

**INDIAN RIVER COUNTY, FLORIDA  
BOARD MEMORANDUM**

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**TO:** Jason E. Brown, County Administrator

**THROUGH:** Richard B. Szpyrka, P.E., Public Works Director

**THROUGH:** Eric Charest, Natural Resources Manager

**FROM:** Molly Klinepeter, Lagoon Plan Environmental Specialist

**SUBJECT:** **Research Review Phase of the IRC Lagoon Management Plan: Update 2**

**DATE:** November 24, 2020

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**BACKGROUND**

On July 16, 2019, the Indian River County Board of County Commissioners (BCC) adopted an outline for developing the County's Indian River Lagoon Management Plan for our portion of the Indian River Lagoon (Lagoon). Staff was approved to use a multi-phased approach to develop this plan over the timeline identified in Attachment A (Research Plan Timeline). The first phase was the Research Review Phase, which identified 17 key factors that may be impacting the health of the Lagoon in our area. Staff has been working with numerous departments and stakeholders involved with the Lagoon to gather current scientific and data-based information about these outlined factors. Following collection of this information, staff have been:

- consolidating available data
- identifying informational gaps
- preparing infographics to disseminate information learned

Staff is to present four quarterly presentations to the BCC about information collected.

This accompanying presentation is to inform the BCC about our findings during this second portion of our research phase which addresses the 5 items identified in the approved timeline, focusing on areas where more information may be needed in order to determine what impacts may be occurring. Supporting research on the summaries presented in this agenda is included as Attachment B to this agenda.

**DESCRIPTIONS AND CONDITIONS**

The scheduled topics addressed during the presentation are as follows:

**1. Ecosystem Functions and Habitat Use (Part 2)**

The ecosystems, habitats, and organisms that make up the Indian River Lagoon all play a unique and important role in the health and sustainability of the Lagoon. All of these elements interconnect to create the biodiverse environment of the Lagoon. As human populations continue to grow and expand, this unique environment faces numerous challenges to its long-term sustainability. This update will focus on mangroves, spoil islands and their importance to bird populations, and species of concern within the County's portion of the Lagoon.

## **2. Harmful Algal Blooms**

The Indian River Lagoon is home to a wide variety of algal communities that exist relatively unnoticed. However, stressors from the environment can trigger the excessive production of algal communities that can release toxins into the waters that may be detrimental to the health of the Lagoon. Some of these stressors stem from increasing nutrients in the water such as nitrogen and phosphorus, changing land use practices, development, and issues related to climate change. Not only do these blooms have the potential to harm communities within the Lagoon's ecosystem, the toxins they can produce also have negative impacts on human health and the economy because of impacts to recreational fishing and tourism. Harmful algal blooms are temporary events, and can occur in saltwater, freshwater, or brackish water bodies.

## **3. State and Regulatory Review of Rules**

State and Regulatory Rules play a major role in regulating the levels and sources of nutrients the Lagoon receives from upland sources. Within the County, the Utilities Department and Stormwater Division have to follow various rules and permit conditions to minimize nutrient impacts from their projects, infrastructure, and facilities. These permits may require nutrient information to be collected and submitted on various timescales to permitting agencies. State and Regulatory Rules also play a major role in protecting the biological and ecologically diverse habitats of the Lagoon, attempting to ensure viability for these important organisms and ecosystems to survive.

## **4. Total Nitrogen and Total Phosphorus**

Nitrogen and phosphorus concentrations are essential for the Lagoon in order to have a productive and diverse ecosystem. Organisms need these nutrients to survive in their habitats and are required for certain life processes. These two nutrients receive a bad reputation in relation to the Lagoon because although necessary for life, excess amounts of nitrogen and phosphorus can be detrimental to the system and the organisms that call it home. These sources of nutrients stem from point sources, such as permitted discharges, and non-point sources, such as stormwater runoff, groundwater flow, and atmospheric deposition.

## **5. Land Use Changes (Part 2)**

In order to develop a parcel of land within the County, various permits and approvals must be obtained from different levels of government (local, water control districts, FDEP, water management districts, etc.). These permits cover numerous topics, but one important topic needing approval is for the management of stormwater as it changes with changing land use. The management of stormwater is important in the Lagoon's watershed to make sure pollutants and excess nutrients have time to filter and settle out of the water before eventually making its way into the Lagoon. The County regulates stormwater runoff through local ordinances and the issuance of stormwater management system permits for construction projects administered through the Public Works Engineering Division, Land Development section.

**FUNDING**

Funding is not necessary for the update of the Research Review Phase.

**RECOMMENDATION**

Staff is requesting continued support for the Research Review phase of the Indian River Lagoon Management Plan development.

**ATTACHMENT**

- A. Research Plan Timeline
- B. Supporting Research

**APPROVED AGENDA ITEM FOR: December 8, 2020**