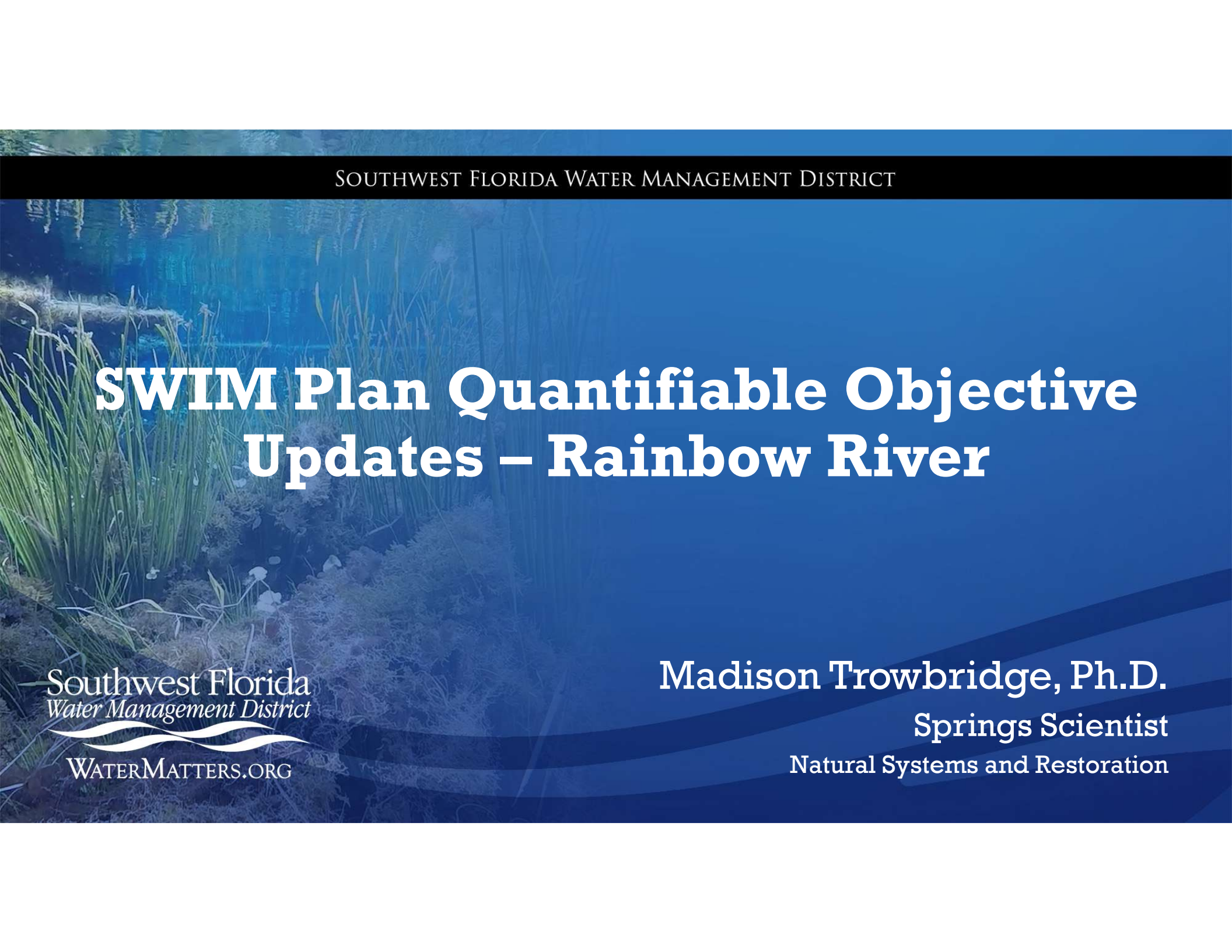




SOUTHWEST FLORIDA WATER MANAGEMENT DISTRICT

SWIM Plan Quantifiable Objective Updates – Rainbow River

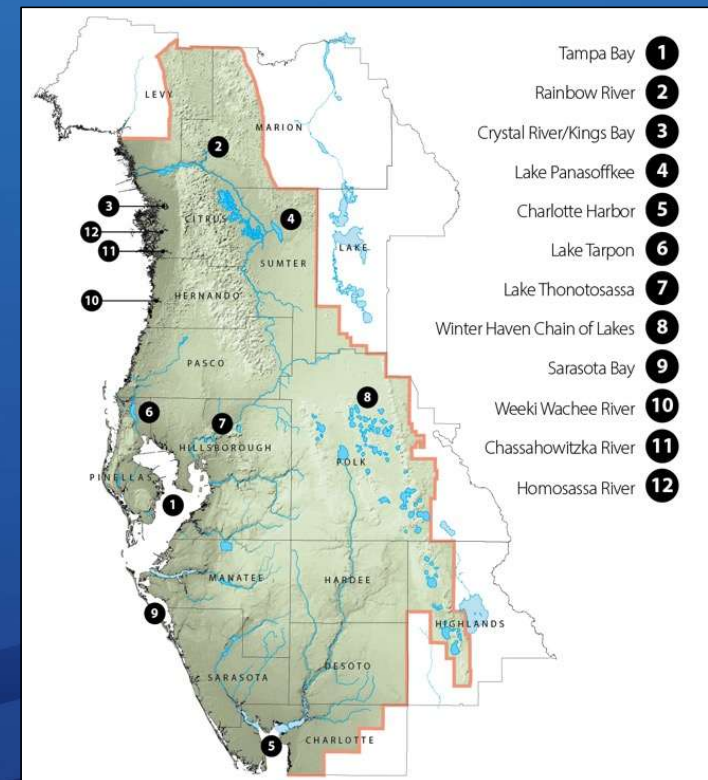
Southwest Florida
Water Management District


WATERMATTERS.ORG

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

SWIM Act 373.453, F.S.

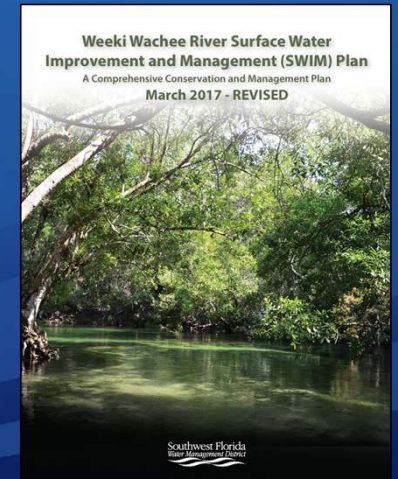
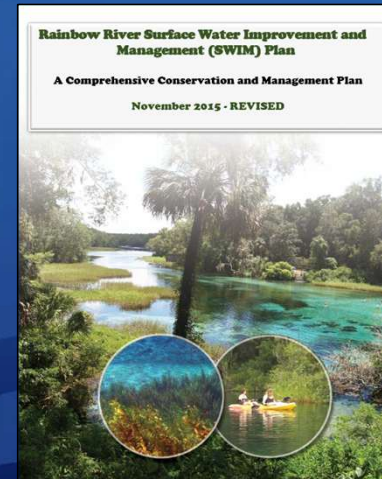
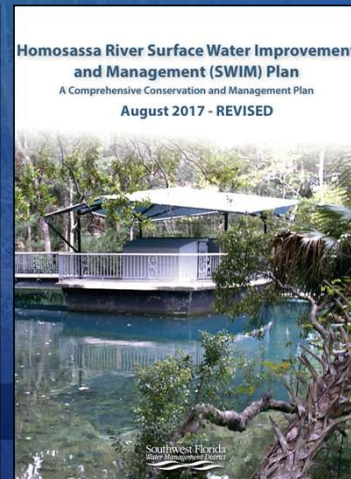
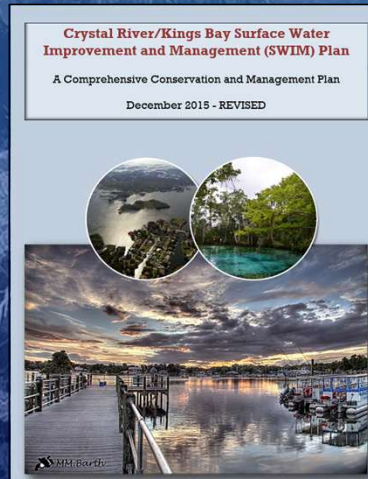
- Created by the Legislature in 1987
- Managed by the Water Management Districts
- Develop and maintain lists of priority surface waters
- Develop plans to protect and restore priority surface waters



SOUTHWEST FLORIDA WATER MANAGEMENT DISTRICT

First-Magnitude Springs SWIM Plans

- Surface Water Improvement & Management (SWIM) Plans
 - Issues & Drivers
 - Management Actions (Quantifiable Objectives & Indicators)
 - Projects & Initiatives



Quantifiable Objectives & Indicators

WATER QUALITY



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

WATER QUANTITY



- Minimum flows & levels (MFLs)

NATURAL SYSTEMS



- Submerged aquatic vegetation (SAV)
- No net loss of shoreline*
- Shoreline enhancement*

^ denotes indicator status

* denotes not applicable to all systems

Rainbow River

Indicators & Quantifiable Objectives

Indicators

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

Quantifiable Objectives

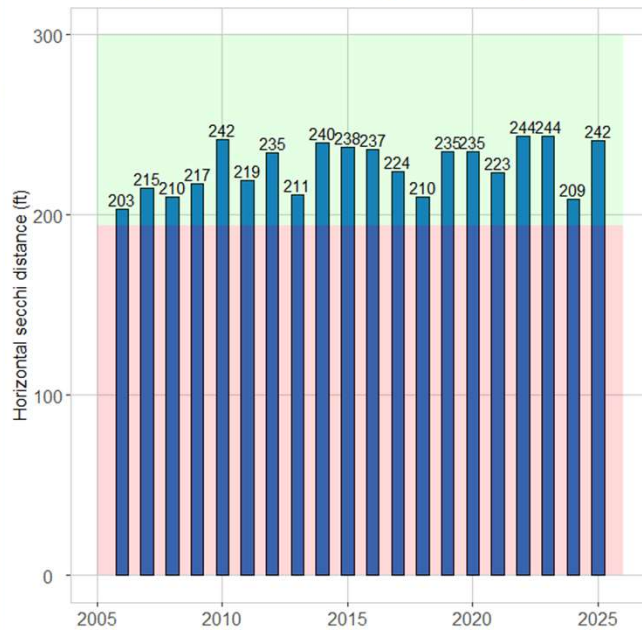
	Water quality	Target
👎	Nitrate concentration in the springs and river	< 0.35 mg/L
	Water quantity	
👍	Minimum flows for the springs and river	> 95% natural flow
	Natural systems	
👍 👎	Desirable submerged aquatic vegetation in the upper and lower portions of the river.	> 65%
👍 👎	Invasive aquatic vegetation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

SOUTHWEST FLORIDA WATER MANAGEMENT DISTRICT

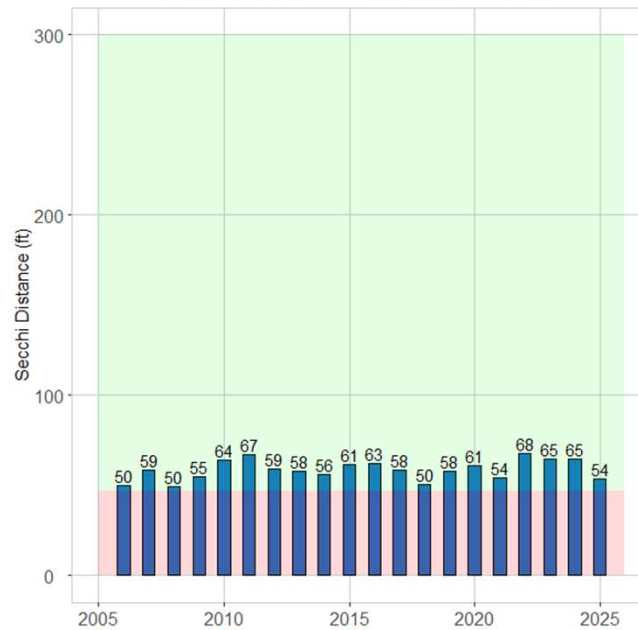
Rainbow River – Indicators

Water Clarity

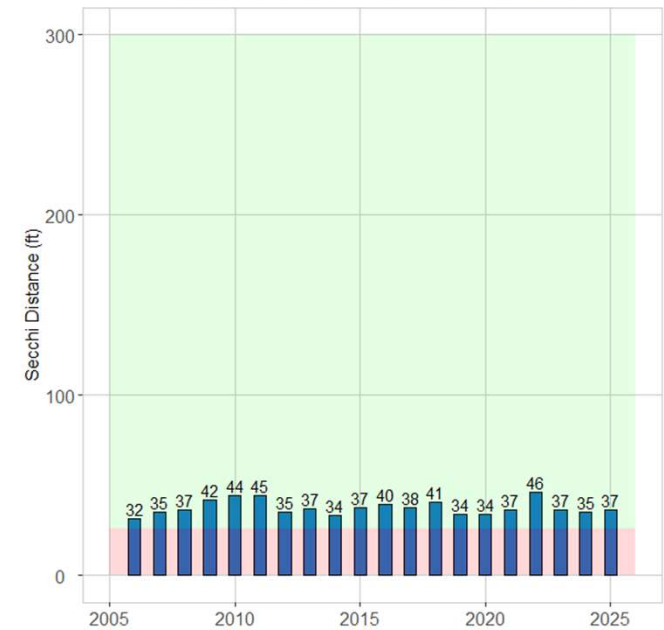
A. Mean Water Clarity: Headspring



B. Mean Water Clarity: Middle

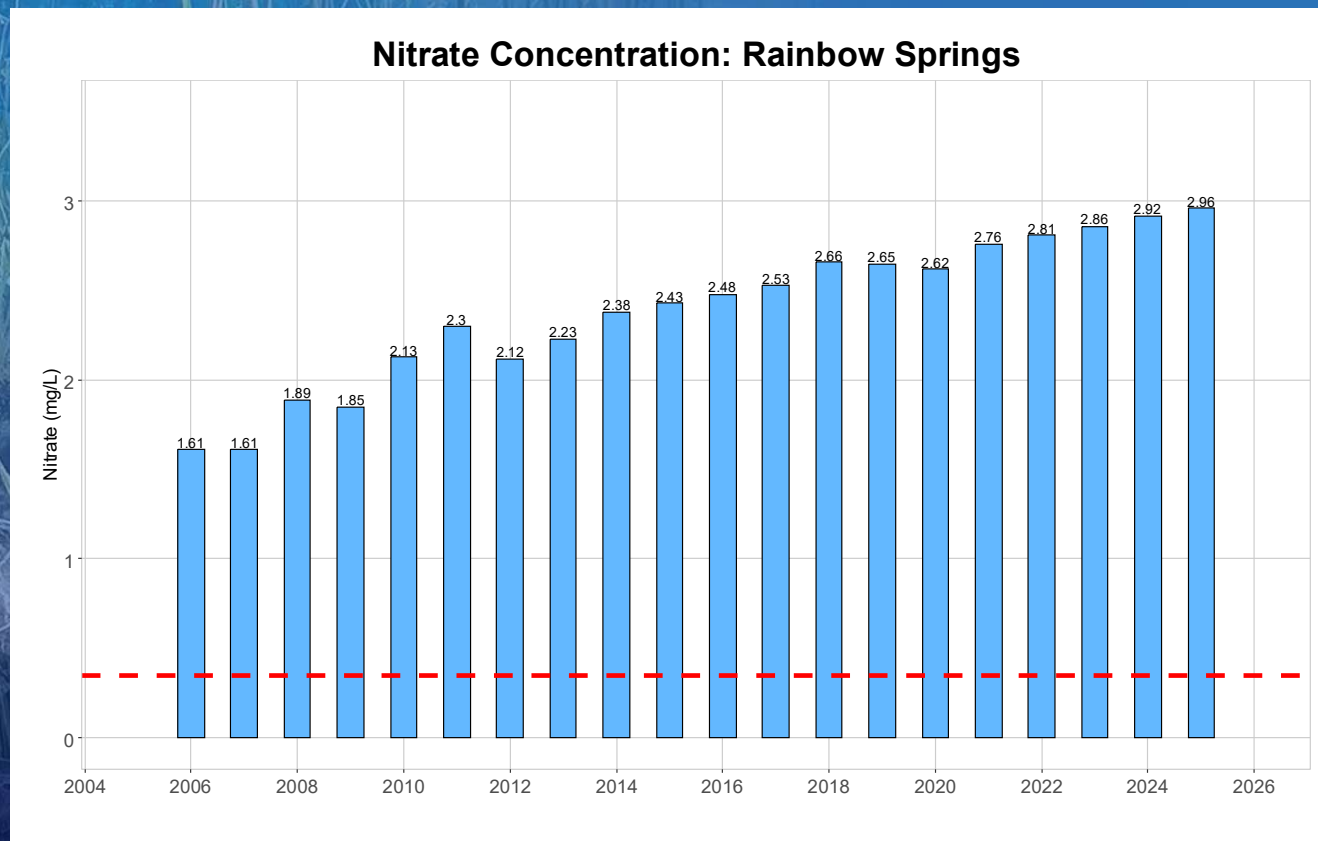


C. Mean Water Clarity: Lower



Rainbow River – Quantifiable Objectives

Nitrate Concentration

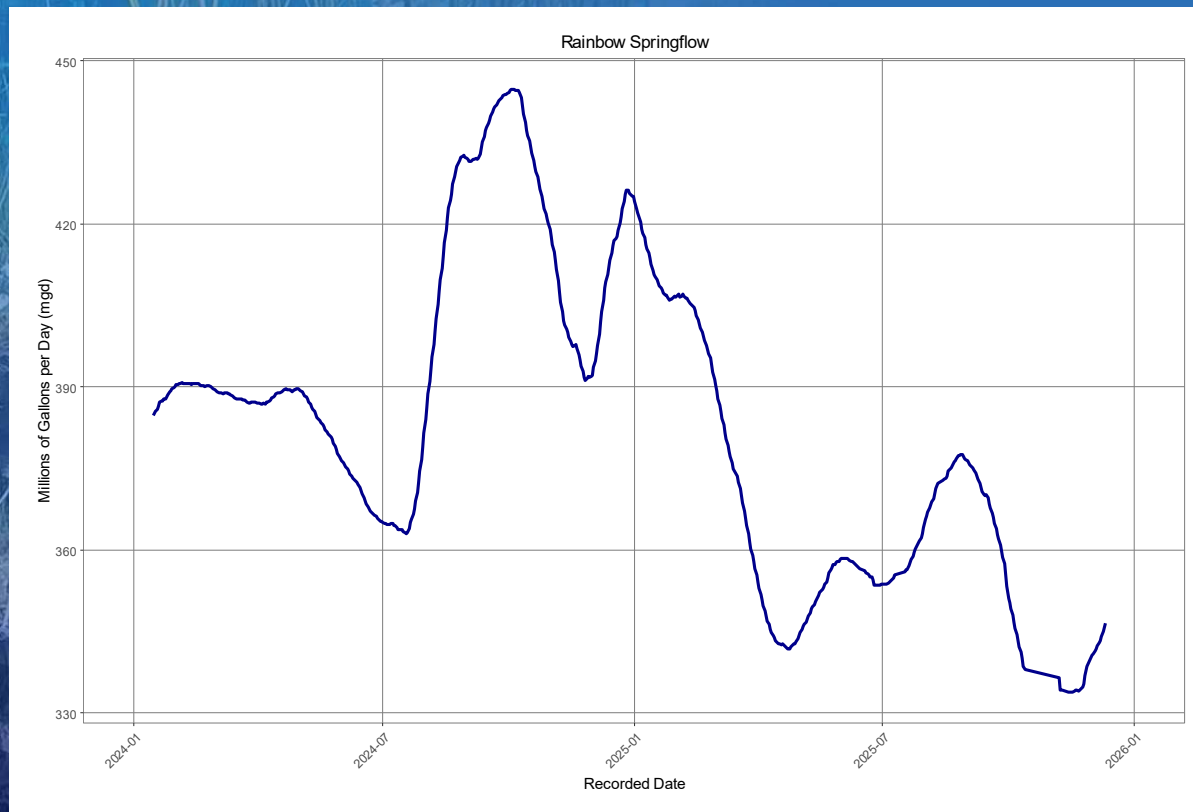


Rainbow River – Quantifiable Objectives Flows

- Minimum Flow for the River: >95% Natural Flow
- MFL Status: Maintaining 99% Natural Flow

SOUTHWEST FLORIDA WATER MANAGEMENT DISTRICT

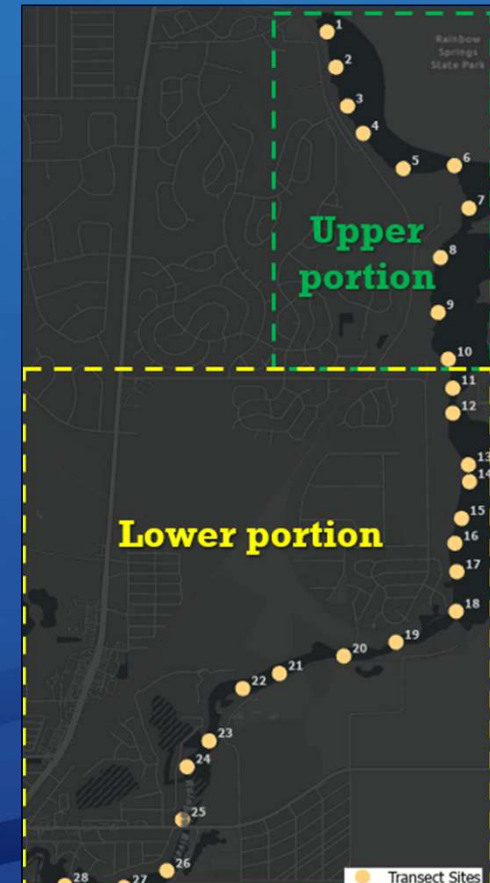
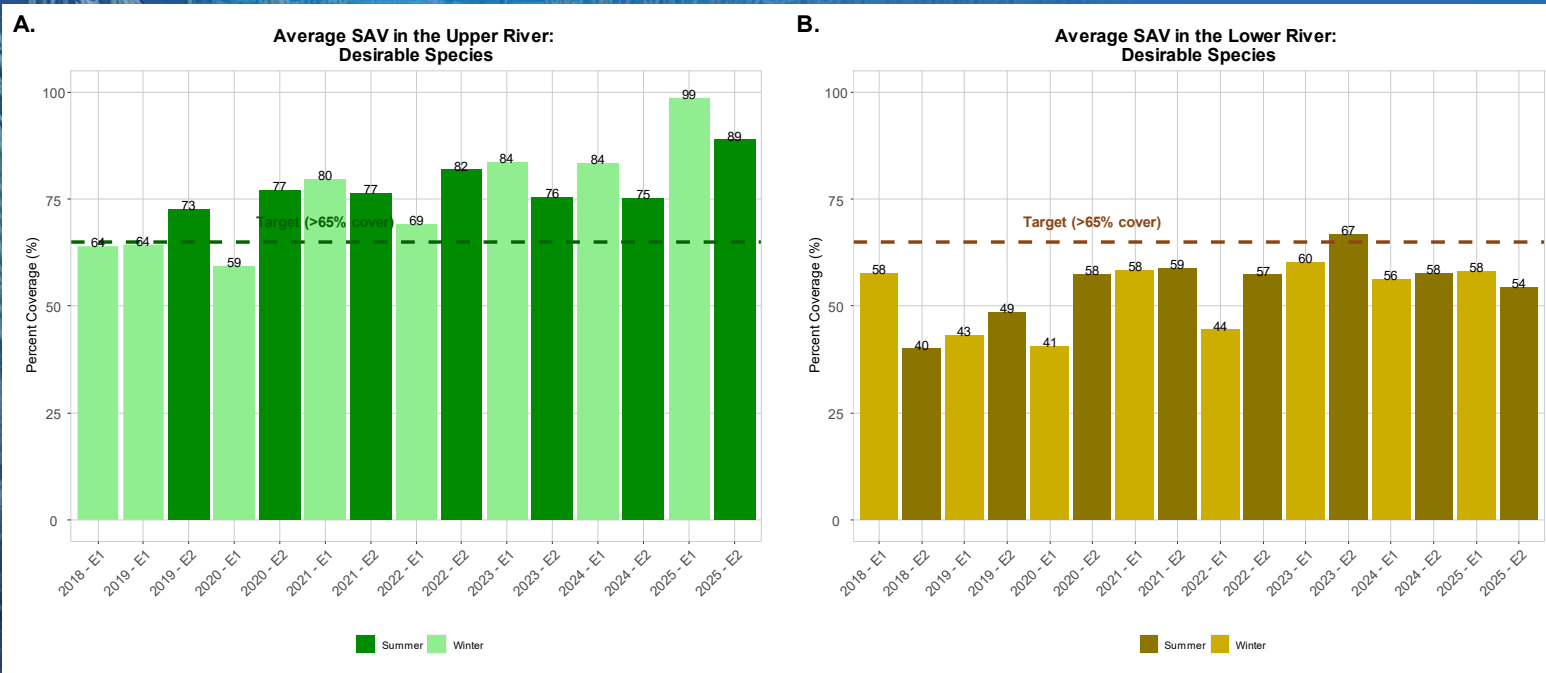
Rainbow River – Quantifiable Objectives Flow



SOUTHWEST FLORIDA WATER MANAGEMENT DISTRICT

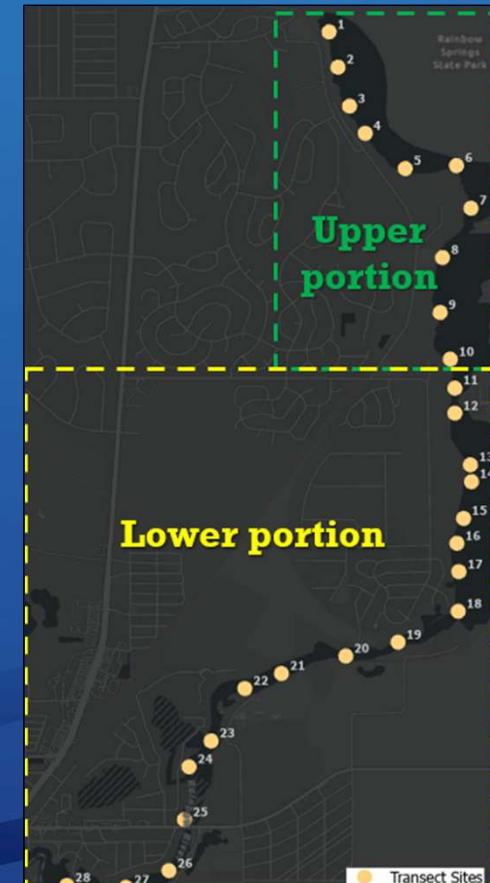
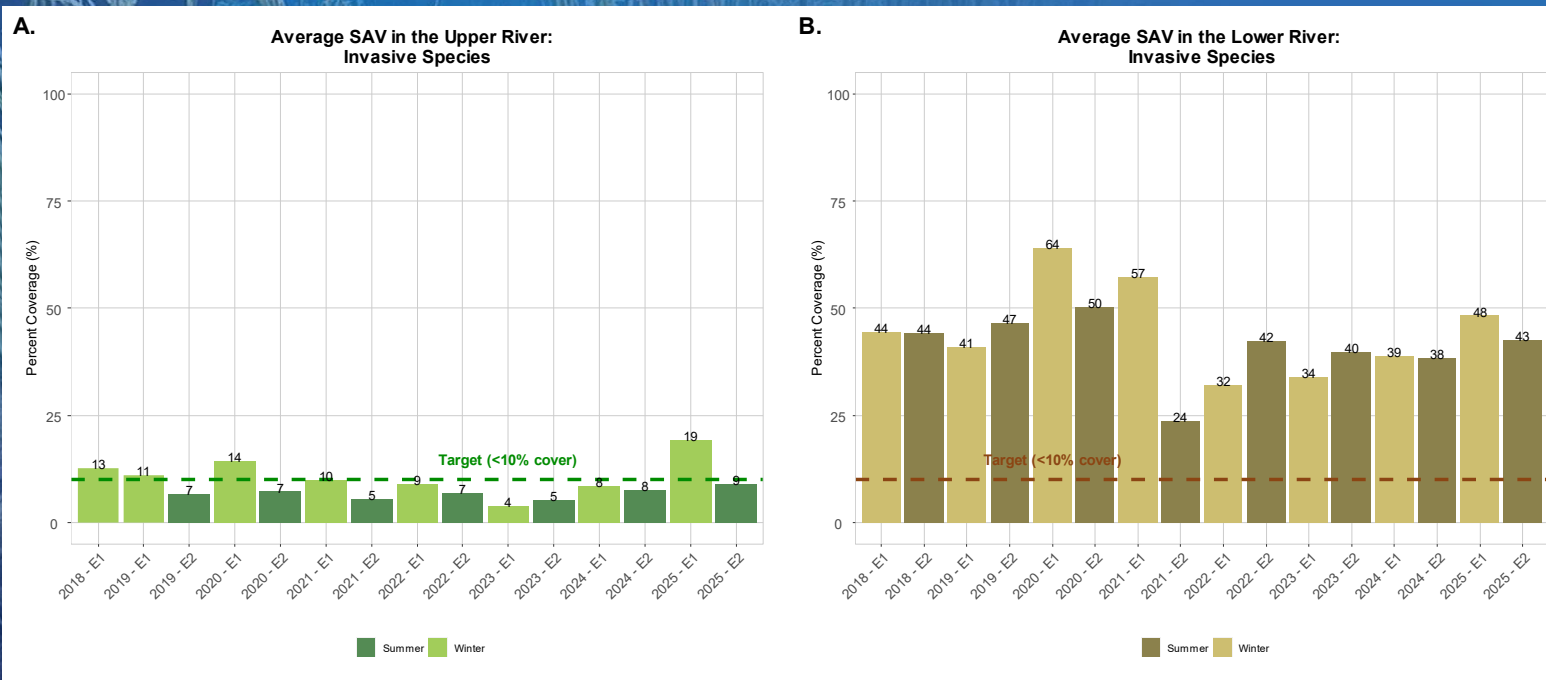
Rainbow River – Quantifiable Objectives

Desirable Submerged Aquatic Vegetation (SAV)



SOUTHWEST FLORIDA WATER MANAGEMENT DISTRICT

Rainbow River – Quantifiable Objectives Invasive Submerged Aquatic Vegetation (SAV)



SOUTHWEST FLORIDA WATER MANAGEMENT DISTRICT

WaterMatters.org/springs



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Natural Systems and Restoration Bureau

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