Whitaker Bayou Condition Report for 2013

CAUTION

Chl-a N P DO

3 out of 4 indicators were rated as **PASS**.

All four indicators must pass for the creek to be rated as **PASS**.

Size: 4,967 acres
Location: North Sarasota County, south Manatee County
Discharges into: Sarasota Bay

Whitaker Bayou is a highly urbanized basin that has changed in land use and hydrology since the mid-1900s. The Sarasota County 1847 General Land Office Survey indicates that Whitaker Bayou only extended about a quarter of a mile inland from the bay. The survey also displays a separate waterway that extends inland from 0.25 mile northeast of the head of Whitaker Bayou. Seasonal patterns in freshwater inflows have not changed significantly between historic and current conditions, indicating that changes in land use have not altered the intra-annual pattern of inflows to the bay. Land use has, however, affected the magnitude of total inflow to the bay, if not the relative contributions of individual sources (runoff, baseflow, irrigation, point sources). *For full basin details see:* ***Sarasota Bay Water Quality Management Plan (2012)***

Whitaker Bayou

Water Chemistry Ratings | Freshwater Portion of the Creek

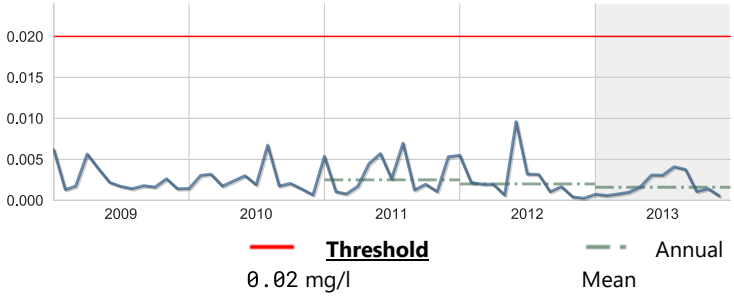
Creek Conditions Ratings are based on comparing nitrogen, phosphorus, chlorophyll and dissolved oxygen to water quality guidelines or regulations. Florida law defines a maximum allowable concentration of nitrogen, phosphorus, and chlorophyll *a*, and a minimum allowable concentration of dissolved oxygen in these streams.

Chl-a Chlorophyll a

Score: Pass

Units: mg/l	Year 2013	Historical period of record
High	0.011	0.0595
Mean	0.0016	0.0019
Low	0.0003	0.00
No. of Samples	80	485

Five-year Rolling Average

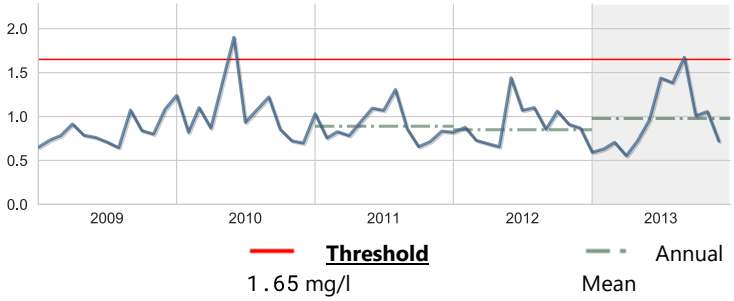


N Nitrogen, Total

Score: Pass

Units: mg/l	Year 2013	Historical period of record
High	2.30	15.76
Mean	0.9773	0.9016
Low	0.553	0.30
No. of Samples	30	298

Five-year Rolling Average

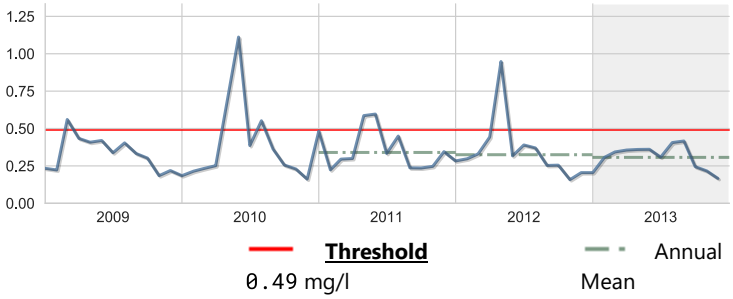


P Phosphorus, Total

Score: Pass

Units: mg/l	Year 2013	Historical period of record
High	0.78	2.38
Mean	0.307	0.3128
Low	0.12	0.082
No. of Samples	54	501

Five-year Rolling Average



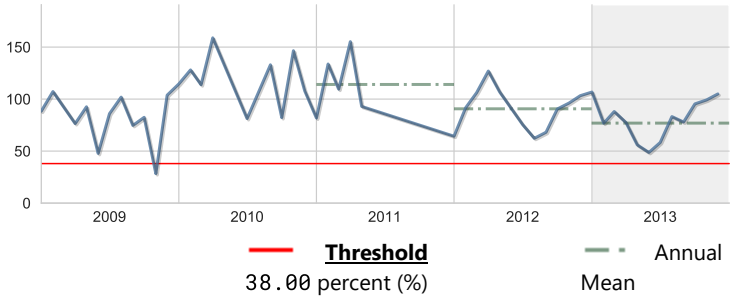
DO Dissolved Oxygen Saturation

Note: Low DO saturation also may be naturally influenced by inflows from nearby wetlands or groundwater sources.

Score: Pass

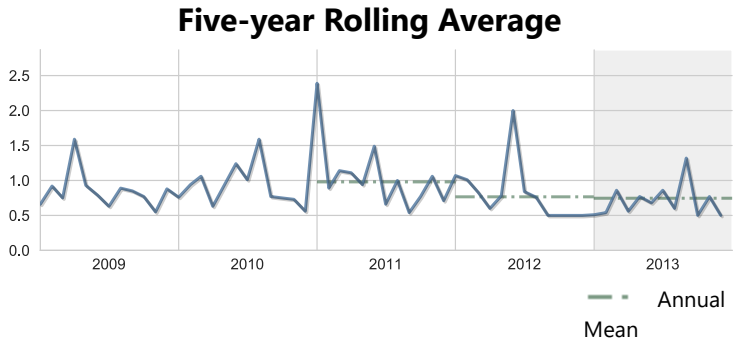
Units: percent (%)	Year 2013	Historical period of record
High	151.50	262.30
Mean	76.91	84.32
Low	17.90	7.0588
No. of Samples	57	618

Five-year Rolling Average



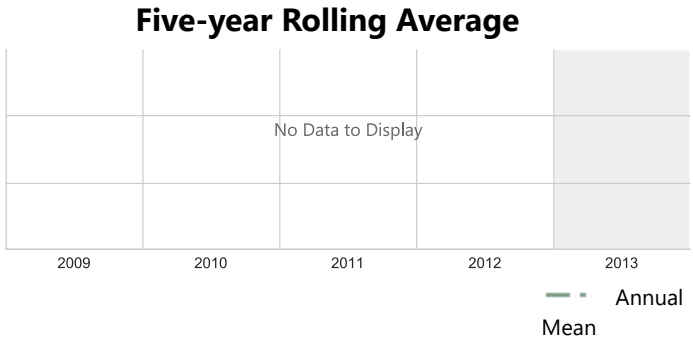
BOD, Biochemical oxygen demand

Units: mg/l	Year 2013	Historical period of record
High	3.80	175.00
Mean	0.75	0.91
Low	0.50	0.50
No. of Samples	54	444



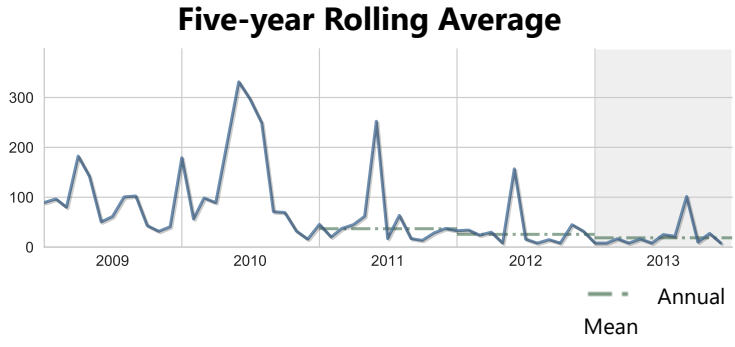
Color

Units: PCU	Year 2013	Historical period of record
High		220.00
Mean		76.7
Low		20.00
No. of Samples	0	124



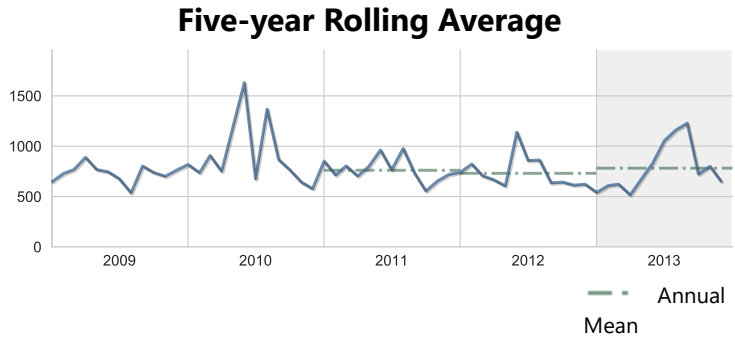
Nitrogen, Ammonia + Ammonium as N

Units: ug/l	Year 2013	Historical period of record
High	590.00	30060.00
Mean	18.64	24.42
Low	6.00	0.0561
No. of Samples	59	560



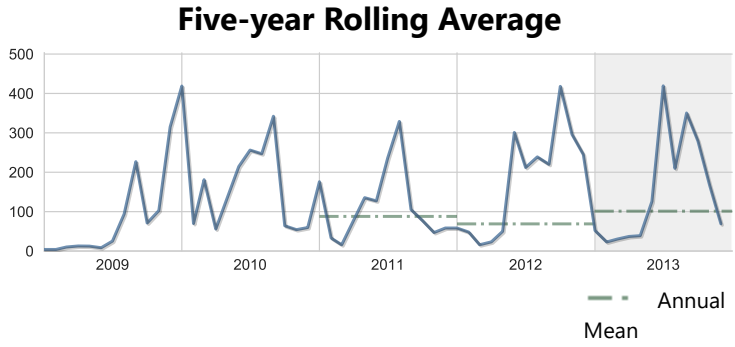
Nitrogen, Kjeldahl

Units: ug/l	Year 2013	Historical period of record
High	2000.00	15360.00
Mean	781.61	781.3
Low	516.00	200.00
No. of Samples	54	544



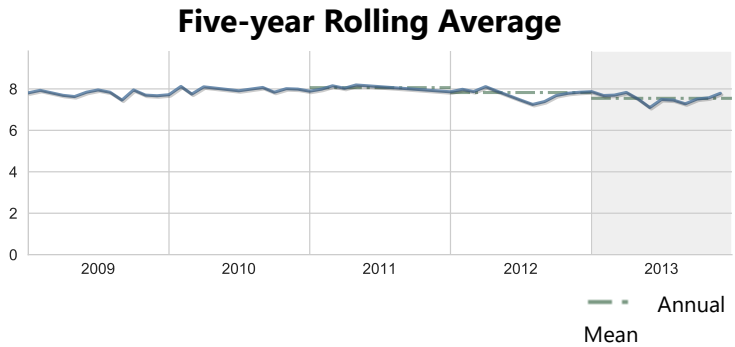
Nitrogen, Nitrite + Nitrate as N

Units: ug/l	Year 2013	Historical period of record
High	535.00	1020.00
Mean	101.22	74.57
Low	9.00	0.00
No. of Samples	58	516



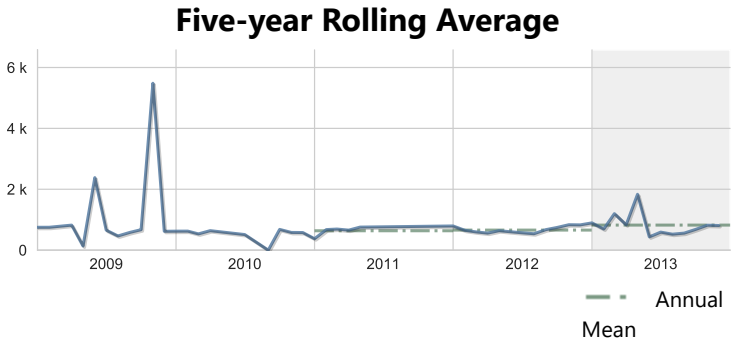
pH

Units: None	Year 2013	Historical period of record
High	7.90	11.77
Mean	7.55	7.67
Low	6.96	6.10
No. of Samples	57	763



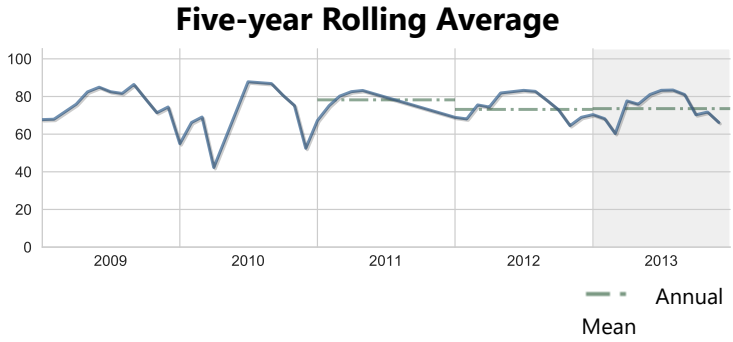
Specific conductance

Units: umho	Year 2013	Historical period of record
High	49645.00	49645.00
Mean	822.82	643.63
Low	418.00	0.524
No. of Samples	57	812



Temperature, water

Units: deg F	Year 2013	Historical period of record
High	84.344	91.40
Mean	73.56	68.83
Low	58.784	14.018
No. of Samples	46	711



Water Chemistry Ratings | Tidal Portion of the Creek

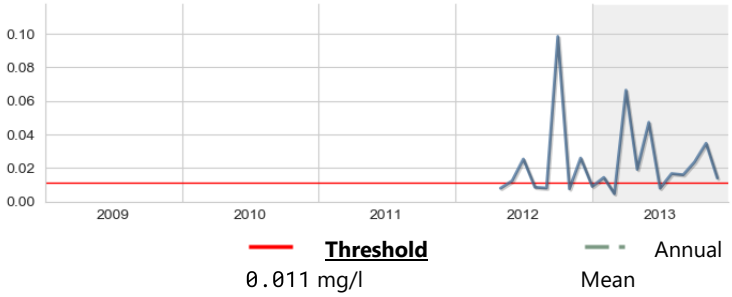
Creek Conditions Ratings are based on comparing nitrogen, phosphorus, chlorophyll and dissolved oxygen to water quality guidelines or regulations. Florida law defines a maximum allowable concentration of chlorophyll *a* and a minimum allowable concentration of dissolved oxygen in these streams. Florida has no regulatory thresholds for nitrogen or phosphorus in tidal creeks so trends are used to rate the creeks.

Chlorophyll a

Score: Caution

Units: mg/l	Year 2013	Historical period of record
High	0.1	0.1
Mean	0.0171	0.0127
Low	0.0045	0.0005
No. of Samples	35	110

Five-year Rolling Average

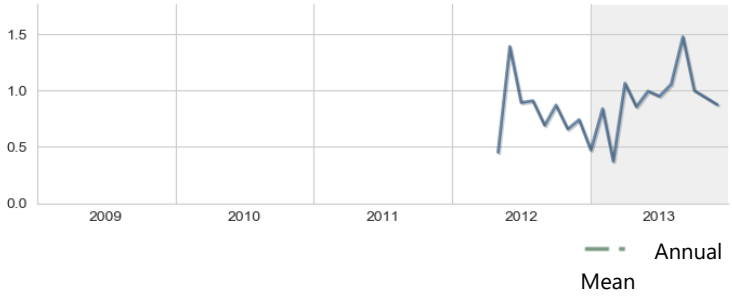


Nitrogen, Total

Score: Pass

Units: mg/l	Year 2013	Historical period of record
High	1.5	7.0
Mean	0.8516	1.2568
Low	0.371	0.054
No. of Samples	11	100

Five-year Rolling Average



P Phosphorus, Total

Score: Pass

Units: mg/l	Year 2013	Historical period of record
High	0.3	2.0
Mean	0.1668	0.2834
Low	0.038	0.038
No. of Samples	35	157

Five-year Rolling Average

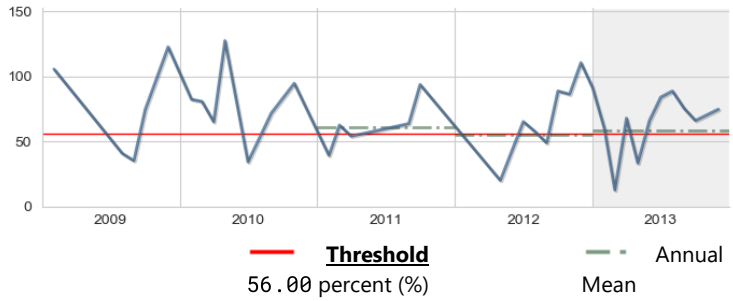
DO Dissolved Oxygen Saturation

Note: Low DO saturation also may be naturally influenced by inflows from nearby wetlands or groundwater sources

Score: Pass

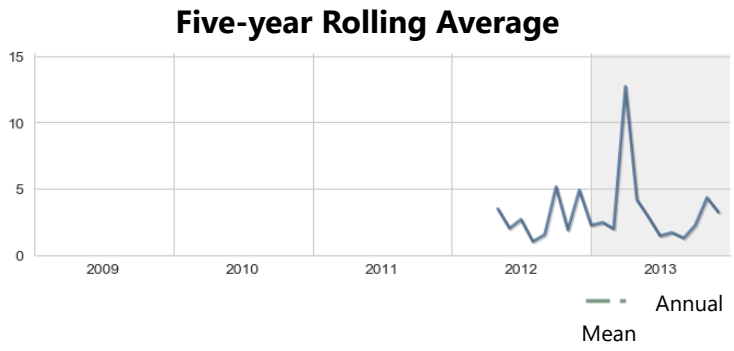
Units: percent (%)	Year 2013	Historical period of record
High	91.2	381.3
Mean	58.64	63.15
Low	12.50	0.00
No. of Samples	33	507

Five-year Rolling Average



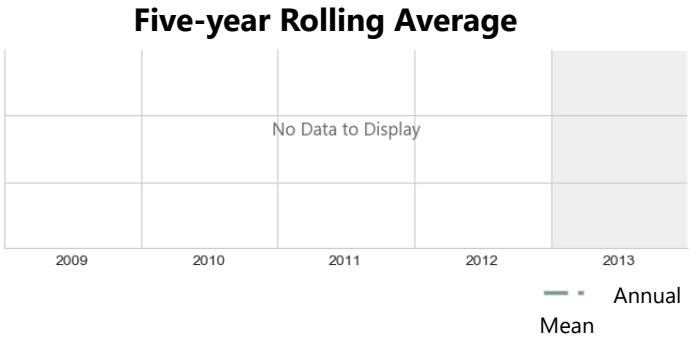
BOD, Biochemical oxygen demand

Units: mg/l	Year 2013	Historical period of record
High	12.7	12.7
Mean	2.66	2.68
Low	1.26	1.00
No. of Samples	35	97



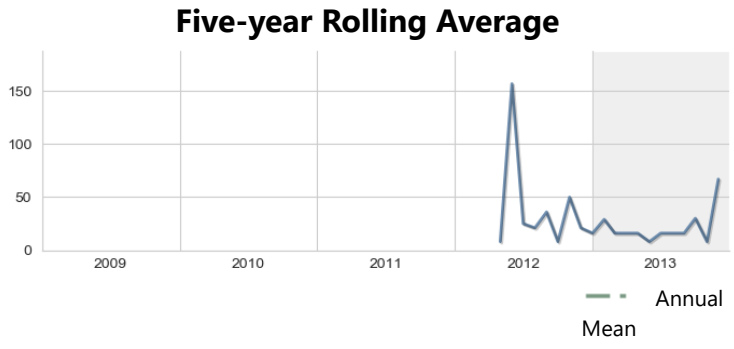
Color

Units: PCU	Year 2013	Historical period of record
High		200.0
Mean		54.6
Low		10.00
No. of Samples	0	134



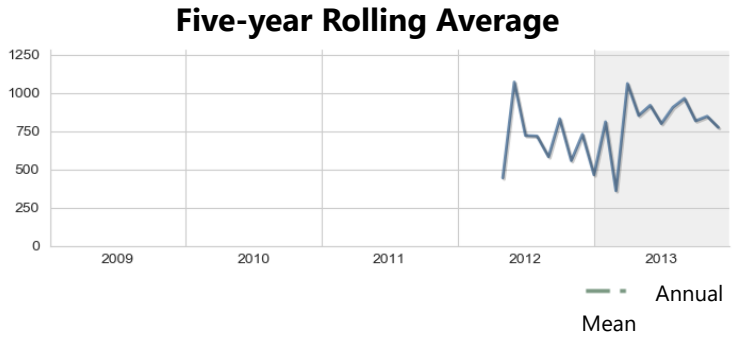
Nitrogen, Ammonia + Ammonium as N

Units: ug/l	Year 2013	Historical period of record
High	67.0	1,930.0
Mean	18.2	17.19
Low	8.00	0.00
No. of Samples	35	201



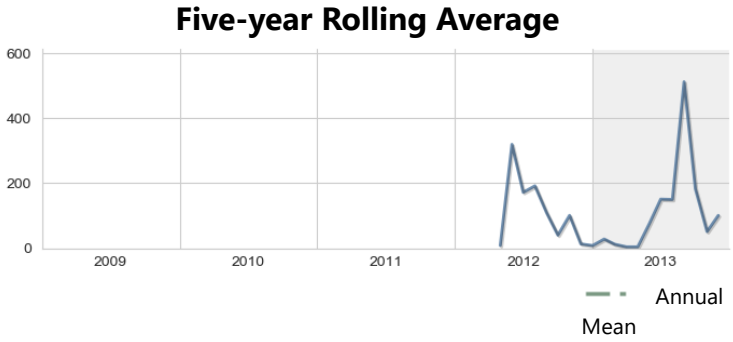
Nitrogen, Kjeldahl

Units: ug/l	Year 2013	Historical period of record
High	1,060.0	6,291.0
Mean	764.74	941.33
Low	359.00	50.00
No. of Samples	35	200



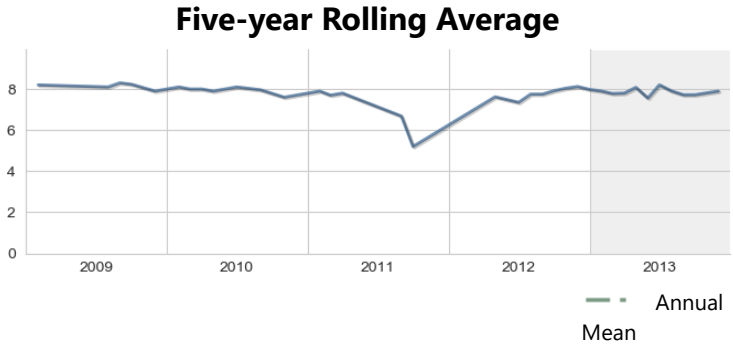
Nitrogen, Nitrite + Nitrate as N

Units: ug/l	Year 2013	Historical period of record
High	513.0	3,275.0
Mean	42.39	90.54
Low	4.00	4.00
No. of Samples	35	163



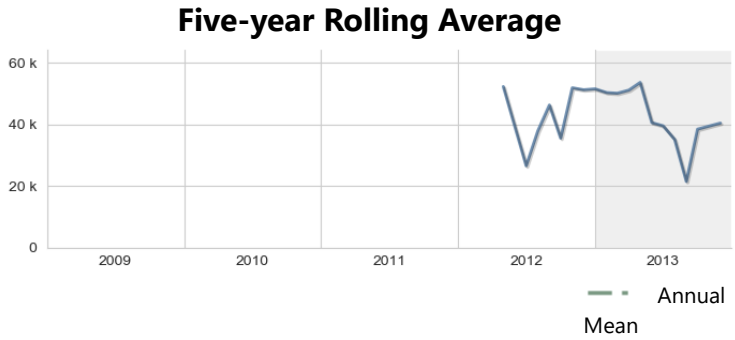
pH

Units: None	Year 2013	Historical period of record
High	8.2	8.8
Mean	7.87	7.6
Low	7.56	4.90
No. of Samples	33	2,767



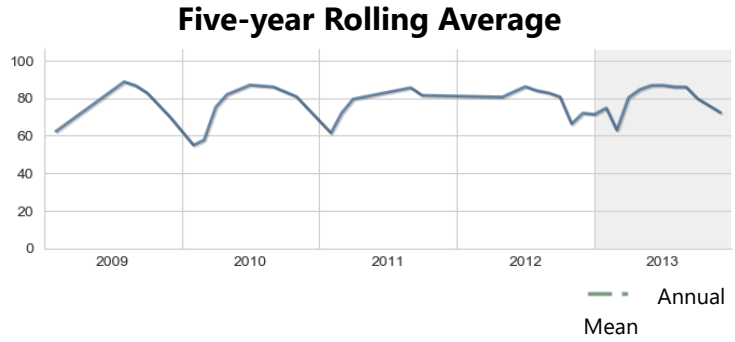
Specific conductance

Units: umho	Year 2013	Historical period of record
High	53,595.0	55,760.0
Mean	41690.54	6863.74
Low	21409.00	320.00
No. of Samples	33	2,624



Temperature, water

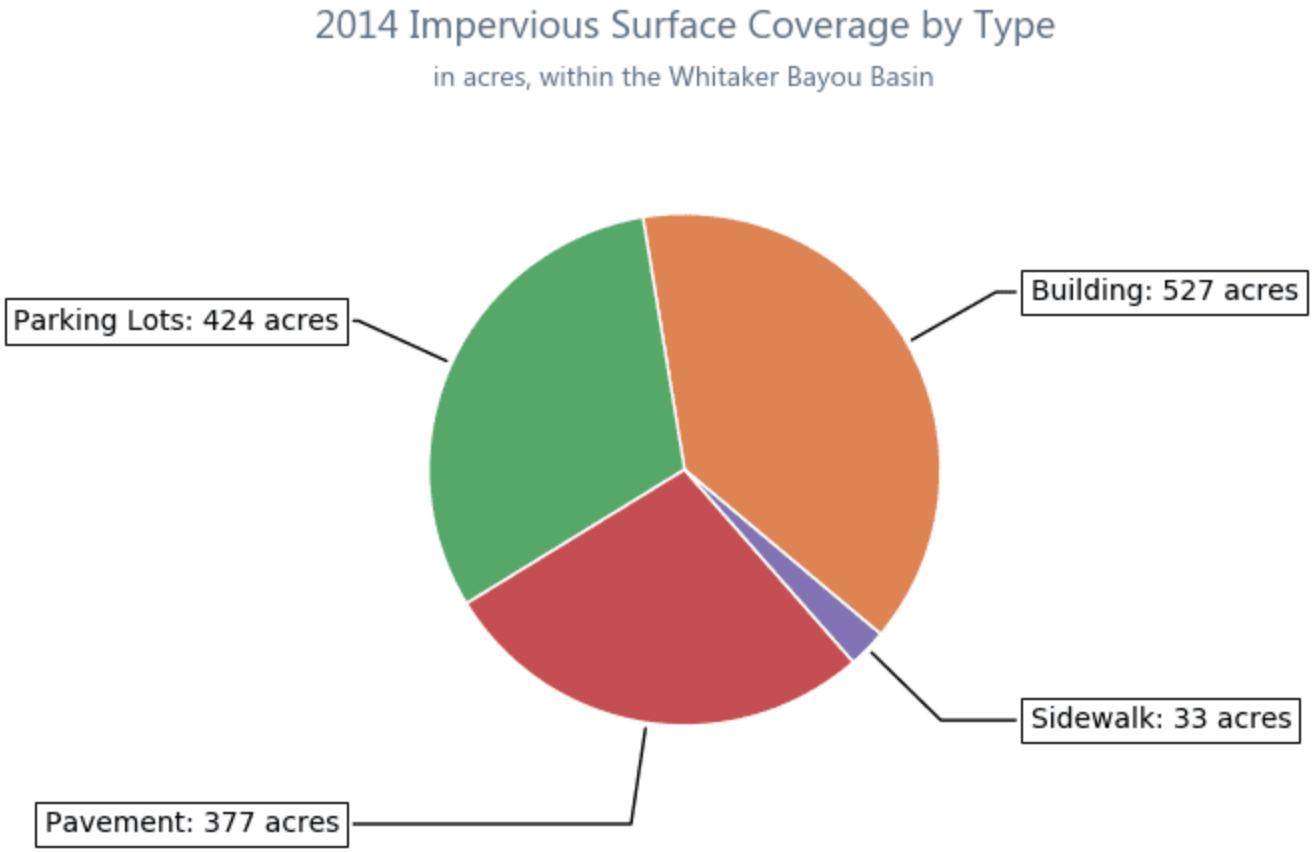
Units: deg F	Year 2013	Historical period of record
High	86.8	95.5
Mean	78.85	74.51
Low	62.924	49.10
No. of Samples	22	2,970



Impervious Features

Rain that falls on land that is in a natural state is absorbed and filtered by soils and vegetation as it makes it way into underground aquifers. However, in developed areas, "impervious surfaces" impede this process and contribute to polluted urban runoff entering surface waters. These surfaces include human infrastructure like roads, sidewalks, driveways and parking lots that are covered by impenetrable materials such as asphalt, concrete, brick and stone, as well as buildings and other permanent structures. Soils that have been disturbed and compacted by urban development are often impervious as well.

27% of the land area within the **Whitaker Bayou Basin** is covered by impervious surfaces

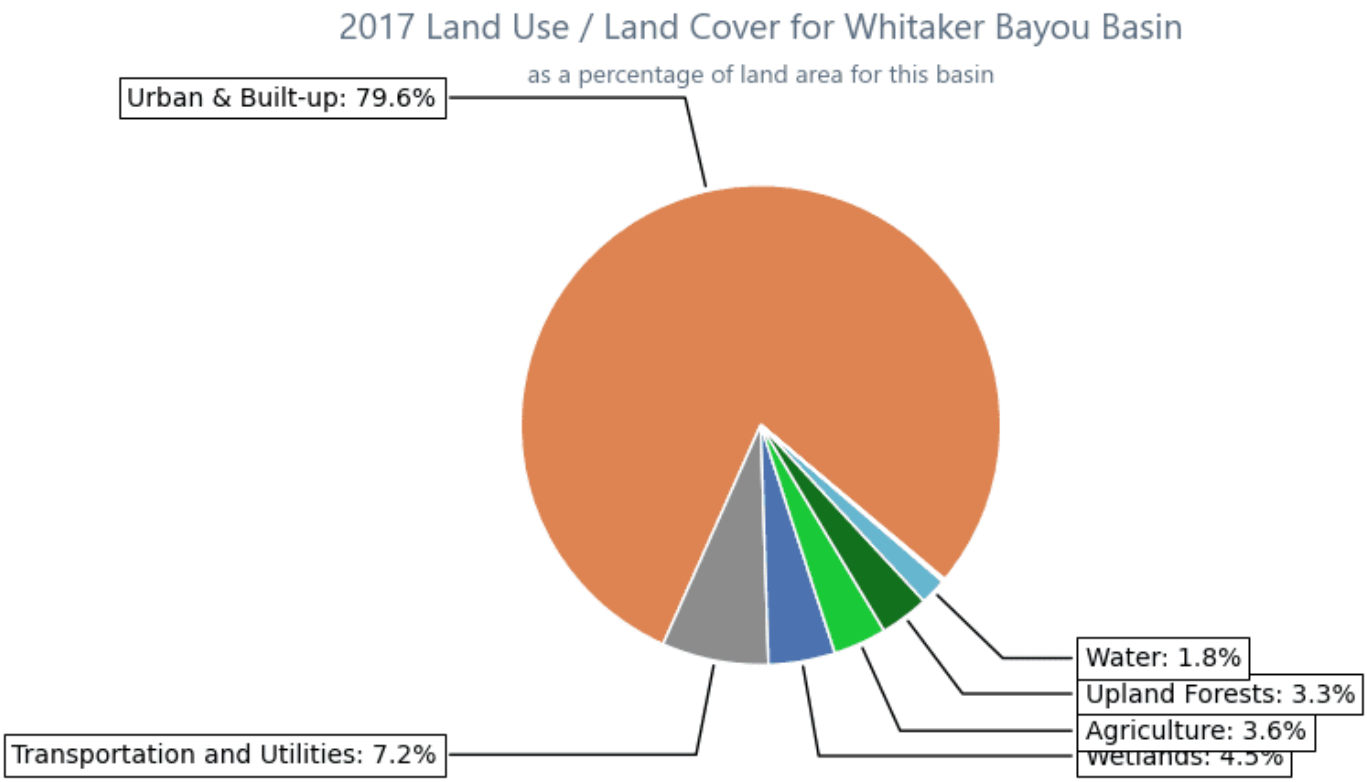


Land Use / Land Cover

Land use within a creek's watershed has a major effect on its water quality. In general, less development means better water quality. Land Cover/Land Use classifications categorize land in terms of its observed physical surface characteristics (e.g. upland or wetland), and also reflect the types of activity that are taking place on it (agriculture, urban/built-up, utilities, etc.). Florida uses as its standard a set of statewide classifications which were developed by the Florida Department of Transportation.

Acreage and Percentage within each Land Use / Land Cover Category for Whitaker Bayou Basin

Land Use Classification	1990	1995	1999	2005	2011	2014	2017	Trend
Urban & Built-up	3,830 77.1%	3,834 77.2%	3,831 77.1%	3,903 78.6%	3,952 79.6%	3,921 79%	3,951 79.6%	
Agriculture	214 4.3%	182 3.7%	188 3.8%	181 3.6%	181 3.6%	181 3.6%	178 3.6%	
Rangeland	4 0.1%	4 0.1%	4 0.1%	4 0.1%	4 0.1%	4 0.1%	4 0.1%	
Upland Forests	235 4.7%	249 5%	249 5%	195 3.9%	164 3.3%	195 3.9%	164 3.3%	
Water	130 2.6%	137 2.7%	140 2.8%	126 2.5%	88 1.8%	88 1.8%	89 1.8%	
Wetlands	315 6.4%	232 4.7%	227 4.6%	229 4.6%	222 4.5%	222 4.5%	222 4.5%	
Barren Land	0 0%	0 0%	0 0%	0 0%	0 0%	0 0%	3 0.1%	
Transportation and Utilities	238 4.8%	329 6.6%	329 6.6%	328 6.6%	356 7.2%	356 7.2%	355 7.2%	


2017 Land Use / Land Cover for Whitaker Bayou Basin
as a percentage of land area for this basin
Urban & Built-up: 79.6%
Water: 1.8%
Upland Forests: 3.3%
Agriculture: 3.6%
Wetlands: 4.5%
Transportation and Utilities: 7.2%