

Expanding Role of the IRLNEP in HAB Research and Monitoring



ONE LAGOON™
ONE COMMUNITY • ONE VOICE

Duane De Freese, Ph.D.

Shift to Microalgal Dominated Estuary

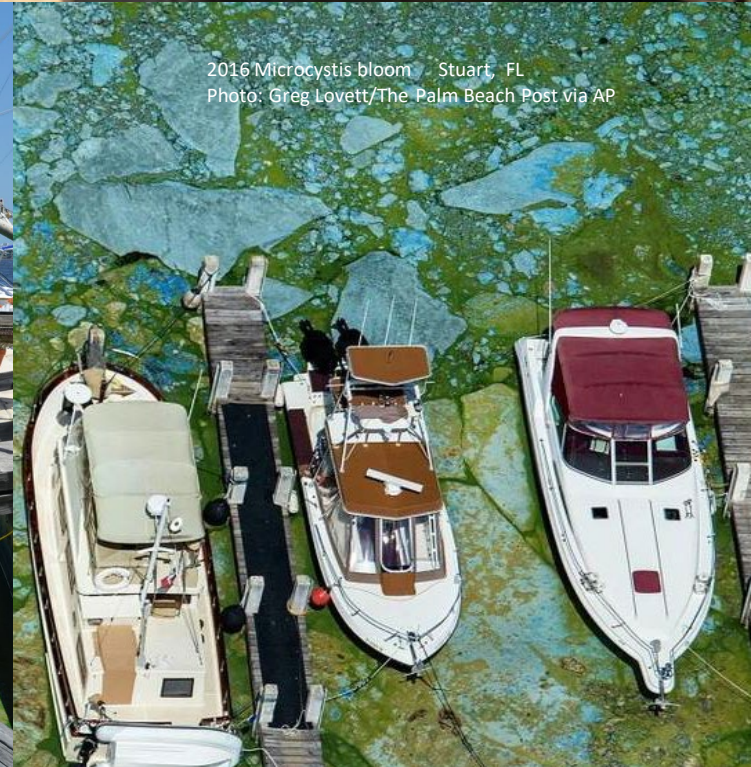
- 2011 Algal Superbloom
- 2011 Secondary Bloom
- 2012 Brown Tide
- 2013 Brown Tide
- 2013 Unusual Mortalities
- 2014-2015 Some Recovery
- 2015-2016 Green Bloom
- 2016 Brown Tide
- 2016 Extensive Fish Kill
- 2017 Some Recovery...Then Irma
- 2018 Brown Tide
- 2020 Nanocyano bloom and fish kill

Photo: Tim Kozusko. Haulover Canal,
Indian River Lagoon. August 2012

Significant Loss Of Seagrass Beds

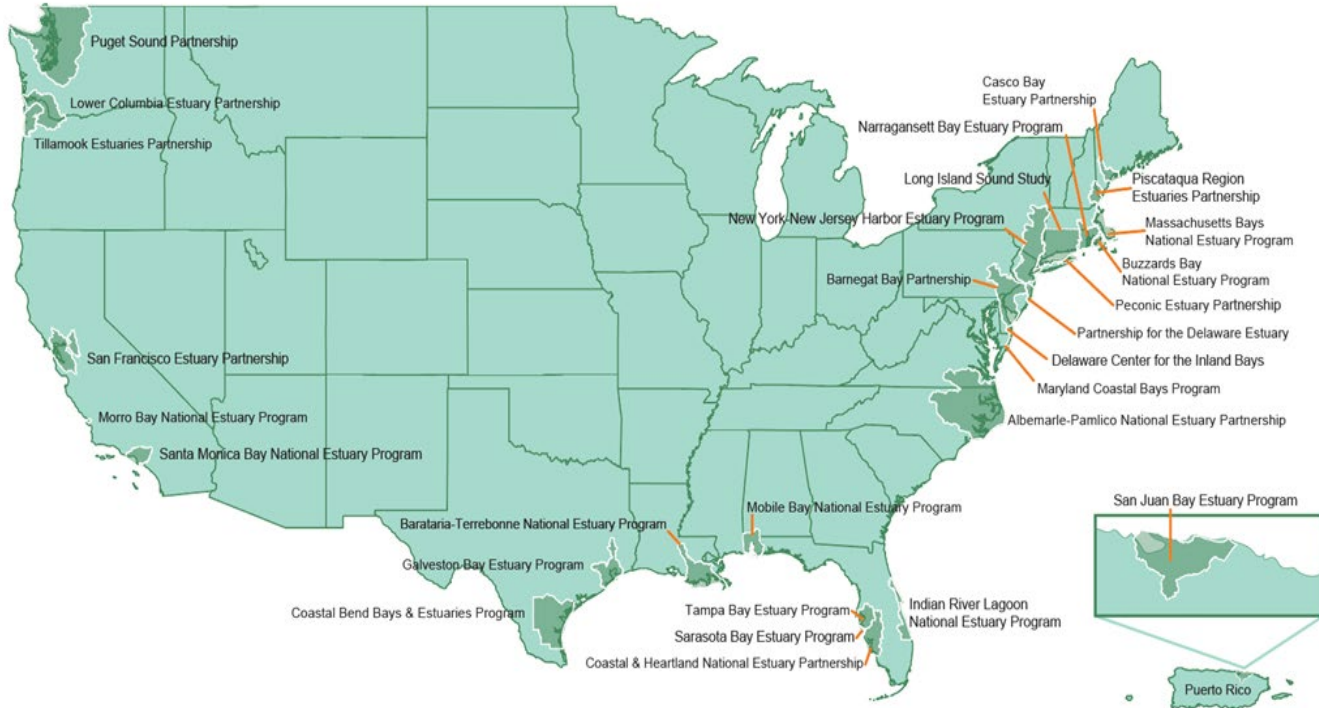
Southern Lagoon

Lake Okeechobee
Seasonal Water Discharges
Cyanobacterial Blooms



2016 Microcystis bloom / Stuart, FL
Photo: Greg Lovett/The Palm Beach Post via AP

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 NEP “*Management Conference*” provides network governance model with proven success.
 - *Science-Based*
 - *Innovative*
 - *Non-Regulatory*
 - *Collaborative*
 - *Inclusive*
 - *Community-Driven*
 - *Consensus-Building*
 - *Coordinated Action*



ONE LAGOON
ONE COMMUNITY · ONE VOICE
INDIAN RIVER LAGOON
NATIONAL ESTUARY PROGRAM



Authority Section 320 CWA

Convene Management Conference

Purpose of Management Conference

1. Assess water quality and resource and user trends.
2. Evaluate data on toxics, nutrients, and natural resources.
3. Understand the relationship between the in-place loads and point and nonpoint loadings.
4. Develop a Comprehensive Conservation and Management Plan that recommends priority corrective actions and compliance schedules.
5. Develop plans for the coordinated implementation of the CCMP.
6. Monitor the effectiveness of actions taken pursuant to the plan.
7. Review all Federal financial assistance programs and Federal development projects in accordance with the requirements of Executive Order 12372, as in effect on September 17, 1983, to determine whether such assistance program or project would be consistent with and further the purposes and objectives of the plan prepared under this section.

IRLNEP Planning Boundary

INDIAN RIVER LAGOON

156 miles long

40% of east coast of Florida

3 climate zones

2,284-square mile watershed

353-square miles of surface waters

6 counties touch IRL

7 counties in IRL watershed

38 incorporated cities

1.6 million residents

Over 4,000 species of plants and animals

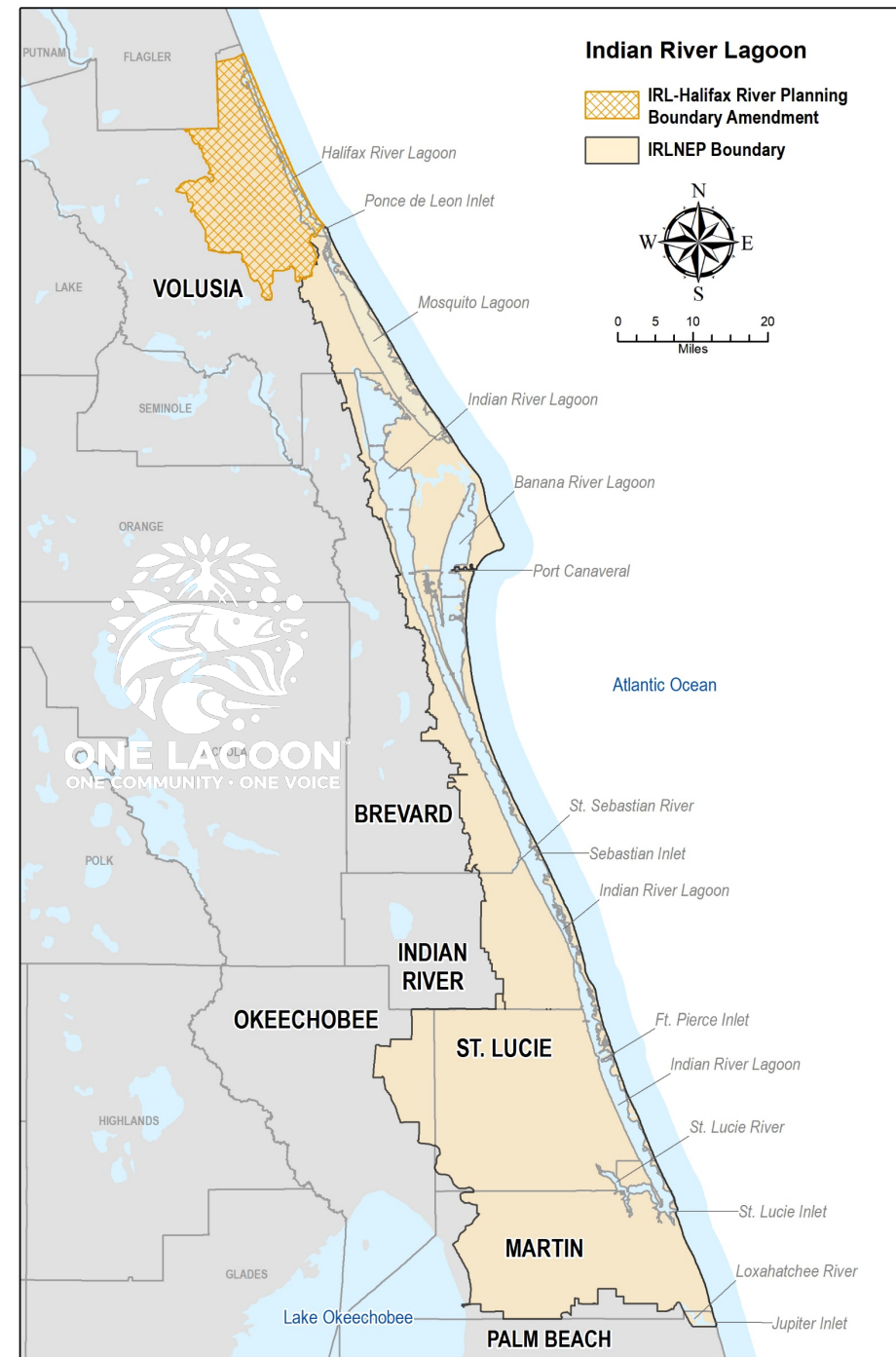
50 threatened or endangered species

IRL-HALIFAX RIVER

PLANNING BOUNDARY AMENDMENT

25-mile northward expansion into the Halifax River

198,678 acres of watershed added



IRL CCMP

Certified by U.S. EPA
July 23, 2019

Adopted IRL Council
August 9, 2019

- Over 80 individuals, organizations, and Management Conference members commented on plan.
- More than 750 comments plus wording edits.
- Over 135 community speaking events, science conferences, and Management Conference discussions at meetings (2015-2018).

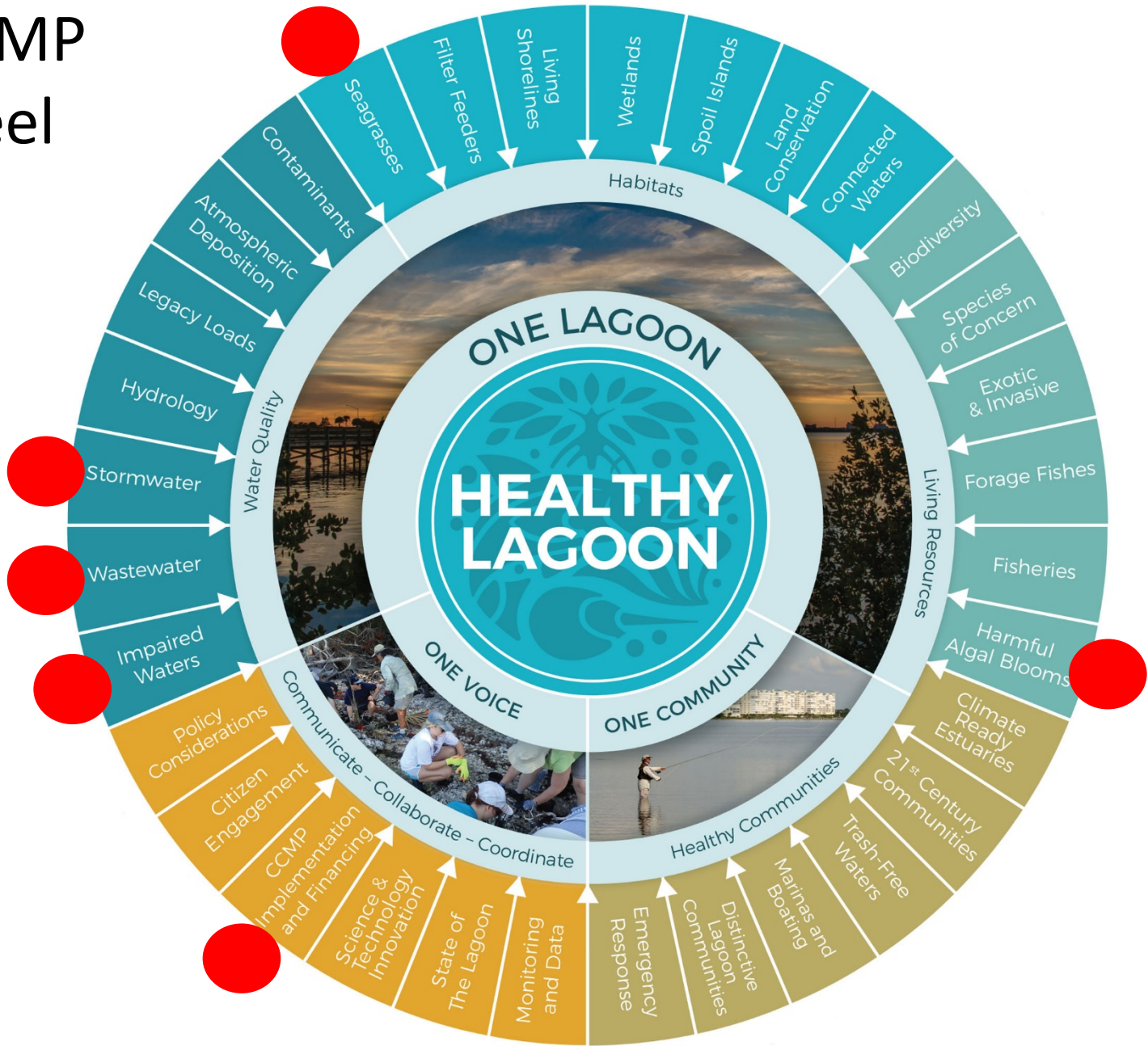


LOOKING AHEAD TO 2030

A Ten Year Comprehensive
Conservation & Management Plan
for the Indian River Lagoon, Florida



Heart of IRL CCMP Vital Signs Wheel



Vital Sign	Rank
	Community Consensus
ONE LAGOON	
Water Quality	
Impaired Waters	1
Wastewater	1
Stormwater	1
Hydrology	2
Legacy Loads	2
Atmospheric Deposition	3
Contaminants	3
Habitats	
Seagrasses	1
Filter Feeders	2
Living Shorelines	2
Wetlands	2
Spoil Islands	3
Land Conservation	2
Connected Waters	2
Living Resources	
Biodiversity	2
Species of Concern	2
Exotic and Invasive	2
Forage Fishes	2
Fisheries	2
Harmful Algal Blooms	1
ONE COMMUNITY	
Healthy Communities	
Climate Ready Estuary	2
1st Century Coastal Communities	2
Trash Free Waters	2
Marinas and Boating	2
Distinctive Lagoon Communities	3
Emergency Response	2
ONE VOICE	
Communicate - Collaborate - Coordinate	
Monitoring & Data	2
State of the Lagoon	2
Science & Technology Innovation	3
CCMP Implementation & Financing	1
Citizen Engagement	2
Policy Considerations	2

IRL Council and IRLNEP Investments

(2015-2020)

Project Location	IRL Council Funding	Number of Projects
Volusia County	\$1,586,814	14
Brevard County	\$1,910,520	20
Indian River County	\$1,289,896	13
St. Lucie County	\$1,577,123	13
Martin County	\$1,918,269	9
Lagoon-wide	\$2,452,351	45
TOTAL	\$8,282,622	114



IRLNEP - HAB Projects and Investments

- Development of a One Lagoon Monitoring Plan through a contract with FAU-HBOI.
- Microalgae and HAB monitoring contract with University of Florida (Dr. Ed Phlips) for northern IRL, Mosquito Lagoon and Banana River.
- Microalgae and HAB monitoring contract with FAU-HBOI (Dr. Malcolm McFarland and Dr. Jim Sullivan) for southern IRL.
- Reconvened the 2011 SJRWMD superbloom consortium as a standing IRLNEP task force in 2020 (IRLNEP Algal Bloom Consortium).
- IRLNEP is subsidizing the publication of a special edition of Frontiers in Marine Science: "Science Supporting Management of Eutrophication: Lessons Learned from a Barrier Island Lagoon". 30 IRL scientists from the superbloom consortium agree to develop and submit manuscripts.
- Annual funding to operate and maintain the only wet/dry atmospheric deposition monitoring station in the IRL watershed.



New Project for 2021

- The IRL Council was selected for funding in FY 2020-21 for the HAB Innovative Technology Project Grant managed by the FDEP's Office of Water Policy and Ecosystems Restoration.
- Project Title: Integrating HAB Data Across Platforms using GeoCollaborate® and Establishing a Virtual HAB Information Center.
- Project Partners: IRLNEP, SJRWMD, StormCenter Communications Inc., and FAU-HBOI working closely with FDEP.
- GeoCollaborate is an innovative technology developed by SCCI through the Federal SBIR program. The project team will integrate trusted HAB data from providers, portals, hubs, and websites to create a unique collaborative environment to enhance data sharing, analysis, decision-making and communications.
- **The amount of the award is \$963,470.**