

# Buck Creek Stream Assessment

## Study Area

Buck Creek is located in a relatively unimpaired watershed. Most of the creek is bordered by mangroves. A small area of medium density residential property borders a portion of the downstream area of Buck Creek. A golf course that is buffered by mangroves is located within the downstream portion of the creek. Buck Creek’s watershed has a LDI value of 3.8 and the area immediately surrounding the creek with a buffer LDI value of 1.2.



Figure 57. Overview of the Buck Creek Study Area

## Vegetation Survey

The Buck Creek vegetation assessment encompassed 12 vegetation regions from the mouth in Lemon Bay to the Boundary Road crossing as shown in Figure 58. In these regions, 21 species of vegetation were identified. Regions 1 through 12 were dominated by mangroves (*Rhizophora mangle* and *Laguncularia racemosa*) with few other salt tolerant species present. The first occurrence of Leather Fern (*Acrostichum danaeifolium*) was in Region 11. Needle Rush (*Juncus roemerianus*) was first observed in Region 7, becoming dominant in Regions 11 and 12. Buck Creek showed a vegetation community influenced by salinity and tides throughout the study area.

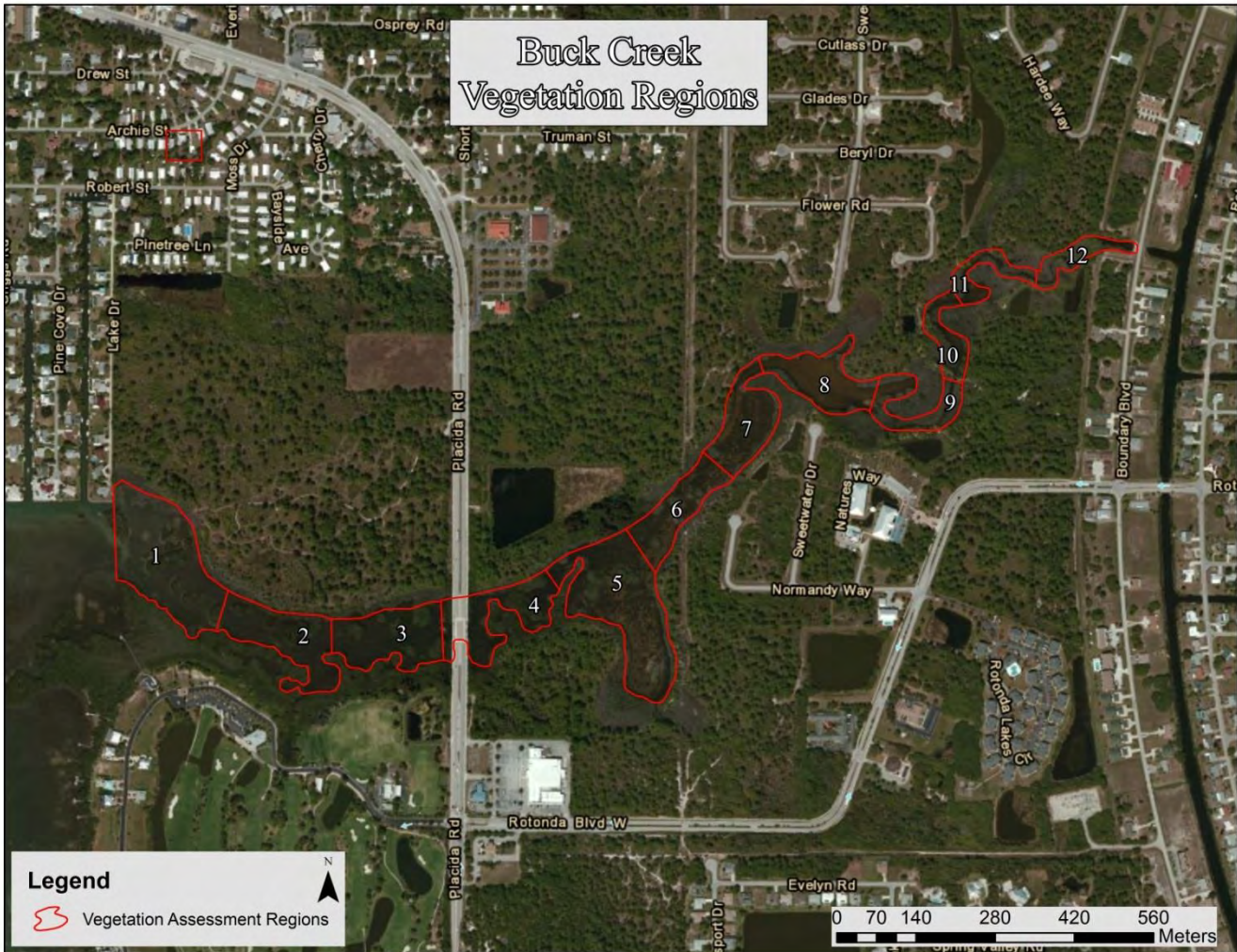


Figure 58. Overview of Buck Creek Vegetation Assessment Region

Figure 59 shows the vegetation transition zone of Buck Creek indicating the most downstream Leather Fern and *Juncus* as well as the upstream extent of seagrass. Based on the vegetation assessment data for Buck Creek, Regions 1 through 7 would comprise the highest salinity and tidal influence zone, Regions 8 through 11 would comprise the “mixing” zone and Region 12 would comprise the least salinity dominant zone. The vegetation assessment species lists are shown in Table 15.

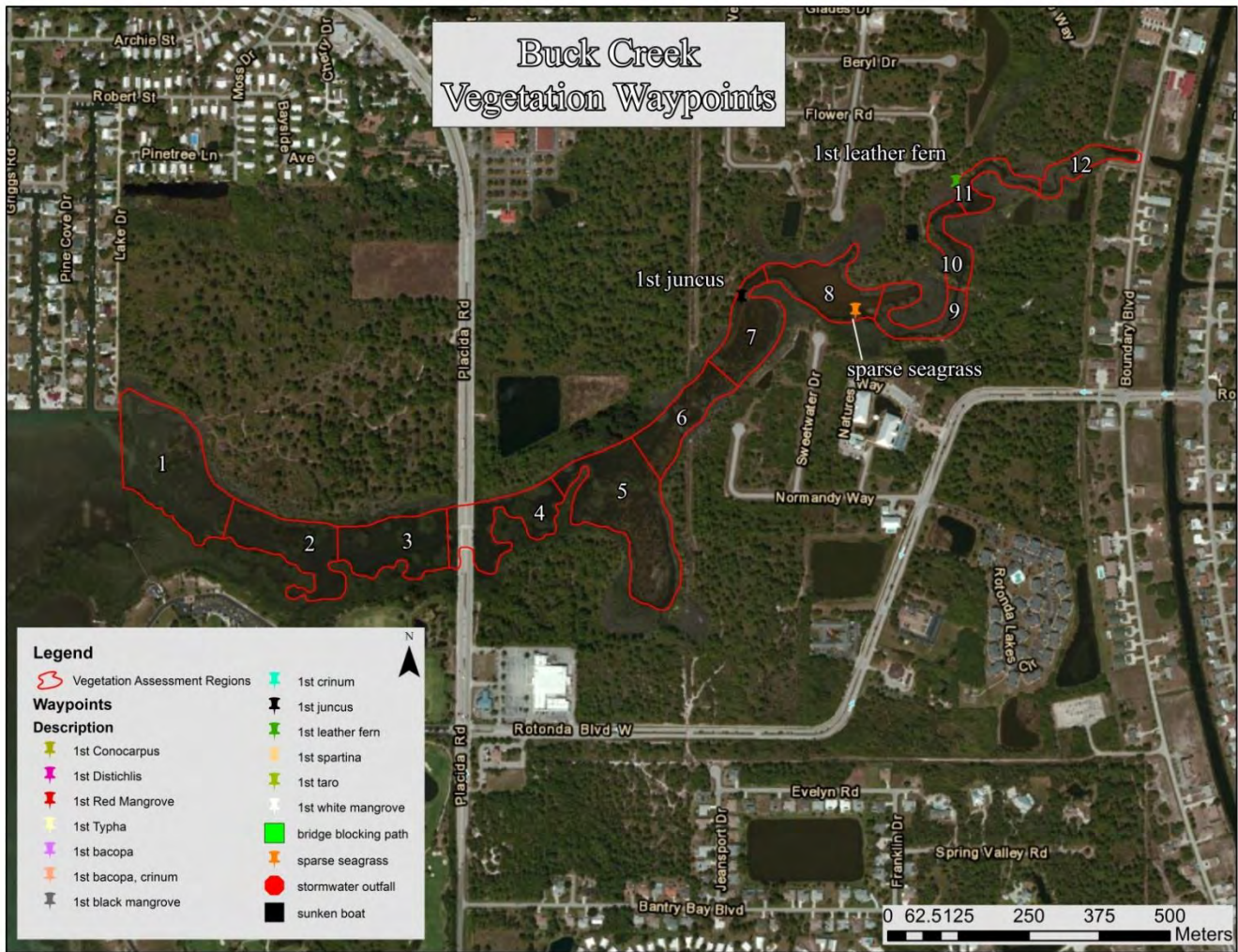


Figure 59. Buck Creek Vegetation Waypoint Map

Table 15. Buck Creek Vegetation Assessment List

Plant Species	Common Name	Sample Region												Regions Found
		1	2	3	4	5	6	7	8	9	10	11	12	
<i>Avicennia germinans</i>	Black Mangrove	1	1	1	1	1	1	1	1	1	1	1	1	12
<i>Laguncularia racemosa</i>	White Mangrove	1	1	1	1	1	C	C	C	C	C		1	1
<i>Pinus spp</i>	Pine	1	1	1	1	1	1	1	1	1	1	1	1	12
<i>Rhizophora mangle</i>	Red Mangrove	D	D	D	D	D	D	D	D	D	D	C	C	12
<i>Schinus terebinthifolius</i>	Brazilian Pepper	1	1	1	1	1	1	1	1	1	1	1	1	12
<i>Quercus virginiana</i>	Virginia Live Oak	1		1	1	1	1	1	1	1	1	1	1	11
<i>Sabal palmetto</i>	Sabal Palm	1	1	1		1	1	1	1	1	1	1		10
<i>Halodule wrightii</i>	Shoal-grass	1	1	1	1	1	1	1	1					8
<i>Conocarpus erecta</i>	Buttonwood					1	1			1	1	1	1	6
<i>Juncus roemerianus</i>	Needle Rush, Black Rush							1			1	C	C	4
<i>Myrica cerifera</i>	Wax Myrtle							1			1	1		3
<i>Serenoa repens</i>	Saw palmetto									1	1	1		3
<i>Acrostichum danaeifolium</i>	Leather Fern											1	1	2
<i>Baccharis halimifolia</i>	Eastern False Willow, Saltbush							1			1			2
<i>Bacopa monnieri</i>	Common Bacopa, Herb-Of-Grace											1	1	2
<i>Casuarina equisetifolia</i>	Australian Pine					1	1							2
<i>Batis maritima</i>	Saltwort	1												1
<i>Distichlis spicata</i>	Salt Grass							1						1
<i>Iva frutescens</i>	Marsh Elder	1												1
<i>Spartina alterniflora</i>	Salt Marsh Grass							1						1
<i>Vitis rotundifolia</i>	Muscadine Grape										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 Buck Creek. Figure 60 shows the bottom hardness raster for Buck 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 60. Buck Creek Relative Bottom Hardness Map

### Bathymetry Mapping

In the study area, Buck Creek had a mean depth of 1.73 feet and a maximum depth of 5.35 feet. A total of 36.94 acres of creek was mapped during the assessment. At the time of assessment, Buck Creek contained an estimated 14,652,632 gallons of water in the study area. Figure 61 details the bathymetric mapping for Buck Creek showing the three depth stratum.



Figure 61. Buck Creek Bathymetric Stratum Map