Sweetwater Creek Stream Assessment

Study Area

Sweetwater Creek has a highly urbanized watershed with residential, industrial, and commercial land use. This creek is located in Hillsborough County where Tampa and Town 'n' Country meet. The upstream portion of the Sweetwater Creek is highly ditched with steep banks and little vegetation buffering the creek. As you move down the creek the creek becomes more natural with less sloping banks and more natural vegetation. As Sweetwater Creek passes under Memorial Highway the natural banks become sea walled and the creek becomes deeper until it forms into a channel.

The watershed for Sweetwater Creek has a LDI value of 7.2 from the urbanization in the surrounding areas. Sweetwater Creek flows into the northeast corner of Old Tampa Bay on the backwater side of the Courtney Campbell Causeway. Sweetwater creek is a highly urbanized system and has one of the highest buffer LDI values of the creeks selected at 6.7.

Figure 17. Overview of the Sweetwater Creek Study Area

Vegetation Survey

The Sweetwater Creek vegetation assessment encompassed 16 vegetation regions from the mouth in Old Tampa Bay to below SR 580 as shown in Figure 18. In these regions, 48 species of vegetation were identified. Regions 1 through 11 were dominated by mangroves (*Rhizophora mangle* and *Laguncularia racemosa*) with few other salt tolerant species present. The most upstream mangrove was *Laguncularia racemosa* in Region 16. The first occurrence of Leather Fern (*Acrostichum danaeifolium*) was in Region 11, becoming dominant in Region 14. Needle Rush (*Juncus roemerianus*) was first observed in Region 2 with the last occurrence in Region 16. Above Region 15 the vegetation communities are populated by many species indicative of dominating freshwater influence, predominantly Brazilian Pepper.

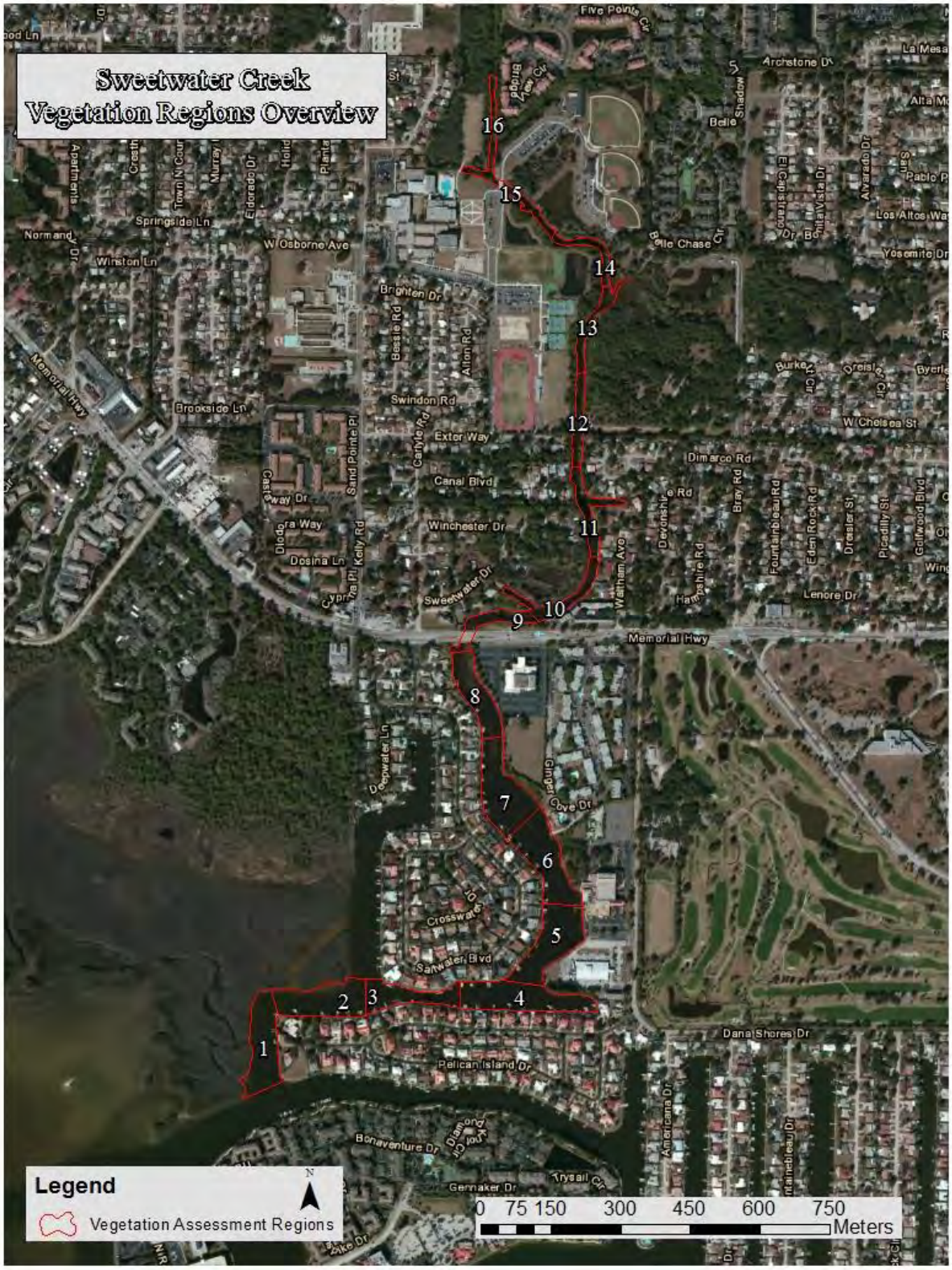

Figure 18. Overview of Sweetwater Creek Vegetation Assessment Regions

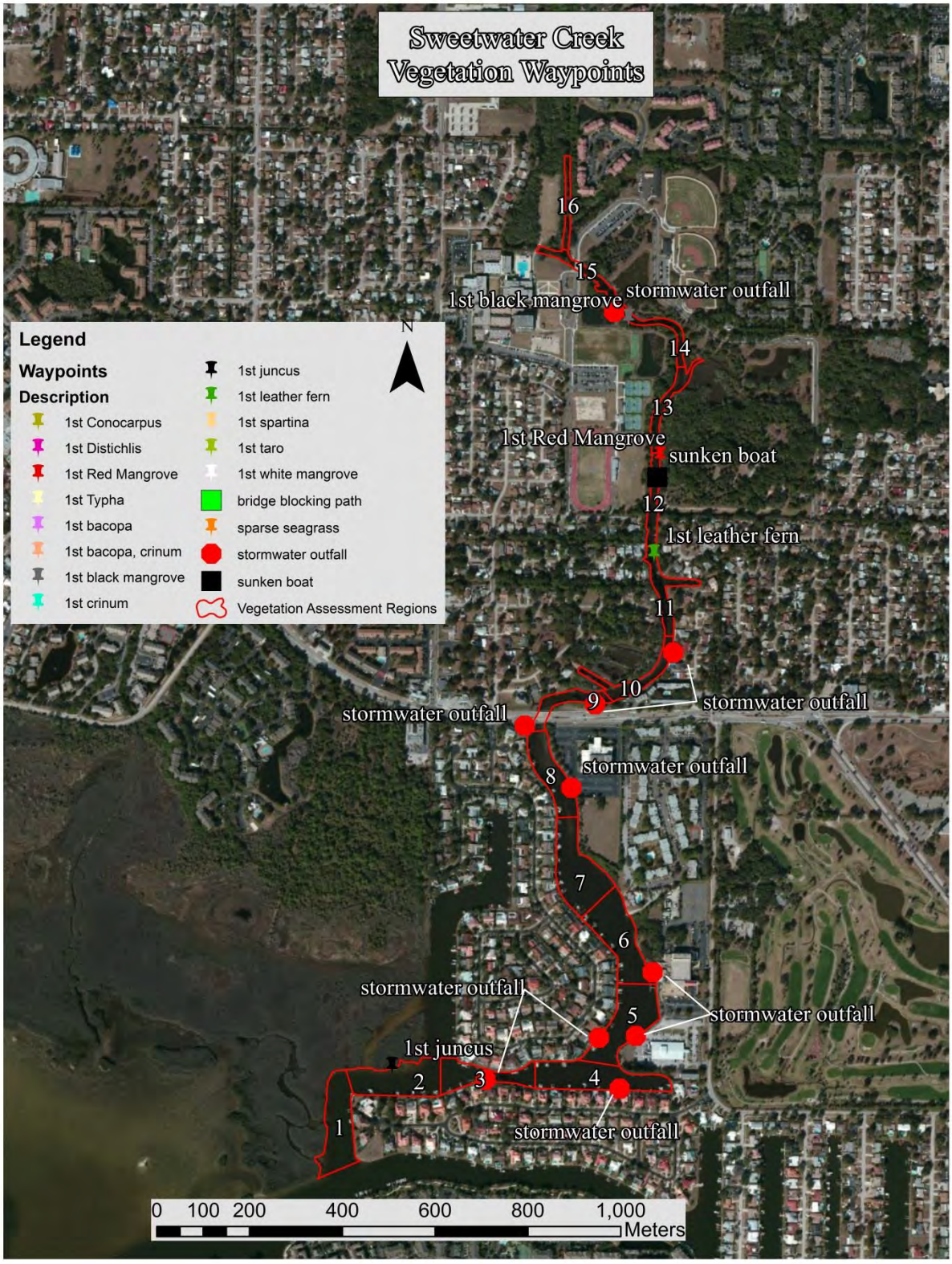

Figure 19. Sweetwater Creek Vegetation Waypoints

Figure 19 shows the vegetation transition zone of Sweetwater Creek indicating the most upstream Red Mangrove and Black Mangrove as well as the most downstream Leather Fern and *Juncus*. Based on the vegetation assessment data for Sweetwater Creek, regions 1 through 9 would comprise the highest salinity and tidal influence zone, regions 10 through 14 would comprise the "mixing" zone and regions 15 and 16 would comprise the freshwater dominant zone. The vegetation assessment species list is shown in Table 4.

Table 4. Sweetwater Creek Vegetation Assessment List

Plant Species	Common Name	Sample Region																Regions Found
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	
Laguncularia racemosa	White Mangrove	C	C		C	C	C	C	C	C	C	C	1	C	C	C	1	15
Schinus terebinthifolius	Brazilian Pepper					1	1	1	C	1	C	C	D	C	C	C	C	12
Avicennia germinans	Black Mangrove	1	1			1	1	1	1	1	1	1	1		1			11
Rhizophora mangle	Red Mangrove	C	C		1	C	C	C	C	C	1	1	1					11
Juncus roemerianus	Needle Rush, Black Rush		1					1		1	C	1	1	C	C	1	1	10
Sabal palmetto	Sabal Palm						1	1		1	1	1	1	1	1	1	1	10
Quercus laurifolia	Laurel oak						1				1	1	1	1	1	1	1	8
Quercus geminata	Sand Live Oak										1	1	1	1	1	C	C	7
Vitis rotundifolia	Muscadine Grape										1	1	1	1	1	1	1	7
Acrostichum danaeifolium	Leather Fern											1	1	1	C	1	1	6
Abrus precatorius	Rosary Pea										1	1			1	1	1	5
Bacopa monnieri	Common Bacopa, Herb-Of-Grace												1	1	1	1	1	5
Iva frutescens	Marsh Elder					1					1		1		1	1		5
Solidago sempervirens	Goldenrod												1	1	1	1	1	5
Callicarpa americana	American Beauty Berry										1	1	1			1		4
Conocarpus erecta	Buttonwood				1	1							1	1				4
Dioscorea bulbifera	Air Potato												1		1	1	1	4
Myrica cerifera	Wax Myrtle													1	1	1	1	4
Panicum repens	Torpedo Grass													1	1	1	1	4
Serenoa repens	Saw palmetto												1	1	1	1		4
Sesbania herbacea	Danglepod Sesban													1	1	1	1	4
Symphyotrichum subulatum	Salt Marsh Aster													1	1	1	1	4
Alternanthera philoxeroides	Alligator Weed													1		1	1	3
Casuarina equisetifolia	Australian Pine				C	1						1						3
Leucaena leucocephala	White leadtree						1								1	1		3
Pinus elliottii	Slash Pine												1	1	1			3
Baccharis halimifolia	Eastern False Willow, Saltbush												1	1				2
Bidens alba	White Beggar Ticks													1			1	2
Blutaparon vermiculare	Silverhead, Saltweed		1					1										2
Parthenocissus quinquefolia	Woodbine				1								1					2
Pluchea rosea	Rosy Camphorweed															1	1	2
Sphagneticola (Wedelia) trilobata	Creeping Oxeye						1						1					2
Typha spp.	Cattails															1	1	2
Eustachys glauca	Saltmarsh Fingergrass															1	1	2
Andropogon virginicus var. glaucus	Broom grass																1	1
Coccoloba uvifera	Seagrape							1										1
Cyperus ligularis	Flat Sedge														1			1
Desmodium incanum	Creeping Beggarweed														1			1
Echinochloa walteri	Coast Cockspur Grass (hairy)															1		1
Eupatorium capillifolium	Dog Fennel																1	1
Hydrocotyl umbellata	Manyflower Marshpennywort, Water Pennywort																1	1
Koelreuteria elegans	Golden Rain Tree											1						1
Lantana spp.	Lantana														1			1
Ludwigia peruviana	Peruvian Primrosewillow																1	1
Smilax bona-nox	Saw Greenbrier Cat Briar																1	1
Urena lobata	Caesar's Weed																1	1
Urochloa mutica	Para Grass															1		1
Amaranthus australis	Southern Amaranth															1		1

Habitat Assessment

Collected sonar data was processed through Dr. Depth software to analyze the strength of the return signal from the bottom to get an estimate of the relative bottom hardness for Sweetwater Creek. Figure 20 shows the bottom hardness raster for Sweetwater Creek. This map is meant to help identify locations of harder and softer bottoms for benthic invertebrate sampling, fish sampling and benthic chlorophyll sampling.

Figure 20. Sweetwater Creek Relative Bottom Hardness Map

Bathymetry Mapping

In the study area, Sweetwater Creek had a mean depth of 5.16 feet and a maximum depth of 14.01 feet. A total of 34.72 acres of creek was mapped during the assessment. At the time of assessment, Sweetwater Creek contained an estimated 49,613,510 gallons of water in the study area. Figure 21 and Figure 22 detail the bathymetric mapping for Sweetwater Creek showing the three depth stratum.

Figure 21. Sweetwater Creek Bathymetric Stratum Map (1 of 2)

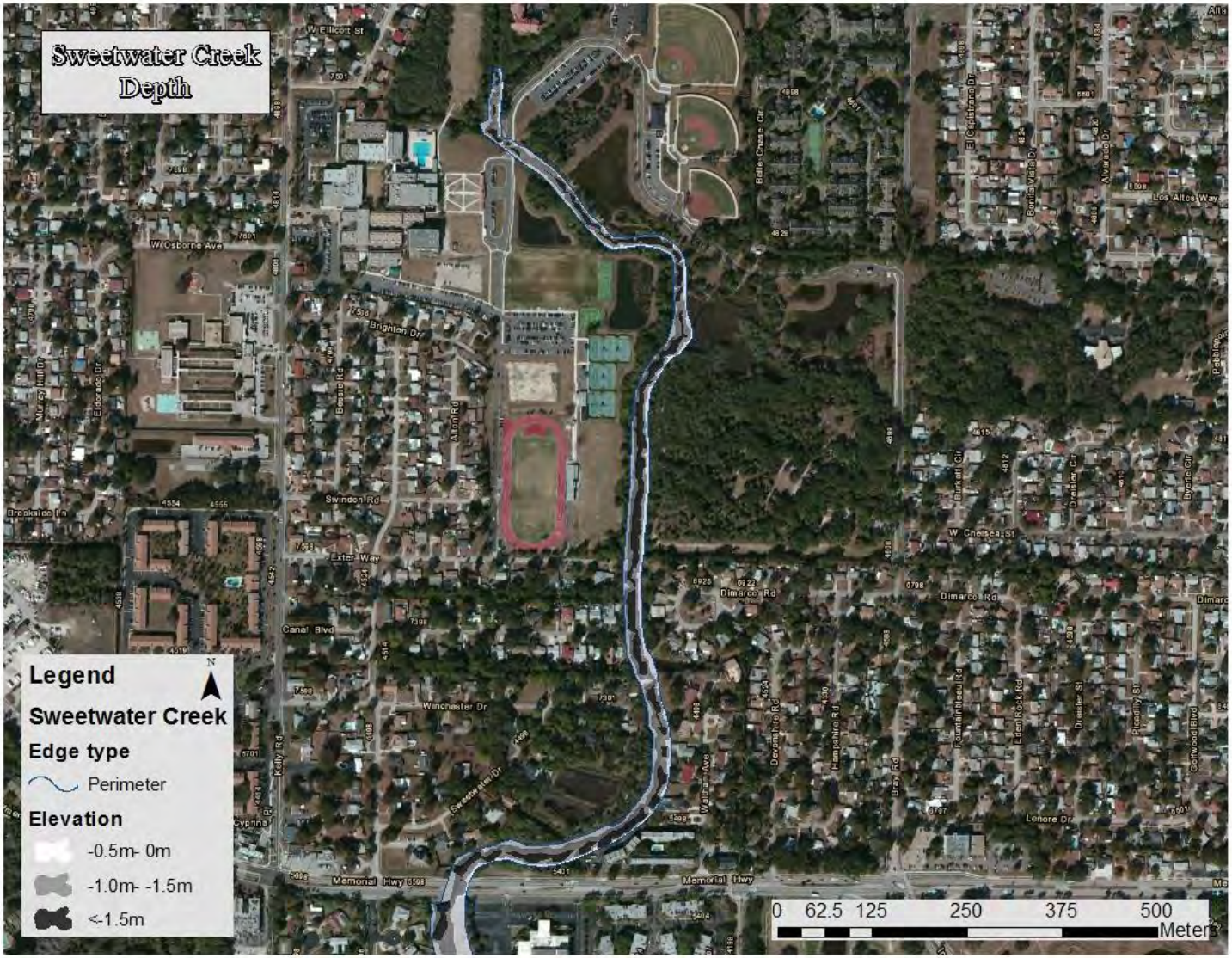

Figure 22. Sweetwater Creek Bathymetric Stratum Map (2 of 2)