

# Blackburn Bay Condition Report for 2016

## CAUTION

Chl-a
N
P

2 out of 3 indicators were rated as PASS.

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



## Blackburn Bay

Bays included in this report: **Blackburn Bay**

### Summary:

The overall health of Blackburn Bay deteriorated slightly in 2016. Chlorophyll *a* increased significantly with the mean value increasing to 0.0108 mg/l, exceeding the threshold value. Nitrogen concentration also increased remaining in the “Good” range, between target and threshold levels. The mean value for phosphorus concentration increased only very slightly, and is still well below the target.

**Water Quality:** While two of the three water quality indicators (nitrogen, and phosphorus) were rated as pass, chlorophyll *a*'s rating changed from “Good” to “Caution” because of its continued increase in value. 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). The mean chlorophyll *a* level was 0.0108 mg/l, exceeding the threshold concentration of 0.0082 mg/l. The mean nitrogen level increased to 0.4276 mg/l, exceeding the target value of 0.36 mg/l. Phosphorus concentrations in the bay showed an increase as well, with a mean in 2016 of 0.0821 mg/l, well below the target (0.170 mg/l) and threshold (0.210 mg/l) levels and earning a score of “Excellent”.

**Biotic Indicator:** Measurement of the biotic indicator, seagrass, was performed in 2016 by the Southwest Florida Water Management District. Total seagrass acreage in Blackburn Bay was measured to be 314 acres, a decrease in coverage from 344 acres in 2014. Seagrass acreage remains below the target level of 447 acres.

### 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.

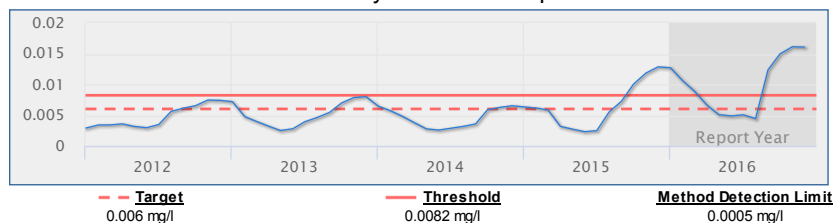
The Five-year Trend Graphs below illustrate the general trend of water quality parameters. They show a six-month running average, which moderates high and low values in the data.

### Chlorophyll a

Score: Caution

Units: mg/l	Year 2016	Historical period of record
High	0.0597	0.0597
Mean	0.0108	0.0055
Low	0.0023	0.0002
No. of Samples	57	1,016

### Five-year Trend Graph

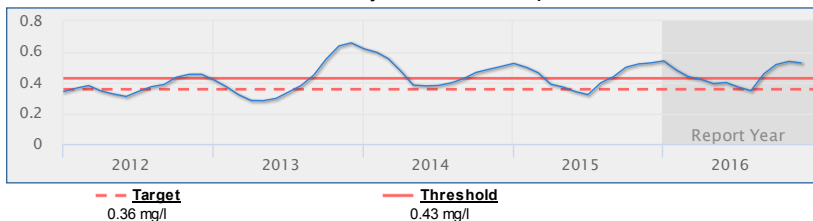


## Nitrogen, Total

Score: Good

Units: mg/l	Year 2016	Historical period of record
High	1.185	2.205
Mean	0.4276	0.3247
Low	0.205	0.055
No. of Samples	57	1,010

Five-year Trend Graph

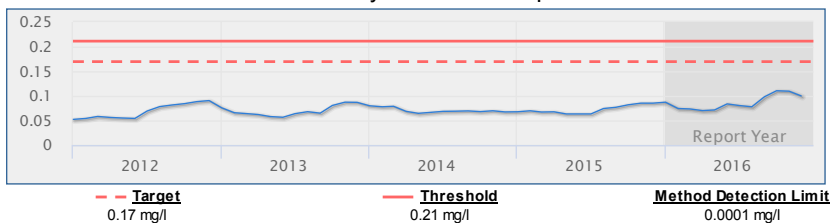


## Phosphorus, Total

Score: Excellent

Units: mg/l	Year 2016	Historical period of record
High	0.22	0.53
Mean	0.0821	0.0992
Low	0.05	0.05
No. of Samples	57	1,017

Five-year Trend Graph



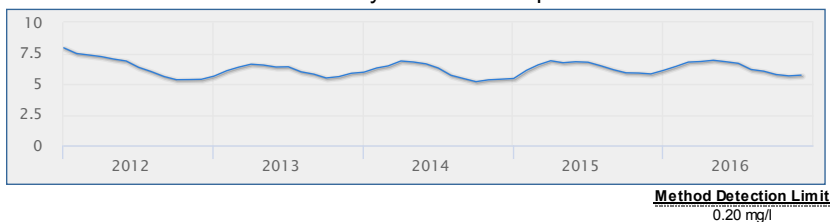
## Other Measures of Bay Health

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	8.70	11.90
Mean	6.25	6.46
Low	4.40	1.60
No. of Samples	48	1,052

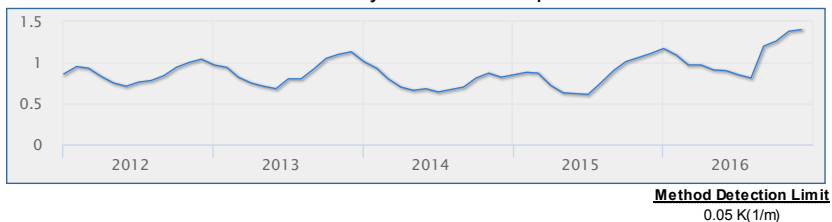
Five-year Trend Graph



## Light Attenuation

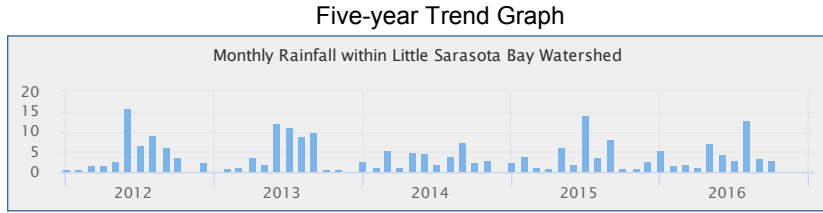
Units: K(1/m)	Year 2016	Historical period of record
High	3.27	5.03
Mean	1.11	0.87
Low	0.28	0.16
No. of Samples	44	886

Five-year Trend Graph



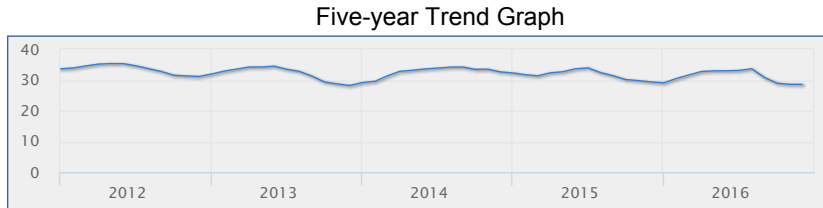
## Rainfall

Units: inches/yr	Year 2016	Historical period of record
High	44.54	52.18
Mean		33.57
Low		2.40
No. of Samples	366	4,615



## Salinity

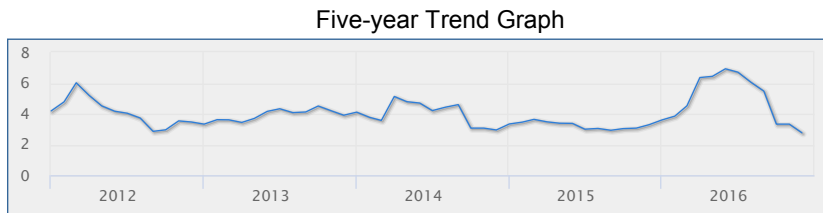
Units: PSS	Year 2016	Historical period of record
High	35.70	39.30
Mean	30.74	33.05
Low	10.90	5.70
No. of Samples	48	1,052



**Method Detection Limit**  
0.10 PSS

## Turbidity

Units: NTU	Year 2016	Historical period of record
High	25.00	39.00
Mean	4.81	3.98
Low	1.20	0.20
No. of Samples	57	1,017



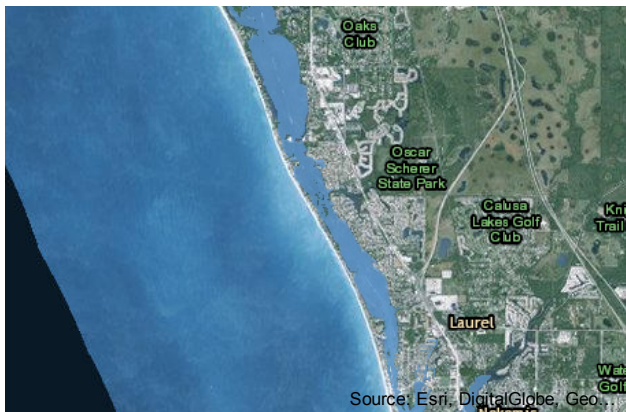
**Method Detection Limit**  
0.20 NTU

## Bay Contour Maps (2016)

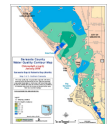
Contour mapping is one of the best ways to visualize spatial differences in coastal water quality. The interactive map shown below presents monthly data for one selected water quality indicator atop an aerial view of the bay. Choose a different water quality parameter from the list at the top to change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

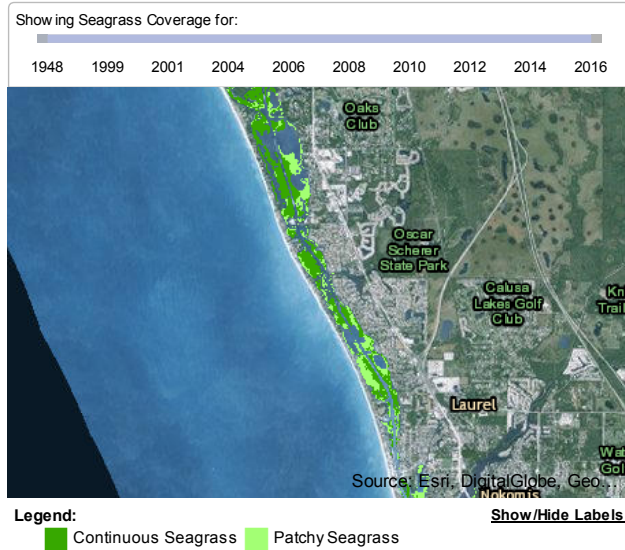


### Contour Legend:

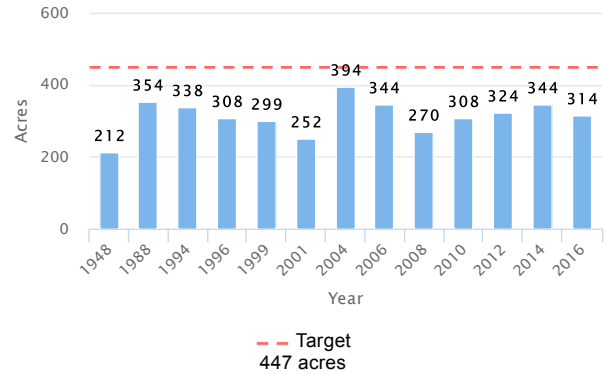
- Less than 1 mg/l
- 1.0 - 5.9 mg/l
- 6.0 - 10.9 mg/l
- 11.0 - 17.9 mg/l
- Greater than 18 mg/l

## 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 Blackburn 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.

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

2011 Land Use / Land Cover for Little Sarasota Bay Watershed

as a percentage of land area for this watershed

