


Dona/Roberts Bay Condition Report for 2022



PASS

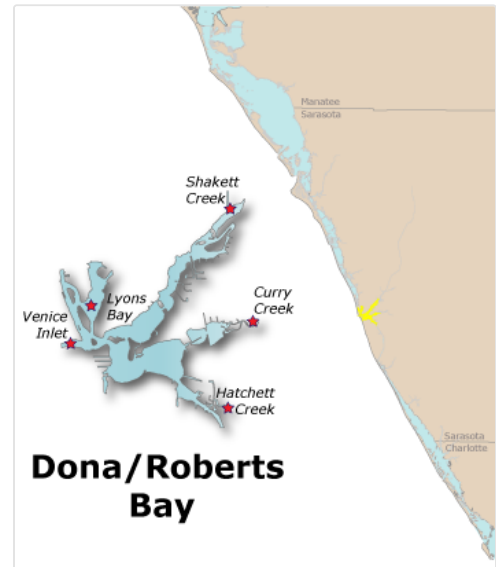
Chl-a

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:
Dona Bay, Lyons Bay, Roberts Bay, Venice

Summary:

Major gains in water quality were made in Dona/Roberts Bay in 2022. The mean Total Nitrogen value dropped from 0.477 mg/l in 2021 to 0.392 mg/l in 2022, putting it just below the target value of 0.40 mg/l and upgrading Dona/Roberts Bay's nitrogen score from "Caution" to "Excellent". With fewer nutrients available, Chlorophyll *a* levels were also lower, dropping from a mean of 4.80 ug/l to 4.10 ug/l, below the target value. Total Phosphorus levels, already low, dropped further. This improvement is remarkable, given the significant water quality impacts of Hurricane Ian in the last quarter of the year.

Note: Beginning in 2020, Sarasota County switched from measuring apparent color to true color. The latter will be added to Bay Conditions reports in the near future.

Water Chemistry Ratings

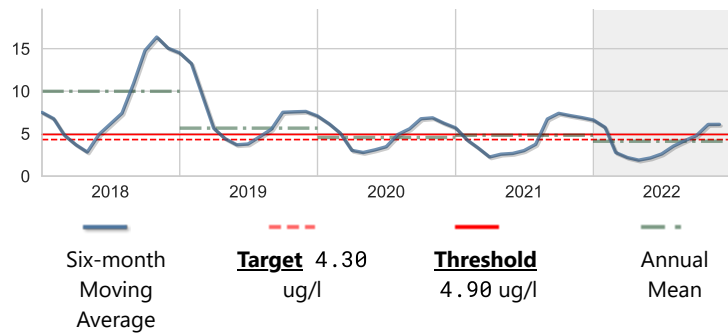
Total nitrogen, total phosphorus, and chlorophyll *a* levels are monitored carefully by water resource managers and used by regulatory authorities to determine whether a bay meets the water quality standards mandated by the Clean Water Act. The trend graphs for these indicators are shown below, along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

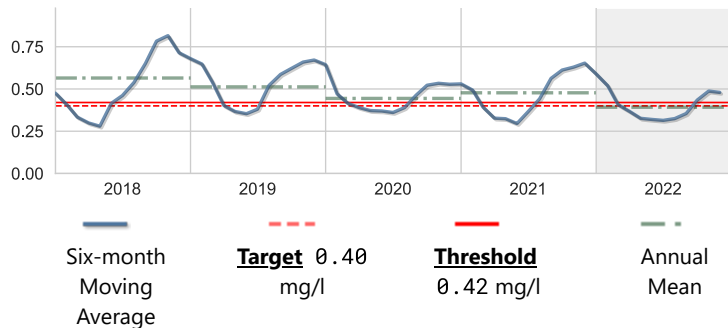
Units: ug/l	Year 2022	Historical period of record
High	14.61	73.72
Mean	4.10	5.51
Low	1.14	0.07
No. of Samples	46	1671



N Nitrogen, Total

Score: Excellent

Units: mg/l	Year 2022	Historical period of record
High	1.324	3.699
Mean	0.392	0.455
Low	0.185	0.055
No. of Samples	46	988

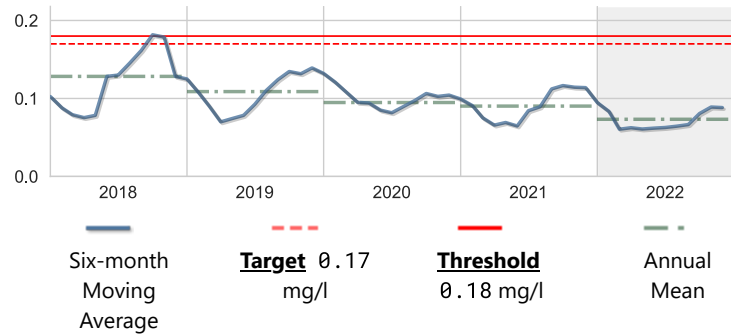




Phosphorus, Total

Score: Excellent

Units: mg/l	Year 2022	Historical period of record
High	0.280	0.840
Mean	0.073	0.115
Low	0.050	0.050
No. of Samples	46	996

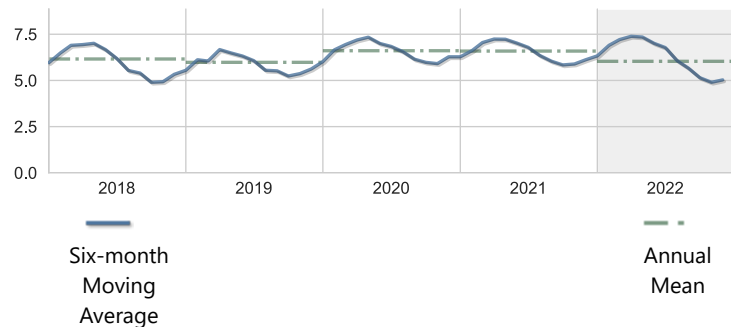


Other Measures of Bay Health

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

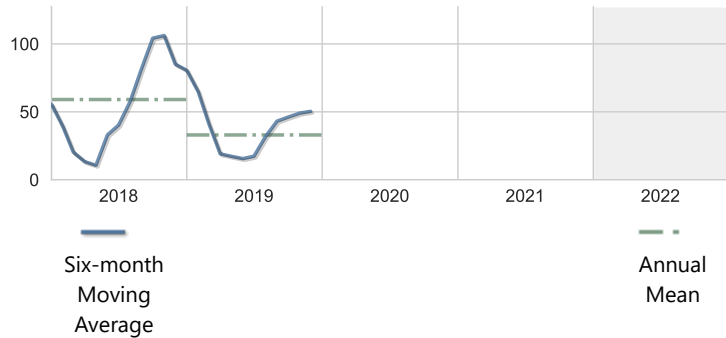
Units: mg/l	Year 2022	Historical period of record
High	9.35	9.35
Mean	6.03	6.22
Low	3.35	2.10
No. of Samples	46	958



Apparent Color

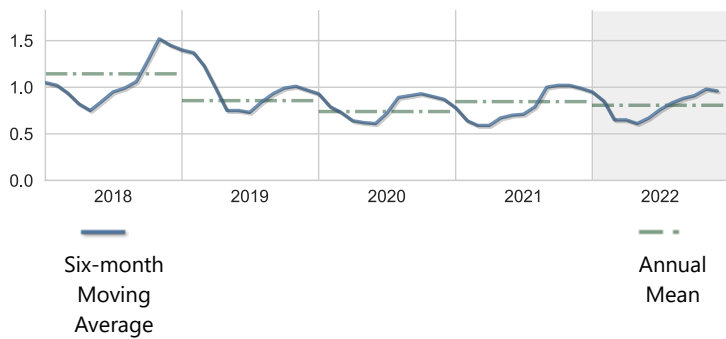
Note: The latest available sample for this parameter is from December 2019

Units: PCU	Year 2022	Historical period of record
High		400.00
Mean		40.18
Low		2.00
No. of Samples	0	853



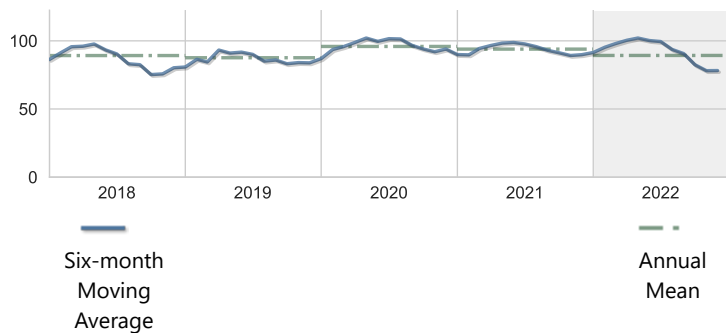
BOD, Biochemical oxygen demand

Units: mg/l	Year 2022	Historical period of record
High	1.60	8.50
Mean	0.81	0.99
Low	0.50	0.50
No. of Samples	46	888



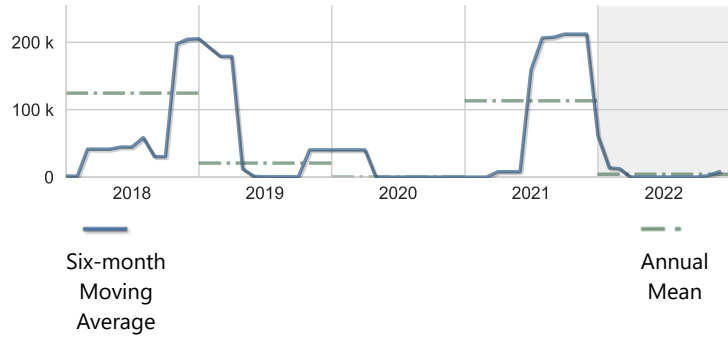
Dissolved oxygen saturation

Units: percent (%)	Year 2022	Historical period of record
High	126.00	143.00
Mean	89.28	90.56
Low	49.00	33.00
No. of Samples	46	959



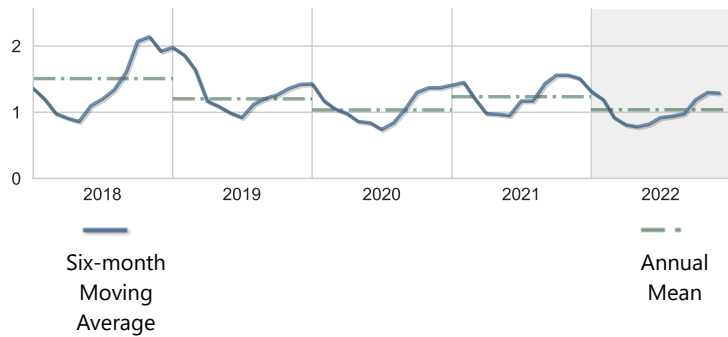
Karenia brevis ("red tide")

Units: #/l	Year 2022	Historical period of record
High	98000.00	2460000.00
Mean	4250.00	37585.82
Low	0.00	0.00
No. of Samples	46	804



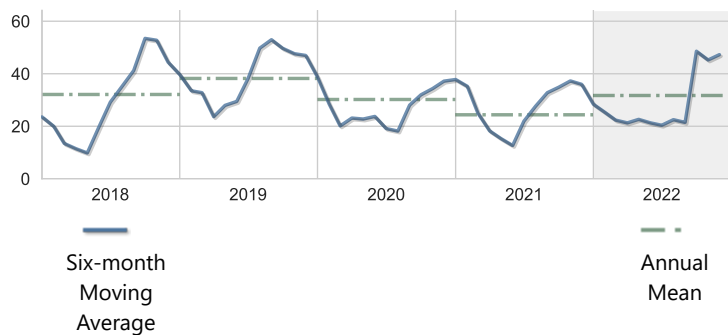
Light Attenuation

Units: K(1/m)	Year 2022	Historical period of record
High	3.52	9.04
Mean	1.04	1.15
Low	0.35	0.06
No. of Samples	46	944



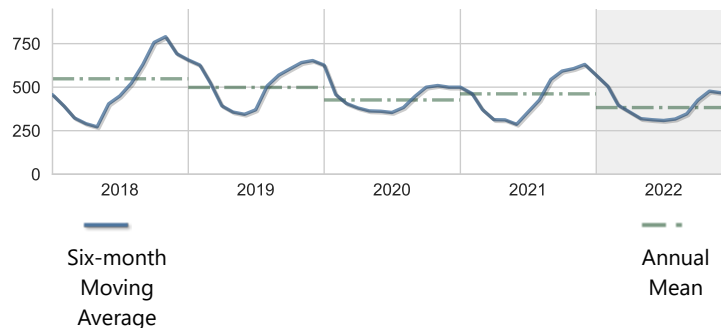
Nitrogen, Ammonia + Ammonium as N

Units: ug/l	Year 2022	Historical period of record
High	325.00	326.00
Mean	31.72	28.13
Low	5.00	5.00
No. of Samples	46	992



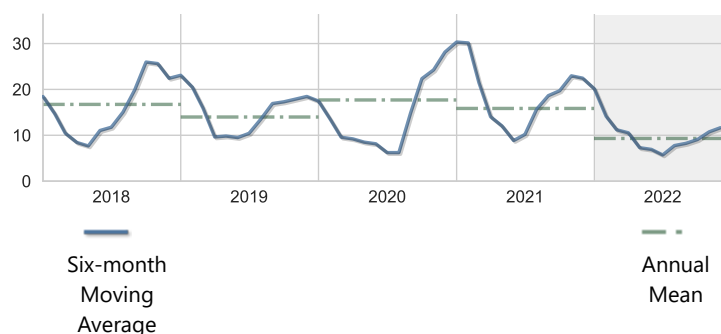
Nitrogen, Kjeldahl

Units: ug/l	Year 2022	Historical period of record
High	1310.00	3630.00
Mean	382.83	441.75
Low	180.00	50.00
No. of Samples	46	996



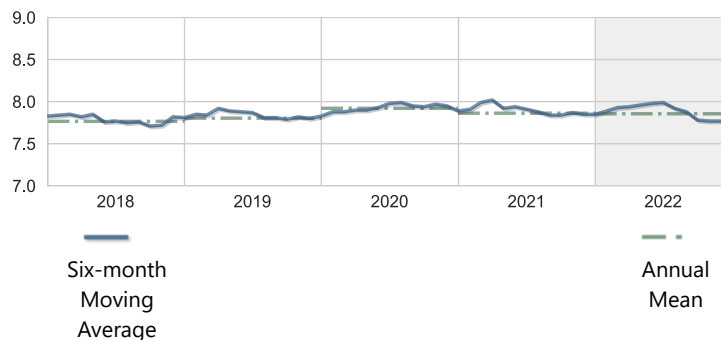
Nitrogen, Nitrite + Nitrate as N

Units: ug/l	Year 2022	Historical period of record
High	59.00	108.00
Mean	9.30	13.28
Low	5.00	5.00
No. of Samples	46	1083



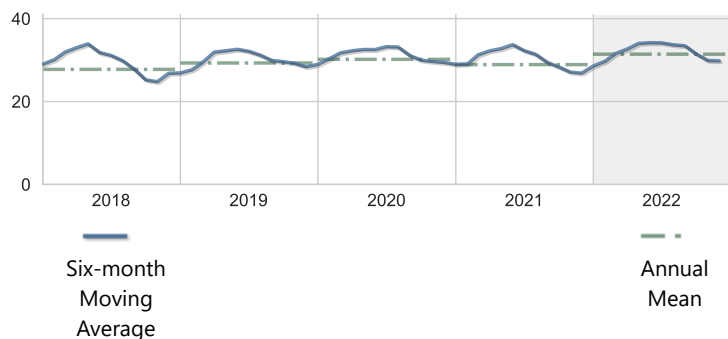
pH

Units: None	Year 2022	Historical period of record
High	8.21	8.30
Mean	7.86	7.82
Low	7.20	6.70
No. of Samples	46	958



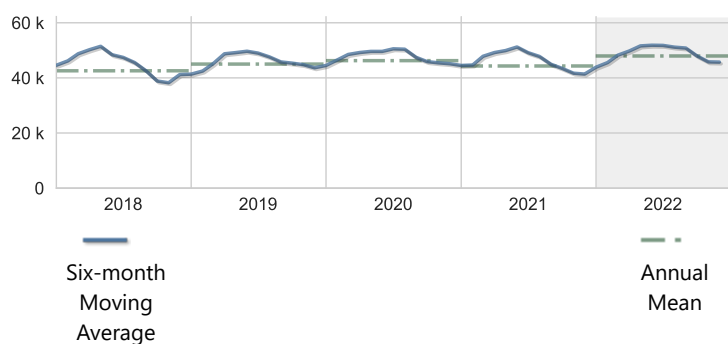
Salinity

Units: PSS	Year 2022	Historical period of record
High	36.10	38.50
Mean	31.43	30.01
Low	2.62	0.10
No. of Samples	46	958



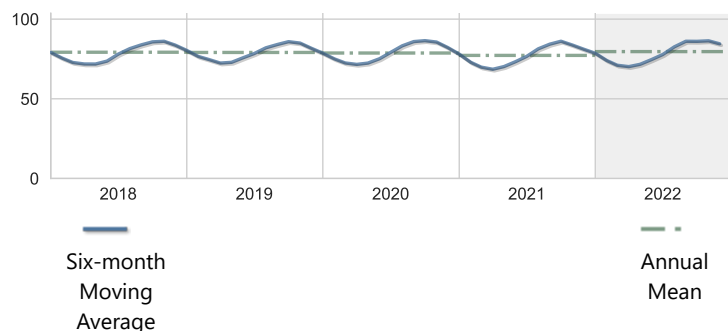
Specific conductance

Units: umho	Year 2022	Historical period of record
High	54400.00	57710.00
Mean	47951.96	45905.66
Low	4790.00	280.00
No. of Samples	46	958



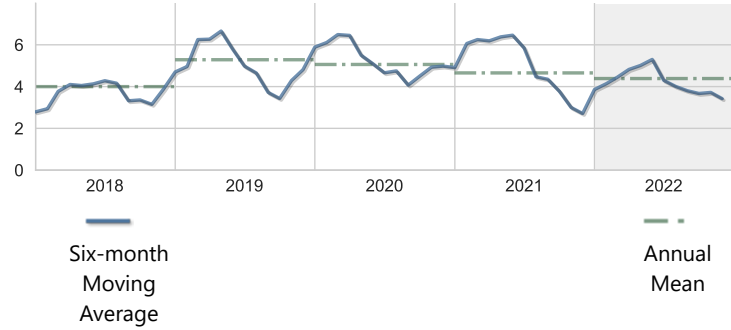
Temperature, water

Units: deg F	Year 2022	Historical period of record
High	91.40	94.46
Mean	79.62	78.36
Low	60.26	50.90
No. of Samples	46	958



Turbidity

Units: NTU	Year 2022	Historical period of record
High	15.00	30.00
Mean	4.38	4.33
Low	1.40	0.35
No. of Samples	46	991



Annual Averages

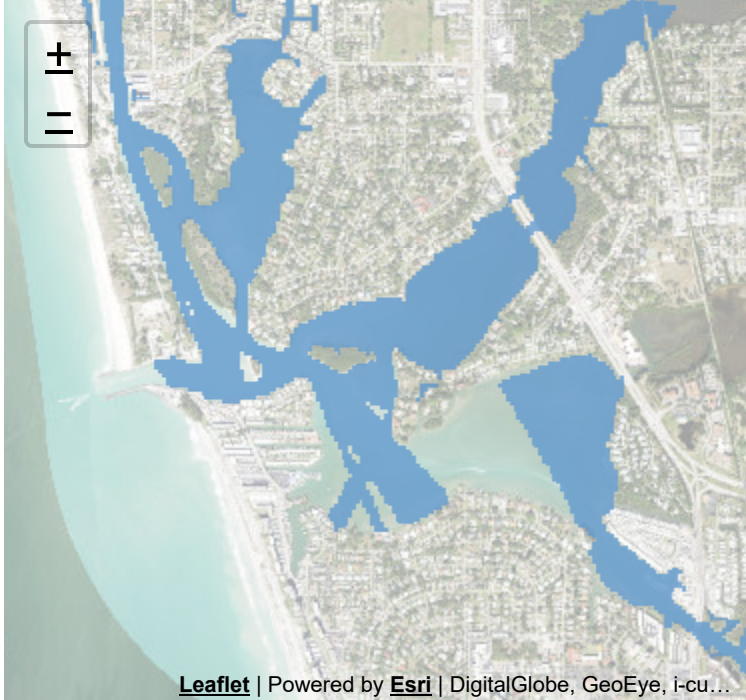
Indicator	Units	2018	2019	2020	2021	2022	Trend
Dissolved Oxygen	mg/l	6.16	5.98	6.61	6.59	6.03	
Dissolved oxygen saturation	percent (%)	89.21	87.60	95.89	93.93	89.28	
Light Attenuation	K(1/m)	1.51	1.20	1.04	1.23	1.04	
Salinity	PSS	27.76	29.30	30.18	28.91	31.43	
Turbidity	NTU	4.00	5.29	5.06	4.65	4.38	

Bay Contour Maps (2022)

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 2022 Monthly Contour Maps for: Chlorophyll a ▼

January



Contour Legend:

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

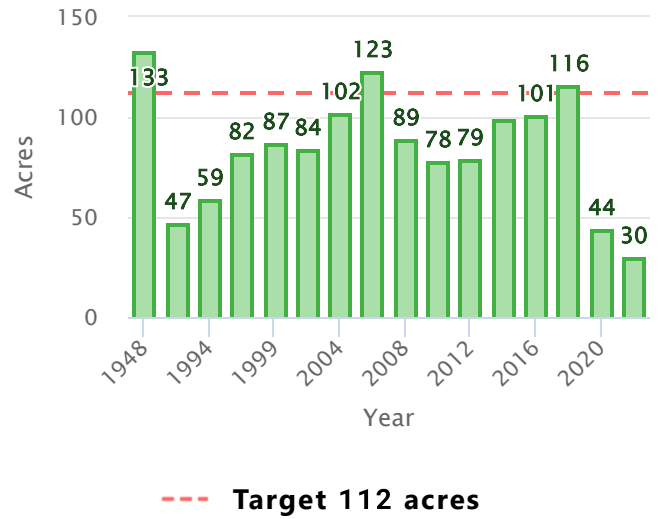
Seagrasses

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 2022:



Seagrass Acreage Variation within Dona/Roberts Bay



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.

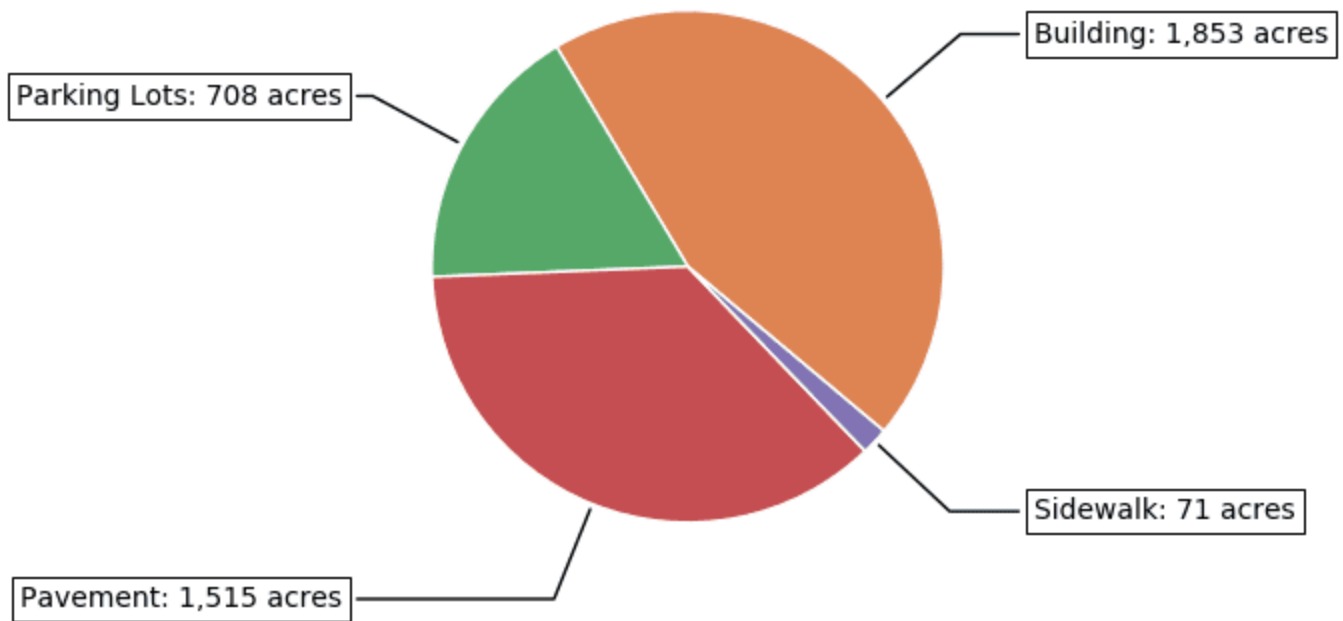


7% of the land area within the **Dona and Roberts Bay Watershed** is covered by

impervious surfaces

2014 Impervious Surface Coverage by Type

in acres, within the Dona and Roberts 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.

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 »**](#)

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

2022 Bay Conditions Report for Dona/Roberts Bay

Land Use Classification	1990	2005	2011	2014	2017	2020	Trend
Urban & Built-up	11,519 20.6%	17,101 30.6%	17,697 31.6%	17,841 31.9%	18,538 33.1%	23,156 37.1%	
Agriculture	14,257 25.5%	14,438 25.8%	13,410 24%	13,170 23.5%	12,994 23.2%	12,909 20.7%	
Rangeland	3,989 7.1%	1,715 3.1%	2,104 3.8%	2,309 4.1%	1,792 3.2%	1,948 3.1%	
Upland Forests	12,688 22.7%	7,906 14.1%	7,742 13.8%	7,701 13.8%	7,480 13.4%	7,647 12.3%	
Water	1,931 3.5%	2,865 5.1%	2,813 5%	2,866 5.1%	3,009 5.4%	3,445 5.5%	
Wetlands	10,349 18.5%	9,808 17.5%	9,907 17.7%	9,795 17.5%	9,839 17.6%	10,804 17.3%	
Barren Land	22 0%	10 0%	84 0.2%	51 0.1%	46 0.1%	18 0%	
Transportation and Utilities	1,202 2.1%	2,099 3.8%	2,185 3.9%	2,209 3.9%	2,262 4%	2,450 3.9%	

2020 Land Use / Land Cover for Dona and Roberts Bay Watershed

as a percentage of land area for this watershed

