

**TIGERTAIL LAGOON/ SAND DOLLAR ISLAND
ECOSYSTEM RESTORATION PROJECT
POST-CONSTRUCTION
BIOLOGICAL MONITORING REPORT 3- 2025**



**SECTIONS 6 & 7, TOWNSHIP 52 SOUTH, RANGE 26 EAST
COLLIER COUNTY, FLORIDA**

MARCH 1, 2025

**DEP PERMIT NO. 0401778-001-JC
USACE PERMIT NO. SAJ-2007-04224 (SP-SJF)**

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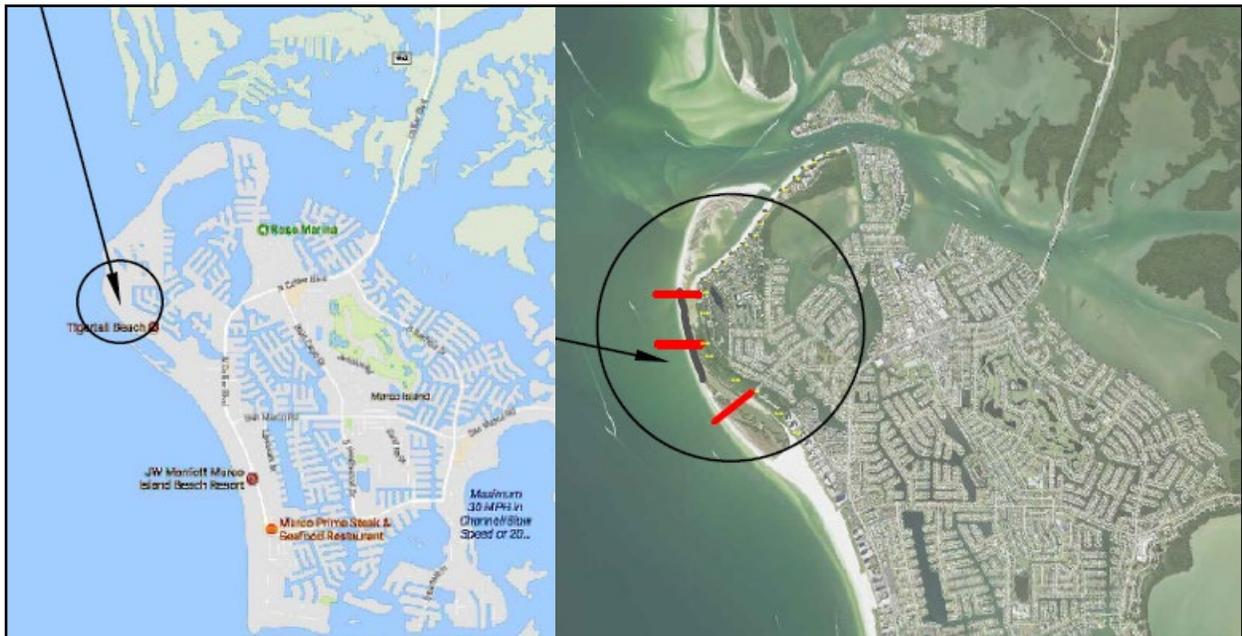
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EXECUTIVE SUMMARY

The purpose of this report is to document environmental conditions of the Tigertail Lagoon/ Sand Dollar Island Estuary following authorized construction activities. Each annual report will document beach/ berm vegetation (Appendix A), mangrove wetlands (Appendix B), water quality (Appendix C), and submerged aquatic vegetation (Appendix D) in current conditions and in comparison, to previous surveys. The following summary of each and more detailed appendices document the second post-construction monitoring report.

Figure 1: Location of Project



Sand Dollar Island/ Tigertail Lagoon's Ecosystem lies on the northwest side of Marco Island and consists of a peninsula of sand, coastal shrub and brush, coastal hardwood, saltwater marsh, and mangrove habitats. Between the peninsula and the mainland lies an estuary starting with the inlet at the mouth of the Big Marco River. From the inlet, the system meanders for approximately three miles ultimately terminating at the widened end of Tigertail Lagoon with submerged aquatic vegetation (SAV) found in various locations. The system is located within Sections 6 and 7, Township 52 South, Range 26 East, Collier County, Florida.

PERMIT AUTHORIZATIONS

The Sand Dollar Island/ Tigertail Lagoon Restoration Project was permitted by the Florida Department of Environmental Protection (FDEP) in 2022 under permit 0401778-001-JC along with the U.S. Army Corps of Engineers (ACOE) under Permit SAJ-2007-04227 (IP-SJF)). More recently the FDEP issued a minor modification (permit 0401778-002-JC) in 2025 to allow a small southern distribution channel that was shown on the ACOE permit already. Additionally, an Incidental Take Permit (LSNR-25-00261) is required for habitat critical to the Black skimmer (*Rynchops niger*), Least tern (*Sternula antillarum*), and Reddish egret (*Egretta rufescens*).

Authorizations allowed for the dredging of a main flushing channel from an existing Hideaway Beach borrow area (Permit 0309260-010-JM) south approximately two-thirds of the way through the system for the purposes of re-establishing tidal connection from the Gulf to the southern end of Tigertail Lagoon. Also associated with the project is the reshaping and elevating of a sand berm which protects the middle portion of the island from regular overwash. Sand for the berm renovation was provided from the dredge channel material, the north sand spit, the extended borrow area (Permit 03092660-010-JM) and an offshore borrow area. If deemed feasible and needed later, a smaller channel from monuments R-131.5 to R-133 could extend from the southern dredge limits to Tigertail Lagoon with prior agency coordination and review. A more recent state permit modification allowed for a southern flow channel aligned to avoid seagrasses that would help with sand accumulation in the lower portions of Zone 3.

Specifically, the project authorizations included:

- ❖ Dredging approximately 160,000 cubic yards of sand from H-4 to Monument R-132 in existing beach sand for a new flow. The flow channel depths would vary from -8.5 to -5.5 feet NAVD. Excavated sand would be used on the adjacent new berm creation.
- ❖ Dredging approximately 130,000 cubic yards of sand from the north tip of the island to create a sand trap at -9.0 feet NAVD and to provide another sand source for the berm.
- ❖ Placing of approximately 325,000 cubic yards of sand from H-2 to Monument R-133 for creating a berm approximately 150 feet wide with several slopes to mimic those desirable for sea turtles and nesting shorebirds.
- ❖ Creating a southern distribution channel, while avoiding seagrasses, to the allowable depth of -3.5 NAVD with a bottom channel width of 20 feet or less.

A Biological Monitoring Plan was permitted with the approved dredging and filling activities to ensure that there were no unintended impacts occurring to wetlands, submerged aquatic vegetation (SAV), water quality, and wildlife. This annual monitoring report includes separate reports as appendices for each of the Monitoring Plan subjects: Beach/ Berm Vegetation (Appendix A), Mangrove Wetland (Appendix B), Water Quality (Appendix C), and SAV (Appendix D). In addition to the mentioned appendices separate documents were prepared discussing faunal observations, bird monitoring results, and stakeholder input as required by U.S. Fish & Wildlife Service (FWS) and Florida Fish and Wildlife Conservation Commission (FWC). These additional reports are located in the Raw Data folders and as appendices to the main reports.

Berm Repair Events

Following Hurricane Ian in 2022 most of the berm was seriously altered, so a massive restoration project lasting from November 2022 to May 2023 was undertaken. After a series of storms again altered the system beginning in the fall of 2023 and ending in October 2024 a second construction effort which concluded in early 2025 was undertaken to reopen the estuary, rebuild the berm to a narrower configuration and remove some of the sand overwash from island mangrove fringe. Those later storms included Hurricane Idalia (2023), Tropical Storm Debbie (2024), Hurricane Helene (2024) and Hurricane Milton (2024). There were no storm events in 2025, but the width of the central berm segment, which was narrower than the 2023 constructed berm, eroded by normal wave action and storms over the course of the year leaving a segment no wider than eight or nine feet. As a result, a minor berm widening effort took place in early 2026 removing sand from the north spit to widen the vulnerable segment of berm. During the berm repair a lack of tidal exchange between Zones 3 and 4 was identified. As a result of sand being re-introduced to this southern flow channel by named storms over time, the south flow channel had become elevated by a foot or more with a hard sandy substrate. A permitted smaller distribution channel was cut through this area in February 2026 to restore conditions to more historical elevations in the extreme center, avoiding SAV beds and their buffers.

Table 1: Monitoring and Reporting Schedule

REPORT	DUE DATE	SUBMITTAL DATE
Pre-Construction #1	March 1, 2022	April 11, 2022
Pre-Construction #2	March 1, 2023	March 2, 2023
Post-Construction #1	March 1, 2024	March 1, 2024
Post-Construction #2	March 1, 2025	March 1, 2025
Post-Construction #3	March 1, 2026	March 2, 2026
Post-Construction #4	March 1, 2027	
Post-Construction #5	March 1, 2028	
Post-Construction #6	March 1, 2029	
Post-Construction #7	March 1, 2030	
Post-Construction #8	March 1, 2031	
Post-Construction #9	March 1, 2032	
Post-Construction #10	March 1, 2033	
Post-Construction #11	March 1, 2034	
Post-Construction #12	March 1, 2035	
Post-Construction #13	March 1, 2036	
Post-Construction #14	March 1, 2037	
Post-Construction #15	March 1, 2038	

Figure 2: Project Zones for Reference



APPENDIX A- MONITORING RESULTS- BEACH/ BERM VEGETATION

Berm Vegetative Sampling

There were 6,227 samples taken along the berm transects to identify percent cover of vegetation with the goal of targeting areas where cover exceeds 10% overall. Due to the length of the transects which are mostly bare, frequently small pockets of higher density vegetation get statistically buried so we visually separate out those locations which might need treatments regardless of the statistical analysis. A minor modification to the methodology is proposed in 2026 which allows us to focus transects only where vegetation is present so that the statistics are more reliable. Table 2 below depicts the sampling results. Most of the berm was altered by heavy equipment before maintenance took place so only areas which still had vegetation at the time of herbicidal treatment were targeted.

Table 2: 2024 Total Berm Vegetative Sampling Cover by Zone, Layer and Species

Layer	TOTAL	Sand & Shell (SS)	Debris	Vegetation
TOP				
Zone 1	100.0%	100.0%	0%	62%
Zone 2	100.0%	100.0%	0%	17%
Zone 3	100.0%	100.0%	0%	33%
Zone 4	100.0%	100.0%	0%	11%
MIDDLE				
Zone 1	100.0%	100.0%	0%	62%
Zone 2	100.0%	100.0%	0%	17%
Zone 3	100.0%	100.0%	0%	30%
Zone 4	100.0%	100.0%	0%	11%
LOWER				
Zone 1	100.0%	100.0%	9%	0%
Zone 2	100.0%	100.0%	5%	0%
Zone 3	100.0%	100.0%	5%	0%
Zone 4	100.0%	100.0%	30%	0%

Vegetation Maintenance

Since there were no named storms in 2025 to overwash the island and reduce overall vegetative cover where shorebird utilization occurs, a significant (4.93-acre) vegetative maintenance event was required on the north spit with smaller ones totaling 0.46 acres along the berm in Zone 1. (See Exhibit A-6).

Maintenance Events included:

- ❖ Hand rolling and picking up more than 55 gallons of sand spurs off the north sand spit (February 10, 2026).

- ❖ Spraying approximately 5.39 acres of vegetation and coastal sandbur on the sand spit and in Zone 1 with herbicide on February 11, 2026. The following chemicals were utilized for herbicidal treatment: Imazapyr (53 oz/acre), Prodiamine (21 oz/acre), and Induce (0.5%/v non-ionic surfactant).

Sea Turtle Nesting

In 2025 there were 82 loggerhead turtle nests laid from the beach at the southwest corner of Tigertail Park to the northeast corner of the sand spit, which includes both the constructed project and its area of project influence. Past nesting numbers are depicted below in Table 3 and show an increase in overall nesting for 2025. In terms of nesting success there was an overall 25% loss from predation resulting in an average of 41% nesting success across the island and a 30% success rate on top of the constructed berm. Inundation/flooding took 12 of the 82 nests.

Table 3: Loggerhead Nest Data Within Project and Project Influence Boundary

Year	Sea Turtle Nests
2019	49
2020	60
2021	70
2022	66
2023	73
2024	37
2025	82

Bird Monitoring & Nesting

Suitable nesting habitat, defined as open and sandy with a vegetative cover less than 10%, on the north sand spit is required to be between 4 and 6 acres at the start of each year. In 2025 a total of 7.34 acres of suitable nesting habitat was documented on the north sand spit and 12.75 acres was deemed suitable on the constructed berm.

Twice monthly bird monitoring occurs by THA staff 12 months a year on-island and is summarized into suitable nesting habitat reports for the Florida Fish and Wildlife Conservation Commission (FWC) and Piping Plover and Red knot data sheets for the US Fish and Wildlife Services (USFWS). Additionally, the Florida Shorebird Database (FSD) is utilized to summarize nesting data for the year.

FSD 2025 Nesting Data

- ❖ 16 Wilson’s Plover chicks
- ❖ 9 Wilson’s Plover nests
 - 20 eggs
 - 4 nests abandoned (predation, crows, coyote, other)
 - 3 nests complete
 - 2 nests unknown
 - 3 unleashed dogs by a nest on the north spit

State/Federally Listed Bird Species Identified by Turrell, Hall & Associates in Bi-Weekly Surveys

- ❖ Wilson's plover- 38
- ❖ Piping plover- 17
- ❖ Red knot- 27
- ❖ Least tern- 13
- ❖ Black skimmer- 338
- ❖ Reddish egret- 9

Depredation continues to be an issue between the coyotes and fish crows. The US Department of Agriculture does conduct predator control efforts. As reported by the Florida Fish and Wildlife Conservation Commission biologist onsite human interference and food left behind is causing increased predation and stress on the birds.

APPENDIX B- MONITORING RESULTS- MANGROVE/WETLAND

Throughout the system 19 mangrove plots were chosen in 2021 in relatively equal spacing from north to south to monitor the health of those wetlands abutting the estuary's surface waters. The plots begin at the north end of the system (Plot 1) and continue south along the waterway to the very south end of Tigertail Lagoon (Plot 19).

Following Hurricane Ian, Plots 5 and 13 were completely lost to storms and are now part of the constructed berm. Plot 8 was lost to a northern breach in 2024 but relocated closer to the shoreline in 2025 to capture regeneration there. Plot 9 was buried and scoured by the 2024 breach until no mangroves remained, but this area was planted with three rows of buttonwood in July of 2025. Plot 14 was also buried by sand to the point of killing adjacent mangroves, so the sand and dead debris were scraped down to an elevation that would allow for natural recruitment. Remaining plots were either affected somewhat or not at all by the 2024 storm season. Since no storms took place in 2025 enhancement efforts were the focus in some of the most damaged plots and along the shoreline of the Kayak bay/picnic area of Hideaway and the beach dune system which meets the channel. As mentioned supplemental plantings from the middle bay to just north of Plot 10 included 332 green buttonwood, 38 red mangrove, and 779 plants of a mixed palate of railroad vine, sea oats, sea oxeye daisy, muhly grass, marsh elder, and seagrape. If significant natural recruitment of seedlings has not occurred as hoped in Plot 14, then supplemental plantings will be proposed there as well.

Shoreline planting in Zones 2 and 3 was hindered by a very dense old mangrove root system which proved more than once to be impenetrable with a gas-powered auger. As a result, plantings on the shoreline were installed as deep as physically able. Additionally, these shorelines are no longer at a tide elevation needed for red mangrove growth due to sand encroachment even though we lowered them somewhat when cleaning out dead debris. In order to re-establish more trees along the shoreline for the time being, green buttonwood (*Conocarpus erectus*) were utilized instead of mangrove for their tolerance to elevation changes. Recent high winds in February 2026 (in excess of 50 mph) pushed some of the plantings over so an assessment is upcoming the first week of February at low tide to determine if additional plantings will be suggested. Prior to the nor'easter, survivorship was around 90% (see Figure 2).

Figure 3: Buttonwood shoreline plantings



Table 4: Mangrove/ Wetland Vegetative Sampling Results

Plots	% Cover Canopy	% Cover Midstory	% Cover Groundcover	Dominant Species
1	2	53	83	black mangrove, white mangrove, red mangrove, shoreline seapurslane, seashore dropseed, seablite
2	0	63 (10% exotic)	58 (8% exotic)	black mangrove, white mangrove, red mangrove, marsh elder, beach naupaka*, bay cedar, inkberry, hurricane grass, seashore dropseed, seablite, sea oats, buttonwood
3	0	54 (4% exotic)	86 (2% exotic)	black mangrove, white mangrove, red mangrove, coinvine, marsh elder, beach naupaka*, inkberry, bay cedar, seashore dropseed, shoreline seapurslane, sea blite, saltmarsh fingergrass, hurricane grass
4	0	65	76	black mangrove, white mangrove, red mangrove, seablite, shoreline seapurslane
6	80	6	2	red mangrove, black mangrove, white mangrove, seagrape, buttonwood
7	4	25	48	black mangrove, red mangrove, buttonwood, white mangrove, bay cedar, seacoast marsh elder, seashore dropseed, saltwort, seaside goldenrod, shoreline purslane, bushy seaside oxeye, sea oats
8	10	24	8	white mangrove, black mangrove, red mangrove
9	0	18	3	buttonwood (plantings), seagrape
10	12	22	19	black mangrove, white mangrove, red mangrove, buttonwood, seablite, coastal groundcherry
11	20	48	76	black mangrove, white mangrove, red mangrove, shoreline purslane, bushy seaside oxeye, saltwort
12	25	43	39	black mangrove, white mangrove, red mangrove, seagrape, buttonwood, shoreline purslane, muhly grass,
14	0	0	4	black mangrove, white mangrove (new seedlings)
15	38	46	27	black mangrove, white mangrove, red mangrove, saltwort
16	5	80	41	black mangrove, white mangrove, red mangrove, saltmarsh cordgrass
17	6	51	89	black mangrove, white mangrove, buttonwood, red mangrove, seashore dropseed, saltwort, seablite, shoreline purslane
18	10	52	51	black mangrove, white mangrove, buttonwood, seashore dropseed, sea blite, saltwort
19	16	55	38	black mangrove, white mangrove, red mangrove, saltwort, shoreline purslane

APPENDIX C- MONITORING RESULTS- WATER QUALITY

The waters around Marco Island excluding the Gulf are located in Water Body Identification (WBID) number 32780 and have been historically compared to those of this project but the coastal Gulf waters of Marco, including this project, were shifted to WBID 8064 which is only impaired for Total Nitrogen (TN). The Nutrient Criteria limits for WBID 8064 are lower than that of Marco Island with an annual geometric mean of 0.25 mg/L for Total Nitrogen (TN) and 0.032 mg/L for Total Phosphorous (TP). The nutrient specific criteria are listed in Chapter 62-302.532 FAC for (e)2.

Table 5: Total Nitrogen Results for Stations 1 - 3 Individually and AGM

TN	S 1	S 2	S 3	
2/25/2025	0.721	0.888	1.240	AGM LIMIT 0.25 Mg/L
6/18/2025	1.680	1.380	1.590	
9/29/2025	0.524	0.564	0.712	
12/29/2025	0.393	0.575	0.536	
AGM Mg/L	0.707	0.794	0.931	

Table 6: Total Phosphorus Results for Stations 1 - 3 Individually and AGM

TP	S 1	S 2	S 3	
2/25/2025	0.064	0.054	0.039	AGM LIMIT 0.032 Mg/L
6/18/2025	0.025	0.047	0.021	
9/29/2025	0.028	0.052	0.091	
12/29/2025	0.019	0.026	0.050	
AGM Mg/L	0.054	0.077	0.044	

Total Phosphorous (TP- mg/L)

The annual geometric mean of Total phosphorous was highest in the first two stations (1 and 2) consistently except for a high September sample in the south lagoon (S3). The Annual Geometric Means (AGMs) of all three samples exceeded the nutrient criteria limit for WBID 8064, though TP is not an identified impairment for 8064. Samples ranged from 0.019 to 0.091 mg/L.

Total Nitrogen (TN- mg/L)

Total Nitrogen (TN) spiked heavily in the system during February and June. There were several potential causes for the high February and June spikes outlined here. In February the system, which had been closed off from flows by storm damage, had just been reopened releasing stagnant waters around the time of sampling event and Total Suspended Solids were high that month as well. A similar spike was also identified two to three years post-hurricane (Ian) in Clam Bay where it is believed that the storm debris detritus finally decayed enough to re-release its nutrients into the water column.

In June just before sampling a large rainfall event took place over a several day period which could have also added to the concentration of nutrients entering the system.

Total Suspended Solids (TSS)

TSS was high in February and September 2025. Sources of the high TSS levels could be from organic material decaying, algal blooms, and atmospheric deposition of particles, though the two-to-three-year post-hurricane Ian detritus decay is a potential source of the spikes and the newly opened system could have influenced the water quality in February when south lagoon stagnant waters were finally being released with the reconnection of the system. We do not test chlorophyll in the system to compare to TP and TN spikes. Samples ranged from 26.5 to 101.0 mg/L. Anything below 30 mg/L is considered appropriate, however anything over 15 mg/L will reduce light penetration for seagrasses and potentially affect their growth.

Dissolved Oxygen (DO- mg/L)

Dissolved oxygen samples measured between 8.44 and 6.19 mg/L which is acceptable for an estuary. There was not much change in DO between spring and fall measurements.

Biological Oxygen Demand (BOD- mg/L)

Biological Oxygen Demand for discrete sampling varied from 1.00 to 6.38 mg/L. Ideal levels are less than 2.0 mg/L with acceptable levels being below 5.0 mg/L. Levels rose as the year progressed which was inverse to the TN and TP samples, so the early spike in TN combined with the already ongoing invasion of *Caulerpa fastigiata* into the system is suspected as one of the contributing factors. This is discussed in more detail within the SAV appendix.

Turbidity (NTUs)

Turbidity readings for February and June were exceptionally high for the interior system. In February on the two days prior to sampling, there had been about an inch of rainfall following a period of drought which would have elevated the river and system turbidity. Also, in June there was nearly three inches of rain over the few days before sampling occurred and the sample was taken on incoming tide which can be turbid under normal conditions. Turbidity readings for the year varied from 3.00 to 50.8 NTUs.

Salinity (ppt)

Discrete sampling measured salinity levels varying from 12.63 to 35.75 ppt throughout the year. The sonde salinity range will not be discussed given the extremely high readings taken in the fall months that were likely the result of its malfunction. The extremely low lab December 29th (2025) reading in the river (Station 1) is out of the norm since there had not been any measurable rainfall in quite some time. Remaining readings were normal for this system based on readings taken during seagrass survey quadrat sampling.

Tidal Prism

The tidal prism prior to the three storm events of 2024 was functioning slightly less than that of the Gulf/Caxambas Pass and slightly less than it did following the 2022/2023 construction effort. Following the storms of 2024 flow into the system was altered significantly until February of 2025 when the flow was restored.

APPENDIX D- MONITORING RESULTS- SUBMERGED AQUATIC VEGETATION

Qualitative submerged aquatic vegetation (SAV) bed delineation for 2025 yielded 14.81 acres of total SAV coverage in the system, which is a 4.05 acre increase from 2024, though most of the increase occurred in the two northern bays. Table 7 below compares total SAV coverage over all the monitoring events. Earlier capture of some of the more temperature sensitive seagrass during the May - June period has helped establish more accurate mapping this year since there is a notable decrease in certain species by July.

Table 7: Total SAV Cover Per Monitoring Year

Area/Zone	2017	2020	2021	2022	2023	2024	2025
1	1.47	6.84	8.05	10.97	5.76	9.02	14.23
2	0.38	6.86	3.44	7.56	0.58	0.95	0.11
3	13.28	10.44	8.46	5.51	3.18	0.63	0.23
4	11.35	13.05	13.05	13.36	6.41	0.16	0.24
Total Acres	26.48	37.19	33.00	37.40	15.93	10.76	14.81

The 2025 annual SAV report documents more anthropogenic impacts in the system than has been discussed previously due to the higher use of the island in general by boaters and pedestrians within the more sensitive areas of the system which historically have not been as accessible. Particularly vulnerable is the lower Zone 3 area where named storms have changed the substrate from muck to hard packed sand and have notably raised the general elevation in some areas. The Tigertail Park foot traffic has increased exponentially along the seagrass bed remnants on the east and west shoreline of this shallow channel. Those same struggling grass beds are now exposed at every low tide to both the elements and foot traffic. A summary of each monitoring zone is discussed below along with any new concerns.



Figure 4: Exposed shoal grass and rhizome on heavy traffic area in lower Zone 3 at low tide

Zone 1 (North Bay): The persistent north bay SAV bed beginning to be overrun by macroalgae, though seagrasses *Halophila decipiens* (paddle grass) and *Halodule wrightii* (shoal grass) are still prevalent. A new more invasive macroalga *Caulerpa fastigiata* has moved into this bay and the north system somewhat displacing the *Penicillus capitatus* and other *Caulerpa* species. SAV coverage has spread out to the main channel edges at approximately 5 feet MLW on the side slopes contributing to the enlarged SAV bed of 8.96 acres. Oyster hash is also beginning to accumulate at the north and south ends of the shallowest areas. Anthropogenic impacts include boats frequently getting stuck in the shallows at low tide and on the sand bar that sits between the bay and the channel.

Zone 1 (South Bay- 1A): The south bay of Zone 1 (1-A) increased in SAV cover this year totaling 5.26 acres, with the growth split between the macroalga *Caulerpa fastigiata* and *Halophila decipiens* (paddle grass). Like the north bay in Zone 1, the SAV edges are expanding out toward the channel stopping before deeper water is reached. Anthropogenic impacts here are limited to boats and kayaks in the shallower areas but frequently getting stuck at low tide. The channel/bay sand bar is not as pronounced in the south bay as in the north bay.

Zone 1 (Extreme North Kayak Bay- 1B): This area was mostly buried in 2024 and excavated in early 2025, except for the eastern extents, so SAV was not present. Some remnant shoal grass and oyster hash were mapped on the eastern mangrove shoreline in small (0.01 acre) quantities. Anthropogenic impacts here are limited to the dredged channel area and the berm shoreline where boats and commercial tour operations regularly beach themselves.

Zone 2: Shoal grass was present primarily in the southern portion of the bay at the time of mapping covering an area of 0.95 acres, versus the 0.58 acres of SAV from 2023. Unfortunately, this bay was mostly covered by at least a foot of sand over the course of the three named storms in 2024.

Zone 3: Zone 3, which was historically the most dense and persistent seagrass area, has experienced the most storm-driven damage of any other segment of the system caused by repeated sand burials and scouring since 2022 from at least five named storm events. The main segment of Zone 3 was fully dredged in 2023 after being totally buried, then again in 2025 after the same issue. Sand has been introduced to the south end of Zone 3 to such a degree that the entire substrate has transitioned from muck to hard packed coarse sand. The elevation of this relatively shallow channel has also increased, resulting in most of the southern channel being exposed at low tide now. This exposure of remaining seagrass beds which have not been totally buried or scoured yet is jeopardizing the SAV health in the harsh August temperatures and as is the case in 2026 so far, to freezing temperatures. Human beachgoing traffic from the park has also become problematic for Zone 3 SAV beds. A recently installed south distribution channel may help with foot traffic issues at least.

Zone 4 (Transect 34 and Tigertail Lagoon): Only one permanent monitoring transect in Zone exists, which experienced a small (0.08 acre) improvement in overall SAV cover this year. Transect 34 is also subject to the same elevated, exposed and sandy conditions though found immediately north in Zone 3 transects, so these SAV remnants are also in jeopardy. No SAV has been documented since early 2023, but signs of sand accumulation are present in the north bay and western bays and edges. Anthropogenic impacts do occur at the very northern extent of Zone 4 and to minor degrees by fisherman in the southern bay.

Figure 5: SAV Map of Entire System

