Jensen Beach to Jupiter Inlet Aquatic Preserve

SEACAR Water Quality Analysis

Last compiled on 30 September, 2025

Contents

Indicators

Nutrients

Total Nitrogen - Discrete

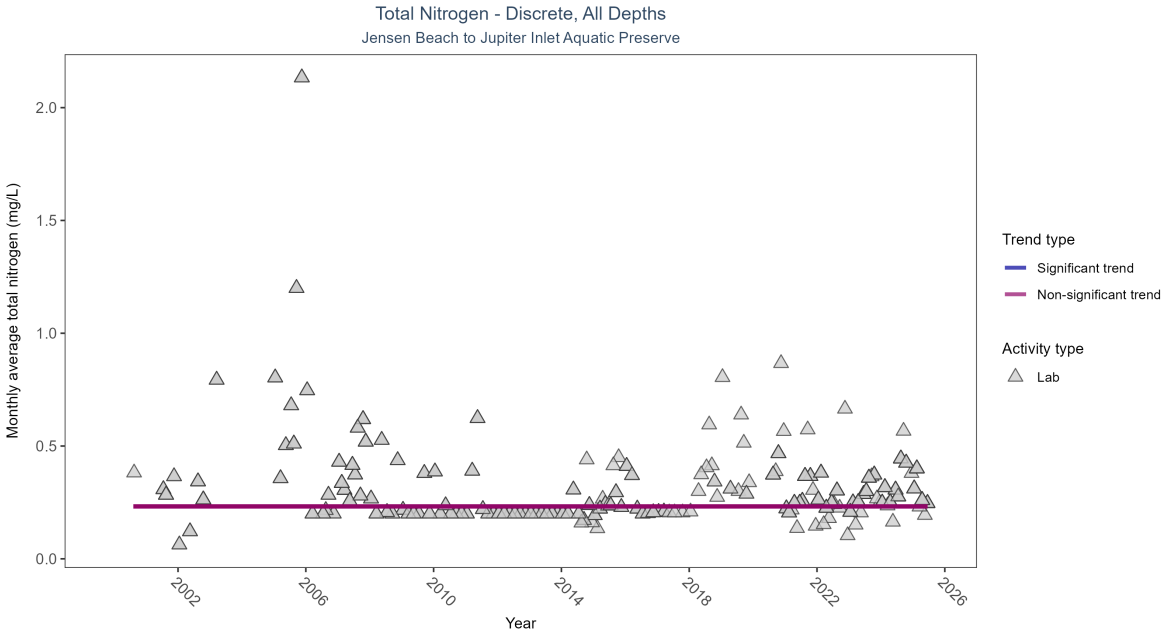

Figure 1: Scatter plot of monthly average total nitrogen over time. If the time series included ten or more years of discrete observations, a significant (blue) or non-significant (magenta) trend line is also shown. Only nitrogen values obtained from laboratory analyses (triangles) are included in the 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	No significant trend	691	25	2000 - 2025	0.256	0.02809	0.23272	0	0.7453

Total nitrogen showed no detectable trend between 2000 and 2025.

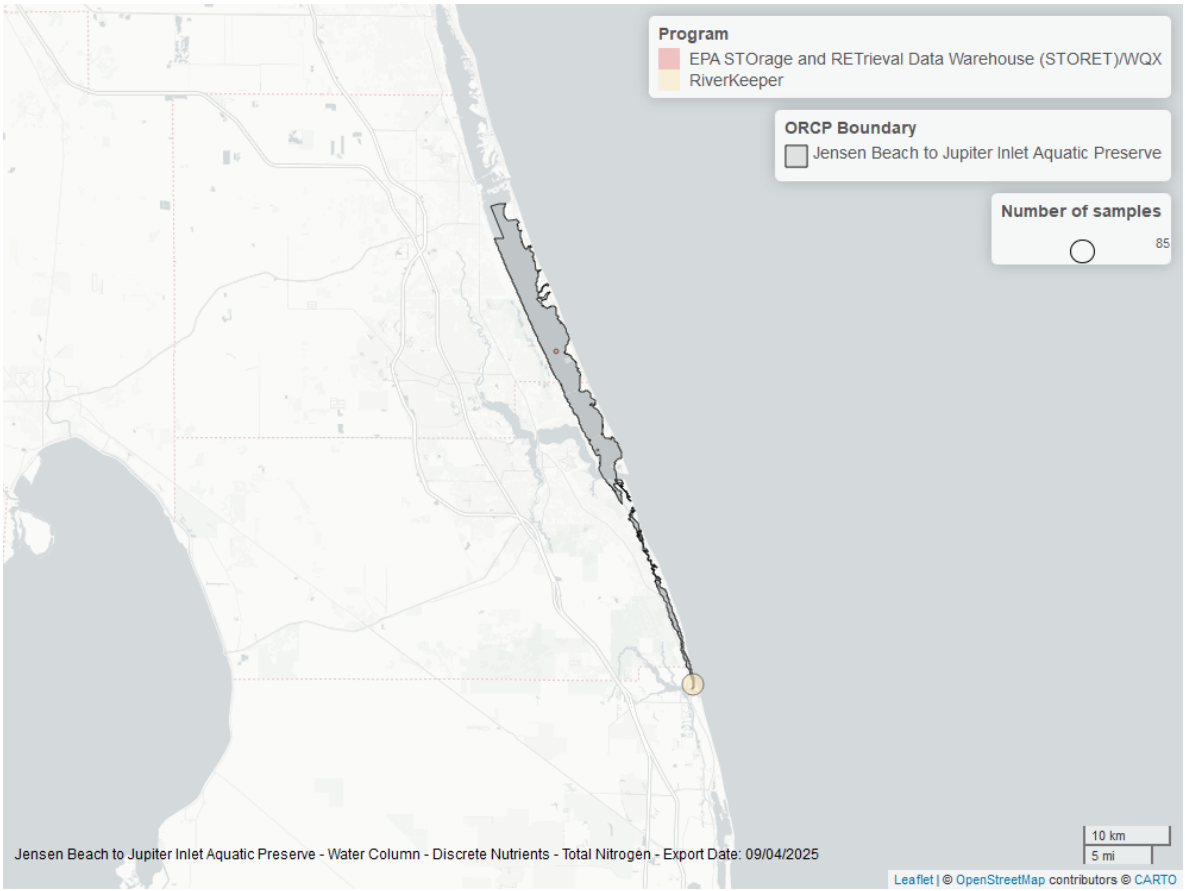

Figure 2: Map showing location of discrete water quality sampling locations within the boundaries of *Jensen Beach to Jupiter Inlet Aquatic Preserve*. The bubble size on the maps above reflect the amount of data available at each sampling site.

Total Phosphorus - Discrete

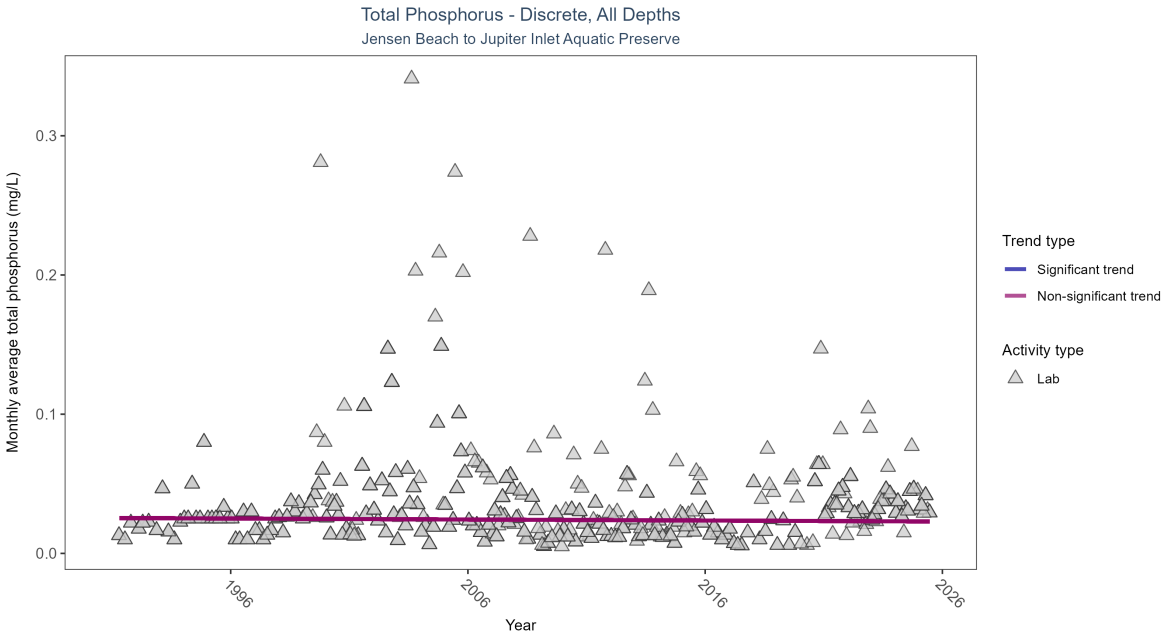

Figure 3: Scatter plot of monthly average total phosphorus over time. If the time series included ten or more years of discrete observations, a significant (blue) or non-significant (magenta) trend line is also shown. Only phosphorus values obtained from laboratory analyses (triangles) are included in 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	1121	35	1991 - 2025	0.026	-0.04163	0.02542	-0.00007	0.4311

Total phosphorus showed no detectable trend between 1991 and 2025.

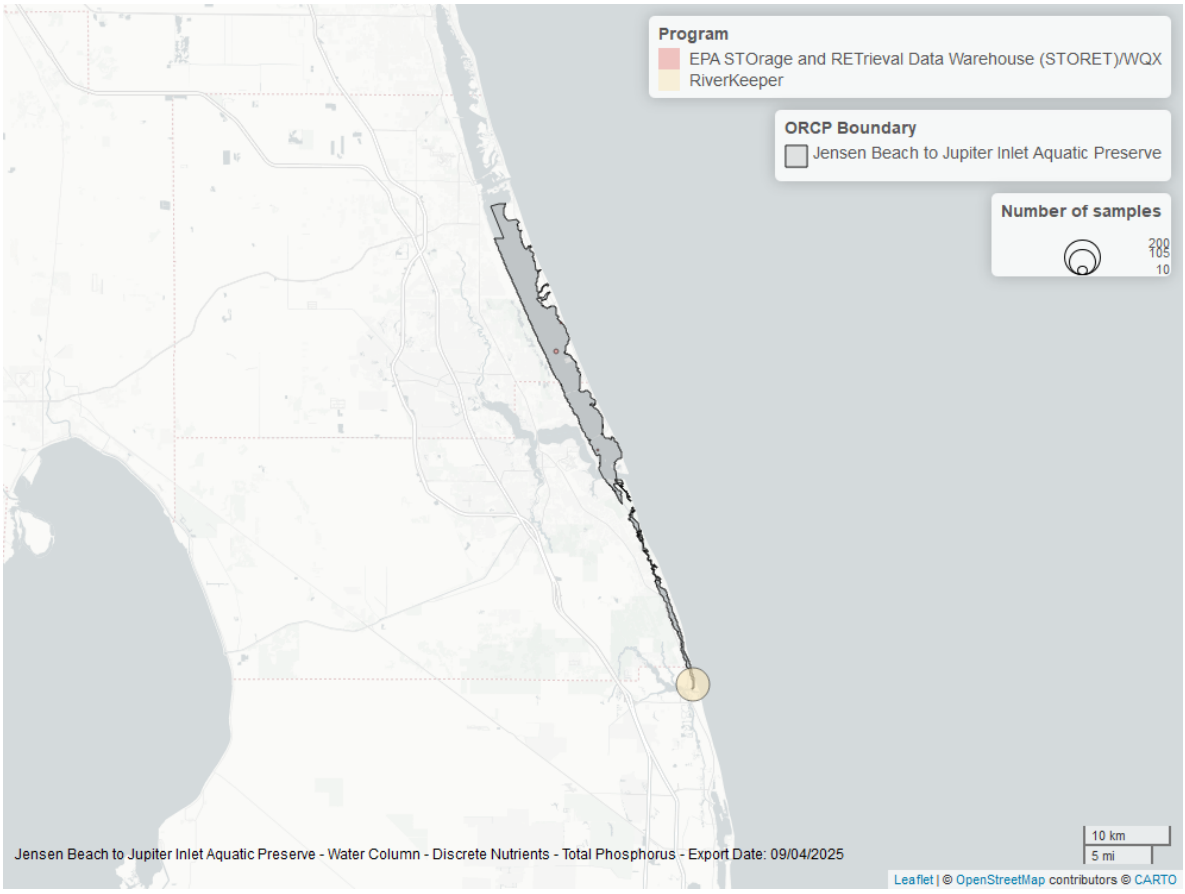

Figure 4: Map showing location of discrete water quality sampling locations within the boundaries of *Jensen Beach to Jupiter Inlet Aquatic Preserve*. The bubble size on the maps above reflect the amount of data available at each sampling site.

Water Quality

Dissolved Oxygen - Discrete

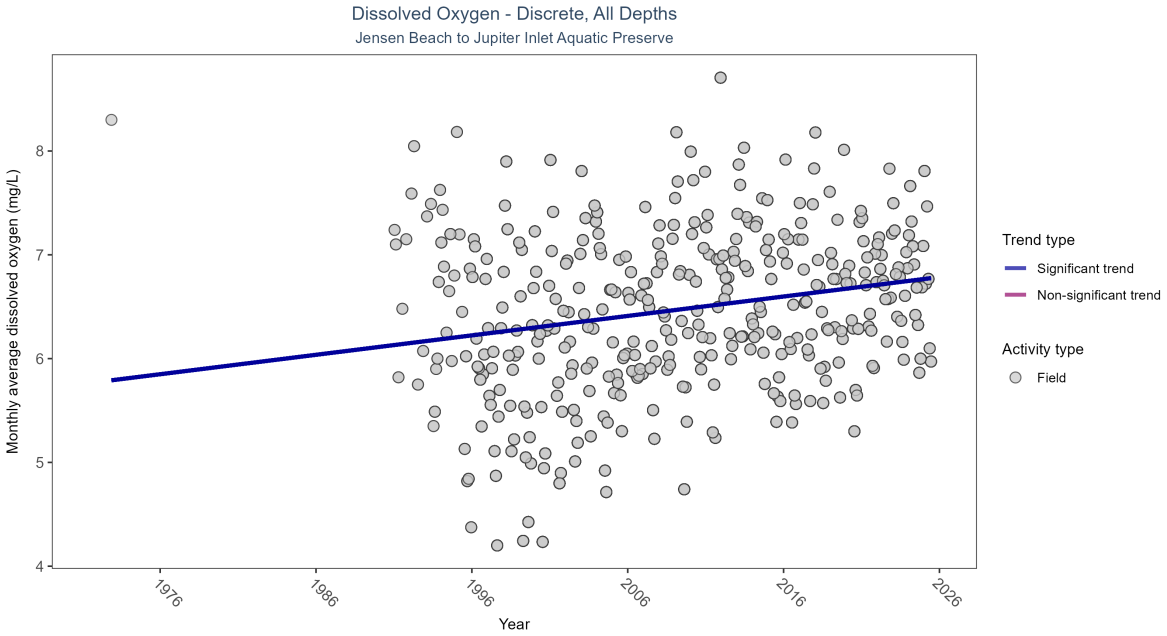

Figure 5: Scatter plot of monthly average dissolved oxygen over time. If the time series included ten or more years of discrete observations, a significant (blue) or non-significant (magenta) trend line is also shown. Only dissolved oxygen values measured in the field (circles) are included in the plot.

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 increasing trend	10900	36	1972 - 2025	6.405	0.21317	5.77463	0.01872	0

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

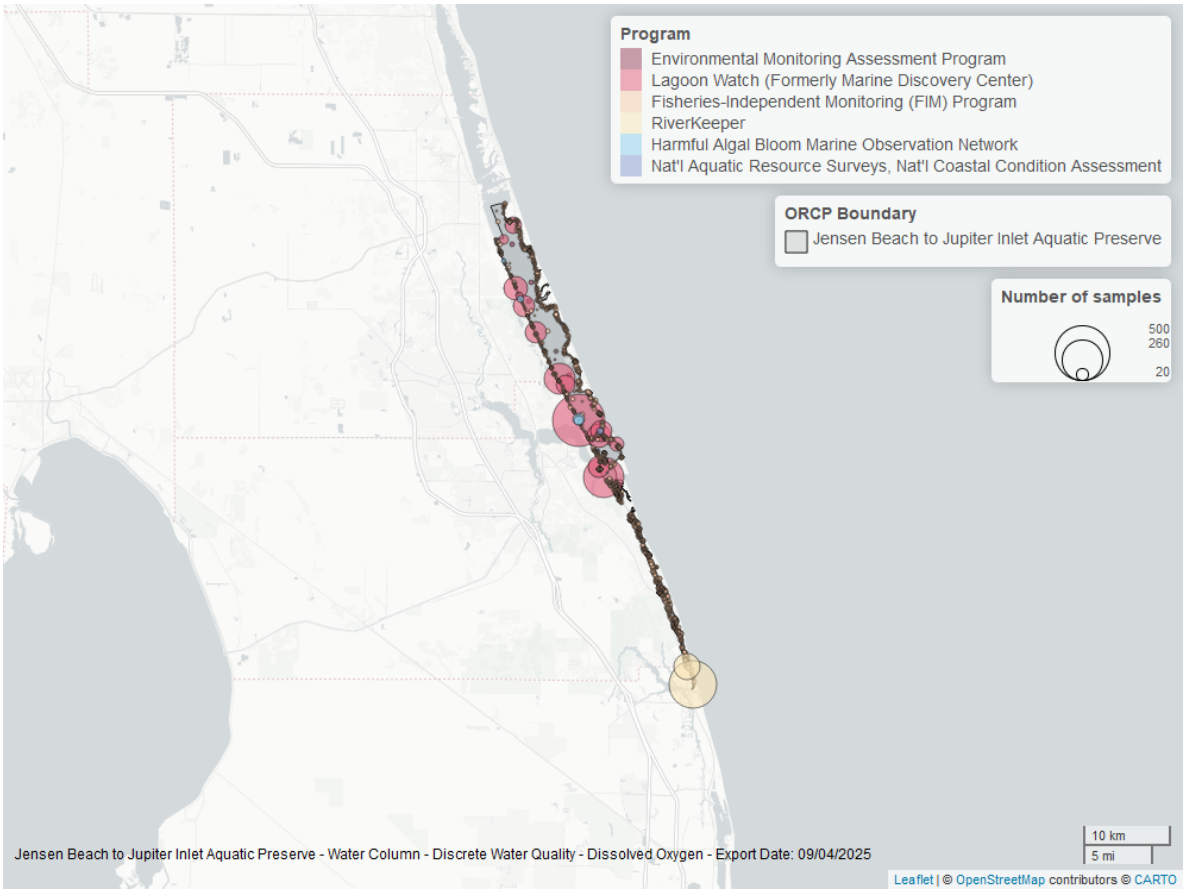

Figure 6: Map showing location of discrete water quality sampling locations within the boundaries of *Jensen Beach to Jupiter Inlet Aquatic Preserve*. The bubble size on the maps above reflect the amount of data available at each sampling site.

Dissolved Oxygen Saturation - Discrete

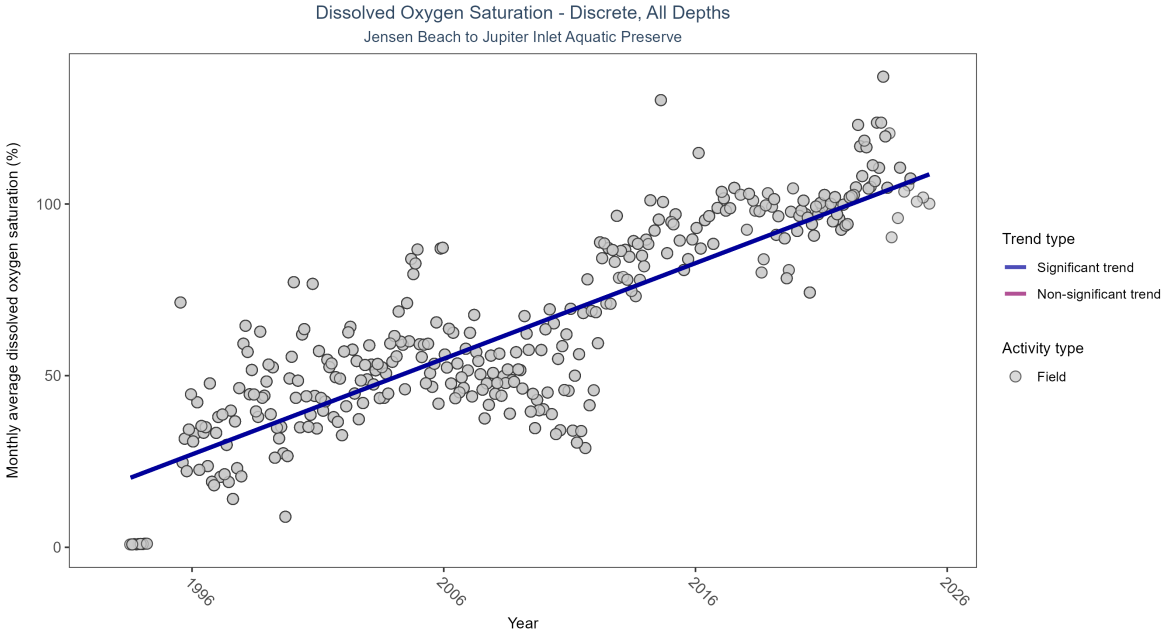

Figure 7: Scatter plot of monthly average dissolved oxygen saturation over time. If the time series included ten or more years of discrete observations, a significant (blue) or non-significant (magenta) trend line is also shown. Only dissolved oxygen saturation values measured in the field (circles) 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 increasing trend	4246	33	1993 - 2025	79.5	0.68047	18.71729	2.78505	0

Monthly average dissolved oxygen saturation increased by 2.79% per year.

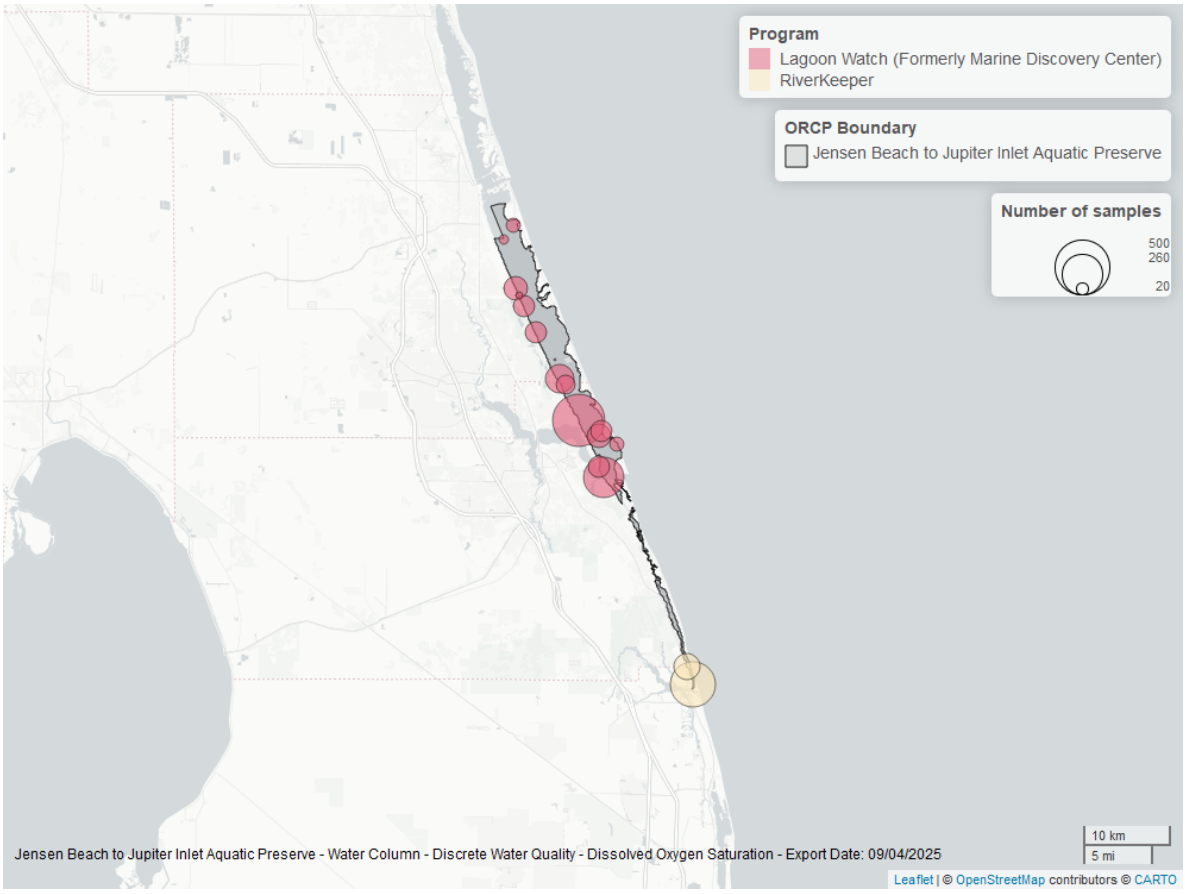

Figure 8: Map showing location of discrete water quality sampling locations within the boundaries of *Jensen Beach to Jupiter Inlet Aquatic Preserve*. The bubble size on the maps above reflect the amount of data available at each sampling site.

Salinity - Discrete

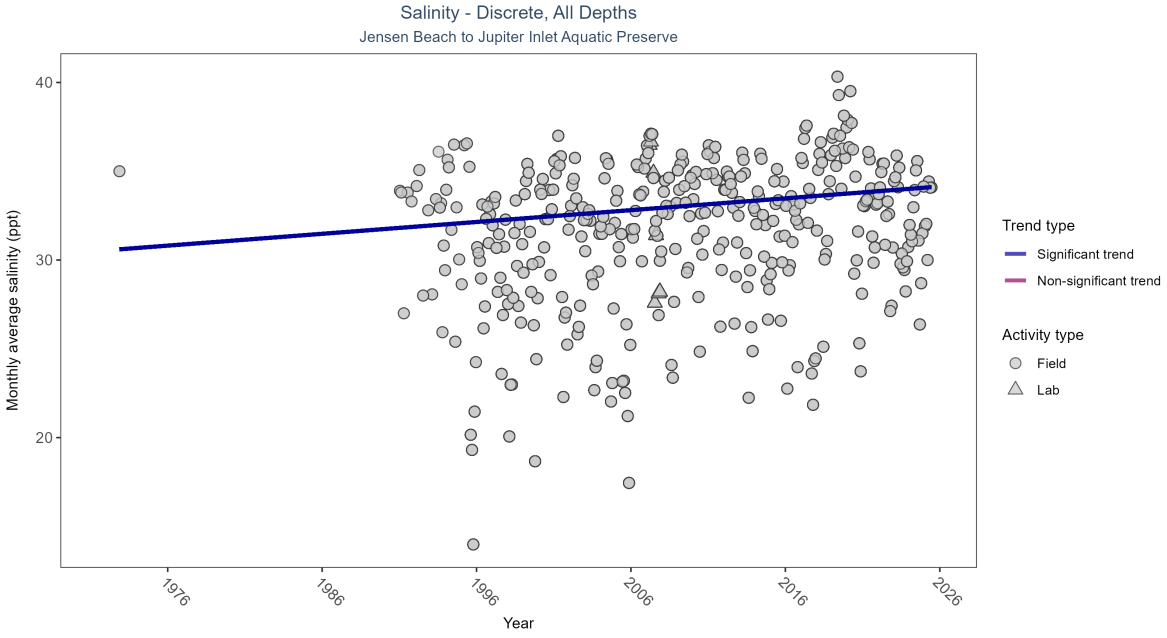

Figure 9: Scatter plot of monthly average salinity over time. If the time series included ten or more years of discrete observations, significant (blue) or non-significant (magenta) trend lines are also shown. Discrete salinity values derived from grab samples analyzed in the field (circles) or the laboratory (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	11191	36	1972 - 2025	32.8	0.13672	30.54477	0.06659	1e-04

Monthly average salinity increased by 0.07 ppt per year.

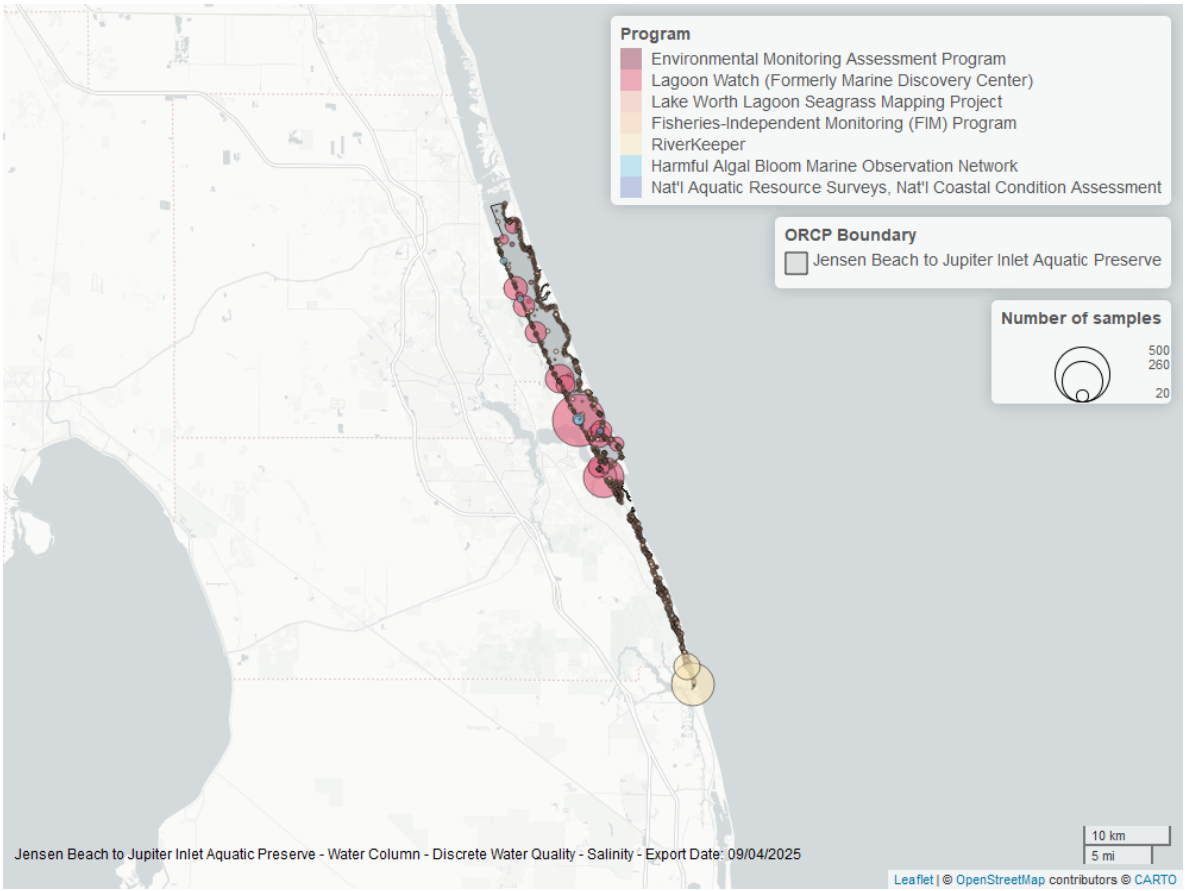

Figure 10: Map showing location of discrete water quality sampling locations within the boundaries of *Jensen Beach to Jupiter Inlet Aquatic Preserve*. The bubble size on the maps above reflect the amount of data available at each sampling site.

Salinity - Continuous

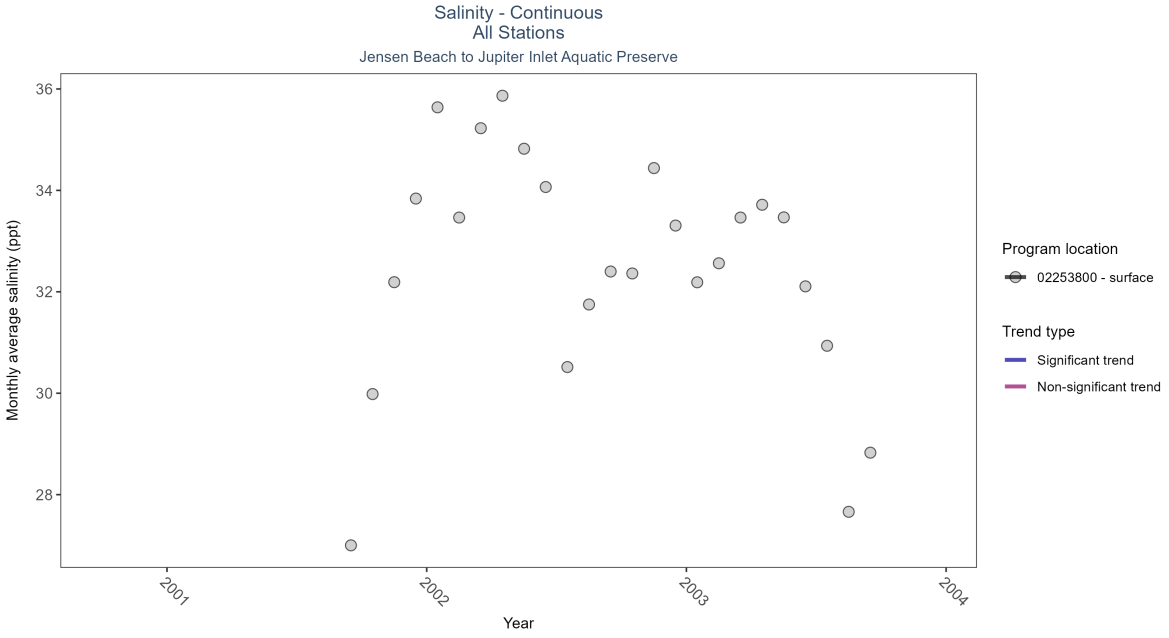

Figure 11: Scatter plot of monthly average salinity over time at continuously monitored program locations. Each location is analyzed separately, with significant (blue) or non-significant (magenta) trend lines shown for time series that included five or more years of observations.

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
02253800	Insufficient data to calculate trend	1213	3	2001 - 2003	33	-	-	-	-

There was insufficient data to fit a model for one location.

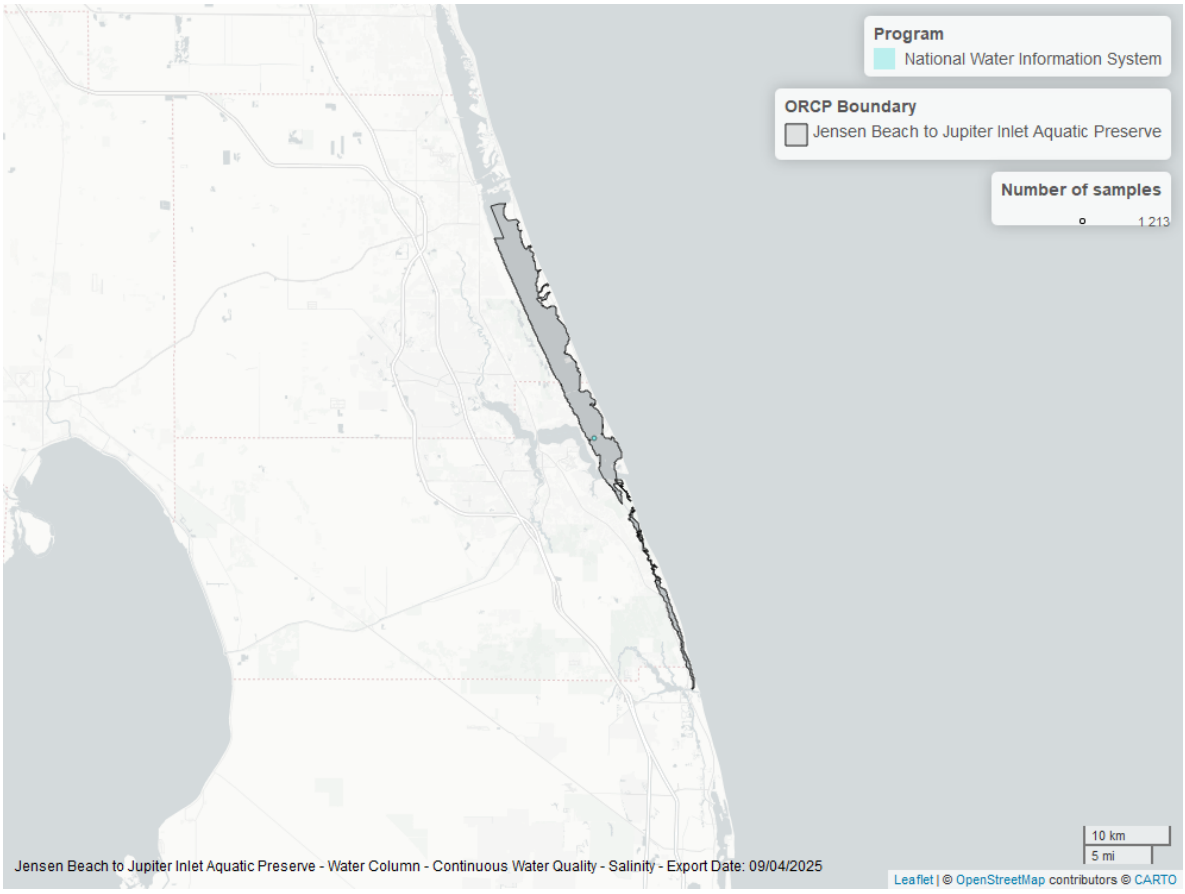

Figure 12: Map showing location of salinity continuous water quality sampling locations within the boundaries of *Jensen Beach to Jupiter Inlet Aquatic Preserve*. The bubble size on the maps above reflect the amount of data available at each sampling site.

Water Temperature - Discrete

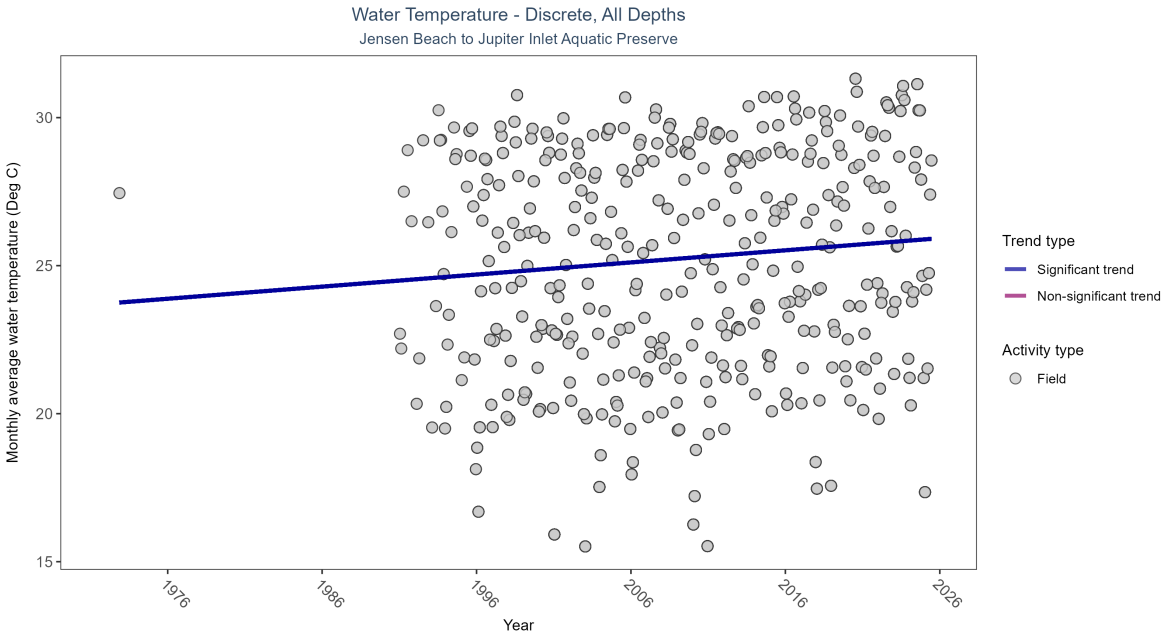

Figure 13: Scatter plot of monthly average water temperature over time. If the time series included ten or more years of discrete observations, a significant (blue) or non-significant (magenta) trend line is also shown. Only water temperature measurements taken in the field (circles) are included in 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	10942	36	1972 - 2025	25.5	0.23282	23.71802	0.04091	0

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

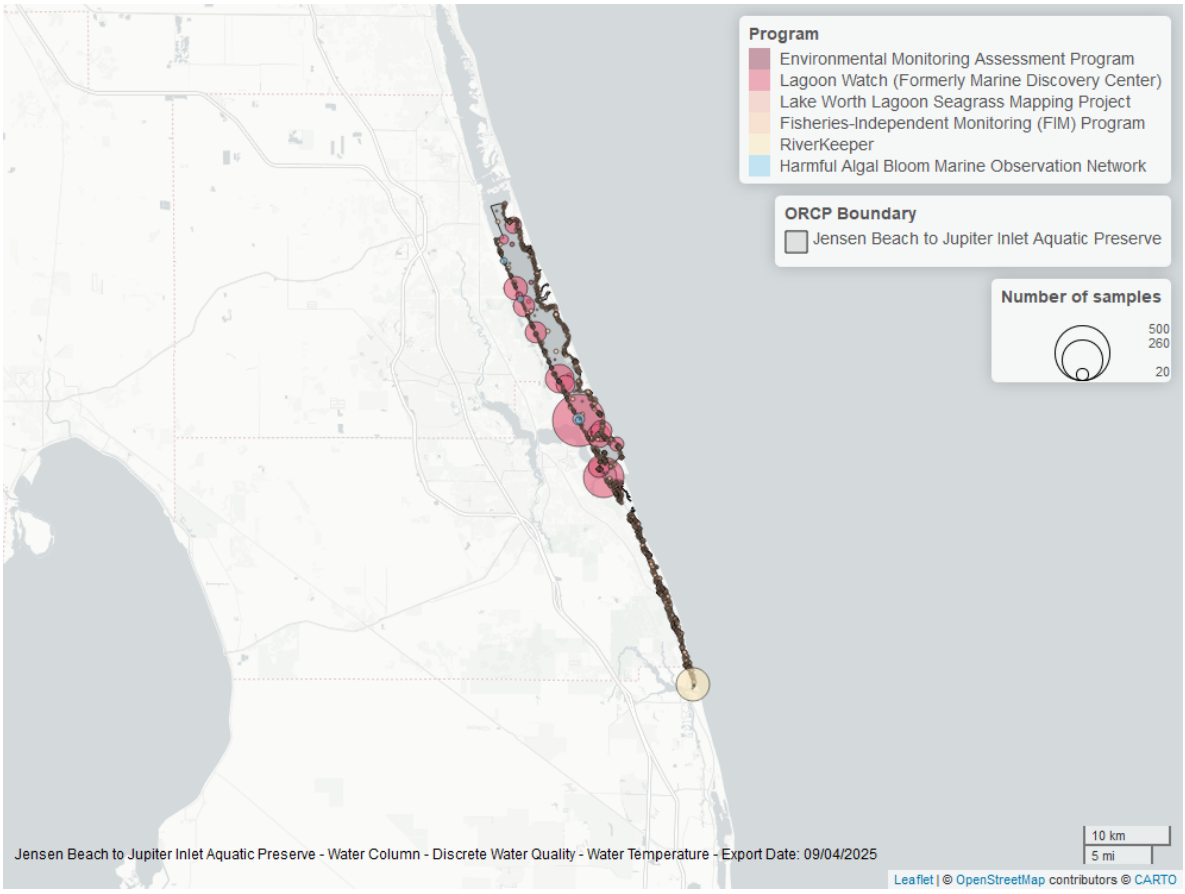

Figure 14: Map showing location of discrete water quality sampling locations within the boundaries of *Jensen Beach to Jupiter Inlet Aquatic Preserve*. The bubble size on the maps above reflect the amount of data available at each sampling site.

Water Temperature - Continuous

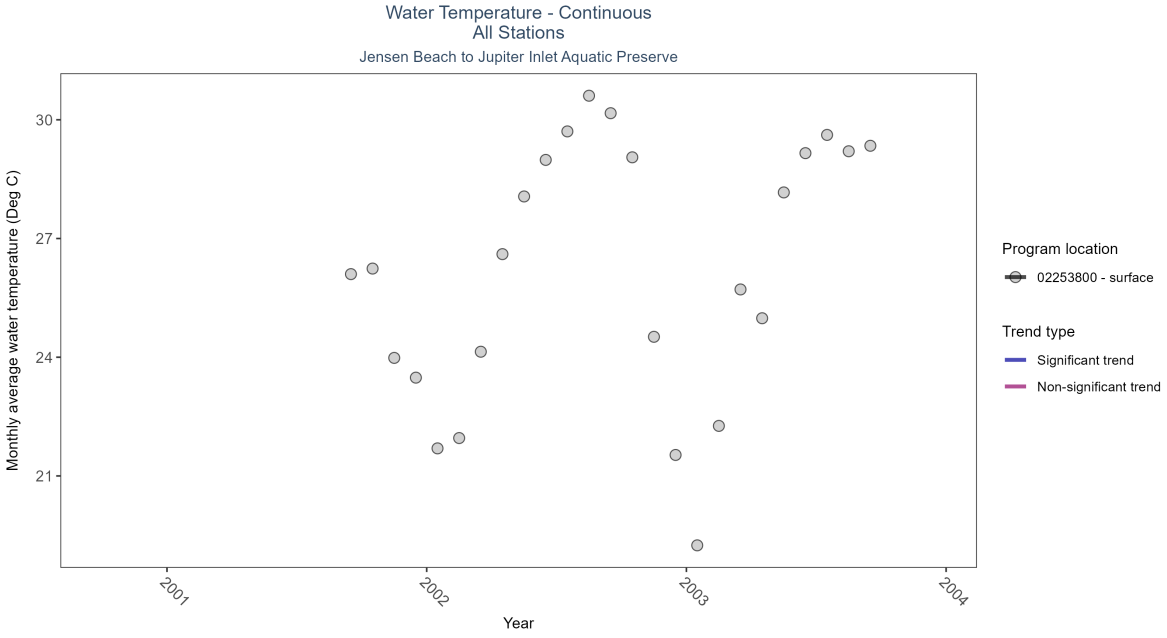

Figure 15: Scatter plot of monthly average water temperature over time at continuously monitored program locations. Each location is analyzed separately, with significant (blue) or non-significant (magenta) trend lines shown for time series that included five or more years of observations.

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
02253800	Insufficient data to calculate trend	1186	3	2001 - 2003	27.1	-	-	-	-

There was insufficient data to fit a model for one location.

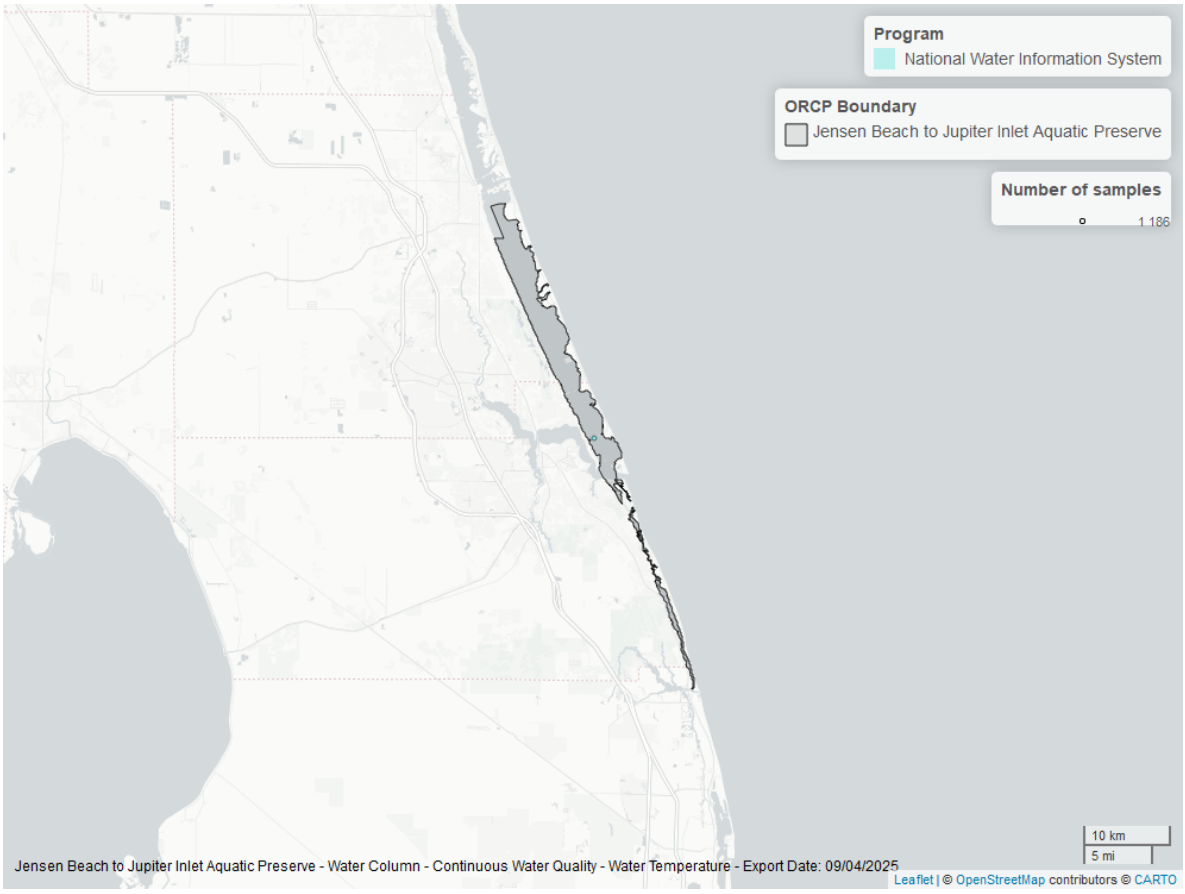

Figure 16: Map showing location of water temperature continuous water quality sampling locations within the boundaries of *Jensen Beach to Jupiter Inlet Aquatic Preserve*. The bubble size on the maps above reflect the amount of data available at each sampling site.

pH - Discrete

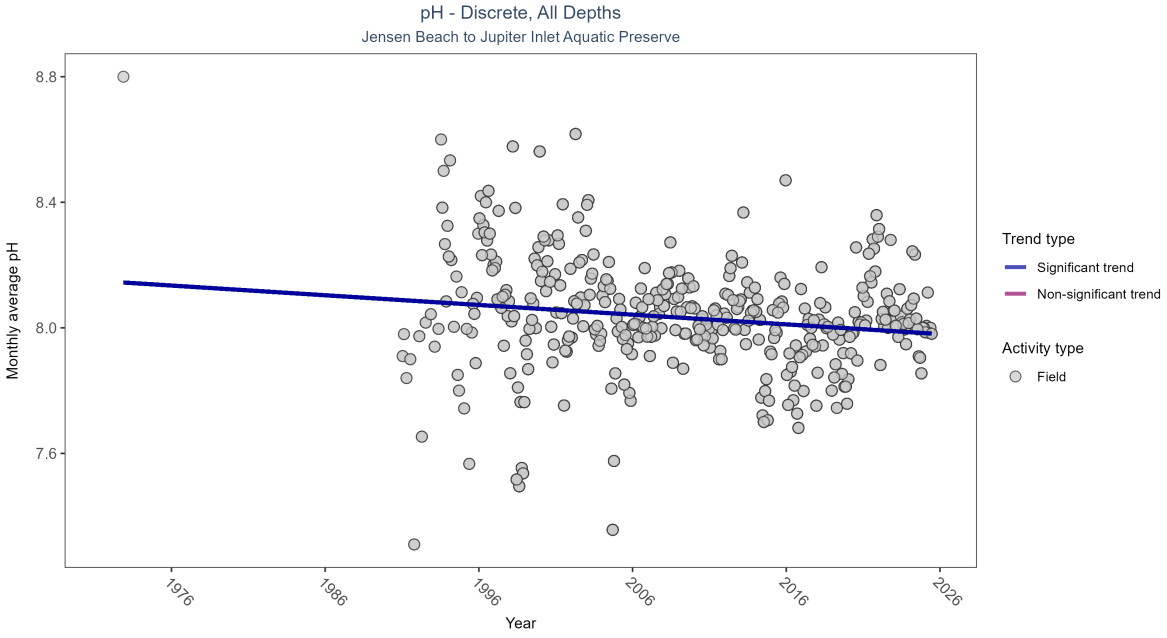

Figure 17: Scatter plot of monthly average pH over time. If the time series included ten or more years of discrete observations, a significant (blue) or non-significant (magenta) trend line is also shown. Only pH values measured in the field (circles) are included in the plot.

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	Significantly decreasing trend	9883	36	1972 - 2025	8.01	-0.13829	8.14706	-0.00309	1e-04

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

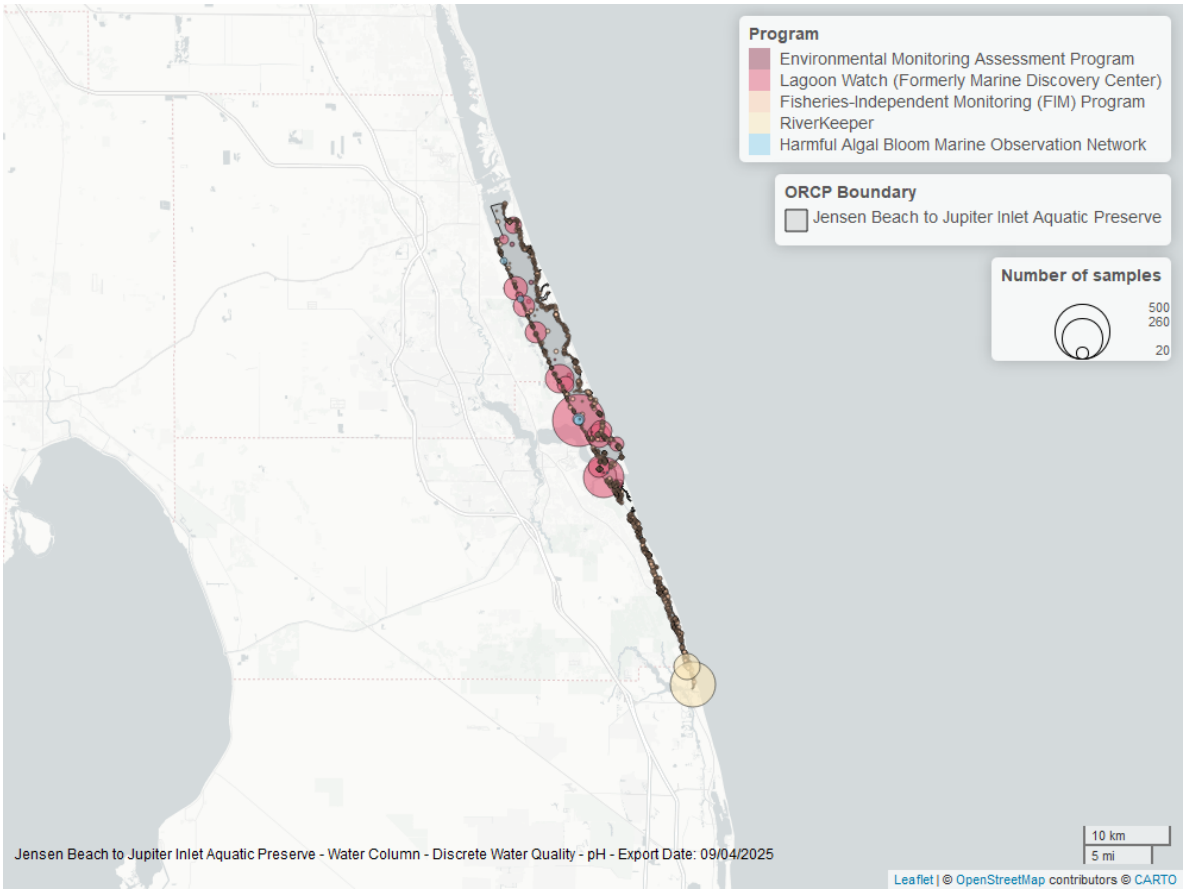

Figure 18: Map showing location of discrete water quality sampling locations within the boundaries of *Jensen Beach to Jupiter Inlet Aquatic Preserve*. The bubble size on the maps above reflect the amount of data available at each sampling site.

Water Clarity

Turbidity - Discrete

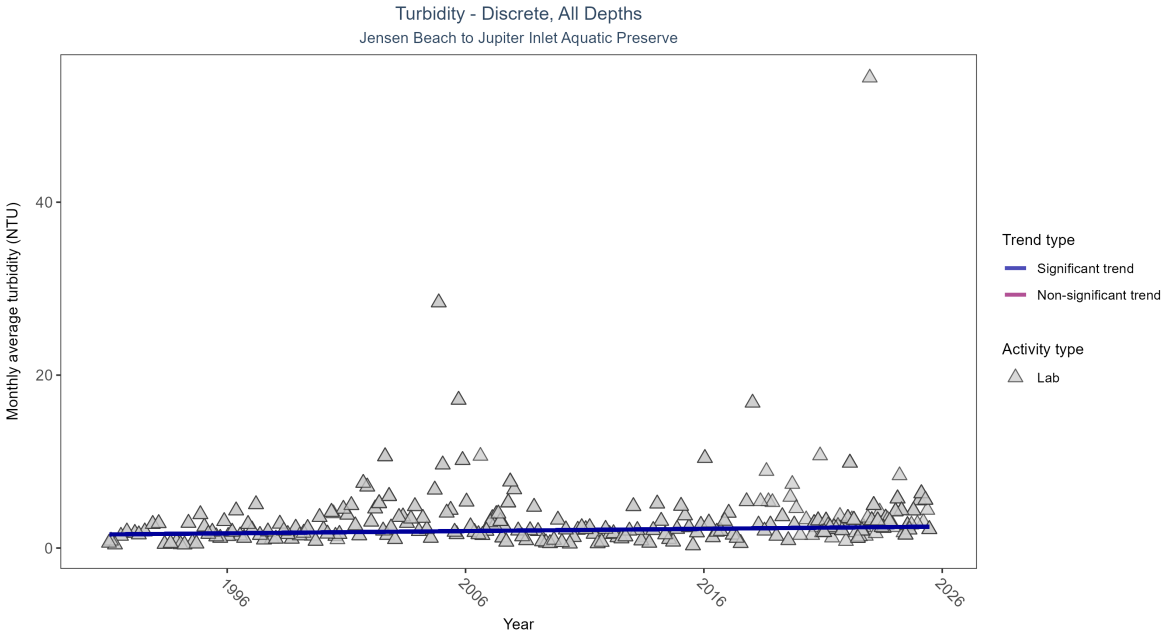

Figure 19: Scatter plot of monthly average turbidity over time. If the time series included ten or more years of discrete observations, a significant (blue) or non-significant (magenta) trend line is also shown. Only turbidity values measured in the laboratory (triangles) are included in the plot.

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	932	35	1991 - 2025	2.3	0.12975	1.57382	0.026	0.0108

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

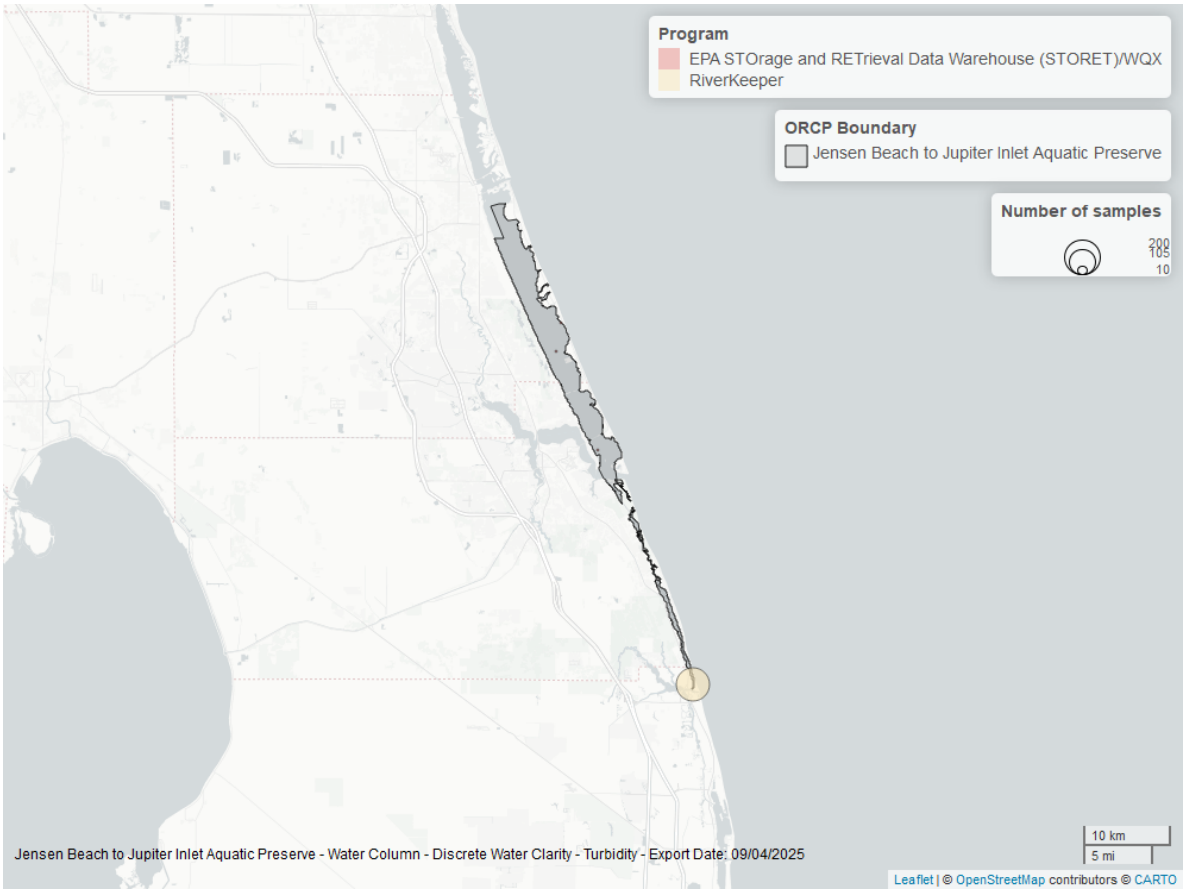

Figure 20: Map showing location of discrete water quality sampling locations within the boundaries of *Jensen Beach to Jupiter Inlet Aquatic Preserve*. The bubble size on the maps above reflect the amount of data available at each sampling site.

Total Suspended Solids - Discrete

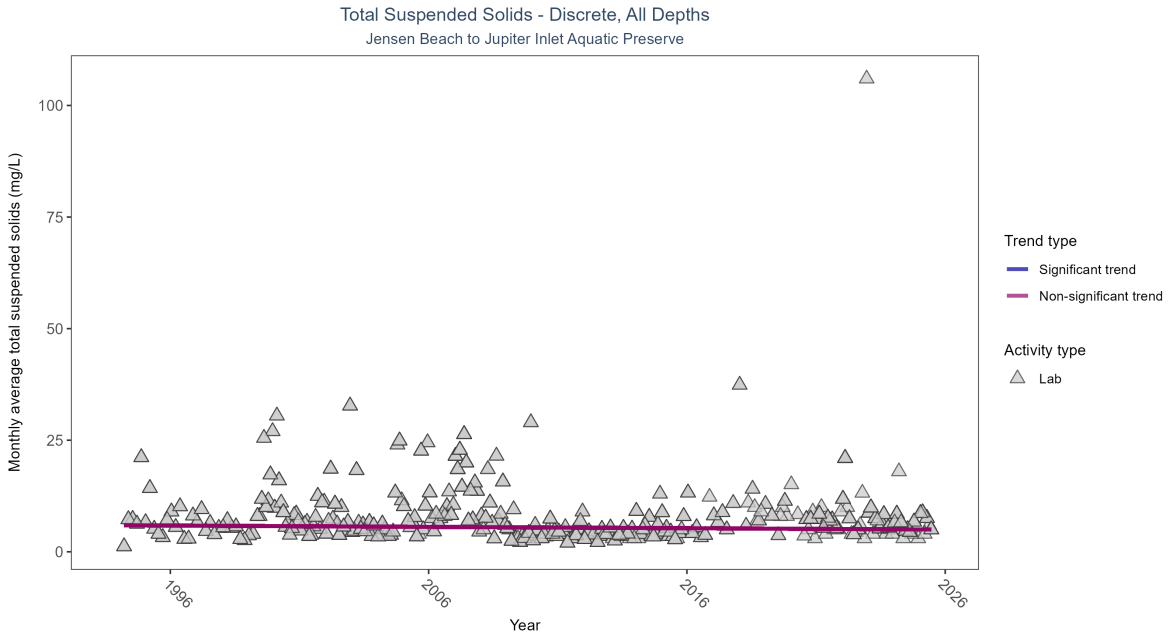

Figure 21: Scatter plot of monthly average total suspended solids (TSS) over time. If the time series included ten or more years of discrete observations, a significant (blue) or non-significant (magenta) trend line is also shown. Only TSS values obtained from laboratory analyses (triangles) are included 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	No significant trend	1249	32	1994 - 2025	6	-0.06974	5.94167	-0.03	0.1123

Total suspended solids showed no detectable trend between 1994 and 2025.

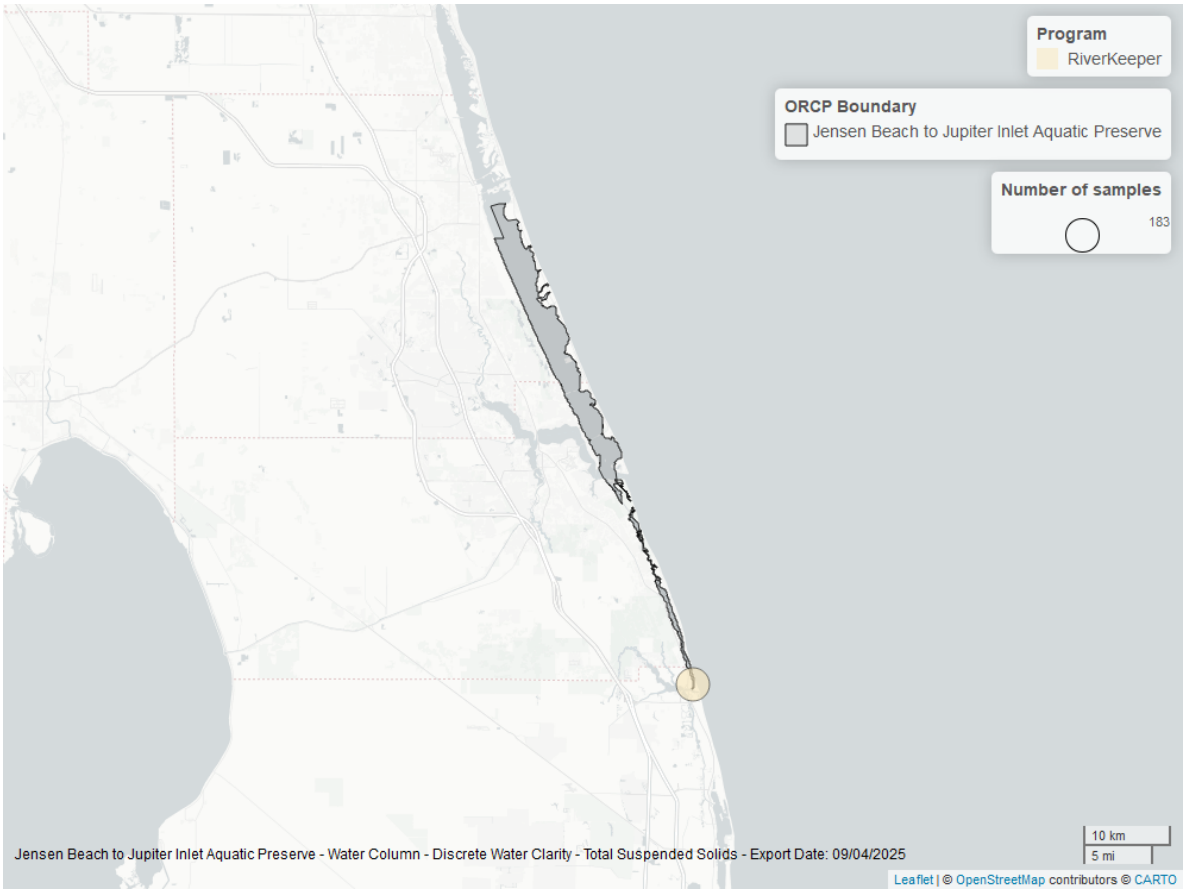

Figure 22: Map showing location of discrete water quality sampling locations within the boundaries of *Jensen Beach to Jupiter Inlet Aquatic Preserve*. The bubble size on the maps above reflect the amount of data available at each sampling site.

Chlorophyll a, Uncorrected for Pheophytin - Discrete

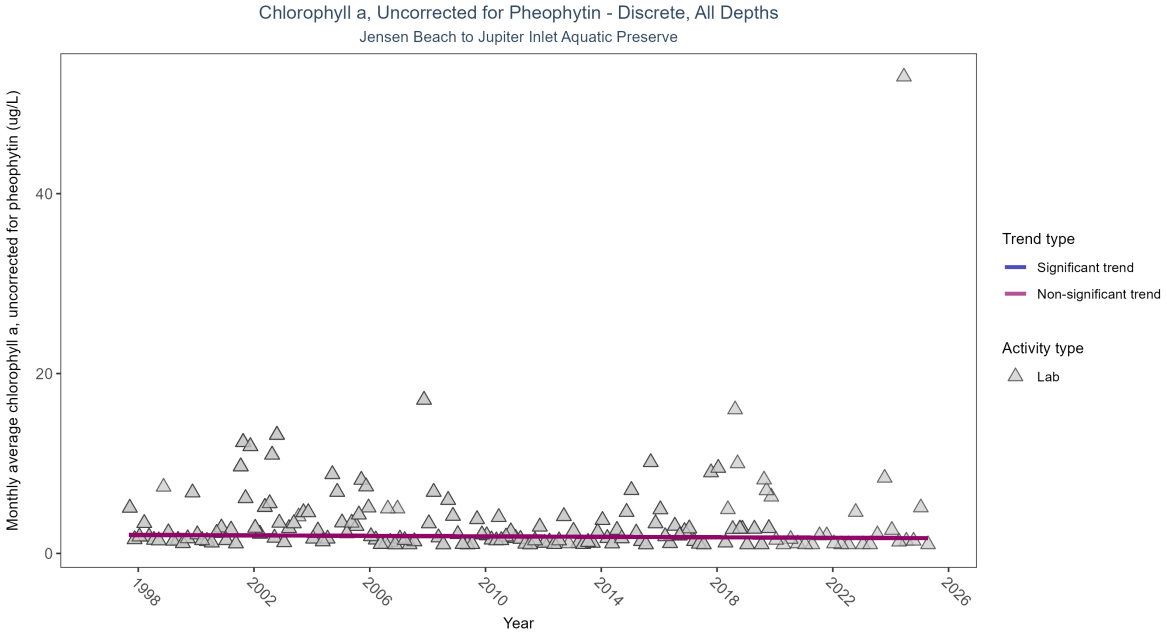

Figure 23: Scatter plot of monthly average levels of chlorophyll a, uncorrected for pheophytin, over time. If the time series included ten or more years of discrete observations, a significant (blue) or non-significant (magenta) trend line is also shown. Only laboratory-analyzed chlorophyll a (triangles) 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	479	29	1997 - 2025	2	-0.10593	2.07292	-0.01333	0.1167

Chlorophyll a, uncorrected for pheophytin, showed no detectable trend between 1997 and 2025.

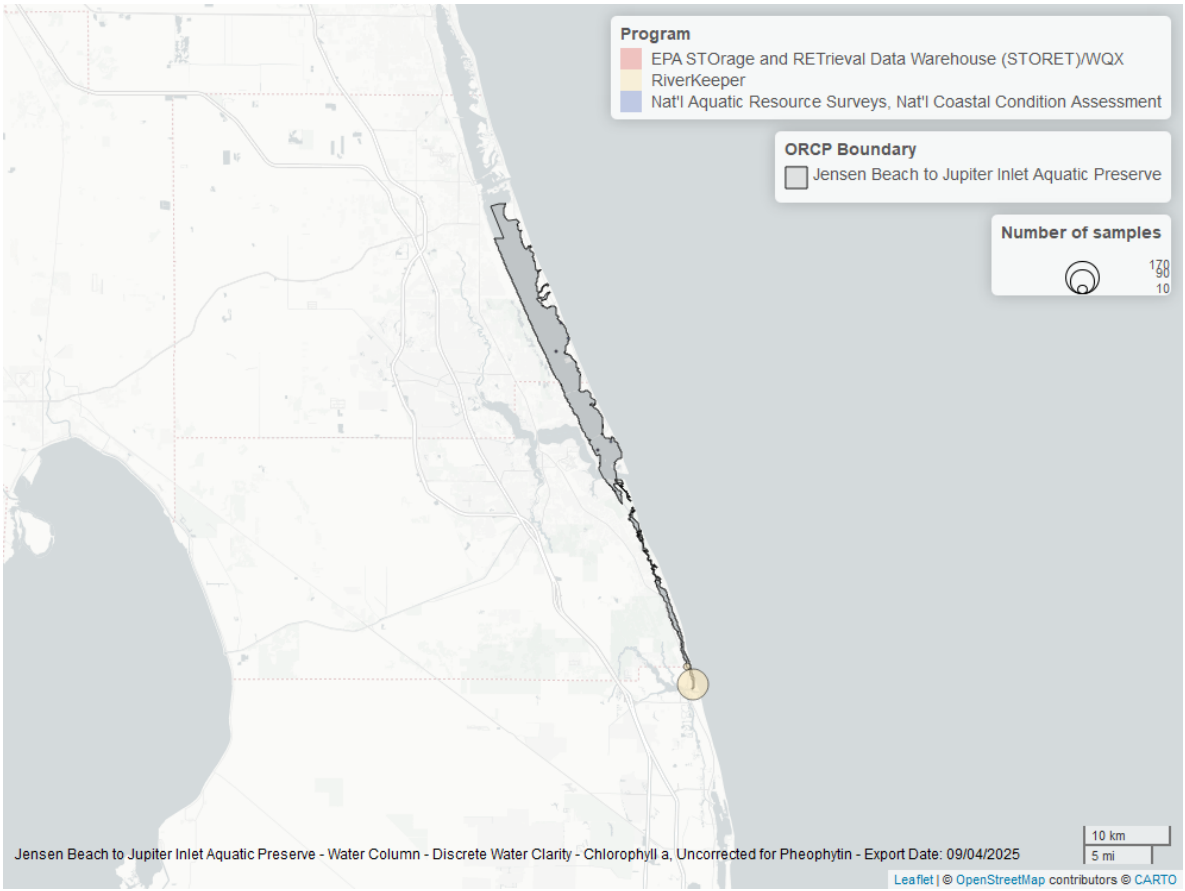

Figure 24: Map showing location of discrete water quality sampling locations within the boundaries of *Jensen Beach to Jupiter Inlet Aquatic Preserve*. The bubble size on the maps above reflect the amount of data available at each sampling site.

Chlorophyll a, Corrected for Pheophytin - Discrete

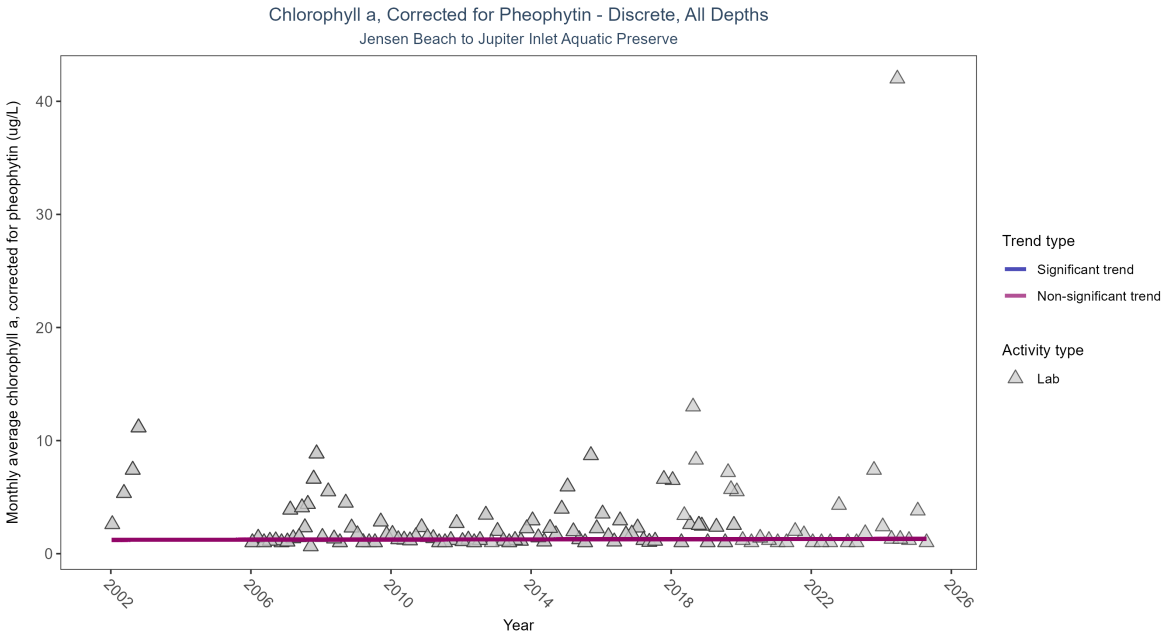

Figure 25: Scatter plot of monthly average levels of chlorophyll a, corrected for pheophytin, over time. If the time series included ten or more years of discrete observations, a significant (blue) or non-significant (magenta) trend line is also shown. Only laboratory-analyzed chlorophyll a (triangles) 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	347	21	2002 - 2025	1.4	0.06934	1.2232	0.0036	0.2976

Chlorophyll a, corrected for pheophytin, showed no detectable trend between 2002 and 2025.

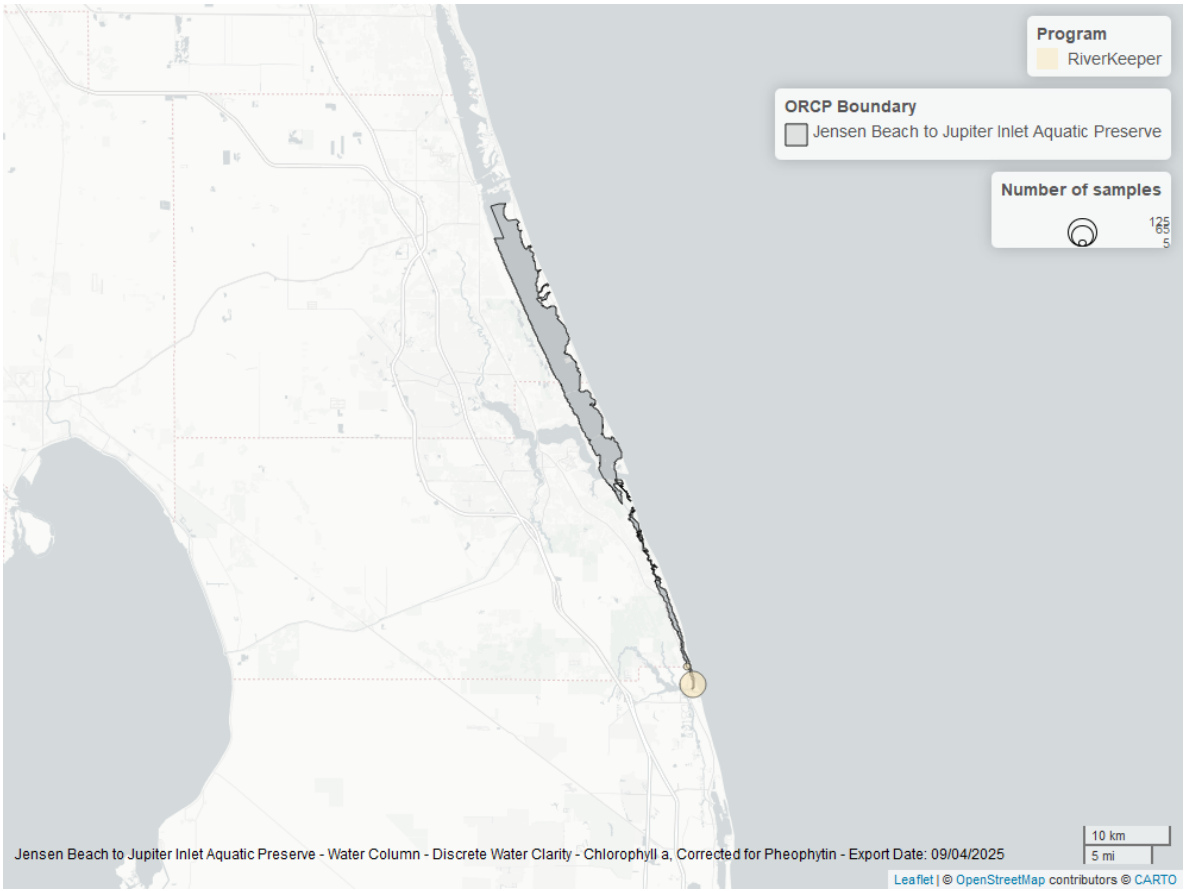

Figure 26: Map showing location of discrete water quality sampling locations within the boundaries of *Jensen Beach to Jupiter Inlet Aquatic Preserve*. The bubble size on the maps above reflect the amount of data available at each sampling site.

Secchi Depth - Discrete

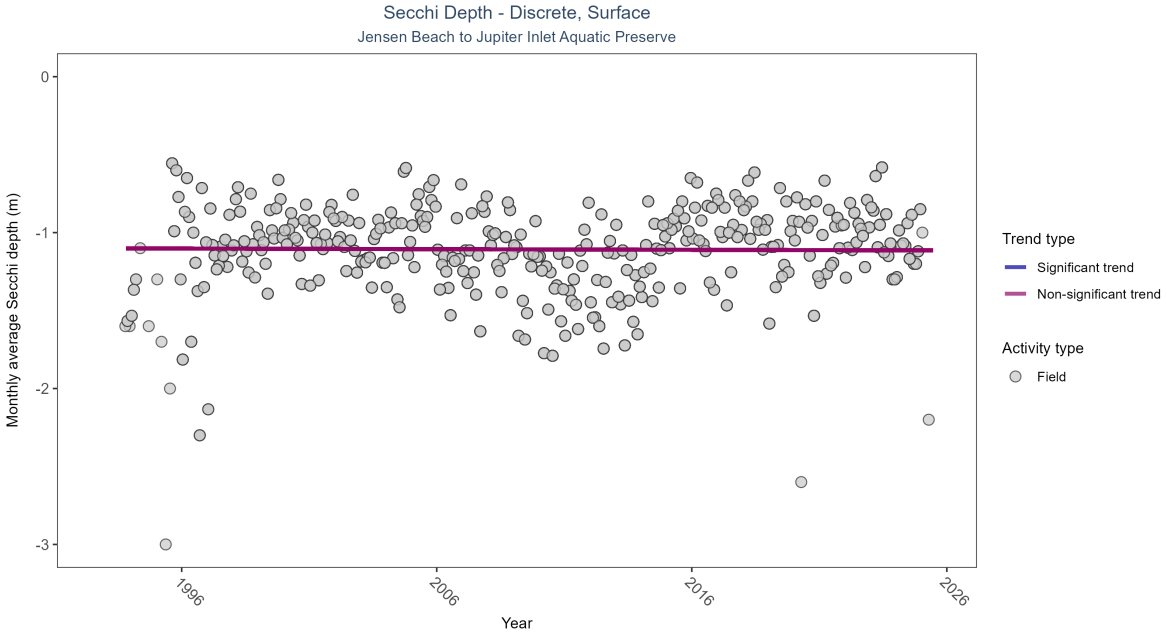

Figure 27: Scatter plot of monthly average Secchi depth over time. If the time series included ten or more years of discrete observations, a significant (blue) or non-significant (magenta) trend line is also shown. Secchi depth is only measured in the field (circles).

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	6486	33	1993 - 2025	-1	-0.01189	-1.101	-0.00041	0.7744

Secchi depth showed no detectable trend between 1993 and 2025.

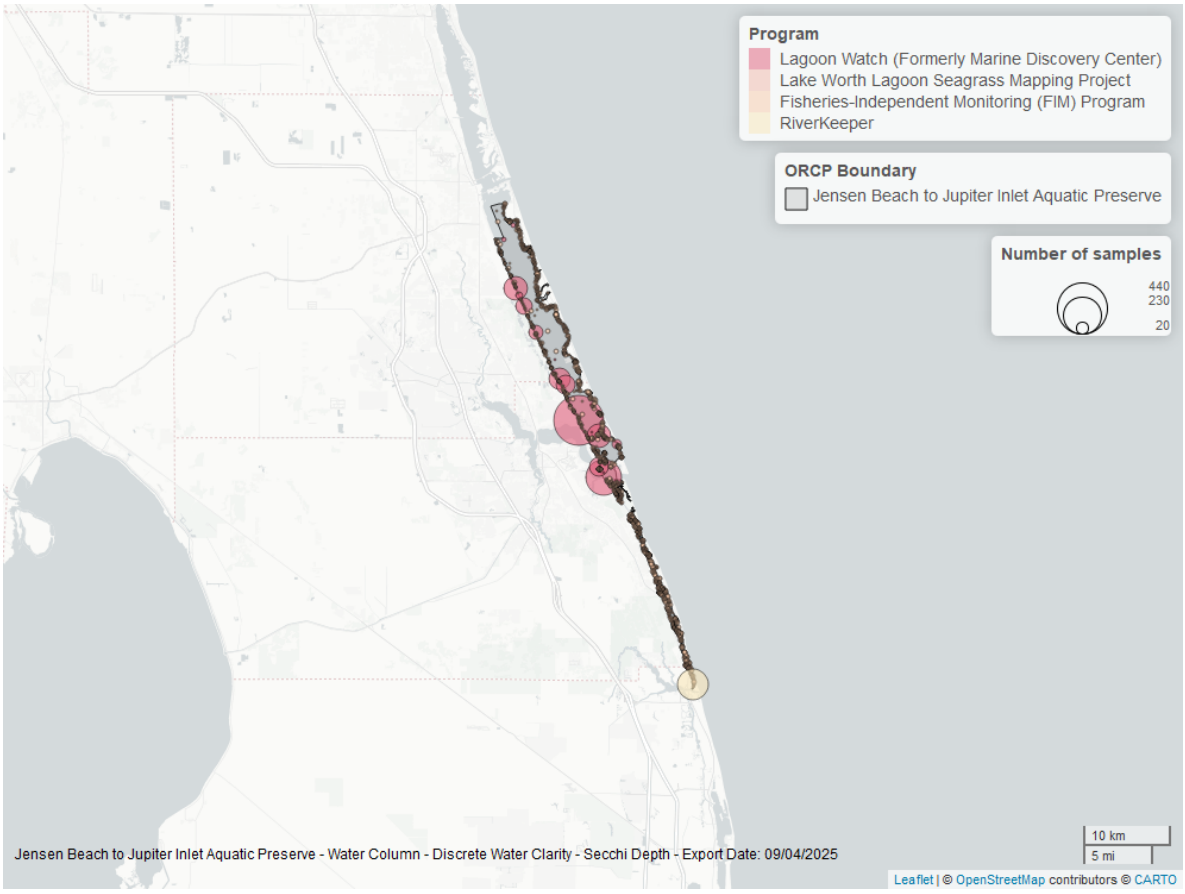

Figure 28: Map showing location of discrete water quality sampling locations within the boundaries of *Jensen Beach to Jupiter Inlet Aquatic Preserve*. The bubble size on the maps above reflect the amount of data available at each sampling site.

Colored Dissolved Organic Matter - Discrete

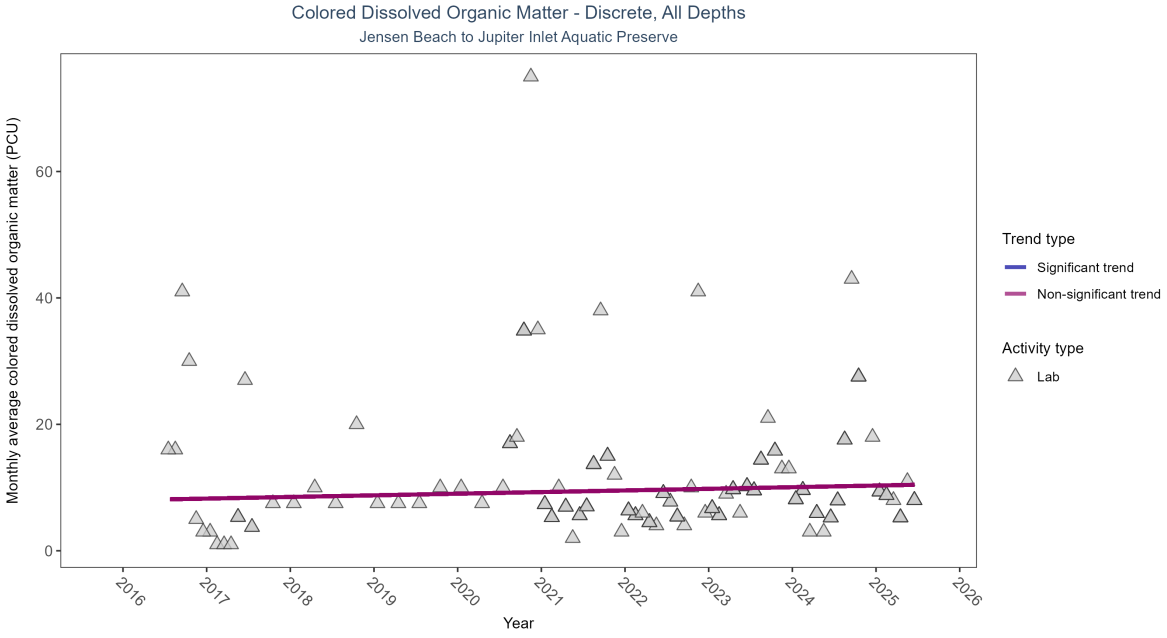

Figure 29: Scatter plot of monthly average colored dissolved organic matter (CDOM) over time. If the time series included ten or more years of discrete observations, a significant (blue) or non-significant (magenta) trend line is also shown. Only laboratory-analyzed CDOM (triangles) is included in the 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	No significant trend	386	10	2016 - 2025	7.5	0.14337	7.99621	0.25758	0.1828

Colored dissolved organic matter showed no detectable trend between 2016 and 2025.

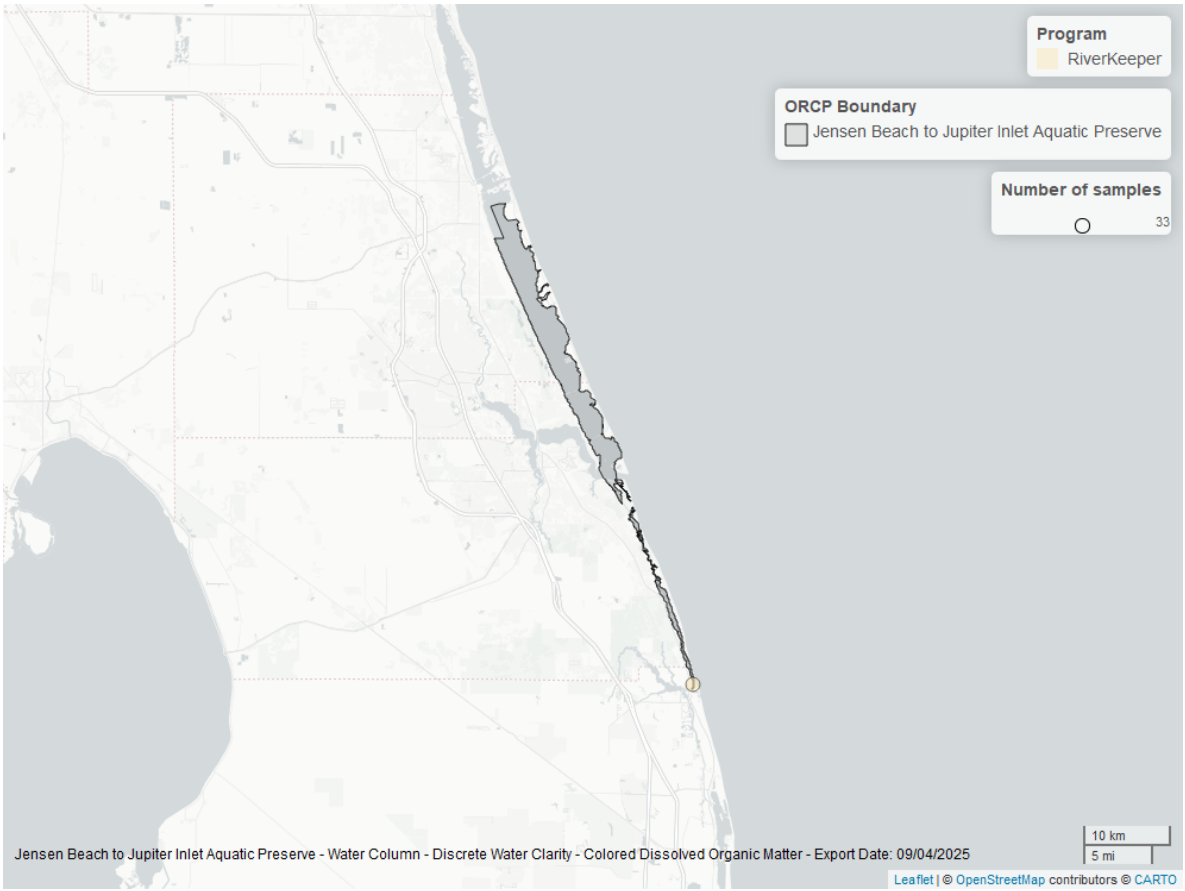

Figure 30: Map showing location of discrete water quality sampling locations within the boundaries of *Jensen Beach to Jupiter Inlet Aquatic Preserve*. The bubble size on the maps above reflect the amount of data available at each sampling site.