

Whitaker Bayou Condition Report for 2019

!

CAUTION



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.

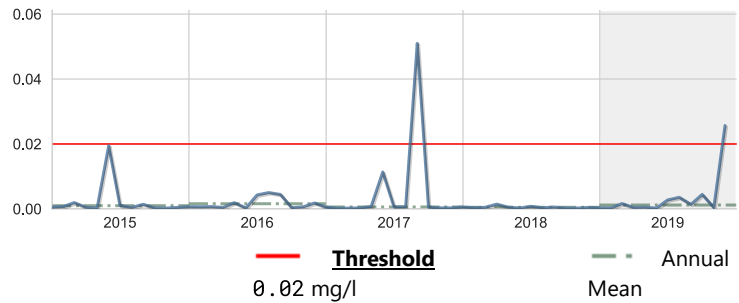


Chlorophyll a

Score: Pass

Units: mg/l	Year 2019	Historical period of record
High	0.0257	0.0595
Mean	0.0012	0.0017
Low	0.0003	0.00
No. of Samples	24	661

Five-year Rolling Average

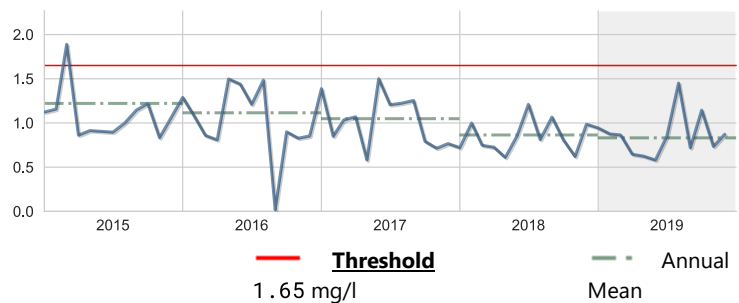


Nitrogen, Total

Score: Pass

Units: mg/l	Year 2019	Historical period of record
High	1.452	15.76
Mean	0.8315	0.8837
Low	0.581	0.0019
No. of Samples	24	419

Five-year Rolling Average



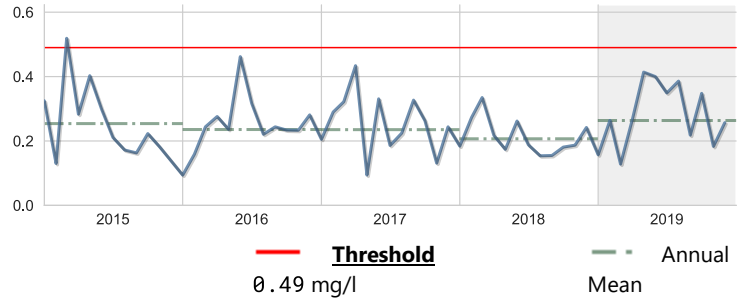


Phosphorus, Total

Score: Pass

Units: mg/l	Year 2019	Historical period of record
High	0.414	2.38
Mean	0.2636	0.295
Low	0.128	0.082
No. of Samples	24	675

Five-year Rolling Average



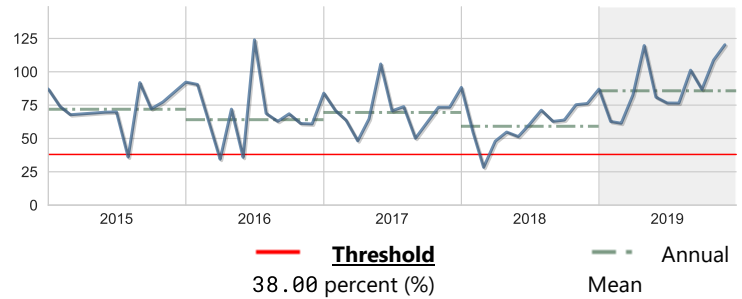
Dissolved Oxygen Saturation

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

Score: Pass

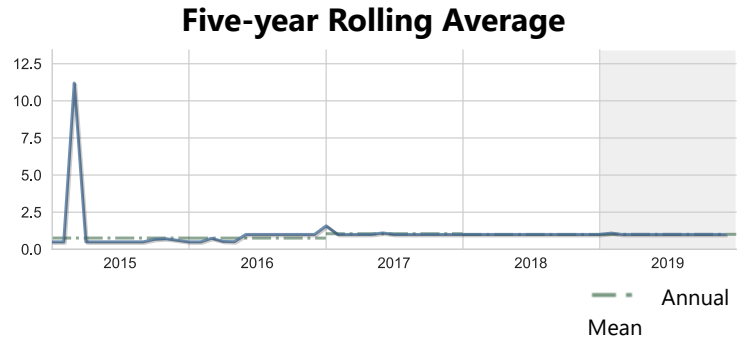
Units: percent (%)	Year 2019	Historical period of record
High	126.40	262.30
Mean	85.74	83.25
Low	53.90	7.0588
No. of Samples	15	770

Five-year Rolling Average



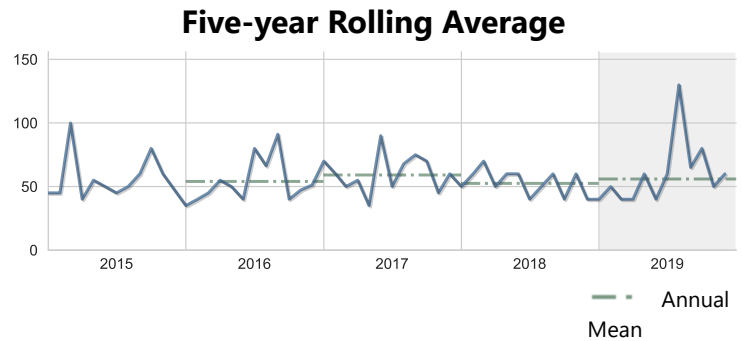
BOD, Biochemical oxygen demand

Units: mg/l	Year 2019	Historical period of record
High	1.09	175.00
Mean	1.01	0.89
Low	1.00	0.50
No. of Samples	22	604



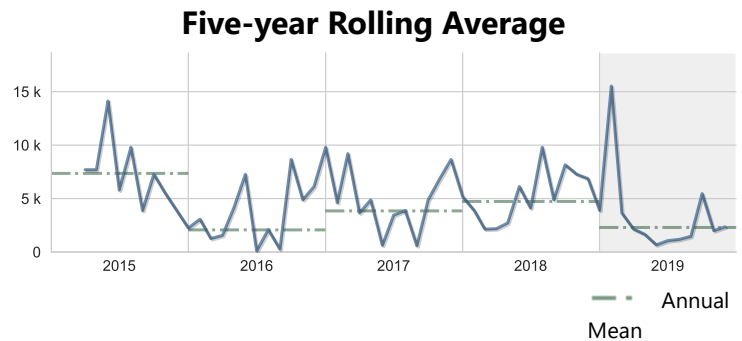
Color

Units: PCU	Year 2019	Historical period of record
High	130.00	220.00
Mean	55.92	67.97
Low	40.00	20.00
No. of Samples	24	795



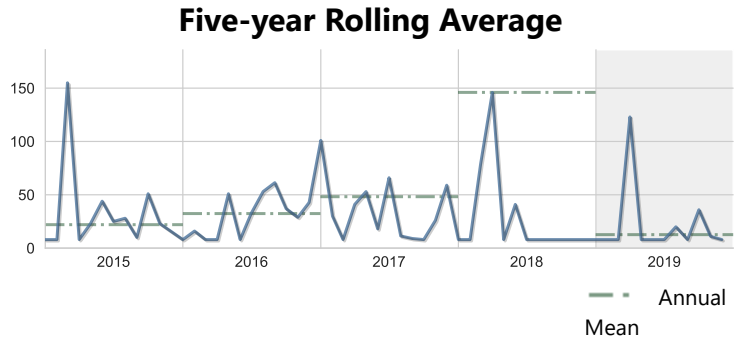
Escherichia coli

Units: cfu/100ml	Year 2019	Historical period of record
High	15531.00	15531.00
Mean	2298.69	3371.27
Low	670.00	97.00
No. of Samples	27	113



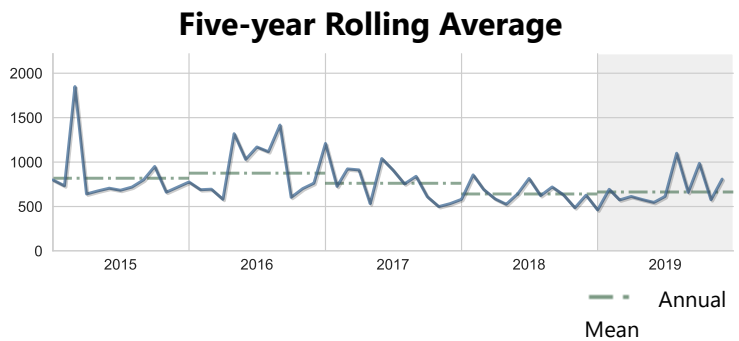
Nitrogen, Ammonia + Ammonium as N

Units: ug/l	Year 2019	Historical period of record
High	123.00	30060.00
Mean	12.62	19.5
Low	8.00	0.008
No. of Samples	24	748



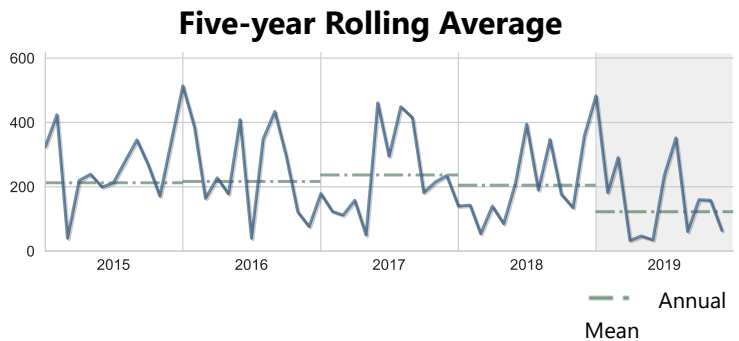
Nitrogen, Kjeldahl

Units: ug/l	Year 2019	Historical period of record
High	1100.00	15360.00
Mean	663.31	771.61
Low	461.00	200.00
No. of Samples	24	718



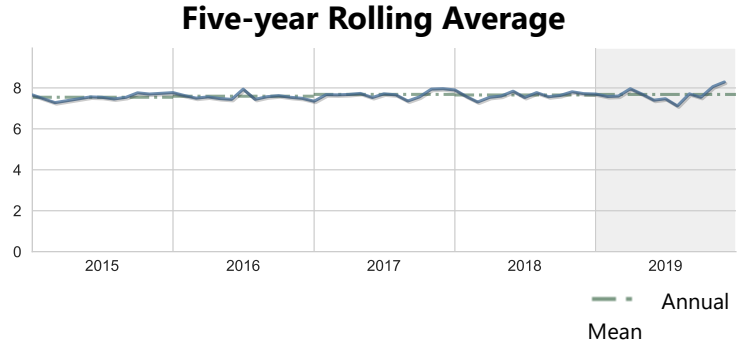
Nitrogen, Nitrite + Nitrate as N

Units: ug/l	Year 2019	Historical period of record
High	483.00	1020.00
Mean	122.43	88.32
Low	33.00	0.00
No. of Samples	24	689



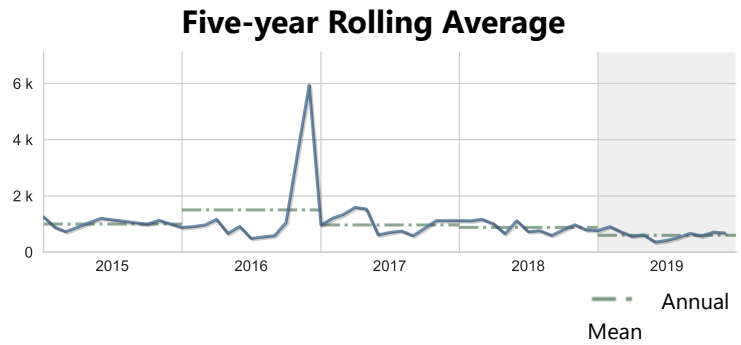
pH

Units: None	Year 2019	Historical period of record
High	8.29	11.77
Mean	7.68	7.67
Low	7.12	6.10
No. of Samples	15	942



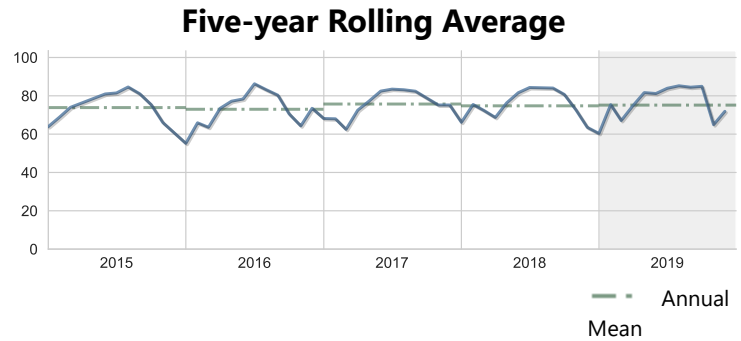
Specific conductance

Units: umho	Year 2019	Historical period of record
High	956.315	49645.00
Mean	599.07	670.8
Low	334.00	0.524
No. of Samples	15	961



Temperature, water

Units: deg F	Year 2019	Historical period of record
High	87.1849	91.40
Mean	75.15	69.63
Low	59.666	14.018
No. of Samples	15	844



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.

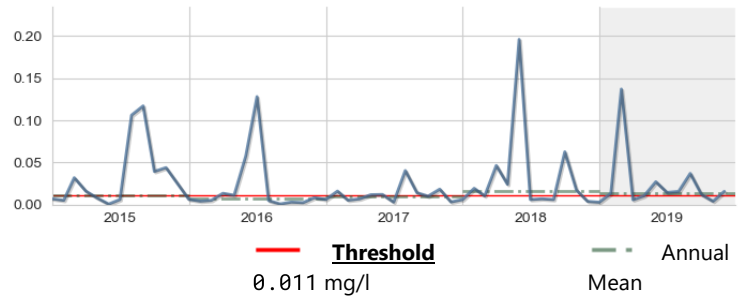


Chlorophyll a

Score: Caution

Units: mg/l	Year 2019	Historical period of record
High	0.1	0.2
Mean	0.0135	0.012
Low	0.0026	0.0004
No. of Samples	24	278

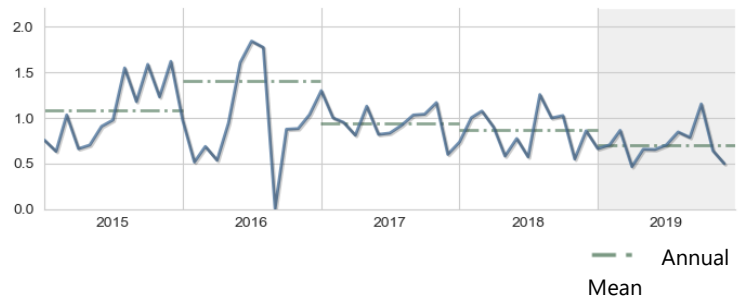
Five-year Rolling Average



Nitrogen, Total

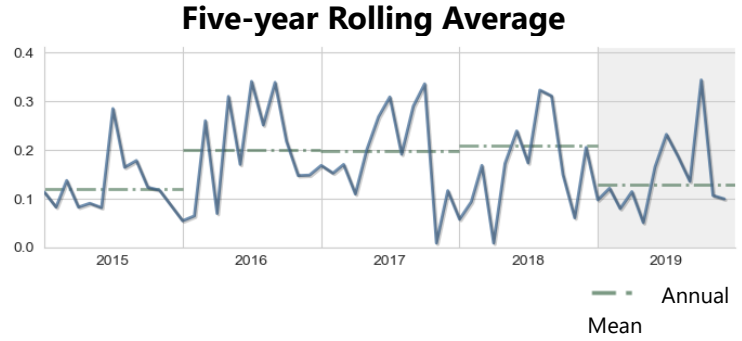
Units: mg/l	Year 2019	Historical period of record
High	1.2	7.0
Mean	0.697	0.9637
Low	0.462	0.0018
No. of Samples	24	210

Five-year Rolling Average



Phosphorus, Total

Units: mg/l	Year 2019	Historical period of record
High	0.3	2.0
Mean	0.1274	0.2041
Low	0.05	0.008
No. of Samples	24	325

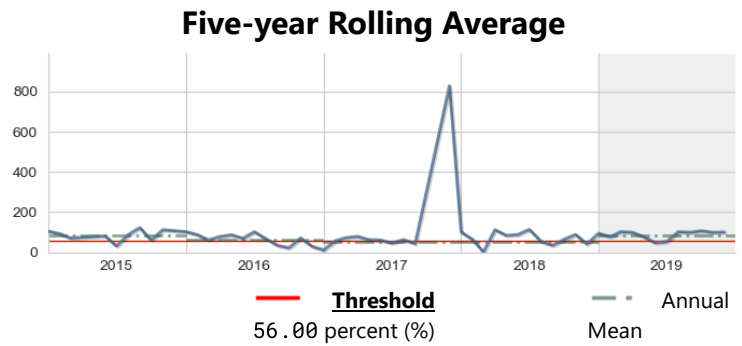


Dissolved Oxygen Saturation

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

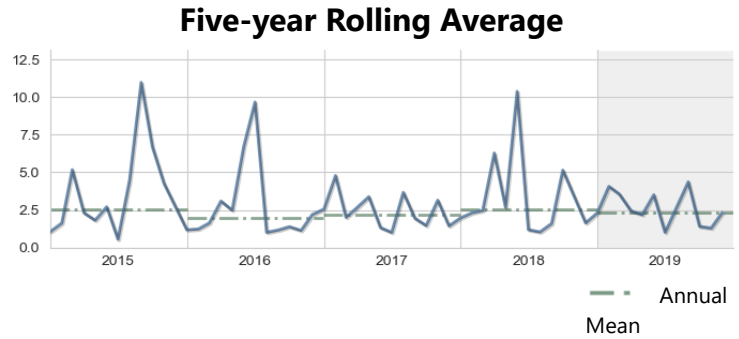
Score: Pass

Units: percent (%)	Year 2019	Historical period of record
High	106.5	827.0
Mean	85.11	63.56
Low	46.5104	0.00
No. of Samples	12	647



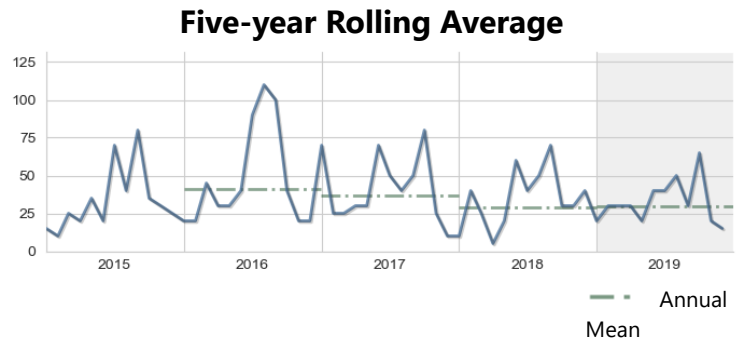
BOD, Biochemical oxygen demand

Units: mg/l	Year 2019	Historical period of record
High	4.4	12.7
Mean	2.34	2.39
Low	1.00	0.543
No. of Samples	22	261



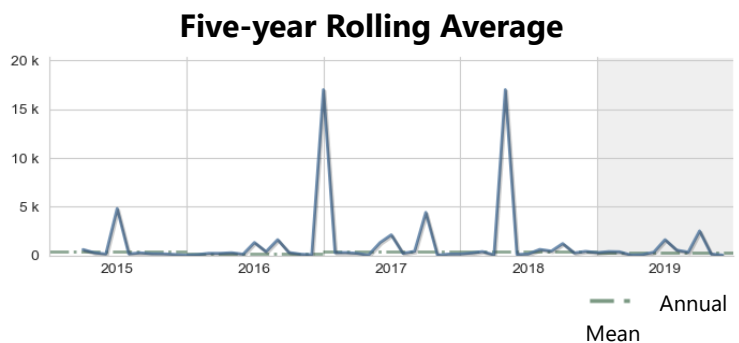
Color

Units: PCU	Year 2019	Historical period of record
High	65.0	200.0
Mean	29.87	38.1
Low	15.00	5.00
No. of Samples	24	421



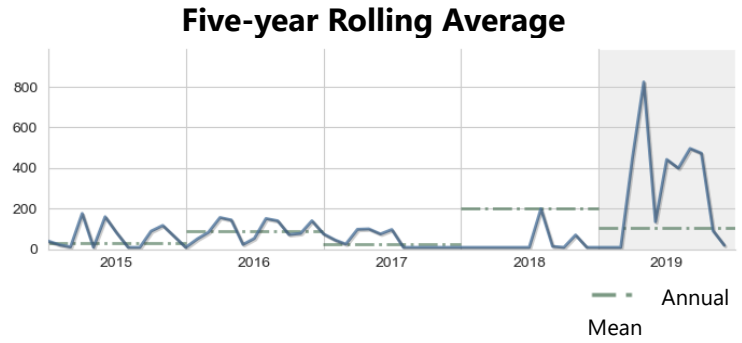
Enterococcus Group Bacteria

Units: cfu/100ml	Year 2019	Historical period of record
High	2,500.0	17,000.0
Mean	240.54	282.84
Low	20.00	10.00
No. of Samples	24	110



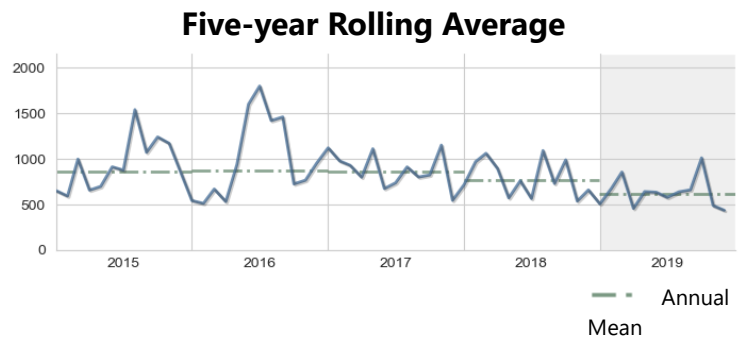
Nitrogen, Ammonia + Ammonium as N

Units: ug/l	Year 2019	Historical period of record
High	823.0	1,930.0
Mean	104.44	18.69
Low	8.00	0.00
No. of Samples	24	382



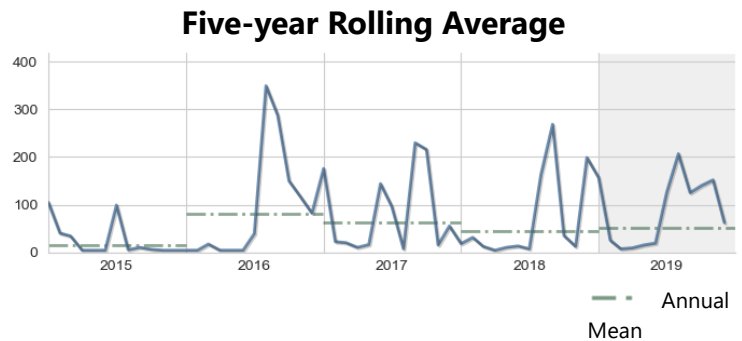
Nitrogen, Kjeldahl

Units: ug/l	Year 2019	Historical period of record
High	1,010.0	6,291.0
Mean	611.08	845.79
Low	433.00	50.00
No. of Samples	24	368



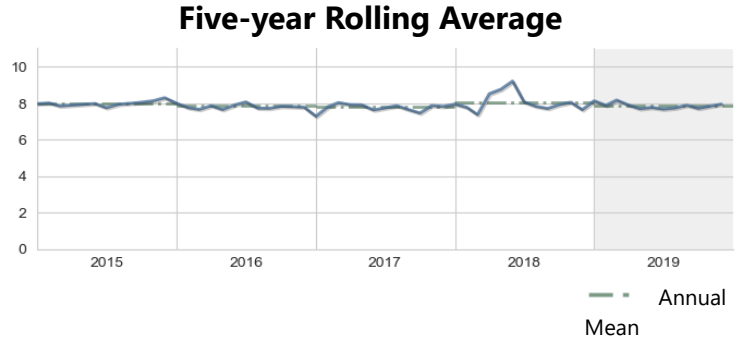
Nitrogen, Nitrite + Nitrate as N

Units: ug/l	Year 2019	Historical period of record
High	207.0	3,275.0
Mean	50.91	56.43
Low	7.00	4.00
No. of Samples	24	327



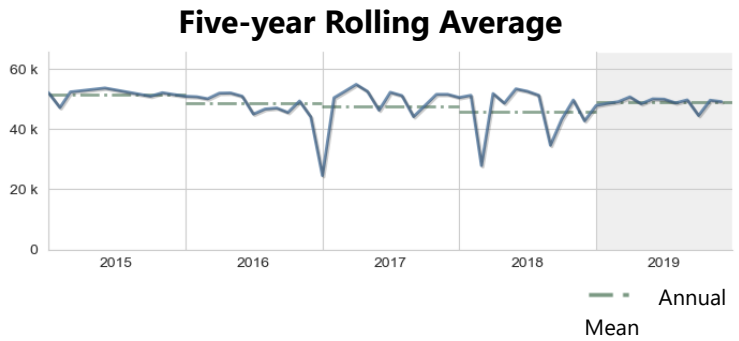
pH

Units: None	Year 2019	Historical period of record
High	8.2	9.6
Mean	7.86	7.62
Low	7.68	4.90
No. of Samples	12	2,940



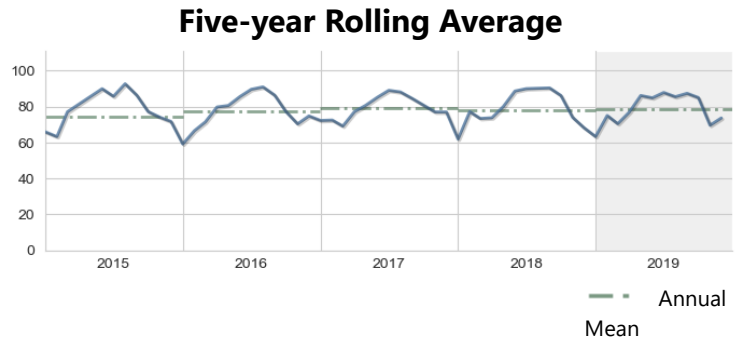
Specific conductance

Units: umho	Year 2019	Historical period of record
High	50,772.6	55,760.0
Mean	48901.57	7553.57
Low	44562.50	320.00
No. of Samples	12	2,761



Temperature, water

Units: deg F	Year 2019	Historical period of record
High	87.9	95.5
Mean	78.41	74.63
Low	63.3196	49.10
No. of Samples	12	3,098

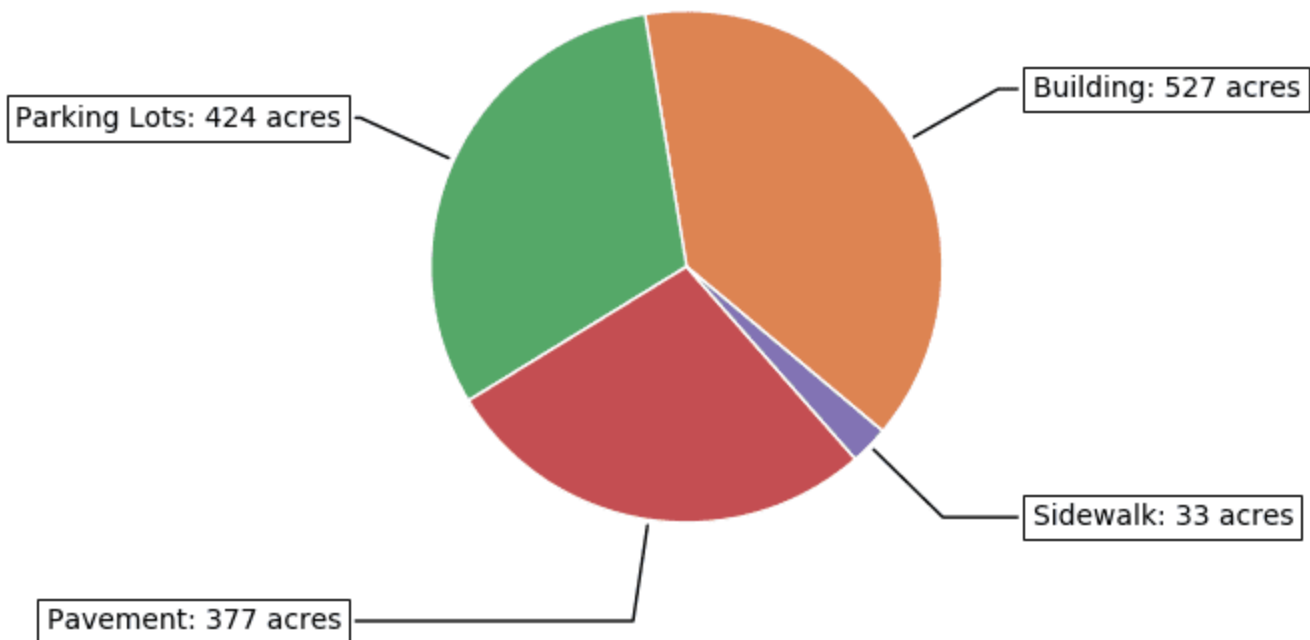


Impervious Features

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



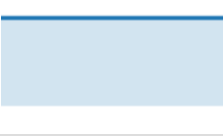
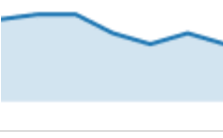



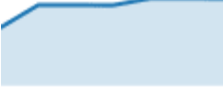
2014 Impervious Surface Coverage by Type
in acres, within the Whitaker Bayou Basin



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

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

