

Mosquito Lagoon Aquatic Preserve

SEACAR Water Quality Analysis

Last compiled on 30 September, 2025

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Indicators

Nutrients

Total Nitrogen - Discrete

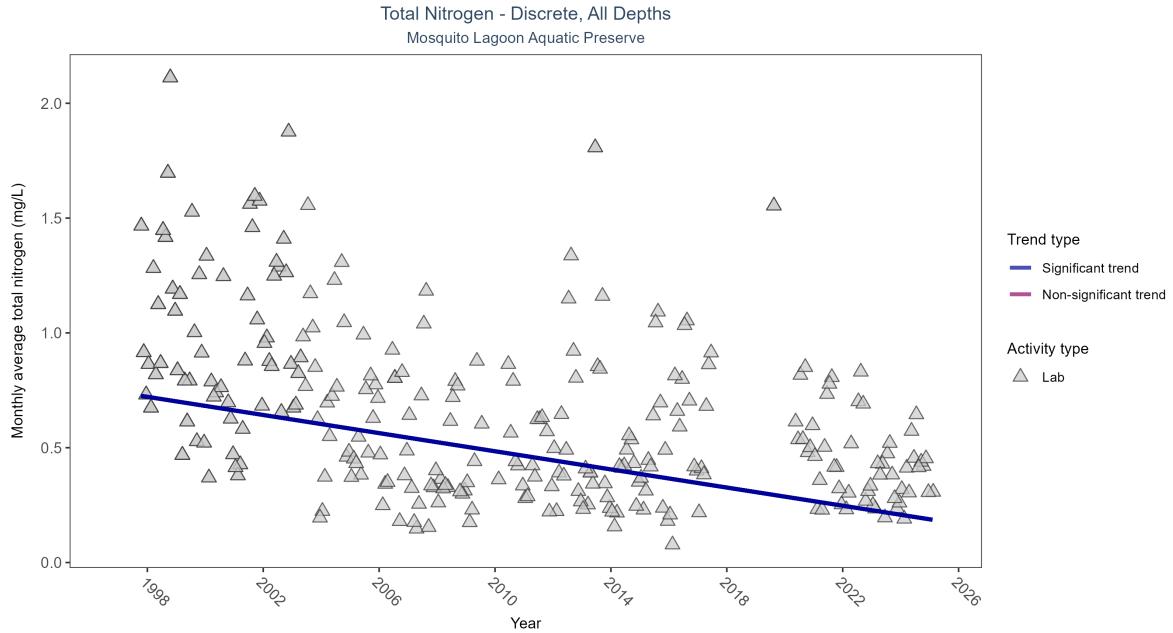


Figure 1: Scatter plot of monthly average total nitrogen over time. If the time series included ten or more years of discrete observations, a significant (blue) or non-significant (magenta) trend line is also shown. Only nitrogen values obtained from laboratory analyses (triangles) are included in the 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	382	28	1997 - 2025	0.69046	-0.41872	0.74129	-0.01975	0

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

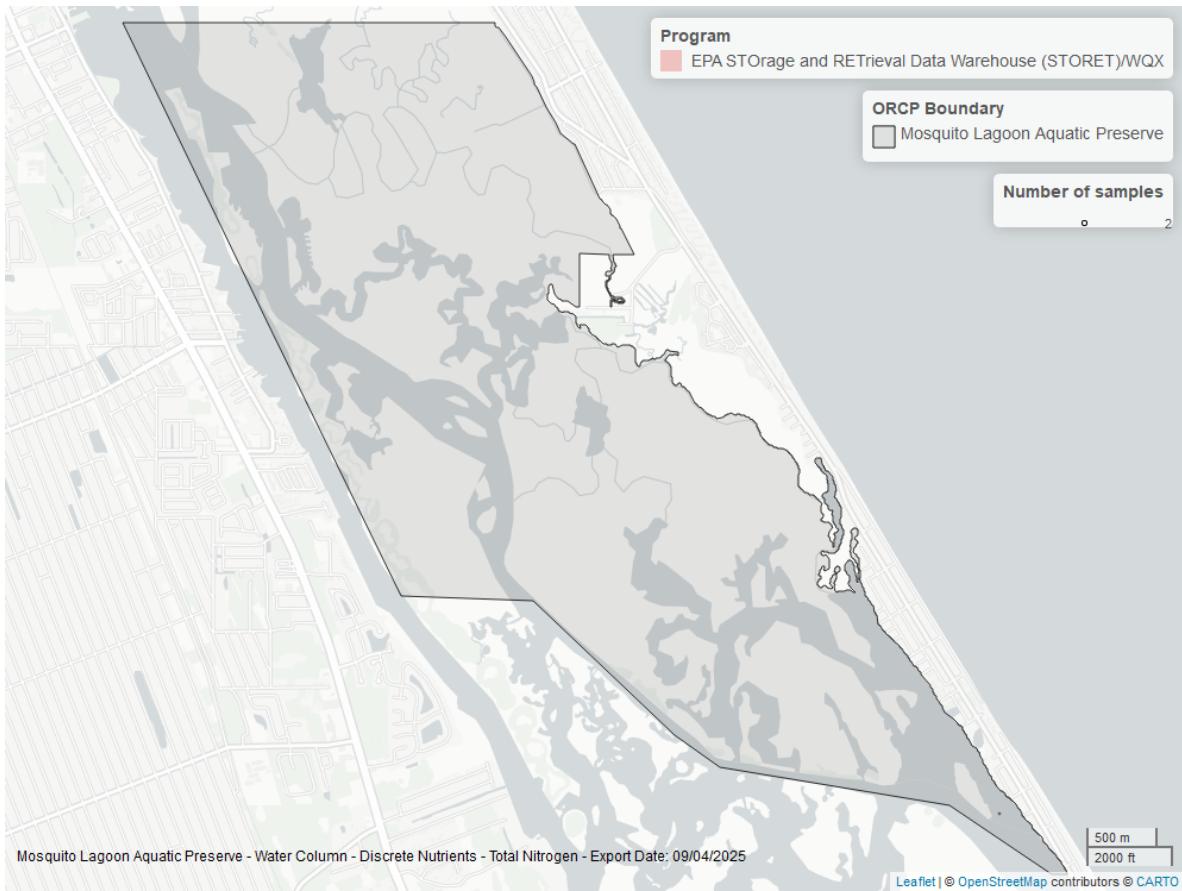


Figure 2: Map showing location of discrete water quality sampling locations within the boundaries of *Mosquito Lagoon Aquatic Preserve*. The bubble size on the maps above reflect the amount of data available at each sampling site.

Total Phosphorus - Discrete

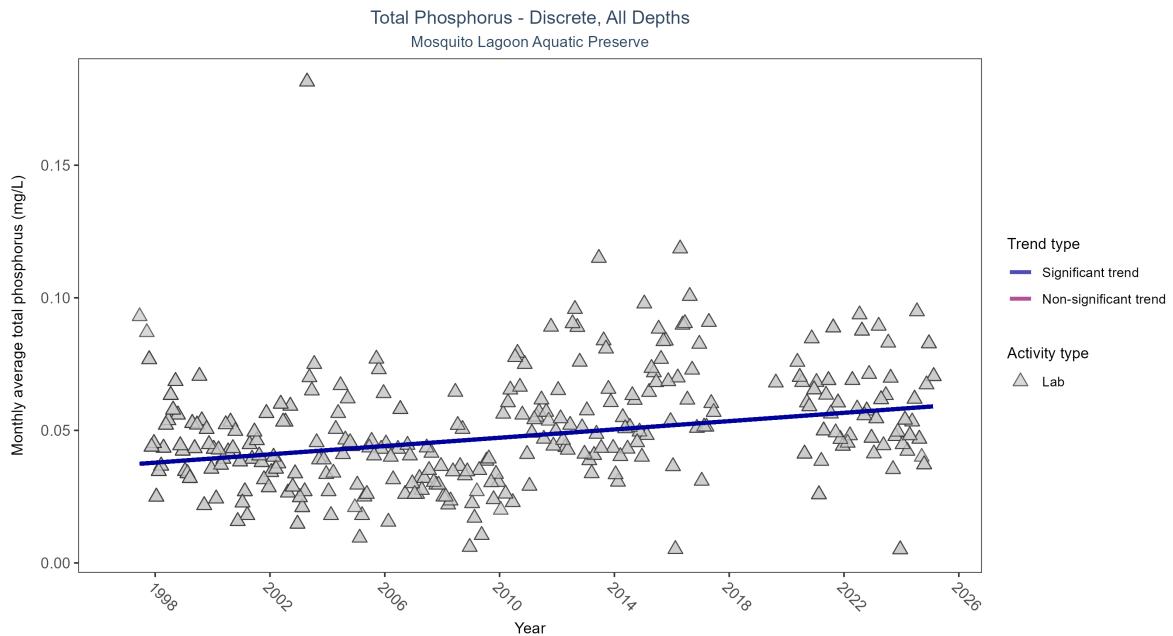


Figure 3: Scatter plot of monthly average total phosphorus over time. If the time series included ten or more years of discrete observations, a significant (blue) or non-significant (magenta) trend line is also shown. Only phosphorus values obtained from laboratory analyses (triangles) are included in 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	Significantly increasing trend	844	28	1997 - 2025		0.042	0.25336	0.03705	0.00078

Monthly average total phosphorus increased by less than 0.01 mg/L per year.

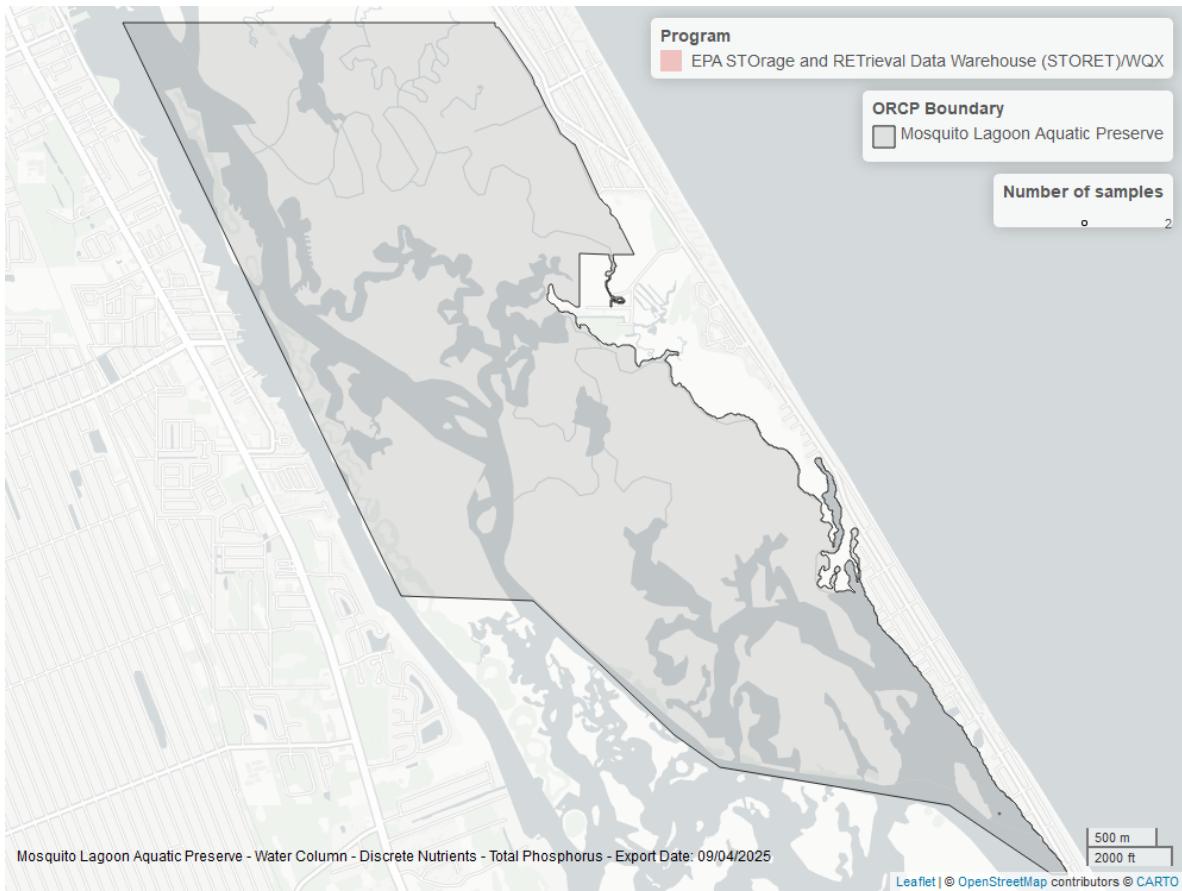


Figure 4: Map showing location of discrete water quality sampling locations within the boundaries of *Mosquito Lagoon Aquatic Preserve*. The bubble size on the maps above reflect the amount of data available at each sampling site.

Water Quality

Dissolved Oxygen - Discrete

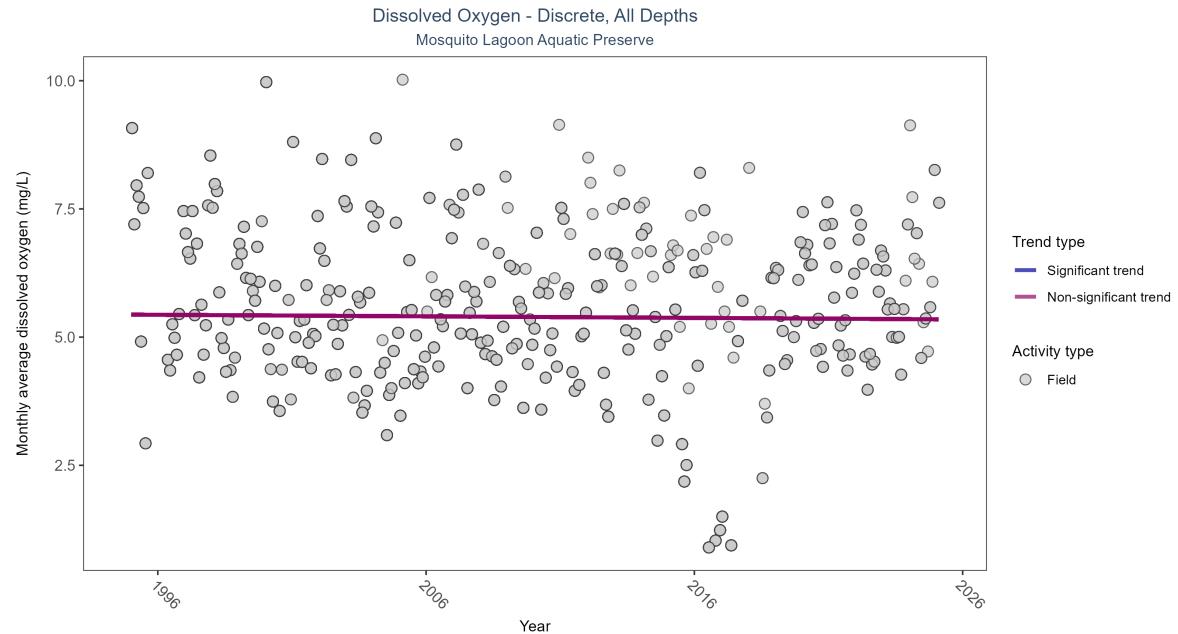


Figure 5: Scatter plot of monthly average dissolved oxygen over time. If the time series included ten or more years of discrete observations, a significant (blue) or non-significant (magenta) trend line is also shown. Only dissolved oxygen values measured in the field (circles) are included in the plot.

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	No significant trend	4796	31	1995 - 2025	5.4	-0.01445	5.43825	-0.00302	0.6981

Dissolved oxygen showed no detectable trend between 1995 and 2025.

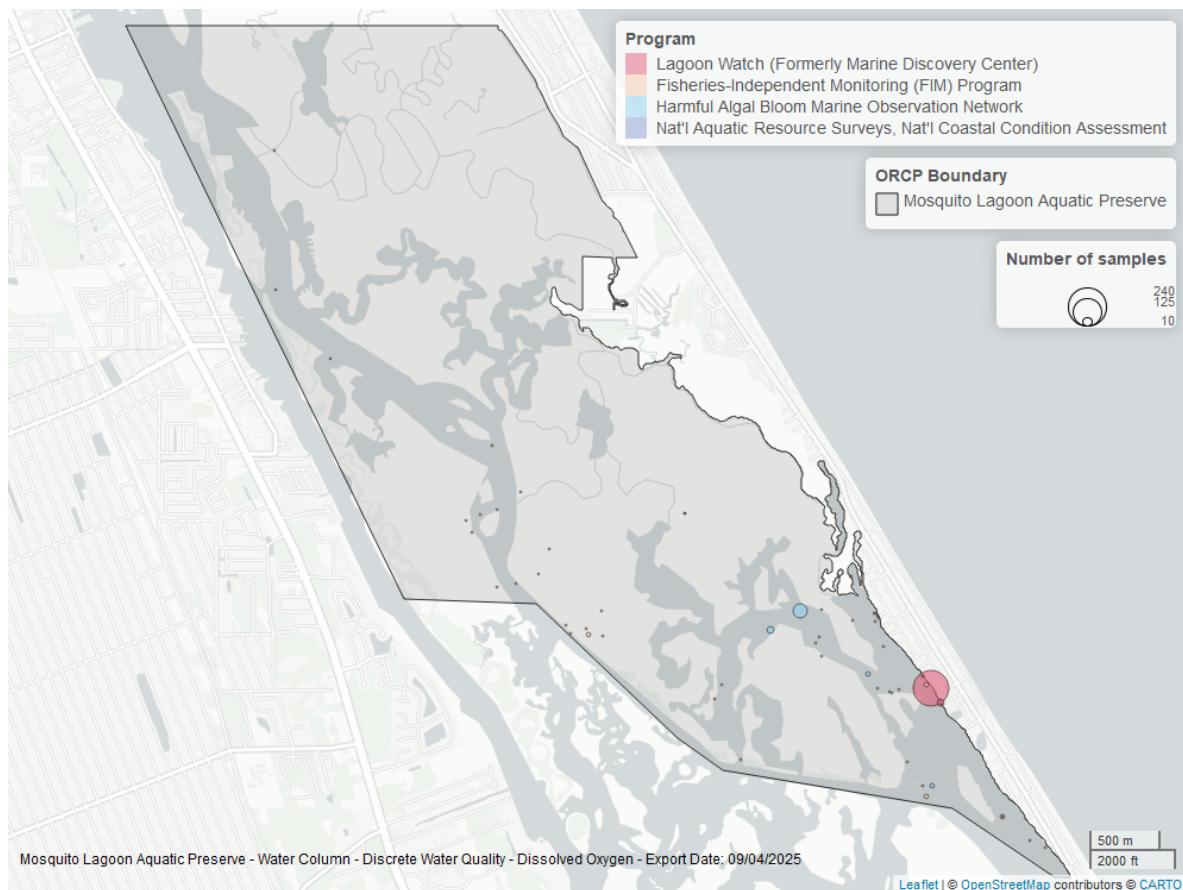


Figure 6: Map showing location of discrete water quality sampling locations within the boundaries of *Mosquito Lagoon Aquatic Preserve*. The bubble size on the maps above reflect the amount of data available at each sampling site.

Dissolved Oxygen Saturation - Discrete

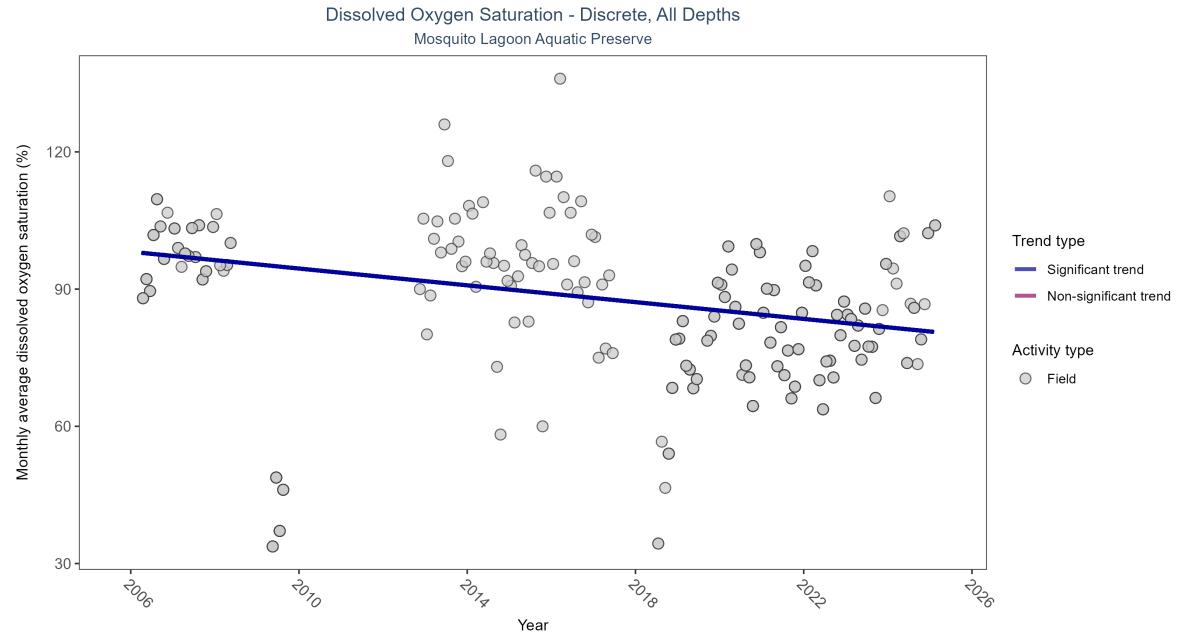


Figure 7: Scatter plot of monthly average dissolved oxygen saturation over time. If the time series included ten or more years of discrete observations, a significant (blue) or non-significant (magenta) trend line is also shown. Only dissolved oxygen saturation values measured in the field (circles) 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	491	18	2006 - 2025	85.9	-0.22901	98.16668	-0.91786	2e-04

Monthly average dissolved oxygen saturation decreased by 0.92% per year.

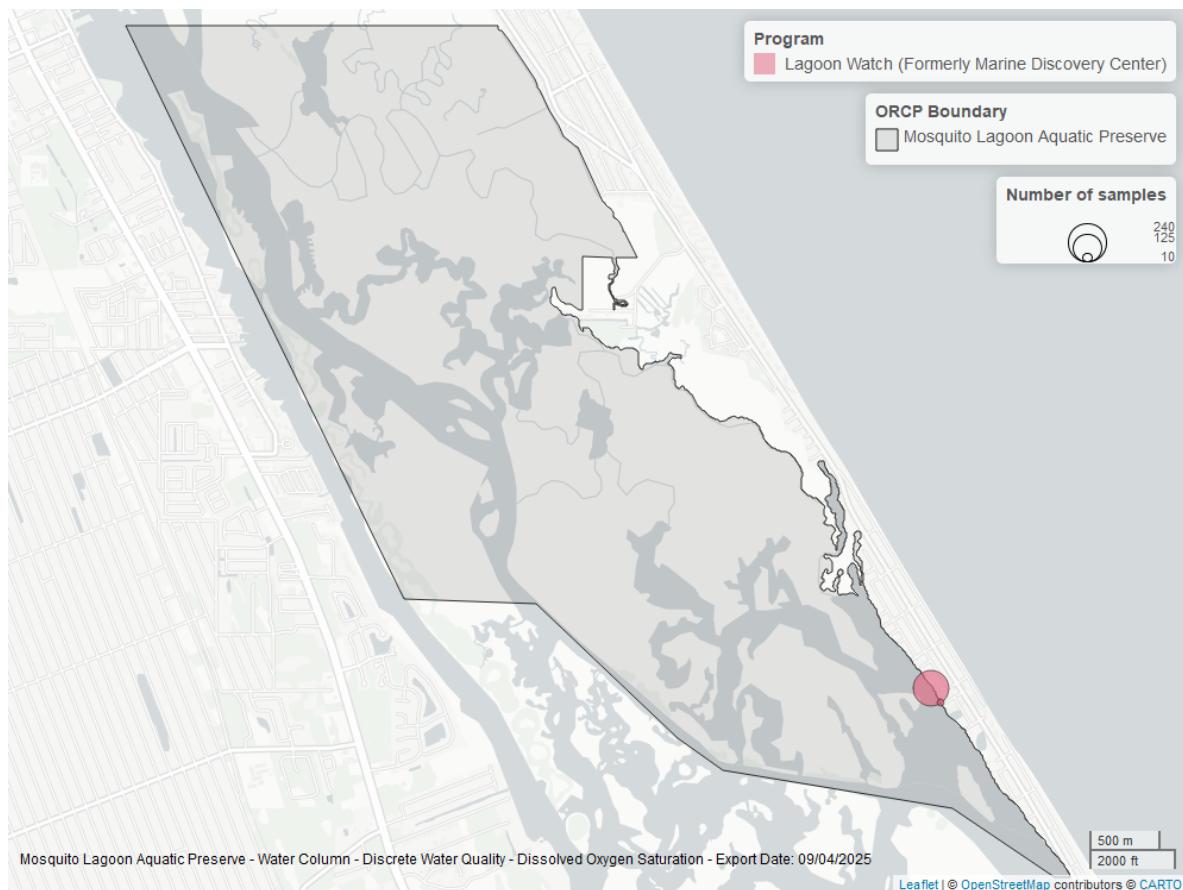


Figure 8: Map showing location of discrete water quality sampling locations within the boundaries of *Mosquito Lagoon Aquatic Preserve*. The bubble size on the maps above reflect the amount of data available at each sampling site.

Salinity - Discrete

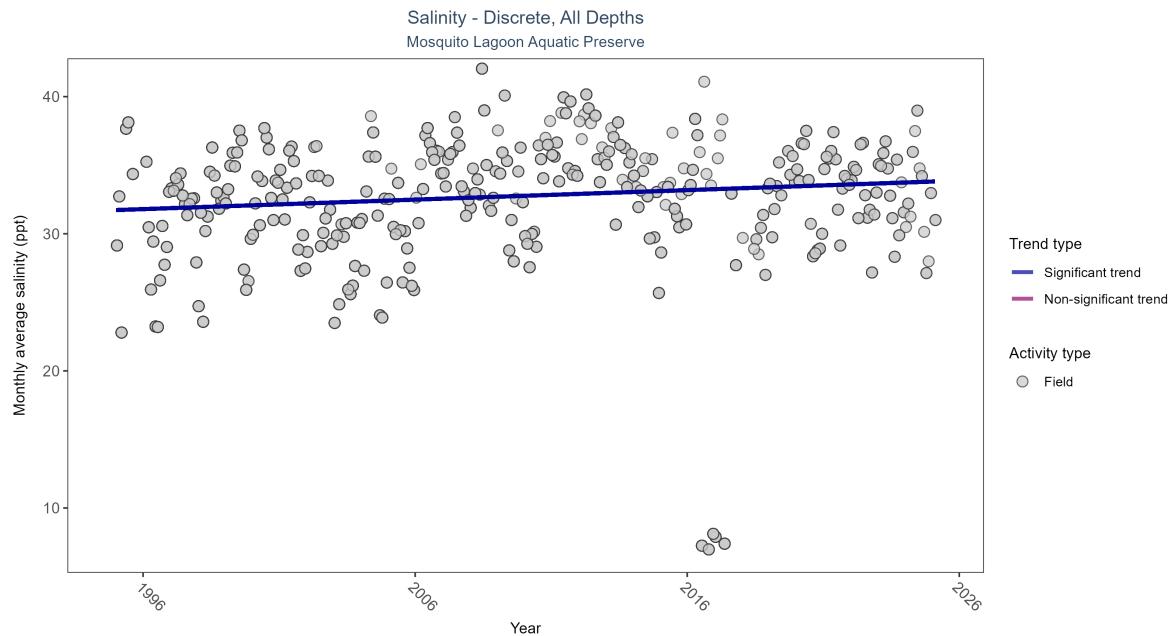


Figure 9: Scatter plot of monthly average salinity over time. If the time series included ten or more years of discrete observations, significant (blue) or non-significant (magenta) trend lines are also shown. Discrete salinity values derived from grab samples analyzed in the field (circles) or the laboratory (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	Significantly increasing trend	5254	31	1995 - 2025	32.5	0.11881	31.728	0.06926	0.0018

Monthly average salinity increased by 0.07 ppt per year.

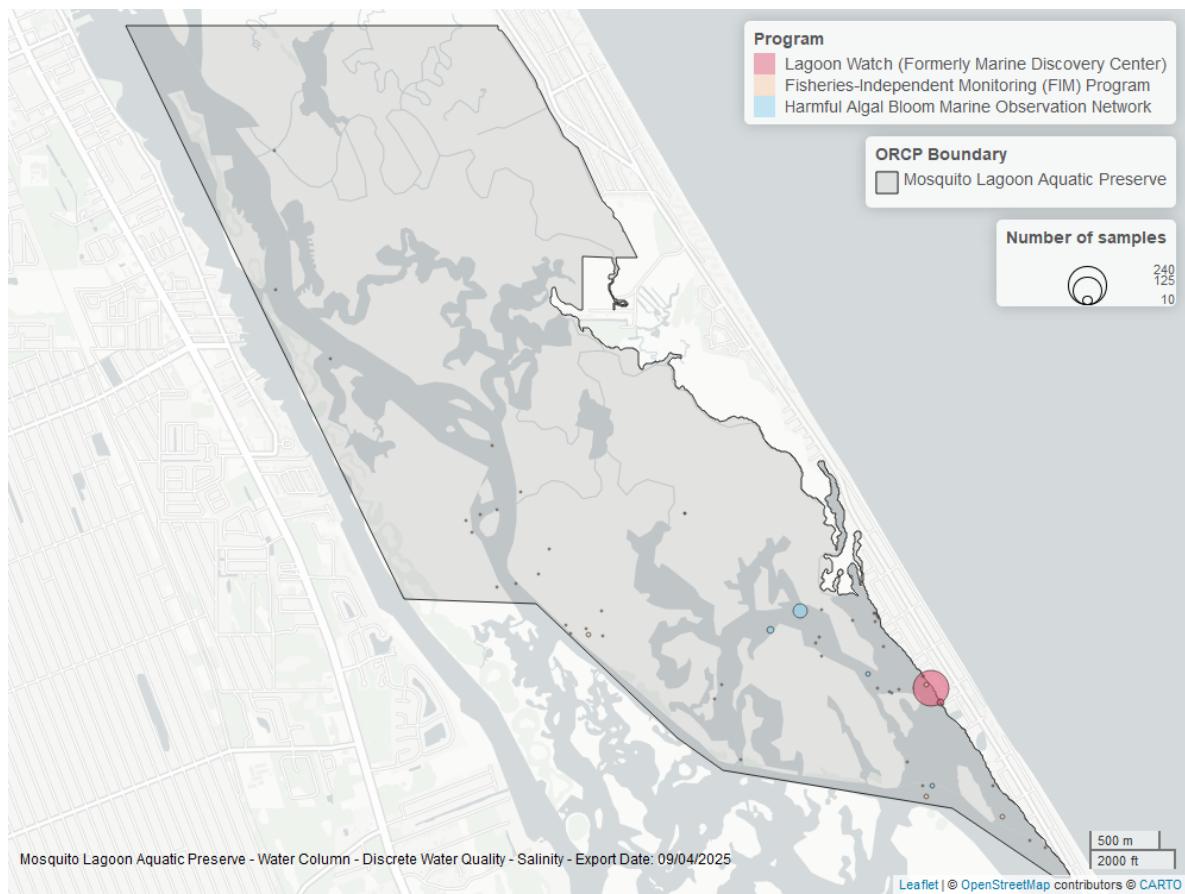


Figure 10: Map showing location of discrete water quality sampling locations within the boundaries of *Mosquito Lagoon Aquatic Preserve*. The bubble size on the maps above reflect the amount of data available at each sampling site.

Water Temperature - Discrete

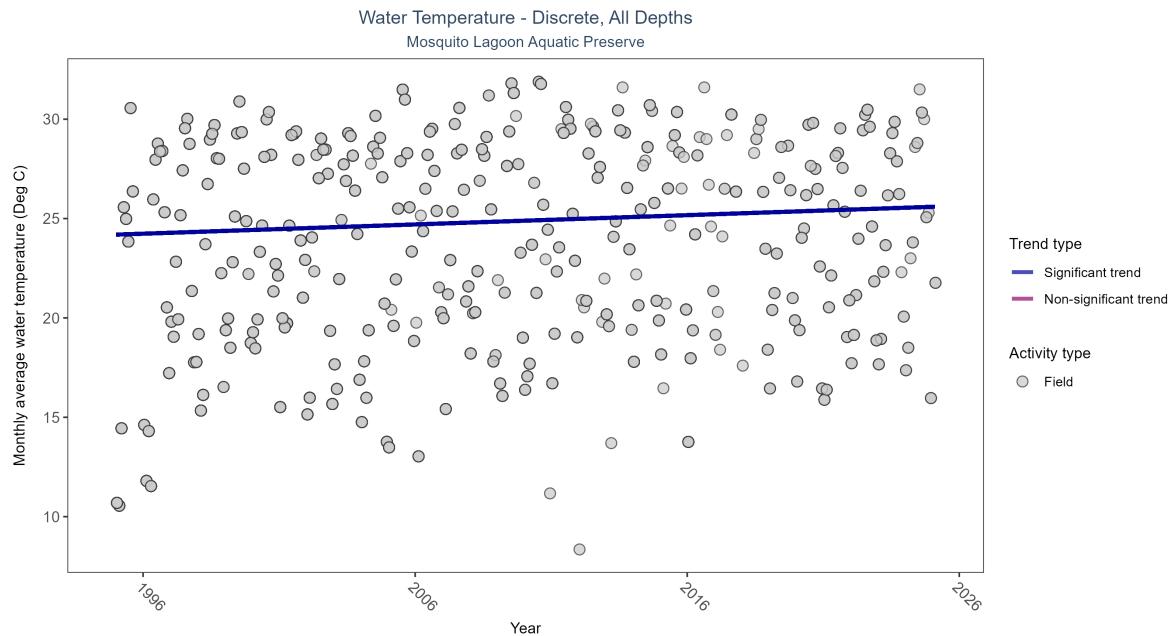


Figure 11: Scatter plot of monthly average water temperature over time. If the time series included ten or more years of discrete observations, a significant (blue) or non-significant (magenta) trend line is also shown. Only water temperature measurements taken in the field (circles) are included in the plot.

Table 6: 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	5343	31	1995 - 2025	25	0.15881	24.19074	0.04667	0

Monthly average water temperature increased by 0.05°C per year.

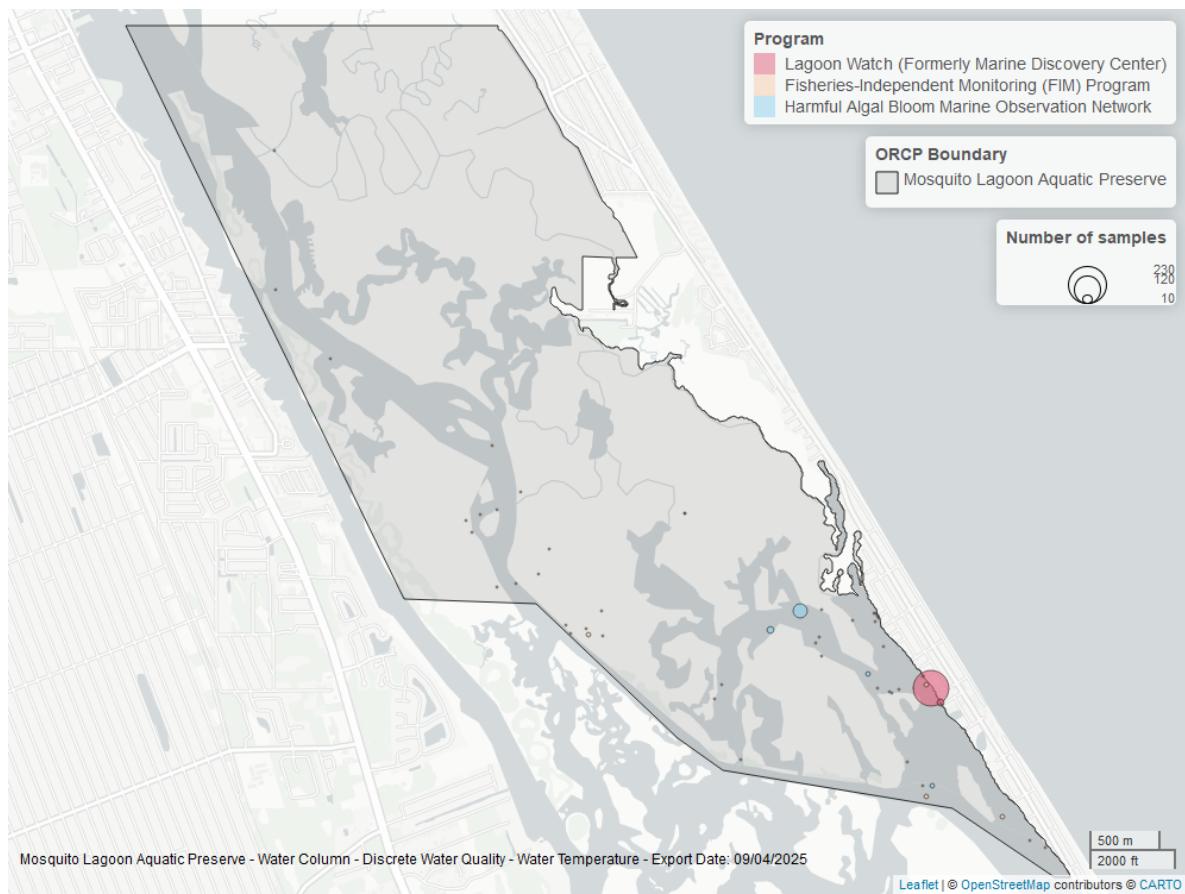


Figure 12: Map showing location of discrete water quality sampling locations within the boundaries of *Mosquito Lagoon Aquatic Preserve*. The bubble size on the maps above reflect the amount of data available at each sampling site.

pH - Discrete

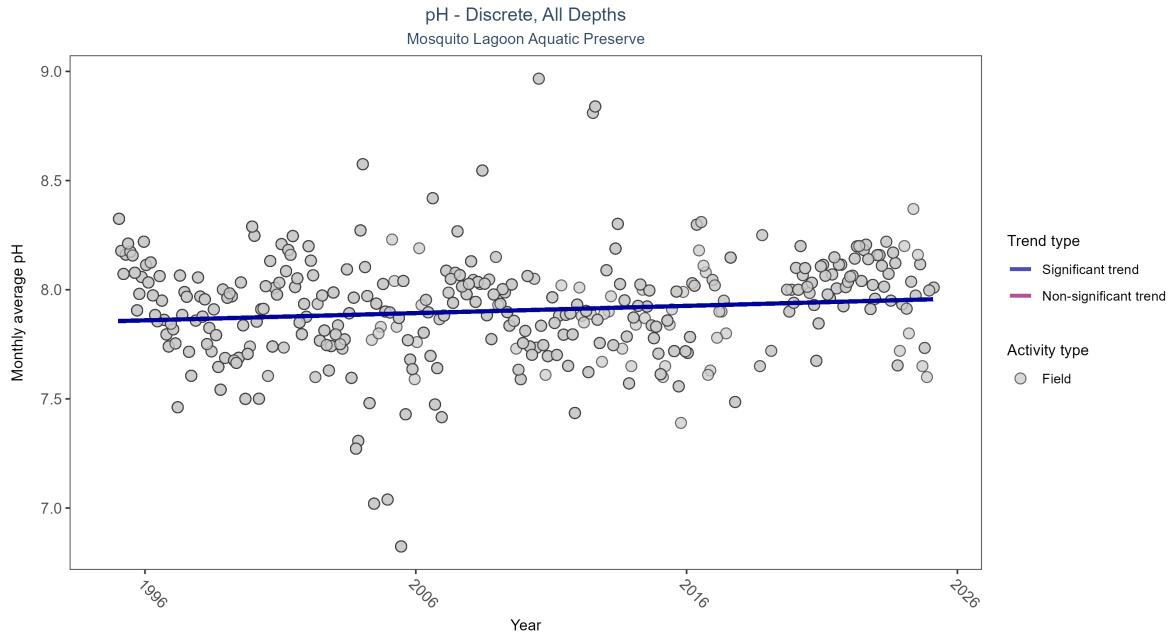


Figure 13: Scatter plot of monthly average pH over time. If the time series included ten or more years of discrete observations, a significant (blue) or non-significant (magenta) trend line is also shown. Only pH values measured in the field (circles) are included in the plot.

Table 7: 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	Significantly increasing trend	3711	31	1995 - 2025	7.9	0.09797	7.8564	0.00332	0.0116

Monthly average pH increased by less than 0.01 pH units per year.

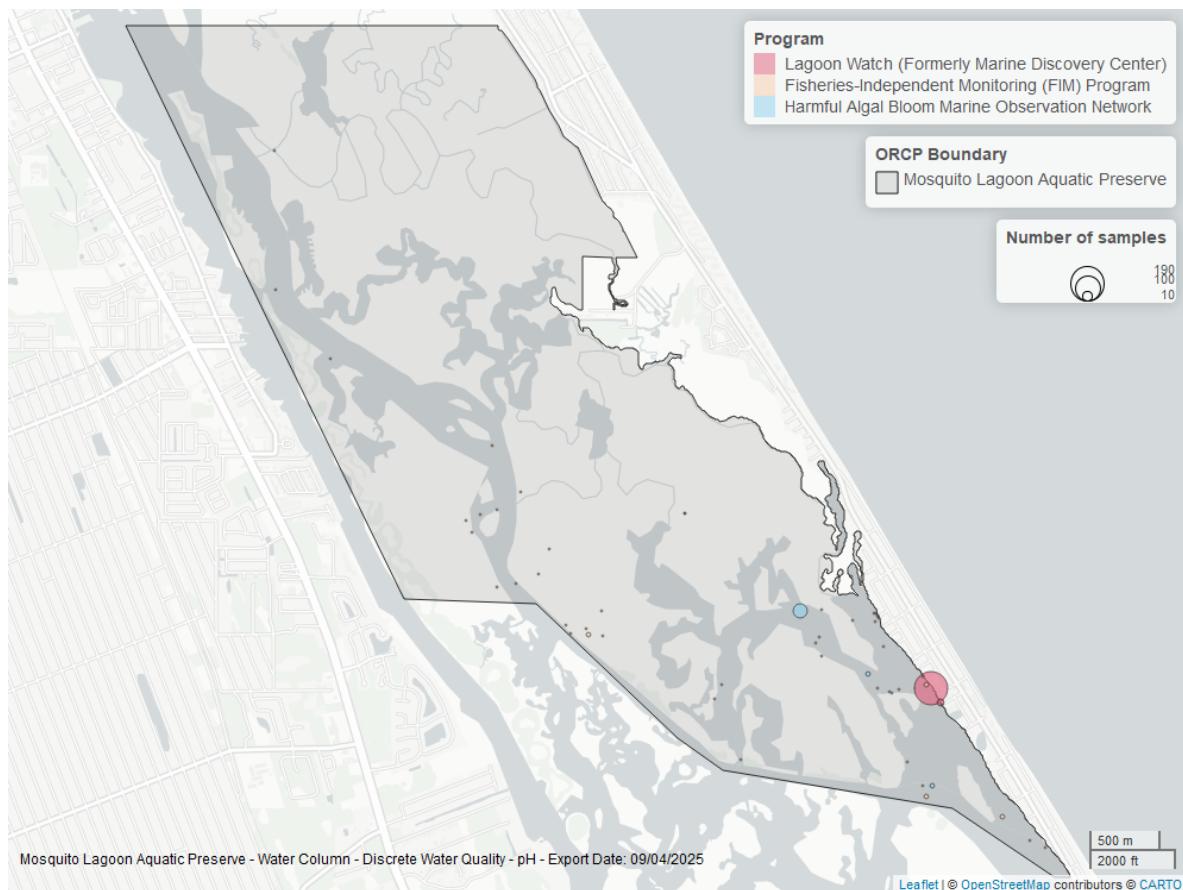


Figure 14: Map showing location of discrete water quality sampling locations within the boundaries of *Mosquito Lagoon Aquatic Preserve*. The bubble size on the maps above reflect the amount of data available at each sampling site.

Water Clarity

Turbidity - Discrete

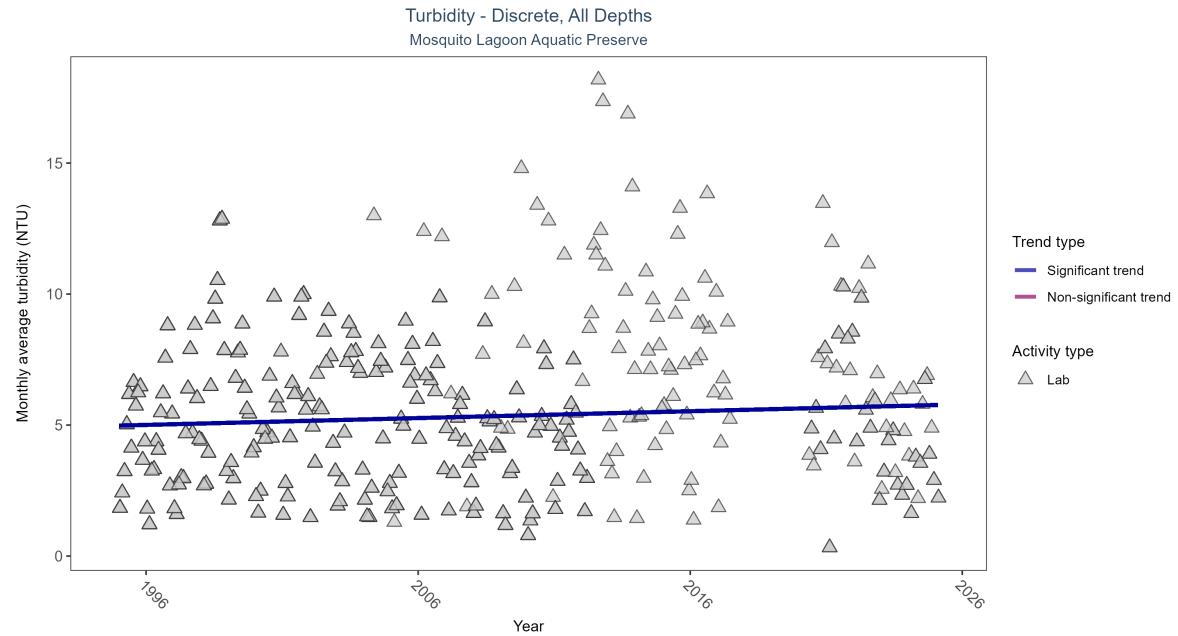


Figure 15: Scatter plot of monthly average turbidity over time. If the time series included ten or more years of discrete observations, a significant (blue) or non-significant (magenta) trend line is also shown. Only turbidity values measured in the laboratory (triangles) are included in the plot.

Table 8: 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	3505	29	1995 - 2025	4.6	0.07905	4.97899	0.02614	0.0436

Monthly average turbidity increased by 0.03 NTU per year, indicating a decrease in water clarity.

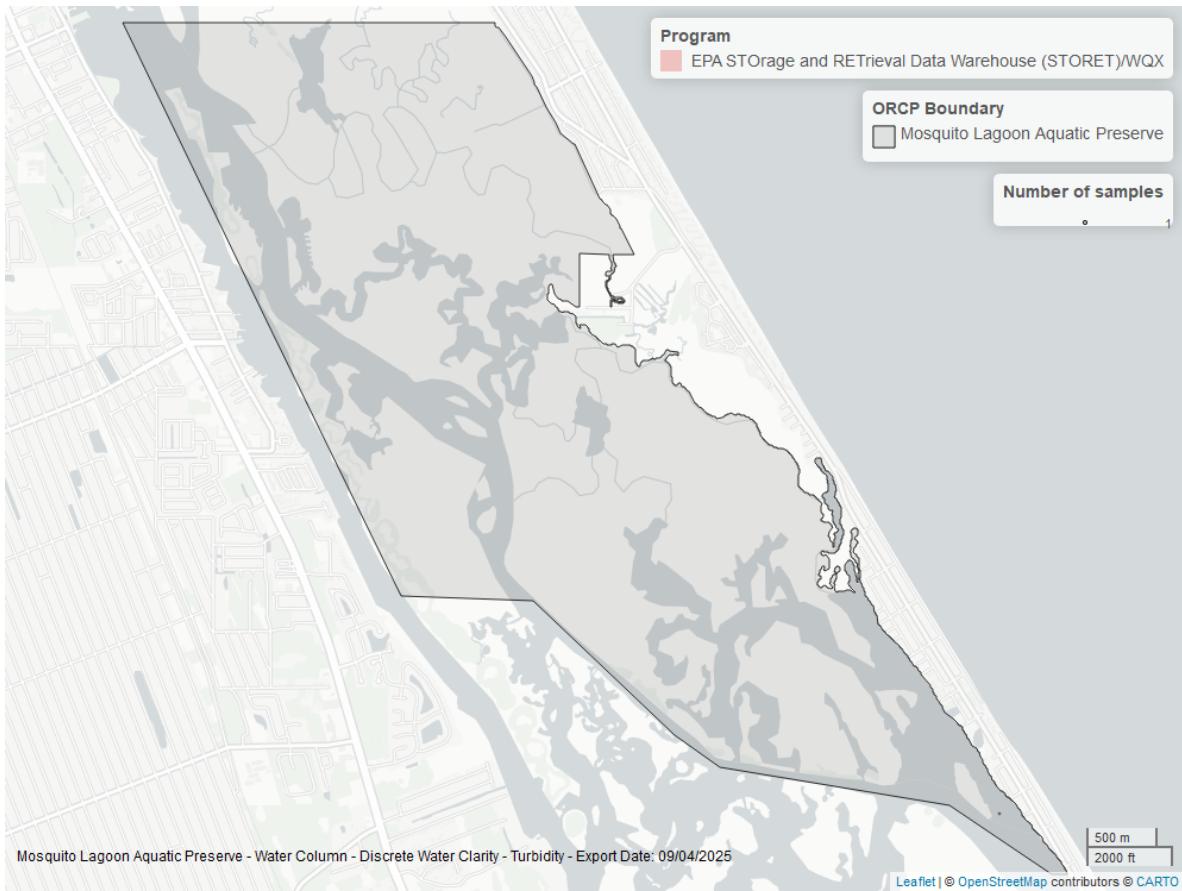


Figure 16: Map showing location of discrete water quality sampling locations within the boundaries of *Mosquito Lagoon Aquatic Preserve*. The bubble size on the maps above reflect the amount of data available at each sampling site.

Total Suspended Solids - Discrete

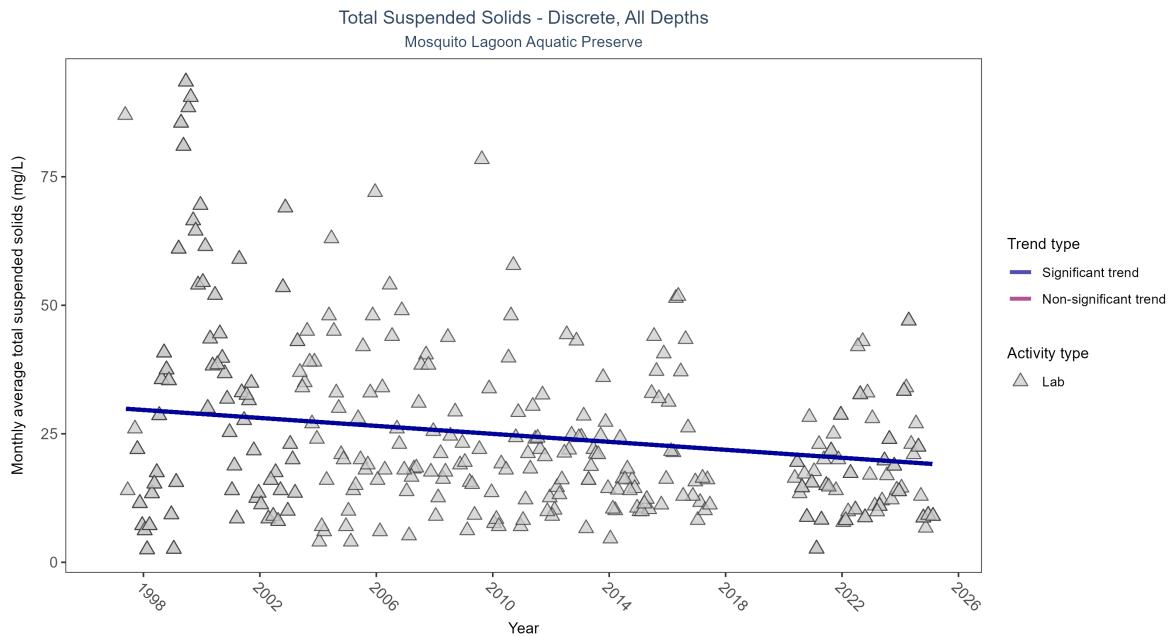


Figure 17: Scatter plot of monthly average total suspended solids (TSS) over time. If the time series included ten or more years of discrete observations, a significant (blue) or non-significant (magenta) trend line is also shown. Only TSS values obtained from laboratory analyses (triangles) are included in the plot.

Table 9: 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 decreasing trend	438	27	1997 - 2025	19.27495	-0.18542	30.02099	-0.3875	0

Monthly average total suspended solids decreased by 0.39 mg/L per year, indicating an increase in water clarity.

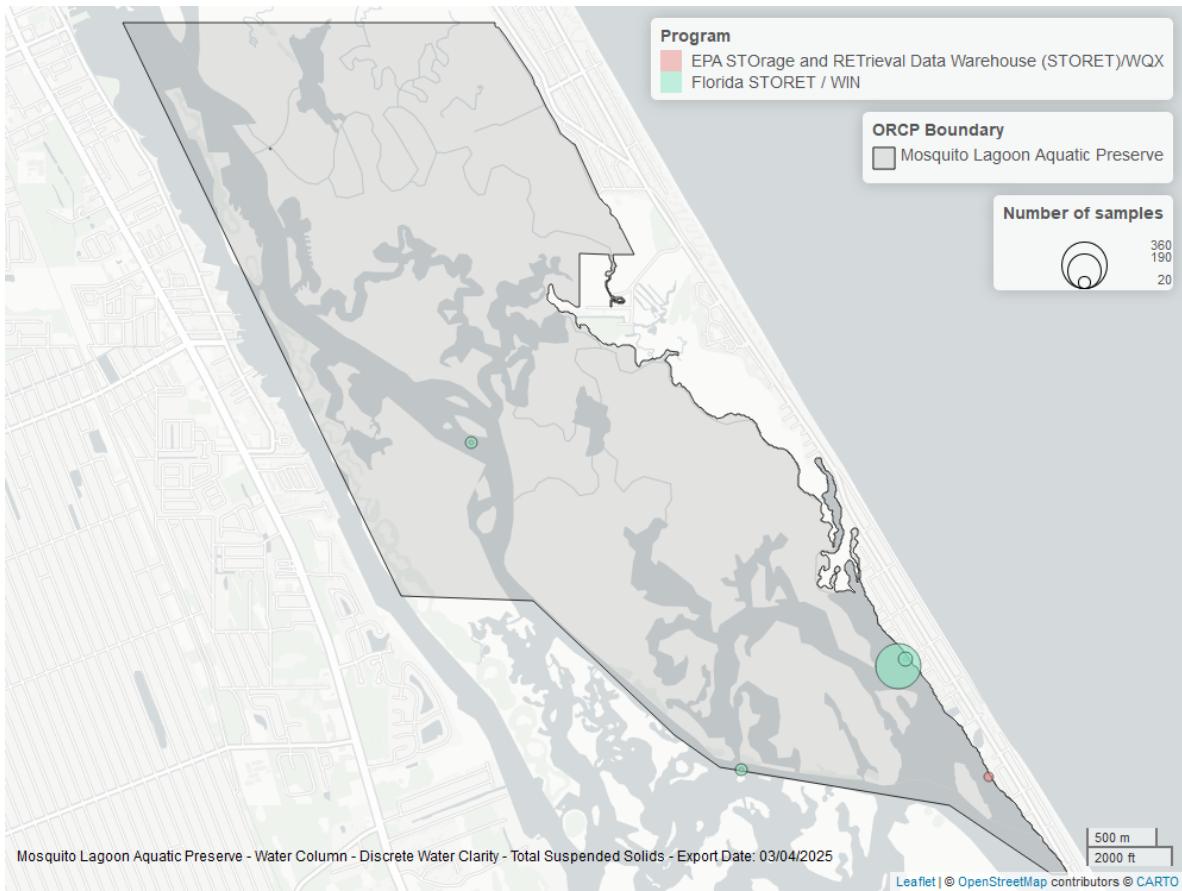


Figure 18: Map showing location of discrete water quality sampling locations within the boundaries of *Mosquito Lagoon Aquatic Preserve*. The bubble size on the maps above reflect the amount of data available at each sampling site.

Chlorophyll a, Uncorrected for Pheophytin - Discrete

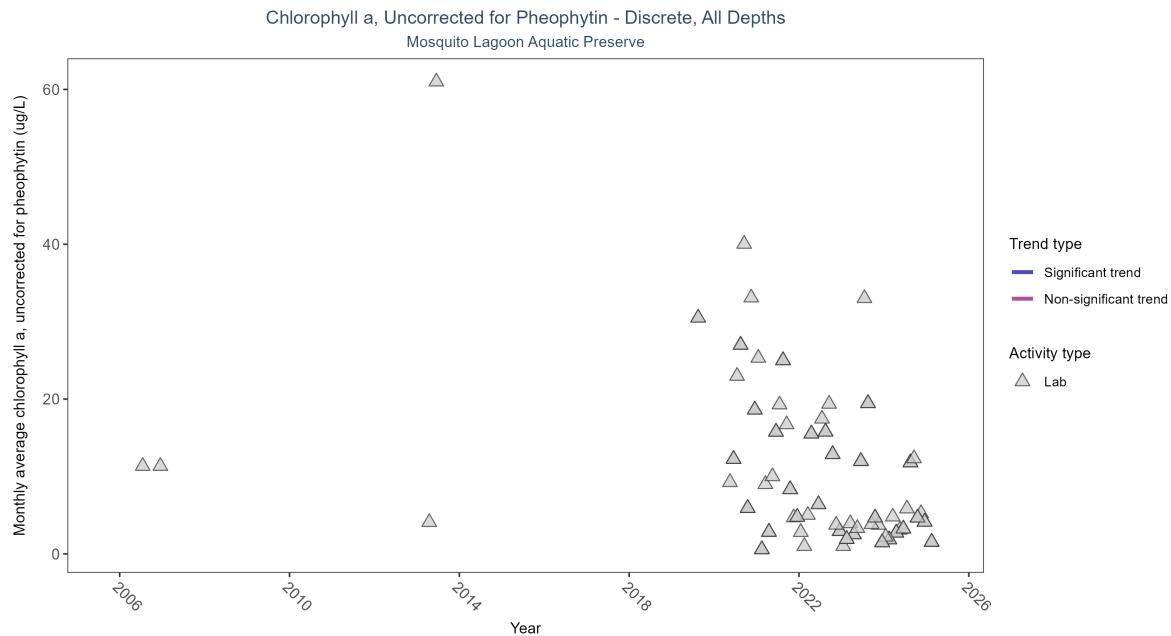


Figure 19: Scatter plot of monthly average levels of chlorophyll a, uncorrected for pheophytin, over time. If the time series included ten or more years of discrete observations, a significant (blue) or non-significant (magenta) trend line is also shown. Only laboratory-analyzed chlorophyll a (triangles) is included in the plot.

Table 10: 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	Insufficient data to calculate trend	116	9	2006 - 2025	5.68487	-	-	-	-

There was insufficient data to fit a model for chlorophyll a, uncorrected for pheophytin.

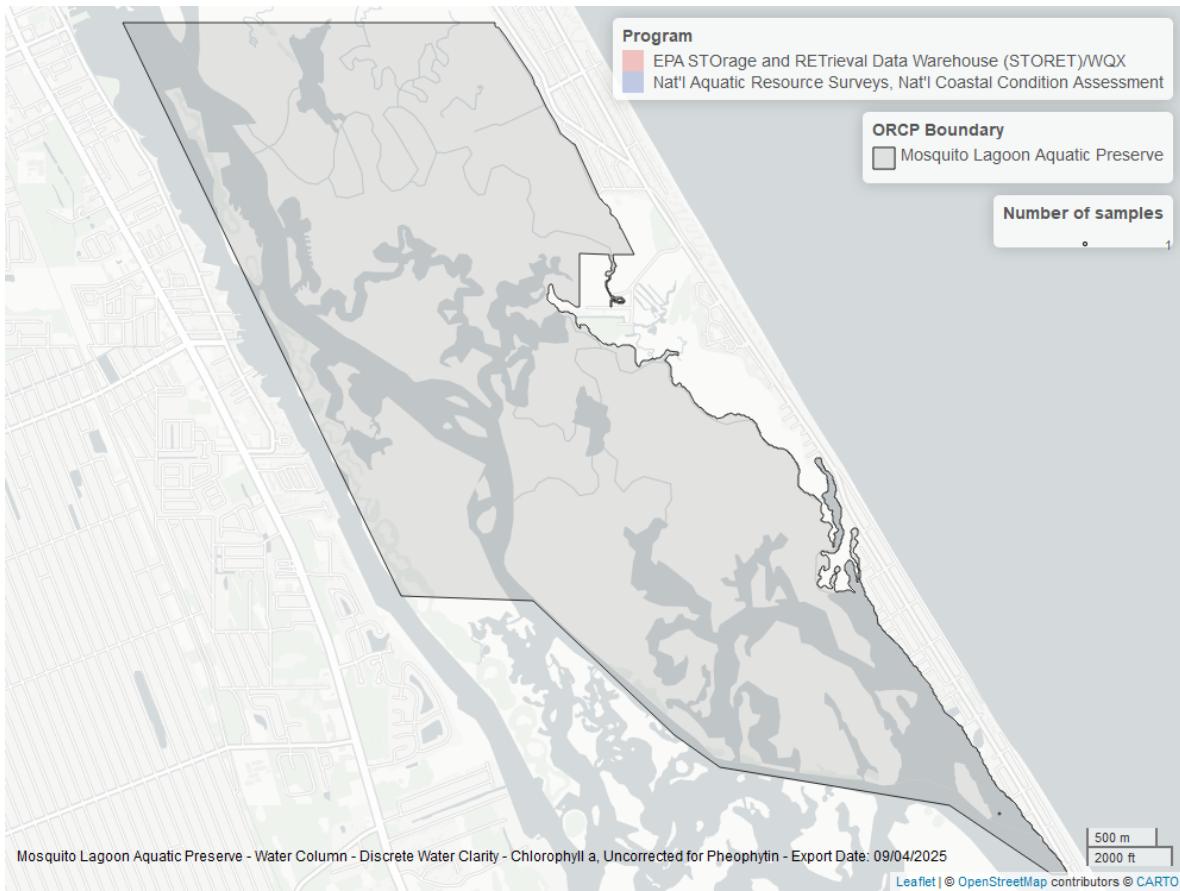


Figure 20: Map showing location of discrete water quality sampling locations within the boundaries of *Mosquito Lagoon Aquatic Preserve*. The bubble size on the maps above reflect the amount of data available at each sampling site.

Chlorophyll a, Corrected for Pheophytin - Discrete

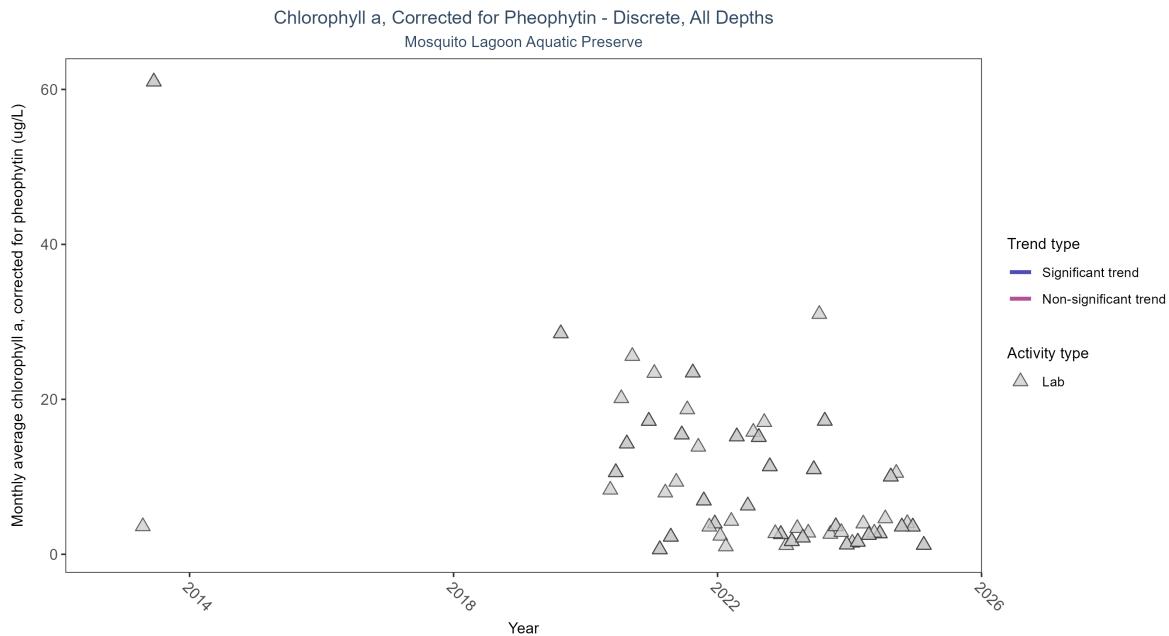


Figure 21: Scatter plot of monthly average levels of chlorophyll a, corrected for pheophytin, over time. If the time series included ten or more years of discrete observations, a significant (blue) or non-significant (magenta) trend line is also shown. Only laboratory-analyzed chlorophyll a (triangles) is included in the plot.

Table 11: 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	Insufficient data to calculate trend	111	8	2013 - 2025	4.6191	-	-	-	-

There was insufficient data to fit a model for chlorophyll a, corrected for pheophytin.

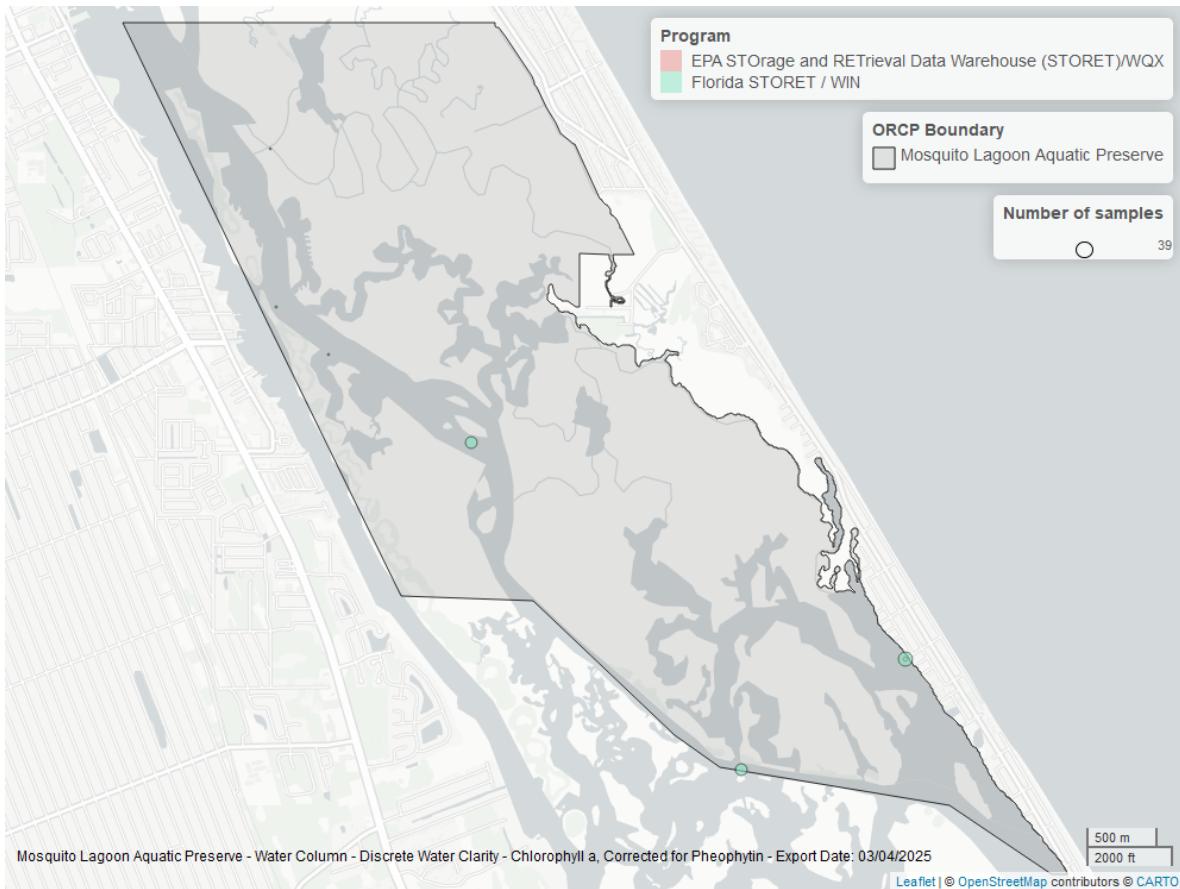


Figure 22: Map showing location of discrete water quality sampling locations within the boundaries of *Mosquito Lagoon Aquatic Preserve*. The bubble size on the maps above reflect the amount of data available at each sampling site.

Secchi Depth - Discrete

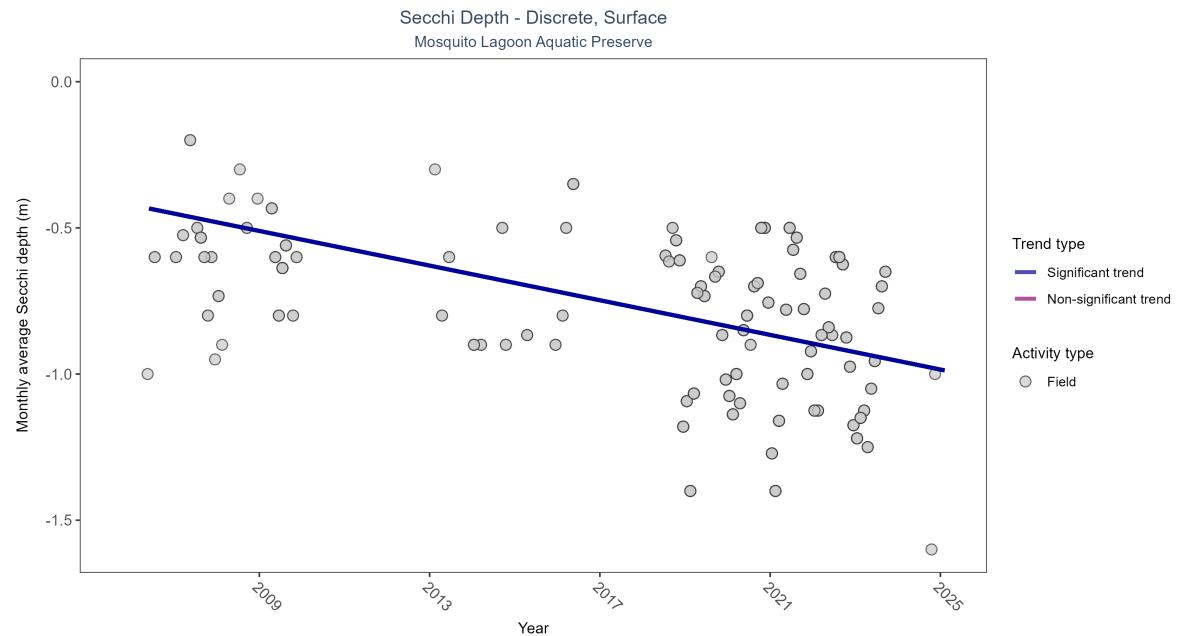


Figure 23: Scatter plot of monthly average Secchi depth over time. If the time series included ten or more years of discrete observations, a significant (blue) or non-significant (magenta) trend line is also shown. Secchi depth is only measured in the field (circles).

Table 12: 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	Significantly decreasing trend	680	19	2006 - 2025	-0.8	-0.51071	-0.42165	-0.02963	0

Monthly average Secchi depth became deeper by 0.03 m per year, indicating an increase in water clarity.

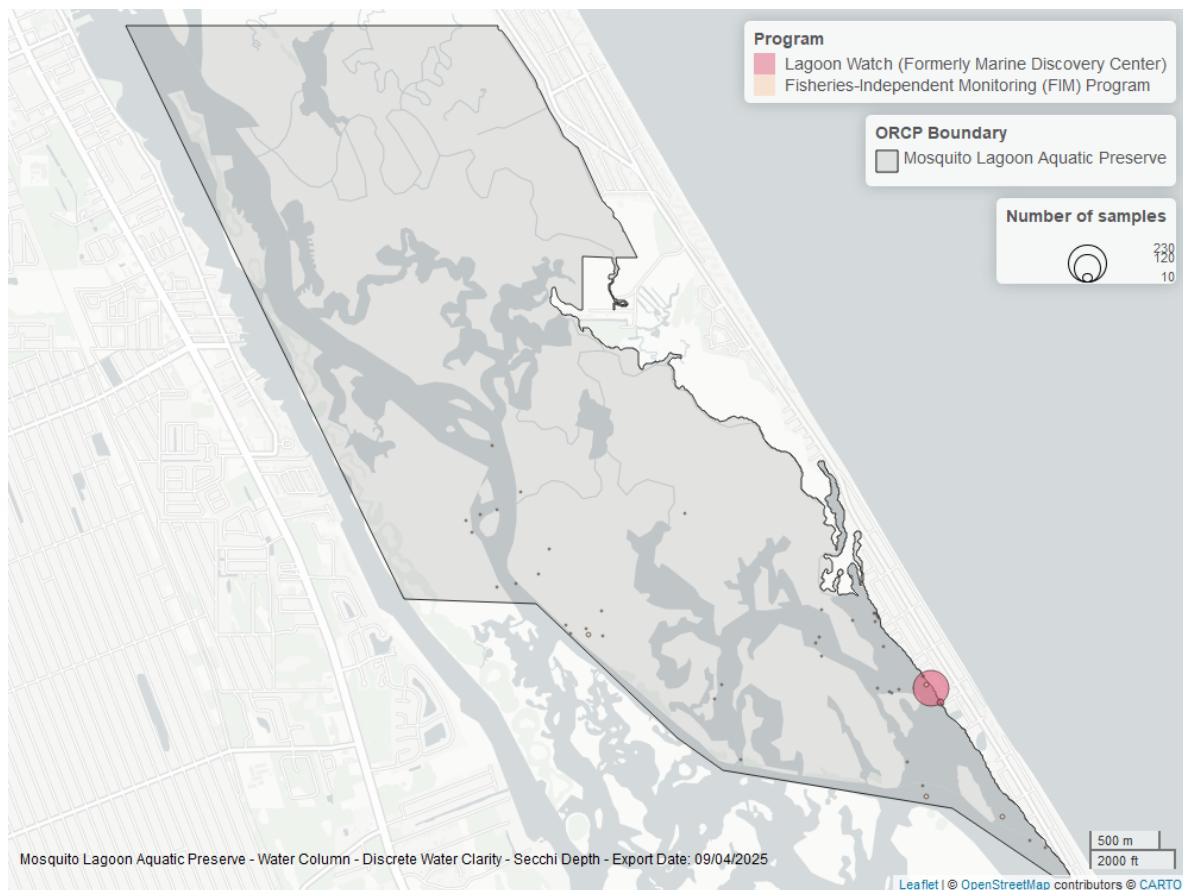


Figure 24: Map showing location of discrete water quality sampling locations within the boundaries of *Mosquito Lagoon Aquatic Preserve*. The bubble size on the maps above reflect the amount of data available at each sampling site.

Colored Dissolved Organic Matter - Discrete

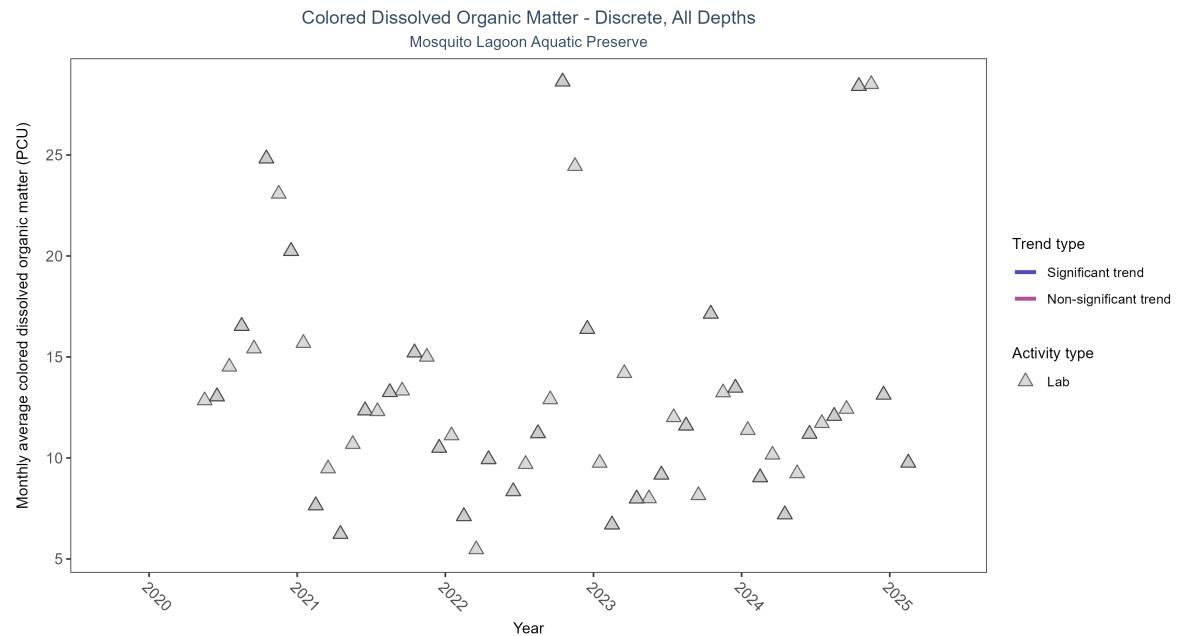


Figure 25: Scatter plot of monthly average colored dissolved organic matter (CDOM) over time. If the time series included ten or more years of discrete observations, a significant (blue) or non-significant (magenta) trend line is also shown. Only laboratory-analyzed CDOM (triangles) is included in the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

Table 13: 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	Insufficient data to calculate trend	113	6	2020 - 2025	11.73611	-	-	-	-

There was insufficient data to fit a model for colored dissolved organic matter.

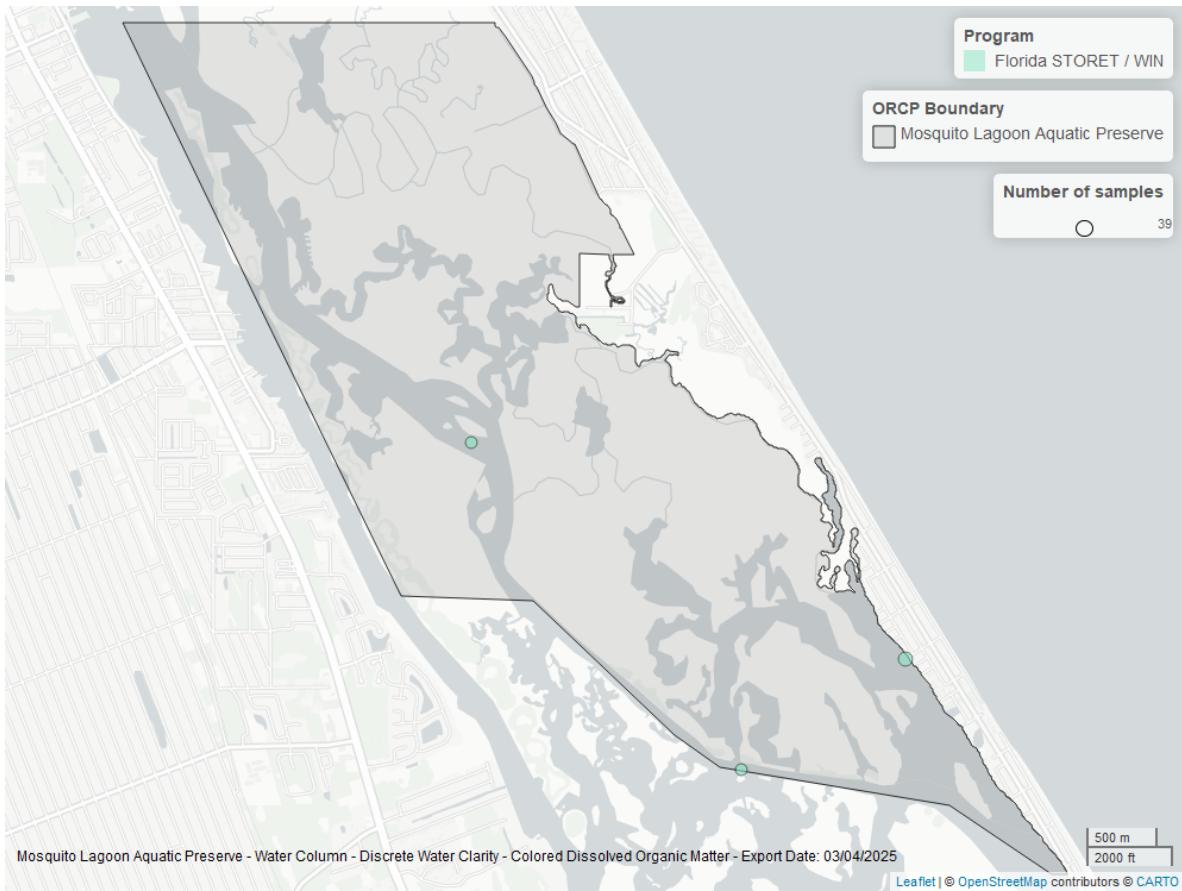


Figure 26: Map showing location of discrete water quality sampling locations within the boundaries of *Mosquito Lagoon Aquatic Preserve*. The bubble size on the maps above reflect the amount of data available at each sampling site.