

Roberts Bay Condition Report for 2015

CAUTION



2 out of 3 indicators were rated as PASS.

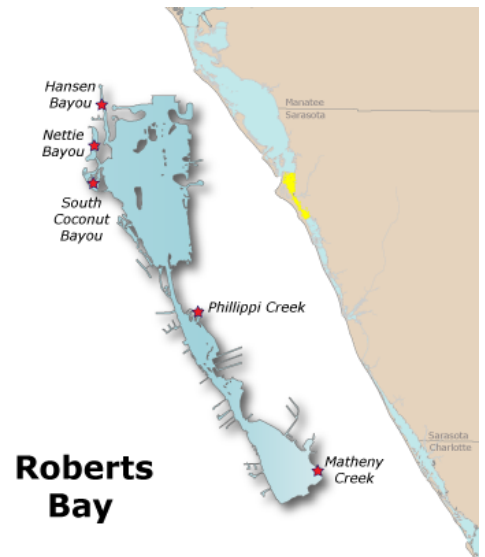
All three indicators must pass for the bay to be rated as PASS.

Summary:

The overall health of Roberts Bay was good in 2015, despite an increase in chlorophyll a concentration of 68.7%, compared to 2014. This increase caused it to exceed the threshold level. On a more positive note, mean nitrogen concentration decreased slightly. And while phosphorus concentration increased somewhat, it is still well below the target value of 0.23 mg/l.

Water Quality: Nitrogen and phosphorus retained their ratings from 2013 and 2014 (“Good” and “Excellent”, respectively). Mean nitrogen concentration was 0.4927 mg/l and mean phosphorus concentration was 0.1023 mg/l. While chlorophyll a concentration had improved in 2014 to an “Excellent” rating, its significant increase pushed its 2015 rating down two notches, to “Caution.” 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 2014 by the Southwest Florida Water Management District. Total seagrass acreage in Roberts Bay increased slightly to 321 acres from its previous value and is creeping toward the desired target of 348 acres.



Roberts Bay

Bays included in this report: Grand Canal, Hansen Bayou, Nettie Bayou, Roberts Bay, Sarasota, South Coconut Bayou

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.

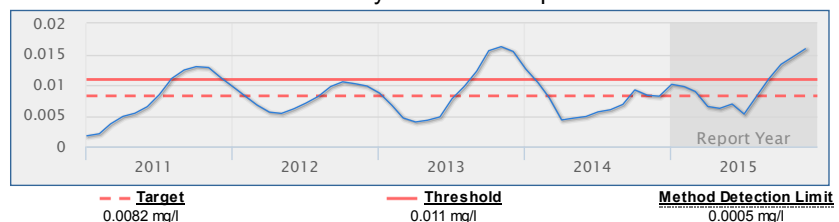
The Five-year Trend Graphs below illustrate the general trend of water quality parameters. They show a six-month running average, which moderates high and low values in the data.

Chlorophyll a

Score: Caution

Units: mg/l	Year 2015	Historical period of record
High	0.0318	0.0484
Mean	0.0113	0.008
Low	0.0018	0.0003
No. of Samples	66	1,139

Five-year Trend Graph

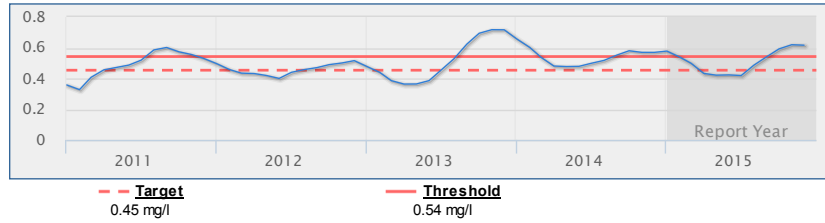


Nitrogen, Total

Score: Good

Units: mg/l	Year 2015	Historical period of record
High	0.997	1.376
Mean	0.4927	n/a
Low	0.235	0.065
No. of Samples	66	1,131

Five-year Trend Graph

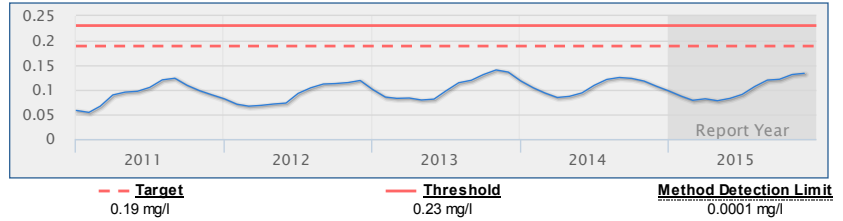


Phosphorus, Total

Score: Excellent

Units: mg/l	Year 2015	Historical period of record
High	0.23	0.48
Mean	0.1023	n/a
Low	0.05	0.05
No. of Samples	66	1,140

Five-year Trend Graph



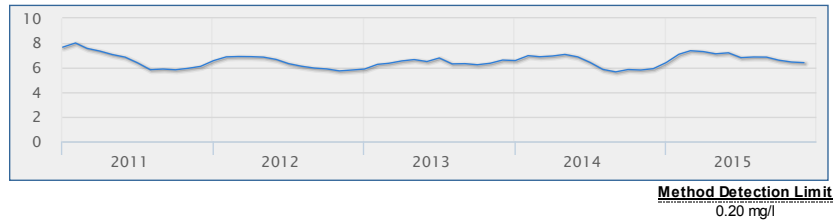
Other Measures of Bay Health

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 2015	Historical period of record
High	10.00	11.40
Mean	6.8	6.47
Low	4.70	3.50
No. of Samples	60	1,270

Five-year Trend Graph



Light Attenuation

Units: K(1/m)	Year 2015	Historical period of record
High	1.88	3.56
Mean	1.0	1.02
Low	0.42	0.19
No. of Samples	60	1,069

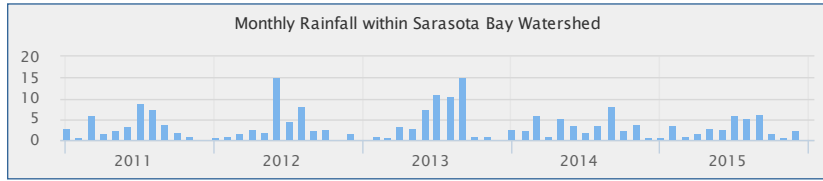
Five-year Trend Graph



Rainfall

Units: inches/yr	Year 2015	Historical period of record
High	34.33	54.47
Mean		33.17
Low		7.65
No. of Samples	365	4,324

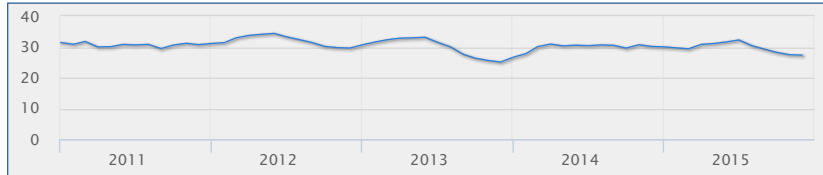
Five-year Trend Graph



Salinity

Units: PSS	Year 2015	Historical period of record
High	34.80	38.80
Mean	29.46	30.59
Low	12.10	1.80
No. of Samples	60	1,270

Five-year Trend Graph

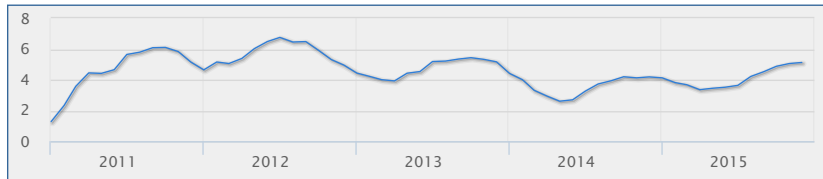


Method Detection Limit
0.10 PSS

Turbidity

Units: NTU	Year 2015	Historical period of record
High	8.40	24.00
Mean	4.3	4.26
Low	1.70	0.85
No. of Samples	66	1,140

Five-year Trend Graph



Method Detection Limit
0.20 NTU

Bay Contour Maps

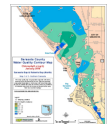
Contour mapping is one of the best ways to visualize spatial differences in coastal water quality. The interactive map shown below presents monthly data for one selected water quality indicator atop an aerial view of the bay. Choose a different water quality parameter from the list at the top to change the map.

Showing Monthly Contour Maps for: Chlorophyll a

Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec



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.

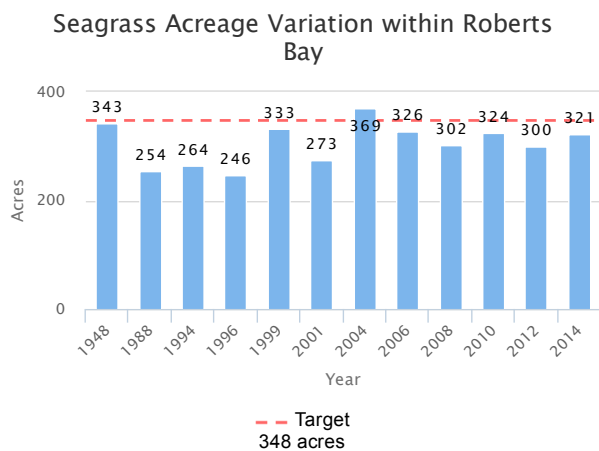


Contour Legend:

- 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.

Roberts 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 »](#)

2011 Land Use / Land Cover for Sarasota Bay Watershed
as a percentage of land area for this watershed

