

Sarasota Bay Condition Report for 2014

✓

PASS

Chl-a

N

P

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

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

Summary:

The overall health in Sarasota Bay has remained high. Water quality metrics remained relatively constant, with chlorophyll *a* decreasing slightly and nitrogen and phosphorus edging upward.

Water Quality: All three water quality indicators (chlorophyll *a*, nitrogen, and phosphorus) were rated as excellent (below their respective targets). 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). Mean chlorophyll *a* concentration was 0.0045 mg/l, below the target value of 0.0052 mg/l. The mean concentration of total nitrogen increased slightly to 0.3901 mg/l, still below its target value of 0.490 mg/l calculated in 2010*. Mean phosphorus concentration increased very slightly as well, but at 0.0588 mg/l, was well below its target value of 0.150 mg/l.

Biotic Indicator: A survey of the biotic indicator, seagrass, was performed in 2014 by the Southwest Florida Water Management District. In 2014, the total area of seagrass in the lower portion of Sarasota Bay (the area within Sarasota County) was estimated to be 3,397 acres. The total for the whole of Sarasota Bay was estimated to be 10,261 acres, well above the target threshold of 7,269 acres.

*A new target value for nitrogen has not been defined for Sarasota Bay because insufficient color data exist to perform the necessary calculation.

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



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

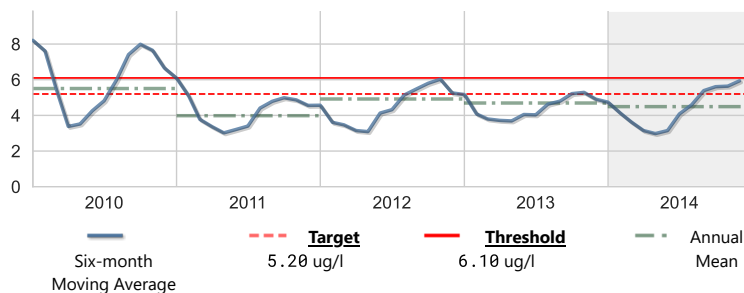
avoided. An individual indicator receives an "Excellent" rating if its mean value is below the target, a "Good" rating if its mean value is above the target but does not exceed the threshold, and a "Caution" rating if the mean value exceeds the threshold.

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.

Chl-a Chlorophyll a

Score: Excellent

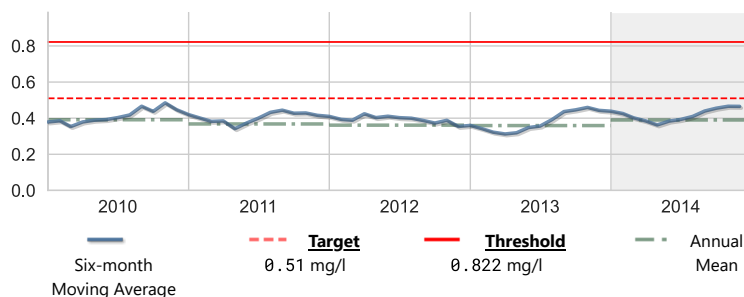
Units: ug/l	Year 2014	Historical period of record
High	22.64	49.00
Mean	4.49	4.82
Low	0.83	0.15
No. of Samples	245	3963



N Nitrogen, Total

Score: Excellent

Units: mg/l	Year 2014	Historical period of record
High	0.900	1.870
Mean	0.390	0.430
Low	0.040	0.030
No. of Samples	244	3772

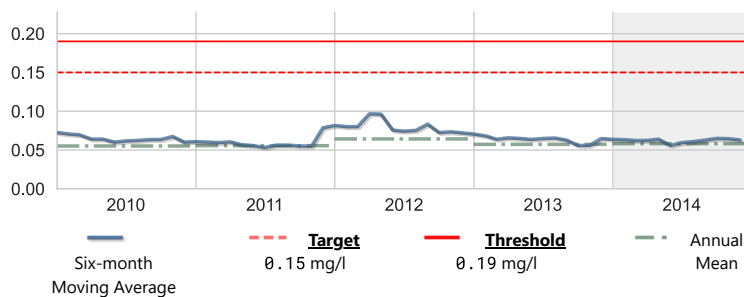


Targets and thresholds shown on this graph are advisory approximations computed by Sarasota recent data. Regulatory thresholds have not been established.

P Phosphorus, Total

Score: Excellent

Units: mg/l	Year 2014	Historical period of record
High	0.140	4.400
Mean	0.058	0.087
Low	0.050	0.002
No. of Samples	306	4508

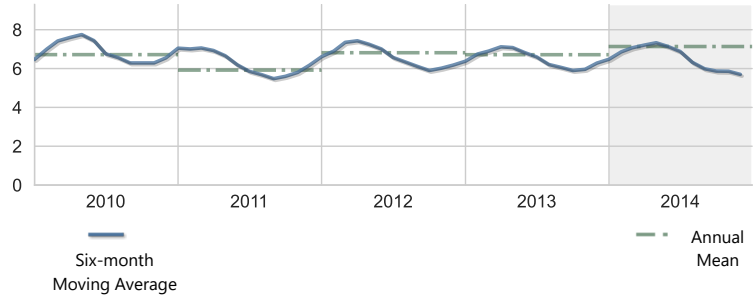


Other Measures of Bay Health

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.

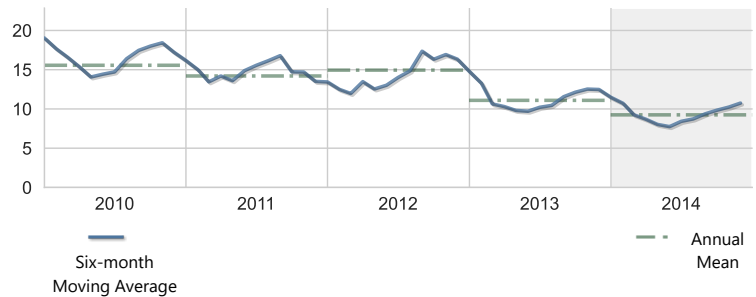
Dissolved Oxygen

Units: mg/l	Year 2014	Historical period of record
High	103.60	103.60
Mean	7.14	6.71
Low	3.80	1.48
No. of Samples	234	15045



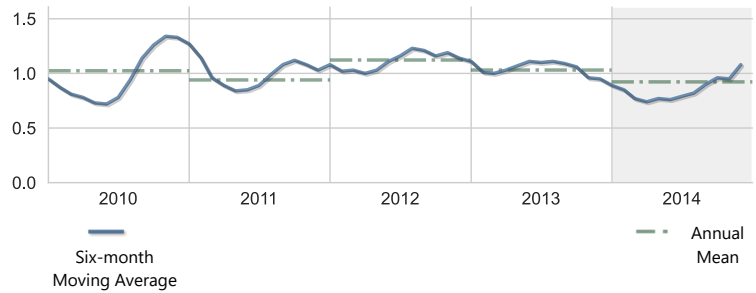
Apparent Color

Units: PCU	Year 2014	Historical period of record
High	25.00	98.00
Mean	9.25	13.28
Low	4.00	0.00
No. of Samples	254	4484



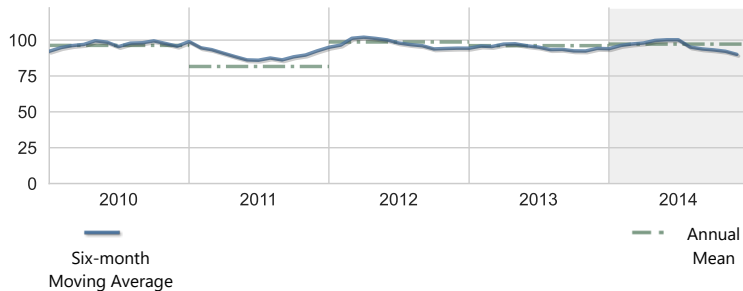
BOD, Biochemical oxygen demand

Units: mg/l	Year 2014	Historical period of record
High	3.40	9.20
Mean	0.92	1.17
Low	0.50	0.50
No. of Samples	254	3124



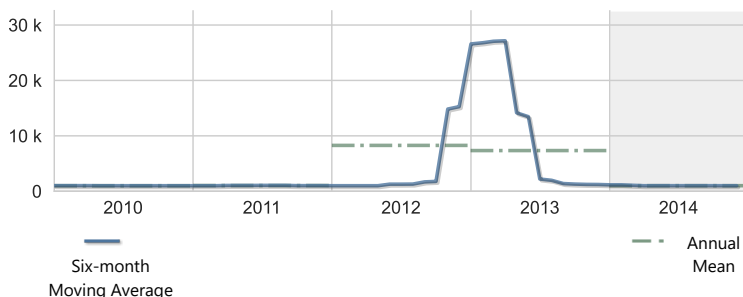
Dissolved oxygen saturation

Units: percent (%)	Year 2014	Historical period of record
High	138.00	214.71
Mean	97.22	97.71
Low	63.00	21.92
No. of Samples	296	15351



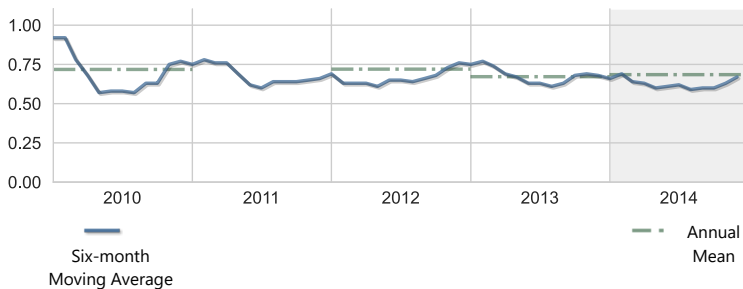
Karenia brevis ("red tide")

Units: #/l	Year 2014	Historical period of record
High	2000.00	6380000.00
Mean	1003.95	55269.94
Low	1000.00	1000.00
No. of Samples	253	2345



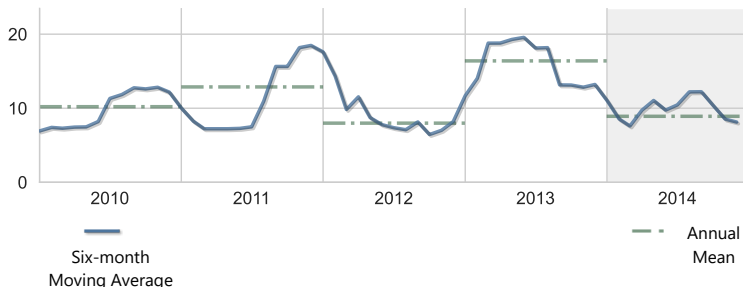
Light Attenuation

Units: K(1/m)	Year 2014	Historical period of record
High	5.68	5.68
Mean	0.68	0.69
Low	0.20	0.05
No. of Samples	222	2920



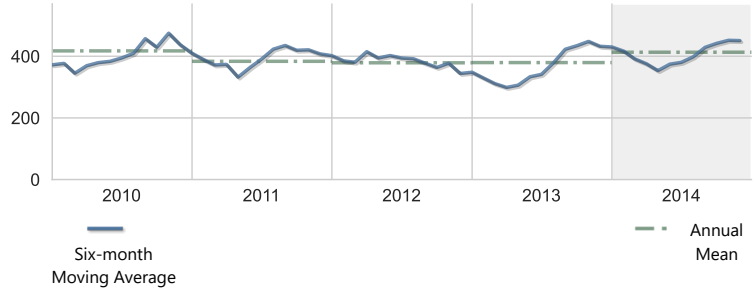
Nitrogen, Ammonia + Ammonium as N

Units: ug/l	Year 2014	Historical period of record
High	39.00	159.00
Mean	8.91	11.40
Low	5.00	5.00
No. of Samples	254	3639



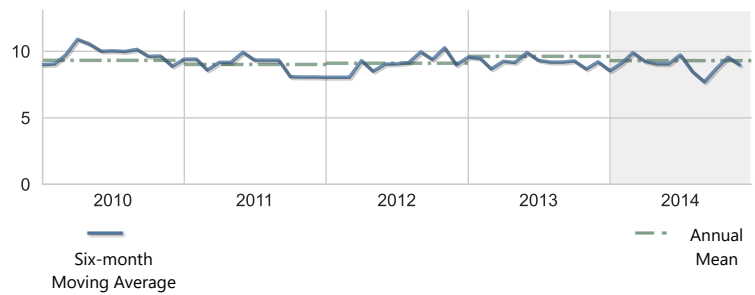
Nitrogen, Kjeldahl

Units: ug/l	Year 2014	Historical period of record
High	870.00	1850.00
Mean	413.03	370.73
Low	0.01	0.01
No. of Samples	310	4617



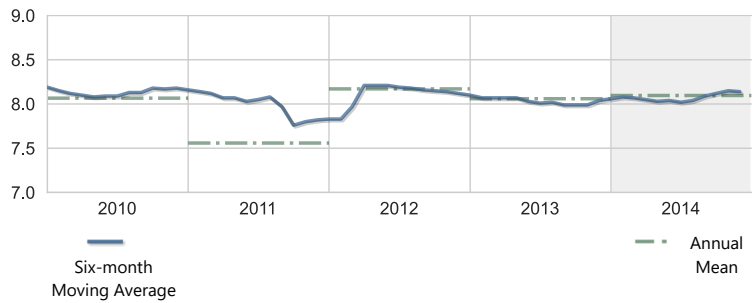
Nitrogen, Nitrite + Nitrate as N

Units: ug/l	Year 2014	Historical period of record
High	30.00	210.00
Mean	9.30	8.66
Low	5.00	1.00
No. of Samples	306	5476



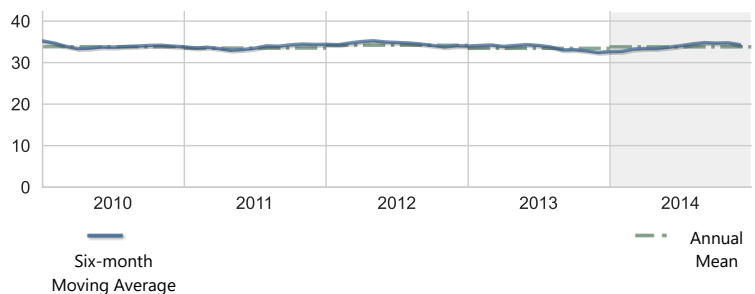
pH

Units: None	Year 2014	Historical period of record
High	8.50	9.62
Mean	8.10	8.07
Low	7.60	3.90
No. of Samples	356	13039



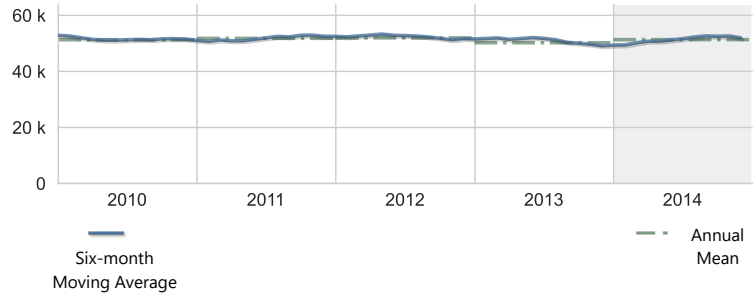
Salinity

Units: PSS	Year 2014	Historical period of record
High	36.40	42.30
Mean	33.80	33.19
Low	28.70	3.60
No. of Samples	235	16576



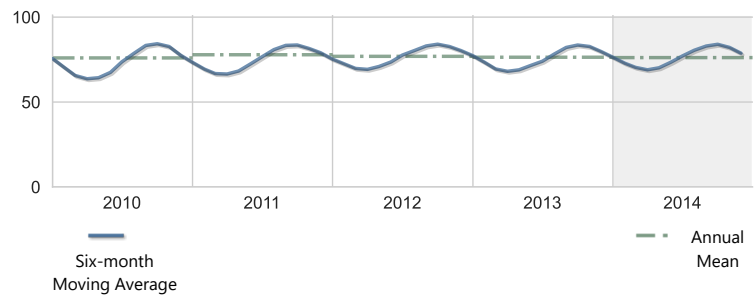
Specific conductance

Units: umho	Year 2014	Historical period of record
High	54780.00	62750.00
Mean	51335.82	51782.52
Low	44500.00	31.20
No. of Samples	297	4836



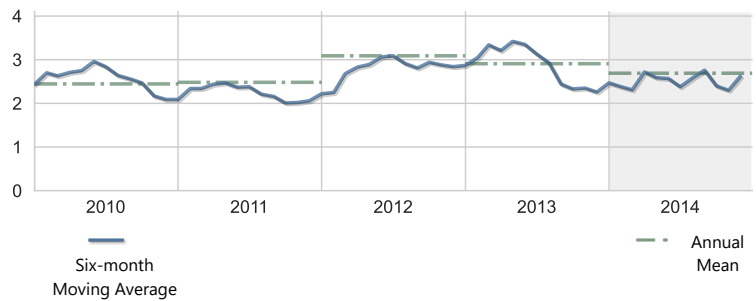
Temperature, water

Units: deg F	Year 2014	Historical period of record
High	88.52	100.40
Mean	76.16	76.99
Low	62.96	35.24
No. of Samples	408	17511



Turbidity

Units: NTU	Year 2014	Historical period of record
High	21.00	39.00
Mean	2.69	2.64
Low	0.30	0.03
No. of Samples	246	13524



Annual Averages

2014 Bay Conditions Report for Sarasota Bay

Indicator	Units	2010	2011	2012	2013	2014	Trend
Dissolved Oxygen	mg/l	6.72	5.92	6.82	6.71	7.14	
Dissolved oxygen saturation	percent (%)	96.32	81.63	98.69	96.16	97.22	
Light Attenuation	K(1/m)	0.72	578.00	0.72	0.67	0.68	
Salinity	PSS	33.83	33.51	34.19	33.45	33.80	
Turbidity	NTU	2.45	2.48	3.09	2.91	2.69	

Bay Contour Maps (2014)

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.



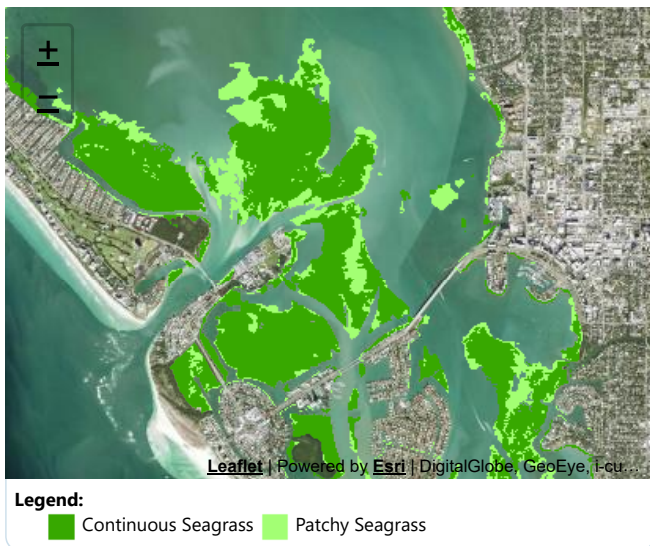
Contour Legend:

- 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

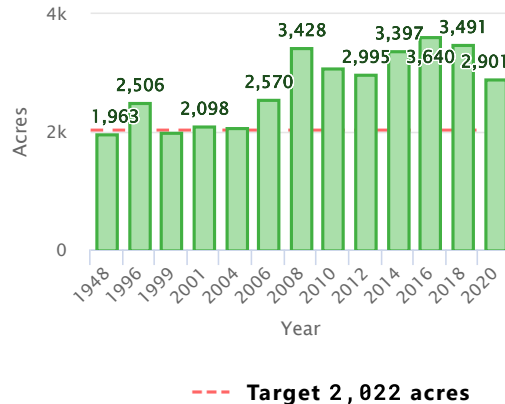
Seagrasses

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:



Seagrass Acreage Variation within Sarasota Bay



Impervious Features

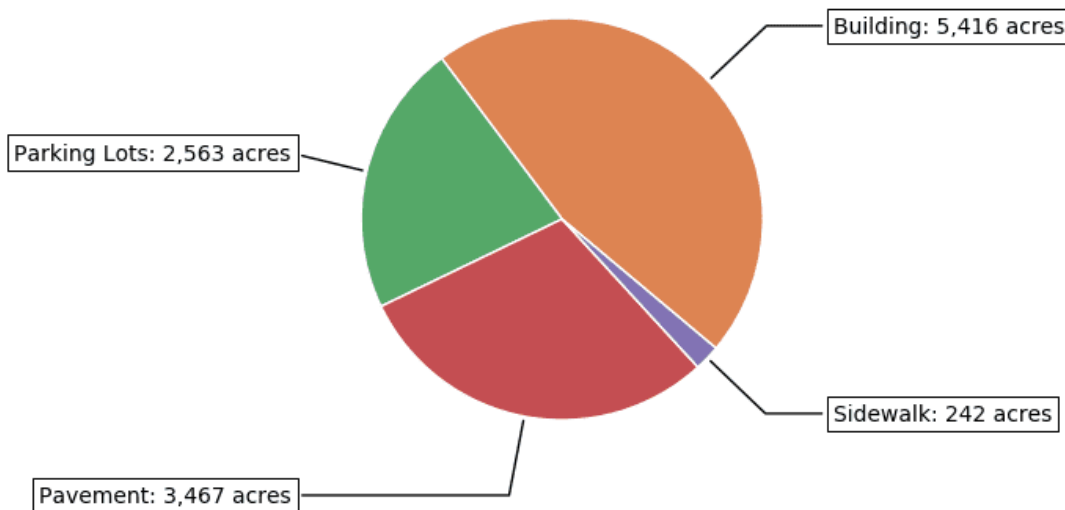
Rain that falls on land that is in a natural state is absorbed and filtered by soils and vegetation as it makes its way into underground aquifers. However, in developed areas, "impervious surfaces" impede this process and contribute to polluted urban runoff entering surface waters. These surfaces include 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

2014 Bay Conditions Report for Sarasota Bay

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 »](#)

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

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

