This meeting is open to the public

February 11, 2021
1:30 pm – 4:30 pm

Virtual Meeting held on Zoom
Zoom Web Link: https://us02web.zoom.us/j/82926232254?pwd=Wmh4UFt4WTZvMjVdVlU2UlZ3a2l1Zz09

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 July 30, 2020

5. Old Business
   Small Grants RFP application review
   Requested Action: Approve application and proposed timeline for FY 2021 Small Grants

6. New Business
   a. Election of Chair/Vice Chair for 2021

   b. FDEP grant announcement and FY 2021 Budget Amendment (Duane De Freese, Daniel Kolodny)

   Requested Action: Recommend the IRL Council Board of Directors adopts Resolution 2021-01 amending FY 2021 budget to include new grant revenues and expenditures.
c. FY 2022 RFP Review of projects recommended for funding based on proposal review and rankings from RFP review committees (Duane De Freese, Daniel Kolodny)

**Requested Action:** Motion to recommend that IRL Council Board of Directors accepts the ranked project list and the project funding recommendations.

d. FY 2022 Preliminary Budget (Daniel Kolodny)

**Requested Action:** Recommend the IRL Council Board of Directors adopts Resolution 2021-02, the tentative FY 2022 budget.

e. FY 2021 Request for Qualifications – RFQ for CCMP revisions and project list support services (Kathy Hill)

**Requested Action:** Recommend the IRL Council Board of Directors accept the recommended vendor(s) and authorize staff to enter into a service contract with the recommended vendor(s).

f. FY 2021 Request for Qualifications – RFQ for Contract support for graphic, editorial, and ADA services for graphic and print collaterals (Kathy Hill)

**Requested Action:** Recommend the IRL Council Board of Directors accept the recommended vendor(s) and authorize staff to enter into a service contract with the recommended vendor(s).

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

7. General Public Comments

8. Adjourn

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

Pursuant to the provisions of the Americans with Disabilities Act, any person requiring special accommodations to participate in this workshop/meeting is asked to advise the agency at least 48 hours before the workshop/meeting by contacting: Stephanie Jackson at (305) 764-4319. 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: Stephanie Jackson, IRL Council, 1235 Main St, Sebastian, FL 32958, (305) 764-4319, or by email at jackson@irlcouncil.org.
Meeting Minutes
Thursday, July 30, 2020, 1:30 p.m.

Virtual Meeting held via Zoom
These minutes have been abbreviated to only reflect agenda and actionable items. To view the meeting in its entirety please visit this link to YouTube Video

Attendance: Frank Brownell, Frank Catino, Jesse Wayles, Mike Coneen, Doug Patterson, Keith Winsten, Dr. Graham Cox, Greg Braun, Jim Moir, Cheryl McPhillips, Adam Locke, Dallas Young

Guest: Rachel King

Agenda Item 1. Call to Order and Pledge of Allegiance (Frank Catino, Chair)
Meeting was called to order at 1:32 p.m.

Agenda Item 2. Introductions and Public Comments (Frank Catino, Chair)
None

Agenda Item 3. Agenda Revisions (Frank Catino, Chair)
None

Agenda Item 4. Minutes Approval (Frank Catino, Chair)

Requested Action: Motion to approve Minutes of the April 30, 2020 meeting.
MOTION BY DOUG PATTERSON, SECONDED BY KEITH WINSTON FOR APPROVAL OF MINUTES FROM THE CITIZENS ADVISORY COMMITTEE MEETING ON APRIL 30, 2020. MOTION CARRIED UNANIMOUSLY.

Agenda Item 5. Old Business
a. Discussion: 2021 Small Grants Program Application/Funding Criteria (Kaylene Wheeler)
b. Social Media Strategy Update (Kathy Hill)
c. FY 2022 RFPs (Duane De Freese)

Requested Action: Recommend that the IRL Council Board of Directors authorizes staff to develop and issue FY 2022 RFPs pursuant to tentative FY 2022 budget allocation amounts for each RFP.
CITIZENS’ ADVISORY COMMITTEE CONSENSUS TO RECOMMEND APPROVAL
d. COVID Bridge Funding Grants – Update (Kathy Hill)
e. IRL Project Update (Daniel Kolodny)
f. SR528 Update (Duane De Freese)

**Agenda Item 6. New Business**
- a. Merchandising Plan (Kathy Hill & Kaylene Wheeler)
- b. Meeting Calendar (Kaylene Wheeler)

**Agenda Item 7. Executive Director Report (Duane De Freese)**

**Agenda Item 8. Final Comments**
None

**Agenda Item 9. Adjourn**
Meeting was adjourned at 3:40 p.m.
INDIAN RIVER LAGOON
NATIONAL ESTUARY PROGRAM
2021 Small Grant Application Kit

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/wp-content/uploads/IRLNEP_Final-Draft-CCMP-REVISION_2018-12-07_LowRes_20200204.pdf.

Funding available: $500 - $5,000 per grant. $25,000 budgeted for FY 2020-2021.

Deadline for submissions: Friday, April 2, 2021.

Award Date: Funding will be made available on or after May 14, 2021.

Eligibility:
Community groups and organizations from within the IRLNEP watershed planning boundary are eligible to apply for projects implemented within the above planning boundary. 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 on-line at [www.onelagoon.org](http://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:

• **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.

• **Fish and Wildlife Conservation**: Examples: Improving awareness of threats to wildlife from monofilament line; 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. Grant recipients must submit invoices on their organization’s stationary (letterhead) and include receipts as documentation for the full amount of the invoice. 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.

Payment(s) will be authorized upon the receipt of a printed invoice on applicant letterhead with appropriate receipts attached. At the conclusion of the project, awardees will submit a single invoice and receipts for all expenses to be reimbursed. 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.

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

- tool rentals
- postage
- native landscaping plants
- project-related printing
- meeting room rentals
- portable toilet rentals
- film and photo processing
- project-related signage
- materials (i.e. water quality sampling kits, supplies to produce educational materials)
- volunteer food within reason (i.e. light lunches, refreshments, bottled water)

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.

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 11 of this document. Include a line-item budget form, provided on page 14, that includes:

a. All estimated expenditures.
b. 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:**
Stephanie Jackson, Administrative Coordinator, Indian River Lagoon National Estuary Program jackson@irlcouncil.org with a copy to Daniel Kolodny, kolodny@irlcouncil.org. Questions may be directed to Stephanie at (305)764-4319 until the proposal deadline.

**Submission Checklist:**
- Proposals are due in IRLNEP offices by **April 2** by 5 p.m.
- 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 (40%)** -- Specifically, the strength of the project will be evaluated on the originality of the proposed project and the extent to which it addresses a need. Applicant’s proposal must meet one or more of the following Proposal Categories: Improving water quality/reducing nutrient loading from urban landscapes, habitat
restoration and protection, fish and wildlife conservation, lagoon awareness and education, and/or invasive species.

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.

e) **Demonstration of Community Support (10%)** -- All proposals, regardless of scope, should reflect some measure of community support. Where applicable, projects must show community support for implementation, maintenance and 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.
FAQ's (Frequently Asked Questions)

Q. What is the implementation period?
   A. Funding for awarded projects will be made available on or after May 14, 2021 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?
   A. Projects must address lagoon issues and problems as identified in the IRLNEP Comprehensive Conservation and Management Plan (CCMP) – Looking ahead to 2030. Priority areas include: water quality, habitat restoration, fish and wildlife conservation, lagoon awareness/education, reducing nitrogen loading from urban landscapes, or removing invasive species. The CCMP is available on the IRLNEP website at: https://onelagoon.org/wp-content/uploads/IRLNEP_Final-Draft-CCMP-REVISION_2018-12-07_LowRes_20200204.pdf.

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

Information about native and Florida-Friendly plants can be found at:
- Florida Yards: http://floridayards.org/

Plants listed on the noxious weed list: http://plants.usda.gov/java/noxious?rptType=Federal or the Florida Exotic Pest Plant Council’s list 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 Stephanie Jackson at (305) 764-4319.
Indian River Lagoon National Estuary Program  
2019-2020 Small Grants Program Application

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<tr>
<th>Project Name:</th>
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<tbody>
<tr>
<td>Organization Name:</td>
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<td>Street Address:</td>
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<td>City/County/Zip:</td>
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<tr>
<td>Organization Executive Director Name:</td>
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<td>Phone:</td>
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<td>Project Lead/Manager:</td>
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<td>Phone:</td>
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<td>Organization Type (School, Business, HOA, etc.):</td>
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<td>Other participating organizations:</td>
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<td>Total Amount Requested (not to exceed $5,000):</td>
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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:

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)?

Which of the Proposal Categories will your project address?

☐ Water quality/nutrient reduction  ☐ habitat restoration  ☐ fish/wildlife conservation  
☐ Lagoon awareness/education  ☐ climate change  ☐ invasive species

How did you hear about the Small Grants Program?

Return completed applications as PDFs via email by April 2, 2021 at 5:00pm to:  
Stephanie Jackson, jackson@irlcouncil.org  
with a copy to Daniel Kolodny, Kolodny@irlcouncil.org  
Indian River Lagoon National Estuary 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 in 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

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<th>ITEM</th>
<th>IRLNEP SHARE</th>
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**TOTAL (NOT TO EXCEED $5,000):**

* Please indicate if matching funds listed above are federal, local, state or private.
## Sample Budget With Adequate Detail:

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<tr>
<th>ITEM</th>
<th>IRLNEP Funds</th>
<th>*MATCH</th>
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<tbody>
<tr>
<td>Bus Transportation</td>
<td>$ 1,500.00</td>
<td>$ 1,500.00</td>
<td>$ 3,000.00</td>
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<td>(2 buses @ $150 per trip x 10 trips)</td>
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<td>Instructor Costs</td>
<td>$ 250.00</td>
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<td>($50 per day x 10 days)</td>
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<td>Teaching Materials and Supplies</td>
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<td>(Native plant handbook, pocket folders</td>
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<td>30 students/day x 10 days @ $5 ea.)</td>
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<td>65 - 1 gal. beautyberry @ $2.00 ea.</td>
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<td>600 - gopher apple @ $1.25 ea.</td>
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<tr>
<td>230 - Florida paintbrush @ $1.25 ea.</td>
<td>$ 187.50</td>
<td>$ 100.00</td>
<td>$ 287.50</td>
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<tr>
<td><strong>TOTAL Project Costs</strong></td>
<td>$ 4,252.50</td>
<td>$ 1,915.00</td>
<td>$ 6,167.50</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>
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<td>$ 250.00</td>
<td>$ 250.00</td>
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<td>Supplies</td>
<td>$ 1,500.00</td>
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<td>Plants</td>
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<td>$1167.50</td>
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<td><strong>TOTAL Project Costs</strong></td>
<td>$ 4,252.50</td>
<td>$ 1,915.00</td>
<td>$ 6,167.50</td>
</tr>
</tbody>
</table>

* Please indicate if matching funds listed above are federal, local, state or private.
RESOLUTION NO. 2021-01

A RESOLUTION OF THE BOARD OF DIRECTORS OF THE IRL COUNCIL AMENDING THE FINAL BUDGET FOR THE 2021 FISCAL YEAR

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

WHEREAS, the IRL Council previously amended a Budget for Fiscal year 2021 on November 6, 2020; and

WHEREAS, the IRL Council finds it necessary and essential to amend the Budget for the 2021 Fiscal Year as set forth in this Resolution; and

WHEREAS, adoption of the 2021 Fiscal Year budget amendments set forth in this Resolution serves a valid public purpose.

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

Section 1. The above recitals are ratified and incorporated into this resolution

Section 2. The funds and available resources and revenues that are set out in Exhibit “A” and incorporated herein by reference, are appropriated to provide the monies to be used to pay the necessary operating and other expenses of the IRL Council.

Section 3. Except as amended in Exhibit “A” the remainder of the Budget for the 2021 Fiscal Year remains in full force and effect

Section 4. This Resolution shall become effective immediately upon passage.
DONE at__________________________, Florida, this____day of__________, 2021.

ATTEST:

By: ____________________________
   Chair, IRL Council

__________________________
Secretary, IRL Council

Approved as to legal form and sufficiency:

__________________________
Glen Torcivia
IRL Council, Legal Counsel
# IRL Council
## FY 2021 Amended Budget
### Exhibit A

### REVENUES
<table>
<thead>
<tr>
<th>Source</th>
<th>Amount</th>
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<tbody>
<tr>
<td>Federal</td>
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</tr>
<tr>
<td>IRL License Plate</td>
<td>$ 125,000</td>
</tr>
<tr>
<td>Member Contributions</td>
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<tr>
<td>External Grant</td>
<td>$ 963,470</td>
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<tr>
<td><strong>TOTAL REVENUES</strong></td>
<td><strong>$3,250,970</strong></td>
</tr>
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### EXPENDITURES
<table>
<thead>
<tr>
<th>Category</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>Other Expenditures</td>
<td>$2,837,653</td>
</tr>
<tr>
<td>IRL Council Strategic Program, IRLNEP FY2021 EPA Work Plan, Online Store, FDEP Innovation Grant, Unplanned Contingency Reserve</td>
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</tr>
<tr>
<td>Salaries &amp; Benefits</td>
<td>$ 420,498</td>
</tr>
<tr>
<td>Facilities Expenses</td>
<td>$ 35,500</td>
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<tr>
<td>Rent, Utilities, Equipment Maintenance, Communications</td>
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<tr>
<td>Administrative Costs</td>
<td>$ 75,500</td>
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<td>Postage, Office Supplies, Insurance, Printing, Travel, Licenses &amp; Subscriptions, Dues, Professional Development</td>
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</tr>
<tr>
<td>Administrative Services</td>
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<td>Legal, Accounting, Auditing, IT Services, Legal Ads</td>
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<tr>
<td><strong>TOTAL EXPENDITURES</strong></td>
<td><strong>$3,499,351</strong></td>
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</table>

<table>
<thead>
<tr>
<th>Source</th>
<th>Amount</th>
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<tbody>
<tr>
<td>Agency Balance Beginning of Year</td>
<td>$ 242,754</td>
</tr>
<tr>
<td>Fund Balance - Beginning of Year</td>
<td>$ 5,627</td>
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<td>Fund Balance – End of Year</td>
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</table>

**Agency Balance Beginning of Year**

**Fund Balance - Beginning of Year**

**Fund Balance – End of Year**

---

**RESOLUTION 2021-01**
**FY 2021 Amended Budget**
**Page 3 of 5**
<table>
<thead>
<tr>
<th>FY 2021 Amended Budget</th>
<th>FY 2021 New Amended Budget</th>
<th>Higher</th>
<th>Lower</th>
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<tr>
<td><strong>REVENUES</strong></td>
<td><strong>REVENUES</strong></td>
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<tr>
<td>Federal</td>
<td>Federal</td>
<td>$ 662,500</td>
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<tr>
<td>IRL License Plate</td>
<td>IRL License Plate</td>
<td>$ 125,000</td>
<td></td>
</tr>
<tr>
<td>Member Contributions</td>
<td>Member Contributions</td>
<td>$1,500,000</td>
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</tr>
<tr>
<td><strong>TOTAL REVENUES</strong></td>
<td><strong>TOTAL REVENUES</strong></td>
<td>$2,287,500</td>
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<tr>
<td><strong>EXPENDITURES</strong></td>
<td><strong>EXPENDITURES</strong></td>
<td></td>
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</tr>
<tr>
<td>Other Expenditures</td>
<td>Other Expenditures</td>
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</tr>
<tr>
<td>IRL Council Strategic Program, IRLNEP</td>
<td>IRL Council Strategic Program, IRLNEP</td>
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<tr>
<td>FY21 Work Plan, Unplanned</td>
<td>FY21 Work Plan, Online Store, FDEP</td>
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<tr>
<td>Contingency Reserve</td>
<td>Contingency Reserve</td>
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<tr>
<td>Salaries &amp; Benefits</td>
<td>Salaries &amp; Benefits</td>
<td>$ 420,498</td>
<td></td>
</tr>
<tr>
<td>Facilities Expenses</td>
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<td>$ 35,500</td>
<td></td>
</tr>
<tr>
<td>Rent, Utilities, Equipment Maintenance, Communications</td>
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<tr>
<td>Administrative Costs</td>
<td>Administrative Costs</td>
<td>$ 75,500</td>
<td></td>
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<tr>
<td>Postage, Office Supplies, Insurance, Printing, Travel, Licenses &amp; Subscriptions, Dues, Professional Development</td>
<td>Postage, Office Supplies, Insurance, Printing, Travel, Licenses &amp; Subscriptions, Dues, Professional Development</td>
<td></td>
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</tr>
<tr>
<td>Administrative Services</td>
<td>Administrative Services</td>
<td>$ 130,200</td>
<td></td>
</tr>
<tr>
<td>Legal, Accounting, Auditing, IT Services, Legal Ads</td>
<td>Legal, Accounting, Auditing, IT Services, Legal Ads</td>
<td></td>
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</tr>
<tr>
<td><strong>TOTAL EXPENDITURES</strong></td>
<td><strong>TOTAL EXPENDITURES</strong></td>
<td>$ 2,535,881</td>
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<tr>
<td>Agency Balance Beginning of Year</td>
<td>Agency Balance Beginning of Year</td>
<td>$ 242,754</td>
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</tr>
<tr>
<td>Fund Balance Beginning of Year</td>
<td>Fund Balance Beginning of Year</td>
<td>$ 5,627</td>
<td></td>
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<tr>
<td>Fund Balance – End of Year</td>
<td>Fund Balance – End of Year</td>
<td>$ 0</td>
<td></td>
</tr>
</tbody>
</table>

**Notes:**
1. $963,470
2. $963,470
3. $963,470

RESOLUTION 2021-01
FY 2021 Amended Budget
Page 4 of 5
**FY 2021 Budget Amendment Detail (Narrative)**

(1) Increase “TOTAL REVENUES” $963,470 from $2,287,500 to $3,250,970.
   a. An FDEP External Grant Award of $963,470 was awarded to the IRL Council on December 3, 2020.

(2) Increase “Other Expenditures” $963,470 from $1,874,183 to $2,837,653.
   The detail of “Other Expenditures” is as follows:
   a. IRLNEP FY2021 Work Plan - $662,500
   b. FDEP Innovation Grant - $963,470 and includes the following:
      a. Contractual Services to Florida Atlantic University and Stomcenter Communications Inc. - $723,581.79
      b. GIS IT Coordinator Salary - $97,500
      c. Miscellaneous/Other Expenses - $8,400
      d. Supplies - $881
      e. Indirect costs @16.03% (Rent, Utilities, Insurance, Travel, Information Tech Hardware) - $133,107.16
   c. IRL Strategic Program - $1,134,811.69
   d. Online Store - $20,000
   e. Unplanned Contingency Reserve - $56,871.56

(3) Increase “TOTAL EXPENDITURES” $963,470 from $2,535,881 to $3,499,351.
   a. This increase represents the increase in “Other Expenditures” from the FDEP Innovation Grant. No other changes are made.
Water Quality Proposals
Executive Summary

<table>
<thead>
<tr>
<th>Title of Project</th>
<th>Tressler Drive Water Quality Improvement Project</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Lead Organization and Partners:</strong></td>
<td>City of Stuart, Tim Voelker, P.E.</td>
</tr>
</tbody>
</table>
| **Project Location:** | The project is located at the end of Tressler Drive, west of US Highway 1  
Latitude 27°11'10.20"N  
Longitude 80°15'1.52"W |
| **Key CCMP Vital Signs(s):** | Impaired Waters and Stormwater |
| **IRLNEP Contribution and Source:** | $80,000.00, IRL Council |
| **Partner Match:** | $80,000.00 (50%) Match |
| **Total Project Cost:** | $160,000.00 |

**Project Description:**
The project is in the City of Stuart, Florida (Latitude 27°11'10.20"N, Longitude 80°15'1.52"W) in the Poppleton Creek drainage basin. Stormwater runoff from a 13.7-acre urban residential development currently discharges directly to Poppleton Creek. This project proposes to construct a 2nd generation baffle box and bioswale to treat runoff prior to discharge. The project will remove nutrients and sediment and provide stormwater retention and is important for the City of Stuart to continue progress towards meeting BMAP requirements for the St. Lucie River. An annual reduction estimate is 40.92 pounds of TN and 7.67 pounds of TP. The design of this project is complete, and it qualifies for a General Permit from SFWMD; therefore, it is construction ready.

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

**Key Outputs (Deliverables):**
Stormwater runoff will be directed to a treatment train, where a 2nd Generation Baffle Box will provide nutrient and sediment removal. The baffle box will discharge to a Bioswale, which will provide retention with filter media, removing additional nutrients and sediment prior to discharge to Poppleton Creek and ultimately to the St. Lucie River. It is estimated that 40.92 pounds per year of TN and 7.67 pounds per year of TP will be removed because of this project (*Source: Spreadsheet Tool for Estimating Pollutant Load, STEPL, 2007*). The project will meet the four criteria that are critical to managing dispersed stormwater runoff. Volume and peak discharge will be addressed by routing the existing urban runoff to a bioswale for retention prior to discharge. Water quality will be improved by nutrient removal in the baffle box and bioswale, and the baffle box will provide sediment removal.

**Key Outputs Benefits:**
Short-term (1-2 years): The City continues implementing strategies to improve the quality of runoff entering the St. Lucie River and to advance toward BMAP goals.  
Medium-term (3-4 years): The City of Stuart reaches the required 5-year nutrient reduction targets specified in the St. Lucie River and Estuary BMAP.  
Long-term (5-10+ years): The City reduces nutrient and sediment loads to the St. Lucie River, whereby removing the St. Lucie River from the Impaired Waters designation list. The project will reduce nutrient and sediment loads to the St. Lucie River, decreasing stormwater pollution to the IRL system.
<table>
<thead>
<tr>
<th><strong>Title of Project</strong></th>
<th>Application and continued optimization of an environmentally friendly, biological denitrification system developed for use in the Indian River Lagoon using recycled materials; water treatment to remove 70% of dissolved ammonium nitrogen.</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Lead Organization and Partners:</strong></td>
<td>Florida Institute of Technology (Florida Tech, Lead organization) (Austin Fox Ph.D., role: project manager and scientific evaluation/optimization, 150 W. University BLVD. Melbourne FL 32901, <a href="mailto:afox@fit.edu">afox@fit.edu</a>, (321)674-7463), Oxsolve and Lapin Services (Dan Young, role: treatment system operation, 3031 40th Street, Orlando, FL 32839, <a href="mailto:danyoung@lapinservices.com">danyoung@lapinservices.com</a>, (407) 499-0284). Logistical support from Central Sand Inc. (Dale Morris, role: logistical support, 6855 Tico Rd. Titusville, FL 32780, <a href="mailto:centralsand@aol.com">centralsand@aol.com</a>, (321) 632-0308).</td>
</tr>
<tr>
<td><strong>Project Location</strong></td>
<td>This project will be carried out in the Banana River lagoon associated with a Dredge Material Management Area (DMMA) located in Sykes Creek at 28°21'55&quot;N and 80°40'45&quot;W. This proposed system will provide water treatment supplemental to any other treatment efforts. Collaboration with dredging provides logistical support and a location for the system, completed permitting and a supply of flowing lagoon water and or dredge slurry. This collaboration is especially ideal because it provides a location for the system in Sykes Creek, an area known for degraded water quality thus providing water with the most potential and need for treatment/improvement.</td>
</tr>
<tr>
<td><strong>Key CCMP Vital Signs:</strong></td>
<td>Impaired waters, legacy loads, contaminants, harmful algal blooms, 21st century communities, monitoring and data, science &amp; technology innovation plus citizen engagement.</td>
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<tr>
<td><strong>IRLNEP Contribution and Source:</strong></td>
<td>$86,500</td>
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<tr>
<td><strong>Partner Match:</strong></td>
<td>$87,000</td>
</tr>
<tr>
<td><strong>Total Project Cost:</strong></td>
<td>$173,500</td>
</tr>
</tbody>
</table>

- **Project Map:** Attached JPEG image per proposal guidelines (Figure ES1, Attachment A).
- **Brief Project Description:** We propose to use and optimize a simple, innovative biological denitrification system developed and successfully demonstrated to remove 70% of ammonium nitrogen (N) from water in the IRL. 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. This innovative system for treatment of natural waters manages environmental conditions (e.g., dissolved oxygen) in flow-through treatment cells containing denitrification media in order to promote the growth and proliferation of denitrifying and or anammox bacteria already present in IRL water and sediments. Following extensive testing of various media, recycled plastics (BPA-free bottle caps) similar in function to media used in home and large commercial aquaria have yielded >70% ammonium nitrogen (N) removal from IRL water and dredge slurry. With expected inflow concentrations of nitrogen at ~3 mg/L, 70% removal would decrease concentrations to <1 mg/L and this system would remove hundreds of pounds of nitrogen from the IRL during the NEP funded project period. Outcomes include removal of hundreds of pounds of N and associated P from the lagoon water, implementation of an innovative 21st century enhanced biological denitrification system into city and county storm water and muck management plans. This project also promotes citizen engagement and support for environmentally friendly, sustainable 21st century treatment of lagoon water using recycled materials.
Executive Summary

<table>
<thead>
<tr>
<th>Title of Project</th>
<th>Hobe Heights-Jimmy Graham Park Drive Water Quality Improvement Project</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lead Organization and Partners:</td>
<td>Martin County, James Gorton, P.E.</td>
</tr>
<tr>
<td>Project Location:</td>
<td>The project is located in Hobe Sound, Martin County, Florida (Latitude 27° 5’ 59.89”N, Longitude 80° 8’ 47.72”W).</td>
</tr>
<tr>
<td>Key CCMP Vital Signs(s)</td>
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</tr>
<tr>
<td>IRLNEP Contribution and Source:</td>
<td>$150,000.00, IRL Council</td>
</tr>
<tr>
<td>Partner Match:</td>
<td>$300,480.00 (66.7%) Match</td>
</tr>
<tr>
<td>Total Project Cost:</td>
<td>$450,480.00</td>
</tr>
</tbody>
</table>

Project Description:
The Hobe Heights neighborhood has had severe and recurring flooding, documented back to 1992. Modeling has confirmed that 53 homes and 1 ten-unit townhome building are currently below the 100 year elevation in the basin, in a zero-discharge scenario. In order to provide flood protection for the Hobe Heights neighborhood, untreated stormwater runoff from 78.76 acres is currently pumped north to East Fork Creek, ultimately discharging to the Indian River. This project proposes to redirect the stormwater discharge to a treatment train consisting of Dry Retention and Wetland Detention, to provide treatment prior to discharge. In addition, 11.36 acres of currently untreated runoff from Jimmy Graham Park will be captured in the treatment train. The proposed discharge point to the Indian River will be south of the BMAP boundary for the St. Lucie River and Estuary.

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

Key Outputs (Deliverables):
Stormwater runoff will be directed to a treatment train, where treatment consisting of Dry Retention and Wetland Detention will be applied to the currently untreated discharge. The Wetland Detention areas will discharge to existing on-site wetlands prior to ultimately discharging to the Indian River. It is estimated that the treatment train will remove 246.69 pounds per year of TN and 43.69 pounds per year of TP per year (Source: Spreadsheet Tool for Estimating Pollutant Load, STEPL, 2007). The project will meet the four criteria that are critical to managing dispersed stormwater runoff: Volume, Peak Discharge, Water Quality, and Maintenance. In addition, untreated stormwater will be diverted from East Fork Creek to the Indian River, outside of the BMAP limits for the St. Lucie River and Estuary.

Key Outputs Benefits:
Short term (1-2 years) project benefits include Martin County continuing to implement strategies to improve the quality of runoff entering the St. Lucie River and Estuary and to advance toward BMAP goals. Medium-term (3-4 years) benefits include helping Martin County reach the required 5-year nutrient reduction targets specified in the St. Lucie River and Estuary BMAP. Long-term (5-10+ years) outcomes include reducing nutrient and sediment loads to the St. Lucie River and Estuary, with the goal of removing the St. Lucie River and Estuary from the Impaired Waters designation list. The project will reduce nutrient and sediment loads to the Indian River, helping to decrease stormwater pollution to the IRL system.
Executive Summary

<table>
<thead>
<tr>
<th>Title of Project</th>
<th>The Martin County Connect-to-Produce Septic-to-Sewer Nutrient Removal Program</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lead Organization and Partners:</td>
<td>Martin County Board of County Commissioners/No partners</td>
</tr>
<tr>
<td>Project Location:</td>
<td>MCU Septic-to-Sewer grinder pump stations projects are located within Martin County’s service area. The latitude and longitude of each project area is listed on Attachment A-1 Project Map.</td>
</tr>
<tr>
<td>Key CCMP Vital Sign(s):</td>
<td>Seagrasses, filter feeders, harmful algae blooms, impaired waters, wastewater, and contaminants</td>
</tr>
<tr>
<td>IRLNEP Contribution and Source:</td>
<td>$150,000, IRL Council (23% project funding)</td>
</tr>
<tr>
<td>Partner Match:</td>
<td>$510,000, Martin County (77% project funding match)</td>
</tr>
<tr>
<td>Total Project Cost:</td>
<td>$1,710,000 ($1,200,000 residential cost plus $510,000 County funding discount for connection within the first year of service availability)</td>
</tr>
</tbody>
</table>

Project Description:
The Martin County Board of County Commissioners adopted a 10-year Septic-to-Sewer Program that will provide for the elimination of over 10,000 on-site septic systems. Septic-to-sewer projects are prioritized based on their impact on the IRL. Funding is requested for FY2022 small community grinder sewer system connections projects. Grant funds would provide 150 homeowners an incentive for early connection to the grinder sewer system providing significant reduction of the nitrogen and phosphorous loads on the Indian River Lagoon (IRL or Lagoon). The removal of the 150 septic tanks will reduce the Total Nitrogen (TN) discharging into the IRL in the region by 4,050 lbs. TN/yr. based on 27 lbs./yr. of TN per septic tank located within 55 yards of the waterways as calculated using the Brevard County Save Our Indian River Lagoon program methodology.

This project for 150 connections is estimated to cost $1,710,000 ($11,400 per connection). Martin County Utilities (MCU) offers a discount of $3,400 to reduce the customer cost to connect to $8,000. MCU’s project funding match is $510,000 (77% project funding match). The funding request is $150,000. If awarded, this grant would further reduce the cost of homeowner connection by $1,000 for 150 households (23% project grant funding).

Map and Photo(s):
Attachment A1– Project Map (via email) provides a map of grinder pump project sites within Martin County service area included in this grant proposal.
Attachment B1- Project Photo (via email)

Key Outputs ( Deliverables): The Connect-to-Produce Program provides for shovel-ready residential grinder pump connection to Martin County’s central sewer system based on an established timeline for community connections. Martin County will obtain 150 connections on a first-come, first-served basis prior to the end of FY2022 and will provide deliverable documentation to IRL Council in the form of quarterly and final report summaries. The estimated reduction in TN per connection is 27 lbs./yr. or an estimated total project reduction of 4,050 lbs. TN/yr.

Key Outcomes (Benefits to the IRL):
Short term benefit: Proposed septic tank removal will reduce the amount of nitrogen, phosphorus and fecal coliform that are leached into the IRL.
Medium benefit: Reduction in nutrient contribution decreases the potential for harmful algae blooms and massive fish kills.
Long-term Benefit: Project will reduce contribution to nutrient-related algal growth, improve water clarity, support seagrass photosynthesis and increase habitat and lagoon health.
Title of Project | Septic to Sewer Conversion Along the Elkcam Waterway  
Lead Organization and Partners | City of Port St. Lucie  
Project Location | The project location is in central Port St. Lucie along the Elkcam Waterway, which empties into the North Fork of the St. Lucie River. The project area is approximately 1,909 acres in the Elkcam Hot Spot with 8.5 of those acres covering 34 residential lots  
Latitude: 27.279234  
Longitude: -80.329331  
Key CCMP Vital Sign(s) | Impaired Waters, Wastewater, Contaminants of Concern, Monitoring and Data Sharing, Citizen Engagement and Education  
IRLNEP Contribution and Source | $100,000, IRL Council  
Applicant Match | $100,000 from 34 voluntary households  
Total Project Cost | $200,000

Project Description
The North Fork of the St. Lucie Estuary has experienced degraded water quality leading to recurring closures of the water body for recreational use. To determine the sources of this impairment, the City of Port St. Lucie contracted with Harbor Branch Oceanographic Institute-Florida Atlantic University to conduct a microbial source tracking study. That study confirmed elevated fecal coliform levels. The greatest concentrations consistently occurred in 5 dense urbanized areas of the City, including along the Elkcam Waterway which drains directly into the North Fork of the St. Lucie River. Older septic systems near the Elkcam Waterway are believed to be contributing to this bacterial pollution. IRLNEP funding will enable the City to expand its septic-to-sewer program. The proposed Elkcam Septic Hot Spot Grant Program will support the conversion of approximately 34 residential septic systems in the target area to the City’s low-pressure, centralized sewer system. Property owners within 50’ of the Elkham Waterway or a ditch that discharges into the Waterway will be eligible to participate in the septic grant program, which covers 50% of the conversion cost. The City will also offer 10-year interest-free connection fee loans to all participating septic owners. The project is expected to benefit the Indian River Lagoon by removing 6.11 pounds of total nitrogen per septic system or 207.74 pounds of total nitrogen annually. Nutrient pollution is the main cause of toxic algal blooms in the Indian River Lagoon system. Fewer algal blooms will protect marine life and preserve key habitat.

Map and Photos
See attached.

Key Outputs (Deliverables)
Approximately 34 homes converted from septic to sewer system; elimination of a combined total of 207.74 pounds of total nitrogen annually

Key Outcomes (Benefits to the IRL)
Short-term benefits: Enhanced community understanding in Elkcam area; initial nutrient reductions  
Mid-term benefits: Incentivizing the conversion of 34 residential septic systems in the Elkcam Hot Spot area; significant nutrient reductions; better Indian River Lagoon protection  
Long-term benefits: Fewer algal blooms; habitat improvements; restoration of Indian River Lagoon biological diversity to a stable and resilient state
Habitat Restoration Proposals
Executive Summary

<table>
<thead>
<tr>
<th>Title of Project</th>
<th>Tucker Cove Seagrass Restoration Project Phase II</th>
</tr>
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<tbody>
<tr>
<td><strong>Lead Organization and Partners:</strong></td>
<td>Sea &amp; Shoreline LLC (Lead) Carter Henne, P.O. Box 783549, Winter Garden, FL 34778, (863) 412-8275, <a href="mailto:carter@seaandshoreline.com">carter@seaandshoreline.com</a>, St. Lucie County (Partner) James Oppenborn, 2300 Virginia Avenue Fort Pierce, FL 34982, (772) 462 1713, <a href="mailto:oppenbornj@stlucieco.org">oppenbornj@stlucieco.org</a></td>
</tr>
</tbody>
</table>

**Project Location**

The project area is located in St. Lucie County, FL, centered at (27°28'40.57"N 80°18'4.73"W). The project site will comprise a 2.0-acre area in north-central Tucker Cove that has experienced a considerable amount of seagrass loss in the past two decades.

**Key CCMP Vital Sign(s):**

Seagrasses, Biodiversity, Fisheries, Monitoring & Data, Science & Technology Innovation

**IRLNEP Contribution and Source:**

$88,500, IRL Council

**Partner Match:**

$110,933 (S&S, 54.2%), $5,000 (St. Lucie Co, 2.4%)

**Total Project Cost:**

$204,433

**Project Description:**

The purpose of this project is to restore another two (2.0) acres of seagrass habitat within the Indian River Lagoon (IRL) and to document the factors that influence project success. This project presents a unique opportunity to restore an area that has excluded motorized vessel access due to their role in seagrass loss. The information gathered from this project will be used to inform future efforts and enhance community outreach and education regarding seagrass conservation. The funds requested from the IRLNEP will be used to install, protect, and maintain nursery-grown seagrass planting units for a period of one (1) year and to monitor project success for a period of three (3) years.

**Map and Photo(s):**

Please see attached Map Package and Representative Project Photo

**Key Outputs (Deliverables):**

1. Demonstrate the technique of planting nursery-grown seagrasses (*Halodule wrightii*) to directly restore a 2.0 acre site within the IRL
2. Monitor seagrass restoration and collect data on the factors influencing seagrass recovery in the IRL.

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

Outcome 1: seagrass restoration, sediment stabilization, nutrient reduction, habitat creation, increased biodiversity

Outcome 2: Document how factors including grazing, light transmittance, and sediment transport affect seagrass recovery, and apply these data to create a scalable model for future seagrass restoration efforts within the IRL. Demonstrate the effectiveness of various seagrass planting techniques
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, Addictive Fishing Television, Florida Oceanographic Society, Ducks Unlimited</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>$199,994 IRL Council</td>
</tr>
<tr>
<td>Partner Match</td>
<td>$204,171 – UF (40.6%) SJRWMD (4.2%) CCA (16.6%) FWC (3.9%) AFT (12.2%) FOS (2.6%) RC (19.6%) (total match rate 51%)</td>
</tr>
<tr>
<td>Total Project Cost</td>
<td>$404,164</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, (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.
Community-Based Restoration Proposals
Title of Project | Restore Our Shores: Clam Gardening Project (Community-Based Restoration Proposal)

Lead Organization and Partners | East Coast Zoological Society of Florida, Inc. (d/b/a Brevard Zoo) (Applicant)
Ashley Rearden, Conservation Curator
8225 N. Wickham Rd.
Melbourne, FL 32940
321-254-9453, ext. 284
arearden@brevardzoo.org
University of Florida Whitney Laboratory for Marine Bioscience (Partner)
Todd Osborne, Associate Professor
9505 Ocean Shore Blvd.
St. Augustine, FL 32080
352-256-3826
osbornet@ufl.edu

Project Location | 20 locations throughout the Brevard County portion of the IRL, 28°23′09.6″N 80°41′31.1″W

Key CCMP Vital Sign(s): | Filter Feeders Vital Sign within the One Lagoon portion of the wheel
Citizen Engagement Vital Sign within the One Voice portion of the wheel

IRLNEP Contribution and Source: | $65,000, IRL Council
Partner Match: | $29,040, Brevard Zoo
$19,000 UF Whitney Laboratory for Marine Bioscience
Total Project Cost: | $113,040

**Project Description:** Brevard Zoo began a community-based oyster gardening program, alongside Brevard County, in 2014, from which the zoo has learned how to design and implement an impactful and engaging community-based program. This project seeks to expand upon the Brevard County funded oyster gardening project to create a clam gardening project which will restore 7,000 square feet of clam beds, repatriate 200,000 clams, and provide outreach opportunities aimed at enhancing STEM education programs. Twenty individual properties throughout Brevard County will be selected based on careful site selection criteria to receive a 350 square foot clam restoration plot, seeded with native “super clams” produced by Todd Osborne at University of Florida Whitney Laboratory for Marine Bioscience, and maintained and monitored by community volunteers and local students throughout Brevard County.

**Map and Photos:** attached to this emailed application

**Key Outputs (Deliverables):**

1. Quarterly progress reports starting after the first quarter following contract execution
2. 7,000 square feet of clam beds restored
3. Brevard Zoo shall organize at least 20 volunteer events to engage students and the community in installing, maintaining, and monitoring the clam beds, totaling at least 1,000 hours in volunteer time.

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

1. 7,000 square feet of clam beds restored. (Short-, Medium-, and Long-term benefits)
   a. The clams restored will provide filtering benefits to the water immediately, but the population will increase over time, leading to exponential growth of filtering ability each year. A conservative estimate of the filtration rate is 25 gallons of water per day, per each adult clam. (Short-, medium- and long-term benefit)
   b. Clam filtration reduces turbidity, thereby increasing light availability for seagrass. (long-term benefit)
2. Knowledge gained through community engagement/education (Short-, Medium-, and Long-term benefits)
   a. The knowledge gained by the Zoo and its partners through this pilot will be used to guide the future of community-based clam restoration projects. (medium and long-term benefit)
   b. The knowledge gained by students and the community will inspire conservation action. (long-term benefit)
### Validation of Inexpensive and Effective Modifications of Mosquito Impoundment Management Strategies to Increase Their Value as Vital Fish Nurseries – Year 2

| Lead Organization and Partners | Indian River Land Trust (Lead)  
| Dr. Jonathan Shenker (Co-PI), FIT  
| Dr. Aaron Adams (Co-PI), FAU/HBOI  
| Dr. Dennis Hanisak (Co-I), FAU/HBOI  
| Indian River Mosquito Control District (Co-I) |
|---|---|
| Project Location | Three mosquito control impoundments in Indian River County, as shown on attached map, with sizes ranging from 30 to 150 acres. Locations between 27° 41.25N x 80° 22.794 W to 27° 33.803N x 80° 19.717W. |
| Key CCMP Vital Signs | Fisheries 3 – Improve effectiveness of fish habitat conservation and restoration  
Fisheries 4 – Identify and assess ... finfish ... important habitats within the IRL  
Wetlands 3 – Implement programs supporting wetlands protection and management on privately owned and non-profit organization owned wetlands  
Wetlands 5: Develop a Habitat Restoration Plan for the IRL system |
| IRLNEP Contribution and Source | $61,500 |
| Partner Match | IRLT = $30,946; Shenker = $15,800; Adams = $5,000; Volunteers = $10,385 |
| Total Project Cost | $123,631 |

**Brief Project Description:** This proposal represents Year 2 of a project currently underway in Year 1 funded by the IRL Council. Our privately-funded earlier study (2015-2016) at one mosquito control impoundment showed that the Rotational Impoundment Management strategy used for many mosquito control impoundments prevents juvenile snook and tarpon from leaving their initial nursery habitat to join older populations. We identified habitat characteristics that influenced production of juveniles within the impoundment habitats, and a simple and inexpensive modification of RIM that dramatically improves juvenile emigration of these very valuable recreational fishery species. This proposal seeks to replicate this modification in other impoundments, with the ultimate goal of boosting the fishery productivity of thousands of acres of impoundments in the Indian River Lagoon.

**Key Outputs (deliverables):**
- Activity reports to IRL Council, as requested
- Collection of environmental data and fish tagging and emigration data
- Analysis of emigration rates and impoundment management strategies
- Presentation of results to mosquito control district boards and Subcommittee on Managed Marshes
- Publication of study results in research paper

**Key Outcomes (benefits to the IRL):**
- Development of a simple, inexpensive modification to Rotational Impoundment Management strategy that increases juvenile fish emigration to the Indian River Lagoon through summer drawdowns that briefly allow water exchange between the impoundments
and the IRL during the period when culverts are usually closed
- Presentation of this modification to impoundment managers for adoption throughout the Indian River Lagoon watershed
- Increased production of juveniles into the populations of iconic fishery species from nursery habitat that is otherwise isolated from the Indian River Lagoon during key emigration periods
Category 3 - Community-Based Restoration Proposal: Expanding the Scope of Non-Plastic Restoration Materials in Mosquito Lagoon and Tomoka Basin

Lead Organization & Partners: Jessy Wayles, Marine Discovery Center (MDC), 520 Barracuda Blvd., New Smyrna Beach, FL 32169, jessy@marinediscoverycenter.org, 386-428-4828. Project Role: Overall Project Lead, Shuck & Share Coordinator. Dr. Linda Walters, The University of Central Florida (UCF), 4000 Central Florida Blvd., Orlando, FL 32816; linda.walters@ucf.edu, 407-823-2148. Project Role: Lead for oyster restoration and monitoring efforts. Dr. Melinda Donnelly, UCF, melinda.donnelly@ucf.edu, 321-403-0278. Project Role: Lead for living shoreline deployments and monitoring efforts.

Project Location: Mosquito Lagoon for 300' living shoreline stabilization and restoration of 4 oyster reefs (29°04’18.97”N, 80°54’58.15”W; 28°44’16.11”N, 80°45’08.21”W), Tomoka State Park for 300’ shoreline stabilization (29.3489802,-81.0918905), 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 Feeders-1, 2; Living Shorelines-1, 2, 3; Biodiversity-1, 2, 3; Commercial and Recreational Fisheries -1, 2, 3, 4; Citizen Engagement and Education-1, 3; Monitoring and Data Sharing -2.

IRLNEP Contribution & Source: $55,000
Partner Match: $61,236
Total Project Cost: $116,236

**Project Description:** This project will improve water quality (reduce nutrients, increase clarity) and make the IRL more climate-ready for sea level rise impacts by restoring 4 (~0.25 acre) oyster reefs and stabilizing 600 feet of highly eroded shoreline in Mosquito Lagoon and Tomoka State Park. 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. This will be our third year of only deploying non-plastic materials in the IRL as we continue to expand and improve these biodegradable designs to find the best matches for IRL conditions. Volunteers are the heart of our efforts and will be involved in all aspects of the project starting with retirees collecting shells from local restaurants to elementary school students from underserved communities growing mangroves from propagules at their schools. All permits from SJRWMD, USACE, and the National Park Service are in hand, so we are shovel-ready for both living shoreline stabilization of culturally important, miden sites and intertidal oyster reef restoration to ensure high densities of this keystone filter feeder in the IRL.

**Map and Photos:** Maps of restoration/stabilization locations are provided as Attachment 1. Representative photographs are provided as Photos 1 & 2.

**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 BESE™ reef paste (to remove step of attaching shells to mesh).
*Deliverable 2:* 600 linear feet of stabilized shoreline in Mosquito Lagoon and Tomoka Basin with BESE™ wave breaks or oyster shell-filled gabion wave breaks specifically designed for IRL/Tomoka waters.
*Deliverable 3:* Recycle and distribute 50,000 pounds of oyster shell through the Shuck & Share Program.
*Deliverables 4 & 5:* A minimum of 10 community restoration events plus quarterly/final reports to IRLNEP.

**Key Outcomes (Benefits to the IRL):**
Restored oyster reefs in Mosquito Lagoon. *Short-term Outcome:* 1,600 live oysters in 1-3 yrs; *Mid-term Outcome:* 3,200 live oysters in 3-5 yrs; *Long-term Outcome:* 4,000 additional oysters after 5 yrs, in Mosquito Lagoon.
Stabilized shoreline in Mosquito Lagoon and Tomoka State Park. *Short-term Outcome:* 1,200 plants and 0.5 cm accretion of sediment in 1-3 yr; *Mid-term Outcome:* Plant retention plus 1-2 cm accretion in 3-5 yrs; *Long-term Outcome:* Retention of reproductive plants plus 4 cm accretion after 5 yr.
Science and Innovation Proposals
EXECUTIVE SUMMARY

Integrated Sampling to Assess Toxins Produced by Harmful Algal Blooms in the Indian River Lagoon

Lead Organization and Partners

**Lead Organization:** Harbor Branch Oceanographic Institute at Florida Atlantic University

**Applicants:** Abdiel E. Laureano-Rosario; Michael S. Twardowski

**Partners:** Charles Jacoby; St. Johns River Water Management District (SJRWMD)

Project Location

- **Site 1:** South Mosquito Lagoon (Lat: 28.732, Lon: -80.717),
- **Site 2:** Titusville (Lat: 28.620, Lon: -80.799),
- **Site 3:** Northern Indian River Lagoon (Lat: 28.393, Lon: -80.735),
- **Site 4:** Banana River Lagoon (Lat: 28.366, Lon: -80.633), and
- **Site 5:** Melbourne (Lat: 28.125, Lon: -80.616)

Key CCMP Vital Sign(s)

- 1) Harmful Algal Blooms (HABs) and 2) Monitoring (MON)

IRLNEP Contribution and Source

- $68,267

Partner Match (%)

- FAU $18,076; SJRWMD $6,500; Total $24,576 (26.4%)

Total Project Cost

- $92,843

Project Description

The proposed study will document temporal variability in toxin concentrations from Harmful Algal Blooms in the Northern Indian River Lagoon, Banana River Lagoon, and Mosquito Lagoon and combine them with data on environmental conditions to identify biogeochemical drivers of toxin production. Currently, toxins are not analyzed as part of ambient water quality surveys, and adaptive sampling of blooms may miss periods when toxins are produced. To address these gaps, the proposed project will deploy Solid Phase Adsorption Toxin Testing (SPATT) bags on existing water quality towers maintained by the St. Johns River Water Management District (Attachment 1). These SPATT bags will integrate exposure to toxins over one-month periods. Targeted toxins will be selected using information on blooms reported during deployments. Multivariate statistical models will be used to identify associations between integrated toxin concentrations and potential biogeochemical drivers. Overall, monthly deployments of SPATT bags will provide insights into the presence of toxins, correlations between toxicity and ambient conditions that can inform management, and valuable information on the cost:benefit ratio associated with a network to monitor toxins.

Key Outputs (Deliverables)

The proposed project will involve at least 12 sampling events. Deliverables include 1) temporal concentrations of toxins (µg/L) at each site; 2) multivariate statistical assessments to identify potential biogeochemical drivers of toxins; 3) quarterly and final reports with preliminary and overall results; and 4) at least one peer-reviewed publication near the end of the project.

Key Outcomes (Benefits for the IRL)

In the short-term, concentrations of toxins will be reported to the IRL NEP and other agencies, such as the St. Johns River Water Management District. These results provide immediate insights into the spatiotemporal dynamics of toxicity. Long-term goals revolve around identifying potential biogeochemical drivers for the production of targeted toxins and providing guidance for future work to confirm causal links and design strategies to mitigate or control the production of toxins.
EXECUTIVE SUMMARY

<table>
<thead>
<tr>
<th>Title of Project</th>
<th>Controlling <em>Pyrodinium</em> Outbreaks in the Indian River Lagoon Estuarine System (IRLES) by Low-cost Biochars Prepared from <em>Sargassum</em></th>
</tr>
</thead>
</table>
| Lead Organization and Partners | Lead: Florida Institute of Technology  
Partner: National Oceanic and Atmospheric Administration |
| Project Location | Melbourne, FL |
| Key CCMP Vital Sign(s) | Harmful Algal Bloom |
| IRLNEP Contribution and Source | $59,969 |
| Partner Match | Florida Institute of Technology $67,014 / NOAA $0.00 |
| Total Project Cost | $126,983 |

Project Description
Florida’s Indian River Lagoon (IRL) frequently experiences harmful algal blooms (HABs), with *Pyrodinium bahamense* as one of the major bloom-forming species. *Pyrodinium* produces saxitoxins (STX), a group of neurotoxins which cause paralytic fish poisoning and result in major economic losses along the Atlantic coast. Traditional methods of HAB control, such as biological, chemical, or genetic control have proven to be either costly or ineffective. According to our prior research experience, biochars might have tremendous potential to control HABs in the IRL. Therefore, Florida Institute of Technology in collaboration with National Oceanic and Atmospheric Administration is proposing a one-year project to synthesize biochars from *Sargassum* seaweed and use this material to adsorb *Pyrodinium* cells and STX from water. Specific objectives are: (1) Establish relationship between biochar morphologies produced from *Sargassum* at varying conditions and asses their capacity for *Pyrodinium* (and STX) adsorption; and (2) Evaluate the fate of STX during *Pyrodinium* adsorption, and its elimination from water. This project will identify the key aspects on how to control HAB outbreaks from IRL. Two graduate students will be funded from this project, while their tuition will be provided as cost-share. The project outputs will be presented and discussed in panel at the annual IRL Symposium. This project will also result in valuable preliminary results for upcoming NOAA PCMHAB and EPA South Florida Geographic Initiative proposals. Implementing this technology will benefit multiple management authorities including, but not limited to: IRLNEP, St John’s River Water Management District, local fisheries businesses, and local tourism.

Map and Photo(s): Attached with the email

Key Outputs (Deliverables)
Outline the specific project deliverables as a list with brief descriptions of each. Be sure to quantify any nutrient reduction estimates, acres of linear feet restored, etc.
- Presentation at IRL Symposium. Scientific discoveries of this project will be presented at the IRL Symposium.
- Peer-reviewed manuscripts. A manuscript describing HAB will be submitted to Journal of Environmental Chemical Engineering or similar journal
- EPA SFGI grant proposal. An EPA South Florida Geographic Initiative (SFGI) proposal will be submitted to move this technology to Phase II.
- Final report. Final report will be submitted to IRLNEP

Key Outcomes (Benefits to the IRL)
- Demonstration of proof of concept for a new technology that has a HAB mitigation application
- All-natural route of mitigation for containing/controlling HABs, or a combined way to rid beaches of nuisance algae while using it to treat HABs in specific, targeted areas
- Long term: benefits the local IRL HAB community in providing new avenues for pursuing mitigation efforts during HABs.
EXECUTIVE SUMMARY

<table>
<thead>
<tr>
<th>Title of Project</th>
<th>Fingerprinting emerging contaminants of concern in the Central Indian River Lagoon (IRL)</th>
</tr>
</thead>
</table>
| Lead Organization and Partners: | Florida International University (FIU)  
Natalia Soares Quinete, Lead PI, 3000 NE 151st Street, North Miami, FL, 33181, nsoaresq@fiu.edu, (305) 919-4113;  
Piero Gardinali, Co-PI, 3000 NE 151st Street, North Miami, FL, 33181, gardinal@fiu.edu, (305)348-6354;  
Henry Briceño, Co-PI, 11200 SW 8th Street, Miami, FL, 33199, briceno@fiu.edu, (305) 348-1269 |
| Project Location | Central IRL (28° 8'10.68"N, 80°19'4.77"W to 27°33'57.09"N, 80°39'48.96"W) |
| Key CCMP Vital Sign(s): | Contaminants and Science and Technology |
| IRLNEP Contribution and Source: | $99,559.16, IRL Council |
| Partner Match: | $33,529.60 (25.2%) |
| Total Project Cost | $133,088.76 |

**Project Description:** The goal of this research is to assess the occurrence of emerging contaminants by non-targeted analysis (NTA) in surface waters of the Central IRL Basin, identifying chemicals of concern, their seasonal trends and exploring the role played by the unintentional release of treated or untreated sewage by tracing sucralose, a powerful indicator of wastewater intrusion. Currently, there is a significant knowledge gap in the identification and assessment of emerging contaminants of concern (ECC) discharged into the IRL surface waters. Some ECC can act as endocrine disruptor chemicals and are not effectively removed during conventional wastewater treatment. Recently, citizens have expressed serious concerns on the water quality in the IRL watershed as well as the influence of anthropogenic pollutants impacting the IRL, we will collect and analyze surface water and wastewater samples from five WWTP (NPDES sites), nine river and nine lagoon waters, during the wet and dry seasons, spanning from Melbourne to Vero Beach.

**Map and Photo(s):** Project Map with sampling locations and description (Fig 1) and a representative scheme of the proposed project (Fig 2) is provided as two JPEG images in annex.

**Key Outputs (Deliverables):** The following outputs are expected to be produced in this project:  
Quarterly Report #1: Bibliographic Summary; Final Execution Plan. Quality Assurance and Quality Control (QA/QC) management plan; Sampling Event #1 report. **Date: Month 5th**  
Quarterly Report #2: Analytical Results of Sampling #1; Statistics of existing water quality data for Central IRL; QA/QC Audit; **Date: Month 7th**  
Quarterly Report #3: Analytical results of Sampling #2; Statistical correlations; **Date: Month 10th**  
Quarterly Report #4: Critical data and an online open-access database on ECC species, distribution, and variations in Central IRL. Outreach activities with NGOs and partnerships. **Date: Month 12th**  
**Final Report Draft:** Draft final with quantitative sucralose data to elucidate effluent migration from septic tanks to nearshore surface water, including probable sources of pollution; potential correlation with traditional water quality parameters and the presence of specific ECC. Areas of concerns will be identified. Public and expedite access to results via internet to inform on impacts of ECC on water quality and conditions in the IRL. **Date: Month 12th**

**Key Outcomes (Benefits to the IRL):** This project will provide critical information on ECC occurrence, identity, changes, and sources on the IRL watershed as well as the influence of wastewater on surface water, serving as a base to identify areas of concern and to inform IRL partners and stakeholders on priority ECC to be included in monitoring efforts.
EXECUTIVE SUMMARY

<table>
<thead>
<tr>
<th>Title of Project</th>
<th>Monitoring Improved Hydrology, Water Quality, and Mangrove Recovery in the Jensen Beach Impoundment (Category 4 Science and Innovation Proposal)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lead Organization and Partners:</td>
<td>Lead Organization: Florida Fish and Wildlife Conservation Commission Ryan P. Moyer, Ph.D., <a href="mailto:ryan.moyer@myfwc.com">ryan.moyer@myfwc.com</a>, 727-892-4153; Kara Radabaugh, Ph.D., <a href="mailto:kara.radabaugh@myfwc.com">kara.radabaugh@myfwc.com</a>, 727-502-4986; 100 8th Avenue SE, St. Petersburg FL 33701 Erin McDevitt, <a href="mailto:erin.mcdevitt@myfwc.com">erin.mcdevitt@myfwc.com</a>, 772-774-9490. 19100 SE Federal Hwy, Tequesta, FL, 33469. <strong>Project Partner:</strong> Florida Oceanographic Society Loraë T. Simpson, Ph.D., <a href="mailto:lsimpson@floridaocean.org">lsimpson@floridaocean.org</a>, 772-225-0505 x 114, 890 NE Ocean Blvd, Stuart, FL 34996</td>
</tr>
<tr>
<td>Project Location:</td>
<td>Hutchinson Island, Jensen Beach Impoundment (27.257560, -80.206672), 170-acre impounded mangrove forest. See map and photo.</td>
</tr>
<tr>
<td>Key CCMP Vital Sign(s):</td>
<td>Impaired waters, stormwater, hydrology, wetlands, connected waters, biodiversity, monitoring and data, state of the lagoon</td>
</tr>
<tr>
<td>IRLNEP Contribution and Source:</td>
<td>$42,519, IRL Council</td>
</tr>
<tr>
<td>Partner Match:</td>
<td>$12,604 (FWC, 21.6 %) + $3,292 (FOS, 5.6 %) = $15,897 total (27.2 %)</td>
</tr>
<tr>
<td>Total Project Cost:</td>
<td>$58,416</td>
</tr>
</tbody>
</table>

**Project Description:** The Jensen Beach Impoundment (JBI) is a 170-acre impounded mangrove wetland which was originally created for mosquito control (see included map and photos). The stress of altered hydrology (chronic) and standing water (acute) following Hurricane Irma in 2017 led to the death of over 50 acres of mangroves and stressed an additional 30 acres. Externally funded habitat restoration in the JBI is being implemented through a partnership with FWC and Martin County, with planned completion of construction by October 2021. This proposed study will monitor the water quality, hydrology, forest elevation, vegetation, and soil in areas that show signs of low, moderate, and severe stress within the JBI. Information on appropriate hydrologic conditions will help manage other impounded wetlands and prevent future mortality events. This study will also provide information on how rapidly ecosystem services such as nutrient filtration and soil stabilization are restored in a mangrove mortality zone following restoration.

**Key Outputs:** Water quality, vegetation, and soil characteristics will be monitored to assess the recovery of the JBI forest and its ecosystem services. A final report evaluating the success of the JBI hydrologic restoration in forests with low, moderate, and severe degrees of stress will be produced (Deliverable 1). A set of recommendations for appropriate hydrologic conditions in impounded mangrove forests will enable adaptive management of the JBI and enable improved hydrologic management of other IRL impoundments (Deliverable 2). All scientific findings will be prepared into one or more manuscripts for peer-reviewed journal publication (Deliverable 3), as very limited information on the recovery of ecosystem services in mangrove-mortality zones is available.

**Key Outcomes:** 1) Restoration success will be evaluated in the JBI and enable adaptive management of the site (short-term benefit). 2) Changes in water quality, hydrology, elevation, and vegetative growth, will be compared before and after restoration (medium- to long-term benefit). 3) Recommendations on appropriate hydrologic conditions for other impounded IRL wetlands will be provided to avoid future habitat mortality events due to storms and sea-level rise (long-term benefit).
**Executive Summary**

<table>
<thead>
<tr>
<th>Title of Project:</th>
<th>Innovative means and methods to facilitate prioritization of future stormwater capture, treatment, and restoration projects using existing data in a cost-effective manner</th>
</tr>
</thead>
</table>
| **Lead Organization and Partners:** | **Lead:** Randall Parkinson, Ph.D., P.G., RWParkinson Consulting, Melbourne, Florida 32935, (321) 373-0976, rwparkinson.inc@gmail.com  
**Partner:** Indian River County Board of County Commissioners, Eric Charest, Natural Resource Manager, Vero Beach, Florida 32960, (772) 567-8000 |
| Project Location: | Indian River Lagoon Central sub-basin, Indian River County. Center point is 27° 45’ (N) and 80° 25” (W). Area: ~100 km². |
| Key CCMP Vital Sign(s): | **Water Quality** - Impaired Waters, stormwater, Hydrology, Contaminants.  
**Habitats** - Seagrasses, Filter Feeders, Connected Waters. **Living Resources** - Biodiversity, Harmful Algal Blooms. **Healthy Communities** - Climate Ready Estuaries. **C³** - CCMP Implementation, Science & Technology Innovation, Monitoring and Data. |
| IRLNEP Contribution and Source: | $16,666.67, IRL Council |
| Partner Match: | $5,833.33 (26%) |
| Total Project Cost: | $22,500.00 |

**Project Description:**
The Indian River Lagoon (IRL) has been densely sampled, monitored, and measured to assess hydrology and water quality. And while it is clear the basin receives significant nutrient loading from stormwater point sources, we do not currently understand the spatial and temporal scale or associated water quality implications of these freshwater plumes as they enter, evolve, and disseminate in the IRL. Can they be detected and tracked over time? How large are they and what controls the spatial scale? How long do they persist and what dictates their duration? What effect does proximity to a tidal inlet have on their temporal and spatial evolution? Our pilot project is designed to answer these questions using existing data, innovative means (e.g., remotely sensed water quality proxies) and methods (e.g., machine learning models) in a cost-effective manner. Although our project will focus on the Central IRL, located in Indian River County, we anticipate the resulting information and modeling protocol (outputs) will be useful to resource managers during their consideration and prioritization of large-scale restoration projects designed to reduce impairment and HABs throughout the IRL (outcome).

**Map and Photo(s):**
Map of project location (Attachment I). Photo (Attachment II).

**Key Outputs (Deliverables):**
**Deliverable 3** - An innovative/novel and cost-effective methodology to evaluate the spatial and temporal scale hotspots and hot moments to two contrasting stormwater point-source locations located in the Central IRL sub-basin.

**Deliverable 4** - In collaboration with our partner (Indian River County) and others (e.g., Brevard County, St. Johns River Water Management District), to model will be constructed to: (1) optimize end-user confidence and ensure (2) it is both user friendly and (3) can be readily applied by resource management stakeholders and practitioners responsible for improving water quality in the IRL.

**Key Outcomes (Benefits to the IRL):**
This project proposes to generate an innovative/novel tool capable of transforming the decision-making structure for prioritizing stormwater mitigation/restoration projects designed to reduce water quality impairment and HAB. Utilization of the tool by resource practitioners will be facilitated by our outreach efforts and intent to design a relatively rapid and cost-effective tool that does not require the collection of new water quality data.
Executive Summary

<table>
<thead>
<tr>
<th><strong>Title of Project</strong></th>
<th>Category 4: Science and Innovation Projects: Employing eDNA to Impaired Waterway Restoration Efforts to Revolutionize Biomonitoring</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Lead Organization and Partners</strong></td>
<td>University of Central Florida (UCF): Dr. Michelle Gaither, Dr. Geoffrey Cook, Dr. Linda Walters, and Dr. Melinda Donnelly</td>
</tr>
<tr>
<td><strong>Project Location</strong></td>
<td>Brevard County-Marina Isles Community: 28° 9’2.81”N, 80°36’20.88”W; Ahmed-Niland: 28° 4’37.57”N, 80°34’27.39”W; Coconut Point EEL Preserve: 28° 0’38.90”N, 80°32’14.41”W; Hog Point EEL Preserve: 27°59’50.55”N, 80°31’33.41”W</td>
</tr>
<tr>
<td><strong>Key CCMP Vital Sign(s):</strong></td>
<td><strong>One Lagoon:</strong> Impaired Waters (Critical), Filter Feeders (Serious), Biodiversity (Serious); <strong>One Voice:</strong> Science &amp; Technology Innovation (Undetermined), Monitoring and Data (Serious)</td>
</tr>
<tr>
<td><strong>IRLNEP Contribution and Source:</strong></td>
<td>$50,000, IRL Council</td>
</tr>
<tr>
<td><strong>Partner Match:</strong></td>
<td>$16,762</td>
</tr>
<tr>
<td><strong>Total Project Cost:</strong></td>
<td>$66,762</td>
</tr>
</tbody>
</table>

**Project Description:** By leveraging ongoing and highly successful, community-based and partner-driven restoration and monitoring efforts sponsored by Brevard County’s SOIRL (Save Our Indian River Lagoon) program, we propose to develop protocols that will revolutionize the way biomonitoring is conducted in the Indian River Lagoon (IRL) and beyond. We will combine innovative eDNA sequencing technologies with traditional monitoring efforts, including seine and visual surveys, to compare the efficacy of each technique and then combine these datasets to optimize a biomonitoring protocol that capitalizes on the strengths of each method and that will maximize the derived value from our limited restoration dollars.

**Map and Photos:** See Attachment 1 and Attachment 2

**Key Outputs (Deliverables):** Deliverable 1: Biodiversity assessments at five restoration sites using eDNA metabarcoding of two primer sets that target fishes and invertebrates. Deliverable 2: Traditional biodiversity assessments at five restoration sites using seine nets for fish which will be combined with ongoing visual surveys of restoration materials for fishes and invertebrates. Deliverable 3: Optimized biomonitoring protocols that combine eDNA sampling and traditional survey techniques that will reduce the time and money required for monitoring efforts. Deliverable 4: Quarterly and final reporting of progress. Deliverable 5: Engagement and training of a minimum of 10 UCF undergraduates (340 hours).

**Key Outcomes (Benefits to the IRL):** Many millions of taxpayer dollars have been spent on restoration projects to improve impaired waterways and restore habitat in the IRL. These efforts are usually accompanied by labor-intensive and time-consuming biomonitoring to measure project efficacy. Here we will develop a cost-effective and efficient biomonitoring strategy that combines traditional techniques with innovative sequencing technologies that will provide a more complete assessment of biological communities and their recovery, that can be employed in any estuarine system, and that will make the most efficient use of limited restoration dollars.
**EXECUTIVE SUMMARY**

<table>
<thead>
<tr>
<th><strong>Title of Project:</strong></th>
<th>Category 4 Science and Innovation Proposal: Advancing Filter Feeder Habitat Restoration Approaches for a Changing Lagoon</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Lead Organization and Partners:</strong></td>
<td>University of Central Florida and Florida State University</td>
</tr>
<tr>
<td><strong>Project Location</strong></td>
<td>Mosquito Lagoon (28°54'24.73&quot;N, 80°49'16.44&quot;W)</td>
</tr>
<tr>
<td><strong>Key CCMP Vital Sign(s):</strong></td>
<td>ONE LAGOON. Water Quality: Contaminants of Concern - 1. Habitat Quality: Filter Feeders-1, 2, 3. Living Shorelines - 1. Living Resources: 2; Biodiversity-, 3.; ONE VOICE: Monitoring and Data Sharing -2.</td>
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<td><strong>IRLNEP Contribution and Source:</strong></td>
<td>$56,342, IRL Council</td>
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<tr>
<td><strong>Partner Match:</strong></td>
<td>$17,612 from UCF; $2,374 FSU; $19,986 TOTAL (26.18%)</td>
</tr>
<tr>
<td><strong>Total Project Cost:</strong></td>
<td>$76,328</td>
</tr>
</tbody>
</table>

**Project Description:** Two critical science and innovation areas required for continued success of filter feeder habitat restoration will be addressed. First, the use of biodegradable restoration materials has been prioritized by the IRL community to maintain trash-free waters. We will monitor the ability of BESE-elements® mats created from potato chip waste and jute-infused cement structures to support successful oyster reef habitat restoration using traditional oyster restoration metrics, while also gaining an understanding of the impacts of these novel materials on carbon, nitrogen, and phosphorus cycling to inform future decisions on the deployment of the optimal biodegradable materials. Second, field experiments investigating accelerated ocean acidification (OA) at the site-scale will improve the climate readiness of restored reef habitats for calcifying organisms. The rapid expansion of red mangroves in and near reefs creates hot spots of organic-rich, acidic soils. We will be the first scientific team to evaluate whether mangrove proximity negatively impacts oyster success by experimentally quantifying oyster shell dissolution (mass loss and compressive strength) in tandem with quantifying the corrosivity of surface and porewater on oyster reefs with and without mangroves present.

**Map and Photo(s):** *Attachments: A) Map: The project location spans multiple oyster reefs within Mosquito Lagoon (ML). B) Photos: Red mangroves (*Rhizophora mangle*) are rapidly recruiting on oyster reefs within ML; Volunteers restored two reefs in ML using biodegradable BESE-elements® mats in 2019.*

**Key Outputs (Deliverables):** 1: Oyster reef restoration monitoring data for 2 biodegradable materials. 2: Site-scale water and sediment chemistry data on accelerated OA on oyster reefs. 3: Experimental data assessing the importance of mangrove proximity on oyster health. 4: Dissemination of research findings through two peer-reviewed publications. 5: Quarterly and final reports.

**Key Outcomes (Benefits to the IRL):** 1: Short, case-study data of BESE and jute-cement success in the IRL; *Mid*, data to compare to other novel materials; *Long*, large-scale adoption of the optimal biodegradable materials in the IRL. 2: Short, shared dataset on site-scale OA in the IRL; *Mid*, background data to inform further IRL OA research; *Long*, scientific understanding of OA on oyster reefs. 3: Short, experimental field data on the impacts of mangrove colonization of oyster reefs; *Mid*, data-informed mangrove management and placement of new oyster reef restoration projects in the IRL; *Long*, predictive modeling capabilities of mangrove/oyster interactions. 4 & 5: Short, IRLNEP and public access to scientific research data; *Mid & Long*, robust scientific understanding for deliverables 1 through 3.
**Executive Summary**

<table>
<thead>
<tr>
<th><strong>Title of Project</strong></th>
<th>Development of a Shoreline Restoration Model for the Southern Indian River Lagoon</th>
</tr>
</thead>
</table>
| **Lead Organization and Partners** | University of Central Florida (UCF)  
Melinda Donnelly, Kelly Kibler, and David Cannon  
Community Stakeholders: Vincent Encomio (FL Sea Grant), Molly Klinepeter (Indian River County), Irene Arpayoglou (Indian River Lagoon Aquatic Preserve) |
| **Project Location** | Comprehensive shoreline dataset for the entire Indian River Lagoon system, Ponce Inlet 29°4’18.97"N, 80°54’58.15"W to Jupiter Inlet 26°56’38.89"N, 80° 4’17.27"W |
| **Key CCMP Vital Sign(s):** | Hydrology & Hydrodynamics, Stormwater, Seagrasses, Filter Feeders, Living Shorelines, Wetlands, Spoil Islands, Biodiversity, Species of Concern, Exotic & Invasive, Monitoring and Data, State of the Lagoon, Science and Innovative Technology, Climate Ready Estuaries |
| **IRLNEP Contribution and Source:** | $88,721, IRL Council |
| **Partner Match:** | $29,998 |
| **Total Project Cost:** | $118,719 |

**Project Description:** This project will complete a high-resolution spatial dataset documenting the contemporary state of all shorelines in the IRL, with a final project output of a lagoon-wide mapping asset and model that prioritizes IRL shorelines according to need for stabilization. The proposed shoreline data collection will encompass 180 miles of shorelines from Sebastian Inlet to Jupiter Inlet, which will be combined with previous efforts completed in North and Central IRL to provide a Lagoon-wide assessment of shorelines and associated habitats. Shoreline assessment and prioritization model can be used directly by resource managers and restoration stakeholders and supports future hydrodynamic modeling for the expansion of the living shoreline suitability model developed for the North and Central regions into the South IRL. This lagoon-wide dataset directly addresses the Indian River Lagoon Council’s priorities for FY2022 by using innovative and transformative science and technology to improve habitat restoration, decrease restoration costs, and improve water quality. Deliverables will guide the Planning, Design & Engineering of shoreline stabilization, habitat conservation, and restoration efforts, which will support water quality improvement from increased wetland and filter feeder habitat as well as support a climate-ready estuary by facilitating emergency management efforts and post-event recovery.

**Map and Photos:** See Attachment 1 and Attachment 2

**Key Outputs (Deliverables):** This project will create a publicly accessible database of critical baseline data for current conditions on mainland, barrier island, and spoil island shorelines, including extent of natural habitats (wetland, seagrass, filter feeders) and locations of non-native species, stormwater outfalls and other water inputs. These data will be incorporated into a shoreline restoration prioritization model for the study area. Hydrodynamic conditions in South IRL will be characterized to support future hydrodynamic modeling.

**Key Outcomes (Benefits to the IRL):** Short-term outcomes: improved knowledge to support conservation, management and restoration decisions; Mid-term outcomes: improved conservation and restoration strategies; Long-term outcomes: increased area of high-quality shoreline habitats supporting biodiversity and recovery of ecosystem services and improved water conditions from a decrease in erosion and turbidity and an increase in biotic filtration.
RESOLUTION NO. 2021-02

A RESOLUTION OF THE BOARD OF DIRECTORS OF THE IRL COUNCIL ADOPTING THE TENTATIVE BUDGET FOR THE 2022 FISCAL YEAR

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

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

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

Section 1. The Fiscal Year 2022 Tentative Budget is attached as Exhibit “A”.

Section 2. The Fiscal Year 2022 Tentative Budget is hereby adopted.

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

DONE at______________________, Florida, this____day of______________________, 2021.

By: _________________________
IRL Council Chair

ATTEST:

________________________
IRL Council Secretary

Approved as to legal form and sufficiency:

________________________
Glen J. Torcivia
IRL Council, Legal Counsel
## IRL Council
### FY 2022 Tentative Budget
#### Exhibit A

<table>
<thead>
<tr>
<th><strong>REVENUES</strong></th>
<th></th>
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</thead>
<tbody>
<tr>
<td>Federal</td>
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<td>IRL License Plate</td>
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<tr>
<td>Member Contributions</td>
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<tr>
<td><strong>TOTAL REVENUES</strong></td>
<td><strong>$2,325,000</strong></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>EXPENDITURES</strong></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Other Expenditures</td>
<td>$1,679,295</td>
</tr>
<tr>
<td>IRL Council Strategic Program, IRLNEP 2022 EPA Work Plan, Unplanned Contingency Reserve</td>
<td></td>
</tr>
<tr>
<td>Salaries &amp; Benefits</td>
<td>$ 404,505</td>
</tr>
<tr>
<td>Facilities Expenses</td>
<td>$ 35,500</td>
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<tr>
<td>Rent, Utilities, Equipment Maintenance, Communications</td>
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<tr>
<td>Administrative Costs</td>
<td>$ 75,500</td>
</tr>
<tr>
<td>Postage, Office Supplies, Insurance, Printing, Travel, Licenses &amp; Subscriptions, Dues, Professional Development</td>
<td></td>
</tr>
<tr>
<td>Administrative Services</td>
<td>$ 130,200</td>
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<tr>
<td>Legal, Accounting, Auditing, IT Services, Legal Ads</td>
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<tr>
<td><strong>TOTAL EXPENDITURES</strong></td>
<td><strong>$2,325,000</strong></td>
</tr>
<tr>
<td>Agency Balance Beginning of Year</td>
<td>$ 0</td>
</tr>
<tr>
<td>Fund Balance - Beginning of Year</td>
<td>$ 0</td>
</tr>
<tr>
<td>Fund Balance – End of Year</td>
<td>$ 0</td>
</tr>
</tbody>
</table>
• OTHER EXPENDITURES ($1,679,295)
  1. IRL Council Strategic Program ($955,000) includes the following:
     a. Water Quality Restoration Projects - $500,000
     b. Habitat Restoration - $200,000
     c. Community-Based Restoration - $200,000
     d. Small grants program - $25,000
     e. IRLNEP Technical Support of Conferences and Workshops - $30,000
  2. IRLNEP FY2022 EPA Workplan ($700,000) includes the following:
     a. Science and innovation RFP project(s) - $100,000
     b. State of the Lagoon Technical Report Y3 - $75,000
     c. Communication Support: Service contracts for web/graphics/design support, scientific and other publications, other contract support as needed, and expanded social media and support for communication intern - $205,225
     d. Biodiversity Inventory Contract Y3 - $25,000
     e. Atmospheric Deposition Monitoring Y3 - $28,000
     f. Harmful Algal Bloom Monitoring Contracts - $150,000
     g. Grant Writing Support contracts - $40,000
     h. EPA Travel (mandatory) - $10,000
     i. CCMP project inventory and prioritization service contract(s) - $66,775
  3. Unplanned Contingency Reserve - $24,295

• SALARIES AND BENEFITS ($404,505)
  1. Executive Director - $146,250
  2. Deputy Director - $105,755
  3. Chief Operating Officer – $94,908
  4. Administrative Coordinator - $57,592

• FACILITIES EXPENSES ($35,500)
  1. Utilities - $2,000
  2. Rent and Leases - $8,500
  3. Equipment Maintenance - $5,000
  4. Equipment and Communications - $20,000

• ADMINISTRATIVE COSTS ($75,500)
  1. Travel General - $20,000
  2. Postage and Mailing - $1,000
  3. Office Supplies - $5,000
  4. Dues, Licenses, and Subscriptions - $10,000
  5. Printing - $25,000
  6. Insurance - $6,500
  7. Staff Training and Professional Development - $8,000

• ADMINISTRATIVE SERVICES ($130,200)
  1. Legal - $65,000
  2. Accounting - $28,500
  3. Auditing - $11,200
  4. IT Services and Compliance - $25,000
  5. Legal Ads - $500