Little Alligator Creek Stream Assessment

Study Area

Little Alligator Creek is located at the northern portion of Charlotte Harbor in Charlotte County. The watershed of Little Alligator Creek is highly urbanized with very little natural land upstream and has a watershed LDI value of 5.6. The hydrology has been altered to include weirs (the purple squares in the figure 1 below) and the system has been dredged and channelized. The lower portion of the creek is the most "unaltered" part of the system it includes natural banks, mangroves, marshes, and shallow water areas. The area immediately surrounding Little Alligator Creek contains natural wetland features resulting in a buffer LDI value of 3.3.

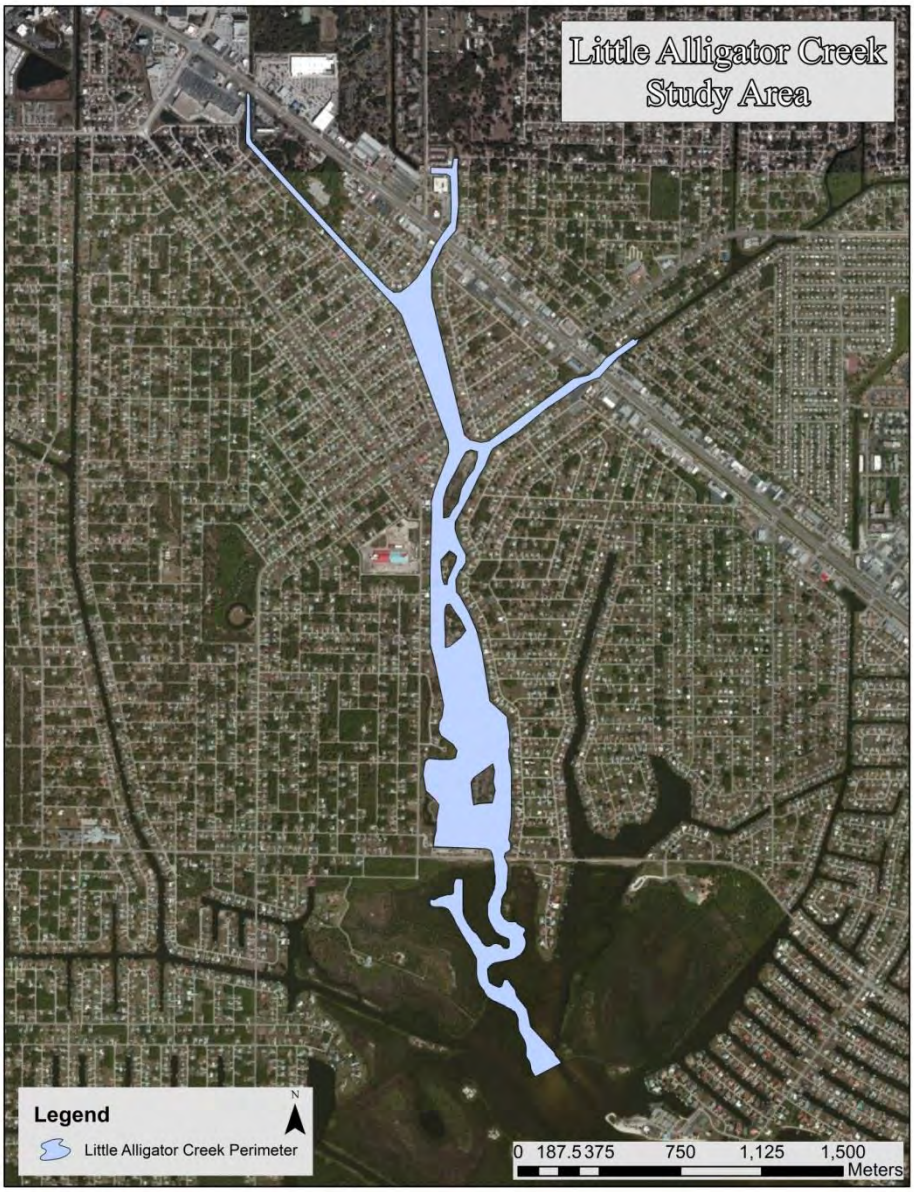

Figure 67. Overview of the Little Alligator Creek Study Area

Vegetation Survey

The Little Alligator Creek vegetation assessment encompassed 33 vegetation regions from the mouth in Charlotte Harbor to the weirs above US Highway 41 as shown in Figure 68. In these regions, 56 species of vegetation were identified. Regions 1 through 7 comprise the "natural" portion of this stream where it is dominated by mangroves (*Rhizophora mangle, Laguncularia racemosa* and *Avicennia geminans*) with few other salt tolerant species present. Upstream from Region 7 the stream is heavily modified both physically by seawalls and hydraulically with weirs. This altered region has few remaining areas with vegetation. The most upstream mangrove was *Rhizophora mangle* in Region 31. The first occurrence of Leather Fern (*Acrostichum danaeifolium*) was in Region 20, becoming dominant in regions 20, 26, 27, 31, 32 and 33. Needle Rush (*Juncus roemerianus*) was first observed in Region 3 with the last occurrence in Region 21.

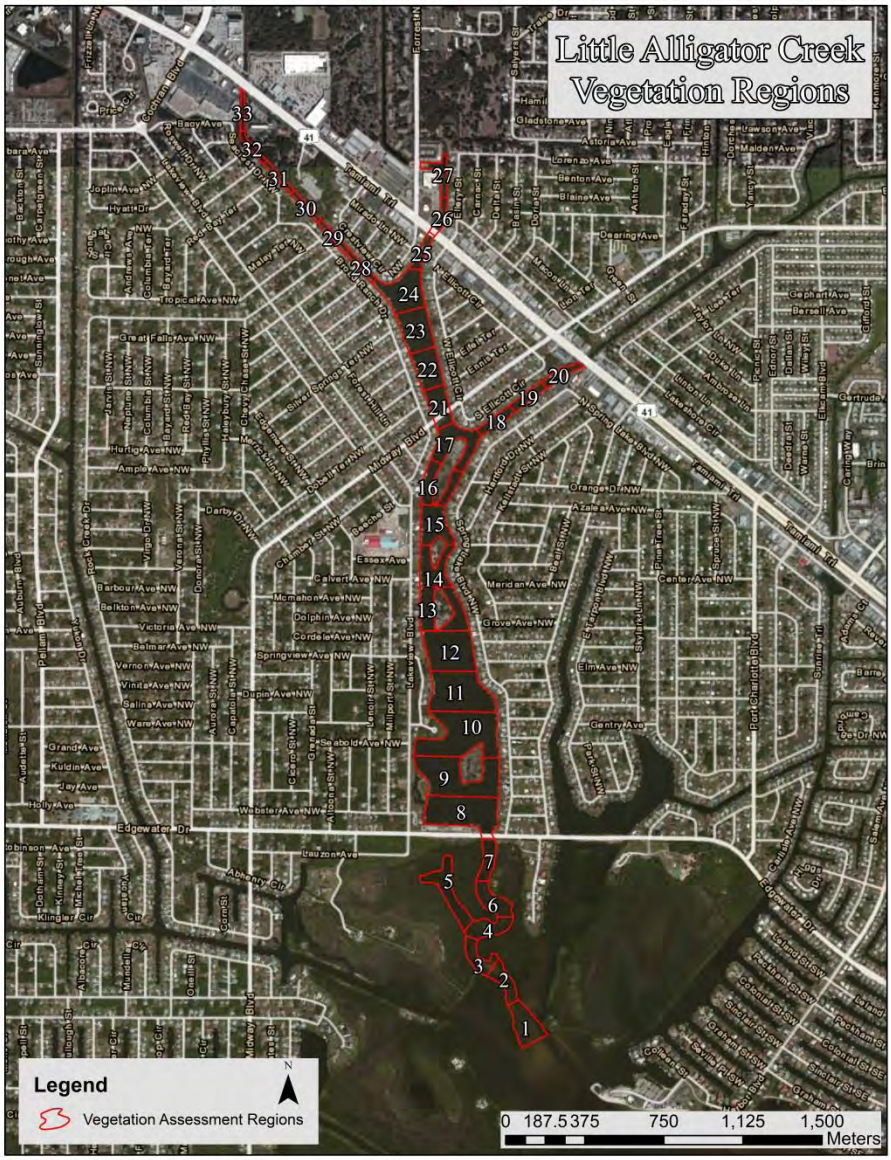

Figure 68. Overview of Little Alligator Creek Vegetation Assessment Regions

Figure 69 shows the vegetation transition zone of Little Alligator Creek indicating the most upstream Red Mangrove as well as the most downstream Leather Fern, *Typha*, *Crinum* and *Juncus*. Based on the vegetation assessment data for Little Alligator Creek, regions 1 through 8 would comprise the highest salinity and tidal influence zone, regions 9 through 17 would comprise the "mixing" zone and regions 18 through 33 would comprise the freshwater dominant zone. The vegetation assessment species lists are shown in Table 17.

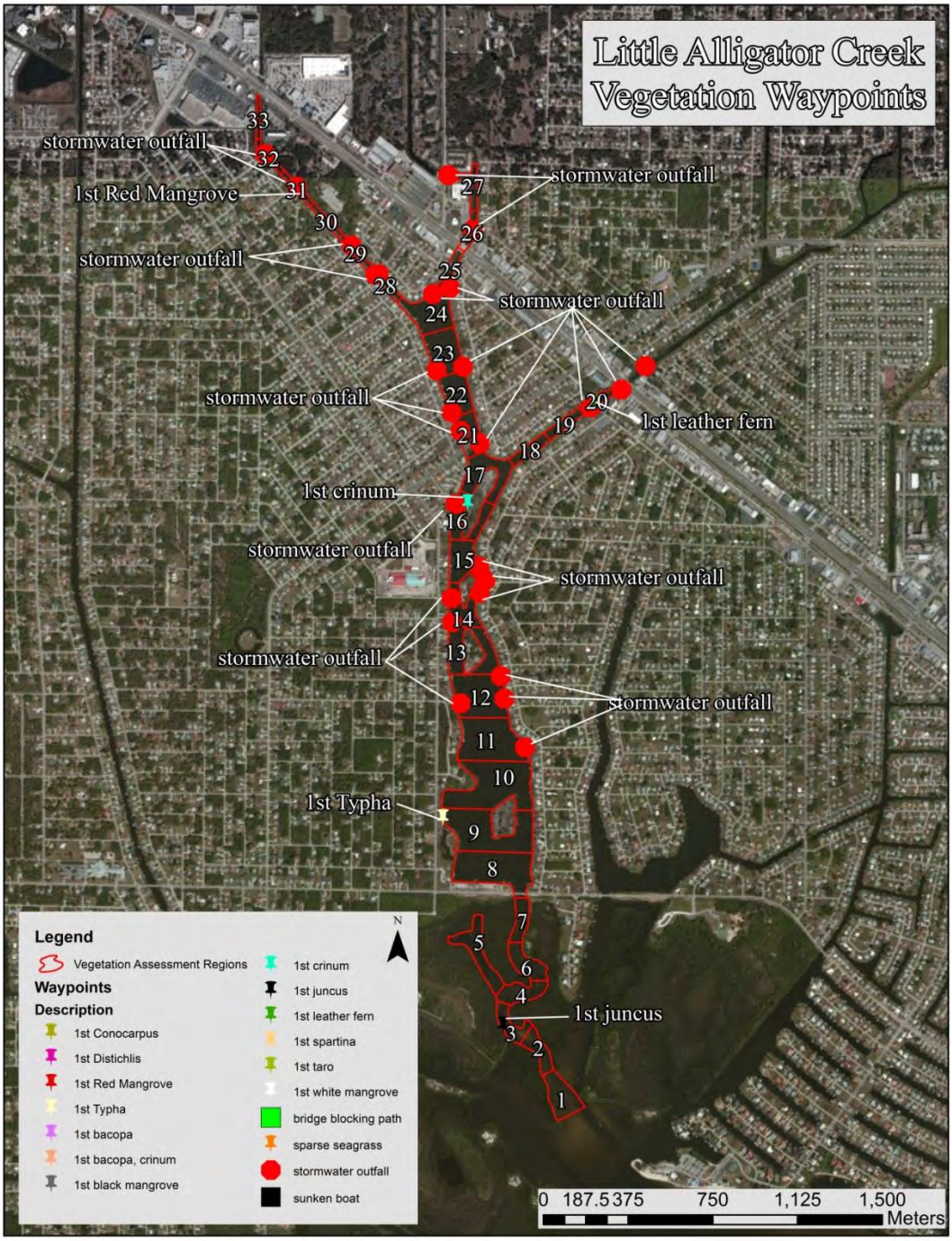

Figure 69. Little Alligator Creek Vegetation Waypoints

Table 17. Little Alligator 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	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	
Rhizophora mangle	Red Mangrove	D	D	D	D	D	D	D	D	C	C	C	1	C	1	1	C	D	1	1		1	1	1	1	C	1	1	1	1	1	1			30
Schinus terebinthifolius	Brazilian Pepper	1	1	1		1	1	1	C	C	C	D	C	1	1	C	1	D	1	1	D		D	1	C	C	C	1	1	D	C	C	C		30
Laguncularia racemosa	White Mangrove	1	1	1	1	1	1	1	1	1	1	1		1	1	1	1	1	1	1	1	1		1	1	1		1	1						25
Sabal palmetto	Sabal Palm	1					1	1	1	1	1	1	1	1	1		1	1			1	1									1	1	1	1	18
Typha spp.	Cattails									1	1		1	1	1		1	1			1	1			1			1	1	1					13
Vitis rotundifolia	Muscadine Grape									1	1		1	1	1		1	1			1									1	1	1	1	1	13
Quercus virginiana	Virginia Live Oak								1	1	1	1	1	1	1	1	1	1												1		1			12
Baccharis halimifolia	Eastern False Willow, Saltbush			1						1	1			1				1			1						1	1		1	1				10
Acrostichum danaeifolium	Leather Fern																				D						C	C	1	1	1	C	C	C	9
Avicennia germinans	Black Mangrove	1	1	1	1	1	1	1	1	1																									9
Juncus roemerianus	Needle Rush, Black Rush			1						1	1		1	1		1	1	1				1													9
Conocarpus erecta	Buttonwood			1		1	1	1	1	C	1			1																					8
Crinum americanum	Swamp lily																	1			1	1						1		1	1	1			7
Myrica cerifera	Wax Myrtle									1					1													1		1		1	1	1	7
Panicum repens	Torpedo Grass									1			1	1			1				1						1	1							7
Dalbergia ecastaphyllum	Coin Vine	1							1	1	1		1	1																					6
Pinus spp	Pine								1				1	1			1		1												1				6
Cupaniopsis anacardioides	Carrotwood														1	1	1				1							1							5
Distichlis spicata	Salt Grass			1					1	1		1				1																			5
Leucaena leucocephala	White leadtree									1		1					1				1							1							5
Ampelopsis arborea	Peppervine														1		1	1		1															4
Coccoloba uvifera	Seagrape	1		1						1																		1							4
Cyperus involucratus	Umbrella flat sedge												1	1													1	1							4
Alternanthera philoxeroides	Alligator Weed																				1					1		1							3
Blutaparon vermiculare	Silverhead, Saltweed																1		1	1															3
Cyperus spp.	Sedge												1	1	1																				3
Quercus laurifolia	Laurel oak																											1		1		1			3
Blechnum serrulatum	Swamp Fern									1		1																							2
Cyperus ligularis	Flat Sedge												1				1																		2
Rhabdadenia biflora	Mangrove Rubber Vine			1				1																											2
Schoenoplectus tabernaemontani	Softstem Bulrush													1													1								2
Serenoa repens	Saw palmetto															1		1																	2
Smilax bona-nox	Saw Greenbrier Cat Briar														1			1																	2
Spartina alterniflora	Salt Marsh Grass								1	1																									2
Sphagneticola (Wedelia) trilobata	Creeping Oxeye																				1							1							2
Taxodium ascendens	Pond Cypress																										1	1							2
Ambrosia artemisiifolia	Common Ragweed																	1																	1
Andropogon virginicus var. glaucus	Broom grass																1																		1
Boehmeria cylindrica	Bog Hemp, False Nettle																	1																	1
Dioscorea bulbifera	Air Potato																				1														1
Eupatorium capillifolium	Dog Fennel																											1							1
Hydrocotyl umbellata	Manyflower Marshpennywort, Water Pennywort																											1							1
Ipomoea pes-caprae	Railroad Vine													1																					1
Iva frutescens	Marsh Elder														1																				1
Juniperus virginiana	Red Cedar																											1							1
Ludwigia octovalvis	Mexican Primrosewillow, Long-stalked Ludwigia																				1														1
Parthenocissus quinquefolia	Woodbine																		1																1
Pistia stratoides	Water Lettuce																									1									1
Pluchea rosea	Rosy Camphorweed										1																								1
Salix caroliniana	Carolina Willow; Coastalplain Willow																														1				1
Sambucus canadensis	Elderberry																										1								1
Sesuvium portulacastrum	Shoreline Seapurslane									1																									1
Sapium sebiferum	Popcorn Tree, Chinese Tallow Tree																									1									1
Sarcostemma clausum	White-vine																									1									1
Spartina bakerii	Cordgrass																1																		1
Taxodium distichum	Bald Cypress																											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 Little Alligator Creek. Figure 70 shows the bottom hardness raster for Little Alligator Creek. In this raster, the higher the hardness value, the harder the bottom substrate. This map is meant to help identify locations of harder and softer bottoms for benthic invertebrate sampling, fish sampling and benthic chlorophyll sampling.

Figure 70. Little Alligator Creek Relative Bottom Hardness Map

Bathymetry Mapping

In the study area, Little Alligator Creek had a mean depth of 3.99 feet and a maximum depth of 11.79 feet. A total of 168 acres of creek was mapped during the assessment. At the time of assessment, Little Alligator Creek contained an estimated 222,887,978 gallons of water in the study area. Figure 71 details the bathymetric mapping for Little Alligator Creek showing the three depth stratum.

Figure 71. Little Alligator Creek Bathymetric Stratum Map