

**LAKEWATCH Report for Oyster Bay-1 in Wakulla County
Estuary and Estuary Segment: Big Bend and Apalachee Bay St. Marks Offshore (includes Oyster
and Dickerson Bays) Using Data Downloaded 12/9/2022**

Introduction for Estuaries

This report summarizes data collected on systems that have been part of the LAKEWATCH program. Data are from the period of record for individual systems. The first part of this summary lists background data for each system, the second part lists the long-term data averages and ranges and the final part are trend plots for nutrients, chlorophyll, and Secchi depth. **Plots were only made for systems with five or more years of data.**

The near shore Florida coastline is separated into estuary and estuary segments within the estuary. Deeper coastal waters are separated into coastal nutrient regions and coastal nutrient segments within the regions. Numeric nutrient criteria are established for all estuary segments, including criteria for total nitrogen, total phosphorus, and chlorophyll *a*. For open ocean coastal waters, numeric criteria are established for chlorophyll *a*, that is derived from satellite remote sensing techniques. For those locations without defined segments there are narrative nutrient criteria (e.g., Florida Keys Halo Zone).

The maps defining individual estuaries and coastal segments can be found at the following link:
<https://www.flrules.org/Gateway/reference.asp?No=Ref-05420>

The individual nutrient criteria can be found at the following link:
<https://www.flrules.org/gateway/RuleNo.asp?title=SURFACE%20WATER%20QUALITY%20STANDARDS&ID=62-302.532>

Base File Data for Estuaries: Definitions:

- **County:** Name of county adjacent to the system.
- **Name:** System name that LAKEWATCH uses for the station.
- **GNIS Number:** Number created by USGS's Geographic Names Information System.
- **Water Body Type:** Four different types of systems; lakes, estuaries, river/streams and springs.
- **Period of Record (years):** Number of years a system has been in the LAKEWATCH program.
- **Latitude and Longitude:** Coordinates identifying the exact location of station 1 for each system.

Table 1. Base File Data.

County	Wakulla
Name	Oyster Bay-1
GNIS Number	
Water Body Type	Estuary
Period of Record (years, range)	7 (2009 to 2015)
Latitude	30.0732
Longitude	-84.3187

Long-Term Data for Estuaries: Definitions

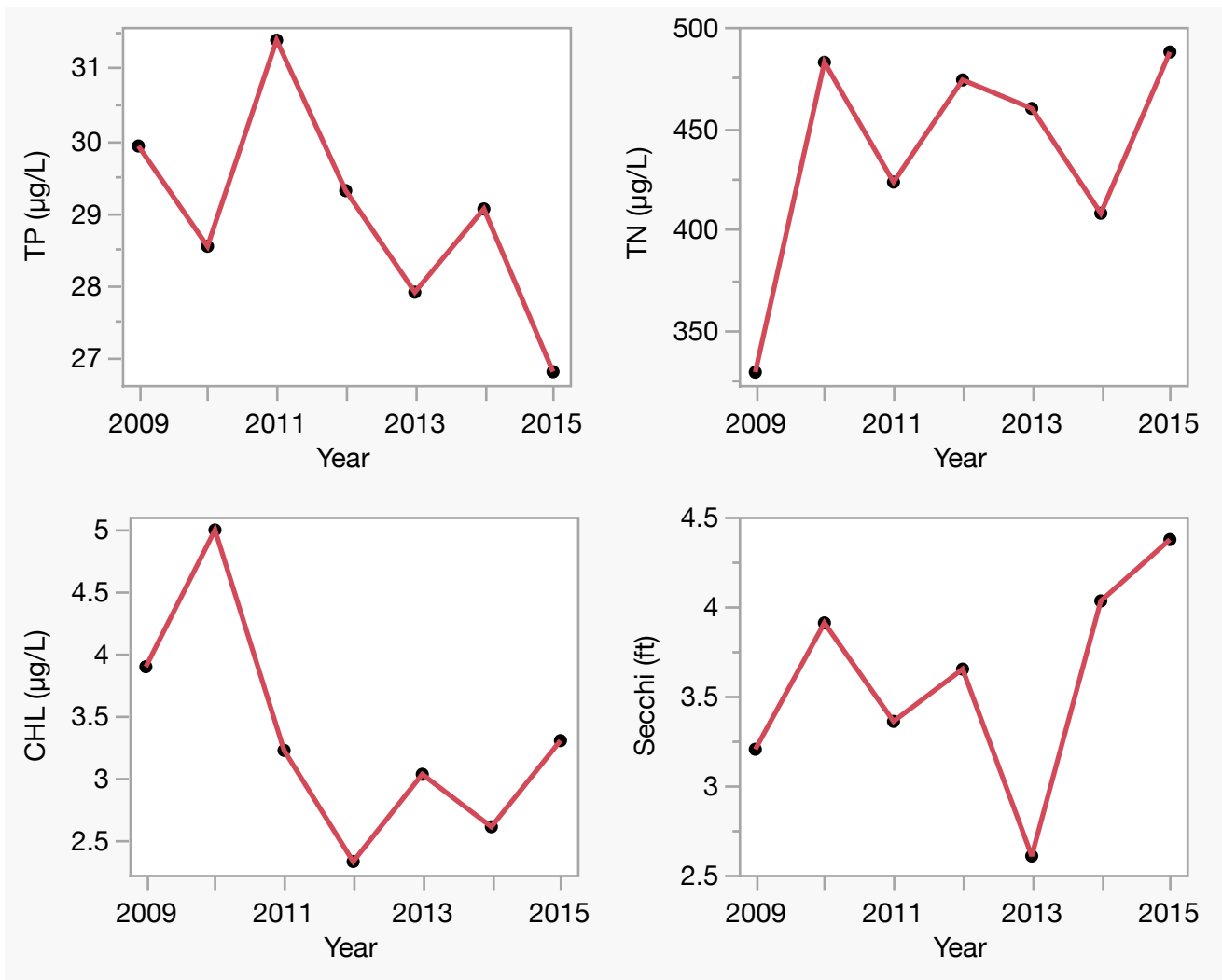
The following long-term data are the primary trophic state parameters collected by LAKEWATCH volunteers and classification variables color and specific conductance (LAKEWATCH recently began analyzing samples quarterly for color and specific conductance):

- **Total Phosphorus ($\mu\text{g/L}$):** Nutrient most often limiting growth of plant/algae.
- **Total Nitrogen ($\mu\text{g/L}$):** Nutrient needed for aquatic plant/algae growth but only limiting when nitrogen to phosphorus ratios are generally less than 10 (by mass).
- **Chlorophyll-uncorrected ($\mu\text{g/L}$):** Chlorophyll concentrations are used to measure relative abundances of open water algae.
- **Secchi (ft), Secchi (m):** Secchi measurements are estimates of water clarity.
- **Color (Pt-Co Units):** LAKEWATCH measures true color, which is the color of the water after particles have been filtered out.
- **Specific Conductance ($\mu\text{S/cm@25}^\circ\text{C}$), Salinity (ppt):** Measurement of the ability of water to conduct electricity and can be used to estimate the amount of dissolved materials in water.

Table 2. Long-term trophic state data collected monthly by LAKEWATCH volunteers and color and specific conductance/salinity (collected quarterly).

Parameter	Minimum and Maximum Annual Geometric Means	Grand Geometric Mean (Sampling years)
Total Phosphorus ($\mu\text{g/L}$)	27 - 31	29 (7)
Total Nitrogen ($\mu\text{g/L}$)	329 - 488	434 (7)
Chlorophyll- uncorrected ($\mu\text{g/L}$)	2 - 5	3 (7)
Secchi (ft)	2.6 - 4.4	3.5 (7)
Secchi (m)	0.8 - 1.3	1.1 (7)
Color (Pt-Co Units)	18 - 72	33 (7)
Specific Conductance ($\mu\text{S/cm@25 C}$)	12220 - 23558	16190 (7)
Salinity (ppt)	7 - 14	10 (7)

Figure 2. Oyster Bay-1 trend plots of year by average. The R^2 value indicates the strength of the relations (ranges from 0.0 to 1.0; higher the R^2 the stronger the relation) and the p value indicates if the relation is significant ($p < 0.05$ is significant). Total phosphorus (TP No Trend, $R^2 = 0.39$, $p = 0.14$), total nitrogen (TN No Trend, $R^2 = 0.24$, $p = 0.26$), chlorophyll (CHL No Trend, $R^2 = 0.34$, $p = 0.17$) and Secchi depth (Secchi No Trend, $R^2 = 0.16$, $p = 0.38$).



**LAKEWATCH Report for St. Mark's-1 in Wakulla County
Estuary and Estuary Segment: Big Bend and Apalachee Bay St. Marks Offshore (includes
Oyster and Dickerson Bays) Using Data Downloaded 12/9/2022**

Introduction for Estuaries

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- **Period of Record (years):** Number of years a system has been in the LAKEWATCH program.
- **Latitude and Longitude:** Coordinates identifying the exact location of station 1 for each system.

Table 1. Base File Data.

County	Wakulla
Name	St. Mark's-1
GNIS Number	290295
Water Body Type	Estuary
Period of Record (years, range)	2 (2017 to 2018)
Latitude	30.0759
Longitude	-84.1871

Long-Term Data for Estuaries: Definitions

The following long-term data are the primary trophic state parameters collected by LAKEWATCH volunteers and classification variables color and specific conductance (LAKEWATCH recently began analyzing samples quarterly for color and specific conductance):

- **Total Phosphorus ($\mu\text{g/L}$):** Nutrient most often limiting growth of plant/algae.
- **Total Nitrogen ($\mu\text{g/L}$):** Nutrient needed for aquatic plant/algae growth but only limiting when nitrogen to phosphorus ratios are generally less than 10 (by mass).
- **Chlorophyll-uncorrected ($\mu\text{g/L}$):** Chlorophyll concentrations are used to measure relative abundances of open water algae.
- **Secchi (ft), Secchi (m):** Secchi measurements are estimates of water clarity.
- **Color (Pt-Co Units):** LAKEWATCH measures true color, which is the color of the water after particles have been filtered out.
- **Specific Conductance ($\mu\text{S/cm@25}^\circ\text{C}$), Salinity (ppt):** Measurement of the ability of water to conduct electricity and can be used to estimate the amount of dissolved materials in water.

Table 2. Long-term trophic state data collected monthly by LAKEWATCH volunteers and color and specific conductance/salinity (collected quarterly).

Parameter	Minimum and Maximum Annual Geometric Means	Grand Geometric Mean (Sampling years)
Total Phosphorus ($\mu\text{g/L}$)	19 - 27	23 (2)
Total Nitrogen ($\mu\text{g/L}$)	289 - 322	305 (2)
Chlorophyll- uncorrected ($\mu\text{g/L}$)	3 - 6	5 (2)
Secchi (ft)	5.2 - 7.8	6.4 (2)
Secchi (m)	1.6 - 2.4	1.9 (2)
Color (Pt-Co Units)	11 - 11	11 (1)
Specific Conductance ($\mu\text{S/cm@25 C}$)	35000 - 35000	35000 (1)
Salinity (ppt)	22 - 22	22 (1)

**LAKEWATCH Report for St. Mark's-2 in Wakulla County
Estuary and Estuary Segment: Big Bend and Apalachee Bay St. Marks Offshore (includes
Oyster and Dickerson Bays) Using Data Downloaded 12/9/2022**

Introduction for Estuaries

This report summarizes data collected on systems that have been part of the LAKEWATCH program. Data are from the period of record for individual systems. The first part of this summary lists background data for each system, the second part lists the long-term data averages and ranges and the final part are trend plots for nutrients, chlorophyll, and Secchi depth. **Plots were only made for systems with five or more years of data.**

The near shore Florida coastline is separated into estuary and estuary segments within the estuary. Deeper coastal waters are separated into coastal nutrient regions and coastal nutrient segments within the regions. Numeric nutrient criteria are established for all estuary segments, including criteria for total nitrogen, total phosphorus, and chlorophyll *a*. For open ocean coastal waters, numeric criteria are established for chlorophyll *a*, that is derived from satellite remote sensing techniques. For those locations without defined segments there are narrative nutrient criteria (e.g., Florida Keys Halo Zone).

The maps defining individual estuaries and coastal segments can be found at the following link:
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The individual nutrient criteria can be found at the following link:
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Base File Data for Estuaries: Definitions:

- **County:** Name of county adjacent to the system.
- **Name:** System name that LAKEWATCH uses for the station.
- **GNIS Number:** Number created by USGS's Geographic Names Information System.
- **Water Body Type:** Four different types of systems; lakes, estuaries, river/streams and springs.
- **Period of Record (years):** Number of years a system has been in the LAKEWATCH program.
- **Latitude and Longitude:** Coordinates identifying the exact location of station 1 for each system.

Table 1. Base File Data.

County	Wakulla
Name	St. Mark's-2
GNIS Number	290295
Water Body Type	Estuary
Period of Record (years, range)	2 (2017 to 2018)
Latitude	30.0633
Longitude	-84.1904

Long-Term Data for Estuaries: Definitions

The following long-term data are the primary trophic state parameters collected by LAKEWATCH volunteers and classification variables color and specific conductance (LAKEWATCH recently began analyzing samples quarterly for color and specific conductance):

- **Total Phosphorus ($\mu\text{g/L}$):** Nutrient most often limiting growth of plant/algae.
- **Total Nitrogen ($\mu\text{g/L}$):** Nutrient needed for aquatic plant/algae growth but only limiting when nitrogen to phosphorus ratios are generally less than 10 (by mass).
- **Chlorophyll-uncorrected ($\mu\text{g/L}$):** Chlorophyll concentrations are used to measure relative abundances of open water algae.
- **Secchi (ft), Secchi (m):** Secchi measurements are estimates of water clarity.
- **Color (Pt-Co Units):** LAKEWATCH measures true color, which is the color of the water after particles have been filtered out.
- **Specific Conductance ($\mu\text{S/cm@25}^\circ\text{C}$), Salinity (ppt):** Measurement of the ability of water to conduct electricity and can be used to estimate the amount of dissolved materials in water.

Table 2. Long-term trophic state data collected monthly by LAKEWATCH volunteers and color and specific conductance/salinity (collected quarterly).

Parameter	Minimum and Maximum Annual Geometric Means	Grand Geometric Mean (Sampling years)
Total Phosphorus ($\mu\text{g/L}$)	24 - 30	27 (2)
Total Nitrogen ($\mu\text{g/L}$)	229 - 358	286 (2)
Chlorophyll- uncorrected ($\mu\text{g/L}$)	3 - 5	3 (2)
Secchi (ft)	7.8 - 8.2	8.0 (2)
Secchi (m)	2.4 - 2.5	2.4 (2)
Color (Pt-Co Units)	11 - 11	11 (1)
Specific Conductance ($\mu\text{S/cm@25 C}$)	34000 - 34000	34000 (1)
Salinity (ppt)	21 - 21	21 (1)

**LAKEWATCH Report for St. Mark's-3 in Wakulla County
Estuary and Estuary Segment: Big Bend and Apalachee Bay St. Marks Offshore (includes
Oyster and Dickerson Bays) Using Data Downloaded 12/9/2022**

Introduction for Estuaries

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The near shore Florida coastline is separated into estuary and estuary segments within the estuary. Deeper coastal waters are separated into coastal nutrient regions and coastal nutrient segments within the regions. Numeric nutrient criteria are established for all estuary segments, including criteria for total nitrogen, total phosphorus, and chlorophyll *a*. For open ocean coastal waters, numeric criteria are established for chlorophyll *a*, that is derived from satellite remote sensing techniques. For those locations without defined segments there are narrative nutrient criteria (e.g., Florida Keys Halo Zone).

The maps defining individual estuaries and coastal segments can be found at the following link:
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The individual nutrient criteria can be found at the following link:
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Base File Data for Estuaries: Definitions:

- **County:** Name of county adjacent to the system.
- **Name:** System name that LAKEWATCH uses for the station.
- **GNIS Number:** Number created by USGS's Geographic Names Information System.
- **Water Body Type:** Four different types of systems; lakes, estuaries, river/streams and springs.
- **Period of Record (years):** Number of years a system has been in the LAKEWATCH program.
- **Latitude and Longitude:** Coordinates identifying the exact location of station 1 for each system.

Table 1. Base File Data.

County	Wakulla
Name	St. Mark's-3
GNIS Number	290295
Water Body Type	Estuary
Period of Record (years, range)	2 (2017 to 2018)
Latitude	30.0624
Longitude	-84.2094

Long-Term Data for Estuaries: Definitions

The following long-term data are the primary trophic state parameters collected by LAKEWATCH volunteers and classification variables color and specific conductance (LAKEWATCH recently began analyzing samples quarterly for color and specific conductance):

- **Total Phosphorus ($\mu\text{g/L}$):** Nutrient most often limiting growth of plant/algae.
- **Total Nitrogen ($\mu\text{g/L}$):** Nutrient needed for aquatic plant/algae growth but only limiting when nitrogen to phosphorus ratios are generally less than 10 (by mass).
- **Chlorophyll-uncorrected ($\mu\text{g/L}$):** Chlorophyll concentrations are used to measure relative abundances of open water algae.
- **Secchi (ft), Secchi (m):** Secchi measurements are estimates of water clarity.
- **Color (Pt-Co Units):** LAKEWATCH measures true color, which is the color of the water after particles have been filtered out.
- **Specific Conductance ($\mu\text{S/cm@25}^\circ\text{C}$), Salinity (ppt):** Measurement of the ability of water to conduct electricity and can be used to estimate the amount of dissolved materials in water.

Table 2. Long-term trophic state data collected monthly by LAKEWATCH volunteers and color and specific conductance/salinity (collected quarterly).

Parameter	Minimum and Maximum Annual Geometric Means	Grand Geometric Mean (Sampling years)
Total Phosphorus ($\mu\text{g/L}$)	17 - 19	18 (2)
Total Nitrogen ($\mu\text{g/L}$)	226 - 308	264 (2)
Chlorophyll- uncorrected ($\mu\text{g/L}$)	2 - 5	3 (2)
Secchi (ft)	-	(0)
Secchi (m)	-	(0)
Color (Pt-Co Units)	11 - 11	11 (1)
Specific Conductance ($\mu\text{S/cm@25 C}$)	37000 - 37000	37000 (1)
Salinity (ppt)	23 - 23	23 (1)