DEPARTMENTAL

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 3**

DATE: March 22, 2021

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. Staff will provide a presentation to the BCC about our findings for our third quarter 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 as related to the fields of study. Supporting research on the summaries presented in this agenda is included as Attachment B.

DESCRIPTIONS AND CONDITIONS

The topics to be presented are as follows:

1. Hydrology and Hydrodynamics

The hydrology and hydrodynamics of the Indian River Lagoon have changed over time as human influences have changed the natural flows of the system. The creation of inlets, mosquito impoundments, drainage canals, and development have all changed the movement of water throughout the Lagoon. As a brackish waterbody, the Lagoon requires inputs of salt water and freshwater in order to find a balance in the ecosystem. The County's low sea level elevation combined with a high surficial aquifer water table

means the Lagoon is not only influenced by surface water runoff and ocean inputs, but also by groundwater flows and levels.

2. Water Quality

Water quality is a major factor in the health of the Lagoon. Degraded water quality negatively impacts the health and diversity of the Lagoon, which has been correlated to widespread seagrass habitat die-offs and the creation of harmful algal blooms. Not only does decreased water quality impact organisms within the Lagoon, it also impacts the economic contributions the Lagoon brings to its surrounding communities. Water quality is heavily monitored throughout the Lagoon, with various agencies routinely analyzing water samples. Numerous parameters are measured by these agencies, with emphasis on nitrogen and phosphorus concentrations, although additional parameters are gaining increased interests for their roles in water quality.

3. Organic Materials and Sediments

The Lagoon bottom is naturally and was historically composed of sandy sediments with minor accumulations of organic matter, or muck, from erosion of shorelines and the breakdown of vegetation. However, the encroachment and accumulation of muck on the bottom of the Lagoon has caused troubles for the health of the system as a whole. Muck forms from the accumulation of various factors, with coastal development and nutrient runoff encouraging the formation and settlement of muck on the Lagoon bottom.

4. Marinas and Boat Ramps (Part 1)

The Lagoon is heavily utilized by the local community and visitors for boating purposes, whether it be fishing in the Lagoon or to access the Atlantic Ocean through one of the inlets. Various marinas and boat ramps, both public and private, for boaters to access the Lagoon and store their boats are located within the County. It is up to boaters to maintain their vessels and be responsible operators in accordance with waterway regulators in order to protect the ecosystem of the Lagoon and to create an environment that is enjoyable for all that utilize this waterbody.

5. Sustainability and Resiliency (Part 1)

Sustainability and resiliency are measures taken to ensure the future of the Lagoon, its shoreline, and the surrounding infrastructure within the watershed. Sustainability and resiliency are not possible factors influencing the Lagoon's health like previous topics are, but instead are approaches and proactive steps the County should factor in when creating new projects and updating existing infrastructure. While the County will have more of a regional-scale presence in this movement, homeowners can also take steps to ensure they are doing their parts to maintain a resilient and sustainable future for the Lagoon with smaller-scale approaches they can make to their homes and everyday lives.

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: April 6, 2021