

Little Sarasota Bay Condition Report for 2013



PASS



3 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 water quality metrics for nitrogen and chlorophyll *a* climbed steadily in 2013 beginning in April, ending up above the threshold values. The mean values for the entire year also increased, but did not exceed thresholds. Phosphorus concentration also increased, as well as light attenuation. Both of these measures point to declining water quality. On the positive side, dissolved oxygen concentration in the bay, important for healthy fish and other wildlife, declined only very slightly.

Water Quality: All three water quality indicators (chlorophyll *a*, nitrogen, and phosphorus) were rated as pass (below the threshold). Chlorophyll *a* and nitrogen concentrations showed a definite increasing trend, a sign of worsening water quality. Phosphorus concentration also increased, but the trend was not as dramatic. 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



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

Administrative Code, section 62-302.532). The mean chlorophyll *a* level in Little Sarasota Bay was 0.0103 mg/l, which is below the threshold (0.0104 mg/l) but above the target (0.0082 mg/l). The mean nitrogen level (0.5511 mg/l) has increased and also remains below the threshold (0.600 mg/l) but above the target level (0.520 mg/l). The mean phosphorus level (0.0919 mg/l) has increased slightly from 2012 and was scored as "Excellent", as it is still below both the target (0.180 mg/l) and threshold (0.210 mg/l) levels.

Biotic Indicator: Measurement of the biotic indicator, seagrass, is performed at two-year intervals and is due for monitoring again in 2014. In recent years, total seagrass acreage in Little Sarasota Bay has held steady and, at 974 acres, is well above the targ

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.

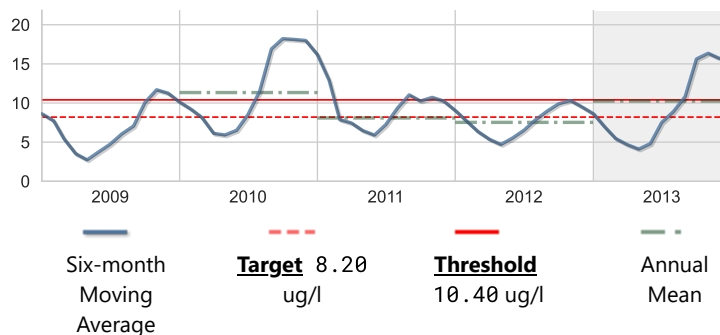
The charts below illustrate the general trend of water quality parameters. They show a six-month running average, which moderates high and low values in the data.



Chlorophyll a

Score: Good

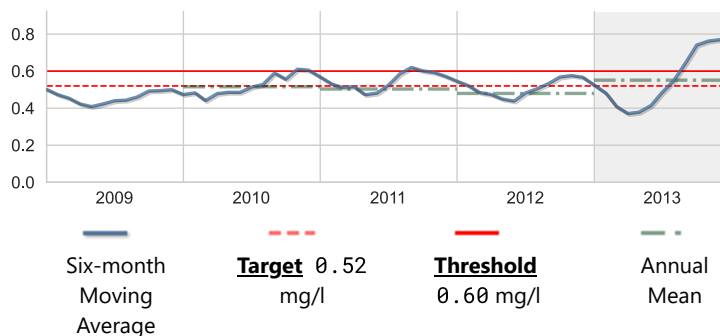
Units: ug/l	Year 2013	Historical period of record
High	57.75	57.75
Mean	10.26	7.69
Low	2.10	0.06
No. of Samples	72	1216



Nitrogen, Total

Score: Good

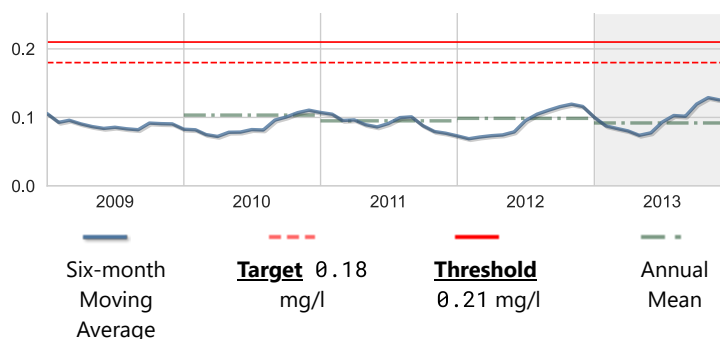
Units: mg/l	Year 2013	Historical period of record
High	1.058	1.175
Mean	0.551	0.52
Low	0.225	0.055
No. of Samples	72	1200



Phosphorus, Total

Score: Excellent

Units: mg/l	Year 2013	Historical period of record
High	0.210	0.699
Mean	0.092	0.140
Low	0.050	0.050
No. of Samples	72	1249

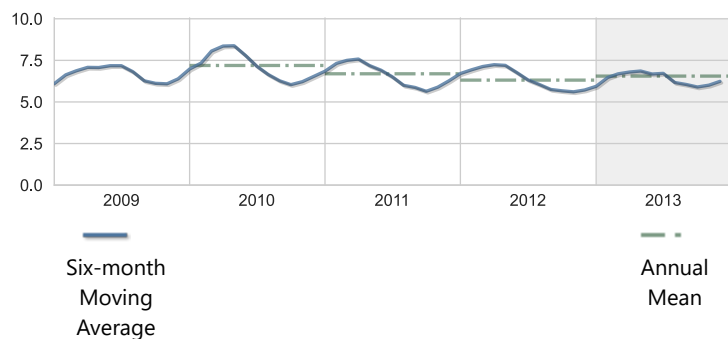


Other Measures of Bay Health

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.

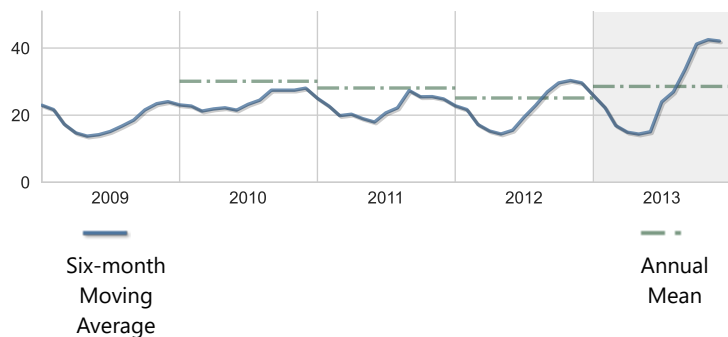
Dissolved Oxygen

Units: mg/l	Year 2013	Historical period of record
High	8.50	11.60
Mean	6.55	6.56
Low	4.70	2.80
No. of Samples	72	1353



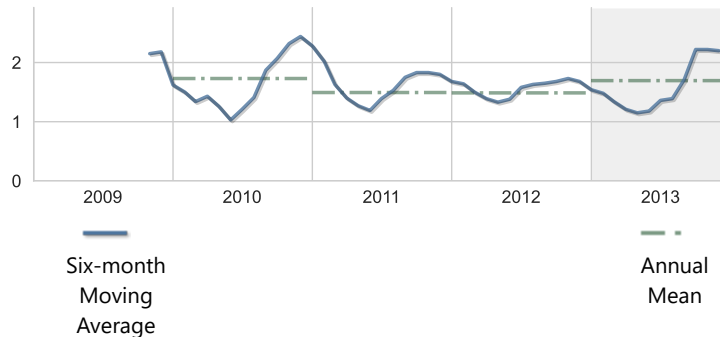
Apparent Color

Units: PCU	Year 2013	Historical period of record
High	90.00	140.00
Mean	28.57	25.28
Low	9.00	4.00
No. of Samples	72	1249



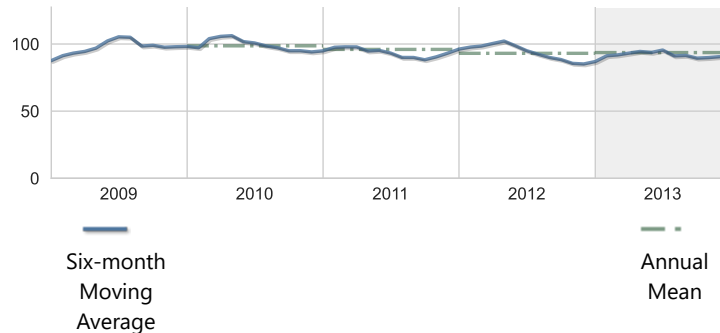
BOD, Biochemical oxygen demand

Units: mg/l	Year 2013	Historical period of record
High	6.40	6.50
Mean	1.69	1.73
Low	0.50	0.50
No. of Samples	71	1103



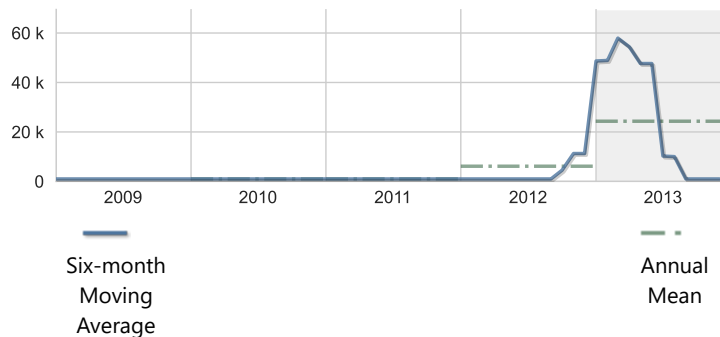
Dissolved oxygen saturation

Units: percent (%)	Year 2013	Historical period of record
High	115.00	167.00
Mean	93.63	94.84
Low	71.00	45.00
No. of Samples	72	1362



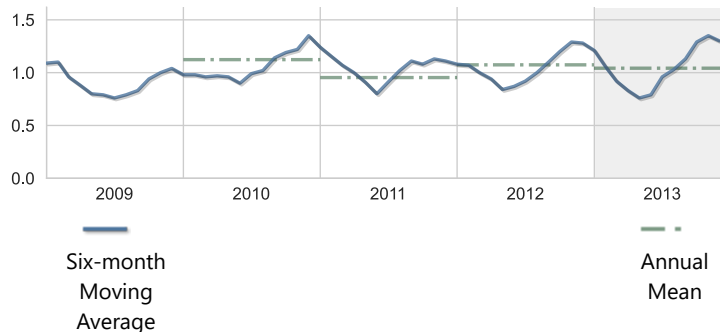
Karenia brevis ("red tide")

Units: #/l	Year 2013	Historical period of record
High	762000.00	2603000.00
Mean	24333.33	19258.01
Low	1000.00	1000.00
No. of Samples	72	593



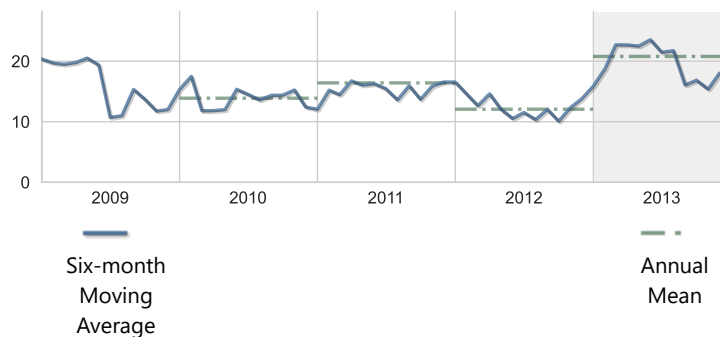
Light Attenuation

Units: K(1/m)	Year 2013	Historical period of record
High	2.33	2.98
Mean	1.04	1.01
Low	0.22	0.08
No. of Samples	72	1125



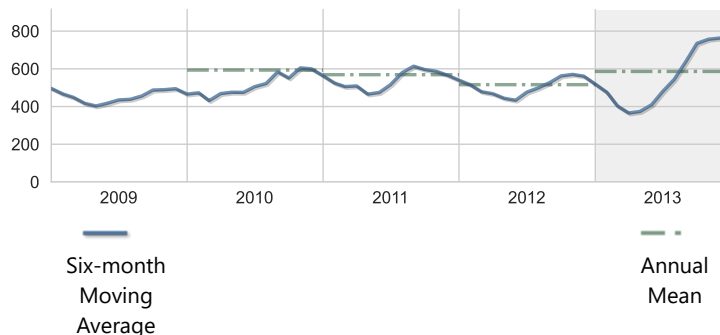
Nitrogen, Ammonia + Ammonium as N

Units: ug/l	Year 2013	Historical period of record
High	83.00	203.00
Mean	20.79	16.86
Low	5.00	5.00
No. of Samples	72	1221



Nitrogen, Kjeldahl

Units: ug/l	Year 2013	Historical period of record
High	1050.00	1240.00
Mean	586.25	495.85
Low	220.00	0.05
No. of Samples	72	1249



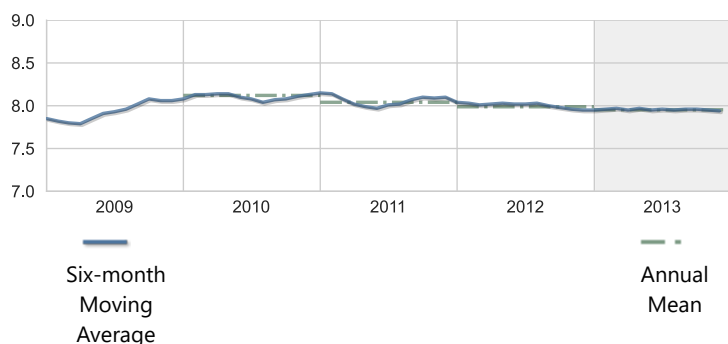
Nitrogen, Nitrite + Nitrate as N

Units: ug/l	Year 2013	Historical period of record
High	32.00	536.00
Mean	5.81	9.45
Low	5.00	5.00
No. of Samples	72	1806



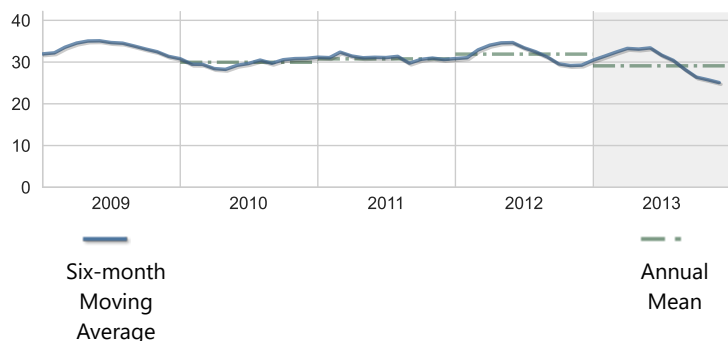
pH

Units: None	Year 2013	Historical period of record
High	8.20	8.50
Mean	7.95	7.95
Low	7.70	6.20
No. of Samples	72	1362



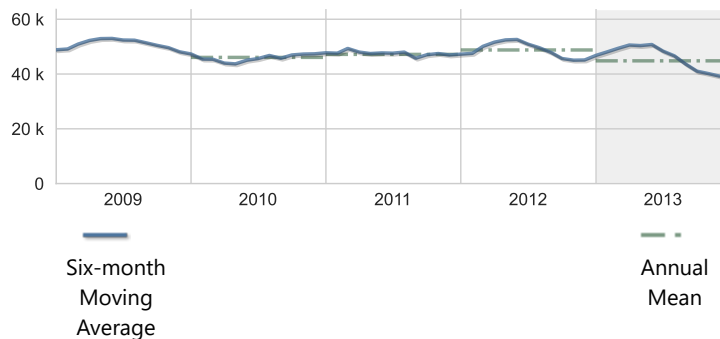
Salinity

Units: PSS	Year 2013	Historical period of record
High	36.00	39.50
Mean	29.10	30.80
Low	17.80	7.30
No. of Samples	72	1329



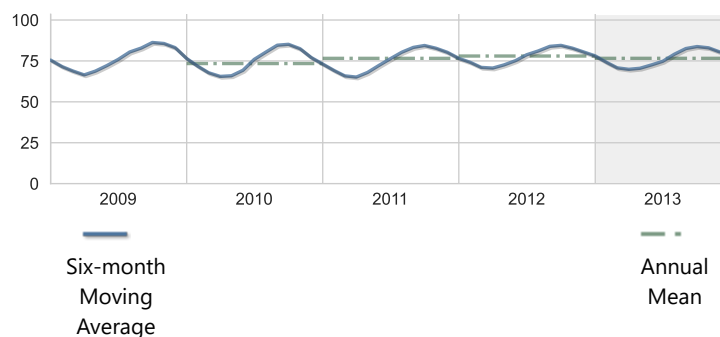
Specific conductance

Units: umho	Year 2013	Historical period of record
High	54260.00	59030.00
Mean	44818.33	47205.93
Low	28920.00	12670.00
No. of Samples	72	1362



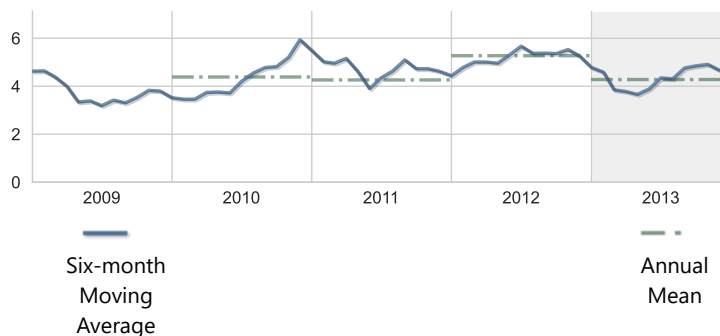
Temperature, water

Units: deg F	Year 2013	Historical period of record
High	87.44	92.12
Mean	76.60	76.95
Low	61.16	47.48
No. of Samples	72	1361



Turbidity

Units: NTU	Year 2013	Historical period of record
High	14.00	16.00
Mean	4.28	3.99
Low	1.60	0.60
No. of Samples	72	1207



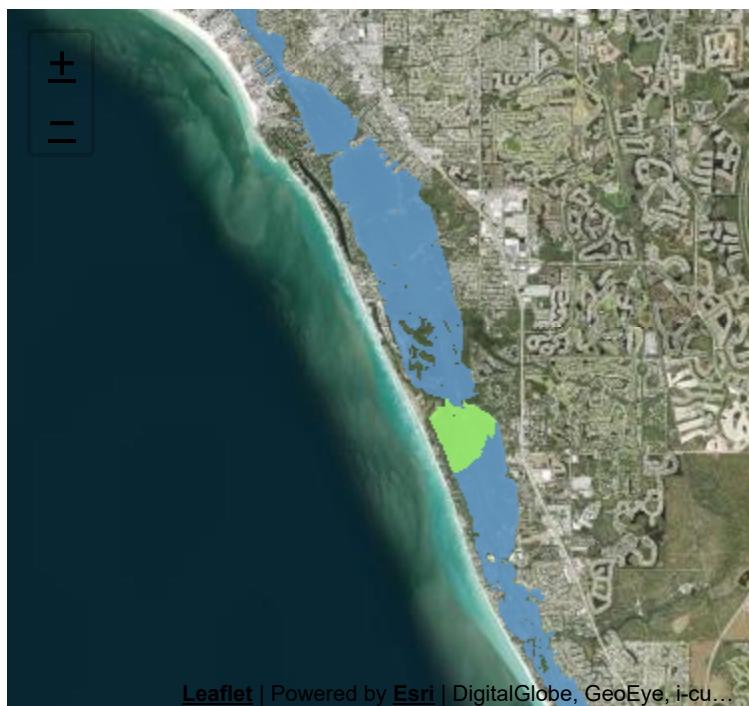
Annual Averages

Indicator	Units	2009	2010	2011	2012	2013	Trend
Dissolved Oxygen	mg/l		7.19	6.69	6.31	6.55	
Dissolved oxygen saturation	percent (%)		98.64	95.99	93.07	93.63	
Light Attenuation	K(1/m)		1.12	0.95	1.07	1.04	
Salinity	PSS		29.96	30.77	31.91	29.10	
Turbidity	NTU		4.39	4.26	5.27	4.28	

Bay Contour Maps (2013)

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 2013 Monthly Contour Maps for: Chlorophyll a ▼
 January



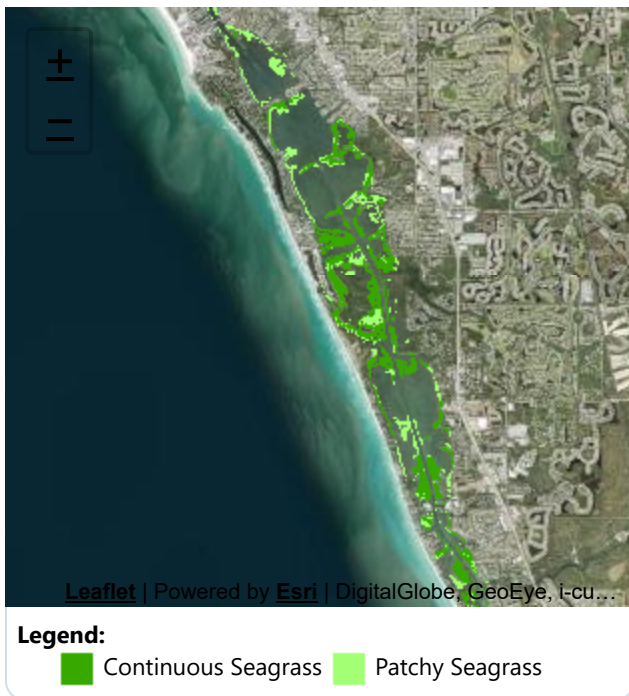
Contour Legend:

- 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

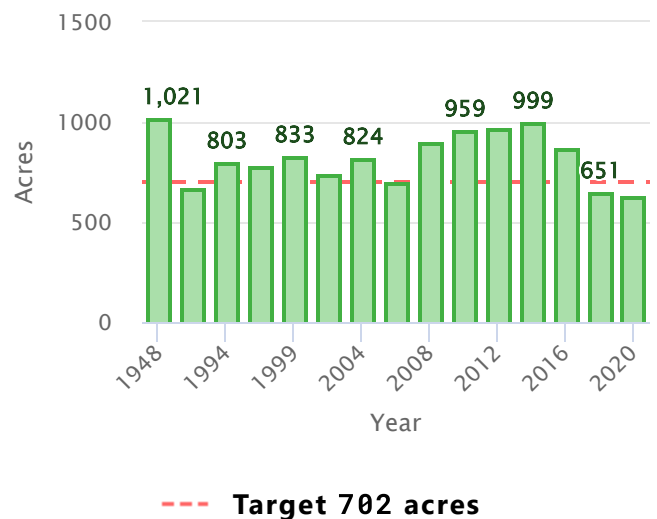
Seagrasses

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:



Seagrass Acreage Variation within Little 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.

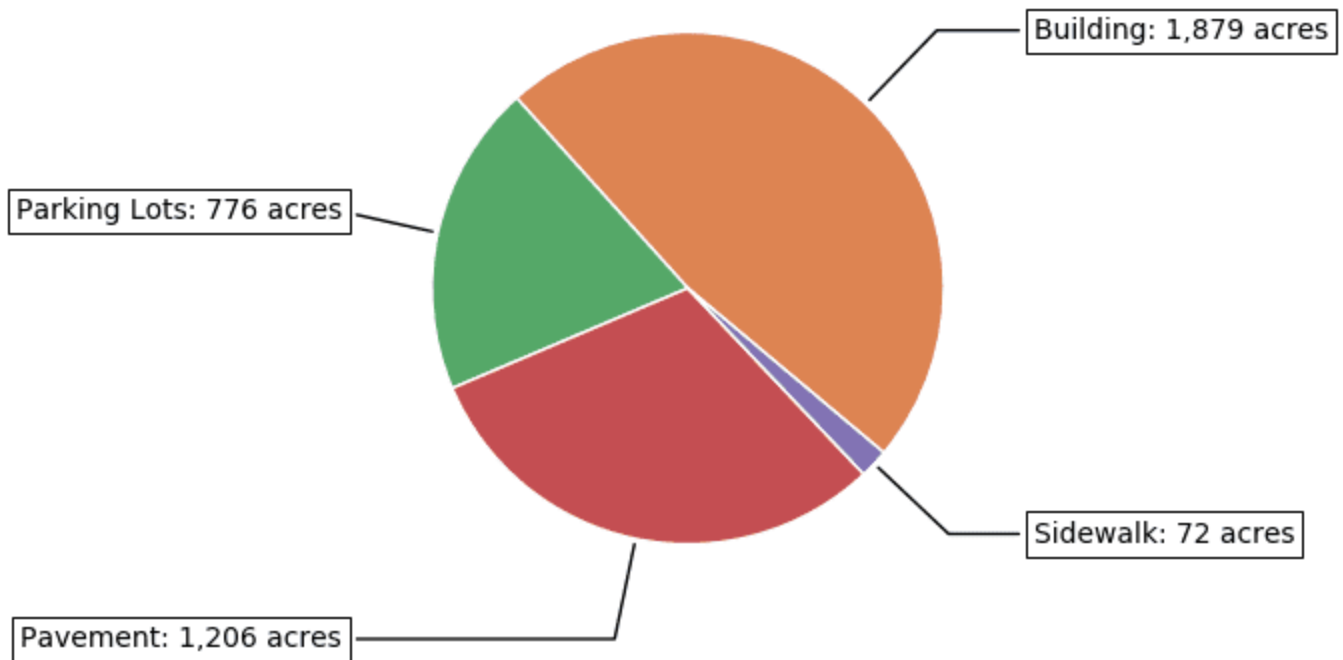


14% of the land area within the **Little Sarasota Bay Watershed** is covered by

impervious surfaces

2014 Impervious Surface Coverage by Type

in acres, within the Little Sarasota Bay Watershed



Land Use / Land Cover






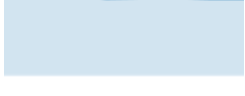

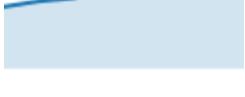
Land use within a bay's watershed has a major effect on its water quality. In general, less development means better water quality. Land Cover/Land Use classifications categorize land in terms of its observed physical surface characteristics (upland or wetland, e.g.), and also reflect the types of activity 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

2013 Bay Conditions Report for Little Sarasota Bay

Land Use Classification	1990	2005	2011	2014	2017	2020	Trend
Urban & Built-up	8,943 31.9%	11,834 42.2%	12,102 43.1%	12,162 43.3%	12,777 45.5%	13,343 47.5%	
Agriculture	3,550 12.6%	3,228 11.5%	3,258 11.6%	4,223 15%	3,124 11.1%	2,837 10.1%	
Rangeland	825 2.9%	1,822 6.5%	1,474 5.3%	579 2.1%	1,233 4.4%	877 3.1%	
Upland Forests	7,098 25.3%	3,066 10.9%	2,981 10.6%	2,725 9.7%	2,687 9.6%	2,603 9.3%	
Water	3,429 12.2%	4,123 14.7%	4,147 14.8%	4,175 14.9%	4,227 15.1%	4,337 15.5%	
Wetlands	3,490 12.4%	3,133 11.2%	3,191 11.4%	3,227 11.5%	3,121 11.1%	3,120 11.1%	
Barren Land	62 0.2%	18 0.1%	19 0.1%	20 0.1%	6 0%	6 0%	
Transportation and Utilities	675 2.4%	841 3%	892 3.2%	952 3.4%	898 3.2%	948 3.4%	

2020 Land Use / Land Cover for Little Sarasota Bay Watershed

as a percentage of land area for this watershed

