

SOUTH FLORIDA WATER MANAGEMENT DISTRICT



# DRAFT WELCOME

## Caloosahatchee Minimum Flow and Level Rule Development Workshop

September 20, 2019

# Workshop Objectives

- Engage with stakeholders
- Present revised draft rule
- Communicate the modifications of the MFL Recovery Strategy
- Outline path forward



# Minimum Flows and Minimum Water Levels (MFLs)

## Chapter 373.042, Florida Statutes

- Department or Governing Board shall establish a minimum flow or minimum water level for surface water courses, aquifers and lakes...
- MFLs identify the point at which further withdrawals will cause "significant harm" to the water resources or ecology of an area

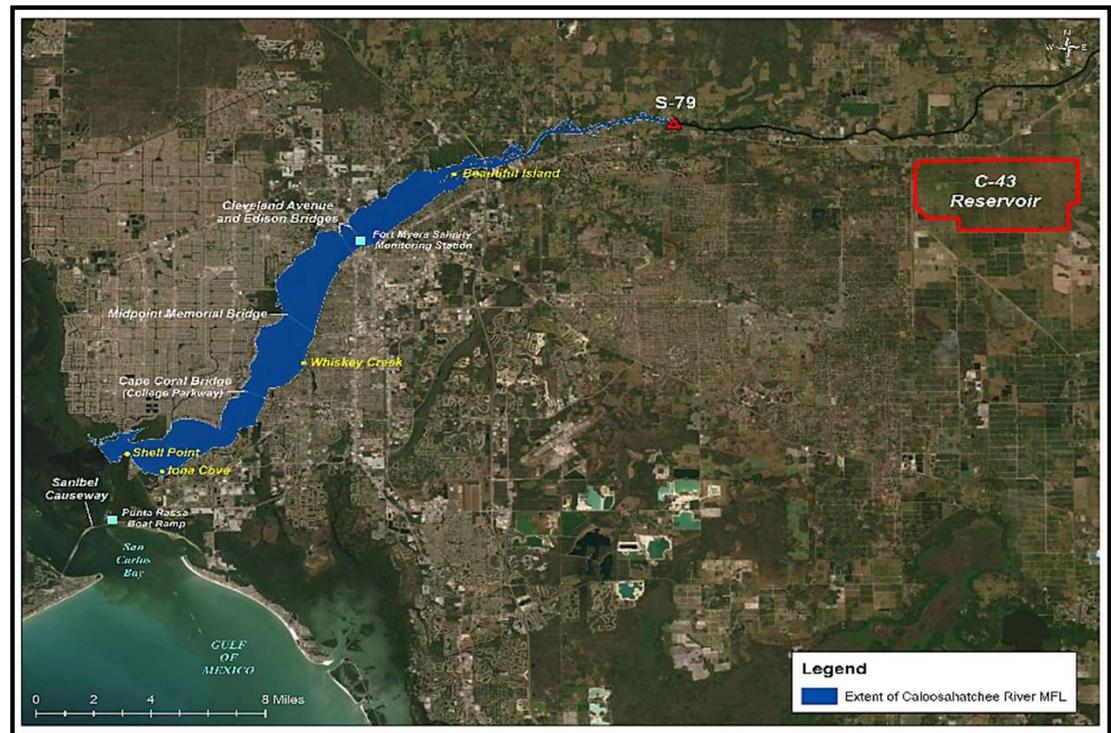
## Chapter 40E-8.021(31), Florida Administrative Code

- **Significant Harm** – defined as the temporary loss of water resource functions, which result from a change in surface water or groundwater hydrology, that takes more than two years to recover but is less severe than serious harm



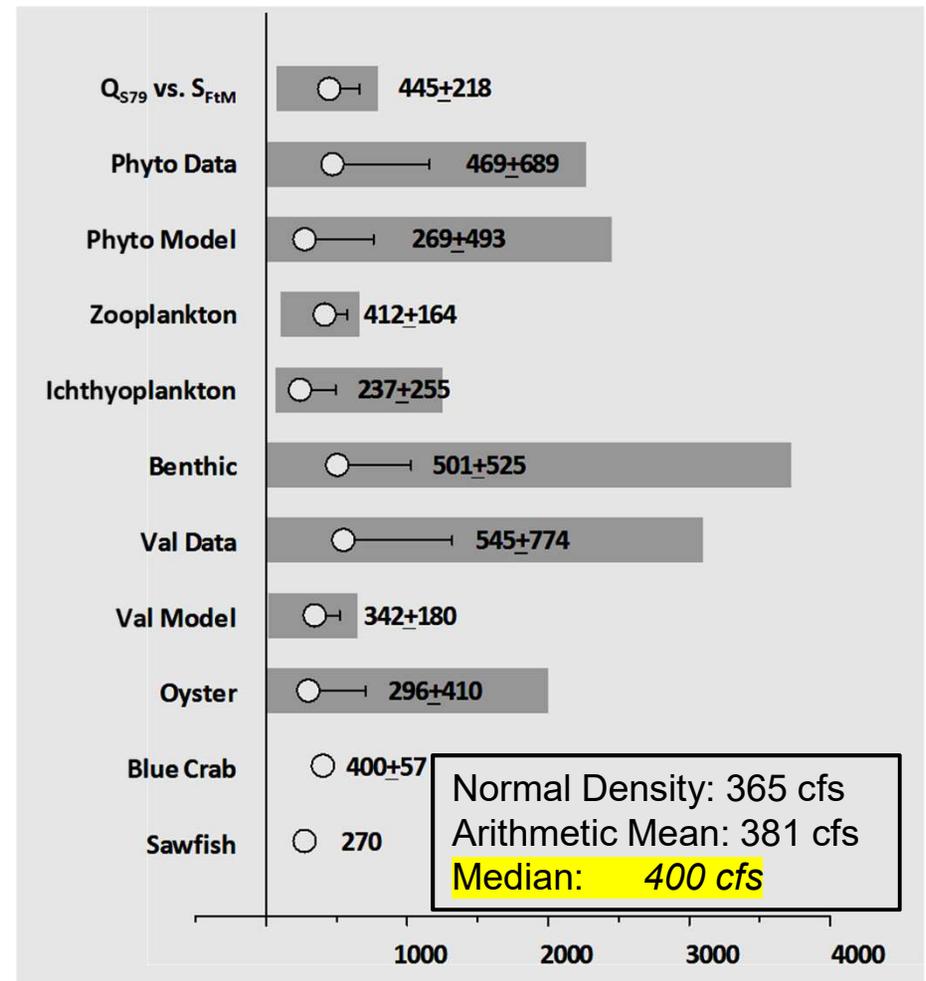
# Existing MFL Criteria

- MFL rule initially adopted in 2001
- Mean monthly flow of 300 cfs at S-79
- MFL exceedances are based on salinity criteria
- 2000 peer review recommendation: MFL should be set on a suite of additional indicators within the upper and lower estuary



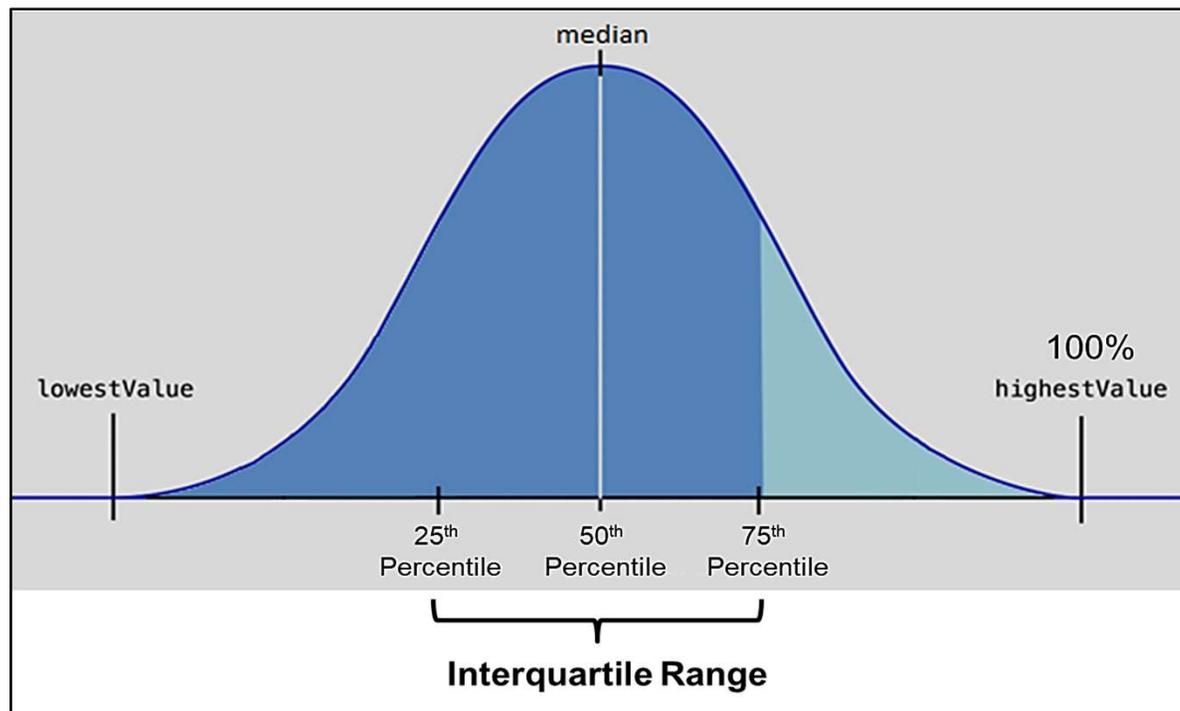
# Recap of June 20, 2019 Workshop

- Governing Board provided direction to:
- Consider supplementary statistical and mathematical approaches
  - Use data from January 30, 2018 MFL technical document
- Nine different approaches were evaluated



# Minimum Flow Recommendation

- Minimum flow of 457 cfs at S-79
- Interquartile approach for the median
- Accounts for 75% of the variability about the median of indicators



## Caloosahatchee MFL Revised Draft Rule

The MFL for the Caloosahatchee River is the 30-day moving average flow of 457 cubic feet per second (cfs) at S-79.

- (a) A MFL exceedance occurs during a 365-day period when the 30-day moving average flow at S-79 is below 457 cfs.
- (b) A MFL violation occurs when a MFL exceedance occurs more than once in a 5-year period.

The flow, combined with tributary contributions below S-79, shall be sufficient to maintain a salinity gradient that prevents significant harm to mobile and immobile indicator species within the Caloosahatchee River. If significant harm occurs once the Caloosahatchee MFL recovery strategy is fully implemented and operational, it will be reviewed in accordance with Rule 40E-8.421, F.A.C. Mobile and immobile species shall be monitored as described in the recovery strategy.

*Note: MFL exceedances are expected until the recovery strategy is completed and operational*

Caloosahatchee Estuary in Fort Myers

# Modified Recovery Strategy for the Caloosahatchee MFL

# Recovery Strategy Requirements

## ➤ Section 373.0421, F.S.

- Recovery strategy should be designed to “achieve recovery to the established minimum flow or minimum water level as soon as practicable”
- Must include a phased-in approach or a timetable
- May not depend solely on water shortage restrictions

## ➤ Rule 62-40.473, F.A.C.

- When MFL is revised, then recovery strategy must be reviewed and simultaneously modified

## C-43 Reservoir Performance

- C-43 Reservoir Model with Future Condition Base simulation
- Percent of time (months) the flow target is met (1965-2005)
- Two flow values evaluated:
  - Initial assessment using median of the multi-species indicators (400 cfs)
  - 75% interquartile about the median (457 cfs)

Model Run	FCB_400	FCB_457
Performance	97.2%	88.4%

\*The future condition base (FCB) model simulation is to determine if the MFL is met over the 20-year planning horizon.

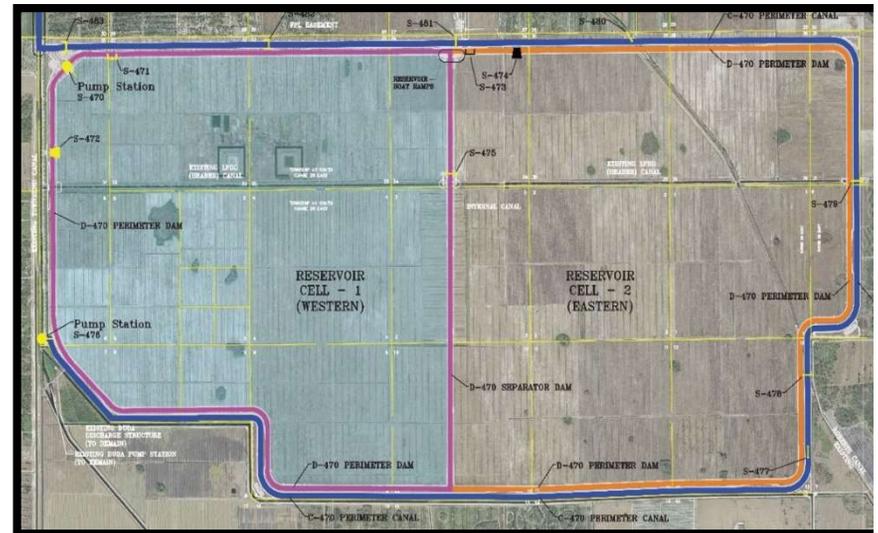
# MFL Recovery Strategy

- Completed Components
- Near-Term Implementation (2020-2024)
- Long-Term Implementation (2022-2027)

Incorporated by Governing Board issuance of an Order Amending Appendix C of the 2017 Lower West Coast Water Supply Plan Update

# Recovery Strategy Completed Components

- Obtained funding for the C-43 Reservoir
  - Total costs is ~\$725 Million
  - State funding in advance of congressional appropriation
- Construction initiated (September 2015)
- C-43 Reservoir Water Reservation (Adopted 2014)



# Recovery Strategy Near-Term (2020-2024)

- Implement MFL Research and Monitoring Plan Baseline Period
- Complete construction of C-43 Reservoir
- Develop a Water Control Plan for the C-43 Reservoir
- Re-assess C-43 Reservoir performance



# Water Control Plan Process

- Public process
- Done in conjunction with the U.S. Army Corps of Engineers and other cooperating agencies
- Plan will be updated with:
  - Lake Okeechobee Regulation Schedule
    - 2008 LORS or
    - Lake Okeechobee System Operating Manual update if complete (targeted 2022)
  - Water reservation protections



# Recovery Strategy Long-Term (2022-2027)

- If needed, evaluate project(s) to meet potential unmet requirements – storage, volume, type
- Complete C-43 Reservoir testing
- Implement MFL Research and Monitoring Plan: Post-Operation



## Recovery Strategy Long-Term (cont.)

- If needed , select additional projects & obtain funding for selected projects
- Complete design & construction of identified projects
  - Potential projects: Boma, Hicpochee (Phases I & II)



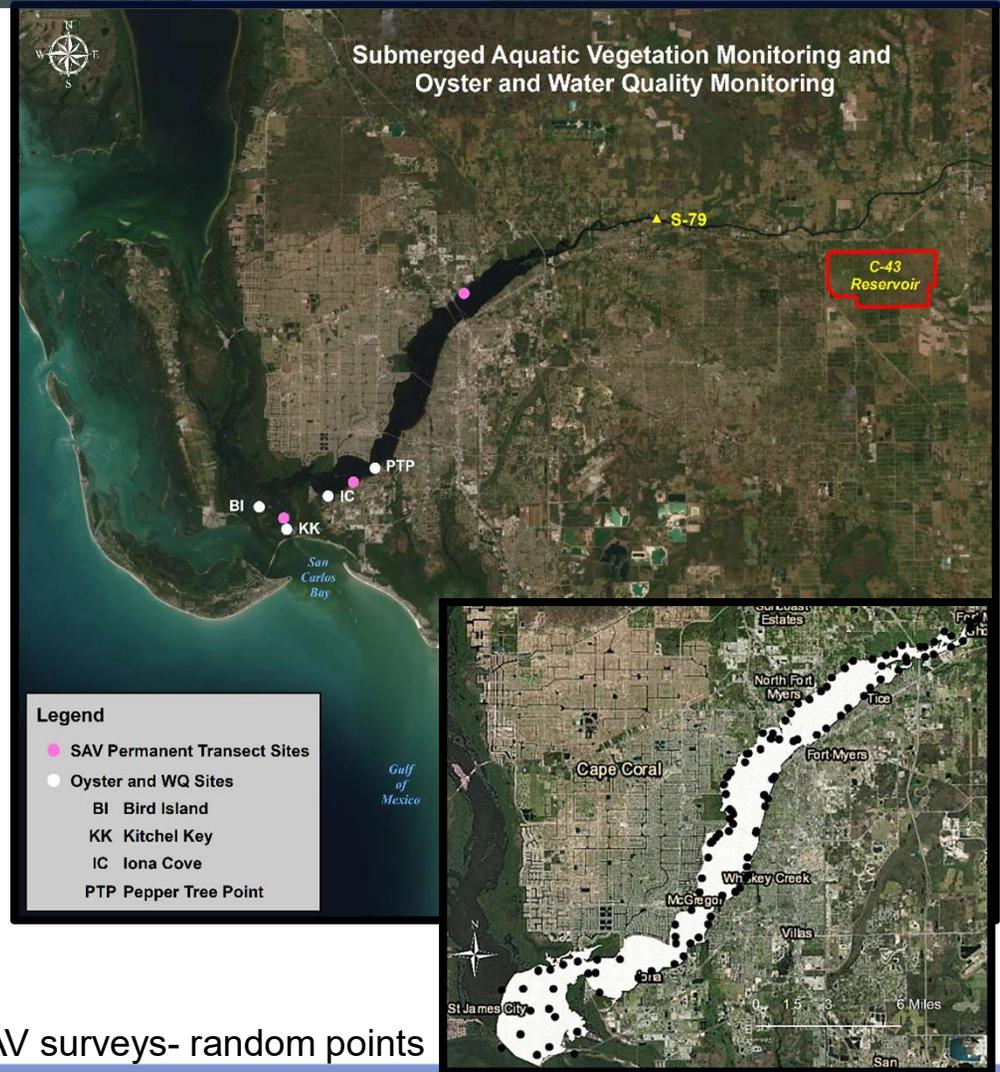
# Research and Monitoring Plan

- Monitor multiple indicators in the meso and oligohaline zones
- Additional experimental research on indicator species

Project	Time Frame							
	Baseline Period					Reservoir Operational Period		
Fiscal Year	FY20	FY21	FY22	FY23	FY24	FY25	FY26	FY27
<b>Proposed Unfunded</b>								
Estuary Water Quality Responses to Managed Flows	\$27K	\$27K	\$27K	\$27K	\$27K	\$27K	\$25K	\$27K
Clam ( <i>Rangia cuneata</i> ) Monitoring	\$60K	\$60K	\$60K	\$60K	\$60K	\$60K	\$60K	\$60K
Zooplankton and Ichthyoplankton Monitoring	\$150K	\$150K	\$150K	\$150K	\$150K	\$150K	\$150K	\$150K
<b>TOTAL</b>	\$237K	\$237K	\$237K	\$237K	\$237K	\$237K	\$237K	\$237K
<b>Current Funded</b>								
Submerged Aquatic Vegetation Monitoring (RECOVER funded)	\$80K	\$80K	\$80K	\$80K	\$80K	\$80K	\$80K	\$80K
Oyster Monitoring (RECOVER funded)	\$70K	\$70K	\$70K	\$70K	\$70K	\$70K	\$70K	\$70K
Tape Grass ( <i>Vallisneria americana</i> ) & Clam ( <i>Rangia cuneata</i> ) Salinity Stress Response Study	\$35K	\$35K						
<b>TOTAL</b>	\$185K	\$185K	\$150K	\$150K	\$150K	\$150K	\$150K	\$150K

# Research and Monitoring Plan

- Oyster monitoring (FFWCC)
- Submerged aquatic vegetation (SAV) monitoring
- Proposed *Rangia* monitoring



Estuary wide SAV surveys- random points

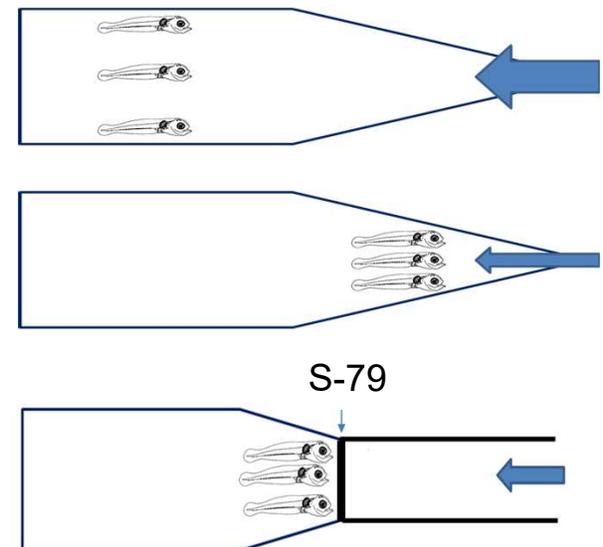
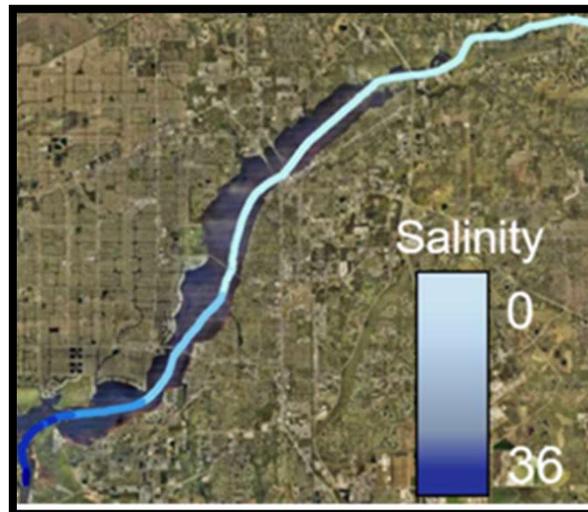
# Research and Monitoring Plan

- Using biomarkers to examine stress response of *Vallisneria* and *Rangia* to changes in salinity in mesocosm experiments



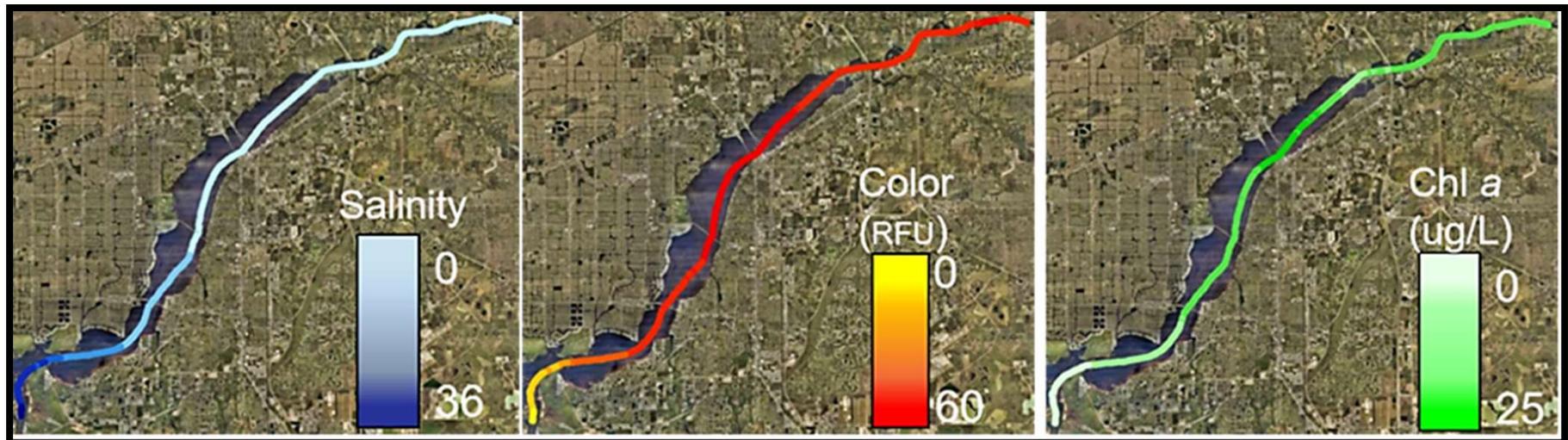
# Research and Monitoring Plan

- Zooplankton & Ichthyoplankton monitoring
  - Oligohaline & mesohaline zones
  - Community assemblage and distribution
  - Habitat compression and impingement



# Research and Monitoring Plan

- Estuary responses to managed flows
  - Gradients, nutrients, trophic levels
  - Salinity, color, chlorophyll, phycocyanin, turbidity, DO
  - Link estuary conditions with indicator responses





# Public Discussion

## Caloosahatchee Minimum Flow and Level Rule Development Workshop

September 20, 2019

## Next Steps

- All written public comments due by September 27, 2019
  - On revised rule & recovery strategy
  - Submit to Don Medellin at [dmedelli@sfwmd.gov](mailto:dmedelli@sfwmd.gov)
- October 10, 2019 – Governing Board Meeting
  - Public Hearing to adopt the rule
  - Order amending Appendix C of the 2017 Lower West Coast Water Supply Plan Update



# Questions

**Thank You**