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 Nanocyanobloom and fish kill

Significant Loss Of Seagrass Beds

Photo: Tim Kozusko. Haulover Canal, Indian River Lagoon. August 2012
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
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.
IRENEP 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).
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 |
- Spoil Islands | 3 |
- Wetlands | 2 |
- 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 |
- 21st 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)

<table>
<thead>
<tr>
<th>Project Location</th>
<th>IRL Council Funding</th>
<th>Number of Projects</th>
</tr>
</thead>
<tbody>
<tr>
<td>Volusia County</td>
<td>$1,586,814</td>
<td>14</td>
</tr>
<tr>
<td>Brevard County</td>
<td>$1,910,520</td>
<td>20</td>
</tr>
<tr>
<td>Indian River County</td>
<td>$1,289,896</td>
<td>13</td>
</tr>
<tr>
<td>St. Lucie County</td>
<td>$1,577,123</td>
<td>13</td>
</tr>
<tr>
<td>Martin County</td>
<td>$1,918,269</td>
<td>9</td>
</tr>
<tr>
<td>Lagoon-wide</td>
<td>$2,452,351</td>
<td>45</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td><strong>$8,282,622</strong></td>
<td><strong>114</strong></td>
</tr>
</tbody>
</table>
• 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.