### Understanding What's Ailing the Indian River Lagoon... and finding solutions to bring it back to health



#### One of 28 estuaries dedicated by the U.S. Congress as "Estuaries of National Significance"





- Authorized as a core water program of the Clean Water Act (Section 320).
- Unique "*Management Conference*" network governance model.
  - Science-Based
  - Innovative
  - Non-Regulatory
  - Collaborative
  - Inclusive
  - Community-Driven
  - Consensus-Building
  - Coordinated Action

- 156 miles long, from Ponce Inlet to Jupiter Inlet (6 counties, very small portion of N Palm Beach)
- Brackish water (salt & fresh mix)
- Presence of barrier island
- Primarily a wind driven system
- Tidal influence w/in 7mi of inlets (Exceptions: King & Spring Tides)
- Truly a lagoon and <u>NOT</u> a river
  - <u>No true flushing</u>
  - Over time, "legacy load" builds up





#### Seagrass Coverage Trends: What Happened?





#### Seagrass Coverage Trends: Complex Situation Got Worse

PHYTO PLANKTON SUPER BLOOM

(same one that had already killed 31,600a of seagrass)



## <u>True recovery may</u> <u>take decades</u>.

#### 2011 Superbloom Plan of Investigation



"Not only are ecologies more complex than we imagine, they are more complex than we CAN imagine."

-Michael Crowfoot







## **Excessive Nutrients Fuel HABs**

- 2013 Wildlife mortality events (manatees, birds, dolphins)
- 2015-2016 Pico-cyanobacteria Bloom
- 2016 Brown Tide and Major Fish Kill
- 2017-2018-2019 Continuing blooms (brown tide, dinoflagellates, diatoms, cyanobacteria, nano-eukaryotes)
- 2020 Nano-cyanobacteria Bloom
- 2020-2023 Manatee Mortality Event Impetus for seagrass restoration
- 2023 Pyrodinium blooms & small scale fish kills
- 2024 Lake O releases recommence

**Seagrasses Are Still Struggling** Total IRL hectares -----IRL tran length (m) 35,000 30,000 Transect length (m) and mean cover (%) Seagrass extent (hectares) 25,000 20,000 15,000 10,000 5,000 



#### What's the Big Deal about Such a Small Plant?

- Only 7 species occur in FL
  - All 7 in IRL
- Barometer of lagoon health
- One of most productive ecosystems (marine counterpart to tropical rain forests)
  - increase biodiversity
  - nursery for marine life
  - food (direct & indirect)
  - shelter

- lagoon bottom stabilization
- oxygen
- shoreline protection
- improved water clarity





## More People, More **Pollution, More Muck**

60 – 80% of **Muck** = sand, fine soils & clays from stormwater runoff

10-20% of **Muck** = organic (materials that used to be alive: lawn clippings, plants, tree trimmings, dead animals, pet wastes, etc)



## Vital Signs: 6 Priority Areas

- Impaired Waters
- Stormwater
- Wastewater
- Seagrasses
- Harmful Algal Blooms
- Financing and Implementing the CCMP



# IRL Council funds local cost-share projects

- **5 competitive RFPs:** Webinars posted online
  - Water Quality
  - Habitat Restoration
  - Community Engagement in Restoration
  - Science and Innovation
  - Small Grants OPEN NOW!
    - \$500 \$5,000 per grant
    - Submissions deadline: March 25, 2024, by 5pm
    - Award Date: On or after May 13, 2024





#### IRLNEP Master Project List



Legend 😞

IRLNEP Funded Master Project List Feature Service

2016

2018

2019

2020

2022

2023

0 2021

0 2017

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- Accelerate IRL restoration
- Address restoration and research
- Develop a supply chain for restoration species (seagrasses, filter feeders, shoreline plants)
- Train and create a workforce in restoration



#### **Brevard County Save Our Indian River Lagoon Project Plan**

https://www.brevardfl.gov/SaveOurLagoon

#### The Save Our Indian River Lagoon Project Plan

Where are SOIRL projects?

### \*\*Bigger squares represent bigger results.

Implementation of the Save Our Indian River Lagoon Plan will improve the health of the IRL system. The projects were selected to improve the lagoon in the quickest and most cost-effective way.

Many of the projects complement each other. Approximately half of the effort and expense is for projects that reduce excess nutrient inputs down to healthy levels. About a third of the expense is for projects that remove decades of excess pollution already in the lagoon. The remaining funds are dedicated to restoring natural filtration, measuring success, and responding to new information and opportunities by completing annual plan updates.



#### Brevard County Save Our Indian River Lagoon Project Plan https://www.brevardfl.gov/SaveOurLagoon

#### The Save Our Indian River Lagoon Project Plan

Septic to Sewer Conversions

Septic System Upgrade Grants

Here's another look at septic to sewer conversion projects currently funded by the Save Our Indian River Lagoon Plan. Areas funded for septic-to-sewer conversions are the shaded zones on the map. Click on area for more information.

Sewer Quick Connects



### Algal Bloom Response to Reducing Pollution





Lagoon problems are LAND BASED

- Reduce, reuse, recycle
- Don't litter
- Keep grass clippings out of streets, ditches and canals
  - All Canals Lead to Lagoon
- Pick up dog waste
  - 102 tons of dog feces left on lawns, streets, sidewalks daily in lagoon watershed
    - 0.7% nitrogen, 0.25% phosphorous
    - variety of harmful bacteria and viruses







- Replace sections of lawn with attractive, Lagoon Friendly plants
  - Florida Statutes 373.185

Local Florida-friendly landscaping ordinances 3(b): A deed restriction or covenant <u>may not prohibit or be enforced so as to prohibit any</u> <u>property owner from implementing Florida-friendly landscaping</u>

- Reduce chemical use on lawns and gardens
  - over-fertilization: 25,000 tons of vegetation into IRL annually
  - inexpensive to use, expensive to remove from water







#### Lagoon-Friendly



Photos courtesy of Florida Native Plant Society, www.fnps.org



#### • Properly maintain septic tank

- Approximately 300,000+ septic tanks in IRL Region
- N at a rate of 10 pounds per person per year
- What do you know about yours?
  - How old is yours?
  - Inspect at least every 3 years to determine depth of sludge and grease (ideally, annually)
  - Pump out once every 3 5 years
  - Check outlet tee from time to time
  - Hose off outlet screen once a year

When properly designed, installed and maintained, a traditional septic tank only removes approximately 34% Total Nitrogen (TN) and 10%Total Phosphorous (TP).

Typical single-compartment septic tank with ground-level inspection risers and screen



Lagoon-Friendly



#### <u>OK</u>

- human waste
- Single ply or recycled tp
- low-sudsing, no-phosphate, & biodegradable soaps
- natural cleaners, look for certification from GreenSeal, GreenAmerica and/or EcoLogo Program
- dryer sheets in place of liquid fabric softener
- gradual use of water
- laundry loads spaced by 2hrs

#### NOT OK

- latex paint
- sand
- Drain-O
- cat litter
- automatic toilet cleaners
- liquid fabric softener
- chlorine
- ammonia
- grease & fats

- "acceleration" products
- back-to-back loads of laundry
- back-to-back water use (ie, dishwasher, shower & laundry all at once)
- garbage disposal
- antibacterial soaps

Also, be aware of downspout placement

Lagoon-Friendly

## **Buy a Specialty Tag:**

#### **IRL Specialty License Plate**

- unique way to make a personal contribution to Lagoon restoration

brings approximately
\$125,000 annually to
Volusia, Brevard, Indian
River and Counties.



100% of proceeds go toward restoration projects in Volusia, Brevard and Indian River Counties. SFWMD manages proceeds for St. Lucie, Martin and Palm Beach Counties.

# Indian River Lagoon Personal Actions: Be the Example

- Really examine your life. Are you Living Lagoon-Friendly?
  - Do you practice the Three R's?
  - What type of lawn do you have & how do you maintain it?
  - If you have a septic tank, how much do you know about it?
  - Do you have a dog? Do you pick up after it?
  - When is the last time you emailed or called an elected official?

"For what is the environmental crisis if not a crisis of the way we live? The Big Problem is nothing more or less than the sum total of countless little everyday choices...sooner or later it will have to be addressed at that level. In our yards and kitchens and minds." -Michael Pollan, Cooked



#### **Lagoon-Friendly**

## Thank you!



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