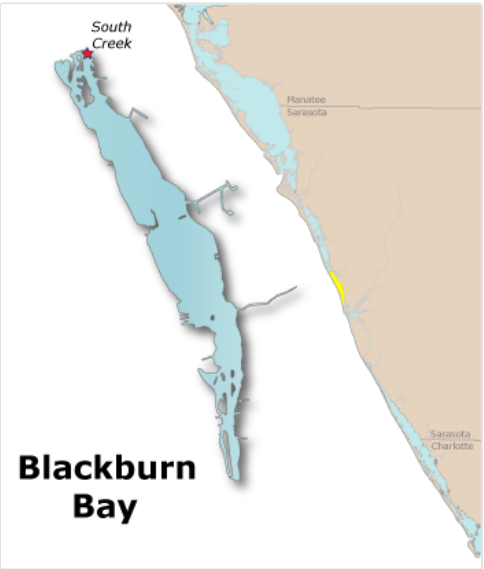
Blackburn Bay Condition Report for 2010

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**.



Bays included in this report:
Blackburn Bay

Summary:

The overall health of Blackburn Bay has remained in good condition. All three water quality indicators were rated as pass. However, the biotic indicator, seagrass, has continued to decrease.

Water quality: All three water quality indicators (chlorophyll *a*, nitrogen, and phosphorus) were rated as pass (below the threshold) and remained in excellent condition. Although there has been a slight increase in chlorophyll *a* levels, the mean level is still slightly below the threshold value of 0.0082 mg/l. Nitrogen levels have remained constant and below the threshold (0.430 mg/l) and hovering very closely to the target level of 0.360 mg/l. Phosphorus levels have decreased with the average greatly below the target level of 0.170 mg/l.

Biotic Indicator: The total acreage of seagrass has remained relatively constant since 1988 but in 2010 the average level of seagrass (323 acres) was still below the target of 447 acres.

Water Chemistry Ratings

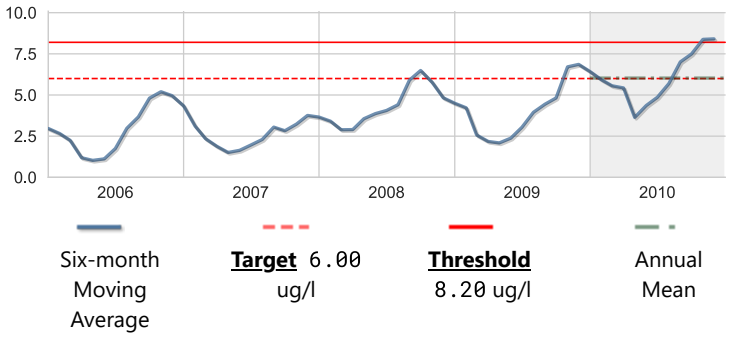
Total nitrogen, total phosphorus, and chlorophyll *a* levels are monitored carefully by water resource managers and used by regulatory authorities to determine whether a bay meets the water quality standards mandated by the Clean Water Act. The trend graphs for these indicators are shown below, along 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. 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 charts 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.

Chl-a Chlorophyll a

Score: Good

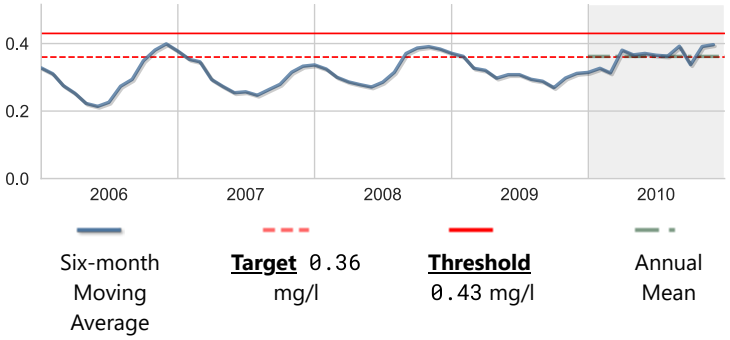
Units: ug/l	Year 2010	Historical period of record
High	14.97	43.00
Mean	6.03	4.98
Low	0.93	0.23
No. of Samples	299	3734



N Nitrogen, Total

Score: Good

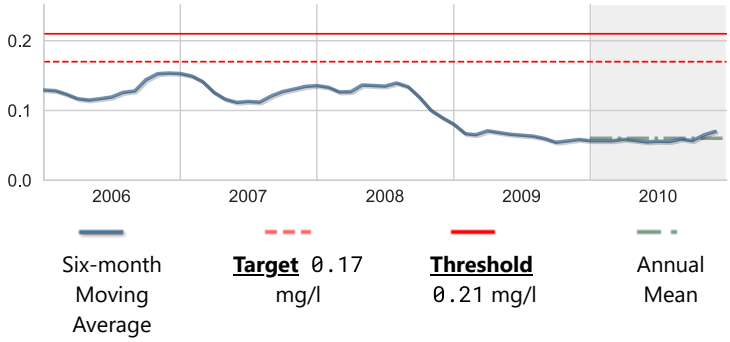
Units: mg/l	Year 2010	Historical period of record
High	0.840	1.189
Mean	0.362	
Low	0.116	0.000
No. of Samples	45	610



P Phosphorus, Total

Score: Excellent

Units: mg/l	Year 2010	Historical period of record
High	0.140	0.530
Mean	0.060	0.121
Low	0.050	0.050
No. of Samples	57	675

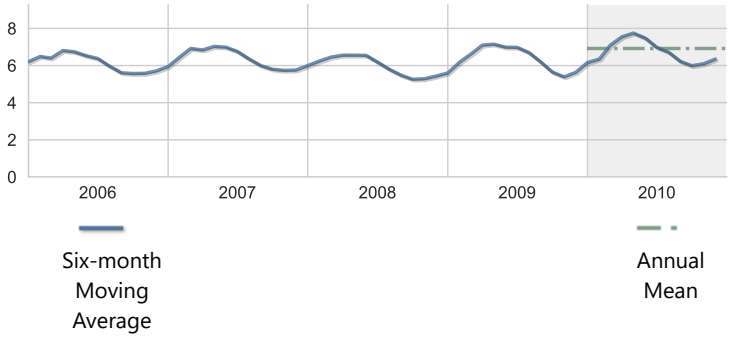


Other Measures of Bay Health

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.

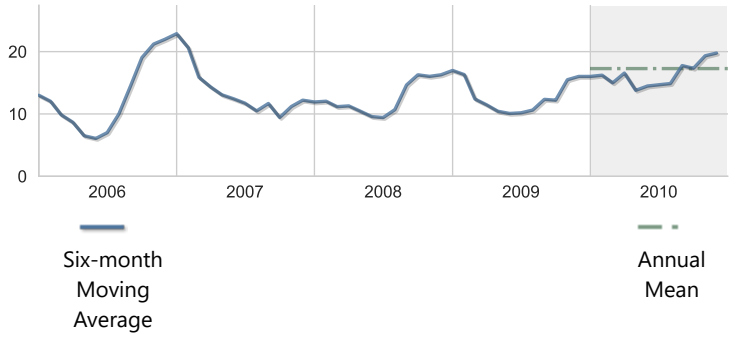
Dissolved Oxygen

Units: mg/l	Year 2010	Historical period of record
High	9.20	11.90
Mean	6.92	6.55
Low	4.60	1.60
No. of Samples	48	762



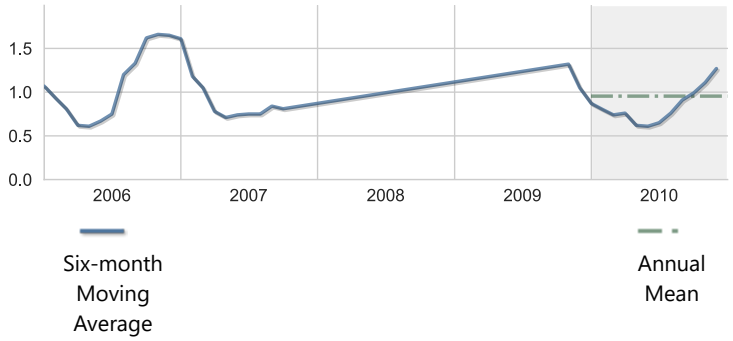
Apparent Color

Units: PCU	Year 2010	Historical period of record
High	55.00	250.00
Mean	17.28	19.97
Low	5.00	2.00
No. of Samples	57	675



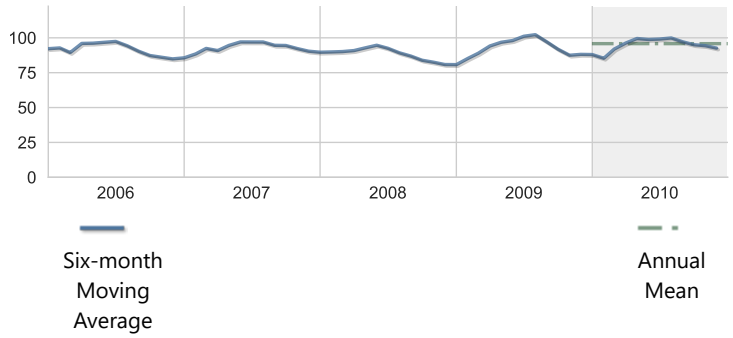
BOD, Biochemical oxygen demand

Units: mg/l	Year 2010	Historical period of record
High	1.90	7.10
Mean	0.95	1.16
Low	0.50	0.50
No. of Samples	57	564



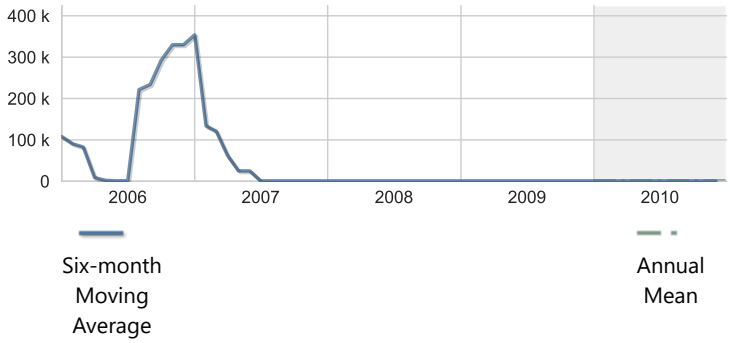
Dissolved oxygen saturation

Units: percent (%)	Year 2010	Historical period of record
High	111.00	198.00
Mean	95.81	96.04
Low	74.00	26.00
No. of Samples	48	764



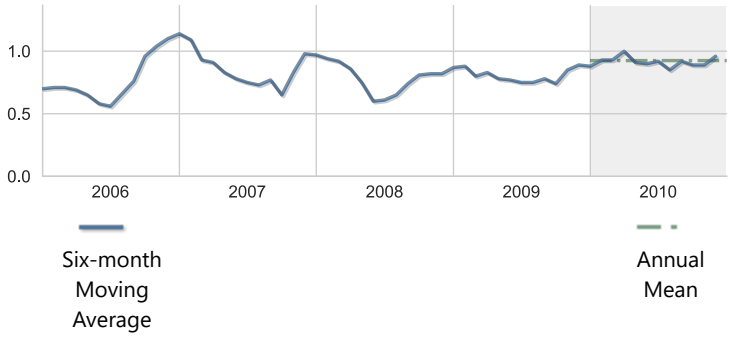
Karenia brevis ("red tide")

Units: #/l	Year 2010	Historical period of record
High	2000.00	2280000.00
Mean	1017.86	45102.74
Low	1000.00	1000.00
No. of Samples	56	292



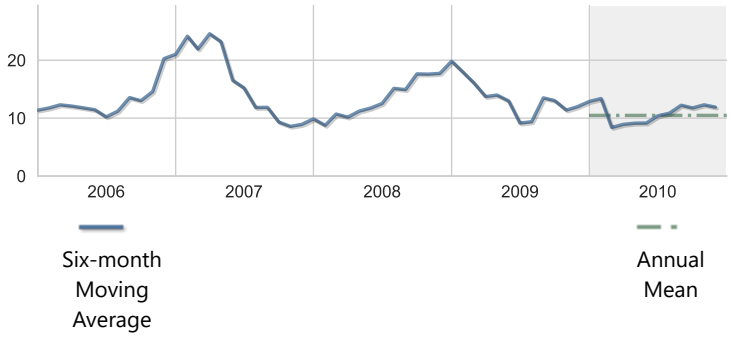
Light Attenuation

Units: K(1/m)	Year 2010	Historical period of record
High	1.83	5.03
Mean	0.92	0.87
Low	0.32	0.16
No. of Samples	48	604



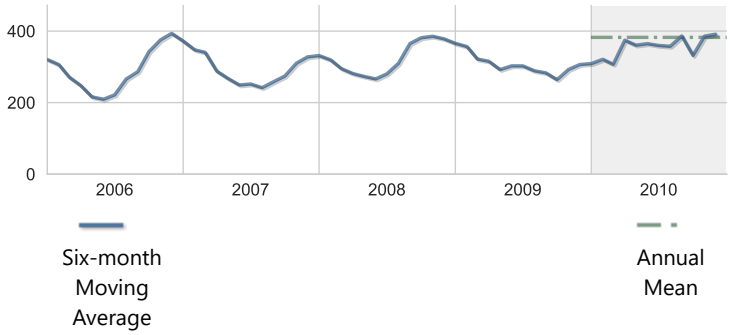
Nitrogen, Ammonia + Ammonium as N

Units: ug/l	Year 2010	Historical period of record
High	25.00	120.00
Mean	10.47	14.86
Low	5.00	5.00
No. of Samples	57	677



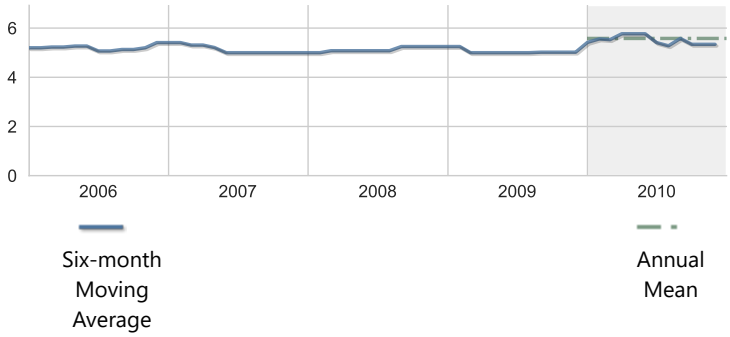
Nitrogen, Kjeldahl

Units: ug/l	Year 2010	Historical period of record
High	830.00	1150.00
Mean	382.46	324.46
Low	110.00	0.05
No. of Samples	57	675



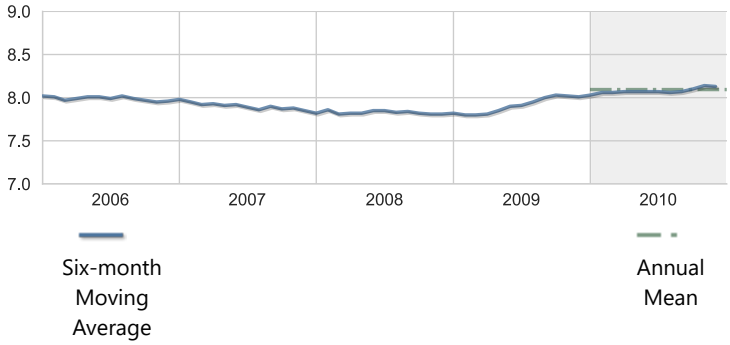
Nitrogen, Nitrite + Nitrate as N

Units: ug/l	Year 2010	Historical period of record
High	12.00	65.00
Mean	5.58	6.06
Low	5.00	5.00
No. of Samples	57	997



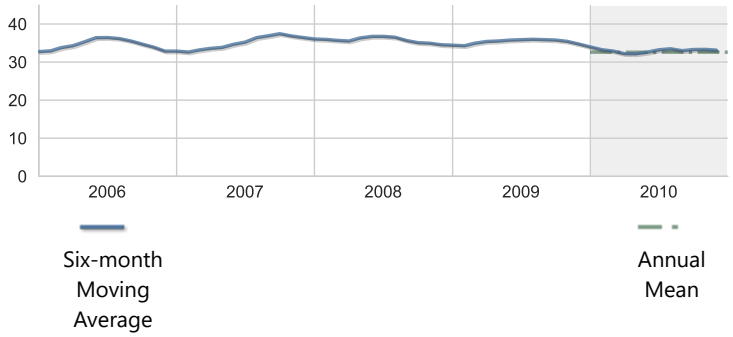
pH

Units: None	Year 2010	Historical period of record
High	8.30	8.40
Mean	8.09	7.93
Low	7.60	6.10
No. of Samples	48	764



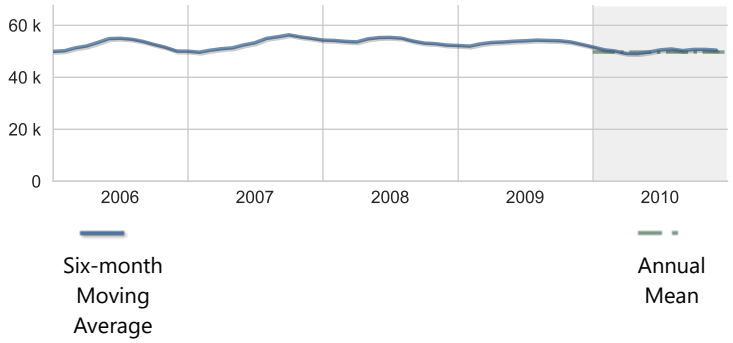
Salinity

Units: PSS	Year 2010	Historical period of record
High	35.70	39.30
Mean	32.60	33.35
Low	25.80	5.70
No. of Samples	48	756



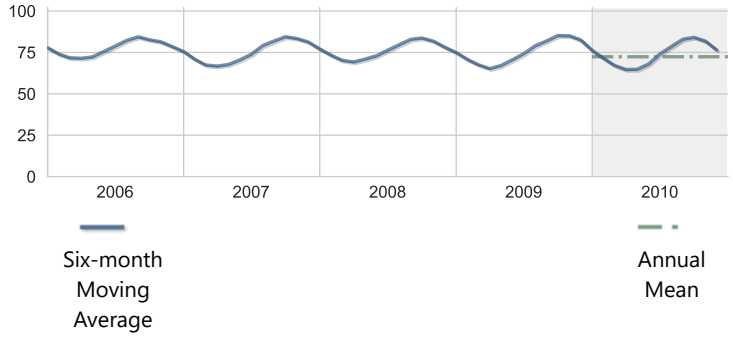
Specific conductance

Units: umho	Year 2010	Historical period of record
High	53930.00	58760.00
Mean	49716.46	50730.42
Low	40750.00	10130.00
No. of Samples	48	764



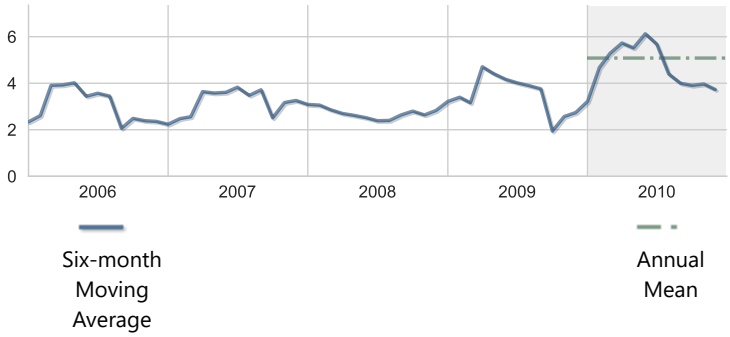
Temperature, water

Units: deg F	Year 2010	Historical period of record
High	89.42	92.84
Mean	72.37	76.45
Low	47.84	47.84
No. of Samples	48	764



Turbidity

Units: NTU	Year 2010	Historical period of record
High	13.00	39.00
Mean	5.08	3.70
Low	2.20	0.20
No. of Samples	299	3734



Annual Averages

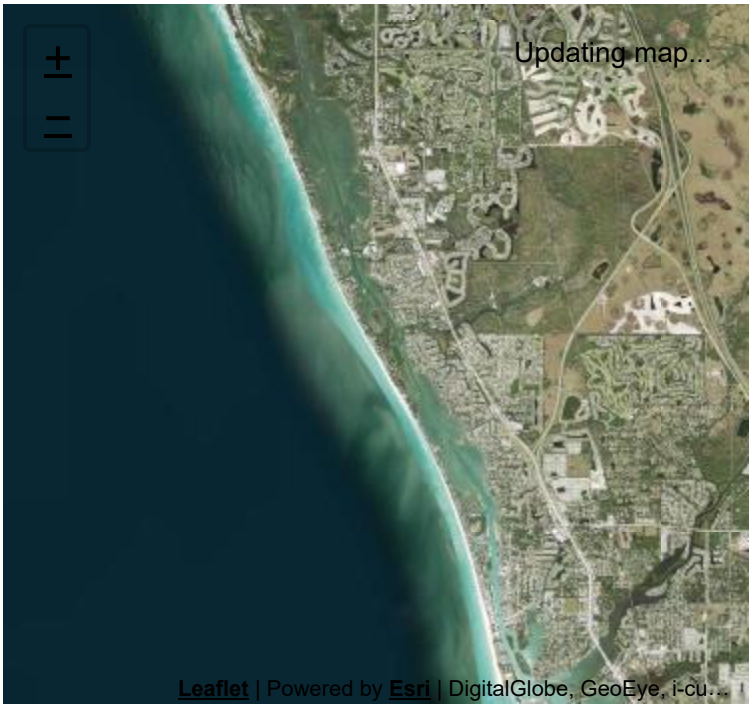
Indicator	Units	2006	2007	2008	2009	2010	Trend
Dissolved Oxygen	**mg/l**					6.92	
Dissolved oxygen saturation	**percent (%)**					95.81	
Light Attenuation	**K(1/m)**					0.92	
Salinity	**PSS**					32.60	
Turbidity	**NTU**					5.08	

Bay Contour Maps (2010)

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 2010 Monthly Contour Maps for: Chlorophyll a

January



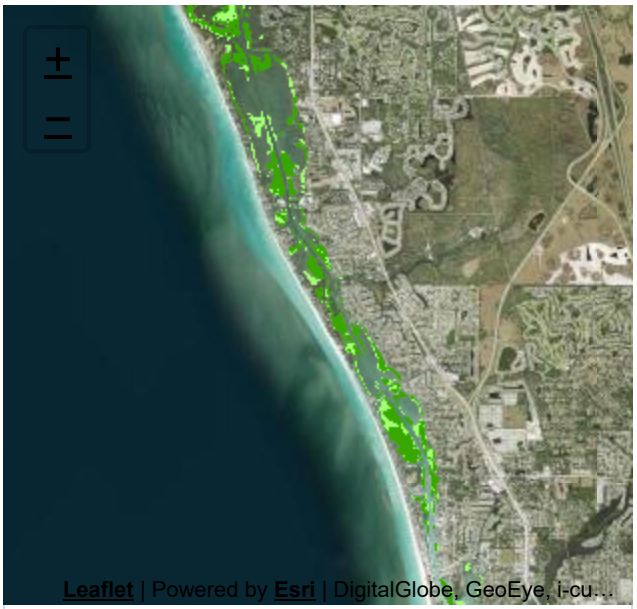
Contour Legend:

- 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

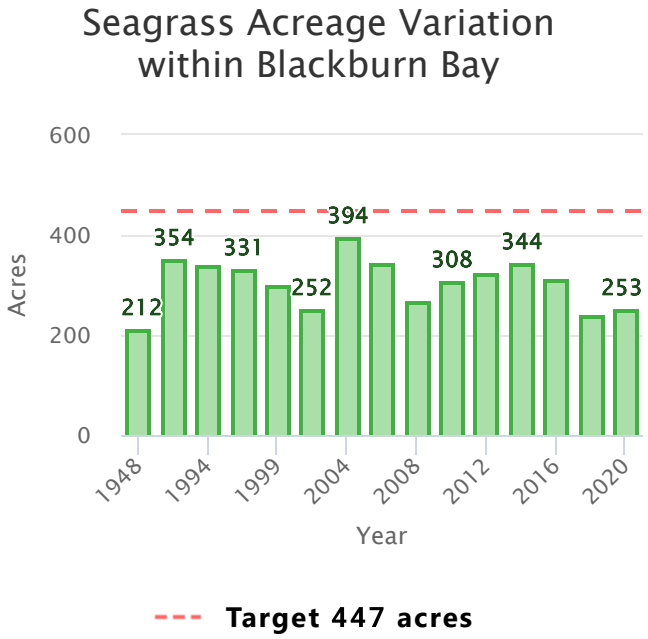
Seagrasses

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. Seagrass calculations are aggregates of patchy and continuous seagrass measurements only. Recordings of attached algae are not included in these summaries.

Showing Seagrass Coverage for 2020:



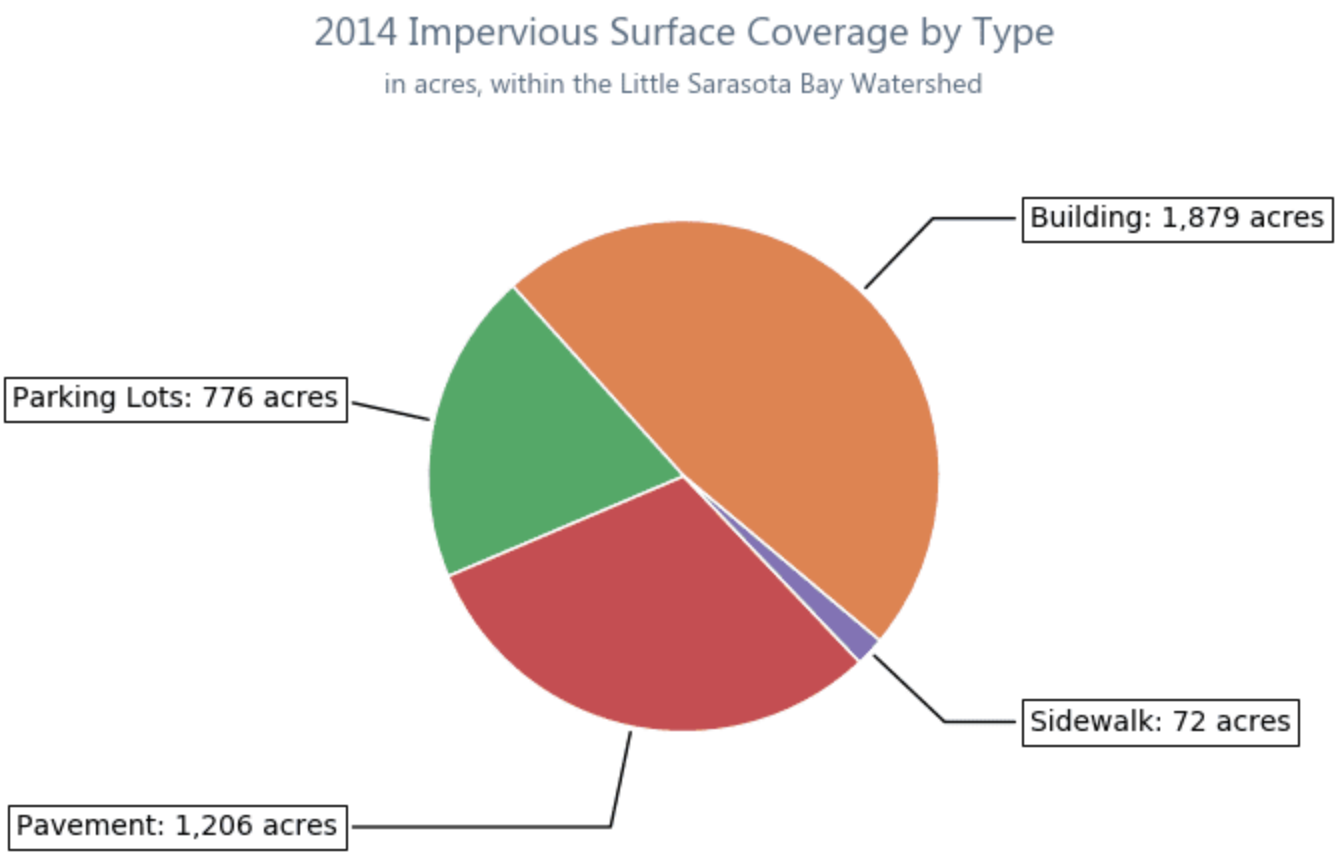
Legend:
Continuous Seagrass Patchy Seagrass



Impervious Features

Rain that falls on land that is in a natural state is absorbed and filtered by soils and vegetation as it makes it 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.

14% of the land area within the **Little Sarasota Bay Watershed** is covered by impervious surfaces



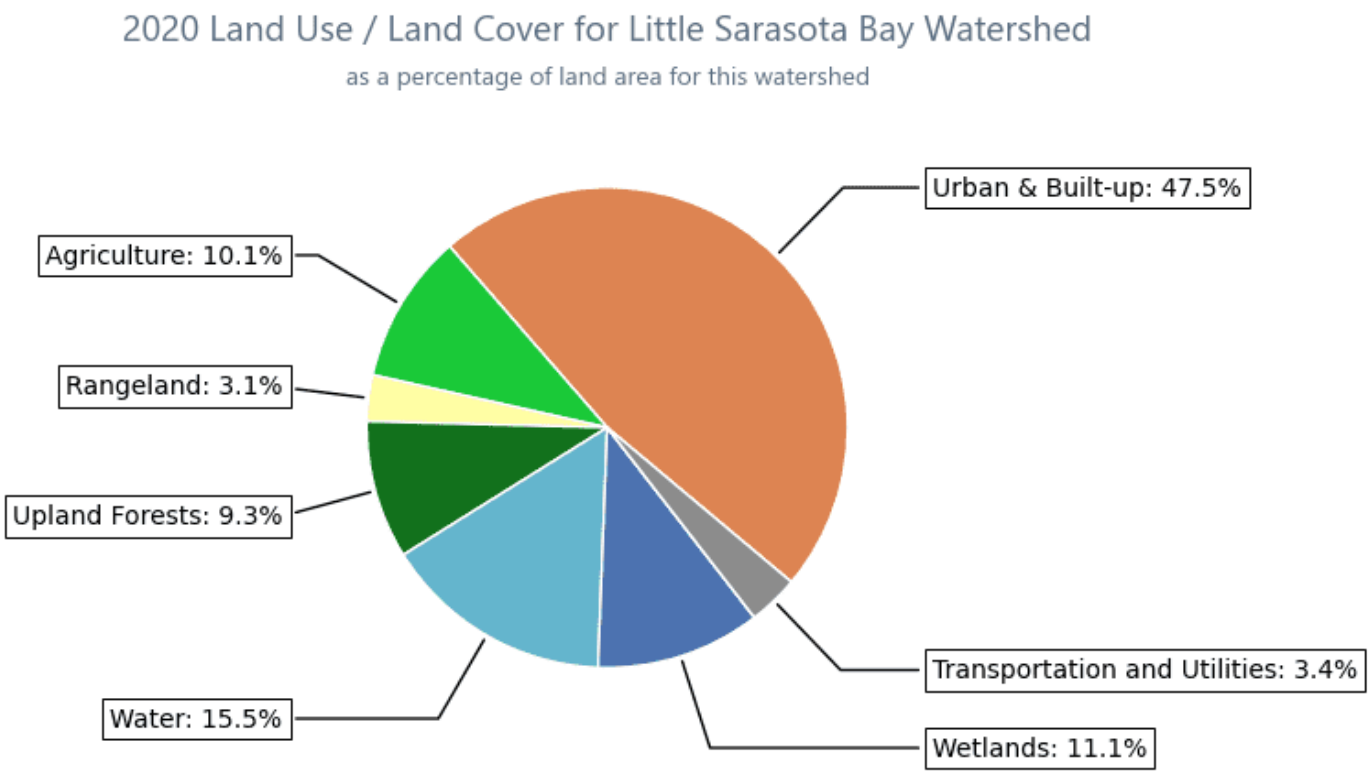
Land Use / Land Cover

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 »**

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

Land Use Classification	1990	2005	2011	2014	2017	2020	Trend
Urban & Built-up	8,943 **31.9%**	11,834 **42.2%**	12,102 **43.1%**	12,162 **43.3%**	12,777 **45.5%**	13,343 **47.5%**	
Agriculture	3,550 **12.6%**	3,228 **11.5%**	3,258 **11.6%**	4,223 **15%**	3,124 **11.1%**	2,837 **10.1%**	
Rangeland	825 **2.9%**	1,822 **6.5%**	1,474 **5.3%**	579 **2.1%**	1,233 **4.4%**	877 **3.1%**	
Upland Forests	7,098 **25.3%**	3,066 **10.9%**	2,981 **10.6%**	2,725 **9.7%**	2,687 **9.6%**	2,603 **9.3%**	
Water	3,429 **12.2%**	4,123 **14.7%**	4,147 **14.8%**	4,175 **14.9%**	4,227 **15.1%**	4,337 **15.5%**	
Wetlands	3,490 **12.4%**	3,133 **11.2%**	3,191 **11.4%**	3,227 **11.5%**	3,121 **11.1%**	3,120 **11.1%**	
Barren Land	62 **0.2%**	18 **0.1%**	19 **0.1%**	20 **0.1%**	6 **0%**	6 **0%**	
Transportation and Utilities	675 **2.4%**	841 **3%**	892 **3.2%**	952 **3.4%**	898 **3.2%**	948 **3.4%**	


2020 Land Use / Land Cover for Little Sarasota Bay Watershed
as a percentage of land area for this watershed
Urban & Built-up: 47.5%
Agriculture: 10.1%
Rangeland: 3.1%
Upland Forests: 9.3%
Water: 15.5%
Transportation and Utilities: 3.4%
Wetlands: 11.1%