

Assessing the health of the **Indian River Lagoon**



*Creating a
State of the Indian River Lagoon Report*

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.

Photo: ReelFL.org

Photos: Andrea Westmoreland / Flickr Commons



The Lagoon has high habitat diversity with temperate and tropical species.

The Indian River Lagoon is in crisis and needs our help!

Decades of growth have contributed nutrients, toxins, and 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 experienced unprecedented loss of marine mammal life, enormous fish kills covering hundreds of miles, dramatic seagrass losses, a collapse of fisheries, and an accumulation of thick, black muck on the bottom of the estuary. The Indian River Lagoon needs our protection and restoration now!

Photo: Malcolm Denmark/Florida Today



Over 100 tons of fish were killed in the epic March 2016 fish die-off.



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, FL. Science-based, unambiguous reports are needed to convey the condition of the Lagoon's health to political leaders.



Photo: J. Whiticar



Photo: Dianne Hughes/Martin County



Photo: Kenny Smith

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.

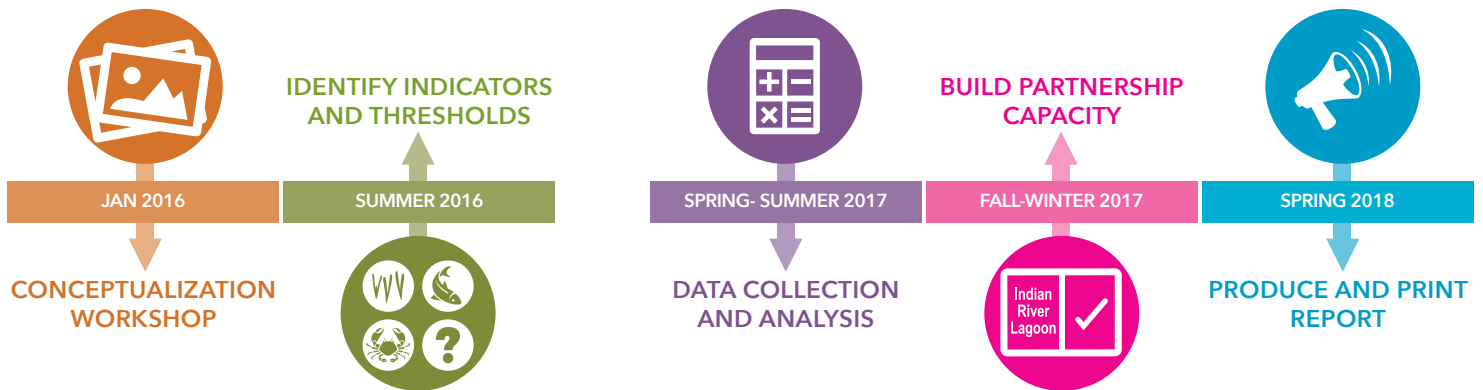
Step 1 *What is the big picture?*

Step 2 *What do we measure?*

Step 3 *What is healthy?*

Step 4 *How does it add up?*

Step 5 *What is the story?*



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.



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

Habitat

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

Fish and Shellfish

- Biodiversity
- Key fish species abundance
- Shellfish abundance

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.

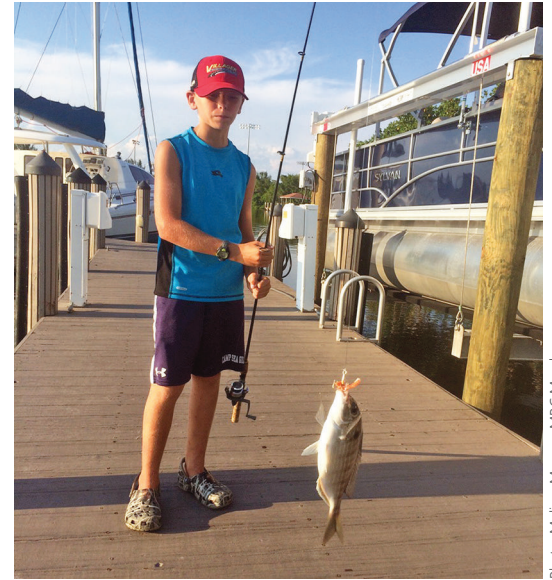


Photo: Melissa Merson, MRC Member

The Indian River Lagoon connection to the community is invaluable.



Photo: Kimon Berlin

Mangroves and marshes provide bird and fish habitat on the Banana River Lagoon.

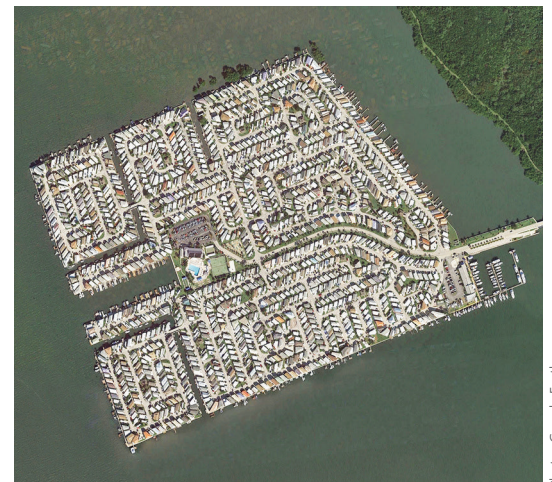
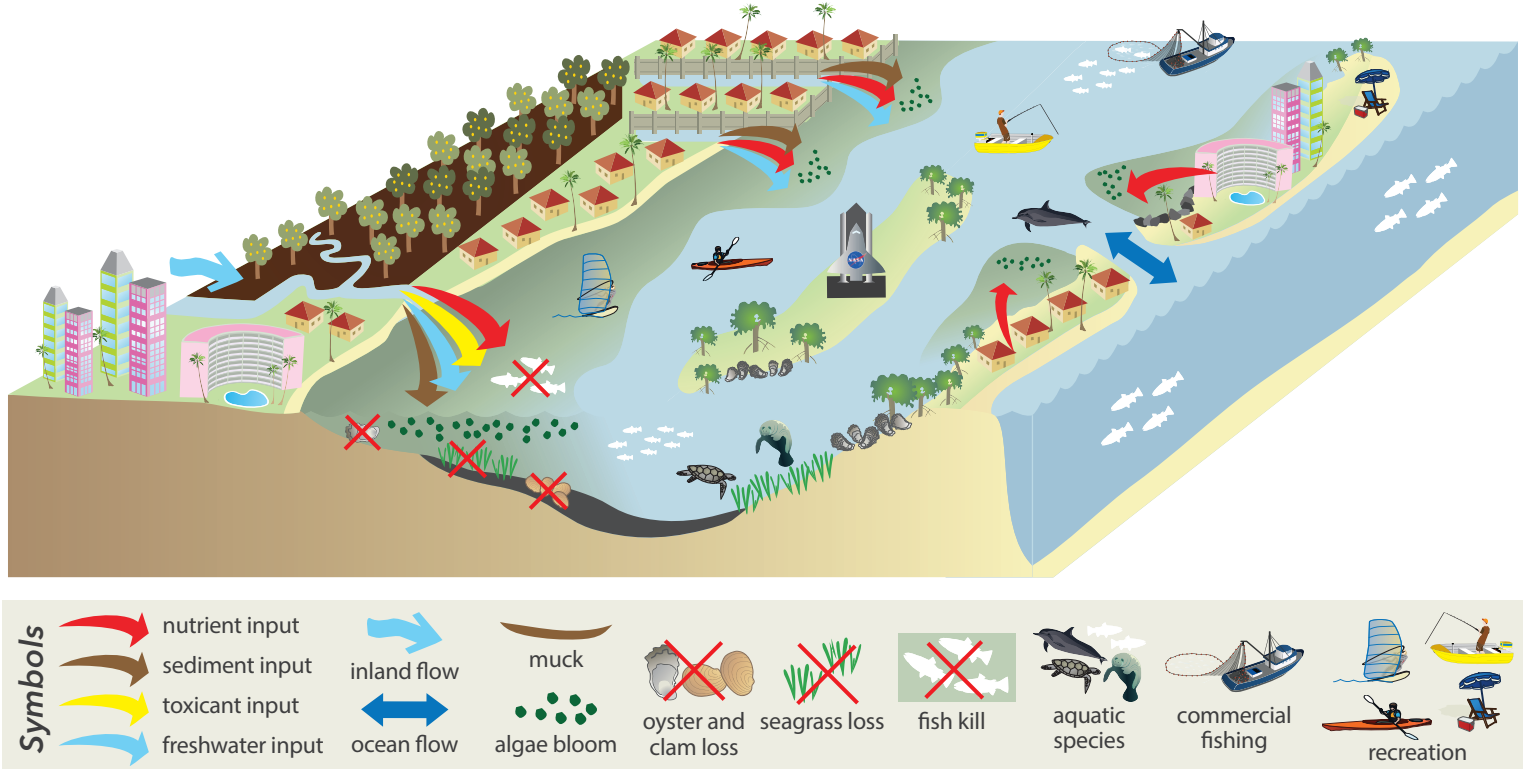


Photo: Google Earth

One of many canal estates—this one in the South Indian River Lagoon—that border the ecosystem.

Regional similarities and differences

When healthy, the Indian River Lagoon is an 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

Banana River Lagoon

- minor to major development pressure
- many navigation canals
- poor circulation
- little to no ocean flushing

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

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.**

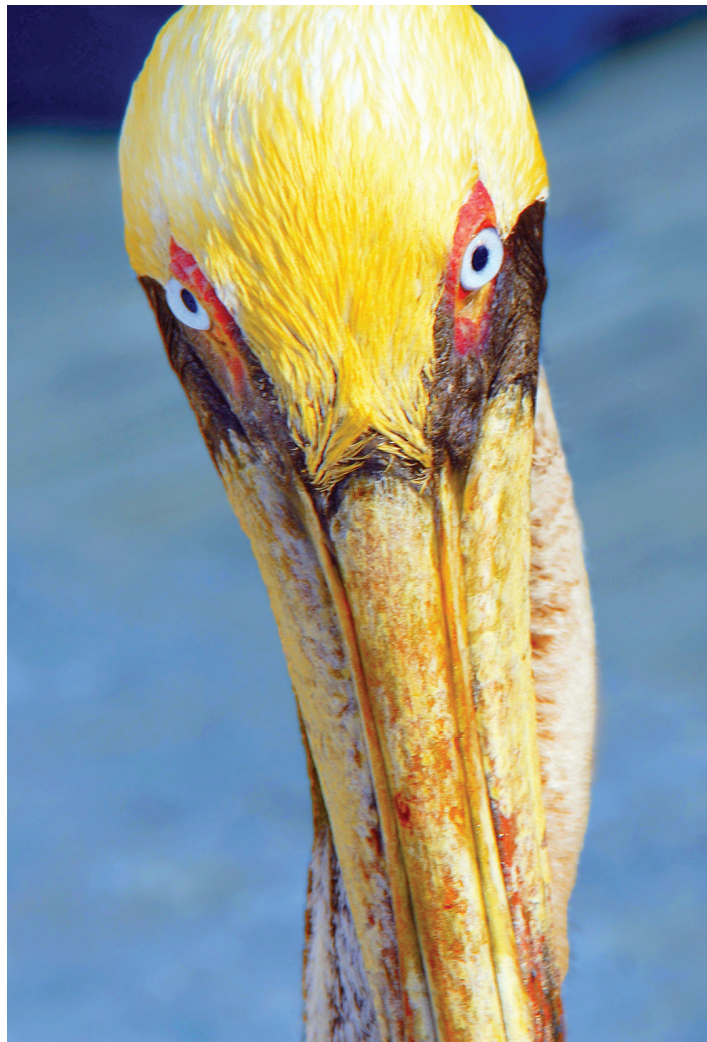


Photo: Andrea Westmoreland / Flickr Commons



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 Freese, Graham Cox, Edie Widder, Sammy Anderson, Lorraine Koss, Leesa Souto, Jane Thomas, Suzie Housley, Caroline Donovan

Third row (L to R): Rich Paperno, Bob Virnstein, Richard Turner, Virginia Barker, Gary Roderick, Katie Tripp, Geoff Cook, Jane Provancha, Kristen Kneifl, John Galvez, David Heuberger, Heather Stapleton, Laura Diederick, Rebecca Elliott, Betsy Stoner, Zack Jud, Marilyn Mazzoil

Back row (L to R): Peter Barile, Nick Sanzone, Dennis Hanisak, Grant Gilmore, Greg Wilson, Bill Tredik, Chuck Jacoby, Chris Freeman, Adam Schaefer, John Windsor.

Missing from photo: Nancy Beaver, Anne Birch, Vincent Encomio, Warren Falls, Ken Lindeman, John Shaffer, and Jane Hawkey.

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Contact information

**Leesa Souto, Ph.D.,
Executive Director**

Marine Resources Council
3275 Dixie Hwy, NE
Palm Bay, FL 32905
Ph. 321-725-7775



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www.SaveTheIRL.org**