Assessing the health of the Indian River Lagoon

Creating a State of the Indian River Lagoon Report
Assessing the health of the Lagoon

In January 2016, the Marine Resources Council (MRC) assembled over 60 of the Indian River Lagoon's top scientists and resource managers to reach consensus on a science-based, data-driven, ecological health report. They defined indicators and identified data sources to assess the health of the Lagoon. The first State of the Indian River Lagoon Report will be released in early 2018.

**Step 1** What is the big picture?  
**Step 2** What do we measure?  
**Step 3** What is healthy?  
**Step 4** How does it add up?  
**Step 5** What is the story?

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**What is the big picture?**
Open communication and data sharing between scientists and science-based organizations is imperative to Lagoon restoration. We must evaluate the key features and threats to communicate the state of the Lagoon to policymakers.

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**What do we measure and what is healthy?**
Examples of some of the Lagoon ecological health indicators are listed below. Available data for each of these indicators must be collected and analyzed.

**Water Quality**
- Freshwater inflows  
- Salinity  
- Nutrients  
- Algal blooms

**Fish and Shellfish**
- Biodiversity  
- Key fish species abundance  
- Shellfish abundance

**Habitat**
- Muck  
- Seagrass coverage and density  
- Oyster coverage  
- Coastal wetlands

**Wildlife**
- Dolphin survival  
- Manatee survival  
- Sea turtle survival  
- Human interactions
The five reporting regions of the Lagoon

The 156-mile long Indian River Lagoon is made up of five major regions. The Mosquito Lagoon, North Indian River Lagoon, Banana River Lagoon, Central Indian River Lagoon, and South Indian River Lagoon regions must be individually evaluated and then related to each other to assess overall ecosystem health for the Indian River Lagoon system.
Regional similarities and differences

When healthy, the Indian River Lagoon is a extremely complex, highly diverse, and very productive ecosystem. However, decades of human development have impacted water quality through polluted groundwater, and wastewater and stormwater discharges. Causeways have reduced water circulation and mainland canalization has increased the size of the watershed draining into the Lagoon resulting in tremendous discharges of freshwater and pollution. Excessive nutrients and sediments have accumulated on the Lagoon bottom as muck. As a result, all areas of the Lagoon are suffering from polluted water, seagrass losses, algal blooms, and fish kills, and our marine, tourism, and real estate-based industries are at risk.

Regional differences are important when assessing the condition of the Lagoon

The Indian River Lagoon is a large and diverse system with different features and impacts from human and natural activities both in the water and on the land. These differences are listed below with the key features and threats impacting each region.

**Mosquito Lagoon**
- no major canals
- little to no ocean flushing
- limited boat traffic

**North Indian River Lagoon**
- moderate development pressure
- several causeways limiting circulation
- no ocean flushing
- Banana River Lagoon connection through barge canal

**Central Indian River Lagoon**
- light to moderate development pressure
- several large tributaries and canals
- moderate ocean flushing at inlet

**South Indian River Lagoon**
- major development
- major canals, including Lake Okeechobee discharge canal
- moderate to major ocean flushing at multiple inlets

**Banana River Lagoon**
- minor to major development pressure
- many navigation canals
- poor circulation
- little to no ocean flushing
Indian River Lagoon IN TROUBLE

The Indian River Lagoon is an important resource.

The Indian River Lagoon once had more abundant life than any estuary in our country. It is home to nearly 4,000 species and 1.7 million residents. The Lagoon contributes:
• $7.6 billion in annual revenue to Florida's economy;
• $934 million in annualized local real estate values; and,
• 72,000 jobs.

Comparing an annual cleanup cost ($230M) to its annual generated revenue, the Lagoon returns $33 per $1 spent to Florida's economy.

Decades of growth have contributed nutrients, toxic sediments to the Lagoon through stormwater, groundwater, and canal discharges. Toxic algal blooms, fish kills, and muck are symptoms of a sick and dying system. In the past 5 years, the Lagoon has experience an unprecedented loss of marine mammal life, enormous fish kills covering hundreds of miles, dramatic seagrass a collapse of fisheries, and an accumulation of thick muck on the bottom of the estuary. The Indian River Lagoon needs our protection and restoration now.

Holding ourselves accountable

Is the Lagoon improving? The State of the Indian River Lagoon Report will track the positive and visible improvements to the Lagoon resulting from our community efforts, or the continued decline if we choose to do nothing. This ecosystem assessment will update our community on the health of the Indian River Lagoon. It will provide an impartial evaluation of our restoration efforts that can guide resource management decisions and prioritize actions. This is critical to holding our community leaders and ourselves accountable, and will serve as a communication tool for reform and community action.

MRC Executive Director speaking at the Clean Water Summit in Tallahassee. Science-based, unambiguous reports are needed to convey the condition of the Lagoon's health to political leaders.
Your SUPPORT is needed!

WE ALL AGREE that the Indian River Lagoon is important to our way of life, and is under intense pressure. We need to protect and restore the Lagoon for ourselves and our children.

Support initiatives  Volunteer  Learn more

Give back to the Indian River Lagoon! Get involved with Marine Resources Council (MRC) and speak up, stand up, and get actively engaged in Lagoon restoration efforts. MRC needs funding and in-kind support for our programs. We need board volunteers, Lagoon House docents, mangrove growers, habitat planters, educators, and event planners.

Contact the Marine Resources Council www.SaveTheIRL.org to find out today how you can help.

January 2016 Workshop participants
Front row (L to R): Steven Lazarus, Robert Weaver, Leroy Creswell, Patti Gorman, Jim Moir, Andrea Graves, Heath Kelsey, Bill Nuttle
Second row (L to R): Darren Galesi, Chad Truxall, Claudia Listopad, Megan Stolen, Duane De Freeze, Graham Cox, Edie Widder, Sammy Anderson, Lorraine Koss, Leesa Souto, Jane Thomas, Suzie Housley, Caroline Donovan
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