WELCOME

Caloosahatchee Minimum Flow and Level Rule Development Workshop

May 31, 2019

sfwmd.gov

Caloosahatchee Estuary in Fort Myers

Minimum Flow and Levels Reevaluation Process

Don Medellin, Principal Scientist, Coastal Ecosystem Section
May 31, 2019

Workshop Objectives

- Engage with stakeholders

- Discuss potential supplemental statistical or mathematical approaches

- Using data from the MFL Reevaluation

Water Resource Protection Conceptual Model

Water Resource Protection Tools	Water Resource Protection Standards	Observed Change or Impacts
RESTORATIVE FLOWS		
Permittable Water Reservation of Water	**NO HARM**	**Normal Permitted Operations Environmental Restoration**
Phase I Water Shortage Phase II Water Shortage	**HARM**	**Temporary loss of water resource functions taking 1 to 2 years to recover**
MINIMUM FLOWS & MINIMUM WATER LEVELS		
Phase III Water Shortage	**SIGNIFICANT HARM**	**Water resource functions require multiple years to recover (> 2 year)**
Phase IV Water Shortage	**SERIOUS HARM**	**Permanent or irreversible loss of water resource functions**

Water Levels/Flow Decreasing

Drought Severity Increasing

Existing MFL Criteria

- MFL rule initially adopted in 2001
- Based on salinity tolerance of a single ecological indicator - tape grass (*Vallisneria*)
- 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

Vallisneria
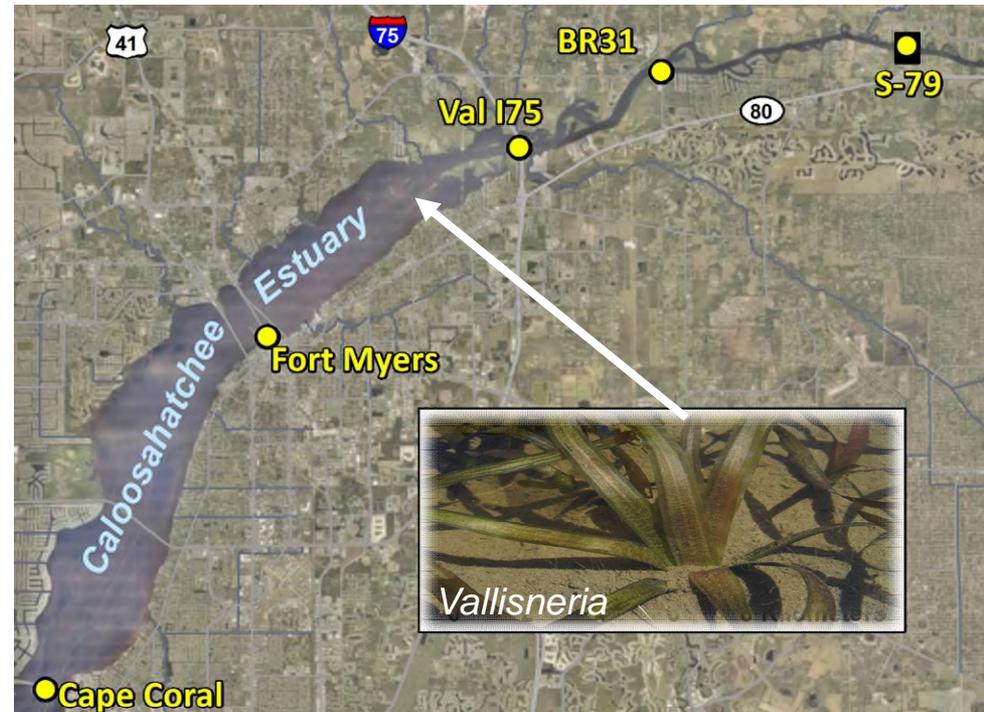
MFL Reevaluation Process

- September 2018 - Rule Adoption Hearing

- Rule Challenge - 7 Entities

- October 29-30, 2018 - Administrative Hearing

- April 2019 - Governing Board directed staff to further engage with stakeholders
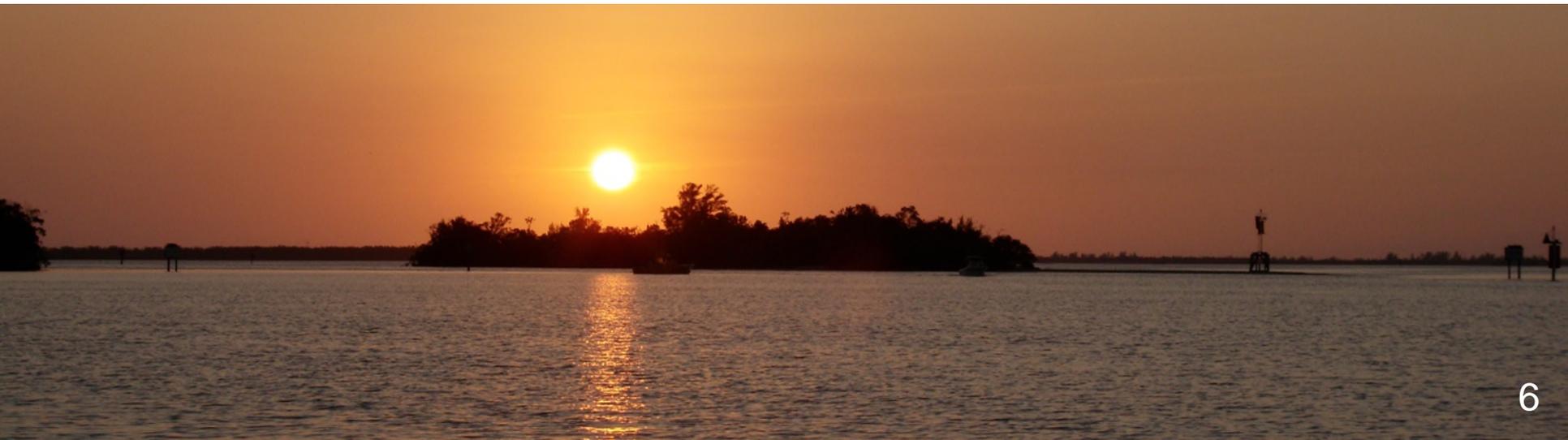
MFL Reevaluation Process

- Maintain established science foundation

- Consider supplementary statistical and mathematical approaches

  - Use data from January 30, 2018 MFL technical document

- Seek and evaluate public input on other approaches within this framework

- Hold additional public workshop and hearing

Caloosahatchee Estuary in Fort Myers

# Possible Statistical Approaches Caloosahatchee MFL

Cassondra Armstrong, Ph.D
Section Administrator
May 31, 2019

Original Approach

Chart — S-79 inflow (cfs), with the following data points:

Category	Value
Q_{S79} vs. S_{FtM}	445 ± 218
Phyto Data	469 ± 689
Phyto Model	269 ± 493
Zooplankton	412 ± 164
Ichthyoplankton	237 ± 255
Benthic	501 ± 525
Val Data	545 ± 774
Val Model	342 ± 180
Oyster	296 ± 410
Blue Crab	400 ± 57
Sawfish	270

Avg.=381 cfs

X-axis labels: 1000, 2000, 3000, 4000 — **S-79 inflow (cfs)**

Normal Density: 365 cfs
Arithmetic Mean: 381 cfs
Median: 400 cfs

Interquartile Range Approach
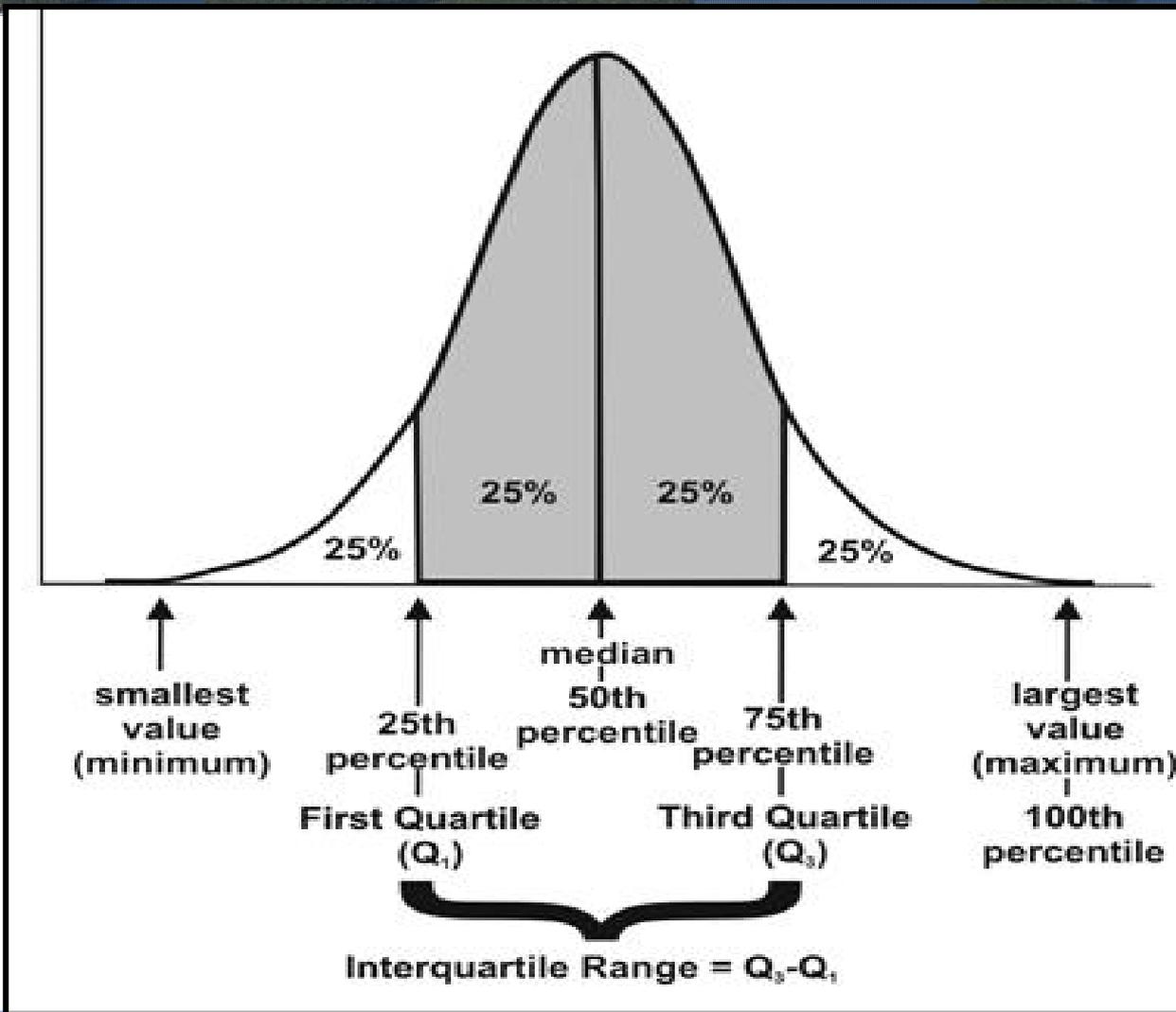
Tidal Basin Flow Approach

- Based on the WaSh model, calibrated and verified with 39 period-of-record data, account for relative % contribution of tidal basin flow under given flow at S-79

- A flow-based change that considers normal dry season conditions

Recovery of Caloosahatchee River MFL

- All options will be evaluated to determine the impact on recovery strategy (C-43 Reservoir performance) to comply with subsection 373.0421 (2), Florida Statutes
    - "To achieve recovery of the MFL…"
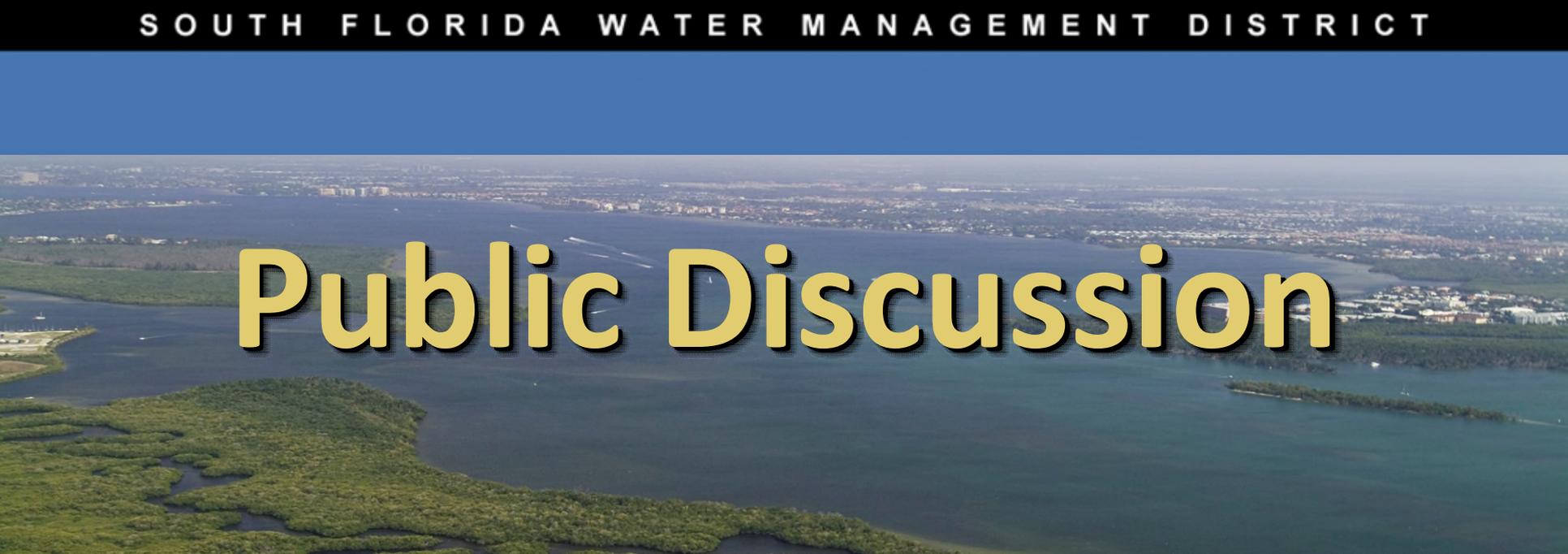
Public Discussion

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Next Steps

- June 12, 2019 – All Written Public Comments Due

  - Approaches within framework of the original data contained in the January 30, 2018 MFL Technical Document

  - Include all data, metadata, statistical approaches, regressions, analyses, conclusions, etc.

  - Submit all comments to: Don Medellin at dmedelli@sfwmd.gov

- June 20, 2019 - Next Public Workshop

  - Results of additional approaches/evaluations will be presented at next workshop

- July 11, 2019 – Public Rule Adoption Hearing

Questions

Caloosahatchee MFL Draft Rule Criteria

Proposed revision to Caloosahatchee MFL rule based on "Best Available Information", including scientific studies, modeling and peer review conducted over the past 6 years

➢ **Magnitude:** 30-day moving average flow of 400 cfs at S-79

➢ **Duration:** An MFL exceedance occurs during a 365-day period when the 30-day moving average flow at S-79 is below 400 cfs and the 30-day moving average salinity exceeds 10 at the Ft. Myers salinity monitoring station

➢ **Return Frequency:** An MFL violation occurs when an exceedance occurs more than once in a five-year period

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