Sarasota Bay Condition Report for 2015

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: **Bayou Louise**, **Brushy Bayou**, **Pansey Bayou**, **Sarasota Bay**

Summary:

The overall health in Sarasota Bay remained high in 2015, changing only very slightly from the previous year. Chlorophyll *a* and phosphorus showed very small increases, and nitrogen decreased.

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 0.0046 mg/l, below the target value of 0.0052 mg/l. The mean concentration of total nitrogen decreased slightly to 0.3873 mg/l, still below its target value of 0.490 mg/l calculated in 2010*. Mean total phosphorus concentration increased marginally, but at 0.0602 mg/l was still 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 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 avoided.

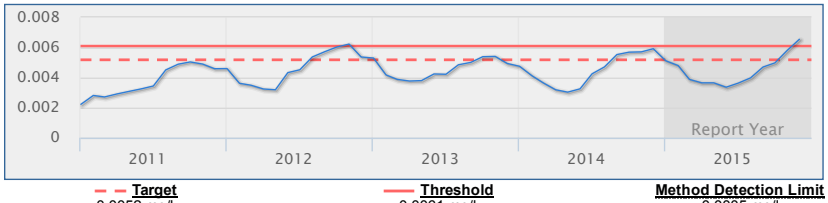
The Five-year Trend Graphs below illustrate the general trend of water quality parameters. They show a six-month running average, which moderates high and low values in the data.

Chlorophyll a

Score: Excellent

Units: mg/l	Year 2015	Historical period of record
High	0.019	0.049
Mean	0.0048	0.0048
Low	0.0009	0.0002
No. of Samples	289	4,866

Five-year Trend Graph



Target 0.0052 mg/l

Threshold 0.0061 mg/l

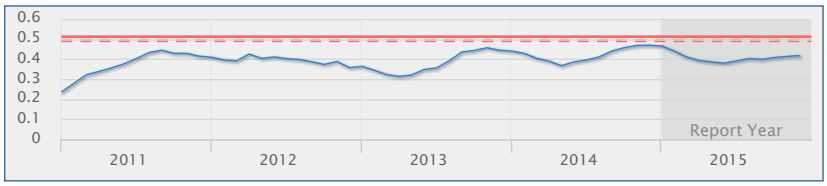
Method Detection Limit 0.0005 mg/l

Nitrogen, Total

Score: Excellent

Units: mg/l	Year 2015	Historical period of record
High	0.67	1.87
Mean	0.3891	n/a
Low	0.04	0.03
No. of Samples	282	4,664

Five-year Trend Graph



Target 0.49 mg/l

Threshold 0.51 mg/l

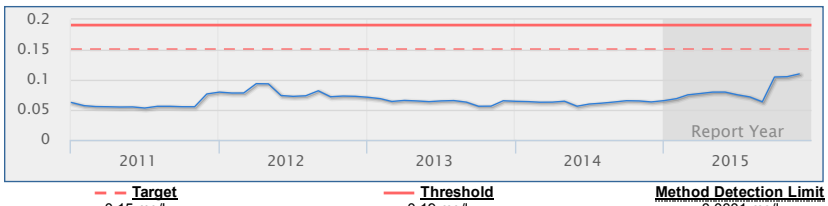
The unofficial **calculated** threshold value for the report year is **0** ug/l.

Phosphorus, Total

Score: Excellent

Units: mg/l	Year 2015	Historical period of record
High	1.04	4.40
Mean	0.0687	n/a
Low	0.05	0.002
No. of Samples	294	4,789

Five-year Trend Graph



Target 0.15 mg/l

Threshold 0.19 mg/l

Method Detection Limit 0.0001 mg/l

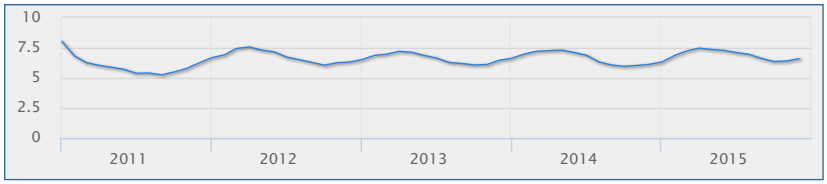
Other Measures of Bay Health

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 2015	Historical period of record
High	10.60	13.80
Mean	6.96	6.71
Low	4.00	1.48
No. of Samples	273	15,928

Five-year Trend Graph



Method Detection Limit 0.20 mg/l

Light Attenuation

Units: K(1/m)	Year 2015	Historical period of record
High	2.15	5.68
Mean	0.69	0.68
Low	0.12	0.05
No. of Samples	261	3,789

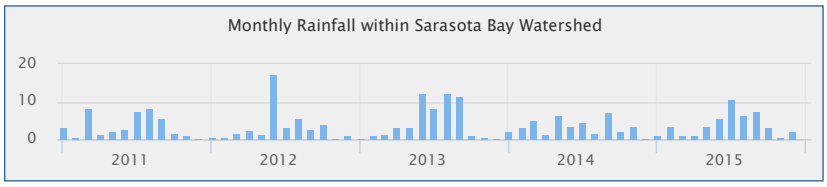
Five-year Trend Graph

Method Detection Limit 0.05 K(1/m)

Rainfall

Units: inches/yr	Year 2015	Historical period of record
High	47.62	56.04
Mean		34.68
Low		8.12
No. of Samples	365	4,317

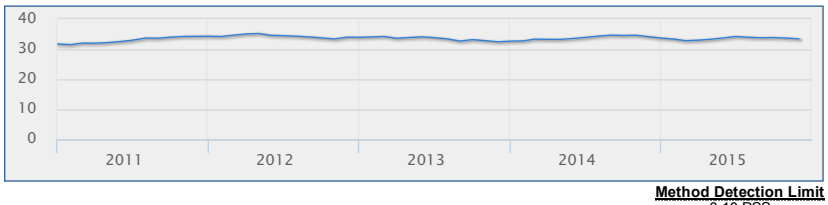
Five-year Trend Graph



Salinity

Units: PSS	Year 2015	Historical period of record
High	68.20	68.20
Mean	33.64	33.24
Low	24.40	3.60
No. of Samples	271	17,456

Five-year Trend Graph



Method Detection Limit
0.10 PSS

Turbidity

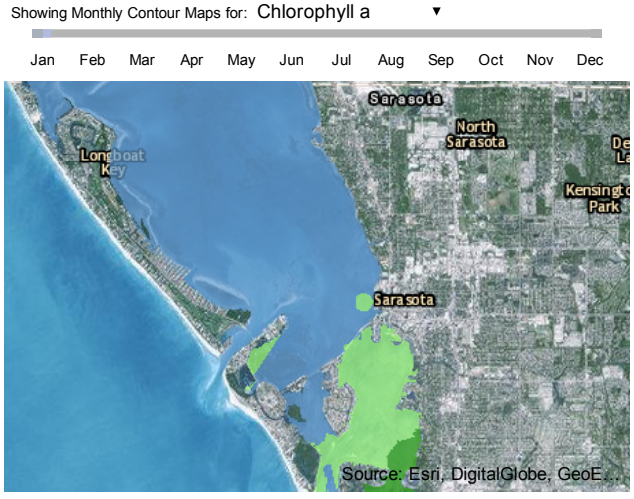
Units: NTU	Year 2015	Historical period of record
High	29.00	39.00
Mean	2.7	2.62
Low	0.55	0.03
No. of Samples	298	14,436

Five-year Trend Graph

Method Detection Limit
0.20 NTU

Bay Contour Maps

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.



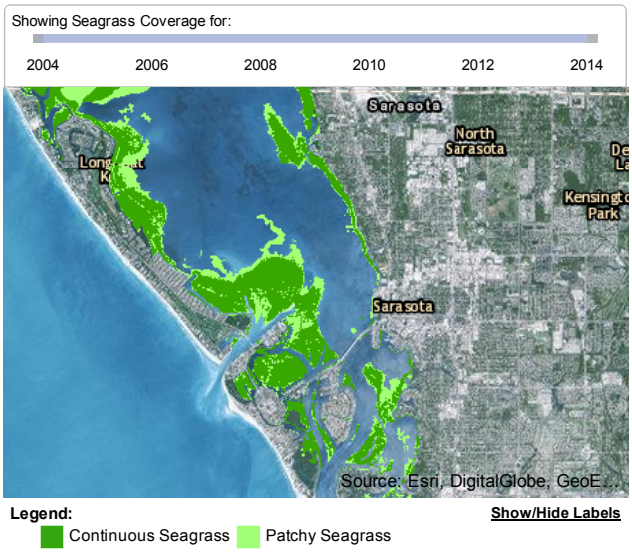
Visit the **Water Quality Contour Mapping Tool** to view and compare monthly water quality contour maps for ten different water quality indicators. In addition, you can generate your own custom maps.

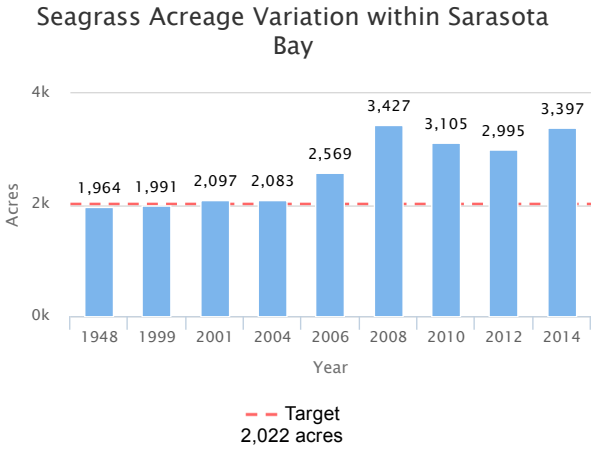
Contour Legend:

- 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.

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 »**