

Matlacha Pass Aquatic Preserve

SEACAR Water Quality Analysis

Last compiled on 18 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

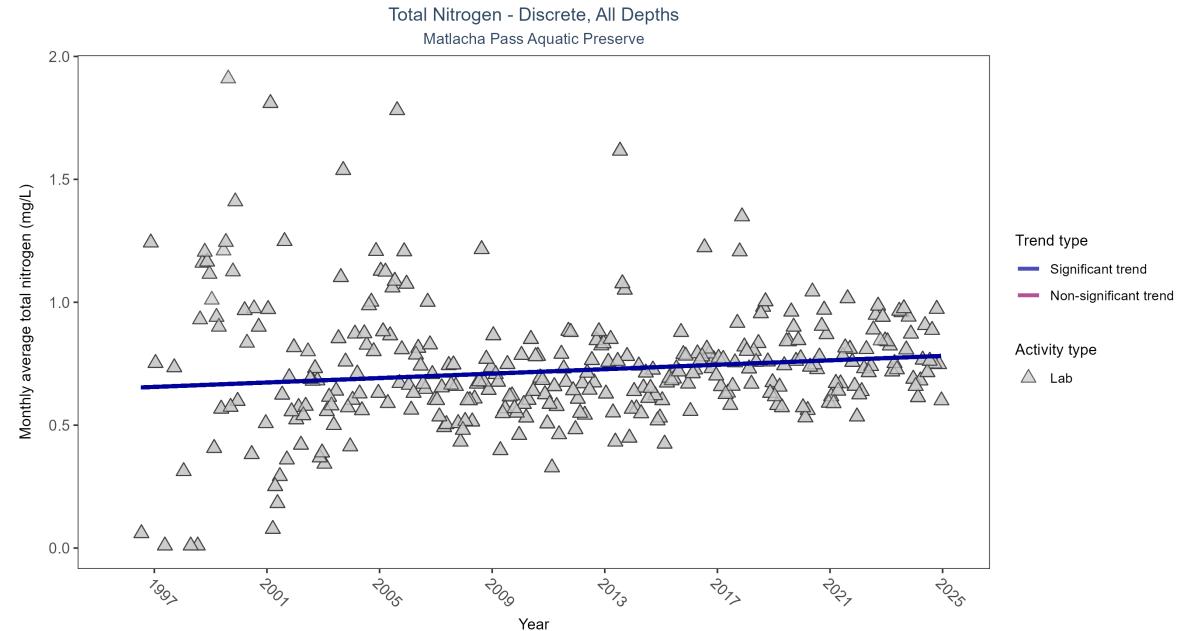
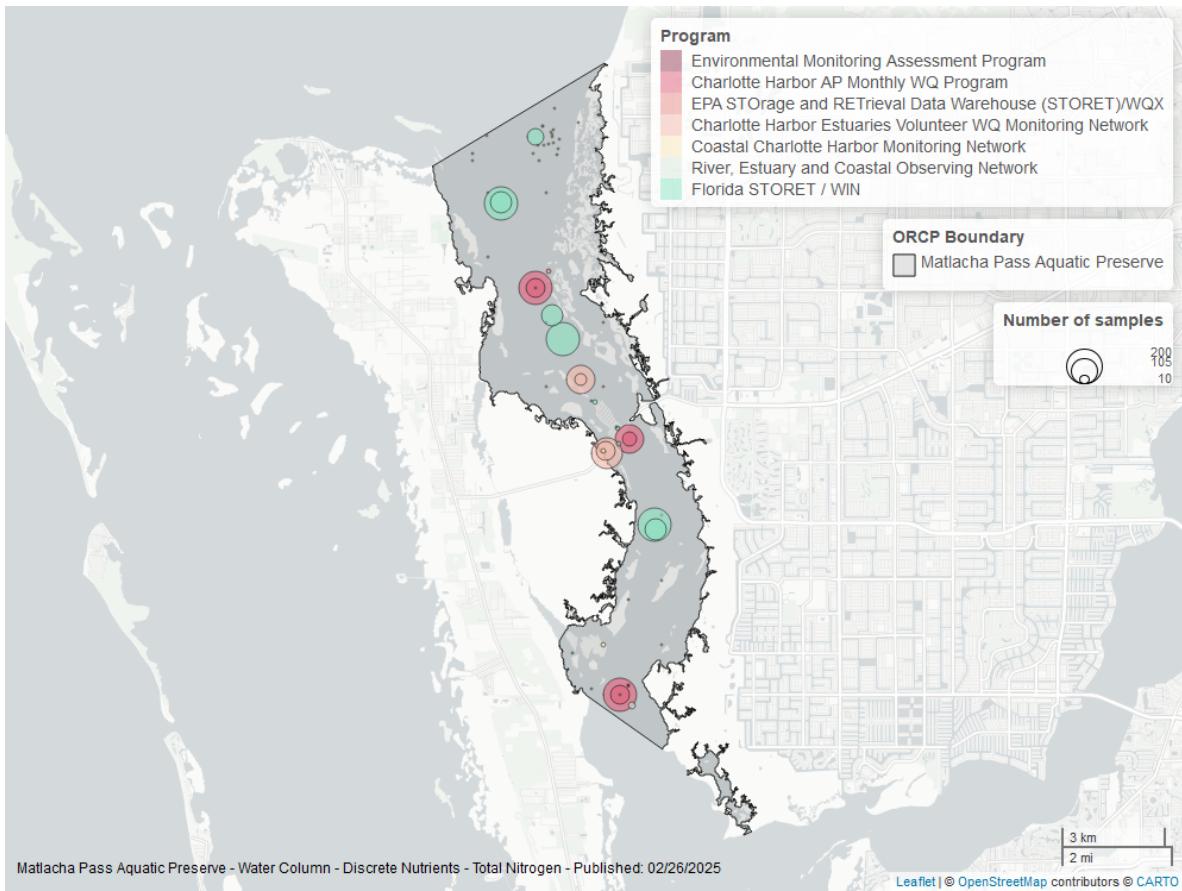


Table 1: Seasonal Kendall-Tau Results for - Total Nitrogen

Activity Type	Statistical Trend	Sample Count	Years with Data	Period of Record	Median Result Value	Tau	Sen Intercept	Sen Slope	P
Lab	Significantly increasing trend	2040	29	1996 - 2024	0.705	0.13368	0.65106	0.00451	0.00077032908015342549910842163



Total Phosphorus - Discrete

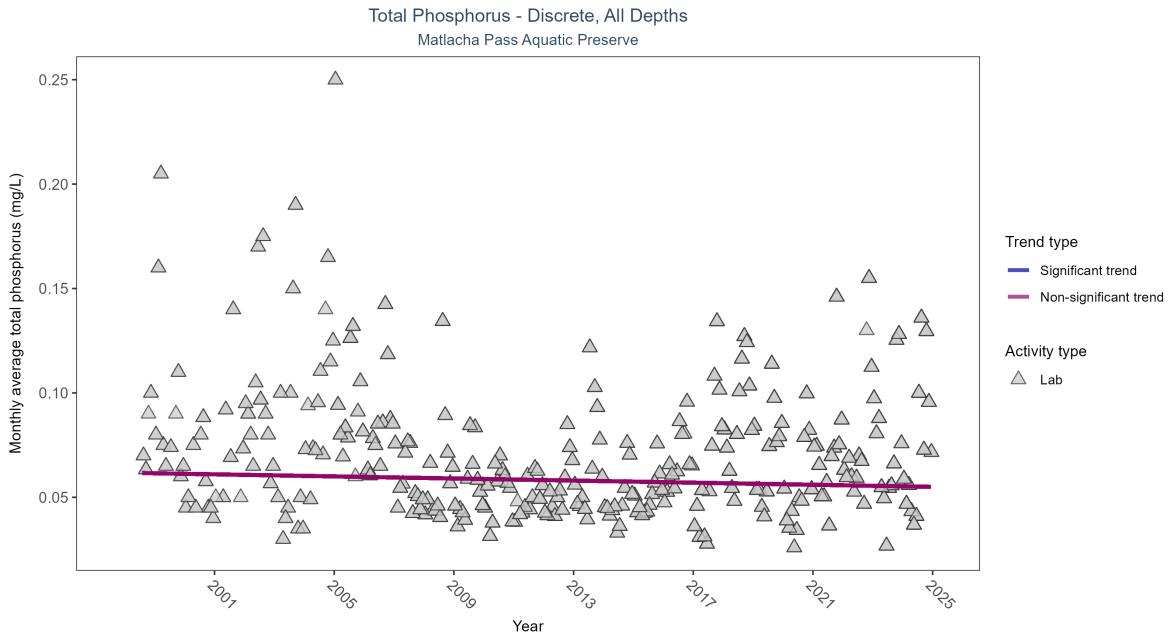
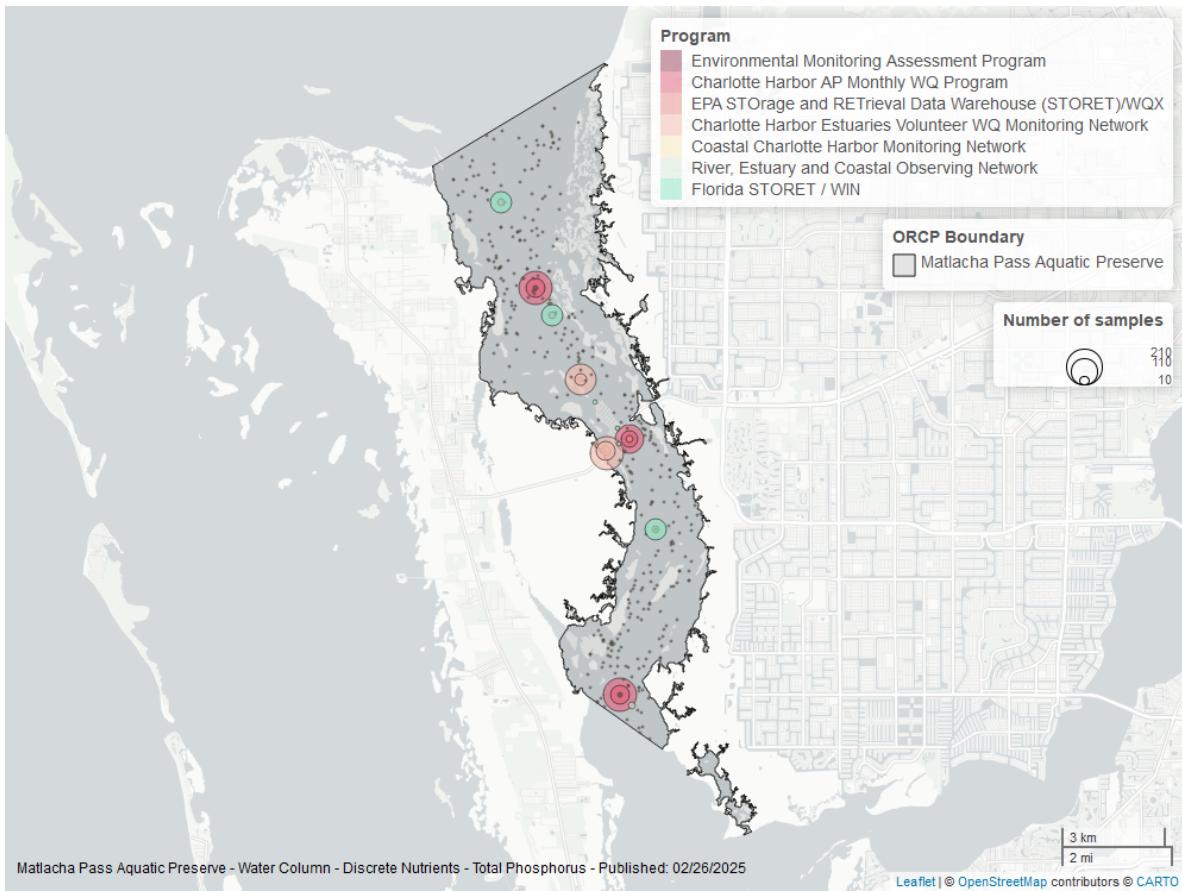


Table 2: Seasonal Kendall-Tau Results for - Total Phosphorus

Activity Type	Statistical Trend	Sample Count	Years with Data	Period of Record	Median Result Value	Tau	Sen Intercept	Sen Slope	P
Lab	No significant trend	1936	27	1998 - 2024	0.06	-0.05408	0.06176	-0.00025	0.23436611497035941820143989389180205762386322021484375000000000000



Water Quality

Dissolved Oxygen - Discrete

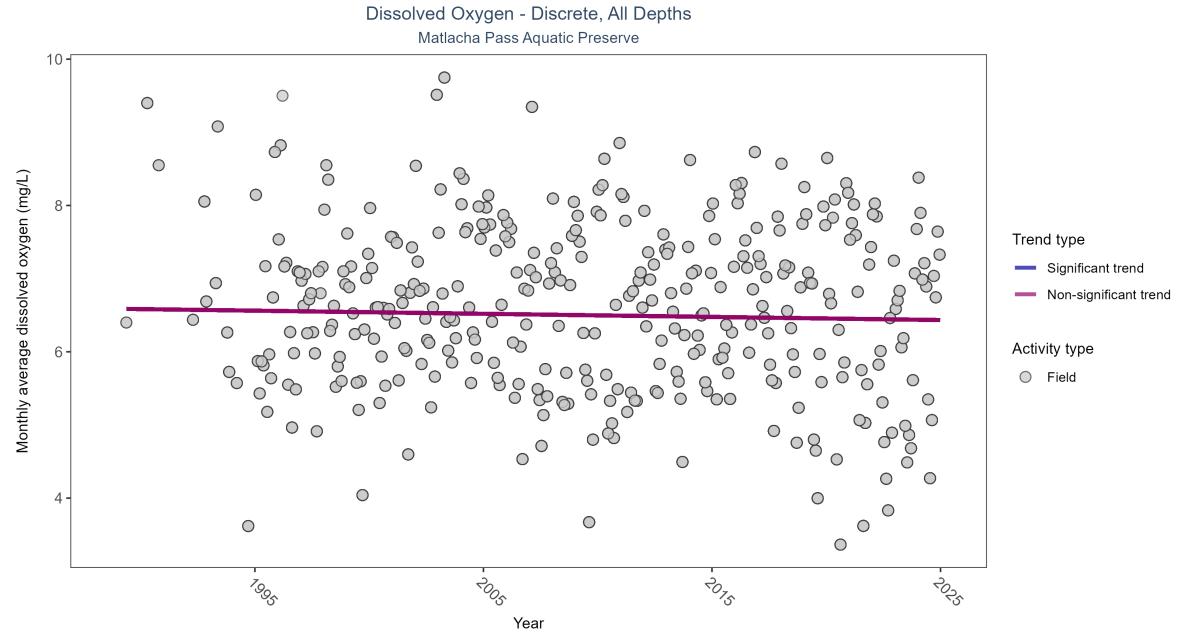
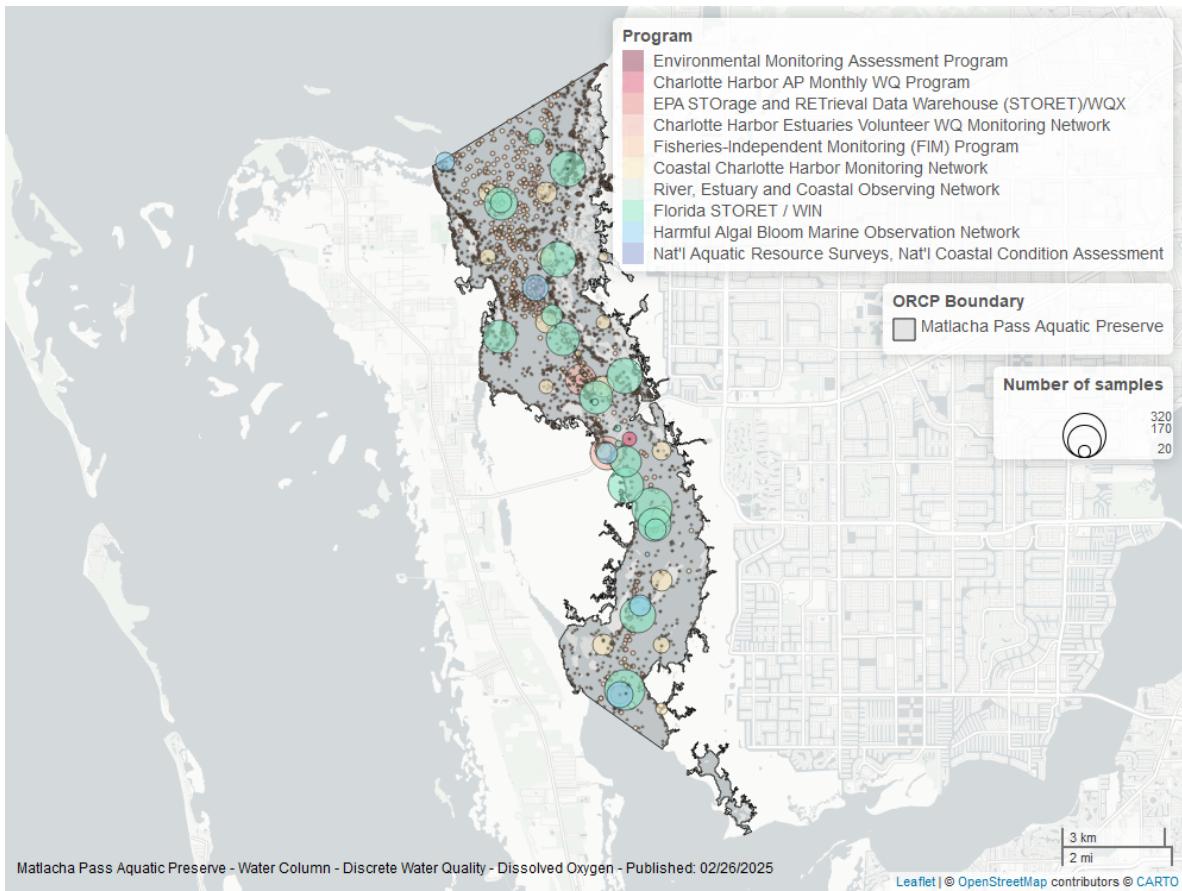


Table 3: Seasonal Kendall-Tau Results for - Dissolved Oxygen

Activity Type	Statistical Trend	Sample Count	Years with Data	Period of Record	Median Result Value	Tau	Sen Intercept	Sen Slope	P
Field	No significant trend	11468	35	1989 - 2024	6.6	-0.03114	6.58766	-0.00427	0.40072271411877580



Dissolved Oxygen - Continuous

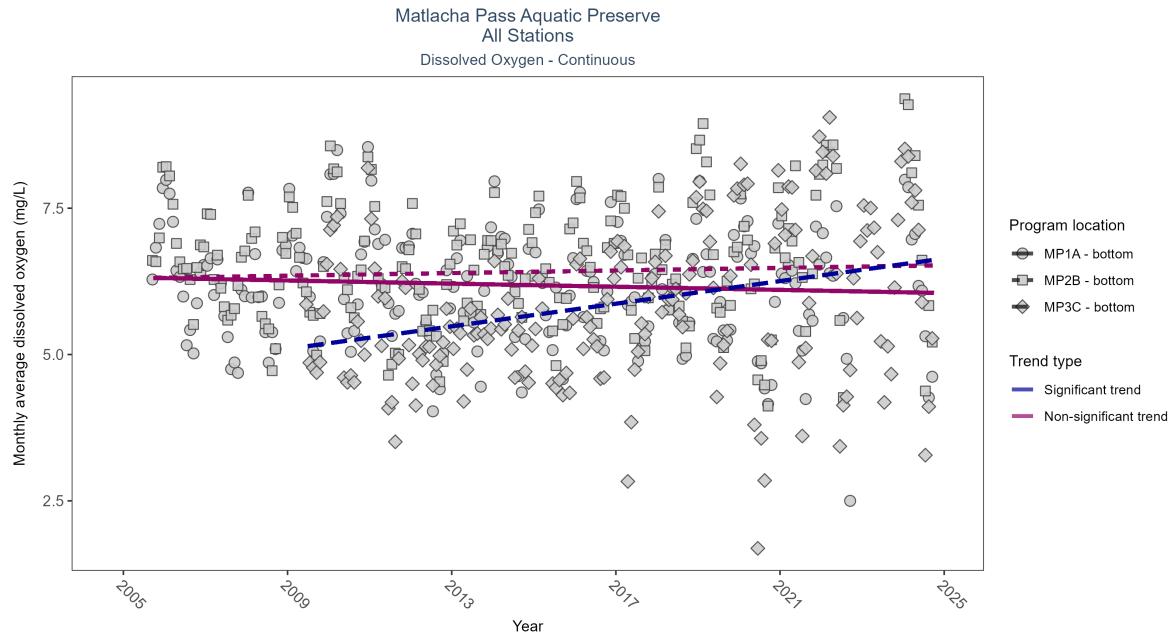
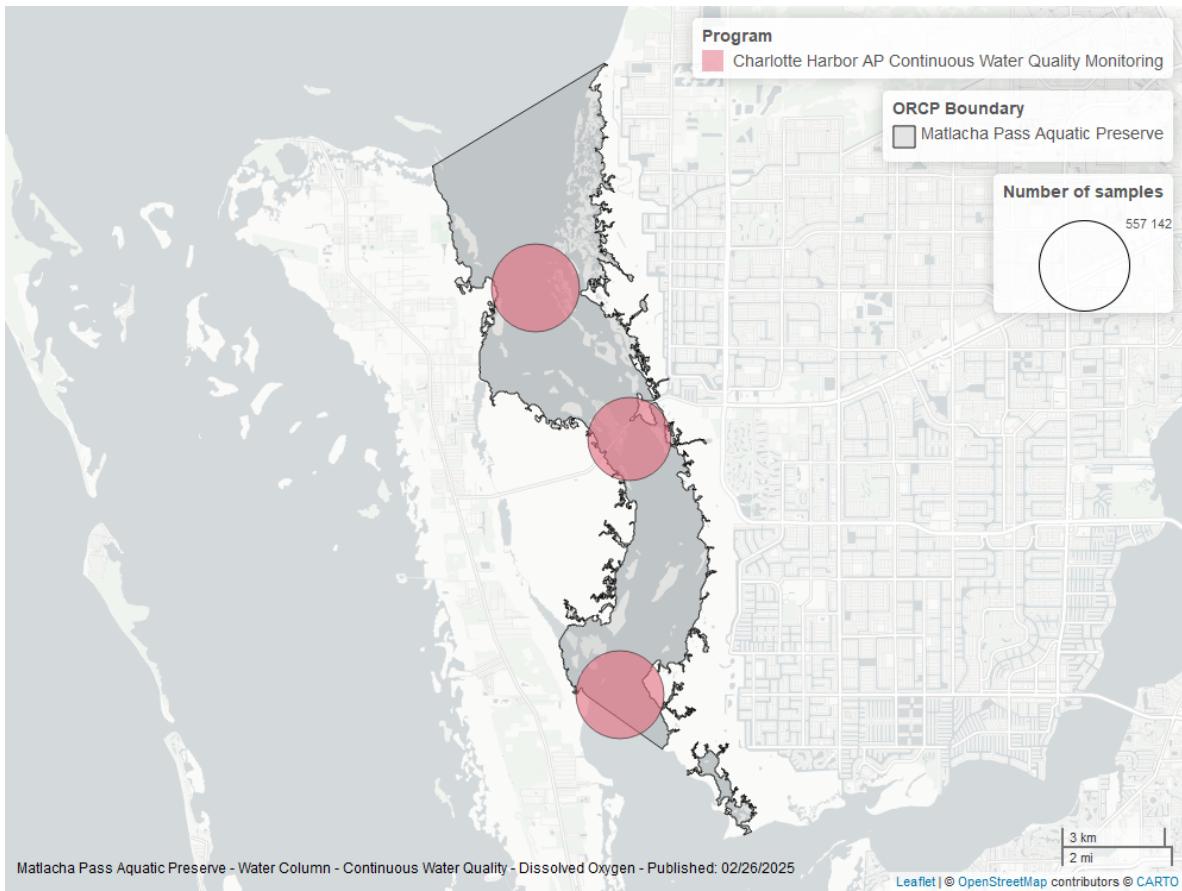


Table 4: Seasonal Kendall-Tau Results for All Stations - Dissolved Oxygen

Program Location	Statistical Trend	Sample Count	Years with Data	Period of Record	Median Result Value	Tau	Sen Intercept	Sen Slope	P
MP1A	No significant trend	551545	19	2005 - 2024	6.3	-0.07	6.32	-0.01	0.17823154006947806
MP2B	No significant trend	563271	19	2005 - 2024	6.7	0.07	6.30	0.01	0.14791487262427030
MP3C	Significantly increasing trend	486873	16	2009 - 2024	5.9	0.30	5.10	0.10	0.00000023188936697



Dissolved Oxygen Saturation - Discrete

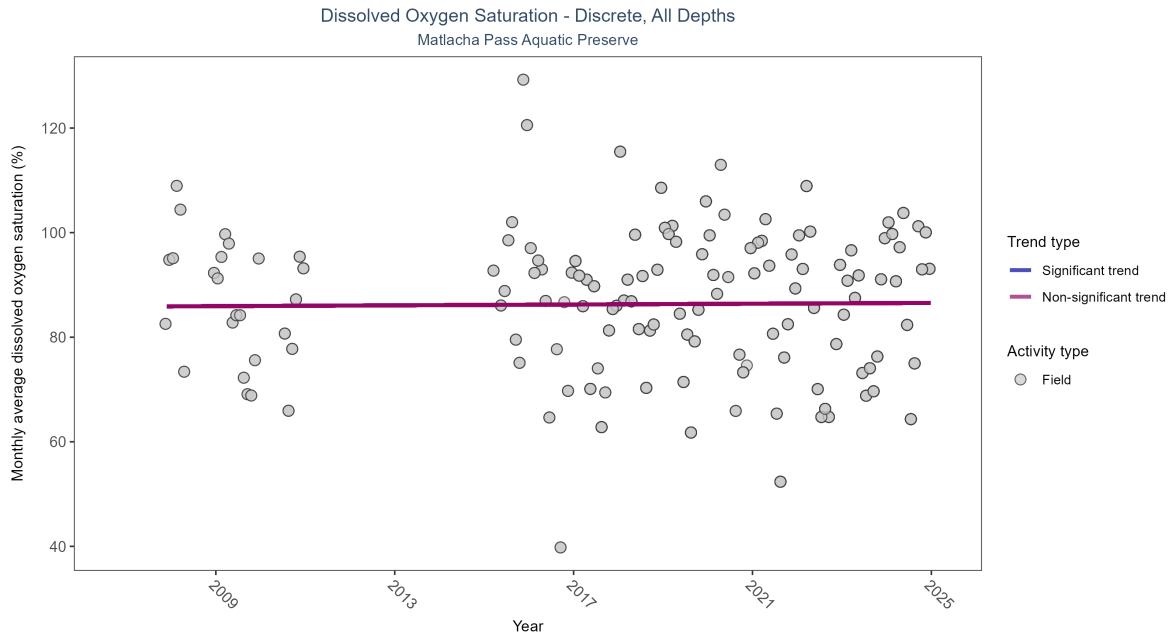
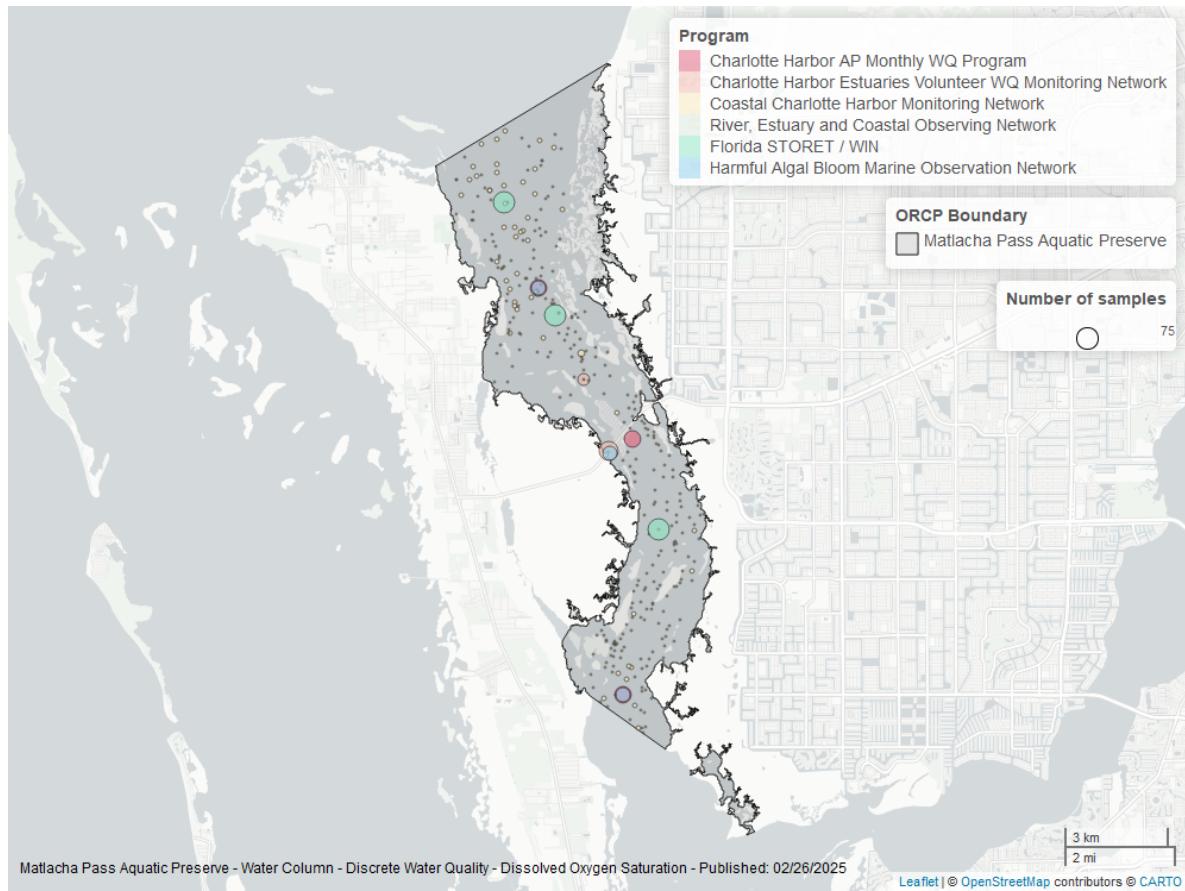


Table 5: Seasonal Kendall-Tau Results for - Dissolved Oxygen Saturation



Dissolved Oxygen Saturation - Continuous

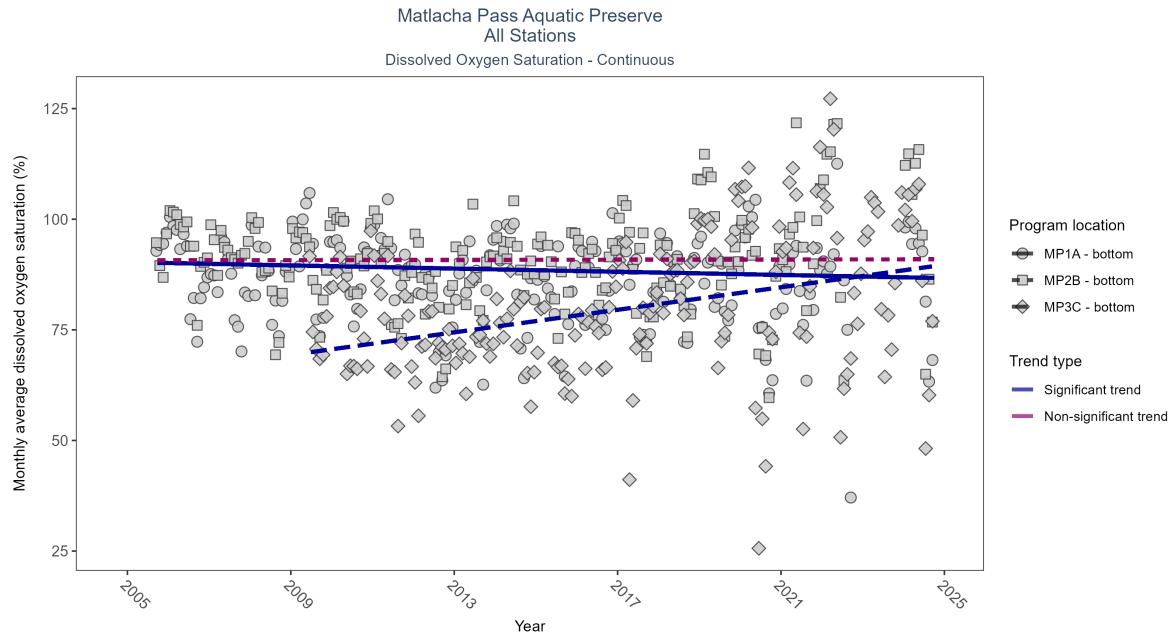
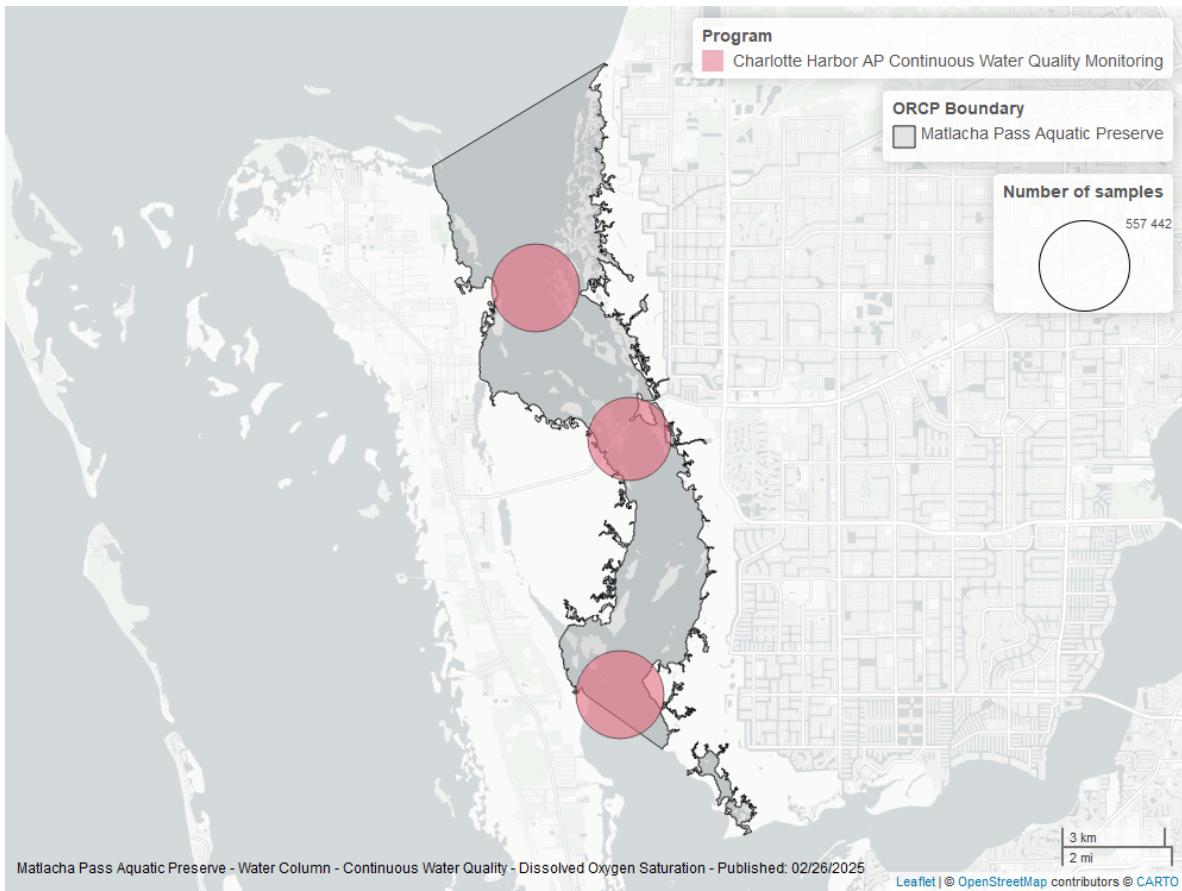


Table 6: Seasonal Kendall-Tau Results for All Stations - Dissolved Oxygen Saturation

Program Location	Statistical Trend	Sample Count	Years with Data	Period of Record	Median Result Value	Tau	Sen Intercept	Sen Slope	P
MP1A	Significantly decreasing trend	548903	19	2005 - 2024	88.1	-0.13	90.27	-0.18	0.0119728266229944761
MP2B	No significant trend	563571	19	2005 - 2024	91.3	0.01	90.71	0.01	0.8920977849976622354
MP3C	Significantly increasing trend	488214	16	2009 - 2024	81.4	0.29	69.33	1.27	0.0000006506291461871



Salinity - Discrete

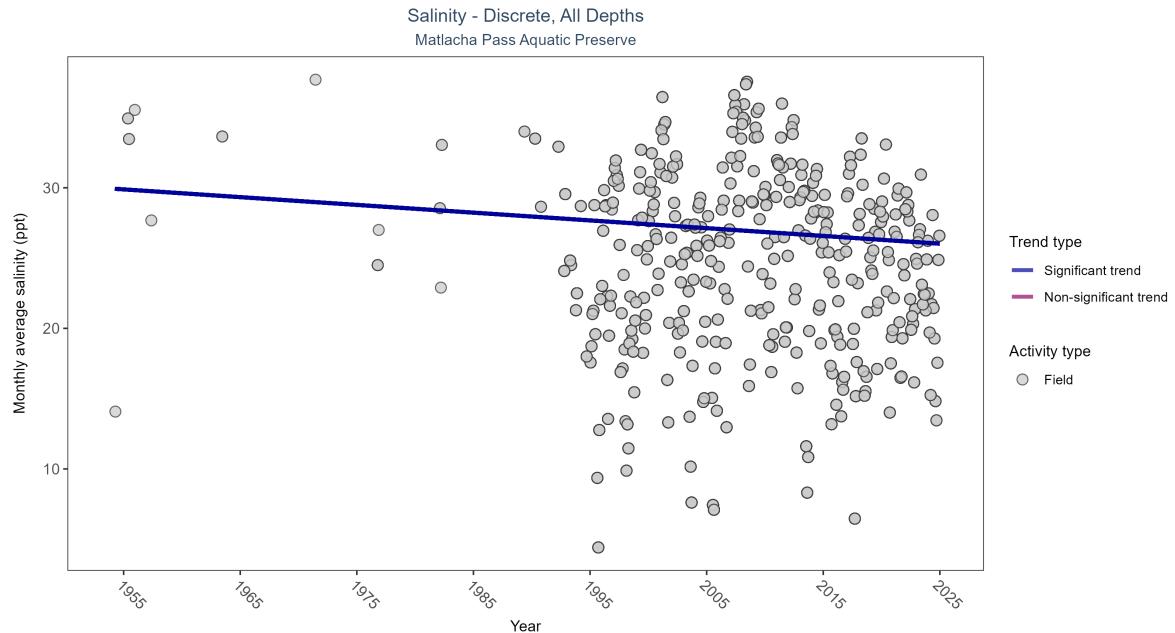
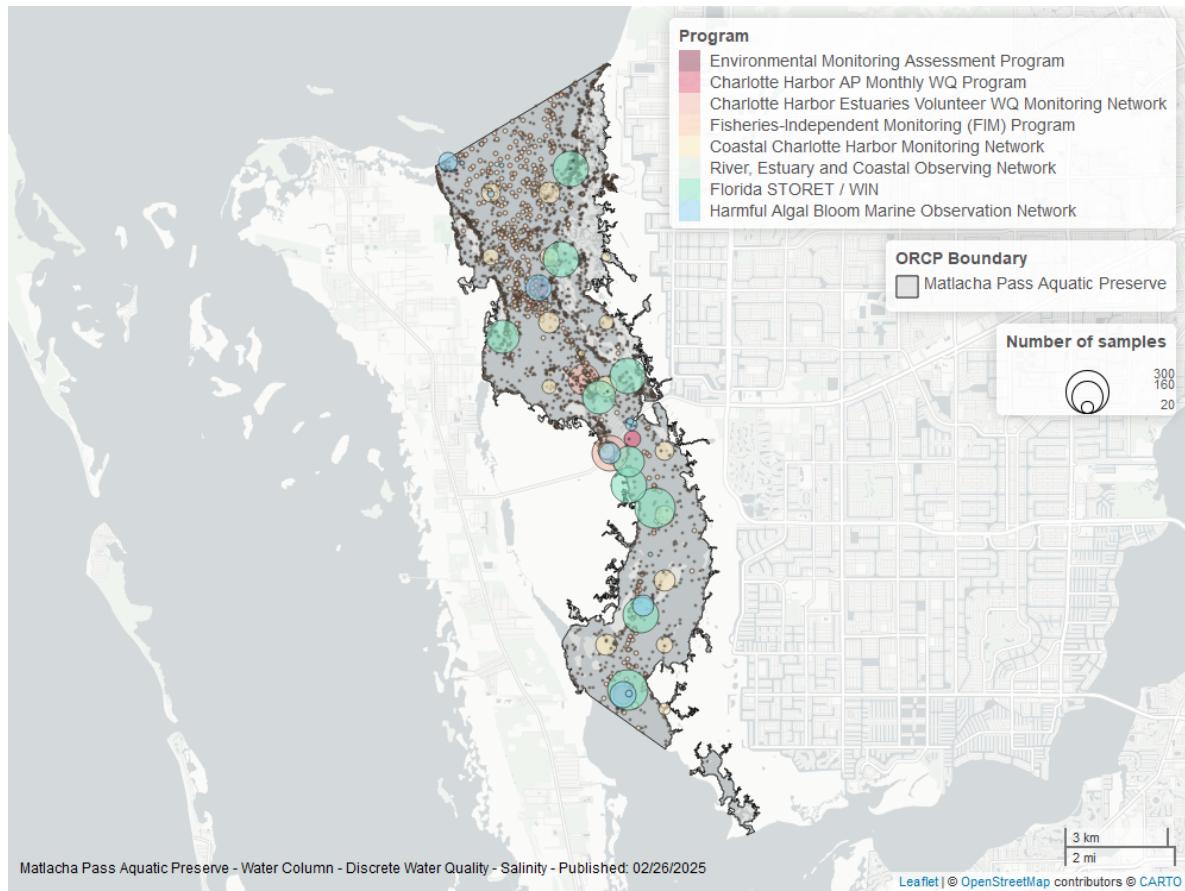


Table 7: Seasonal Kendall-Tau Results for - Salinity

Activity Type	Statistical Trend	Sample Count	Years with Data	Period of Record	Median Result Value	Tau	Sen Intercept	Sen Slope	P
All	Significantly decreasing trend	10706	42	1954 - 2024	25.9	-0.07486	29.94254	-0.05518	0.03505075139652347182561697991332039237022399902



Salinity - Continuous

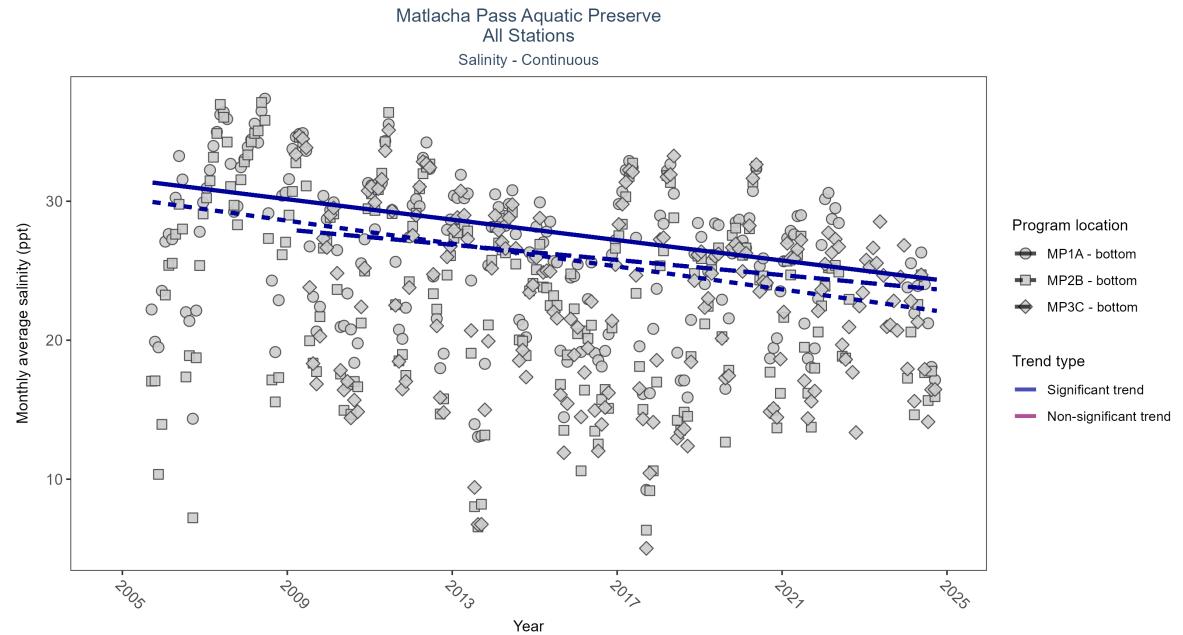
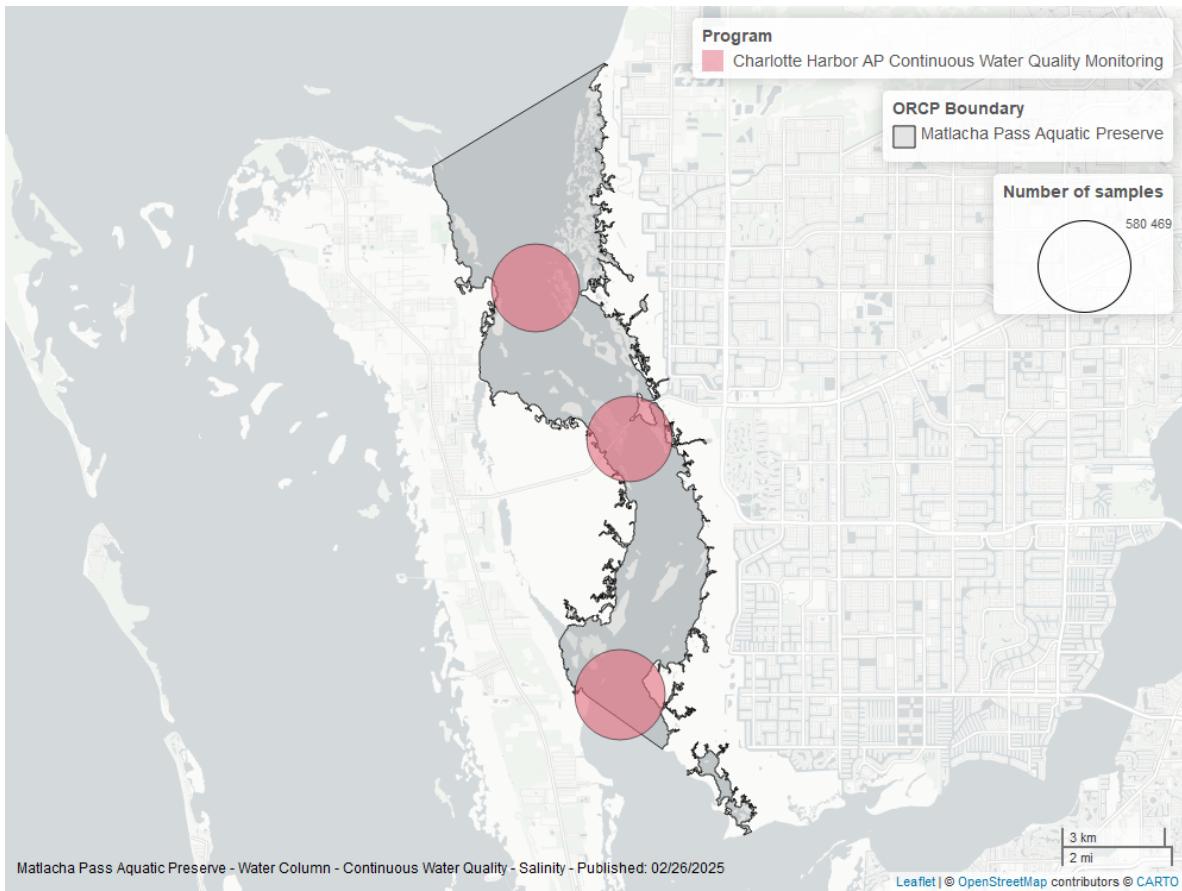


Table 8: Seasonal Kendall-Tau Results for All Stations - Salinity

Program Location	Statistical Trend	Sample Count	Years with Data	Period of Record	Median Result Value	Tau	Sen Intercept	Sen Slope	P
MP1A	Significantly decreasing trend	566644	19	2005 - 2024	27.0	-0.36	31.61	-0.37	0.000000000002169002
MP2B	Significantly decreasing trend	586611	19	2005 - 2024	24.4	-0.34	30.25	-0.41	0.0000000000007530669
MP3C	Significantly decreasing trend	514294	16	2009 - 2024	23.6	-0.21	27.96	-0.27	0.000176653927364674



Water Temperature - Discrete

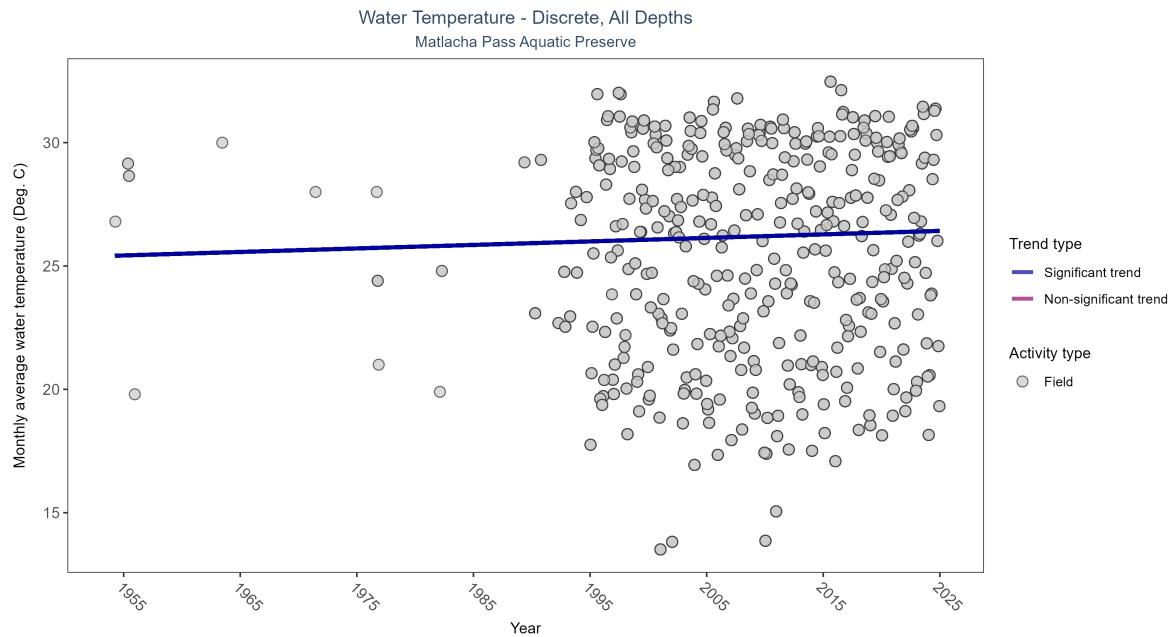
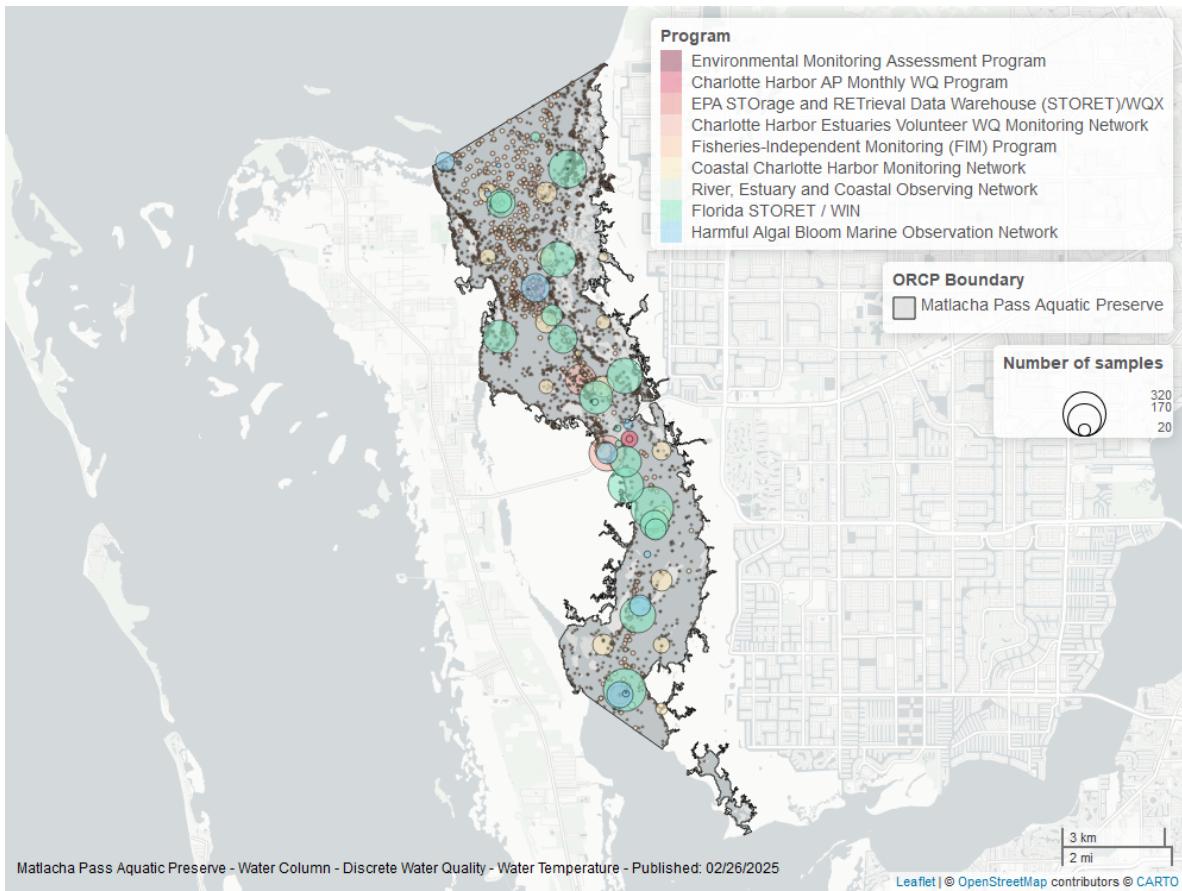


Table 9: Seasonal Kendall-Tau Results for - Water Temperature

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	11709	41	1954 - 2024	26.1	0.07179	25.41246	0.01422	0.043833745672637120



Water Temperature - Continuous

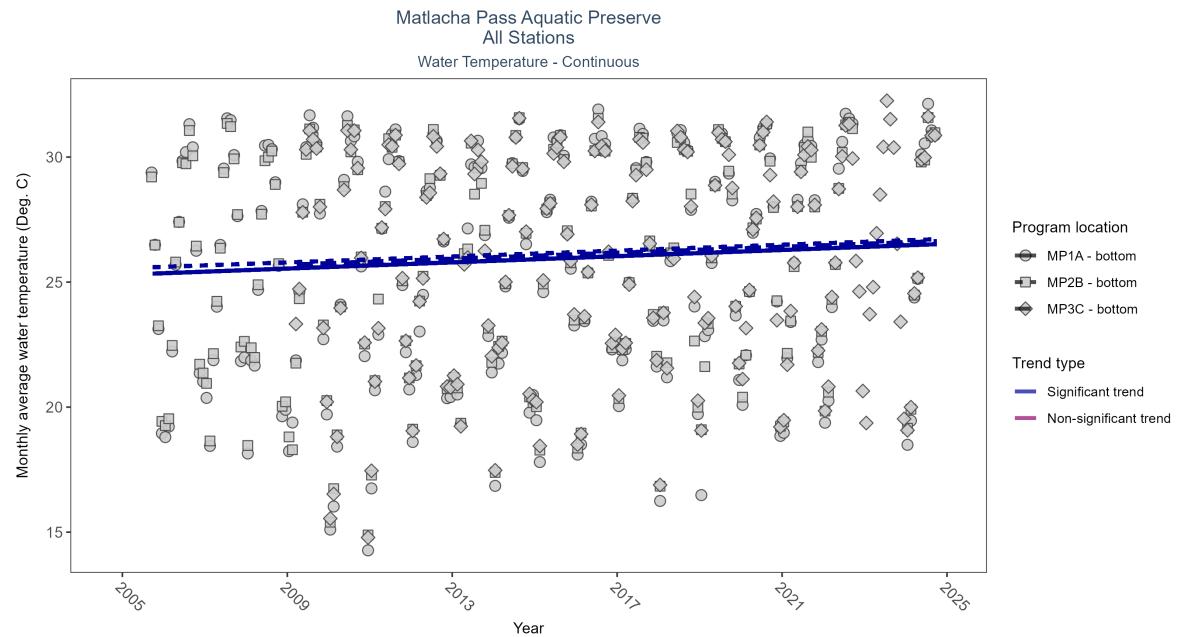
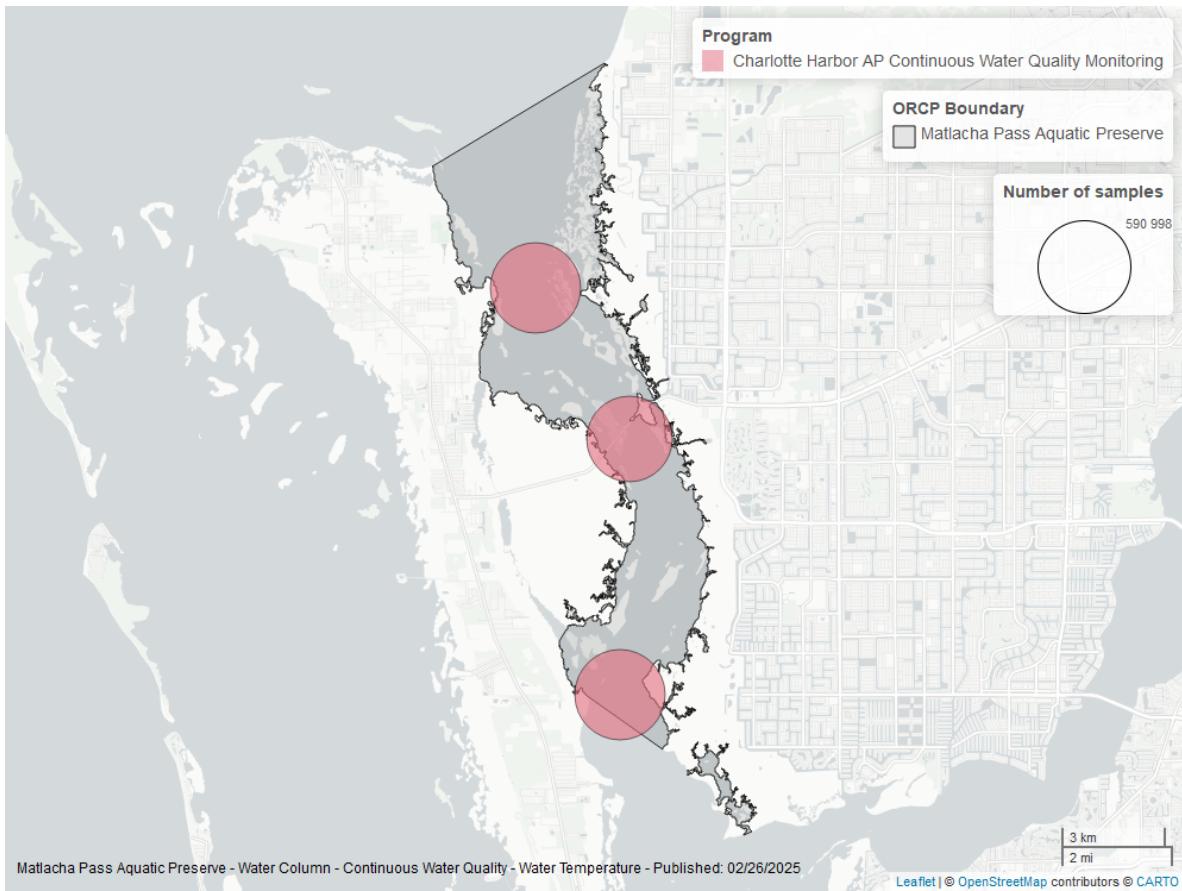


Table 10: Seasonal Kendall-Tau Results for All Stations - Water Temperature

Program Location	Statistical Trend	Sample Count	Years with Data	Period of Record	Median Result Value	Tau	Sen Intercept	Sen Slope	P
MP1A	Significantly increasing trend	599828	19	2005 - 2024	26.5	0.25	25.29	0.06	0.0000050197462646
MP2B	Significantly increasing trend	595300	19	2005 - 2024	26.3	0.22	25.55	0.06	0.0000142971717752
MP3C	Significantly increasing trend	518244	16	2009 - 2024	26.7	0.20	25.69	0.06	0.00017665392736467



pH - Discrete

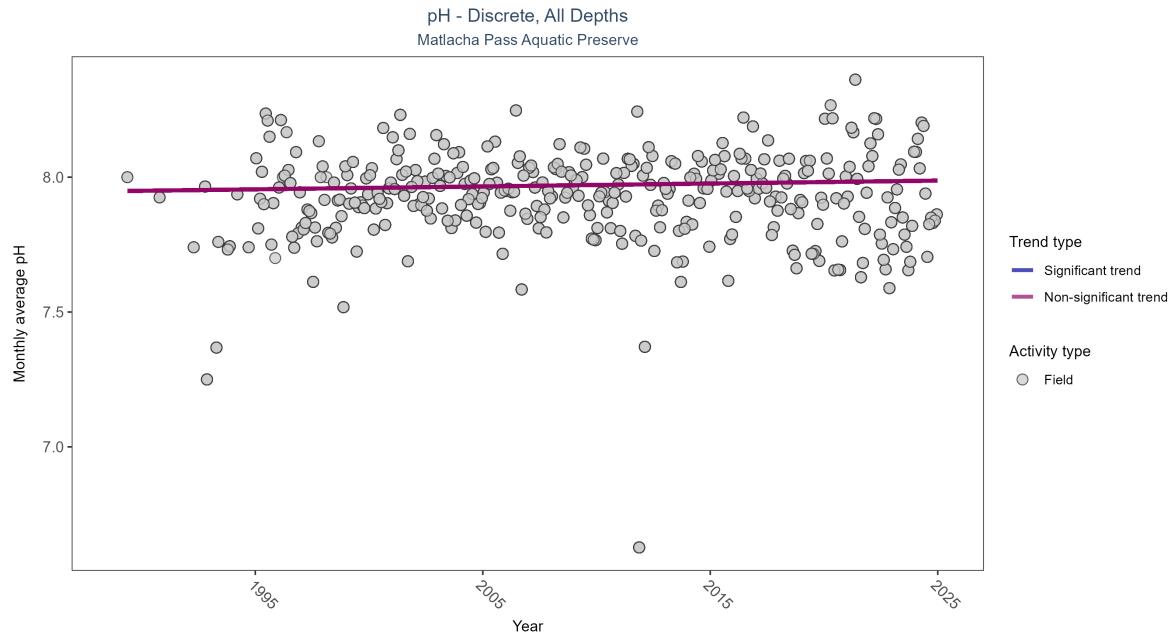
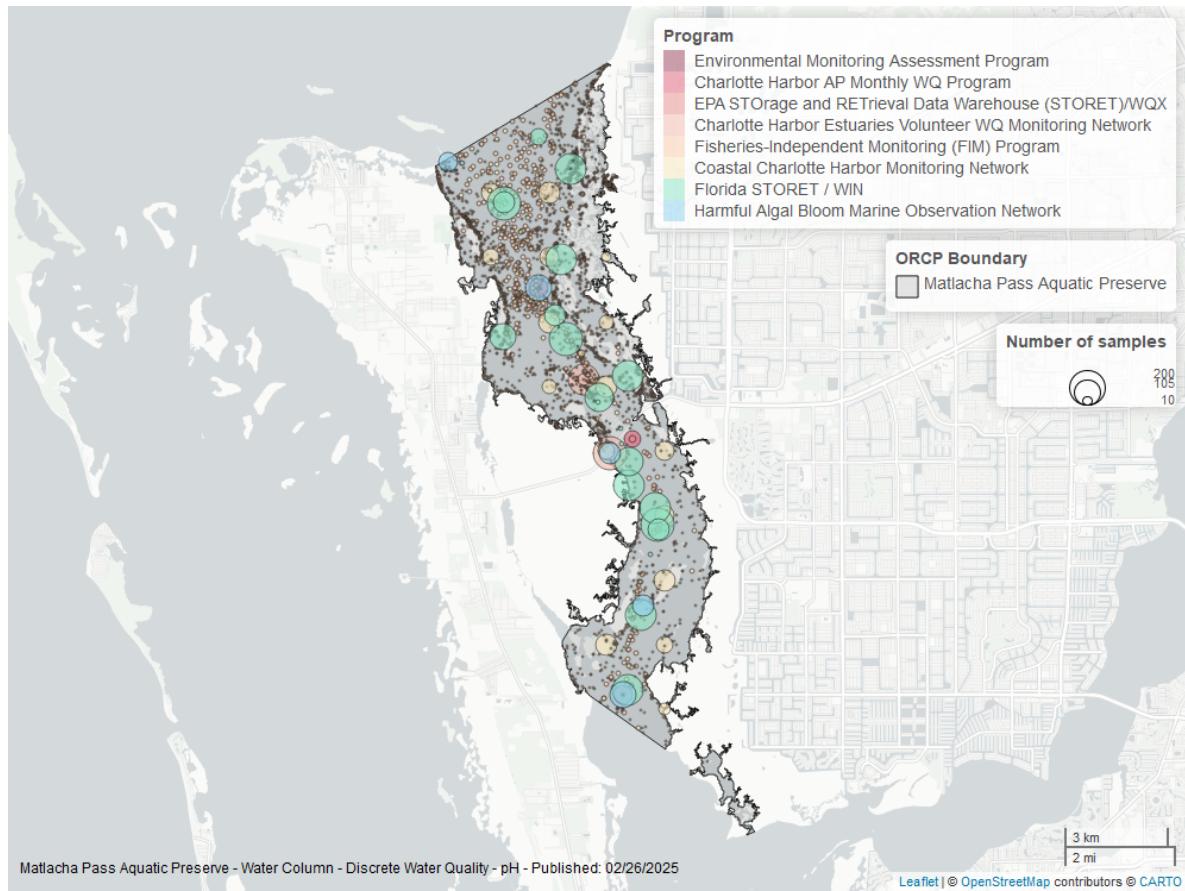


Table 11: Seasonal Kendall-Tau Results for - pH

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	10827	35	1989 - 2024	7.93	0.03381	7.94838	0.00108	0.31396757041772305196758452439098618924618



pH - Continuous

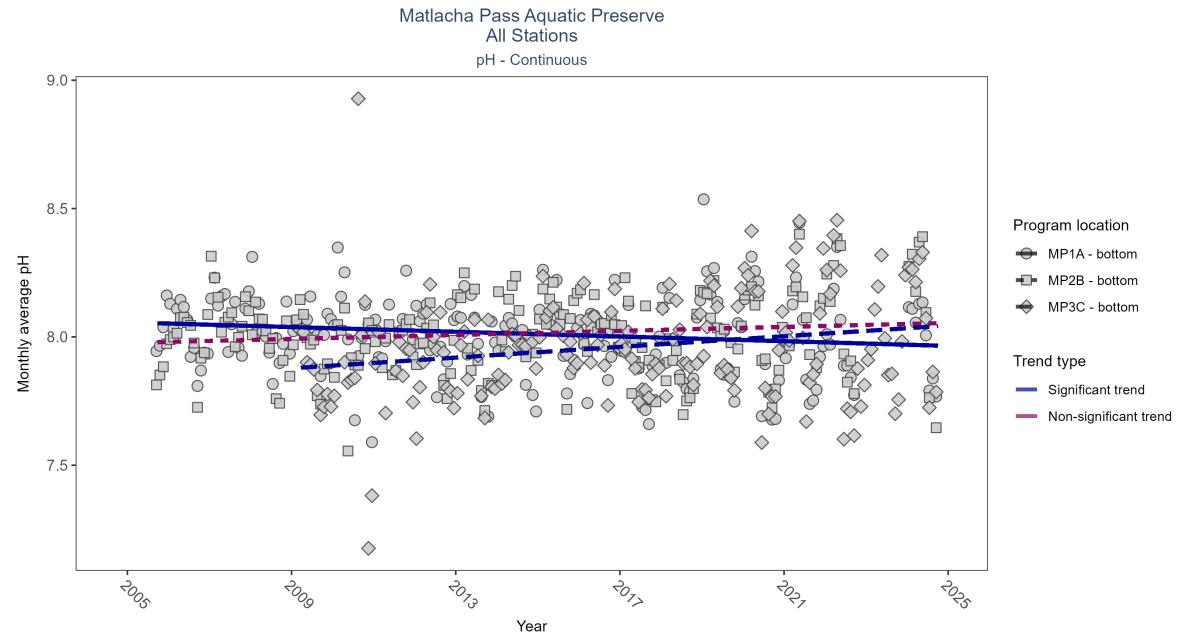
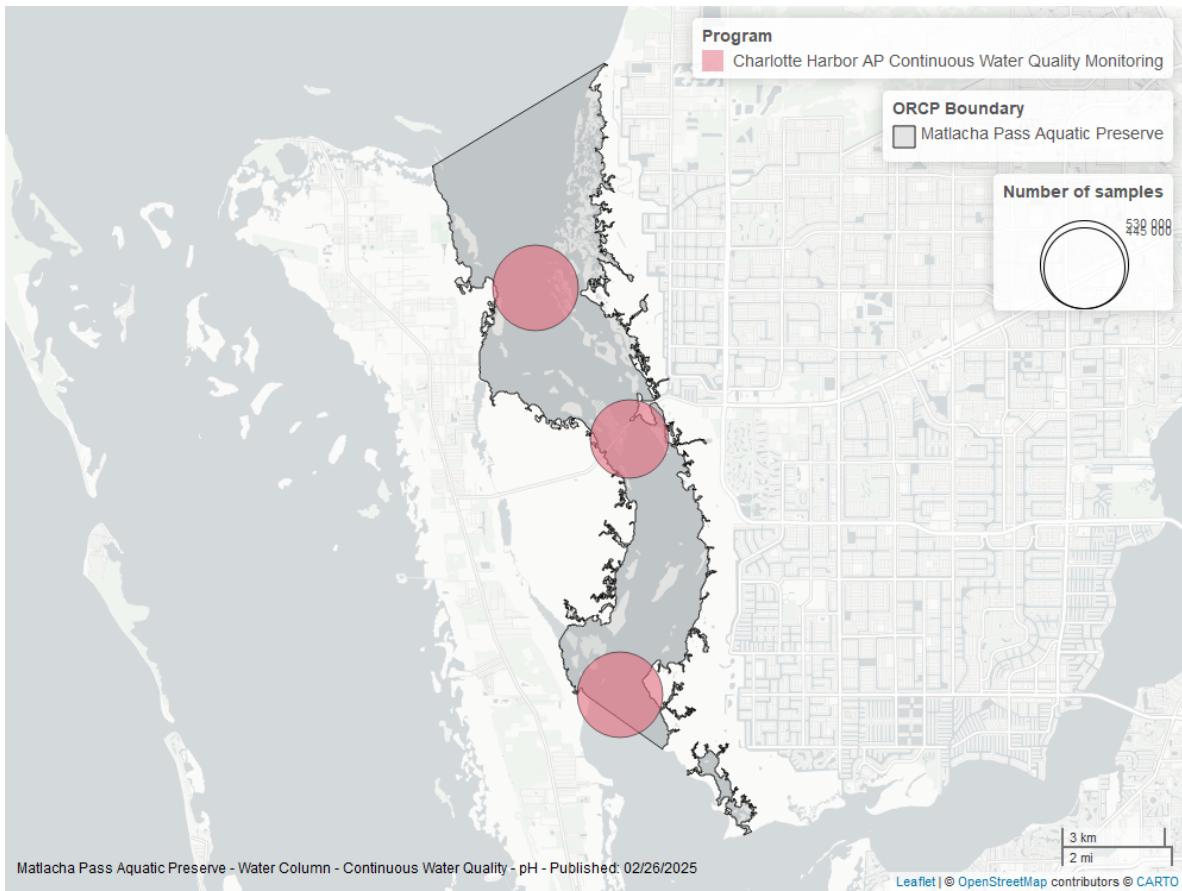


Table 12: Seasonal Kendall-Tau Results for All Stations - pH

Program Location	Statistical Trend	Sample Count	Years with Data	Period of Record	Median Result Value	Tau	Sen Intercept	Sen Slope	P
MP1A	Significantly decreasing trend	515072	19	2005 - 2024	8	-0.14	8.06	0.00	0.00638039757
MP2B	No significant trend	529320	19	2005 - 2024	8	0.09	7.98	0.00	0.08621355611
MP3C	Significantly increasing trend	456260	16	2009 - 2024	8	0.19	7.88	0.01	0.00105523759



Water Clarity

Turbidity - Discrete

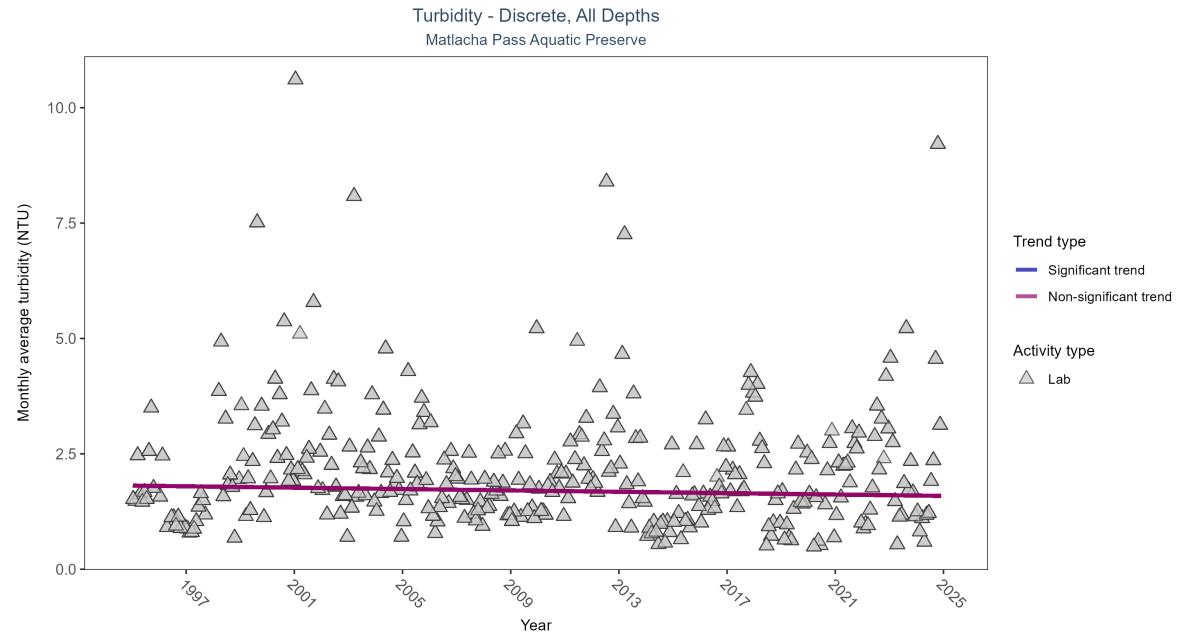
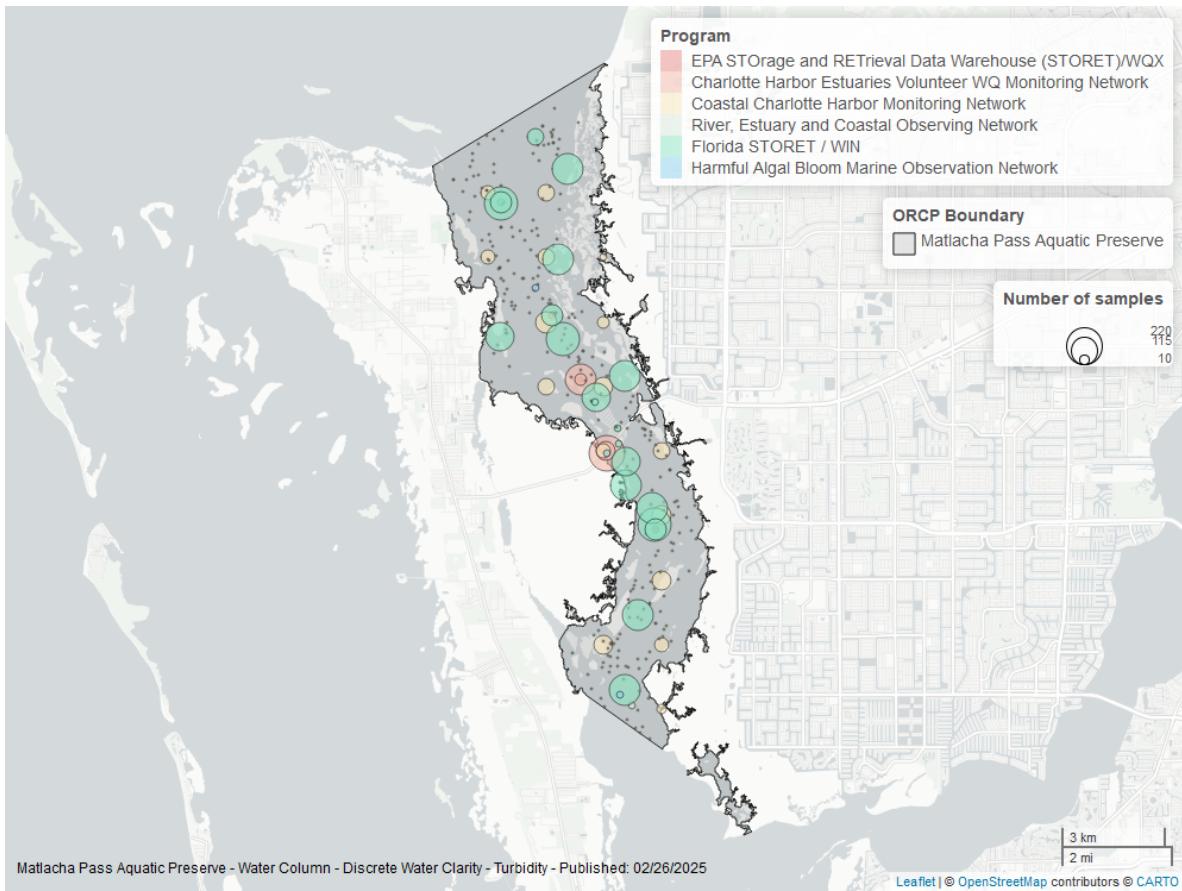


Table 13: Seasonal Kendall-Tau Results for - Turbidity

Activity Type	Statistical Trend	Sample Count	Years with Data	Period of Record	Median Result Value	Tau	Sen Intercept	Sen Slope	P
Lab	No significant trend	3464	30	1995 - 2024	1.7	-0.04095	1.81156	-0.00743	0.23506255691367031191



Turbidity - Continuous

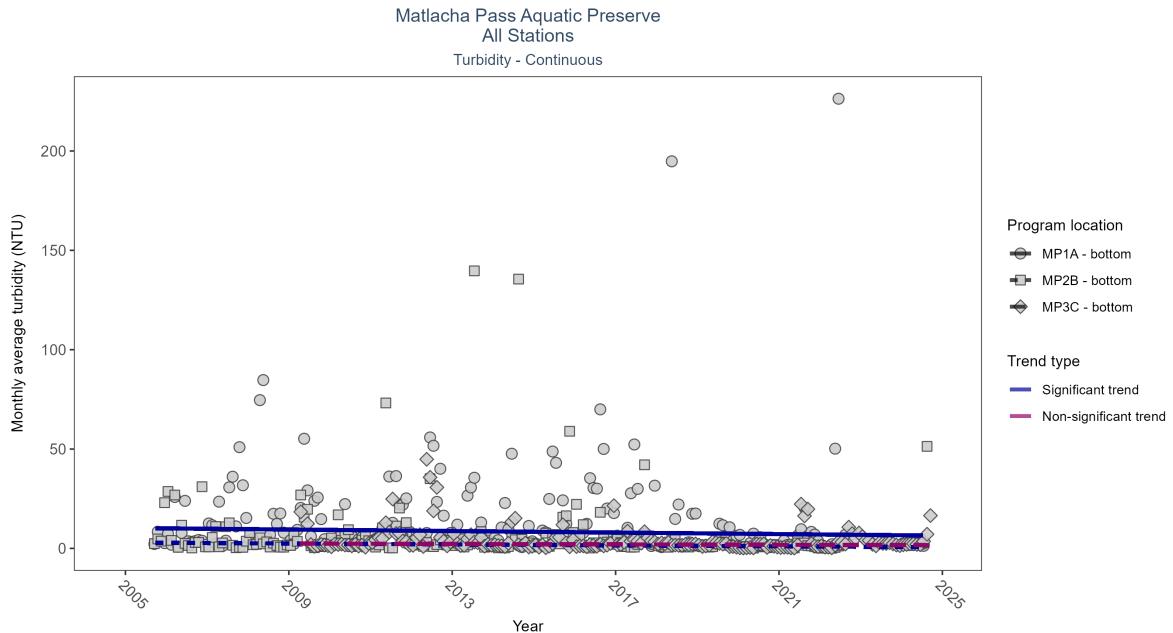
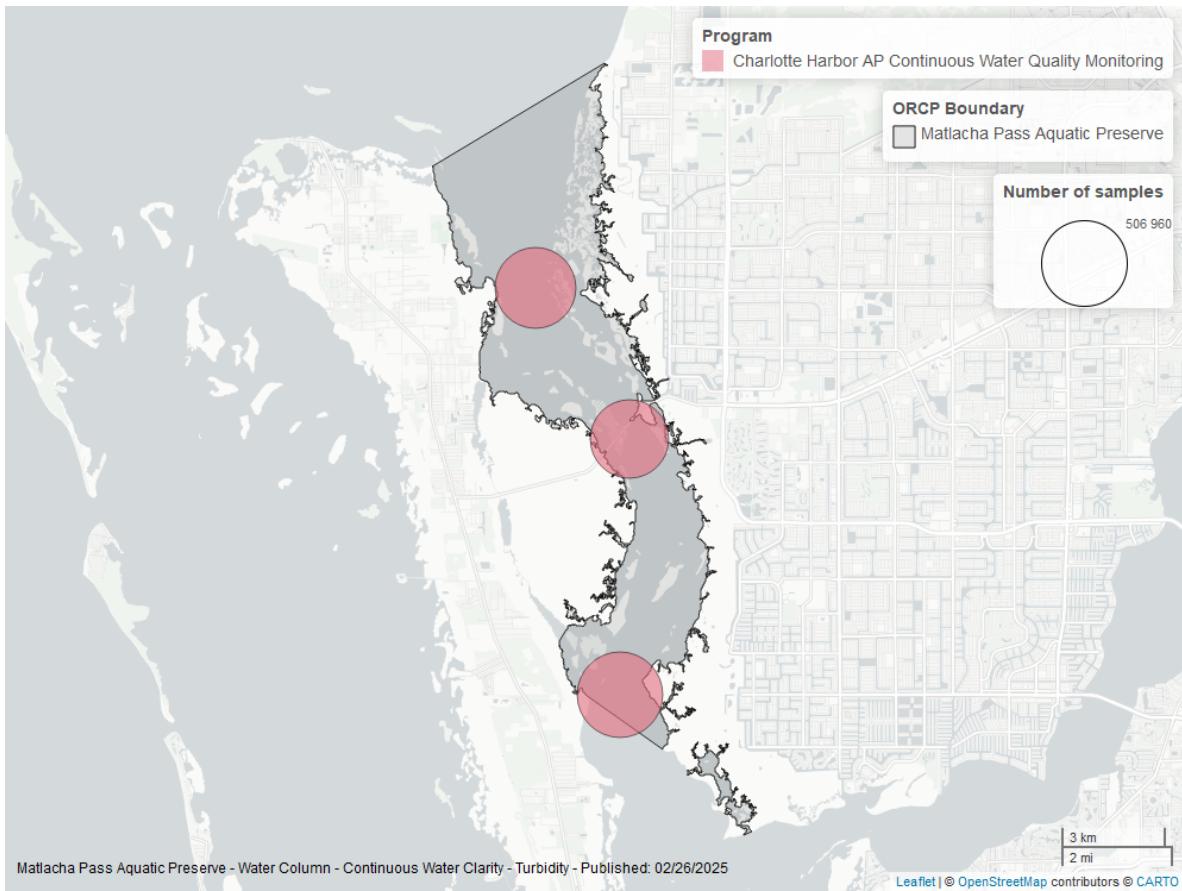


Table 14: Seasonal Kendall-Tau Results for All Stations - Turbidity

Program Location	Statistical Trend	Sample Count	Years with Data	Period of Record	Median Result Value	Tau	Sen Intercept	Sen Slope	P
MP1A	Significantly decreasing trend	451479	19	2005 - 2024	2	-0.17	10.27	-0.19	0.0007521174643120673731361
MP2B	Significantly decreasing trend	511121	19	2005 - 2024	1	-0.21	2.93	-0.12	0.0000310946388652366909077
MP3C	No significant trend	447439	16	2009 - 2024	2	-0.09	2.44	-0.05	0.105684910005985024827879



Total Suspended Solids - Discrete

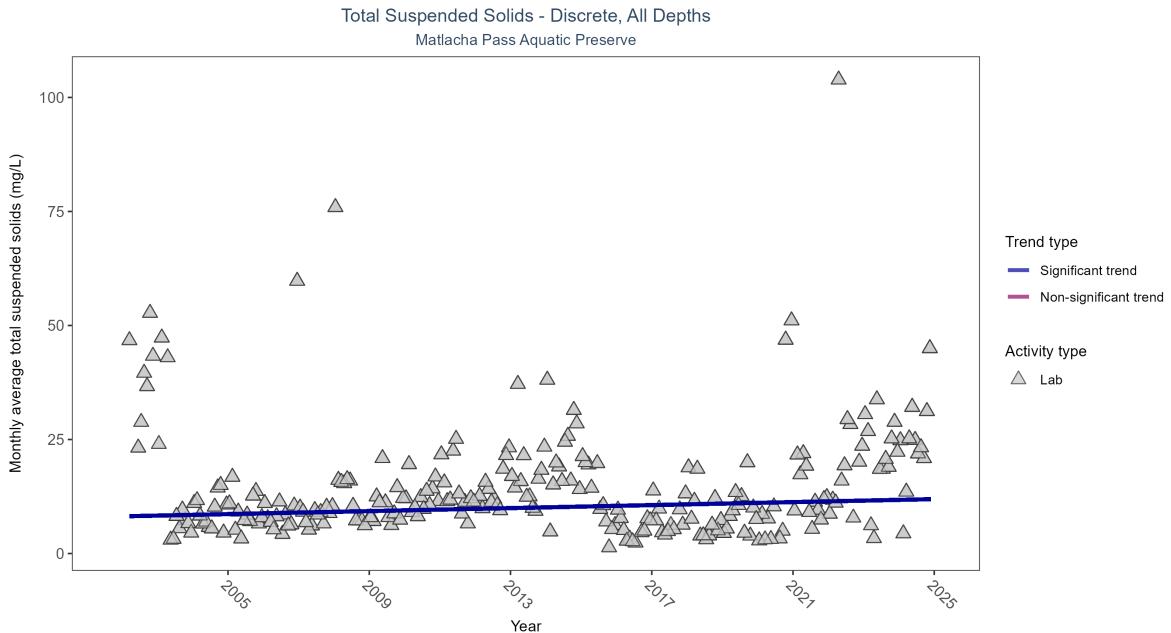
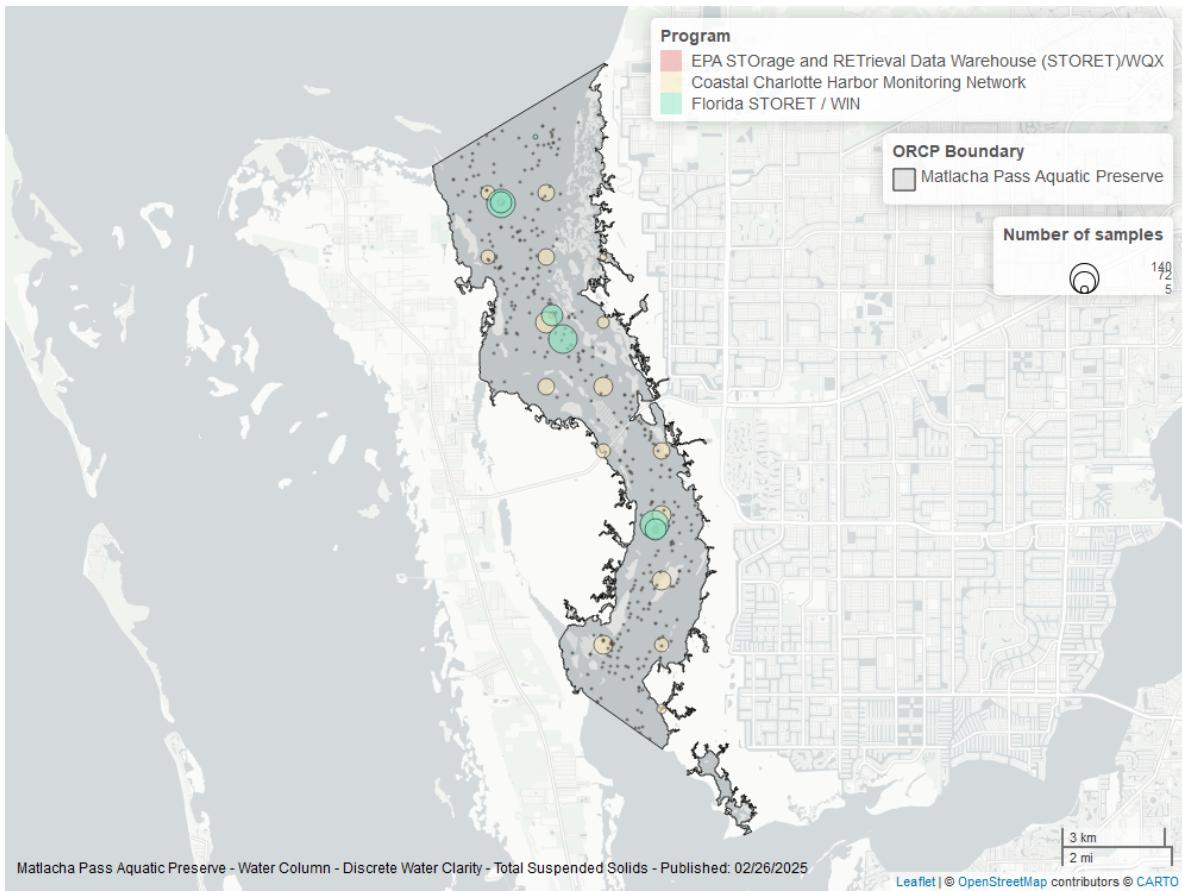


Table 15: Seasonal Kendall-Tau Results for - Total Suspended Solids

Activity Type	Statistical Trend	Sample Count	Years with Data	Period of Record	Median Result Value	Tau	Sen Intercept	Sen Slope	P
Lab	Significantly increasing trend	1819	23	2002 - 2024	9.5	0.09267	8.15099	0.16423	0.040062362202464792126921366843817



Chlorophyll a, Uncorrected for Pheophytin - Discrete

Chlorophyll a, Uncorrected for Pheophytin - Discrete, All Depths
Matlacha Pass Aquatic Preserve

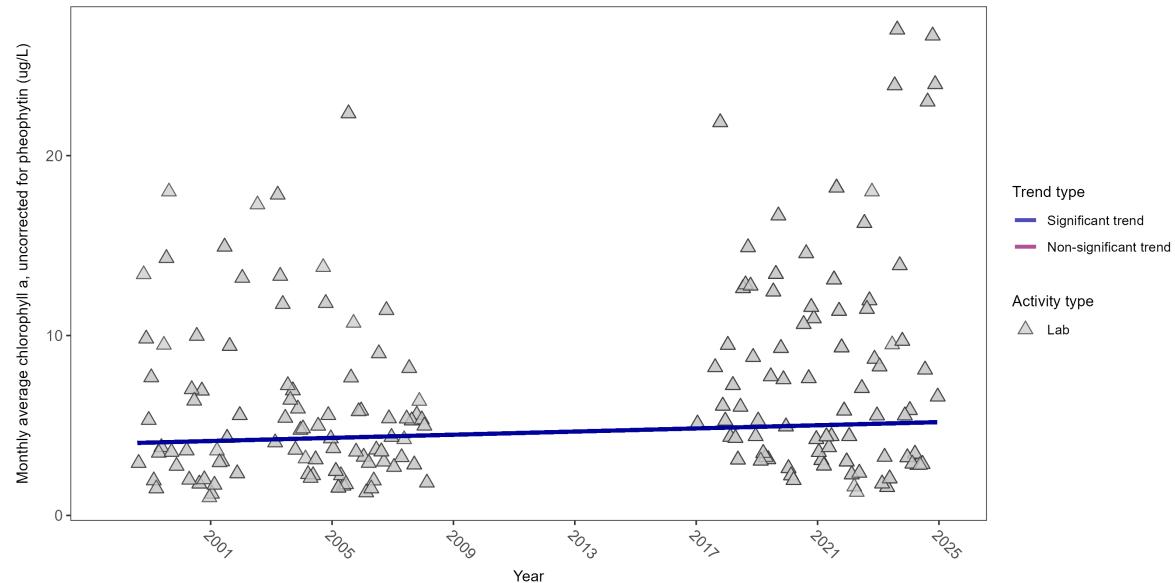
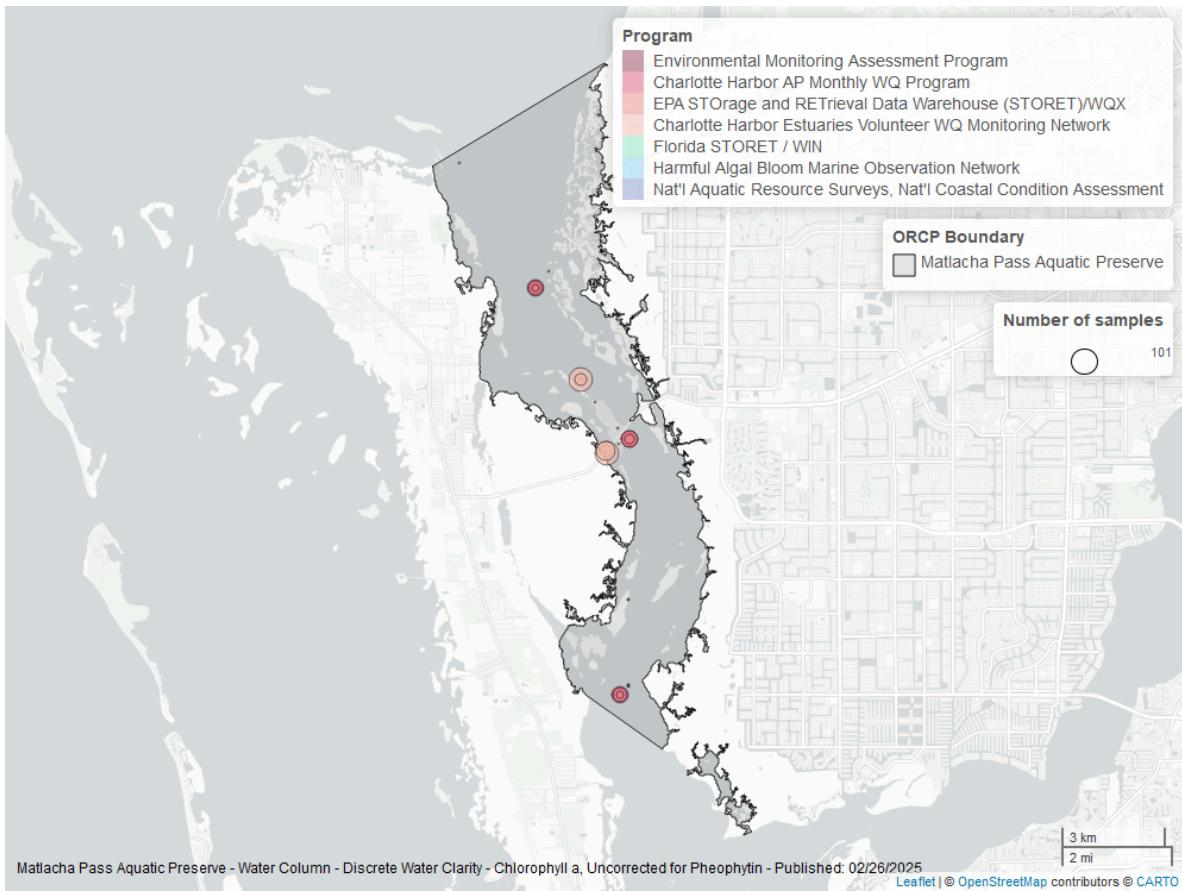


Table 16: Seasonal Kendall-Tau Results for - Chlorophyll a, Uncorrected for Pheophytin

Activity Type	Statistical Trend	Sample Count	Years with Data	Period of Record	Median Result Value	Tau	Sen Intercept	Sen Slope	P
Lab	Significantly increasing trend	607	19	1998 - 2024	4.74	0.12723	4.00537	0.04375	0.01737859469439354334618919



Chlorophyll a, Corrected for Pheophytin - Discrete

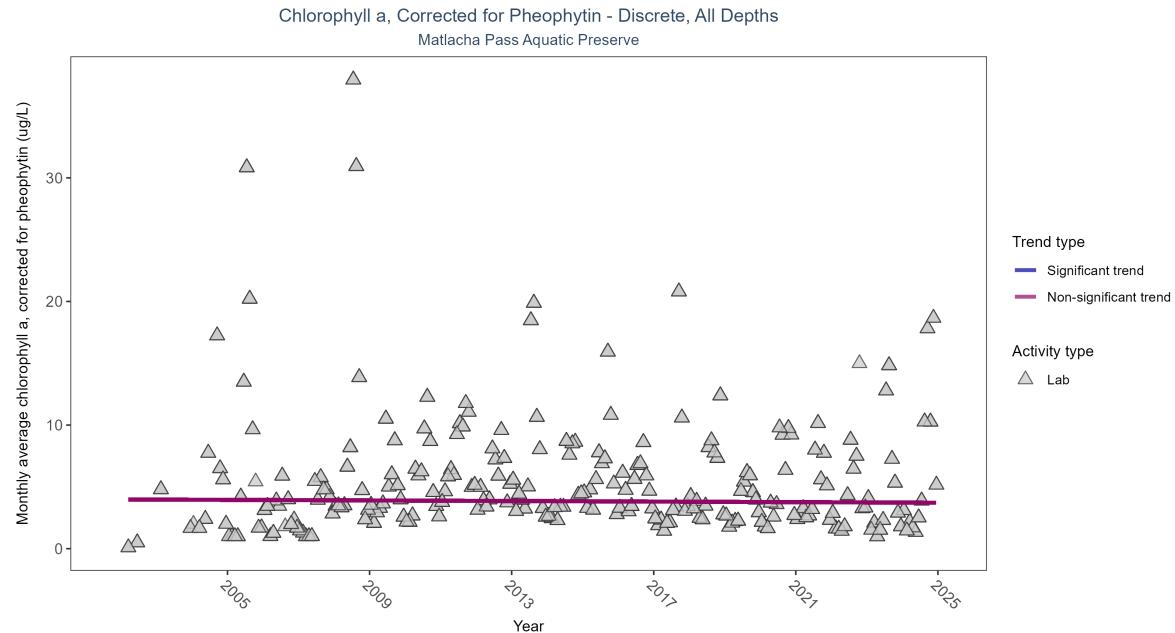
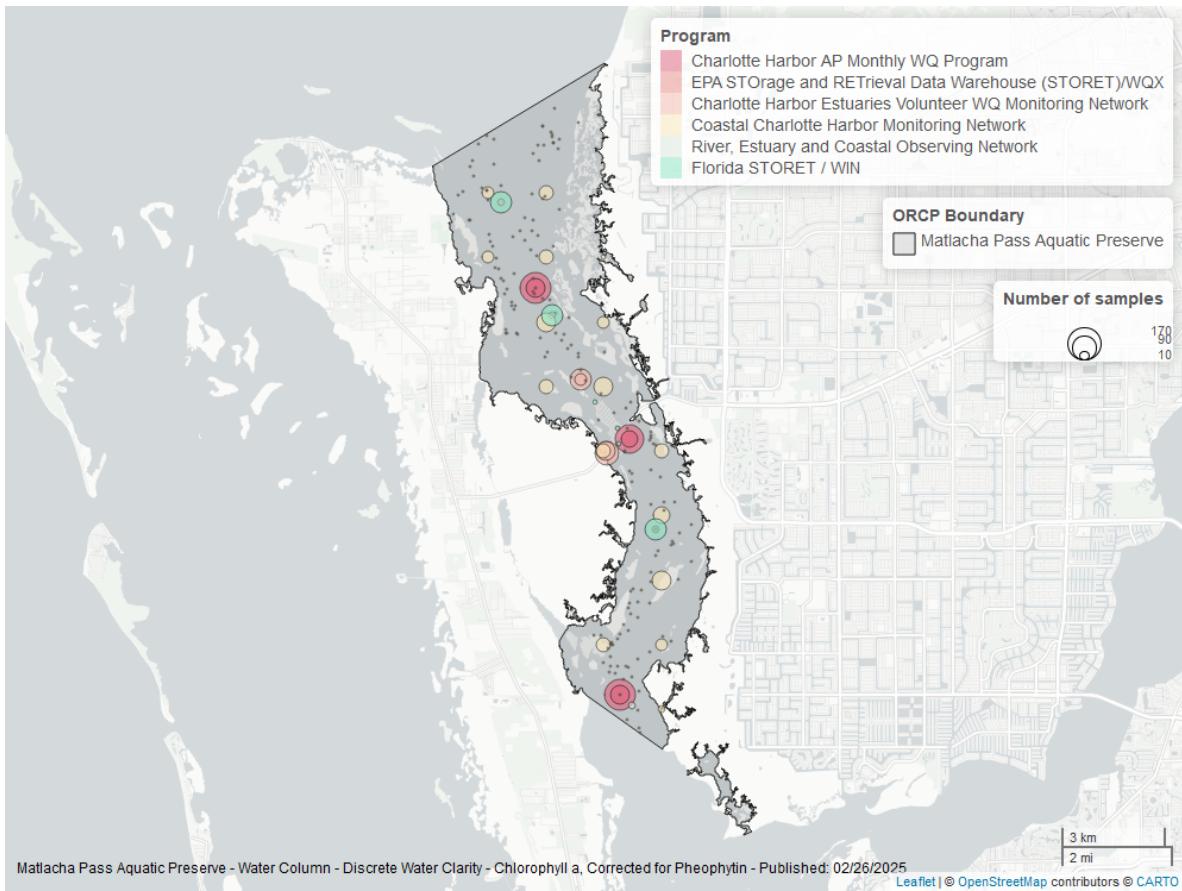


Table 17: Seasonal Kendall-Tau Results for - Chlorophyll a, Corrected for Pheophytin

Activity Type	Statistical Trend	Sample Count	Years with Data	Period of Record	Median Result Value	Tau	Sen Intercept	Sen Slope	P
Lab	No significant trend	1959	23	2002 - 2024	3.4	-0.02422	3.9834	-0.01154	0.6136950441870703265578868013



Secchi Depth - Discrete

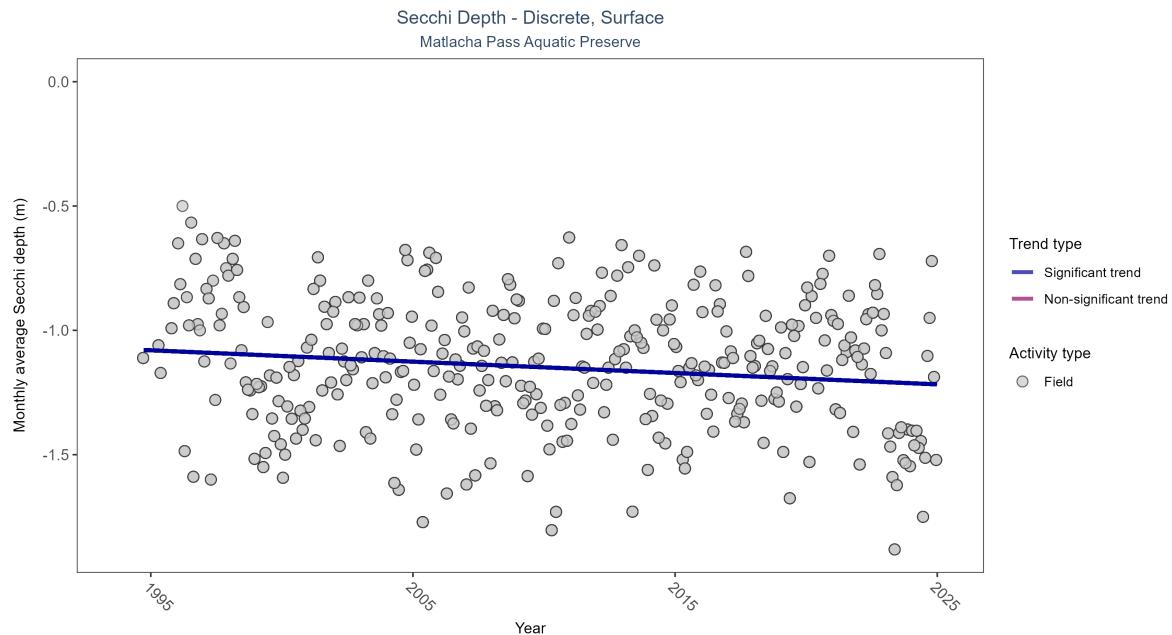
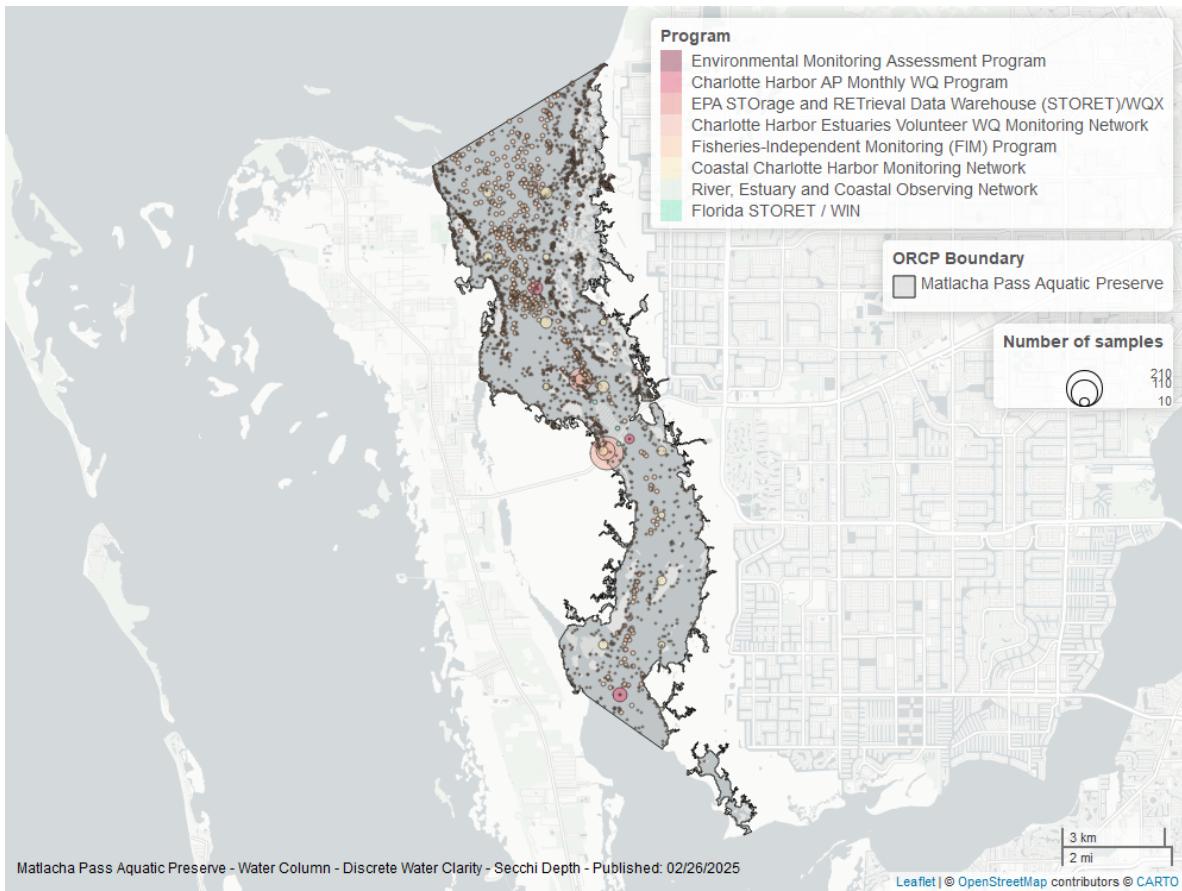


Table 18: Seasonal Kendall-Tau Results for - Secchi Depth

Activity Type	Statistical Trend	Sample Count	Years with Data	Period of Record	Median Result Value	Tau	Sen Intercept	Sen Slope	P
Field	Significantly decreasing trend	6543	31	1994 - 2024		-1	-0.09444	-1.07568	-0.00457 0.0125452647402678491711514041640



Colored Dissolved Organic Matter - Discrete

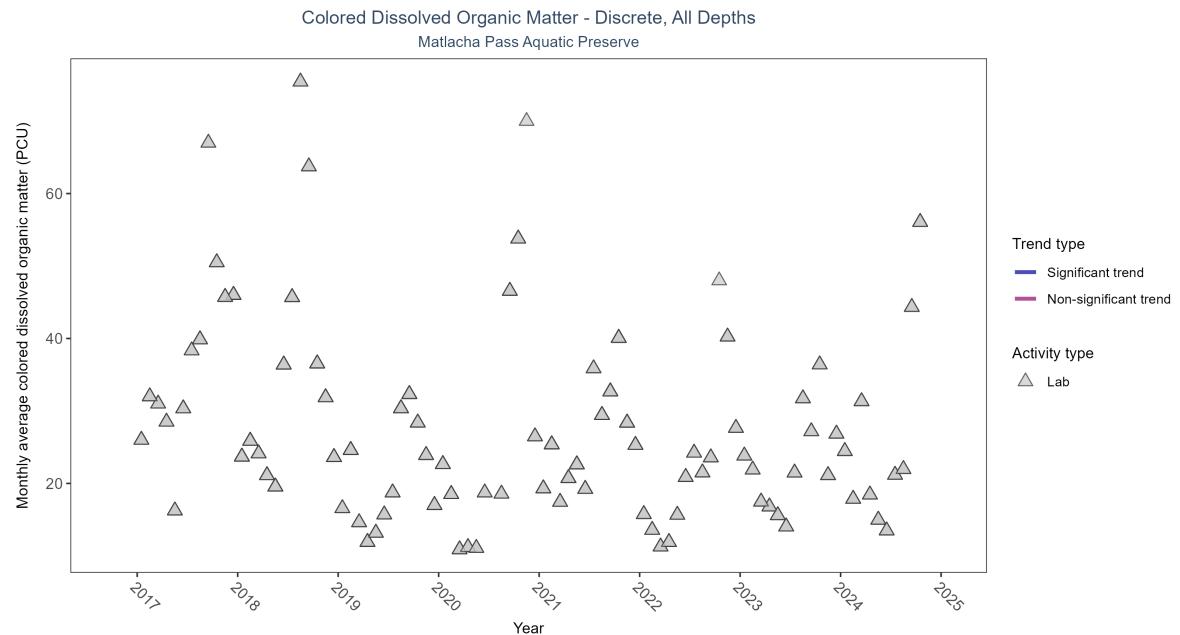


Table 19: Seasonal Kendall-Tau Results for - Colored Dissolved Organic Matter

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	504	8	2017 - 2024	25	-	-	-	NA

