# Whitaker Bayou Condition Report for 2013

**CAUTION**

Chl-a N P DO

2 out of 4 indicators were rated as PASS.

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

**Size:** 4,967 acres
**Location:** North Sarasota County, south Manatee County
**Discharges into:** Sarasota Bay

Whitaker Bayou is a highly urbanized basin that has changed in land use and hydrology since the mid-1900s. The Sarasota County 1847 General Land Office Survey indicates that Whitaker Bayou only extended about a quarter of a mile inland from the bay. The survey also displays a separate waterway that extends inland from 0.25 mile northeast of the head of Whitaker Bayou. Seasonal patterns in freshwater inflows have not changed significantly between historic and current conditions, indicating that changes in land use have not altered the intra-annual pattern of inflows to the bay. Land use has, however, affected the magnitude of total inflow to the bay, if not the relative contributions of individual sources (runoff, baseflow, irrigation, point sources). *For full basin details see:* ***Sarasota Bay Water Quality Management Plan (2012)***

## Water Chemistry Ratings - Freshwater Portion of the Creek

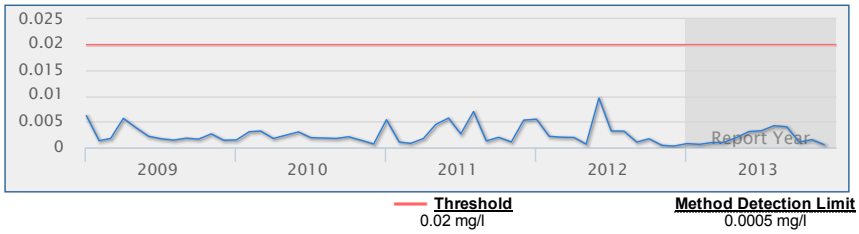
Total nitrogen, total phosphorus, chlorophyll *a*, and dissolved oxygen levels are monitored carefully by water resource managers and used by regulatory authorities to determine whether a creek meets the water quality standards mandated by the Clean Water Act. Shown below are water quality data for each freshwater stream segment. Florida law defines a threshold for the maximum allowable concentration of nitrogen, phosphorus, and chlorophyll *a*, and the minimum required concentration of dissolved oxygen in these streams.

### Chlorophyll a

**Score: Pass**

| Units: mg/l | Year 2013 | Historical period of record |
|---|---|---|
| High | 0.011 | 0.0595 |
| Mean | 0.0019 | n/a |
| Low | 0.0003 | 0.00 |
| No. of Samples | 56 | 277 |

Five-year Trend Graph

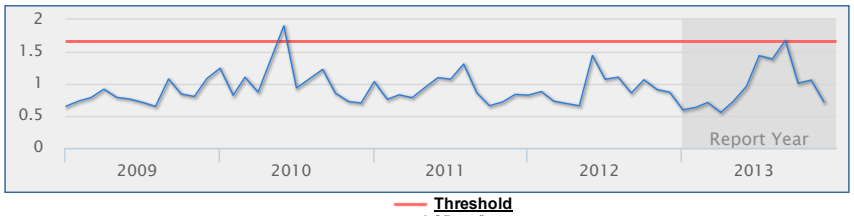



### Nitrogen, Total

**Score: Pass**

| Units: mg/l | Year 2013 | Historical period of record |
|---|---|---|
| High | 2.30 | 15.76 |
| Mean | 0.9773 | n/a |
| Low | 0.553 | 0.30 |
| No. of Samples | 30 | 298 |

Five-year Trend Graph

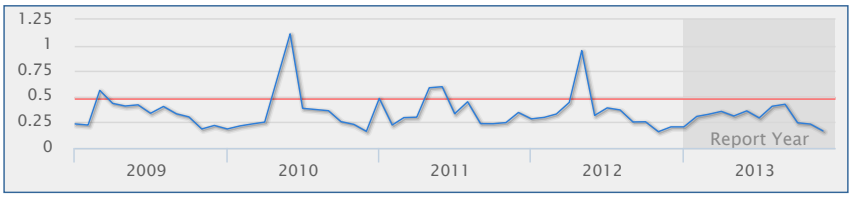


## Phosphorus, Total

**Score: Pass**

| Units: mg/l | Year 2013 | Historical period of record |
|---|---|---|
| **High** | 0.78 | 2.38 |
| **Mean** | 0.3076 | n/a |
| **Low** | 0.12 | 0.105 |
| **No. of Samples** | 30 | 291 |

Five-year Trend Graph




Threshold
0.49 mg/l

Method Detection Limit
0.0001 mg/l

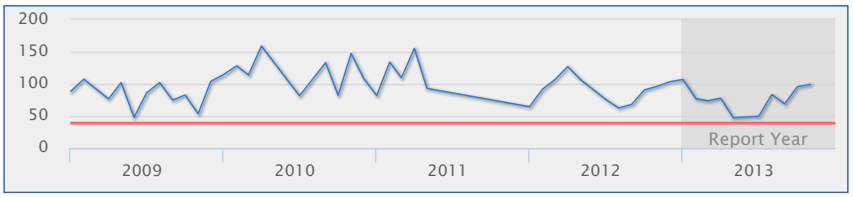
## Dissolved Oxygen Saturation

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

**Score: Pass**

| Units: percent (%) | Year 2013 | Historical period of record |
|---|---|---|
| **High** | 151.50 | 492.60 |
| **Mean** | 69.23 | n/a |
| **Low** | 17.90 | 7.0588 |
| **No. of Samples** | 29 | 333 |

Five-year Trend Graph




Threshold
38.00 percent (%)

## Water Chemistry Ratings - Tidal Portion of the Creek

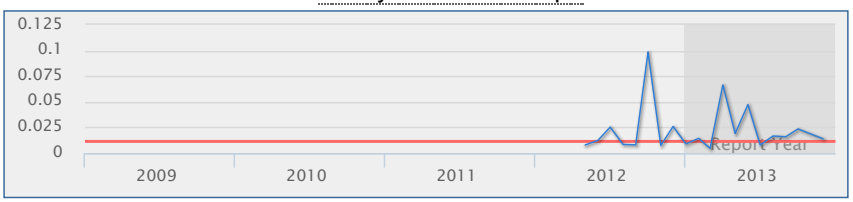
As is the case for predominantly freshwater streams, total nitrogen, total phosphorus, and chlorophyll *a* levels are monitored carefully by water resource managers and used by regulatory authorities to determine whether a tidally-influenced stream meets the water quality standards mandated by the Clean Water Act. Shown below are water quality data for each saltwater water body within this basin. Florida law defines a threshold for the maximum allowable concentration of chlorophyll *a* and the minimum required concentration of dissolved oxygen in these streams. No thresholds have been established for the allowable concentration of nitrogen or phosphorus; trend information is provided for these nutrients, to determine whether a statistically significant trend exists and if so, whether levels are rising (bad) or falling (good).

## Chlorophyll a

**Score: Caution**

| Units: mg/l | Year 2013 | Historical period of record |
|---|---|---|
| **High** | 0.1 | 0.1 |
| **Mean** | 0.0164 | n/a |
| **Low** | 0.0045 | 0.0005 |
| **No. of Samples** | 11 | 70 |

Five-year Trend Graph




Threshold
0.011 mg/l

Method Detection Limit
0.0005 mg/l

## Nitrogen, Total

**Score: Pass**

| Units: mg/l | Year 2013 | Historical period of record |
|---|---|---|
| **High** | 1.5 | 7.0 |
| **Mean** | 0.8383 | n/a |
| **Low** | 0.371 | 0.198 |
| **No. of Samples** | 10 | 98 |

Five-year Trend Graph

## Phosphorus, Total

**Score: Pass**

| Units: mg/l | Year 2013 | Historical period of record |
|---|---|---|
| **High** | 0.3 | 2.0 |
| **Mean** | 0.2151 | n/a |
| **Low** | 0.151 | 0.04 |
| **No. of Samples** | 9 | 110 |

Five-year Trend Graph

Method Detection Limit
0.0001 mg/l

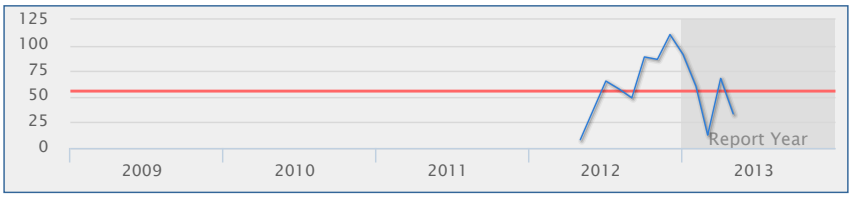
## Dissolved Oxygen Saturation

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

**Score: Caution**

| Units: percent (%) | Year 2013 | Historical period of record |
|---|---|---|
| **High** | 91.2 | 381.3 |
| **Mean** | 43.41 | n/a |
| **Low** | 12.50 | 0.00 |
| **No. of Samples** | 5 | 216 |

Five-year Trend Graph



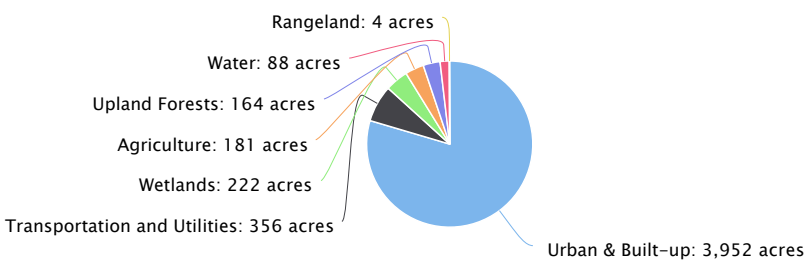

Threshold
56.00 percent (%)

## 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.

**27%** of the land area within the **Whitaker Bayou Basin** is covered by impervious surfaces.

## 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.

2011 Land Use / Land Cover within Whitaker Bayou Basin