

# Roberts Bay Condition Report for 2016

**CAUTION**



1 out of 3 indicators were rated as PASS.

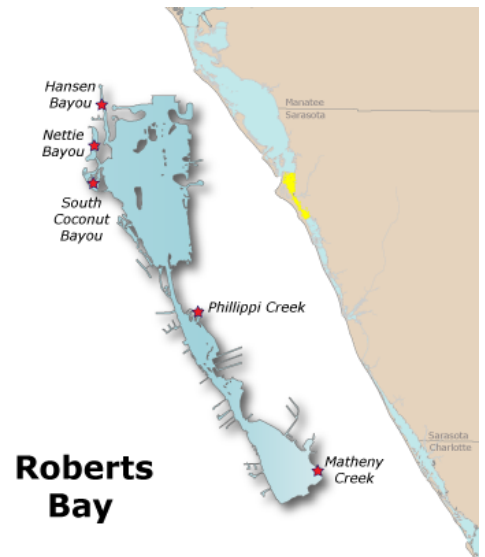
All three indicators must pass for the bay to be rated as PASS.

**Summary:**

The overall health of Roberts Bay degraded in 2016 with all three water quality indicators showing an increase compared to 2015. The increases caused it to exceed the threshold level for chlorophyll a and nitrogen. Phosphorus concentration increased somewhat but is still well below the target value of 0.23 mg/l.

**Water Quality:** The increases to chlorophyll a and nitrogen earned the rating of "Caution". Mean nitrogen concentration was 0.554 mg/l and mean chlorophyll a concentration was 0.0117 mg/l. Both of these mean concentrations exceeded threshold values (0.54 mg/l for nitrogen and 0.011 mg/l for chlorophyll a). 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). Phosphorus concentrations increased slightly to 0.1194 mg/l, however this concentration remains below the target value of 0.19 mg/l and the threshold of 0.23 mg/l earning an "Excellent" rating.

**Biotic Indicator:** Measurement of the biotic indicator, seagrass, was performed in 2016 by the Southwest Florida Water Management District. Total seagrass acreage in Roberts Bay increased slightly to 356 acres from its previous value exceeding the desired target of 348 acres.



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.

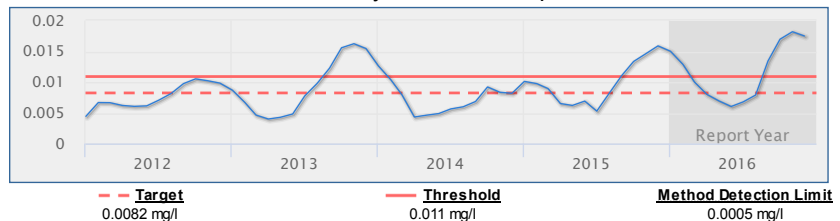
The Five-year Trend Graphs below illustrate the general trend of water quality parameters. They show a six-month running average, which moderates high and low values in the data.

### Chlorophyll a

Score: Caution

Units: mg/l	Year 2016	Historical period of record
High	0.0514	0.0514
Mean	0.0117	0.0082
Low	0.002	0.0003
No. of Samples	66	1,205

Five-year Trend Graph

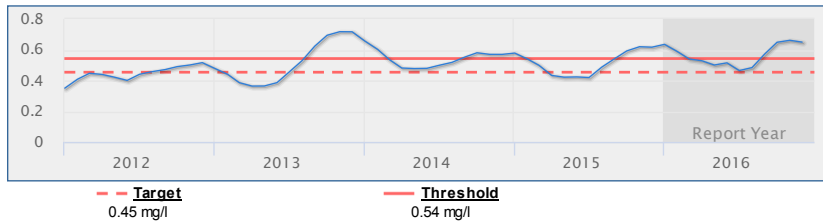


## Nitrogen, Total

Score: Caution

Units: mg/l	Year 2016	Historical period of record
High	1.198	1.376
Mean	0.554	0.4331
Low	0.315	0.065
No. of Samples	66	1,197

Five-year Trend Graph

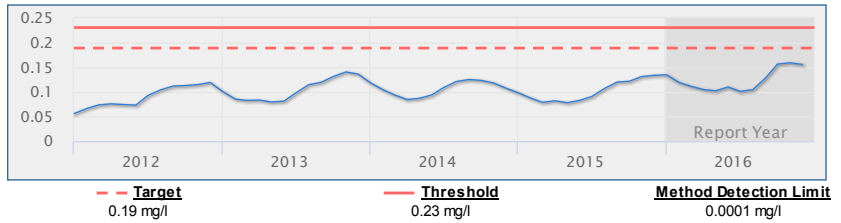


## Phosphorus, Total

Score: Excellent

Units: mg/l	Year 2016	Historical period of record
High	0.30	0.48
Mean	0.1194	0.1335
Low	0.05	0.05
No. of Samples	66	1,206

Five-year Trend Graph



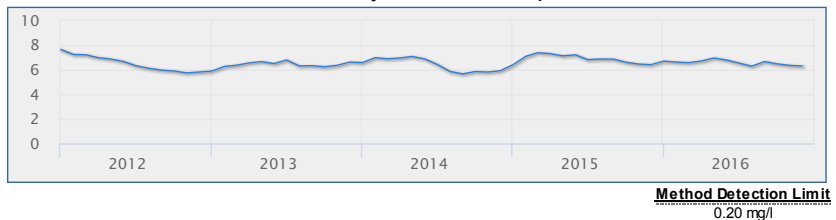
## Other Measures of Bay Health

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 2016	Historical period of record
High	11.60	11.60
Mean	6.54	6.48
Low	4.20	3.50
No. of Samples	60	1,330

Five-year Trend Graph



## Light Attenuation

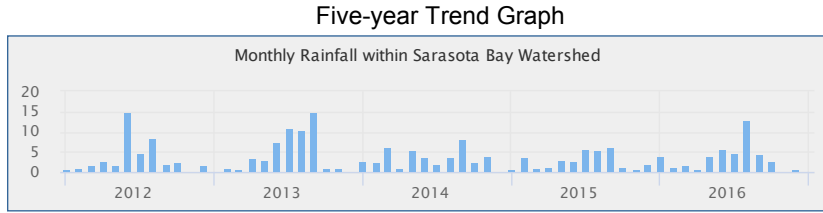
Units: K(1/m)	Year 2016	Historical period of record
High	2.20	3.56
Mean	1.09	1.02
Low	0.38	0.19
No. of Samples	59	1,128

Five-year Trend Graph



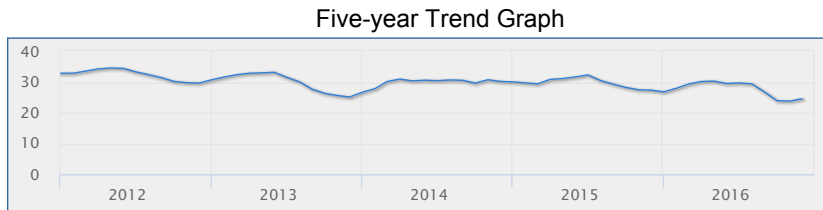
## Rainfall

Units: inches/yr	Year 2016	Historical period of record
High	43.06	54.47
Mean		34.84
Low		14.17
No. of Samples	366	4,772



## Salinity

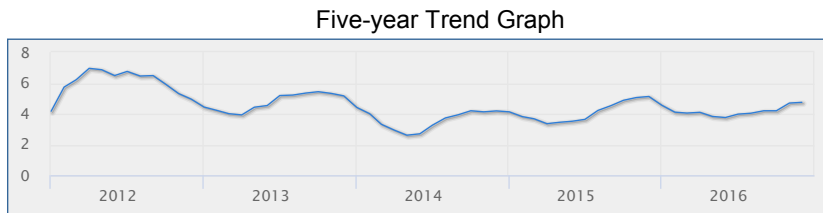
Units: PSS	Year 2016	Historical period of record
High	33.50	38.80
Mean	27.0	30.43
Low	6.00	1.80
No. of Samples	60	1,330



Method Detection Limit  
0.10 PSS

## Turbidity

Units: NTU	Year 2016	Historical period of record
High	10.00	24.00
Mean	4.25	4.26
Low	1.70	0.85
No. of Samples	66	1,206



Method Detection Limit  
0.20 NTU

## Bay Contour Maps (2016)

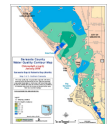
Contour mapping is one of the best ways to visualize spatial differences in coastal water quality. The interactive map shown below presents monthly data for one selected water quality indicator atop an aerial view of the bay. Choose a different water quality parameter from the list at the top to change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

Showing 2016 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.

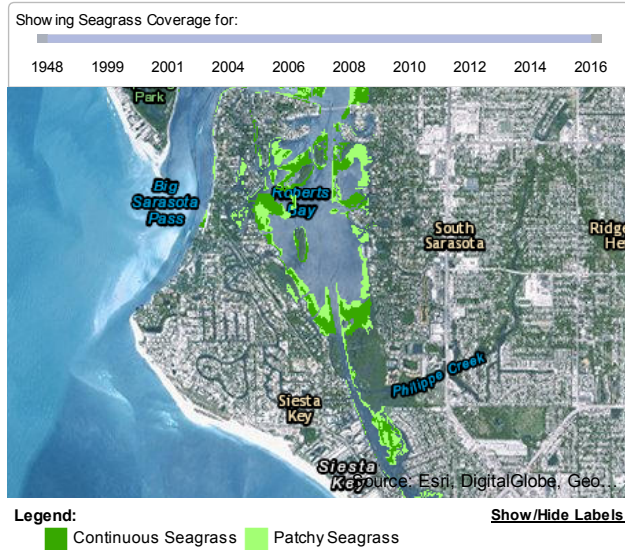


### Contour Legend:

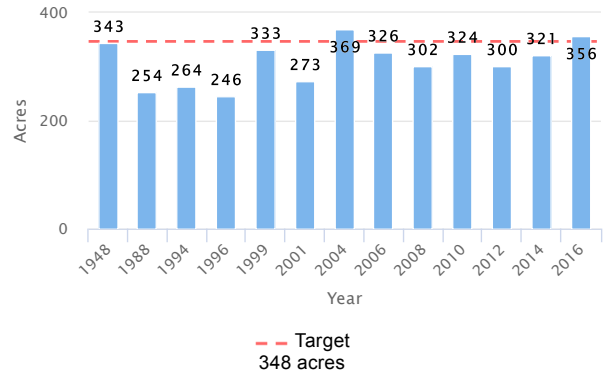
- Less than 1 mg/l
- 1.0 - 5.9 mg/l
- 6.0 - 10.9 mg/l
- 11.0 - 17.9 mg/l
- Greater than 18 mg/l

## 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.



Seagrass Acreage Variation within Roberts Bay



## 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

