

Whitaker Bayou Condition Report for 2012

!

CAUTION



2 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.

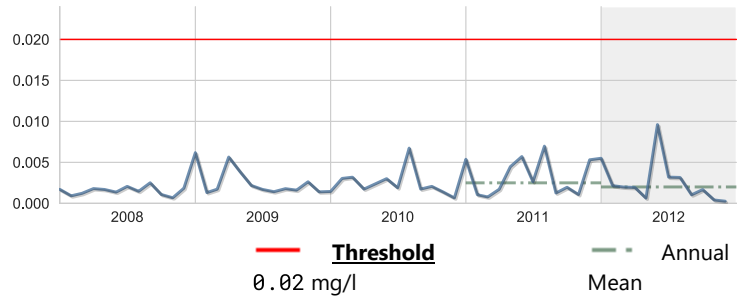


Chlorophyll a

Score: Pass

Units: mg/l	Year 2012	Historical period of record
High	0.0125	0.0595
Mean	0.002	0.002
Low	0.0003	0.00
No. of Samples	60	405

Five-year Rolling Average

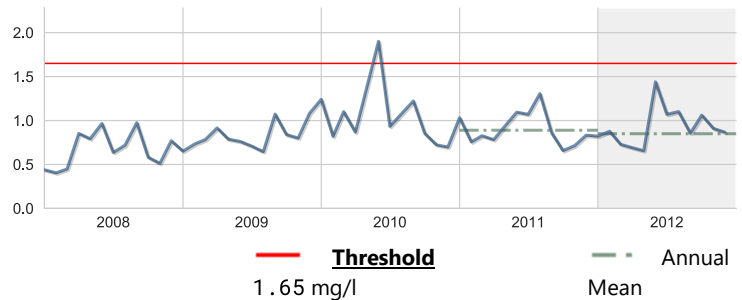


Nitrogen, Total

Score: Pass

Units: mg/l	Year 2012	Historical period of record
High	1.441	15.76
Mean	0.8496	0.8935
Low	0.604	0.30
No. of Samples	20	268

Five-year Rolling Average



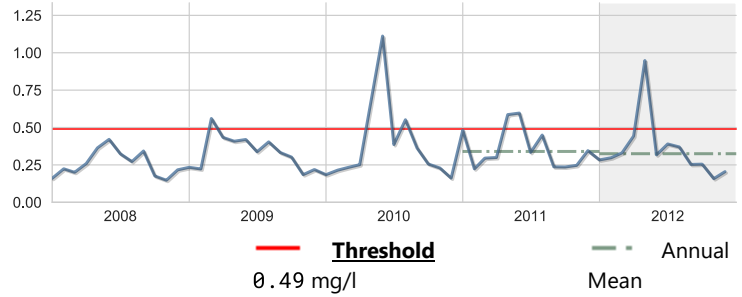


Phosphorus, Total

Score: Pass

Units: mg/l	Year 2012	Historical period of record
High	0.948	2.38
Mean	0.3248	0.3135
Low	0.105	0.082
No. of Samples	60	447

Five-year Rolling Average



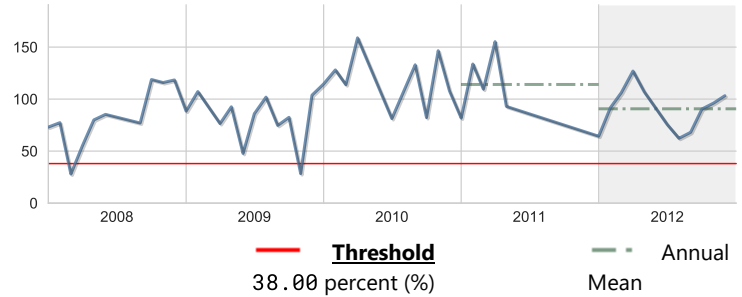
Dissolved Oxygen Saturation

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

Score: Pass

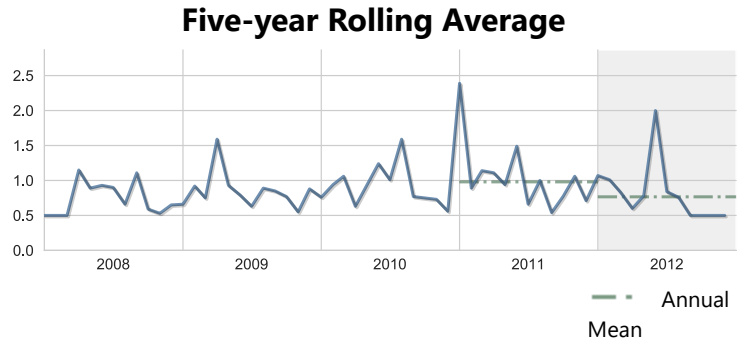
Units: percent (%)	Year 2012	Historical period of record
High	262.30	262.30
Mean	90.66	85.11
Low	26.20	7.0588
No. of Samples	57	561

Five-year Rolling Average



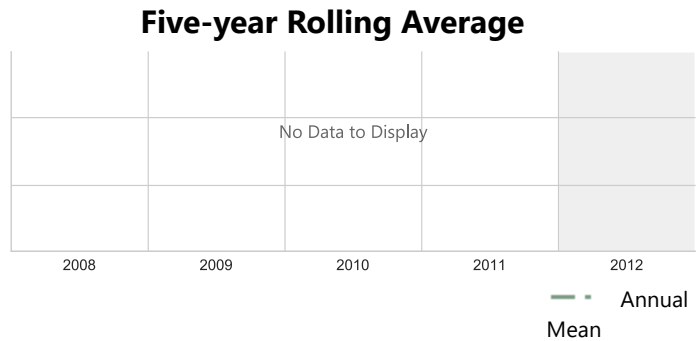
BOD, Biochemical oxygen demand

Units: mg/l	Year 2012	Historical period of record
High	2.00	175.00
Mean	0.77	0.94
Low	0.50	0.50
No. of Samples	54	390



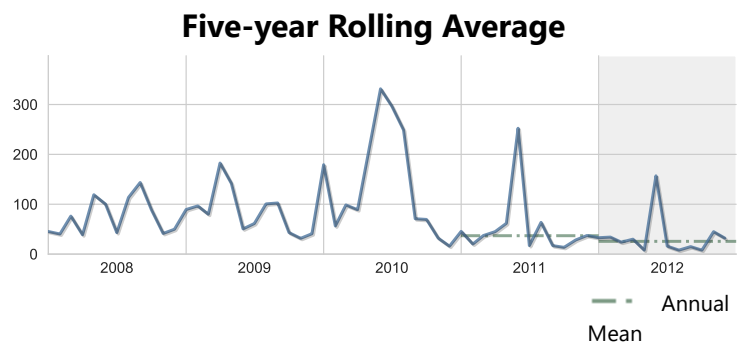
Color

Units: PCU	Year 2012	Historical period of record
High		220.00
Mean		76.7
Low		20.00
No. of Samples	0	124



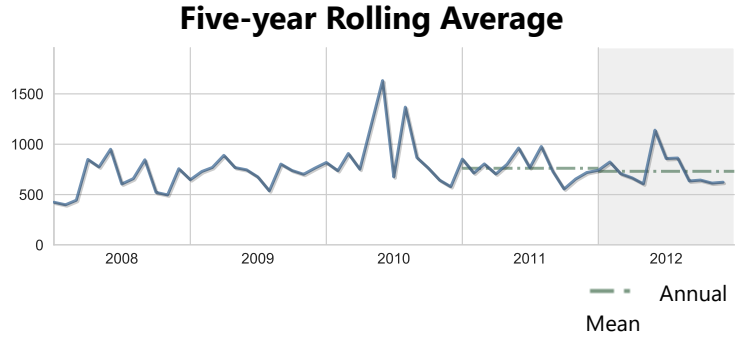
Nitrogen, Ammonia + Ammonium as N

Units: ug/l	Year 2012	Historical period of record
High	216.00	30060.00
Mean	25.59	25.21
Low	8.00	0.0561
No. of Samples	60	501



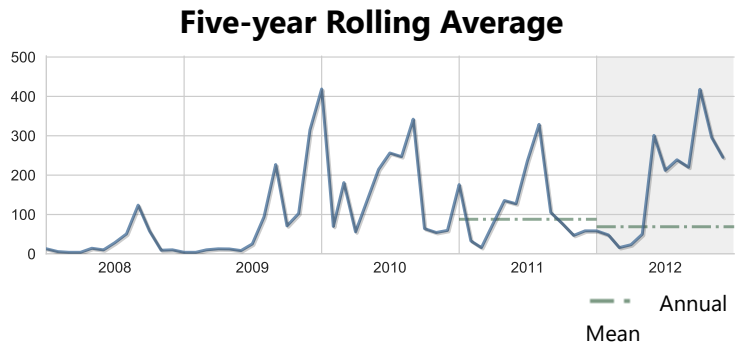
Nitrogen, Kjeldahl

Units: ug/l	Year 2012	Historical period of record
High	1140.00	15360.00
Mean	730.96	781.27
Low	592.00	200.00
No. of Samples	60	490



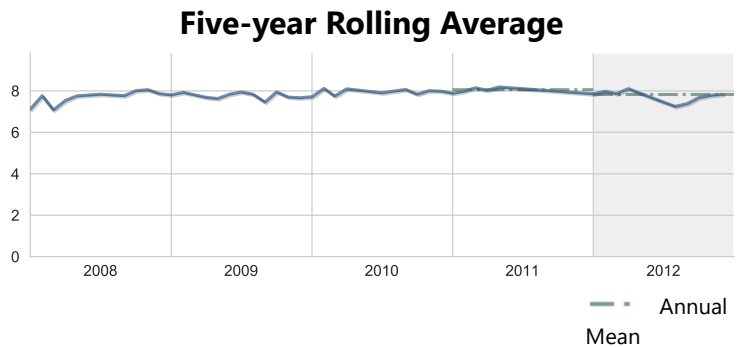
Nitrogen, Nitrite + Nitrate as N

Units: ug/l	Year 2012	Historical period of record
High	418.00	1020.00
Mean	68.9	71.7
Low	4.00	0.00
No. of Samples	60	458



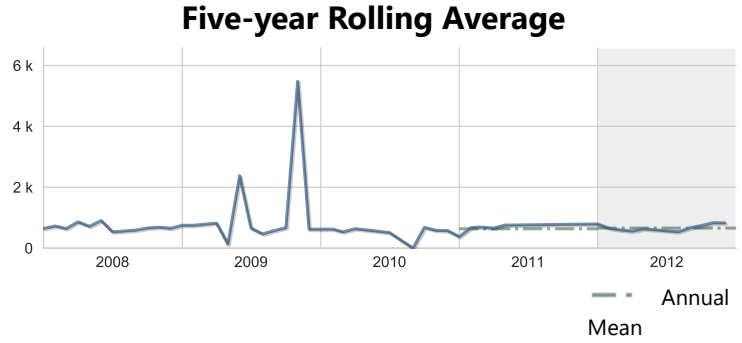
pH

Units: None	Year 2012	Historical period of record
High	8.38	11.77
Mean	7.83	7.68
Low	7.25	6.10
No. of Samples	57	706



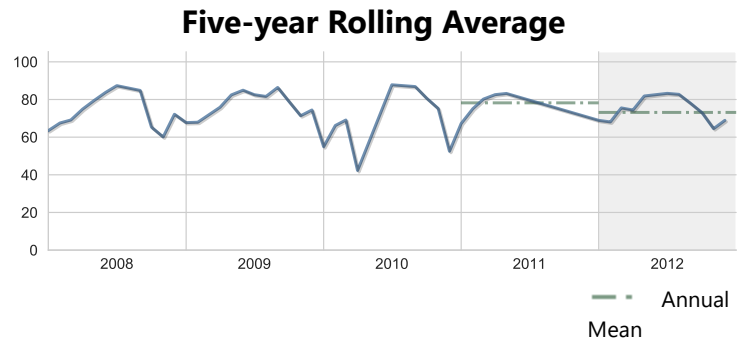
Specific conductance

Units: umho	Year 2012	Historical period of record
High	899.00	48983.00
Mean	658.53	631.81
Low	508.00	0.524
No. of Samples	57	755



Temperature, water

Units: deg F	Year 2012	Historical period of record
High	83.264	91.40
Mean	73.14	68.52
Low	64.508	14.018
No. of Samples	38	665



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.

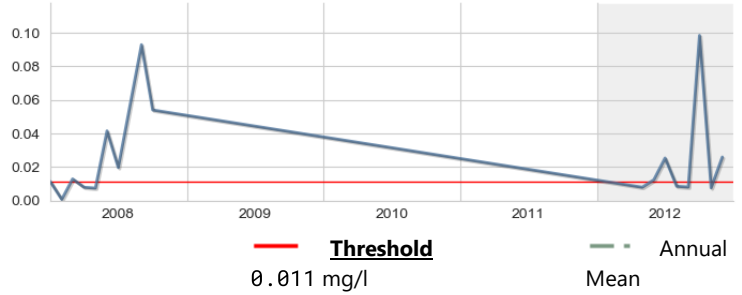


Chlorophyll a

Score: Caution

Units: mg/l	Year 2012	Historical period of record
High	0.1	0.1
Mean	0.0154	0.011
Low	0.0075	0.0005
No. of Samples	24	75

Five-year Rolling Average

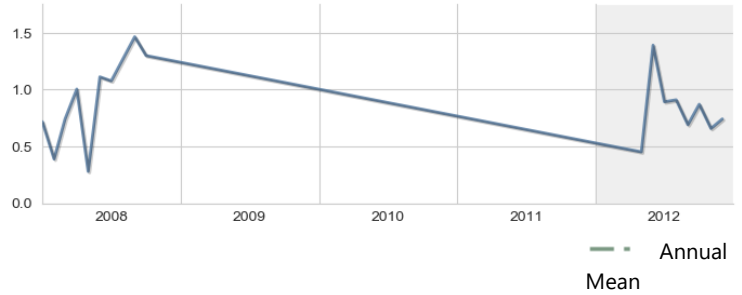


Nitrogen, Total

Score:

Units: mg/l	Year 2012	Historical period of record
High	1.4	7.0
Mean	0.7879	1.3188
Low	0.451	0.054
No. of Samples	8	89

Five-year Rolling Average

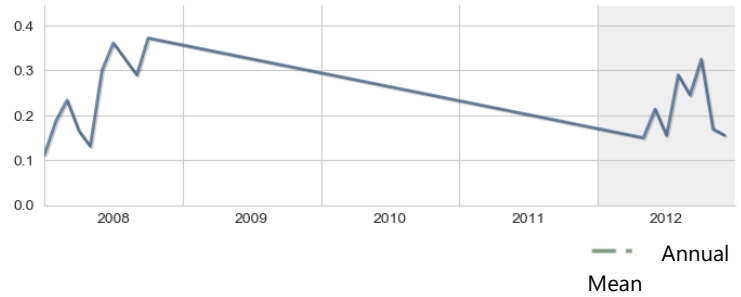


Phosphorus, Total

Score:

Units: mg/l	Year 2012	Historical period of record
High	0.3	2.0
Mean	0.2042	0.3299
Low	0.15	0.04
No. of Samples	24	122

Five-year Rolling Average



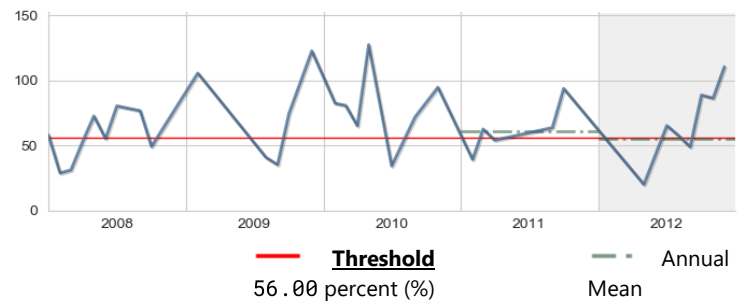
Dissolved Oxygen Saturation

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

Score: Caution

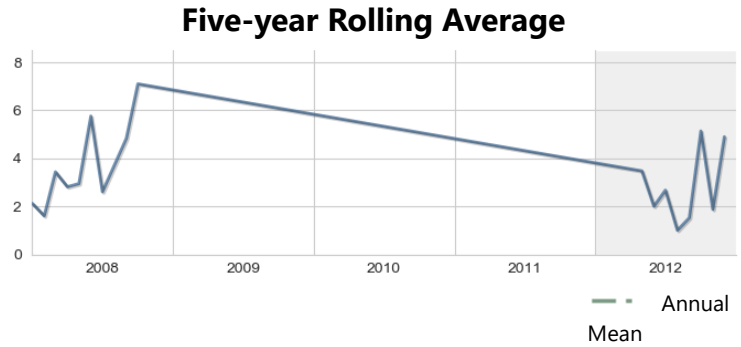
Units: percent (%)	Year 2012	Historical period of record
High	110.5	381.3
Mean	55.22	63.48
Low	8.00	0.00
No. of Samples	23	474

Five-year Rolling Average



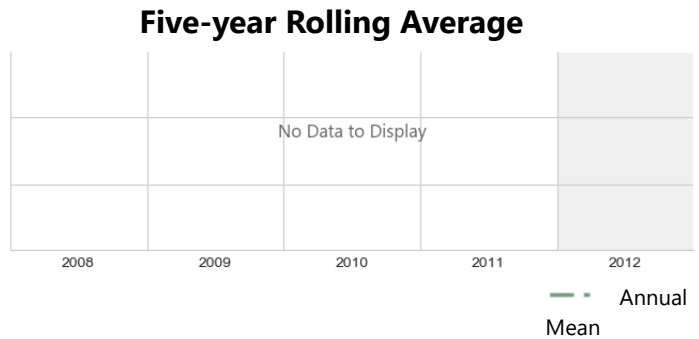
BOD, Biochemical oxygen demand

Units: mg/l	Year 2012	Historical period of record
High	5.1	7.8
Mean	2.46	2.7
Low	1.00	1.00
No. of Samples	24	62



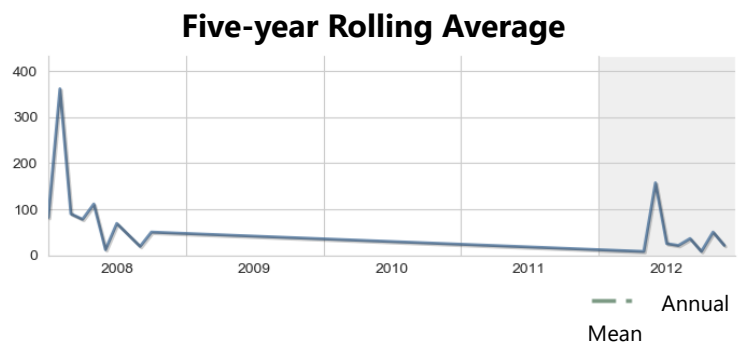
Color

Units: PCU	Year 2012	Historical period of record
High		200.0
Mean		54.6
Low		10.00
No. of Samples	0	134



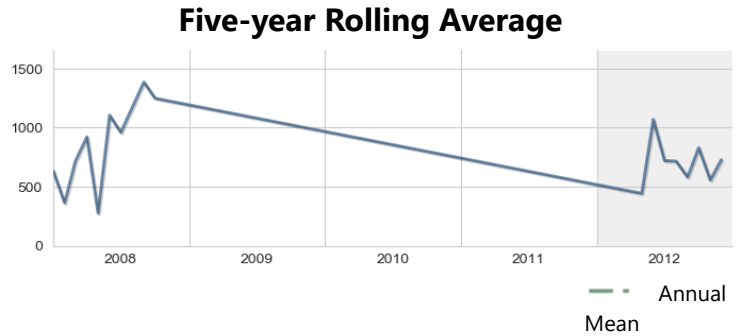
Nitrogen, Ammonia + Ammonium as N

Units: ug/l	Year 2012	Historical period of record
High	157.0	1,930.0
Mean	25.85	16.98
Low	8.00	0.00
No. of Samples	24	166



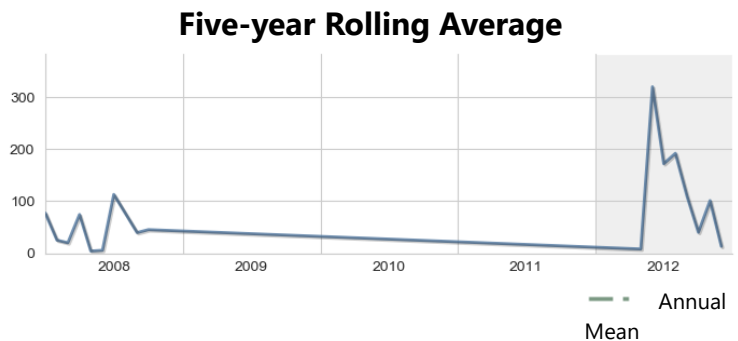
Nitrogen, Kjeldahl

Units: ug/l	Year 2012	Historical period of record
High	1,070.0	6,291.0
Mean	683.73	983.75
Low	443.00	50.00
No. of Samples	24	165



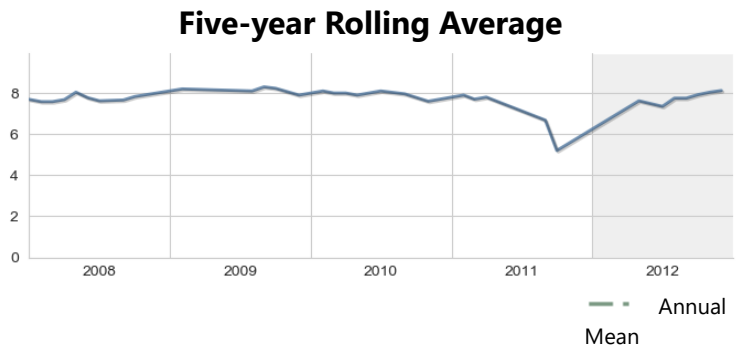
Nitrogen, Nitrite + Nitrate as N

Units: ug/l	Year 2012	Historical period of record
High	320.0	3,275.0
Mean	68.49	111.43
Low	8.00	4.00
No. of Samples	24	128



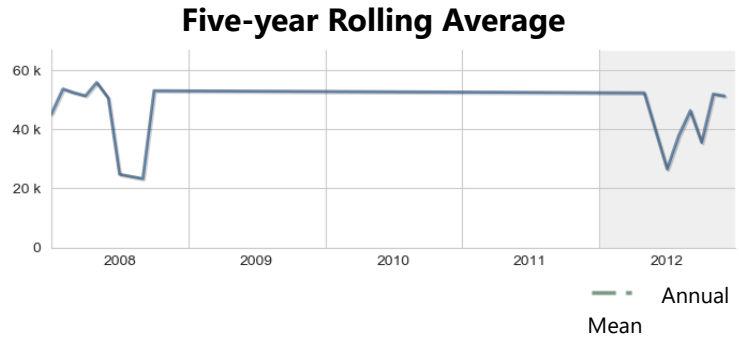
pH

Units: None	Year 2012	Historical period of record
High	8.2	8.8
Mean	7.78	7.6
Low	7.35	4.90
No. of Samples	22	2,734



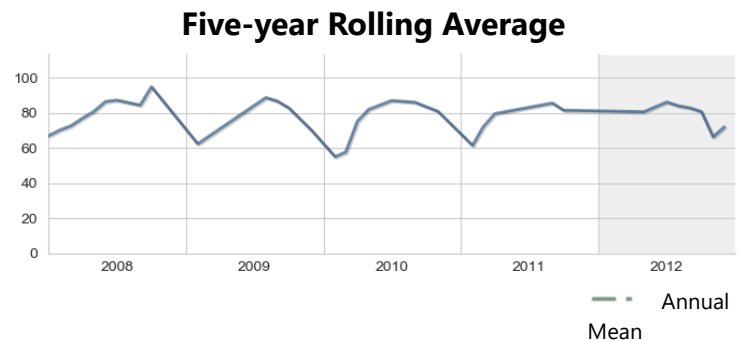
Specific conductance

Units: umho	Year 2012	Historical period of record
High	52,254.0	55,760.0
Mean	41930.42	6707.83
Low	26488.00	320.00
No. of Samples	21	2,591



Temperature, water

Units: deg F	Year 2012	Historical period of record
High	86.2	95.5
Mean	78.88	74.48
Low	66.272	49.10
No. of Samples	16	2,948



Impervious Features

Rain that falls on land that is in a natural state is absorbed and filtered by soils and vegetation as it makes its 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.

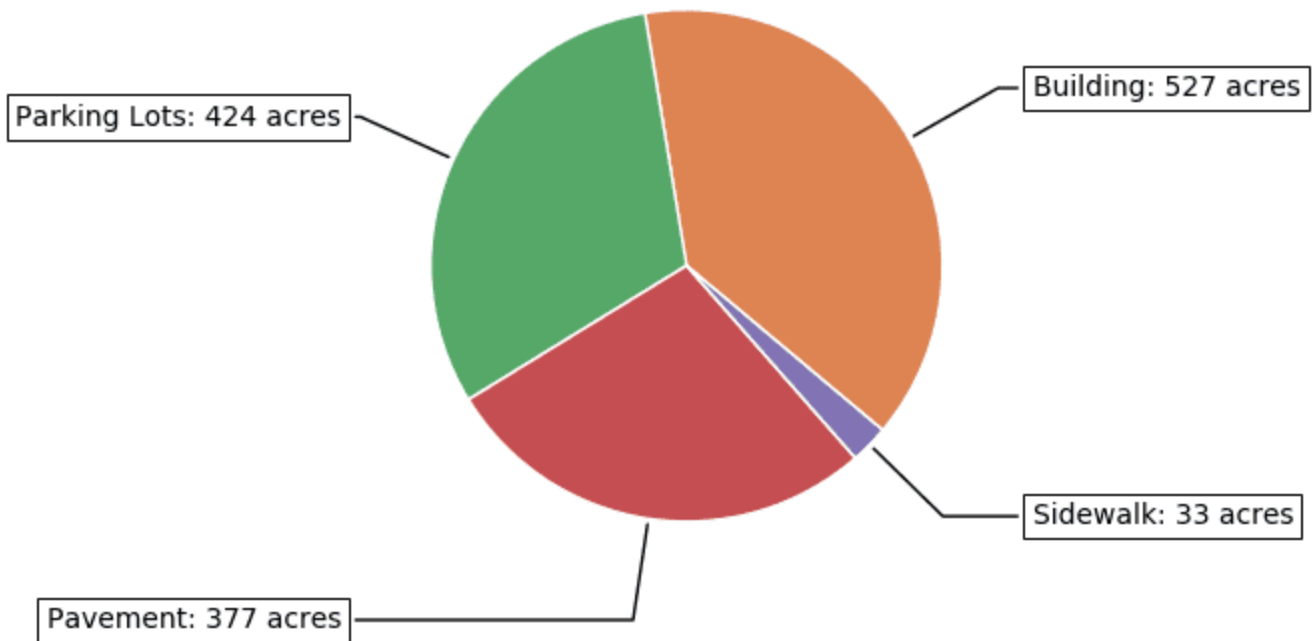


27% of the land area within the **Whitaker Bayou Basin** is covered by impervious

surfaces

2014 Impervious Surface Coverage by Type

in acres, within the Whitaker Bayou Basin



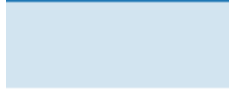


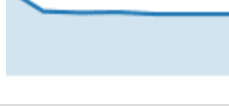

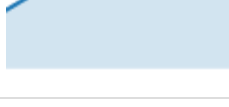


Land Use / Land Cover

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.

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

2012 Creek Conditions Report for Whitaker Bayou

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

