





Roberts Bay Condition Report for 2014



PASS

 Chl-a

 N

 P

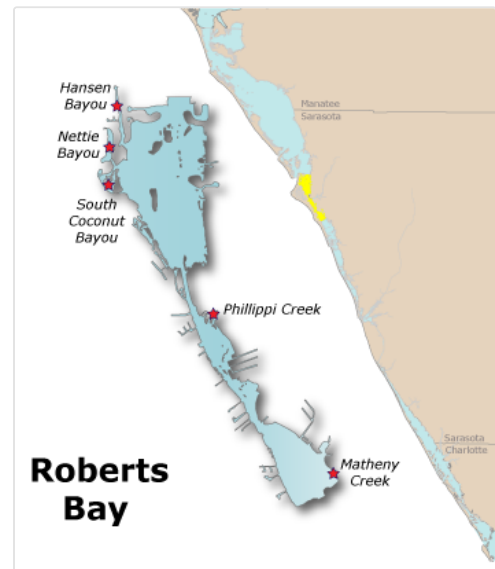
3 out of 3
indicators
were rated as
PASS.

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

Summary:

The overall health of Roberts Bay improved in 2014. Chlorophyll *a* concentration decreased significantly from 2013, bringing its mean below the target value. While the mean nitrogen concentration increased very slightly, it is still below the threshold level and the upward trend seen in 2013 has leveled out. Mean phosphorus concentration decreased and remains well below the target value of 230 µg/l.

Water Quality: Nitrogen and phosphorus retained their ratings from 2013 ("Good" and "Excellent", respectively). Mean nitrogen concentration was 0.5205 mg/l and mean phosphorus concentration was 0.0949 mg/l. Chlorophyll *a* concentration (0.0067 mg/l) improved enough to boost its rating to "Excellent". 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).



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

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.

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. An individual indicator receives an "Excellent" rating if its mean value is below the target, a "Good" rating if its mean value is above the target but does not exceed the threshold, and a "Caution" rating if the mean value exceeds the threshold.

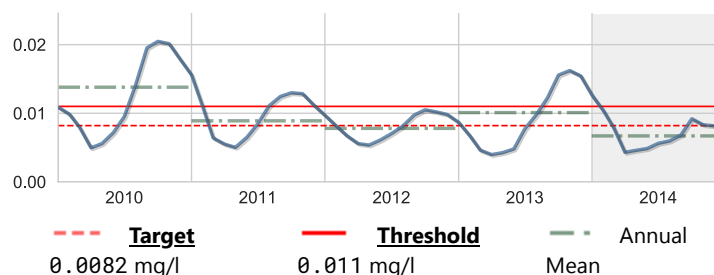
The Five-year Trend Graphs below illustrate the general trend of water quality parameters. They show a six-month running average, which moderates high and low values in the data.

Chlorophyll a

Score: Excellent

Units: mg/l	Year 2014	Historical period of record
High	0.026	0.048
Mean	0.007	0.008
Low	0.002	0.000
No. of Samples	63	1071

Five-year Trend Graph



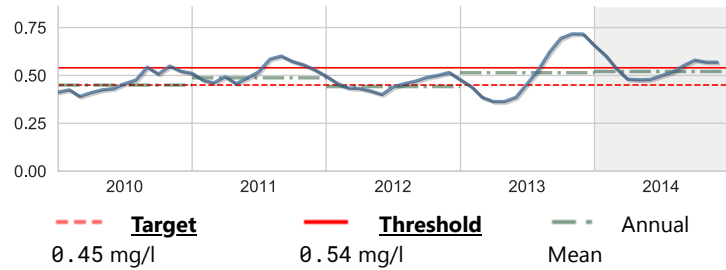


Nitrogen, Total

Score: Good

Units: mg/l	Year 2014	Historical period of record
High	0.775	1.376
Mean	0.521	
Low	0.386	0.065
No. of Samples	63	1063

Five-year Trend Graph

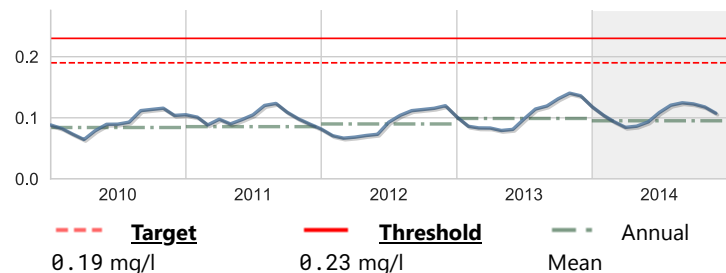


Phosphorus, Total

Score: Excellent

Units: mg/l	Year 2014	Historical period of record
High	0.170	0.480
Mean	0.095	0.137
Low	0.050	0.050
No. of Samples	64	1092

Five-year Trend Graph



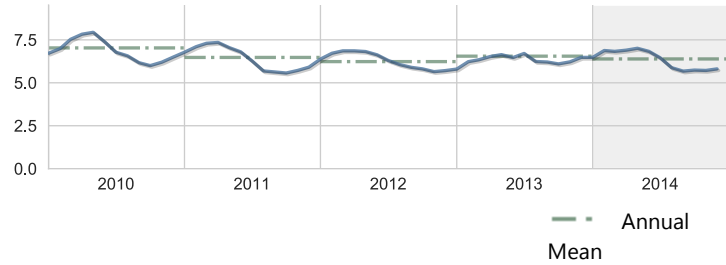
Other Measures of Bay Health

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 2014	Historical period of record
High	8.70	11.40
Mean	6.39	6.46
Low	3.50	3.50
No. of Samples	60	1208

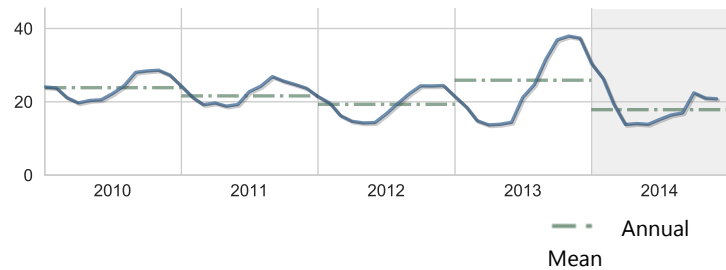
Five-year Trend Graph



Apparent Color

Units: PCU	Year 2014	Historical period of record
High	70.00	150.00
Mean	17.84	22.94
Low	5.00	2.00
No. of Samples	64	1092

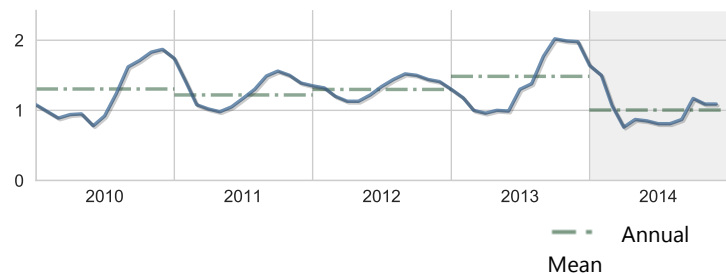
Five-year Trend Graph



BOD, Biochemical oxygen demand

Units: mg/l	Year 2014	Historical period of record
High	2.80	5.90
Mean	1.00	1.40
Low	0.50	0.50
No. of Samples	64	956

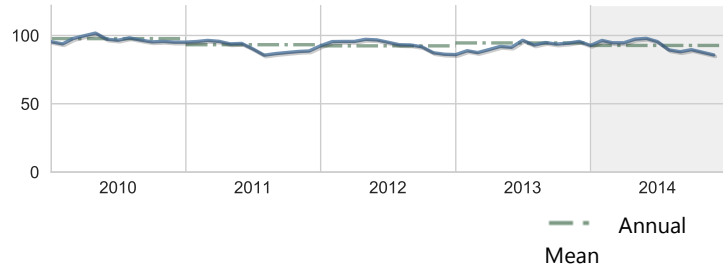
Five-year Trend Graph



Dissolved oxygen saturation

Units: percent (%)	Year 2014	Historical period of record
High	126.00	173.00
Mean	92.70	93.83
Low	57.00	50.00
No. of Samples	60	1226

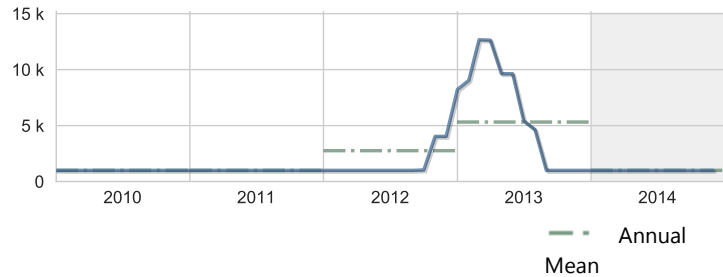
Five-year Trend Graph



Karenia brevis ("red tide")

Units: #/l	Year 2014	Historical period of record
High	1000.00	91200.00
Mean	1000.00	7593.16
Low	1000.00	1000.00
No. of Samples	63	585

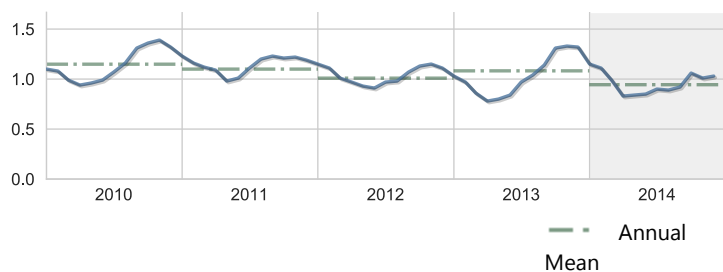
Five-year Trend Graph



Light Attenuation

Units: K(1/m)	Year 2014	Historical period of record
High	1.97	3.56
Mean	0.94	1.02
Low	0.47	0.19
No. of Samples	60	1007

Five-year Trend Graph



Nitrogen, Ammonia + Ammonium as N

Units: ug/l	Year 2014	Historical period of record
High	102.00	243.00
Mean	19.66	24.34
Low	5.00	5.00
No. of Samples	64	1092

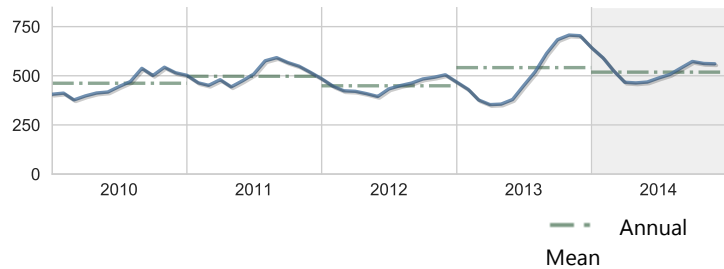
Five-year Trend Graph



Nitrogen, Kjeldahl

Units: ug/l	Year 2014	Historical period of record
High	770.00	1320.00
Mean	518.44	443.10
Low	380.00	60.00
No. of Samples	64	1092

Five-year Trend Graph



Nitrogen, Nitrite + Nitrate as N

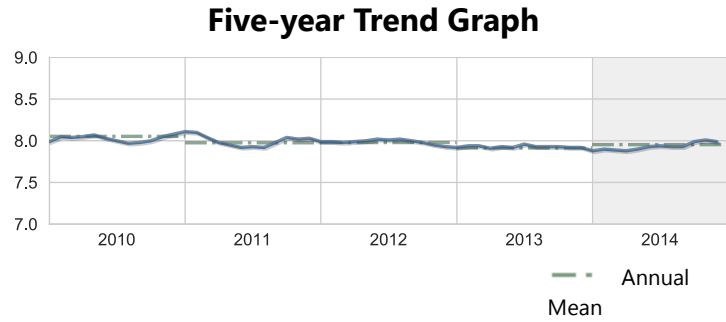
Units: ug/l	Year 2014	Historical period of record
High	38.00	339.00
Mean	9.03	11.75
Low	5.00	5.00
No. of Samples	64	1524

Five-year Trend Graph



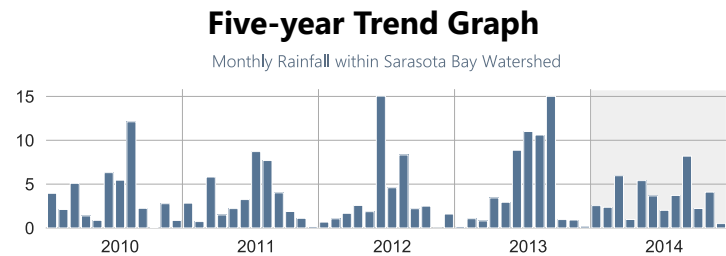
pH

Units: None	Year 2014	Historical period of record
High	8.30	8.40
Mean	7.95	7.88
Low	7.70	7.10
No. of Samples	60	1226



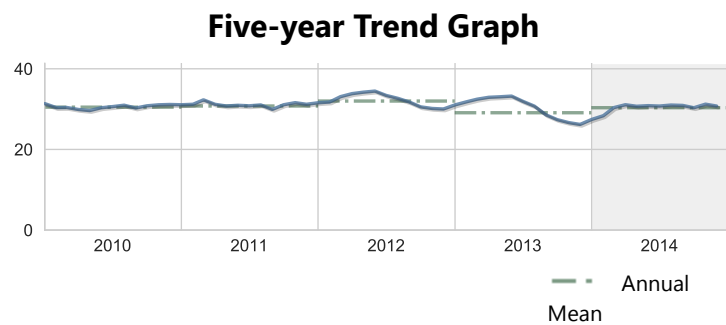
Rainfall

Units: inches/yr	Year 2014	Historical period of record
High	41.6	57.0
Mean		36.5
Low		7.0
No. of Samples	356	5423



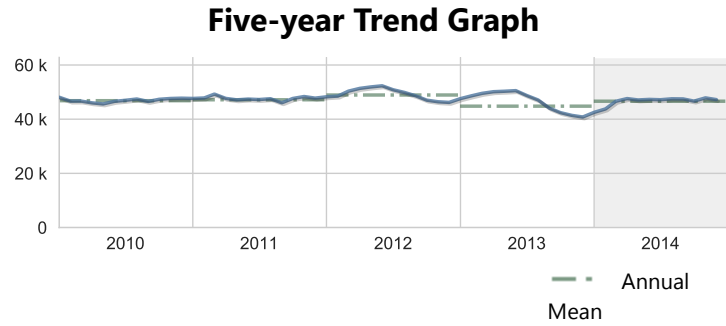
Salinity

Units: PSS	Year 2014	Historical period of record
High	34.50	38.80
Mean	30.35	30.65
Low	20.30	1.80
No. of Samples	60	1208



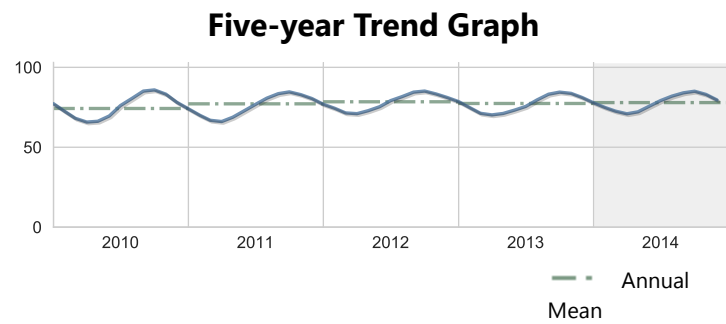
Specific conductance

Units: umho	Year 2014	Historical period of record
High	52290.00	58320.00
Mean	46633.83	46912.11
Low	32580.00	3370.00
No. of Samples	60	1226



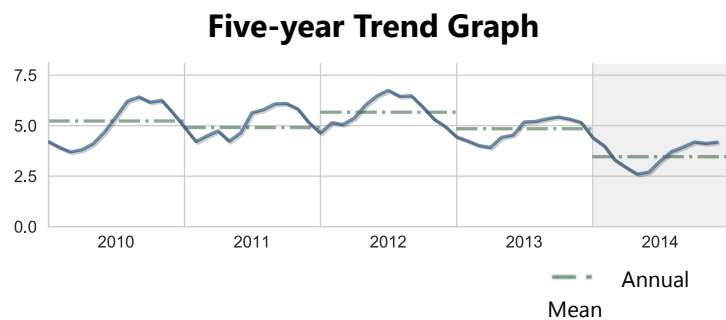
Temperature, water

Units: deg F	Year 2014	Historical period of record
High	89.42	92.48
Mean	77.94	77.60
Low	67.28	48.56
No. of Samples	60	1226



Turbidity

Units: NTU	Year 2014	Historical period of record
High	7.10	24.00
Mean	3.46	4.26
Low	1.50	0.85
No. of Samples	63	1072



Bay Contour Maps (2014)

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 2014 Monthly Contour Maps for: Chlorophyll a ▼
January



Contour Legend:

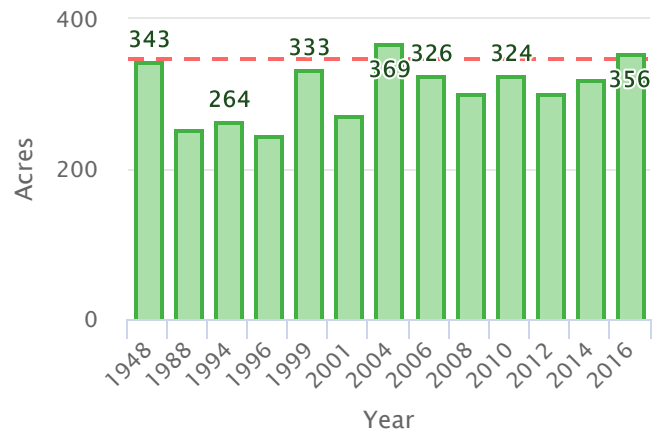
- Less than 1 mg/l
- 1.0 - 5.9 mg/l
- 6.0 - 10.9 mg/l
- 11.0 - 17.9 mg/l
- Greater than 18 mg/l

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.

Showing Seagrass Coverage for 2016:

Seagrass Acreage Variation within Roberts Bay



--- Target 348 acres

Legend:

- Continuous Seagrass
- Patchy Seagrass

Impervious Features

Rain that falls on land that is in a natural state is absorbed and filtered by soils and vegetation as it makes its way into underground aquifers. However, in developed areas, "impervious surfaces" impede this process and contribute to polluted urban runoff entering surface waters. These surfaces include human infrastructure like roads, sidewalks, driveways and parking lots that are covered by impenetrable materials such as asphalt, concrete, brick and stone, as well as buildings and other permanent structures. Soils that have been disturbed and compacted by urban development are often impervious as well.

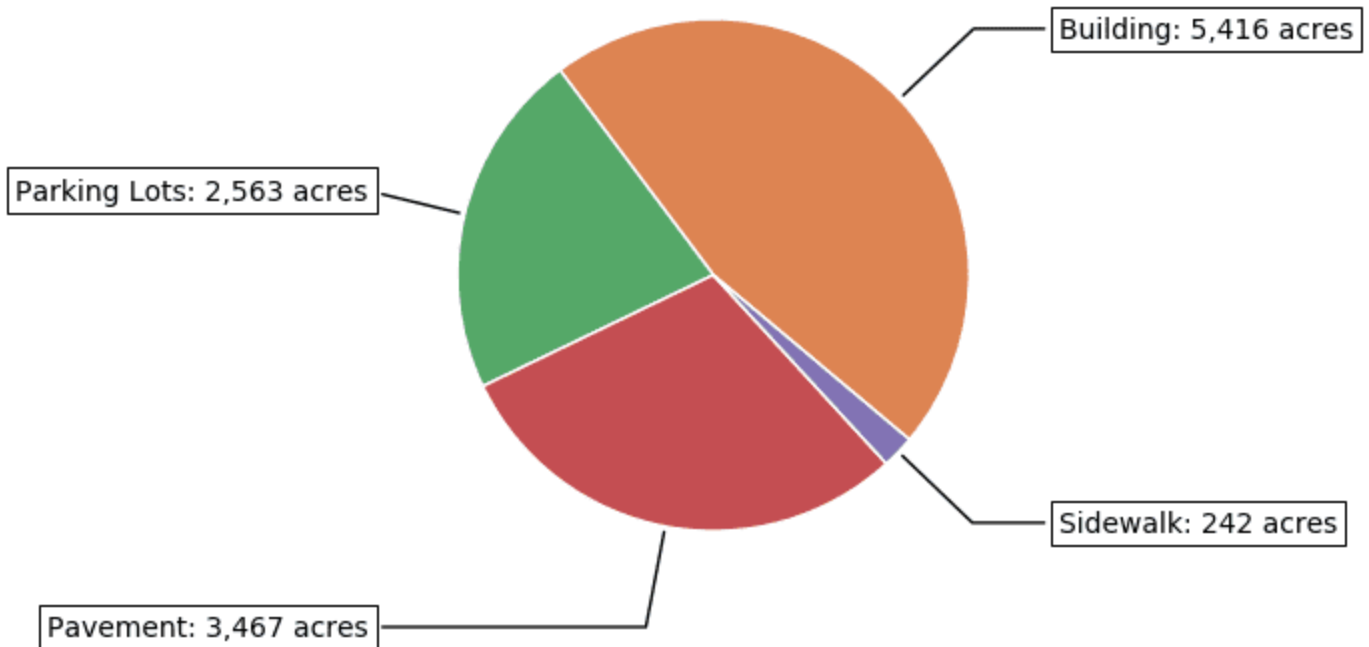


19% of the land area within the **Sarasota Bay Watershed** is covered by

impervious surfaces

2014 Impervious Surface Coverage by Type

in acres, within the Sarasota Bay Watershed







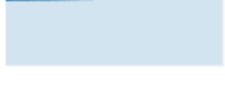
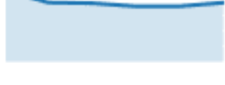


Land Use / Land Cover

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 »](#)**

Acreeage and Percentage within each Land Use / Land Cover Category for Sarasota Bay Watershed

2014 Bay Conditions Report for Roberts Bay

Land Use Classification	1990	1995	1999	2005	2011	2014	Trend
Urban & Built-up	32,908 53.3%	34,517 55.9%	35,334 57.3%	37,844 61.3%	38,343 62.1%	37,987 61.6%	
Agriculture	6,338 10.3%	5,945 9.6%	4,646 7.5%	2,497 4%	2,215 3.6%	2,309 3.7%	
Rangeland	547 0.9%	337 0.5%	297 0.5%	199 0.3%	225 0.4%	430 0.7%	
Upland Forests	3,588 5.8%	2,854 4.6%	2,619 4.2%	2,109 3.4%	1,874 3%	1,923 3.1%	
Water	13,350 21.6%	13,445 21.8%	13,633 22.1%	14,227 23.1%	14,278 23.1%	14,131 22.9%	
Wetlands	2,870 4.7%	2,379 3.9%	2,352 3.8%	2,227 3.6%	2,229 3.6%	2,372 3.8%	
Barren Land	29 0%	108 0.2%	721 1.2%	9 0%	99 0.2%	109 0.2%	
Transportation and Utilities	1,845 3%	2,130 3.5%	2,113 3.4%	2,602 4.2%	2,452 4%	2,453 4%	

2014 Land Use / Land Cover for Sarasota Bay Watershed

as a percentage of land area for this watershed

