North Creek Condition Report for 2015

CAUTION

Chl-a N P DO

2 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



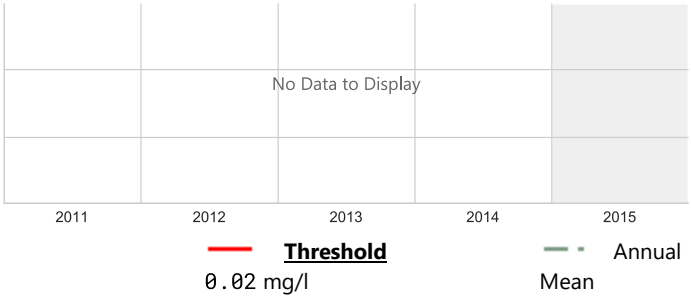
Water Chemistry Ratings | Freshwater Portion of the Creek

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.

Chlorophyll a

Units: mg/l	Year 2015	Historical period of record
High		0.032
Mean		0.0021
Low		0.0009
No. of Samples	0	9

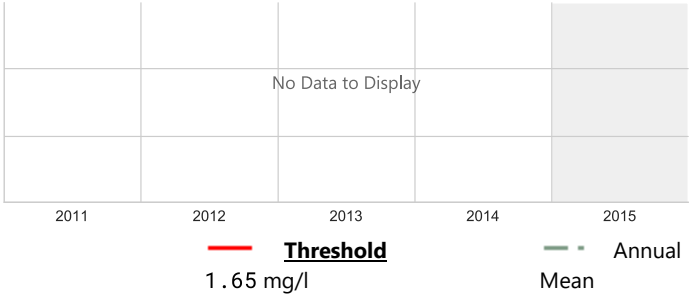
Five-year Rolling Average



Nitrogen, Total

Units: mg/l	Year 2015	Historical period of record
High		3.031
Mean		1.4041
Low		1.106
No. of Samples	0	9

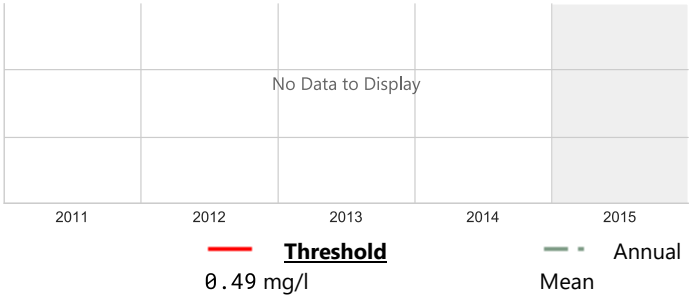
Five-year Rolling Average



Phosphorus, Total

Units: mg/l	Year 2015	Historical period of record
High		2.70
Mean		0.1632
Low		0.041
No. of Samples	0	13

Five-year Rolling Average



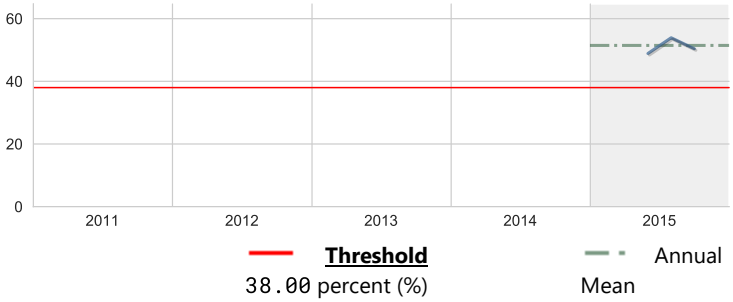
Dissolved Oxygen Saturation

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

Score: Pass

Units: percent (%)	Year 2015	Historical period of record
High	88.00	88.00
Mean	51.46	39.49
Low	26.00	10.70
No. of Samples	20	33

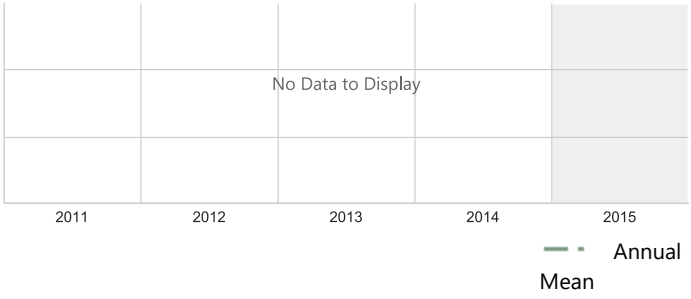
Five-year Rolling Average



Nitrogen, Ammonia + Ammonium as N

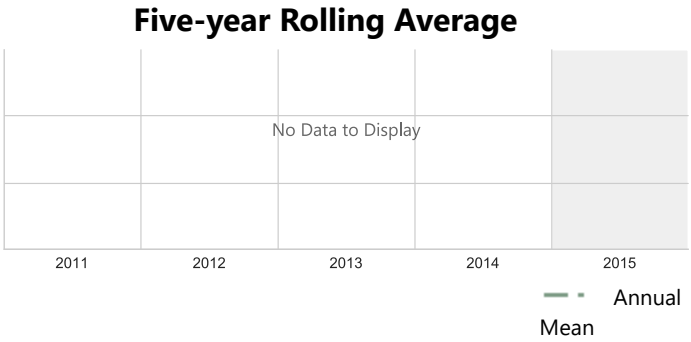
Units: ug/l	Year 2015	Historical period of record
High		460.00
Mean		83.04
Low		18.00
No. of Samples	0	10

Five-year Rolling Average



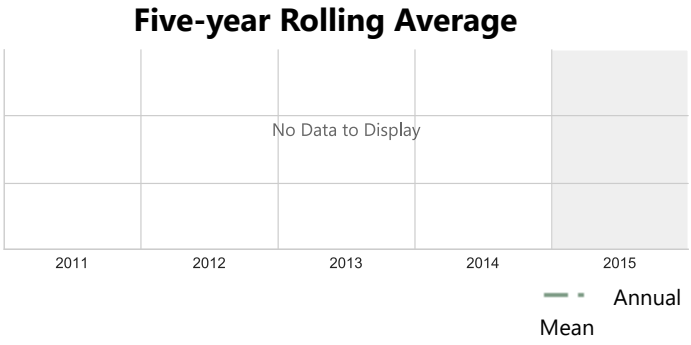
Nitrogen, Kjeldahl

Units: ug/l	Year 2015	Historical period of record
High		27000.00
Mean		1806.37
Low		1100.00
No. of Samples	0	10



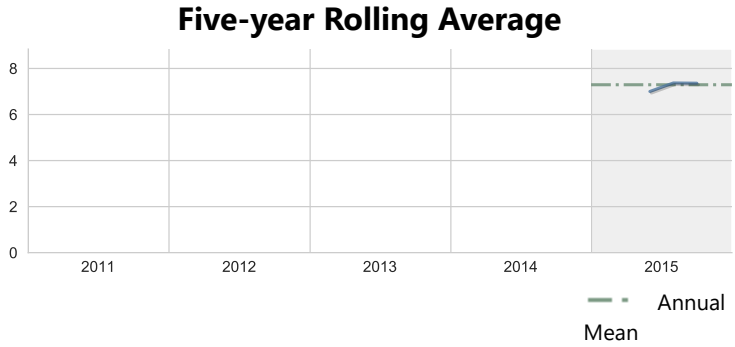
Nitrogen, Nitrite + Nitrate as N

Units: ug/l	Year 2015	Historical period of record
High		230.00
Mean		21.89
Low		4.00
No. of Samples	0	10



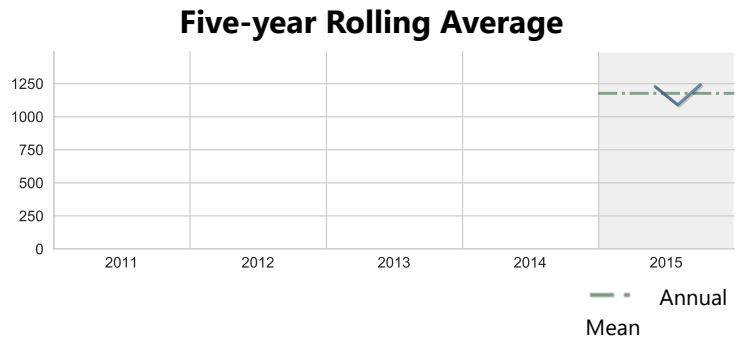
pH

Units: None	Year 2015	Historical period of record
High	7.50	7.51
Mean	7.29	7.26
Low	6.80	6.80
No. of Samples	20	33



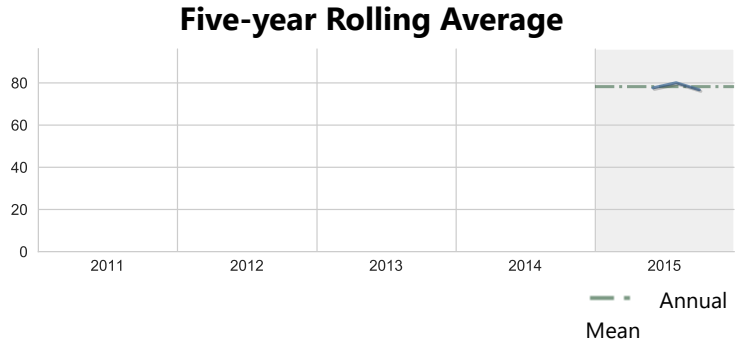
Specific conductance

Units: umho	Year 2015	Historical period of record
High	1785.00	24590.00
Mean	1176.99	1257.17
Low	502.00	328.00
No. of Samples	20	33



Temperature, water

Units: deg F	Year 2015	Historical period of record
High	84.02	85.028
Mean	78.24	75.43
Low	73.58	55.94
No. of Samples	20	33



Water Chemistry Ratings | Tidal Portion of the Creek

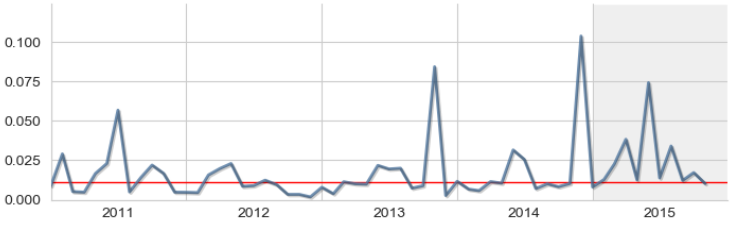
Creek Conditions Ratings are based on comparing nitrogen, phosphorus, chlorophyll and dissolved oxygen to water quality guidelines or regulations. Florida law defines a maximum allowable concentration of chlorophyll *a* and a minimum allowable concentration of dissolved oxygen in these streams. Florida 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 2015	Historical period of record
High	0.1	0.1
Mean	0.0193	0.0109
Low	0.008	0.0009
No. of Samples	24	289

Five-year Rolling Average



Threshold 0.011 mg/l

Annual Mean

Nitrogen, Total

Units: mg/l	Year 2015	Historical period of record
High	2.3	2.3
Mean	1.6124	1.277
Low	1.222	0.16
No. of Samples	4	176

Five-year Rolling Average



Annual Mean

Phosphorus, Total

Units: mg/l	Year 2015	Historical period of record
High	0.6	0.9
Mean	0.3293	0.2858
Low	0.203	0.08
No. of Samples	24	333

Five-year Rolling Average



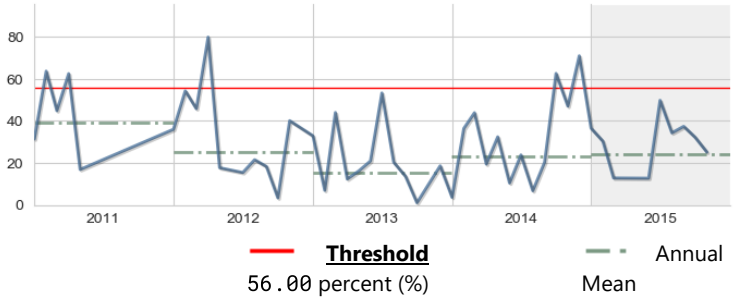
DO Dissolved Oxygen Saturation

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

Score: Caution

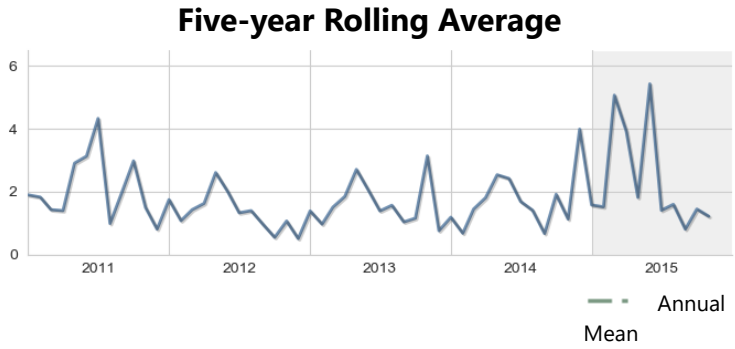
Units: percent (%)	Year 2015	Historical period of record
High	49.8	157.4
Mean	24.04	33.69
Low	12.70	1.00
No. of Samples	17	394

Five-year Rolling Average



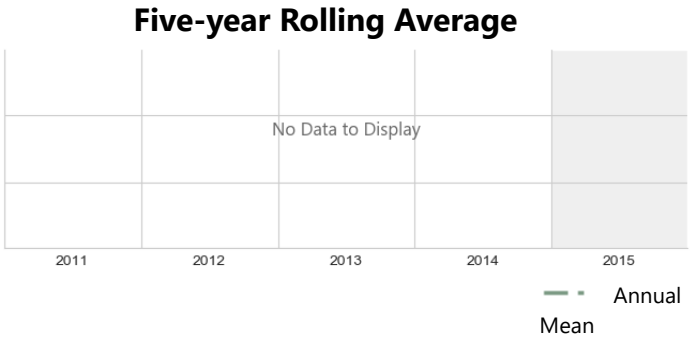
BOD, Biochemical oxygen demand

Units: mg/l	Year 2015	Historical period of record
High	5.4	8.9
Mean	2.13	1.66
Low	0.804	0.50
No. of Samples	24	270



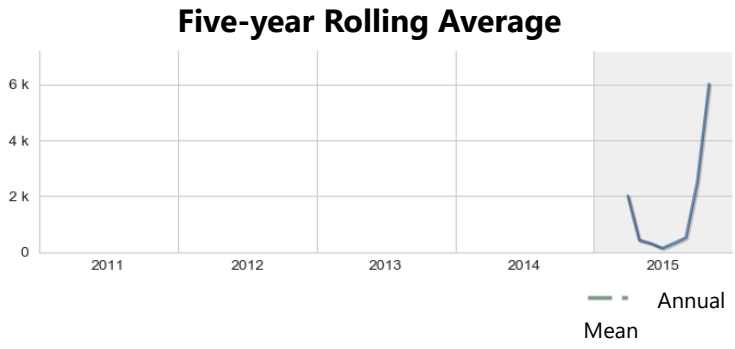
Color

Units: PCU	Year 2015	Historical period of record
High		300.0
Mean		63.13
Low		5.00
No. of Samples	0	133



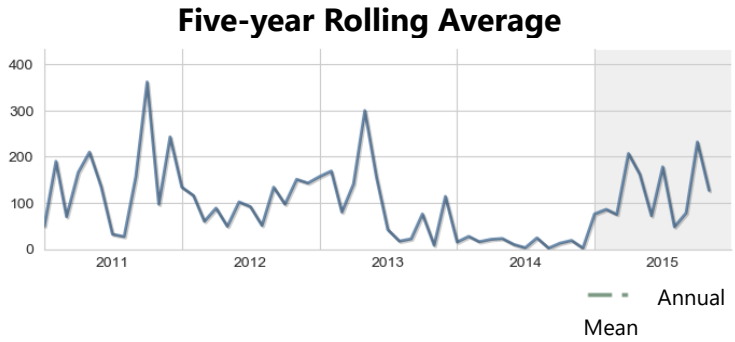
Enterococcus Group Bacteria

Units: cfu/100ml	Year 2015	Historical period of record
High	6,000.0	6,000.0
Mean	572.1	572.1
Low	130.00	130.00
No. of Samples	14	14



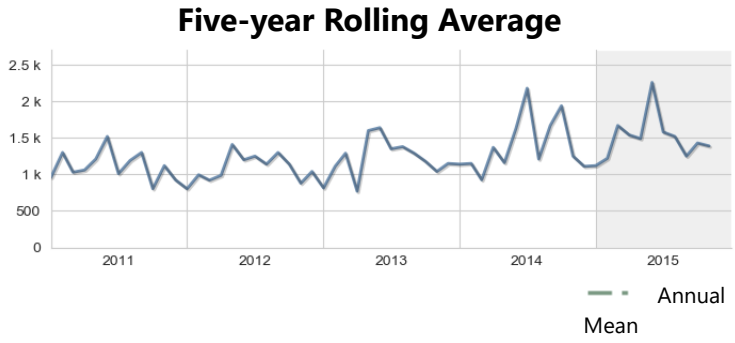
Nitrogen, Ammonia + Ammonium as N

Units: ug/l	Year 2015	Historical period of record
High	232.0	550.0
Mean	98.2	25.77
Low	48.00	0.008
No. of Samples	24	394



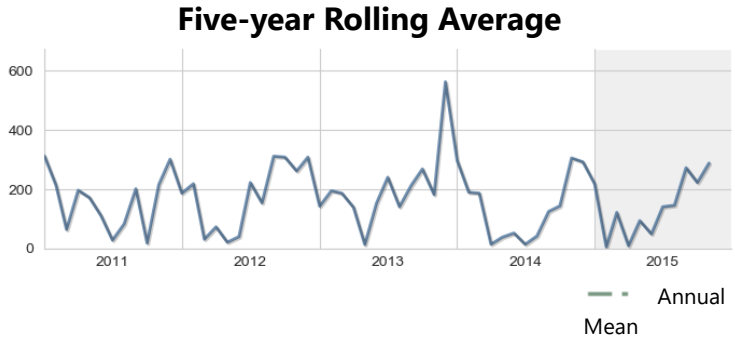
Nitrogen, Kjeldahl

Units: ug/l	Year 2015	Historical period of record
High	2,260.0	2,260.0
Mean	1483.63	1153.79
Low	1120.00	50.00
No. of Samples	24	380



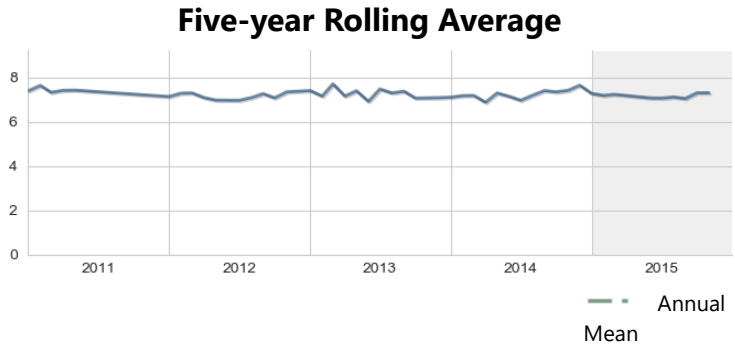
Nitrogen, Nitrite + Nitrate as N

Units: ug/l	Year 2015	Historical period of record
High	288.0	563.0
Mean	69.09	89.31
Low	4.00	0.00
No. of Samples	24	338



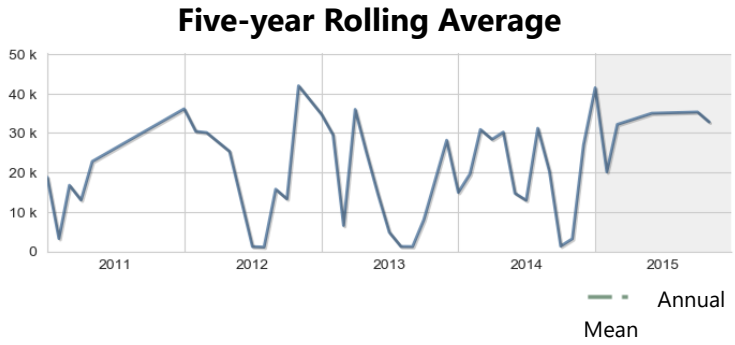
pH

Units: None	Year 2015	Historical period of record
High	7.5	8.8
Mean	7.19	7.42
Low	7.04	5.40
No. of Samples	19	378



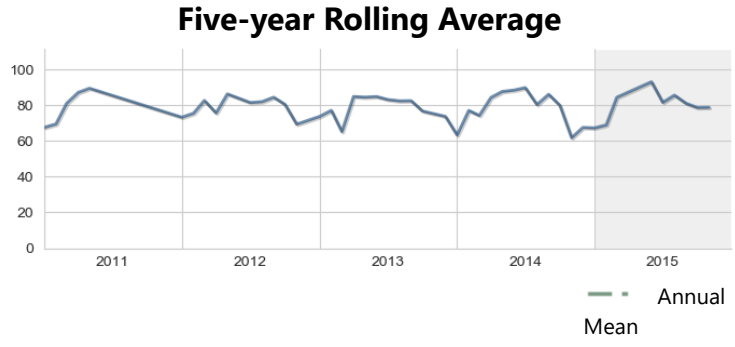
Specific conductance

Units: umho	Year 2015	Historical period of record
High	41,472.0	650,900.0
Mean	31535.86	13000.95
Low	20127.00	25.058
No. of Samples	14	445



Temperature, water

Units: deg F	Year 2015	Historical period of record
High	93.3	96.8
Mean	79.19	77.29
Low	67.46	48.56
No. of Samples	13	318

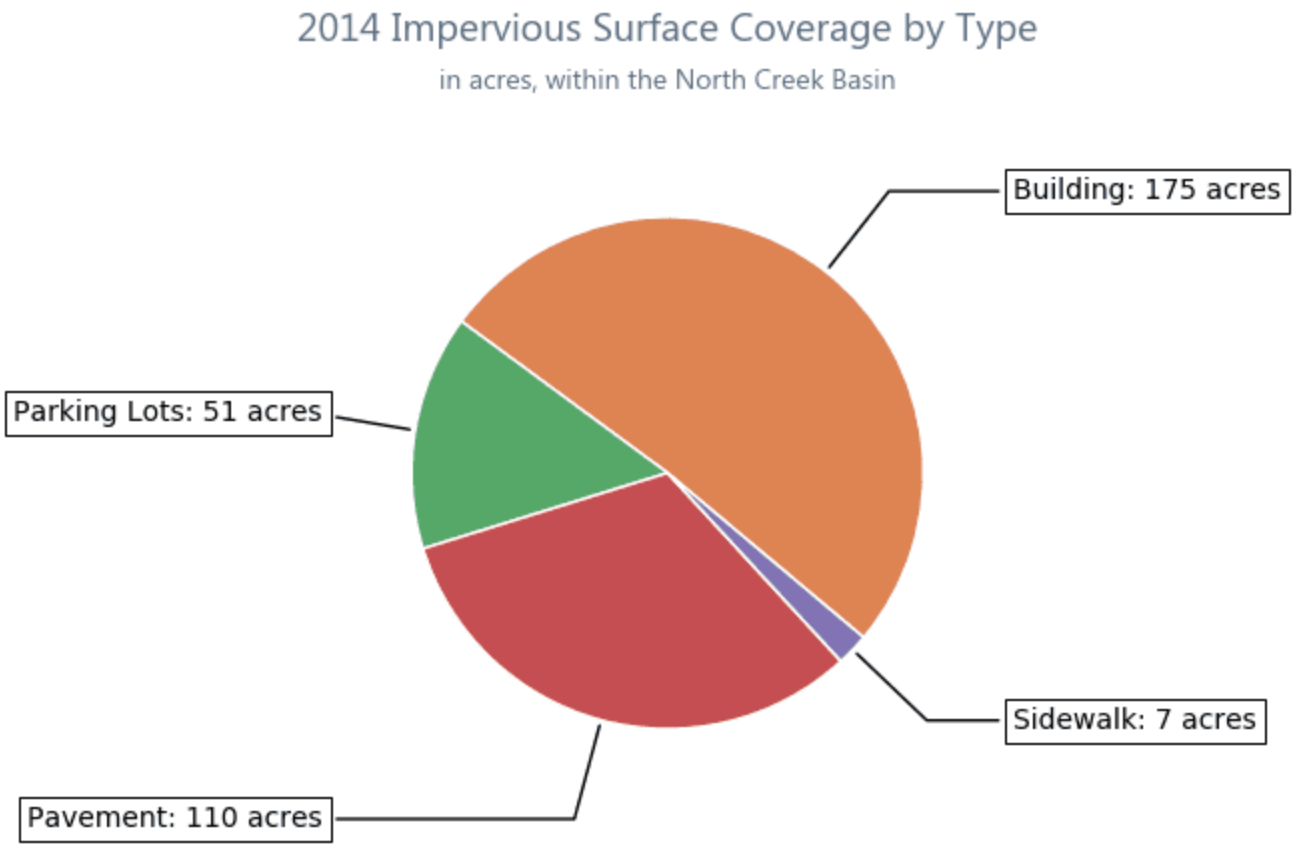


Impervious Features

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

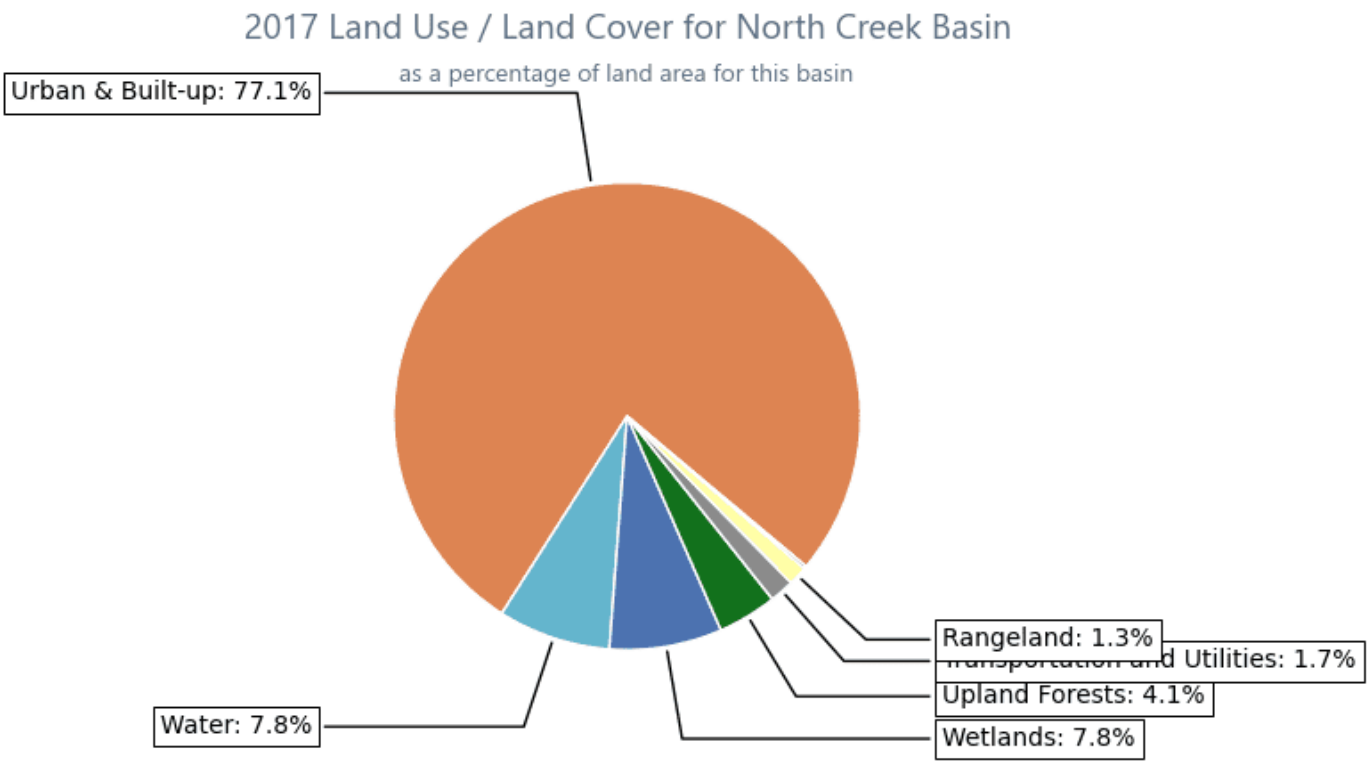


Land Use / Land Cover

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%