The proposed project will result in a series of user-friendly and easy-to-read charts, diagrams and data-based content featured within the Go Hydrology online journal. Go Hydrology serves up “fresh” water data in a way that helps people get in tune with the water cycle while simultaneously also giving them a deeper historical view; or in other words providing them with a portal for “feeling at home” and on the “inside looking out” at the water cycle and the watersheds that surround them.

Map and Photos
Please see attachment – showing a map, a represenative artisinal hydrograph and a key photo for the area of interest.

Key Outputs (Deliverables)
The project will result in a special section within the Go Hydrology website that will (1) feature artisanal hydrographs, rain charts, histograms and other multi-media information sets (2) for the purpose of telling the story of the Indian River Lagoon and St. Lucie water cycle (3) in a way that engages and creates a dialog among a diverse audience of lay public and technical experts. Key parameters include surface-water discharge, water stage, water depth, rainfall and air temperature. All information will be available for the IRLNNEP to use on its websites and other programs.

Key Outcomes (Benefits to IRL)
Key outcomes include: (1) Establishing the St. Lucie watershed as a primary waterbody of interest for readers of Go Hydrology, (2) Application of the “water cycle” approach to the St. Lucie Watershed, (3) Creation and maintenance of regularly-updated artisanal charts and graphs for the St. Lucie watershed with the sum effect of (4) increasing social awareness and engagement in the St. Lucie River among technical experts and the lay public.
Category 5: Market Research Proposals
<table>
<thead>
<tr>
<th>Rank</th>
<th>Applicant</th>
<th>Project</th>
<th>Requested Funding</th>
<th>Cost Share Match</th>
<th>Match %</th>
<th>Total Project Cost</th>
<th>Score</th>
<th>Above 70%?</th>
<th>Eligible?</th>
<th>Funding Amount</th>
<th>Category Total Remaining</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Brevard County</td>
<td>Quantitative and Qualitative Research to Increase Adoption of Lagoon-Friendly Fertilizer Practices Among IRL Watershed Residents Utilizing Reclaimed Water for Irrigation.</td>
<td>$20,000</td>
<td>$10,000</td>
<td>33</td>
<td>$30,000</td>
<td>74</td>
<td>67</td>
<td>N</td>
<td>$0.00</td>
<td>$50,000.00</td>
</tr>
</tbody>
</table>
Quantitative and Qualitative Research to Increase Adoption of Lagoon-Friendly Fertilizer Practices Among IRL Watershed Residents Utilizing Reclaimed Water for Irrigation

<table>
<thead>
<tr>
<th>Lead Organization and Partners:</th>
<th>Brevard County Natural Resources Management Dept</th>
</tr>
</thead>
<tbody>
<tr>
<td>Project Location</td>
<td>Volusia, Brevard, Indian River, St. Lucie, and Martin counties</td>
</tr>
<tr>
<td>IRLNEP Contribution and Source:</td>
<td>$20,000, IRL Council</td>
</tr>
<tr>
<td>Partner Match:</td>
<td>$10,000</td>
</tr>
<tr>
<td>Total Project Cost:</td>
<td>$30,000 Total</td>
</tr>
</tbody>
</table>

**Project Description:**
This project proposes gathering data about the current irrigation and fertilizer behavior of residents who use reclaimed water for irrigation in the Indian River Lagoon (IRL) watershed, creating messaging based on quantitative data analysis, testing messaging through qualitative research and analysis, and providing final recommendations. Many wastewater treatment plants in the IRL watershed use their treated effluent for irrigation. According to both the IRLNEP 2030 CCMP and Brevard County's Save Our Indian River Lagoon Project Plan 2021 Update, customers who use reclaimed water for irrigation should be informed of the nutrient content in the reuse water as part of public education and outreach efforts because they can and should eliminate or reduce the amount of fertilizer added to their lawn and landscaping. However, quantitative and qualitative research about current behavioral benchmarks related to fertilizer use among residents utilizing reclaimed water for irrigation has not been recently conducted. This project proposes to address this underserved target audience and target behavior and recommend data-based solutions to increase lagoon-friendly behavior change to improve water quality and advance IRLNEP’s mission of “One Lagoon. One Community. One Voice.”

**Key Outputs (Deliverables):**
Proposed deliverables include: Quantitative Online Survey, Survey Analysis, Messaging and Creative Development, Message Testing and Qualitative Research, Qualitative Research Analysis, and Implementation and Final Recommendations. A quantitative survey will be implemented in the IRL watershed region to collect information about current behavior, beliefs, and barriers to reducing or eliminating the amount of fertilizer being added to lawn and landscaping for properties utilizing reclaimed irrigation water. Survey data will be presented in a report and segmented by county. Messaging will be developed from the results of the quantitative survey and tested through qualitative research with residents of Brevard County. Recommendations for testing and implementation of messaging and creative to increase the “Lagoon-Friendly” behavior of reduced fertilizer application among target audiences will be provided with the final deliverables.

**Key Outcomes (Benefits to the IRL):**
This project will provide IRLNEP, counties, cities, and advocacy and community groups with quantitative and qualitative research about fertilizer and reclaimed water irrigation behavior within the IRL watershed and data-based recommendations for increasing adoption of lagoon-friendly fertilizer and reclaimed water irrigation practices. The project deliverables will address multiple strategies in the IRLNEP 2030 CCMP and advance the Action Plan Outputs for Wastewater-2 and Stormwater-2. The behavioral benchmarks collected in the quantitative survey can be used to help achieve short-term behavior change goals, as well as measure behavioral changes over time, or changes as a result of information exposure in subsequent surveys.
Infrastructure Investment and Jobs Act

EPA Appropriation at page 968 of 1039-page document.

- $132 million to NEP. $26,400 annually FY 2022 – 2026.
- IRLNEP expecting $914,000 annually for 5 years to begin FY 2022.
- EPA Administrator may waive or reduce the required non-Federal share.
- Up to three percent of the amounts made available under this paragraph in this Act shall be for salaries, expenses, and administration (EPA).
- EPA considers these as “no year” grants (“available until expended”).
- EPA would like to see timely allocations of 2022 funds.
- Funds accounted for in separate EPA work plan and with separate project reporting.
• $132 million to NEP. $26,400 annually FY 2022 – 2026.
• IRLNEP expecting $914,000 annually for 5 years to begin FY 2022.
• EPA Administrator may waive or reduce the required non-Federal share.
• Up to three percent of the amounts made available under this paragraph in this Act shall be for salaries, expenses, and administration (EPA).
• EPA considers these as “no year” grants (“available until expended”).
• EPA would like to see timely allocations of 2022 funds.
• Funds accounted for in separate EPA work plan and with separate project reporting.