

Matheny Creek Stream Assessment

Study Area

Matheny Creek was assessed on August 20, 2014. Matheny Creek has a highly urbanized watershed with residential (53%), commercial (10%) and industrial (8.15%) land uses. This creek is located in Sarasota County south of downtown Sarasota. The upstream portion of Matheny Creek is highly ditched and straightened with water level control weirs. Near the downstream portions, Matheny Creek has been fortified by seawalls. The watershed for Matheny Creek has an LDI value of 30.08 owing to the urbanization in the surrounding areas. Matheny Creek flows into Roberts Bay south of the Stickney Point Road Causeway.



Figure 16. Overview of the Matheny Creek Study Area

Vegetation Survey

The Matheny Creek vegetation assessment encompassed 5 vegetation regions from the mouth in Roberts Bay to the water level control structures upstream from U.S. Highway 41 as shown in Figure 17. In these regions, 50 species of vegetation were identified. Regions 1 through 3 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 4. Above Region 4 the vegetation communities are populated by many species indicative of dominating freshwater influence.



Figure 17. Overview of Matheny Creek Vegetation Assessment Regions



Figure 18. Matheny Creek Vegetation Waypoints

Figure 18 shows the vegetation transition zone of Matheny Creek indicating the most downstream Leather Fern, stormwater outfalls and weirs. Based on the vegetation assessment data for Matheny Creek, Regions 1 through 4 would comprise the highest salinity and tidal influence zone, Region 5 would comprise the “mixing” zone and regions above the weir at Region 5 would comprise the freshwater dominant zone. In the upper portion of Region 4 a limestone sill rapidly changes the exchange of fresh and salt water. The vegetation community changes rapidly above this point downstream from the weirs. The vegetation assessment species list is shown in Table 4.

Table 4. Matheny Creek Vegetation Assessment List

Plant Species	Common Name	Sample Region					Regions Found
		1	2	3	4	5	
<i>Laguncularia racemosa</i>	White Mangrove	1	1	1	1	1	5
<i>Parthenocissus quinquefolia</i>	Woodbine	1	1	1	1	1	5
<i>Schinus terebinthifolius</i>	Brazilian Pepper	1	1	1	1	1	5
<i>Rhizophora mangle</i>	Red Mangrove	1	1	1	1		4
<i>Sphagneticola (Wedelia) trilobata</i>	Creeping Oxeye		1	1	1	1	4
<i>Conocarpus erecta</i>	Buttonwood		1	1	1		3
<i>Salvinia minima</i>	Water Spangles, Water Fern			1	1	1	3
<i>Acrostichum danaeifolium</i>	Leather Fern				1	1	2
<i>Bidens alba</i>	White Beggar Ticks		1				2
<i>Cupaniopsis anacardioides</i>	Carrotwood		1			1	2
<i>Dioscorea bulbifera</i>	Air Potato				1	1	2
<i>Eichhornia crassipes</i>	Water Hyacinth				1	1	2
<i>Ficus aurea</i>	Strangler Fig		1	1			2
<i>Juniperus virginiana</i>	Red Cedar	1	1				2
<i>Lemna minor</i>	Duckweed				1	1	2
<i>Myrica cerifera</i>	Wax Myrtle			1	1		2
<i>Panicum repens</i>	Torpedo Grass			1		1	2
<i>Quercus virginiana</i>	Virginia Live Oak			1	1		2
<i>Salix caroliniana</i>	Carolina Willow; Coastalplain Willow				1	1	2
<i>Syzygium cumini</i>	Java Plum			1	1		2
<i>Algal Spp.</i>	Algal Mats, Floating					1	1
<i>Alternanthera philoxeroides</i>	Alligator Weed					1	1
<i>Ambrosia artemisiifolia</i>	Common Ragweed					1	1
<i>Avicennia germinans</i>	Black Mangrove			1			1
<i>Baccharis glomeruliflora</i>	Groundsel Tree		1				1
<i>Blutaparon vermiculare</i>	Silverhead, Saltweed		1				1
<i>Boehmeria cylindrica</i>	Bog Hemp, False Nettle			1			1
<i>Ceratophyllum demersum</i>	Coontail					1	1
<i>Chysobalanus icaco</i>	Coco-plum	1					1
<i>Coccoloba uvifera</i>	Seagrape		1				1
<i>Colocasia esculenta</i>	Wild Taro, Dasheen, Coco Yam					1	1
<i>Commelina diffusa</i>	Dayflower					1	1
<i>Cyperus involucreatus</i>	Umbrella flat sedge				1		1
<i>Cyperus odoratus</i>	Fragrant Flatsedge		1				1
<i>Echinochloa walteri</i>	Coast Cockspur Grass (hairy)					1	1
<i>Eclipta alba (prostrata)</i>	False Daisy, Yerba De Tajo					1	1
<i>Eustachys glauca</i>	Saltmarsh Finger Grass		1				1
<i>Hydrilla verticillata</i>	Hydrilla, water thyme					1	1
<i>Ludwigia octovalvis</i>	Mexican Primrosewillow, Long-stalked Ludwigia					1	1
<i>Ludwigia peruviana</i>	Peruvian Primrosewillow					1	1
<i>Musa spp.</i>	Banana Tree					1	1
<i>Panicum maximum</i>	Guneagrass			1			1
<i>Phyla nodiflora</i>	Frog-fruit, Carpetweed, Turkey Tangle Fogfruit		1				1
<i>Polygonum hydropiperoides</i>	Swamp Smartweed					1	1
<i>Pontederia cordata</i>	Pickerel Weed					1	1
<i>Rumex verticillatus</i>	Swamp Dock					1	1
<i>Sabal palmetto</i>	Sabal Palm		1				1
<i>Scirpus californicus</i>	California Bulrush				1		1
<i>Typha spp.</i>	Cattails					1	1
<i>Vitis rotundifolia</i>	Muscadine 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 Matheny Creek. Figure 19 shows the bottom hardness raster for Matheny 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 19. Matheny Creek Relative Bottom Hardness Map

Bathymetry Mapping

In the study area, Matheny Creek had a mean depth of 3.18 feet and a maximum depth of 6.07 feet. A total of 5.11 acres of creek was mapped during the assessment. At the time of assessment, Matheny Creek contained an estimated 3,636,872 gallons of water in the study area. The water level elevation was 4.95 feet at Sarasota ARMS MAT-1 station at the time of the assessment. Figure 20 details the bathymetric mapping for Matheny Creek showing the three depth strata.



Figure 20. Matheny Creek Bathymetric Stratum Map