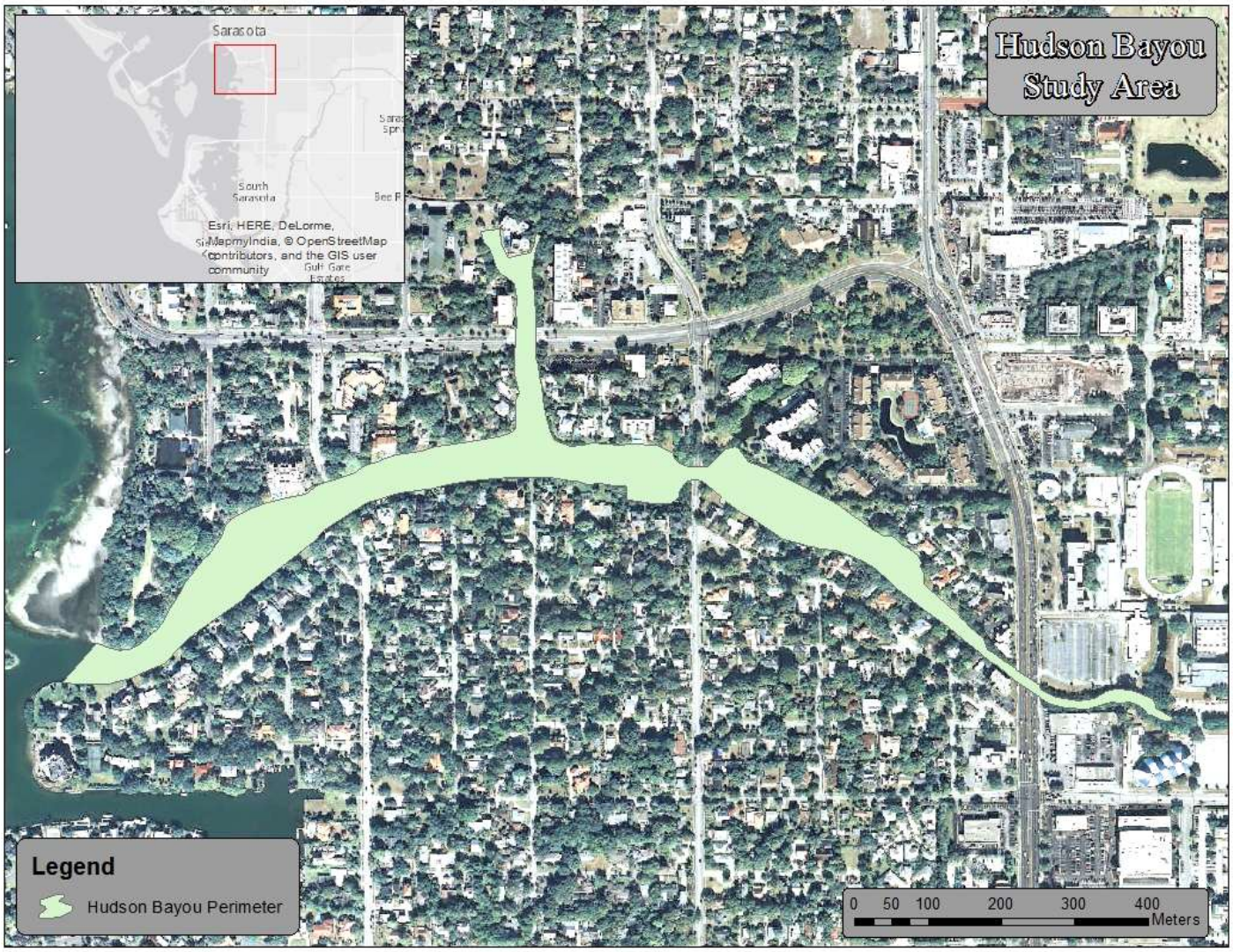
Hudson Bayou Stream Assessment

Study Area

Hudson Bayou is located in northwestern Sarasota County and flows into Sarasota Bay. It was assessed on August 13, 2014. Hudson Bayou's watershed is dominated by residential (61.53%), commercial (16.95%) and institutional (11.11%) land uses, giving it a watershed LDI value of 29.99. The banks are heavily altered throughout the study area with seawalls.

Figure 11. Overview of the Hudson Bayou Study Area



Vegetation Survey

The Hudson Bayou vegetation assessment encompassed 9 vegetation regions from the mouth in Sarasota Bay to east of U.S. Highway 41 as shown in Figure 12. In these regions, 21 species of vegetation were identified. Regions 1 through 9 were dominated by mangroves (*Rhizophora mangle, Laguncularia racemosa* and *Avicennia geminans*) with few other salt tolerant species present. The first occurrence of Leather Fern (*Acrostichum danaeifolium*) was in Region 8. Needle Rush (*Juncus roemerianus*) was first observed in Region 5. Above Region 9 the vegetation community was not able to be assessed due to the overgrowth of Brazilian Pepper (*Schinus terebinthifolius*) and mangroves.

Figure 12. Overview of Hudson Bayou Vegetation Assessment Regions

Figure 13 shows the vegetation transition zone of Hudson Bayou, indicating the most downstream Leather Fern and *Juncus*. Based on the vegetation assessment data for Hudson Bayou, Regions 1 through 7 would comprise the highest salinity and tidal influence zone, and Regions 8 through 9 would comprise the "mixing" zone. The freshwater dominant zone begins above Region 9 as evidenced by the presence of Cattails (*Typha*) at Bahia Vista St. The vegetation assessment species lists are shown in Table 3.

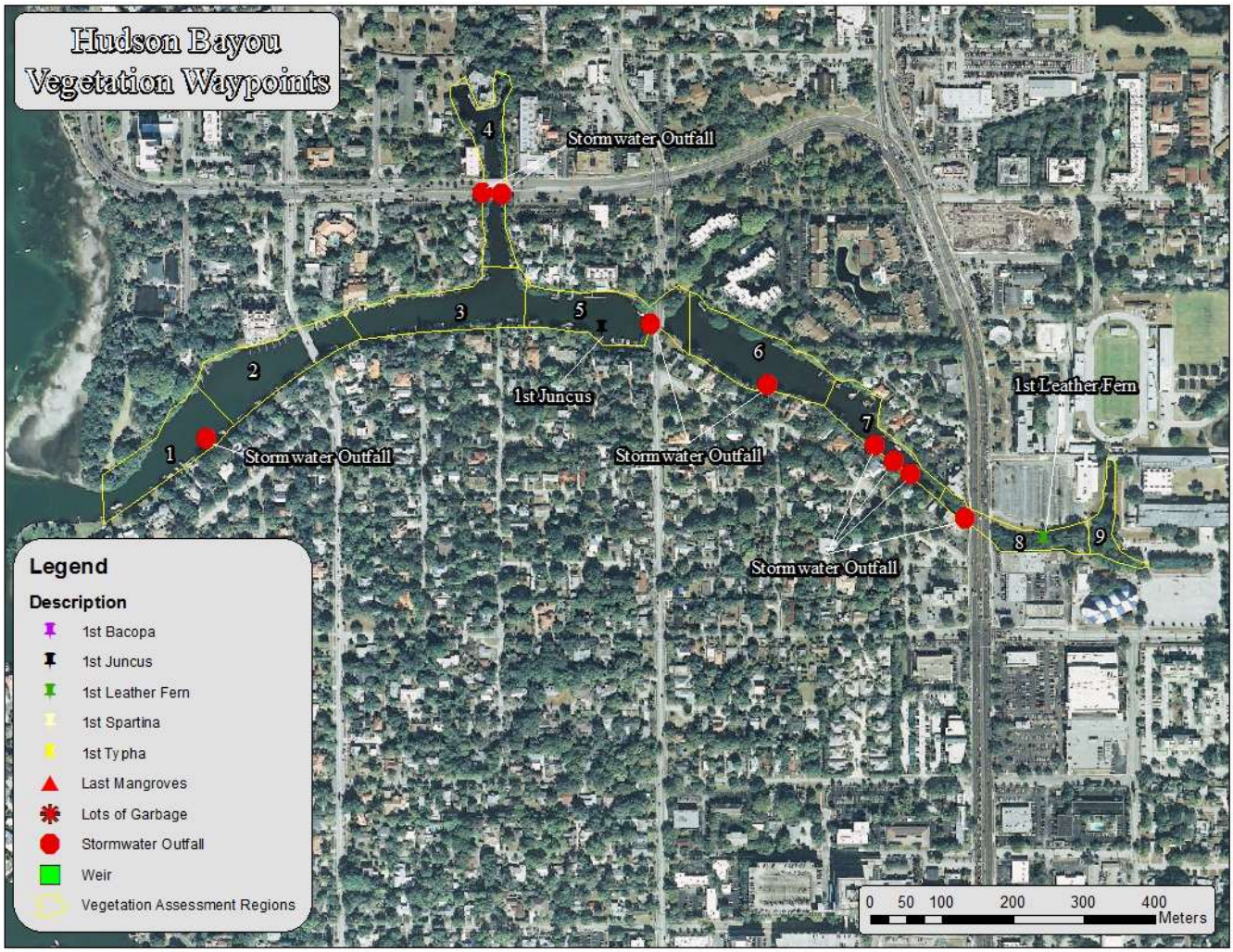


Figure 13. Hudson Bayou Vegetation Waypoints

Table 3 Hudson Bayou Vegetation Assessment List

Plant Species	Common Name	Sample Region									Regions Found
		1	2	3	4	5	6	7	8	9	
Rhizophora mangle	Red Mangrove	1	1	1	1	1	1	1	1	1	**9**
Laguncularia racemosa	White Mangrove	1	1	1	1	1	1	1	1		**8**
Avicennia germinans	Black Mangrove	1	1		1	1		1	1		**6**
Coccoloba uvifera	Seagrape	1	1			1	1	1			**5**
Dalbergia ecastaphyllum	Coin Vine	1	1		1	1		1			**5**
Ficus aurea	Strangler Fig	1	1	1	1				1		**5**
Parthenocissus quinquefolia	Woodbine				1			1	1		**3**
Quercus laurifolia	Laurel oak				1		1	1			**3**
Acrostichum danaeifolium	Leather Fern								1	1	**2**
Alternanthera philoxeroides	Alligator Weed								1	1	**2**
Sansevieria hyacinthoides	Bowstring Hemp								1	1	**2**
Albizia julibrissin	Silk tree Mimosa				1						**1**
Bidens alba	White Beggar Ticks							1			**1**
Casuarina equisetifolia	Australian Pine								1		**1**
Cupaniopsis anacardioides	Carrotwood								1		**1**
Cyperus ligularis	Flat Sedge								1		**1**
Dioscorea bulbifera	Air Potato	1									**1**
Ipomoea indica	Ocenblue morning Glory					1					**1**
Juncus roemerianus	Needle Rush, Black Rush					1					**1**
Quercus geminata	Sand Live Oak	1									**1**
Vitis cinerea var. floridana	Pigeon Grape				1						**1**

Habitat Assessment

Collected sonar data were 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 Hudson Bayou. Figure 14 shows the bottom hardness raster for Hudson Bayou. 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.

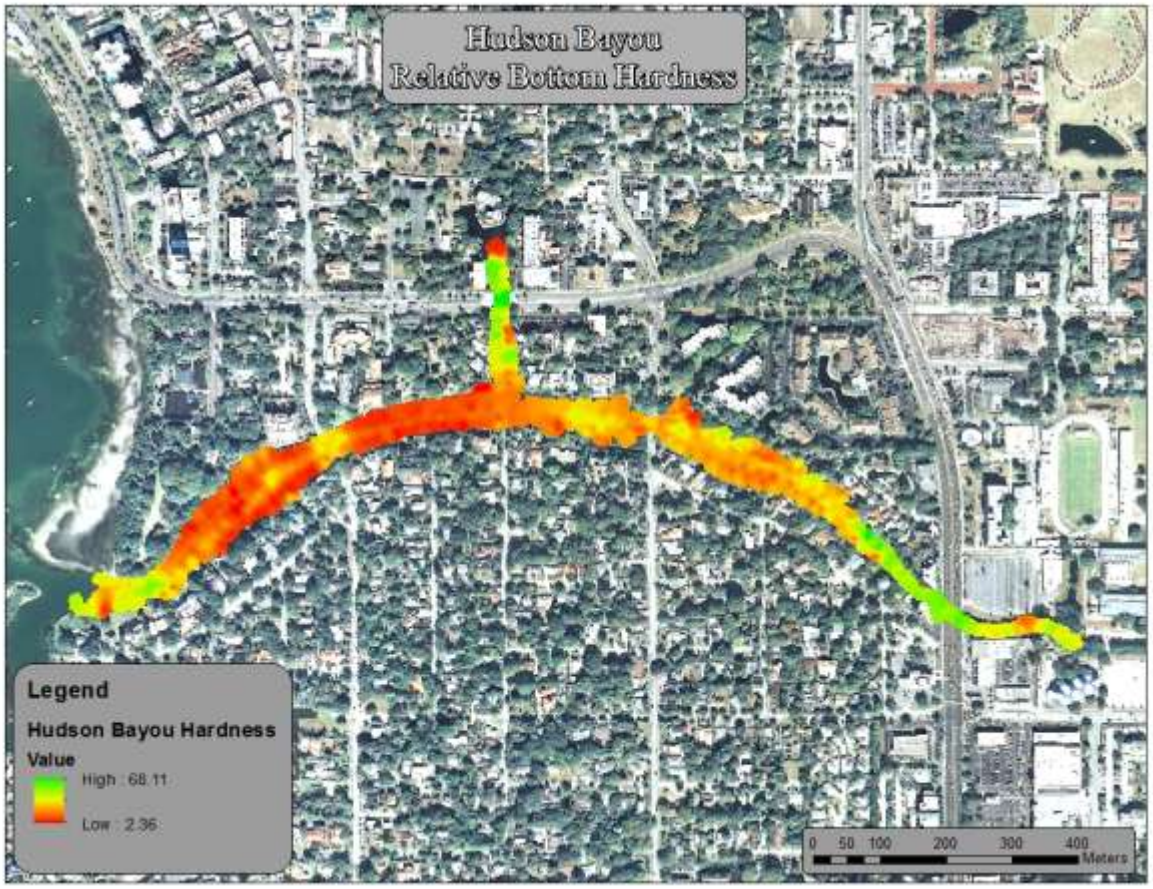


Figure 14. Hudson Bayou Relative Bottom Hardness Map

Bathymetry Mapping

In the study area, Hudson Bayou had a mean depth of 3.67 feet and a maximum depth of 8.77 feet. A total of 19.88 acres of creek was mapped during the assessment. At the time of assessment, Hudson Bayou contained an estimated 19,269,000 gallons of water in the study area. The water level elevation at the time of assessment was 8.84 feet at Sarasota ARMS HUD-1 gage site. Figure 15 details the bathymetric mapping for Hudson Bayou showing the three depth strata.

Figure 15. Hudson Bayou Bathymetric Stratum Map