

## Hudson Bayou Condition Report for 2011

!

### CAUTION



2 out of 4  
indicators  
were rated as  
**PASS.**

All four indicators must pass for the creek to be rated as  
**PASS.**

**Size:** 2,406 acres

**Location:** North Sarasota County

**Discharges into:** Sarasota Bay

The Hudson Bayou Basin is entirely within the bounds of the City of Sarasota. Its surface water system has undergone significant alteration over the past century. The Sarasota County 1847 General Land Office Survey does not confirm Hudson Bayou but does show a few inland waterways. The 1959 USDA NRCS Soil Survey Map shows that Hudson Bayou extended about 1 mile inland from the bay through somewhat poorly drained soil associated with flatwoods. The survey also shows an area of well-drained soil likely consisting of scrub land north of the bayou, which continues north along the coast. *For basin details see: **Sarasota Bay Water Quality Management Plan (2012)***

### Hudson Bayou



### Water Chemistry Ratings | Freshwater Portion of the Creek

Creek Conditions Ratings are based on comparing nitrogen, phosphorus, chlorophyll and dissolved oxygen to water quality guidelines or regulations. Florida law defines a maximum allowable concentration of nitrogen, phosphorus, and chlorophyll *a*, and a minimum allowable concentration of dissolved oxygen in these streams.

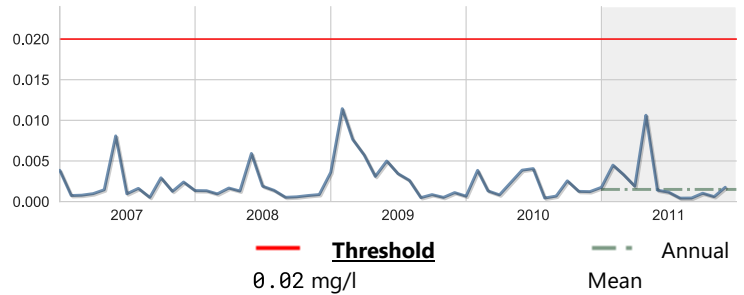


## Chlorophyll a

Score: Pass

Units: mg/l	Year 2011	Historical period of record
High	0.015	0.0378
Mean	0.0015	0.0015
Low	0.0003	0.0003
No. of Samples	72	229

### Five-year Rolling Average

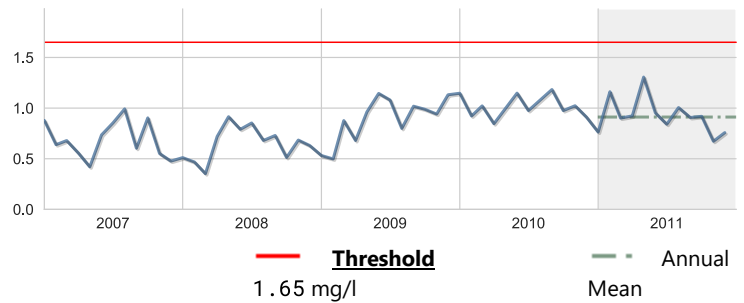


## Nitrogen, Total

Score: Pass

Units: mg/l	Year 2011	Historical period of record
High	1.817	1.817
Mean	0.9117	0.8041
Low	0.661	0.082
No. of Samples	24	137

### Five-year Rolling Average



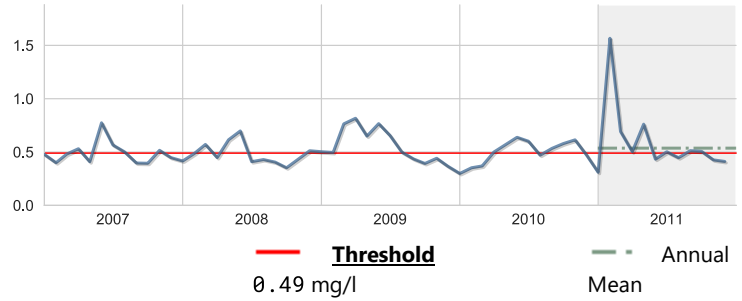


## Phosphorus, Total

Score: Caution

Units: mg/l	Year 2011	Historical period of record
<b>High</b>	4.05	4.05
<b>Mean</b>	0.5366	0.4739
<b>Low</b>	0.203	0.15
<b>No. of Samples</b>	72	236

### Five-year Rolling Average



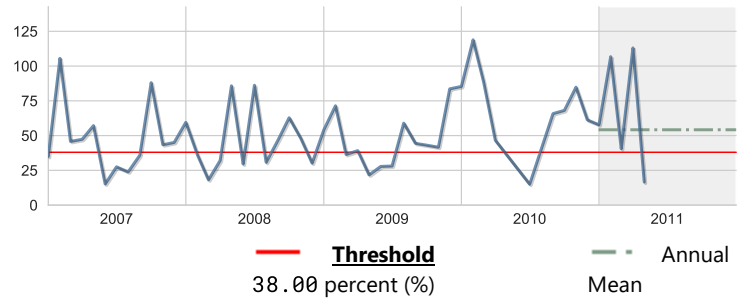
## Dissolved Oxygen Saturation

**Note:** Low DO saturation also may be naturally influenced by inflows from nearby wetlands or groundwater sources.

Score: Pass

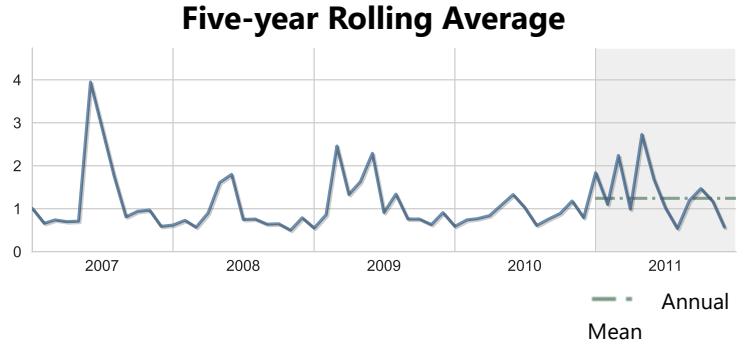
Units: percent (%)	Year 2011	Historical period of record
<b>High</b>	144.70	144.70
<b>Mean</b>	54.19	54.61
<b>Low</b>	4.40	4.20
<b>No. of Samples</b>	80	284

### Five-year Rolling Average



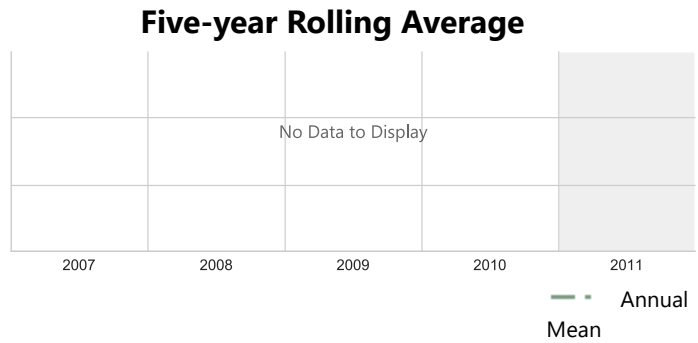
## BOD, Biochemical oxygen demand

Units: mg/l	Year 2011	Historical period of record
<b>High</b>	9.01	9.01
<b>Mean</b>	1.24	1.01
<b>Low</b>	0.50	0.50
<b>No. of Samples</b>	72	217



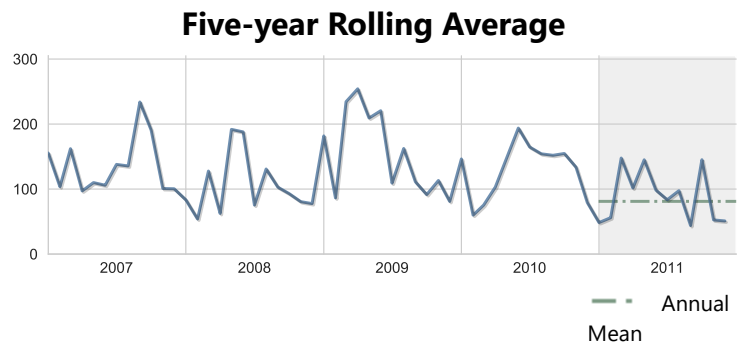
## Color

Units: PCU	Year 2011	Historical period of record
<b>High</b>		65.00
<b>Mean</b>		43.6
<b>Low</b>		20.00
<b>No. of Samples</b>	0	10



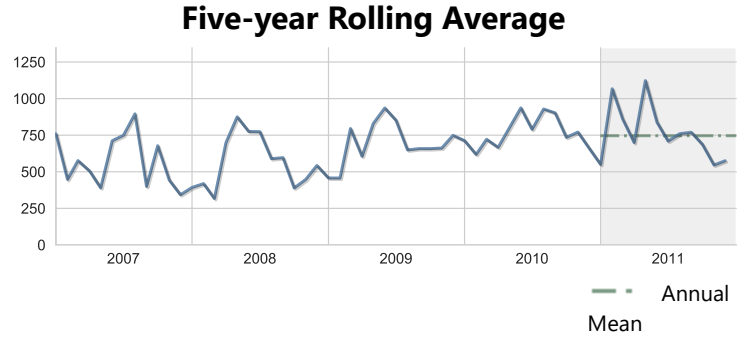
## Nitrogen, Ammonia + Ammonium as N

Units: ug/l	Year 2011	Historical period of record
<b>High</b>	340.00	587.00
<b>Mean</b>	81.1	95.32
<b>Low</b>	24.00	0.4065
<b>No. of Samples</b>	72	234



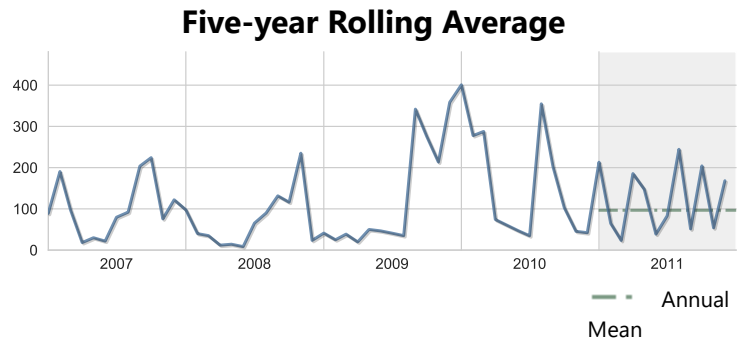
## Nitrogen, Kjeldahl

Units: ug/l	Year 2011	Historical period of record
<b>High</b>	1570.00	1740.00
<b>Mean</b>	746.25	688.33
<b>Low</b>	460.00	0.00
<b>No. of Samples</b>	72	235



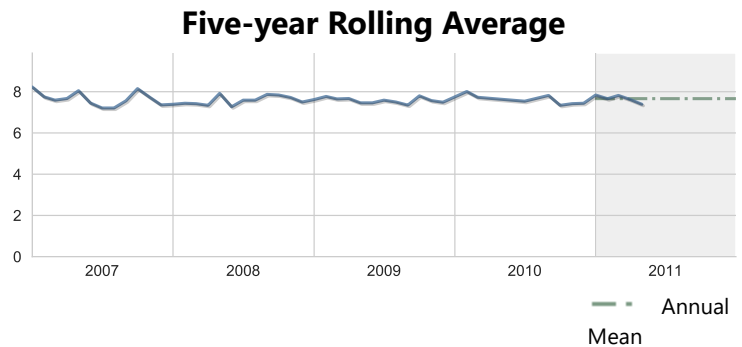
## Nitrogen, Nitrite + Nitrate as N

Units: ug/l	Year 2011	Historical period of record
<b>High</b>	387.00	681.00
<b>Mean</b>	96.63	95.98
<b>Low</b>	8.00	4.00
<b>No. of Samples</b>	72	235



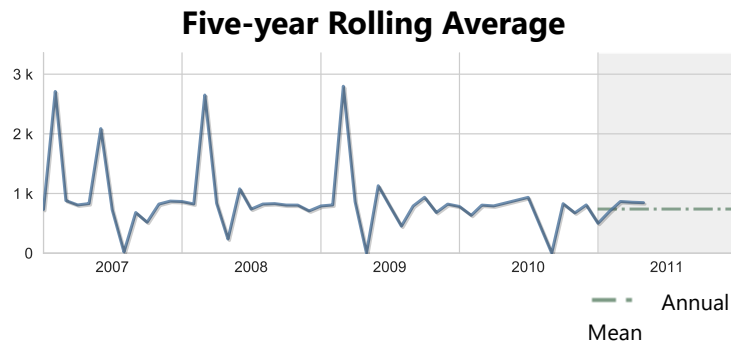
## pH

Units: None	Year 2011	Historical period of record
<b>High</b>	7.85	9.10
<b>Mean</b>	7.66	7.64
<b>Low</b>	7.23	6.64
<b>No. of Samples</b>	30	194



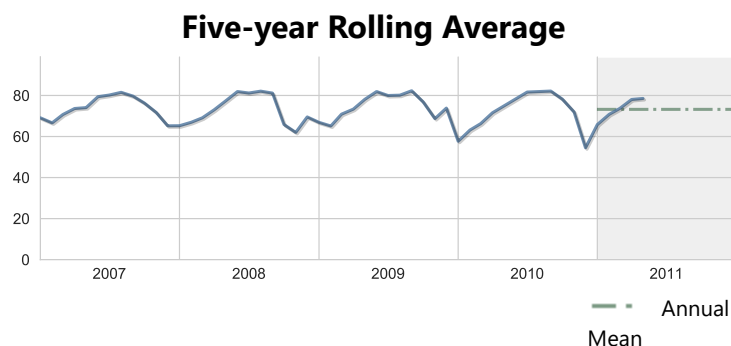
## Specific conductance

Units: umho	Year 2011	Historical period of record
<b>High</b>	1035.00	54000.00
<b>Mean</b>	739.0	904.93
<b>Low</b>	436.00	0.445
<b>No. of Samples</b>	30	191



## Temperature, water

Units: deg F	Year 2011	Historical period of record
<b>High</b>	82.094	91.40
<b>Mean</b>	73.23	72.42
<b>Low</b>	65.75	53.87
<b>No. of Samples</b>	20	165



## Water Chemistry Ratings | Tidal Portion of the Creek

Creek Conditions Ratings are based on comparing nitrogen, phosphorus, chlorophyll and dissolved oxygen to water quality guidelines or regulations. Florida law defines a maximum allowable concentration of chlorophyll *a* and a minimum allowable concentration of dissolved oxygen in these streams. Florida has no regulatory thresholds for nitrogen or phosphorus in tidal creeks so trends are used to rate the creeks.

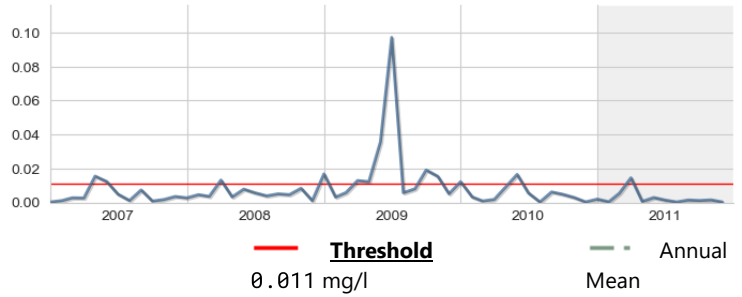


## Chlorophyll a

Score: Pass

Units: mg/l	Year 2011	Historical period of record
<b>High</b>	0.0	0.1
<b>Mean</b>	0.0013	0.0032
<b>Low</b>	0.0003	0.0003
<b>No. of Samples</b>	36	145

### Five-year Rolling Average

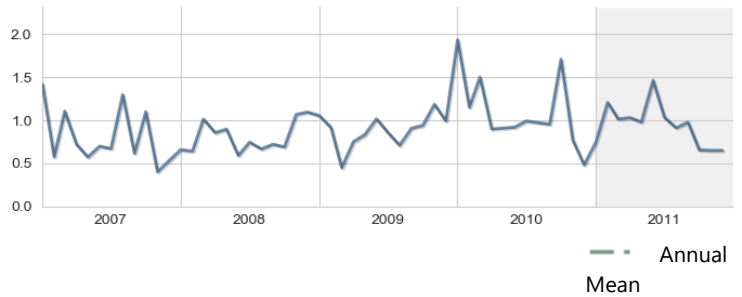


## Nitrogen, Total

Score: Pass

Units: mg/l	Year 2011	Historical period of record
<b>High</b>	1.5	1.9
<b>Mean</b>	0.9129	0.8611
<b>Low</b>	0.648	0.34
<b>No. of Samples</b>	12	125

### Five-year Rolling Average



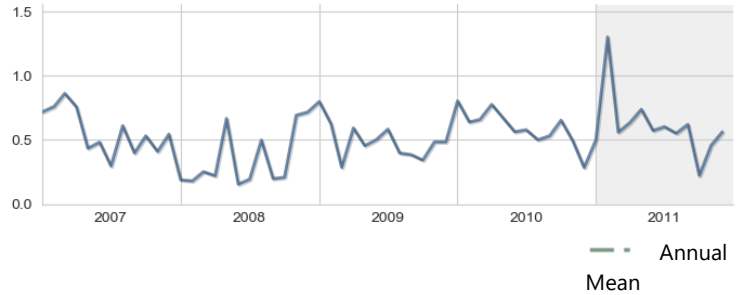


## Phosphorus, Total

Score: Caution

Units: mg/l	Year 2011	Historical period of record
<b>High</b>	1.3	1.3
<b>Mean</b>	0.5683	0.337
<b>Low</b>	0.222	0.05
<b>No. of Samples</b>	36	185

### Five-year Rolling Average



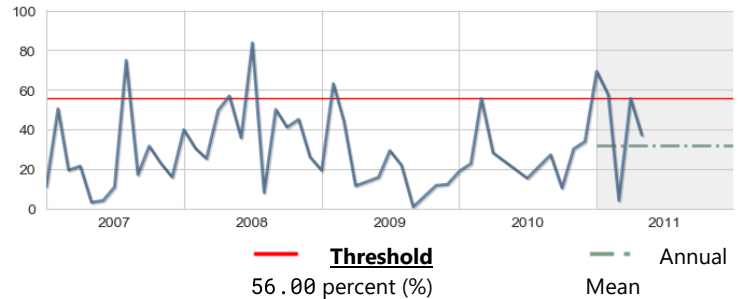
## Dissolved Oxygen Saturation

**Note:** Low DO saturation also may be naturally influenced by inflows from nearby wetlands or groundwater sources

Score: Caution

Units: percent (%)	Year 2011	Historical period of record
<b>High</b>	69.4	128.7
<b>Mean</b>	31.88	39.04
<b>Low</b>	4.00	0.70
<b>No. of Samples</b>	40	281

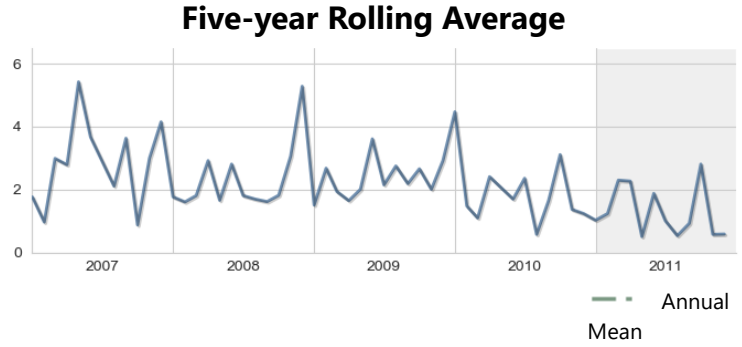
### Five-year Rolling Average





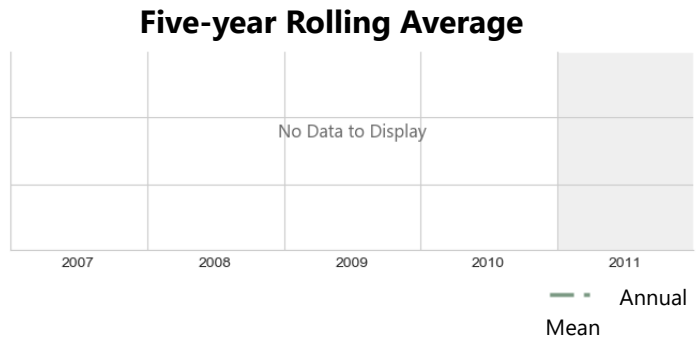
## BOD, Biochemical oxygen demand

Units: mg/l	Year 2011	Historical period of record
<b>High</b>	2.8	5.4
<b>Mean</b>	1.09	1.69
<b>Low</b>	0.50	0.50
<b>No. of Samples</b>	36	127



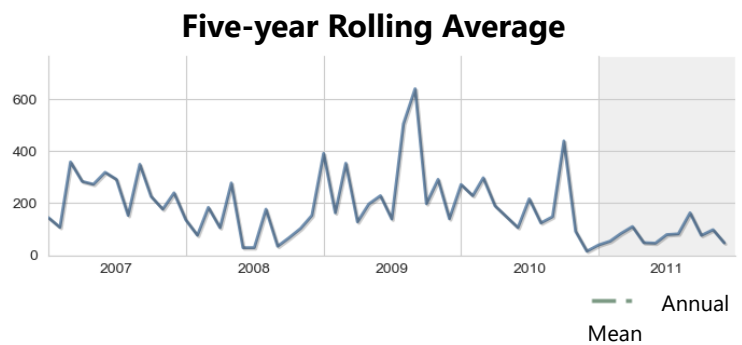
## Color

Units: PCU	Year 2011	Historical period of record
<b>High</b>		125.0
<b>Mean</b>		23.7
<b>Low</b>		5.00
<b>No. of Samples</b>	0	121



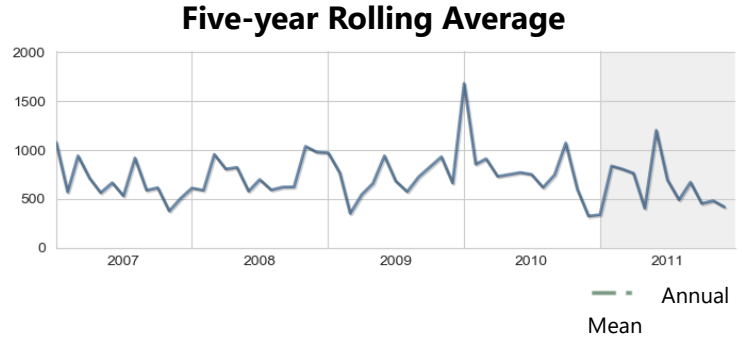
## Nitrogen, Ammonia + Ammonium as N

Units: ug/l	Year 2011	Historical period of record
<b>High</b>	163.0	912.0
<b>Mean</b>	70.74	22.92
<b>Low</b>	39.00	0.00
<b>No. of Samples</b>	36	232



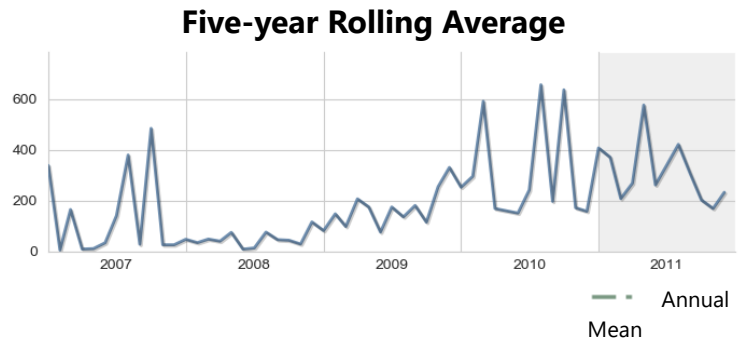
## Nitrogen, Kjeldahl

Units: ug/l	Year 2011	Historical period of record
<b>High</b>	1,200.0	1,946.0
<b>Mean</b>	587.63	723.49
<b>Low</b>	337.00	160.00
<b>No. of Samples</b>	36	231



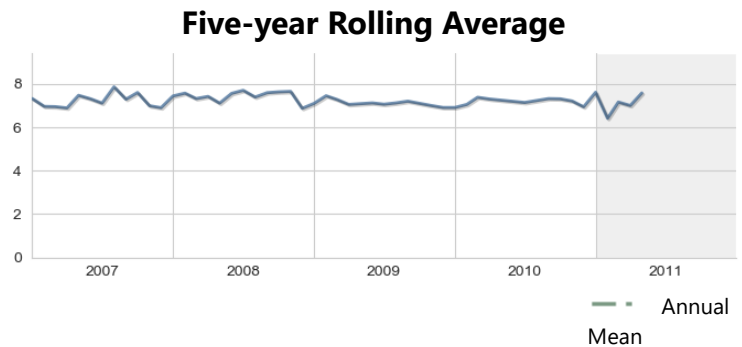
## Nitrogen, Nitrite + Nitrate as N

Units: ug/l	Year 2011	Historical period of record
<b>High</b>	576.0	656.0
<b>Mean</b>	294.94	85.23
<b>Low</b>	168.00	0.00
<b>No. of Samples</b>	36	193



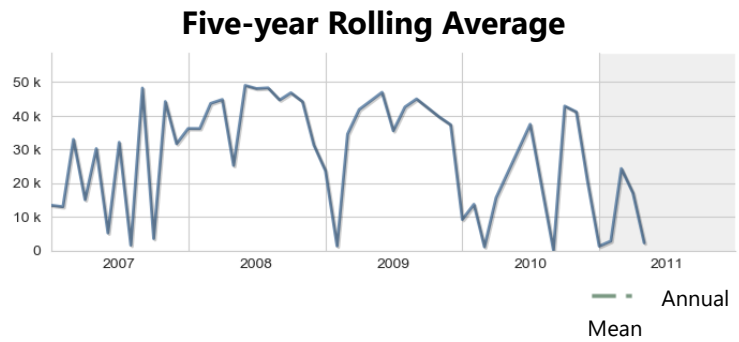
## pH

Units: None	Year 2011	Historical period of record
<b>High</b>	7.6	8.4
<b>Mean</b>	7.13	7.64
<b>Low</b>	6.40	6.40
<b>No. of Samples</b>	15	233



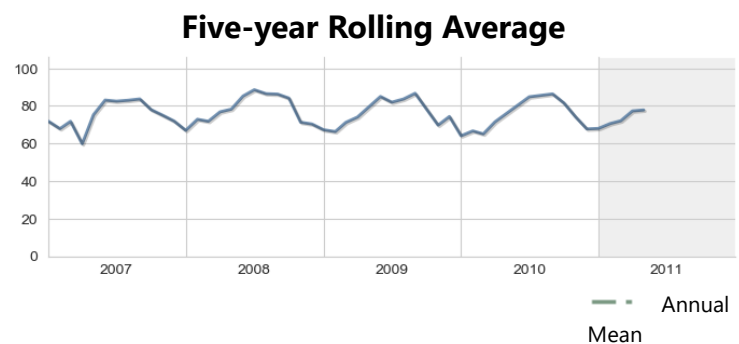
## Specific conductance

Units: umho	Year 2011	Historical period of record
<b>High</b>	24,309.0	53,000.0
<b>Mean</b>	5024.59	31111.31
<b>Low</b>	1252.00	46.582
<b>No. of Samples</b>	15	314



## Temperature, water

Units: deg F	Year 2011	Historical period of record
<b>High</b>	77.9	94.2
<b>Mean</b>	73.09	75.38
<b>Low</b>	68.036	51.80
<b>No. of Samples</b>	10	225



## 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.

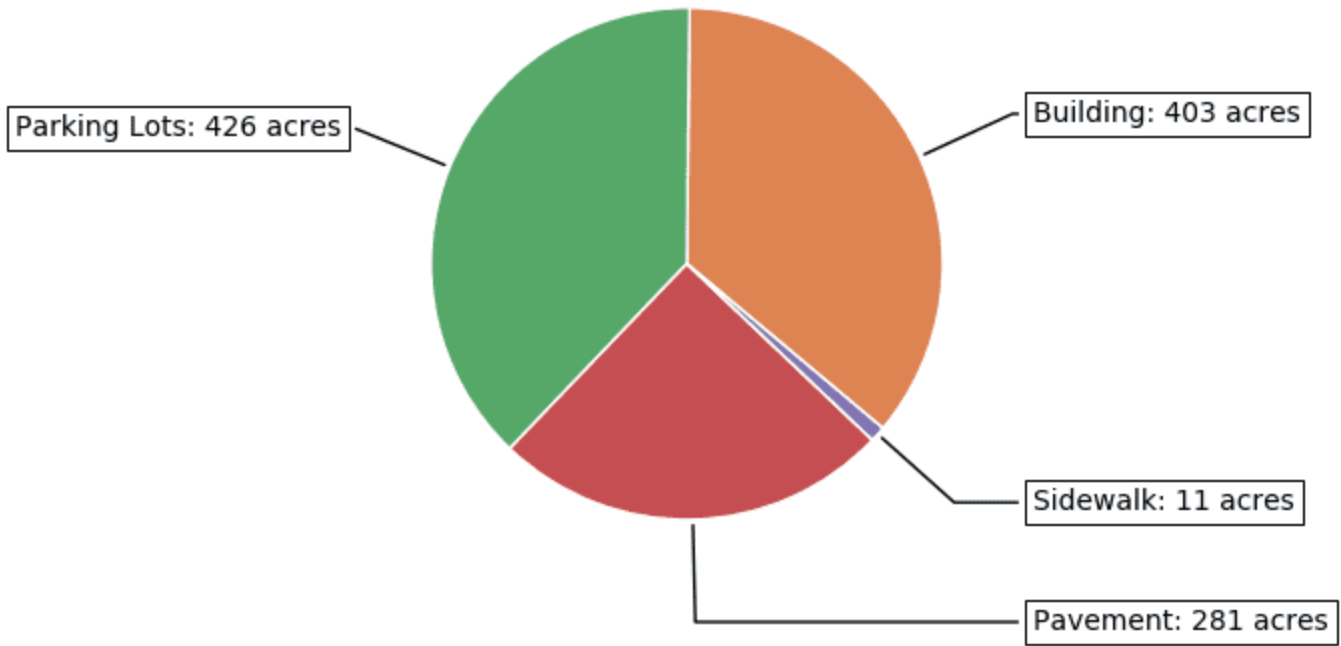


**47%** of the land area within the **Hudson Bayou Basin** is covered by impervious

surfaces

### 2014 Impervious Surface Coverage by Type

in acres, within the Hudson Bayou Basin



### Land Use / Land Cover

Land use within a creek'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 (e.g. upland or wetland), 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.

#### **Acreage and Percentage within each Land Use / Land Cover Category for Hudson Bayou Basin**

2011 Creek Conditions Report for Hudson Bayou

Land Use Classification	1990	1995	1999	2005	2011	2014	2017	Trend
<b>Urban &amp; Built-up</b>	2,224 92.4%	2,244 93.3%	2,243 93.2%	2,260 93.9%	2,260 93.9%	2,249 93.5%	2,260 93.9%	
<b>Upland Forests</b>	16 0.7%	9 0.4%	9 0.4%	0 0%	0 0%	0 0%	0 0%	
<b>Water</b>	24 1%	25 1%	26 1.1%	26 1.1%	27 1.1%	27 1.1%	27 1.1%	
<b>Wetlands</b>	16 0.7%	13 0.5%	13 0.5%	10 0.4%	10 0.4%	10 0.4%	10 0.4%	
<b>Transportation and Utilities</b>	126 5.2%	115 4.8%	115 4.8%	109 4.6%	109 4.6%	120 5%	109 4.5%	

2017 Land Use / Land Cover for Hudson Bayou Basin  
as a percentage of land area for this basin

