North Creek Condition Report for 2019

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: 2,327 acres
Location: Central Sarasota County
Discharges into: Little Sarasota Bay

The surface water system in the North Creek Basin has undergone significant alteration over the past century. The 1847 General Land Office Survey shows North Creek extending from Little Sarasota Bay, east across the approximately 2½-mile-wide basin to what appears to be a pond. The 1959 USDA NRCS Soil Survey shows two north-south ditches leading to North Creek. The ditch to the south leads to an area in the west that appears to be a development. With the exception of the western boundary, U.S. 41, and some ditches, the basin was still fairly undeveloped by the 1970s. By 2000, roughly half of the basin was developed and about 1,930 people resided in the developed areas (U.S. Census Bureau, 2000). Today, about 75% of the basin is developed and laden with ditches and stormwater infrastructure, with half of the development residential. *For basin details see:* ***Little Sarasota Bay Water Quality Management Plan (2012)***

North Creek



Water Chemistry Ratings | Freshwater Portion of the Creek

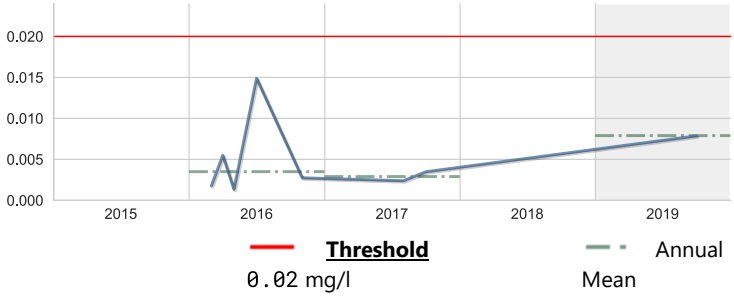
Creek Conditions Ratings are based on comparing nitrogen, phosphorus, chlorophyll and dissolved oxygen to water quality guidelines or regulations. Florida law defines a maximum allowable concentration of nitrogen, phosphorus, and chlorophyll *a*, and a minimum allowable concentration of dissolved oxygen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

Chl-a Chlorophyll a

Score: Pass

Units: mg/l	Year 2019	Historical period of record
High	0.01	0.032
Mean	0.0079	0.003
Low	0.0062	0.0009
No. of Samples	2	25

Five-year Rolling Average

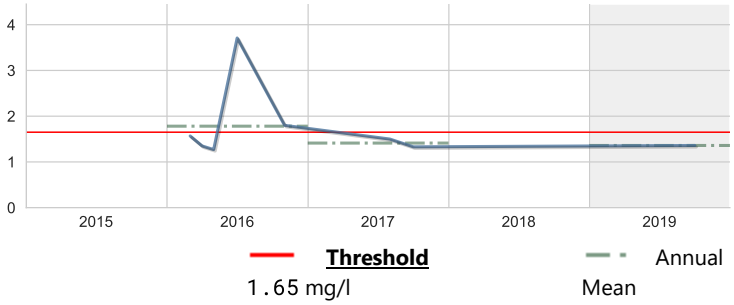


N Nitrogen, Total

Score: Pass

Units: mg/l	Year 2019	Historical period of record
High	1.36	3.71
Mean	1.36	1.5042
Low	1.36	1.106
No. of Samples	1	17

Five-year Rolling Average

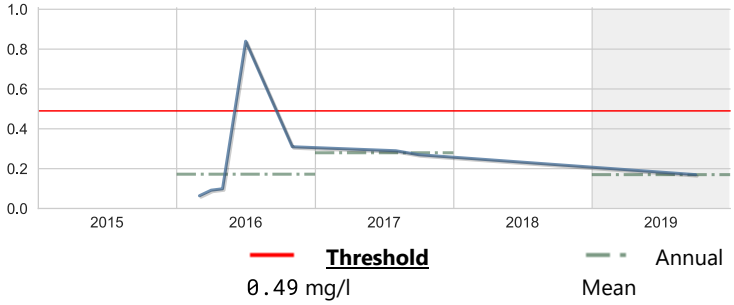


P Phosphorus, Total

Score: Pass

Units: mg/l	Year 2019	Historical period of record
High	0.17	2.70
Mean	0.17	0.1744
Low	0.17	0.041
No. of Samples	1	21

Five-year Rolling Average



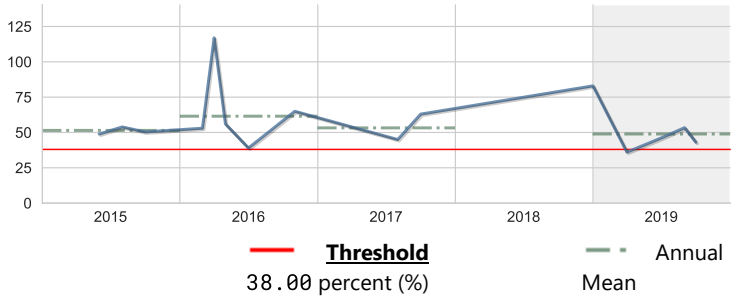
DO Dissolved Oxygen Saturation

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

Score: Pass

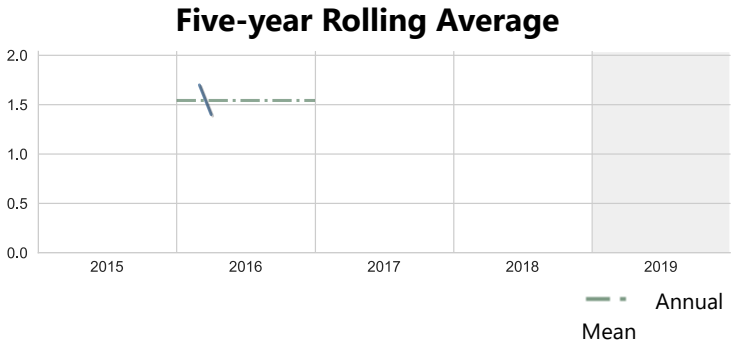
Units: percent (%)	Year 2019	Historical period of record
High	83.00	117.00
Mean	48.92	43.17
Low	36.10	10.70
No. of Samples	6	46

Five-year Rolling Average



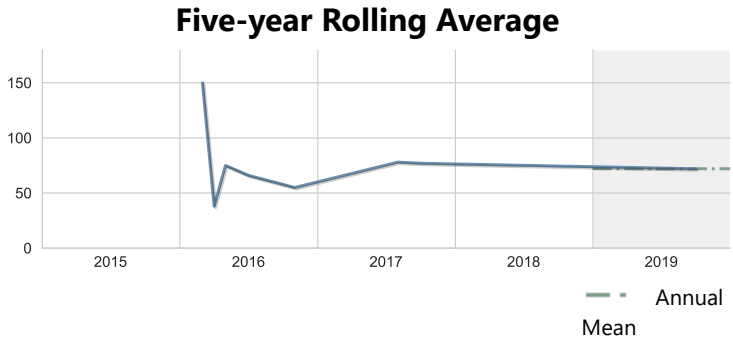
BOD, Biochemical oxygen demand

Units: mg/l	Year 2019	Historical period of record
High		1.70
Mean		1.54
Low		1.40
No. of Samples	0	2



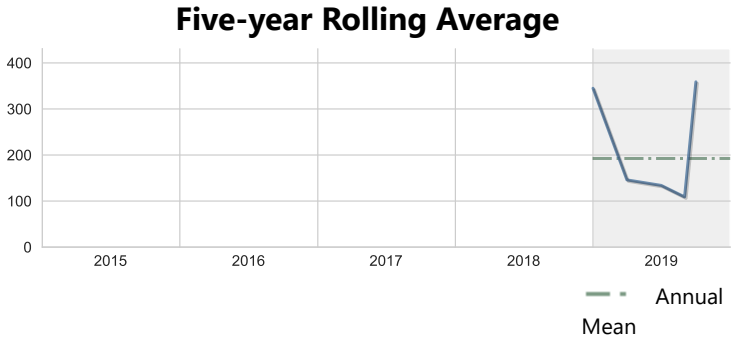
Color

Units: PCU	Year 2019	Historical period of record
High	72.00	250.00
Mean	72.0	96.95
Low	72.00	38.00
No. of Samples	1	18



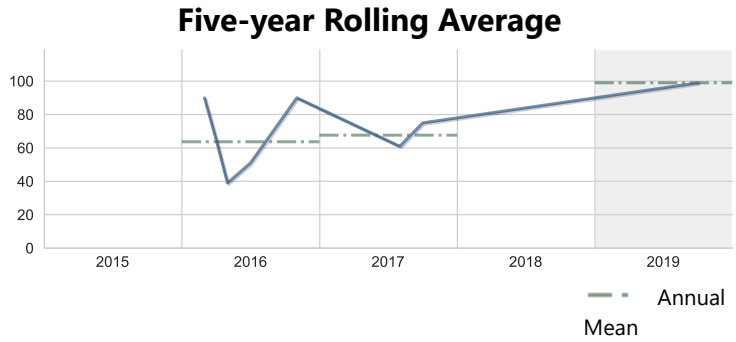
Escherichia coli

Units: cfu/100ml	Year 2019	Historical period of record
High	359.00	359.00
Mean	192.47	192.47
Low	109.00	109.00
No. of Samples	5	5



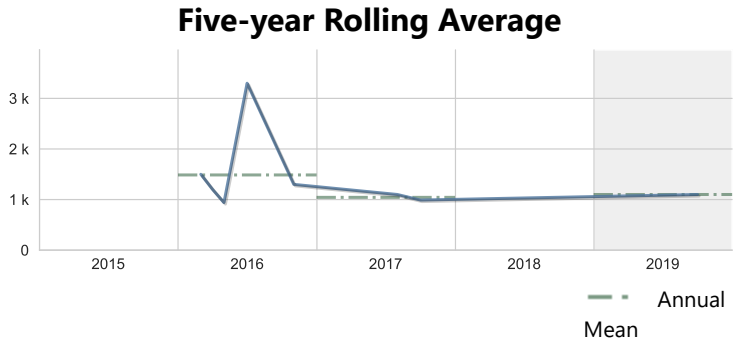
Nitrogen, Ammonia + Ammonium as N

Units: ug/l	Year 2019	Historical period of record
High	99.00	460.00
Mean	99.0	76.14
Low	99.00	18.00
No. of Samples	1	18



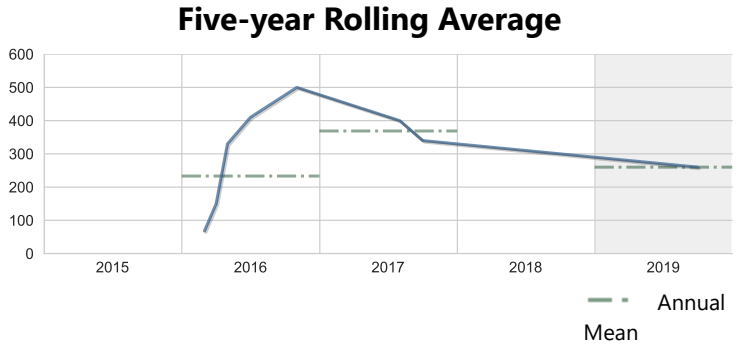
Nitrogen, Kjeldahl

Units: ug/l	Year 2019	Historical period of record
High	1100.00	27000.00
Mean	1100.0	1566.22
Low	1100.00	940.00
No. of Samples	1	18



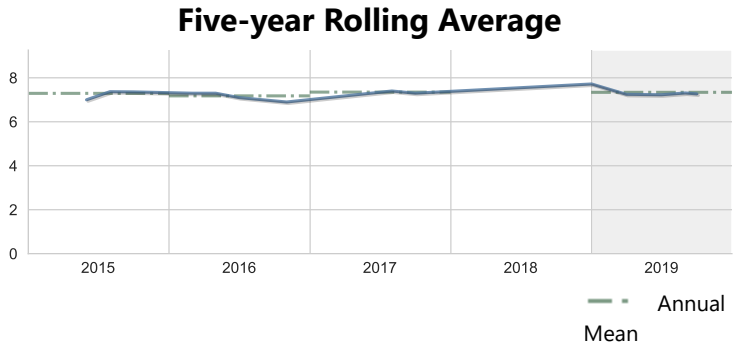
Nitrogen, Nitrite + Nitrate as N

Units: ug/l	Year 2019	Historical period of record
High	260.00	500.00
Mean	260.0	66.33
Low	260.00	4.00
No. of Samples	1	18



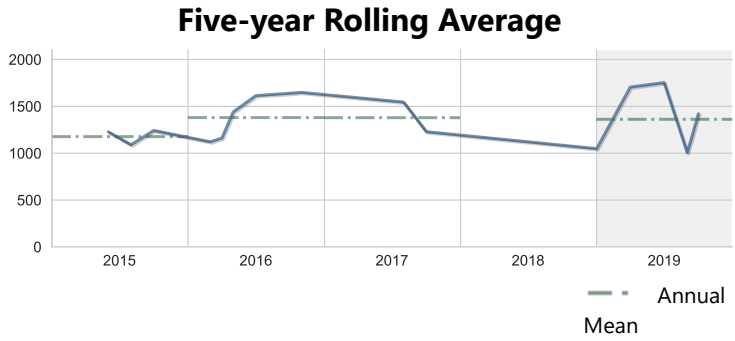
pH

Units: None	Year 2019	Historical period of record
High	7.72	7.72
Mean	7.34	7.27
Low	7.23	6.80
No. of Samples	6	46



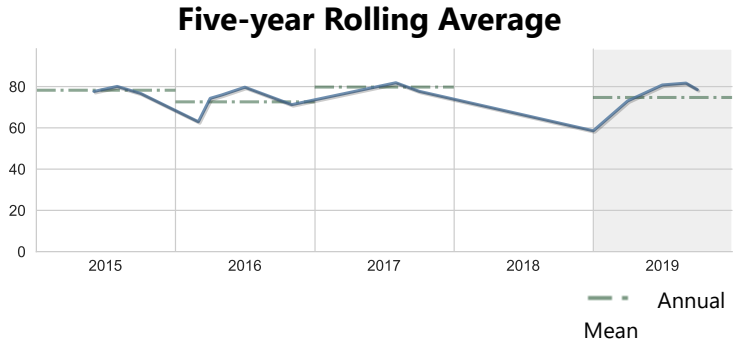
Specific conductance

Units: umho	Year 2019	Historical period of record
High	1754.00	24590.00
Mean	1362.06	1288.51
Low	1006.00	328.00
No. of Samples	6	46



Temperature, water

Units: deg F	Year 2019	Historical period of record
High	81.68	85.028
Mean	74.73	75.21
Low	58.586	55.94
No. of Samples	6	46



Water Chemistry Ratings | Tidal Portion of the Creek

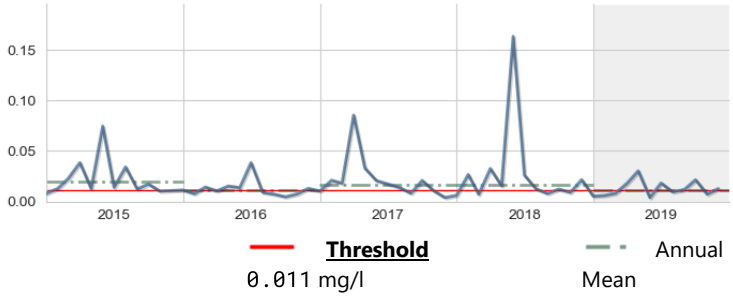
Creek Conditions Ratings are based on comparing nitrogen, phosphorus, chlorophyll and dissolved oxygen to water quality guidelines or regulations. Florida law defines a maximum allowable concentration of chlorophyll *a* and a minimum allowable concentration of dissolved oxygen in these streams. Florida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

Chlorophyll a

Score: Pass

Units: mg/l	Year 2019	Historical period of record
High	0.0	0.2
Mean	0.0106	0.0115
Low	0.0038	0.0009
No. of Samples	24	385

Five-year Rolling Average



Nitrogen, Total

Units: mg/l	Year 2019	Historical period of record
High	1.6	4.0
Mean	1.4009	1.3245
Low	1.11	0.002
No. of Samples	24	275

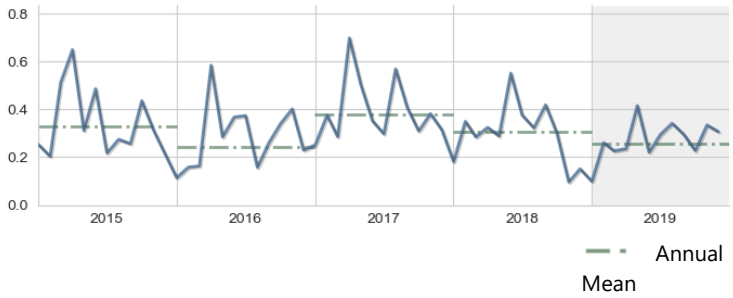
Five-year Rolling Average



Phosphorus, Total

Units: mg/l	Year 2019	Historical period of record
High	0.4	0.9
Mean	0.2576	0.2857
Low	0.099	0.08
No. of Samples	24	430

Five-year Rolling Average



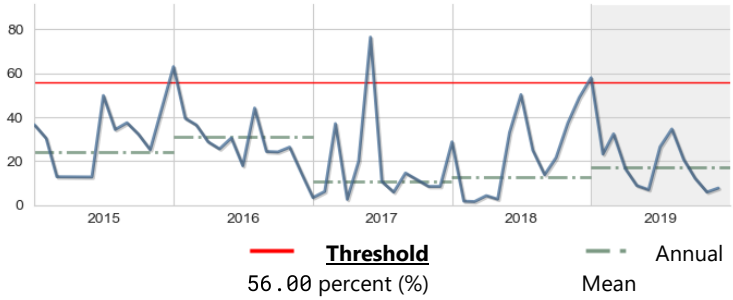
DO Dissolved Oxygen Saturation

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

Score: Caution

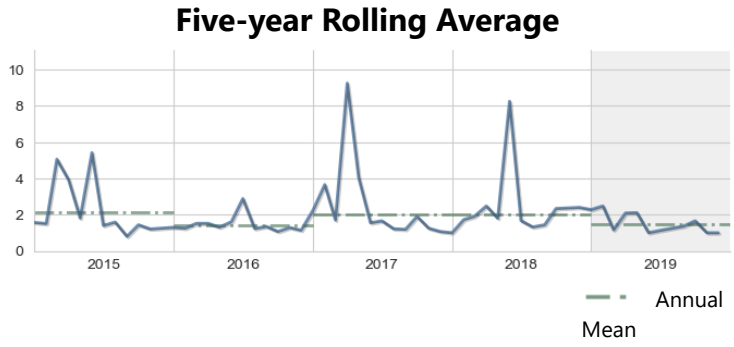
Units: percent (%)	Year 2019	Historical period of record
High	70.3	157.4
Mean	17.29	29.51
Low	1.5547	1.00
No. of Samples	18	478

Five-year Rolling Average



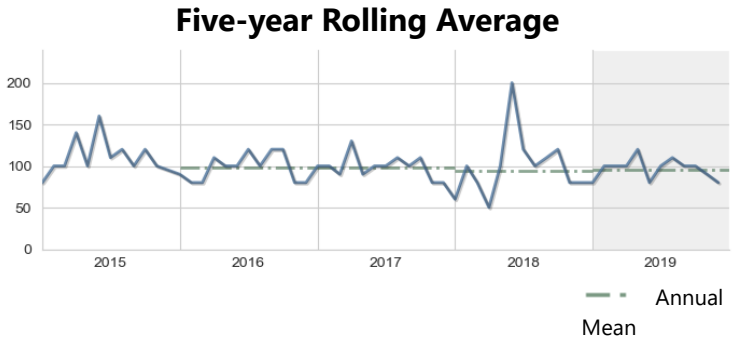
BOD, Biochemical oxygen demand

Units: mg/l	Year 2019	Historical period of record
High	2.5	9.3
Mean	1.48	1.67
Low	1.00	0.50
No. of Samples	22	362



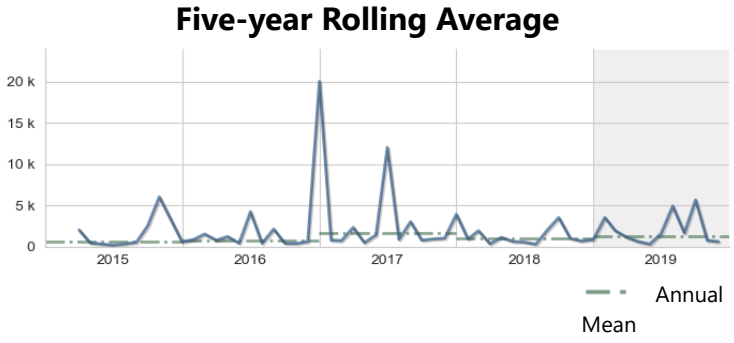
Color

Units: PCU	Year 2019	Historical period of record
High	120.0	300.0
Mean	95.94	83.51
Low	80.00	5.00
No. of Samples	24	522



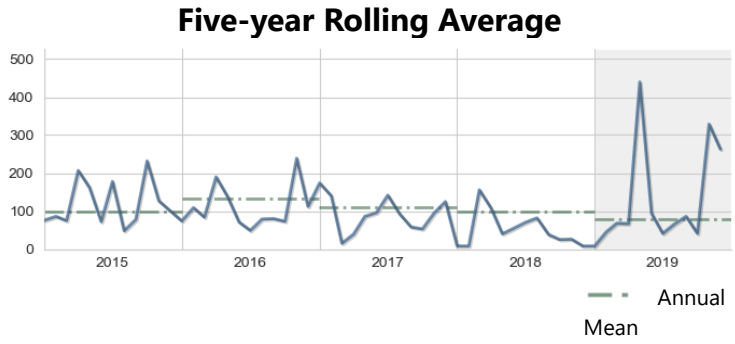
Enterococcus Group Bacteria

Units: cfu/100ml	Year 2019	Historical period of record
High	14,000.0	20,000.0
Mean	1261.32	1047.77
Low	63.00	63.00
No. of Samples	32	118



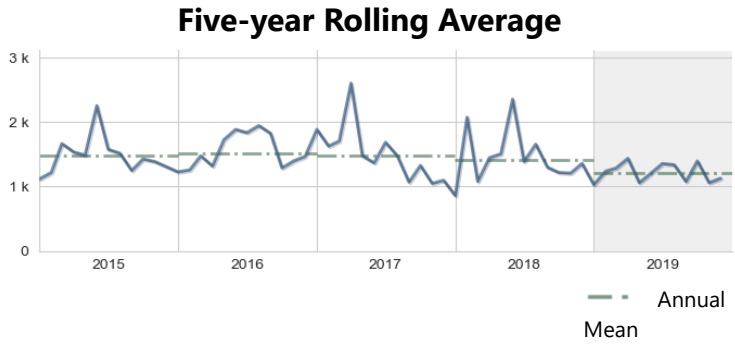
Nitrogen, Ammonia + Ammonium as N

Units: ug/l	Year 2019	Historical period of record
High	440.0	550.0
Mean	78.65	30.97
Low	8.00	0.008
No. of Samples	24	493



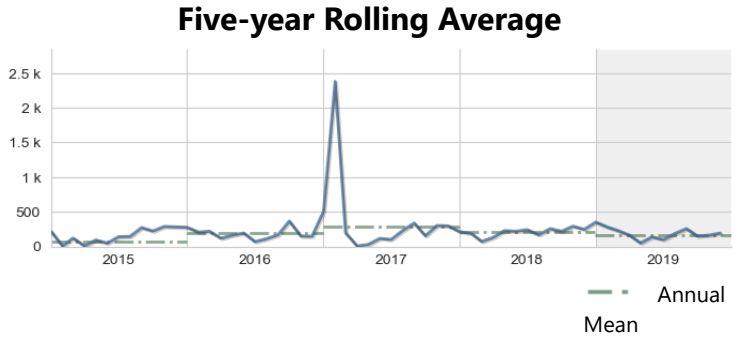
Nitrogen, Kjeldahl

Units: ug/l	Year 2019	Historical period of record
High	1,440.0	2,610.0
Mean	1211.97	1200.41
Low	1030.00	50.00
No. of Samples	24	476



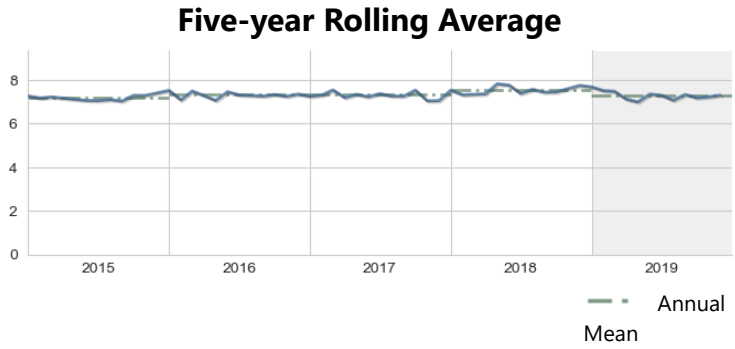
Nitrogen, Nitrite + Nitrate as N

Units: ug/l	Year 2019	Historical period of record
High	351.0	2,380.0
Mean	169.65	103.9
Low	50.00	0.00
No. of Samples	24	434



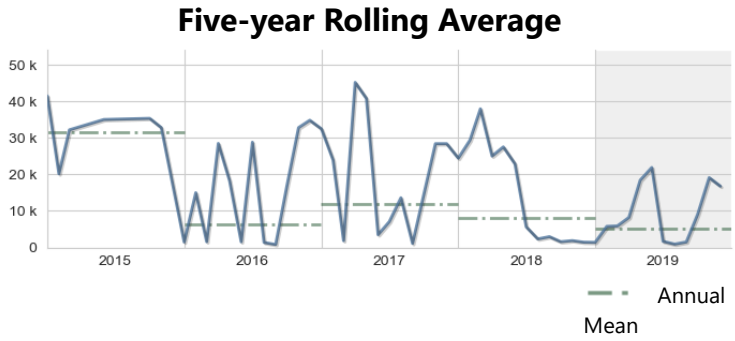
pH

Units: None	Year 2019	Historical period of record
High	7.7	8.8
Mean	7.31	7.41
Low	7.00	5.40
No. of Samples	18	497



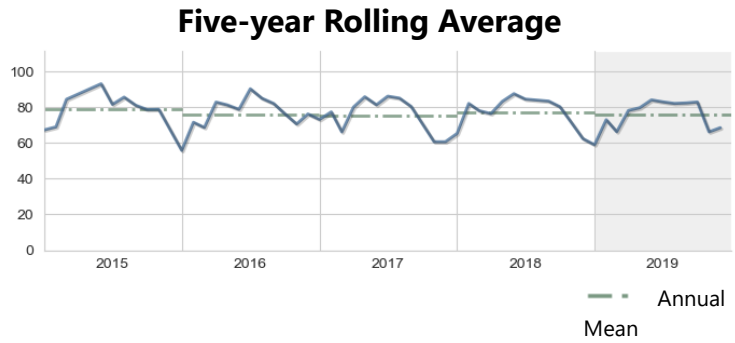
Specific conductance

Units: umho	Year 2019	Historical period of record
High	39,726.0	650,900.0
Mean	5095.71	11984.62
Low	897.994	25.058
No. of Samples	18	529



Temperature, water

Units: deg F	Year 2019	Historical period of record
High	88.9	96.8
Mean	76.04	77.15
Low	58.1457	48.56
No. of Samples	18	399

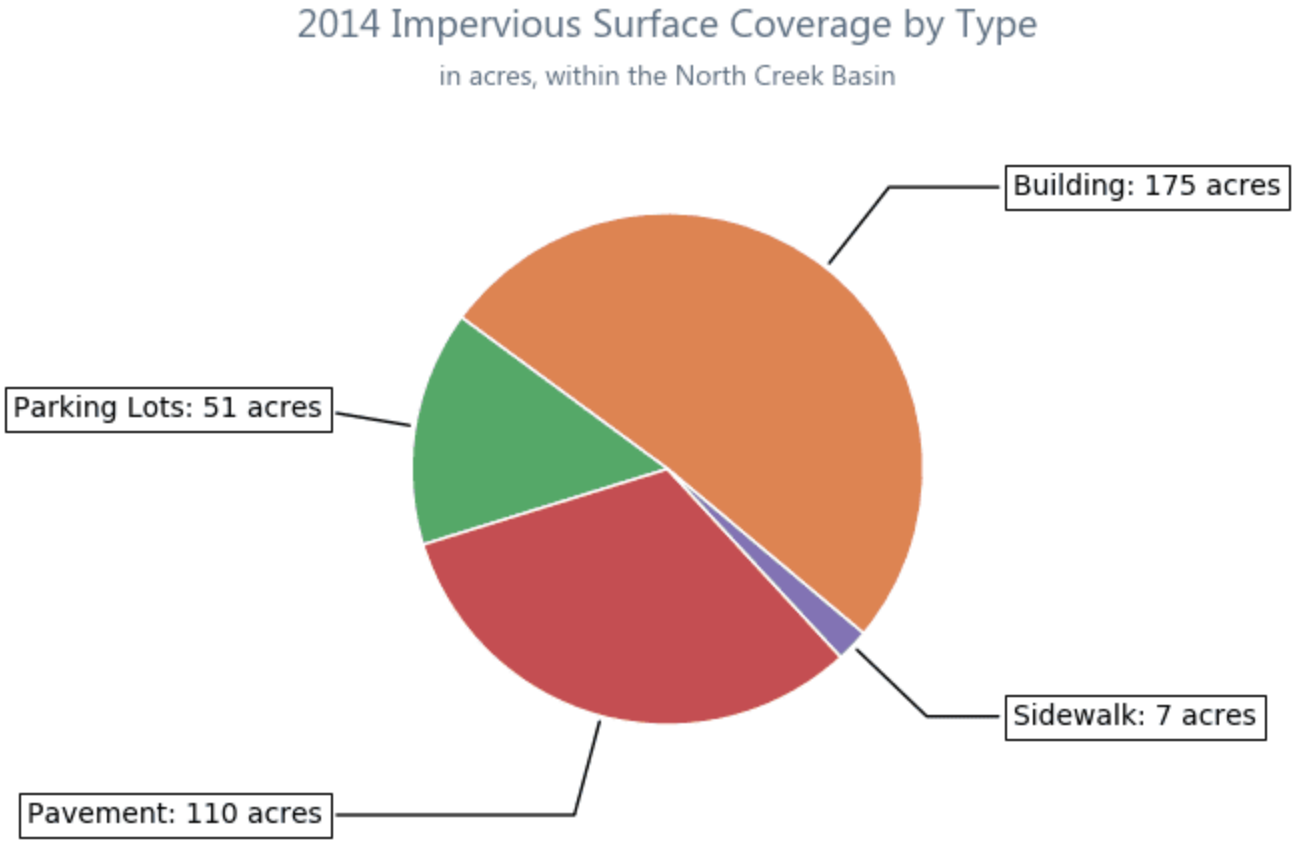


Impervious Features

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.



15% of the land area within the **North Creek Basin** is covered by impervious surfaces

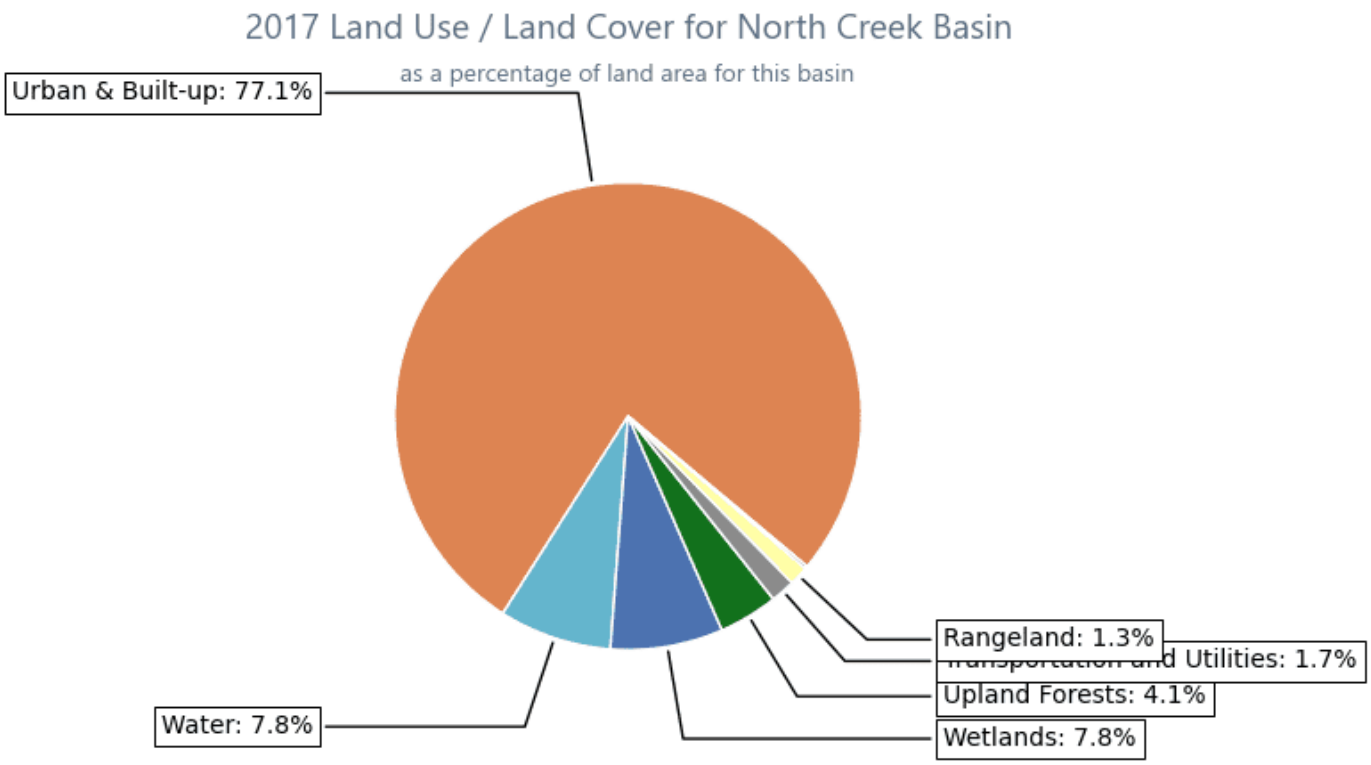


Land Use / Land Cover

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 North Creek Basin

Land Use Classification	1990	1995	1999	2005	2011	2014	2017	Trend
Urban & Built-up	1,074 **46.2%**	1,584 **68.1%**	1,652 **71%**	1,702 **73.2%**	1,699 **73%**	1,679 **72.2%**	1,795 **77.1%**	
Agriculture	79 **3.4%**	86 **3.7%**	18 **0.8%**	9 **0.4%**	4 **0.2%**	122 **5.2%**	4 **0.2%**	
Rangeland	0 **0%**	0 **0%**	0 **0%**	75 **3.2%**	74 **3.2%**	20 **0.9%**	30 **1.3%**	
Upland Forests	845 **36.3%**	275 **11.8%**	277 **11.9%**	142 **6.1%**	141 **6.1%**	97 **4.2%**	94 **4.1%**	
Water	77 **3.3%**	161 **6.9%**	180 **7.8%**	180 **7.7%**	177 **7.6%**	177 **7.6%**	182 **7.8%**	
Wetlands	216 **9.3%**	201 **8.6%**	179 **7.7%**	178 **7.7%**	191 **8.2%**	191 **8.2%**	182 **7.8%**	
Barren Land	17 **0.7%**	0 **0%**	0 **0%**	0 **0%**	1 **0%**	0 **0%**	0 **0%**	
Transportation and Utilities	18 **0.8%**	20 **0.8%**	20 **0.8%**	40 **1.7%**	40 **1.7%**	40 **1.7%**	40 **1.7%**	


2017 Land Use / Land Cover for North Creek Basin
as a percentage of land area for this basin
Urban & Built-up: 77.1%
Rangeland: 1.3%
Utilities: 1.7%
Upland Forests: 4.1%
Wetlands: 7.8%
Water: 7.8%