

Rookery Bay National Estuarine Research Reserve

SEACAR Water Quality Analysis

Last compiled on 18 March, 2025

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Indicators

Nutrients

Total Nitrogen - Discrete

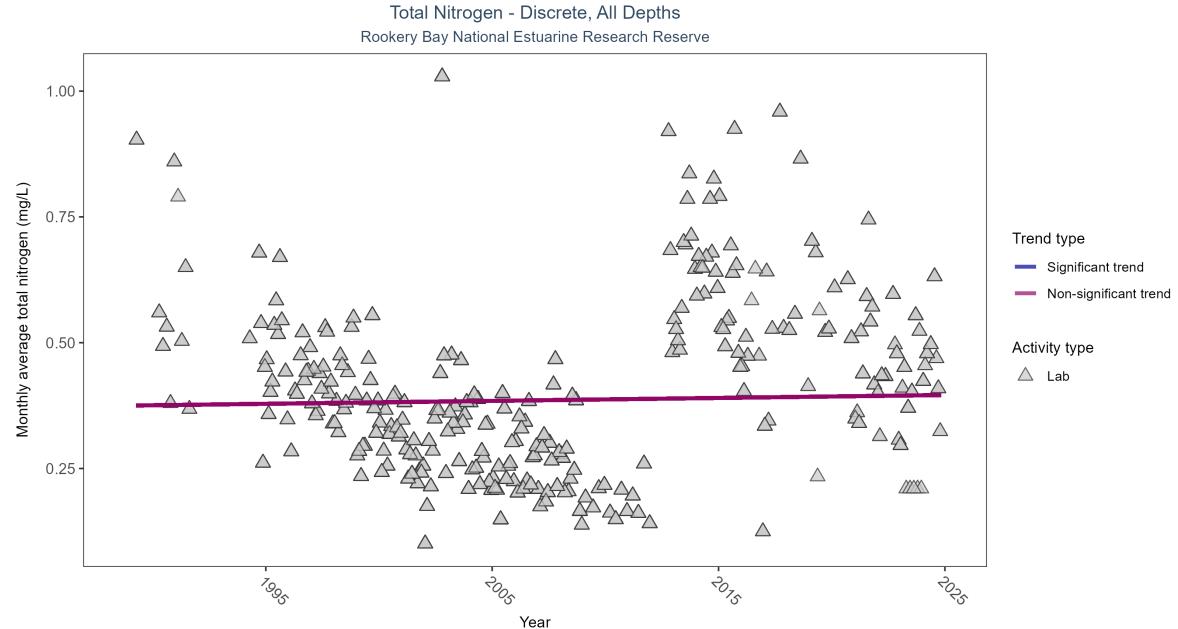
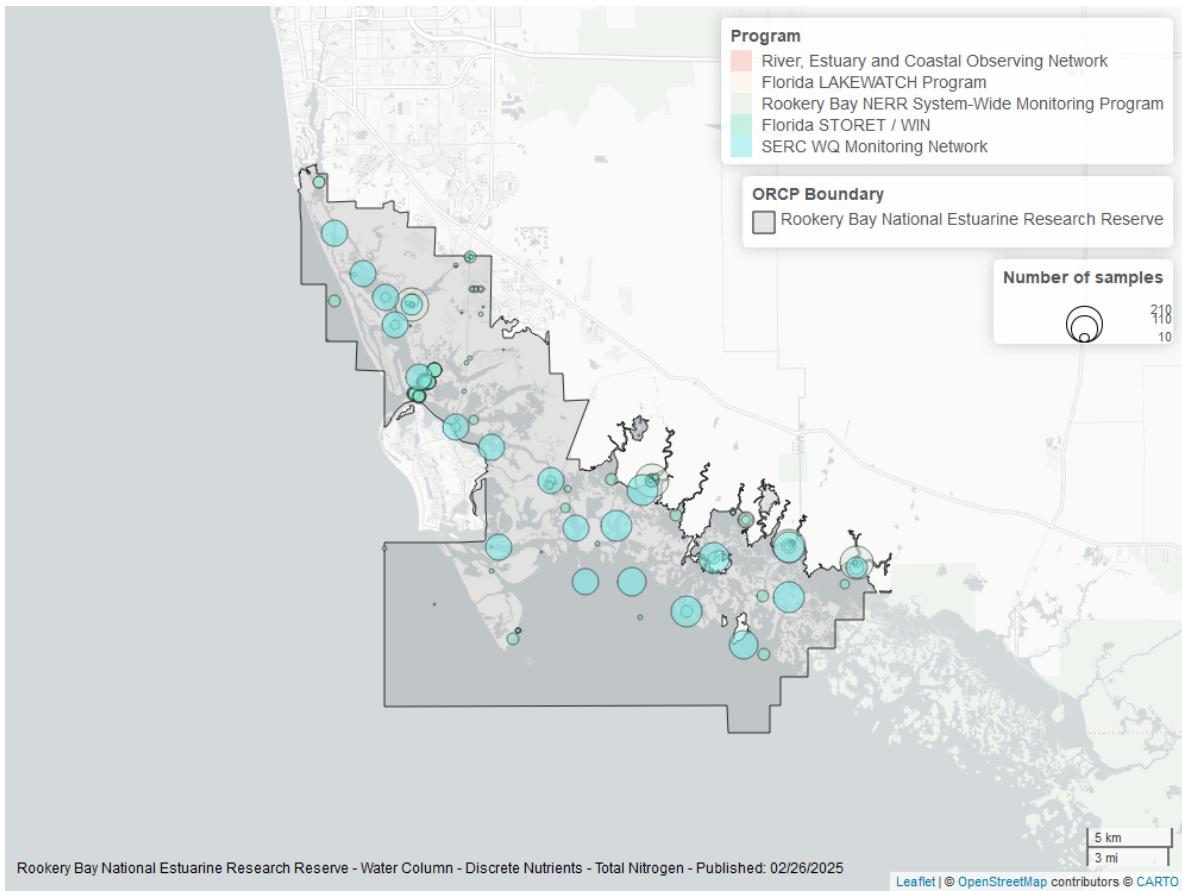


Table 1: Seasonal Kendall-Tau Results for - Total Nitrogen

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	5321	34	1989 - 2024	0.3184	0.01762	0.37507	0.00058	0.72340151475792924262719907347



Total Phosphorus - Discrete

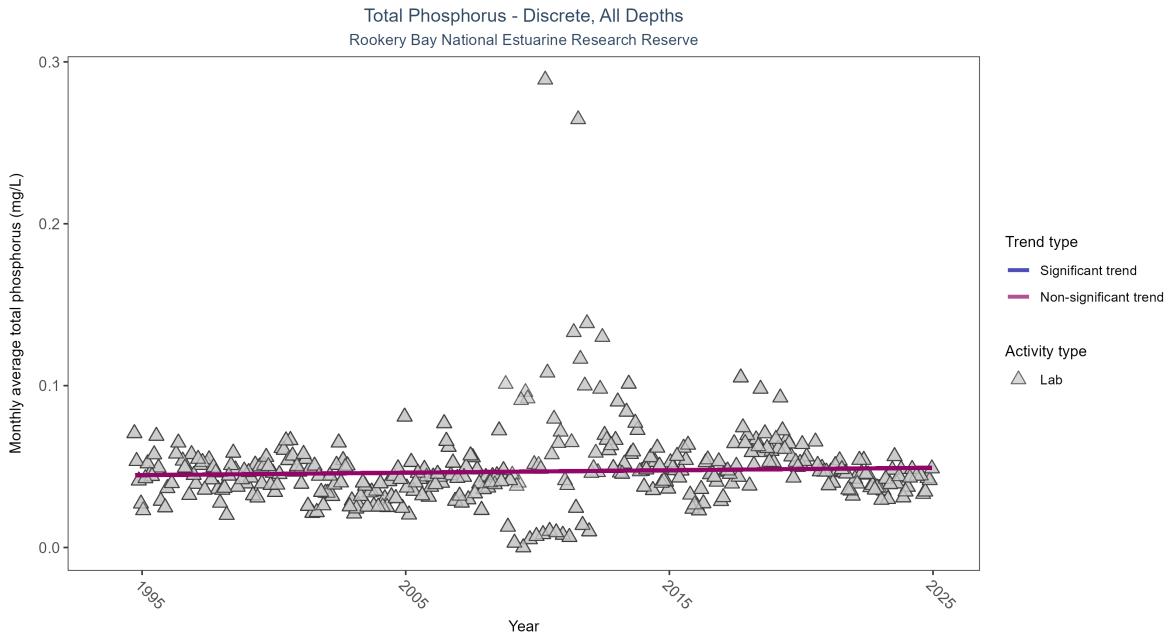
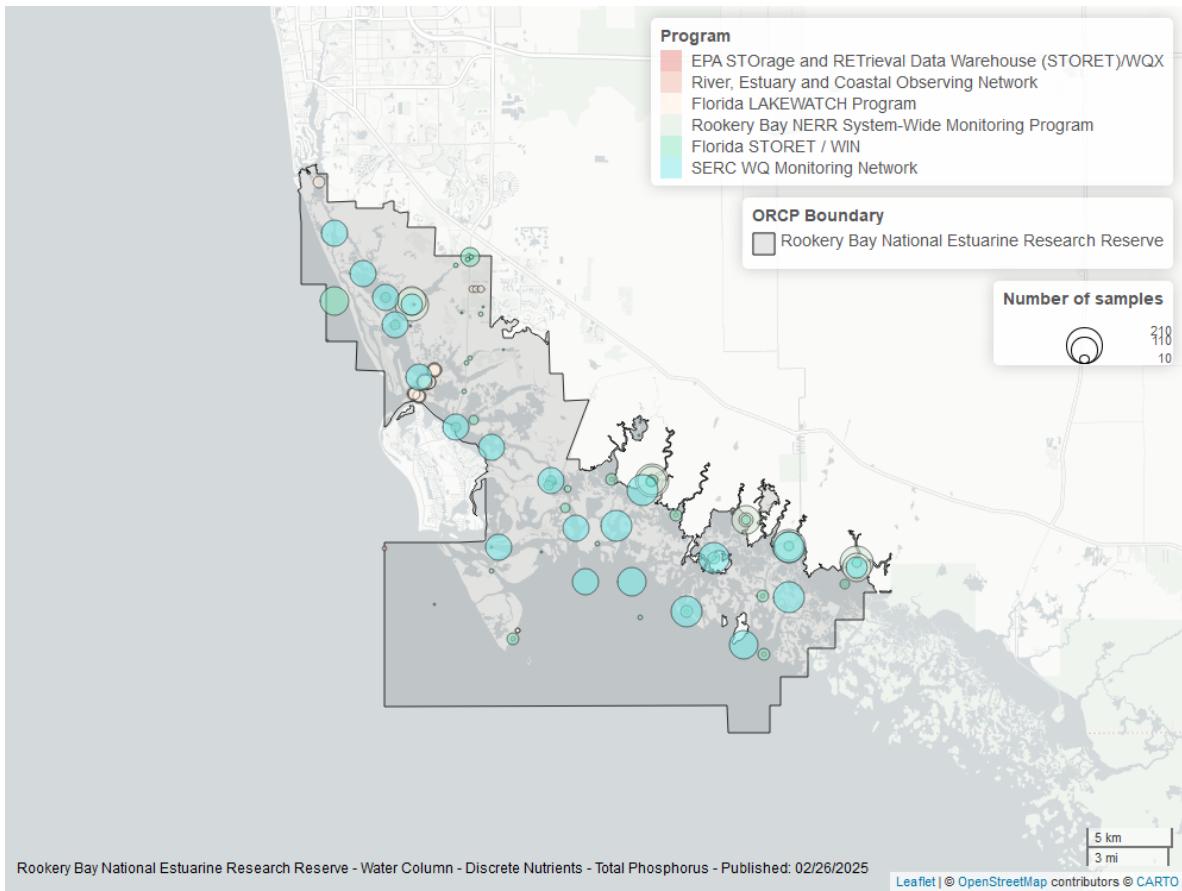


Table 2: Seasonal Kendall-Tau Results for - Total Phosphorus

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	5570	31	1994 - 2024	0.04	0.07283	0.04454	0.00015	0.0537355076535009981708590487414767267182469367980957031250000000



Water Quality

Dissolved Oxygen - Discrete

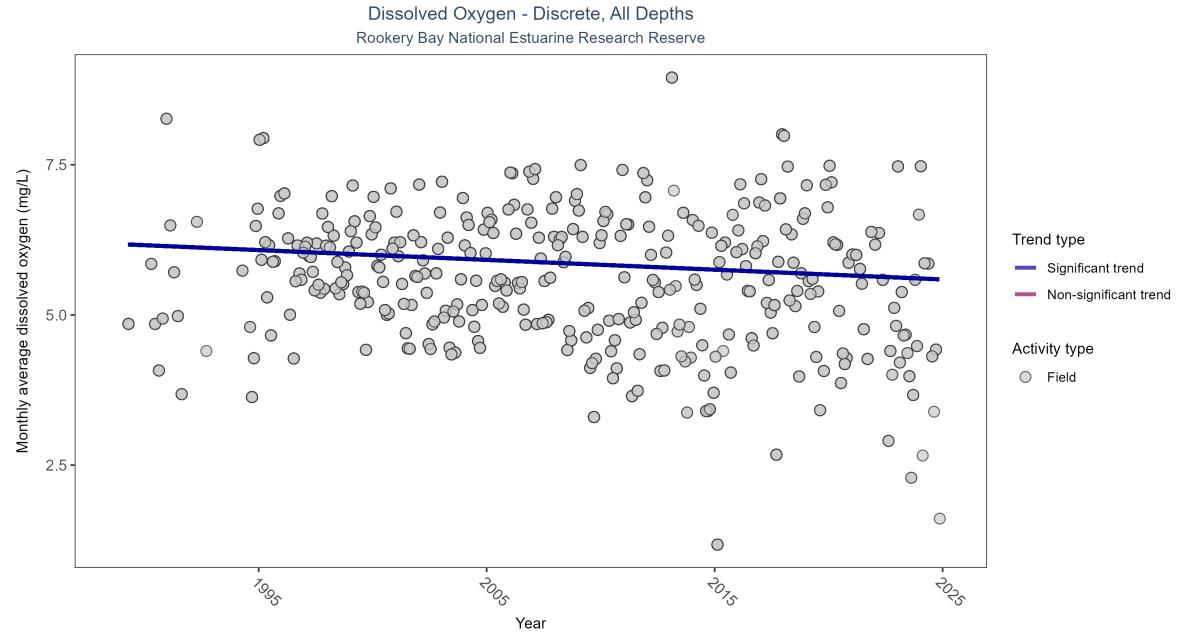
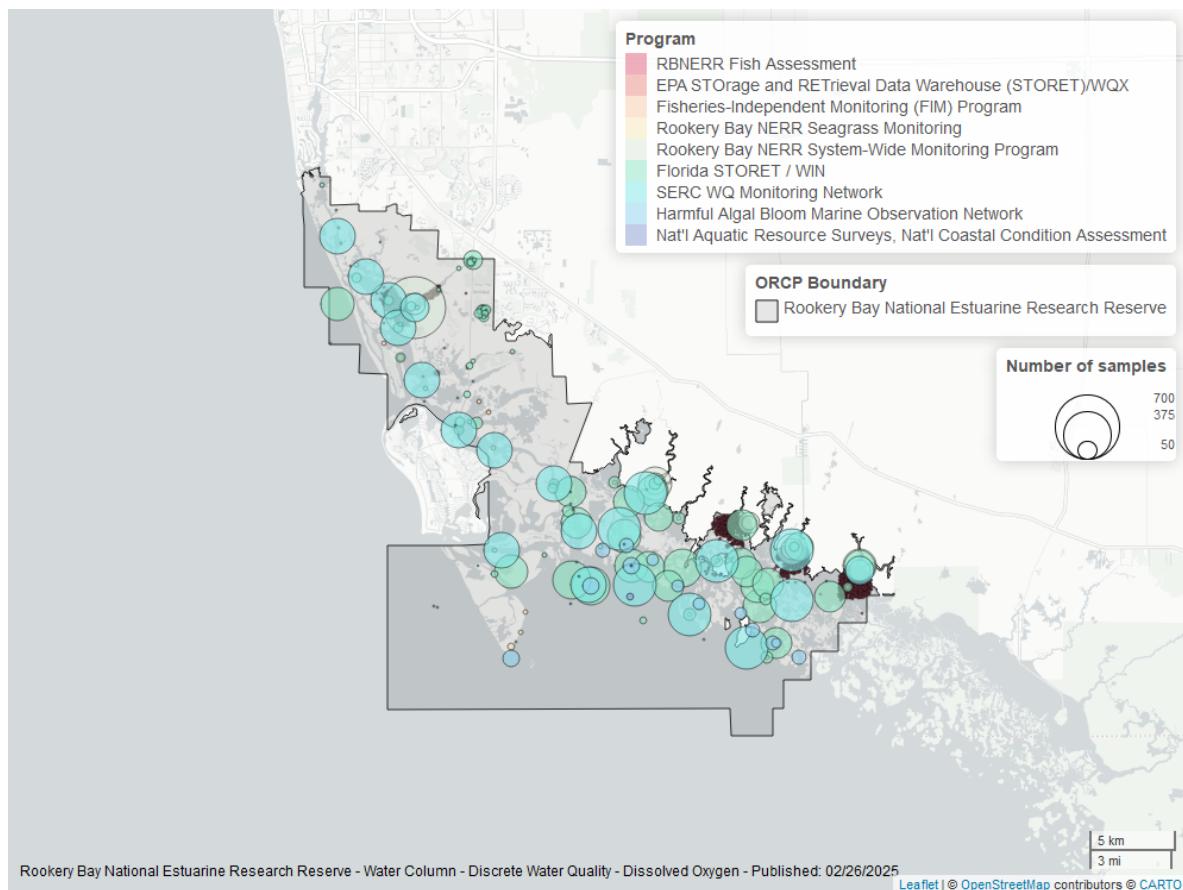


Table 3: Seasonal Kendall-Tau Results for - Dissolved Oxygen

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	15353	35	1989 - 2024	5.8	-0.12565	6.17748	-0.0163	0.00061450302845711



Dissolved Oxygen - Continuous

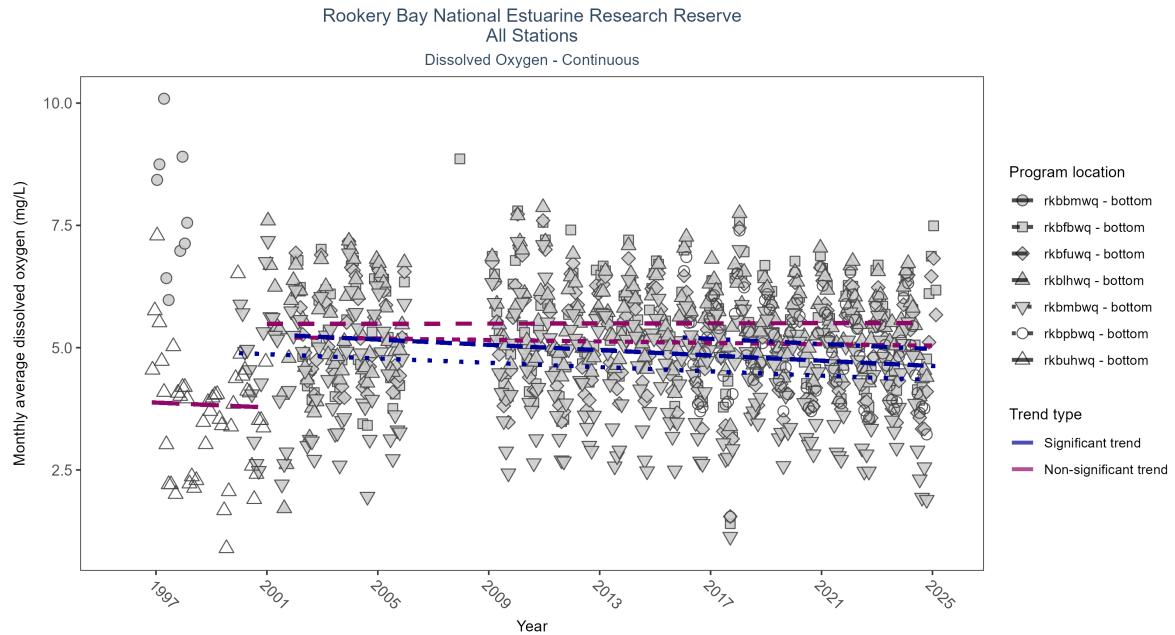
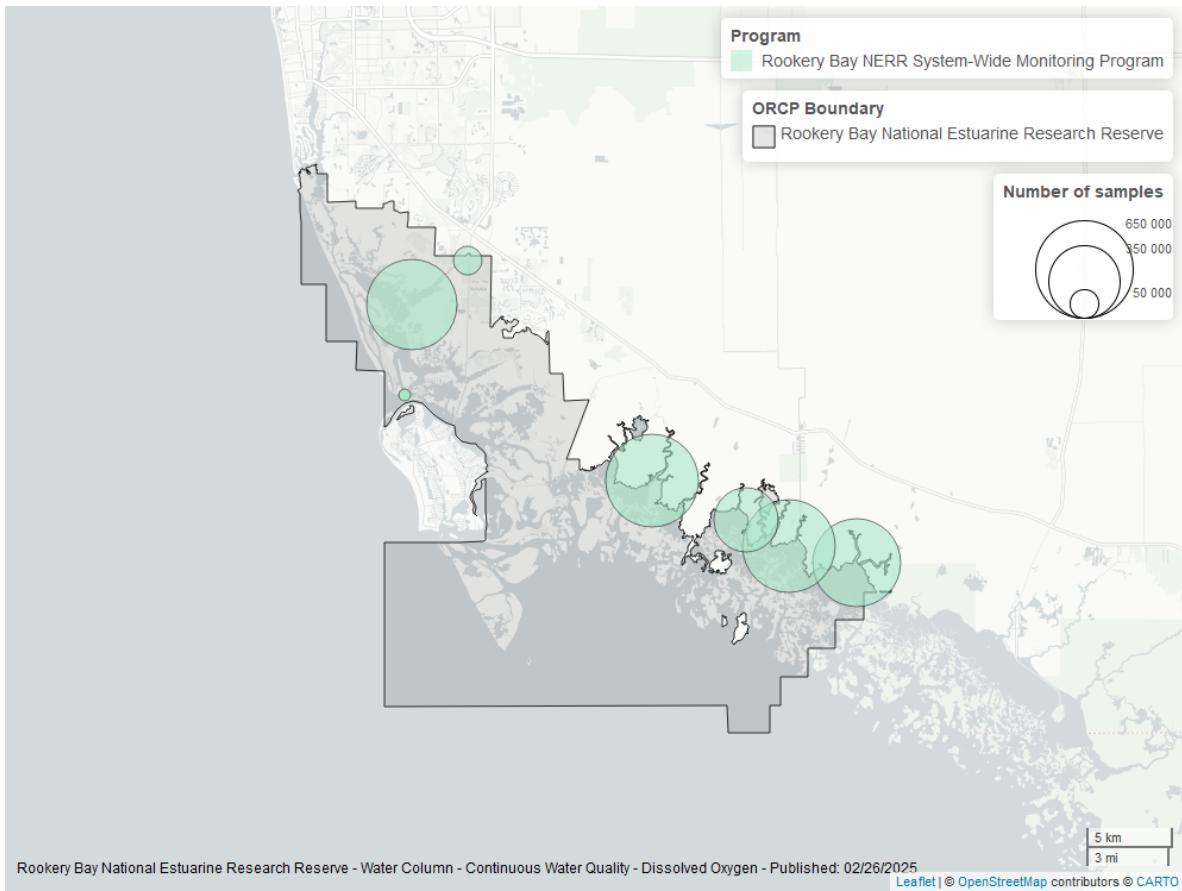


Table 4: Seasonal Kendall-Tau Results for All Stations - Dissolved Oxygen

Program Location	Statistical Trend	Sample Count	Years with Data	Period of Record	Median Result Value	Tau	Sen Intercept	Sen Slope	P
rkbfbwq	No significant trend	570320	22	2002 - 2025	5.4	-0.06	5.21	-0.01	0.19349940948089625
rkbfuwq	Significantly decreasing trend	605519	21	2002 - 2025	5.1	-0.32	5.25	-0.03	0.0000000001291598
rkbbmwq	Insufficient data to calculate trend	10441	2	1997 - 1998	7.2	-	-	-	NA
rkblhwq	No significant trend	570691	21	2001 - 2024	5.5	0	5.48	0	0.85769122317617685
rkmbbwq	Significantly decreasing trend	613238	22	2000 - 2024	4.4	-0.26	4.89	-0.02	0.0000001364233098
rkbpbwq	Significantly decreasing trend	289726	9	2016 - 2024	4.9	-0.18	5.21	-0.03	0.02456237134347371
rkbuhwq	No significant trend	58164	5	1996 - 2000	3.6	0.01	3.9	-0.02	1.000000000000000



Dissolved Oxygen Saturation - Discrete

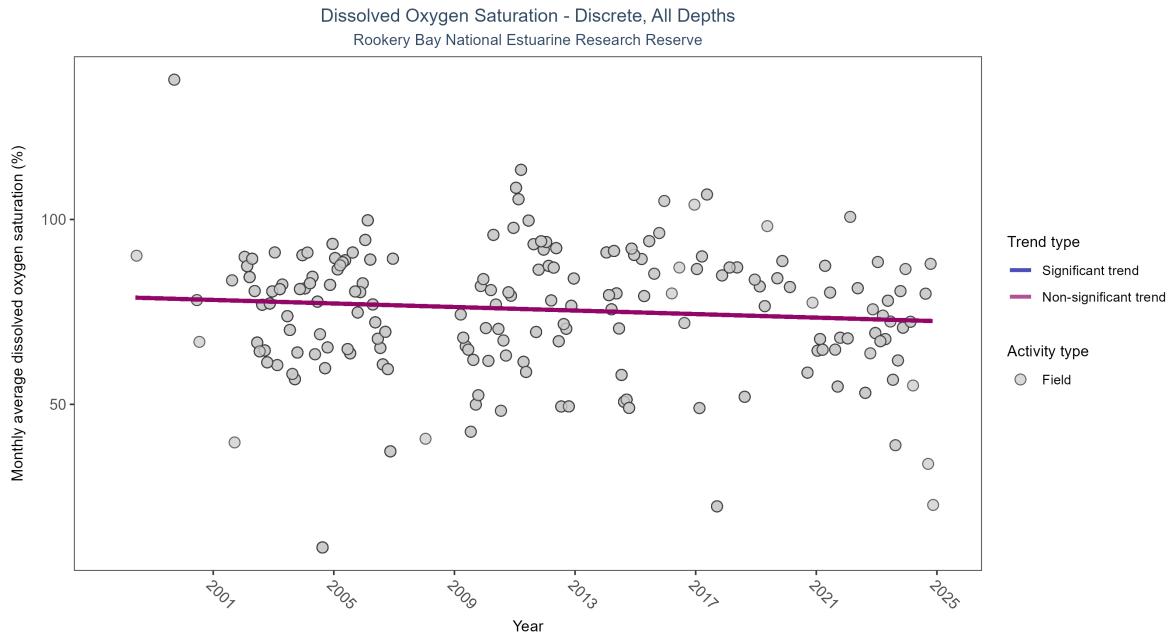
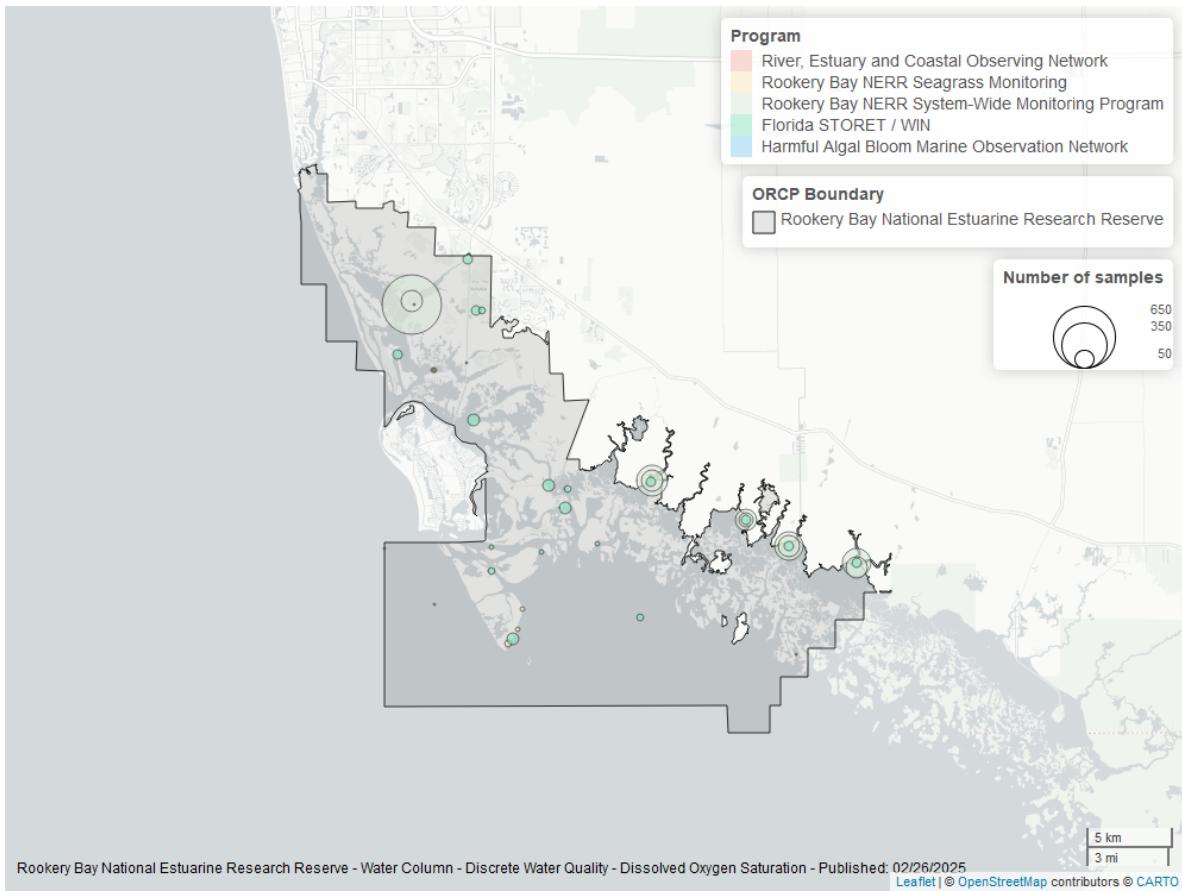


Table 5: Seasonal Kendall-Tau Results for - Dissolved Oxygen Saturation



Dissolved Oxygen Saturation - Continuous

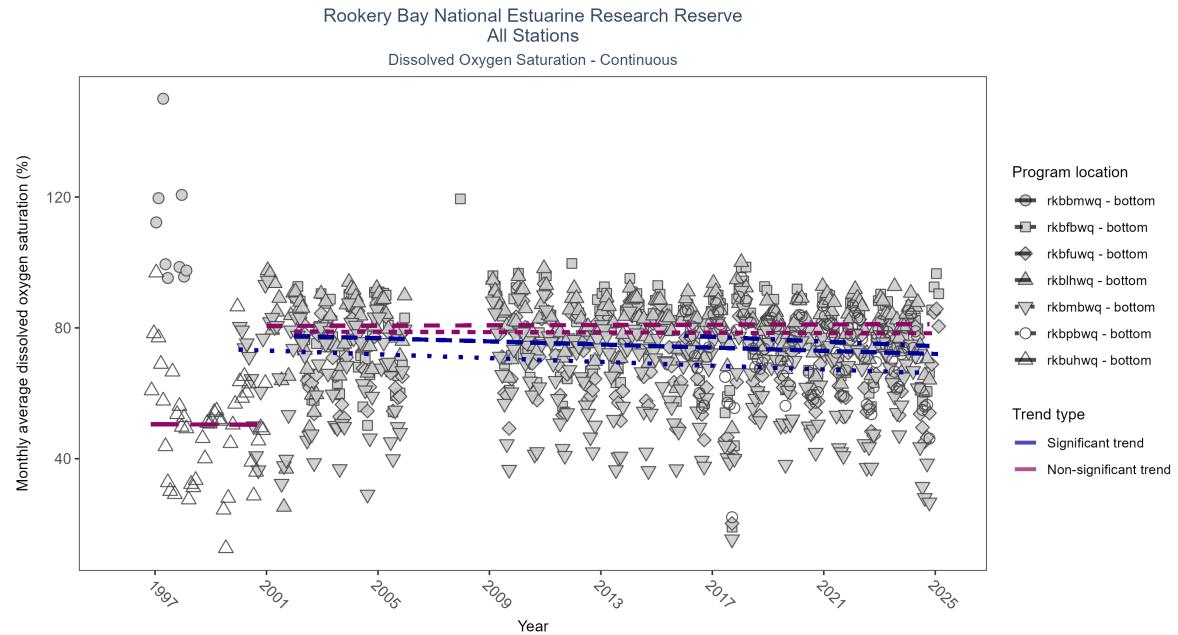
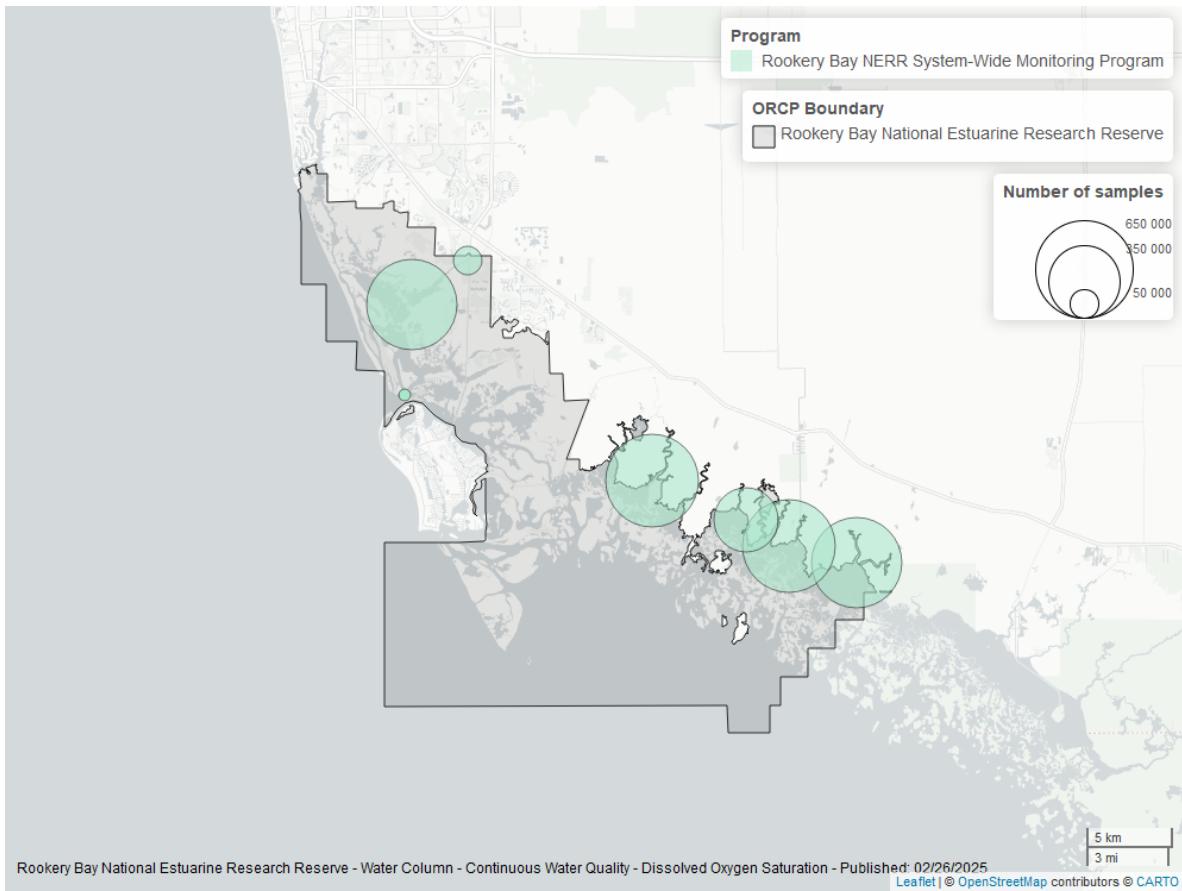


Table 6: Seasonal Kendall-Tau Results for All Stations - Dissolved Oxygen Saturation

Program Location	Statistical Trend	Sample Count	Years with Data	Period of Record	Median Result Value	Tau	Sen Intercept	Sen Slope	P
rkbfbwq	No significant trend	574626	22	2002 - 2025	78.7	-0.01	78.85	-0.02	0.7861719534125773956
rkbbmwq	Insufficient data to calculate trend	10441	2	1997 - 1998	102.4	-	-	-	NA
rkbfuwq	Significantly decreasing trend	605778	21	2002 - 2025	72.4	-0.25	77.54	-0.24	0.0000001278059668553
rkblhwq	No significant trend	583009	21	2001 - 2024	81.7	0.02	80.58	0.02	0.554027447748798625
rkbpbwq	Significantly decreasing trend	291357	9	2016 - 2024	72.3	-0.18	77.6	-0.36	0.0288971540067741069
rkmbbwq	Significantly decreasing trend	619562	22	2000 - 2024	65.1	-0.23	73.35	-0.29	0.0000002477786594713
rkbuhwq	No significant trend	58164	5	1996 - 2000	49.7	0	50.53	-0.02	1.0000000000000000000



Salinity - Discrete

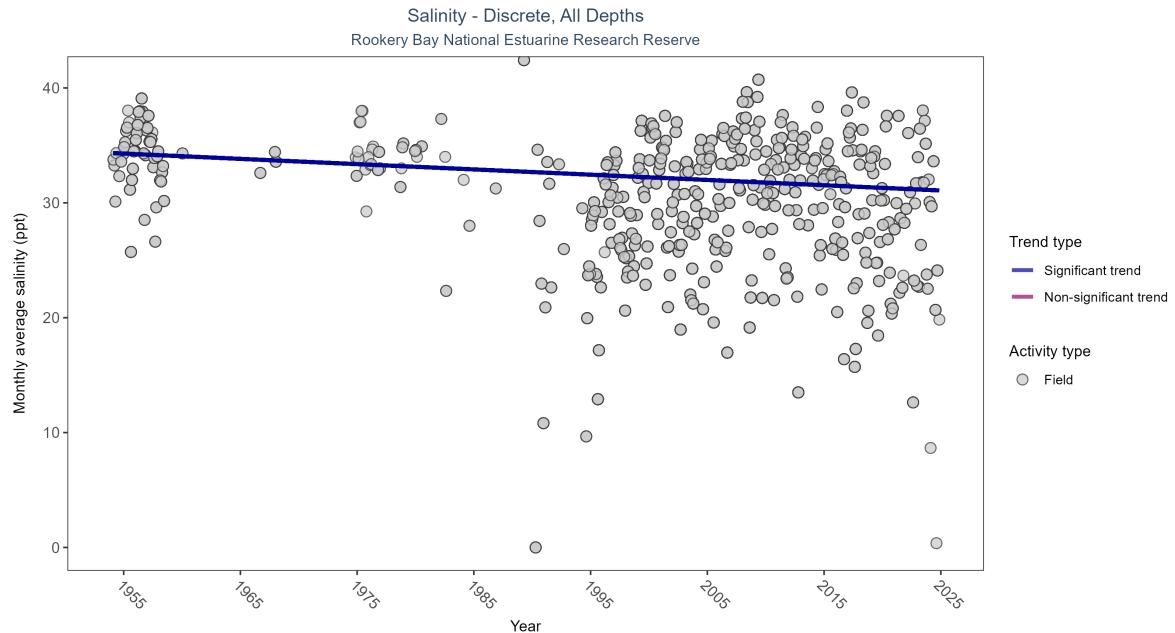
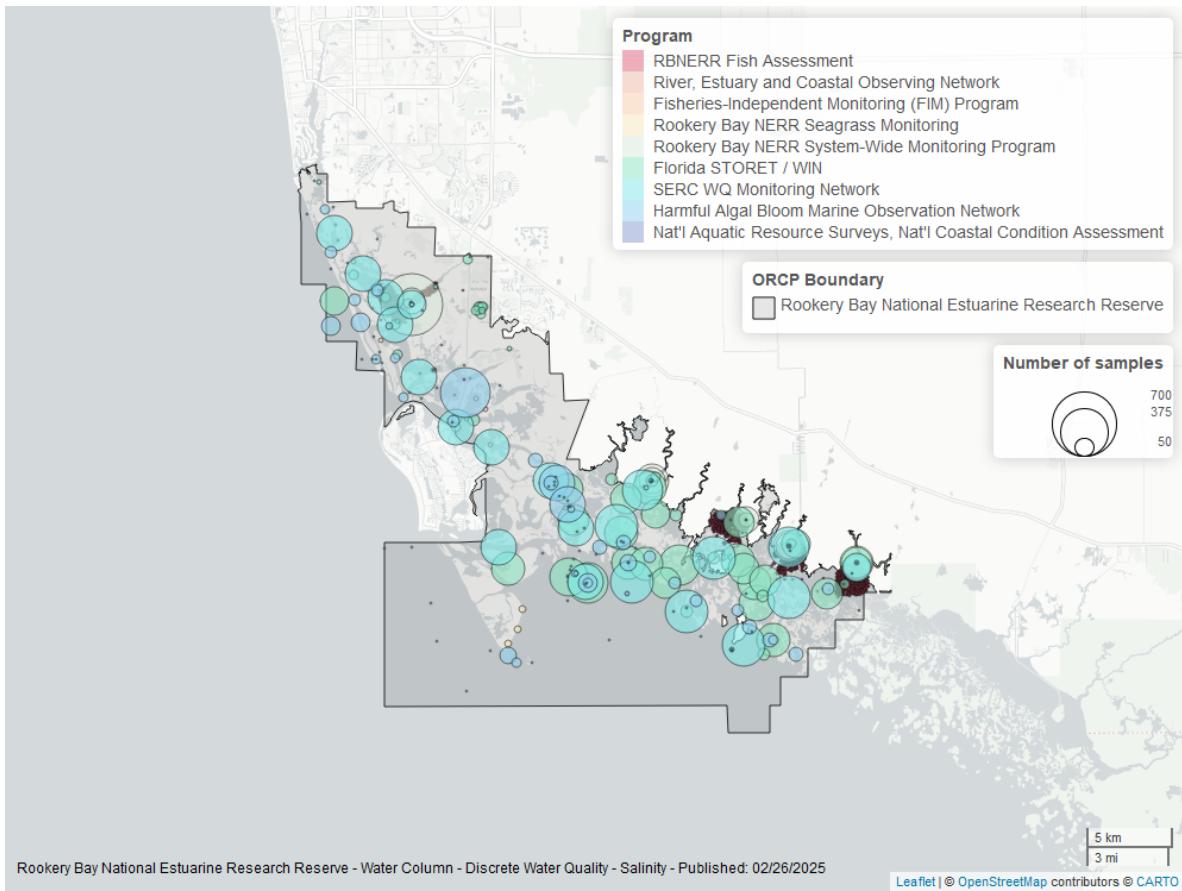


Table 7: Seasonal Kendall-Tau Results for - Salinity

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	16814	53	1954 - 2024	32.7	-0.15884	34.33127	-0.0459	0.00000235607144209923810552163858655916328643798



Salinity - Continuous

National Water Information System - 7

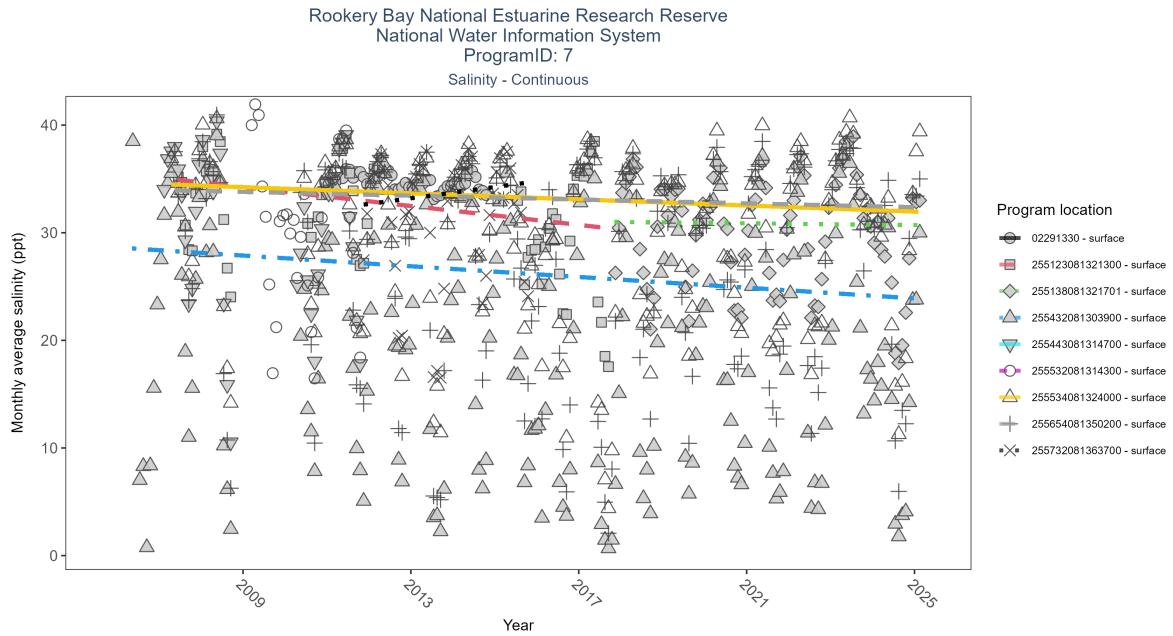
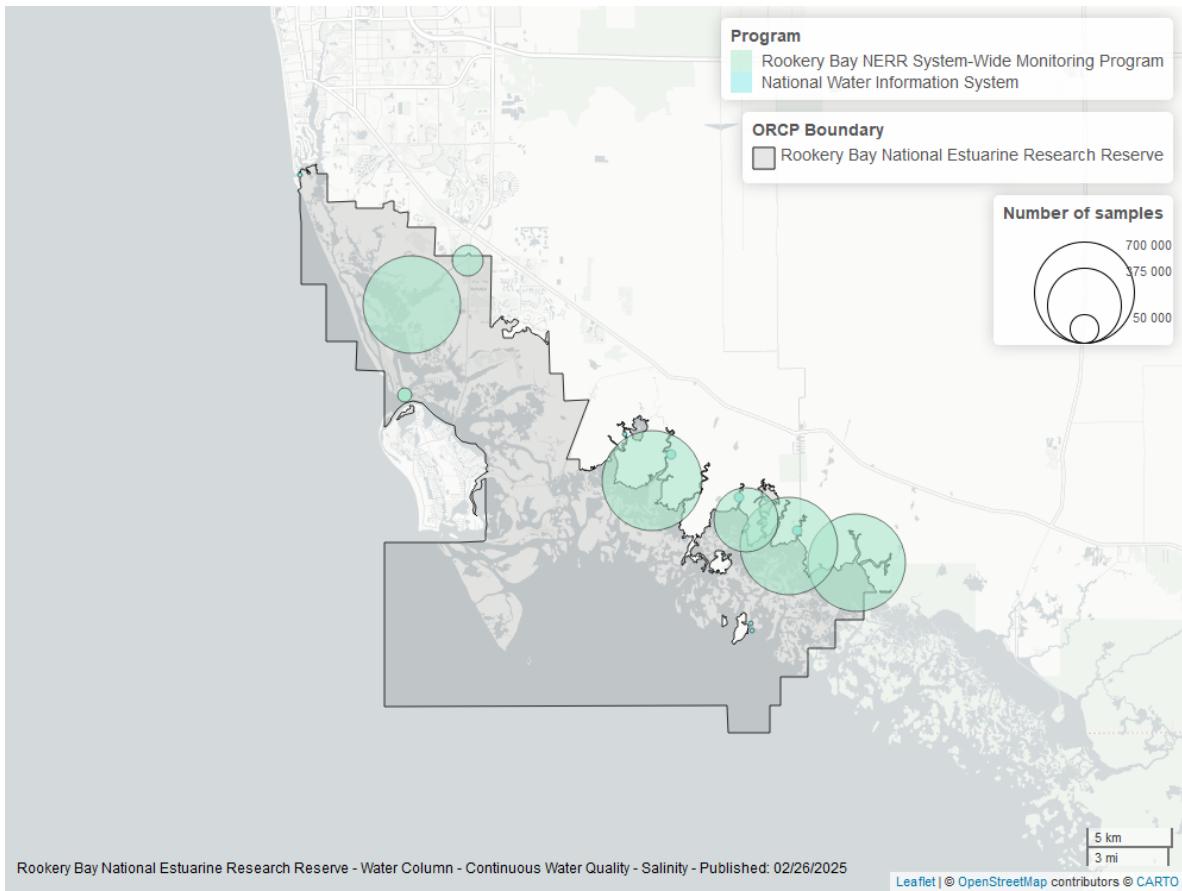


Table 8: Seasonal Kendall-Tau Results for All Stations - Salinity

Program Location	Statistical Trend	Sample Count	Years with Data	Period of Record	Median Result Value	Tau	Sen Intercept	Sen Slope	P
255532081314300	Insufficient data to calculate trend	902	3	2009 - 2011	31	-	-	-	NA
255534081324000	Significantly decreasing trend	5789	18	2007 - 2025	32	-0.12	34.52	-0.14	0.020985794026193355
255654081350200	No significant trend	5802	18	2007 - 2025	32	-0.09	33.97	-0.09	0.076039512696969291
255732081363700	No significant trend	1434	5	2011 - 2015	34	0.25	32.15	0.52	0.095516960305944101
02291330	Insufficient data to calculate trend	1697	4	2011 - 2014	35	-	-	-	NA
255443081314700	Insufficient data to calculate trend	1465	4	2007 - 2011	32	-	-	-	NA
255432081303900	Significantly decreasing trend	6087	19	2006 - 2025	21	-0.2	28.63	-0.25	0.000150560319088638
255138081321701	No significant trend	2608	9	2017 - 2025	31	-0.04	31.04	-0.04	0.686772471118783479
255123081321300	Significantly decreasing trend	1809	8	2007 - 2017	32	-0.23	35.11	-0.44	0.018215652599405725



Rookery Bay National Estuarine Research Reserve System-Wide Monitoring Program - 354

Rookery Bay National Estuarine Research Reserve
 Rookery Bay National Estuarine Research Reserve System-Wide Monitoring Program
 ProgramID: 354
 Salinity - Continuous

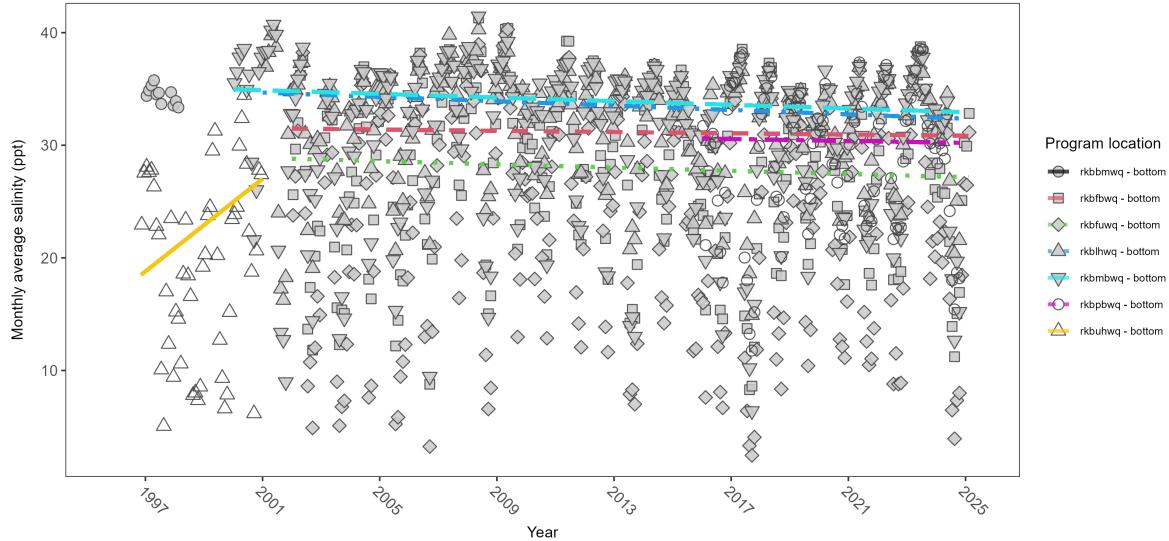
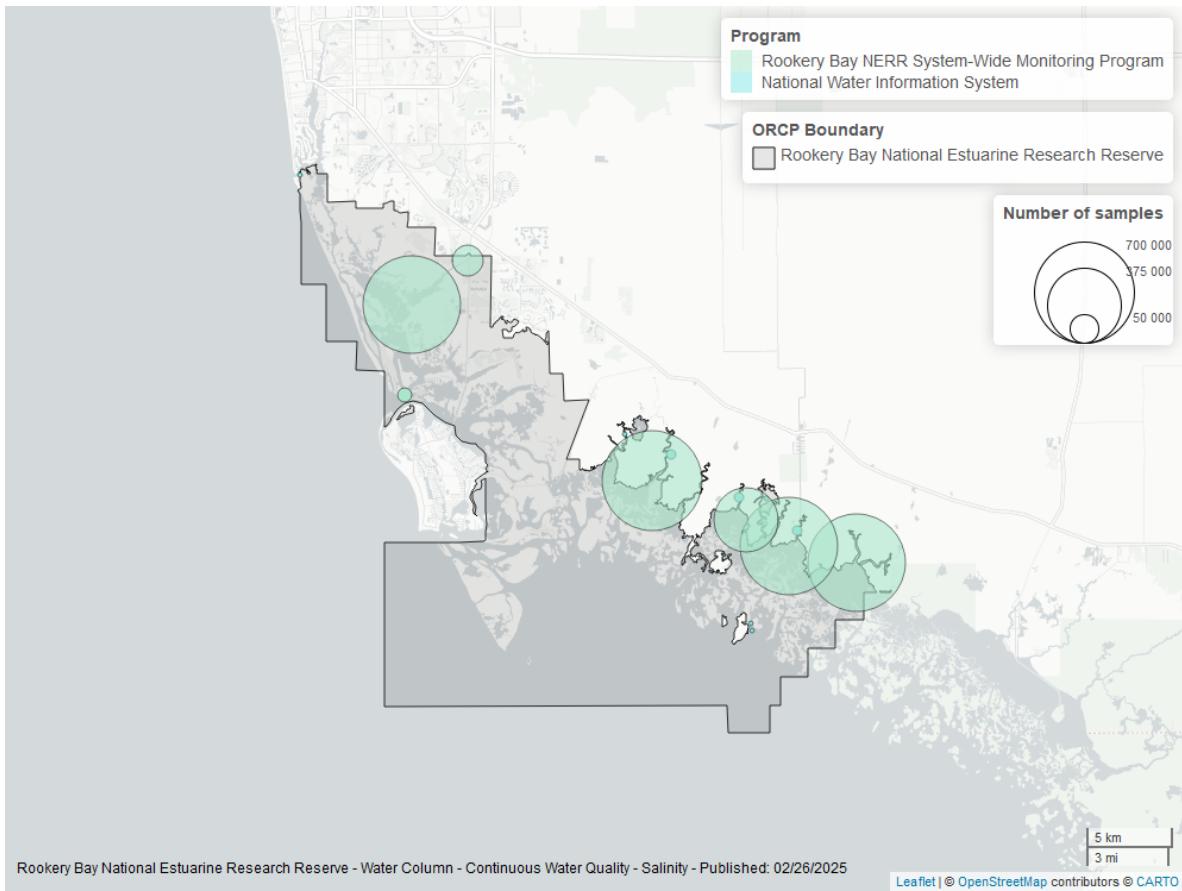


Table 9: Seasonal Kendall-Tau Results for All Stations - Salinity

Program Location	Statistical Trend	Sample Count	Years with Data	Period of Record	Median Result Value	Tau	Sen Intercept	Sen Slope	P
rkbfbwq	No significant trend	669593	24	2002 - 2025	29.6	-0.03	31.48	-0.03	0.473785220439760846
rkbmhwq	Insufficient data to calculate trend	12256	2	1997 - 1998	34.5	-	-	-	NA
rkbfuwq	No significant trend	686073	24	2002 - 2025	26.0	-0.06	28.81	-0.07	0.147642536603587865
rkbmbwq	Significantly decreasing trend	694825	25	2000 - 2024	33.3	-0.12	34.97	-0.08	0.003192062050495151
rkbilhwq	Significantly decreasing trend	657842	24	2001 - 2024	33.1	-0.16	34.68	-0.1	0.000125383765271022
rkbpbwq	No significant trend	290041	9	2016 - 2024	30.2	-0.01	30.6	-0.04	0.924318739242923293
rkbuhwq	Significantly increasing trend	68446	5	1996 - 2000	21.1	0.31	16.74	2.06	0.035763766590977894



Water Temperature - Discrete

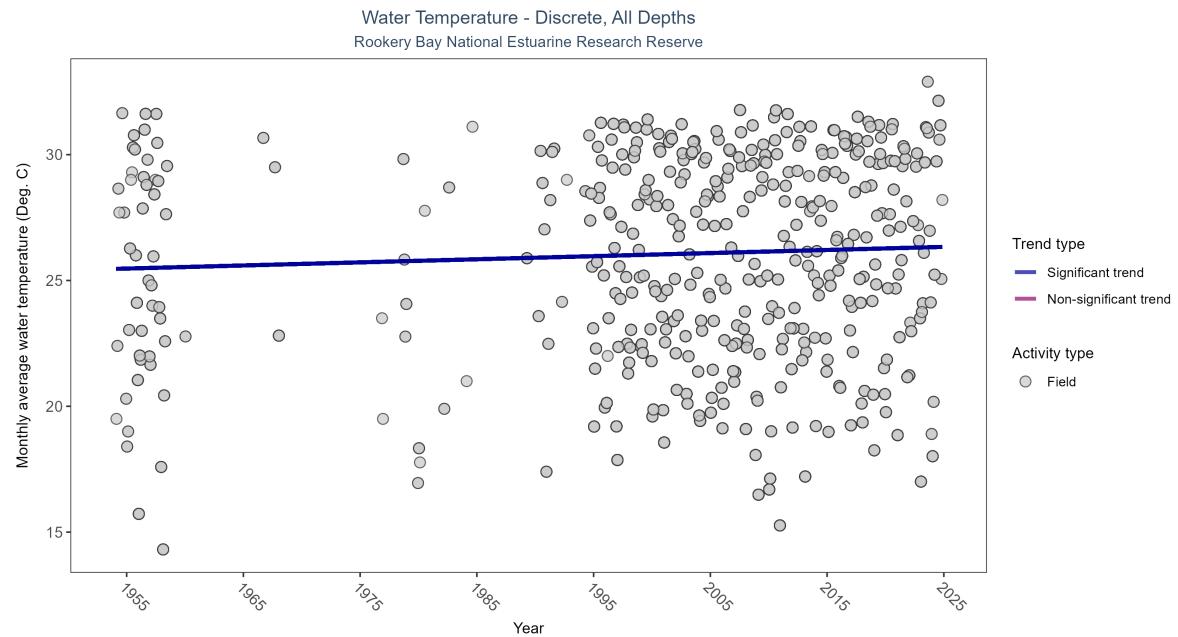
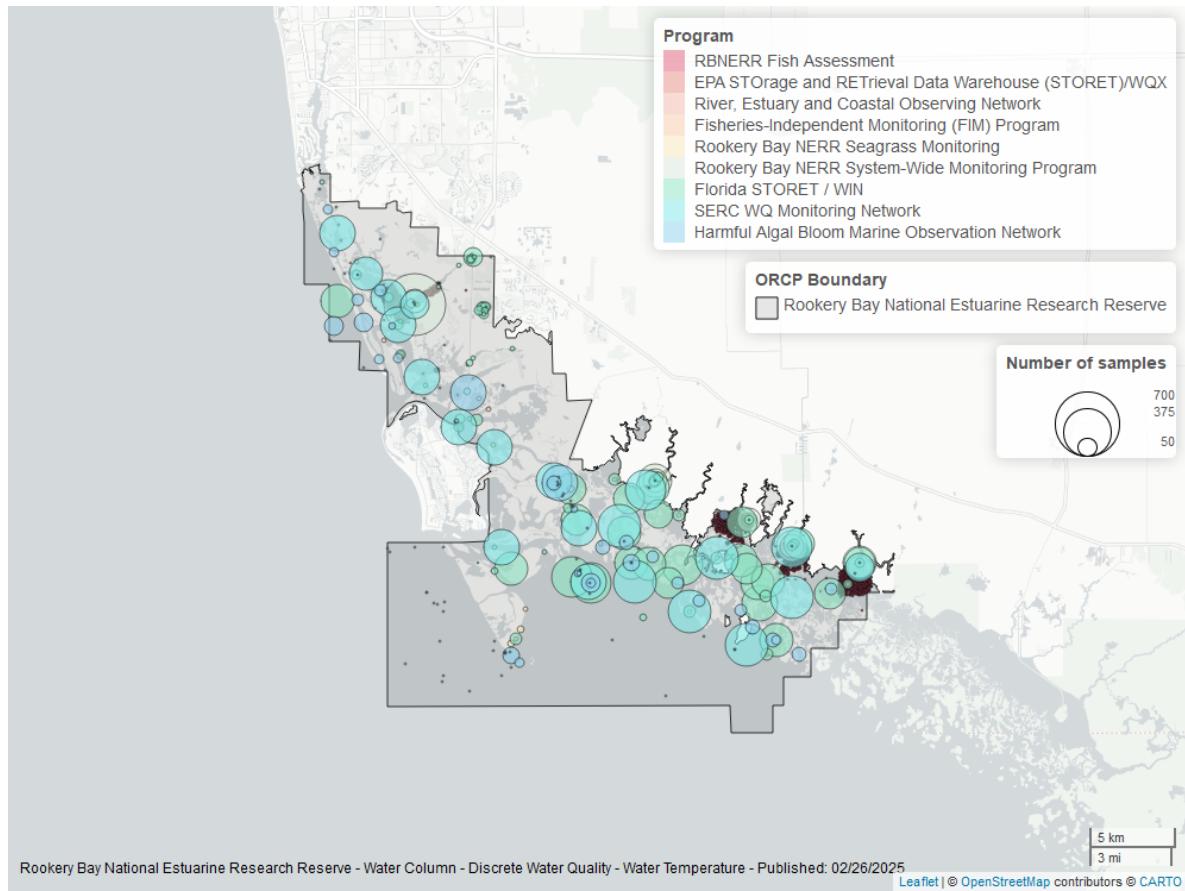


Table 10: Seasonal Kendall-Tau Results for - Water Temperature

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	16851	50	1954 - 2024	26.65	0.10449	25.46109	0.01232	0.001822394425509895



Water Temperature - Continuous

National Water Information System - 7

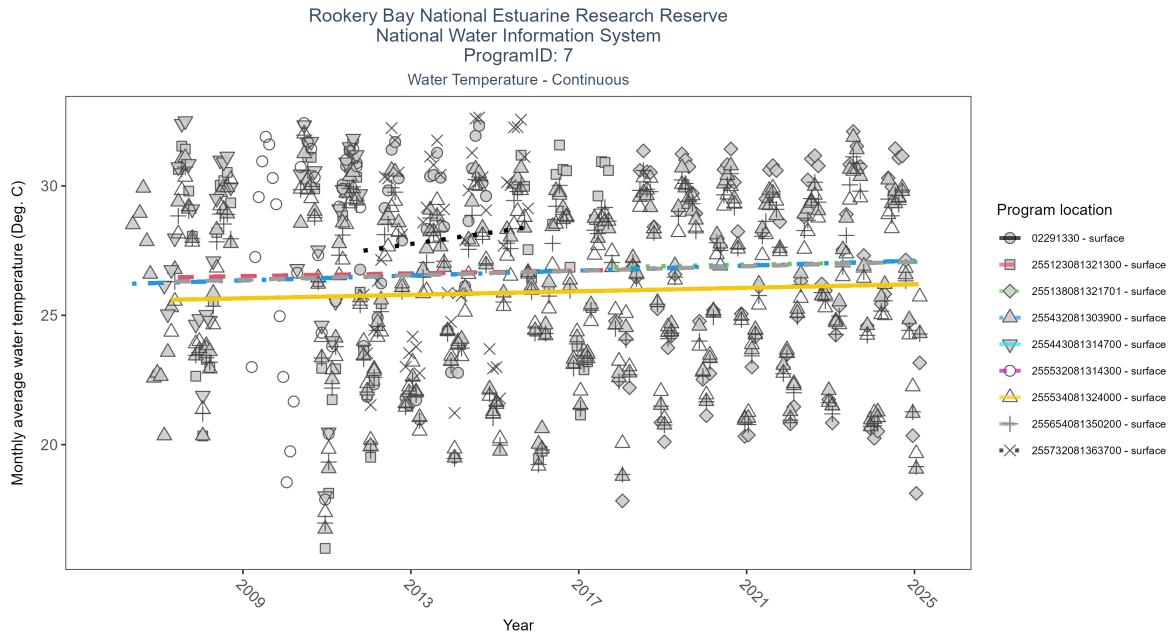
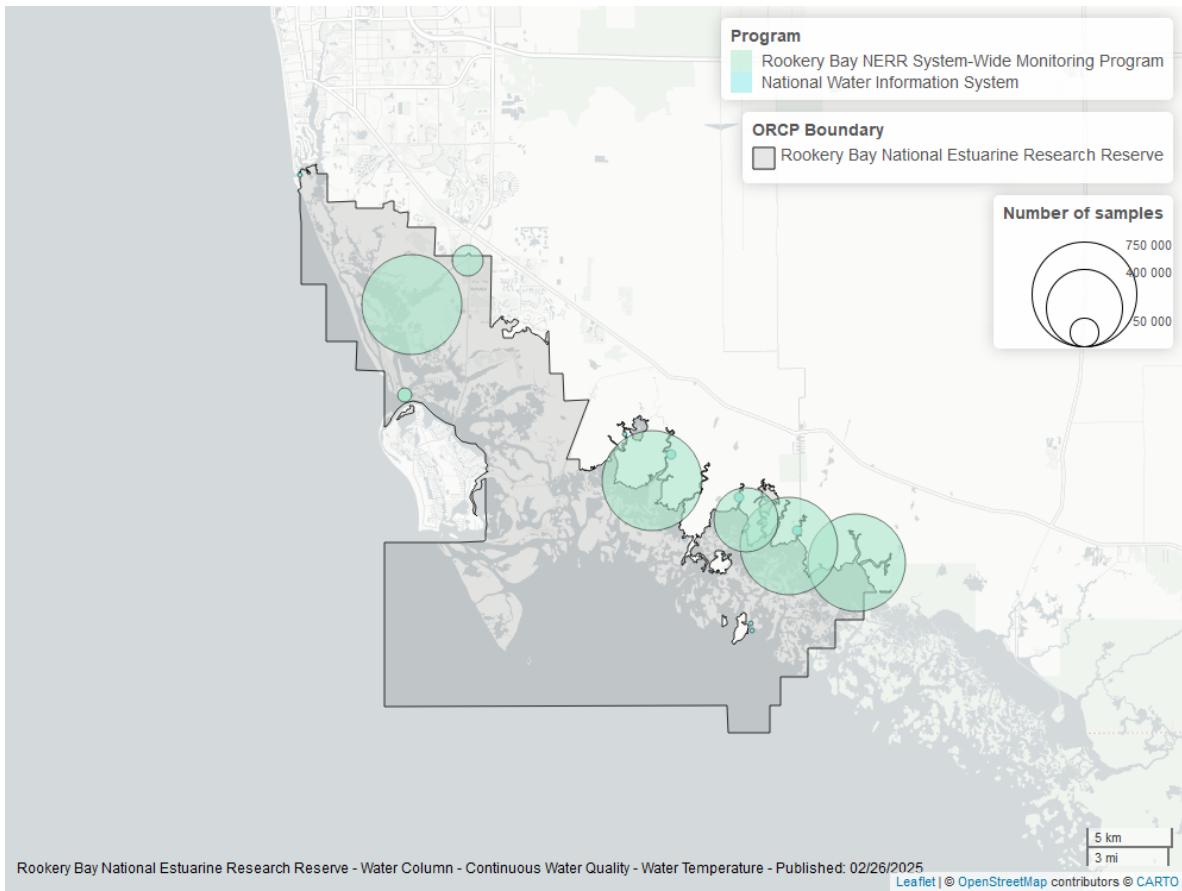


Table 11: Seasonal Kendall-Tau Results for All Stations - Water Temperature

Program Location	Statistical Trend	Sample Count	Years with Data	Period of Record	Median Result Value	Tau	Sen Intercept	Sen Slope	P
255443081314700	Insufficient data to calculate trend	2011	4	2007 - 2011	29.30	-	-	-	NA
255532081314300	Insufficient data to calculate trend	906	3	2009 - 2011	29.30	-	-	-	NA
255534081324000	Significantly increasing trend	5845	18	2007 - 2025	26.60	0.14	25.59	0.03	0.01025518031654598
255654081350200	Significantly increasing trend	5840	18	2007 - 2025	26.75	0.14	26.29	0.04	0.00872705243058571
255732081363700	No significant trend	1435	5	2011 - 2015	28.40	0.24	27.3	0.23	0.11490443706556004
02291330	Insufficient data to calculate trend	1901	4	2011 - 2014	28.30	-	-	-	NA
255432081303900	Significantly increasing trend	6146	19	2006 - 2025	27.00	0.16	26.21	0.05	0.00254730946456049
255123081321300	No significant trend	1818	8	2007 - 2017	27.30	0.1	26.46	0.03	0.38434539693412062
255138081321701	No significant trend	2626	9	2017 - 2025	27.00	0.07	26.85	0.03	0.54559952237596576



Rookery Bay National Estuarine Research Reserve System-Wide Monitoring Program - 354

Rookery Bay National Estuarine Research Reserve
 Rookery Bay National Estuarine Research Reserve System-Wide Monitoring Program
 ProgramID: 354
 Water Temperature - Continuous

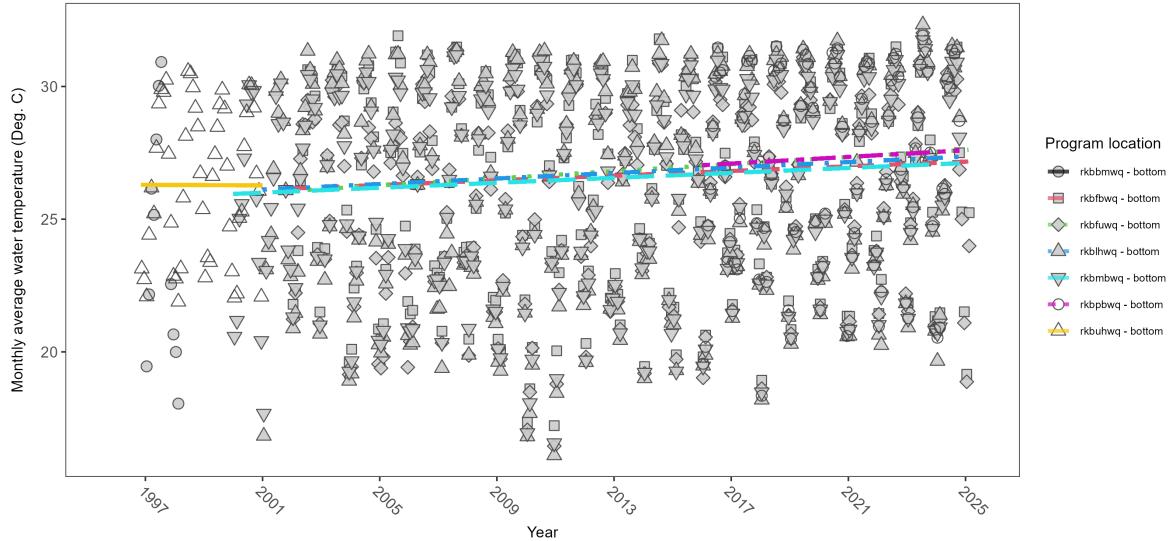
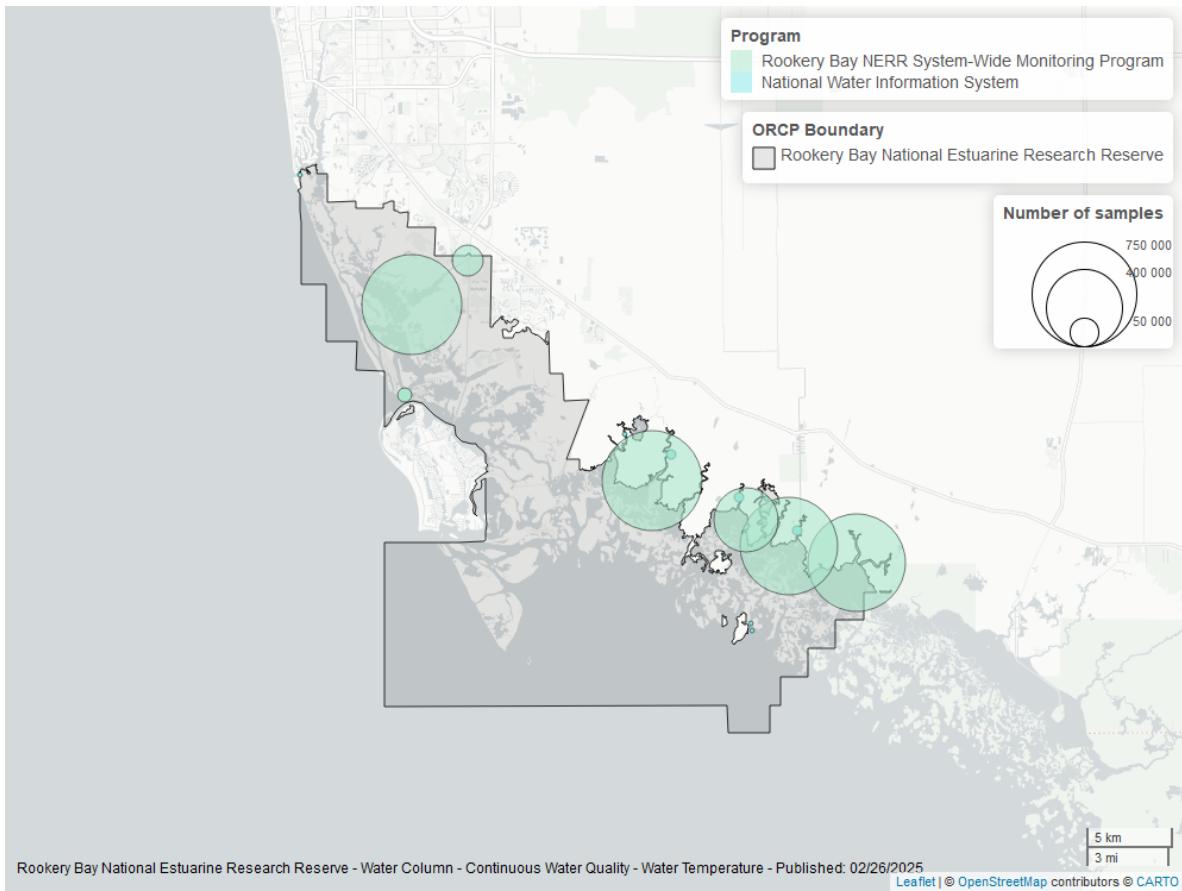


Table 12: Seasonal Kendall-Tau Results for All Stations - Water Temperature

Program Location	Statistical Trend	Sample Count	Years with Data	Period of Record	Median Result Value	Tau	Sen Intercept	Sen Slope	P
rkbmfwq	Significantly increasing trend	685432	24	2002 - 2025	27.0	0.23	26.15	0.04	0.00000008812825647
rkbbmwq	Insufficient data to calculate trend	12610	2	1997 - 1998	23.8	-	-	-	NA
rkbfuwq	Significantly increasing trend	696504	24	2002 - 2025	26.9	0.26	26.07	0.07	0.00000000174144981
rkblhwq	Significantly increasing trend	688994	24	2001 - 2024	27.0	0.25	26.12	0.05	0.00000000753250141
rkmbwq	Significantly increasing trend	718152	25	2000 - 2024	26.9	0.26	25.95	0.05	0.0000000031952981
rkpbwq	No significant trend	292925	9	2016 - 2024	27.6	0.14	27.03	0.06	0.07108932783997188
rkbuhwq	No significant trend	68971	5	1996 - 2000	26.8	-0.01	26.3	-0.01	1.0000000000000000



pH - Discrete

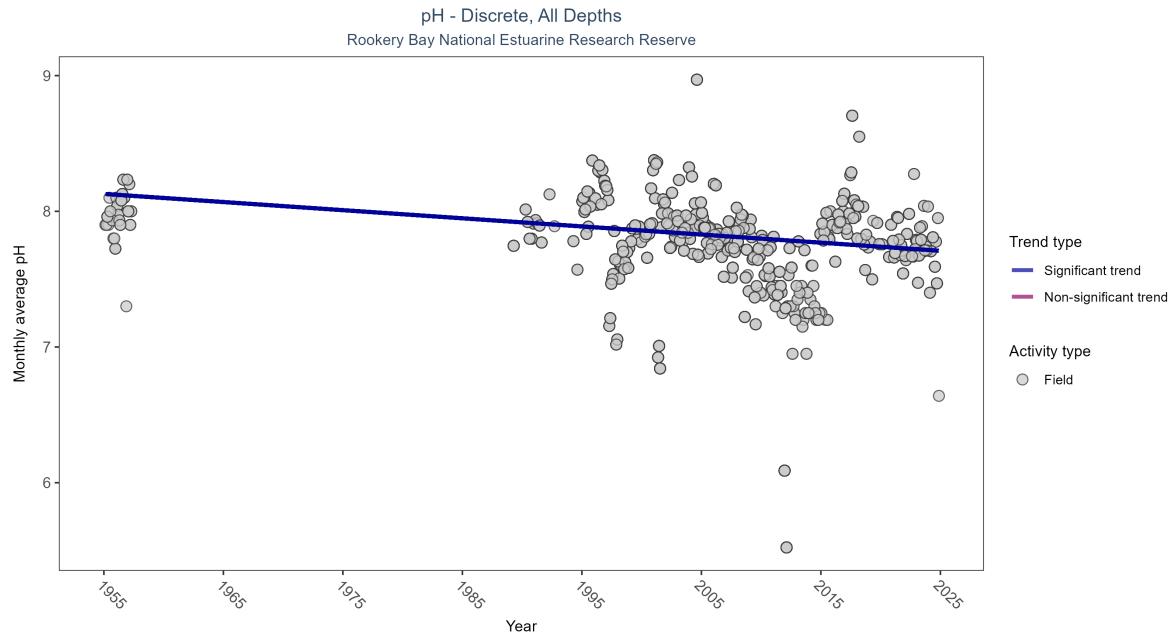
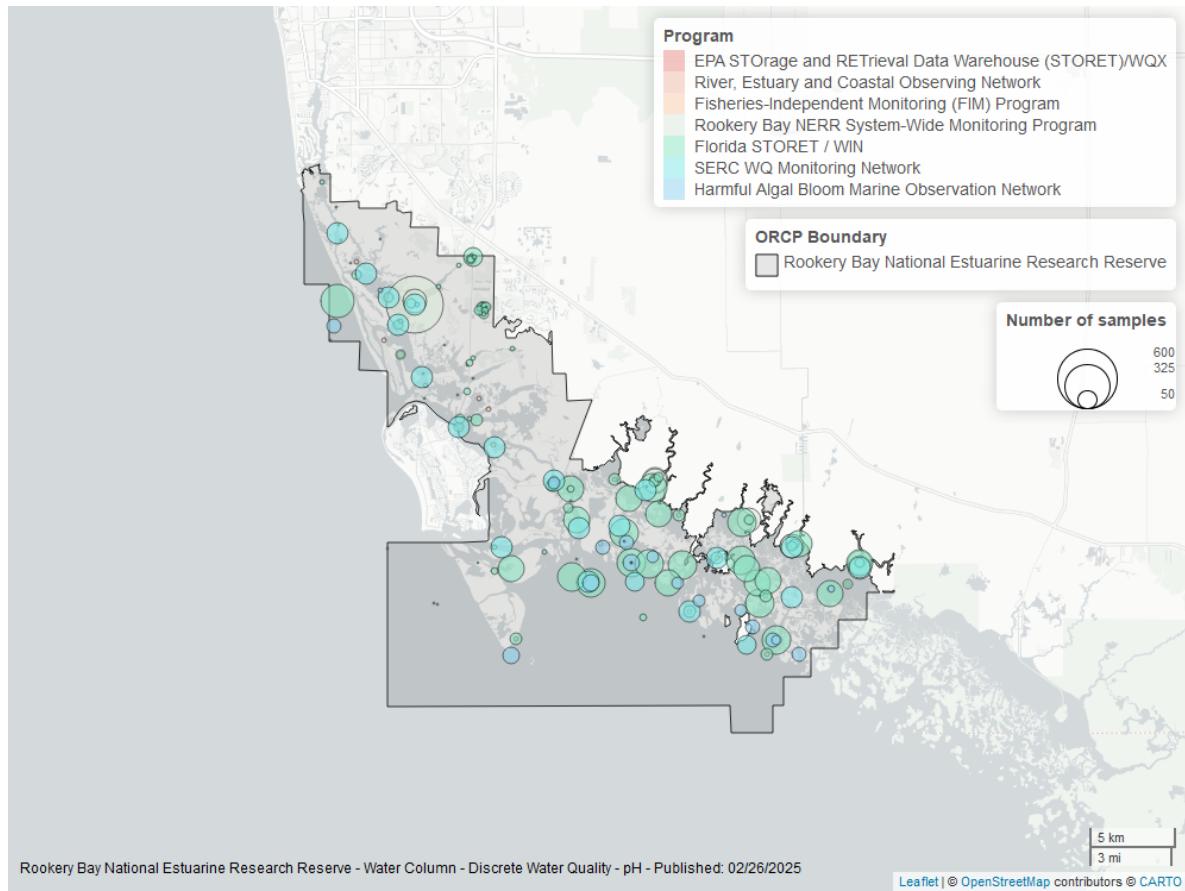


Table 13: Seasonal Kendall-Tau Results for - pH

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	7368	38	1955 - 2024	7.86	-0.22392	8.12825	-0.00599	0.0000000214067671463165982515333696234450



pH - Continuous

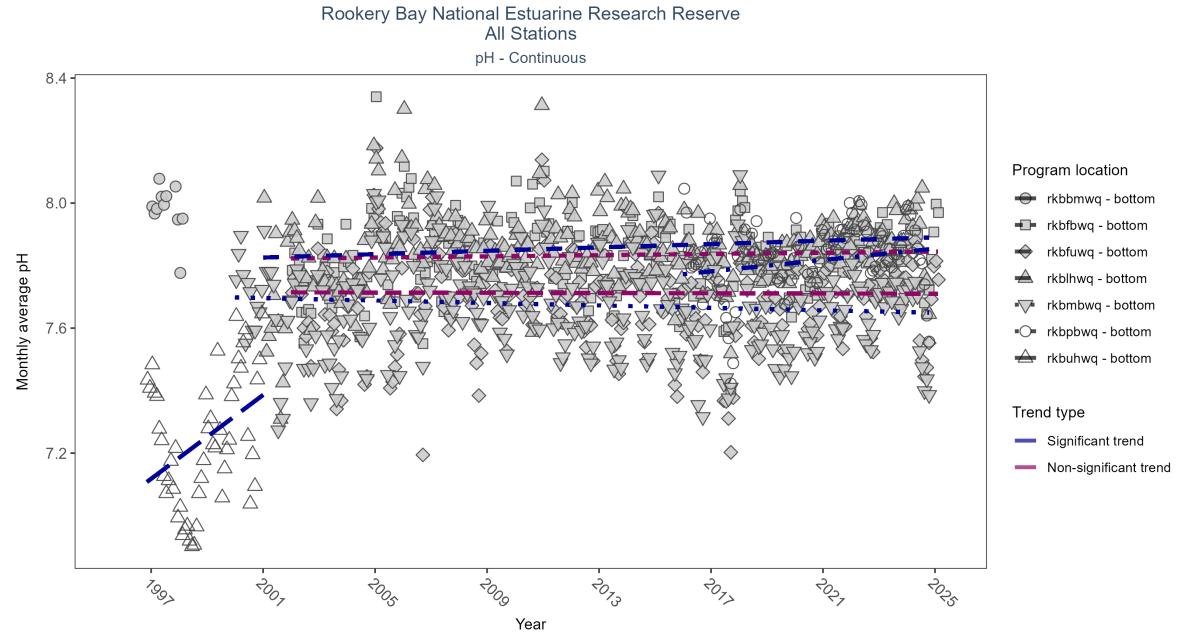
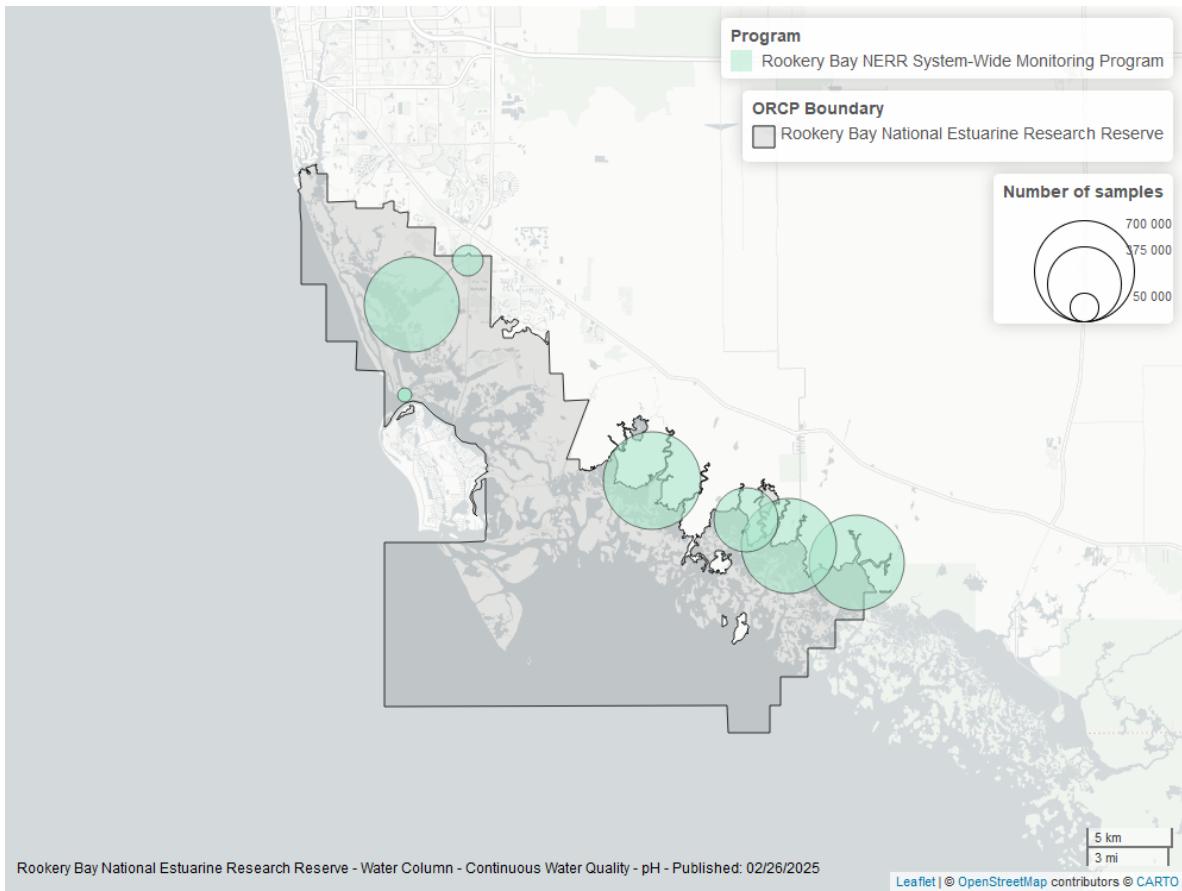


Table 14: Seasonal Kendall-Tau Results for All Stations - pH

Program Location	Statistical Trend	Sample Count	Years with Data	Period of Record	Median Result Value	Tau	Sen Intercept	Sen Slope	P
rkbfbwq	No significant trend	637095	24	2002 - 2025	7.8	0.05	7.82	0	0.23451468058
rkbmhwq	Insufficient data to calculate trend	12610	2	1997 - 1998	8.0	-	-	-	NA
rkbfwuq	No significant trend	660818	24	2002 - 2025	7.7	-0.01	7.71	0	0.79452914892
rkbhwq	Significantly increasing trend	629829	24	2001 - 2024	7.9	0.14	7.83	0	0.00104538441
rkbmbwq	Significantly decreasing trend	683502	25	2000 - 2024	7.7	-0.09	7.7	0	0.03461861851
rkbpbwq	Significantly increasing trend	283219	9	2016 - 2024	7.8	0.2	7.77	0.01	0.01755480552
rkbuhwq	Significantly increasing trend	65814	5	1996 - 2000	7.2	0.37	7.05	0.07	0.00811311727



Water Clarity

Turbidity - Discrete

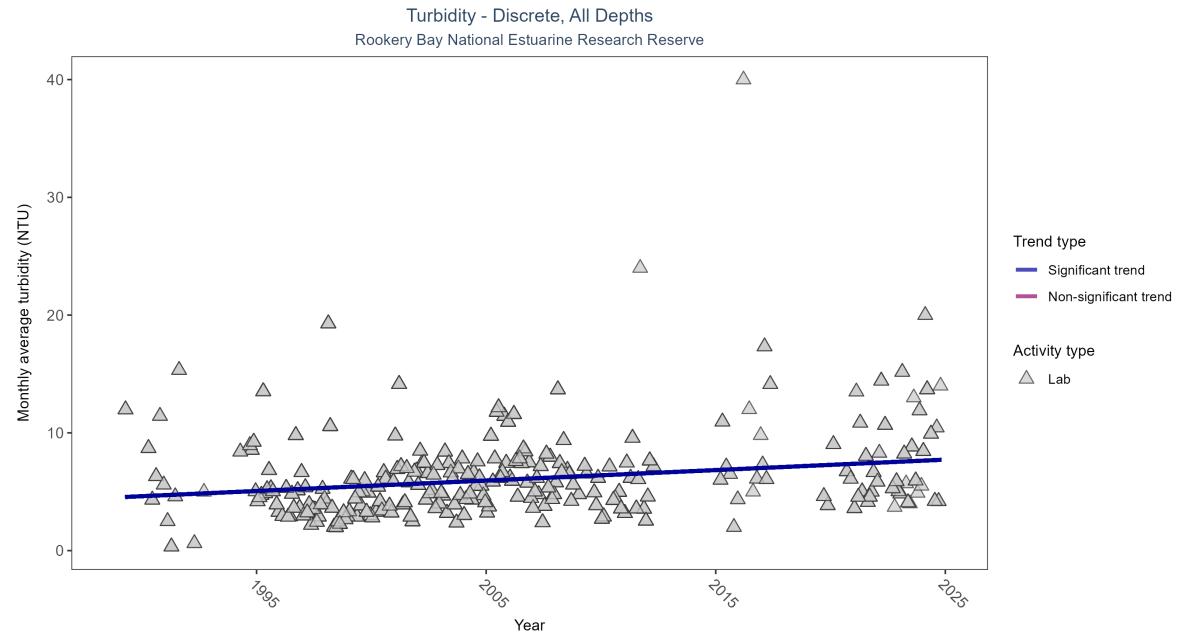
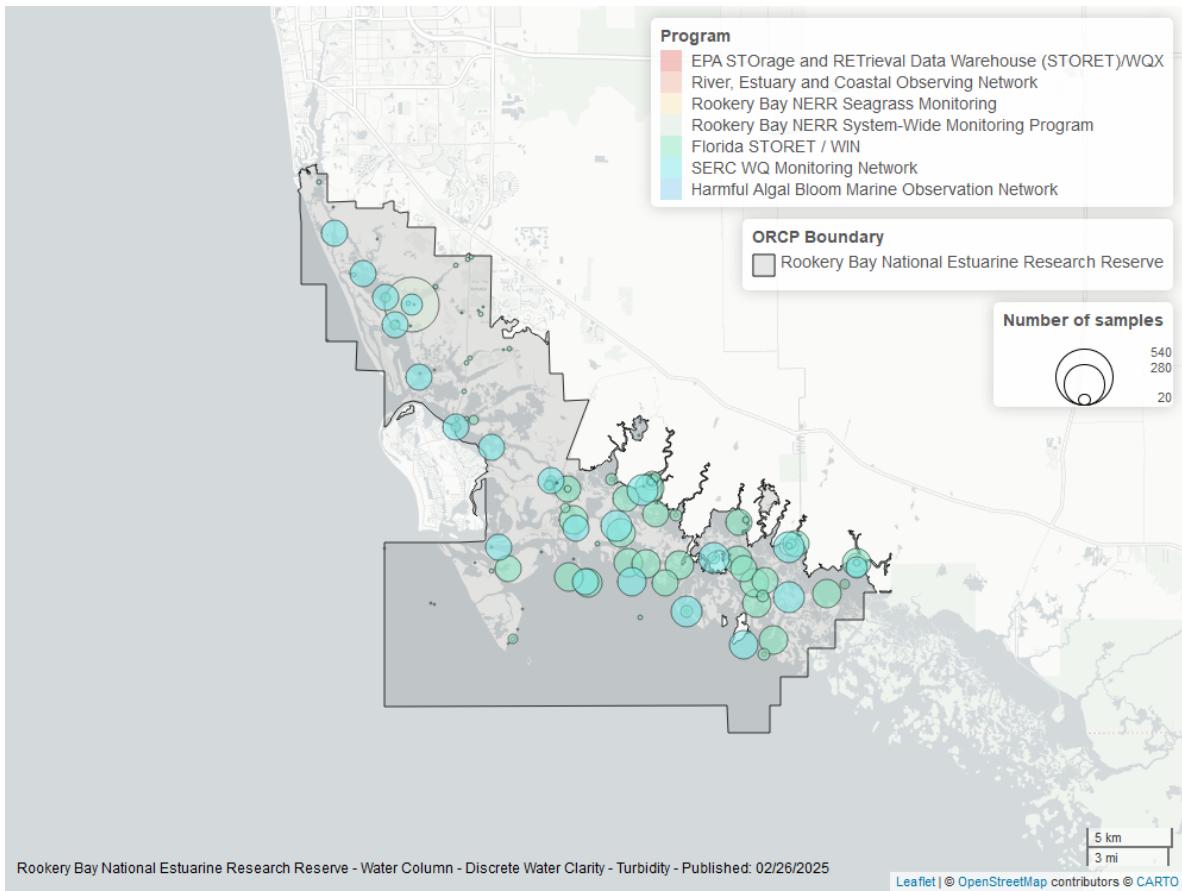


Table 15: Seasonal Kendall-Tau Results for - Turbidity

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	6383	32	1989 - 2024	4.365	0.20838	4.52982	0.08879	0.00000355945451990764



Turbidity - Continuous

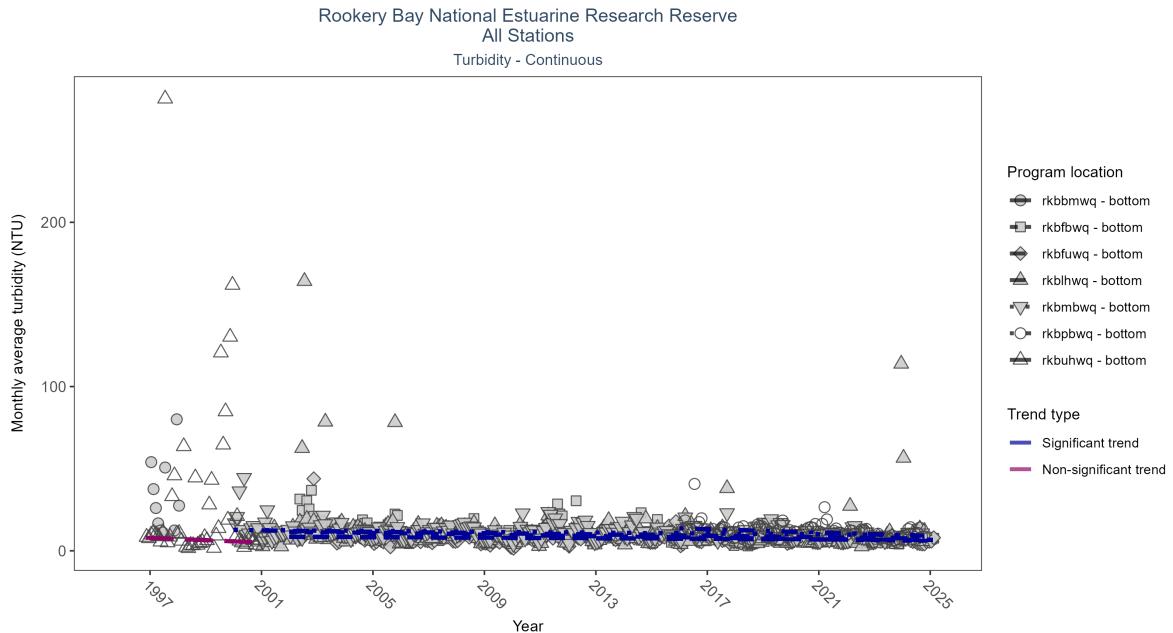
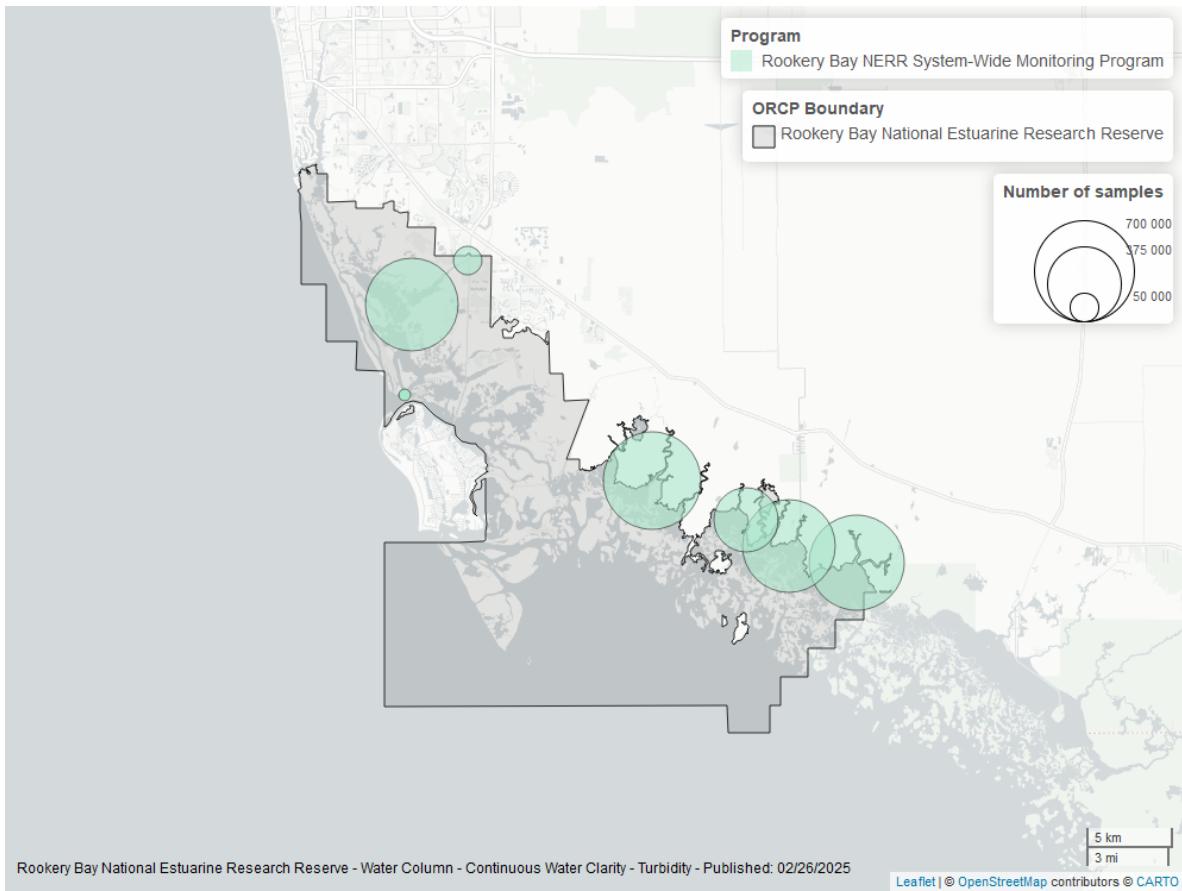


Table 16: Seasonal Kendall-Tau Results for All Stations - Turbidity

Program Location	Statistical Trend	Sample Count	Years with Data	Period of Record	Median Result Value	Tau	Sen Intercept	Sen Slope	P
rkbfbwq	Significantly decreasing trend	649336	24	2002 - 2025	7	-0.39	11.61	-0.24	0.000000000000000000000004833077
rkbmfwq	Insufficient data to calculate trend	10654	2	1997 - 1998	11	-	-	-	NA
rkbfuwq	Significantly decreasing trend	626788	24	2002 - 2025	6	-0.2	8.53	-0.08	0.0000082280680265802132256
rkbhwq	Significantly decreasing trend	605017	24	2001 - 2024	8	-0.27	12.4	-0.2	0.0000000001832625760206485
rkbmbwq	Significantly decreasing trend	670439	25	2000 - 2024	9	-0.22	12.74	-0.13	0.00000196069805454925900
rkbpbwq	Significantly decreasing trend	286433	9	2016 - 2024	10	-0.37	13.71	-0.51	0.0000032436042859530606541
rkbuhwq	No significant trend	61608	5	1996 - 2000	5	-0.11	8.57	-0.7	0.5228166539190887140975406



Total Suspended Solids - Discrete

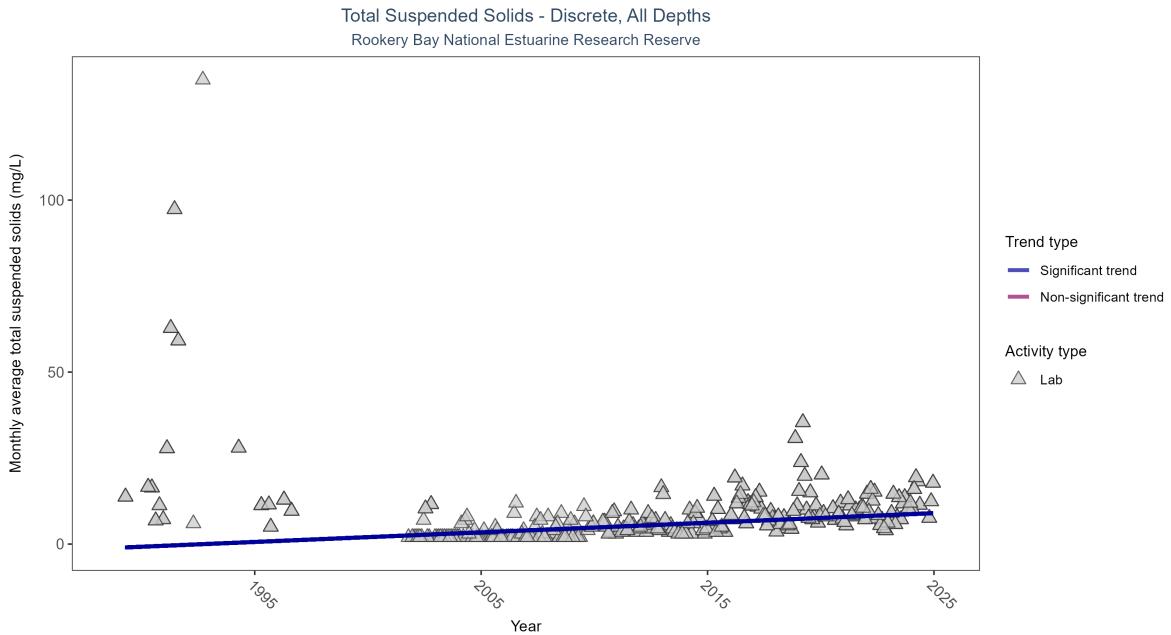
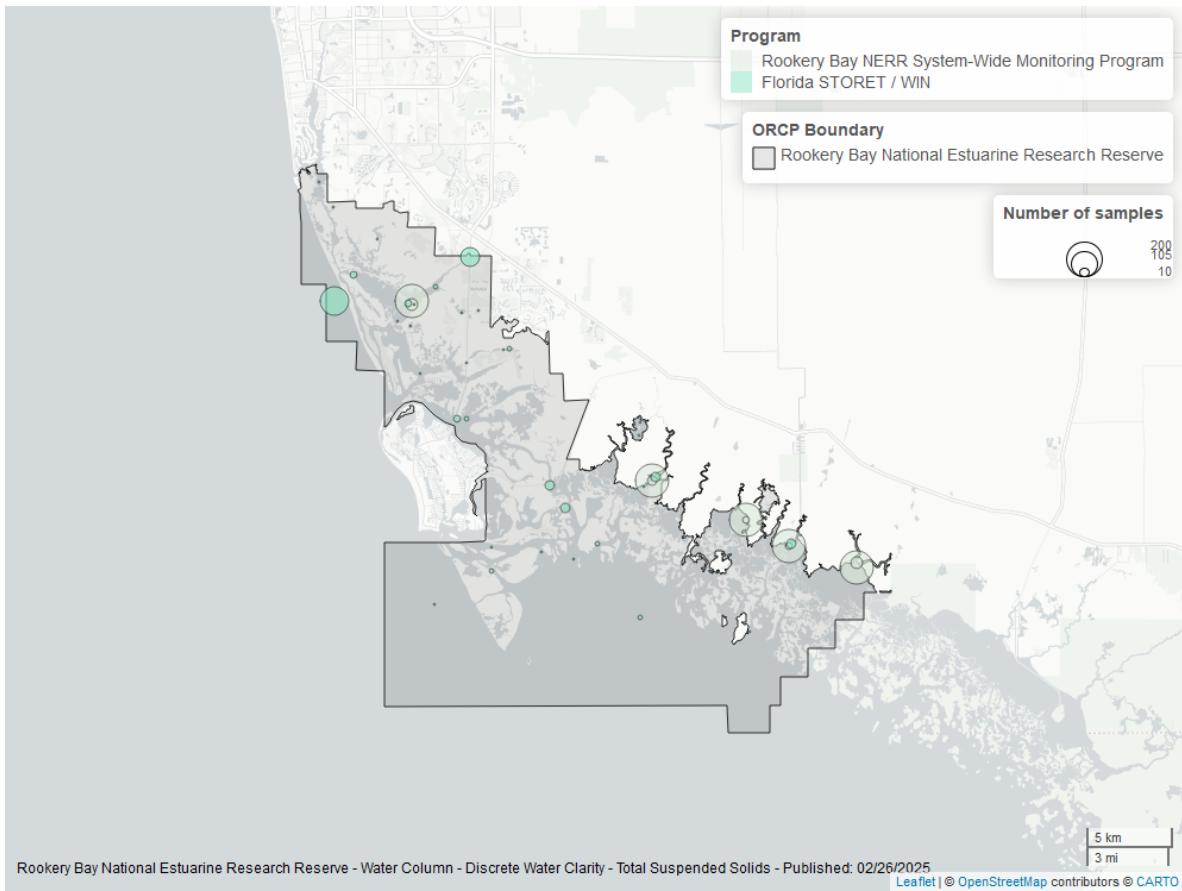


Table 17: Seasonal Kendall-Tau Results for - Total Suspended Solids

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	861	31	1989 - 2024	8	0.37853	-1.05486	0.27889	0.000000000000000026919775142113704



Chlorophyll a, Uncorrected for Pheophytin - Discrete

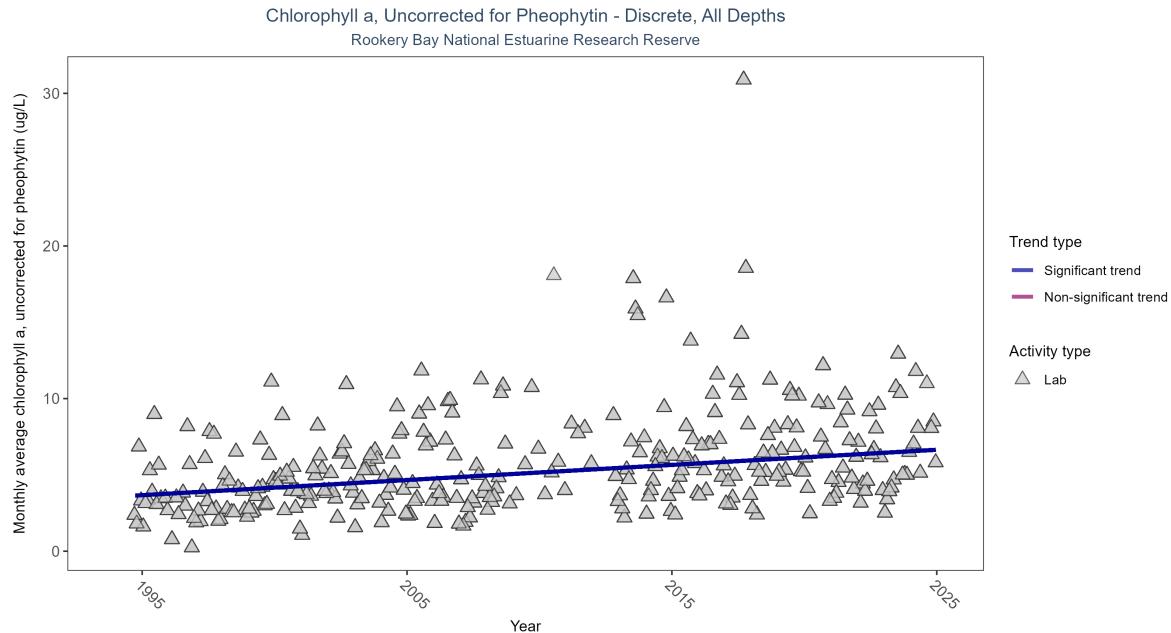
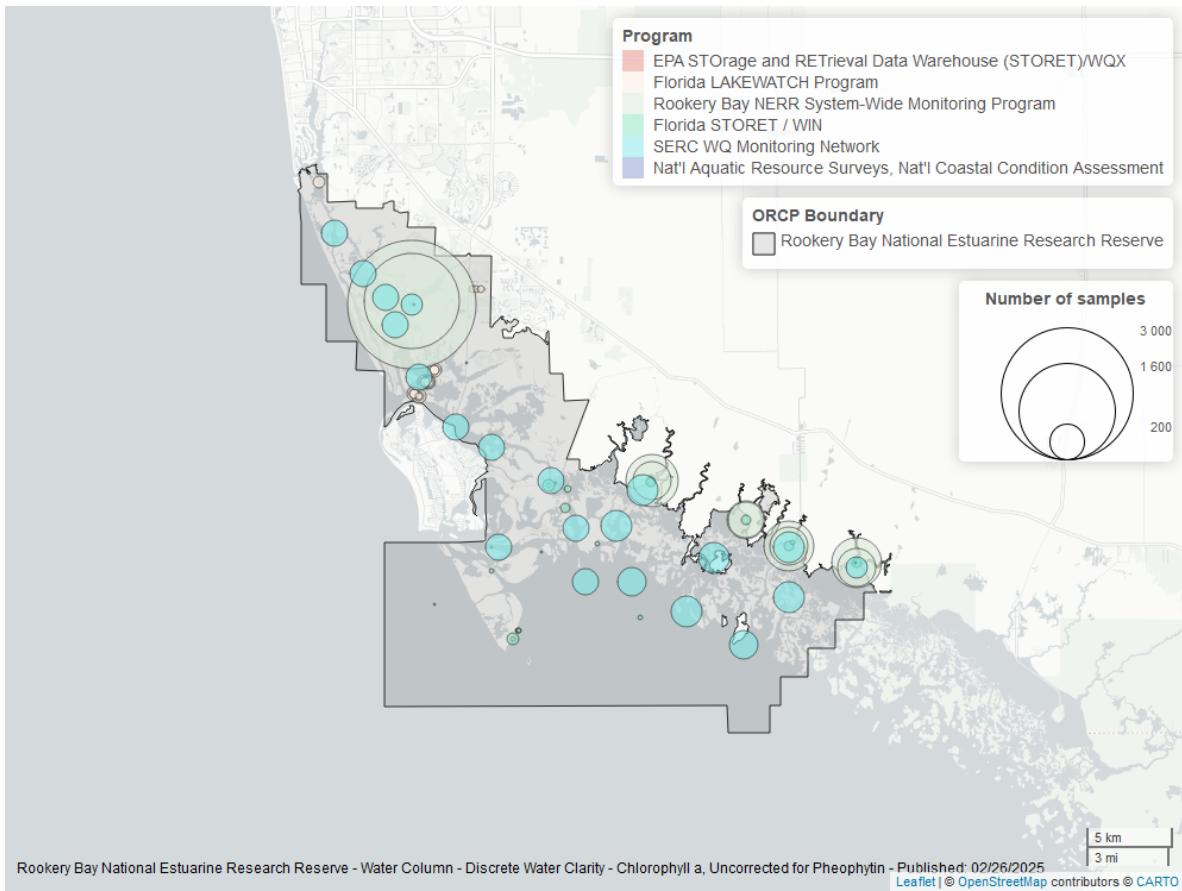


Table 18: Seasonal Kendall-Tau Results for - Chlorophyll a, Uncorrected for Pheophytin

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	5345	31	1994 - 2024	4.4	0.33575	3.57244	0.09916	0.0000000000000004433660594



Chlorophyll a, Corrected for Pheophytin - Discrete

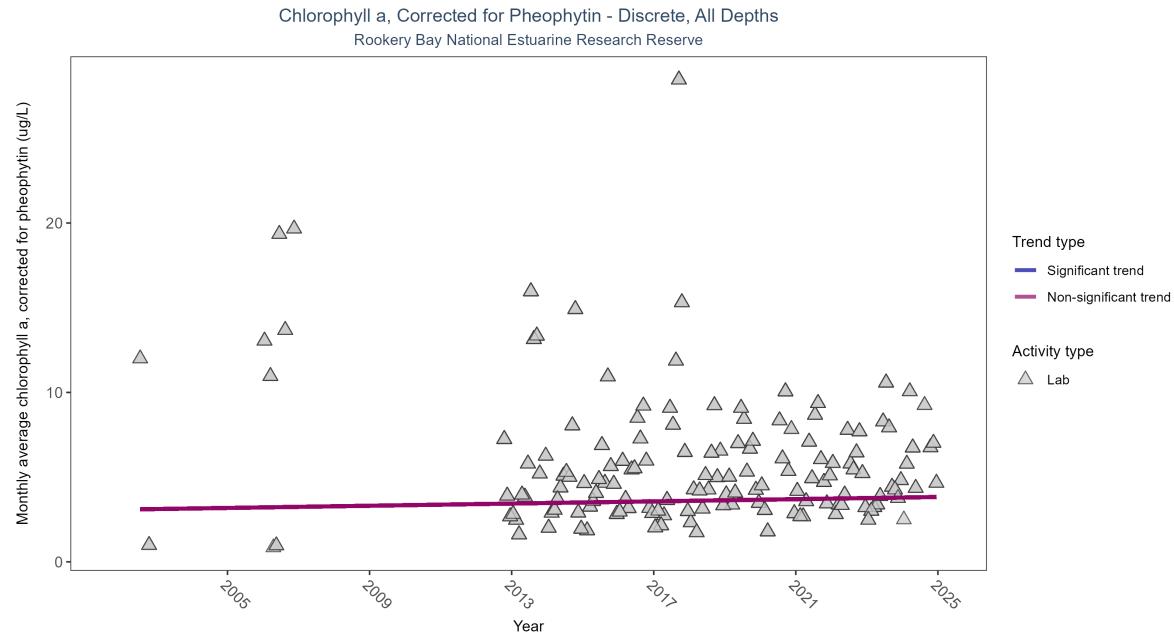
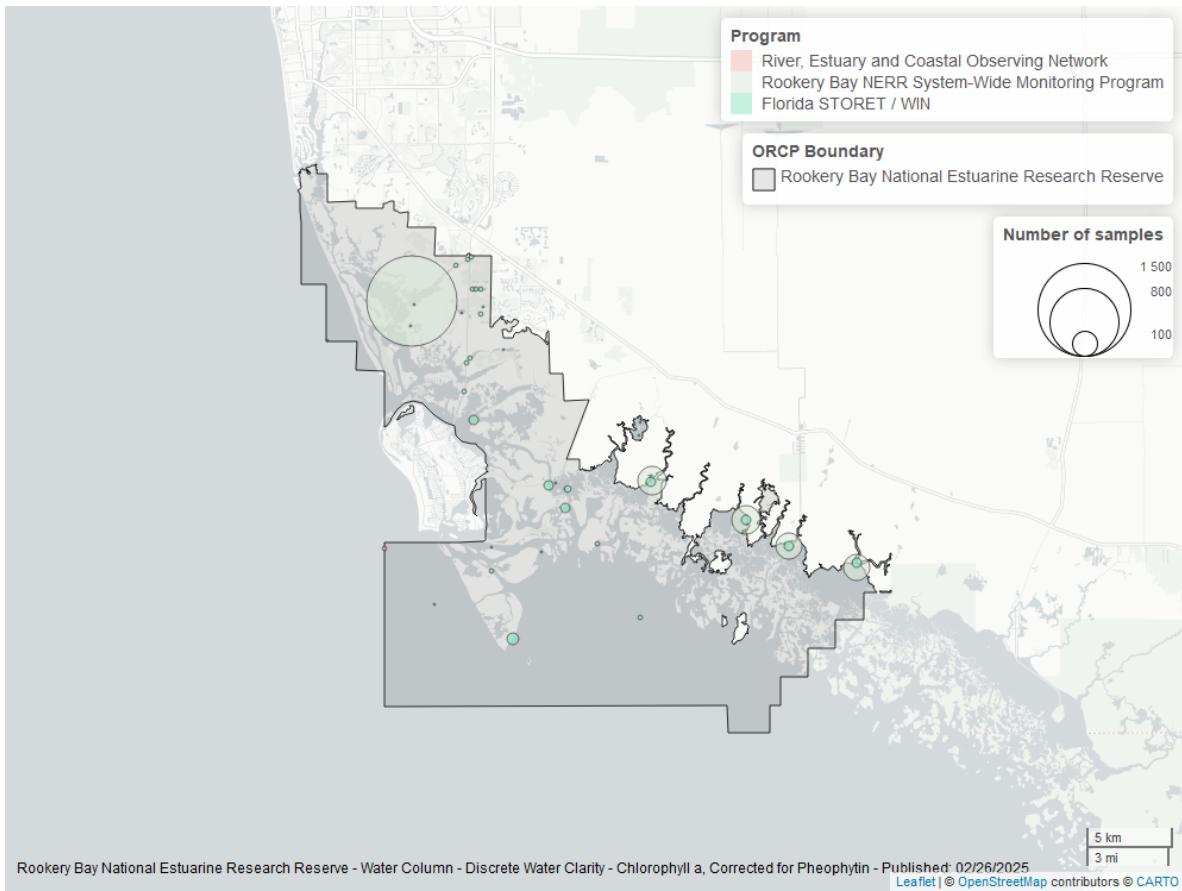


Table 19: Seasonal Kendall-Tau Results for - Chlorophyll a, Corrected for Pheophytin

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	2209	15	2002 - 2024		4.1	0.05669	3.08396	0.03235	0.3306816663735459016493223317



Secchi Depth - Discrete

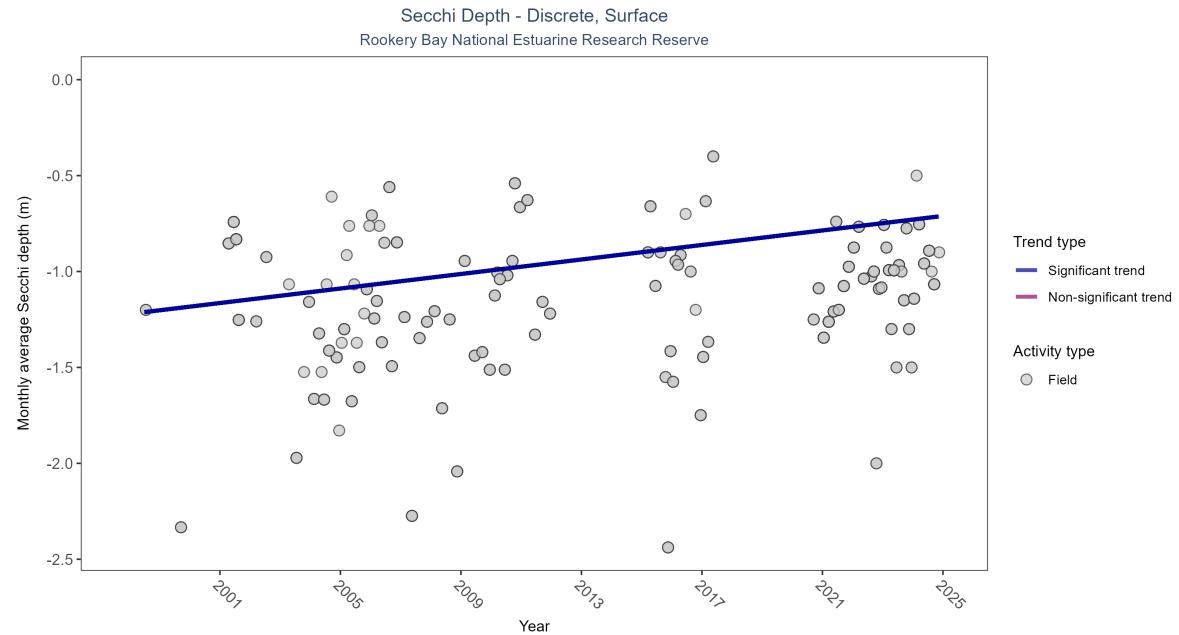
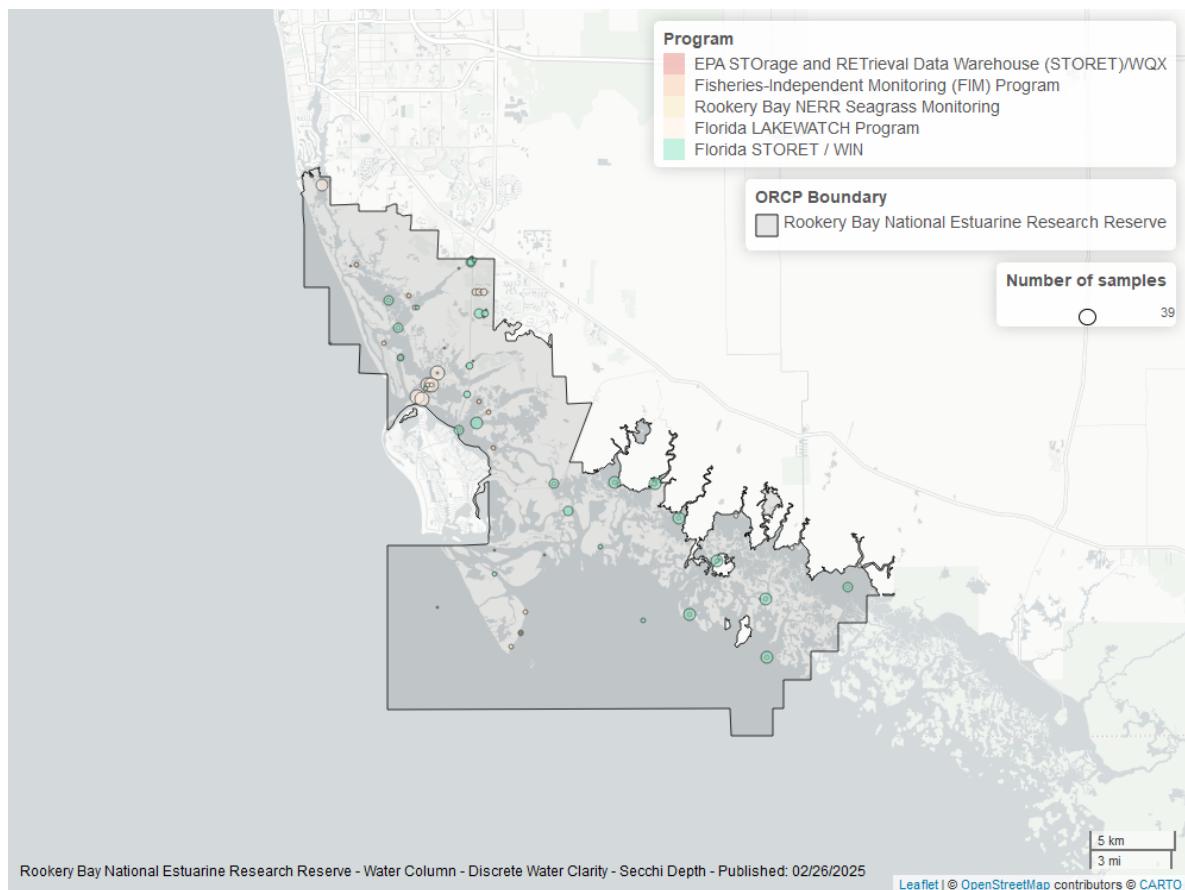


Table 20: Seasonal Kendall-Tau Results for - Secchi Depth

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	768	21	1998 - 2024	-1.06681	0.25644	-1.22103	0.01892	0.0002232273789719520413771941536



Colored Dissolved Organic Matter - Discrete

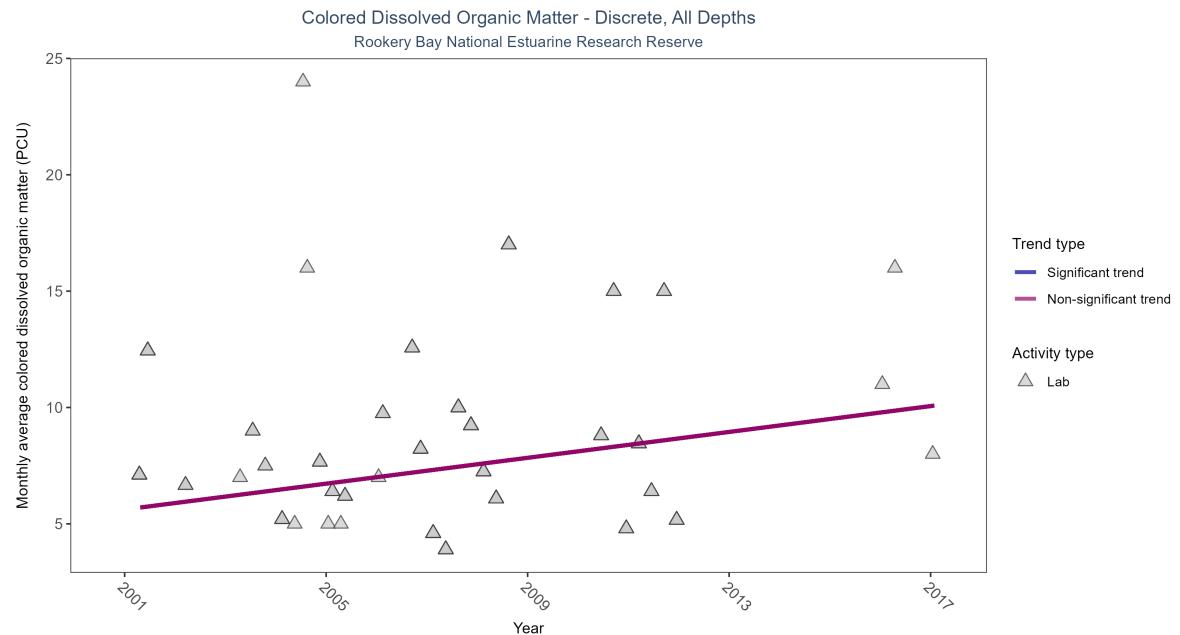


Table 21: Seasonal Kendall-Tau Results for - Colored Dissolved Organic Matter

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	193	12	2001 - 2017		8	0.3619	5.61538	0.27778 0.153277564227407958608040

