SOUTHWEST FLORIDA WATER MANAGEMENT DISTRICT

Springs SWIM Plan
Public Workshop
Teams Meeting Information

Please adhere to the following:

- Turn video off to preserve bandwidth
- If using your phone for audio, please mute your computer microphone and speaker
- Keep your line muted
- You may use the teams chat to submit any comments or questions
- You may also submit to the email by Nov 1st SWIMPlanUpdate@watermatters.org

SOUTHWEST FLORIDA WATER MANAGEMENT DISTRICT

SWIM Plan Quantifiable Objective Refinements

Chassahowitzka River, Crystal River/Kings Bay, Homosassa River, Rainbow River, & Weeki Wachee River

Southwest Florida Water Management District

Madison Trowbridge, Ph.D.
Springs Scientist
Natural Systems and Restoration

SOUTHWEST FLORIDA WATER MANAGEMENT DISTRICT

District Responsibilities

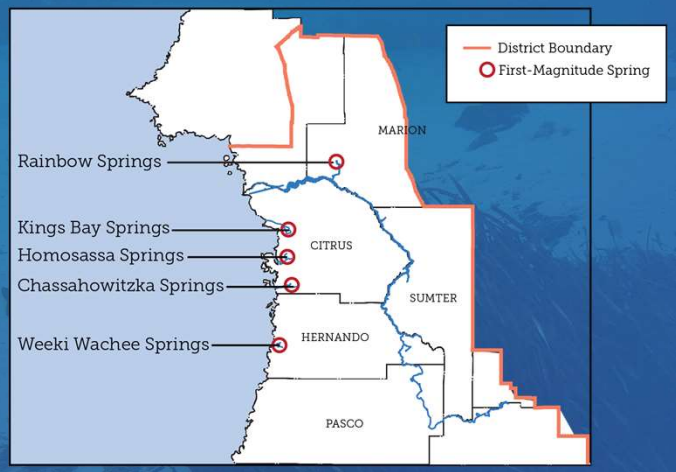
Water Supply

Water Quality

Natural Systems

Flood Protection

District Springs




Weeki Wachee River


Chassahowitzka River

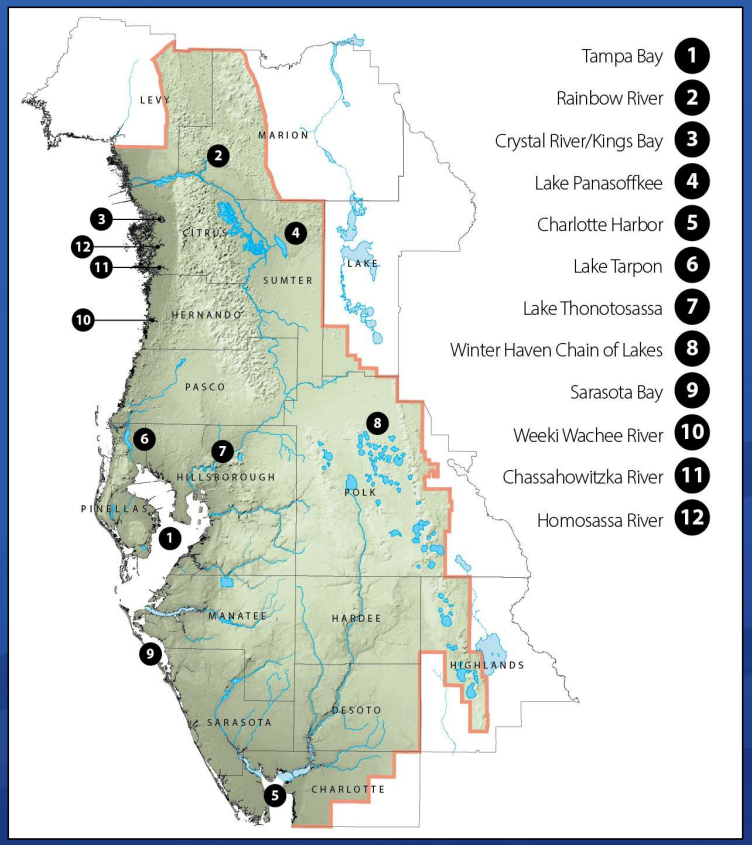

Homosassa River


Crystal River/Kings Bay


Rainbow River

The SWIM Act 373.453, F.S.

- Created by the Legislature in 1987
- Managed by the Water Management Districts
- Develop and maintain lists of priority surface waters
- Develop plans to protect and restore priority surface waters



SOUTHWEST FLORIDA WATER MANAGEMENT DISTRICT

Surface Water Improvement & Management (SWIM)

First-magnitude Springs SWIM Plans

- 2014: Springs Coast Committees formed
- Surface Water Improvement & Management (SWIM) Plans
  - Issues & Drivers
  - Management Actions
    - Quantifiable objectives
  - Projects & Initiatives

SOUTHWEST FLORIDA WATER MANAGEMENT DISTRICT

Quantifiable Objectives

WATER QUALITY

- Water clarity
- Nitrate concentration*
- Total nitrogen concentration*
- Total phosphorus concentration*
- Chlorophyll concentration*

WATER QUANTITY

- Minimum flows & levels

NATURAL SYSTEMS

- Submerged aquatic vegetation (SAV) – desirable & invasive
- No net loss of shoreline*
- Shoreline enhancement*

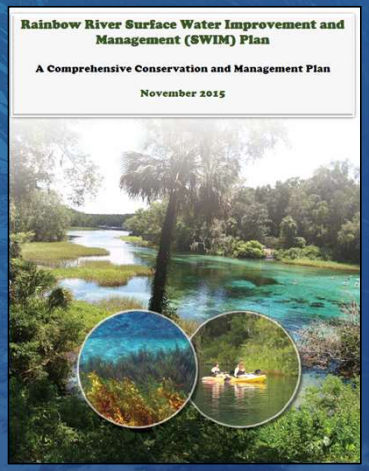
* denotes not applicable to all systems

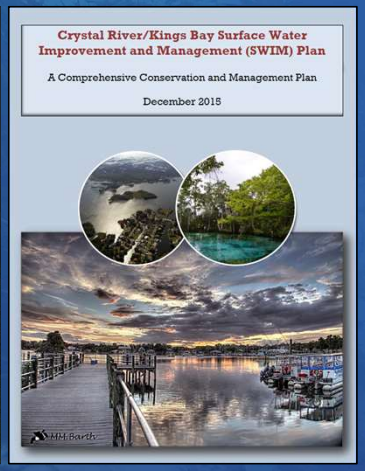
Quantifiable Objective Refinements

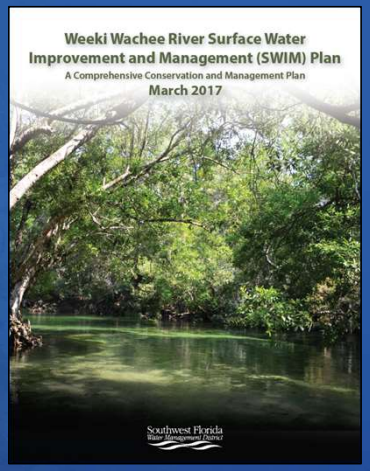
Technical Working Group

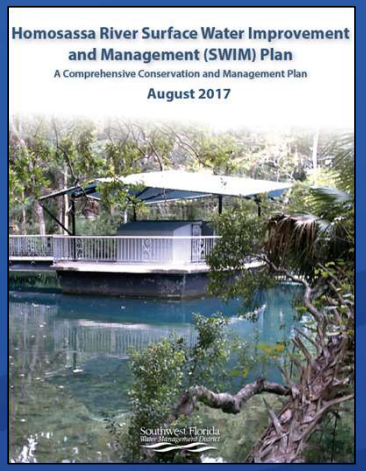
Springs Coast Management Committee

Springs Coast Steering Committee









Quantifiable Objective Refinements

- Types of refinements
  - River segment targets
  - Reference period approach
  - Updating targets as currently established

Quantifiable Objective Refinements
Chassahowitzka River

Quantifiable Objectives

Water quality	Target
Water clarity – river average	>20 feet
Water clarity – near the headspring	>40 feet
Nitrate concentration in the springs	< 0.23 mg/L
Total nitrogen concentration in the river	< 0.25 mg/L
Water quantity	
Minimum flows for the river system	> 97% natural flow
Natural systems	
Coverage of desirable submerged aquatic vegetation in the river	> 65%
Coverage of invasive aquatic vegetation (including filamentous algae) in the river	< 10%

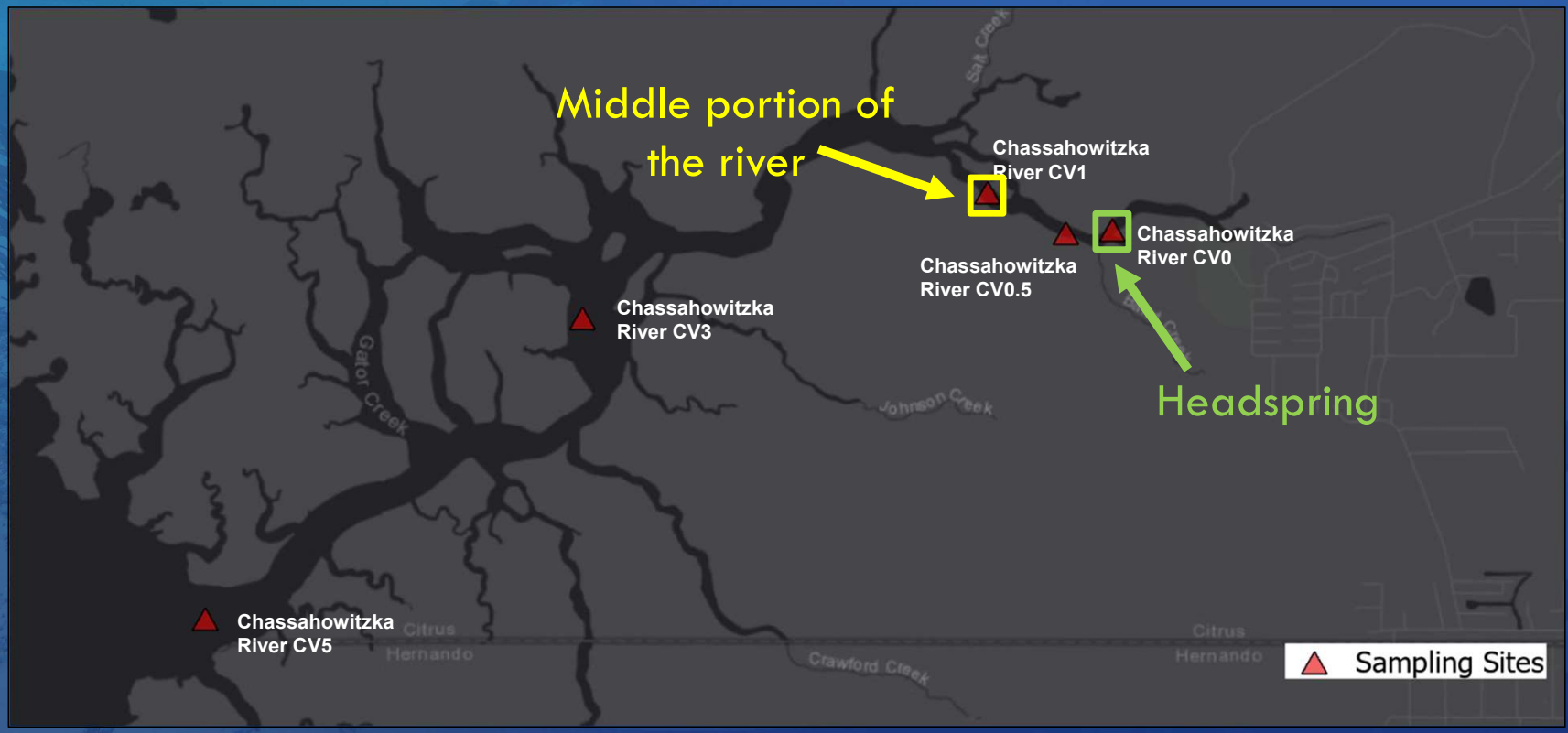
Indicators

Water clarity	Threshold
Near the headspring	32 ft
Middle portion of river	13 ft

Quantifiable Objectives

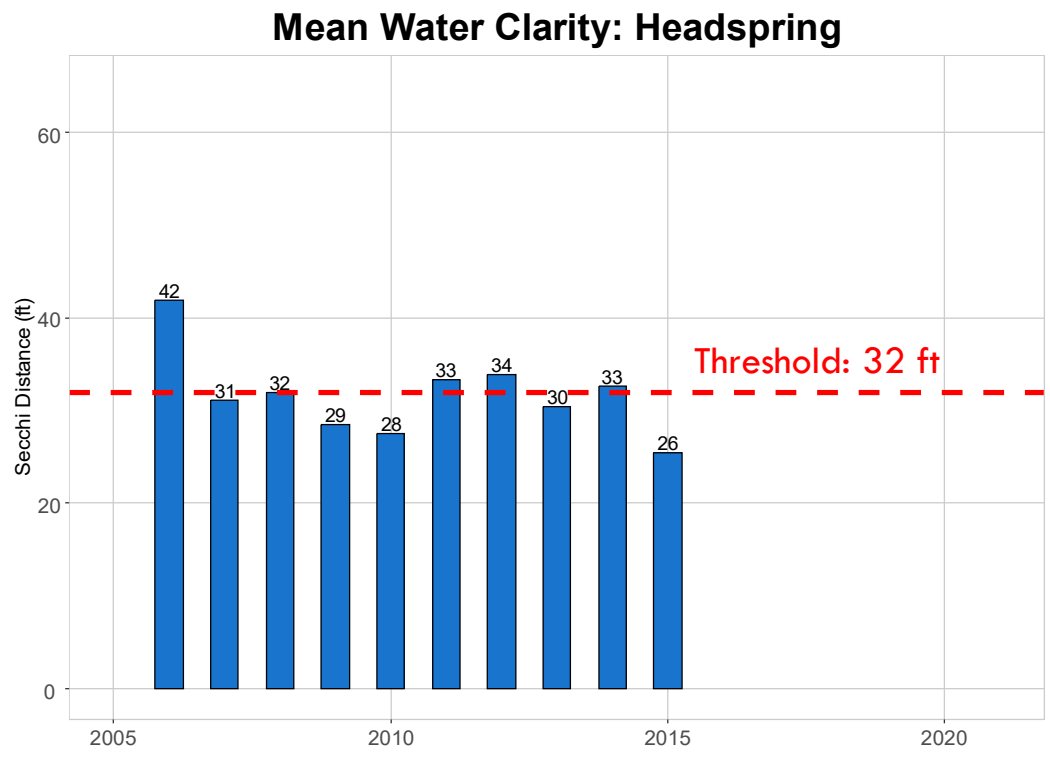
Water quality	Target
Nitrate concentration in the springs	< 0.23 mg/L
Total nitrogen concentration in the river	< 0.25 mg/L
Water quantity	
Minimum flows for the springs and river	> 92% natural flow
Natural systems	
Coverage of desirable submerged aquatic vegetation in the tidal freshwater habitat.	> 55%
Coverage of desirable submerged aquatic vegetation in the transition zone.	> 45%
Coverage of desirable submerged aquatic vegetation in the estuarine zone.	> 25%
Coverage of invasive aquatic vegetation in the tidal freshwater habitat, transition zone, and estuarine zone.	< 10%

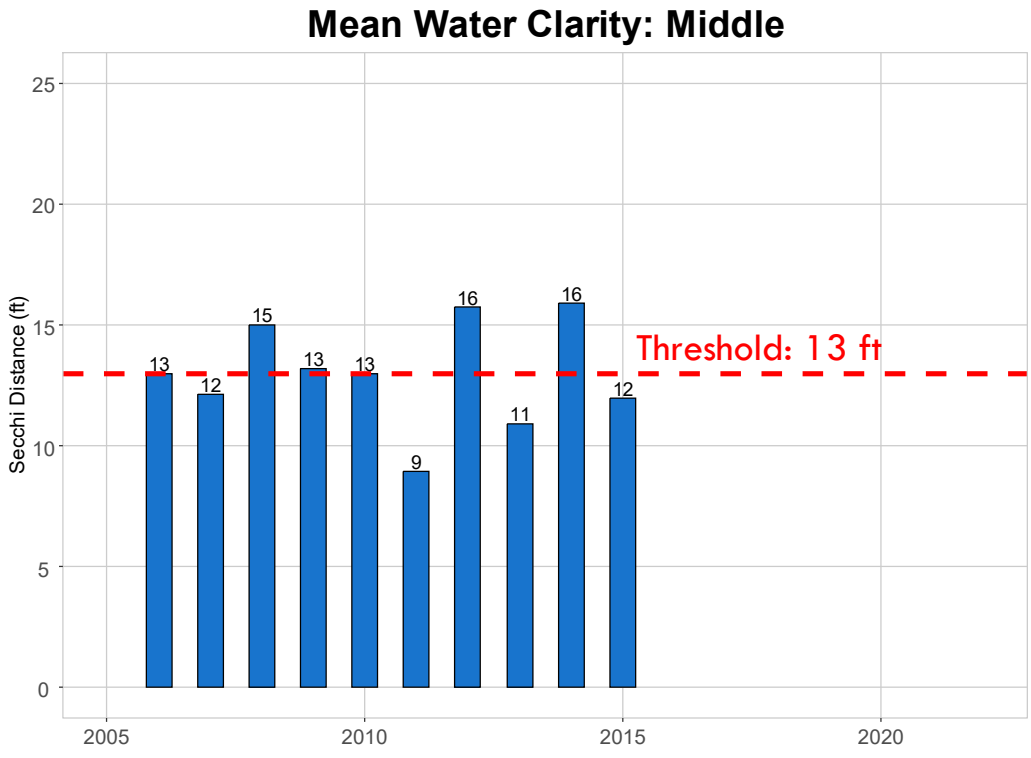
Quantifiable Objective Refinements Chassahowitzka River – Water Clarity



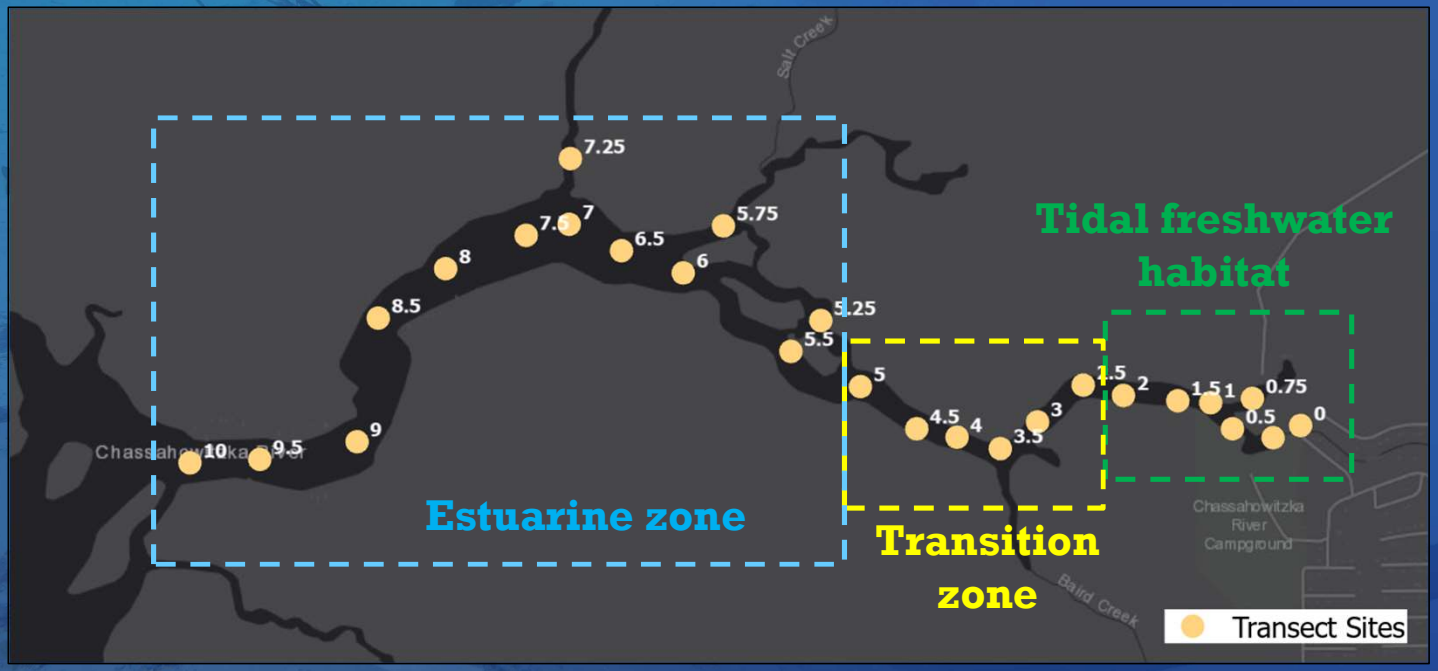
SOUTHWEST FLORIDA WATER MANAGEMENT DISTRICT

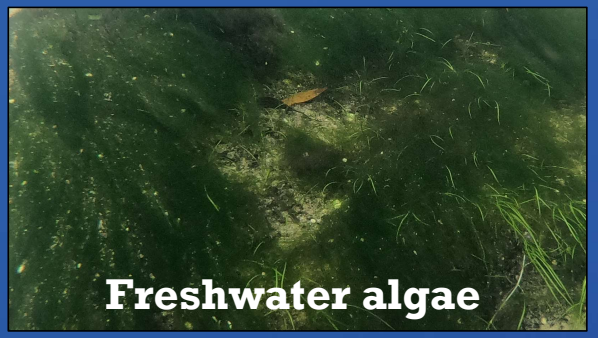
Quantifiable Objective Refinements
Chassahowitzka River – Water Clarity





Quantifiable Objective Refinements
Chassahowitzka River – Submerged aquatic vegetation

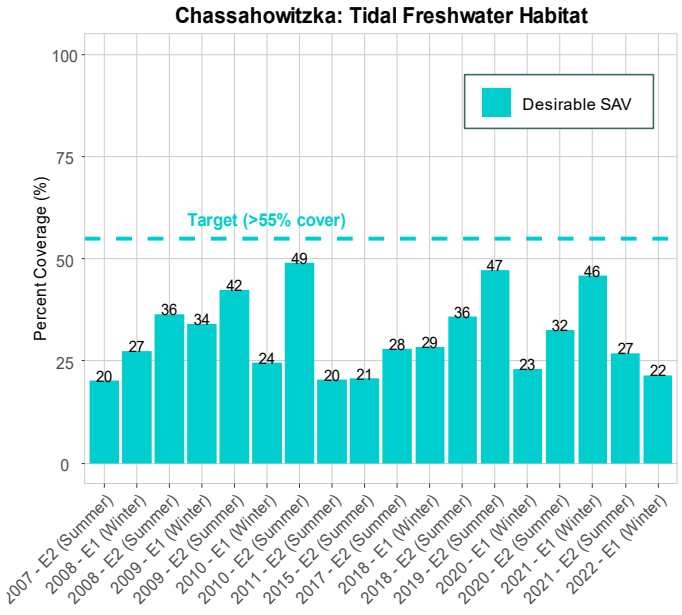


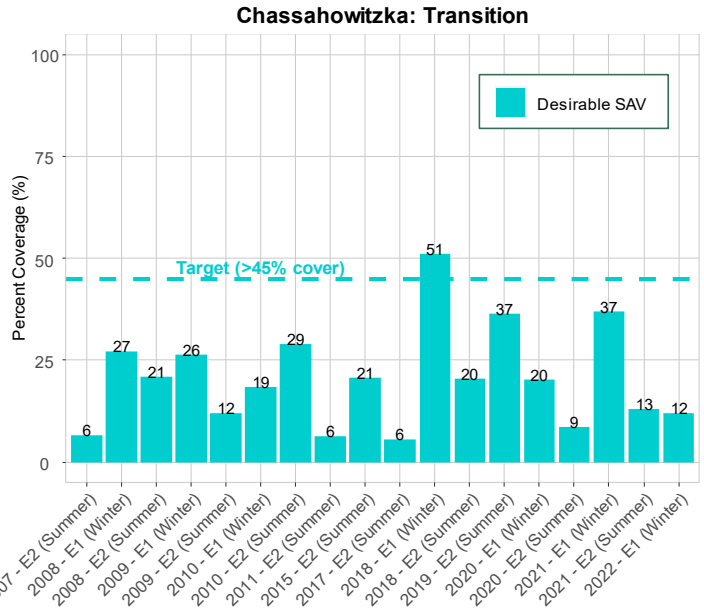


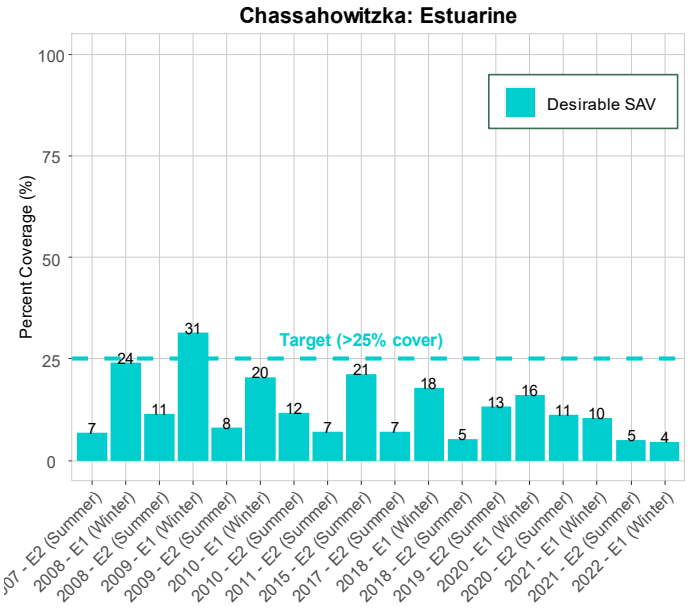
Modified from Trowbridge, MC (2024). *Indicators of salinization in spring-fed rivers using submerged aquatic vegetation.* Manuscript accepted for publication in *Florida Scientist*.

SOUTHWEST FLORIDA WATER MANAGEMENT DISTRICT

Quantifiable Objective Refinements
Chassahowitzka River – Submerged aquatic vegetation







Quantifiable Objective Refinements
Homosassa River

Quantifiable Objectives

Water quality	Target
Water clarity – river average	>20 feet
Water clarity – near the headspring	>40 feet
Nitrate concentration in the springs	< 0.23 mg/L
Water quantity	
Minimum flows for the river system	> 97% natural flow
Natural systems	
Coverage of desirable submerged aquatic vegetation in the river	> 65%
Coverage of invasive aquatic vegetation (including filamentous algae) in the river	< 10%
No net loss of shoreline in natural condition along the river	No net loss

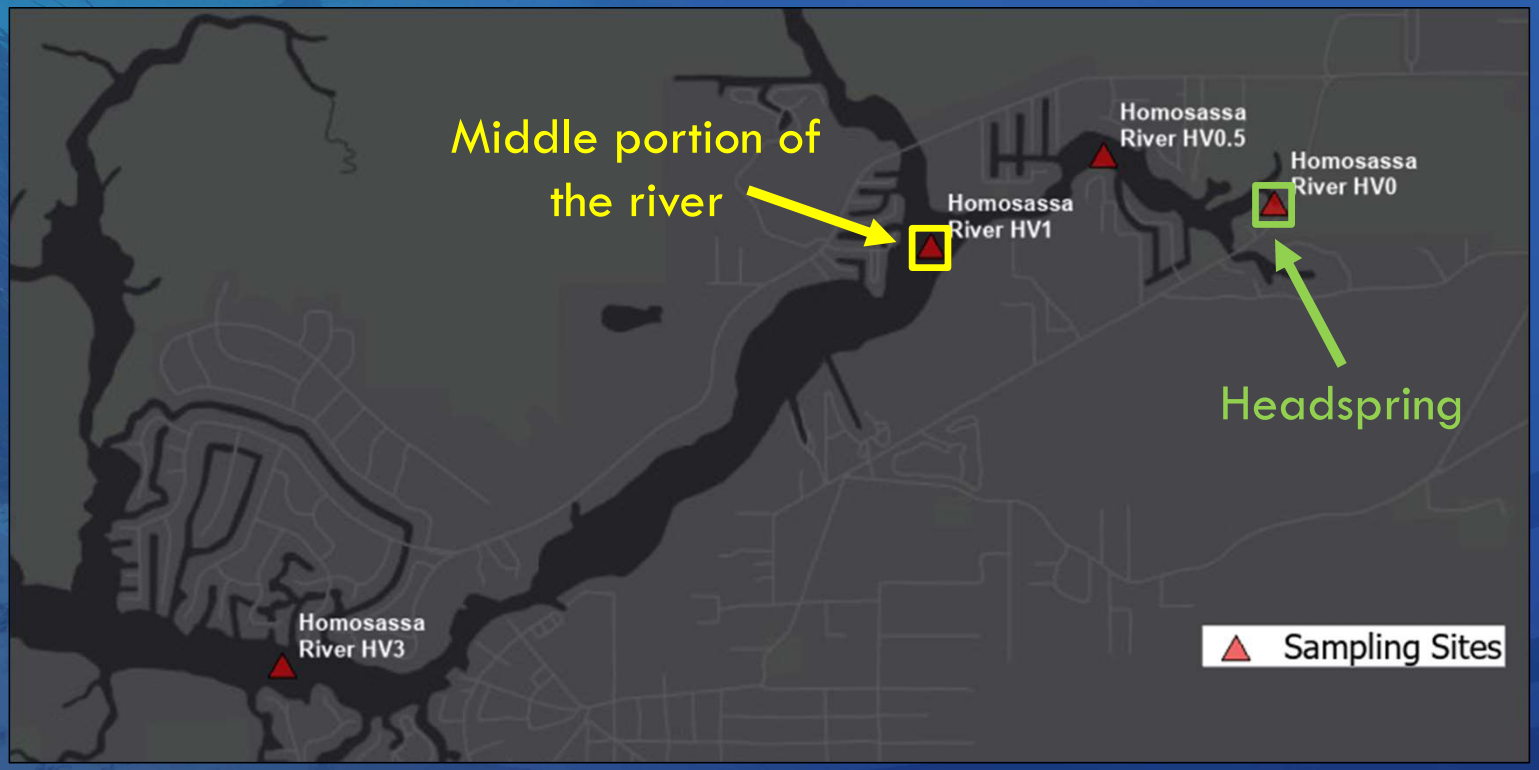
Indicators

Water clarity	Threshold
Near the headspring	40 ft
Middle portion of river	11 ft

Quantifiable Objectives

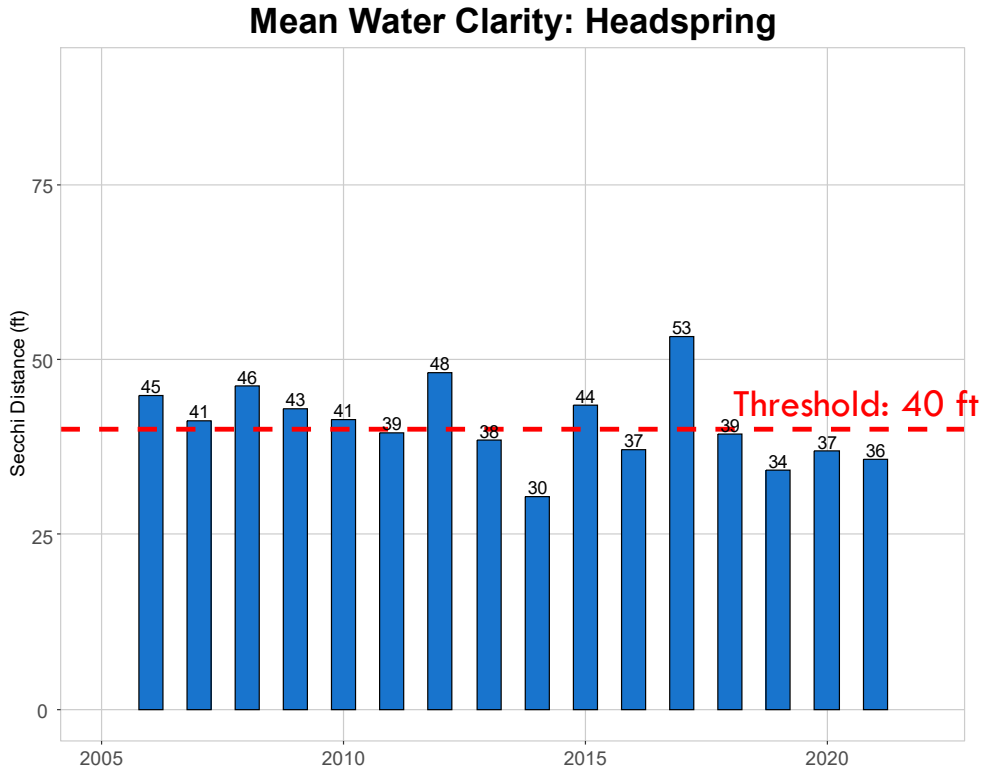
Water quality	Target
Nitrate concentration in the springs	< 0.23 mg/L
Water quantity	
Minimum flows for the springs and river	> 95% natural flow
Natural systems	
Coverage of desirable submerged aquatic vegetation in the tidal freshwater habitat.	> 40%
Coverage of desirable submerged aquatic vegetation in the transition zone.	> 25%
Coverage of desirable submerged aquatic vegetation in the estuarine zone.	> 10%
Coverage of invasive aquatic vegetation in the tidal freshwater habitat, transition zone, and estuarine zone.	< 10%
No net loss of shoreline in natural condition along the river.	No net loss.

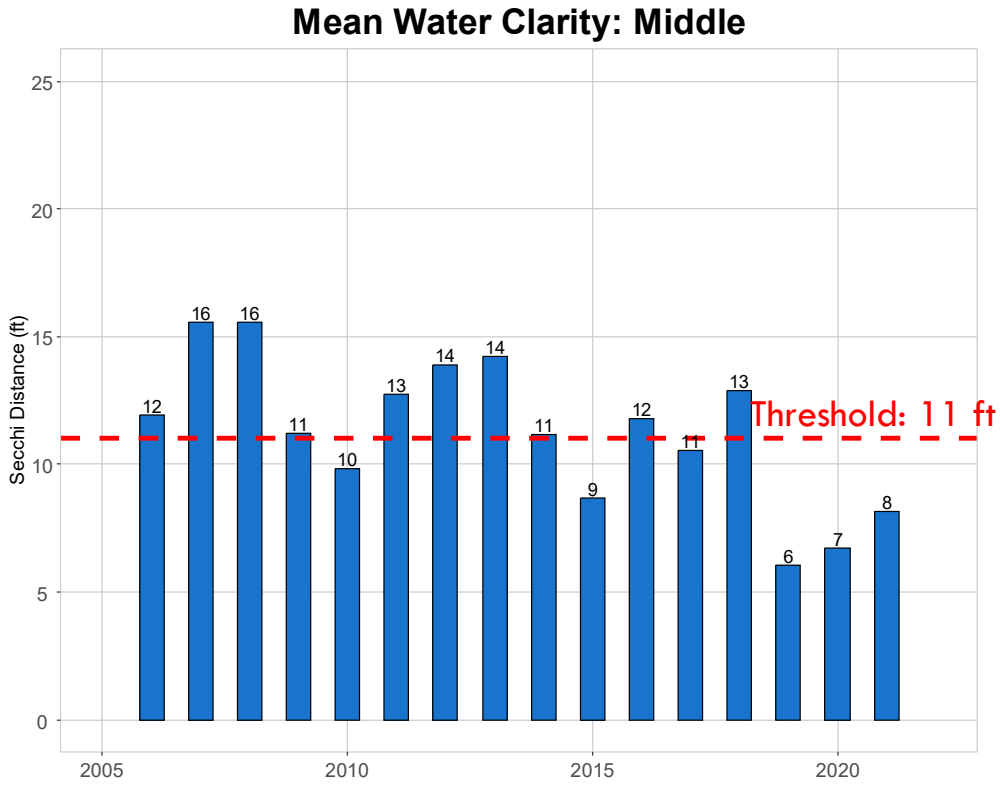
Quantifiable Objective Refinements
Homosassa River – Water Clarity



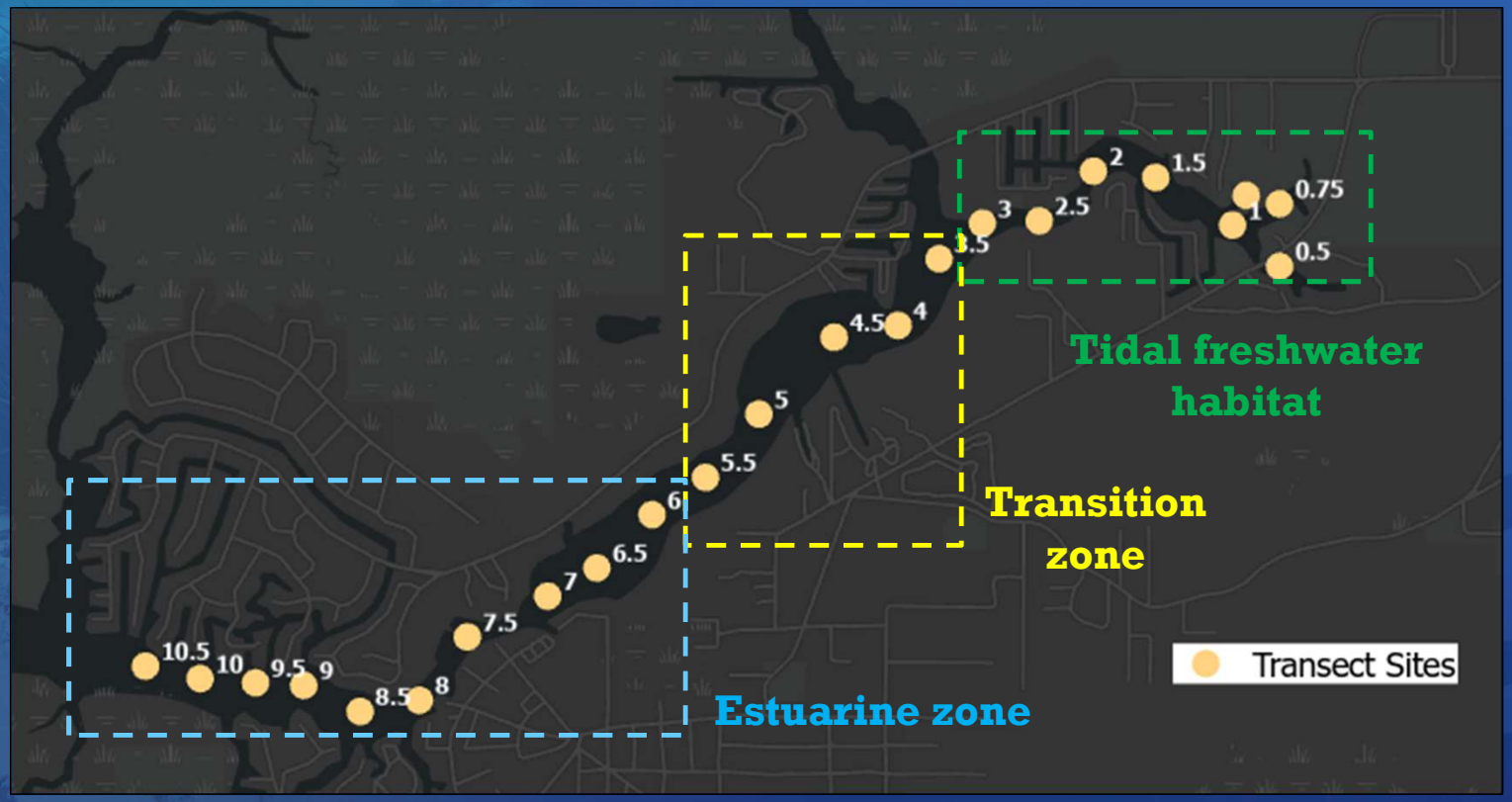
SOUTHWEST FLORIDA WATER MANAGEMENT DISTRICT

Quantifiable Objective Refinements
Homosassa River – Water Clarity



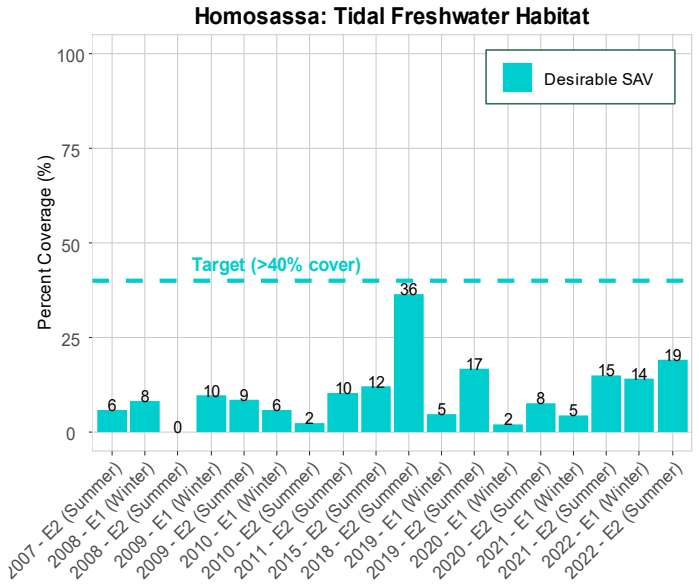


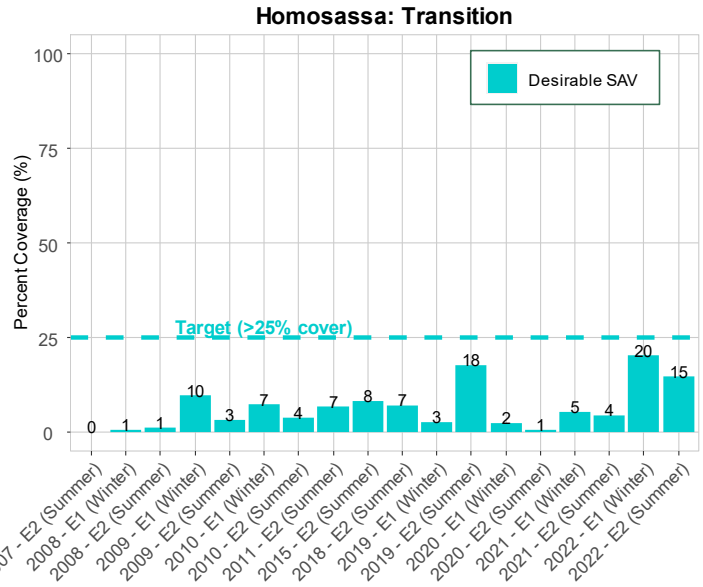
Quantifiable Objective Refinements
Homosassa River – Submerged aquatic vegetation

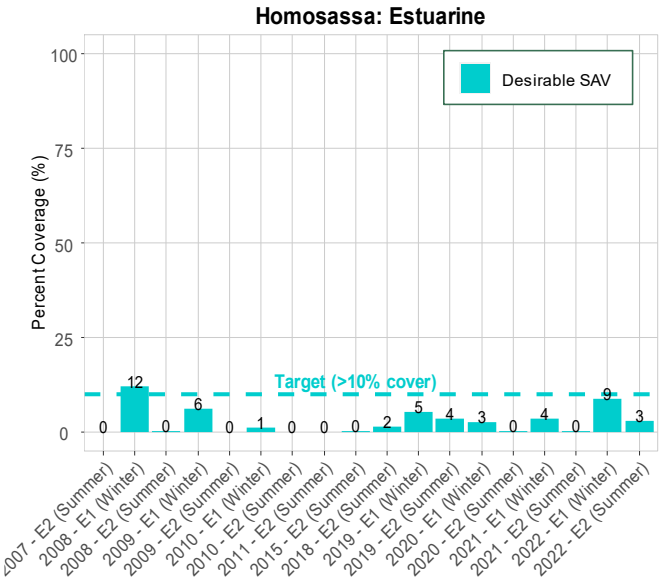


SOUTHWEST FLORIDA WATER MANAGEMENT DISTRICT

Quantifiable Objective Refinements
Homosassa River – Submerged aquatic vegetation







Quantifiable Objective Refinements
Crystal River/Kings Bay

Quantifiable Objectives

Water quality	Target
Water clarity – bay wide	> 20 feet
Water clarity – spring areas	> 60 feet
Total nitrogen concentration in the bay	< 0.28 mg/L
Total phosphorus concentration in the bay	< 0.032 mg/L
Chlorophyll concentration in the bay	< 2.0 µg/L
Water quantity	
Minimum flows for the river and bay system	TBD in 2017
Natural systems	
Coverage of desirable submerged aquatic vegetation in the bay	> 65%
Coverage of invasive aquatic vegetation in the bay (including filamentous algae)	< 10%
No net loss of shoreline in natural condition along the bay and river	No net loss
Increase of enhancement to disturbed shorelines for the bay and river	> 20%

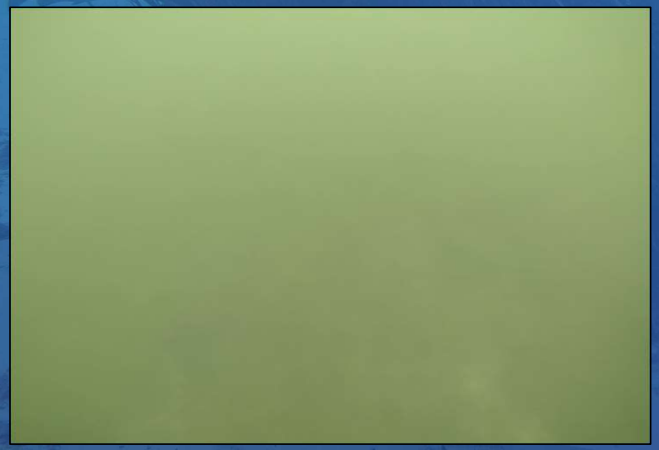
Indicators	Threshold
Water clarity – Hunter Cove	21 ft
Water clarity – Kings Bay Proper	8 ft
Chlorophyll concentration in the bay	10 µg/L

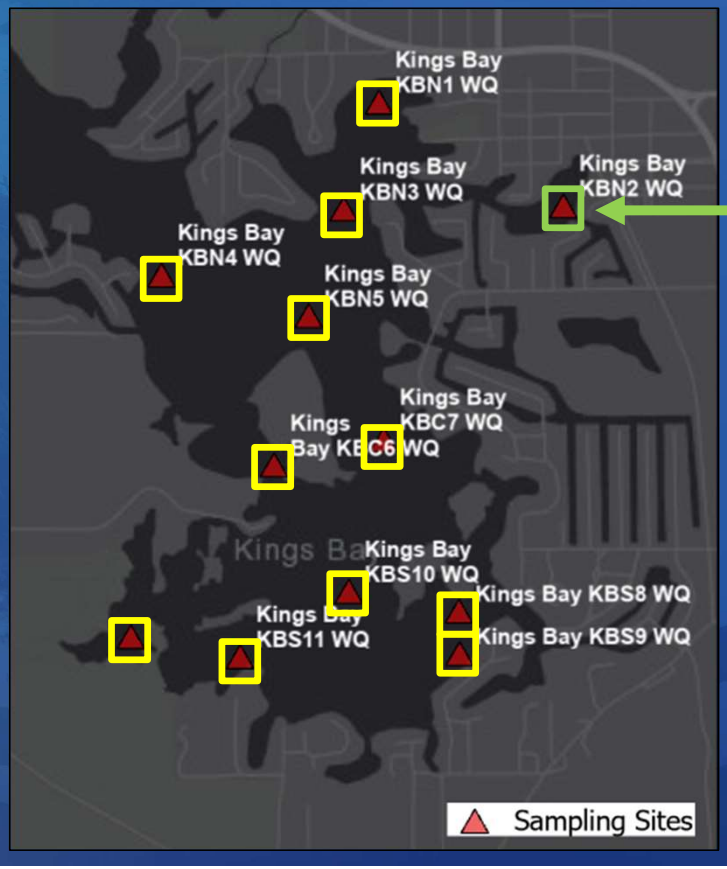
Quantifiable Objectives

Water quality	Target
Total nitrogen concentration in the bay	< 0.28 mg/L
Total phosphorus concentration in the bay	< 0.032 mg/L
Water quantity	
Minimum flows for the springs and river	> 89% natural flow
Natural systems	
Coverage of desirable submerged aquatic vegetation in the bay	> 65%
Coverage of invasive aquatic vegetation in the bay (including filamentous algae)	< 10%
No net loss of shoreline in natural condition along the bay and river	No net loss
Increase of enhancement to disturbed shorelines for the bay and river	> 20%

Quantifiable Objective Refinements
Crystal River/Kings Bay – Water Clarity

Kings Bay Proper

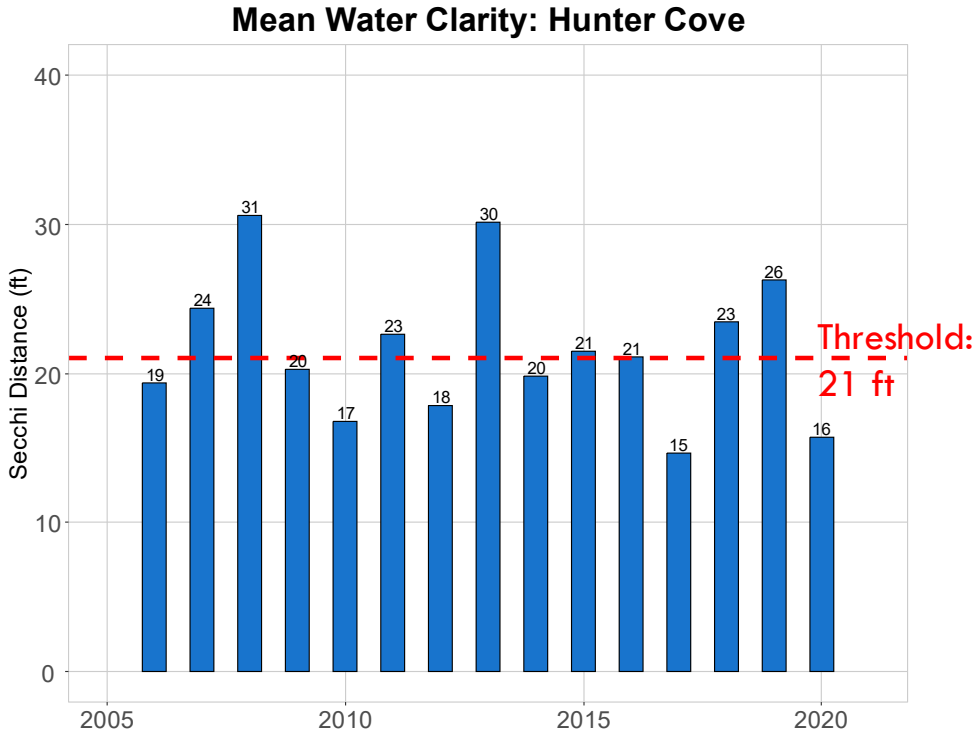


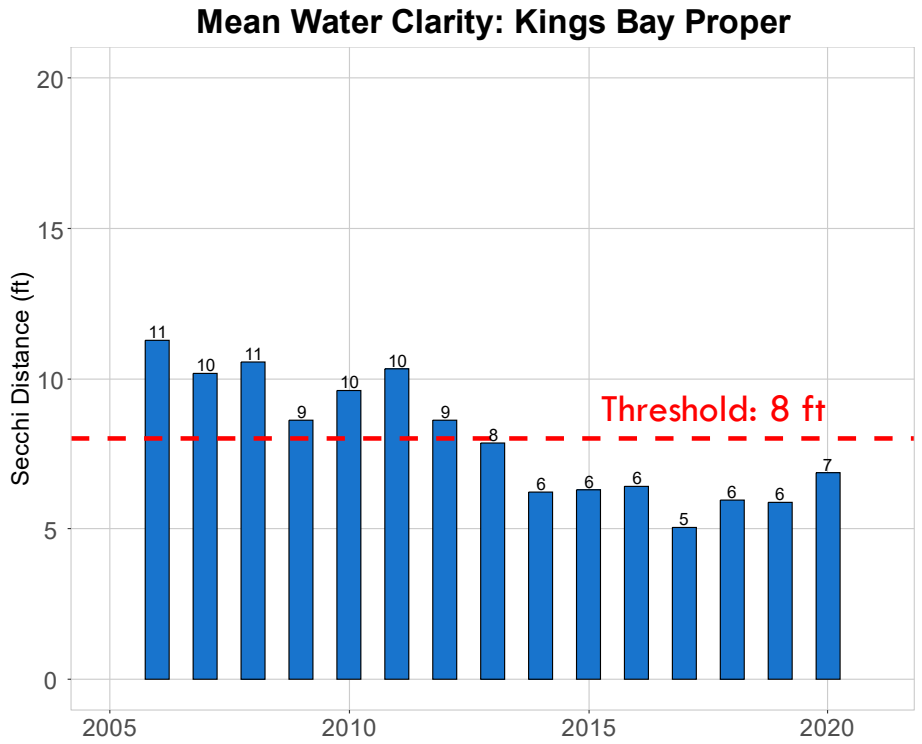


Hunter Cove

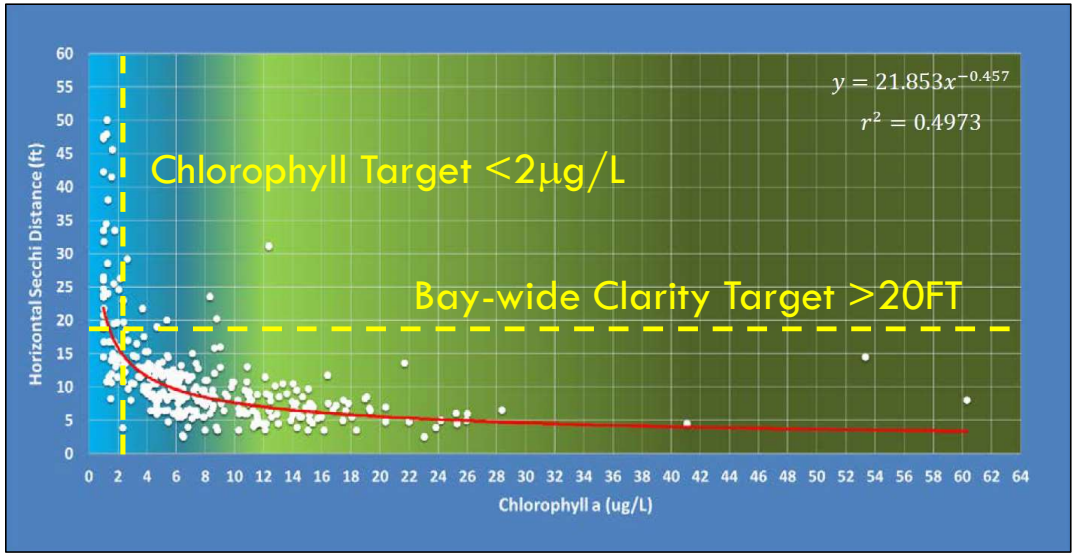
SOUTHWEST FLORIDA WATER MANAGEMENT DISTRICT

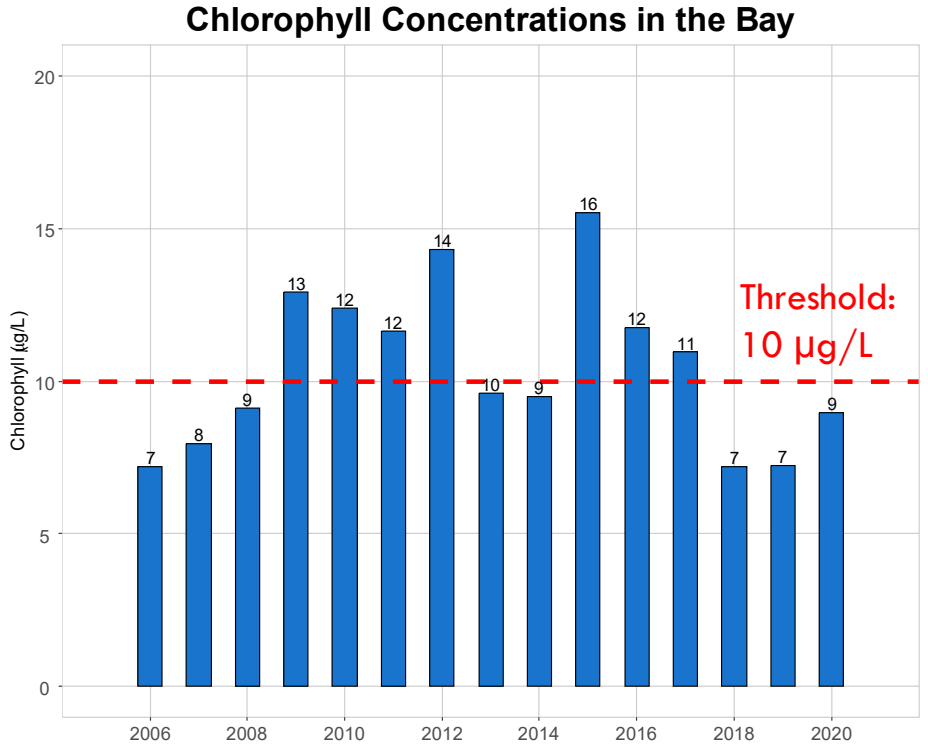
Quantifiable Objective Refinements
Crystal River/Kings Bay – Water Clarity





Quantifiable Objective Refinements
Crystal River/Kings Bay – Chlorophyll





Quantifiable Objective Refinements
Rainbow River

Quantifiable Objectives

Water quality	Target
Water clarity in the river	> 100 feet
Nitrate concentration in the springs and river	< 0.35 mg/L
Water quantity	
Minimum flow for the springs and river system	TBD in 2016
Natural systems	
Coverage of desirable submerged aquatic vegetation in the river	> 65%
Coverage of invasive aquatic vegetation (hydrilla/filamentous algae) in the river	< 10%

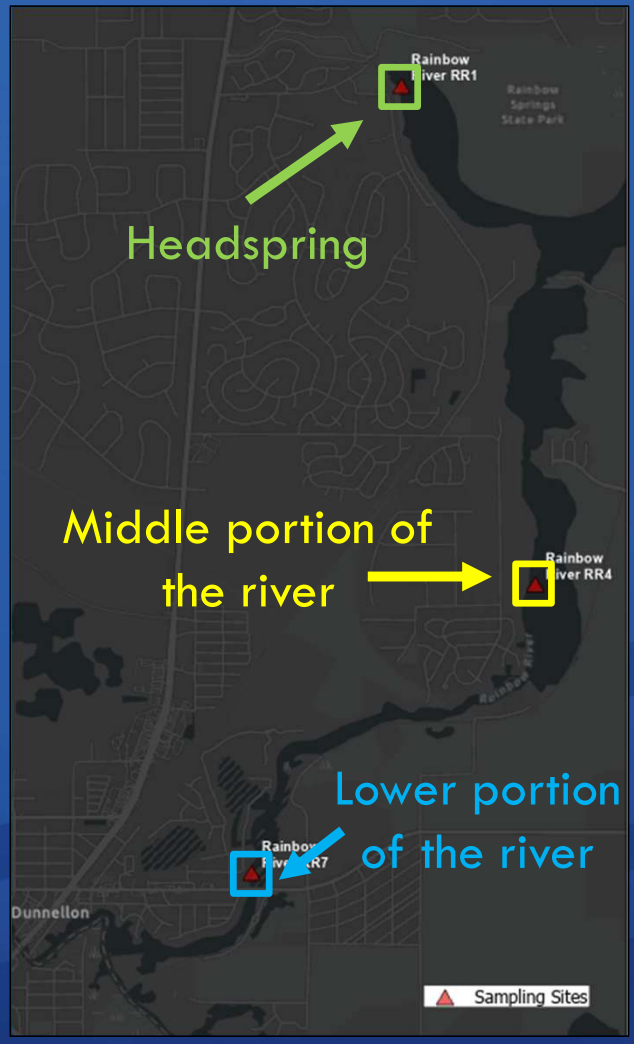
Indicators

Water clarity	Threshold
Near the headspring	194 ft
Middle portion of river	47 ft
Lower portion of the river	26 ft

Quantifiable Objectives

Water quality	Target
Nitrate concentration in the springs and river	< 0.35 mg/L
Water quantity	
Minimum flows for the springs and river	> 95% natural flow
Natural systems	
Desirable submerged aquatic vegetation in the upper and lower portions of the river.	> 65%
Invasive aquatic vegetation in the upper and lower portions of the river.	< 10%

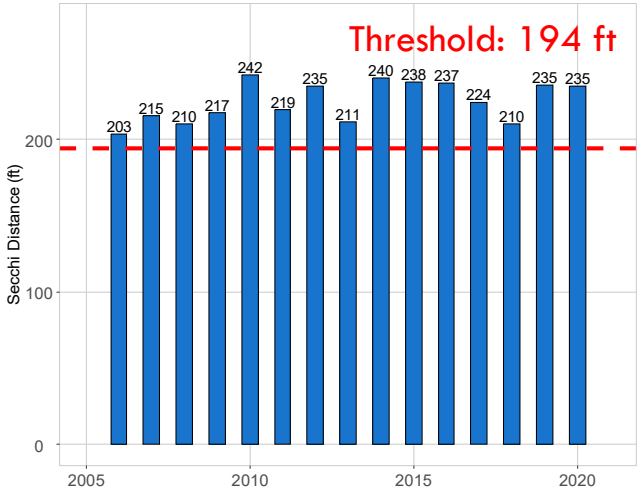
Quantifiable Objective Refinements Rainbow River – Water Clarity



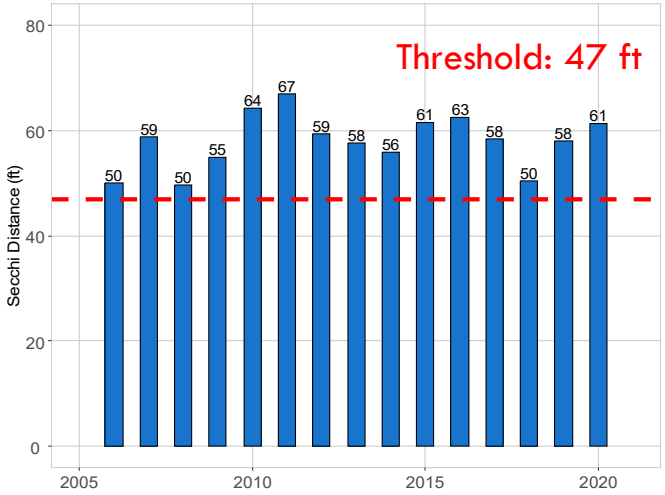
SOUTHWEST FLORIDA WATER MANAGEMENT DISTRICT

Quantifiable Objective Refinements
Rainbow River – Water Clarity

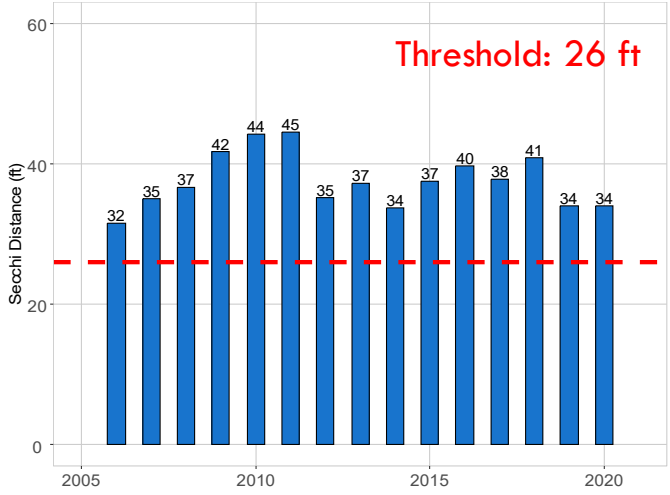
Mean Water Clarity: Headsprings



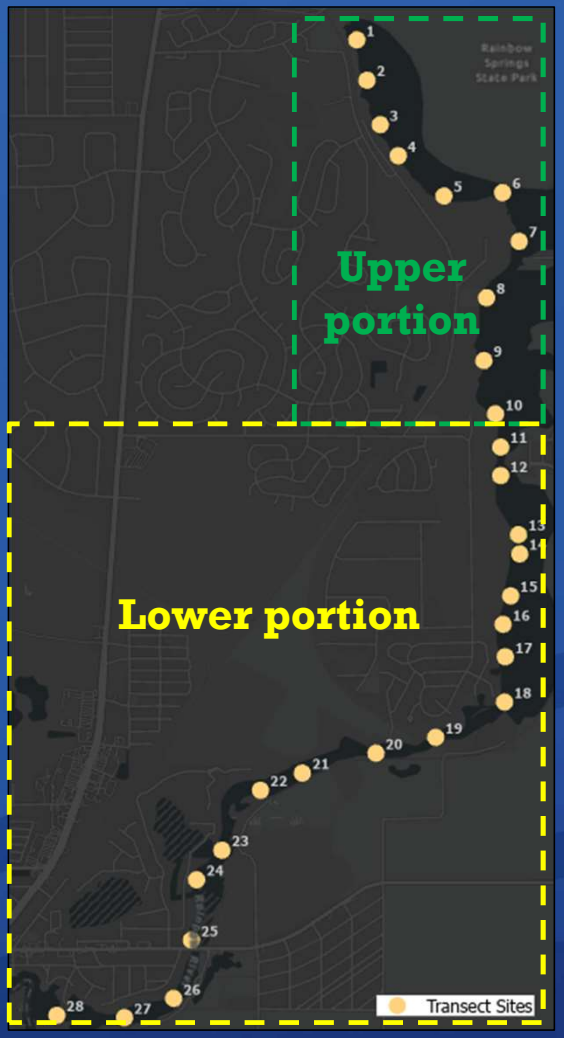
Mean Water Clarity: Middle



Mean Water Clarity: Lower



Quantifiable Objective Refinements Rainbow River – Submerged aquatic vegetation



Quantifiable Objective Refinements
Weeki Wachee River

Quantifiable Objectives

Water quality	Target
Water clarity – river average	> 50 feet
Water clarity – near the headspring	> 120 feet
Nitrate concentration in the river	< 0.20 mg/L
Water quantity	
Minimum flow for the river system	> 90% natural flow
Natural systems	
Coverage of desirable submerged aquatic vegetation in the river	> 40%
Coverage of invasive aquatic vegetation (including filamentous algae) in the river	< 10%

Indicators

Water clarity	Threshold
Near the headspring	115 ft
Near the Estates	28 ft
Near the Gardens	21ft

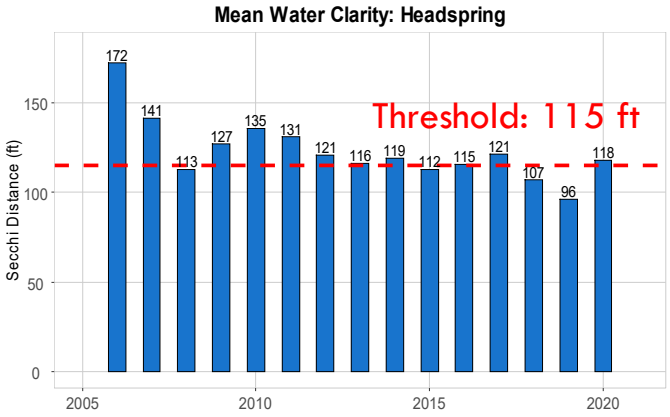
Quantifiable Objectives

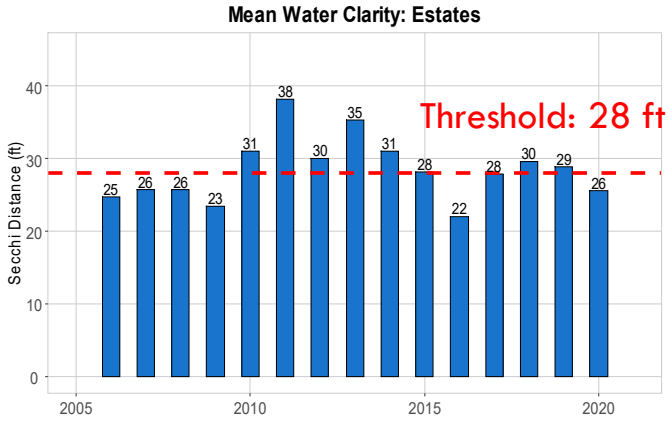
Water quality	Target
Nitrate concentration in the springs	< 0.20 mg/L
Water quantity	
Minimum flows for the springs and river	> 90% natural flow
Natural systems	
Coverage of desirable submerged aquatic vegetation in the upper and lower portions of the river.	> 40%
Coverage of invasive aquatic vegetation (including filamentous algae) in the upper and lower portions of the river.	< 10%

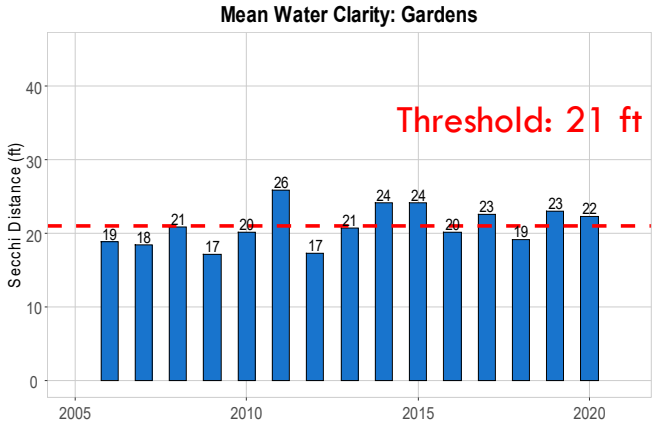
Quantifiable Objective Refinements
Weeki Wachee River – Water Clarity

SOUTHWEST FLORIDA WATER MANAGEMENT DISTRICT

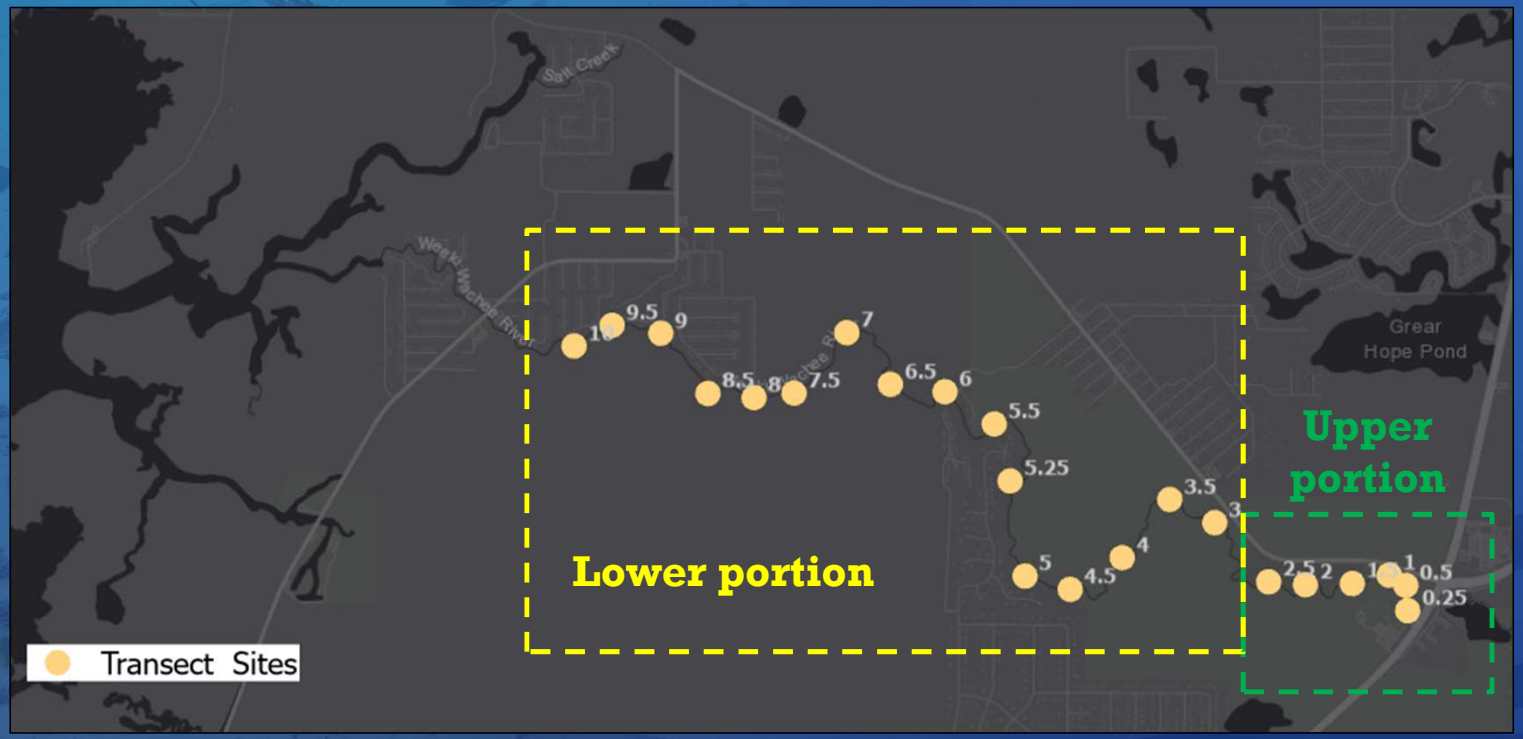
Quantifiable Objective Refinements
Weeki Wachee River – Water Clarity







Quantifiable Objective Refinements
Weeki Wachee River – Submerged aquatic vegetation



Quantifiable Objective Refinements Timeline

- ✓Springs Coast Committee Review: 2021 - 2023
  - ✓Technical Working Group Discussions
  - ✓Management Committee Review & Approval
  - ✓Steering Committee Review & Approval
- ✓Environmental Advisory Committee (EAC)
  - October 10, 2023
- Public Workshop
  - October 18, 2023
- Governing Board – Approval for Review
  - December 12, 2023
- Send for State & Local Government Review
  - 45-day review
- Governing Board – Approval of Final Plan
  - March 26, 2024


Southwest Florida Water Management District
Please send comments to
SWIMPlanUpdate@WaterMatters.org
by November 1, 2023