

# Dona/Roberts Bay Condition Report for 2016

**CAUTION**



1 out of 3 indicators were rated as PASS.

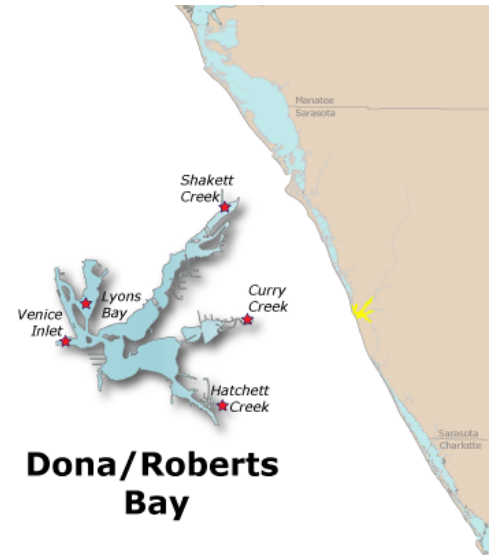
All three indicators must pass for the bay to be rated as PASS.

## Summary:

The overall health of Dona/Roberts Bay continued to deteriorate in 2016. Chlorophyll a increased significantly to a mean concentration of 0.0094 mg/l, above the threshold concentration of 0.0049 mg/l. Nitrogen concentration also increased, reaching the "Caution" range, exceeding target and threshold levels. The mean value for phosphorus concentration increased but is still well below the target.

**Water Quality:** All three nutrient measures used in scoring water quality increased in 2016, a worsening trend. The mean chlorophyll a concentration in 2016 was 0.0094 mg/l, exceeding the threshold value of 0.0049 mg/l. Mean nitrogen concentration was 0.5533 mg/l, higher than the threshold of 0.420 mg/l. The annual mean concentration of phosphorus, although higher than in 2016, remained well below the threshold of 0.180 mg/l, at 0.1022 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). In 2016, Dona/Roberts Bay retains its "Caution" rating, with two out of three water quality measures exceeding threshold values.

**Biotic Indicator:** Measurement of the biotic indicator, seagrass, was performed in 2016 by the Southwest Florida Water Management District. The increase in total seagrass acreage in Dona/Roberts Bay was slight. Between 2014 and 2016 it increased from 99 to 101 acres, remaining below the target level of 112 acres.



## Dona/Roberts Bay

Bays included in this report: Dona Bay, Lyons Bay, Roberts Bay, Venice

## 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.

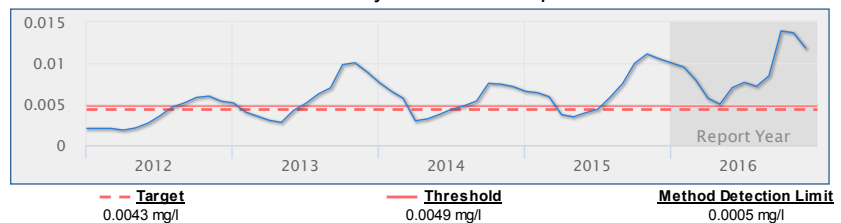
The Five-year Trend Graphs below illustrate the general trend of water quality parameters. They show a six-month running average, which moderates high and low values in the data.

### Chlorophyll a

Score: Caution

Units: mg/l	Year 2016	Historical period of record
<b>High</b>	0.0588	0.0612
<b>Mean</b>	0.0094	0.0055
<b>Low</b>	0.002	0.0001
<b>No. of Samples</b>	49	690

### Five-year Trend Graph

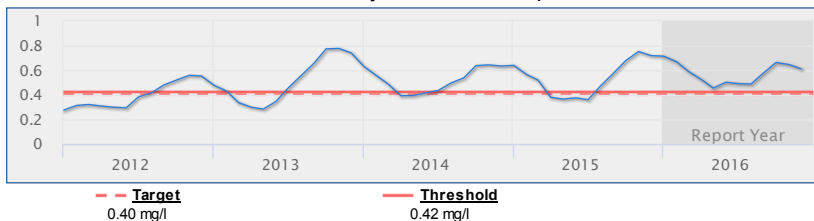


### Nitrogen, Total

Score: Caution

Units: mg/l	Year 2016	Historical period of record
High	1.31	1.715
Mean	0.5533	0.4472
Low	0.165	0.055
No. of Samples	49	686

Five-year Trend Graph

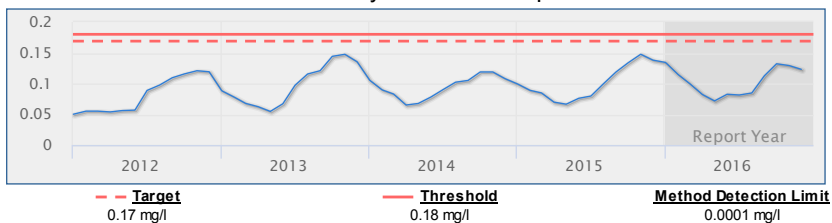


### Phosphorus, Total

Score: Excellent

Units: mg/l	Year 2016	Historical period of record
High	0.29	0.47
Mean	0.1022	0.1224
Low	0.05	0.05
No. of Samples	49	690

Five-year Trend Graph



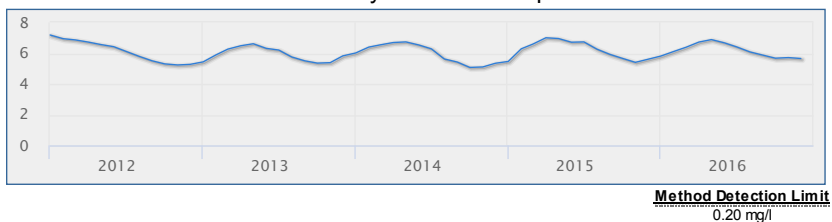
### Other Measures of Bay Health

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	7.90	9.20
Mean	6.16	6.19
Low	3.80	2.10
No. of Samples	48	656

Five-year Trend Graph



### Light Attenuation

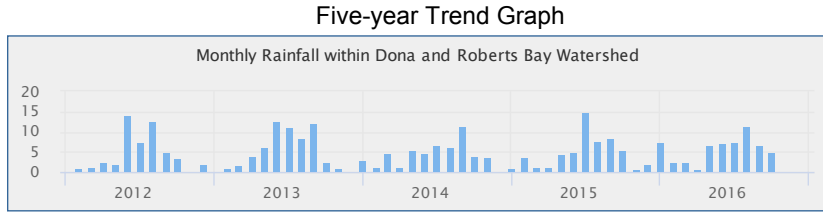
Units: K(1/m)	Year 2016	Historical period of record
High	6.46	9.04
Mean	1.57	1.14
Low	0.29	0.06
No. of Samples	42	642

Five-year Trend Graph



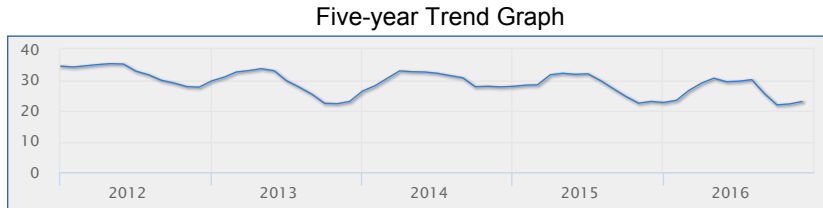
## Rainfall

Units: inches/yr	Year 2016	Historical period of record
High	57.83	61.42
Mean		42.12
Low		17.62
No. of Samples	364	4,767



## Salinity

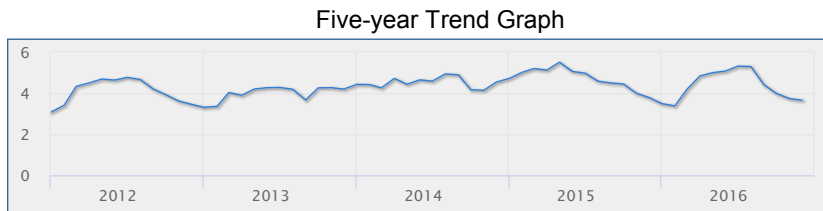
Units: PSS	Year 2016	Historical period of record
High	36.00	38.50
Mean	26.18	30.24
Low	0.16	0.10
No. of Samples	48	656



**Method Detection Limit**  
0.10 PSS

## Turbidity

Units: NTU	Year 2016	Historical period of record
High	14.00	23.00
Mean	4.34	4.24
Low	1.10	0.35
No. of Samples	49	689



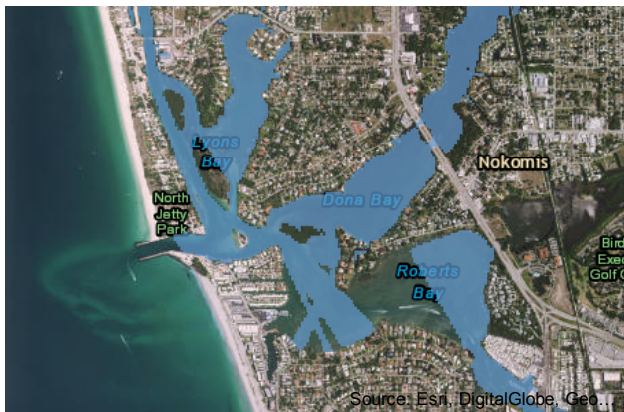
**Method Detection Limit**  
0.20 NTU

## Bay Contour Maps (2016)

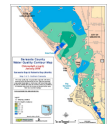
Contour mapping is one of the best ways to visualize spatial differences in coastal water quality. The interactive map shown below presents monthly data for one selected water quality indicator atop an aerial view of the bay. Choose a different water quality parameter from the list at the top to change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

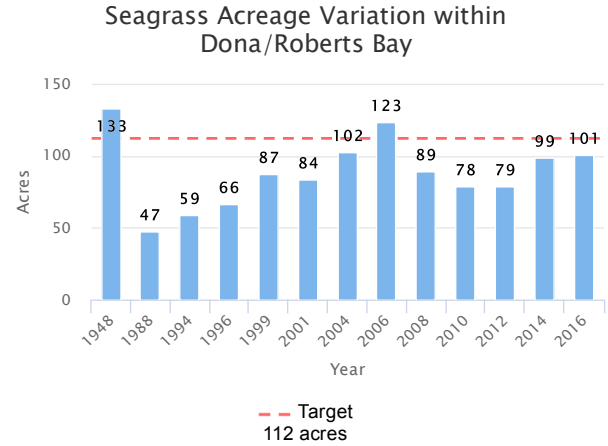
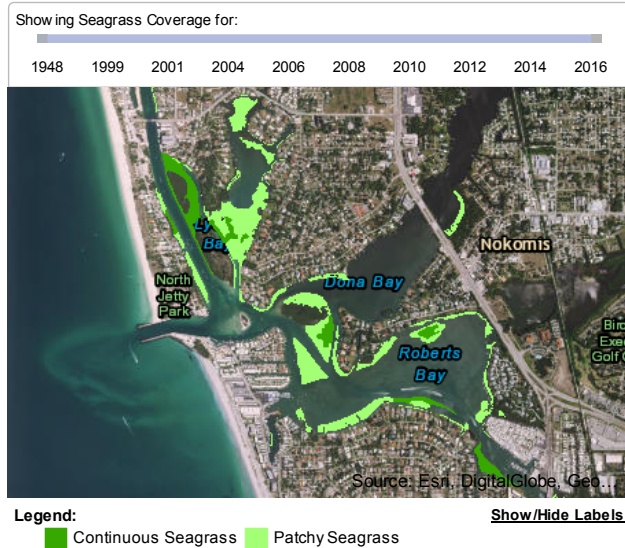


### Contour Legend:

- 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.



## 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.

Dona/Roberts Bay is located within the Dona and Roberts Bay Watershed. The chart below shows the land use / land cover characteristics for Dona and Roberts Bay Watershed within the boundary of this Water Atlas. [View details about the Dona and Roberts Bay Watershed »](#)

### 2011 Land Use / Land Cover for Dona and Roberts Bay Watershed

as a percentage of land area for this watershed

