Weeki Wachee River SAV Restoration Project

One-Month Post-Installation Monitoring Report

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1. Introduction

The Weeki Wachee River is a 7.5-mile river located along the Springs Coast, in Hernando County, Florida. The headwater of the river is Weeki Wachee Springs, a springs complex that delivers over 117 million gallons of water into the river each day. Known for its historic mermaid shows and cave diving, the river is designated as an Outstanding Florida Water (OFW) and Outstanding Florida Spring (OFS).

Despite its natural beauty, the river has experienced a decline in water quality in recent years that can mainly be contributed to sedimentation and habitat loss, with sediments moving downstream ultimately depositing and smothering native submerged aquatic vegetation (SAV). To address these issues, a dredging project aimed at removing sediments from the river was completed in February 2025, and in July 2023, the first Springs Protection Zone in the state was approved throughout a stretch of the river by the Florida Fish and Wildlife Conservation Commission (FWC).

To further assist in restoration and enhancement efforts, an SAV Restoration project was funded, and from May 27 – 30, 2025, a total of 43,950 mechanical planting units (MPUs), 660 four-inch peat pots, and 132 GrowSAV Herbivory Exclusion Devices were installed throughout the river between the state park boundary to the north, and Rogers Park to the south. The planting event is documented in the Installation and Time Zero Report.

On June 26, 2025, Sea & Shoreline biologists returned to the project site to perform the one-month post-installation monitoring event. This report is the first of four formal monitoring reports designed to quantify the success of the project.

2. Methodology

The restoration site covers an 8.79-acre footprint of the river bottom that generally stretches from the Weeki Wachee Springs State Park boundary to Rodgers Park as shown in **Map 1**. MPUs were planted on roughly three feet spacing throughout this footprint. Additionally, 132 GrowSAV Herbivory Exclusion Devices were installed over 660 peat pot planting units (5 PUs per device) at five locations throughout the river (**Map 2)**.

Assessment of the survival, health and growth of the planting units below herbivory exclusion devices and outside of herbivory exclusion devices was collected. This included benthic community composition, assessments of planting unit survival, *V. neotropicalis* shoot density, percent cover, canopy height, and general notes on site conditions.

Benthic community composition was monitored with a 0.25-m^2 quadrat by Sea & Shoreline biologists using mask snorkel. Supplementary photo-quadrats of the river bottom were collected at each of the monitored sample stations. All imagery was reviewed in the laboratory to verify SAV species composition and will serve as archival evidence of project performance.

2.1 Survival of Planting Units

Survival of planting units were assessed by noting the presence or absence of healthy *V. neotropicalis.* Survival was defined as the presence of a single shoot, as even a single shoot indicates association with a growing rhizome (Fonseca et al., 1998).

2.2 *V. neotropicalis* Shoot Density

V. neotropicalis shoot density was estimated at each sample station by placing a 10 x 10 cm quadrat in the center of each monitoring quadrat and manually counting all the shoots present. Shoot count data was then multiplied by 100 to obtain shoot densities in the number of shoots per square meter (shoots m^{-2}).

2.3 *V. neotropicalis* Visual Assessment of Braun-Blanquet Coverage

The coverage of each SAV species, total SAV community, macroalgae and total macroalgal community in the planting and reference sites were evaluated using the Braun-Blanquet visual assessment method in 0.25-m^2 quadrats (Table 3; Braun-Blanquet 1965, Kenworthy et al. 1992, Fourqurean et al. 2001).

2.4 *V. neotropicalis* Canopy Height

In the same 10 x 10 cm quadrats used for shoot counts, the canopy height of the benthic plant community (SAV and/or macroalgae) was measured *in situ* by the observer using a metric ruler. All values were rounded to the nearest 1 cm.

3. Results

3.1 Survival of Planting Units

Planting unit survival was 99.2% inside of herbivory exclusion devices as plants were observed in a total of 131 of 132 devices. Survival of MPUs was estimated to be approximately 80% during this monitoring campaign.

3.2 *V. neotropicalis* Shoot Density

Mean shoot density was greater for plants located below GrowSAV Herbivory Exclusion Devices (540 shoots m^{-2}) than for unprotected planting units (140 shoots m^{-2}).

3.3 *V. neotropicalis* Visual Assessment of Braun-Blanquet Coverage

Mean Braun-Blanquet score was a 2 for planting units inside of GrowSAV Herbivory Exclusion Devices and a 0.5 for unprotected planting units. Macroalgae was not observed at any sample stations.

3.4 V. *neotropicalis* Canopy Height

Mean canopy height was taller within GrowSAV Herbivory Exlusion Devices (40 cm) compared to unprotected planting units (4 cm).

4. Discussion

The results of the one-month post-installation monitoring campaign suggest that nearly all protected planting units (99.2%) and about 80% of MPUs have survived the out-planting process. Greater canopy height, shoot count, and percent cover was found below protective Herbivory Exclusion Devices, which is expected at this point in the project.

Qualitatively, both protected and unprotected planting units appear to be in very good condition. In unprotected parts of the river, mean SAV density is higher than when first transplanted, as vegetative runners were observed on many of the MPUs that were identified. Both spread and an increase in canopy height was observed below Herbivory Exclusion Devices which is a clear indicator that planting units have acclimated to their new location.

The initial success of relocation may be partially attributable to the dredging and the use of GrowSAV Herbivory Exclusion Devices that provide protection from herbivory while mitigating some of the hydrodynamic influences of the site.

In summary, the biological assessments of survival, density and cover of SAV during this one-month post-installation monitoring campaign indicated that transplanted *V. neotropicalis* is healthy and thriving. There was limited evidence of plant mortality; therefore, the amount of SAV present in the relocation or planting site is currently meeting project requirements.

5. References

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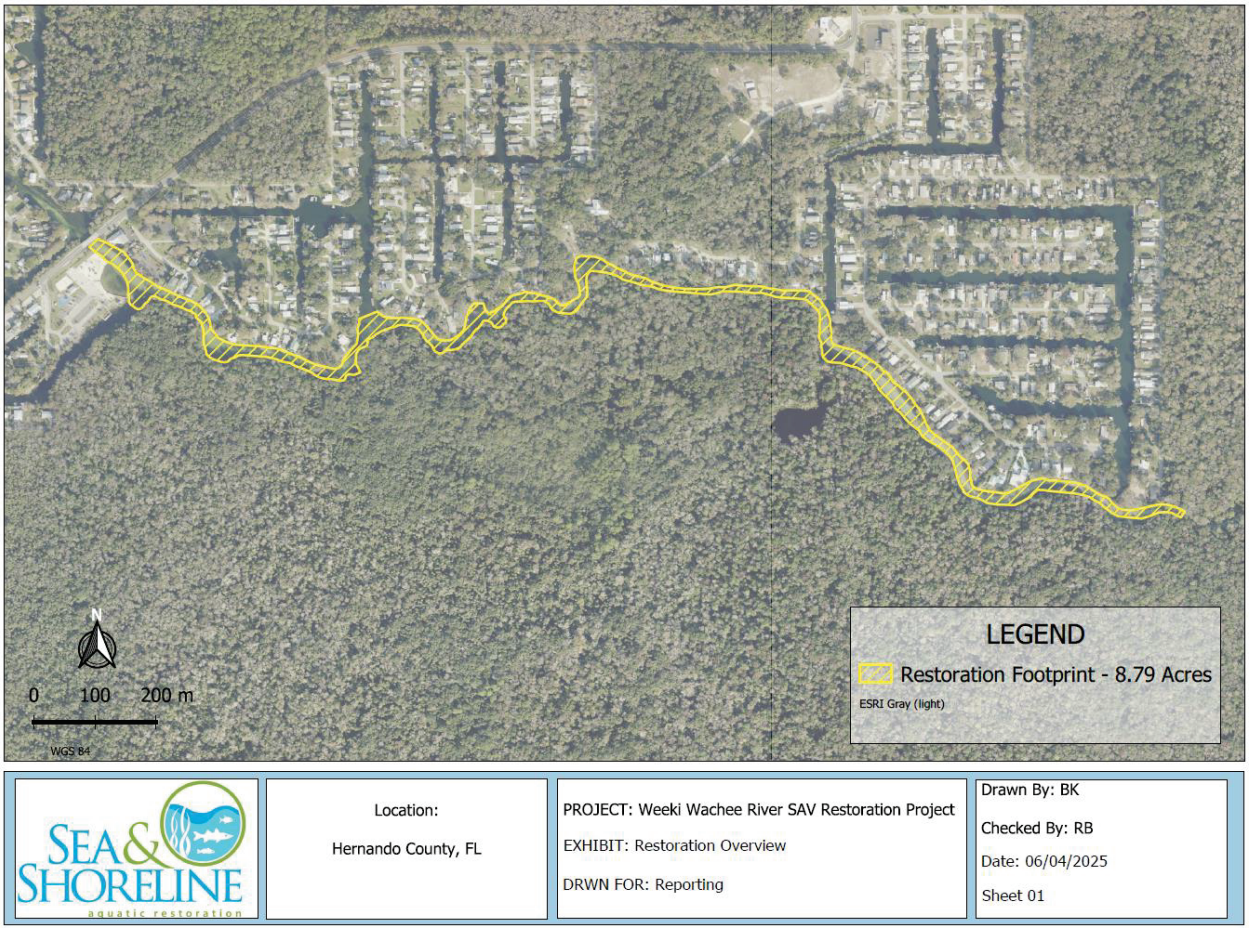
6. Tables

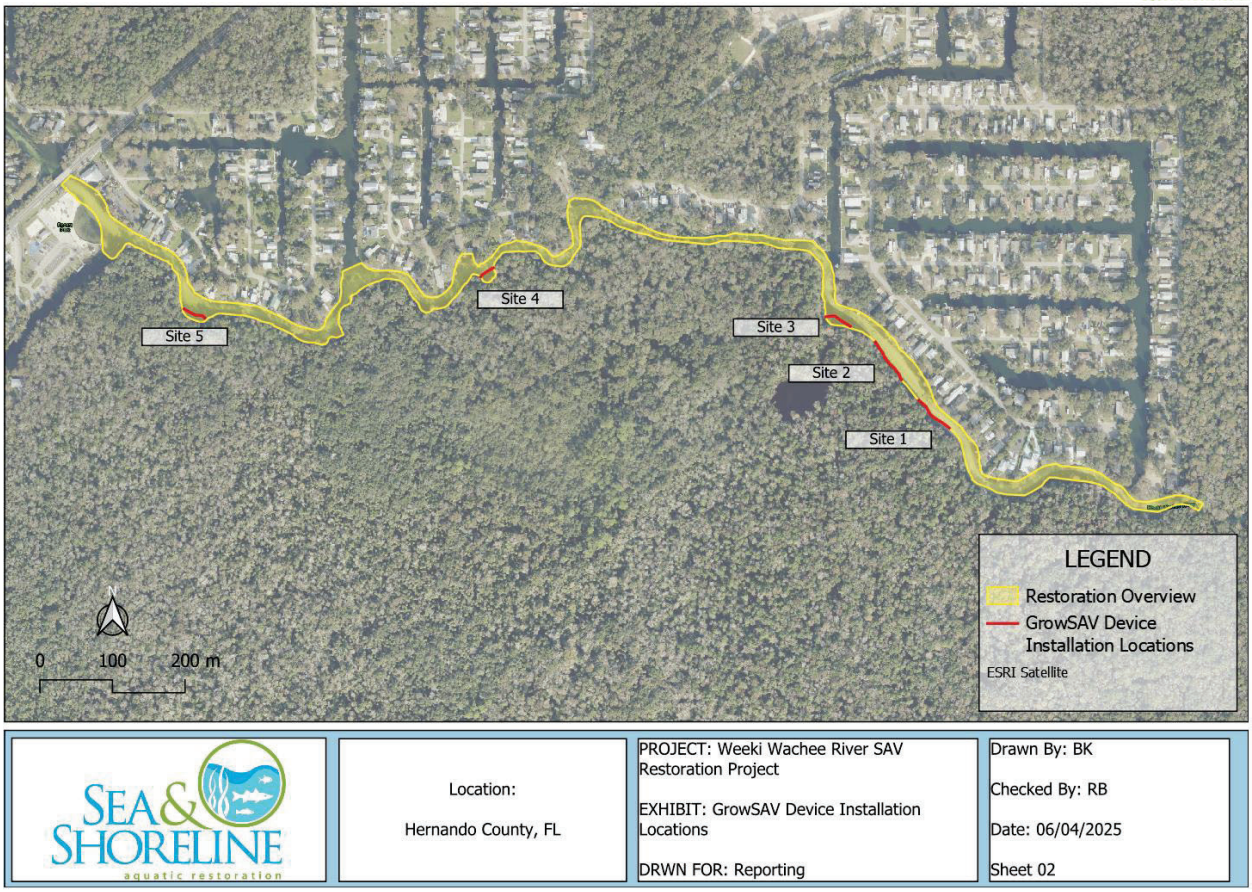
Braun Blanquet Score	Cover Value
0	Absent
0.1	Solitary specimen
0.5	Few, with small cover
1	Numerous, but less than 5% cover
2	5% - 25%
3	25% - 50%
4	50% - 75%
5	75% - 100%

Table 1 – Braun-Blanquet (BB) score values and corresponding grass cover.

7. Maps

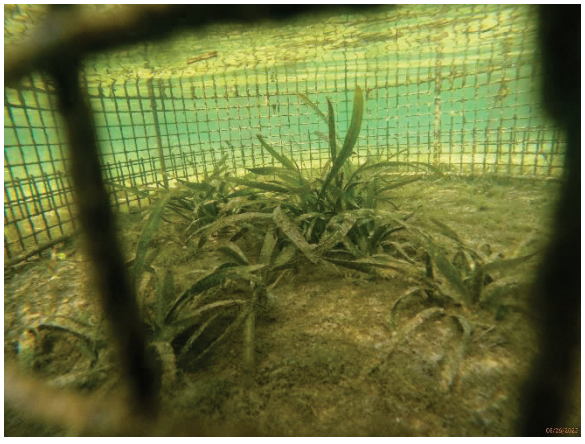


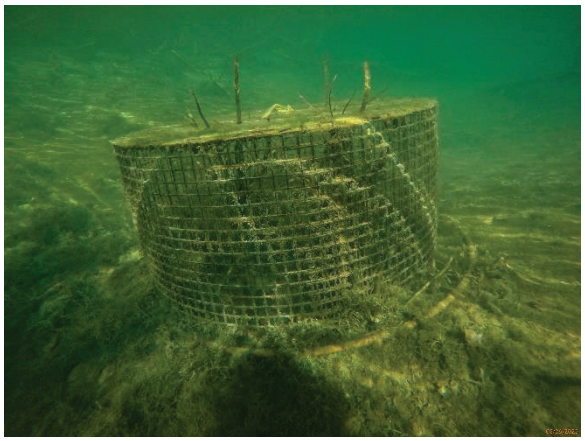
Map 1 – Overview of Restoration Area.

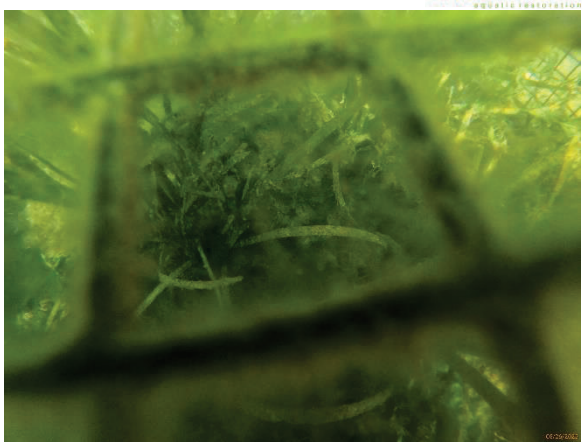


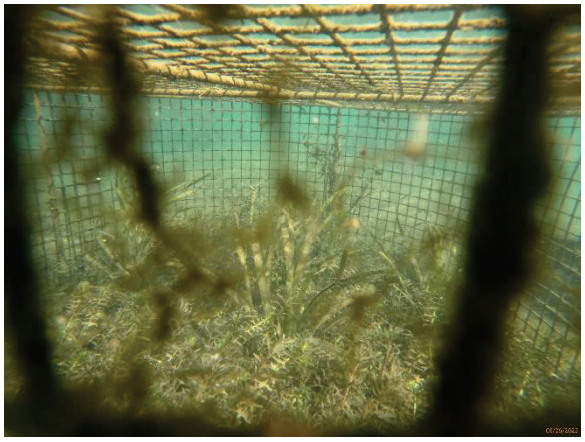
Map 2 – Overview of GrowSAV™ Herbivory Exclusion Device Installation Locations.

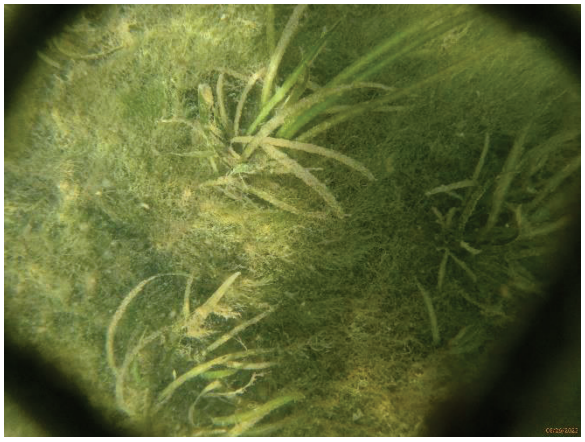
Representative Samples of GrowSAV Devices 1-13

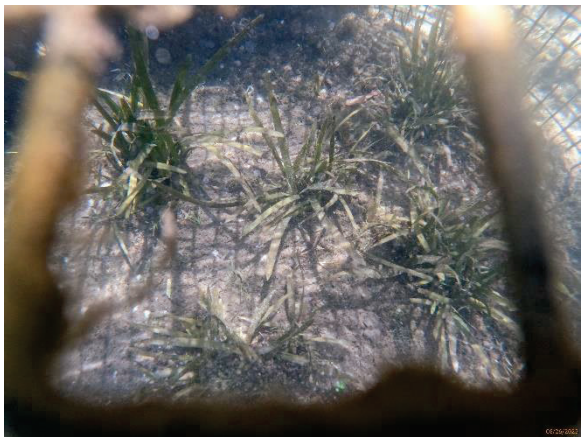


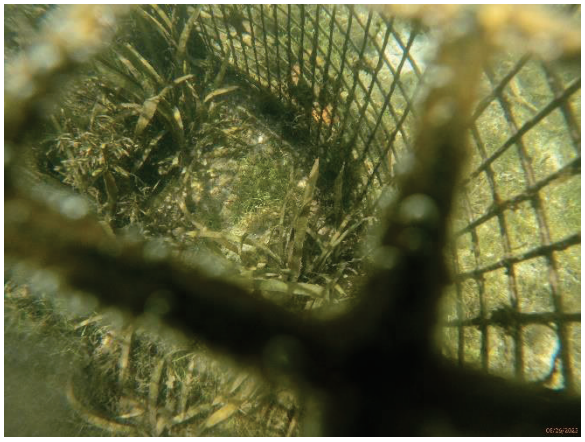


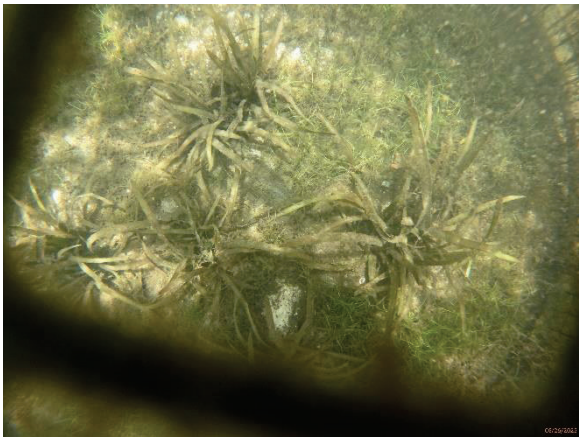












Representative Samples of MPUs