Little Sarasota Bay Condition Report for 2012

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**.

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

Summary:

The overall health of Little Sarasota Bay has improved since 2010 with all water quality parameters below the threshold levels, the caution alert for chlorophyll *a* has been removed. Additionally, the mean acreage of seagrass has continued to increase.

Water quality: All three water quality indicators (chlorophyll *a*, nitrogen, and phosphorus) were rated as pass (below the threshold). The mean for chlorophyll *a* was calculated as an arithmetic mean and the means for nitrogen and phosphorus were calculated as geometric means (Numeric Nutrient Criteria Recommendations). The mean chlorophyll *a* level in Little Sarasota Bay has improved since 2010 (.0091mg/l) and was scored as “Good” (scored as “Caution” in 2010), below the threshold (0.0104 mg/l). The mean nitrogen level (0.4993 mg/l) has slightly decreased and remains below the threshold (0.600 mg/l) and target level (0.520 mg/l). Therefore, the mean nitrogen level was scored as “Excellent”. The mean phosphorus level

(0.824 mg/l) has remained constant and was scored as “Excellent”, below the target (0.180 mg/l) and threshold (0.210 mg/l) levels.

Biotic Indicator: The biotic indicator, seagrass, was determined to be in good condition with a continued increase in acreage since 1988. In 2010, the total acreage of seagrass increased 49% to 1,000 acres.

Water Chemistry Ratings

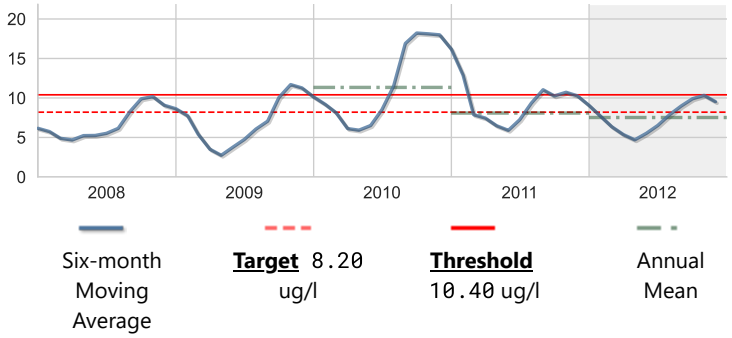
Total nitrogen, total phosphorus, and chlorophyll *a* levels are monitored carefully by water resource managers and used by regulatory authorities to determine whether a bay meets the water quality standards mandated by the Clean Water Act. The trend graphs for these indicators are shown below, along 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.

Chl-a Chlorophyll a

Score: Excellent

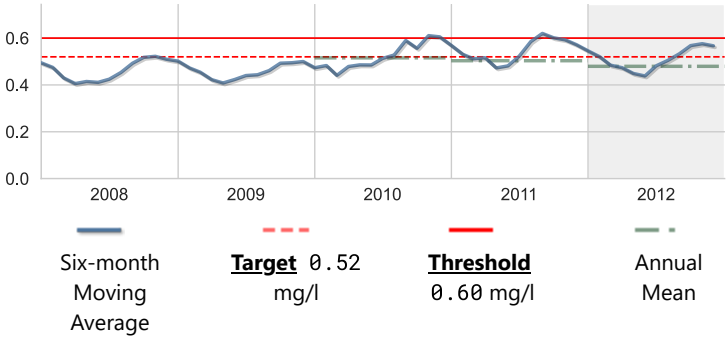
Units: ug/l	Year 2012	Historical period of record
High	20.87	43.45
Mean	7.53	7.53
Low	1.45	0.06
No. of Samples	72	1144



N Nitrogen, Total

Score: Excellent

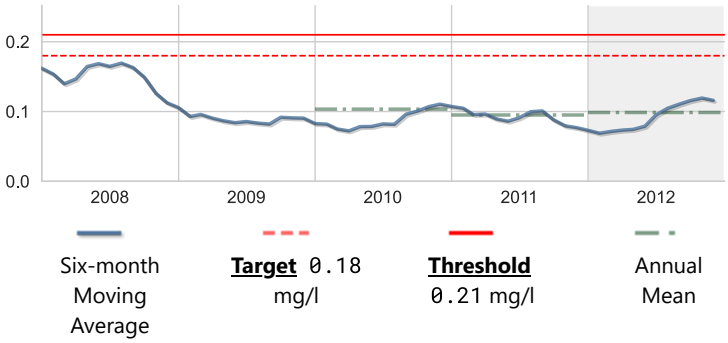
Units: mg/l	Year 2012	Historical period of record
High	0.895	1.175
Mean	0.479	
Low	0.215	0.055
No. of Samples	72	1128



P Phosphorus, Total

Score: Excellent

Units: mg/l	Year 2012	Historical period of record
High	0.657	0.699
Mean	0.099	0.144
Low	0.050	0.050
No. of Samples	77	1177

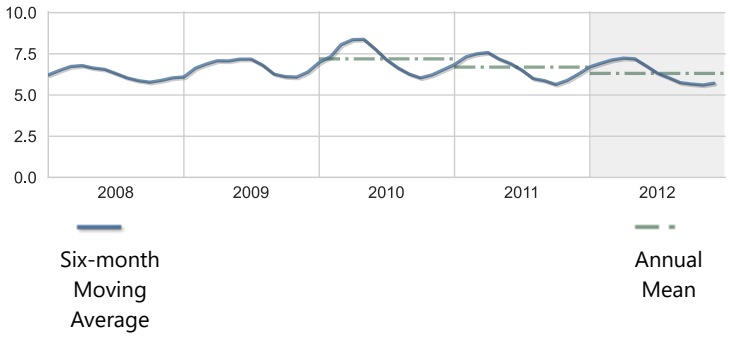


Other Measures of Bay Health

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.

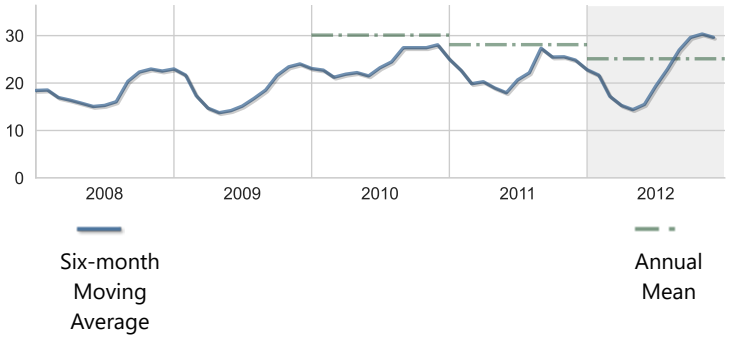
Dissolved Oxygen

Units: mg/l	Year 2012	Historical period of record
High	8.40	11.60
Mean	6.31	6.56
Low	4.40	2.80
No. of Samples	72	1281



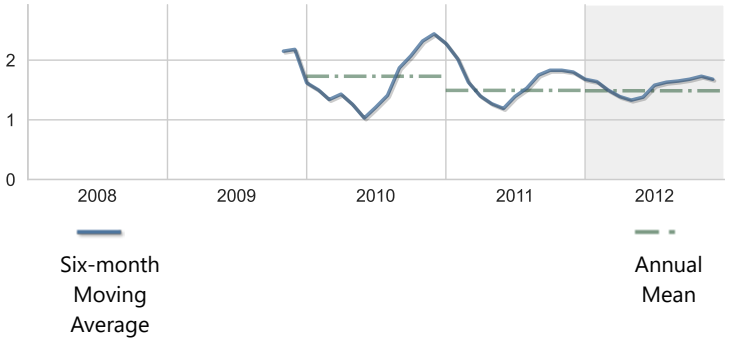
Apparent Color

Units: PCU	Year 2012	Historical period of record
High	80.00	140.00
Mean	25.12	25.08
Low	5.00	4.00
No. of Samples	77	1177



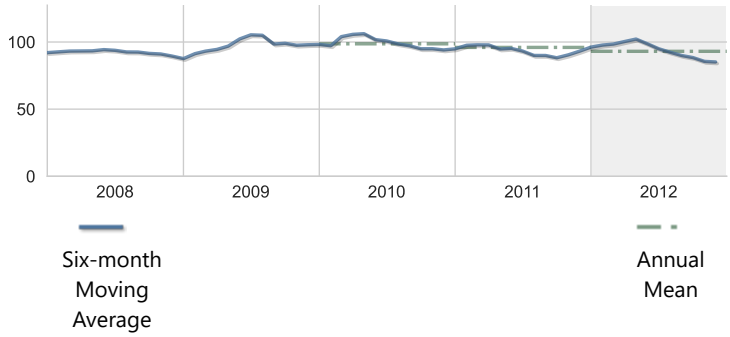
BOD, Biochemical oxygen demand

Units: mg/l	Year 2012	Historical period of record
High	3.30	6.50
Mean	1.49	1.73
Low	0.50	0.50
No. of Samples	77	1032



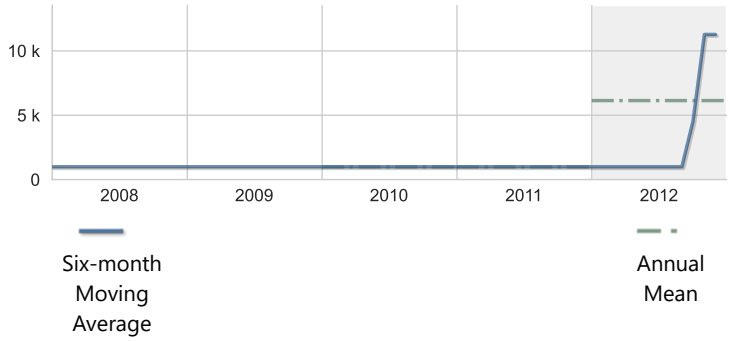
Dissolved oxygen saturation

Units: percent (%)	Year 2012	Historical period of record
High	118.00	167.00
Mean	93.07	94.91
Low	69.00	45.00
No. of Samples	72	1290



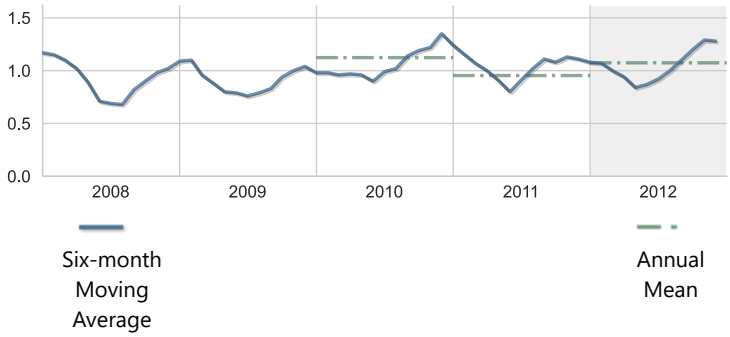
Karenia brevis ("red tide")

Units: #/l	Year 2012	Historical period of record
High	78000.00	2603000.00
Mean	6138.89	18556.62
Low	1000.00	1000.00
No. of Samples	72	521



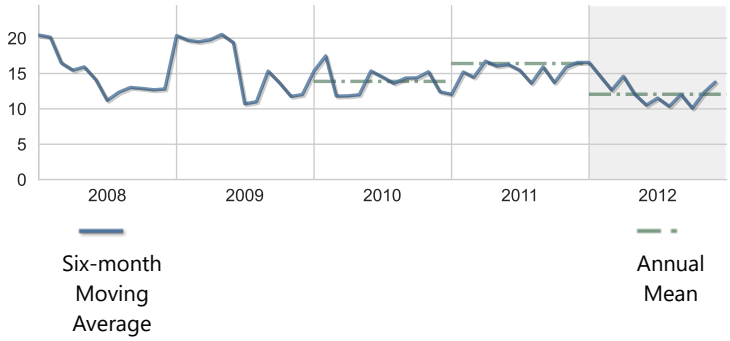
Light Attenuation

Units: K(1/m)	Year 2012	Historical period of record
High	2.98	2.98
Mean	1.07	1.01
Low	0.19	0.08
No. of Samples	72	1053



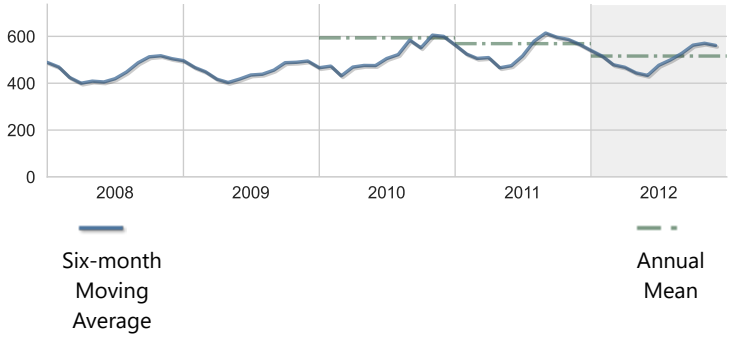
Nitrogen, Ammonia + Ammonium as N

Units: ug/l	Year 2012	Historical period of record
High	55.00	203.00
Mean	12.07	16.61
Low	5.00	5.00
No. of Samples	73	1149



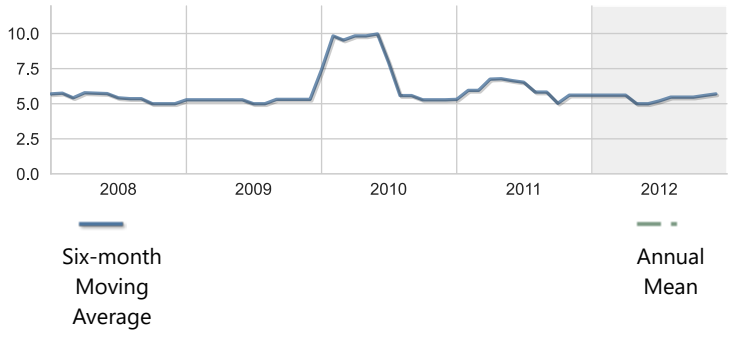
Nitrogen, Kjeldahl

Units: ug/l	Year 2012	Historical period of record
High	890.00	1240.00
Mean	516.04	490.32
Low	210.00	0.05
No. of Samples	77	1177



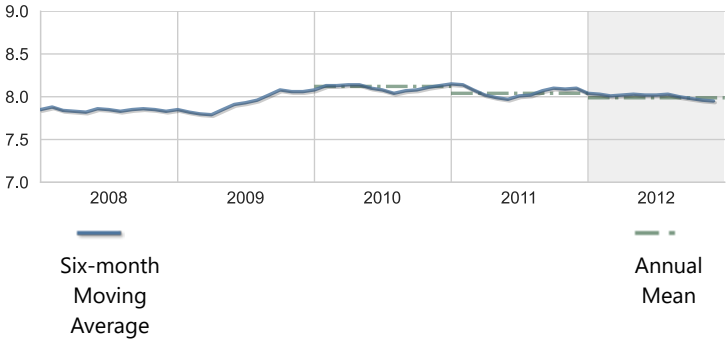
Nitrogen, Nitrite + Nitrate as N

Units: ug/l	Year 2012	Historical period of record
High	462.00	536.00
Mean	24.78	9.60
Low	5.00	5.00
No. of Samples	77	1734



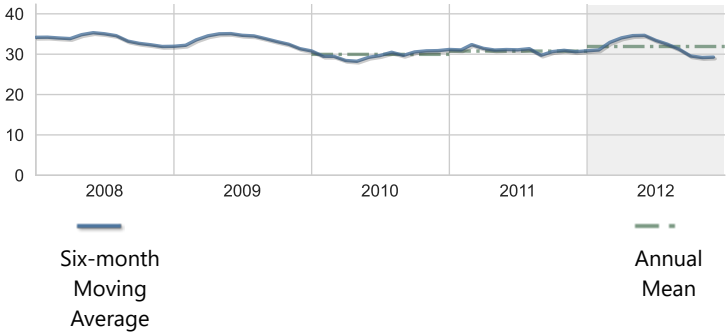
pH

Units: None	Year 2012	Historical period of record
High	8.20	8.50
Mean	7.99	7.95
Low	7.80	6.20
No. of Samples	72	1290



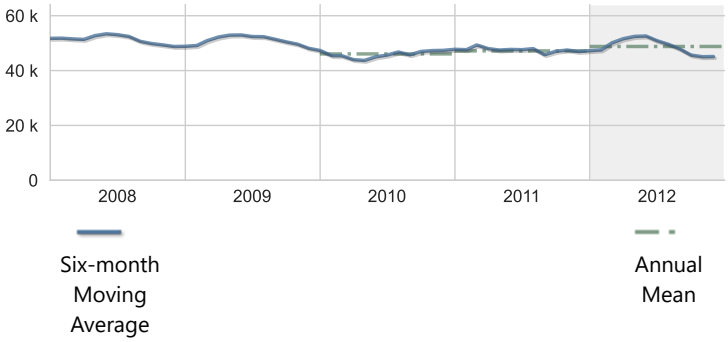
Salinity

Units: PSS	Year 2012	Historical period of record
High	36.90	39.50
Mean	31.91	30.89
Low	22.40	7.30
No. of Samples	72	1257



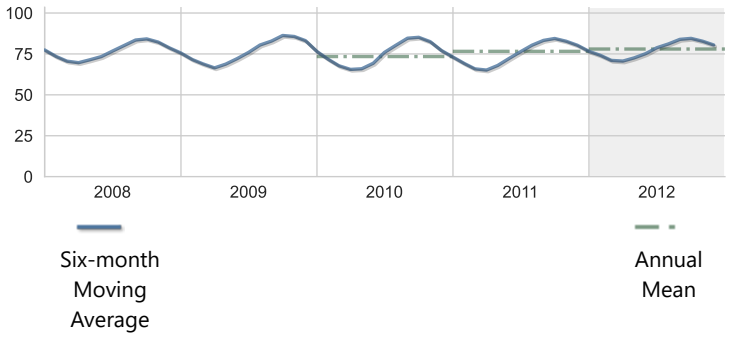
Specific conductance

Units: umho	Year 2012	Historical period of record
High	55550.00	59030.00
Mean	48783.19	47339.19
Low	35580.00	12670.00
No. of Samples	72	1290



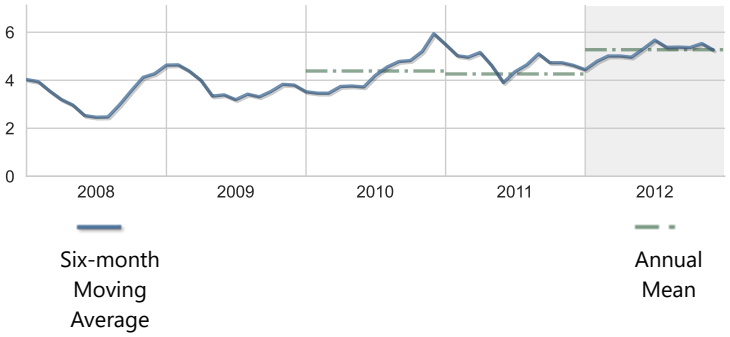
Temperature, water

Units: deg F	Year 2012	Historical period of record
High	88.70	92.12
Mean	77.99	76.97
Low	65.30	47.48
No. of Samples	72	1289



Turbidity

Units: NTU	Year 2012	Historical period of record
High	16.00	16.00
Mean	5.27	3.97
Low	1.80	0.60
No. of Samples	72	1135



Annual Averages

Indicator	Units	2008	2009	2010	2011	2012	Trend
Dissolved Oxygen	mg/l			7.19	6.69	6.31	
Dissolved oxygen saturation	percent (%)			98.64	95.99	93.07	
Light Attenuation	K(1/m)			1.12	0.95	1.07	
Salinity	PSS			29.96	30.77	31.91	
Turbidity	NTU			4.39	4.26	5.27	

Bay Contour Maps (2012)

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 2012 Monthly Contour Maps for: Chlorophyll a

January

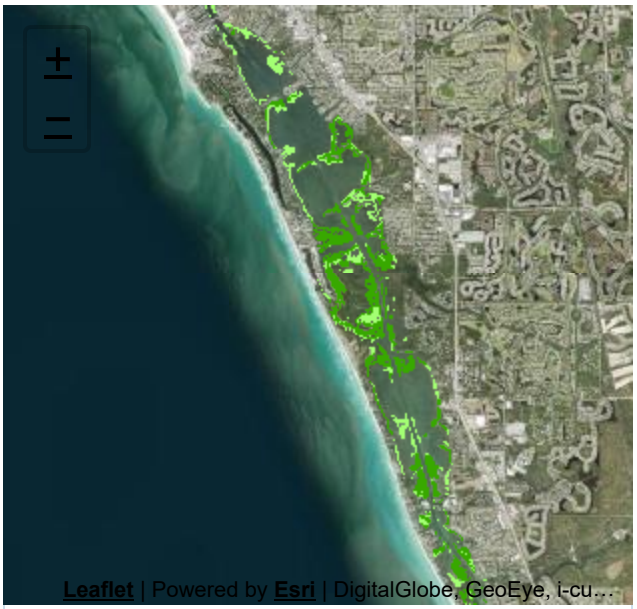
Contour Legend:

- 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

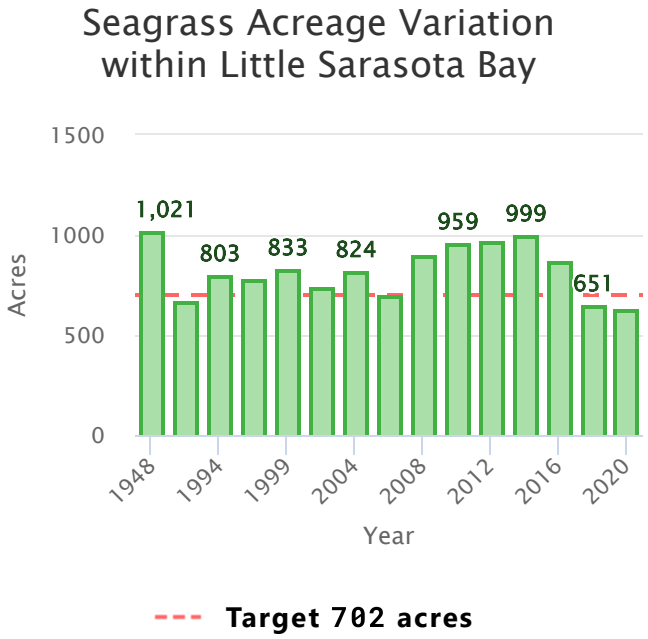
Seagrasses

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:



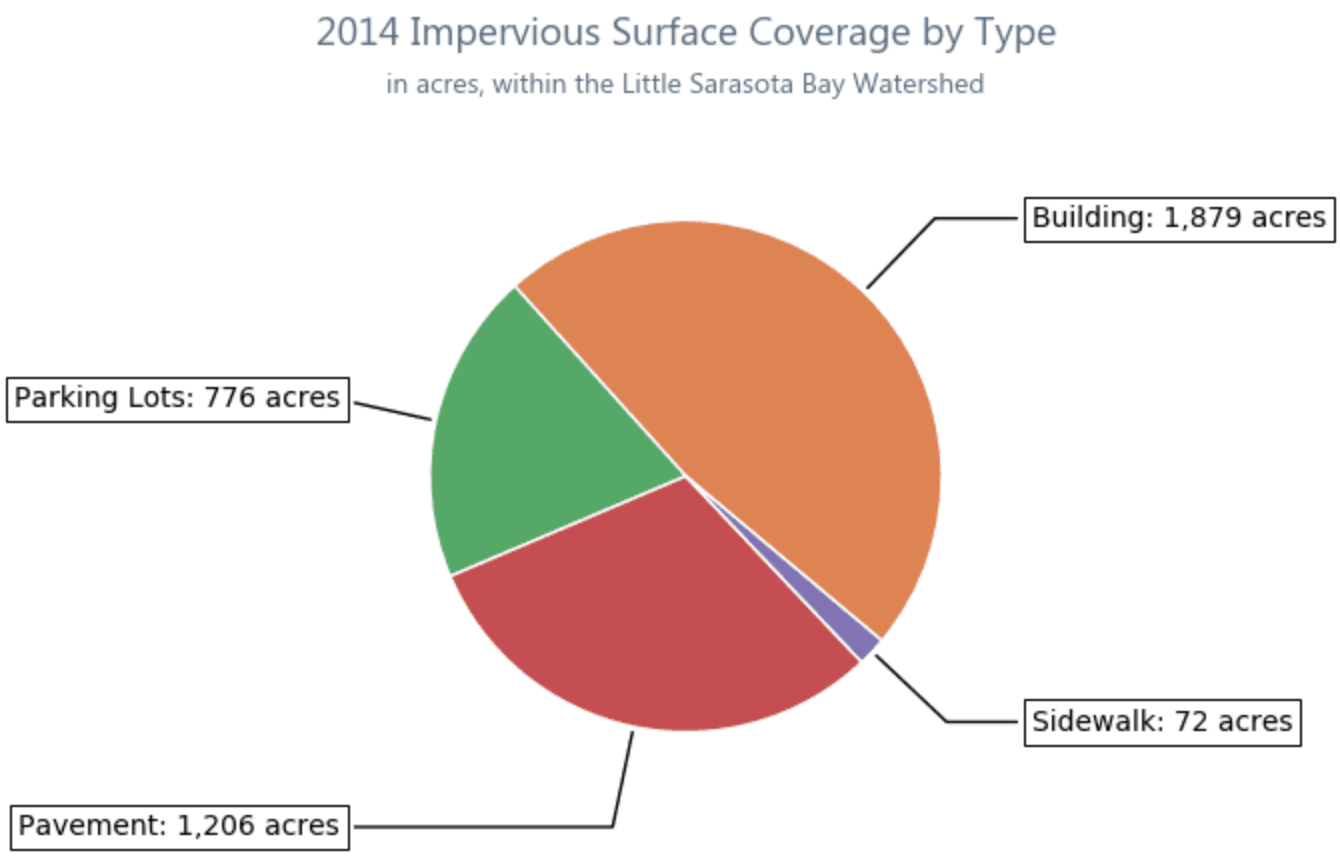
Legend:
Continuous Seagrass Patchy Seagrass



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.

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



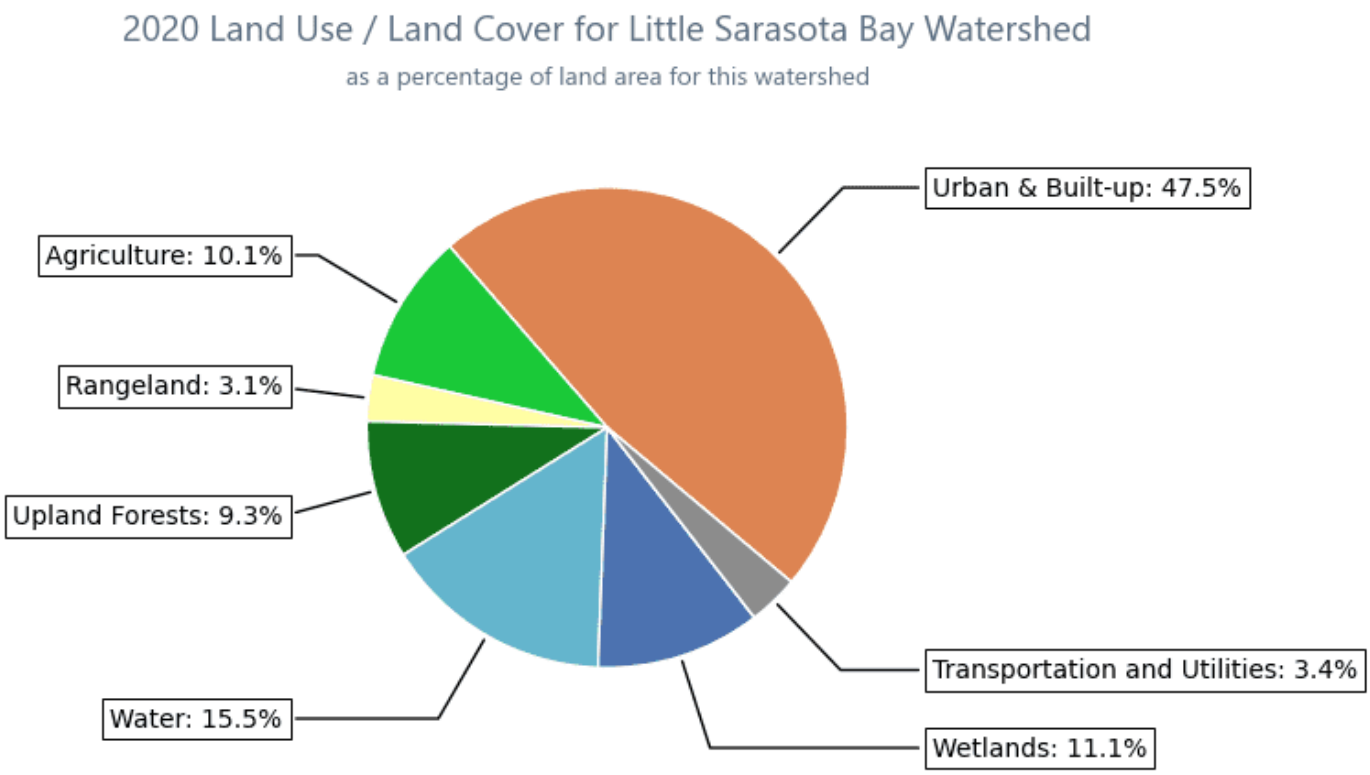
Land Use / Land Cover

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 »**

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

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
Urban & Built-up: 47.5%
Agriculture: 10.1%
Rangeland: 3.1%
Upland Forests: 9.3%
Water: 15.5%
Transportation and Utilities: 3.4%
Wetlands: 11.1%