

# Roberts Bay Condition Report for 2017

**CAUTION**



2 out of 3 indicators were rated as PASS.

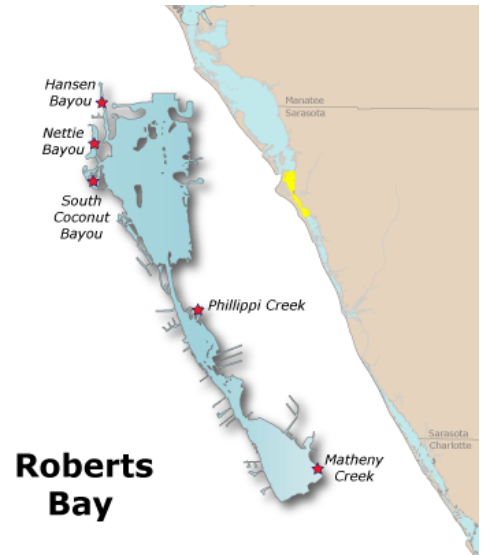
All three indicators must pass for the bay to be rated as PASS.

**Summary:**

The overall health of Roberts Bay improved in 2017, with two of the three water quality indicators improving over the previous year. Despite improvements in both nitrogen and phosphorus concentrations, chlorophyll a levels increased slightly, keeping its rating at "Caution". Nitrogen concentration showed significant improvement, resulting in its rating being upgraded to "Good". Phosphorus concentration continued to be "Excellent", its concentration was already quite low, but it decreased from the previous year.

**Water Quality:** Chlorophyll a concentration increased only slightly, from 0.0117 to 0.014 mg/l, but its annual mean value was already above the threshold. Mean nitrogen concentration fell from 0.554 mg/l in 2016 to 0.4978 mg/l, bringing it below the desired target value. Already very good, phosphorus concentrations improved slightly, falling to 0.111 mg/l, well below the target value of 0.19 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 Roberts Bay increased slightly to 356 acres from its previous value exceeding 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.

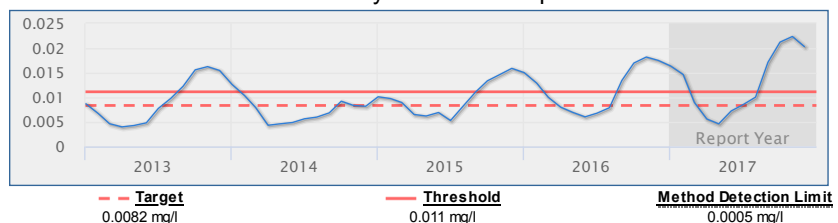
The Five-year Trend Graphs below illustrate the general trend of water quality parameters. They show a six-month running average, which moderates high and low values in the data.

### Chlorophyll a

Score: Caution

Units: mg/l	Year 2017	Historical period of record
<b>High</b>	0.0577	0.0577
<b>Mean</b>	0.014	0.0083
<b>Low</b>	0.0019	0.0003
<b>No. of Samples</b>	64	2,234

Five-year Trend Graph

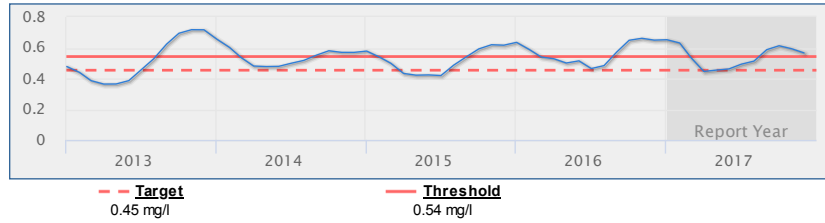


## Nitrogen, Total

Score: Good

Units: mg/l	Year 2017	Historical period of record
High	1.195	1.376
Mean	0.4978	0.4369
Low	0.265	0.065
No. of Samples	64	1,275

Five-year Trend Graph

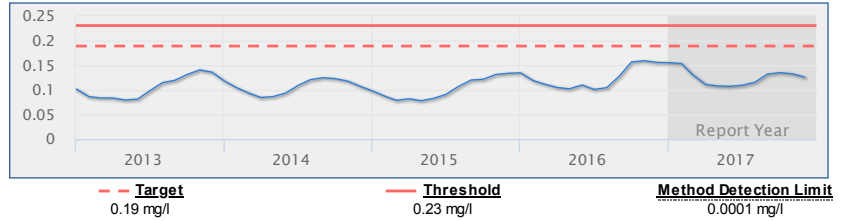


## Phosphorus, Total

Score: Excellent

Units: mg/l	Year 2017	Historical period of record
High	0.26	0.48
Mean	0.111	0.1325
Low	0.05	0.05
No. of Samples	64	1,290

Five-year Trend Graph



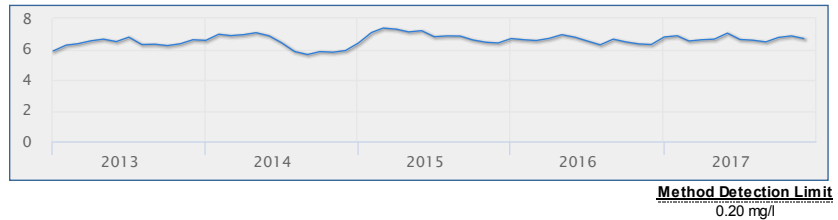
## Other Measures of Bay Health

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 2017	Historical period of record
High	9.60	11.60
Mean	6.86	6.49
Low	5.35	3.50
No. of Samples	60	1,406

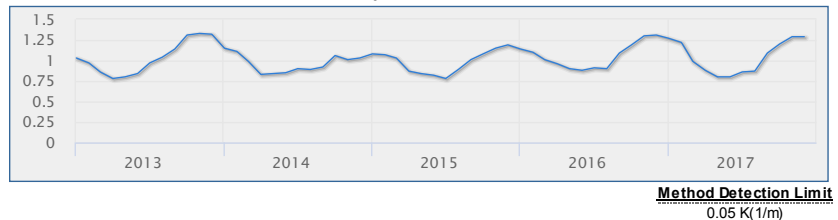
Five-year Trend Graph



## Light Attenuation

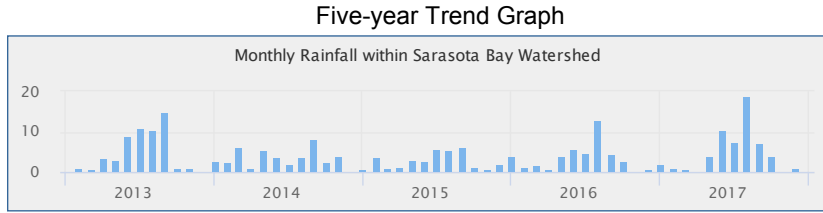
Units: K(1/m)	Year 2017	Historical period of record
High	2.48	3.56
Mean	1.04	1.02
Low	0.15	0.15
No. of Samples	60	1,207

Five-year Trend Graph



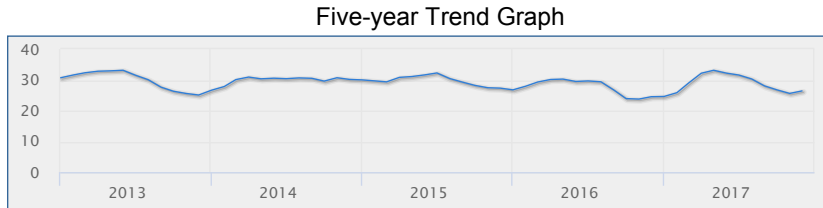
## Rainfall

Units: inches/yr	Year 2017	Historical period of record
High	56.99	56.99
Mean		35.5
Low		7.39
No. of Samples	365	5,052



## Salinity

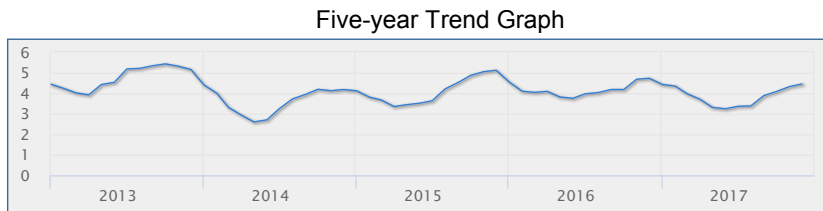
Units: PSS	Year 2017	Historical period of record
High	35.50	38.80
Mean	29.3	30.34
Low	14.90	1.80
No. of Samples	60	1,406



Method Detection Limit  
0.10 PSS

## Turbidity

Units: NTU	Year 2017	Historical period of record
High	8.00	24.00
Mean	3.85	4.24
Low	1.30	0.85
No. of Samples	64	1,290



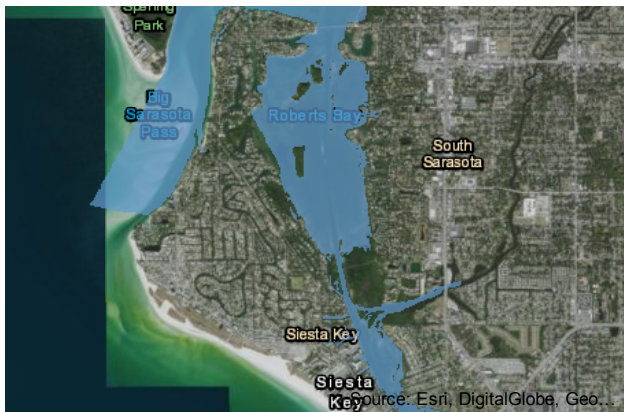
Method Detection Limit  
0.20 NTU

## Bay Contour Maps (2017)

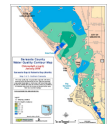
Contour mapping is one of the best ways to visualize spatial differences in coastal water quality. The interactive map shown below presents monthly data for one selected water quality indicator atop an aerial view of the bay. Choose a different water quality parameter from the list at the top to change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

Showing 2017 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.

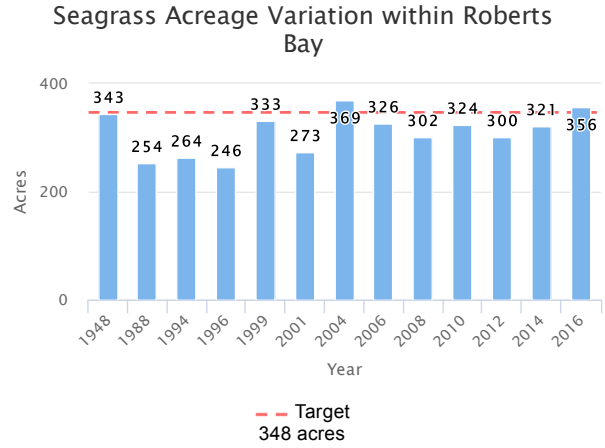
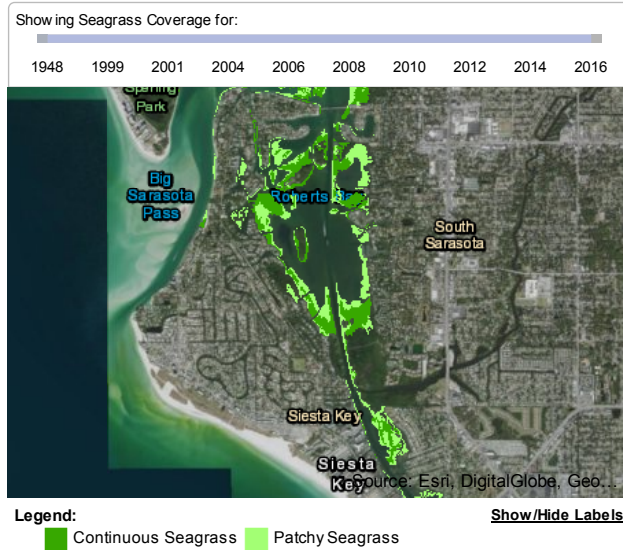


### Contour Legend:

- 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

