Little Sarasota Bay Condition Report for 2016

CAUTION

Chl-a N P

2 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:

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 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.

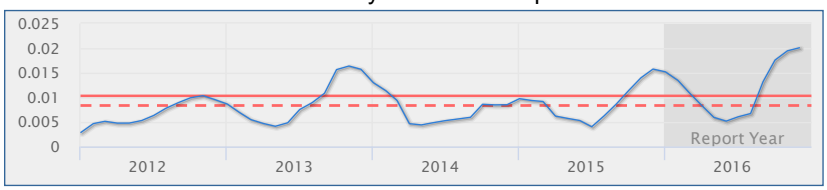
The Five-year Trend Graphs below illustrate the general trend of water quality parameters. They show a six-month running average, which moderates high and low values in the data.

Chlorophyll a

Score: Caution

Units: mg/l	Year 2016	Historical period of record
High	0.068	0.068
Mean	0.0123	0.0081
Low	0.0012	0.0001
No. of Samples	75	1,470

Five-year Trend Graph



Target 0.0082 mg/l

Threshold 0.0104 mg/l

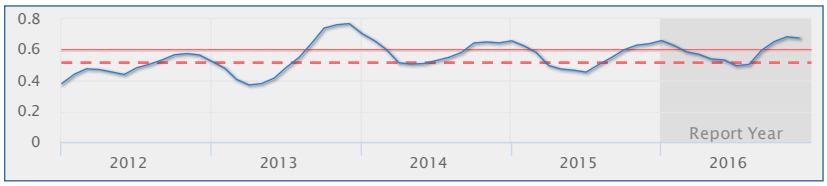
Method Detection Limit 0.0005 mg/l

Nitrogen, Total

Score: Good

Units: mg/l	Year 2016	Historical period of record
High	1.165	1.175
Mean	0.5733	0.4783
Low	0.335	0.055
No. of Samples	75	1,434

Five-year Trend Graph



Target 0.52 mg/l

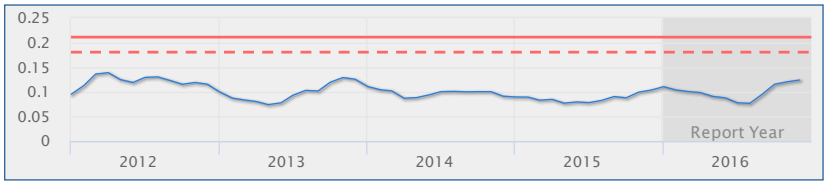
Threshold 0.60 mg/l

Phosphorus, Total

Score: Excellent

Units: mg/l	Year 2016	Historical period of record
High	0.24	0.699
Mean	0.0933	0.131
Low	0.05	0.05
No. of Samples	75	1,470

Five-year Trend Graph



Target 0.18 mg/l

Threshold 0.21 mg/l

Method Detection Limit 0.0001 mg/l

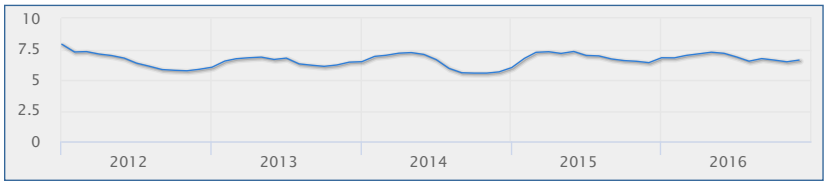
Other Measures of Bay Health

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	1,577

Five-year Trend Graph

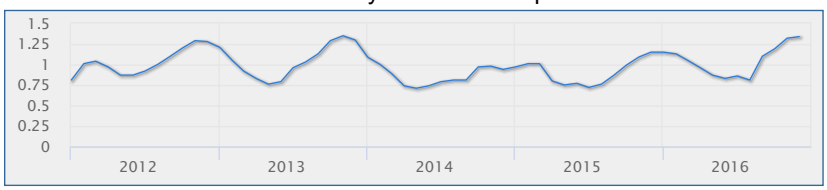


Method Detection Limit 0.20 mg/l

Light Attenuation

Units: K(1/m)	Year 2016	Historical period of record
High	3.97	3.97
Mean	1.09	1.0
Low	0.41	0.08
No. of Samples	71	1,340

Five-year Trend Graph

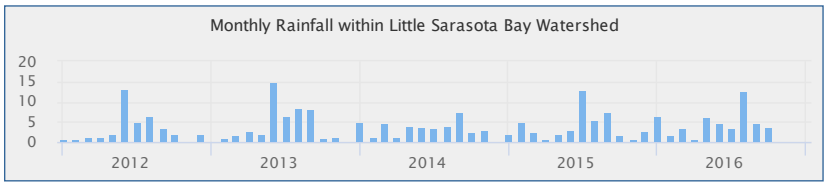


Method Detection Limit 0.05 K(1/m)

Rainfall

Units: inches/yr	Year 2016	Historical period of record
High	47.54	47.76
Mean		34.81
Low		7.86
No. of Samples	363	4,733

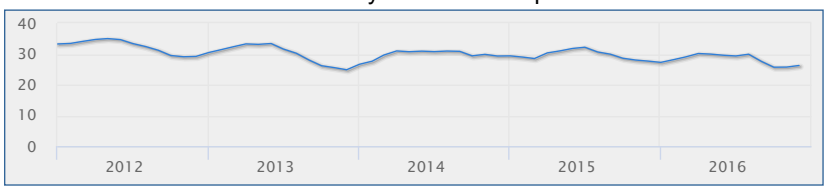
Five-year Trend Graph



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	1,577

Five-year Trend Graph

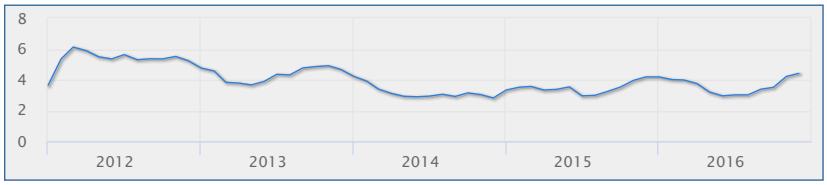


Method Detection Limit
0.10 PSS

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	1,470

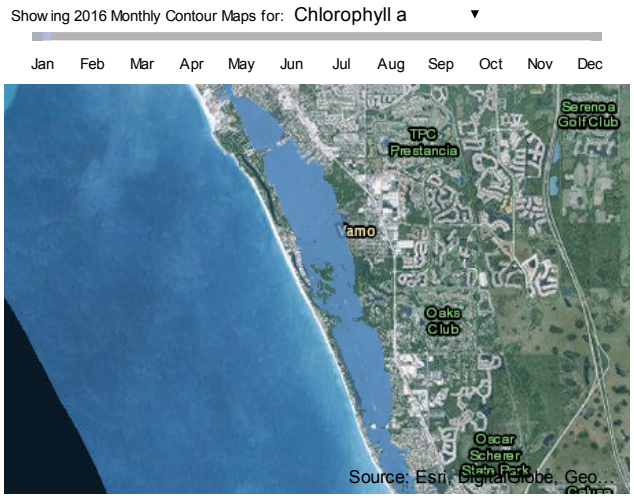
Five-year Trend Graph



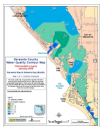
Method Detection Limit
0.20 NTU

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.



Visit the **Water Quality Contour Mapping Tool** to view and compare monthly water quality contour maps for ten different water quality indicators. In addition, you can generate your own custom maps.

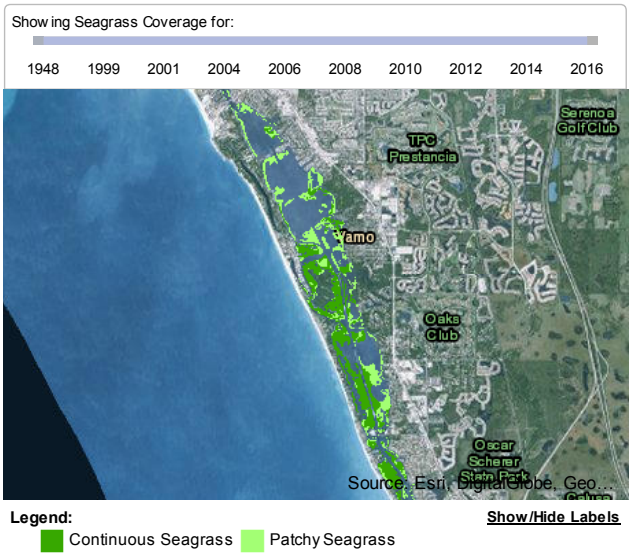


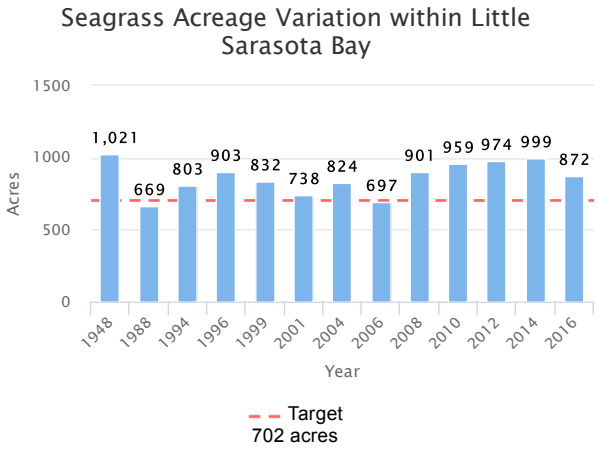
Contour Legend:

- 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.





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 »**