

Nassau River-St. Johns River Marshes Aquatic Preserve

SEACAR Water Quality Analysis

Last compiled on 06 March, 2025

Contents

Indicators	2
Nutrients	2
Total Nitrogen - Discrete	2
Total Phosphorus - Discrete	4
Water Quality	6
Dissolved Oxygen - Discrete	6
Dissolved Oxygen - Continuous	8
Dissolved Oxygen Saturation - Discrete	10
Dissolved Oxygen Saturation - Continuous	12
Salinity - Discrete	14
Salinity - Continuous	16
Water Temperature - Discrete	18
Water Temperature - Continuous	20
pH - Discrete	22
pH - Continuous	24
Water Clarity	26
Turbidity - Discrete	26
Turbidity - Continuous	28
Total Suspended Solids - Discrete	30
Chlorophyll a, Uncorrected for Pheophytin - Discrete	32
Chlorophyll a, Corrected for Pheophytin - Discrete	34
Secchi Depth - Discrete	36
Colored Dissolved Organic Matter - Discrete	38

Indicators

Nutrients

Total Nitrogen - Discrete

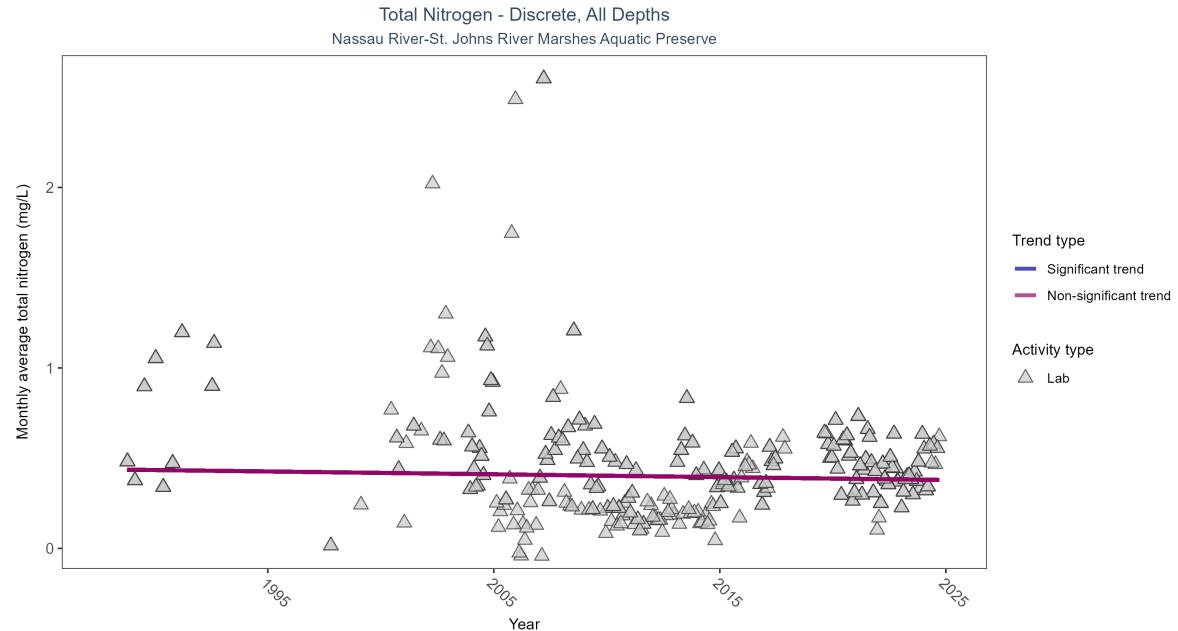
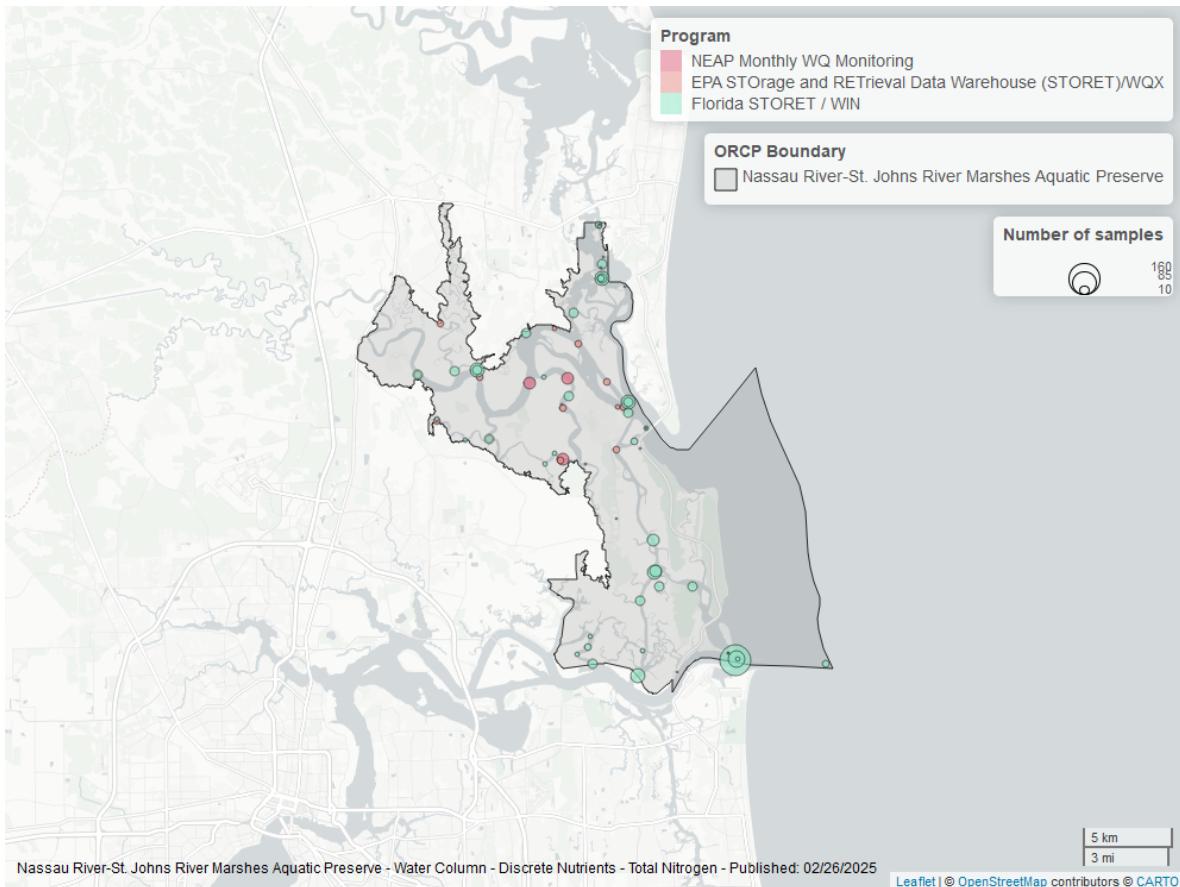


Table 1: Seasonal Kendall-Tau Results for - Total Nitrogen

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	983	31	1988 - 2024		0.415	-0.0285	0.43734	-0.00157	0.5461



Total Phosphorus - Discrete

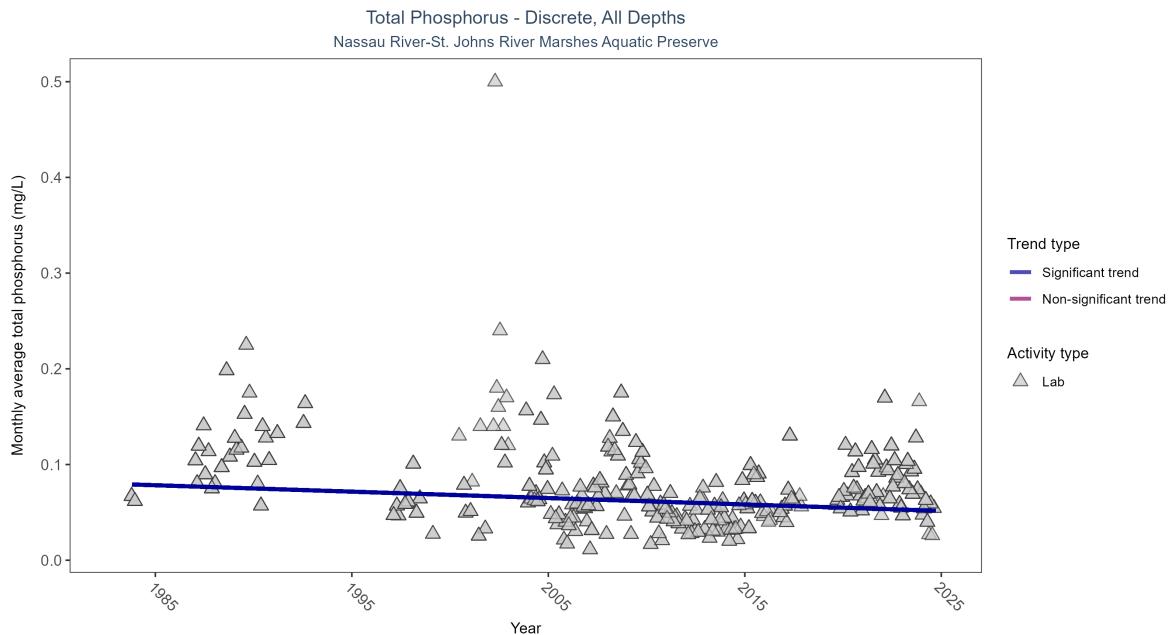
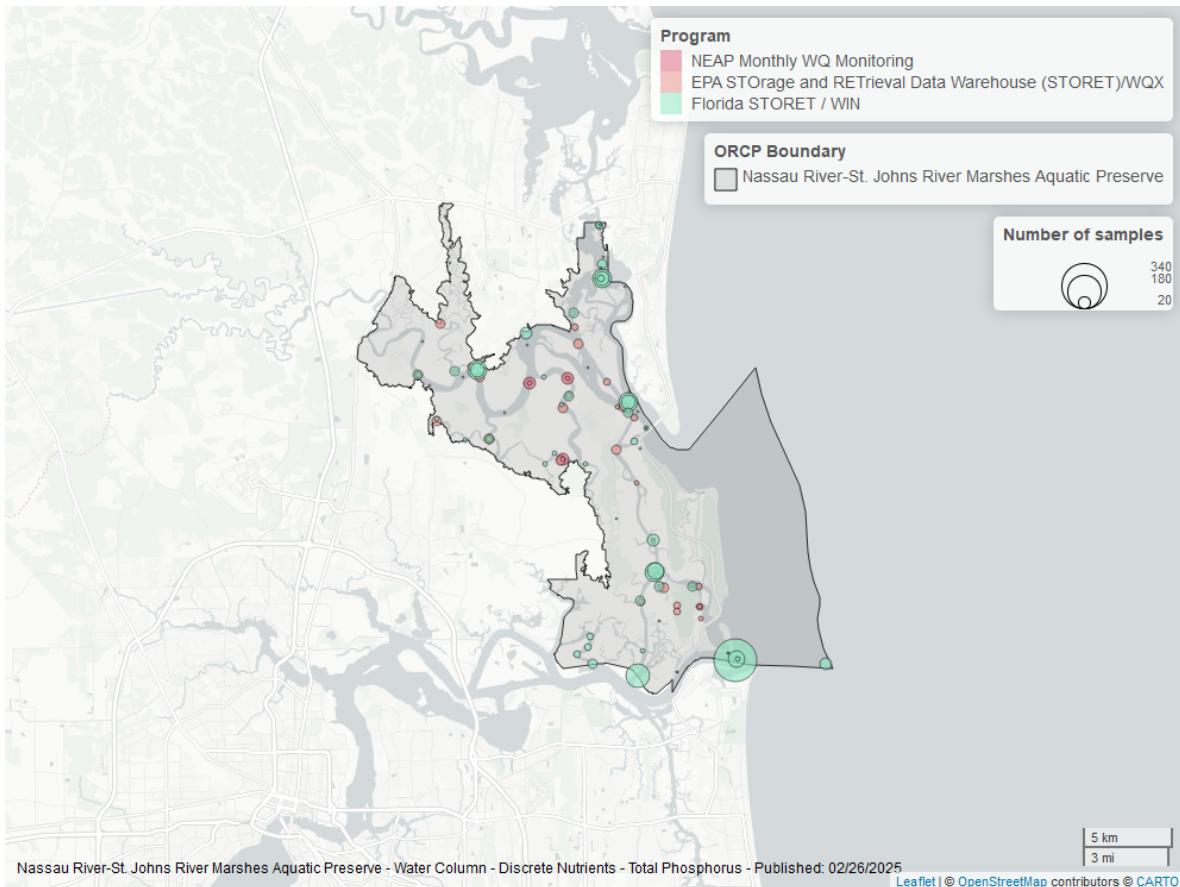


Table 2: Seasonal Kendall-Tau Results for - Total Phosphorus

Activity Type	Statistical Trend	Sample Count	Years with Data	Period of Record	Median Result Value	Tau	Sen Intercept	Sen Slope	P
Lab	Significantly decreasing trend	1742	34	1983 - 2024	0.069	-0.1445	0.07969	-0.00067	0.0014



Water Quality

Dissolved Oxygen - Discrete

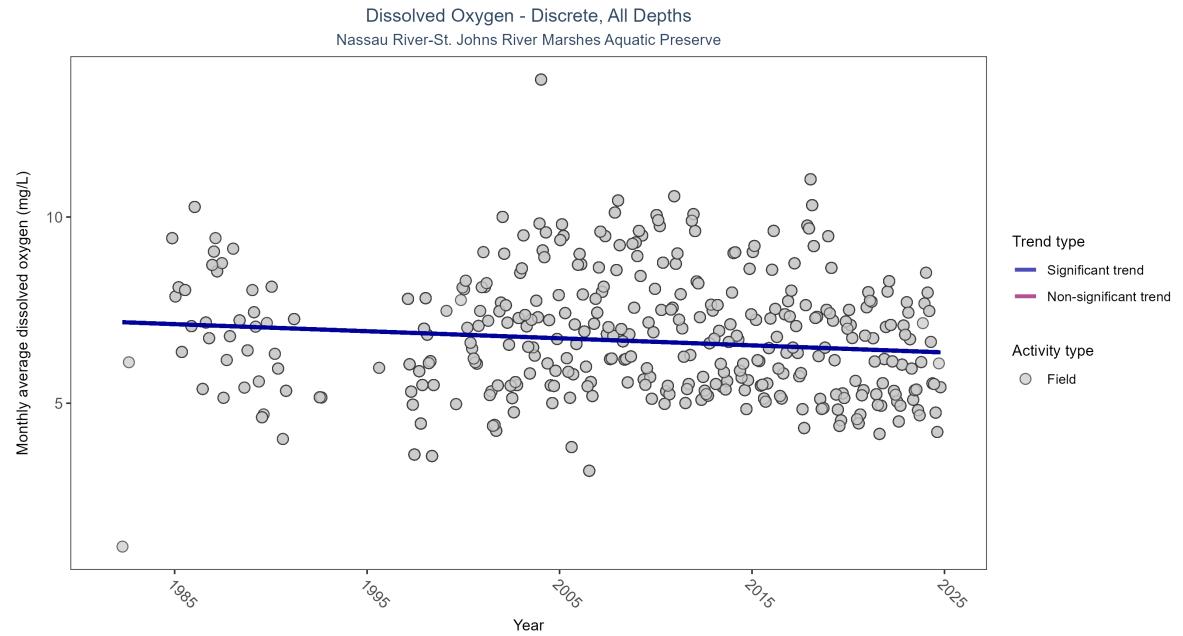
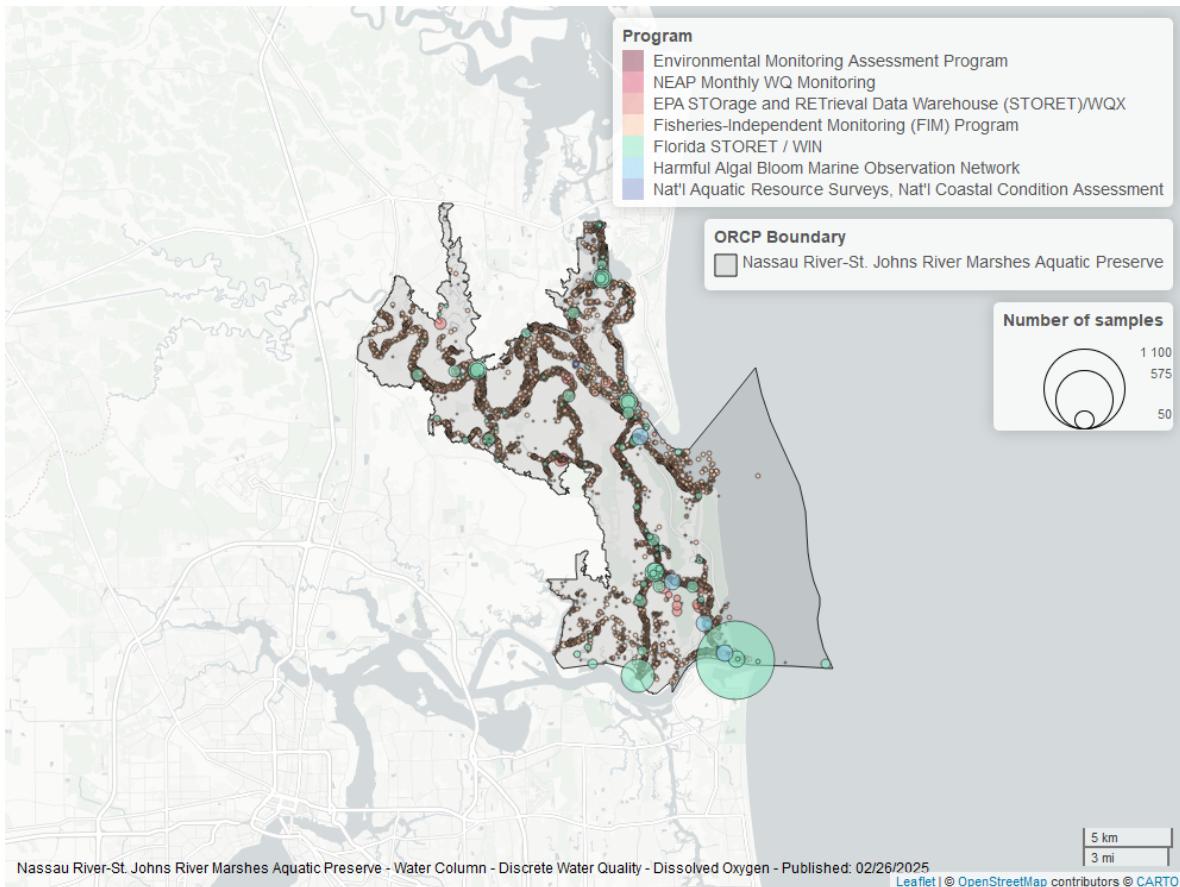


Table 3: Seasonal Kendall-Tau Results for - Dissolved Oxygen

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	39300	39	1982 - 2024	6.3	-0.1548	7.18052	-0.01899	0.0000



Dissolved Oxygen - Continuous

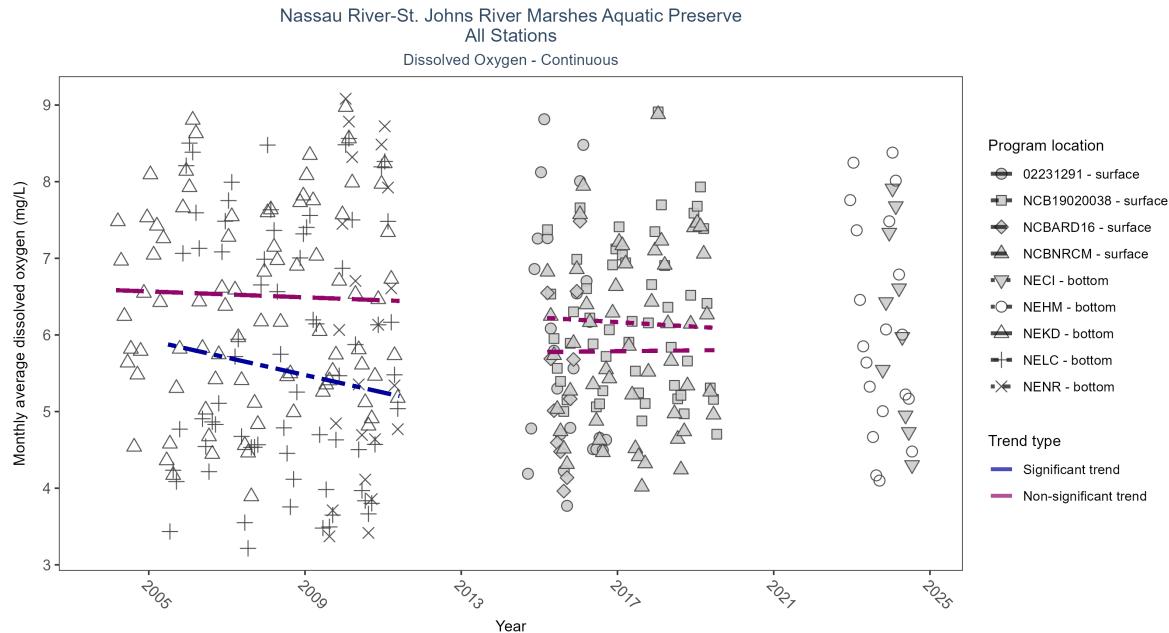
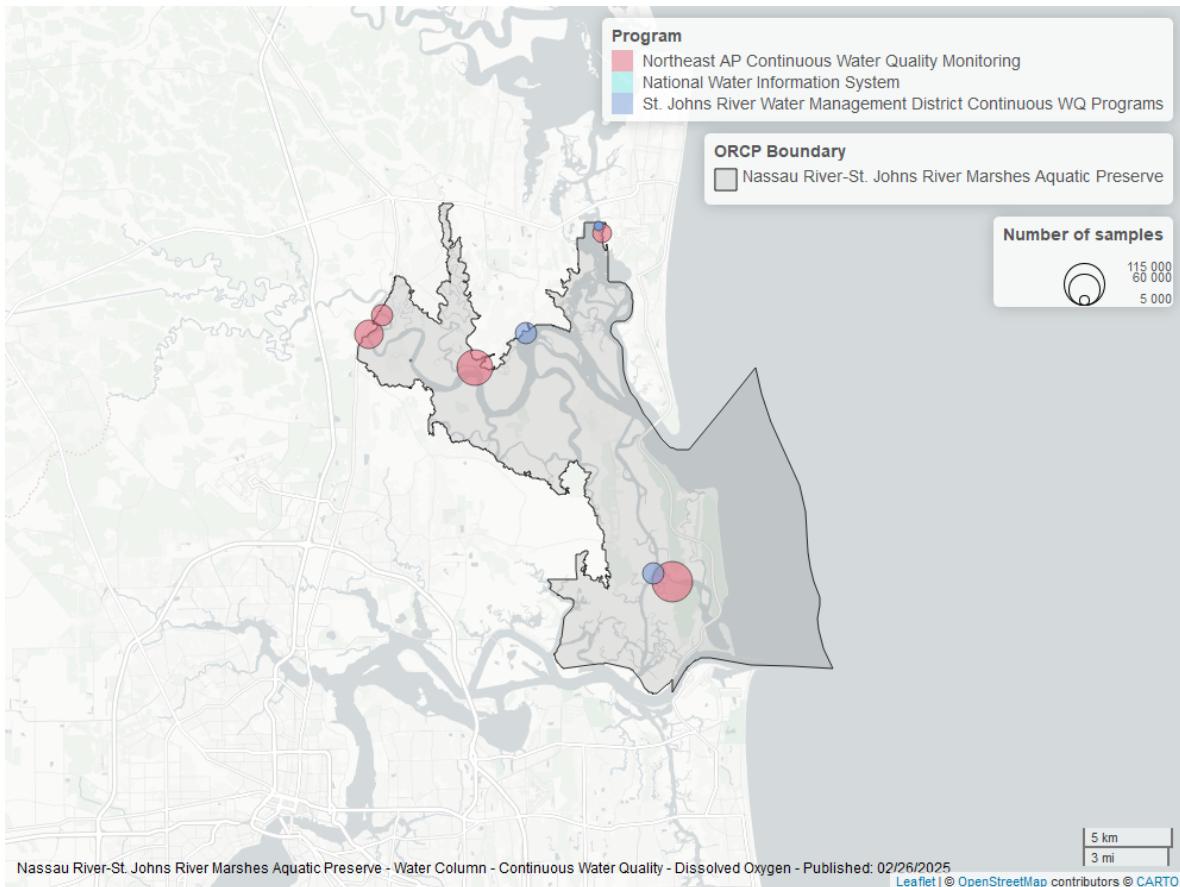


Table 4: Seasonal Kendall-Tau Results for All Stations - Dissolved Oxygen

Program Location	Statistical Trend	Sample Count	Years with Data	Period of Record	Median Result Value	Tau	Sen Intercept	Sen Slope	P
02231291	Insufficient data to calculate trend	689	3	2014 - 2016	5.70	-	-	-	NA
NECI	Insufficient data to calculate trend	24103	2	2023 - 2024	6.50	-	-	-	NA
NEKD	No significant trend	110958	8	2004 - 2011	6.40	-0.04	6.59	-0.02	0.5607
NEHM	Insufficient data to calculate trend	53800	3	2022 - 2024	5.90	-	-	-	NA
NELC	Significantly decreasing trend	95860	7	2005 - 2011	5.60	-0.34	5.93	-0.11	0.0014
NENR	Insufficient data to calculate trend	31438	3	2009 - 2011	5.80	-	-	-	NA
NCB19020038	No significant trend	34476	5	2015 - 2019	6.16	-0.03	6.23	-0.03	0.6108
NCBARD16	Insufficient data to calculate trend	7417	2	2015 - 2016	5.08	-	-	-	NA
NCBNRCM	No significant trend	35477	5	2015 - 2019	5.79	0.05	5.78	0.01	0.7970



Dissolved Oxygen Saturation - Discrete

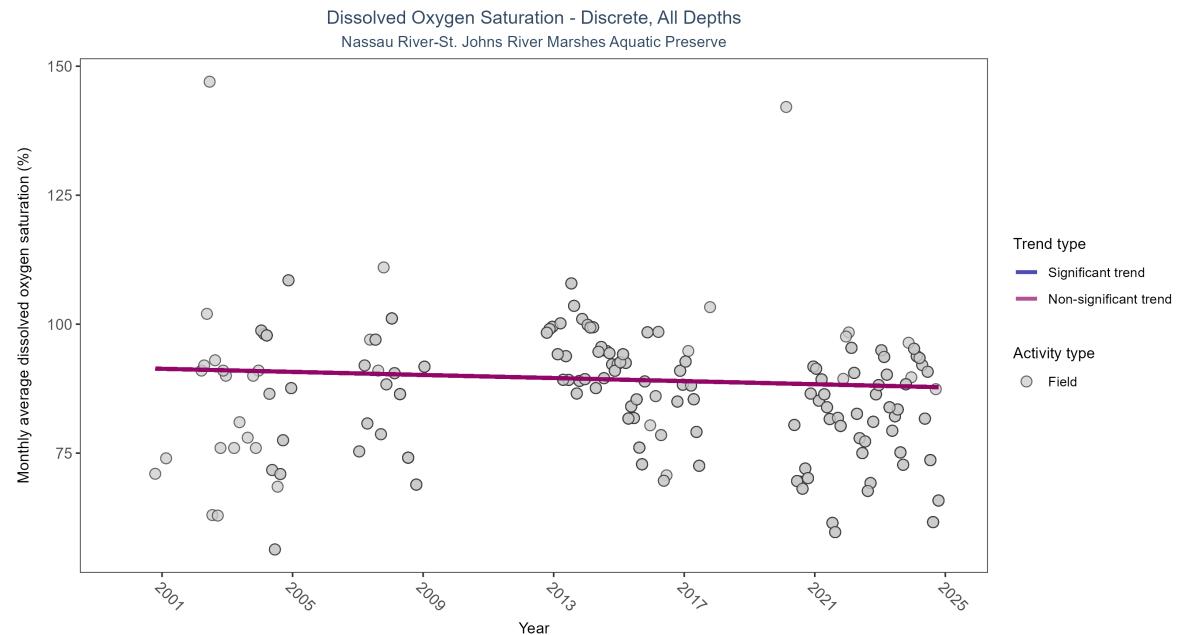
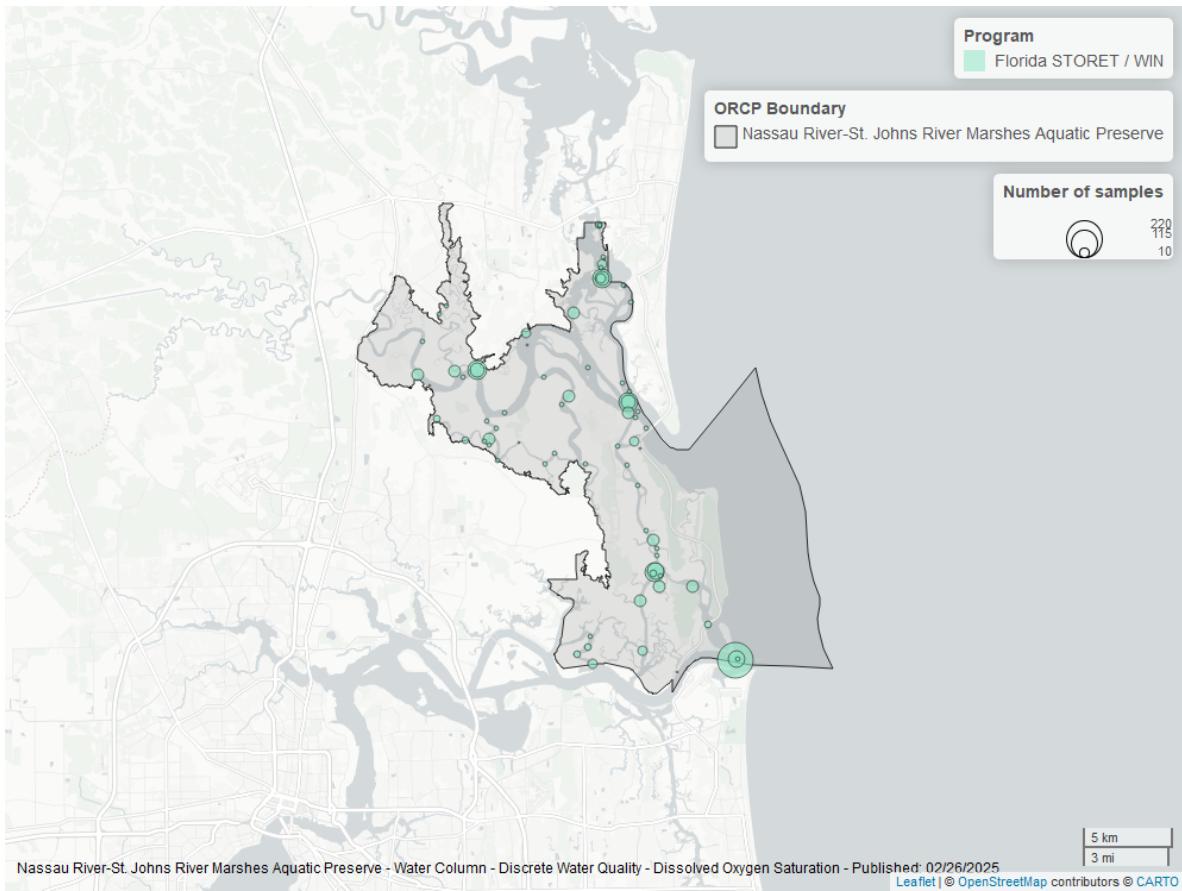


Table 5: Seasonal Kendall-Tau Results for - Dissolved Oxygen Saturation

Activity Type	Statistical Trend	Sample Count	Years with Data	Period of Record	Median Result Value	Tau	Sen Intercept	Sen Slope	P
Field	No significant trend	1247	19	2000 - 2024	87.9	-0.1098	91.49915	-0.14957	0.0635



Dissolved Oxygen Saturation - Continuous

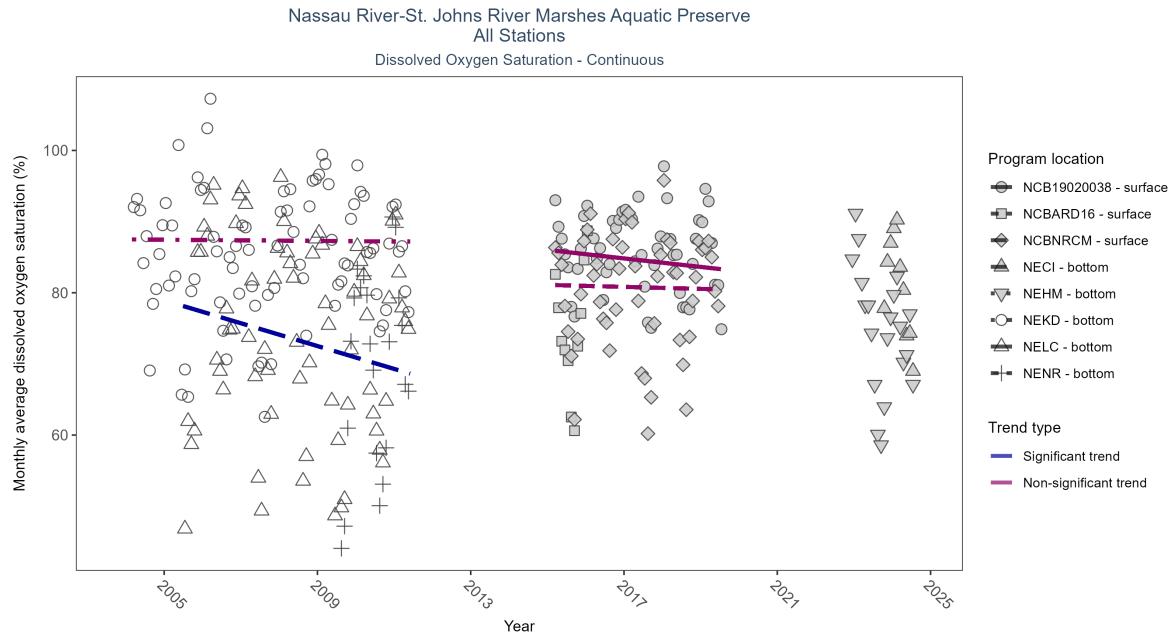
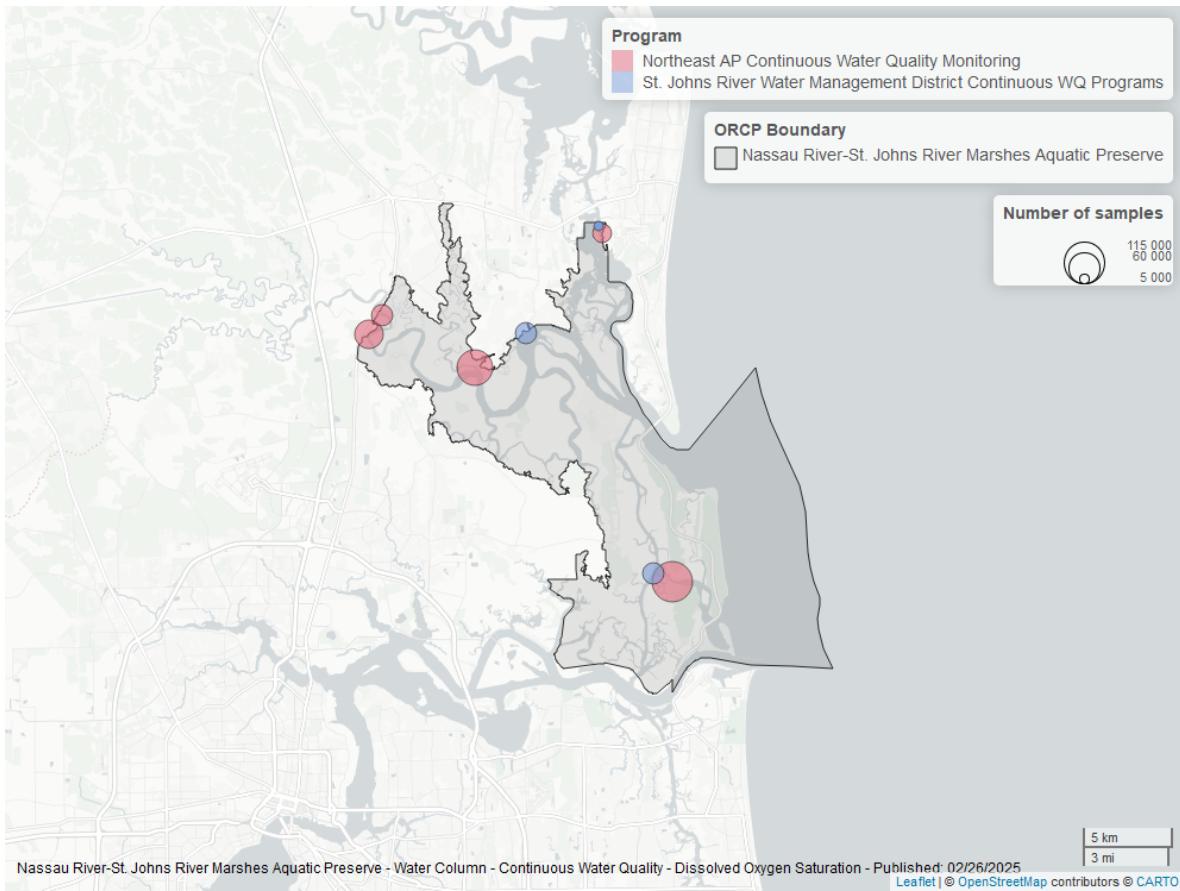


Table 6: Seasonal Kendall-Tau Results for All Stations - Dissolved Oxygen Saturation

Program Location	Statistical Trend	Sample Count	Years with Data	Period of Record	Median Result Value	Tau	Sen Intercept	Sen Slope	P
NECI	Insufficient data to calculate trend	24106	2	2023 - 2024	83.70	-	-	-	NA
NEKD	No significant trend	110983	8	2004 - 2011	89.10	0	87.49	-0.04	0.9338
NEHM	Insufficient data to calculate trend	53800	3	2022 - 2024	75.30	-	-	-	NA
NELC	Significantly decreasing trend	95868	7	2005 - 2011	77.90	-0.27	78.93	-1.6	0.0111
NENR	Insufficient data to calculate trend	31438	3	2009 - 2011	73.20	-	-	-	NA
NCBARD16	Insufficient data to calculate trend	7417	2	2015 - 2016	74.44	-	-	-	NA
NCBNRCM	No significant trend	35240	5	2015 - 2019	82.06	-0.05	81.1	-0.14	0.7970
NCB19020038	No significant trend	34438	5	2015 - 2019	87.06	-0.16	86.02	-0.6	0.1268



Salinity - Discrete

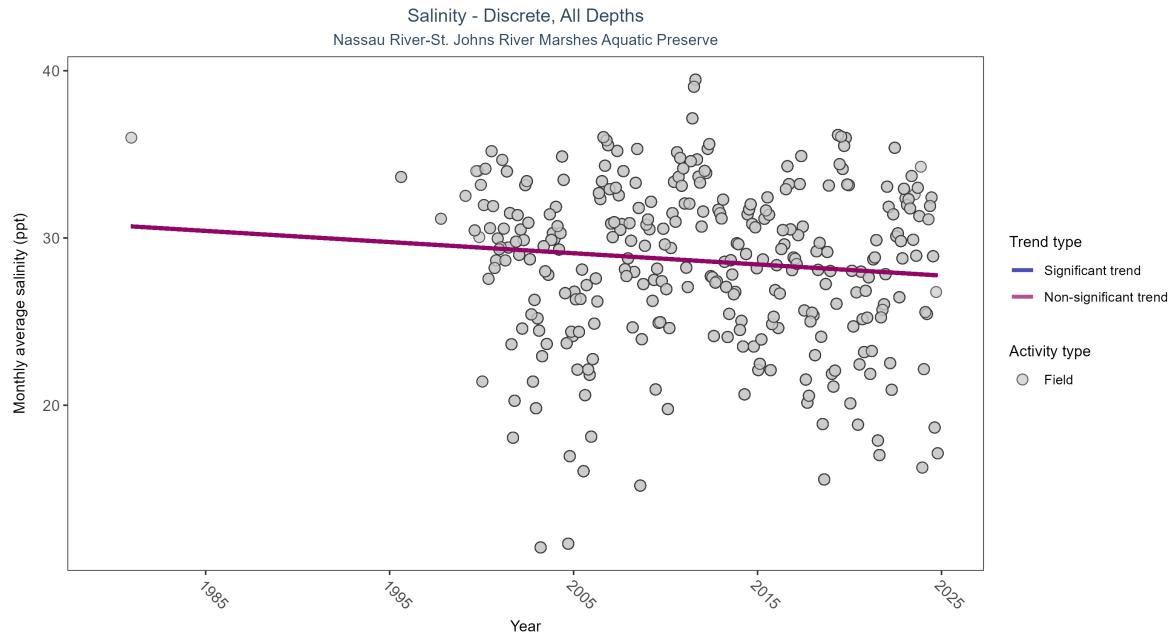
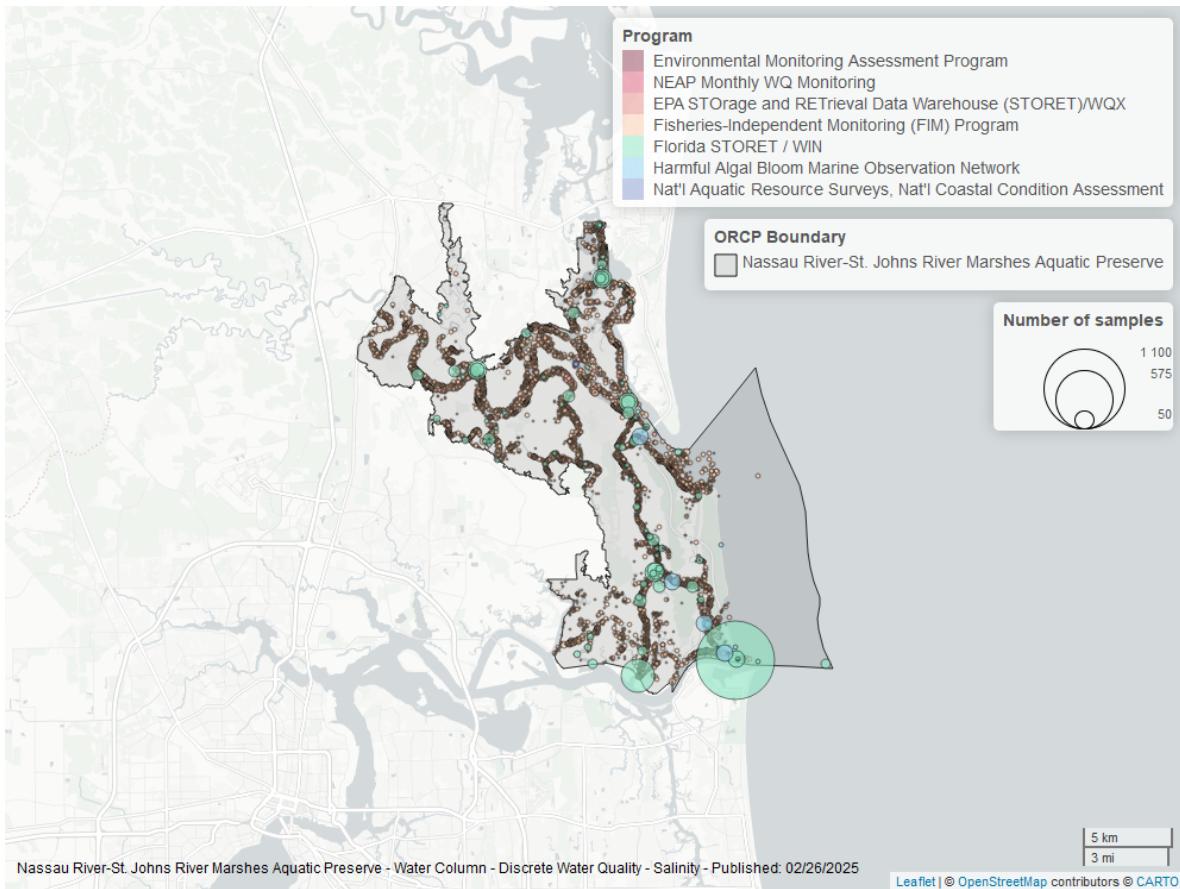


Table 7: Seasonal Kendall-Tau Results for - Salinity

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	21104	29	1980 - 2024	30.5	-0.0637	30.75849	-0.06678	0.1078



Salinity - Continuous

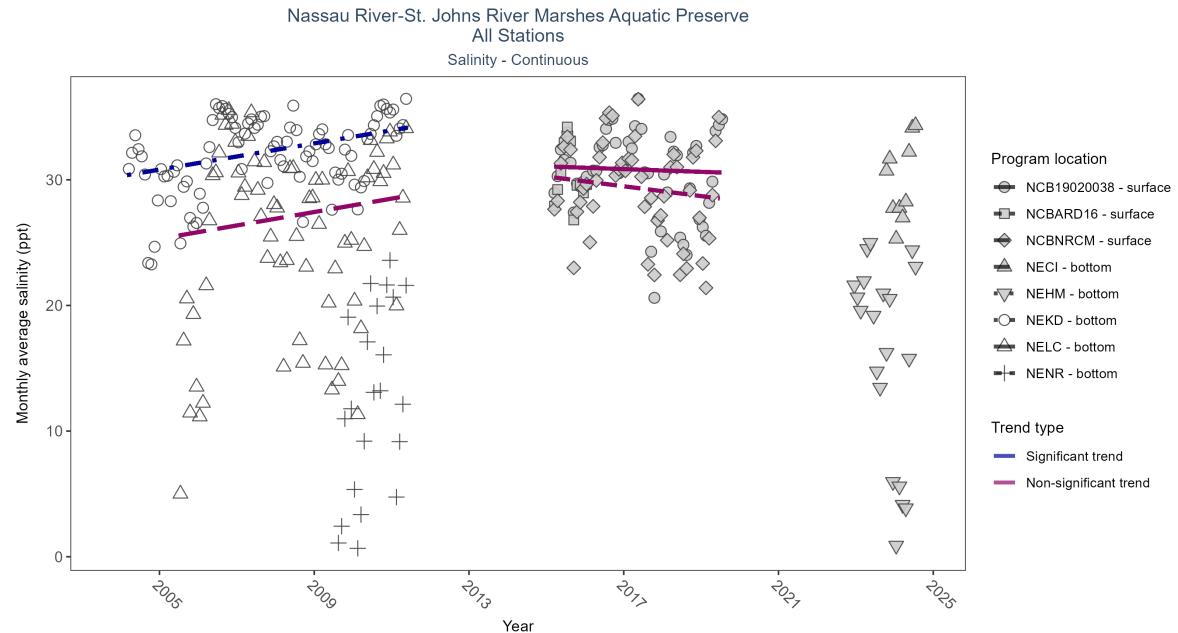
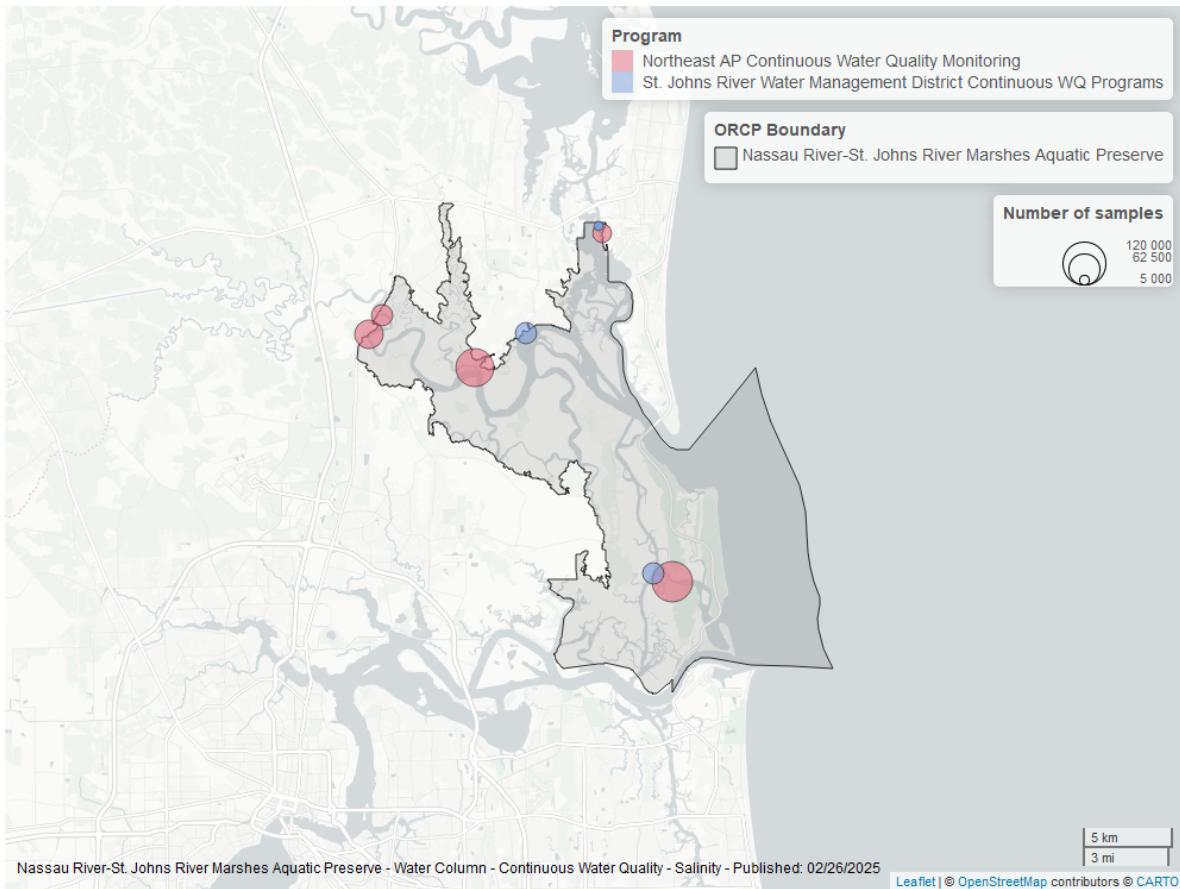


Table 8: Seasonal Kendall-Tau Results for All Stations - Salinity

Program Location	Statistical Trend	Sample Count	Years with Data	Period of Record	Median Result Value	Tau	Sen Intercept	Sen Slope	P
NECI	Insufficient data to calculate trend	24103	2	2023 - 2024	29.30	-	-	-	NA
NEHM	Insufficient data to calculate trend	53807	3	2022 - 2024	17.40	-	-	-	NA
NEKD	Significantly increasing trend	118328	8	2004 - 2011	33.20	0.31	30.29	0.52	0.0006
NELC	No significant trend	100339	7	2005 - 2011	27.90	0.09	25.3	0.53	0.4397
NENR	Insufficient data to calculate trend	31438	3	2009 - 2011	12.40	-	-	-	NA
NCBARD16	Insufficient data to calculate trend	7418	2	2015 - 2016	30.07	-	-	-	NA
NCBNRCM	No significant trend	35411	5	2015 - 2019	30.29	-0.12	30.26	-0.39	0.5483
NCB19020038	No significant trend	34438	5	2015 - 2019	31.75	-0.06	31.07	-0.11	1.0000



Water Temperature - Discrete

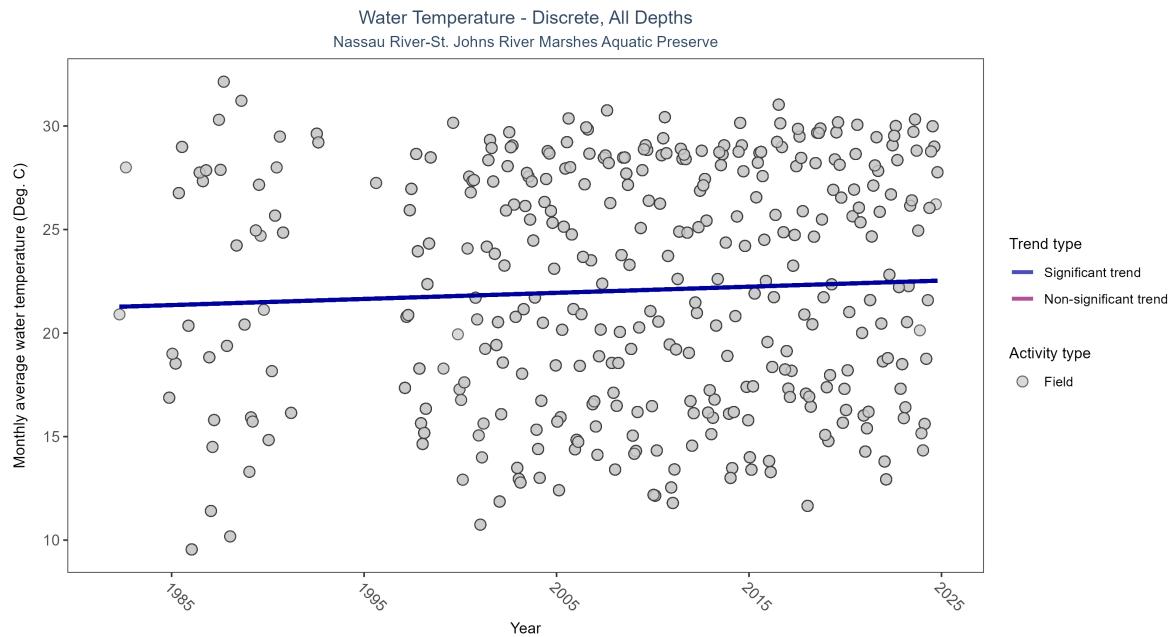
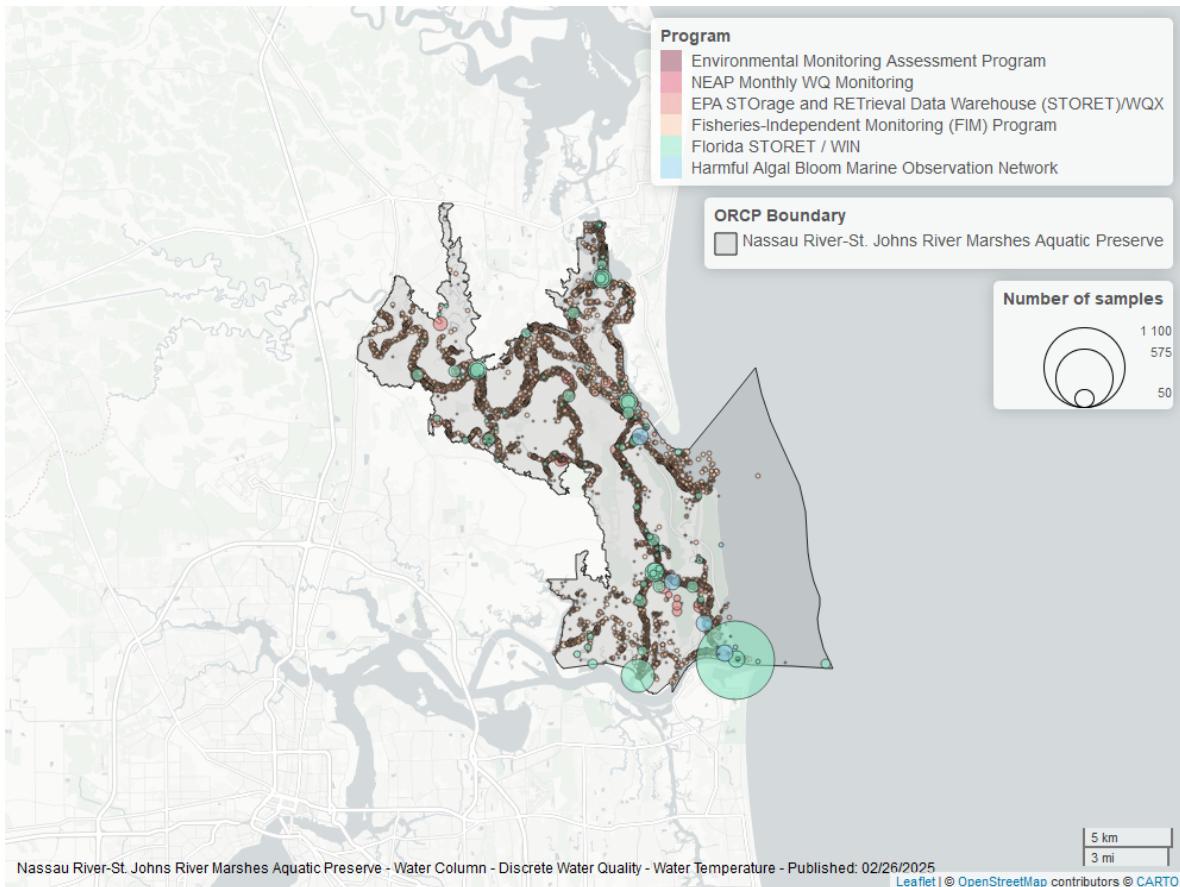


Table 9: Seasonal Kendall-Tau Results for - Water Temperature

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	40859	39	1982 - 2024	21.6	0.1455	21.2625	0.0296	0.0001



Water Temperature - Continuous

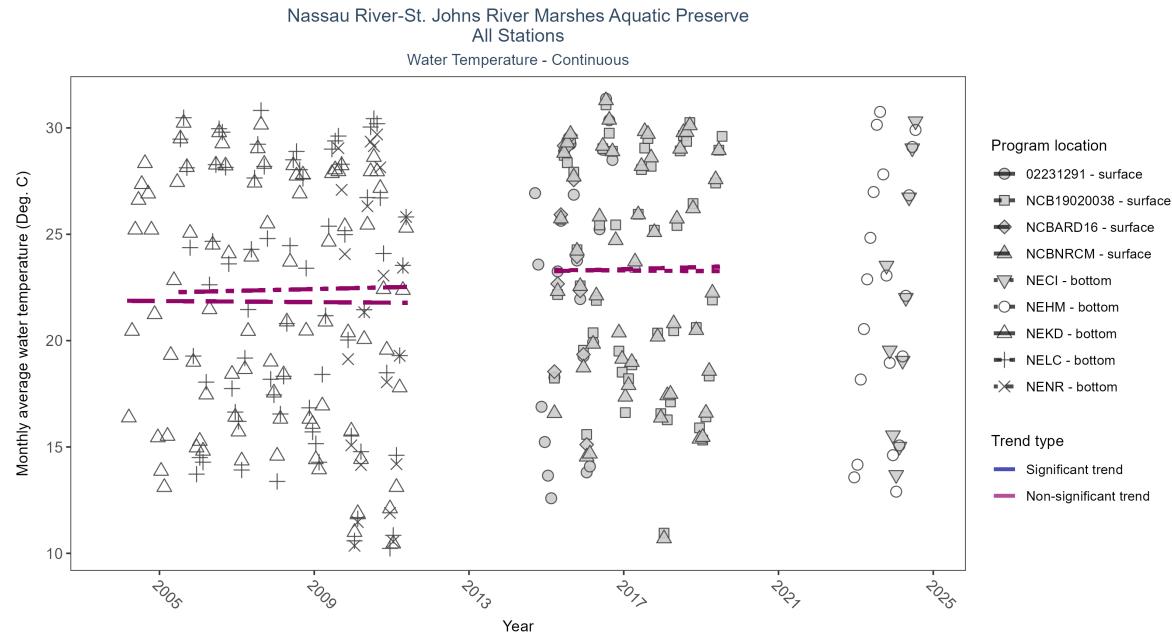
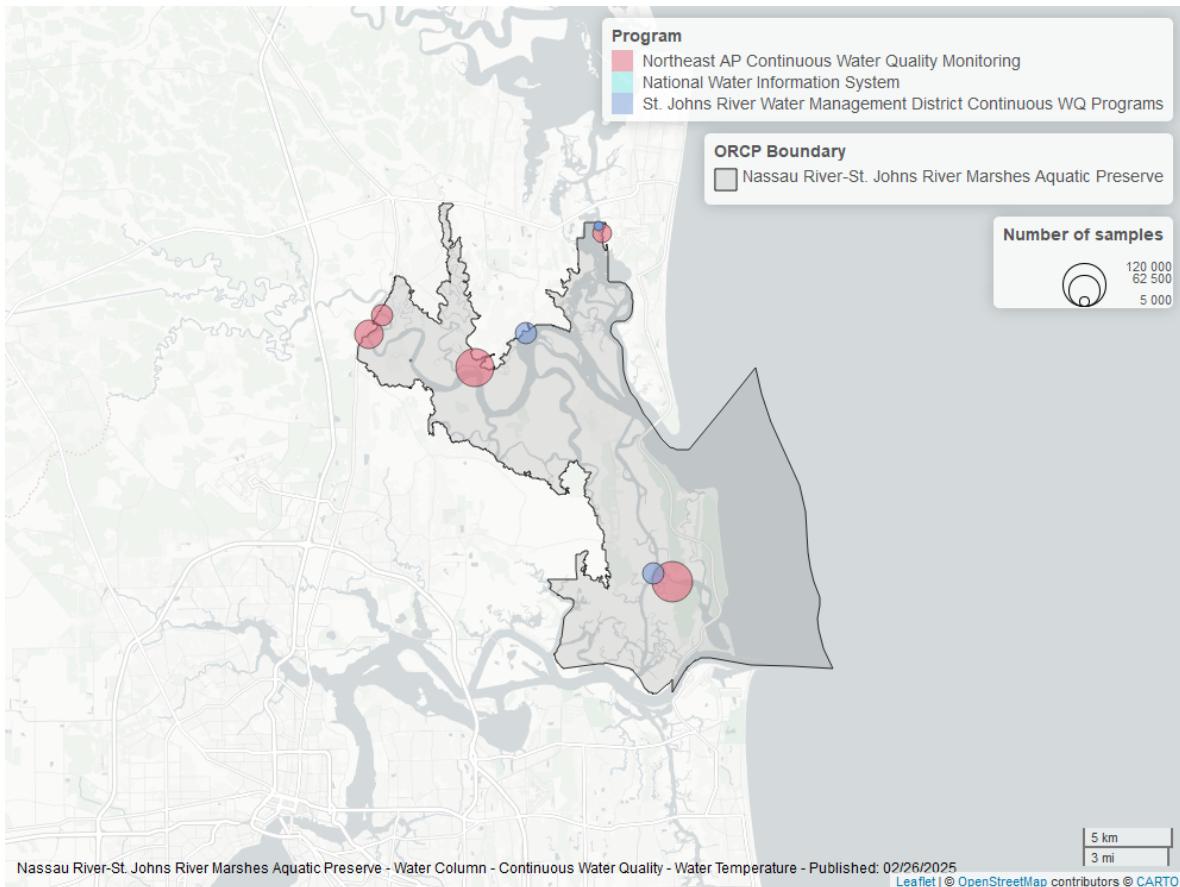


Table 10: Seasonal Kendall-Tau Results for All Stations - Water Temperature

Program Location	Statistical Trend	Sample Count	Years with Data	Period of Record	Median Result Value	Tau	Sen Intercept	Sen Slope	P
02231291	Insufficient data to calculate trend	710	3	2014 - 2016	23.50	-	-	-	NA
NECI	Insufficient data to calculate trend	24117	2	2023 - 2024	19.40	-	-	-	NA
NEKD	No significant trend	118328	8	2004 - 2011	22.10	-0.04	21.88	-0.01	0.8057
NEHM	Insufficient data to calculate trend	54213	3	2022 - 2024	22.20	-	-	-	NA
NELC	No significant trend	100343	7	2005 - 2011	22.70	0.05	22.26	0.04	0.7405
NENR	Insufficient data to calculate trend	31438	3	2009 - 2011	22.00	-	-	-	NA
NCBNRCM	No significant trend	35817	5	2015 - 2019	24.03	0.07	23.26	0.05	0.6681
NCB19020038	No significant trend	34483	5	2015 - 2019	24.78	-0.03	23.32	-0.01	1.0000
NCBARD16	Insufficient data to calculate trend	7419	2	2015 - 2016	25.08	-	-	-	NA



pH - Discrete

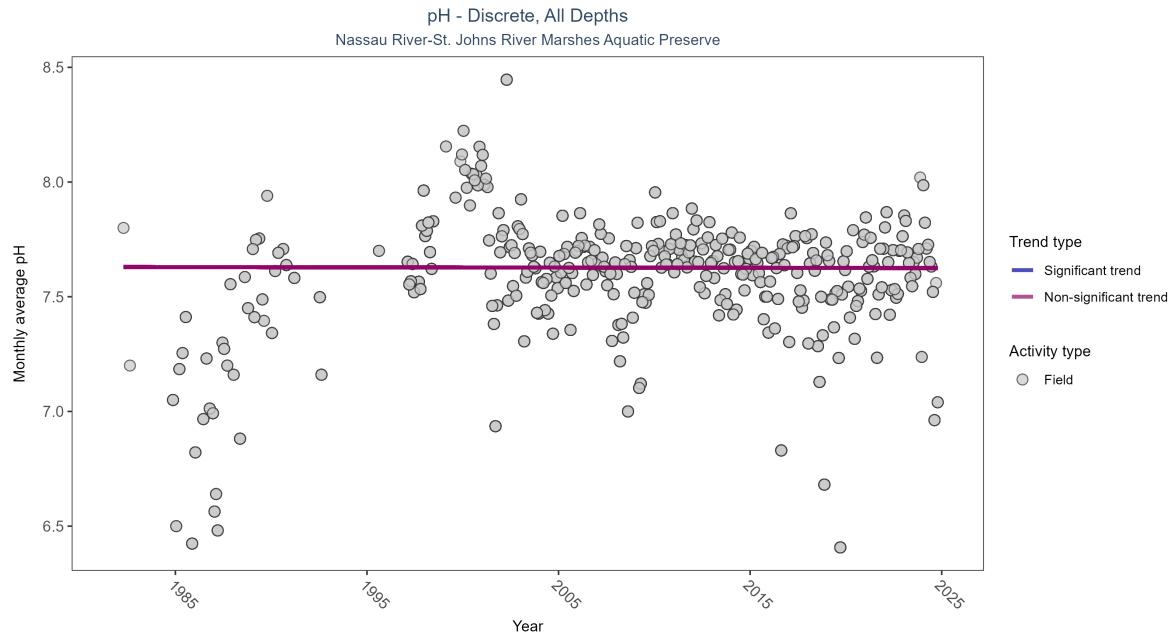
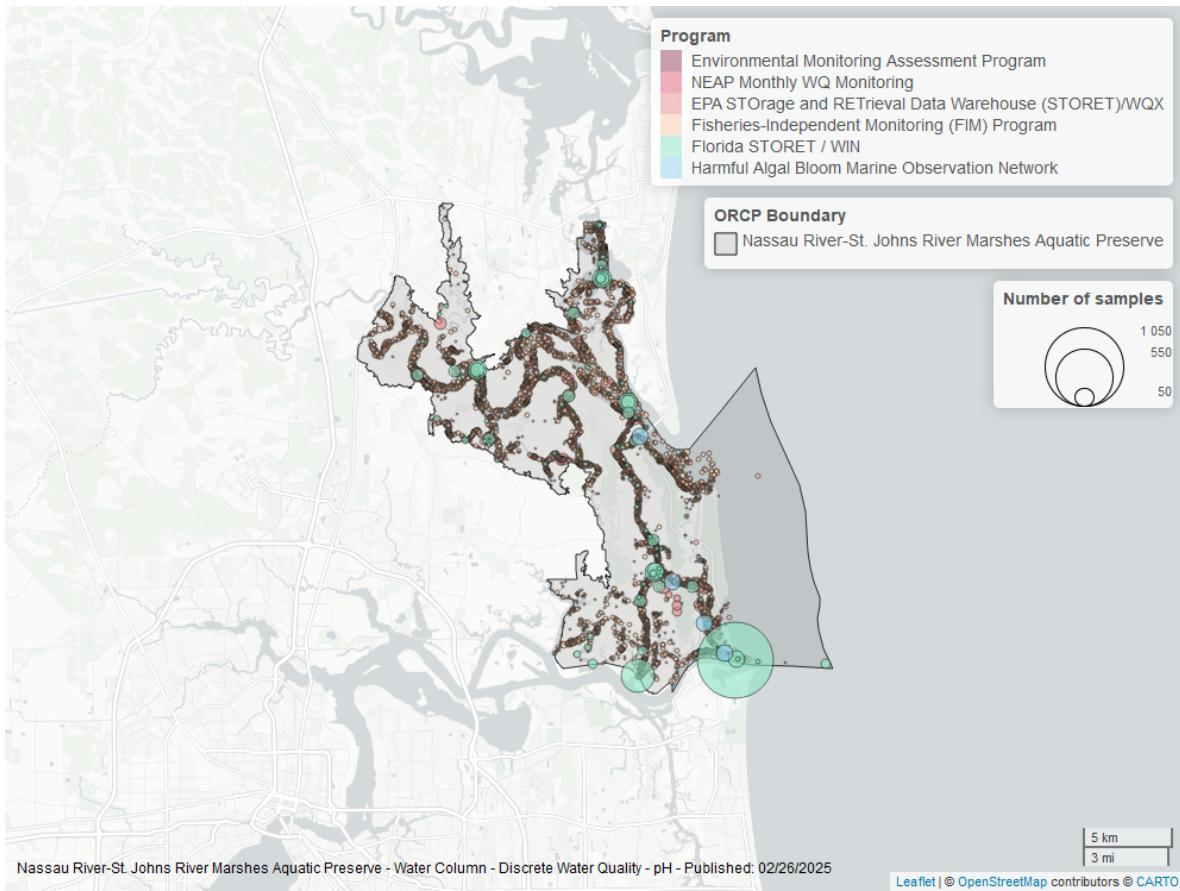


Table 11: Seasonal Kendall-Tau Results for - pH

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	29660	39	1982 - 2024	7.66	-0.0048	7.62944	-0.0001	0.9584



pH - Continuous

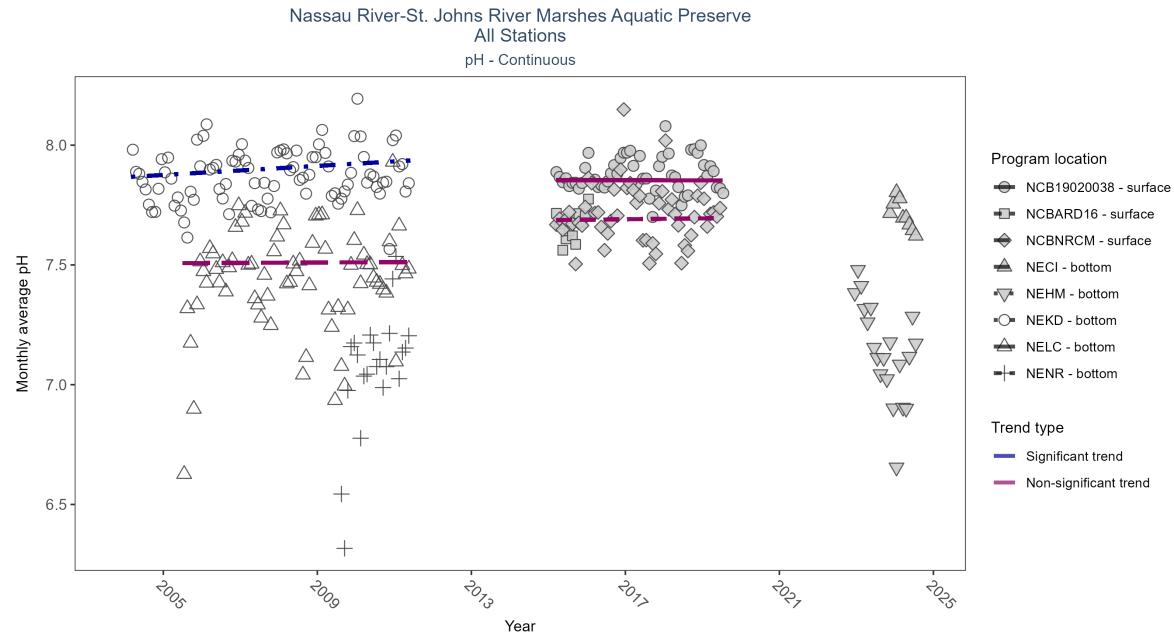
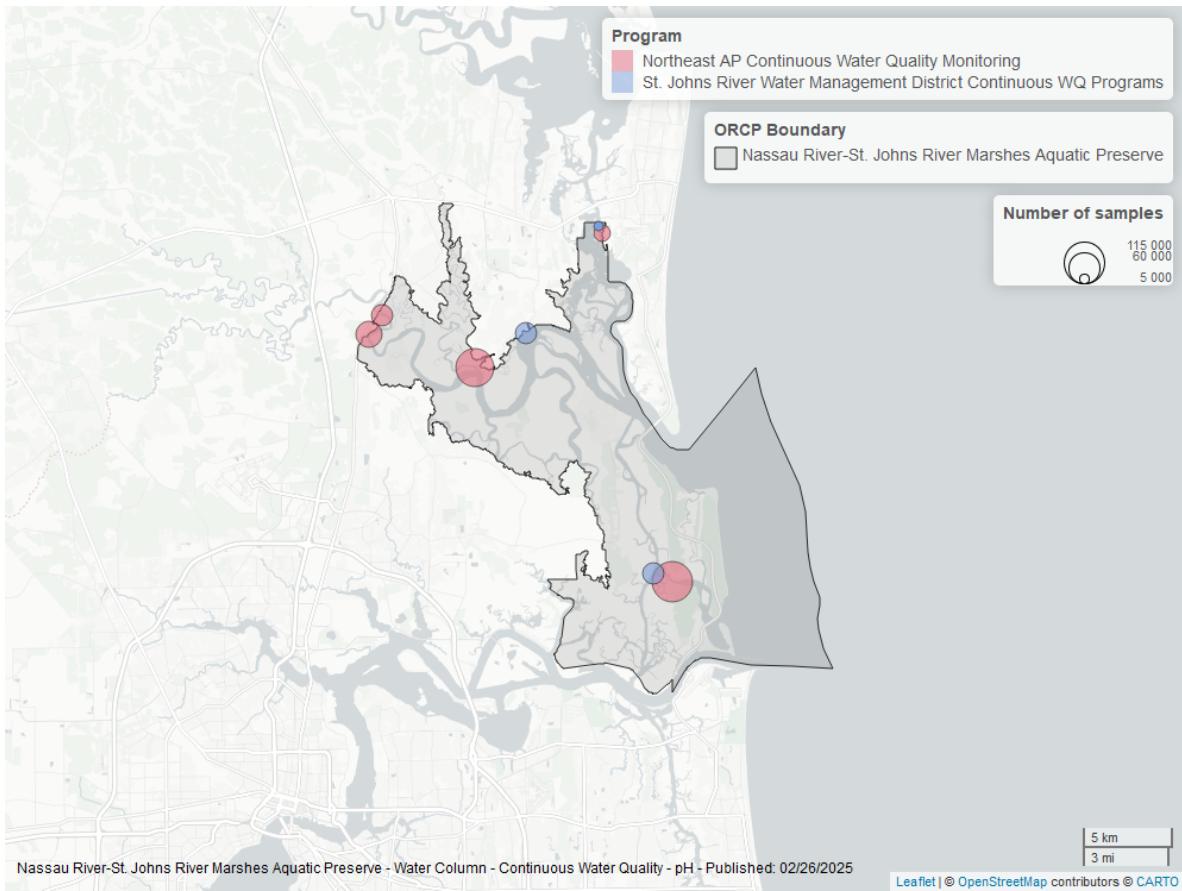


Table 12: Seasonal Kendall-Tau Results for All Stations - pH

Program Location	Statistical Trend	Sample Count	Years with Data	Period of Record	Median Result Value	Tau	Sen Intercept	Sen Slope	P
NECI	Insufficient data to calculate trend	21805	2	2023 - 2024	7.70	-	-	-	NA
NEHM	Insufficient data to calculate trend	52276	3	2022 - 2024	7.20	-	-	-	NA
NEKD	Significantly increasing trend	113471	8	2004 - 2011	7.90	0.19	7.87	0.01	0.0491
NELC	No significant trend	96488	7	2005 - 2011	7.50	0.02	7.51	0	0.9121
NENR	Insufficient data to calculate trend	31438	3	2009 - 2011	7.10	-	-	-	NA
NCB19020038	No significant trend	34405	5	2015 - 2019	7.88	-0.01	7.85	0	1.0000
NCBARD16	Insufficient data to calculate trend	6952	2	2015 - 2016	7.66	-	-	-	NA
NCBNRCM	No significant trend	35819	5	2015 - 2019	7.72	-0.01	7.69	0	0.9317



Water Clarity

Turbidity - Discrete

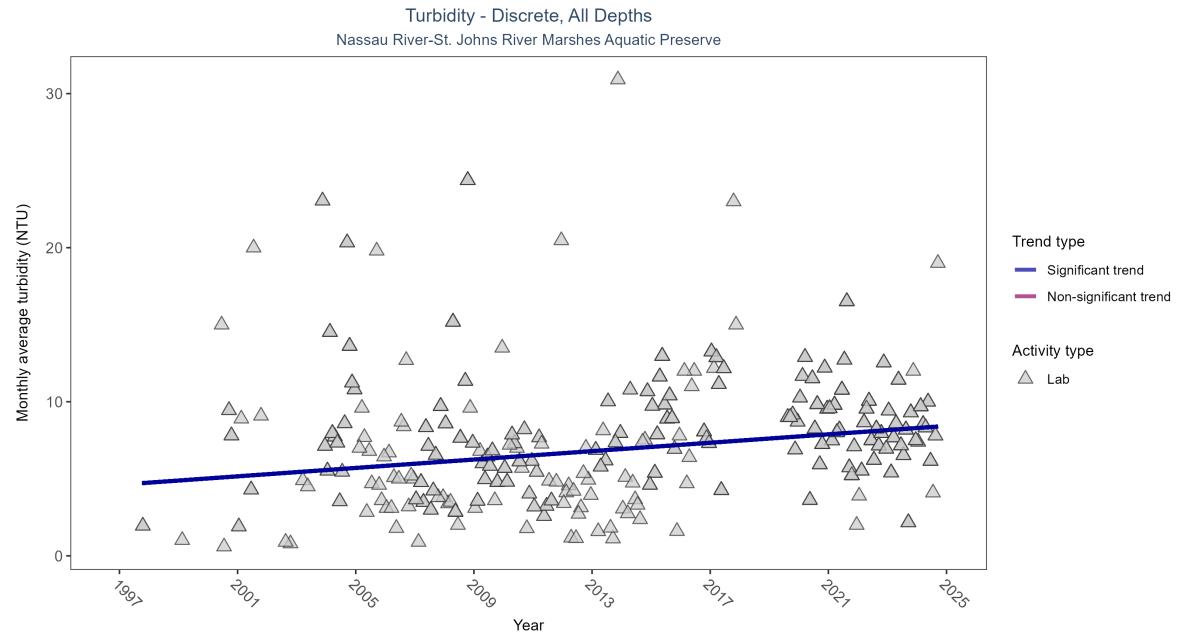
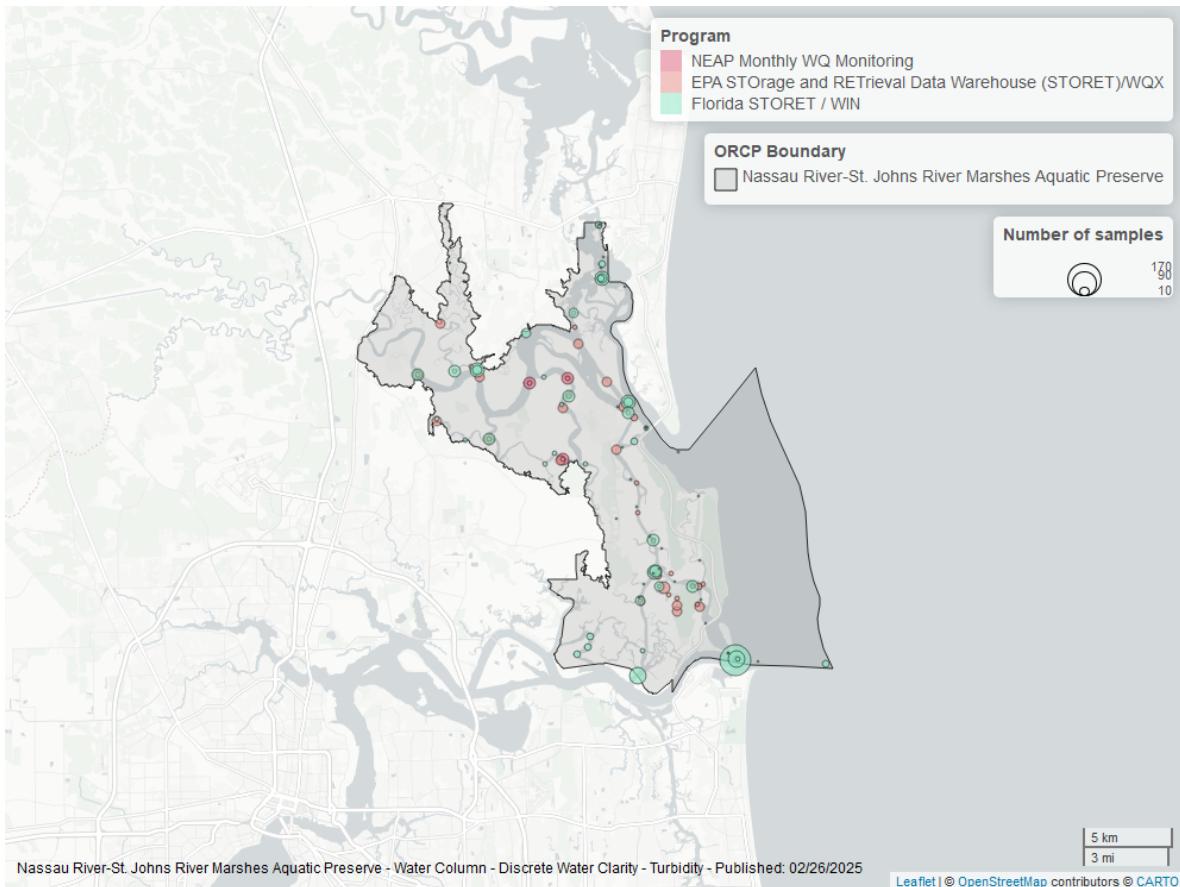


Table 13: Seasonal Kendall-Tau Results for - Turbidity

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	916	26	1997 - 2024	7	0.1738	4.61532	0.1363	0.0002



Turbidity - Continuous

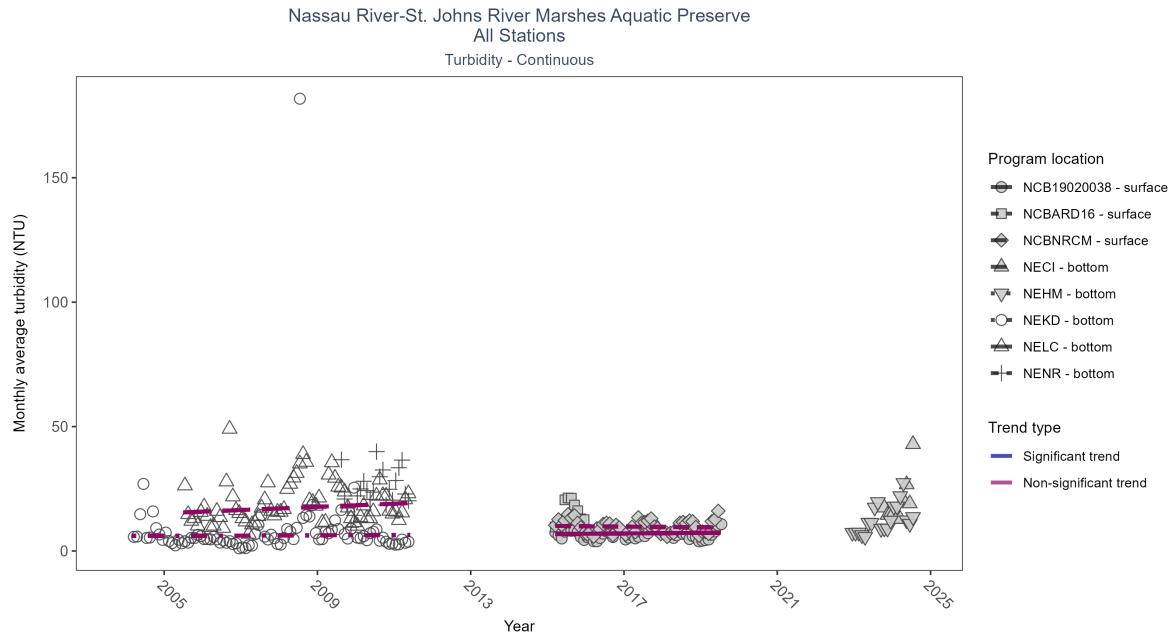
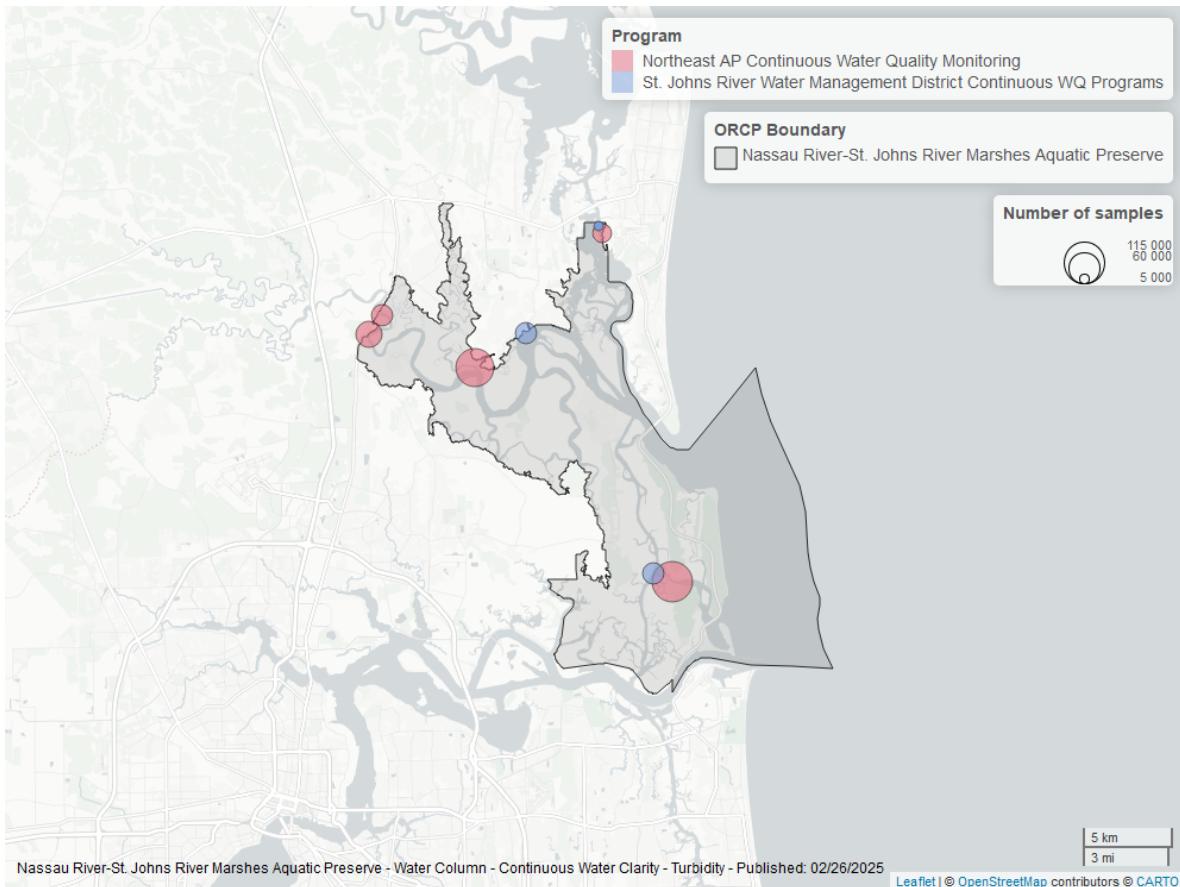


Table 14: Seasonal Kendall-Tau Results for All Stations - Turbidity

Program Location	Statistical Trend	Sample Count	Years with Data	Period of Record	Median Result Value	Tau	Sen Intercept	Sen Slope	P
NEKD	No significant trend	114181	8	2004 - 2011	4.00	0.02	6.06	0.05	0.8697
NEHM	Insufficient data to calculate trend	52640	3	2022 - 2024	11.00	-	-	-	NA
NECI	Insufficient data to calculate trend	22758	2	2023 - 2024	13.00	-	-	-	NA
NELC	No significant trend	96153	7	2005 - 2011	15.00	0.16	15.18	0.64	0.1513
NENR	Insufficient data to calculate trend	31087	3	2009 - 2011	21.00	-	-	-	NA
NCBARD16	Insufficient data to calculate trend	7385	2	2015 - 2016	12.89	-	-	-	NA
NCB19020038	No significant trend	31407	5	2015 - 2019	5.77	-0.01	6.79	0.12	0.7876
NCBNRCM	No significant trend	34696	5	2015 - 2019	8.64	-0.1	10.09	-0.14	0.6001



Total Suspended Solids - Discrete

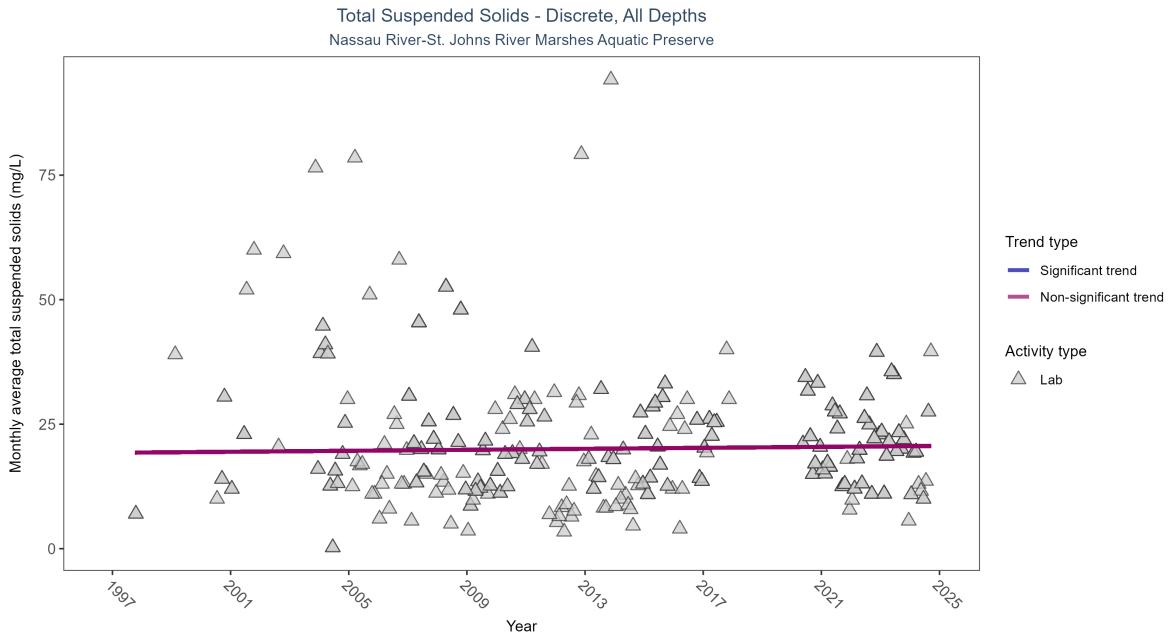
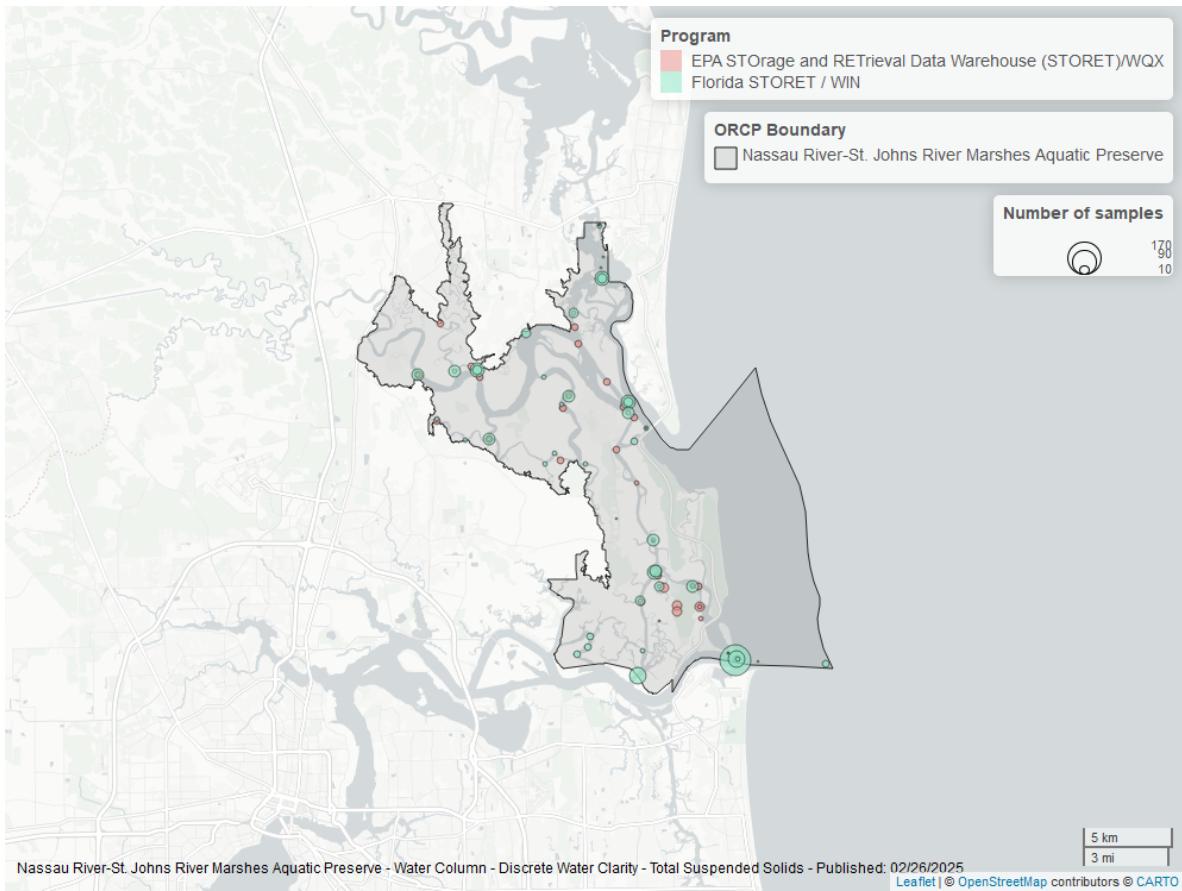


Table 15: Seasonal Kendall-Tau Results for - Total Suspended Solids

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	782	25	1997 - 2024	17.6	0.0206	19.25724	0.0495	0.6605



Chlorophyll a, Uncorrected for Pheophytin - Discrete

Chlorophyll a, Uncorrected for Pheophytin - Discrete, All Depths
Nassau River-St. Johns River Marshes Aquatic Preserve

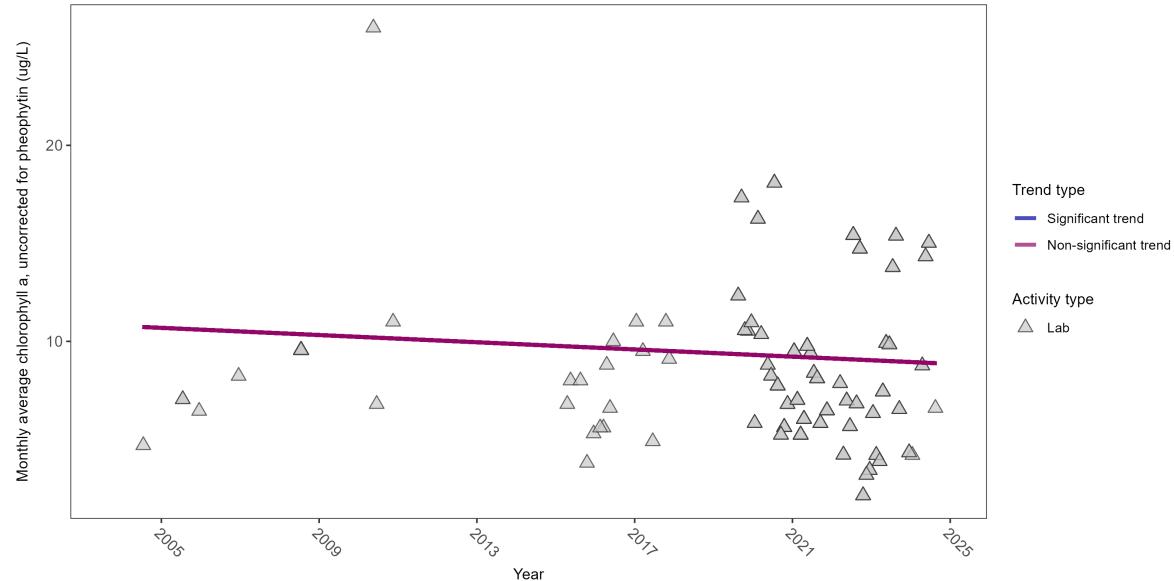
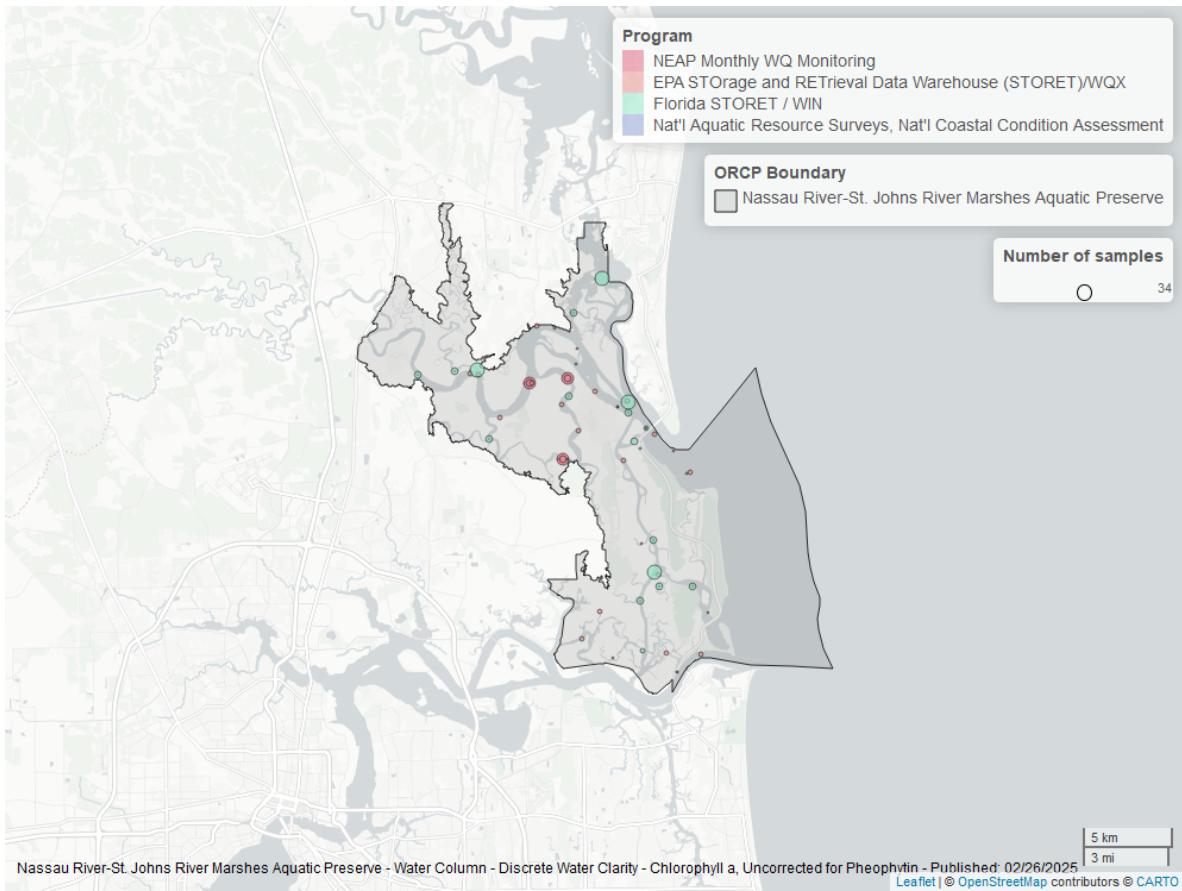


Table 16: Seasonal Kendall-Tau Results for - Chlorophyll a, Uncorrected for Pheophytin

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	437	14	2004 - 2024	7.75523	-0.1173	10.78143	-0.09179	0.5782



Chlorophyll a, Corrected for Pheophytin - Discrete

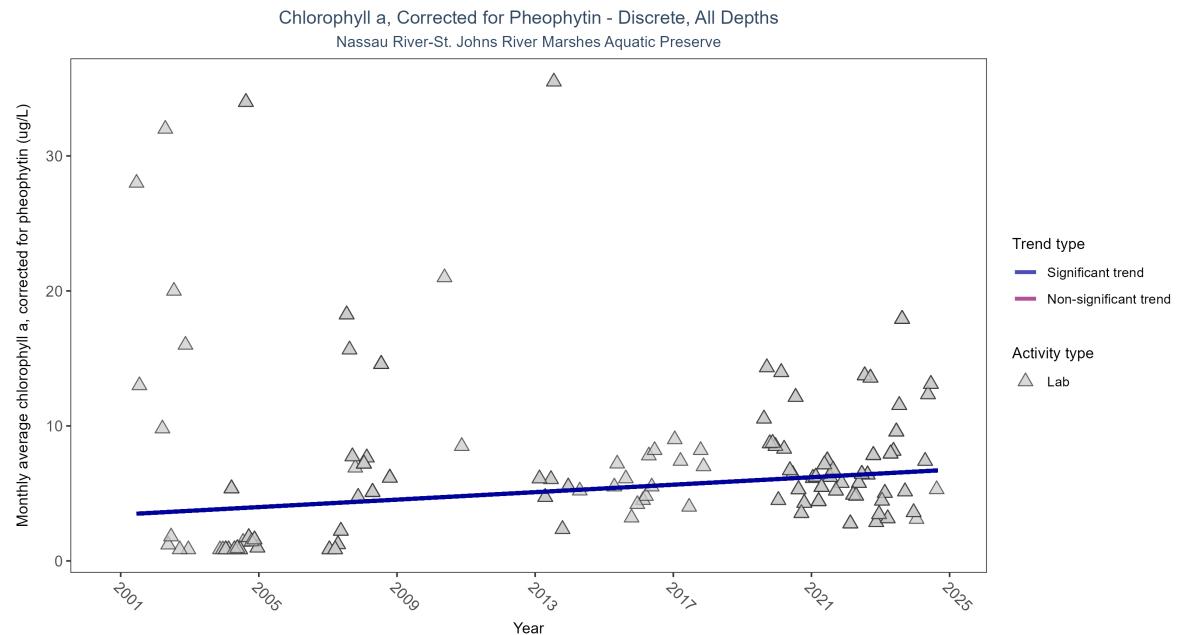
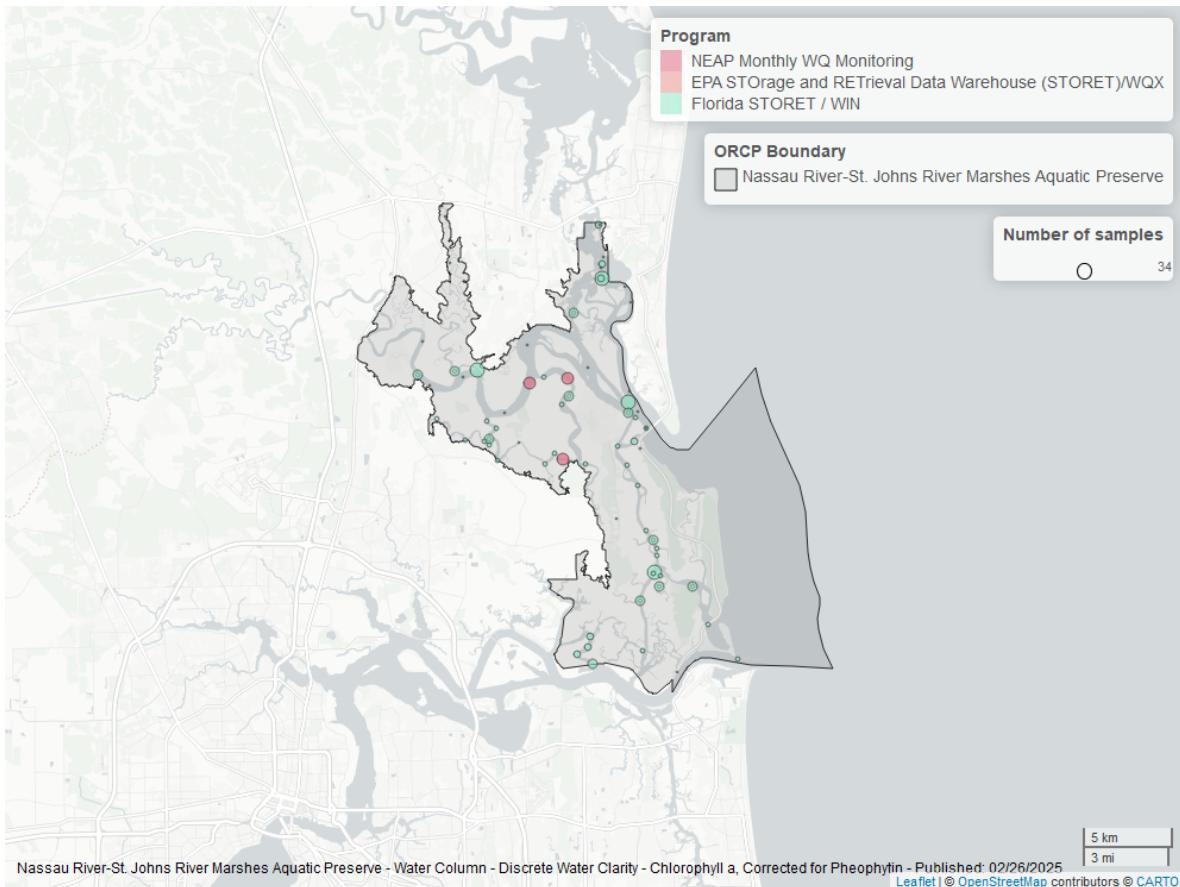


Table 17: Seasonal Kendall-Tau Results for - Chlorophyll a, Corrected for Pheophytin

Activity Type	Statistical Trend	Sample Count	Years with Data	Period of Record	Median Result Value	Tau	Sen Intercept	Sen Slope	P
Lab	Significantly increasing trend	603	18	2001 - 2024	5.8	0.1546	3.43503	0.13816	0.0262



Secchi Depth - Discrete

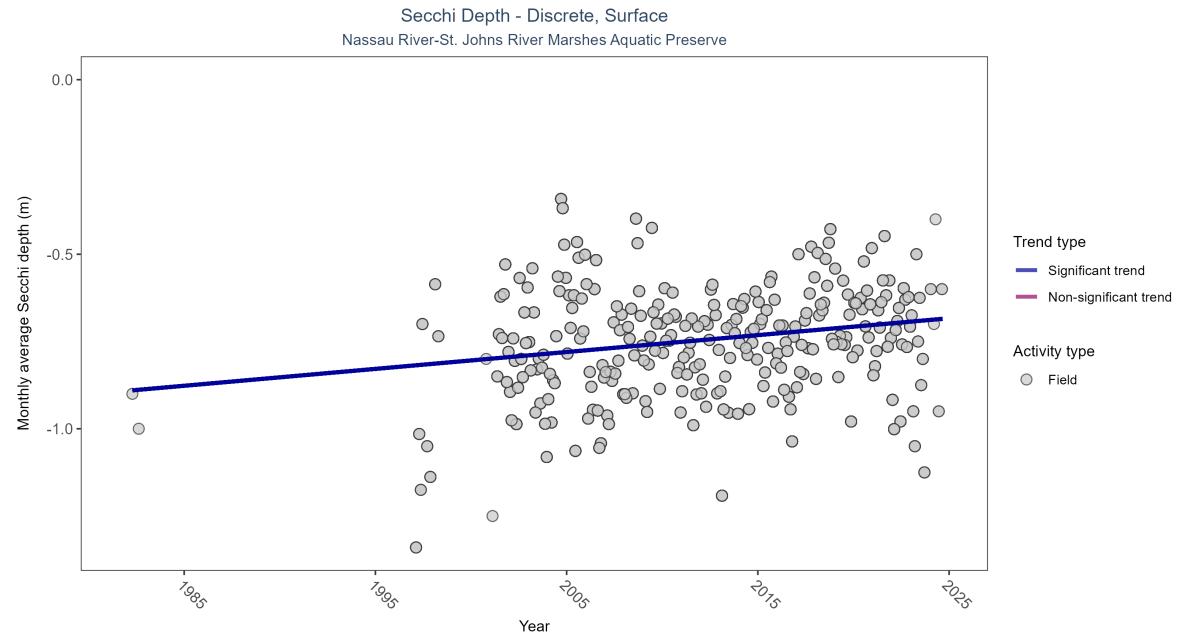
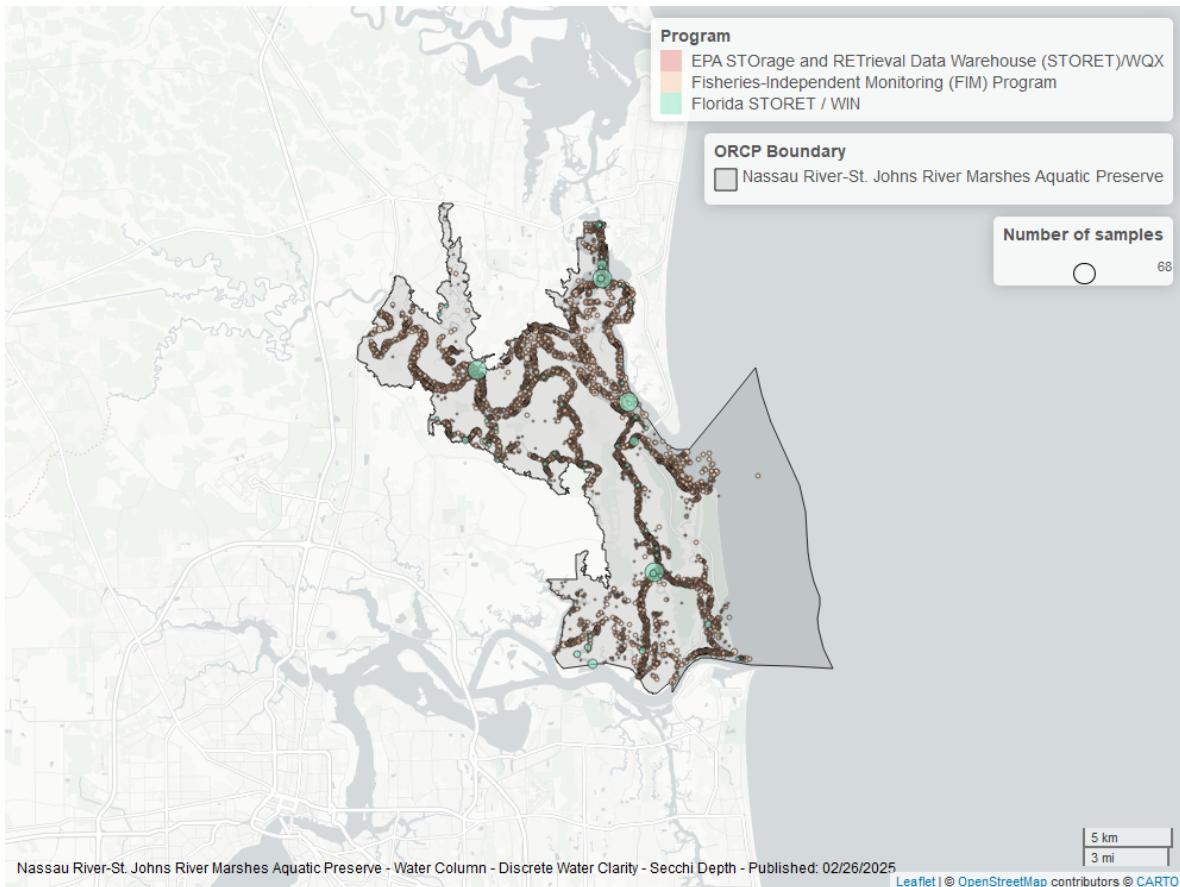


Table 18: Seasonal Kendall-Tau Results for - Secchi Depth

Activity Type	Statistical Trend	Sample Count	Years with Data	Period of Record	Median Result Value	Tau	Sen Intercept	Sen Slope	P
Field	Significantly increasing trend	18753	28	1982 - 2024	-0.7	0.1629	-0.89136	0.00484	0.0001



Colored Dissolved Organic Matter - Discrete

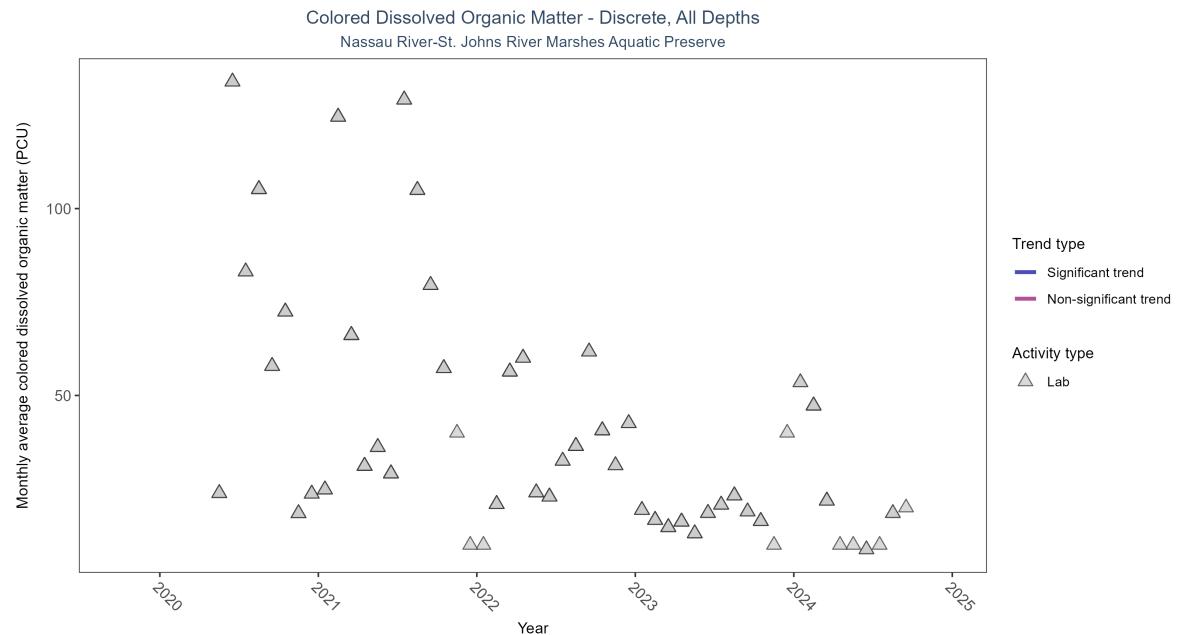


Table 19: Seasonal Kendall-Tau Results for - Colored Dissolved Organic Matter

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	385	5	2020 - 2024	27	-	-	-	NA

