LAKEWATCH Report for Loxahatchee River-10 in Palm Beach County
Watershed Region: South Florida
Using Data Downloaded 12/9/22

Introduction for River/Streams

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 geometric means and ranges and the final part are the trend plots for nutrients, chlorophyll and Secchi depth. **Plots were only made for systems with five or more years of data.**

For decades Florida has had a narrative nutrient water quality criterion in place to protect Florida's waters against nutrient over-enrichment. In 2009, the Florida Department of Environmental Protection (FDEP) initiated rulemaking and, by 2011, adopted what would be the first set of statewide numeric nutrient standards for Florida's waters. By 2015, almost all the remaining waters in Florida have numeric nutrient standards (see for FDEP Regulation Nutrient Criteria's for: Streams, spring vents: https://www.flrules.org/gateway/RuleNo.asp?title=SURFACE%20WATER%20QUALITY%20STANDARDS&ID=62-302.531).

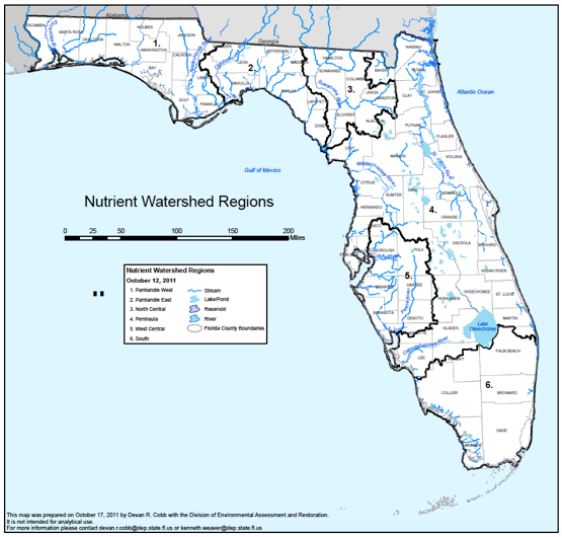


Figure 1. Map showing nutrient thresholds areas for streams set forth by FDEP.

Table 1. The nutrient thresholds for streams are listed in table below along with the map showing zones.

Nutrient Watershed Region	Total Phosphorus Nutrient Threshold[1]	Total Nitrogen Nutrient Threshold[1]
Panhandle West	60 µg/L	670 µg/L
Panhandle East	180 µg/L	1030 µg/L
North Central	300 µ/L	1870 µg/L
Peninsular	120 µg/L	1540 µg/L
West Central	490 µg/L	1650 µg/L
South Florida	No numeric nutrient threshold. The narrative criterion in paragraph 62-302.530(47)(b), F.A.C., applies.	No numeric nutrient threshold. The narrative criterion in paragraph 62-302.530(47)(b), F.A.C., applies.

[1]These values are annual geometric mean concentrations not to be exceeded more than once in any three calendar year period.

Base File Data for River/Streams: Definitions

- **County**: Name of county in which the system resides.
- **Name**: Stream name that LAKEWATCH uses for the system.
- **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 2. Base File Data.

County	Palm Beach
Name	Loxahatchee River-10
GNIS Number	294063
Water Body Type	River/Stream
Period of Record (years, range)	22 (2001 to 2022)
Latitude	26.9474
Longitude	-80.0792

Long-Term Data for River/Streams: Definitions

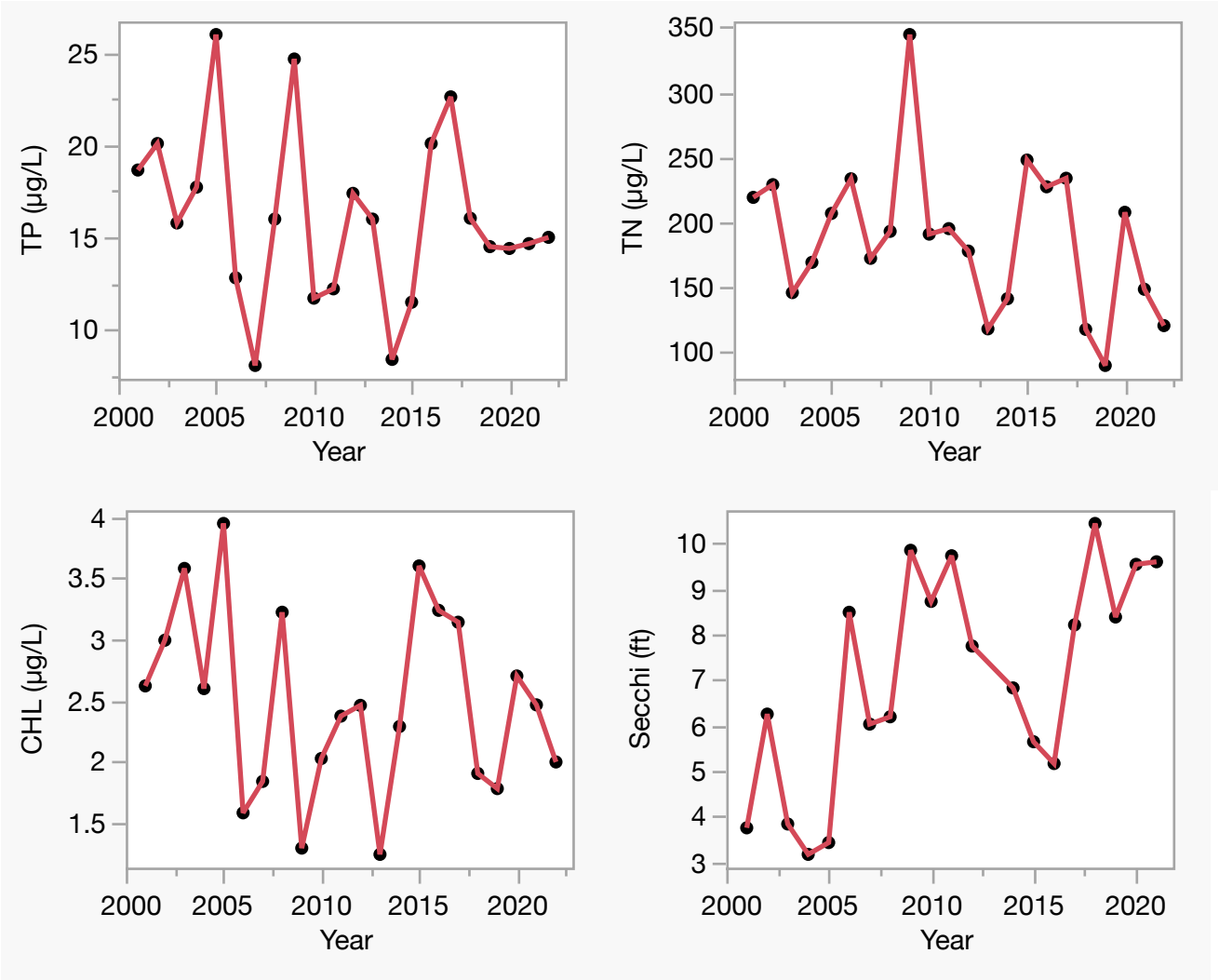
The following long-term data are the primary trophic state parameters collected by LAKEWATCH volunteers and classification variables color and specific conductance (LAKEWATCH recently began analyzing samples quarterly for color and specific conductance):

- **Total Phosphorus (µg/L)**: The nutrient most often limiting growth of plant/algae.
- **Total Nitrogen (µg/L)**: Another nutrient needed for aquatic plant/algae growth but only limiting when nitrogen to phosphorus ratios are generally less than 10.
- **Chlorophyll-uncorrected (µg/L)**: Chlorophyll concentrations are used to measure relative abundances of open water algal population.
- **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 filter out.
- **Specific Conductance (µS/cm@25°C)**: Measurement of the ability of water to conduct electricity and can be used to estimate the amount of dissolved materials in water.

Table 3. Long-term trophic state data collected monthly by LAKEWATCH volunteers and color and specific conductance (collected quarterly).

Parameter	Minimum and Maximum Annual Geometric Means	Grand Geometric Mean (Sampling years)
Total Phosphorus (µg/L)	8 - 26	15 (22)
Total Nitrogen (µg/L)	89 - 344	179 (22)
Chlorophyll- uncorrected (µg/L)	1 - 4	2 (22)
Secchi (ft)	3.2 - 10.4	6.6 (20)
Secchi (m)	1.0 -3.2	2.0 (20)
Color (Pt-Co Units)	1 - 9	5 (20)
Specific Conductance (µS/cm@25 C)	25000 - 51000	45182 (20)

Figure 2. Loxahatchee River-10 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 = 0.04, p = 0.36)**, total nitrogen** (TN No Trend, R^2 = 0.12, p = 0.12)**, chlorophyll** (CHL No Trend, R^2 = 0.04, p = 0.37) **and Secchi depth** (Secchi Increasing, R^2 = 0.41, p = 0.00)**.**



LAKEWATCH Report for Loxahatchee River-62 in Palm Beach County
Watershed Region: South Florida
Using Data Downloaded 12/9/22

Introduction for River/Streams

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 geometric means and ranges and the final part are the trend plots for nutrients, chlorophyll and Secchi depth. **Plots were only made for systems with five or more years of data.**

For decades Florida has had a narrative nutrient water quality criterion in place to protect Florida's waters against nutrient over-enrichment. In 2009, the Florida Department of Environmental Protection (FDEP) initiated rulemaking and, by 2011, adopted what would be the first set of statewide numeric nutrient standards for Florida's waters. By 2015, almost all the remaining waters in Florida have numeric nutrient standards (see for FDEP Regulation Nutrient Criteria's for: Streams, spring vents: https://www.flrules.org/gateway/RuleNo.asp?title=SURFACE%20WATER%20QUALITY%20STANDARDS&ID=62-302.531).

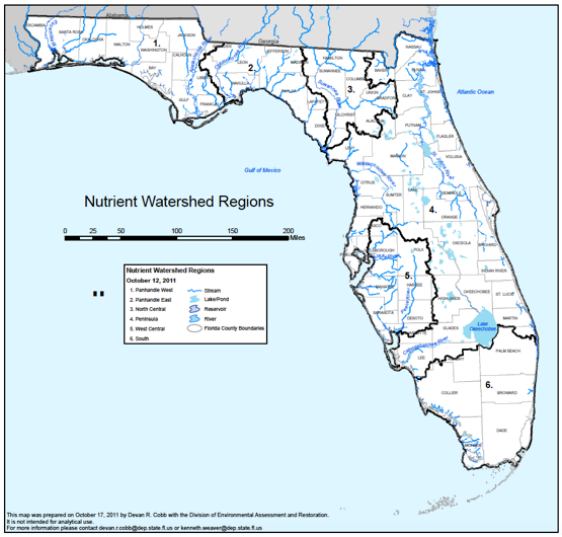


Figure 1. Map showing nutrient thresholds areas for streams set forth by FDEP.

Table 1. The nutrient thresholds for streams are listed in table below along with the map showing zones.

Nutrient Watershed Region	Total Phosphorus Nutrient Threshold[1]	Total Nitrogen Nutrient Threshold[1]
Panhandle West	60 µg/L	670 µg/L
Panhandle East	180 µg/L	1030 µg/L
North Central	300 µ/L	1870 µg/L
Peninsular	120 µg/L	1540 µg/L
West Central	490 µg/L	1650 µg/L
South Florida	No numeric nutrient threshold. The narrative criterion in paragraph 62-302.530(47)(b), F.A.C., applies.	No numeric nutrient threshold. The narrative criterion in paragraph 62-302.530(47)(b), F.A.C., applies.

[1]These values are annual geometric mean concentrations not to be exceeded more than once in any three calendar year period.

Base File Data for River/Streams: Definitions

- **County**: Name of county in which the system resides.
- **Name**: Stream name that LAKEWATCH uses for the system.
- **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 2. Base File Data.

County	Palm Beach
Name	Loxahatchee River-62
GNIS Number	294063
Water Body Type	River/Stream
Period of Record (years, range)	22 (2001 to 2022)
Latitude	26.9768
Longitude	-80.1321

Long-Term Data for River/Streams: Definitions

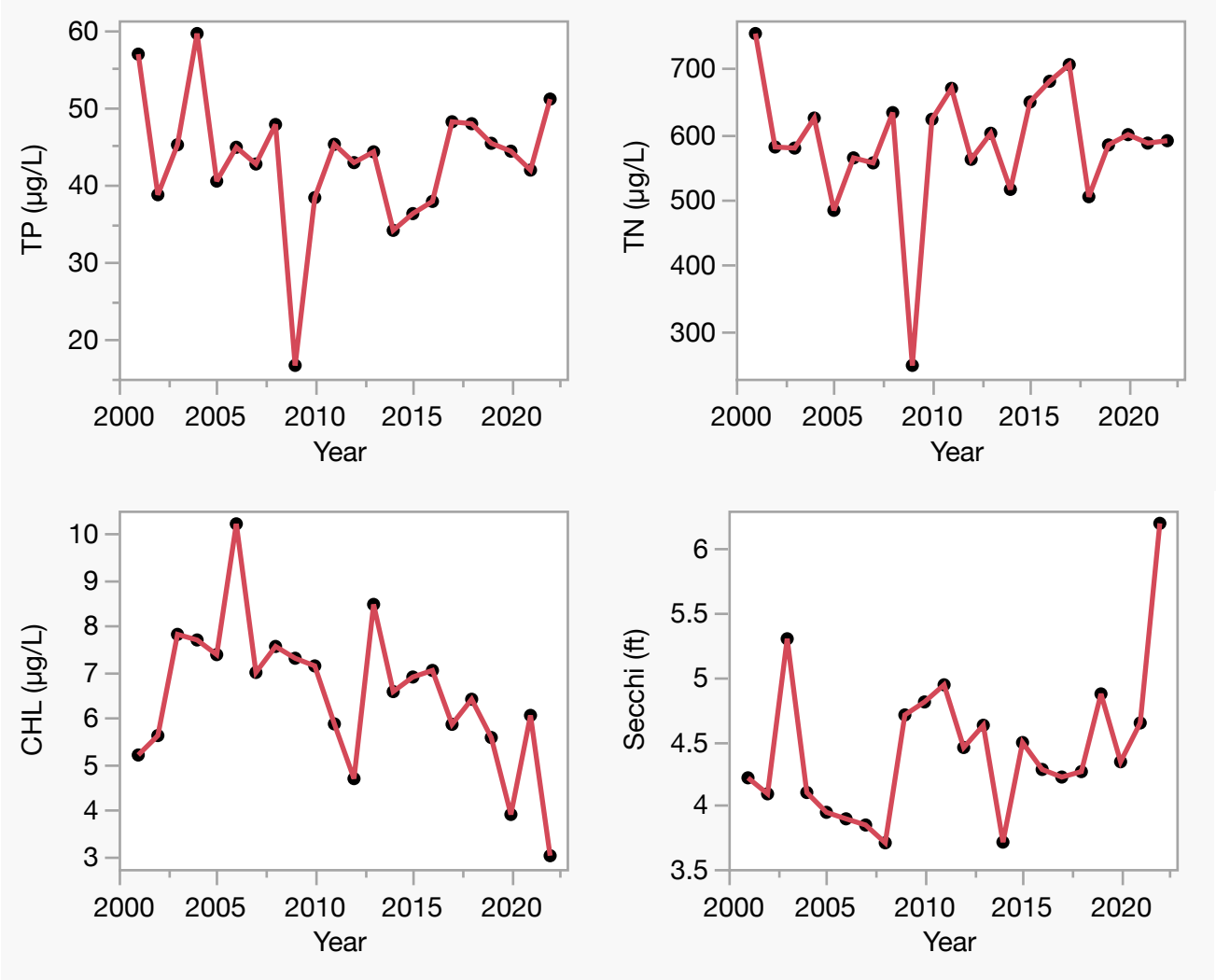
The following long-term data are the primary trophic state parameters collected by LAKEWATCH volunteers and classification variables color and specific conductance (LAKEWATCH recently began analyzing samples quarterly for color and specific conductance):

- **Total Phosphorus (µg/L)**: The nutrient most often limiting growth of plant/algae.
- **Total Nitrogen (µg/L)**: Another nutrient needed for aquatic plant/algae growth but only limiting when nitrogen to phosphorus ratios are generally less than 10.
- **Chlorophyll-uncorrected (µg/L)**: Chlorophyll concentrations are used to measure relative abundances of open water algal population.
- **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 filter out.
- **Specific Conductance (µS/cm@25°C)**: Measurement of the ability of water to conduct electricity and can be used to estimate the amount of dissolved materials in water.

Table 3. Long-term trophic state data collected monthly by LAKEWATCH volunteers and color and specific conductance (collected quarterly).

Parameter	Minimum and Maximum Annual Geometric Means	Grand Geometric Mean (Sampling years)
Total Phosphorus (µg/L)	17 - 59	42 (22)
Total Nitrogen (µg/L)	246 - 754	575 (22)
Chlorophyll- uncorrected (µg/L)	3 - 10	6 (22)
Secchi (ft)	3.7 - 6.2	4.4 (22)
Secchi (m)	1.1 -1.9	1.3 (22)
Color (Pt-Co Units)	16 - 65	35 (20)
Specific Conductance (µS/cm@25 C)	1970 - 33000	11065 (20)

Figure 2. Loxahatchee River-62 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 = 0.01, p = 0.74)**, total nitrogen** (TN No Trend, R^2 = 0.00, p = 0.92)**, chlorophyll** (CHL Decreasing, R^2 = 0.22, p = 0.03) **and Secchi depth** (Secchi No Trend, R^2 = 0.14, p = 0.09)**.**



LAKEWATCH Report for Loxahatchee River-69 in Palm Beach County
Watershed Region: South Florida
Using Data Downloaded 12/9/22

Introduction for River/Streams

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 geometric means and ranges and the final part are the trend plots for nutrients, chlorophyll and Secchi depth. **Plots were only made for systems with five or more years of data.**

For decades Florida has had a narrative nutrient water quality criterion in place to protect Florida's waters against nutrient over-enrichment. In 2009, the Florida Department of Environmental Protection (FDEP) initiated rulemaking and, by 2011, adopted what would be the first set of statewide numeric nutrient standards for Florida's waters. By 2015, almost all the remaining waters in Florida have numeric nutrient standards (see for FDEP Regulation Nutrient Criteria's for: Streams, spring vents: https://www.flrules.org/gateway/RuleNo.asp?title=SURFACE%20WATER%20QUALITY%20STANDARDS&ID=62-302.531).

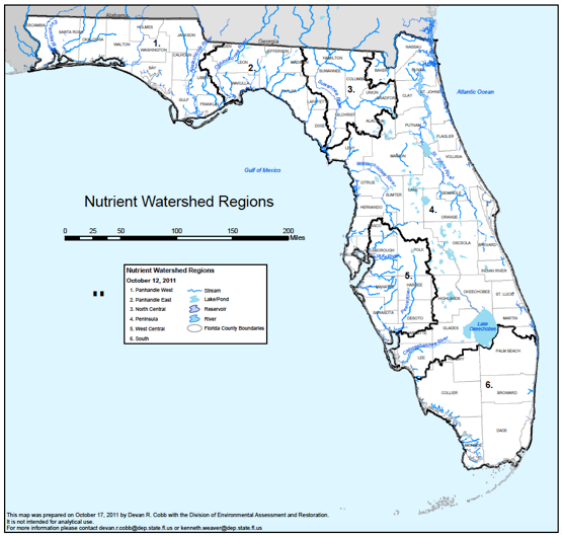


Figure 1. Map showing nutrient thresholds areas for streams set forth by FDEP.

Table 1. The nutrient thresholds for streams are listed in table below along with the map showing zones.

Nutrient Watershed Region	Total Phosphorus Nutrient Threshold[1]	Total Nitrogen Nutrient Threshold[1]
Panhandle West	60 µg/L	670 µg/L
Panhandle East	180 µg/L	1030 µg/L
North Central	300 µ/L	1870 µg/L
Peninsular	120 µg/L	1540 µg/L
West Central	490 µg/L	1650 µg/L
South Florida	No numeric nutrient threshold. The narrative criterion in paragraph 62-302.530(47)(b), F.A.C., applies.	No numeric nutrient threshold. The narrative criterion in paragraph 62-302.530(47)(b), F.A.C., applies.

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Base File Data for River/Streams: Definitions

- **County**: Name of county in which the system resides.
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- **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 2. Base File Data.

County	Palm Beach
Name	Loxahatchee River-69
GNIS Number	294063
Water Body Type	River/Stream
Period of Record (years, range)	22 (2001 to 2022)
Latitude	26.9372
Longitude	-80.1764

Long-Term Data for River/Streams: 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 (µg/L)**: The nutrient most often limiting growth of plant/algae.
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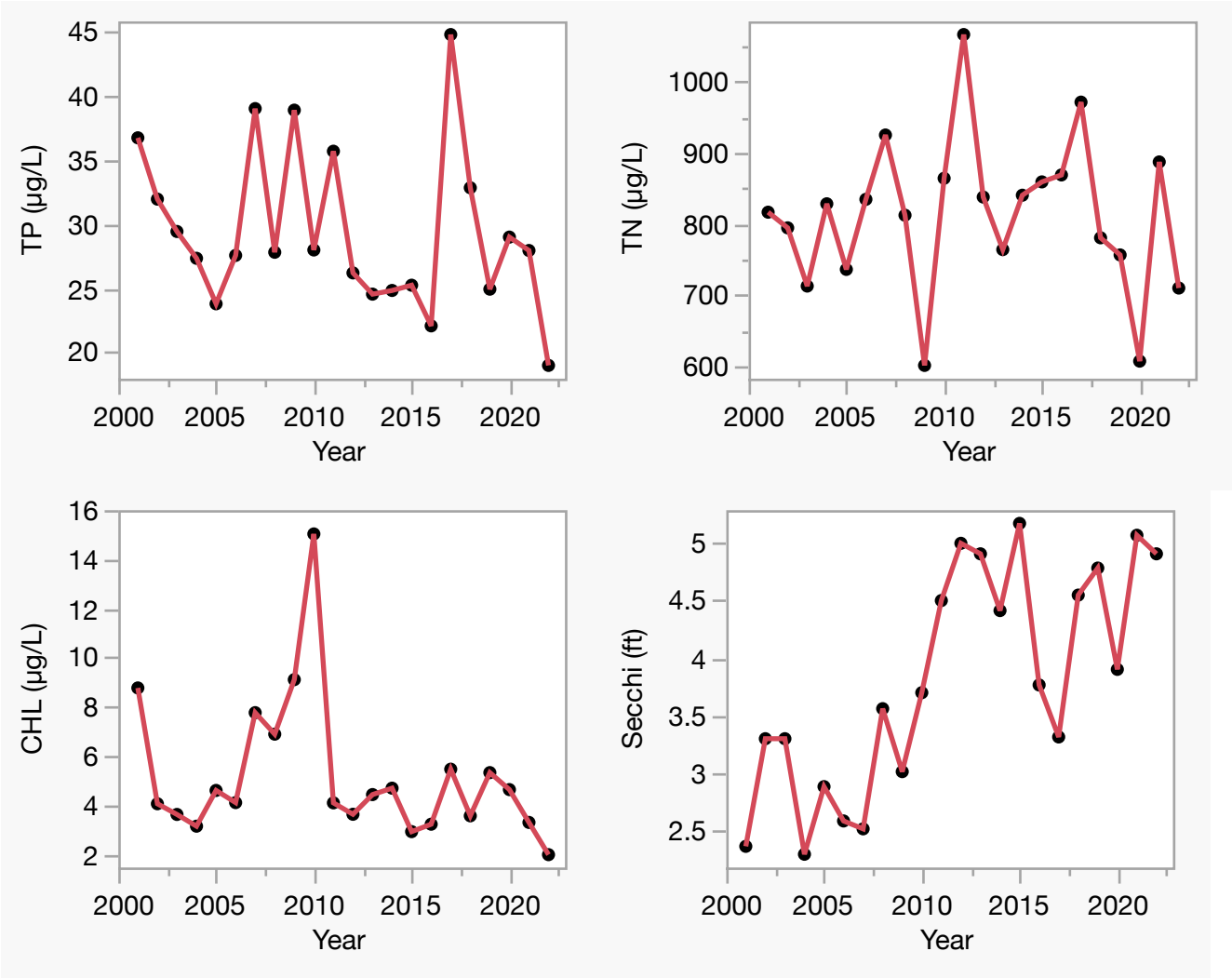
- **Specific Conductance (µS/cm@25°C)**: Measurement of the ability of water to conduct electricity and can be used to estimate the amount of dissolved materials in water.

Table 3. Long-term trophic state data collected monthly by LAKEWATCH volunteers and color and specific conductance (collected quarterly).

Parameter	Minimum and Maximum Annual Geometric Means	Grand Geometric Mean (Sampling years)
Total Phosphorus (µg/L)	19 - 45	29 (22)
Total Nitrogen (µg/L)	601 - 1066	806 (22)
Chlorophyll- uncorrected (µg/L)	2 - 15	5 (22)
Secchi (ft)	2.3 - 5.2	3.7 (22)
Secchi (m)	0.7 -1.6	1.1 (22)
Color (Pt-Co Units)	28 - 66	49 (20)
Specific Conductance (µS/cm@25 C)	337 - 1000	571 (20)

Figure 2. Loxahatchee River-69 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 = 0.07, p = 0.24)**, total nitrogen** (TN No Trend, R^2 = 0.00, p = 0.91)**, chlorophyll** (CHL No Trend, R^2 = 0.08, p = 0.19) **and Secchi depth** (Secchi Increasing, R^2 = 0.57, p = 0.00)**.**



LAKEWATCH Report for Loxahatchee River-72 in Palm Beach County
Watershed Region: South Florida
Using Data Downloaded 12/9/22

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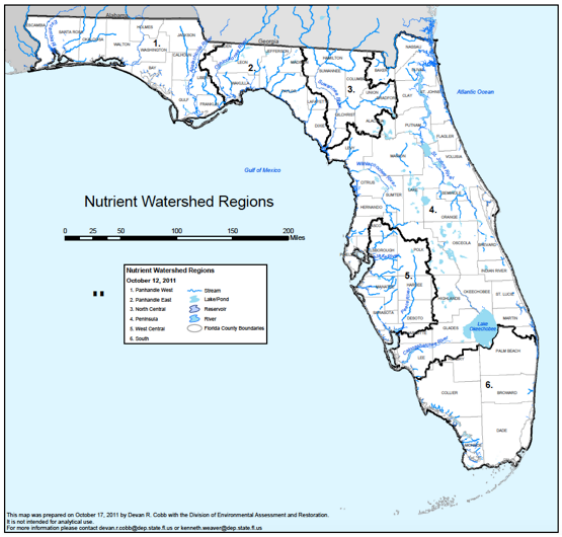

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Panhandle West	60 µg/L	670 µg/L
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Peninsular	120 µg/L	1540 µg/L
West Central	490 µg/L	1650 µg/L
South Florida	No numeric nutrient threshold. The narrative criterion in paragraph 62-302.530(47)(b), F.A.C., applies.	No numeric nutrient threshold. The narrative criterion in paragraph 62-302.530(47)(b), F.A.C., applies.

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Base File Data for River/Streams: Definitions

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- **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 2. Base File Data.

County	Palm Beach
Name	Loxahatchee River-72
GNIS Number	294063
Water Body Type	River/Stream
Period of Record (years, range)	22 (2001 to 2022)
Latitude	26.9433
Longitude	-80.1217

Long-Term Data for River/Streams: 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 (µg/L)**: The nutrient most often limiting growth of plant/algae.
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Table 3. Long-term trophic state data collected monthly by LAKEWATCH volunteers and color and specific conductance (collected quarterly).

Parameter	Minimum and Maximum Annual Geometric Means	Grand Geometric Mean (Sampling years)
Total Phosphorus (µg/L)	30 - 46	38 (22)
Total Nitrogen (µg/L)	380 - 766	596 (22)
Chlorophyll- uncorrected (µg/L)	7 - 22	12 (22)
Secchi (ft)	2.8 - 5.2	3.7 (22)
Secchi (m)	0.8 -1.6	1.1 (22)
Color (Pt-Co Units)	11 - 64	27 (20)
Specific Conductance (µS/cm@25 C)	2104 - 46000	19757 (20)

Figure 2. Loxahatchee River-72 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 = 0.03, p = 0.42)**, total nitrogen** (TN No Trend, R^2 = 0.04, p = 0.34)**, chlorophyll** (CHL No Trend, R^2 = 0.12, p = 0.12) **and Secchi depth** (Secchi Increasing, R^2 = 0.19, p = 0.04)**.**