

Little Sarasota Bay Condition Report for 2016

CAUTION



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

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

Summary:

While the overall health of Little Sarasota Bay is good, the concentration of chlorophyll *a* in the bay again increased markedly during the latter half of 2016, continuing the trend from 2015. Annual mean values for nitrogen and phosphorus concentration increased from 2015 to 2016.

Water Quality: The ratings for nitrogen and phosphorus remained unchanged from their 2015 values, coming in at "Good" and "Excellent", respectively. Continuing a degrading trend from the previous year, chlorophyll *a* concentration increased by 18.3% compared to 2015, pushing its mean value to 0.0123 mg/l, exceeding the threshold of 0.0104 mg/l. The mean nitrogen concentration increased to 0.5733 mg/l exceeding the target concentration of 0.52 mg/l but remaining below the threshold of 0.60 mg/l. Phosphorus concentration also increased to 0.0933 mg/l remaining well below the target of 0.180 mg/l. The mean for chlorophyll *a* was calculated as an arithmetic mean and the means for nitrogen and phosphorus were calculated as



Bays included in this report:
Blind Pass, Dryman Bay,
Little Sarasota Bay

geometric means (per the Numeric Nutrient Criteria outlined in the Florida Administrative Code, section 62-302.532).

Biotic Indicator: Measurement of the biotic indicator, seagrass, was performed in 2016 by the Southwest Florida Water Management District. Total seagrass acreage in Little Sarasota Bay decreased from 999 acres to 872 acres, remaining above the target level of 702 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 Five-year Trend Graphs 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.

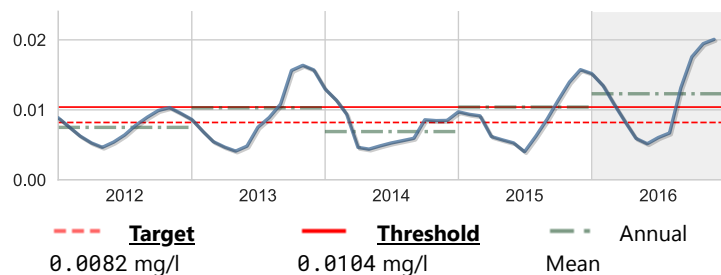


Chlorophyll a

Score: Caution

Units: mg/l	Year 2016	Historical period of record
High	0.068	0.068
Mean	0.012	0.008
Low	0.001	0.000
No. of Samples	75	1470

Five-year Trend Graph



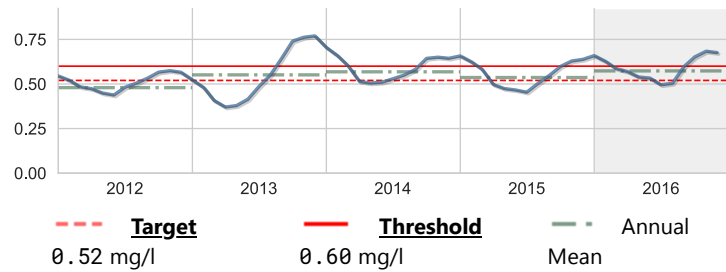


Nitrogen, Total

Score: Good

Units: mg/l	Year 2016	Historical period of record
High	1.165	1.175
Mean	0.573	0.478
Low	0.335	0.055
No. of Samples	75	1434

Five-year Trend Graph

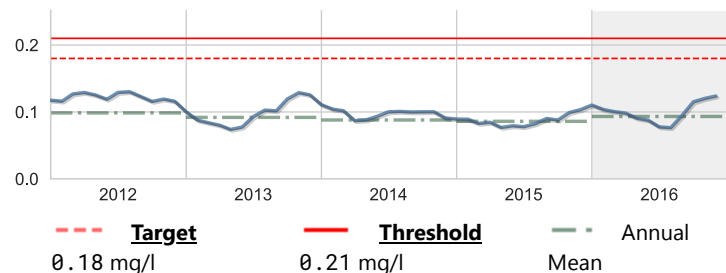


Phosphorus, Total

Score: Excellent

Units: mg/l	Year 2016	Historical period of record
High	0.240	0.699
Mean	0.093	0.131
Low	0.050	0.050
No. of Samples	75	1473

Five-year Trend Graph

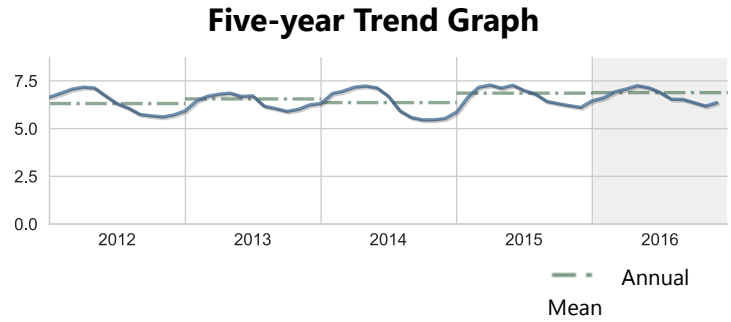


Other Measures of Bay Health

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.

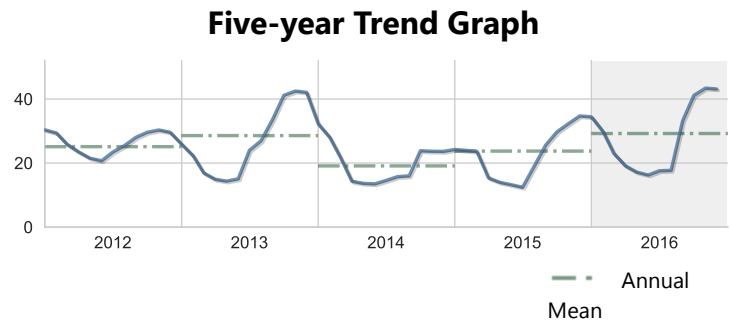
Dissolved Oxygen

Units: mg/l	Year 2016	Historical period of record
High	9.30	11.60
Mean	6.88	6.58
Low	4.60	2.80
No. of Samples	72	1577



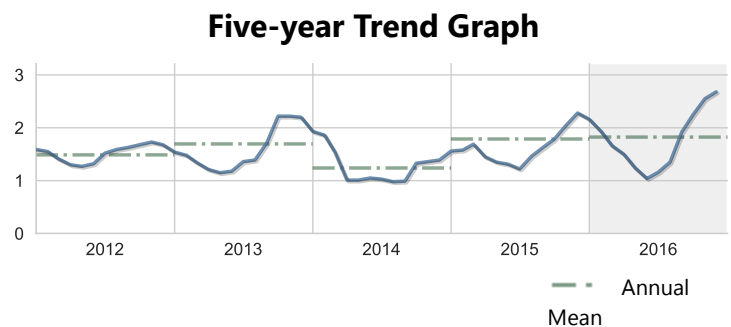
Apparent Color

Units: PCU	Year 2016	Historical period of record
High	190.00	190.00
Mean	29.23	25.10
Low	7.00	4.00
No. of Samples	75	1473



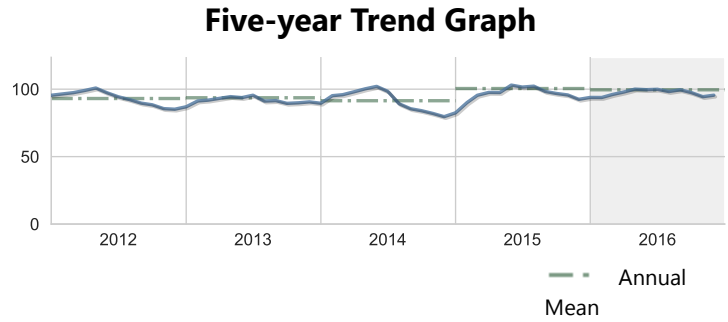
BOD, Biochemical oxygen demand

Units: mg/l	Year 2016	Historical period of record
High	4.90	6.50
Mean	1.82	1.71
Low	0.50	0.50
No. of Samples	75	1326



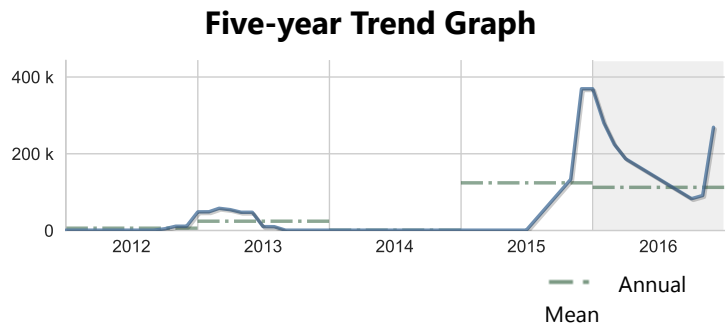
Dissolved oxygen saturation

Units: percent (%)	Year 2016	Historical period of record
High	138.00	167.00
Mean	99.54	95.16
Low	76.00	45.00
No. of Samples	72	1578



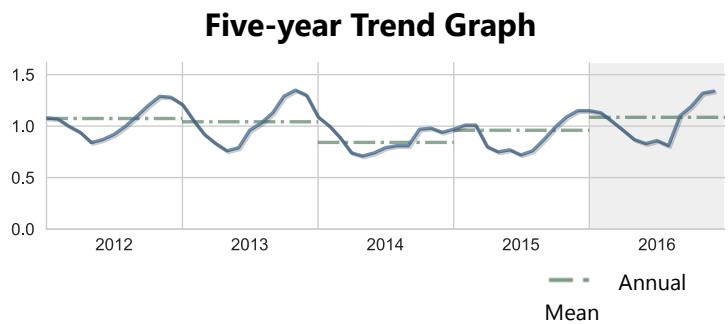
Karenia brevis ("red tide")

Units: #/l	Year 2016	Historical period of record
High	1550000.00	2603000.00
Mean	112568.18	30639.32
Low	1000.00	1000.00
No. of Samples	44	768



Light Attenuation

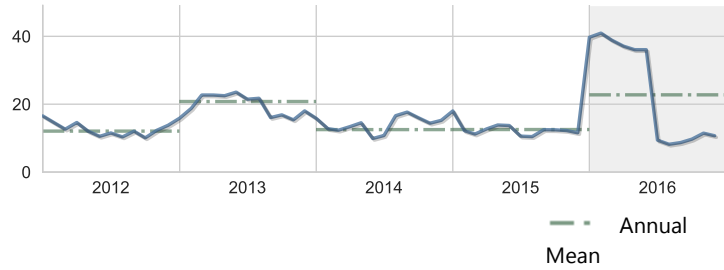
Units: K(1/m)	Year 2016	Historical period of record
High	3.97	3.97
Mean	1.09	1.00
Low	0.41	0.08
No. of Samples	71	1340



Nitrogen, Ammonia + Ammonium as N

Units: ug/l	Year 2016	Historical period of record
High	246.00	246.00
Mean	22.76	16.71
Low	5.00	5.00
No. of Samples	75	1445

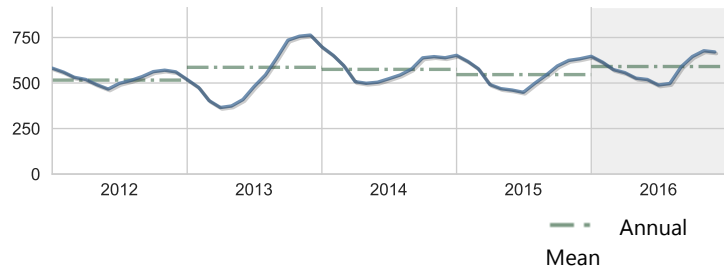
Five-year Trend Graph



Nitrogen, Kjeldahl

Units: ug/l	Year 2016	Historical period of record
High	1160.00	1240.00
Mean	590.67	507.22
Low	330.00	0.05
No. of Samples	75	1473

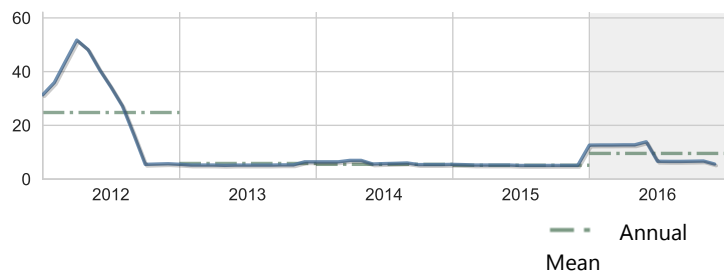
Five-year Trend Graph



Nitrogen, Nitrite + Nitrate as N

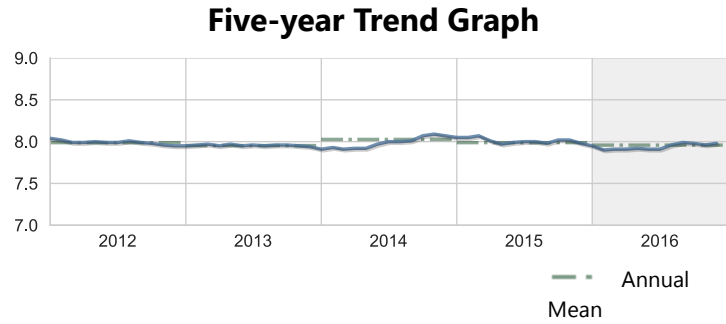
Units: ug/l	Year 2016	Historical period of record
High	92.00	536.00
Mean	9.55	9.15
Low	5.00	5.00
No. of Samples	75	2030

Five-year Trend Graph



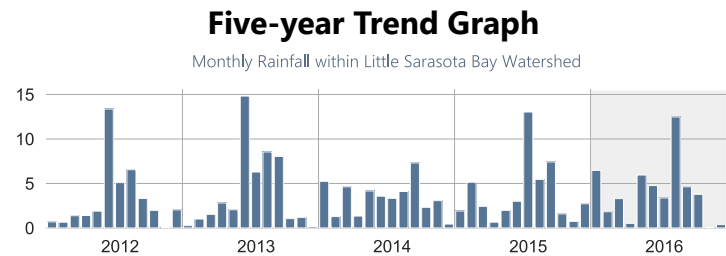
pH

Units: None	Year 2016	Historical period of record
High	8.40	8.50
Mean	7.96	7.96
Low	7.70	6.20
No. of Samples	72	1578



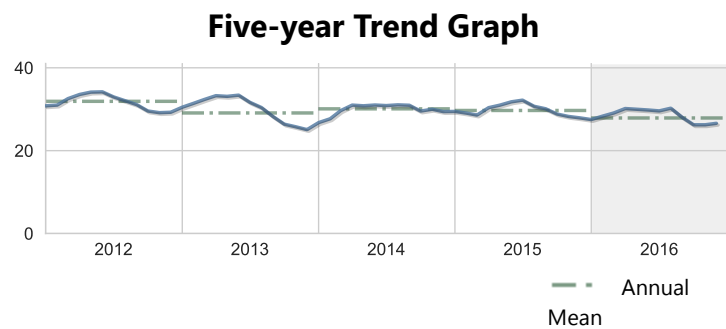
Rainfall

Units: inches/yr	Year 2016	Historical period of record
High	47.5	58.7
Mean		35.0
Low		7.4
No. of Samples	363	5213



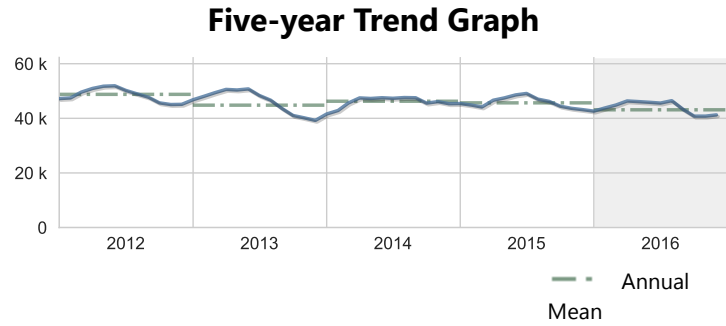
Salinity

Units: PSS	Year 2016	Historical period of record
High	33.40	39.50
Mean	27.88	30.58
Low	13.80	7.30
No. of Samples	72	1577



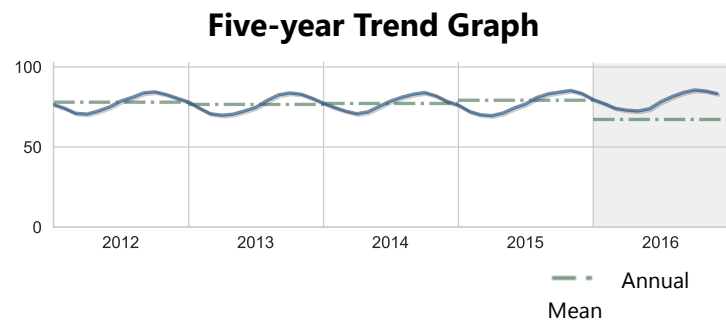
Specific conductance

Units: umho	Year 2016	Historical period of record
High	50800.00	59030.00
Mean	43123.19	46906.39
Low	22900.00	12670.00
No. of Samples	72	1578



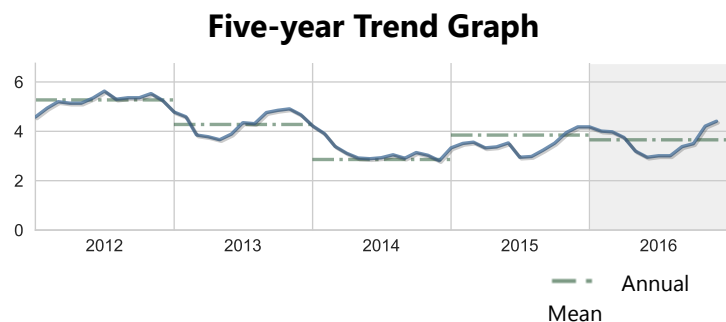
Temperature, water

Units: deg F	Year 2016	Historical period of record
High	70.88	92.12
Mean	67.21	76.99
Low	63.50	47.48
No. of Samples	12	1517



Turbidity

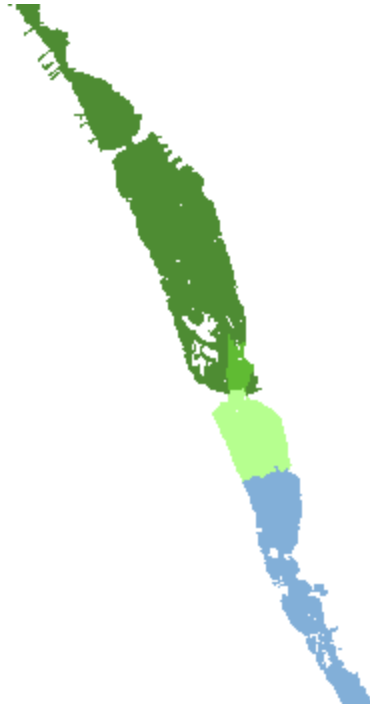
Units: NTU	Year 2016	Historical period of record
High	9.90	18.00
Mean	3.66	3.94
Low	1.30	0.60
No. of Samples	75	1470



Bay Contour Maps (2016)

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 2016 Monthly Contour Maps for: Chlorophyll a
January ▼



Contour Legend:

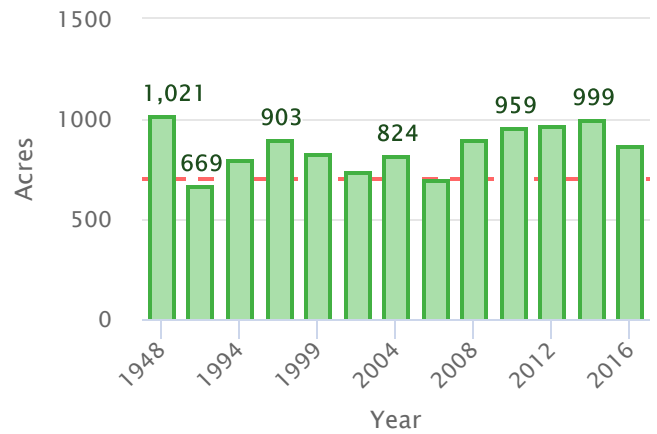
- Less than 1 mg/l
- 1.0 - 5.9 mg/l
- 6.0 - 10.9 mg/l
- 11.0 - 17.9 mg/l
- Greater than 18 mg/l

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.

Showing Seagrass Coverage for 2016:

Seagrass Acreage Variation within Little Sarasota Bay



--- Target 702 acres

Legend:

- Continuous Seagrass
- Patchy Seagrass

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.

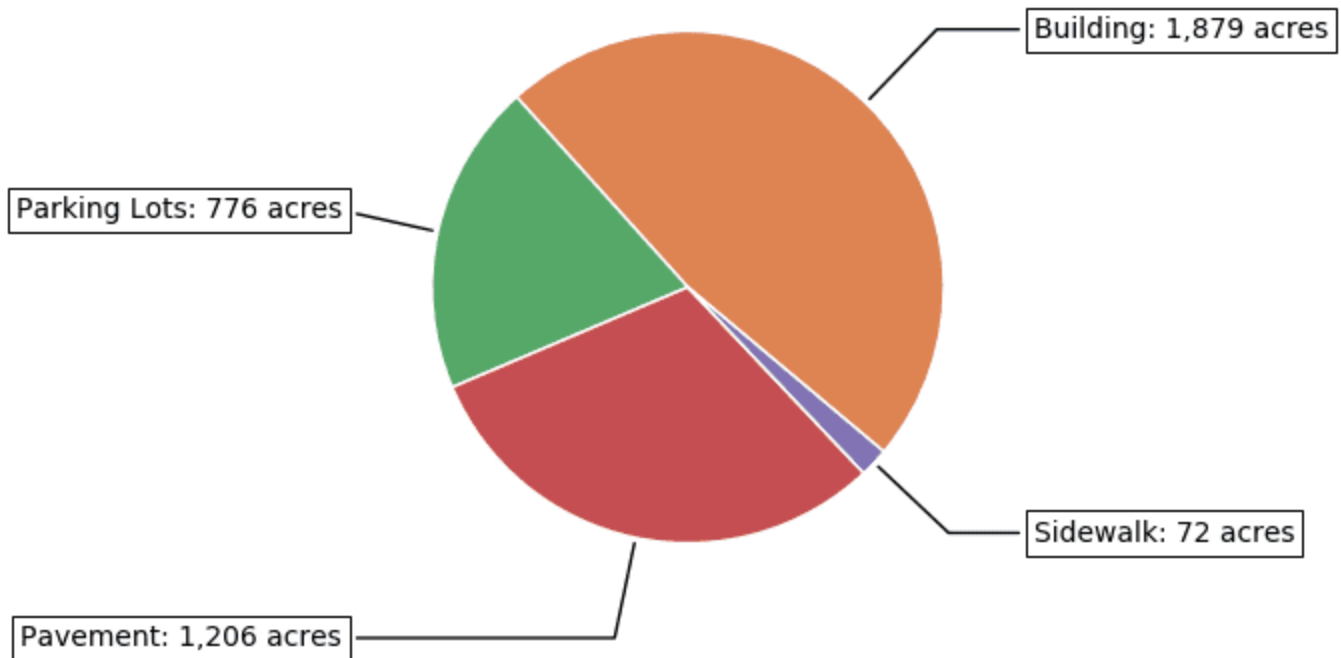


14% of the land area within the **Little Sarasota Bay Watershed** is covered by

impervious surfaces

2014 Impervious Surface Coverage by Type

in acres, within the Little Sarasota Bay Watershed







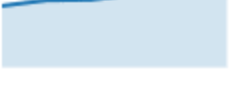


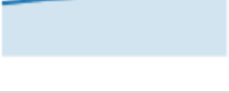
Land Use / Land Cover

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.

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

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

2016 Bay Conditions Report for Little Sarasota Bay

Land Use Classification	1990	1995	1999	2005	2011	2014	Trend
Urban & Built-up	8,943 31.9%	10,071 35.9%	10,955 39%	11,834 42.2%	12,102 43.1%	12,162 43.3%	
Agriculture	3,550 12.6%	3,715 13.2%	3,447 12.3%	3,228 11.5%	3,258 11.6%	4,223 15%	
Rangeland	825 2.9%	1,575 5.6%	1,860 6.6%	1,822 6.5%	1,474 5.3%	579 2.1%	
Upland Forests	7,098 25.3%	4,944 17.6%	3,810 13.6%	3,066 10.9%	2,981 10.6%	2,725 9.7%	
Water	3,429 12.2%	3,755 13.4%	3,785 13.5%	4,123 14.7%	4,147 14.8%	4,175 14.9%	
Wetlands	3,490 12.4%	3,257 11.6%	3,421 12.2%	3,133 11.2%	3,191 11.4%	3,227 11.5%	
Barren Land	62 0.2%	13 0%	19 0.1%	18 0.1%	19 0.1%	20 0.1%	
Transportation and Utilities	675 2.4%	734 2.6%	769 2.7%	841 3%	892 3.2%	952 3.4%	

2014 Land Use / Land Cover for Little Sarasota Bay Watershed

as a percentage of land area for this watershed

