

Sarasota Bay Condition Report for 2017

PASS

3 out of 3 indicators were rated as **PASS**.

All three indicators must pass for the bay to be rated as **PASS**.

Chl-a

N

P

Summary:

The overall health in Sarasota Bay showed improvement in 2017, with concentrations of both chlorophyll *a* and phosphorus lower than in 2016. Nitrogen levels increased slightly, but are still relatively low.

Water Quality: The mean concentration of chlorophyll *a* in Sarasota Bay fell to 0.0056 mg/l in 2017, bringing it below the threshold value and improving its rating to "Good". Phosphorus levels, already low, were also down from 2016, and at 0.0598 mg/l remain below the target. Nitrogen concentration rose slightly to 0.3666 mg/l, but water quality overall remained very good. The target and threshold values for nitrogen in Sarasota Bay are still advisory, as no official regulatory threshold has been established. The mean for chlorophyll *a* was calculated as an arithmetic mean and the means for nitrogen and phosphorus were calculated as geometric means (per the Numeric Nutrient Criteria outlined in the Florida Administrative Code, section 62-302.532).

Biotic Indicator: A survey of the biotic indicator, seagrass, was performed in 2016 by the Southwest Florida Water Management District. In 2016, the total area of seagrass in the lower portion of Sarasota Bay (the area within Sarasota County) was estimated to be 3,639 acres, well above the target of 2,022 acres.

Water Chemistry Ratings

Total nitrogen, total phosphorus, and chlorophyll *a* levels are monitored carefully by water resource managers and used by regulatory authorities to determine whether a bay meets the water quality standards mandated by the Clean Water Act. The trend graphs for these indicators are shown below, along with their target and threshold values. A target value is a desirable goal to be attained, while a threshold is an undesirable level which is to be avoided. An individual indicator receives an "Excellent" rating if its mean value is below the target, a "Good" rating if its mean value is above the target but does not exceed the threshold, and a "Caution" rating if the mean value exceeds the threshold.

The charts below illustrate the general trend of water quality parameters. They show a six-month running average, which moderates high and low values in the data.



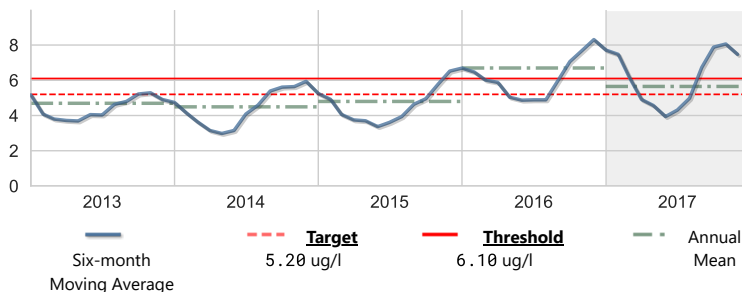
Bays included in this report: Bayou Louise, Brushy Bayou, Pansy Bayou, Sarasota Bay.



Chlorophyll a

Score: Good

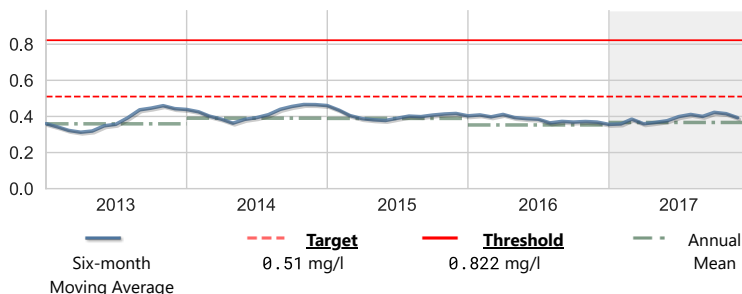
Units: ug/l	Year 2017	Historical period of record
High	27.60	49.00
Mean	5.65	4.76
Low	0.75	0.15
No. of Samples	252	8275



Nitrogen, Total

Score: Excellent

Units: mg/l	Year 2017	Historical period of record
High	0.986	1.870
Mean	0.367	0.340
Low	0.066	0.030
No. of Samples	251	5144



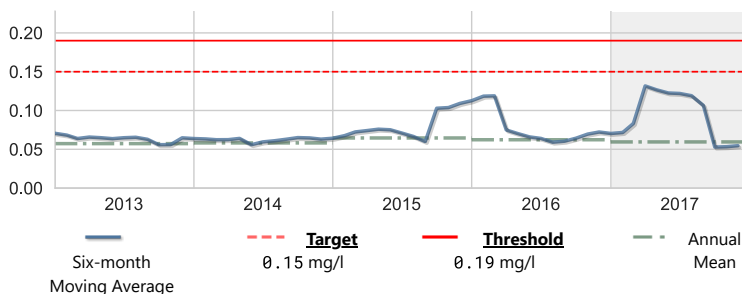
Targets and thresholds shown on this graph are advisory approximations computed by Sarasot recent data. Regulatory thresholds have not been established.



Phosphorus, Total

Score: Excellent

Units: mg/l	Year 2017	Historical period of record
High	0.990	4.400
Mean	0.060	0.083
Low	0.019	0.002
No. of Samples	313	5346

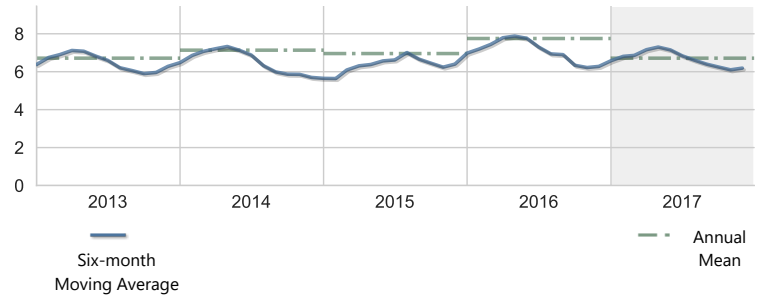


Other Measures of Bay Health

In addition to nutrient levels and chlorophyll concentration, dissolved oxygen levels, and water clarity are also objective indicators of bay health. These have complex interactive cycles which are affected by rainfall, temperature, and tidal action, as well as other factors. High nutrient levels (nitrogen and phosphorus) can stimulate excessive growth of marine algae (indicated by chlorophyll *a* level), resulting in reduced water clarity (and increased light attenuation) and depleted oxygen levels. Both plants and animals in a bay need oxygen to survive, and the seagrasses which provide food and cover for bay creatures need light for photosynthesis.

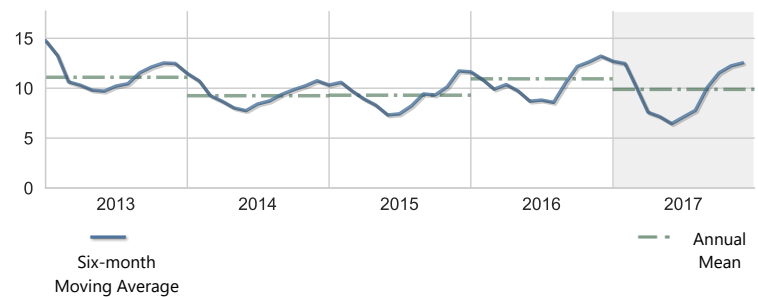
Dissolved Oxygen

Units: mg/l	Year 2017	Historical period of record
High	10.30	13.80
Mean	6.71	6.70
Low	5.01	0.10
No. of Samples	234	16787



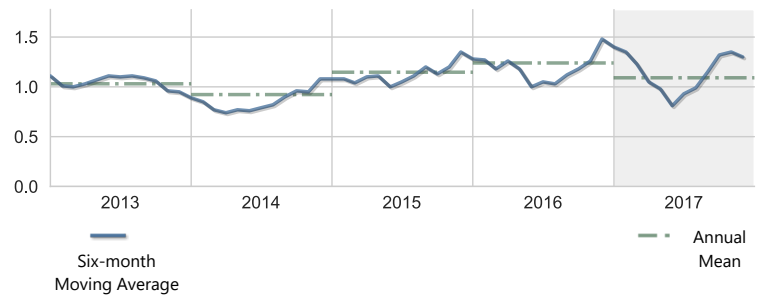
Apparent Color

Units: PCU	Year 2017	Historical period of record
High	25.00	98.00
Mean	9.88	12.84
Low	2.00	0.00
No. of Samples	243	5169



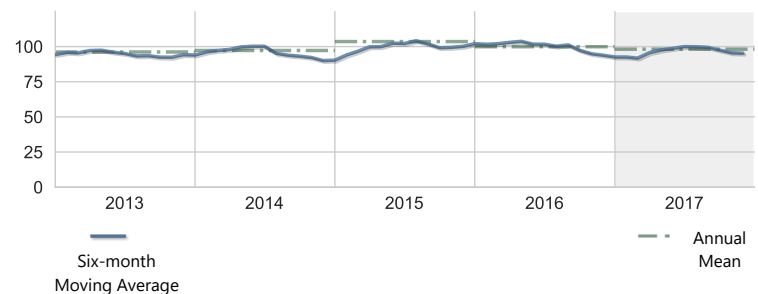
BOD, Biochemical oxygen demand

Units: mg/l	Year 2017	Historical period of record
High	4.00	9.20
Mean	1.09	1.17
Low	0.50	0.50
No. of Samples	243	3809



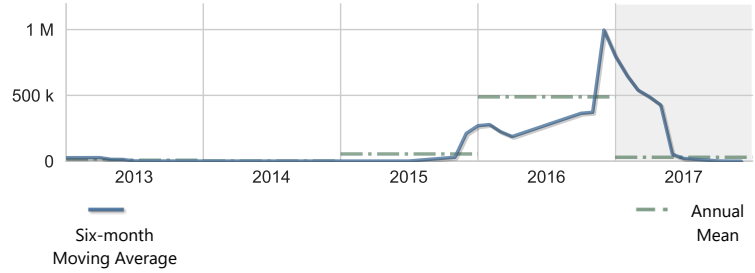
Dissolved oxygen saturation

Units: percent (%)	Year 2017	Historical period of record
High	143.30	214.71
Mean	98.15	97.84
Low	80.00	21.92
No. of Samples	295	16135



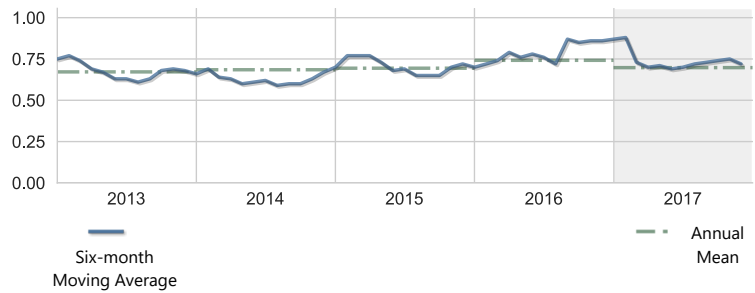
Karenia brevis ("red tide")

Units: #/l	Year 2017	Historical period of record
High	542000.00	8640000.00
Mean	29863.64	71434.54
Low	0.00	0.00
No. of Samples	176	2826



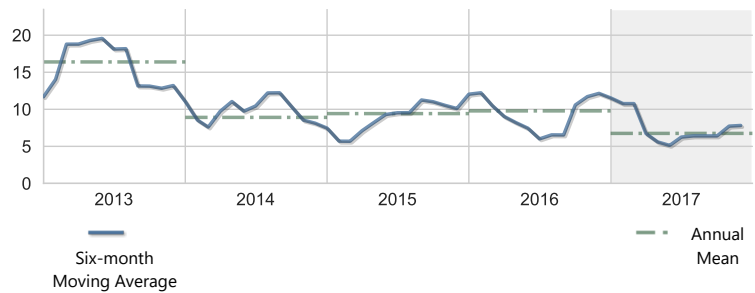
Light Attenuation

Units: K(1/m)	Year 2017	Historical period of record
High	2.92	5.68
Mean	0.70	0.69
Low	0.16	0.04
No. of Samples	220	4224



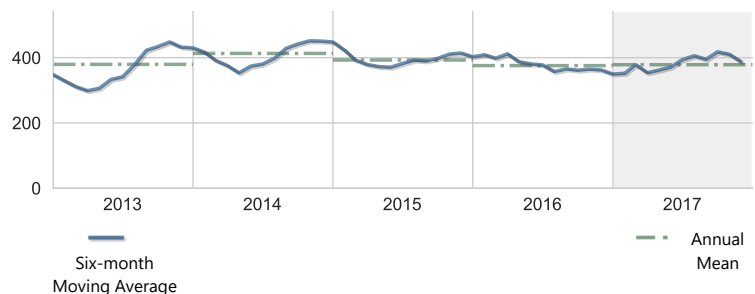
Nitrogen, Ammonia + Ammonium as N

Units: ug/l	Year 2017	Historical period of record
High	18.00	159.00
Mean	6.75	10.96
Low	5.00	5.00
No. of Samples	243	4324



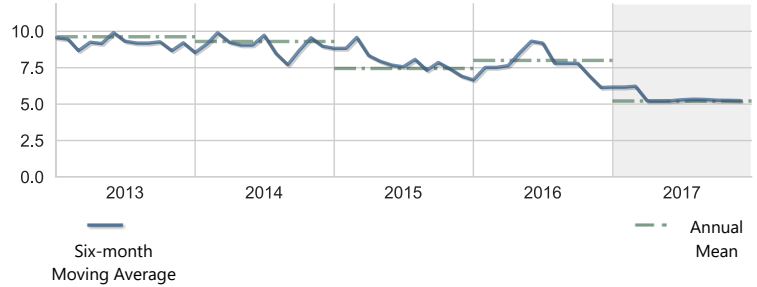
Nitrogen, Kjeldahl

Units: ug/l	Year 2017	Historical period of record
High	980.00	1850.00
Mean	378.44	372.57
Low	60.00	0.01
No. of Samples	313	5457



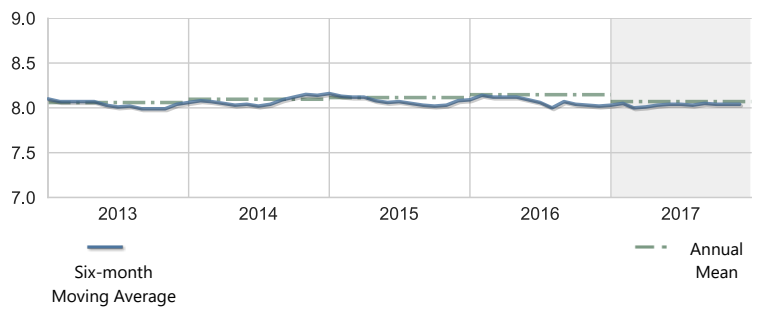
Nitrogen, Nitrite + Nitrate as N

Units: ug/l	Year 2017	Historical period of record
High	10.00	210.00
Mean	5.21	8.41
Low	5.00	1.00
No. of Samples	311	6302



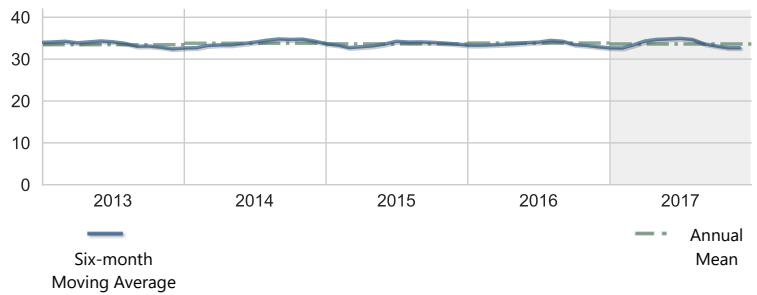
pH

Units: None	Year 2017	Historical period of record
High	8.40	9.62
Mean	8.07	8.07
Low	7.78	3.90
No. of Samples	377	14199



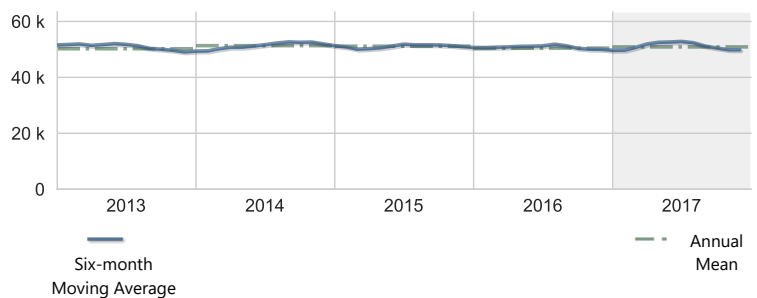
Salinity

Units: PSS	Year 2017	Historical period of record
High	38.90	68.20
Mean	33.62	33.27
Low	25.45	3.60
No. of Samples	235	18297



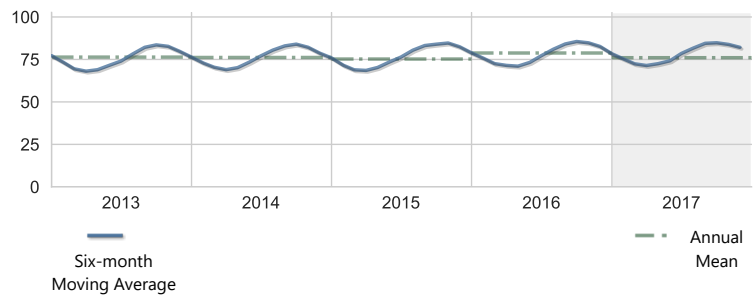
Specific conductance

Units: umho	Year 2017	Historical period of record
High	58200.00	94950.00
Mean	50886.95	51653.49
Low	40030.00	31.20
No. of Samples	295	5621



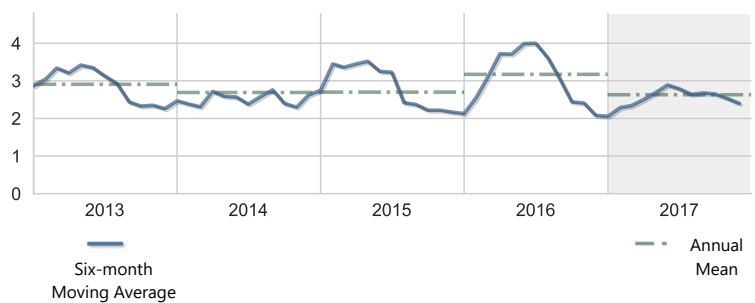
Temperature, water

Units: deg F	Year 2017	Historical period of record
High	91.89	100.40
Mean	76.03	76.96
Low	59.90	35.24
No. of Samples	435	18849



Turbidity

Units: NTU	Year 2017	Historical period of record
High	10.00	39.00
Mean	2.63	2.64
Low	0.60	0.03
No. of Samples	252	14871



Annual Averages

Indicator	Units	2013	2014	2015	2016	2017	Trend
Dissolved Oxygen	mg/l	6.71	7.14	6.96	7.75	6.71	
Dissolved oxygen saturation	percent (%)	96.16	97.22	103.56	99.90	98.15	
Light Attenuation	K(1/m)	0.67	0.68	0.69	0.74	0.70	
Salinity	PSS	33.45	33.80	33.64	33.84	33.62	
Turbidity	NTU	2.91	2.69	2.70	3.17	2.63	

Bay Contour Maps (2017)

Contour mapping is one of the best ways to visualize spatial differences in coastal water quality. The interactive map shown below presents monthly data for one selected water quality indicator atop an aerial view of the bay. Choose a different water quality parameter from the list at the top to change the map.

Showing 2017 Monthly Contour Maps for: Chlorophyll a ▼ January



Contour Legend:

- Less than 1 mg/l
- 1.0 - 5.9 mg/l
- 6.0 - 10.9 mg/l
- 11.0 - 17.9 mg/l
- Greater than 18 mg/l

Seagrasses

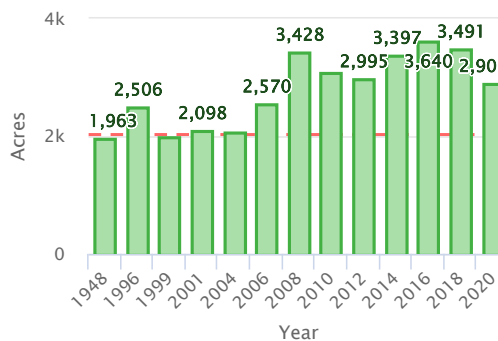
Among the most important habitats in Florida's estuarine environments, seagrass beds are indispensable for the role they play in cycling nutrients, supplying food for wildlife, stabilizing sediments, and providing habitat for juvenile and adult finfish and shellfish. Use the interactive map below to observe the size, density and location of seagrass beds from year to year. The graph shows how the total amount of seagrass in the bay has changed over time. Seagrass calculations are aggregates of patchy and continuous seagrass measurements only. Recordings of attached algae are not included in these summaries.

Showing Seagrass Coverage for 2020:



- Legend:**
- Continuous Seagrass
 - Patchy Seagrass

Seagrass Acreage Variation within Sarasota Bay



--- Target 2, 022 acres

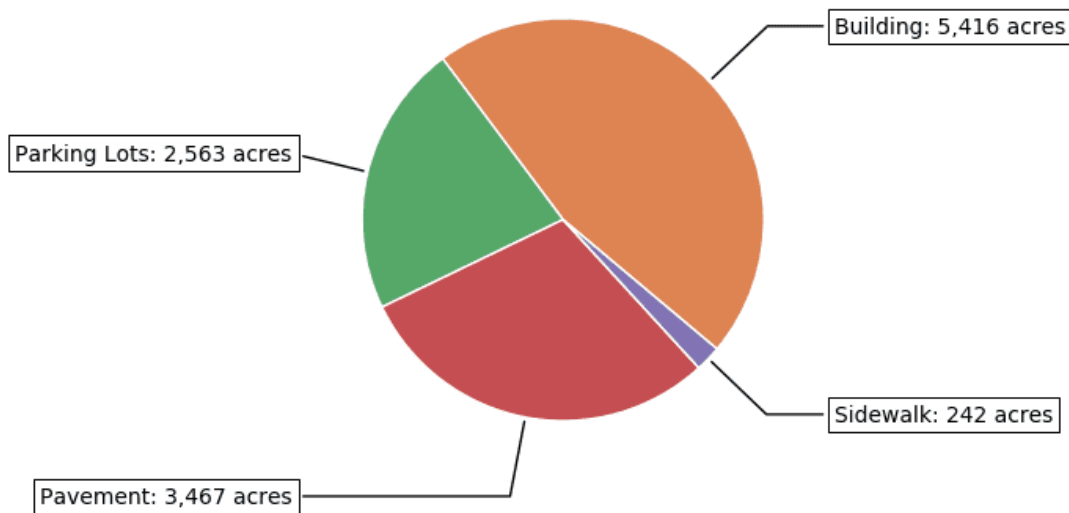
Impervious Features

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.

 **19%** of the land area within the **Sarasota Bay Watershed** is covered by impervious surfaces

2014 Impervious Surface Coverage by Type

in acres, within the Sarasota Bay Watershed



Land Use / Land Cover

Land use within a bay'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 (upland or wetland, e.g.), 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.

Sarasota Bay is located within the Sarasota Bay Watershed. The chart below shows the land use / land cover characteristics for Sarasota Bay Watershed within the boundary of this Water Atlas. [**View details about the Sarasota Bay Watershed »**](#)

Acree and Percentage within each Land Use / Land Cover Category for Sarasota Bay Watershed

2017 Bay Conditions Report for Sarasota Bay

Land Use Classification	1990	2005	2011	2014	2017	2020	Trend
Urban & Built-up	32,908 53.3%	37,844 61.3%	38,343 62.1%	37,987 61.6%	38,749 62.8%	56,970 59.1%	
Agriculture	6,338 10.3%	2,497 4%	2,215 3.6%	2,309 3.7%	1,822 3%	2,986 3.1%	
Rangeland	547 0.9%	199 0.3%	225 0.4%	430 0.7%	208 0.3%	261 0.3%	
Upland Forests	3,588 5.8%	2,109 3.4%	1,874 3%	1,923 3.1%	1,756 2.8%	2,075 2.2%	
Water	13,350 21.6%	14,227 23.1%	14,278 23.1%	14,131 22.9%	14,255 23.1%	25,360 26.3%	
Wetlands	2,870 4.7%	2,227 3.6%	2,229 3.6%	2,372 3.8%	2,327 3.8%	4,889 5.1%	
Barren Land	29 0%	9 0%	99 0.2%	109 0.2%	100 0.2%	76 0.1%	
Transportation and Utilities	1,845 3%	2,602 4.2%	2,452 4%	2,453 4%	2,511 4.1%	3,783 3.9%	

2020 Land Use / Land Cover for Sarasota Bay Watershed

as a percentage of land area for this watershed

