

Loxahatchee River-Lake Worth Creek Aquatic Preserve

SEACAR Water Quality Analysis

Last compiled on 10 July, 2025

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Indicators

Nutrients

Total Nitrogen - Discrete

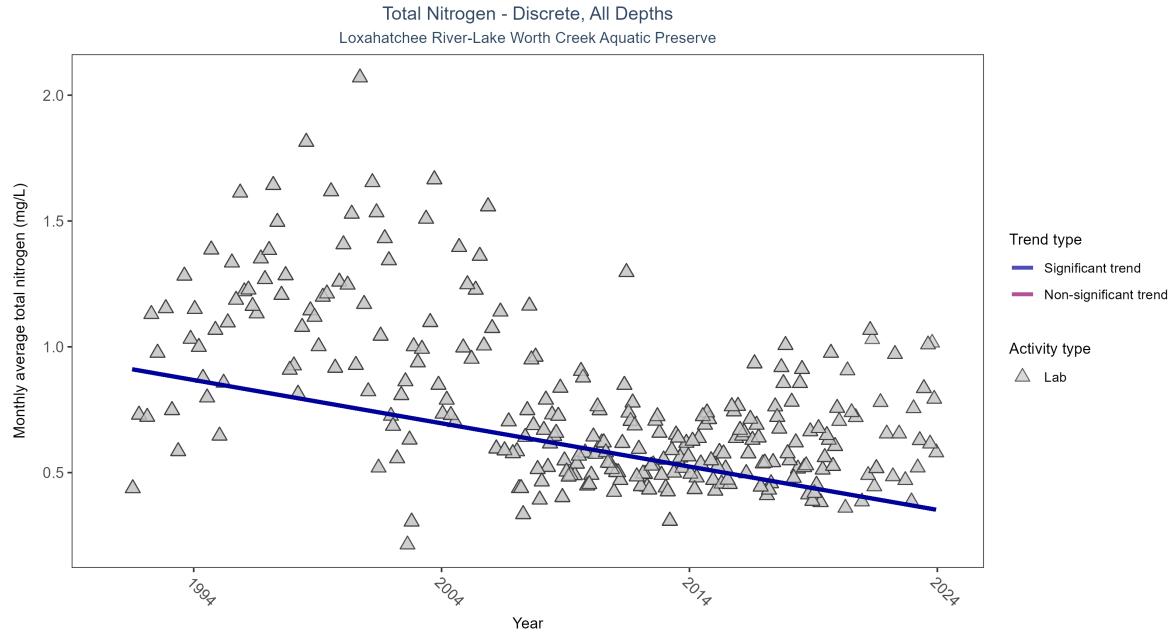


Figure 1: Scatter plot of monthly average total nitrogen over time. If the time series included ten or more years of discrete observations, a significant (blue) or non-significant (magenta) trend line is also shown. Only nitrogen values obtained from laboratory analyses (triangles) are included in the plot.

Table 1: Seasonal Kendall-Tau Results for - Total Nitrogen

Activity Type	Statistical Trend	Sample Count	Years with Data	Period of Record	Median Result Value	Tau	Sen Intercept	Sen Slope	P
Lab	Significantly decreasing trend	4763	33	1991 - 2023	0.706	-0.27286	0.91973	-0.0172	0

Monthly average total nitrogen decreased by 0.02 mg/L per year.

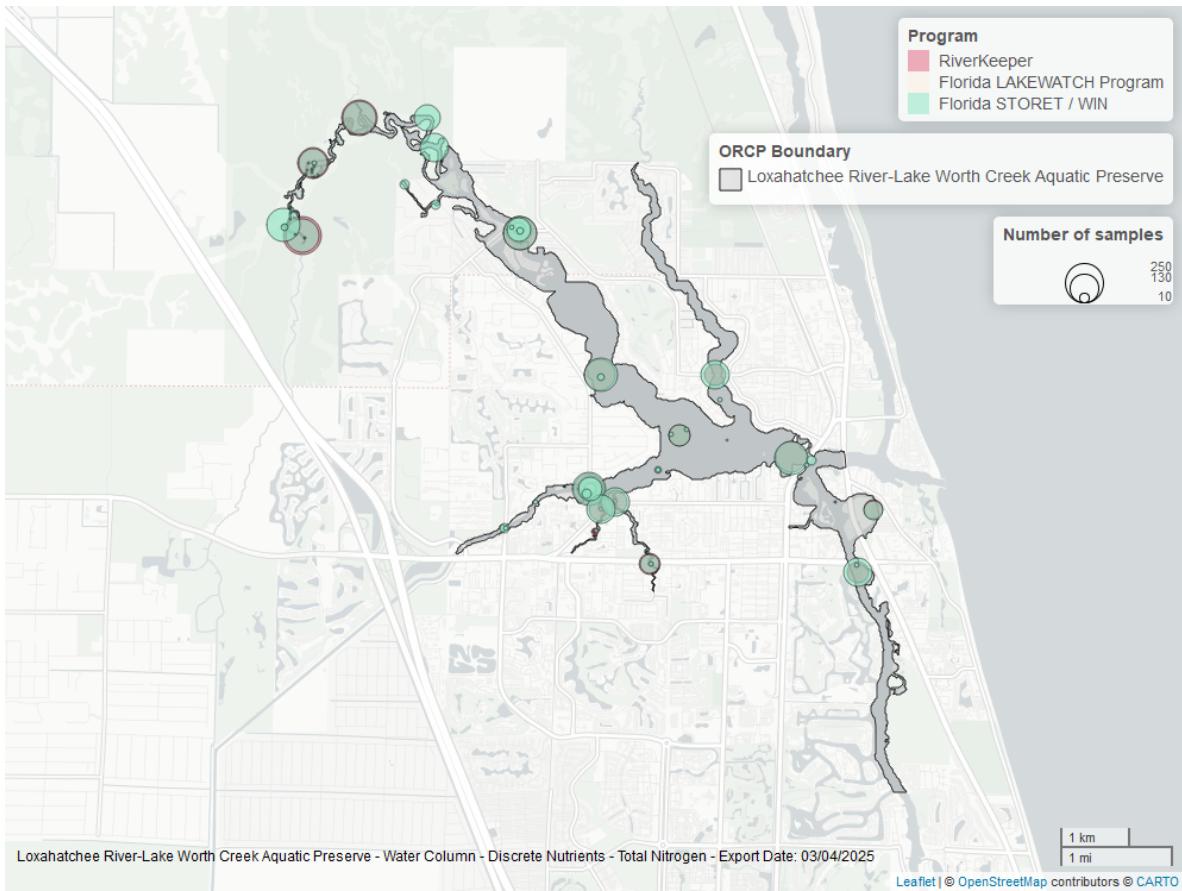


Figure 2: Map showing location of discrete water quality sampling locations within the boundaries of *Loxahatchee River-Lake Worth Creek Aquatic Preserve*. The bubble size on the maps above reflect the amount of data available at each sampling site.

Total Phosphorus - Discrete

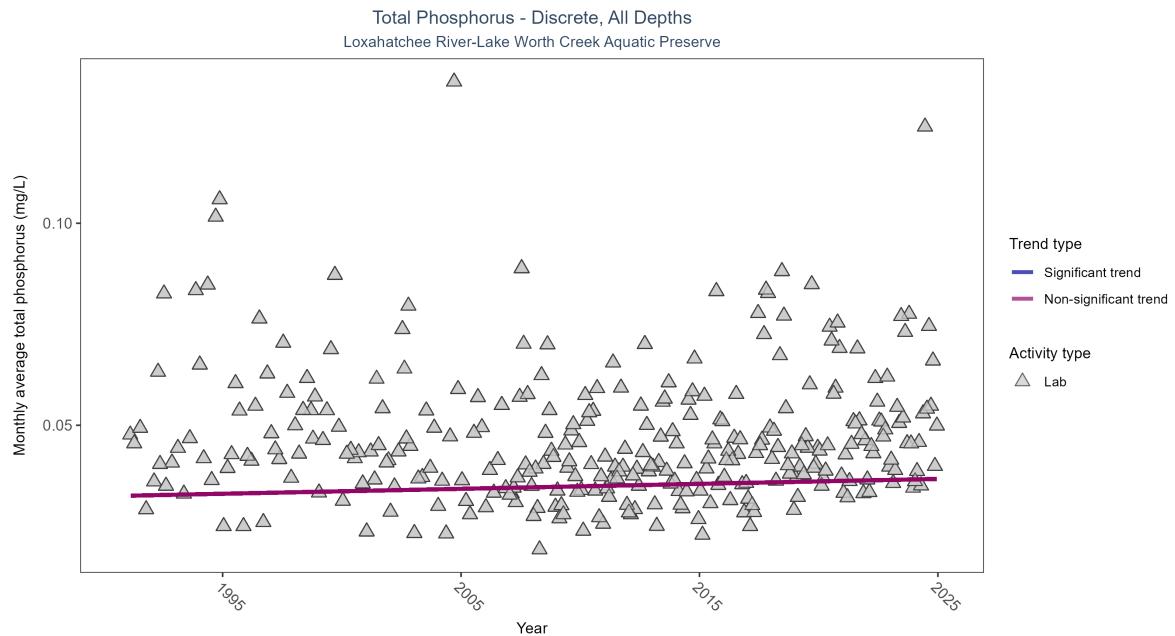


Figure 3: Scatter plot of monthly average total phosphorus over time. If the time series included ten or more years of discrete observations, a significant (blue) or non-significant (magenta) trend line is also shown. Only phosphorus values obtained from laboratory analyses (triangles) are included in the plot.

Table 2: Seasonal Kendall-Tau Results for - Total Phosphorus

Activity Type	Statistical Trend	Sample Count	Years with Data	Period of Record	Median Result Value	Tau	Sen Intercept	Sen Slope	P
Lab	No significant trend	6704	34	1991 - 2024	0.042	0.07821	0.03255	0.00012	0.1535

Total phosphorus showed no detectable trend between 1991 and 2024.

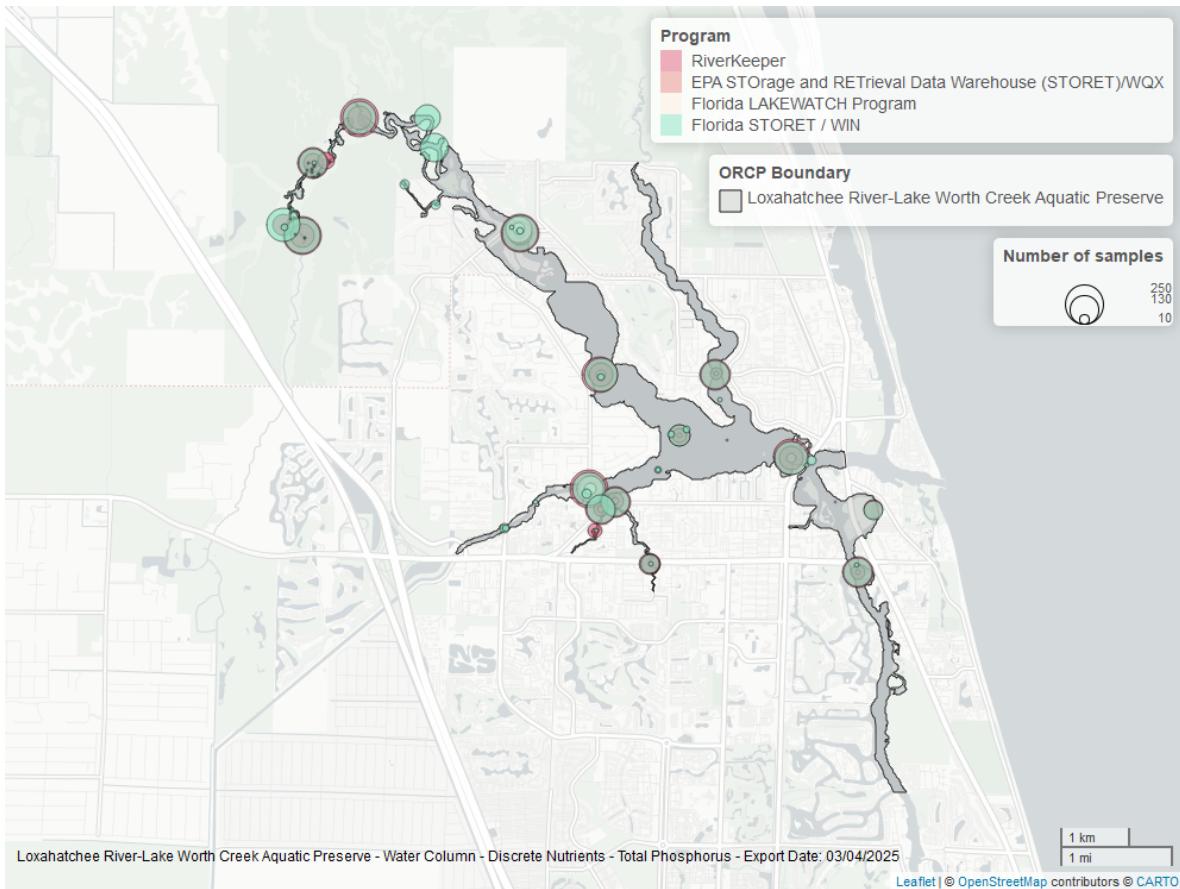


Figure 4: Map showing location of discrete water quality sampling locations within the boundaries of *Loxahatchee River-Lake Worth Creek Aquatic Preserve*. The bubble size on the maps above reflect the amount of data available at each sampling site.

Water Quality

Dissolved Oxygen - Discrete

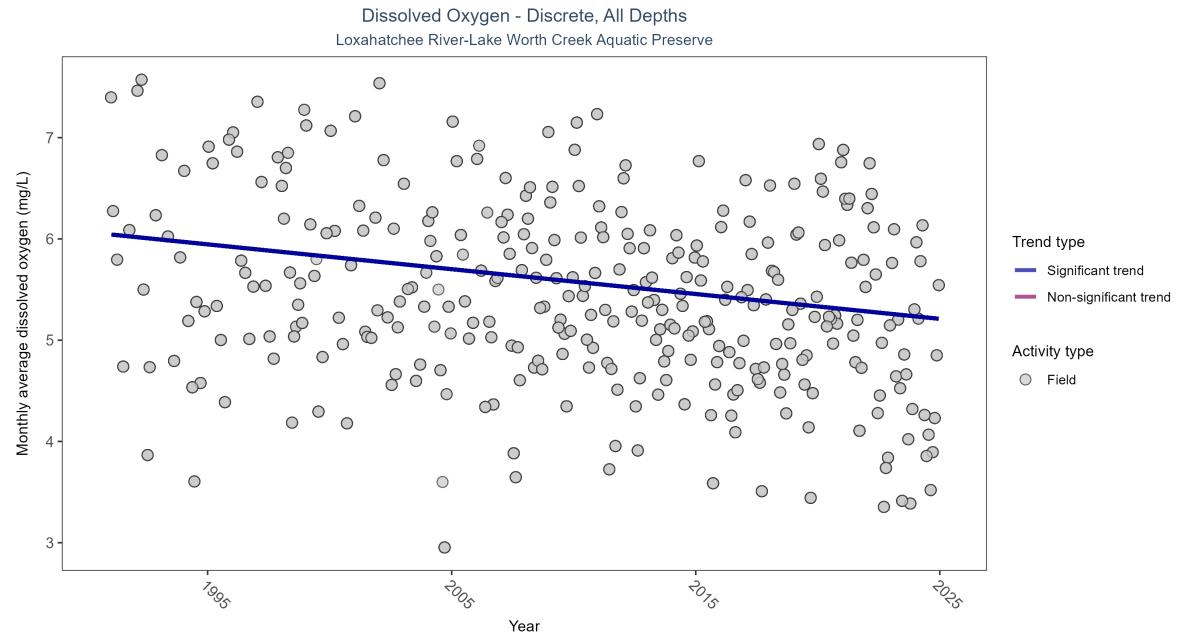


Figure 5: Scatter plot of monthly average dissolved oxygen over time. If the time series included ten or more years of discrete observations, a significant (blue) or non-significant (magenta) trend line is also shown. Only dissolved oxygen values measured in the field (circles) are included in the plot.

Table 3: Seasonal Kendall-Tau Results for - Dissolved Oxygen

Activity Type	Statistical Trend	Sample Count	Years with Data	Period of Record	Median Result Value	Tau	Sen Intercept	Sen Slope	P
Field	Significantly decreasing trend	13292	34	1991 - 2024	5.6	-0.2629	6.04428	-0.02452	0

Monthly average dissolved oxygen decreased by 0.02 mg/L per year.

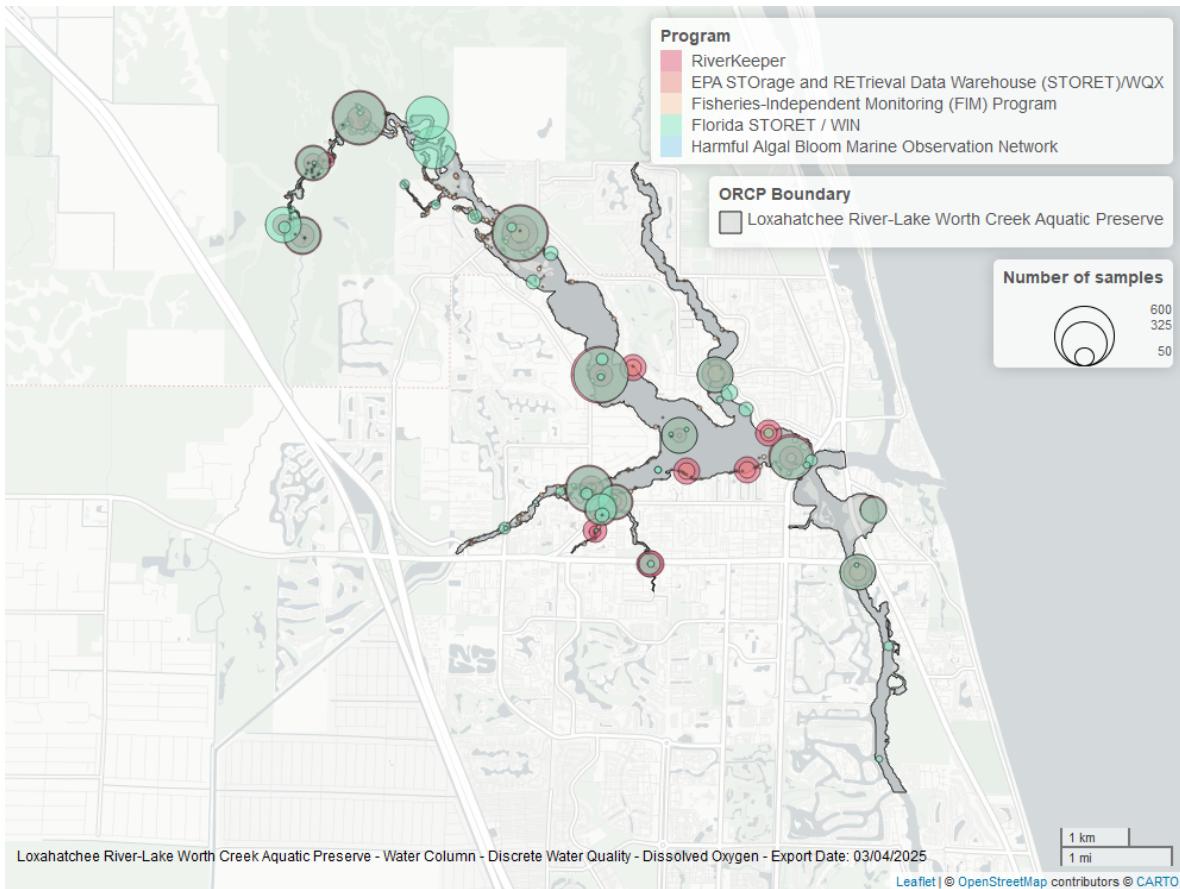


Figure 6: Map showing location of discrete water quality sampling locations within the boundaries of *Loxahatchee River-Lake Worth Creek Aquatic Preserve*. The bubble size on the maps above reflect the amount of data available at each sampling site.

Dissolved Oxygen Saturation - Discrete

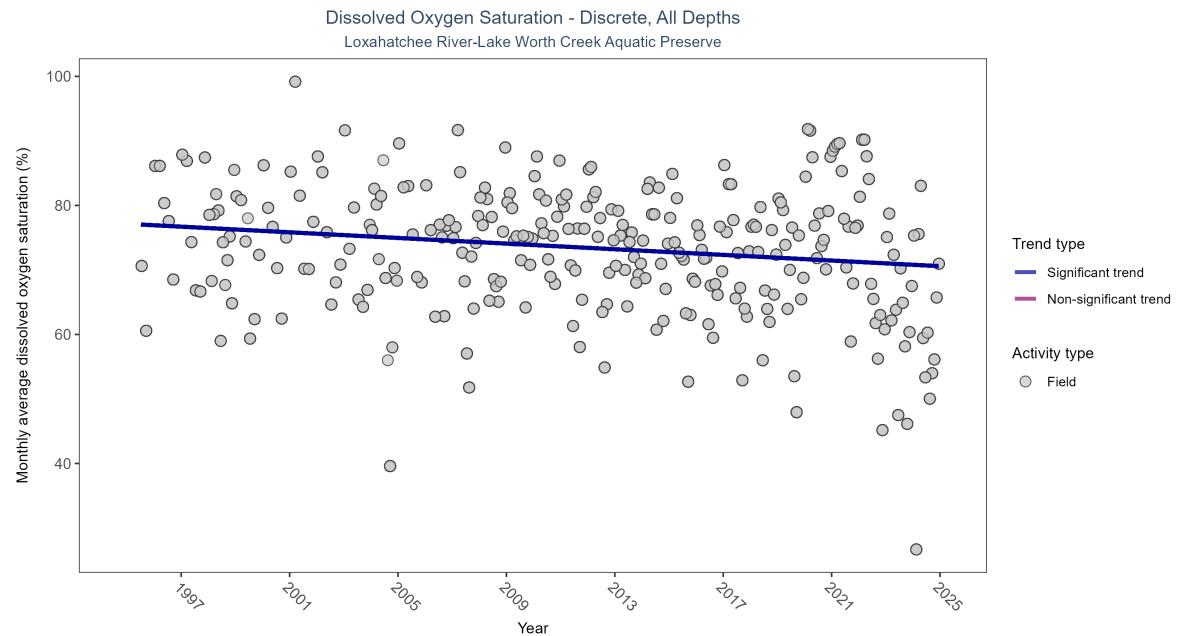


Figure 7: Scatter plot of monthly average dissolved oxygen saturation over time. If the time series included ten or more years of discrete observations, a significant (blue) or non-significant (magenta) trend line is also shown. Only dissolved oxygen saturation values measured in the field (circles) are included in the plot.

Table 4: Seasonal Kendall-Tau Results for - Dissolved Oxygen Saturation

Activity Type	Statistical Trend	Sample Count	Years with Data	Period of Record	Median Result Value	Tau	Sen Intercept	Sen Slope	P
Field	Significantly decreasing trend	10992	30	1995 - 2024	76.1	-0.14978	77.143	-0.21877	0.0002

Monthly average dissolved oxygen saturation decreased by 0.22% per year.

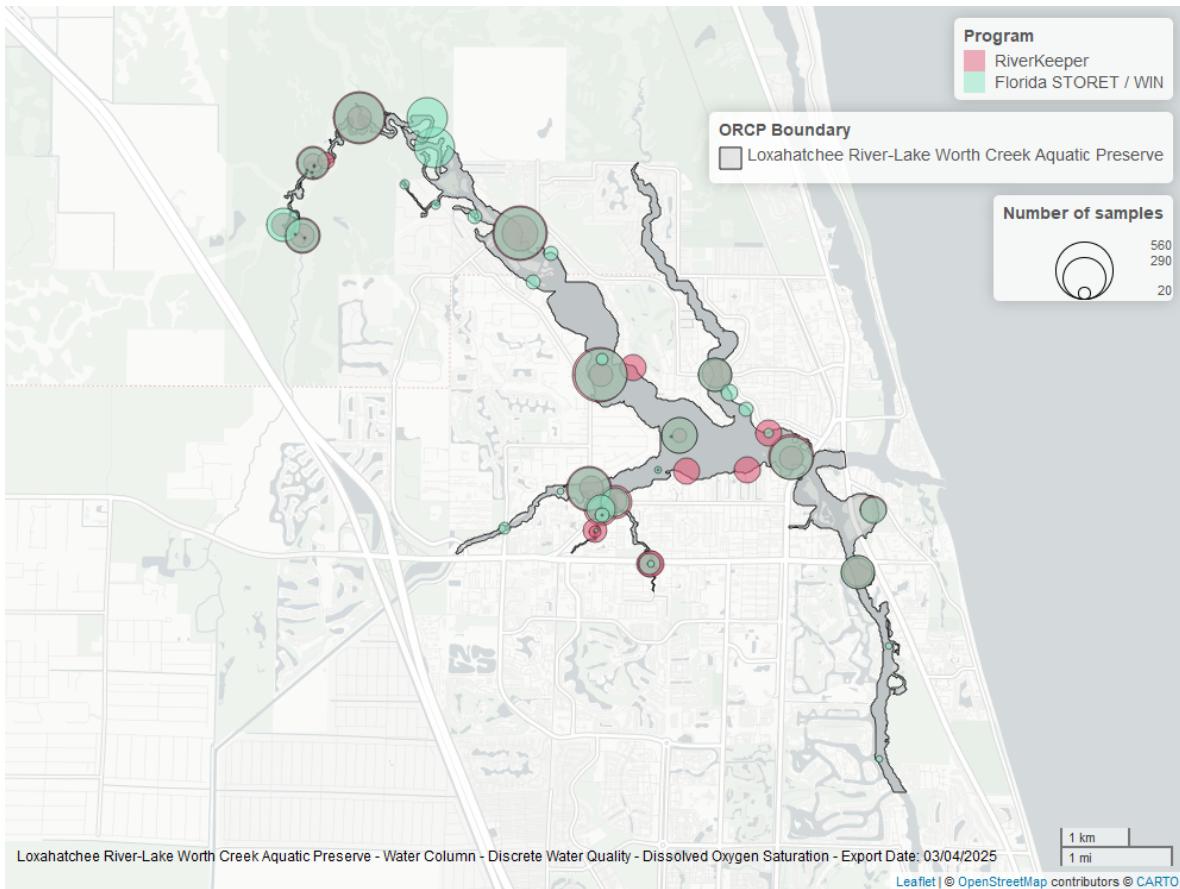


Figure 8: Map showing location of discrete water quality sampling locations within the boundaries of *Loxahatchee River-Lake Worth Creek Aquatic Preserve*. The bubble size on the maps above reflect the amount of data available at each sampling site.

Salinity - Discrete

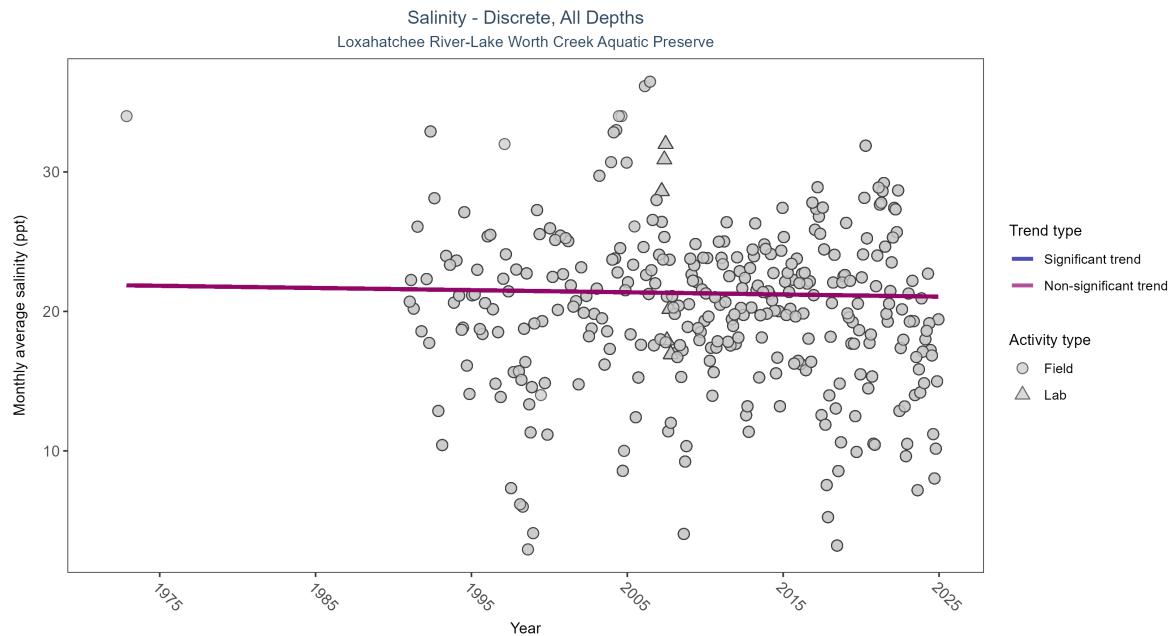


Figure 9: Scatter plot of monthly average salinity over time. If the time series included ten or more years of discrete observations, significant (blue) or non-significant (magenta) trend lines are also shown. Discrete salinity values derived from grab samples analyzed in the field (circles) or the laboratory (triangles) are both included in the plot.

Table 5: Seasonal Kendall-Tau Results for - Salinity

Activity Type	Statistical Trend	Sample Count	Years with Data	Period of Record	Median Result Value	Tau	Sen Intercept	Sen Slope	P
All	No significant trend	11913	35	1972 - 2024	24.6	-0.02254	21.88197	-0.01553	0.6254

Salinity showed no detectable trend between 1972 and 2024.

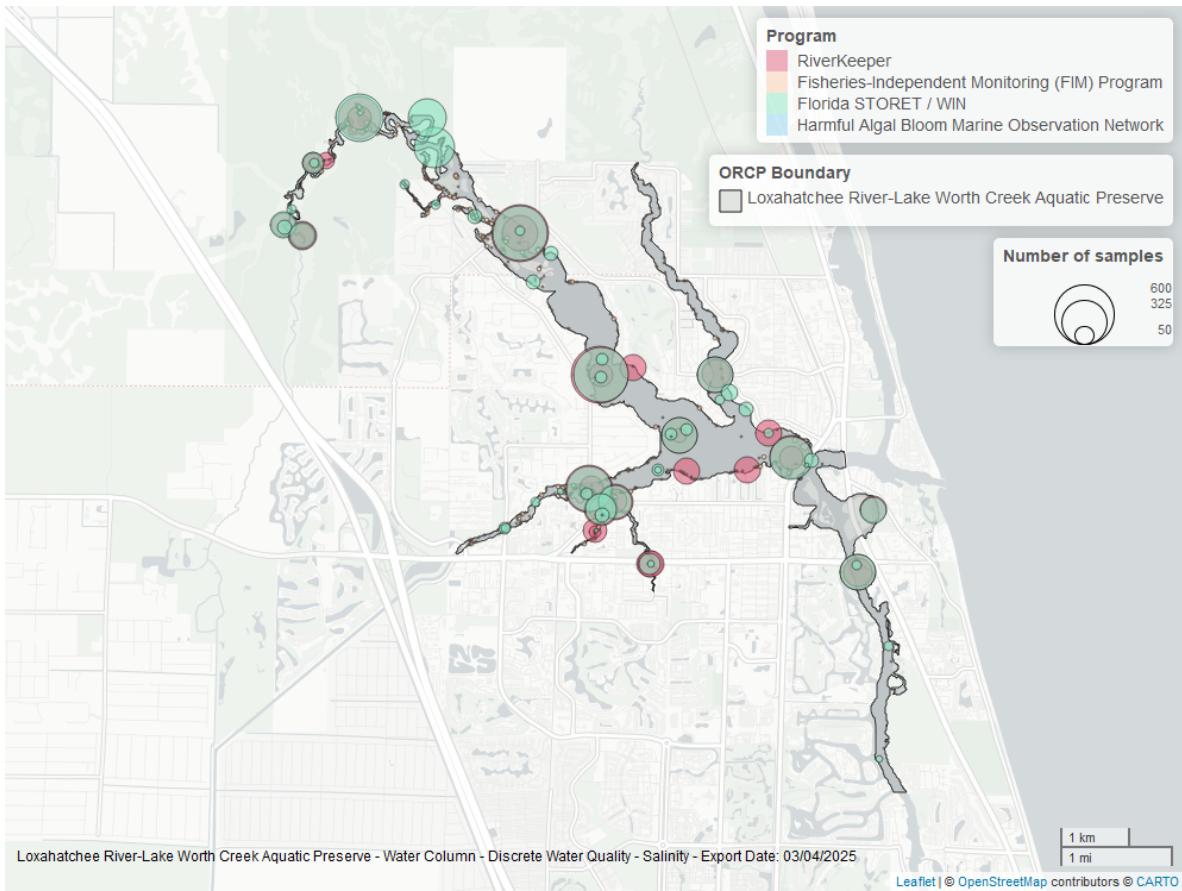


Figure 10: Map showing location of discrete water quality sampling locations within the boundaries of *Loxahatchee River-Lake Worth Creek Aquatic Preserve*. The bubble size on the maps above reflect the amount of data available at each sampling site.

Salinity - Continuous

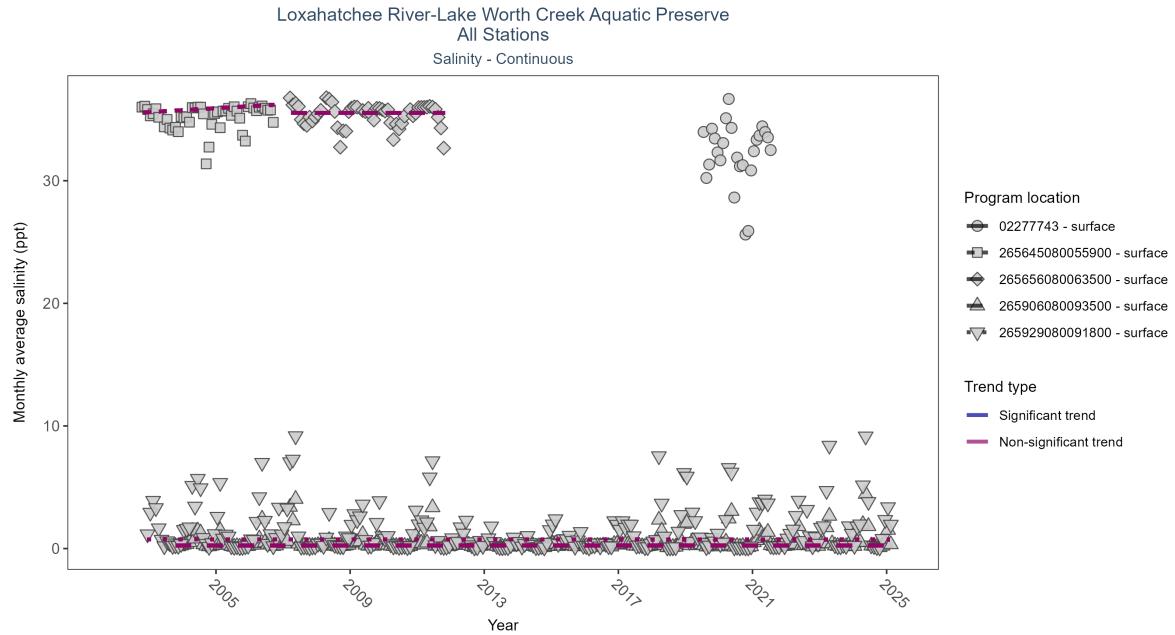


Figure 11: Scatter plot of monthly average salinity over time at continuously monitored program locations. Each location is analyzed separately, with significant (blue) or non-significant (magenta) trend lines shown for time series that included five or more years of observations.

Table 6: Seasonal Kendall-Tau Results - Salinity

Program Location	Statistical Trend	Sample Count	Years with Data	Period of Record	Median Result Value	Tau	Sen Intercept	Sen Slope	P
265645080055900	No significant trend	1354	5	2002 - 2006	36.0	0.22	35.43	0.16	0.1594
265656080063500	No significant trend	2046	5	2007 - 2011	36.0	0.01	35.53	0	1
265906080093500	No significant trend	8989	23	2003 - 2025	0.3	0	0.25	0	0.919
265929080091800	No significant trend	7902	24	2002 - 2025	0.4	-0.01	0.75	0	0.8397
02277743	Insufficient data to calculate trend	1144	3	2019 - 2021	32.0	-	-	-	-

No detectable change in monthly average salinity was observed at four locations. There was insufficient data to fit a model for one location.

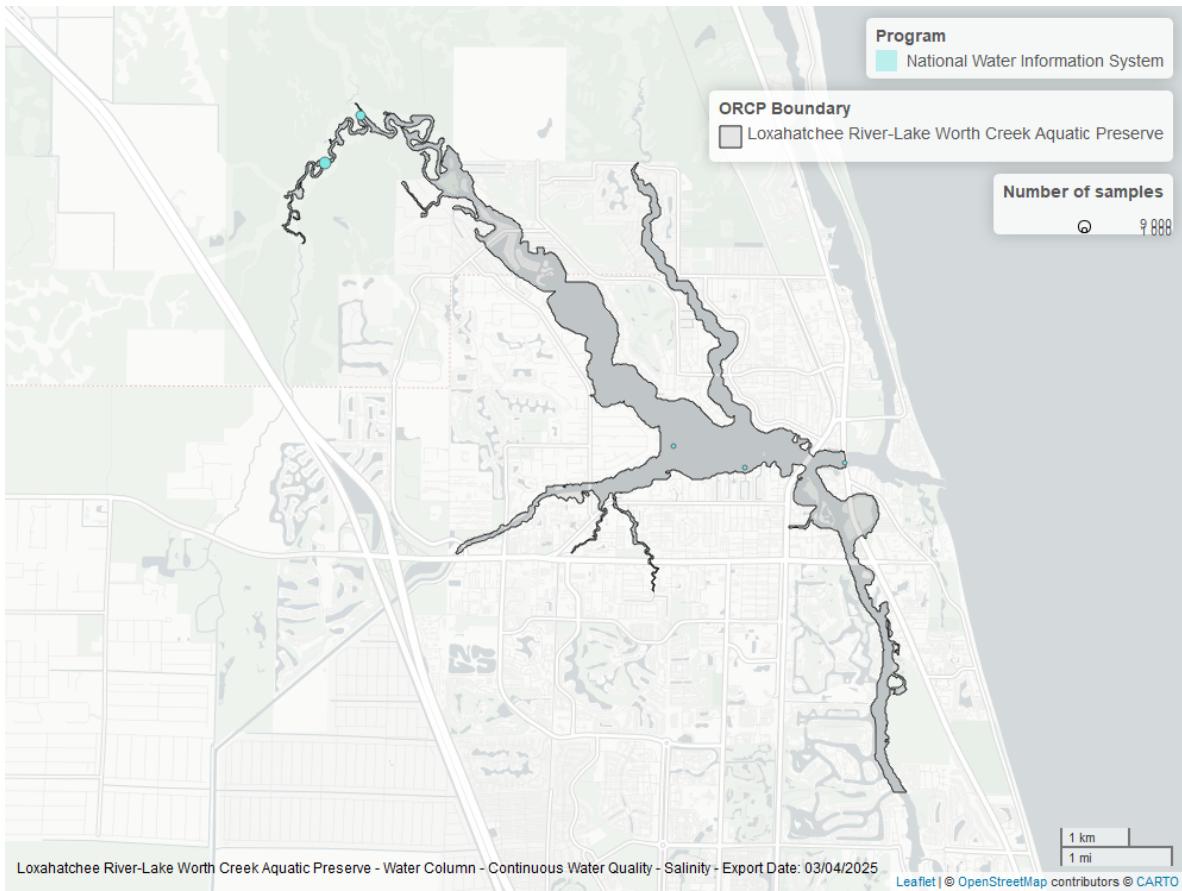


Figure 12: Map showing location of salinity continuous water quality sampling locations within the boundaries of *Loxahatchee River-Lake Worth Creek Aquatic Preserve*. The bubble size on the maps above reflect the amount of data available at each sampling site.

Water Temperature - Discrete

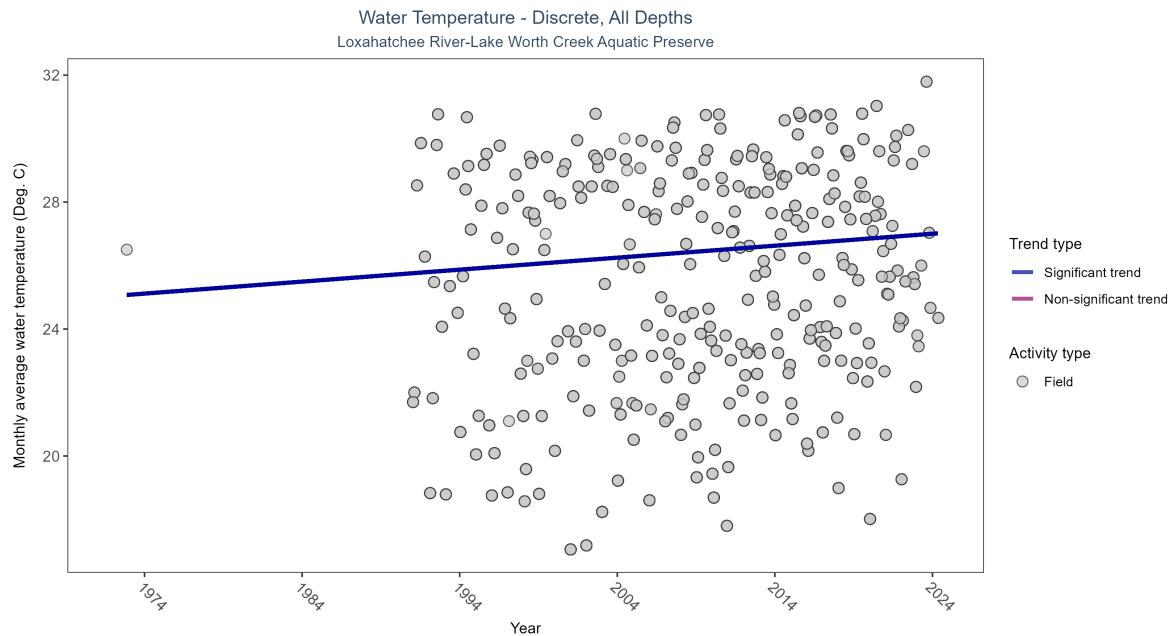


Figure 13: Scatter plot of monthly average water temperature over time. If the time series included ten or more years of discrete observations, a significant (blue) or non-significant (magenta) trend line is also shown. Only water temperature measurements taken in the field (circles) are included in the plot.

Table 7: Seasonal Kendall-Tau Results for - Water Temperature

Activity Type	Statistical Trend	Sample Count	Years with Data	Period of Record	Median Result Value	Tau	Sen Intercept	Sen Slope	P
Field	Significantly increasing trend	10676	35	1972 - 2024	25.7	0.16228	25.04148	0.03772	0.0001

Monthly average water temperature increased by 0.04°C per year.

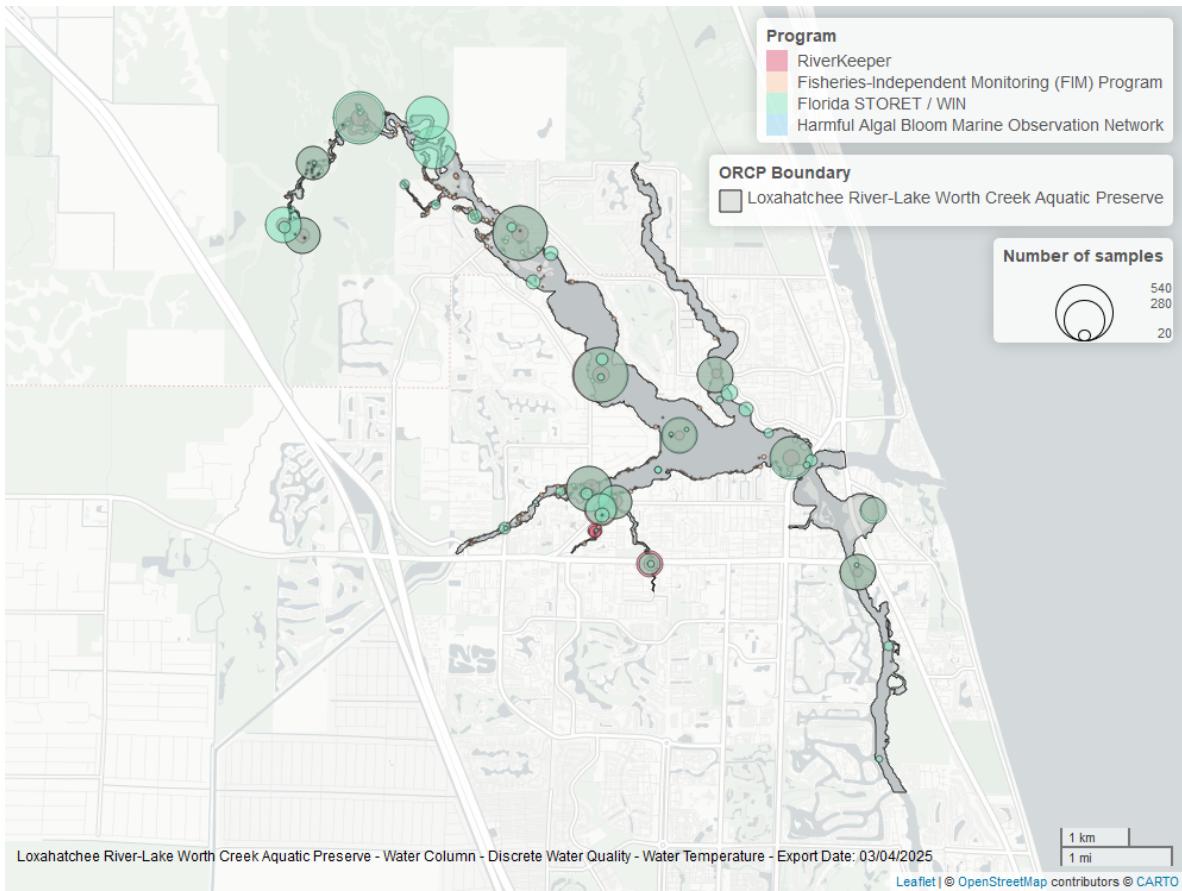


Figure 14: Map showing location of discrete water quality sampling locations within the boundaries of *Loxahatchee River-Lake Worth Creek Aquatic Preserve*. The bubble size on the maps above reflect the amount of data available at each sampling site.

Water Temperature - Continuous

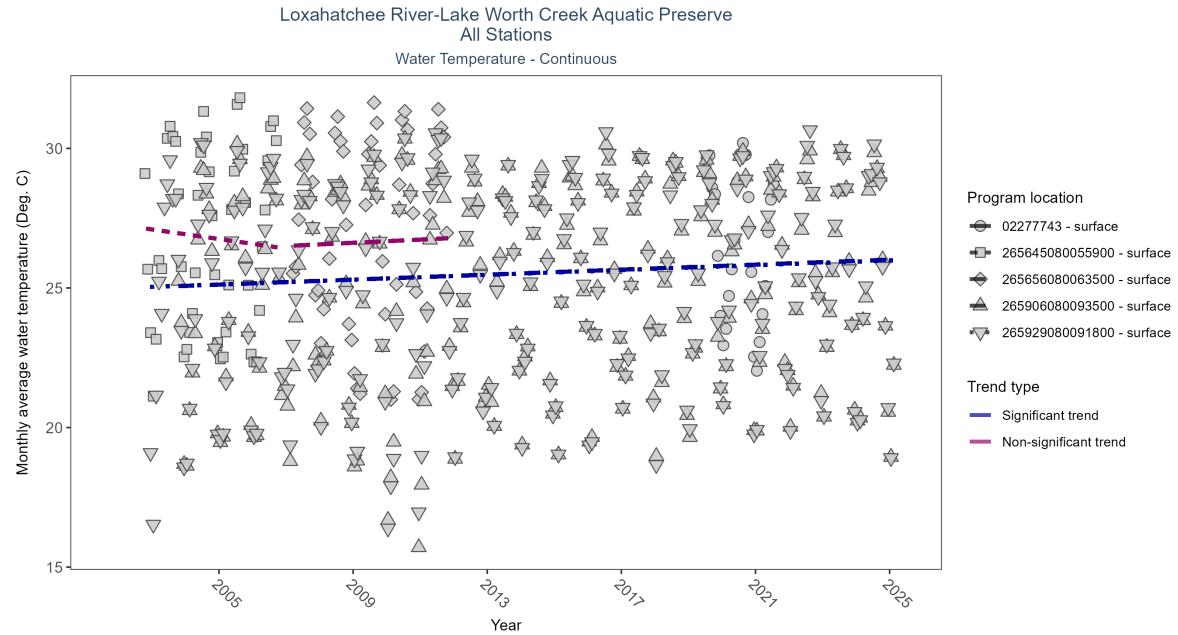


Figure 15: Scatter plot of monthly average water temperature over time at continuously monitored program locations. Each location is analyzed separately, with significant (blue) or non-significant (magenta) trend lines shown for time series that included five or more years of observations.

Table 8: Seasonal Kendall-Tau Results - Water Temperature

Program Location	Statistical Trend	Sample Count	Years with Data	Period of Record	Median Result Value	Tau	Sen Intercept	Sen Slope	P
265929080091800	Significantly increasing trend	7925	24	2002 - 2025	25.7	0.23	25	0.04	0
265656080063500	No significant trend	2664	5	2007 - 2011	27.6	0.08	26.5	0.06	0.4533
265906080093500	Significantly increasing trend	11942	23	2003 - 2025	25.6	0.27	25.03	0.04	0
265645080055900	No significant trend	1354	5	2002 - 2006	26.6	-0.29	27.27	-0.17	0.0704
02277743	Insufficient data to calculate trend	1122	3	2019 - 2021	26.3	-	-	-	-

At two program locations, monthly average water temperature increased by 0.04°C per year. No detectable change in monthly average water temperature was observed at two locations. There was insufficient data to fit a model for one location.

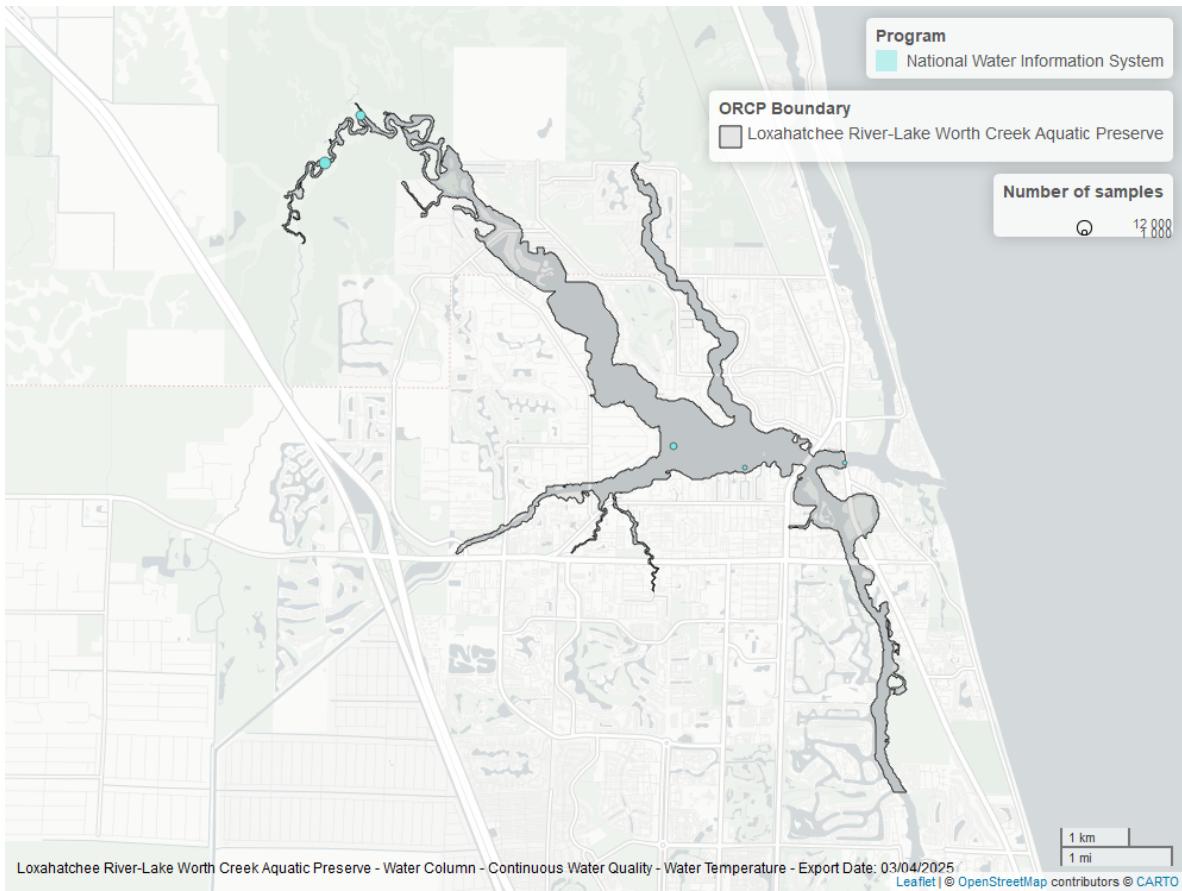


Figure 16: Map showing location of water temperature continuous water quality sampling locations within the boundaries of *Loxahatchee River-Lake Worth Creek Aquatic Preserve*. The bubble size on the maps above reflect the amount of data available at each sampling site.

pH - Discrete

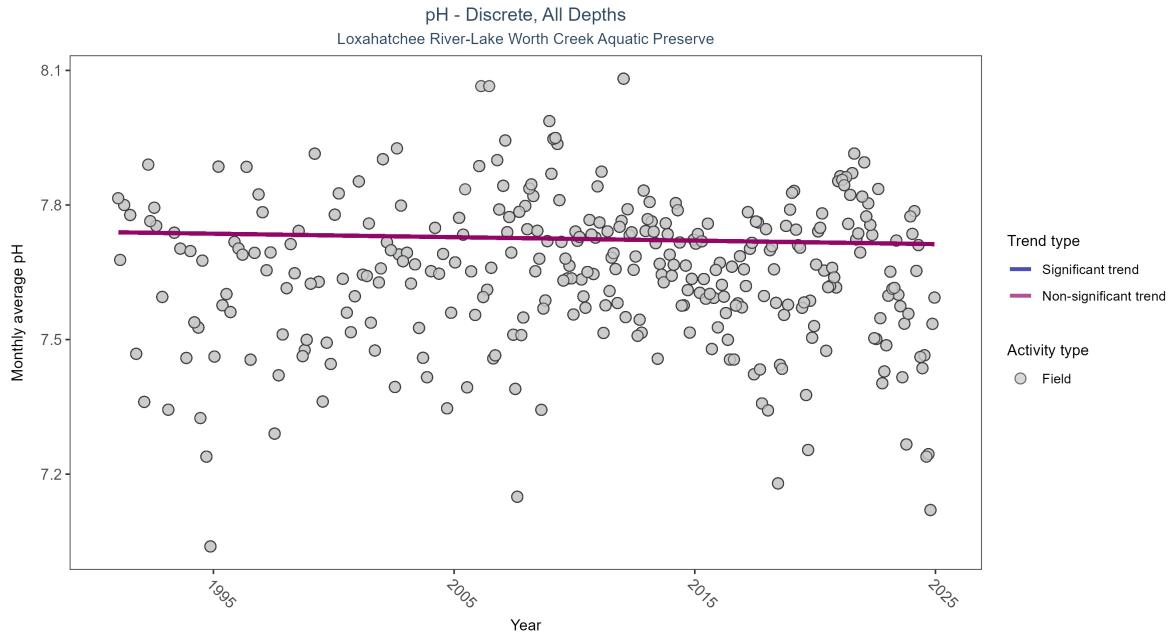


Figure 17: Scatter plot of monthly average pH over time. If the time series included ten or more years of discrete observations, a significant (blue) or non-significant (magenta) trend line is also shown. Only pH values measured in the field (circles) are included in the plot.

Table 9: Seasonal Kendall-Tau Results for - pH

Activity Type	Statistical Trend	Sample Count	Years with Data	Period of Record	Median Result Value	Tau	Sen Intercept	Sen Slope	P
Field	No significant trend	12991	34	1991 - 2024	7.7	-0.04881	7.7391	-0.00077	0.4742

pH showed no detectable trend between 1991 and 2024.

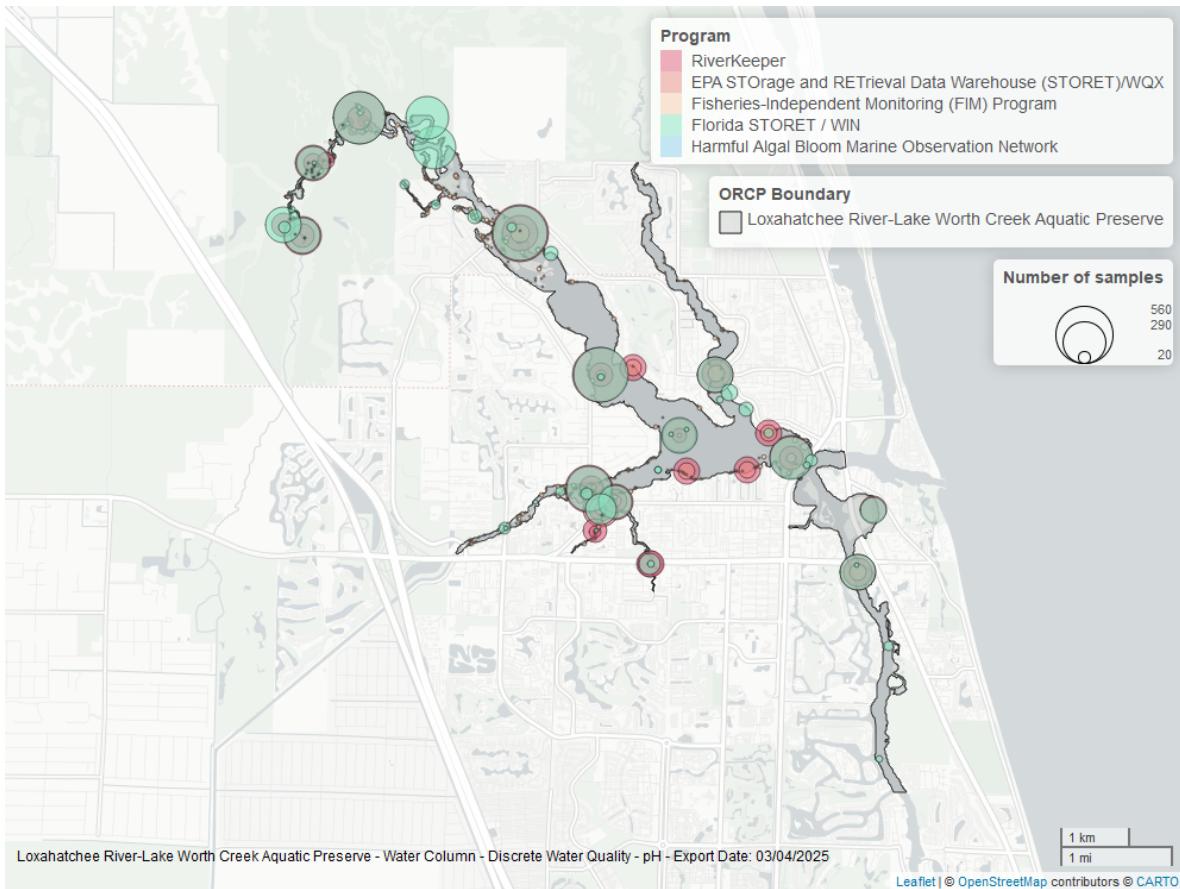


Figure 18: Map showing location of discrete water quality sampling locations within the boundaries of *Loxahatchee River-Lake Worth Creek Aquatic Preserve*. The bubble size on the maps above reflect the amount of data available at each sampling site.

Water Clarity

Turbidity - Discrete

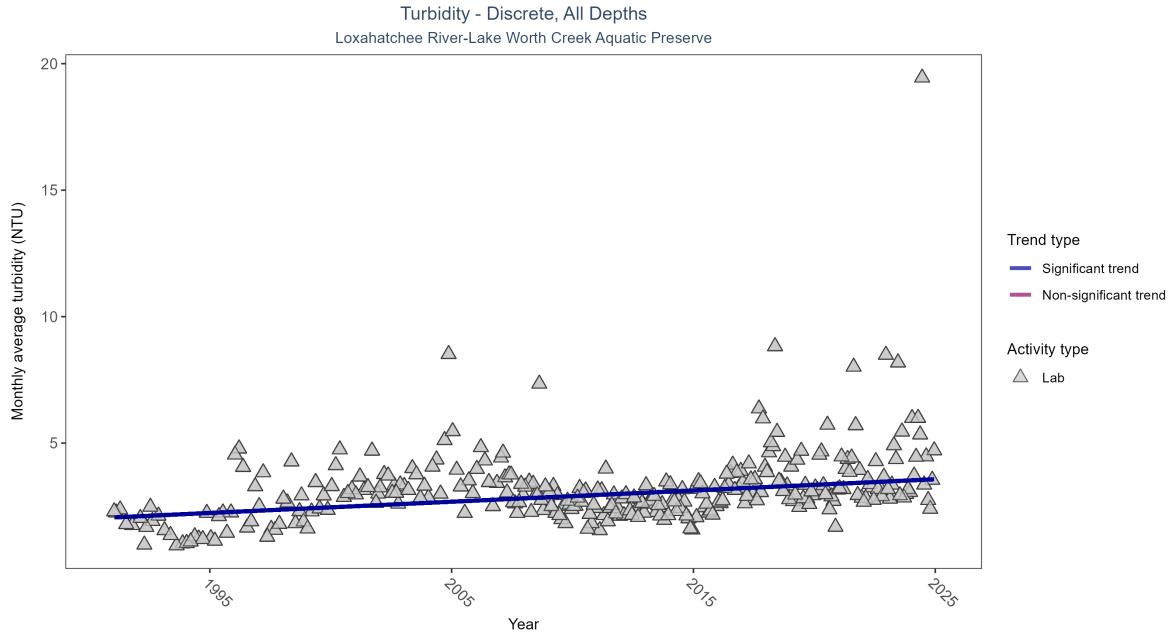


Figure 19: Scatter plot of monthly average turbidity over time. If the time series included ten or more years of discrete observations, a significant (blue) or non-significant (magenta) trend line is also shown. Only turbidity values measured in the laboratory (triangles) are included in the plot.

Table 10: Seasonal Kendall-Tau Results for - Turbidity

Activity Type	Statistical Trend	Sample Count	Years with Data	Period of Record	Median Result Value	Tau	Sen Intercept	Sen Slope	P
Lab	Significantly increasing trend	6506	34	1991 - 2024	2.7	0.32241	2.06118	0.04441	0

Monthly average turbidity increased by 0.04 NTU per year, indicating a decrease in water clarity.

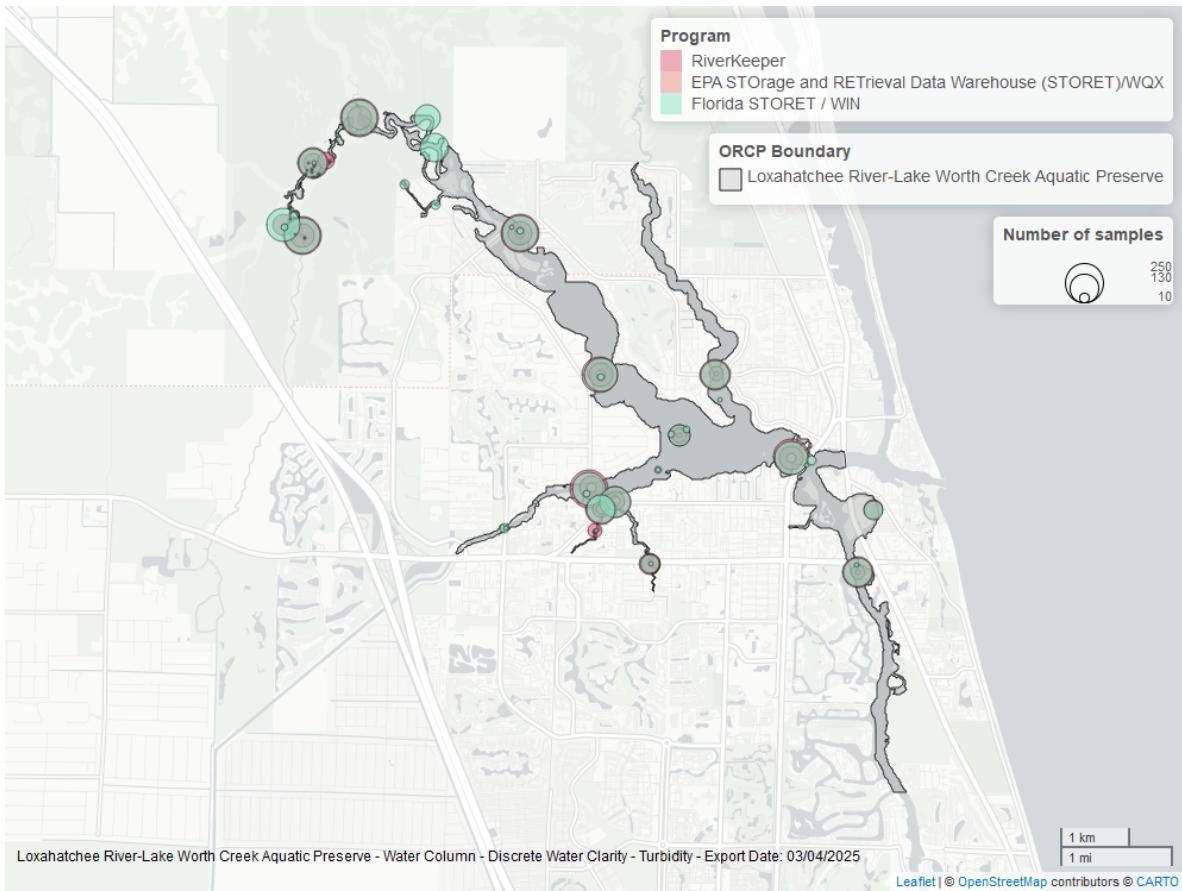


Figure 20: Map showing location of discrete water quality sampling locations within the boundaries of *Loxahatchee River-Lake Worth Creek Aquatic Preserve*. The bubble size on the maps above reflect the amount of data available at each sampling site.

Total Suspended Solids - Discrete

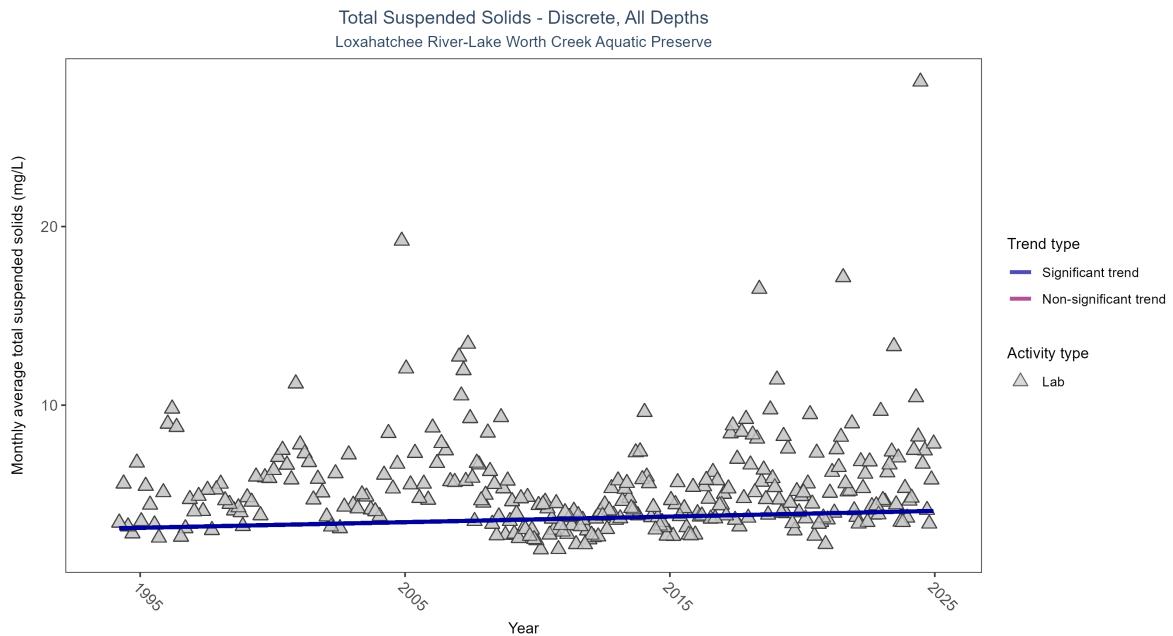


Figure 21: Scatter plot of monthly average total suspended solids (TSS) over time. If the time series included ten or more years of discrete observations, a significant (blue) or non-significant (magenta) trend line is also shown. Only TSS values obtained from laboratory analyses (triangles) are included in the plot.

Table 11: Seasonal Kendall-Tau Results for - Total Suspended Solids

Activity Type	Statistical Trend	Sample Count	Years with Data	Period of Record	Median Result Value	Tau	Sen Intercept	Sen Slope	P
Lab	Significantly increasing trend	6139	31	1994 - 2024	4	0.13352	3.10253	0.0315	0.0157

Monthly average total suspended solids increased by 0.03 mg/L per year, indicating a decrease in water clarity.

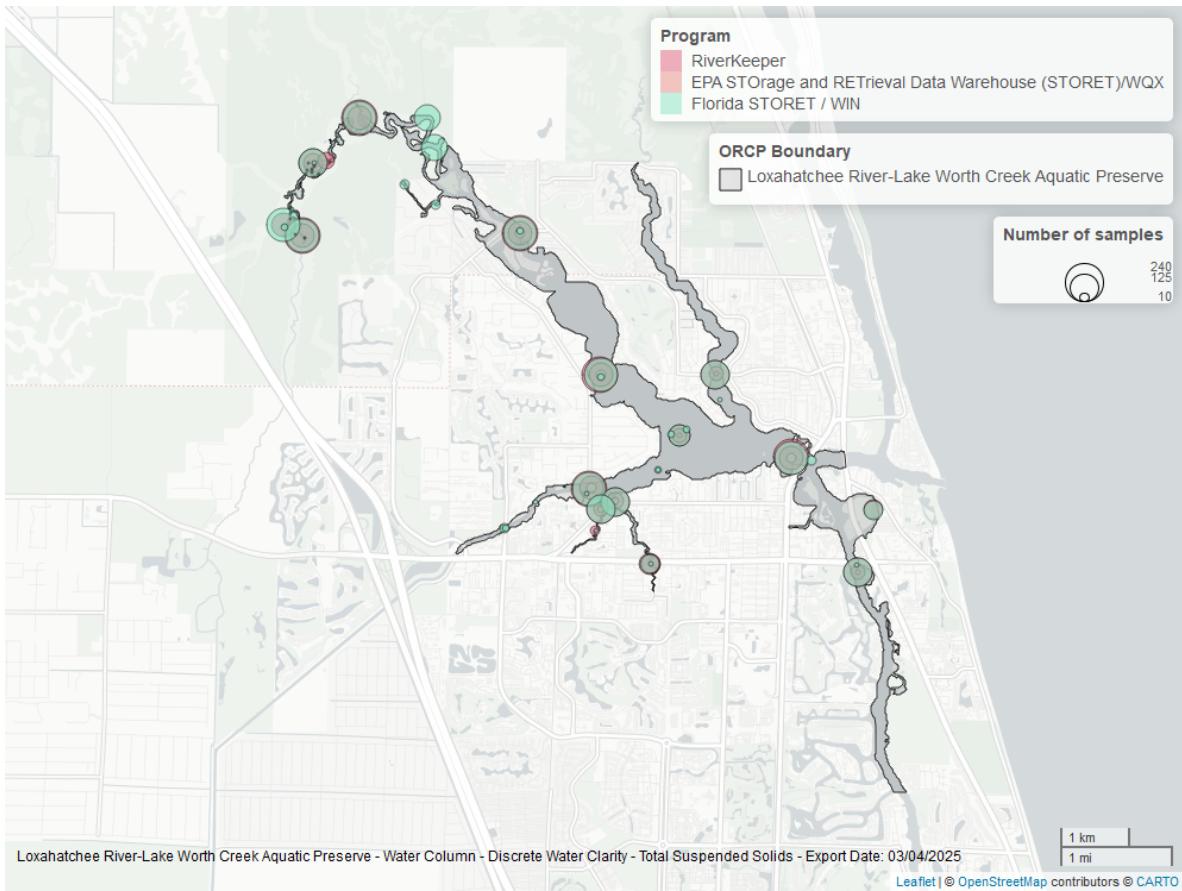


Figure 22: Map showing location of discrete water quality sampling locations within the boundaries of *Loxahatchee River-Lake Worth Creek Aquatic Preserve*. The bubble size on the maps above reflect the amount of data available at each sampling site.

Chlorophyll a, Uncorrected for Pheophytin - Discrete

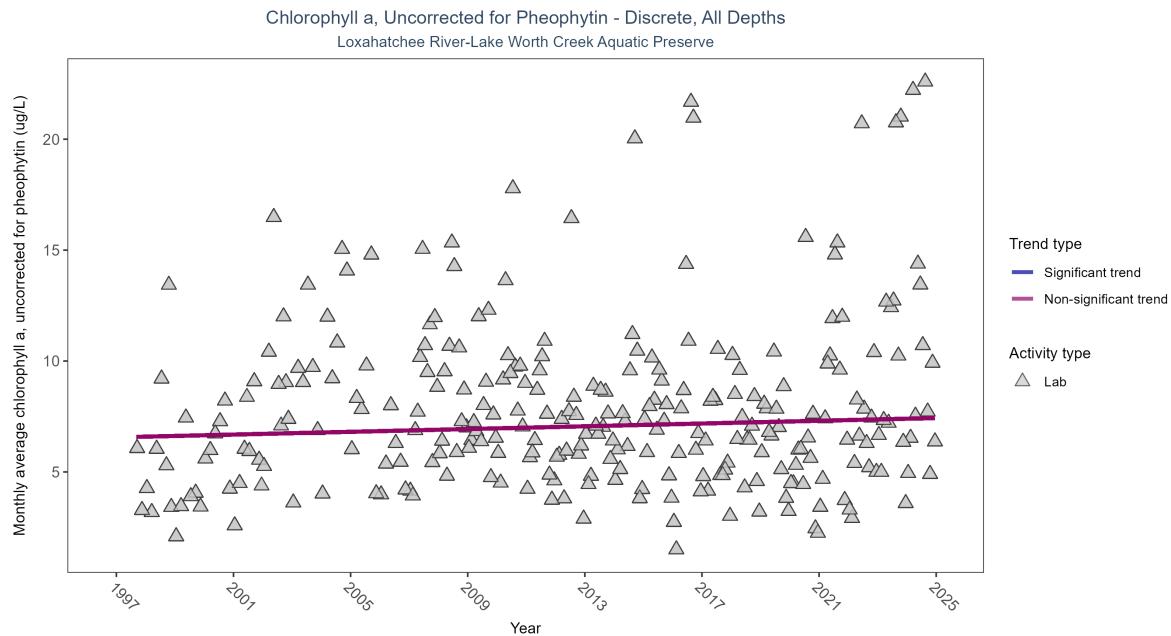


Figure 23: Scatter plot of monthly average levels of chlorophyll a, uncorrected for pheophytin, over time. If the time series included ten or more years of discrete observations, a significant (blue) or non-significant (magenta) trend line is also shown. Only laboratory-analyzed chlorophyll a (triangles) is included in the plot.

Table 12: Seasonal Kendall-Tau Results for - Chlorophyll a, Uncorrected for Pheophytin

Activity Type	Statistical Trend	Sample Count	Years with Data	Period of Record	Median Result Value	Tau	Sen Intercept	Sen Slope	P
Lab	No significant trend	6029	28	1997 - 2024	5.6	0.05936	6.55998	0.03112	0.1585

Chlorophyll a, uncorrected for pheophytin, showed no detectable trend between 1997 and 2024.

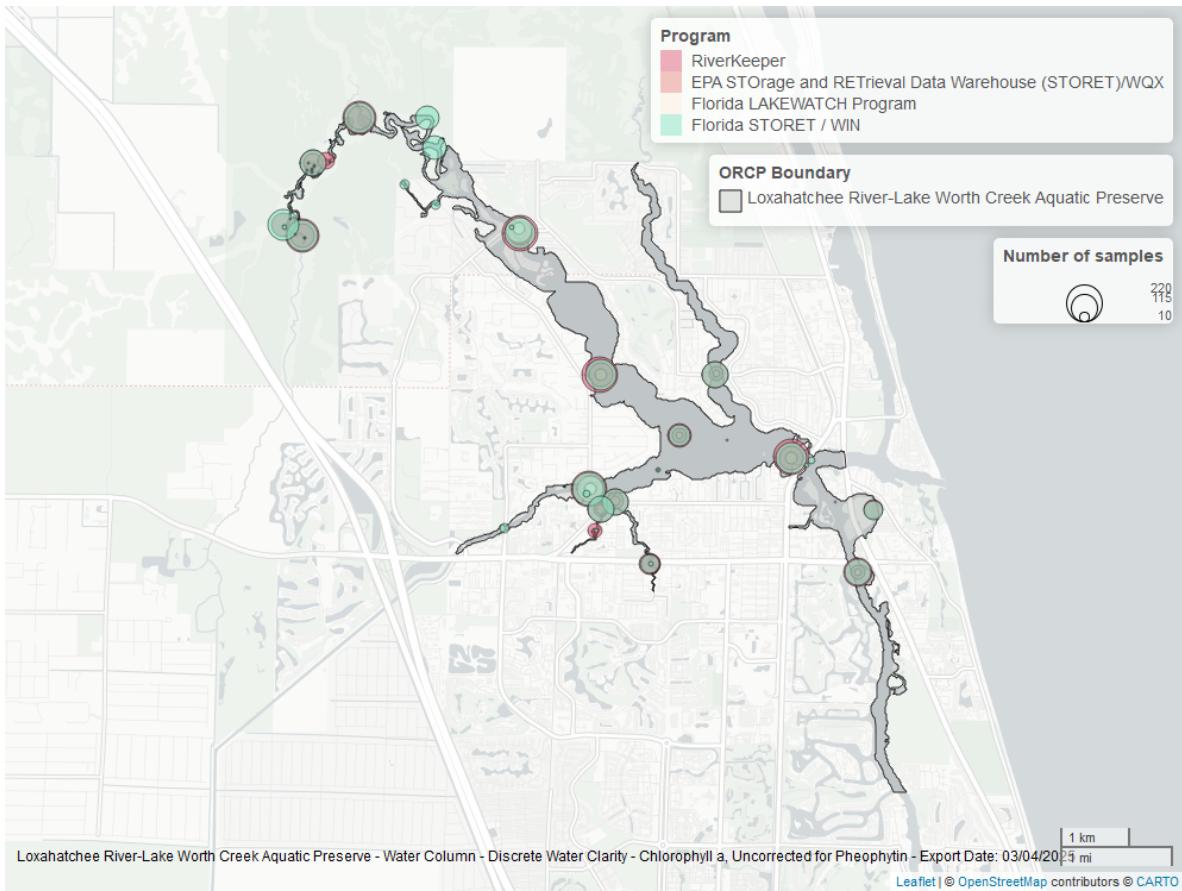


Figure 24: Map showing location of discrete water quality sampling locations within the boundaries of *Loxahatchee River-Lake Worth Creek Aquatic Preserve*. The bubble size on the maps above reflect the amount of data available at each sampling site.

Chlorophyll a, Corrected for Pheophytin - Discrete

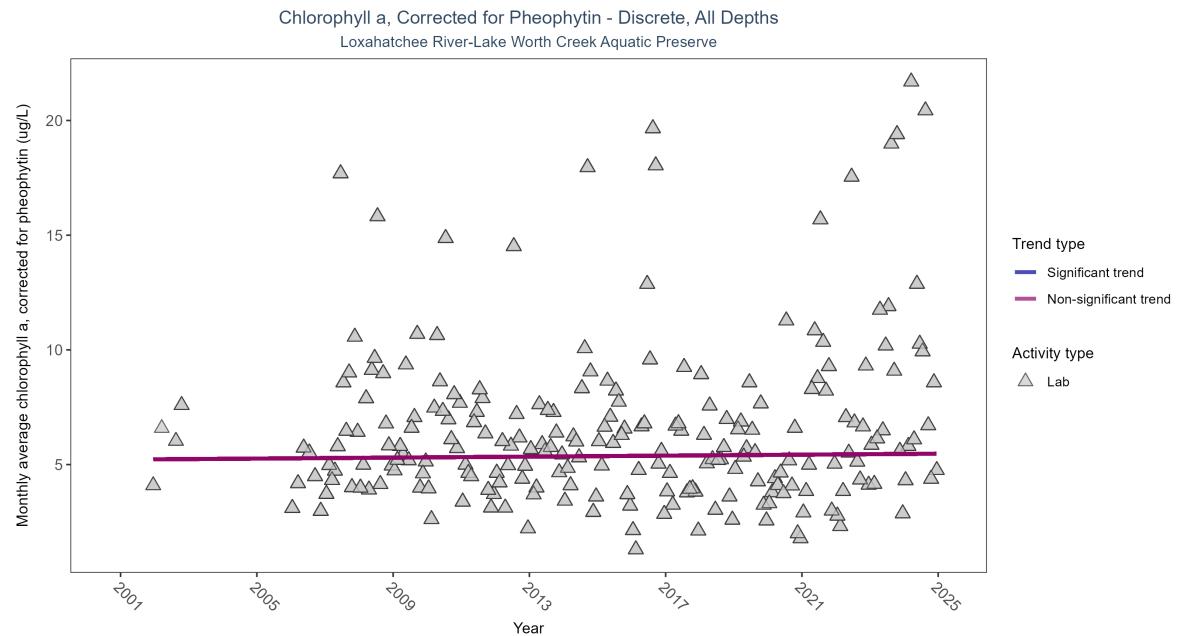


Figure 25: Scatter plot of monthly average levels of chlorophyll a, corrected for pheophytin, over time. If the time series included ten or more years of discrete observations, a significant (blue) or non-significant (magenta) trend line is also shown. Only laboratory-analyzed chlorophyll a (triangles) is included in the plot.

Table 13: Seasonal Kendall-Tau Results for - Chlorophyll a, Corrected for Pheophytin

Activity Type	Statistical Trend	Sample Count	Years with Data	Period of Record	Median Result Value	Tau	Sen Intercept	Sen Slope	P
Lab	No significant trend	4501	21	2001 - 2024	4.5	0.01637	5.2177	0.01069	0.7592

Chlorophyll a, corrected for pheophytin, showed no detectable trend between 2001 and 2024.

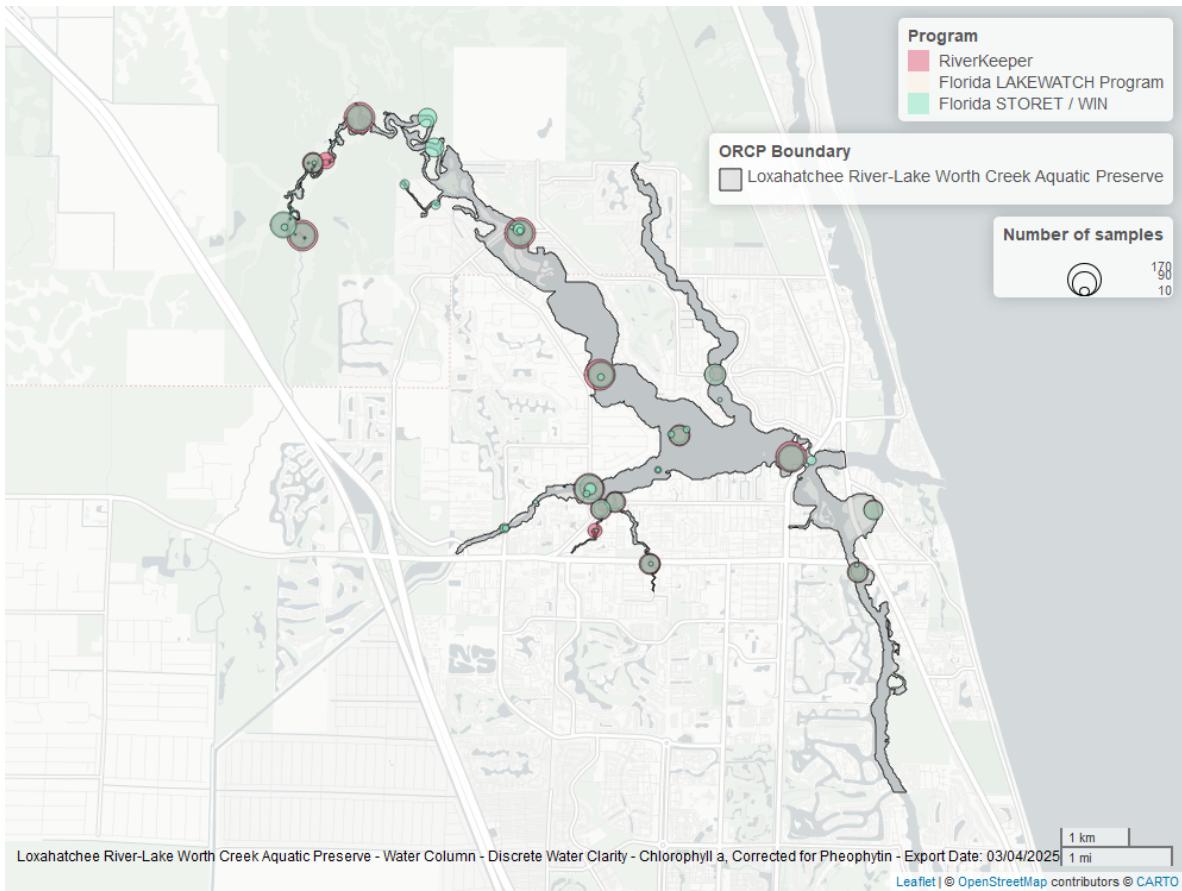


Figure 26: Map showing location of discrete water quality sampling locations within the boundaries of *Loxahatchee River-Lake Worth Creek Aquatic Preserve*. The bubble size on the maps above reflect the amount of data available at each sampling site.

Secchi Depth - Discrete

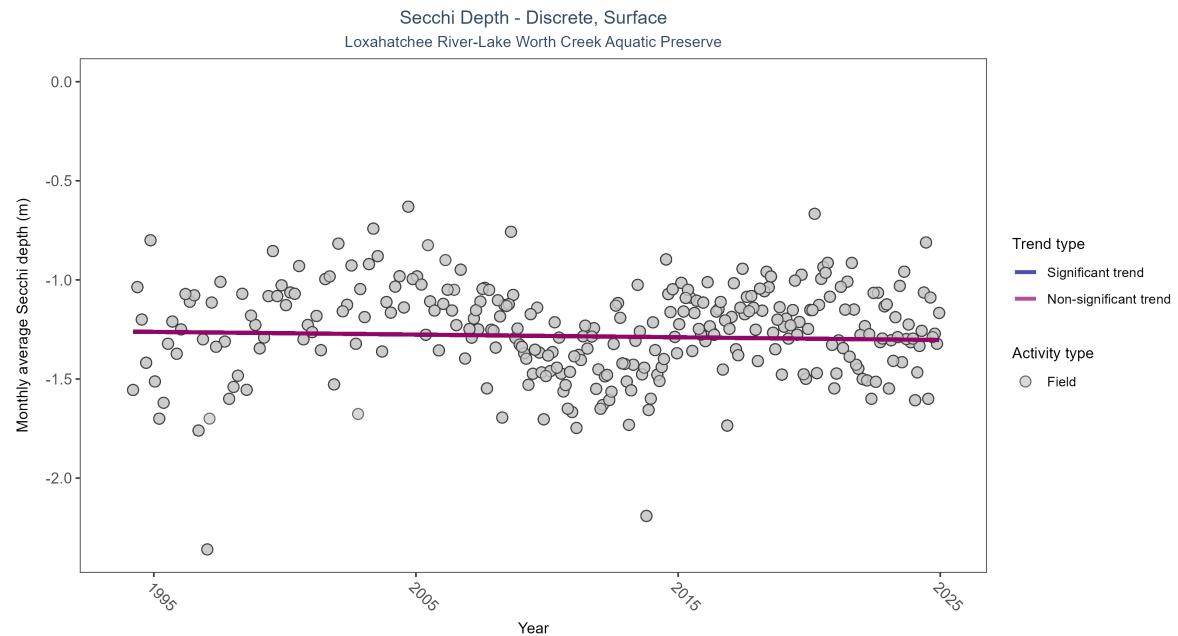


Figure 27: Scatter plot of monthly average Secchi depth over time. If the time series included ten or more years of discrete observations, a significant (blue) or non-significant (magenta) trend line is also shown. Secchi depth is only measured in the field (circles).

Table 14: Seasonal Kendall-Tau Results for - Secchi Depth

Activity Type	Statistical Trend	Sample Count	Years with Data	Period of Record	Median Result Value	Tau	Sen Intercept	Sen Slope	P
Field	No significant trend	4816	31	1994 - 2024	-1.2	0.00431	-1.26086	-0.00137	0.5048

Secchi depth showed no detectable trend between 1994 and 2024.

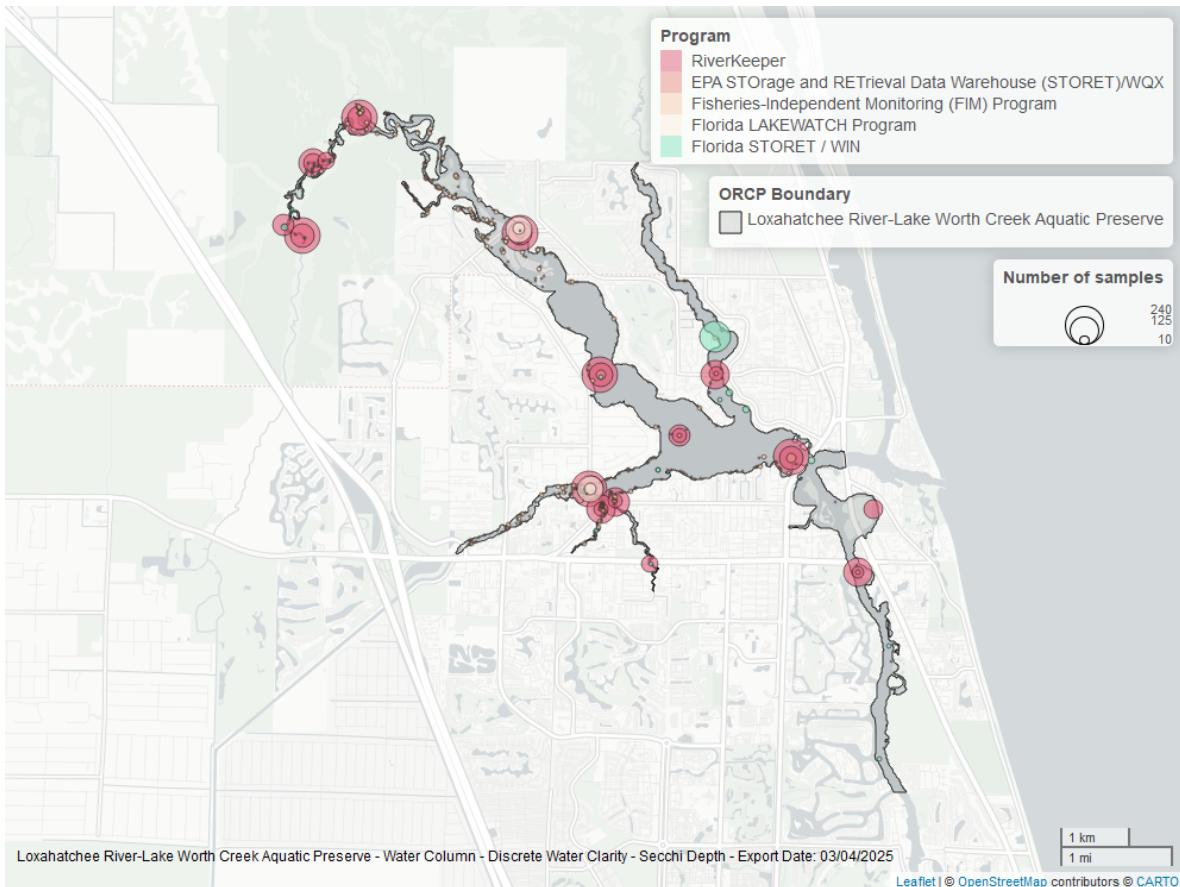


Figure 28: Map showing location of discrete water quality sampling locations within the boundaries of *Loxahatchee River-Lake Worth Creek Aquatic Preserve*. The bubble size on the maps above reflect the amount of data available at each sampling site.

Colored Dissolved Organic Matter - Discrete

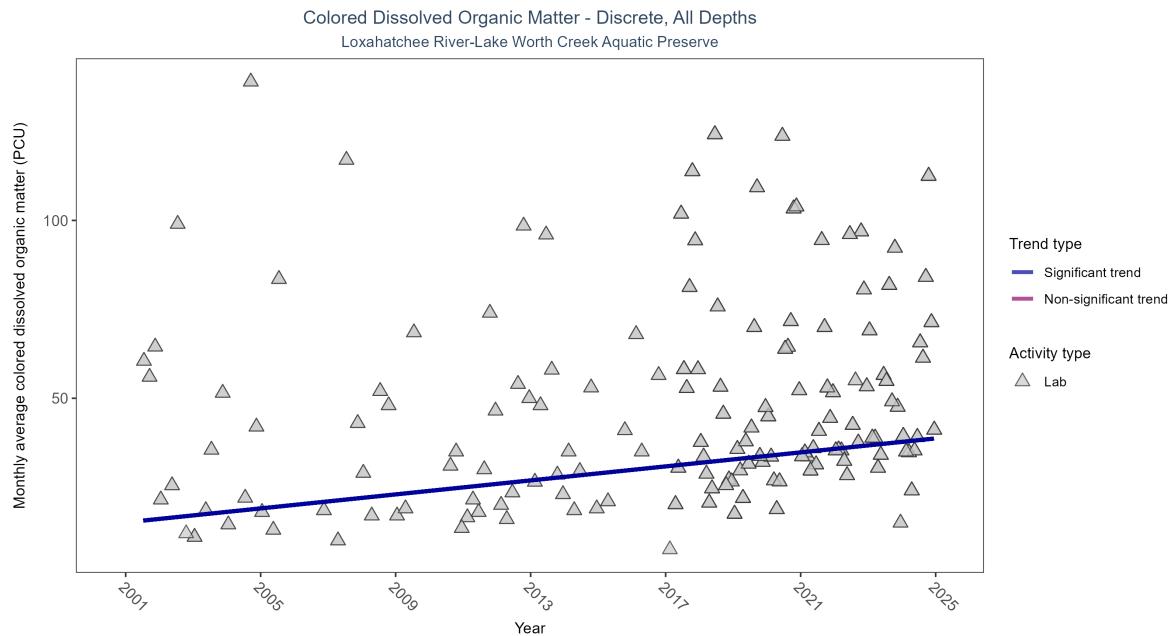


Figure 29: Scatter plot of monthly average colored dissolved organic matter (CDOM) over time. If the time series included ten or more years of discrete observations, a significant (blue) or non-significant (magenta) trend line is also shown. Only laboratory-analyzed CDOM (triangles) is included in the plot.

Table 15: Seasonal Kendall-Tau Results for - Colored Dissolved Organic Matter

Activity Type	Statistical Trend	Sample Count	Years with Data	Period of Record	Median Result Value	Tau	Sen Intercept	Sen Slope	P
Lab	Significantly increasing trend	1165	24	2001 - 2024	45	0.30526	15.10115	0.98413	0

Monthly average colored dissolved organic matter increased by 0.98 PCU per year, indicating a decrease in water clarity.

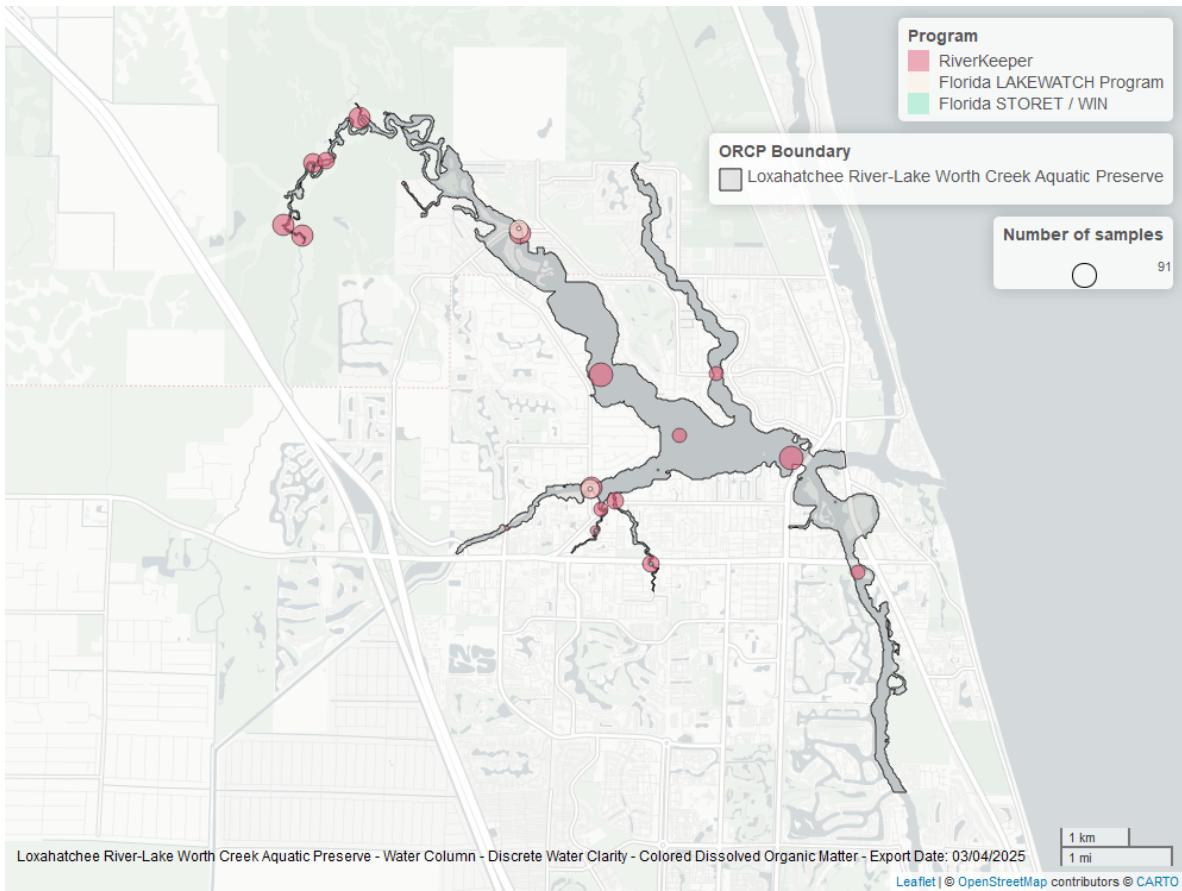


Figure 30: Map showing location of discrete water quality sampling locations within the boundaries of *Loxahatchee River-Lake Worth Creek Aquatic Preserve*. The bubble size on the maps above reflect the amount of data available at each sampling site.