

# Technical Working Group Update

Weeki Wachee



Madison Trowbridge, Ph.D.

Springs Scientist

Natural Systems and Restoration

# SWIM Plans

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- Surface Water Improvement & Management (SWIM) Plans
  - Issues & Drivers
  - Management actions
    - Quantifiable objectives
  - Projects and Initiatives

## Weeki Wachee River Surface Water Improvement and Management (SWIM) Plan

A Comprehensive Conservation and Management Plan

March 2017





# Quantifiable Objectives

WATER QUALITY



WATER QUANTITY



NATURAL SYSTEMS



# Quantifiable Objectives: Order of Systems

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- Oldest to newest:
  - Rainbow (Nov 2015)
  - Crystal River/Kings Bay (Dec 2015)
  - Weeki Wachee (Mar 2017)
  - Chassahowitzka (Aug 2017)
  - Homosassa (Aug 2017)

# Weeki Wachee - Current Quantifiable Objectives

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Water Quality	Target
Water clarity – river average	>50 feet <sup>1</sup>
Water clarity – near the headspring	>120 feet <sup>1</sup>
Nitrate concentration in the river	<0.20 mg/L <sup>2</sup>
Water Quantity	
Minimum flow for the river system	>90% natural flow <sup>3</sup>
Natural Systems	
Coverage of desirable submerged aquatic vegetation in the river	>40% <sup>4</sup>
Coverage of invasive aquatic vegetation (including filamentous algae) in the river	<10% <sup>4</sup>

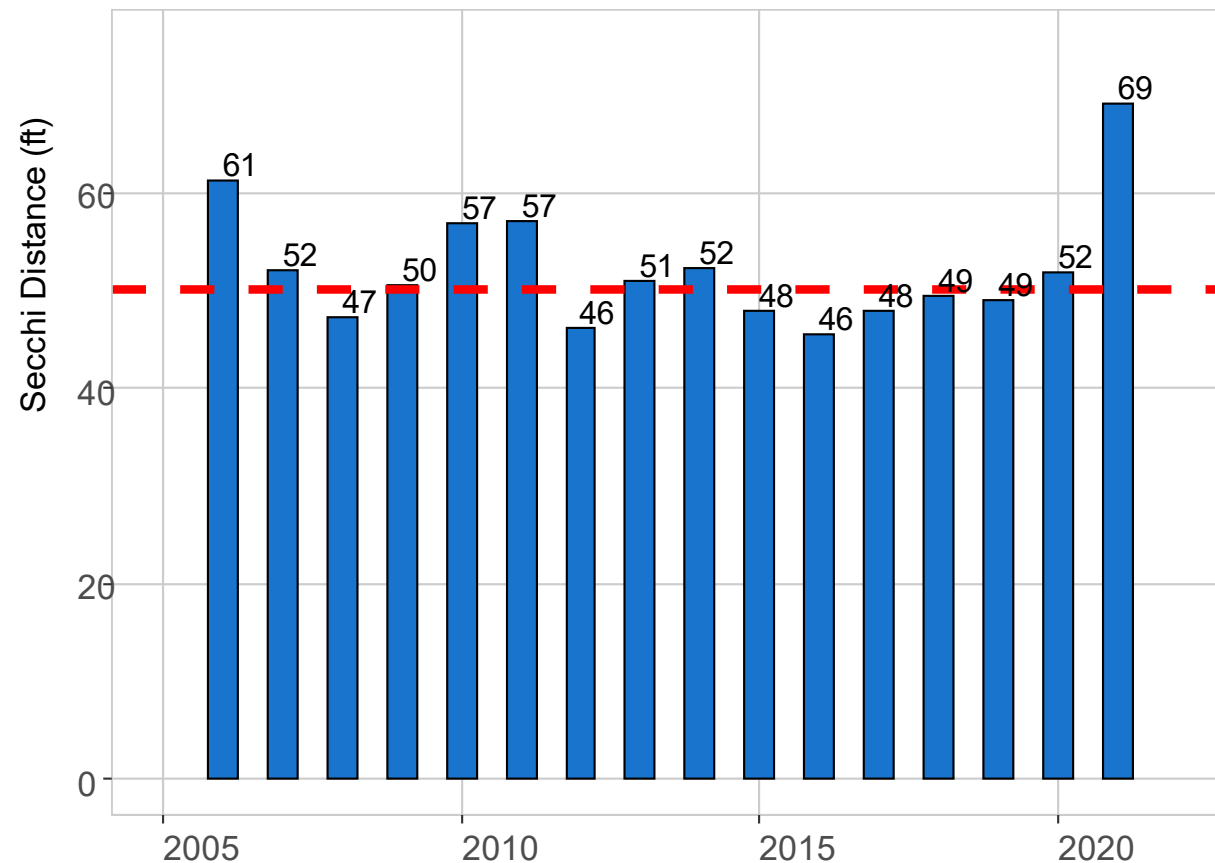
# Weeki Wachee Q0: Water Quality



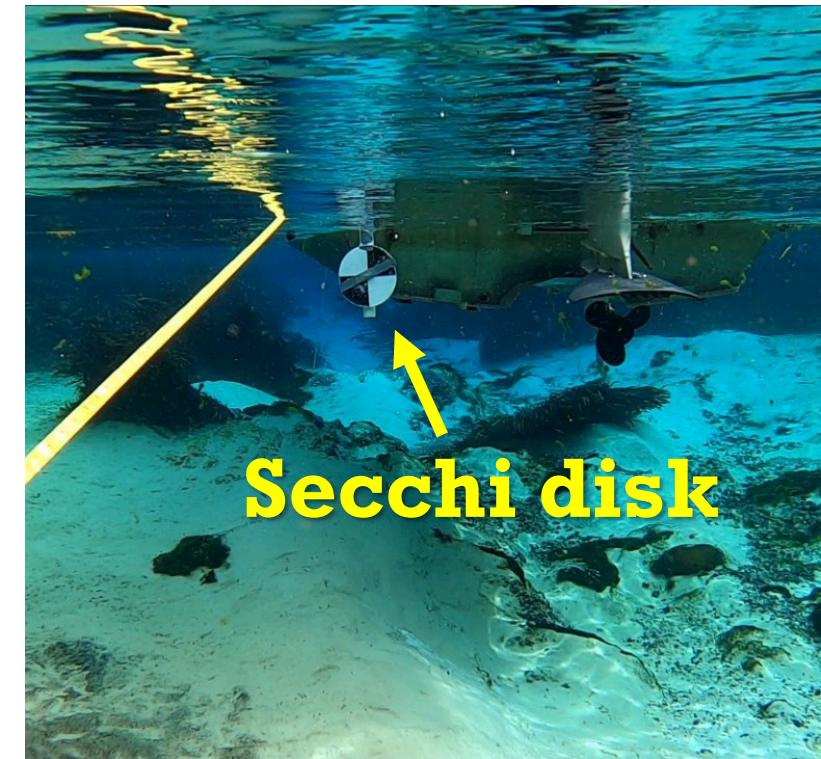


# Weeki Wachee QO: Water Quality

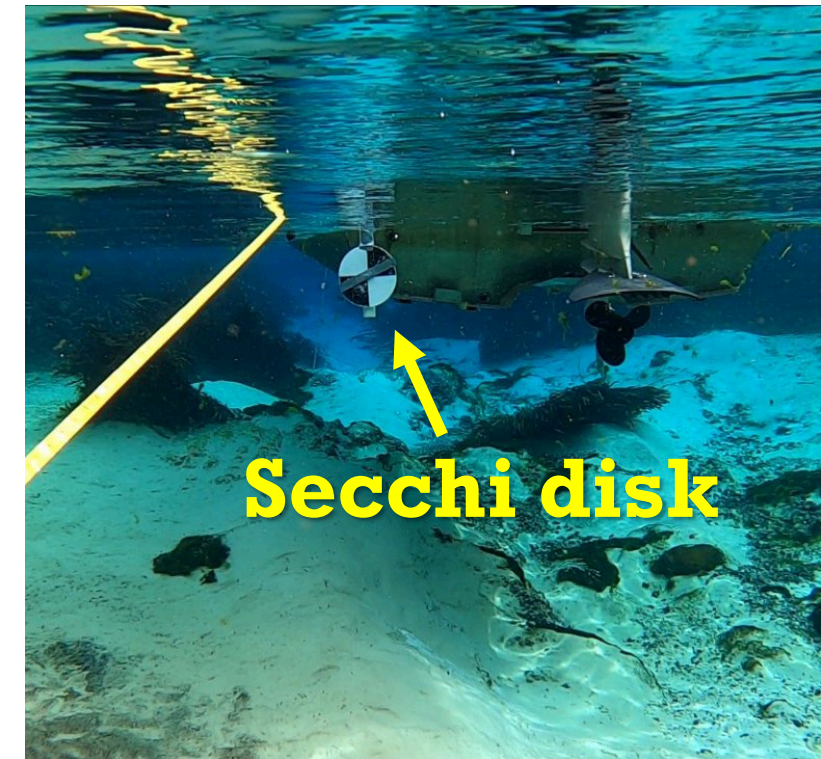
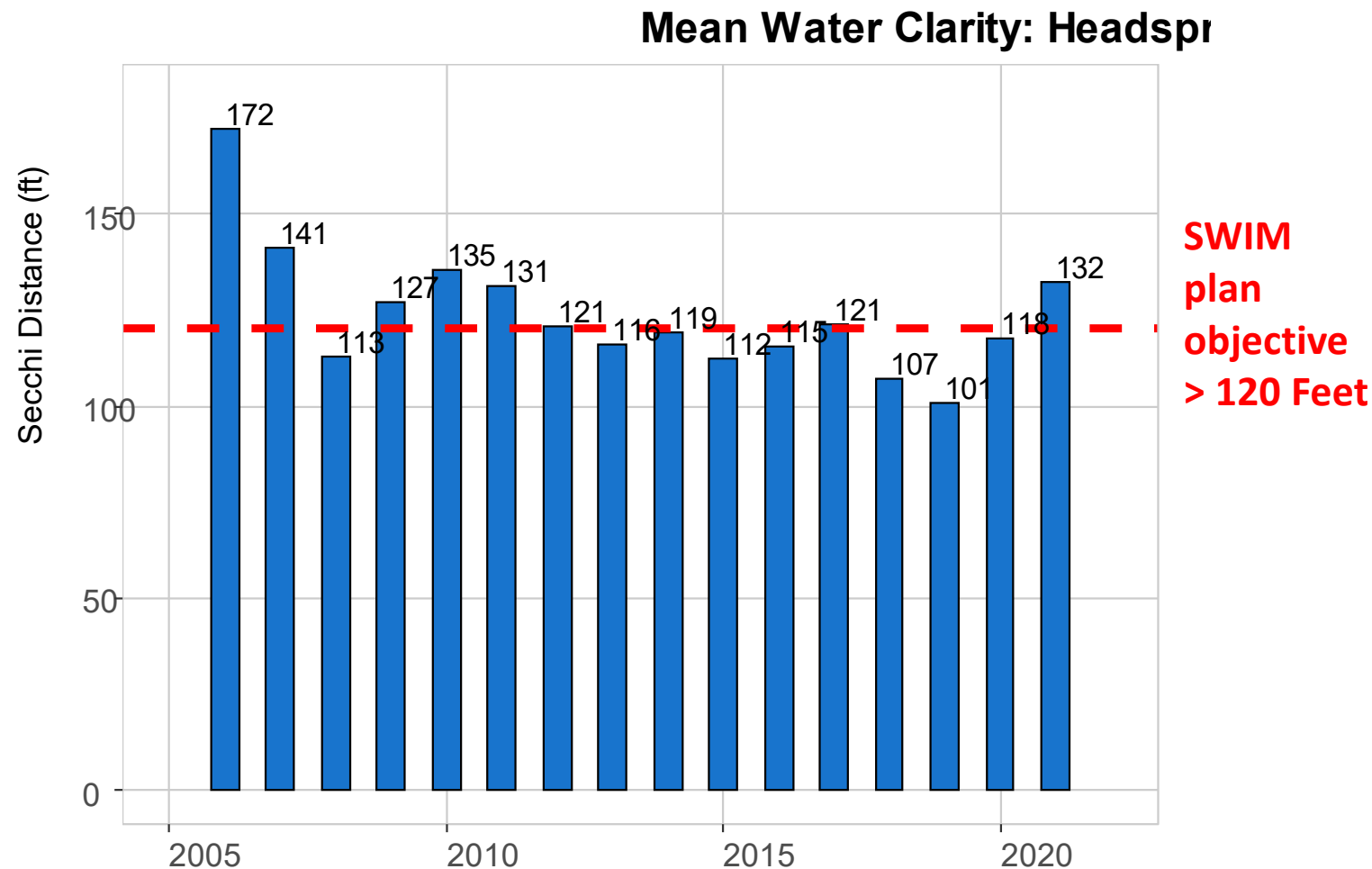
Mean Water Clarity: River Av



**SWIM  
plan  
objective  
> 50 Feet**

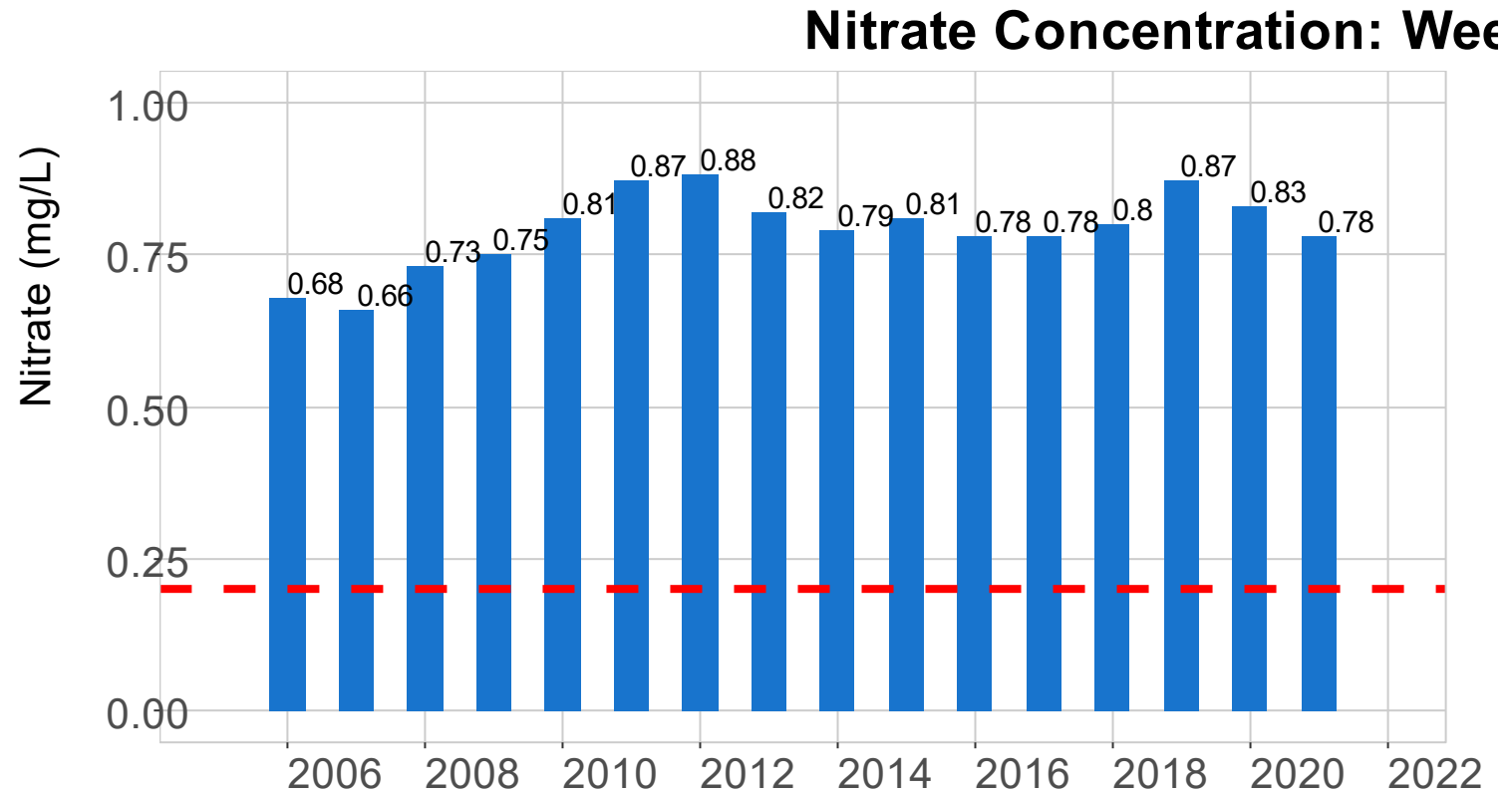


# Weeki Wachee QO: Water Quality





# Weeki Wachee QO: Water Quality



**SWIM plan  
objective  
< 0.20 mg/L**

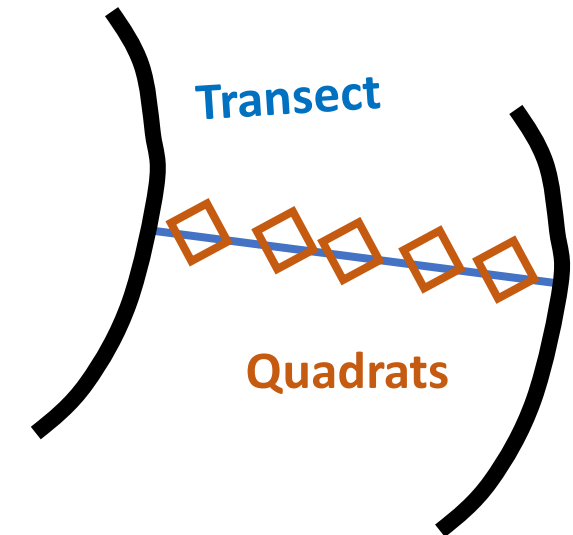
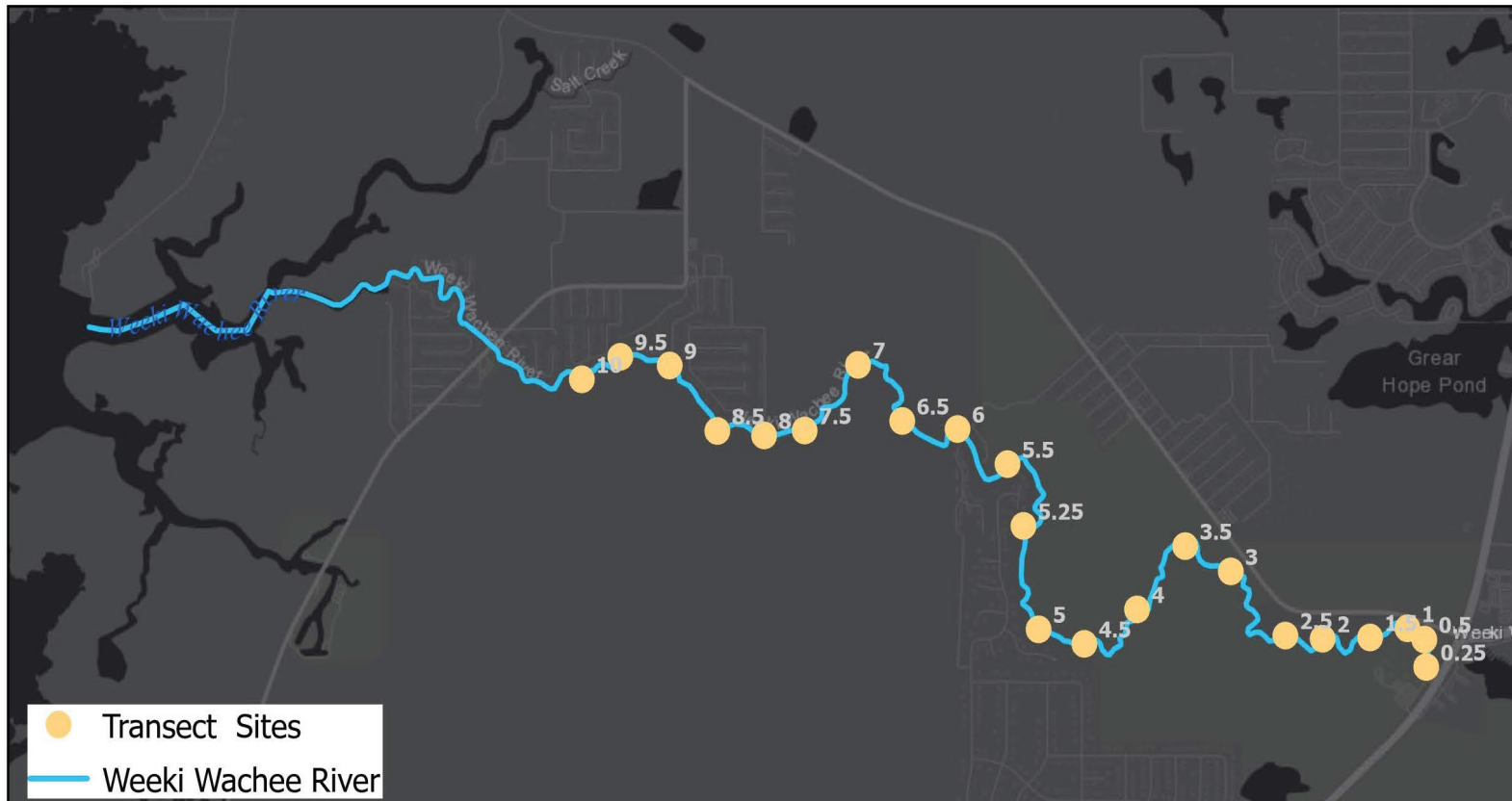
# Weeki Wachee Q0: Water Quantity

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- Minimum Flow for the River  
>90% of Natural Flow
- **MFL Status: 93% Natural Flow**

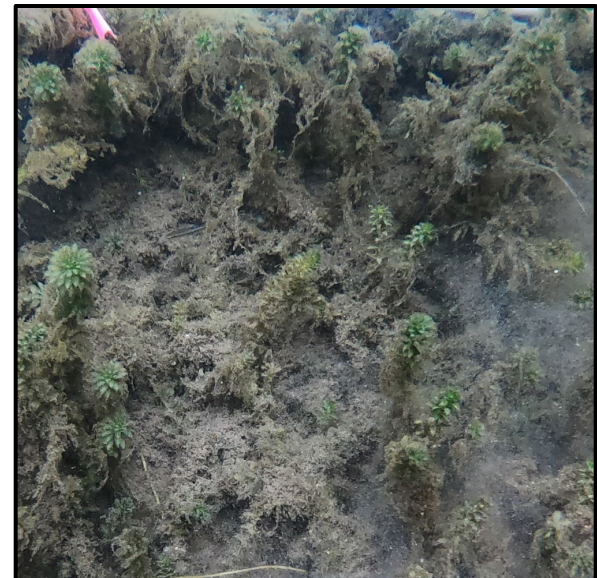
# Weeki Wachee Q0: Natural Systems



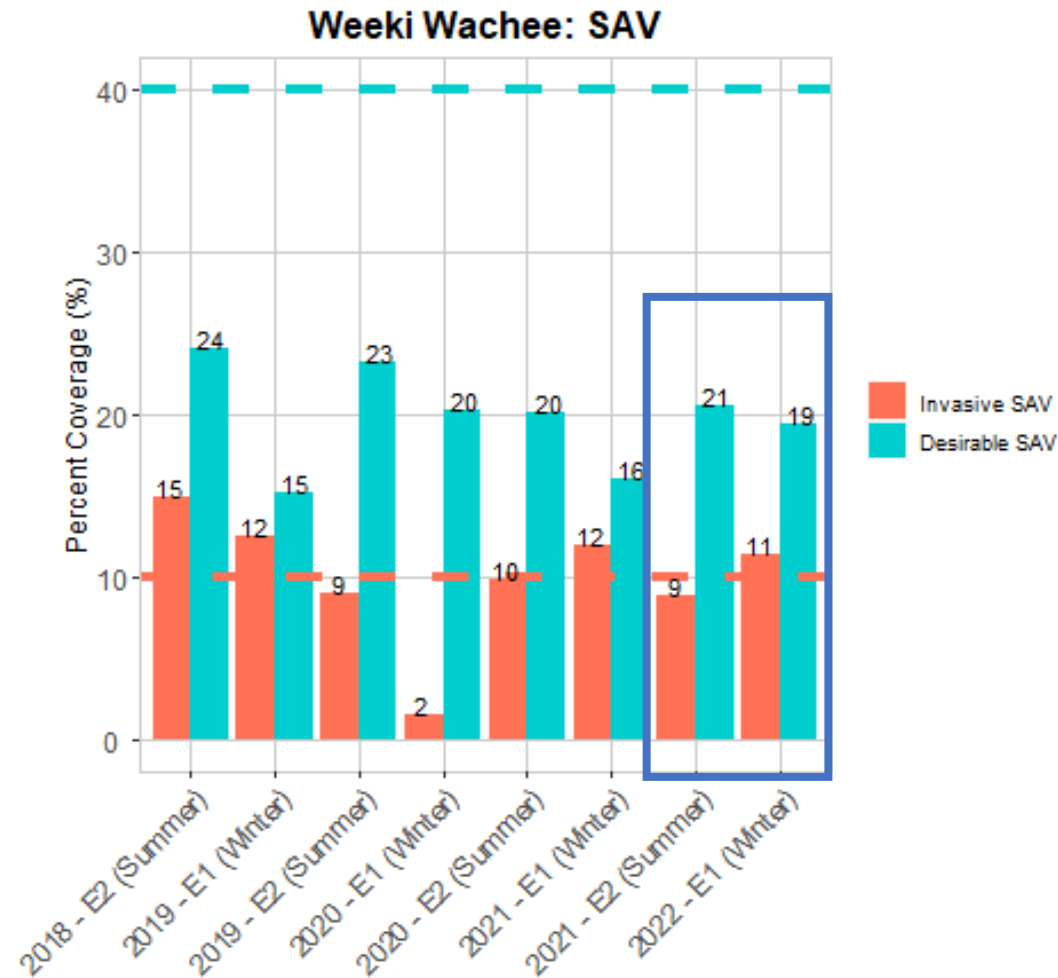


# Weeki Wachee Q0: Natural Systems

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# Weeki Wachee Q0: Natural Systems





# Weeki Wachee QO: Current

	Water Quality	Target
👍	Water clarity – river average	>50 feet <sup>1</sup>
👍	Water clarity – near the headspring	>120 feet <sup>1</sup>
👎	Nitrate concentration in the river	<0.20 mg/L <sup>2</sup>
	Water Quantity	
👍	Minimum flow for the river system	>90% natural flow <sup>3</sup>
	Natural Systems	
👎	Coverage of desirable submerged aquatic vegetation in the river	>40% <sup>4</sup>
👍	Coverage of invasive aquatic vegetation (including filamentous algae) in the river	<10% <sup>4</sup>



# Q0: Weeki Wachee TWG Discussions

## Indicators

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

## 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 river	< 10%

# Q0: Weeki Wachee TWG –water clarity



# Q0: Weeki Wachee –water clarity

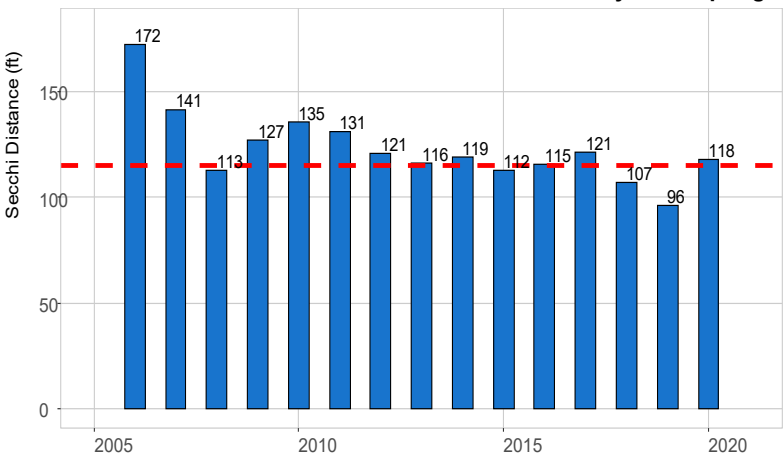




# Q0: Weeki Wachee TWG –water clarity

## HEADSPRING

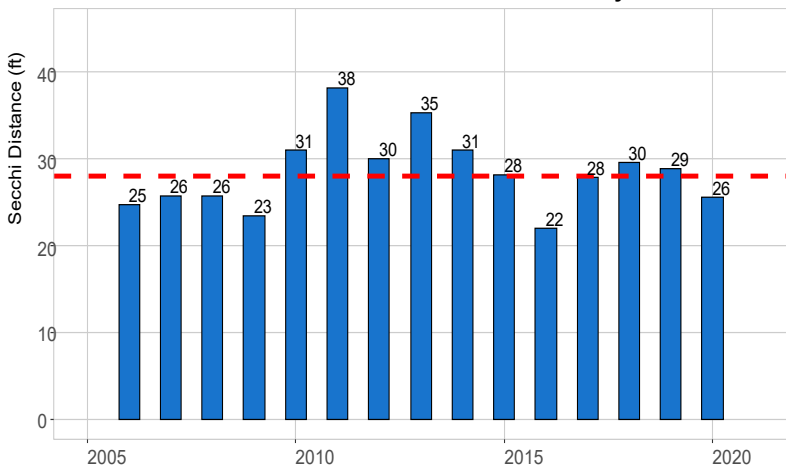
Mean Water Clarity: Headspring



AVG: 115 ft

## ESTATES

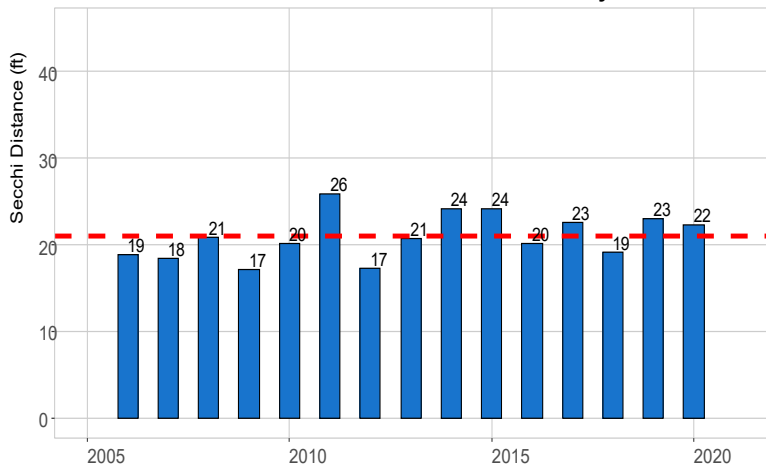
Mean Water Clarity: Estates



AVG: 28 ft

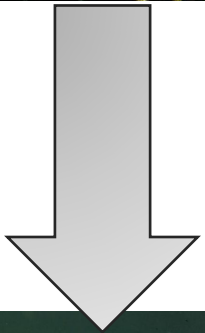
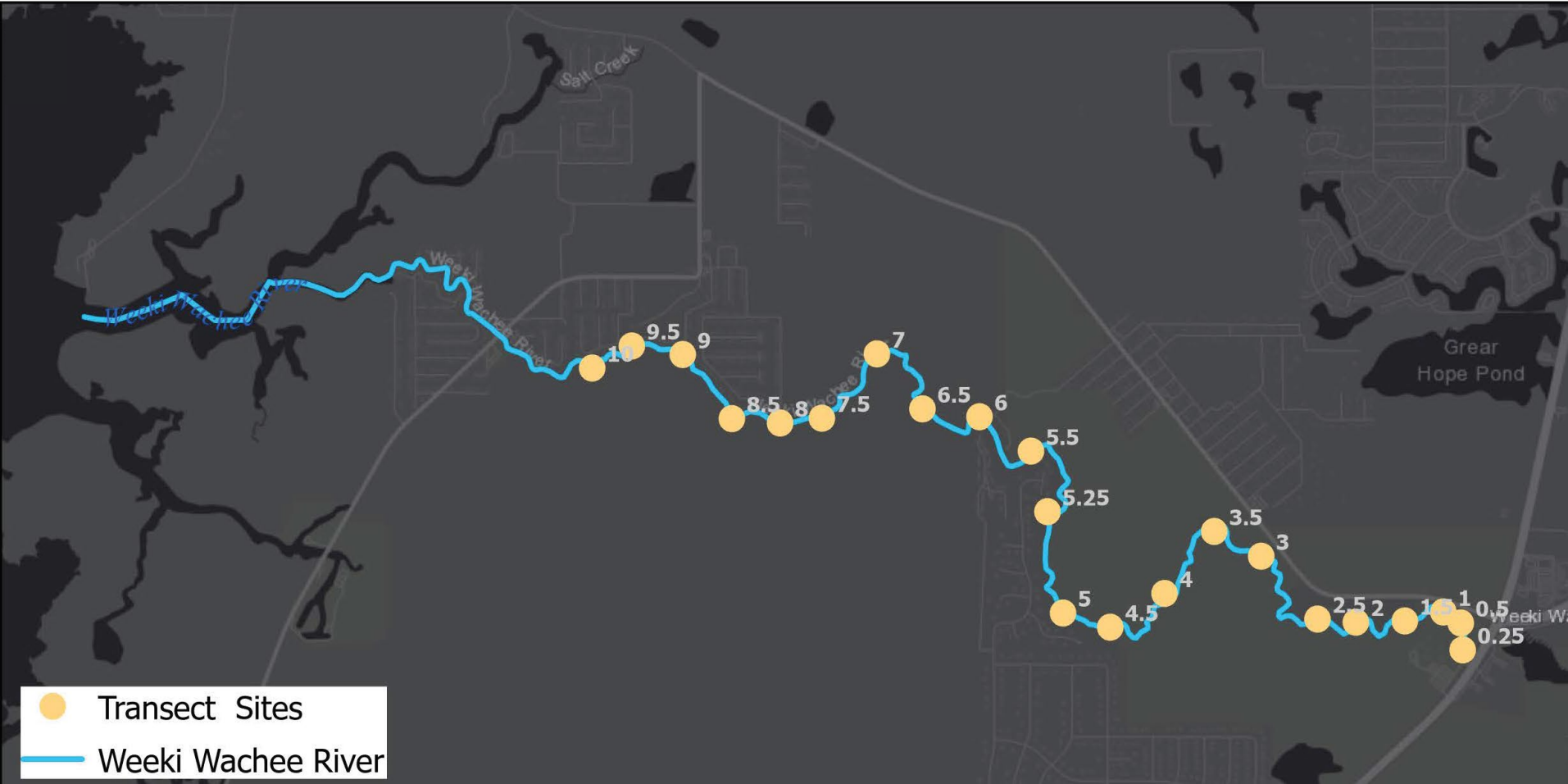
## GARDENS

Mean Water Clarity: Gardens

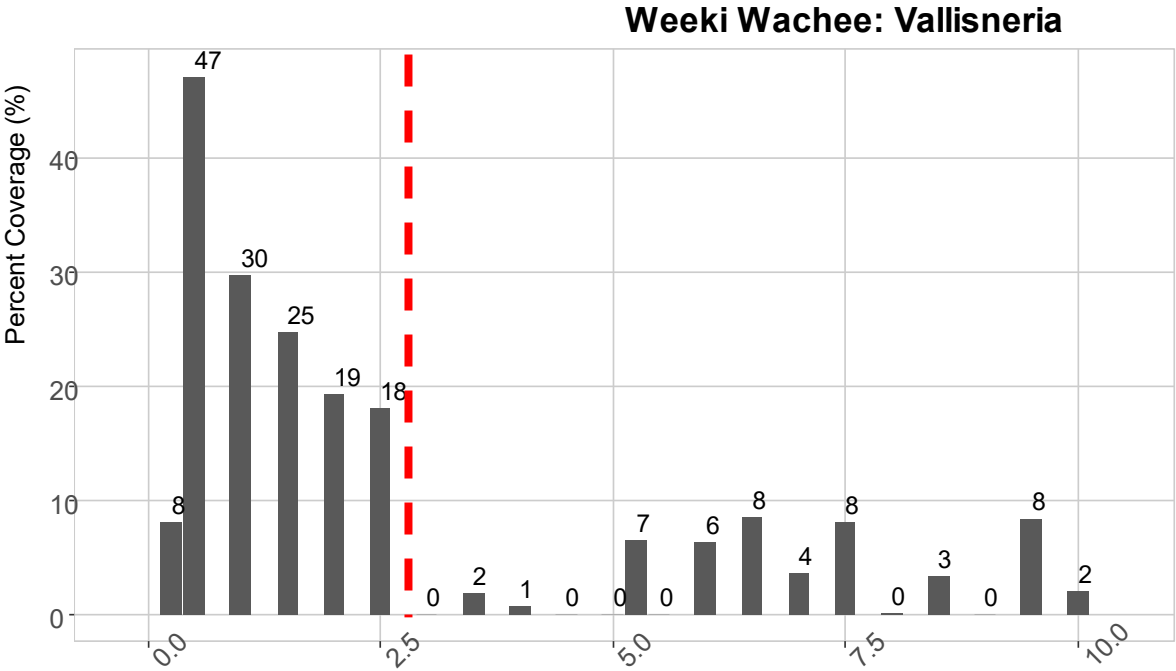
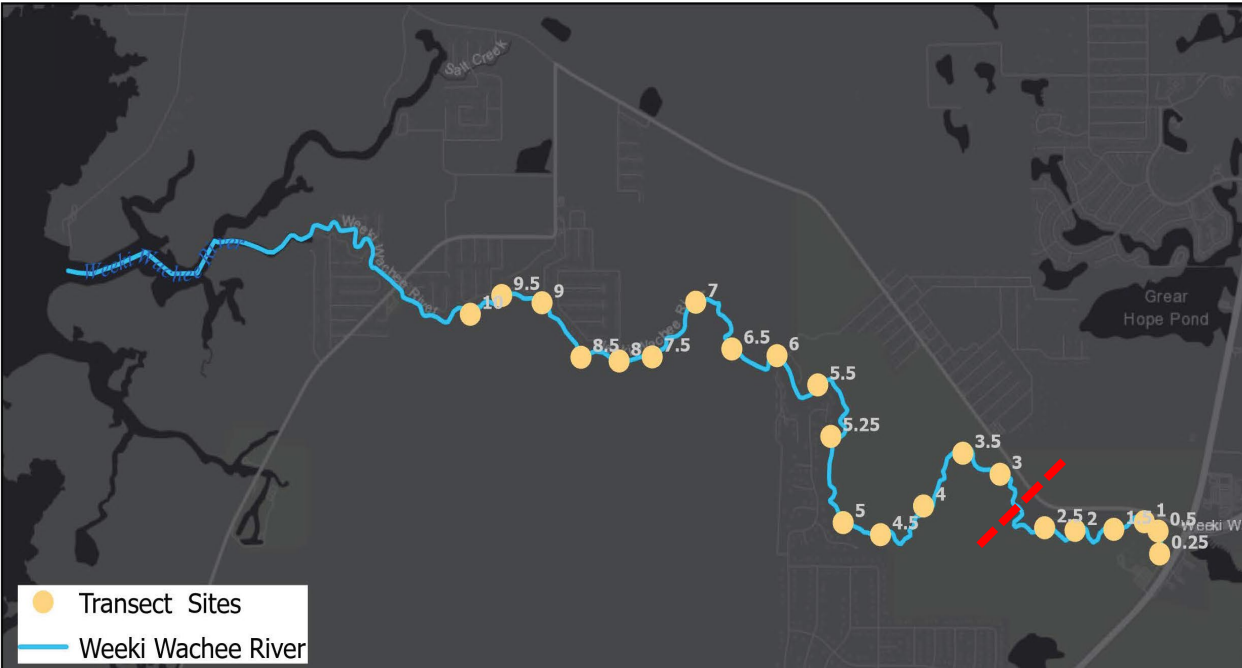


AVG: 21 ft

# Q0: Weeki Wachee – natural systems



# Q0: Weeki Wachee – natural systems





# Q0: Weeki Wachee TWG – review

Water Quality	Target
Water clarity – river average	>50 feet <sup>1</sup>
Water clarity – near the headspring	>120 feet <sup>1</sup>
Nitrate concentration in the river	<0.20 mg/L <sup>2</sup>
Water Quantity	
Minimum flow for the river system	>90% natural flow <sup>3</sup>
Natural Systems	
Coverage of desirable submerged aquatic vegetation in the river	>40% <sup>4</sup>
Coverage of invasive aquatic vegetation (including filamentous algae) in the river	<10% <sup>4</sup>

## Indicators

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

## 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 river	< 10%



# Questions?

**Madison Trowbridge, Ph.D.**

Surface Water Improvement and Management  
Natural Systems and Restoration Bureau

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