

**INDIAN RIVER COUNTY, FLORIDA
BOARD MEMORANDUM**

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 1**

DATE: June 5, 2020

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 first portion of our research phase which focused on the 6 items identified in the approved timeline, focusing on areas where more information may be needed in order to determine what impacts are occurring. Supporting research on the summaries presented in this agenda is included as Attachment B to this agenda. Due to Departmental staffing changes and the COVID-19 pandemic, this first update to the BCC has been delayed, but staff remains committed to continuing their respective research.

DESCRIPTIONS AND CONDITIONS

The approved topics to be discussed during the presentation are as follows:

1. Annual Rainfall Data

Rainfall's impacts on the Lagoon are complex, extending beyond just the temporary water level increases associated with the rainfall events. Rainfall acts as one of the major contributors of freshwater into the Indian River Lagoon estuary system, changing salinity levels which have far reaching impacts on the Lagoon. Additionally, sediment transport associated with rainfall acts as

a conveyance for pollutants and nutrients to find their way to the Lagoon through stormwater run-off.

2. Best Management Practices (BMPs)

Best Management Practices (BMPs) are practices deemed to be an effective and practicable means of preventing or reducing water pollution generated from various activities, industries and agriculture. Stormwater and Utilities departments within the County both utilize BMPs for their water treatment systems, which act as regional scale BMPs. The County's regional scale BMPs are documented and account for certain nitrogen and phosphorus reductions in the Central Indian River Lagoon Basin Management Action Plan (BMAP) reported to the Florida Department of Environmental Protection (FDEP). Not all BMPs maintain the level of documentation that the County's projects do, so their overall effectiveness are not completely known, and with self-reporting and presumed compliance, regulatory oversight in this area needs to be further researched.

3. Biosolids

Biosolids are solid, semi-solid, or liquid materials resulting from the treatment of domestic sewage sludge from wastewater treatment facilities. Biosolids are subject to differing processing levels by wastewater utilities, and as such, different classifications of biosolids are handled differently. The 2 major classifications of biosolids for discussion are Class B biosolids and Class AA biosolids. Biosolids in general contain varying amounts of nitrogen, phosphorus and other compounds that may impact the surface waters and ground waters that may lead to the Lagoon. The County's moratorium at placement of Class B biosolids on properties within the County does stop permitted application, but the full extent of the allowed application of Biosolids (Class B and AA) is an area where current scientific investigations is being focused, with regulatory efforts beginning to address this process.

4. Ecosystem Functions and Habitat Use (Part 1)

The Environmental Protection Agency classifies the Lagoon as one of 28 estuaries in the nation designated as an "Estuary of National Significance," which sets the foundation to create a place-based program to protect and restore the water quality and ecological integrity of that estuary. Studies have shown that the Lagoon is used at some point throughout their life cycles by approximately 4,000 unique organisms, making it a biologically diverse ecosystem. Some utilize the Lagoon for their entire life while others for only a portion; both of which are equally important to our estuary. Anthropogenic influences on the Lagoon have had numerous impacts on the habitats within the Lagoon, such as with seagrass habitats. Seagrasses are used as an indicator of the overall health of the Lagoon, and trends on seagrass retreat correlate with increases in turbidity levels within the Lagoon. The reduction in seagrass habitat has triggered the creation of Total Maximum Daily Load (TMDL) reductions that are anticipated to be implemented by the FDEP before the end of this year.

5. Sea Level Rise

Sea level rise plays an important role in the health of the Lagoon in our area due to its direct connections to manmade and maintained inlets. Our portion of the Lagoon is directly influenced by two inlets, the Sebastian Inlet to the north and the Fort Pierce Inlet to the south, both of which are considered tidal inlets. As sea level rises, tides will become more extreme, with higher rates of ocean water being exchanged within the Lagoon. Another lesser understood impact to the Lagoon from sea level rise is the infiltration of saltwater into the freshwater aquifer below the land's surface. The relationship of the aquifer to the Lagoon will be researched at a greater extent during the hydrology and hydrodynamics update.

6. Land Use Changes (Part 1)

Determining past and future land use changes are important in understanding current issues in the Lagoon and determining resiliency for the future. Historical land use has been shown to provide on-going impacts to downstream waters in other parts of the State, so it is important that current and future land use updates to the County's policies continue to take into consideration any potential downstream impacts to the Lagoon.

While it is clear these six factors all play a role in the Lagoon's health, their direct impacts are not always as easily understood. Staff will continue researching these topics and how they relate to the Lagoon's health and to other topics identified in the Research Review Phase. It is important to note how many of these topics overlap with each other, and how we cannot be successful in our restoration efforts if we do not understand the ways in which one impacts the other and how they are all interconnected. The County will continue to be proactive in their management of projects and research of topics in order to help the Lagoon. The public will be made aware of research efforts through the dissemination of relative infographics. For the next update, staff will address the following topics: Ecosystem Functions and Habitat Use (Part 2), Harmful Algal Blooms, State and Regulatory Review of Rules, Total Nitrogen and Total Phosphorus, and Land Use Changes (Part 2).

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: June 16, 2020