Alligator Creek Condition Report for 2020

CAUTION

Chl-a N P DO

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

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

Size: 6,789 acres
Location: South Sarasota County
Discharges into: Lemon Bay

Like other coastal areas in Sarasota County, the Alligator Creek Basin is characterized by low topographic relief and sandy soils. Its predominant land uses are single-family medium- and high density-residential, with smaller portions of open land, commercial, and institutional land uses. Upland and developed land use/land cover encompass the vast majority of the watershed, with wetland and surface waters making up the rest. The lower and middle reaches of Alligator Creek have been previously dredged for navigation and drainage purposes (Parsons, 2002). Despite the urbanization of the lower and middle reaches, large areas of the historic creek floodplain in the upper reach remain undeveloped, most notably in the Alligator Creek Conservation Area upstream and just downstream of Venice East Boulevard. *For basin details see:* ***Alligator Creek Sediment Management Plan (2006)***

Alligator Creek



Water Chemistry Ratings | Freshwater Portion of the Creek

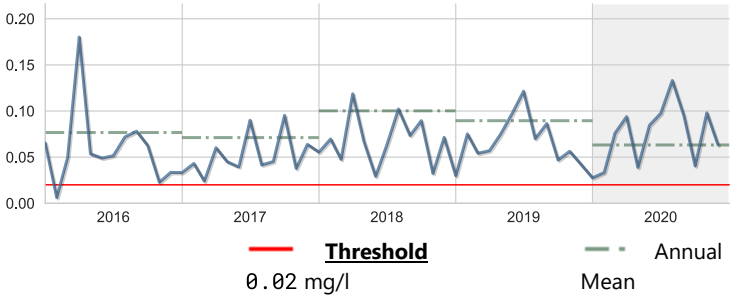
Creek Conditions Ratings are based on comparing nitrogen, phosphorus, chlorophyll and dissolved oxygen to water quality guidelines or regulations. Florida law defines a maximum allowable concentration of nitrogen, phosphorus, and chlorophyll *a*, and a minimum allowable concentration of dissolved oxygen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

Chl-a Chlorophyll a

Score: Caution

Units: mg/l	Year 2020	Historical period of record
High	0.518	0.518
Mean	0.0632	0.0417
Low	0.0036	0.0003
No. of Samples	76	869

Five-year Rolling Average

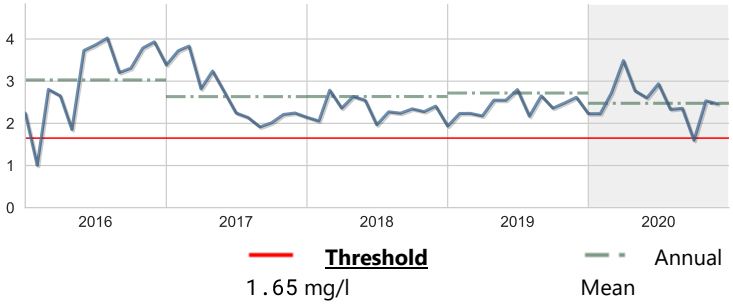


N Nitrogen, Total

Score: Caution

Units: mg/l	Year 2020	Historical period of record
High	5.864	6.745
Mean	2.4758	2.1459
Low	0.489	0.41
No. of Samples	74	779

Five-year Rolling Average

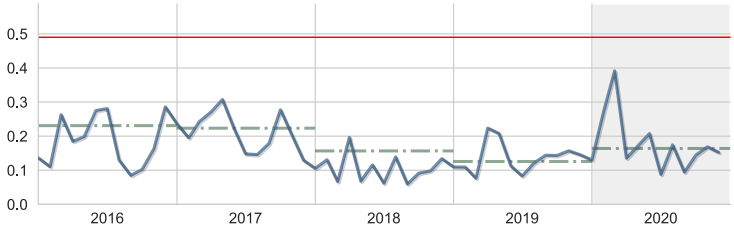


P Phosphorus, Total

Score: Pass

Units: mg/l	Year 2020	Historical period of record
High	0.477	0.87
Mean	0.164	0.1764
Low	0.022	0.012
No. of Samples	74	887

Five-year Rolling Average



Threshold 0.49 mg/l

Annual Mean

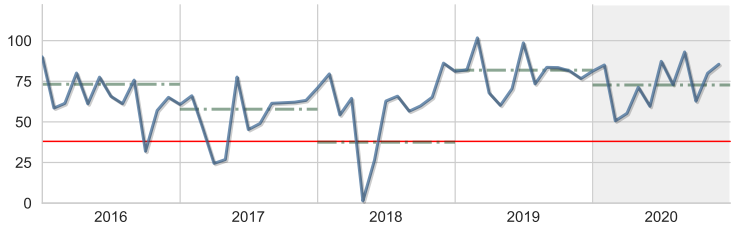
DO Dissolved Oxygen Saturation

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

Score: Pass

Units: percent (%)	Year 2020	Historical period of record
High	165.40	933.00
Mean	72.7	56.27
Low	8.8755	0.05
No. of Samples	74	689

Five-year Rolling Average

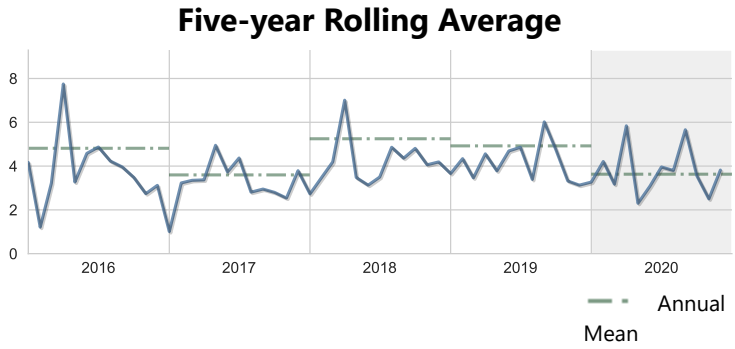


Threshold 38.00 percent (%)

Annual Mean

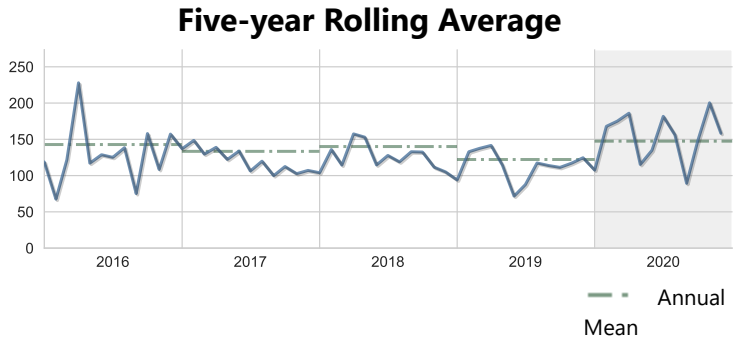
BOD, Biochemical oxygen demand

Units: mg/l	Year 2020	Historical period of record
High	15.40	17.30
Mean	3.63	3.11
Low	1.00	0.50
No. of Samples	72	852



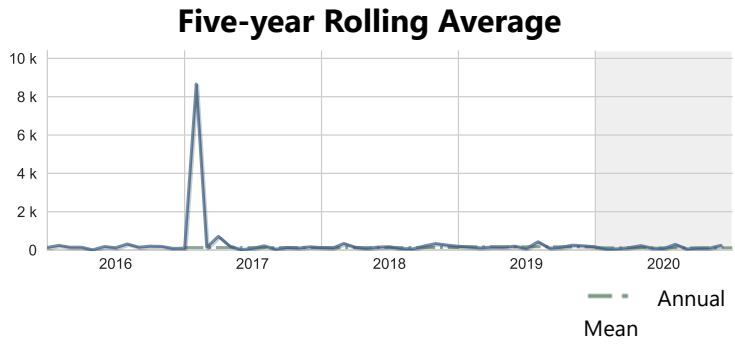
Color

Units: PCU	Year 2020	Historical period of record
High	500.00	500.00
Mean	147.47	108.91
Low	50.00	20.00
No. of Samples	74	878



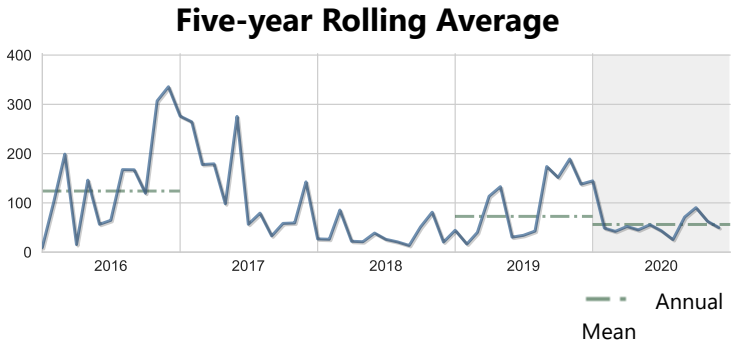
Escherichia coli

Units: cfu/100ml	Year 2020	Historical period of record
High	9804.00	19863.00
Mean	114.72	148.29
Low	10.00	9.70
No. of Samples	74	324



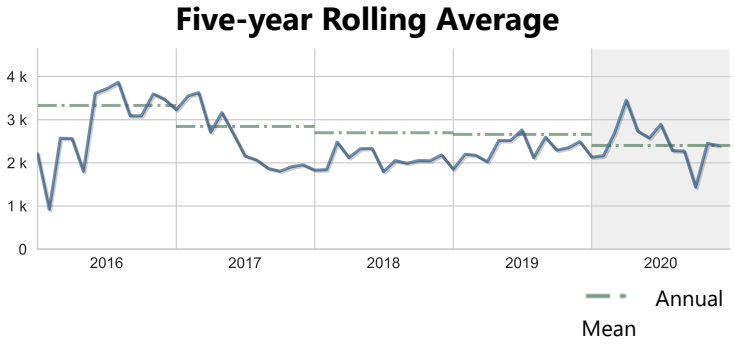
Nitrogen, Ammonia + Ammonium as N

Units: ug/l	Year 2020	Historical period of record
High	1450.00	2430.00
Mean	56.17	46.33
Low	8.00	0.008
No. of Samples	74	942



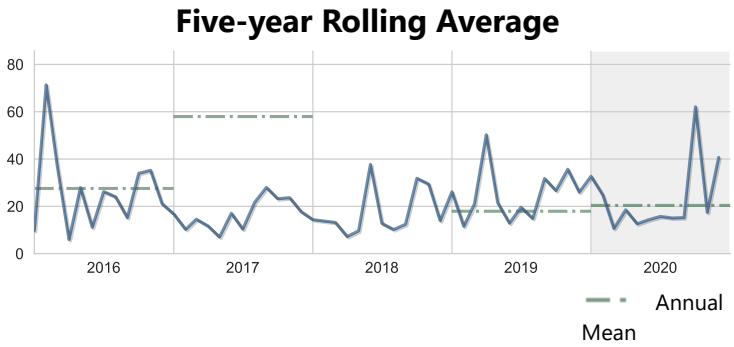
Nitrogen, Kjeldahl

Units: ug/l	Year 2020	Historical period of record
High	5860.00	6740.00
Mean	2402.67	2065.53
Low	344.00	140.00
No. of Samples	74	894



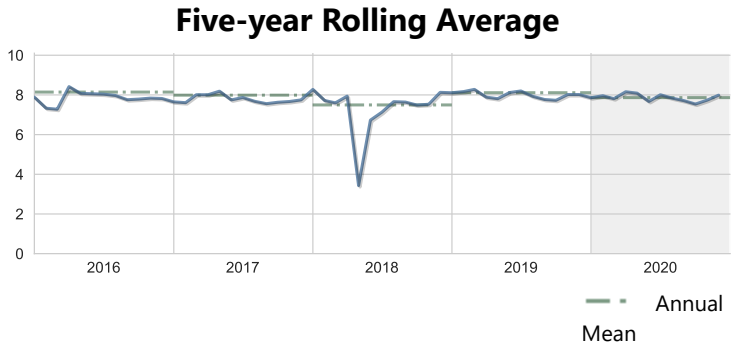
Nitrogen, Nitrite + Nitrate as N

Units: ug/l	Year 2020	Historical period of record
High	318.00	895.00
Mean	20.4	22.37
Low	4.00	0.00
No. of Samples	74	871



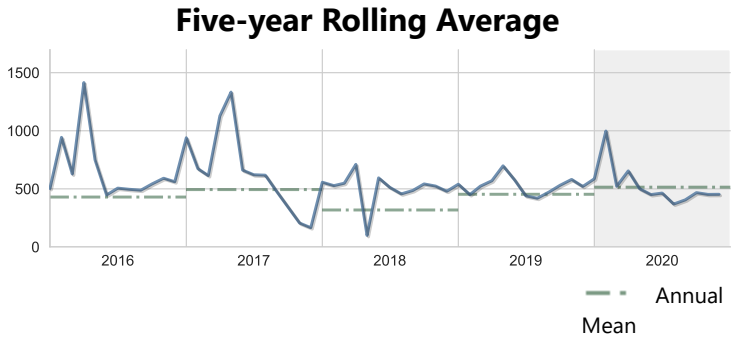
pH

Units: None	Year 2020	Historical period of record
High	9.71	9.94
Mean	7.86	7.3
Low	6.94	0.20
No. of Samples	74	2,413



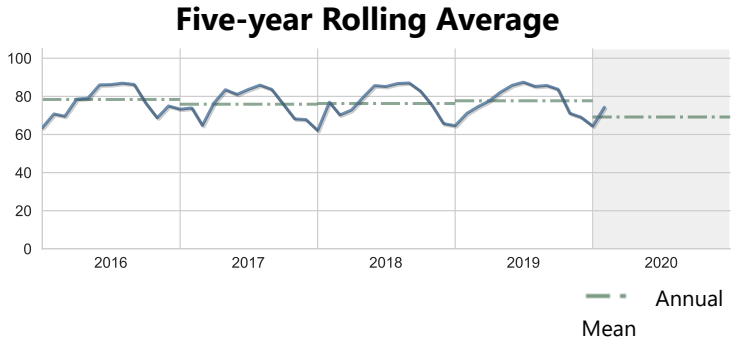
Specific conductance

Units: umho	Year 2020	Historical period of record
High	40542.80	40542.80
Mean	514.42	641.17
Low	262.751	0.859
No. of Samples	74	2,271



Temperature, water

Units: deg F	Year 2020	Historical period of record
High	74.30	93.956
Mean	69.17	70.69
Low	64.40	53.528
No. of Samples	2	2,179



Water Chemistry Ratings | Tidal Portion of the Creek

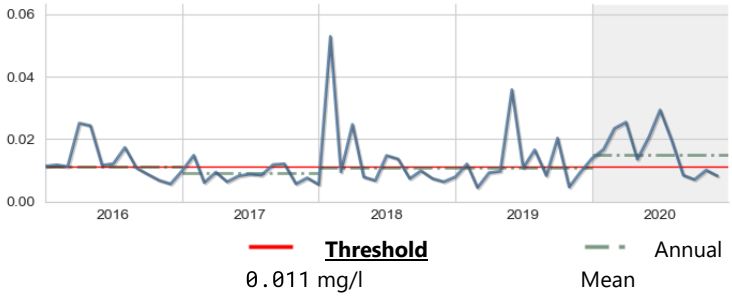
Creek Conditions Ratings are based on comparing nitrogen, phosphorus, chlorophyll and dissolved oxygen to water quality guidelines or regulations. Florida law defines a maximum allowable concentration of chlorophyll *a* and a minimum allowable concentration of dissolved oxygen in these streams. Florida 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 2020	Historical period of record
High	0.1	4.3
Mean	0.015	0.0095
Low	0.0009	0.0004
No. of Samples	80	1,510

Five-year Rolling Average



Nitrogen, Total

Score: Pass

Units: mg/l	Year 2020	Historical period of record
High	6.1	23.8
Mean	1.3579	1.2138
Low	0.335	0.00
No. of Samples	76	1,202

Five-year Rolling Average

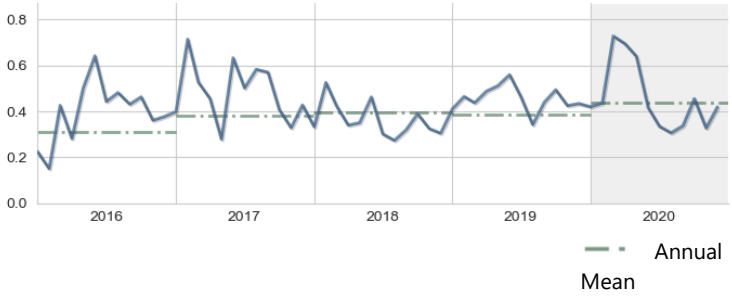


Phosphorus, Total

Score: Pass

Units: mg/l	Year 2020	Historical period of record
High	3.4	4.8
Mean	0.4382	0.2816
Low	0.119	0.004
No. of Samples	76	1,551

Five-year Rolling Average



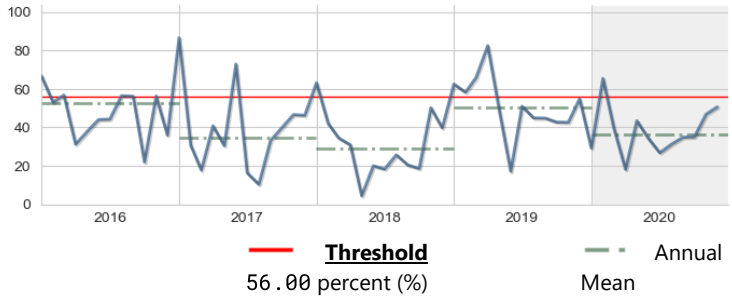
Dissolved Oxygen Saturation

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

Score: Caution

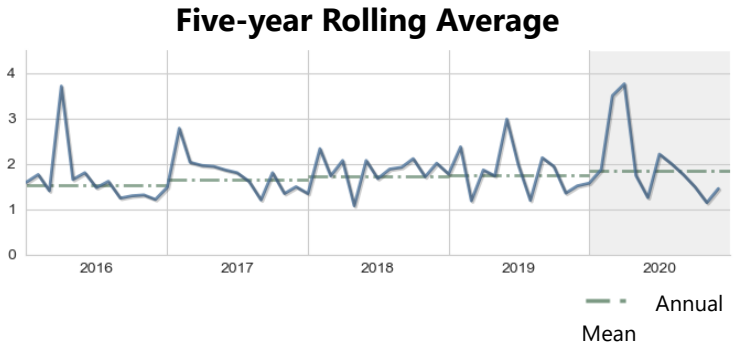
Units: percent (%)	Year 2020	Historical period of record
High	149.8	233.2
Mean	36.03	39.52
Low	0.8008	0.40
No. of Samples	76	868

Five-year Rolling Average



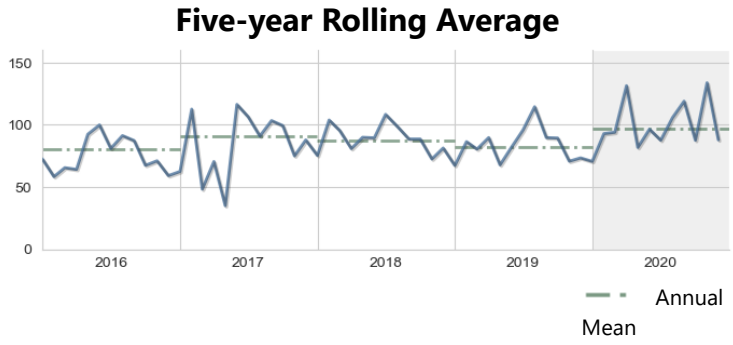
BOD, Biochemical oxygen demand

Units: mg/l	Year 2020	Historical period of record
High	14.3	20.0
Mean	1.85	1.83
Low	1.00	0.50
No. of Samples	72	948



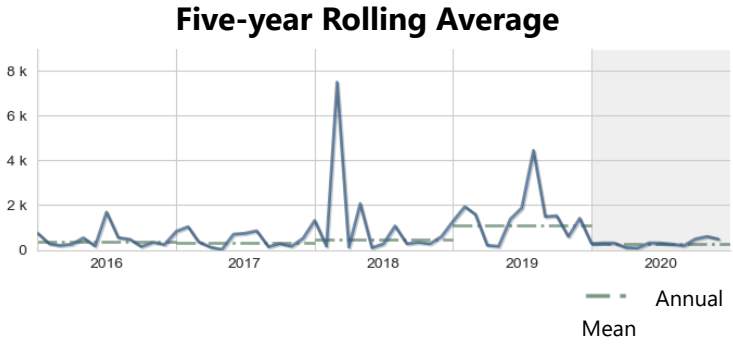
Color

Units: PCU	Year 2020	Historical period of record
High	400.0	400.0
Mean	96.84	61.03
Low	50.00	4.90
No. of Samples	73	1,604



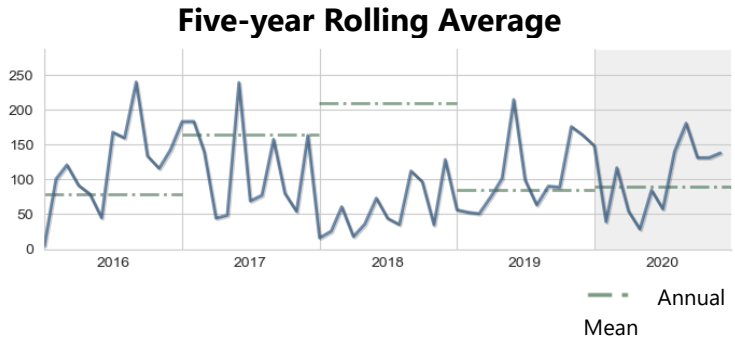
Enterococcus Group Bacteria

Units: cfu/100ml	Year 2020	Historical period of record
High	1,700.0	18,000.0
Mean	276.41	412.36
Low	70.00	10.00
No. of Samples	27	231



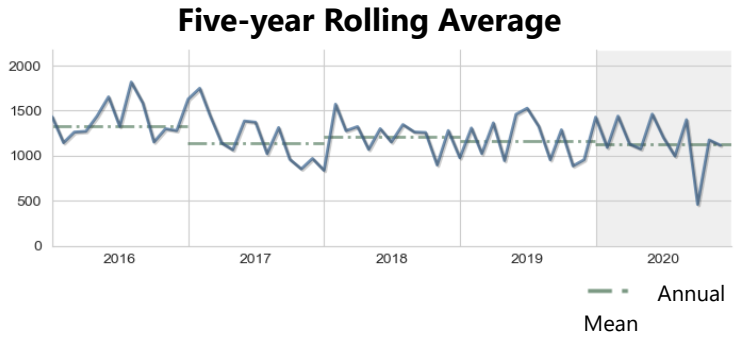
Nitrogen, Ammonia + Ammonium as N

Units: ug/l	Year 2020	Historical period of record
High	856.0	2,170.0
Mean	90.16	39.21
Low	8.00	0.008
No. of Samples	76	1,124



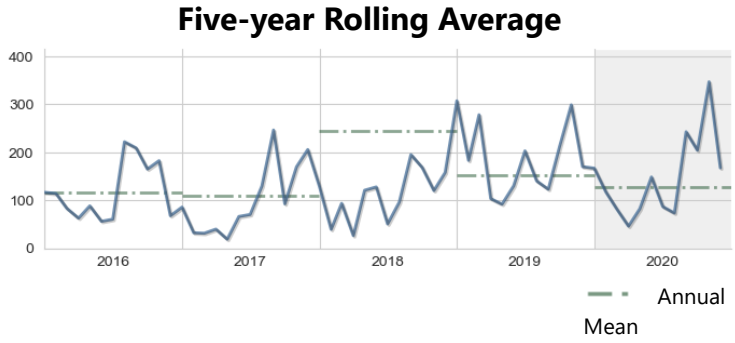
Nitrogen, Kjeldahl

Units: ug/l	Year 2020	Historical period of record
High	5,720.0	23,800.0
Mean	1128.52	1083.23
Low	253.00	80.00
No. of Samples	76	1,601



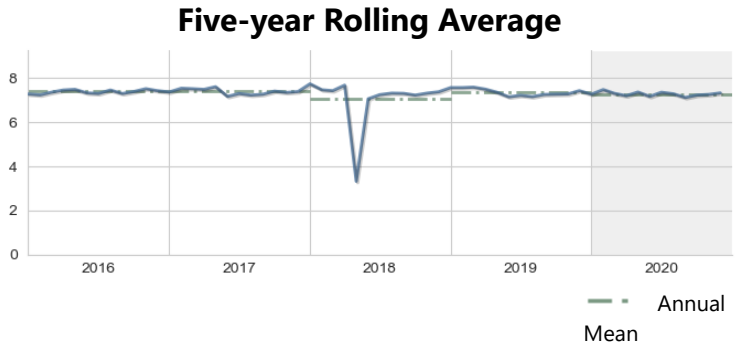
Nitrogen, Nitrite + Nitrate as N

Units: ug/l	Year 2020	Historical period of record
High	1,190.0	4,590.0
Mean	126.37	59.79
Low	4.00	0.00
No. of Samples	76	1,498



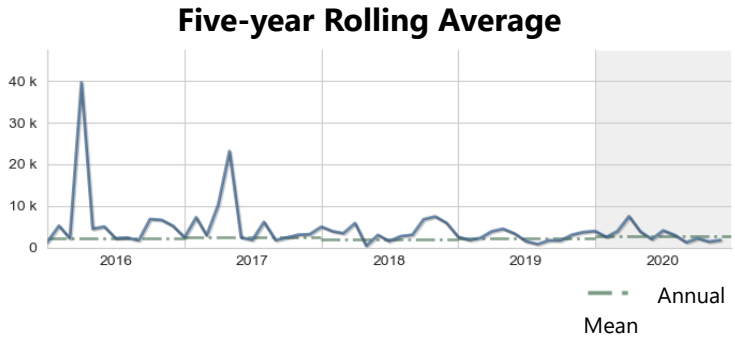
pH

Units: None	Year 2020	Historical period of record
High	8.0	9.3
Mean	7.28	7.39
Low	6.85	0.10
No. of Samples	76	6,359



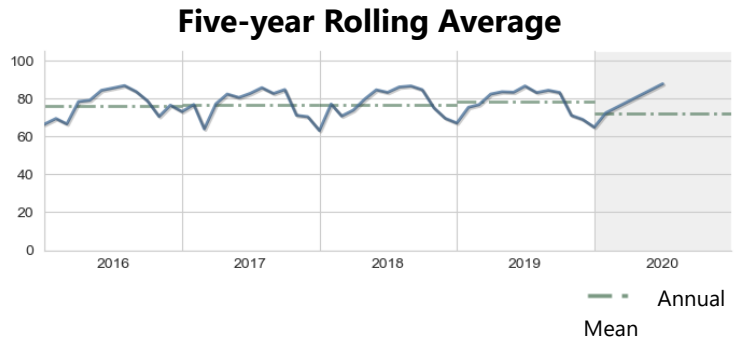
Specific conductance

Units: umho	Year 2020	Historical period of record
High	45,443.6	53,581.0
Mean	2782.48	3722.87
Low	404.371	0.823
No. of Samples	77	5,684



Temperature, water

Units: deg F	Year 2020	Historical period of record
High	87.6	92.4
Mean	71.79	75.29
Low	62.96	46.40
No. of Samples	4	5,910

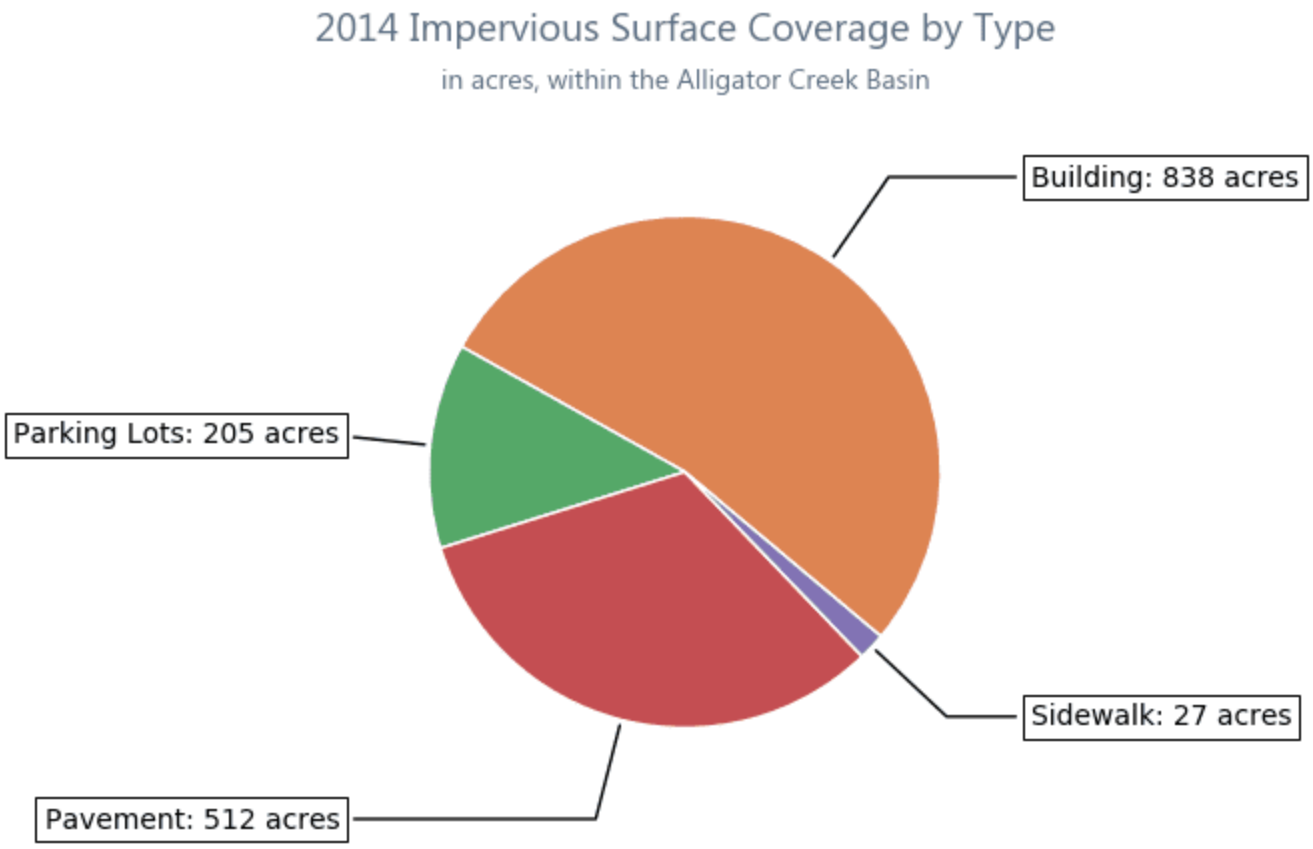


Impervious Features

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.



23% of the land area within the **Alligator Creek Basin** is covered by impervious surfaces

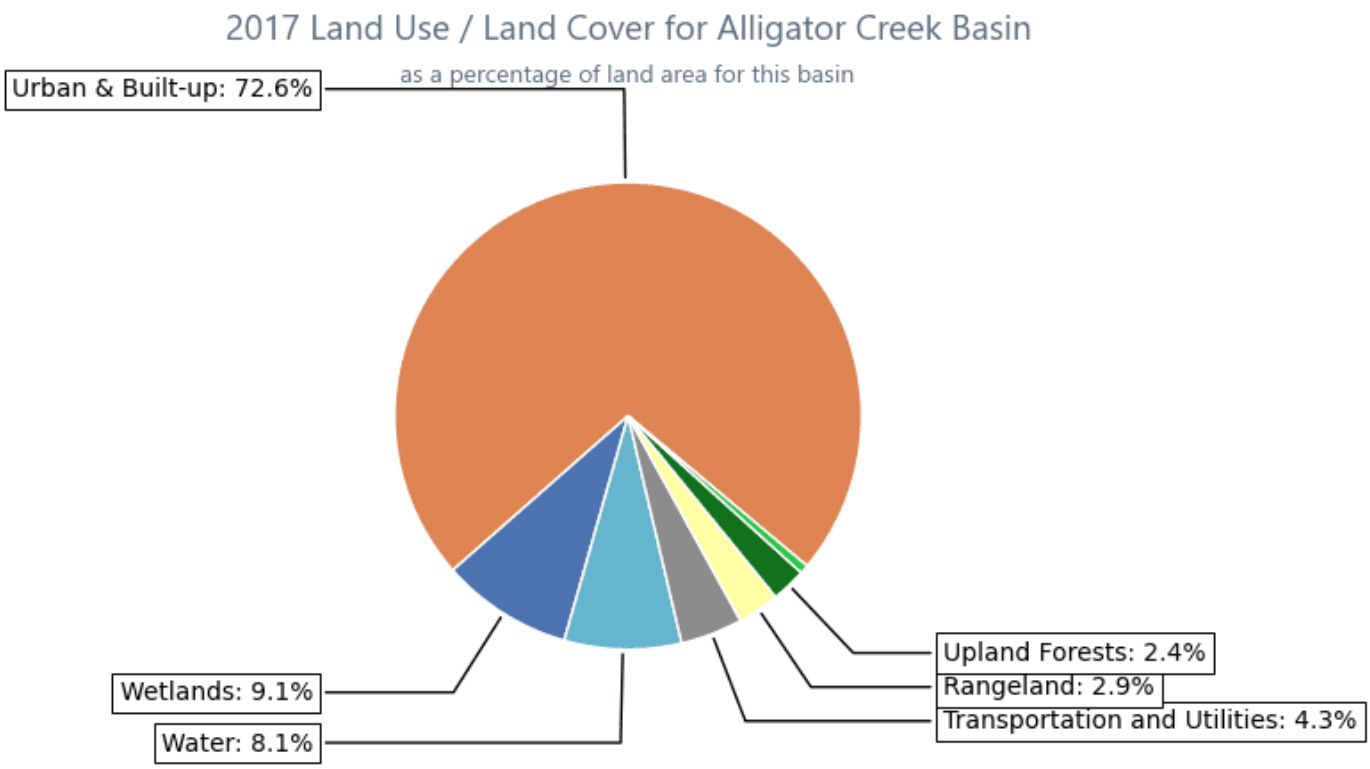


Land Use / Land Cover

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 Alligator Creek Basin

Land Use Classification	1990	1995	1999	2005	2011	2014	2017	Trend
Urban & Built-up	3,990 58.8%	4,415 65%	5,066 74.6%	4,720 69.5%	4,812 70.9%	4,812 70.9%	4,927 72.6%	
Agriculture	73 1.1%	62 0.9%	71 1%	282 4.2%	64 0.9%	64 0.9%	42 0.6%	
Rangeland	550 8.1%	740 10.9%	95 1.4%	223 3.3%	294 4.3%	294 4.3%	200 2.9%	
Upland Forests	821 12.1%	230 3.4%	190 2.8%	181 2.7%	173 2.6%	173 2.6%	162 2.4%	
Water	361 5.3%	610 9%	574 8.4%	484 7.1%	528 7.8%	528 7.8%	548 8.1%	
Wetlands	737 10.9%	459 6.8%	518 7.6%	619 9.1%	625 9.2%	625 9.2%	618 9.1%	
Barren Land	22 0.3%	0 0%	2 0%	0 0%	0 0%	0 0%	0 0%	
Transportation and Utilities	234 3.4%	272 4%	275 4%	280 4.1%	293 4.3%	293 4.3%	293 4.3%	


2017 Land Use / Land Cover for Alligator Creek Basin
as a percentage of land area for this basin
Urban & Built-up: 72.6%
Wetlands: 9.1%
Water: 8.1%
Upland Forests: 2.4%
Rangeland: 2.9%
Transportation and Utilities: 4.3%