

Jensen Beach to Jupiter Inlet Aquatic Preserve

SEACAR Water Quality Analysis

Last compiled on 10 July, 2025

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Indicators

Nutrients

Total Nitrogen - Discrete

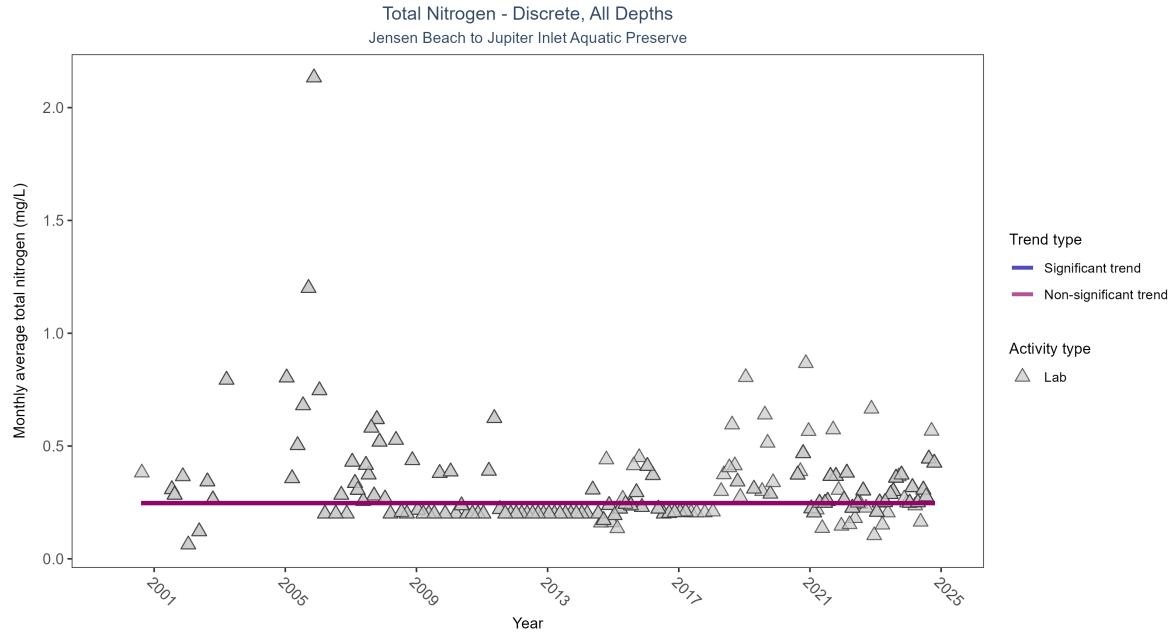


Figure 1: Scatter plot of monthly average total nitrogen over time. If the time series included ten or more years of discrete observations, a significant (blue) or non-significant (magenta) trend line is also shown. Only nitrogen values obtained from laboratory analyses (triangles) are included in the 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	No significant trend	640	24	2000 - 2024	0.2535	0.00938	0.24696	0	0.8695

Total nitrogen showed no detectable trend between 2000 and 2024.

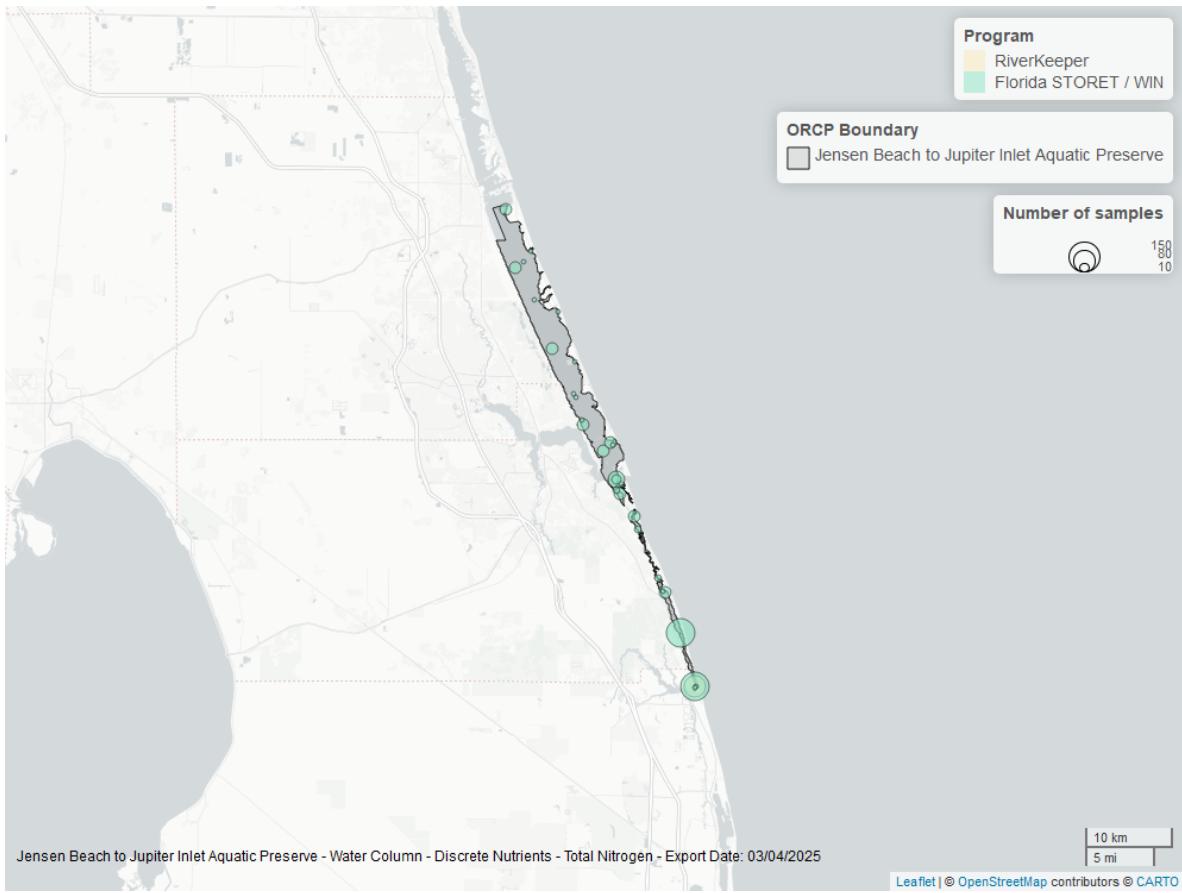


Figure 2: Map showing location of discrete water quality sampling locations within the boundaries of *Jensen Beach to Jupiter Inlet Aquatic Preserve*. The bubble size on the maps above reflect the amount of data available at each sampling site.

Total Phosphorus - Discrete

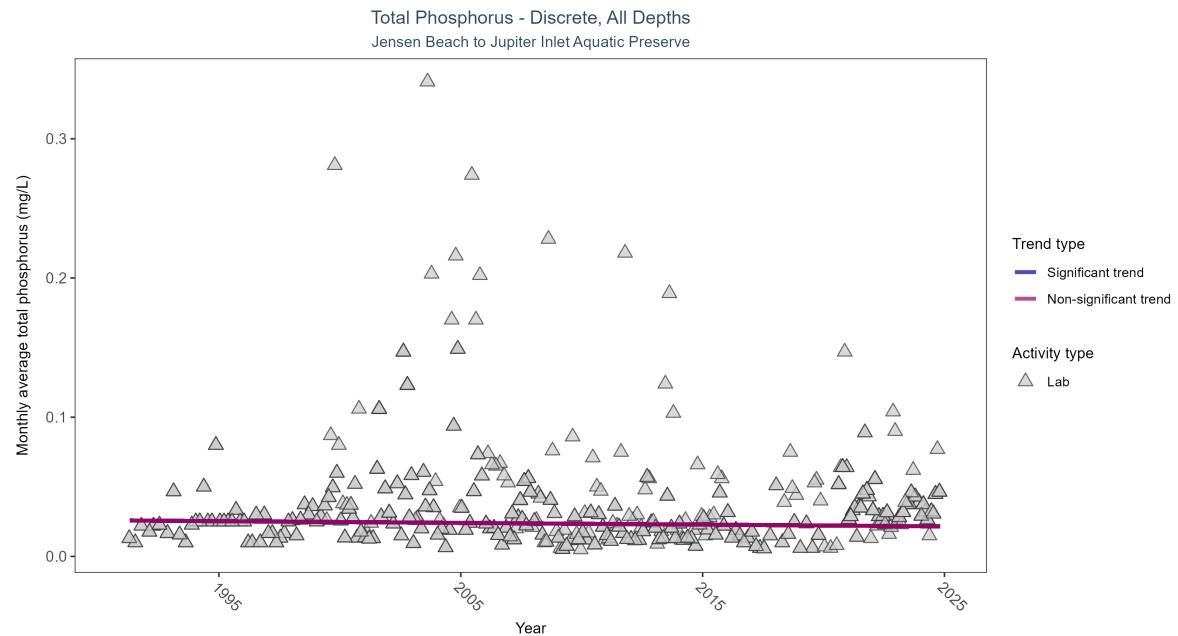


Figure 3: Scatter plot of monthly average total phosphorus over time. If the time series included ten or more years of discrete observations, a significant (blue) or non-significant (magenta) trend line is also shown. Only phosphorus values obtained from laboratory analyses (triangles) are included in 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	1147	34	1991 - 2024	0.027	-0.06332	0.02581	-0.00013	0.1918

Total phosphorus showed no detectable trend between 1991 and 2024.

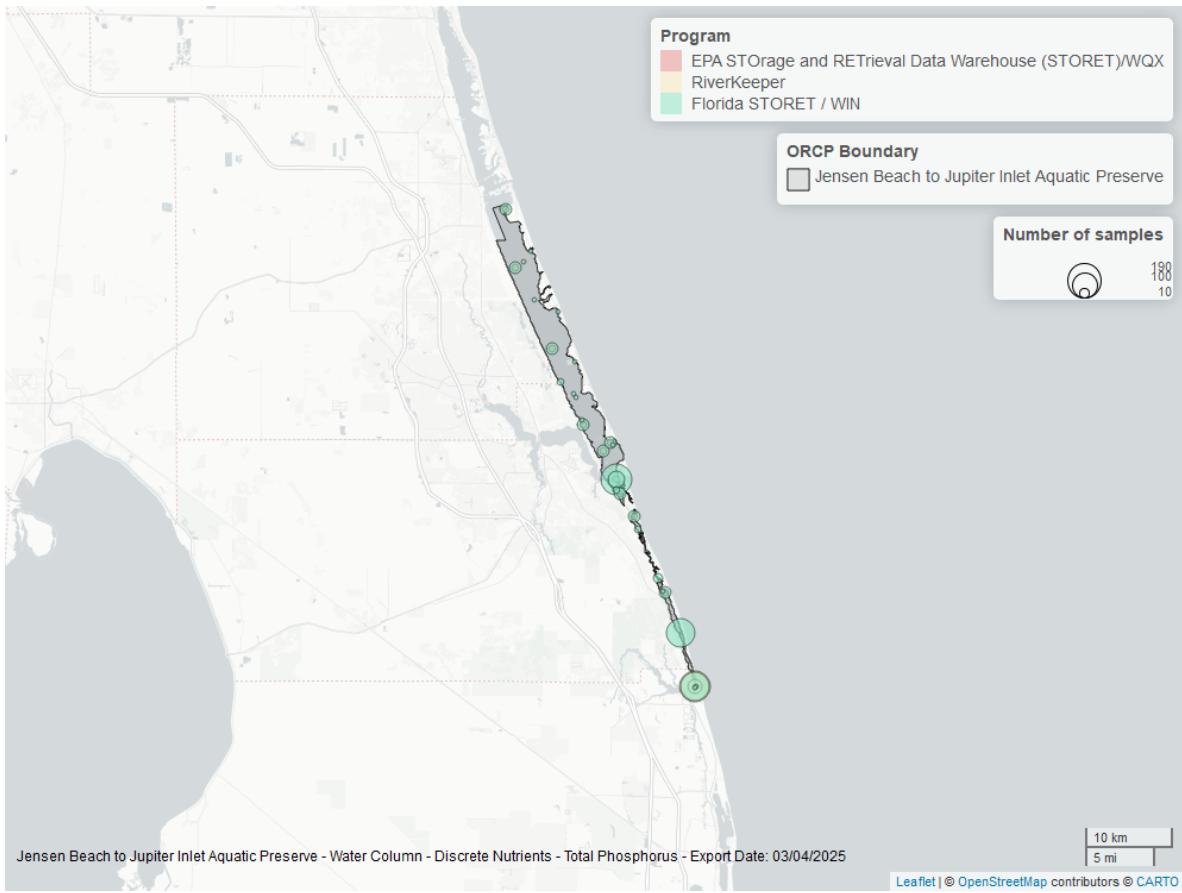


Figure 4: Map showing location of discrete water quality sampling locations within the boundaries of *Jensen Beach to Jupiter Inlet Aquatic Preserve*. The bubble size on the maps above reflect the amount of data available at each sampling site.

Water Quality

Dissolved Oxygen - Discrete

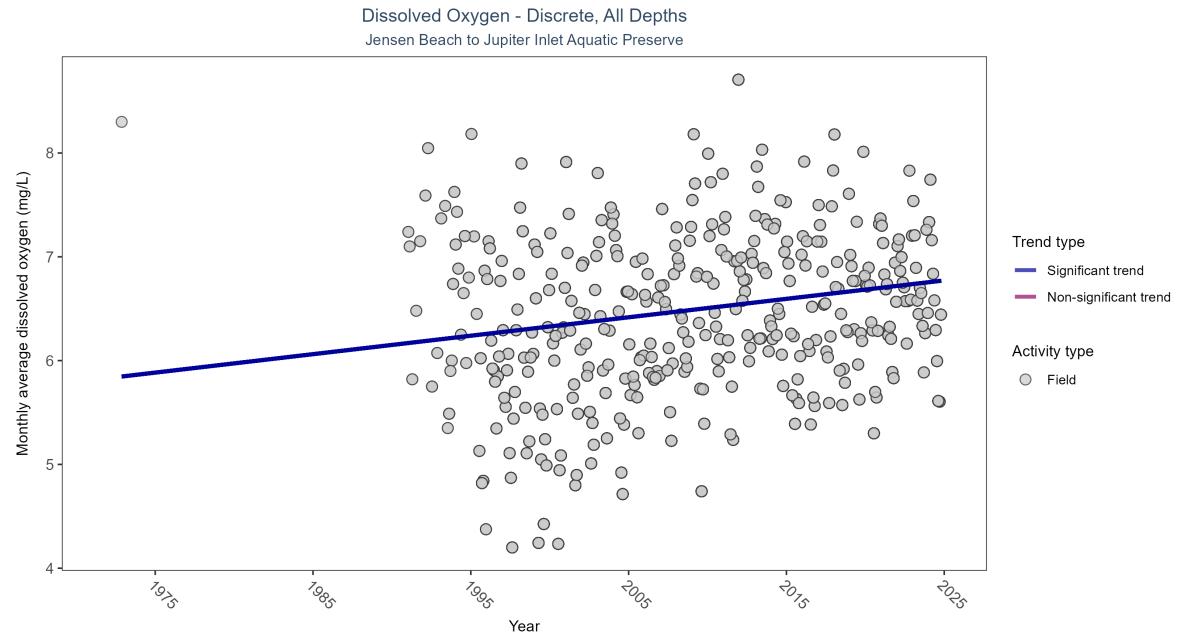


Figure 5: Scatter plot of monthly average dissolved oxygen over time. If the time series included ten or more years of discrete observations, a significant (blue) or non-significant (magenta) trend line is also shown. Only dissolved oxygen values measured in the field (circles) are included in the plot.

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	10723	35	1972 - 2024	6.4	0.20095	5.83105	0.01777	0

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

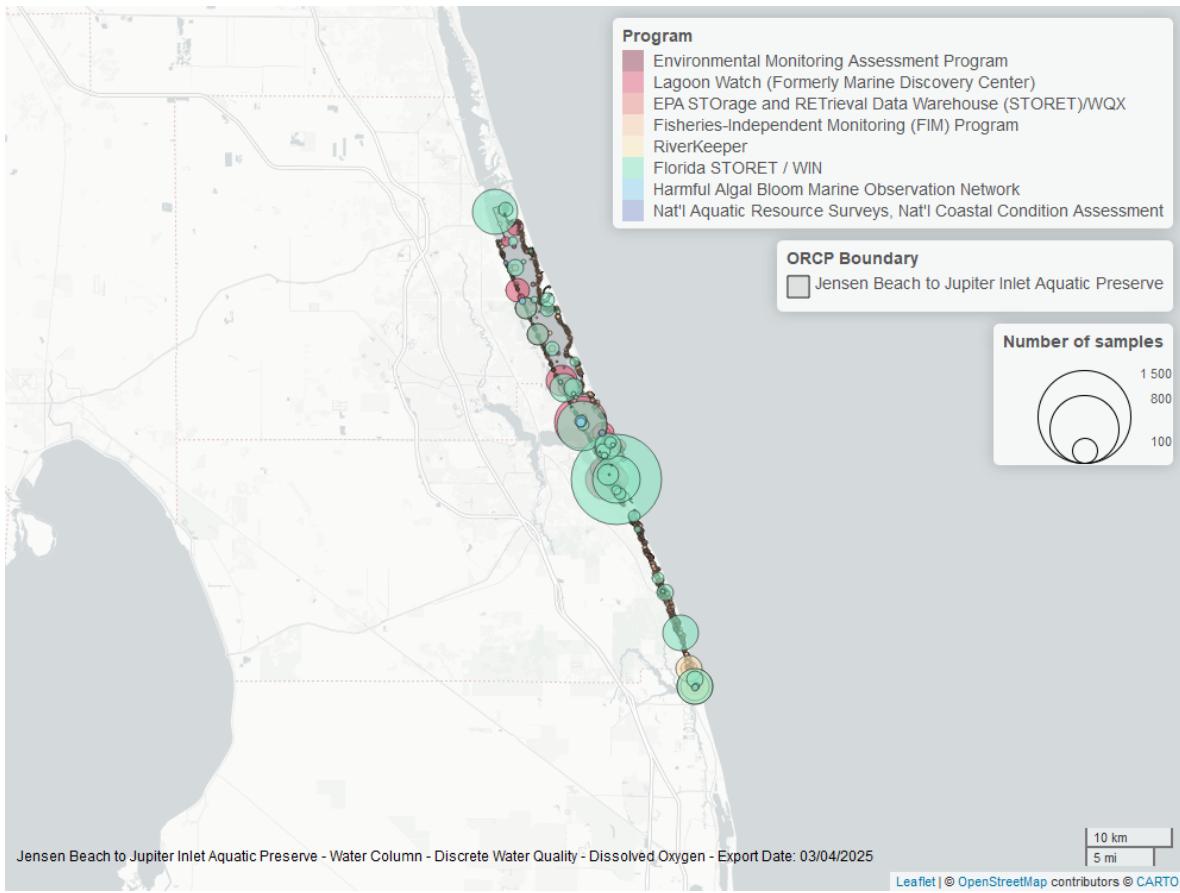


Figure 6: Map showing location of discrete water quality sampling locations within the boundaries of *Jensen Beach to Jupiter Inlet Aquatic Preserve*. The bubble size on the maps above reflect the amount of data available at each sampling site.

Dissolved Oxygen Saturation - Discrete

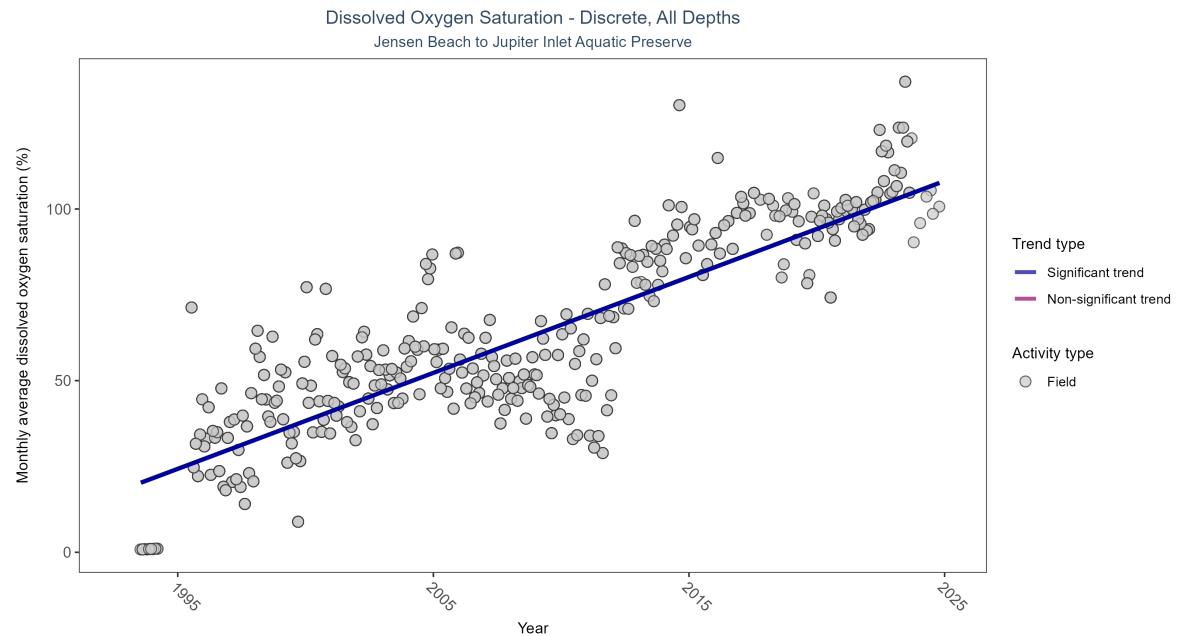


Figure 7: Scatter plot of monthly average dissolved oxygen saturation over time. If the time series included ten or more years of discrete observations, a significant (blue) or non-significant (magenta) trend line is also shown. Only dissolved oxygen saturation values measured in the field (circles) 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	4223	32	1993 - 2024	79.09	0.67745	18.71729	2.7955	0

Monthly average dissolved oxygen saturation increased by 2.8% per year.

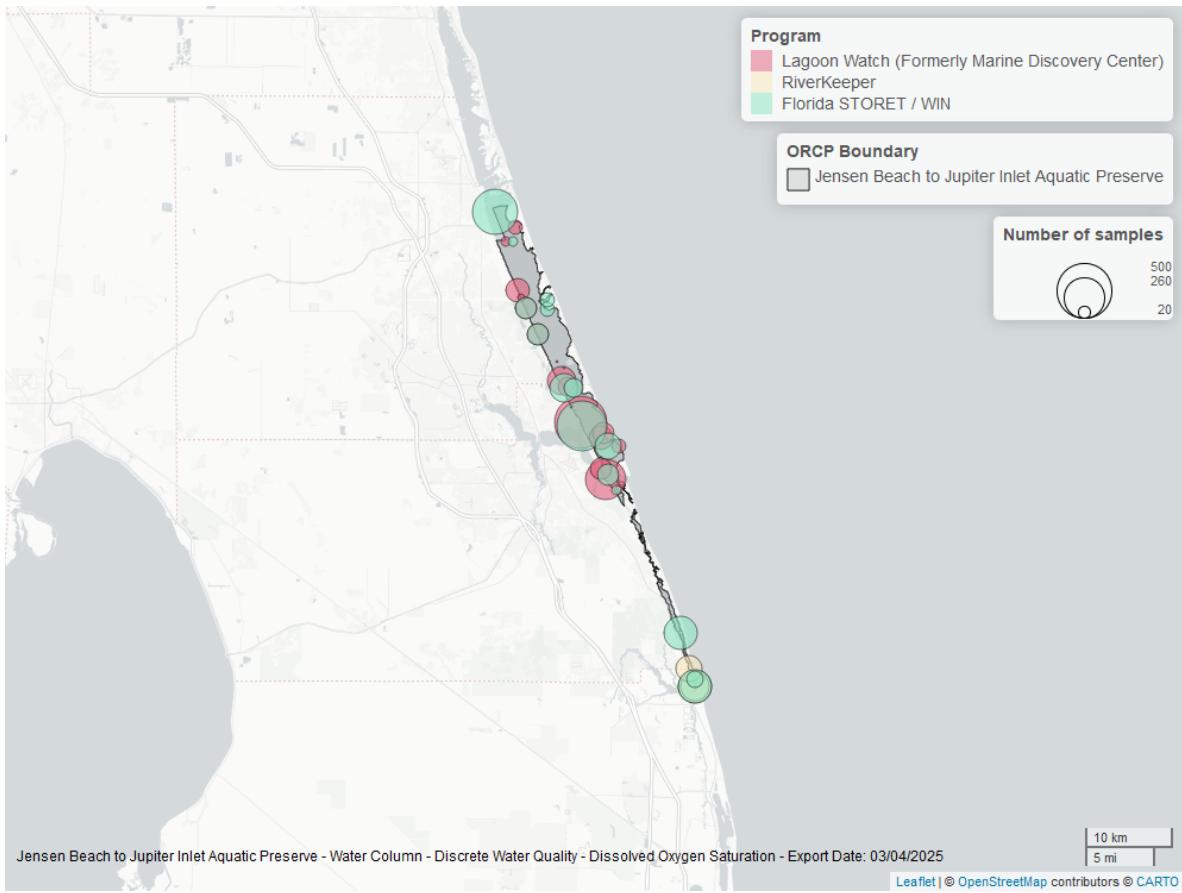


Figure 8: Map showing location of discrete water quality sampling locations within the boundaries of *Jensen Beach to Jupiter Inlet Aquatic Preserve*. The bubble size on the maps above reflect the amount of data available at each sampling site.

Salinity - Discrete

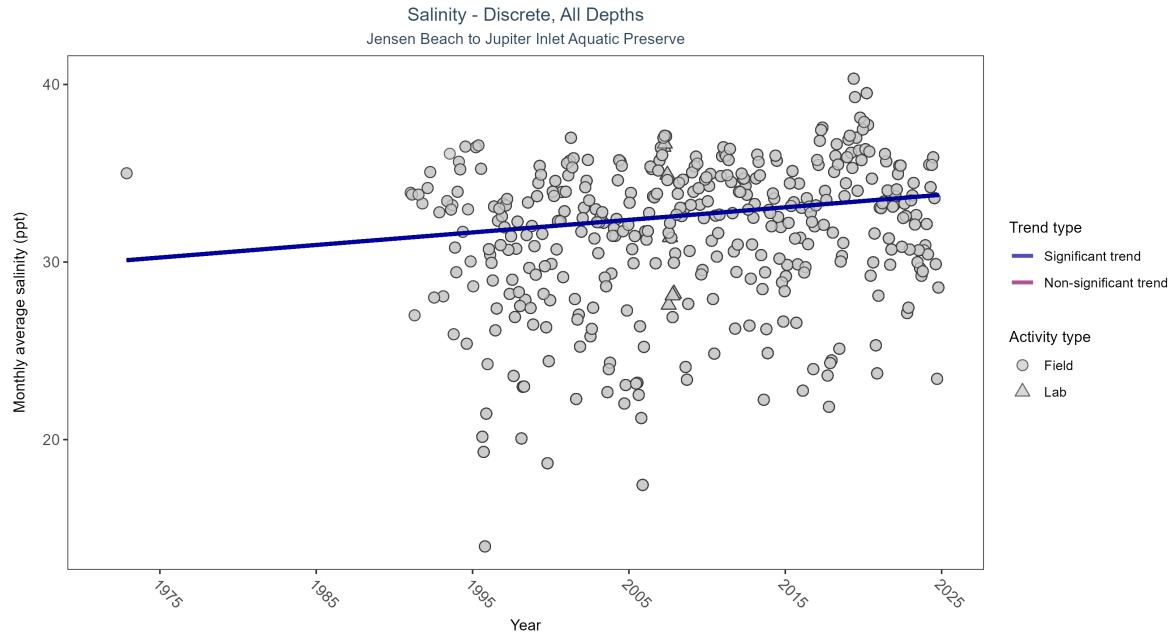


Figure 9: Scatter plot of monthly average salinity over time. If the time series included ten or more years of discrete observations, significant (blue) or non-significant (magenta) trend lines are also shown. Discrete salinity values derived from grab samples analyzed in the field (circles) or the laboratory (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	10744	35	1972 - 2024	32.8	0.14479	30.04103	0.07073	0.0001

Monthly average salinity increased by 0.07 ppt per year.

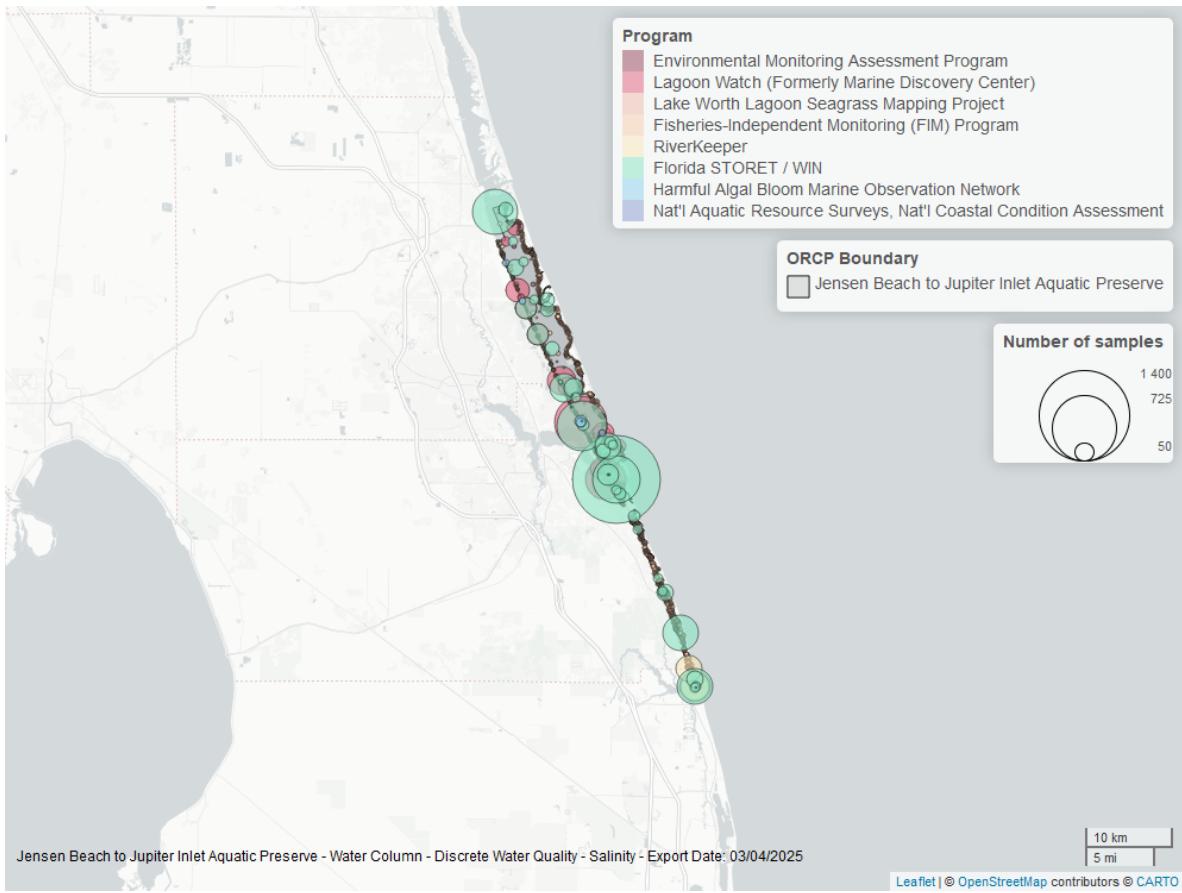


Figure 10: Map showing location of discrete water quality sampling locations within the boundaries of *Jensen Beach to Jupiter Inlet Aquatic Preserve*. The bubble size on the maps above reflect the amount of data available at each sampling site.

Salinity - Continuous

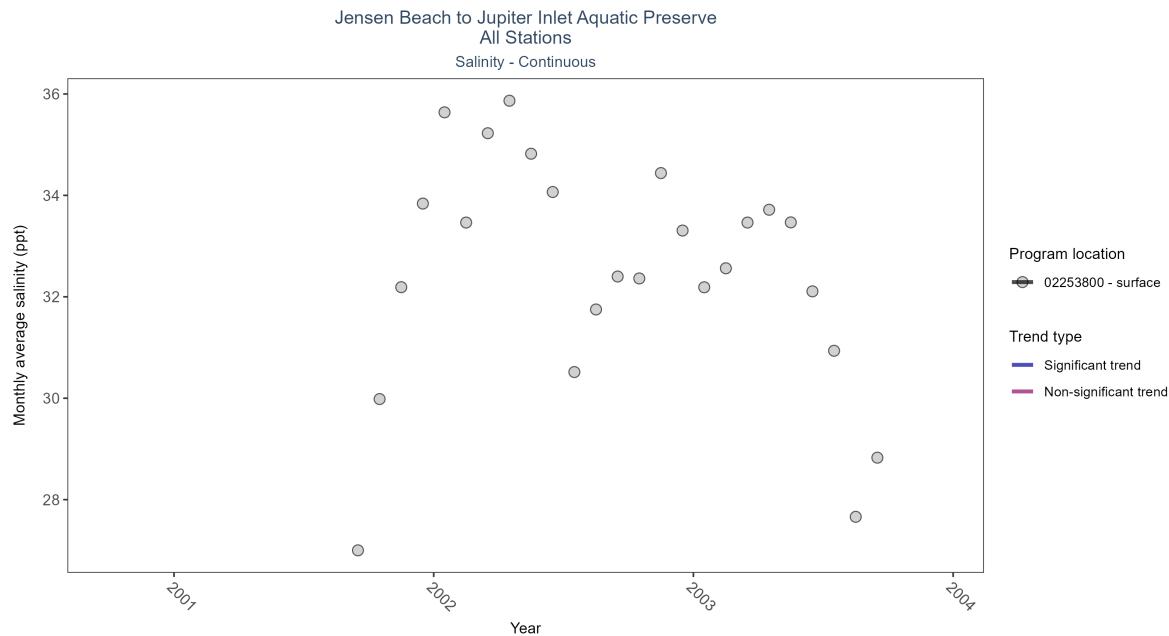


Figure 11: Scatter plot of monthly average salinity over time at continuously monitored program locations. Each location is analyzed separately, with significant (blue) or non-significant (magenta) trend lines shown for time series that included five or more years of observations.

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.

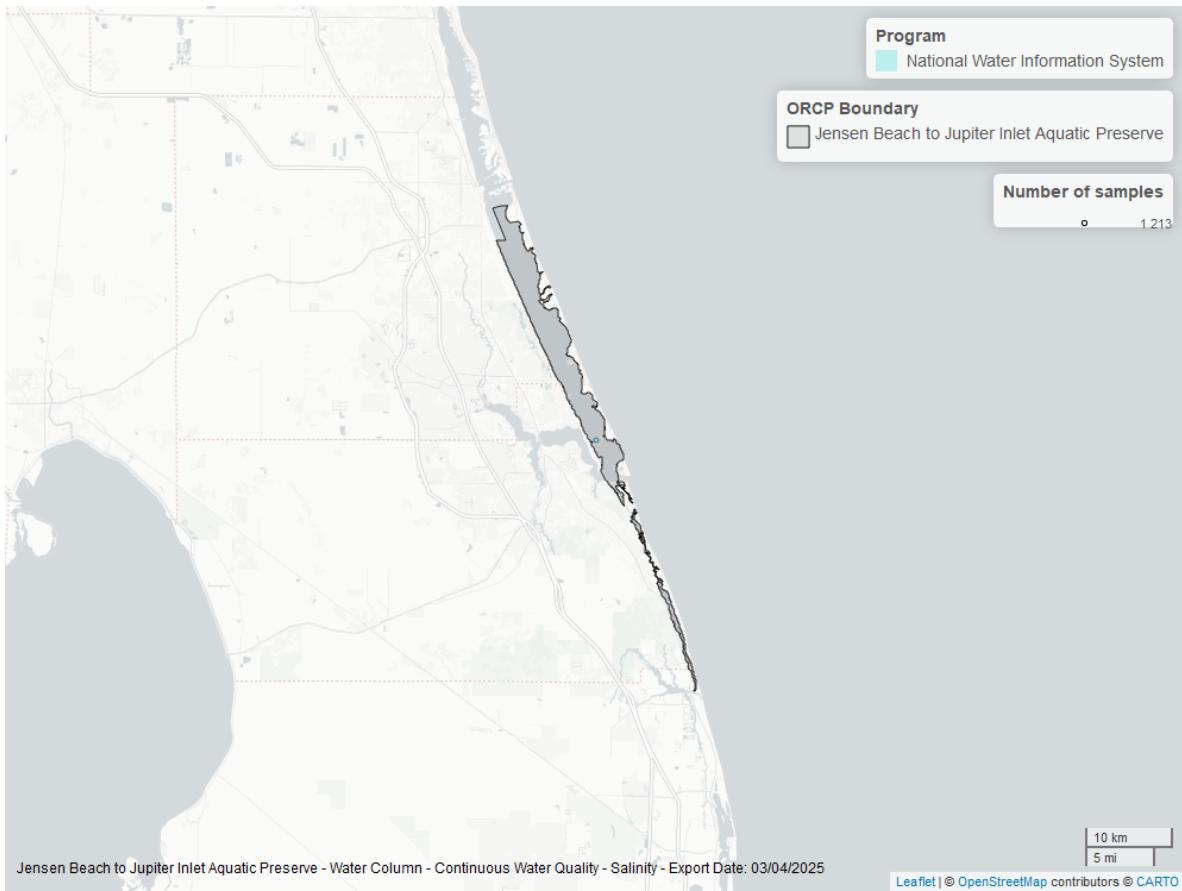


Figure 12: Map showing location of salinity continuous water quality sampling locations within the boundaries of *Jensen Beach to Jupiter Inlet Aquatic Preserve*. The bubble size on the maps above reflect the amount of data available at each sampling site.

Water Temperature - Discrete

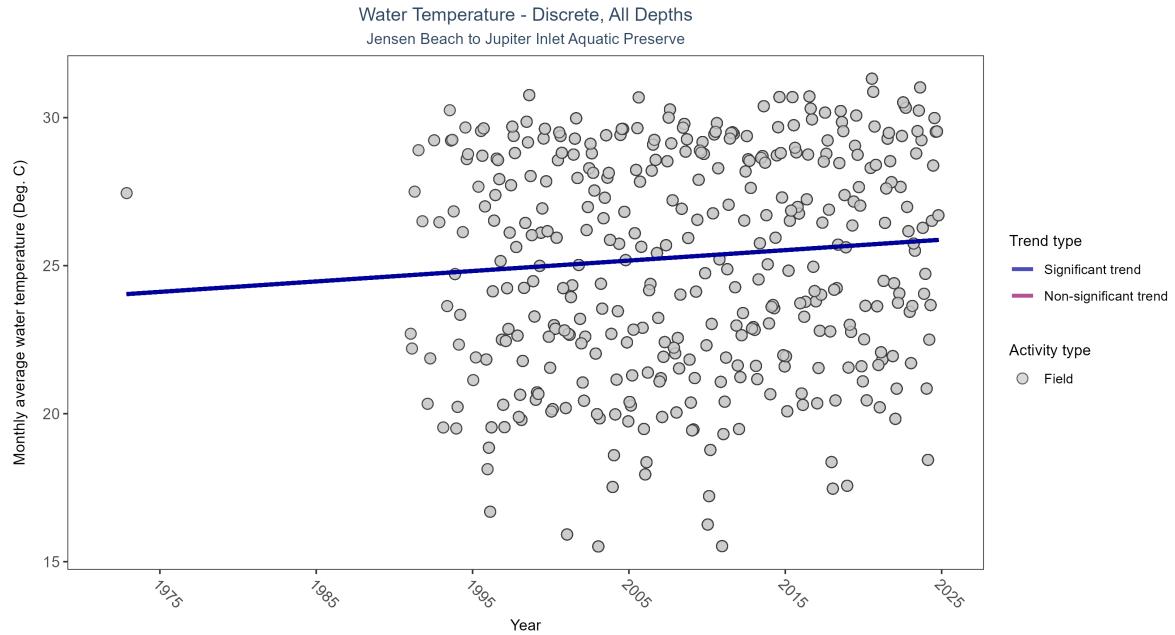


Figure 13: Scatter plot of monthly average water temperature over time. If the time series included ten or more years of discrete observations, a significant (blue) or non-significant (magenta) trend line is also shown. Only water temperature measurements taken in the field (circles) are included in 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	10655	35	1972 - 2024	25.5	0.20401	24.00838	0.03525	0

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

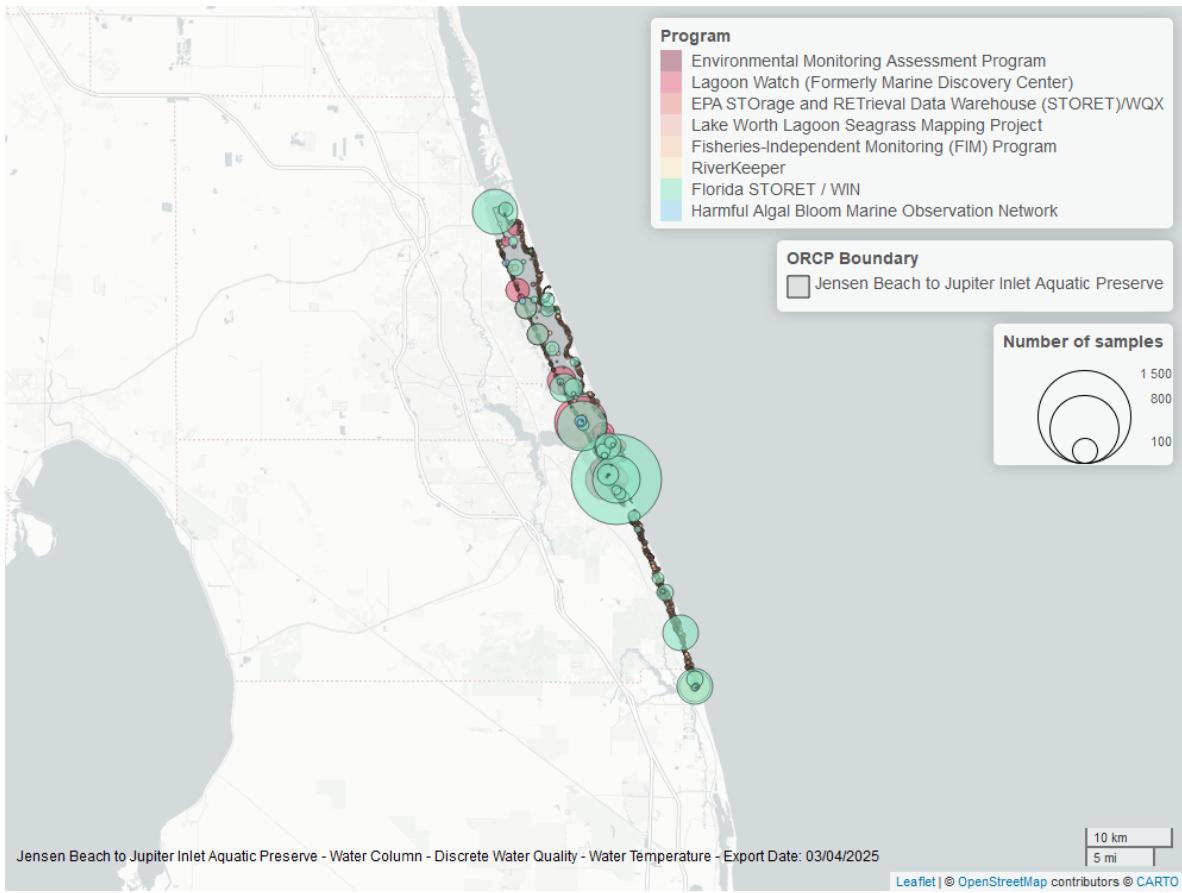


Figure 14: Map showing location of discrete water quality sampling locations within the boundaries of *Jensen Beach to Jupiter Inlet Aquatic Preserve*. The bubble size on the maps above reflect the amount of data available at each sampling site.

Water Temperature - Continuous

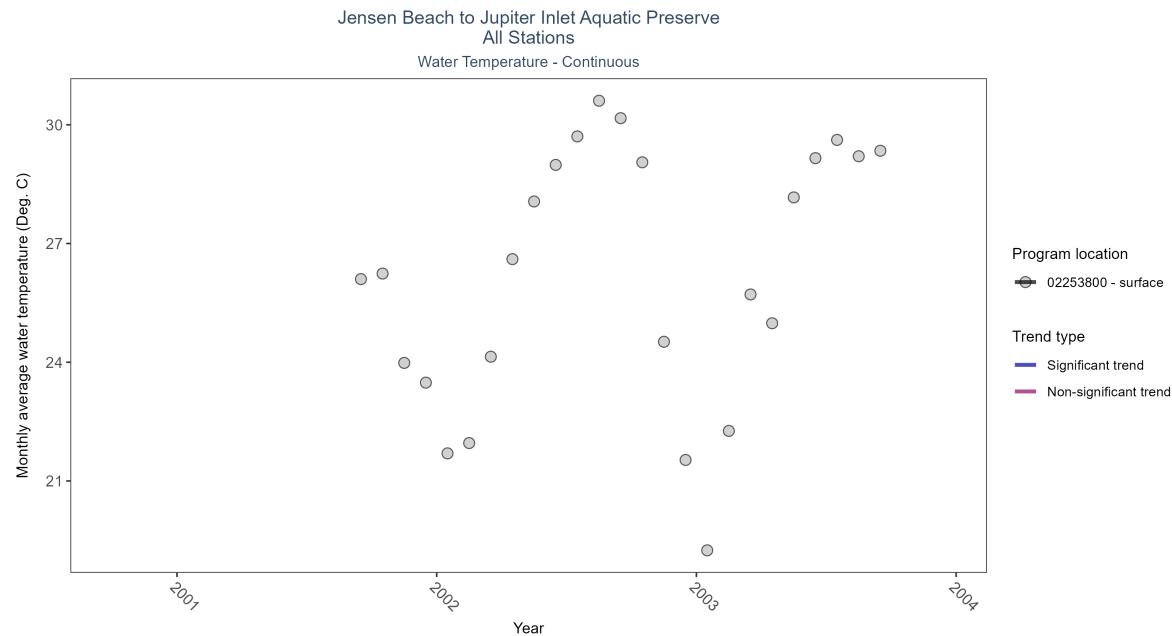


Figure 15: Scatter plot of monthly average water temperature over time at continuously monitored program locations. Each location is analyzed separately, with significant (blue) or non-significant (magenta) trend lines shown for time series that included five or more years of observations.

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.

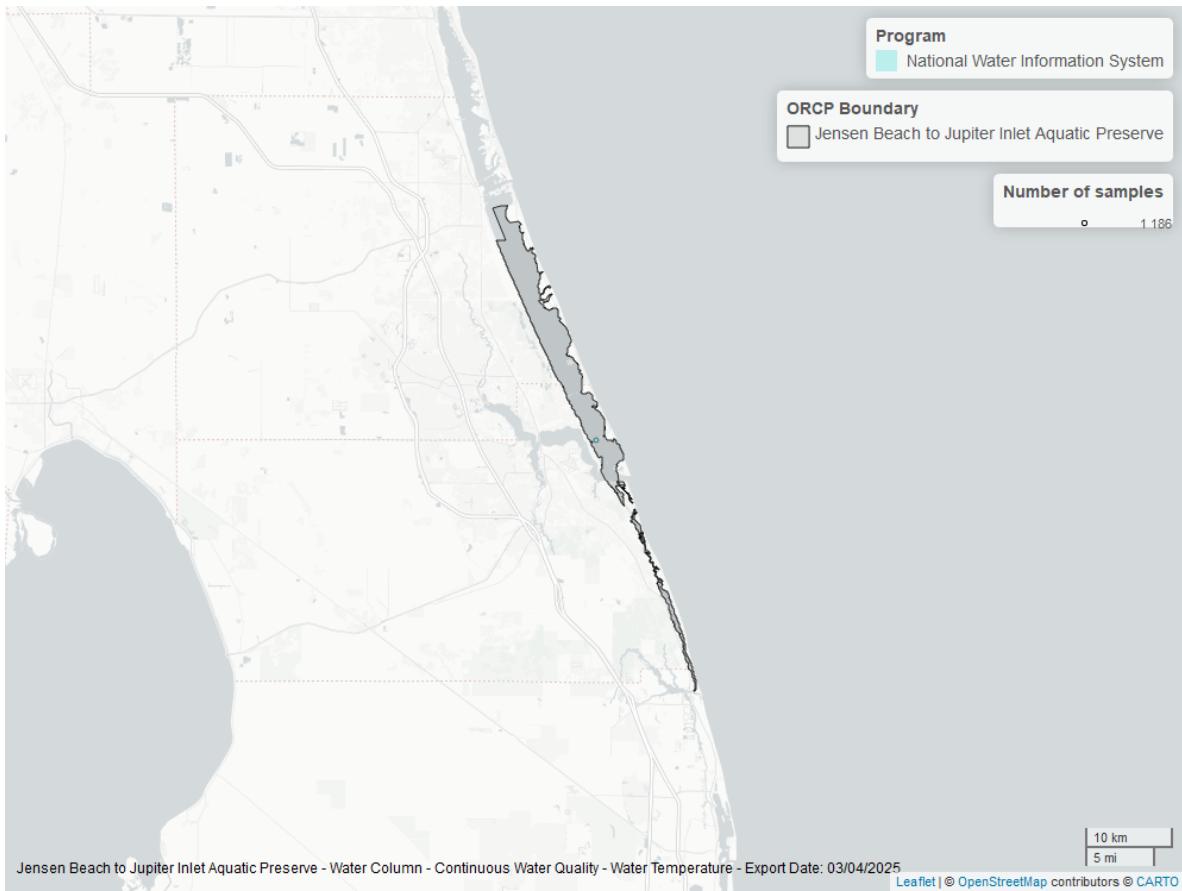


Figure 16: Map showing location of water temperature continuous water quality sampling locations within the boundaries of *Jensen Beach to Jupiter Inlet Aquatic Preserve*. The bubble size on the maps above reflect the amount of data available at each sampling site.

pH - Discrete

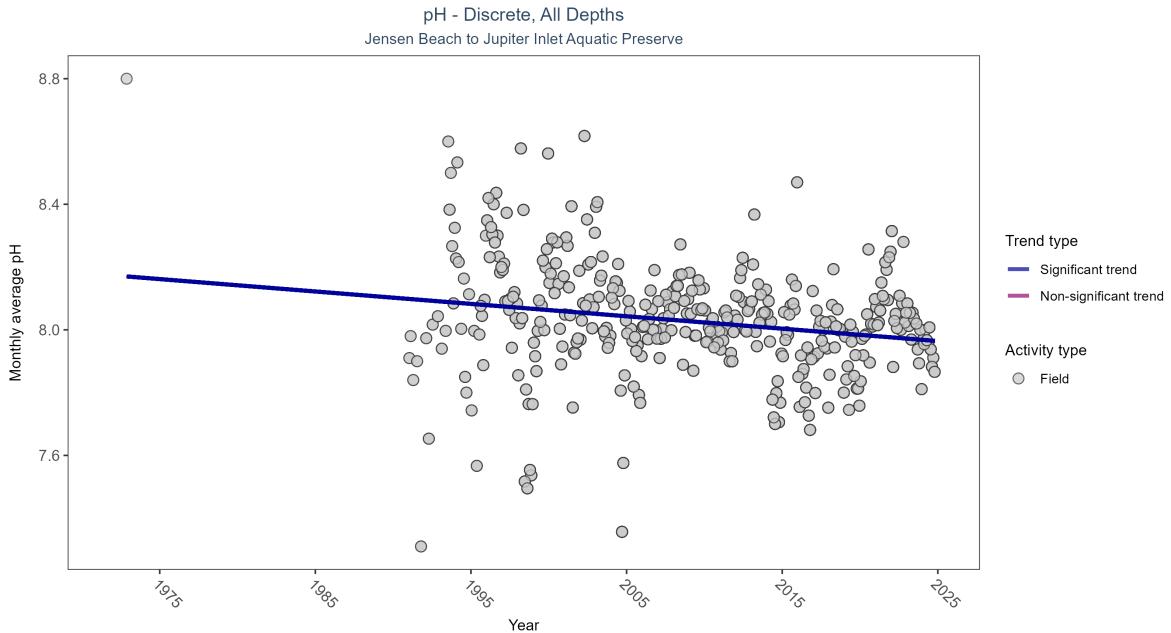


Figure 17: Scatter plot of monthly average pH over time. If the time series included ten or more years of discrete observations, a significant (blue) or non-significant (magenta) trend line is also shown. Only pH values measured in the field (circles) are included in the plot.

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	9707	35	1972 - 2024	8.01	-0.17382	8.1735	-0.00395	0

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

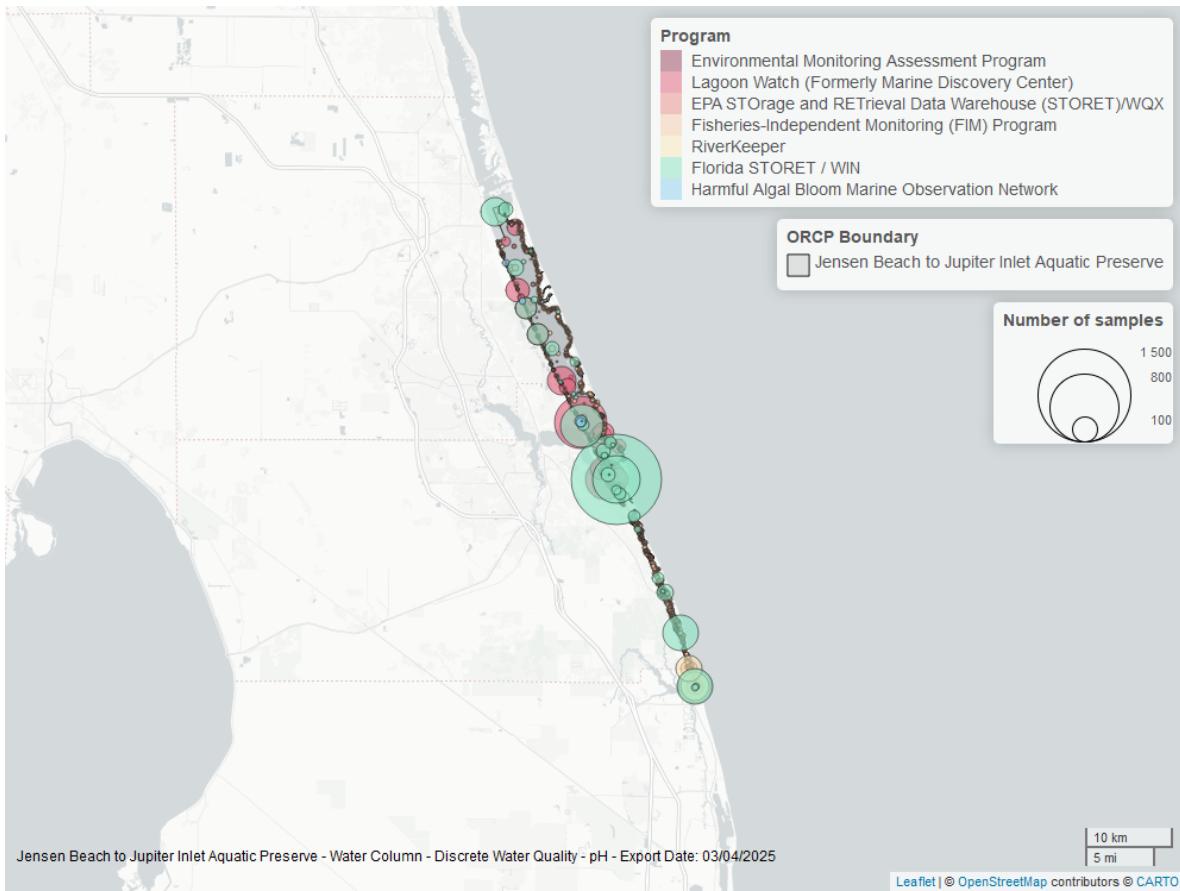


Figure 18: Map showing location of discrete water quality sampling locations within the boundaries of *Jensen Beach to Jupiter Inlet Aquatic Preserve*. The bubble size on the maps above reflect the amount of data available at each sampling site.

Water Clarity

Turbidity - Discrete

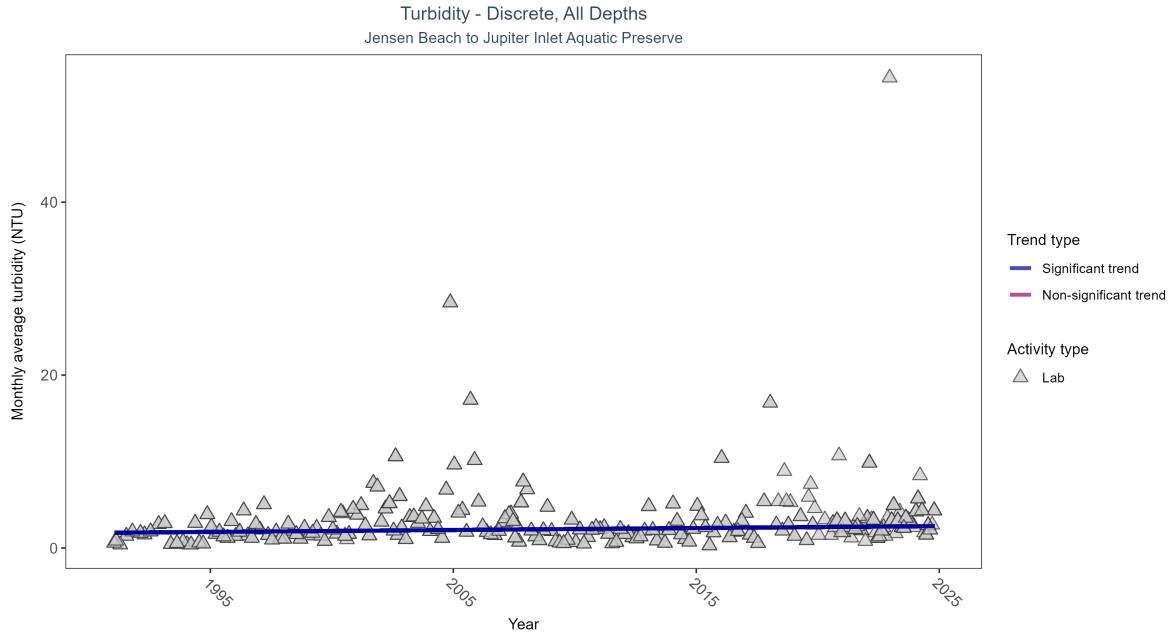


Figure 19: Scatter plot of monthly average turbidity over time. If the time series included ten or more years of discrete observations, a significant (blue) or non-significant (magenta) trend line is also shown. Only turbidity values measured in the laboratory (triangles) are included in the plot.

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	884	34	1991 - 2024		2.2	0.10381	1.77238	0.0225 0.037

Monthly average turbidity increased by 0.02 NTU per year, indicating a decrease in water clarity.

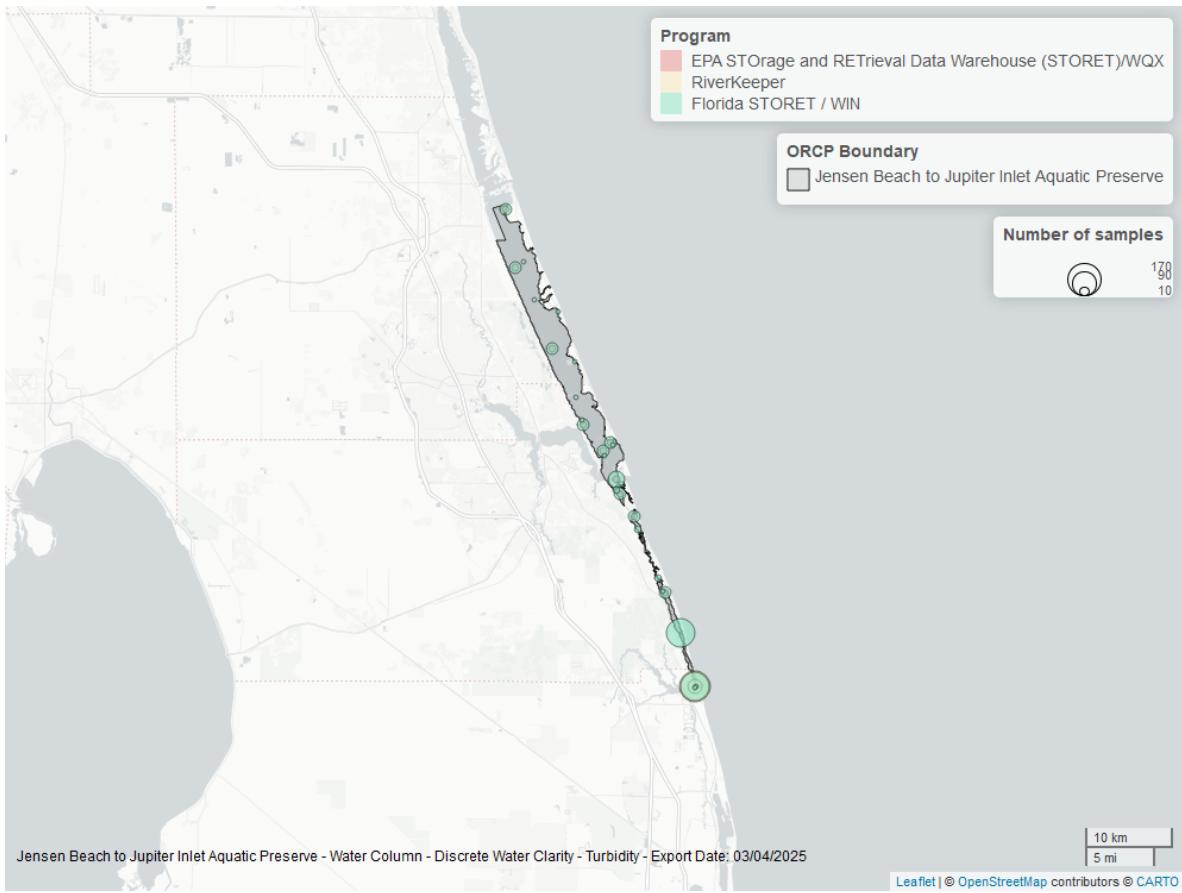


Figure 20: Map showing location of discrete water quality sampling locations within the boundaries of *Jensen Beach to Jupiter Inlet Aquatic Preserve*. The bubble size on the maps above reflect the amount of data available at each sampling site.

Total Suspended Solids - Discrete

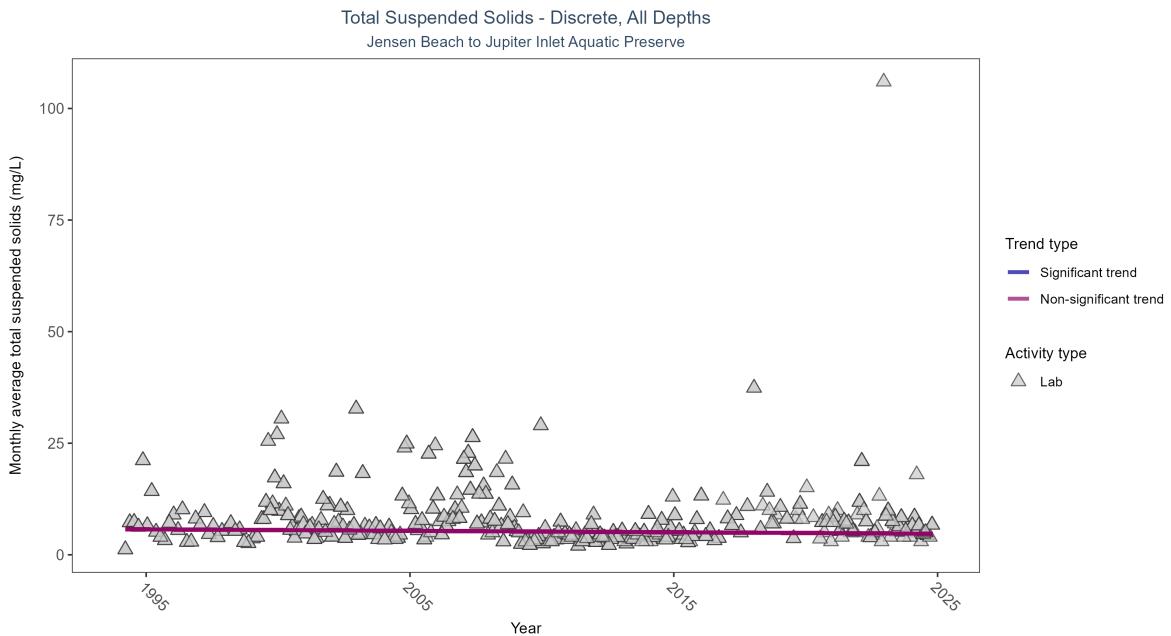


Figure 21: Scatter plot of monthly average total suspended solids (TSS) over time. If the time series included ten or more years of discrete observations, a significant (blue) or non-significant (magenta) trend line is also shown. Only TSS values obtained from laboratory analyses (triangles) are included 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	1206	31	1994 - 2024	6	-0.07168	5.72661	-0.03235	0.1103

Total suspended solids showed no detectable trend between 1994 and 2024.

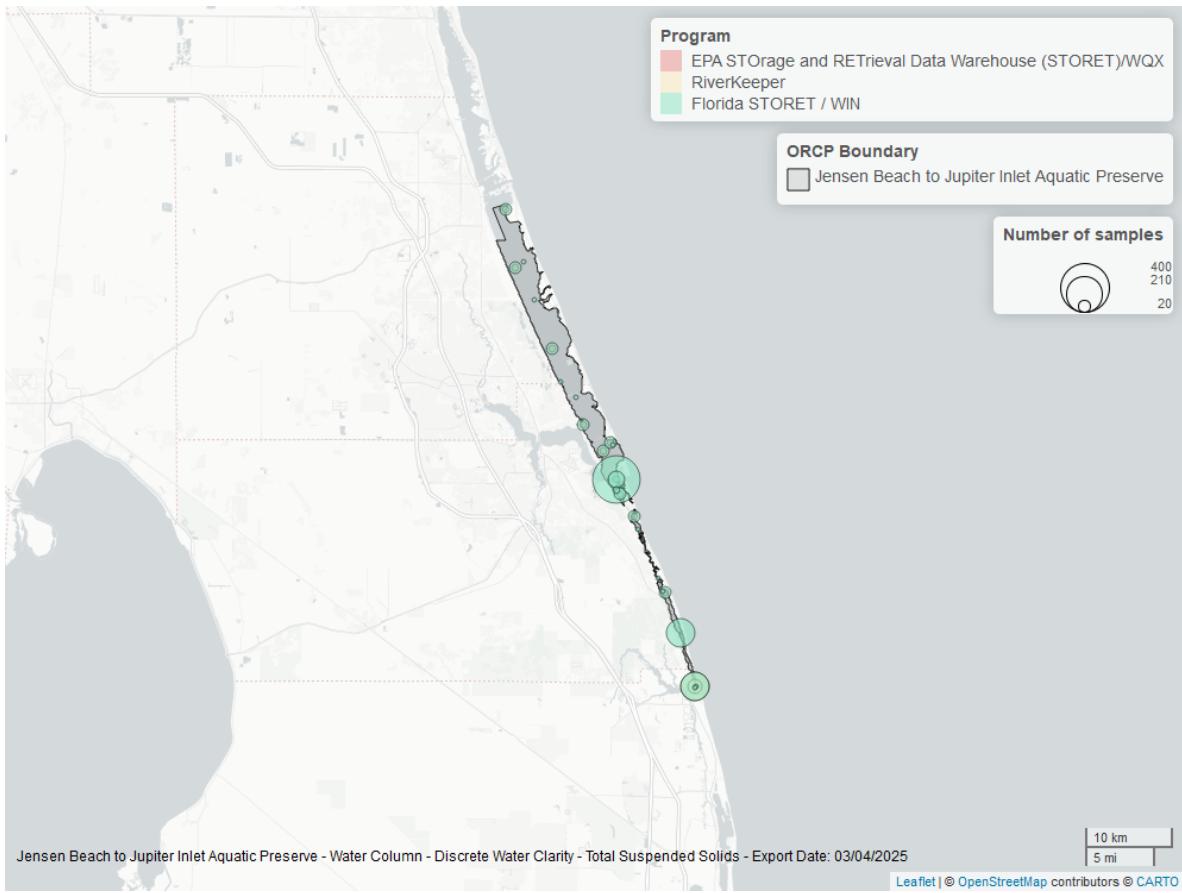


Figure 22: Map showing location of discrete water quality sampling locations within the boundaries of *Jensen Beach to Jupiter Inlet Aquatic Preserve*. The bubble size on the maps above reflect the amount of data available at each sampling site.

Chlorophyll a, Uncorrected for Pheophytin - Discrete

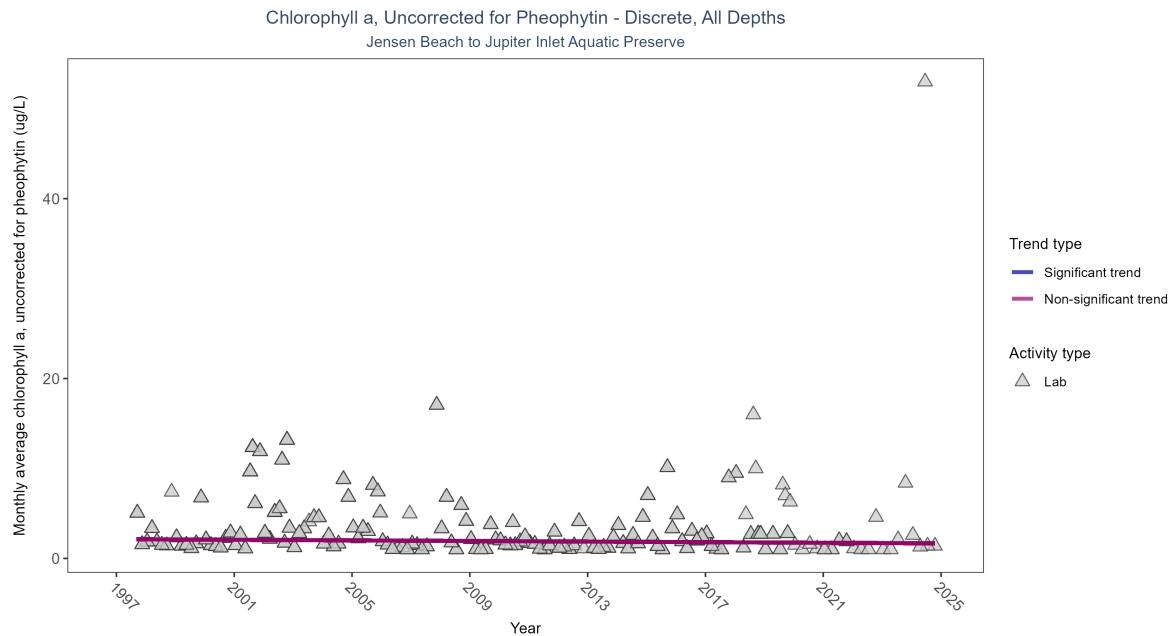


Figure 23: Scatter plot of monthly average levels of chlorophyll a, uncorrected for pheophytin, over time. If the time series included ten or more years of discrete observations, a significant (blue) or non-significant (magenta) trend line is also shown. Only laboratory-analyzed chlorophyll a (triangles) 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	478	28	1997 - 2024		1.95	-0.12068	2.14	-0.01667	0.0697

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

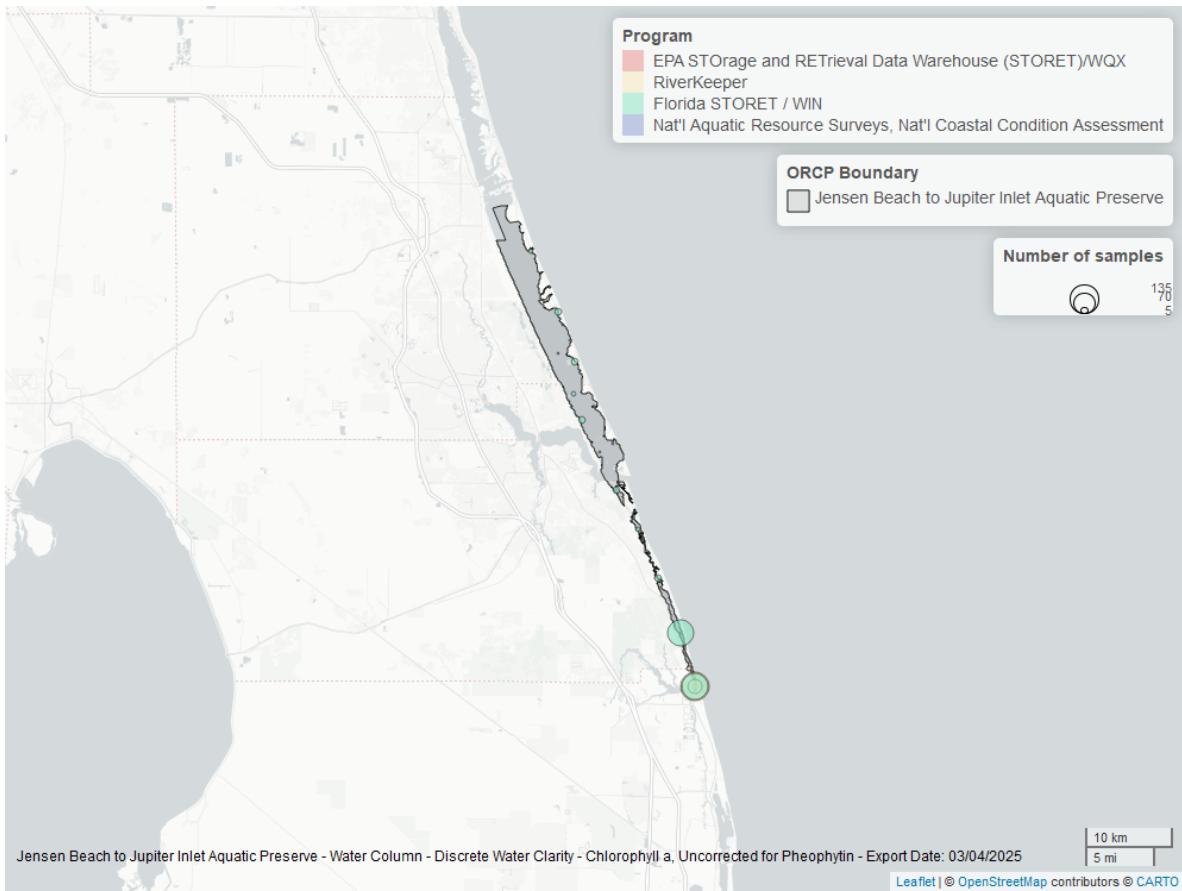


Figure 24: Map showing location of discrete water quality sampling locations within the boundaries of *Jensen Beach to Jupiter Inlet Aquatic Preserve*. The bubble size on the maps above reflect the amount of data available at each sampling site.

Chlorophyll a, Corrected for Pheophytin - Discrete

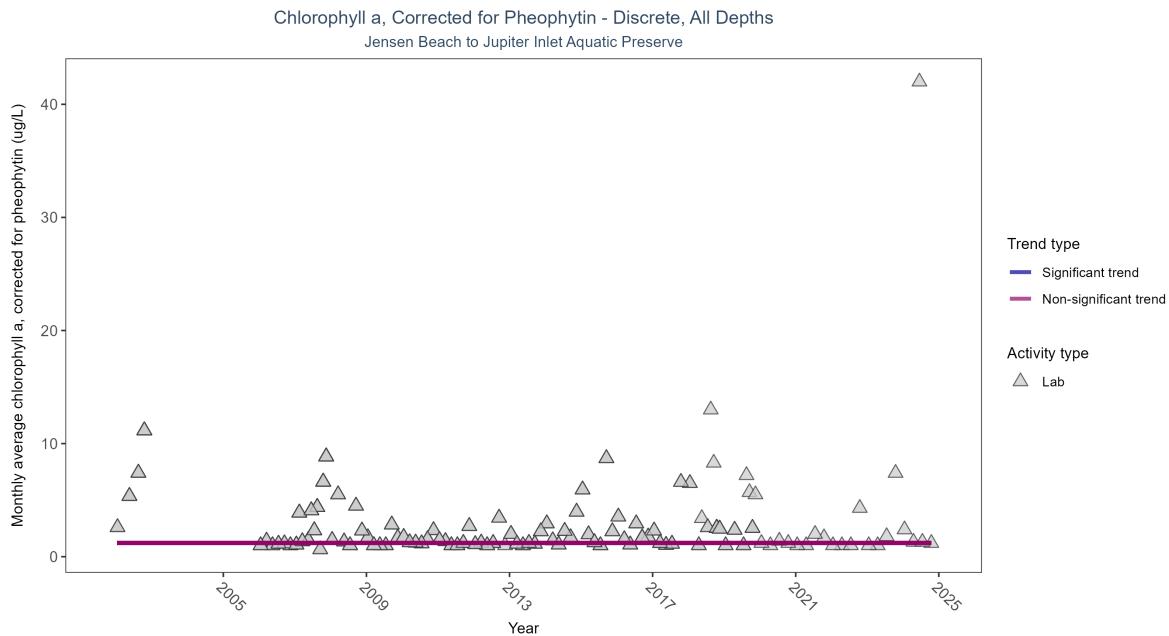


Figure 25: Scatter plot of monthly average levels of chlorophyll a, corrected for pheophytin, over time. If the time series included ten or more years of discrete observations, a significant (blue) or non-significant (magenta) trend line is also shown. Only laboratory-analyzed chlorophyll a (triangles) 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	345	20	2002 - 2024	1.4	0.0619	1.2232	0	0.4174

Chlorophyll a, corrected for pheophytin, showed no detectable trend between 2002 and 2024.

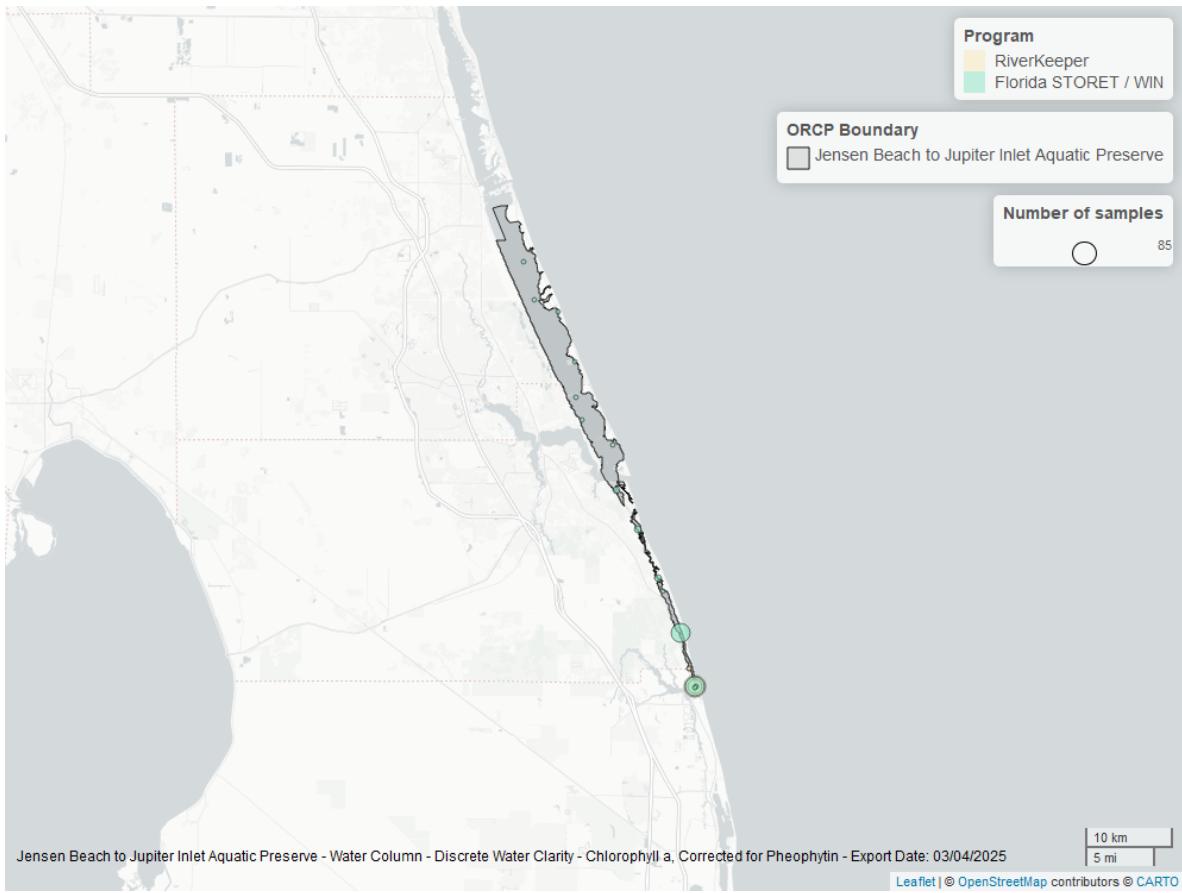


Figure 26: Map showing location of discrete water quality sampling locations within the boundaries of *Jensen Beach to Jupiter Inlet Aquatic Preserve*. The bubble size on the maps above reflect the amount of data available at each sampling site.

Secchi Depth - Discrete

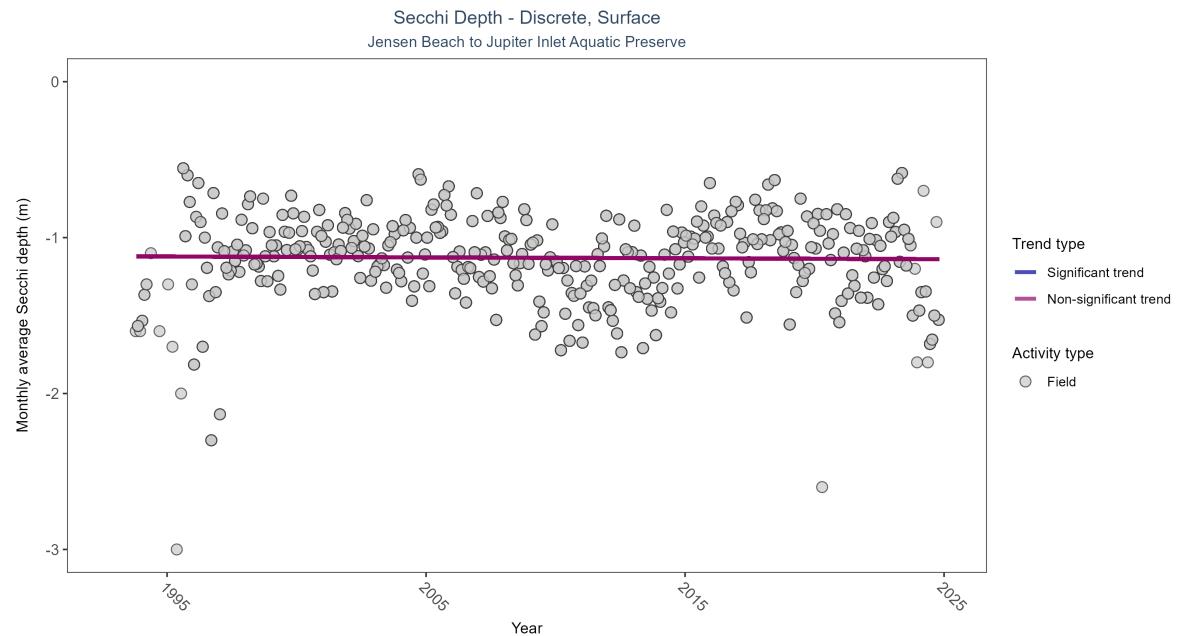


Figure 27: Scatter plot of monthly average Secchi depth over time. If the time series included ten or more years of discrete observations, a significant (blue) or non-significant (magenta) trend line is also shown. Secchi depth is only measured in the field (circles).

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	6176	32	1993 - 2024	-1	-0.01126	-1.11999	-0.00058	0.7867

Secchi depth showed no detectable trend between 1993 and 2024.

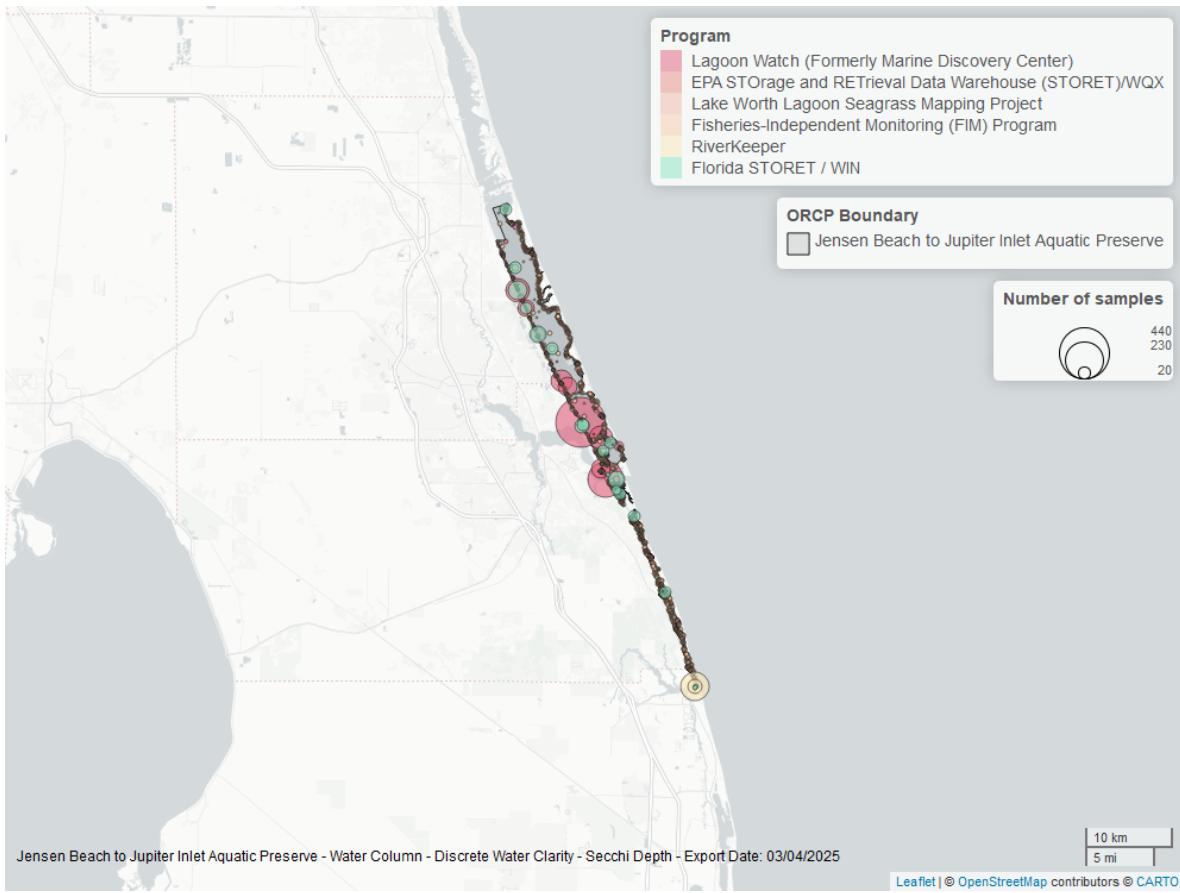


Figure 28: Map showing location of discrete water quality sampling locations within the boundaries of *Jensen Beach to Jupiter Inlet Aquatic Preserve*. The bubble size on the maps above reflect the amount of data available at each sampling site.

Colored Dissolved Organic Matter - Discrete

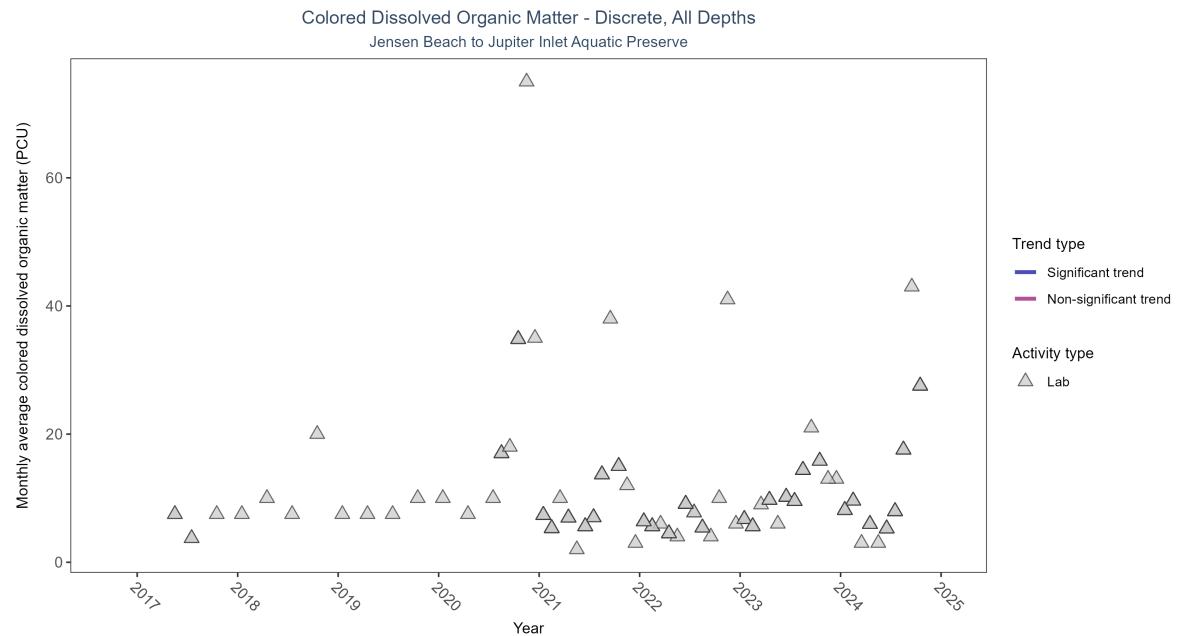


Figure 29: Scatter plot of monthly average colored dissolved organic matter (CDOM) over time. If the time series included ten or more years of discrete observations, a significant (blue) or non-significant (magenta) trend line is also shown. Only laboratory-analyzed CDOM (triangles) is included in the 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	Insufficient data to calculate trend	329	8	2017 - 2024	7.5	-	-	-	-

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

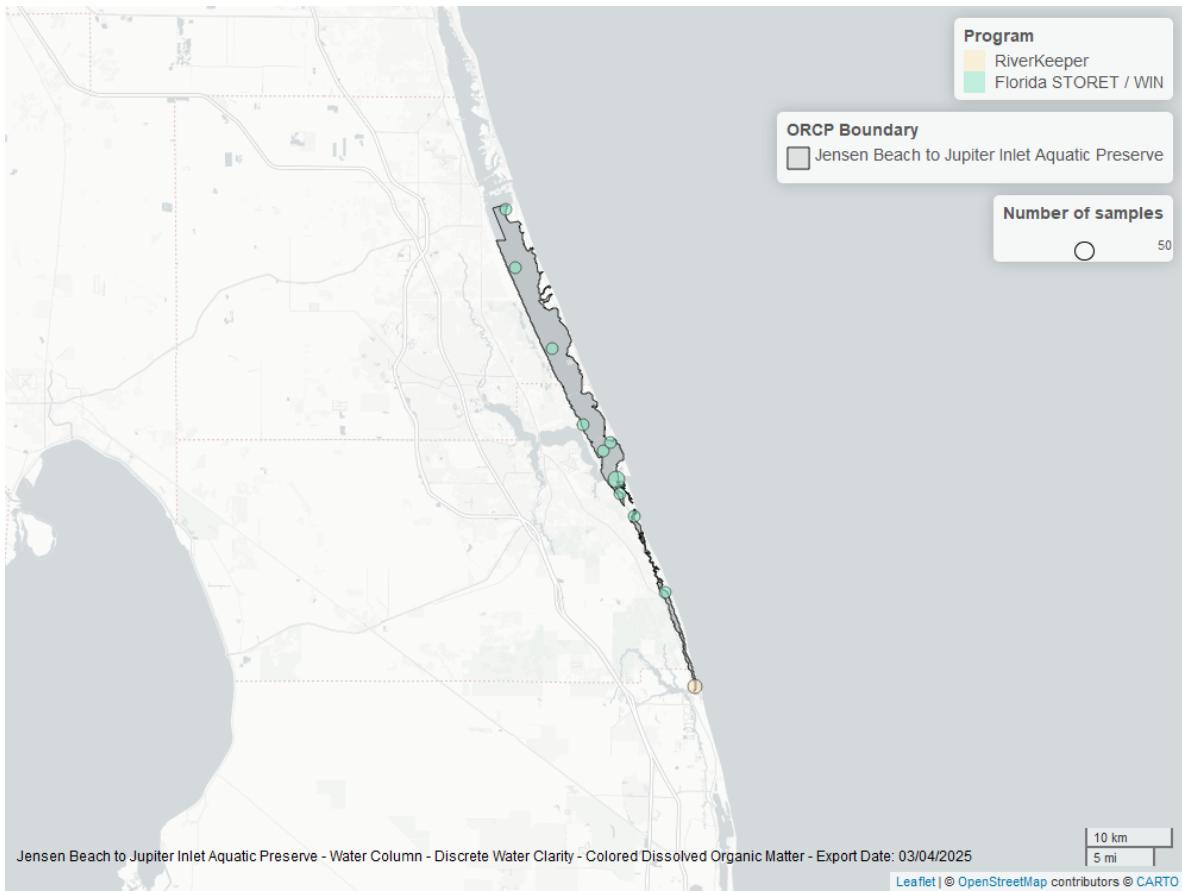


Figure 30: Map showing location of discrete water quality sampling locations within the boundaries of *Jensen Beach to Jupiter Inlet Aquatic Preserve*. The bubble size on the maps above reflect the amount of data available at each sampling site.