



*Evening of Cocktails and Conversation*  
**Economic Value of the  
Indian River Lagoon**

**February 26, 2026; 5:00 – 7:00 pm**  
**Quail Valley River Dining Room**  
**2345 Highway A1A**  
**Vero Beach, FL 32963**



**ONE LAGOON™**  
ONE COMMUNITY • ONE VOICE

**Duane De Freese, Ph.D.**  
**Executive Director IRL Council**  
**Indian River Lagoon National Estuary**  
**Program**  
**[ddefreese@irlcouncil.org](mailto:ddefreese@irlcouncil.org) / (321) 313-**  
**0764**

# The IRL system is large, complex, vulnerable and valuable

## Spatial - Temporal Complexity

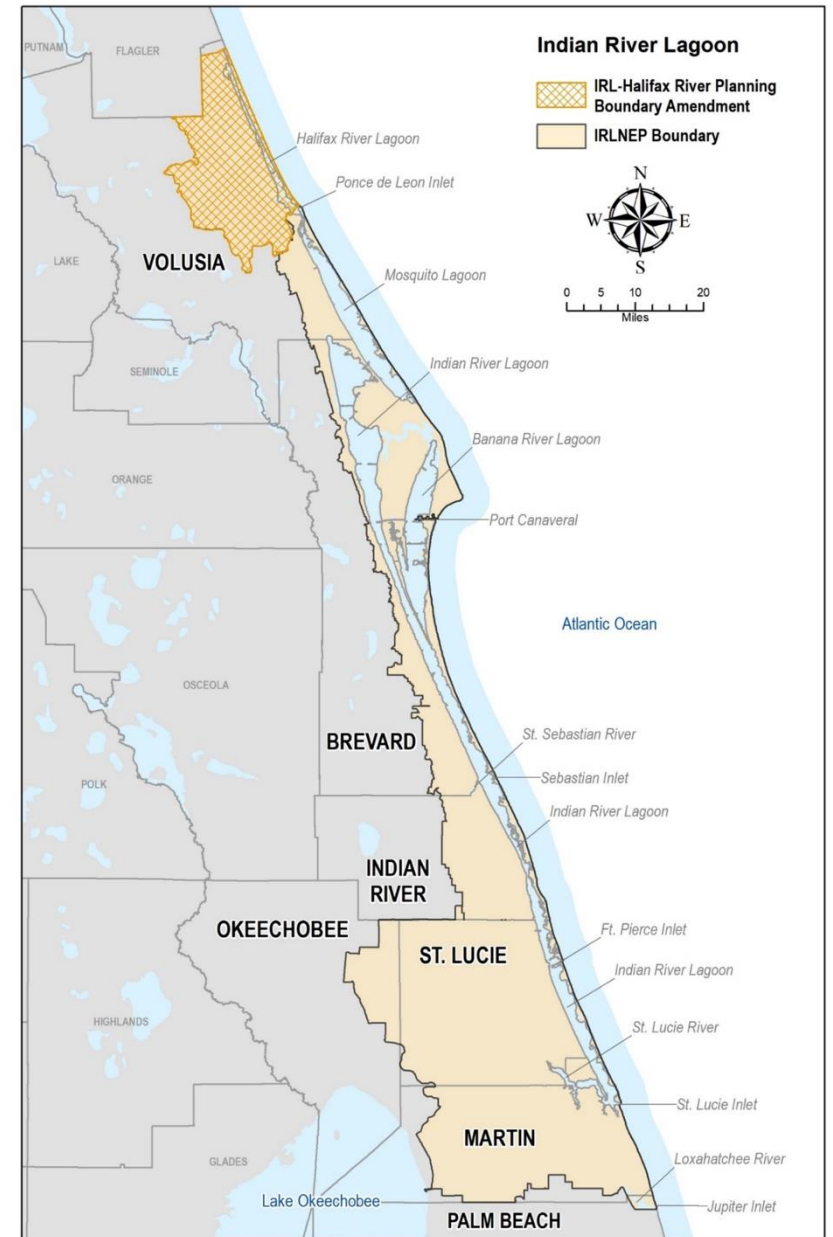
- 3 Waterbodies  
Mosquito River/Banana River/Indian River
- 156 mi long; Watershed (2,284 sq. miles)
- Surface waters (353 sq. miles)
- IRL-Halifax River boundary amendment extended project boundary 25 miles north (310 sq. miles of watershed)

## Narrow – Shallow - Microtidal

- Micro-tidal; Wind-driven system
- Narrow/Shallow/Long Residence Time
- Poorly flushed - 5 inlets to Atlantic Ocean
- Water flow constricted by causeways/NASA Crawlerway

## Diverse Socio-Economics

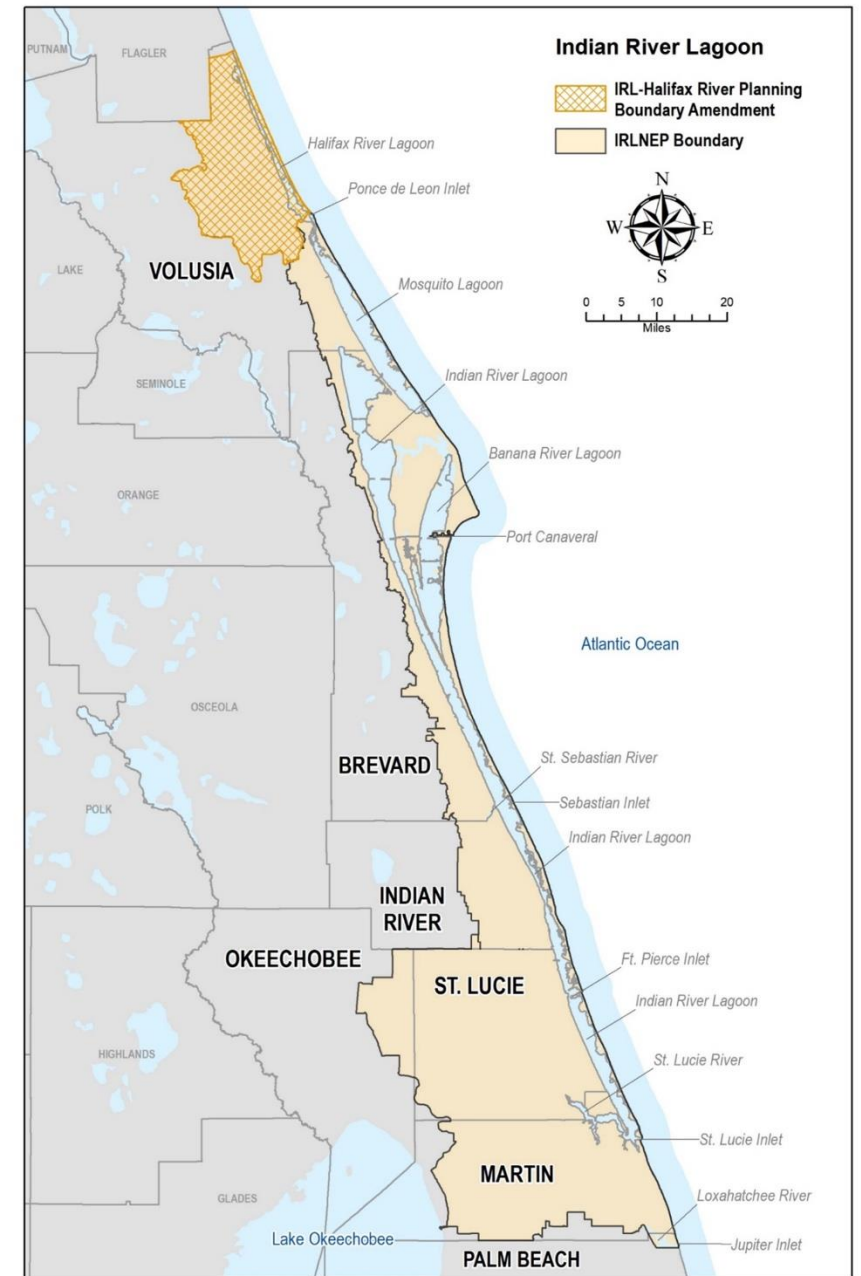
- 7 counties in watershed/38 incorporated cities
- 3.5 million residents
- Population growth projections are high





# The IRL is a national treasure

- High biological diversity (numerous R,T, and E species)
- Significant federal assets
  - 4 National Wildlife Refuges (Merritt Island, Archie Carr, Pelican Island, Nat Reed-Hobe Sound)
  - Canaveral National Seashore
  - Everglades
  - NASA-KSC
  - Port Canaveral
  - Port of Fort Pierce
  - National defense assets
    - Cape Canaveral Space Force Station
    - Patrick Space Force Base
    - U.S. Coast Guard
    - Naval Ordnance Test Unit



# Environment, economy, and quality of life at risk



Photo by Captain Alex Gorichky, Local Lines Charters, 2016



Photo: Dylan Hansen Indian River, 2020 cyanobacteria bloom



2016 & 2018 IRL and Banana River  
*Aureoumbra* Brown Tide Bloom  
(Photo: FL Today, C. Rubadoux,)



Photo: Bob Day Banana River, 2020



2018 Cocoa Beach, FL  
Photo: Robert Kane, - *Fibrocapsa japonica*;

# Environment, economy, and quality of life at risk



**PRECAUCIÓN**  
Las algas Verde azules pueden estar en estas aguas.  
PUEDE HABER TOXINAS.

Tenga cuidado si ve algas en este momento:

- No beber agua de este lugar.
- Evitar que la misma agua va en los ojos, nariz o boca.
- No beber comida mariscos de este lugar.
- Evitar los filletes de pescado con agua de la piscina o de la bañera. Para los niños. Cerrar bien el pescado.
- Evitar mantener los animales o ganado. Evitar que los animales de este lugar.

**CAUTION**  
Blue-Green Algae may be in these waters  
**THERE MAY BE TOXINS**  
Use caution if you see algae at this time

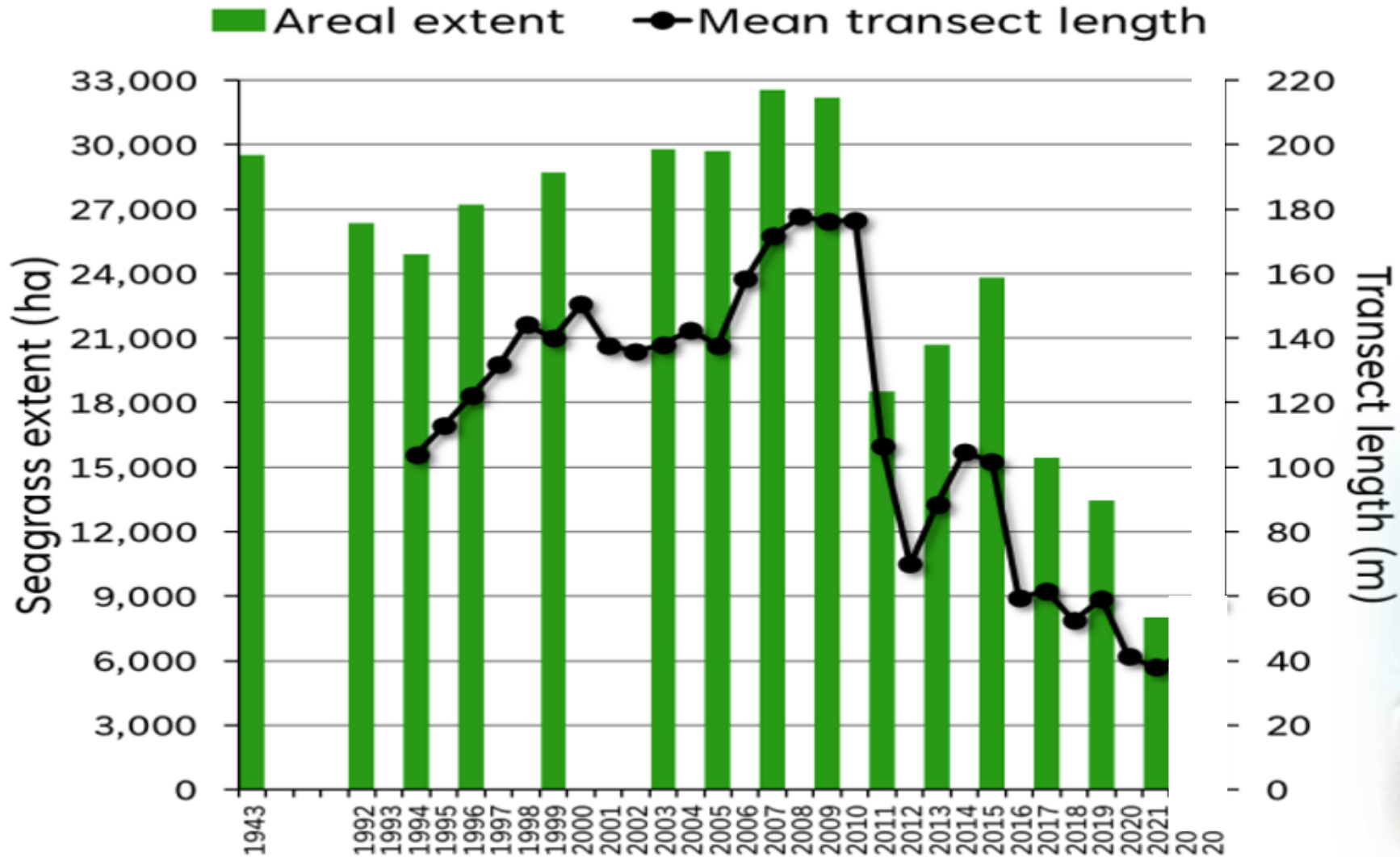
- You should not swim at this location.
- Avoid getting water in your eyes, nose or mouth.
- You should not eat shellfish from this location. Rinse fish fillets with tap or bottled water. Throw out guts, Cook fish well.
- You should keep pets and livestock away from these waters.

ridadep.gov/algalbloom - Text Updates - "MARTINHAB" to 888-7777



Photo: Duane De Freese, 2016

# Collapse of IRL Seagrasses



Loss of ~43,000 acres  
(roughly 32,575 standard  
American football fields)



Seagrass chart: St. Johns River Water Management District

# We Have A Plumbing Problem



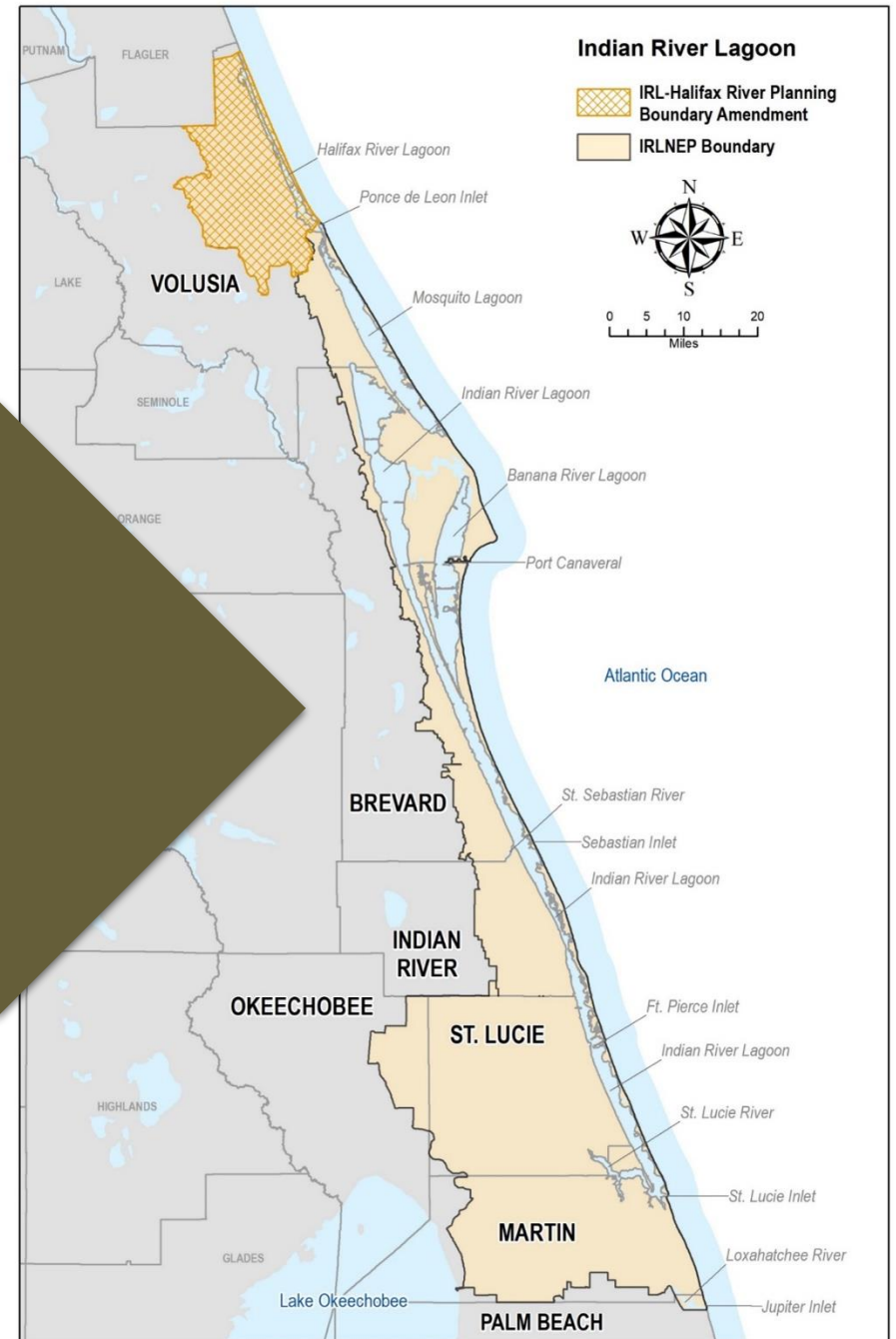
*The high cost of deferred maintenance and challenges from rapid population growth and coastal development*



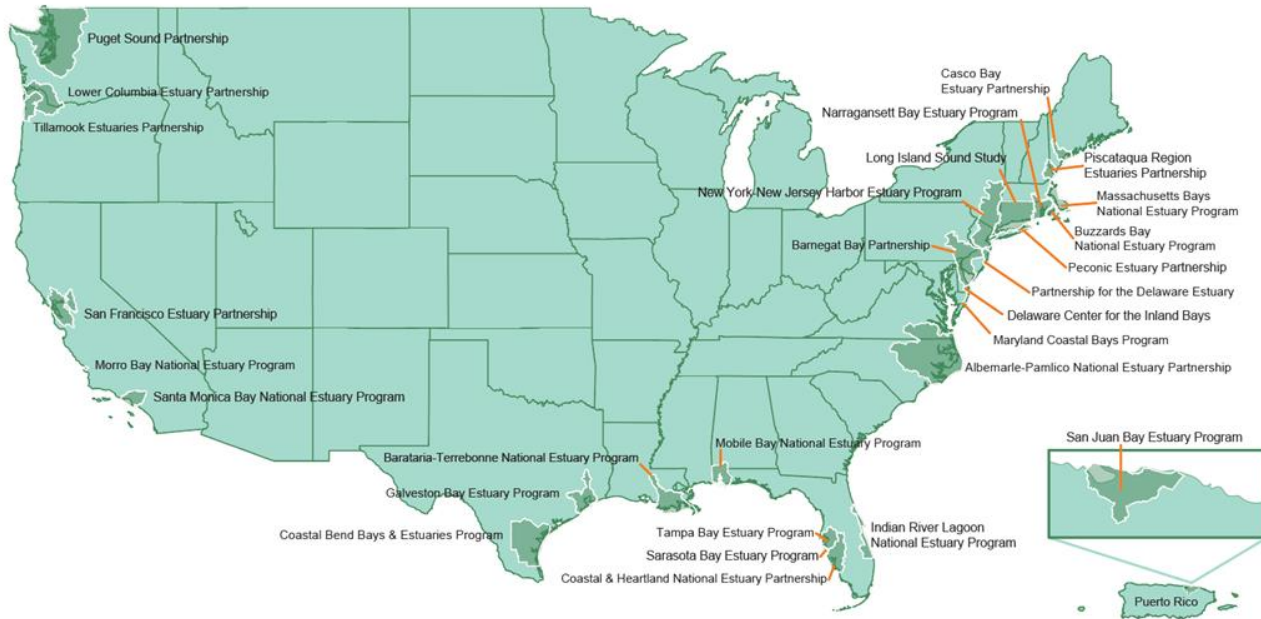
*“If we wouldn’t put it in the bathtub with our kids, we shouldn’t allow it in our waterways.”*

Congressman Brian Mast (2021)

<https://mast.house.gov/2021/3/local-water-protection-act-moves-forward>



# The IRL is 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)**

**Congressional reauthorization in 2026**

**NEP “*Management Conference*” Network governance model**

- *Science-Based*
- *Inclusive*
- *Innovative*
- *Community-Driven*
- *Non-Regulatory*
- *Consensus-Building*
- *Collaborative*
- *Coordinated Action*



THE ASSOCIATION OF  
NATIONAL  
ESTUARY  
PROGRAMS



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NATIONAL ESTUARY PROGRAM



# IRLNEP Reorganization

*Managing it all after 'the bloom'*

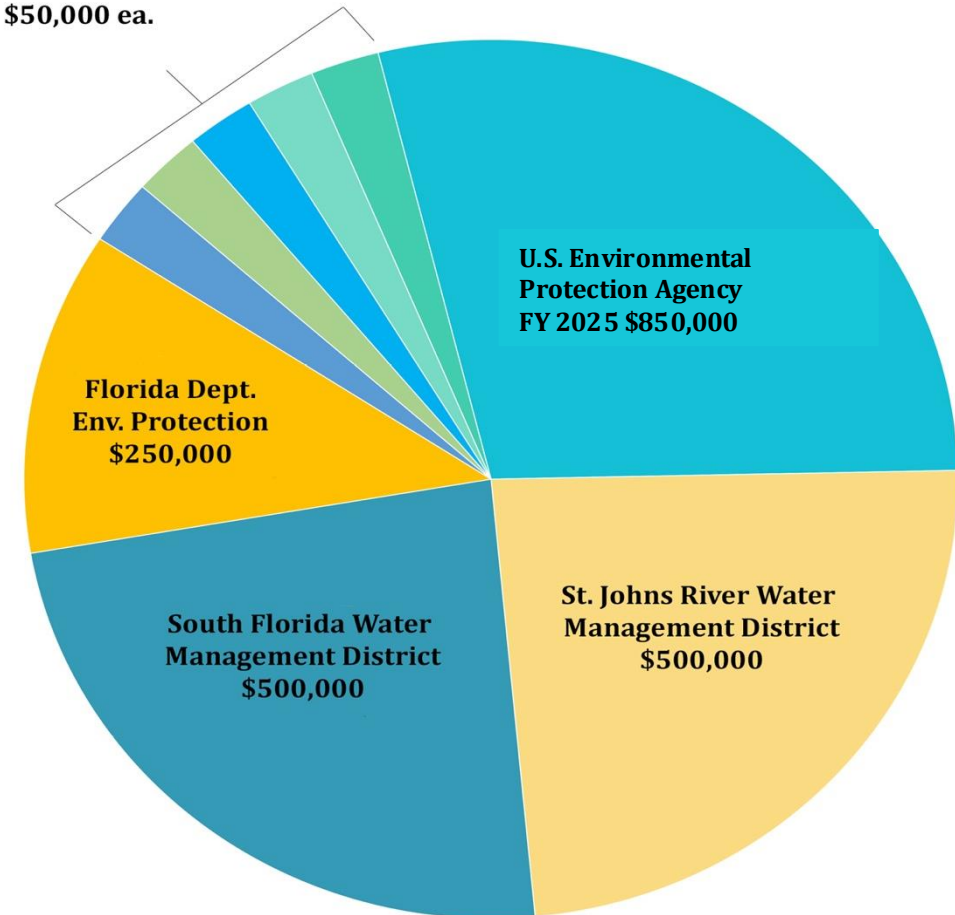
Annual IRLNEP Funding  
From IRL Council Partners

2015 Creation of the IRL Council by  
interlocal agreement

Convene a Management Conference  
of scientists, resource managers,  
community leaders, industry  
representatives, and citizens

[www.onelagoon.org](http://www.onelagoon.org)

Volusia, Brevard, Indian  
River, St. Lucie and  
Martin Counties  
\$50,000 ea.

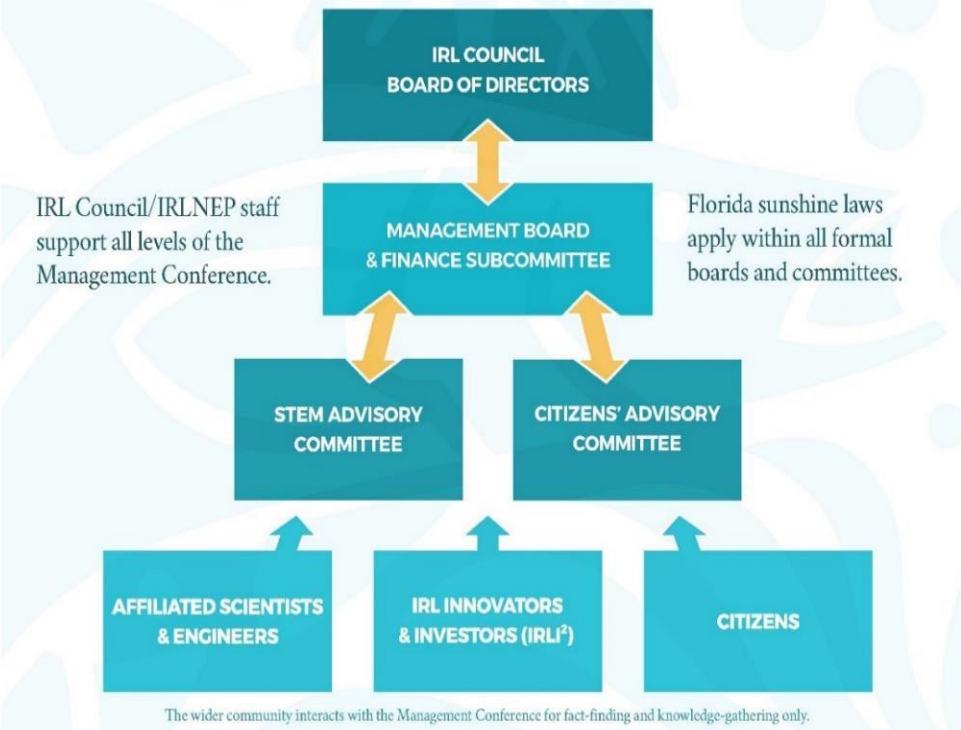




# IRLNEP Management Conference

## IRLNEP MANAGEMENT CONFERENCE STRUCTURE

*A Collaborative Approach To Network Governance*



## 8 IRL Council Board of Directors

FDEP, SJRWMD, SFWMD, Volusia, **Brevard**, Indian River, St. Lucie, and Martin Counties

*U.S. EPA serves in advisory, non-voting role*

## IRLNEP Management Conference

32 Science Technology Engineering and Modeling Advisory Committee Organizations (1 member each)

53 Management Board and Finance Subcommittee Members

20 Citizen Advisory Committee Members (5 counties)



# ONE LAGOON

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INDIAN RIVER LAGOON  
NATIONAL ESTUARY PROGRAM

**No single entity possesses all the required knowledge, skills, and resources to restore a large, complex ecosystem like the IRL**

*[www.onelagoon.org](http://www.onelagoon.org)*



# ONE LAGOON

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# We have a plan

**Revision due in 2030**

[www.onelagoon.org](http://www.onelagoon.org)

## LOOKING AHEAD TO 2030

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



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# ONE LAGOON

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## Heart of IRL CCMP *32 Vital Signs for IRL health*

- LEVEL 1: CRITICAL
- LEVEL 2: SERIOUS
- LEVEL 3: UNDETERMINED
- LEVEL 4: STABLE OR IMPROVING

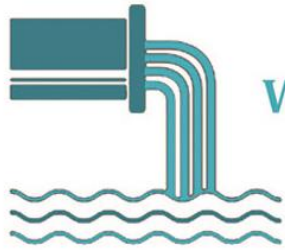


***EVERY PROJECT = PROGRESS***



# The IRL Council/IRLNEP invests each year in local cost-share projects

**IRLNEP Projects Fiscal Year 2016-2026**  
**267 Projects, \$29,797,387**



## NUTRIENT REDUCTION & WATER QUALITY RESTORATION

41 Projects  
\$6,406,948



## COMMUNITY-BASED RESTORATION AND ENGAGEMENT

90 Projects  
\$5,615,397

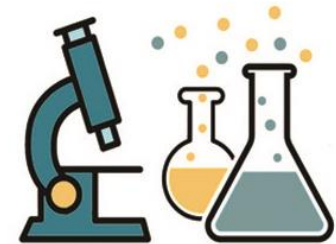
## HABITAT RESTORATION

80 Projects  
\$13,781,336



## SCIENCE, MONITORING AND INNOVATION

56 Projects  
\$3,993,706



All data based on budget projections

[www.onelagoon.org](http://www.onelagoon.org)



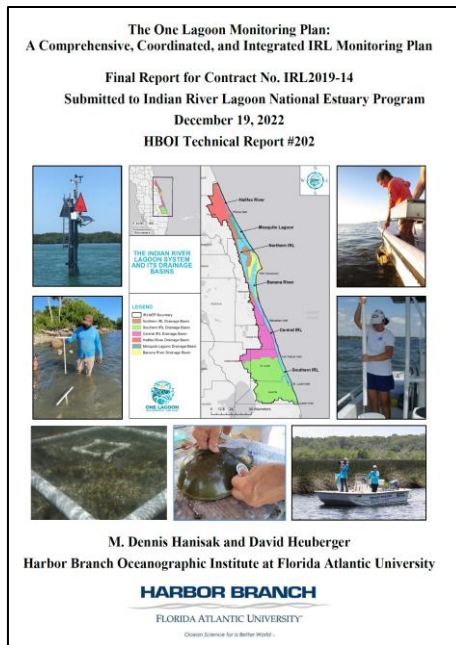
## IRL Council investments by County

Volusia	24 projects	\$2,794,541
Brevard	37 projects	\$5,092,379
Indian River	21 projects	\$2,656,835
St. Lucie	28 projects	\$3,577,421
Martin	28 projects	\$3,445,871
Lagoonwide	110 projects	\$7,332,769

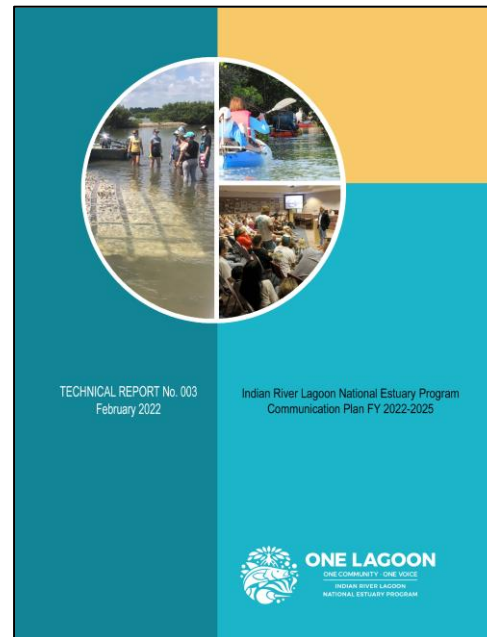


# Developed strategic planning documents to support the CCMP and our partners

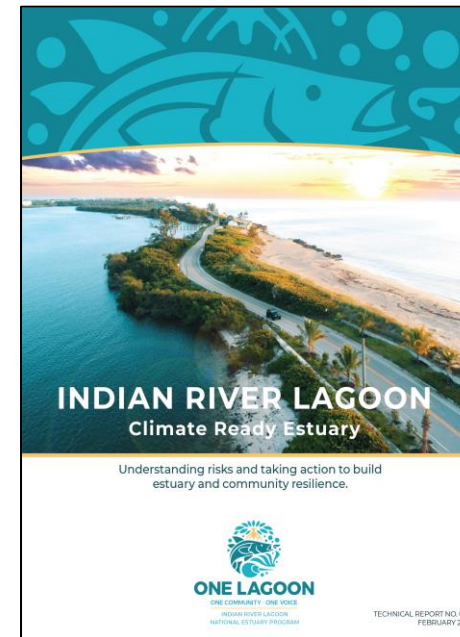
## Monitoring Plan



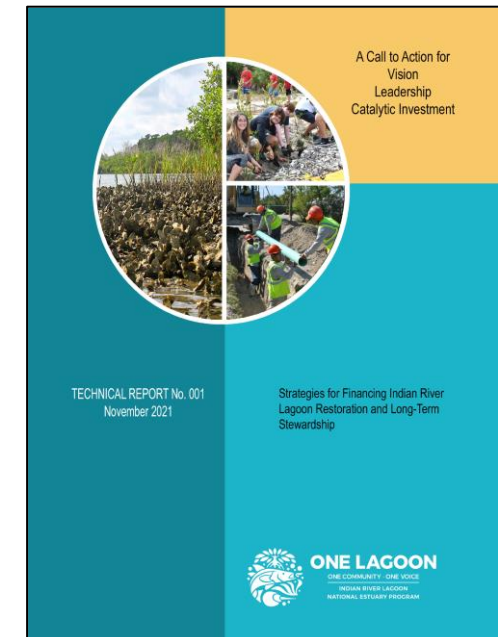
## Communication Plan



## Climate Resilience Plan



## Financing the CCMP Plan



One Lagoon Habitat Restoration Plan in development and EPA review

[www.onelagoon.org](http://www.onelagoon.org)



# Estimated Cost of IRL Restoration (2021)

Project Category	Total Number of Projects Submitted by Stakeholders	# Projects with Estimated Costs	Total Estimated Cost	TN Reduction (lbs/yr)	TP Reduction (lbs/yr)
Stormwater	519	470	\$703,425,600	781,119	180,754
WWTFs and Septic Systems	226	200	\$905,563,298	616,680	34,280
Habitat Restoration	79	60	\$44,303,975	25,235	1,525
Muck Removal or Navigation	69	66	\$755,422,346	2,246,594	193,156
Citizen Engagement	64	48	\$5,270,045	35,505	2,473
Monitoring and Research	60	26	\$22,056,082	0	0
Capital Construction (Restoration facilities)	4	4	\$95,000,000	0	0
CERP IRL South (Everglades)	1	Multiple*	\$3,500,000,000	TBD	TBD
<b>TOTAL</b>	<b>1,021</b>	<b>874</b>	<b>\$6,031,041,346</b>	<b>3,705,133</b>	<b>412,187</b>
*Includes C-23, C-24, C25 and C-44 reservoirs and Stormwater treatment Areas (STAs)					

\$5 Billion or More?



# Historic decade for IRL state and federal funding

## Federal

- IRLNEP annual EPA funding
- Infrastructure Investment and Jobs Bill
- Competitive grants (NOAA)



## State of Florida

- Clean Waterways Act (2020)
- Resilient Florida Program (2021)
- IRL Protection Program (2023)

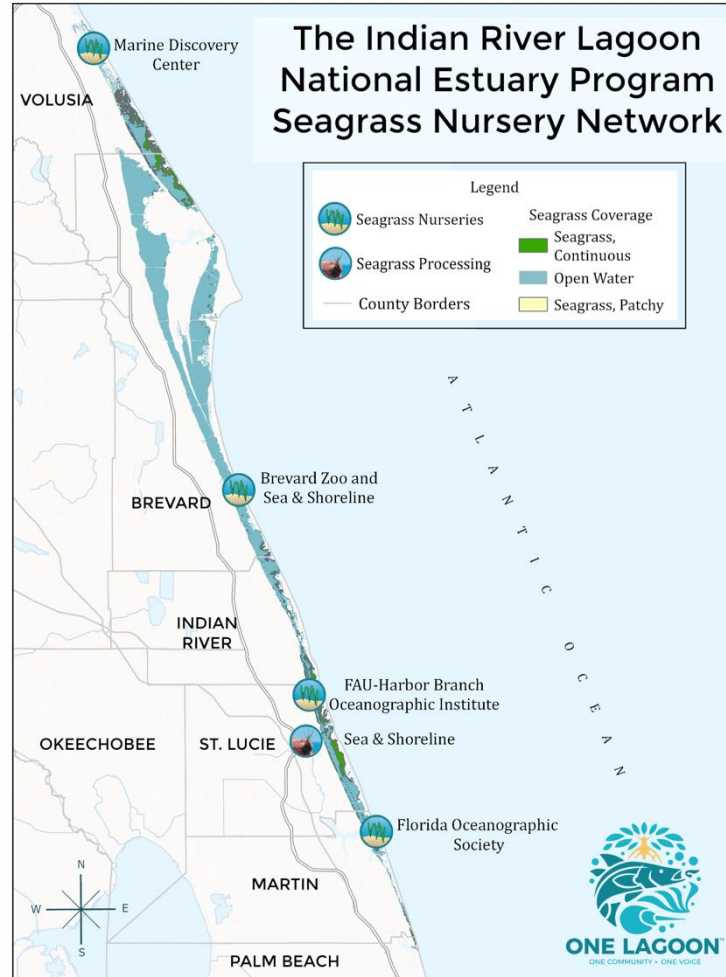


<https://protectingfloridatogether.gov/state-action/grants-submissions>



# Secured and Leveraged Supplemental Funding from Federal Appropriations (IJB)

Building a lagoonwide seagrass nursery network to support restoration, research, and innovation.



[www.onelagoon.org](http://www.onelagoon.org)



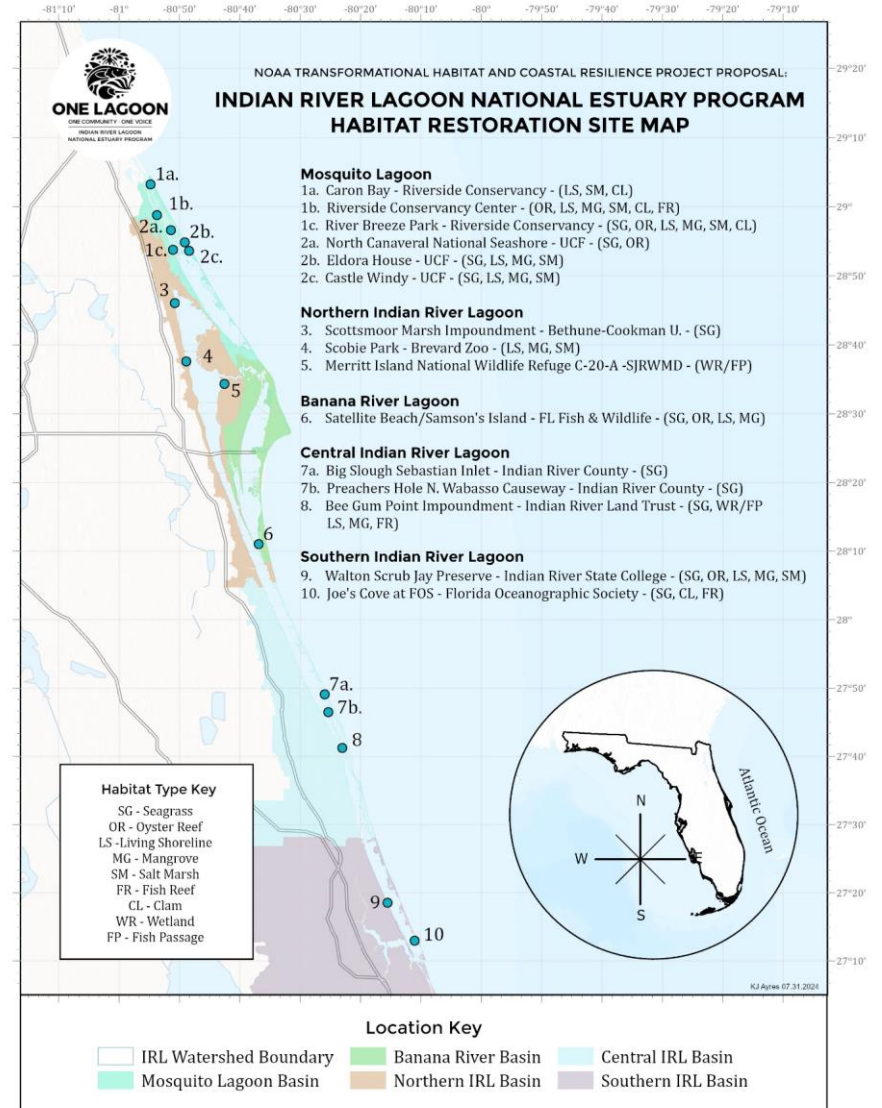
# Secured Transformational Habitat Restoration and Coastal Resilience Grant Award FY25-27

**\$9.4 million Award**  
**10 partner organizations (15 individual locations)**

## Restoration Targets:

- Seagrasses – 47 acres
- Oyster Reefs – 7 acres
- Clams - 22 million
- Wetland Restoration/Fish Passage - 2,125 acres
- Spartan Fish Reefs - 3 sites/450 ft<sup>2</sup> of structure
- Living Shorelines - 8,450 linear feet with 2,928 Mangrove plants and/or 6,985 Salt Marsh plants
- 15 Student Interns
- Community Volunteers – over 2,400

<https://onelagoon.org>



# Transformational Habitat Restoration and Coastal Resilience Grant Award FY25-27

## Map Sites 7a. Big Slough, 7b. Preacher's Hole

PRIMARY: Indian River County and Sea & Shoreline, LLC

NOAA funding \$1,073,506; Match \$340,000; Leverage \$346,957

### DELIVERABLES

Big Slough

Restore 12.8 acres of seagrass habitat

Preacher's Hole

Restore 10 acres of seagrass habitat

### PROJECT STATUS

Seagrass out-planting completed

Post-construction maintenance & monitoring ongoing



# Transformational Habitat Restoration and Coastal Resilience Grant Award FY25-27

## Map Site 8. Bee Gum Point Impoundment

PRIMARY: Indian River Land Trust

NOAA \$562,367; In-kind \$5,990

### DELIVERABLES

- Enhance 125 acres of fish nursery habitat & 10 acres of seagrass
- Install 2 water control fish passage culverts, an electric pump, and a solar-powered aeration
- Enhance 115 acres of mangrove forest
- Restore 100 linear feet of shoreline with 33 red mangroves
- Spartan Reef deployment to enhance essential fish habitat

### PROJECT STATUS

- NEPA Phase II approval for fish passage
- Permits in progress for living shoreline and Spartan Reef
- Culvert installation scheduled for 3/2/2026
- Working with Indian River Mosquito Control District to select vendor for the electric pump and to establish electric service



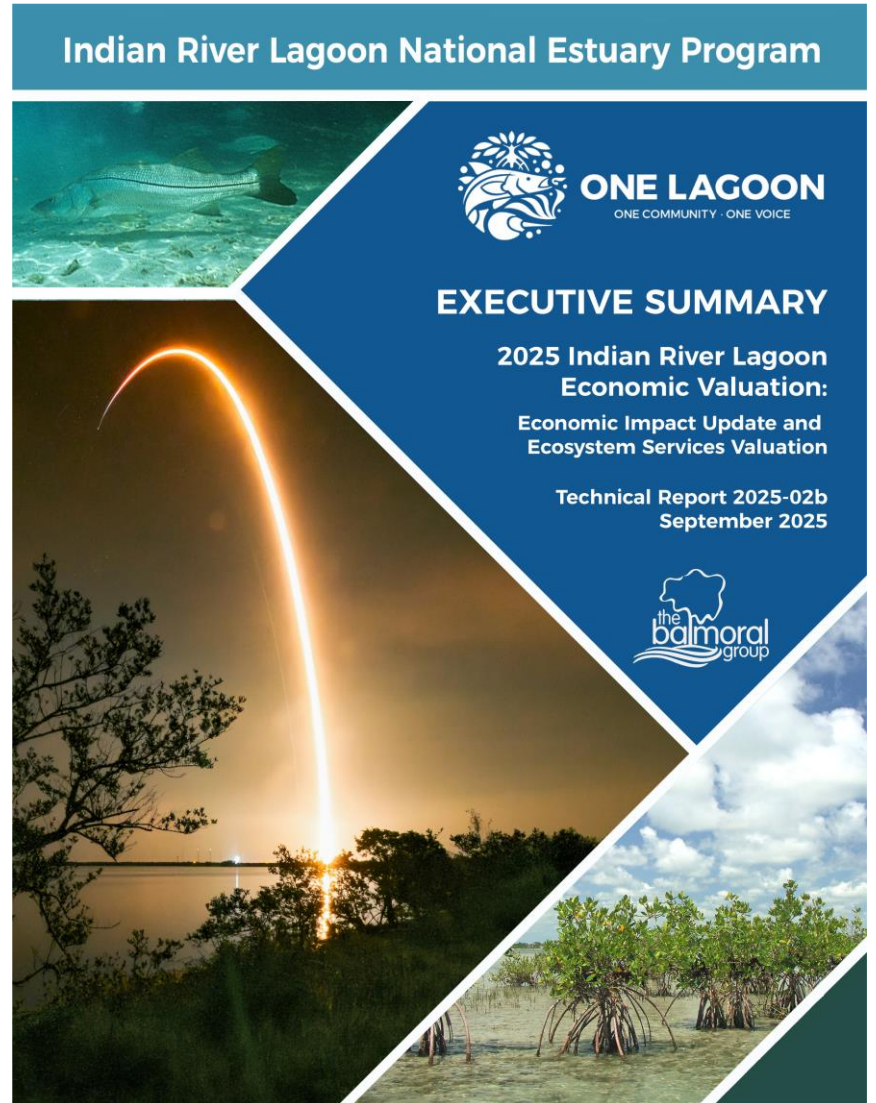
# NOAA Deliverable IRL Economic Update



## DELIVERABLES

- Socioeconomic Profiles, Case Studies, and Performance Report
- IRL Economic Valuation Report
- Executive Summary Report
- Online Interactive Dashboard

All reports available online at <https://onelagoon.org/>  
\$332,980 cost funded with a combination of EPA and NOAA funds





# IRL Ecosystem Services

- Coastal Protection (floods, storm surge, erosion)
- Water Filtration/Water Quality
- Habitat Quality
- Aesthetic or Scenic Value
- Recreational Value and Tourism



Broadway Street Fellsmere, 11-17-2023. NWS 13- 14inches  
Photo: KAILA JONES TCPALM



# Ecosystem Services

**OVER 940,000**

acres of natural lands and agricultural lands retain more than

**100 BILLION**

gallons of floodwaters annually



**52,500  
ACRES**



of natural lands provide additional coastal protection

**368,000  
ACRES**

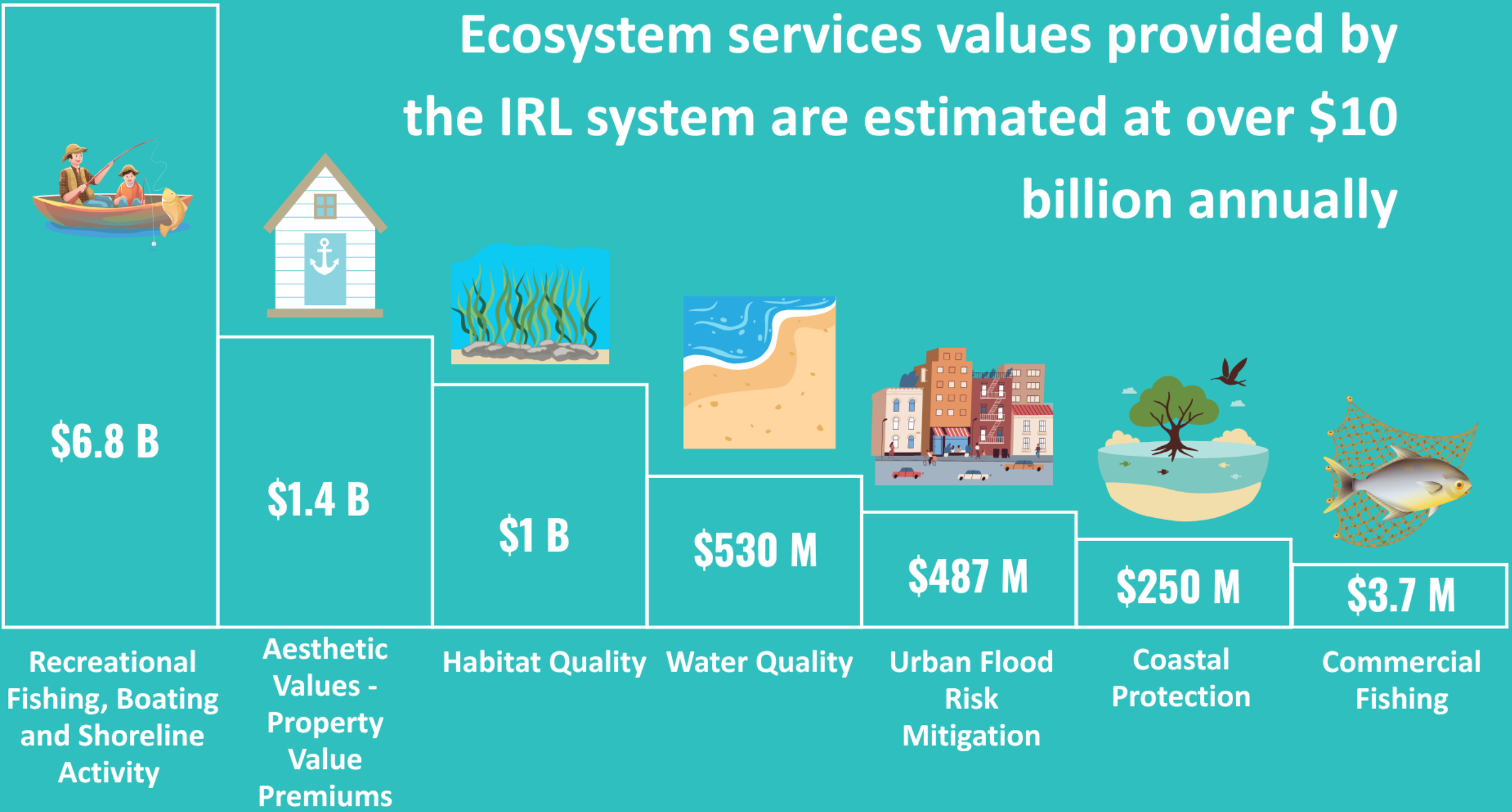
of land provides water filtration and purification



These lands and waters generate habitat, aesthetic and recreational values



# Ecosystem services values provided by the IRL system are estimated at over \$10 billion annually





# Summary Results – IRL economic output

**\$28.3 BILLION**  
in spending  
generates



**\$14 BILLION**  
in value added  
to local GDP



**\$8.3 BILLION**  
in wages



**128,400**  
jobs

	Employment	Labor Income	Value Added	Output	Taxes
Recreation	75,206	\$3.2B	\$5.6B	\$10.5B	\$1.4B
Natural Resource Management	1,041	\$77M	\$112M	\$222M	\$25
Commercial Fishing	30	\$0.1M	\$3M	\$3M	\$0.4M
Boat Dealers	1,445	\$111M	\$166M	\$431M	\$36M
Aerospace	50,679	\$5.0B	\$8.1B	\$15.7B	\$2B
Property Values				\$1.4B	
<b>Total</b>	<b>128,400</b>	<b>\$8.3B</b>	<b>\$14.0B</b>	<b>\$28.3B</b>	<b>\$3.5B</b>



# NOAA Habitat Restoration & Coastal Resilience Grant

## Benefit Cost Ratios



**24x**  
**RETURN ON**  
**INVESTMENT**

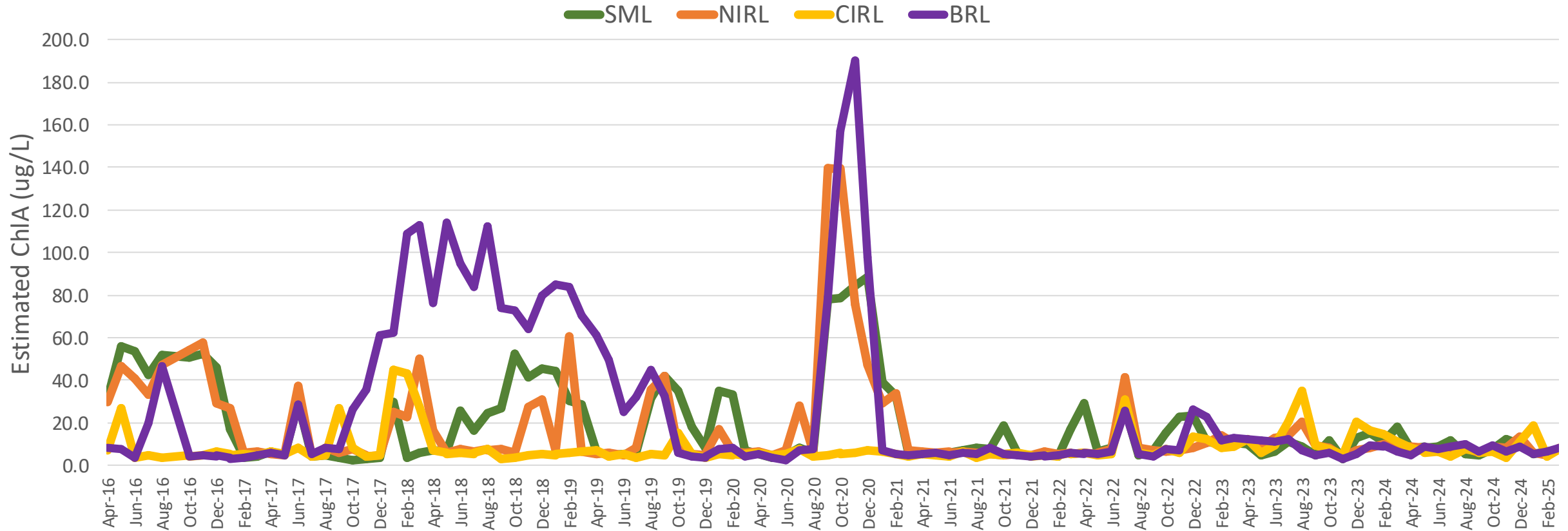


Benefit-Cost Ratios for Selected NOAA Restoration Sites			
Case Study Site and Primary Habitat Type*	Total costs (10-years)	Total benefits (10-years)	Benefit-Cost Ratio
Caron Bay - Salt Marsh	\$ 383,817	\$ 2,793,532	7.3
Riverside Center - Spartan Reef	\$ 24,499	\$ 518,379	21.1
River Breeze Park - Clams	\$ 408,316	\$ 12,074,375	29.6
CANA - Oyster Reef	\$ 417,406	\$ 859,326	2.01
Eldora House - Living Shoreline	\$ 426,231	\$ 504,273	1.2
Merritt Island NWR - Wetland	\$ 922,500	\$ 55,196,114	59.8
Big Slough - Seagrass	\$ 602,670	\$ 5,012,707	8.3
Bee Gum Marsh - Fish Passage	\$ 562,367	\$ 30,764,204	54.7
Walton Scrub - Mangroves	\$ 924,961	\$ 3,306,142	3.6

\* Case study sites each have multiple habitat types being restored. The primary habitat is listed in the table. Source: The Balmoral Group work product.

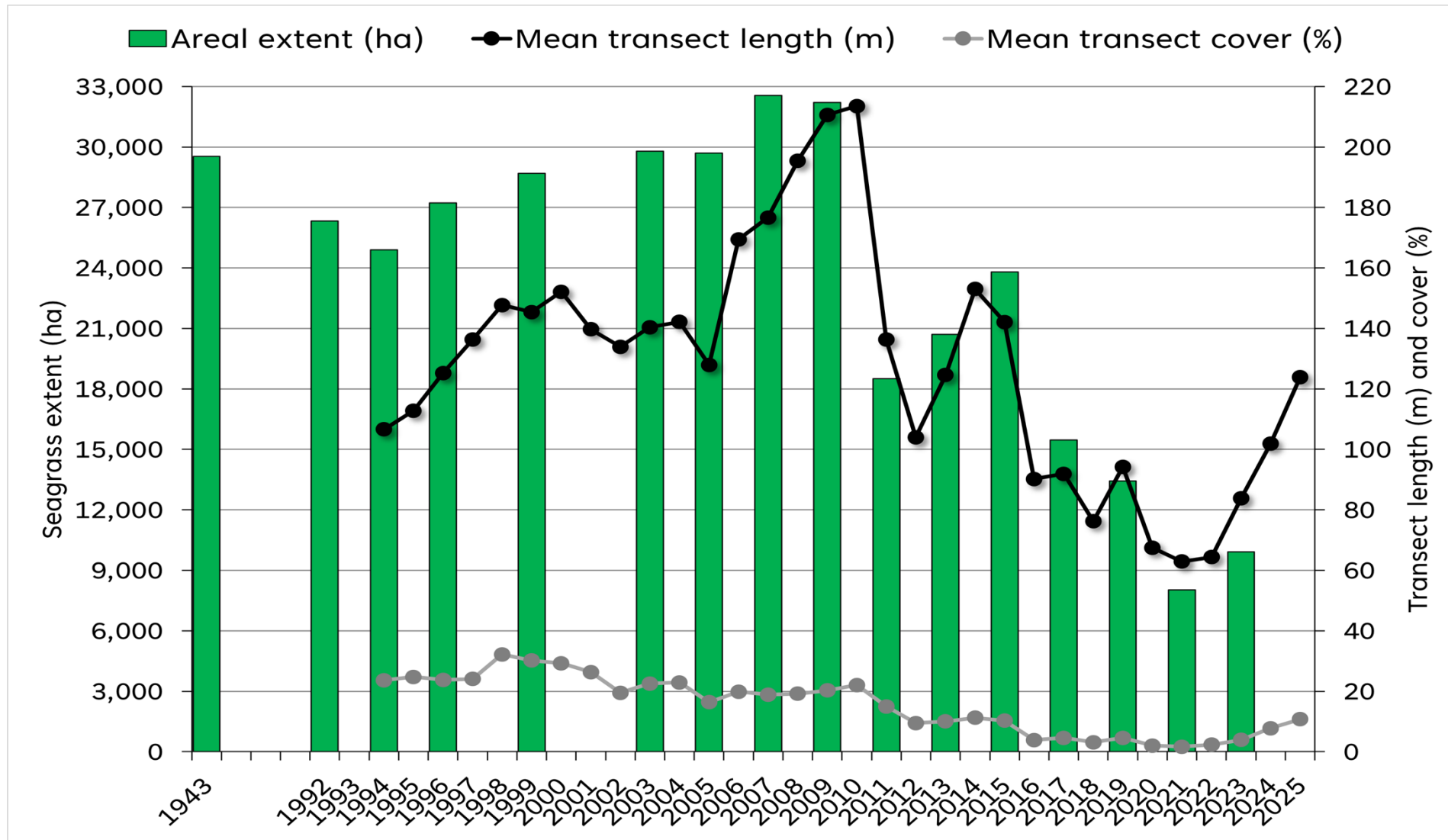
# Evidence of progress - HABs 2016 -2025

Median Monthly NDCI Estimated Chlorophyll A Concentrations  
for Indian River Lagoon Basins in Brevard County, FL



Graphic courtesy of Brevard County SOIRL Program

# Evidence of progress – signs of seagrass recovery



Data and graphic from SJRWMD

# Evidence of progress (2022-2026)



**Water clarity and seagrass recovery in 2023-2026  
Encouraging, but we are NOT out of the woods**





# Fort Pierce Utilities Authority

## *Bold Vision and Transformational Investment*

FPUA is relocating its wastewater treatment plant on vulnerable south Hutchinson Island to a mainland site.

Multi-year project. Estimated cost \$140+ million.

FPUA named “*2025 Utility of the Future Today*” by the Water Environment Federation





# Bold Vision and Transformational Investment

**BOWEN**  
AQUARIUM



RESTORE OUR  
**SHORES**

- ✓ \$140 M+ Legacy Campaign
- ✓ More than 550,000 visitors
- ✓ \$128 M annual economic impact
- ✓ 1000+ jobs
- ✓ Future center of excellence for education, research, and conservation

<https://ourlegacycampaign.org/>





# Looking to the future

## *Historic Challenges and Opportunities*





# Understanding Value

Water  
Wildlife  
Way of Life



Photo: M. Woodard

***“Florida’s water is Florida’s soul”***

**- Chris Peterson**

**President Hells Bay Boatworks**

**Governing Board member SJRWMD**

