

# Cape Romano-Ten Thousand Islands Aquatic Preserve

## SEACAR Water Quality Analysis

Last compiled on 18 March, 2025

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# Indicators

## Nutrients

### Total Nitrogen - Discrete

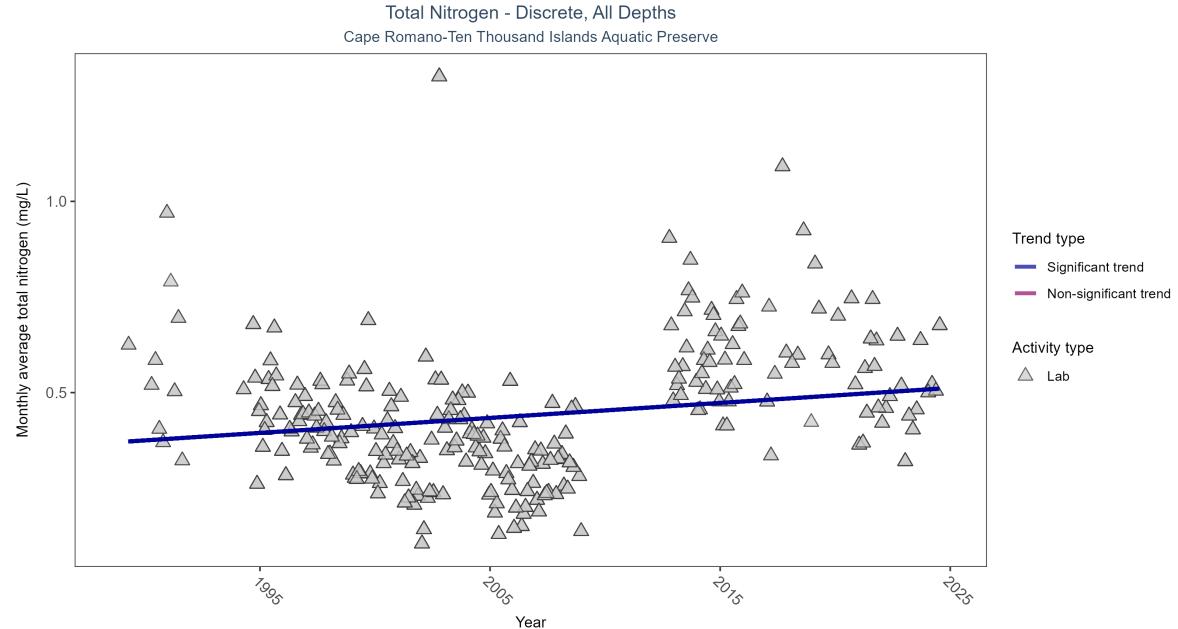
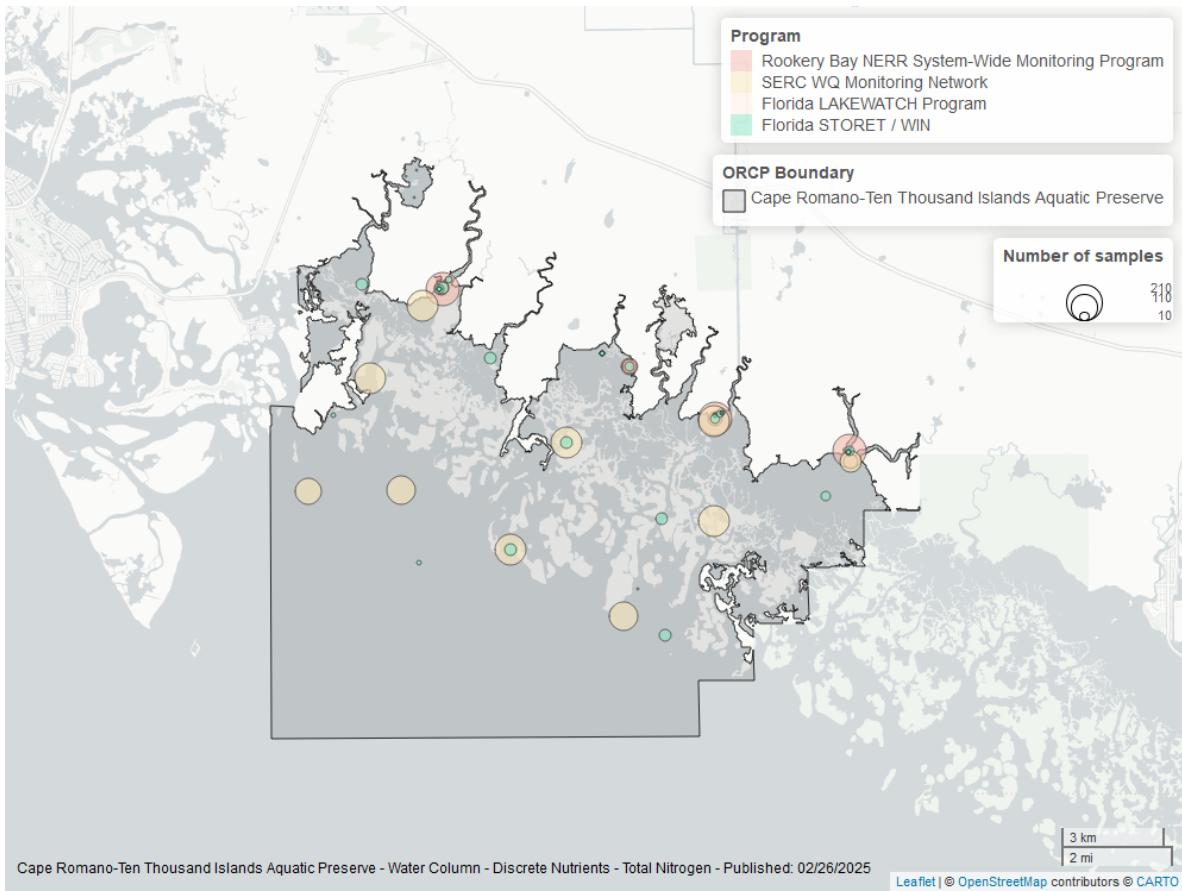


Table 1: Seasonal Kendall-Tau Results for - Total Nitrogen

Activity Type	Statistical Trend	Sample Count	Years with Data	Period of Record	Median Result Value	Tau	Sen Intercept	Sen Slope	P
Lab	Significantly increasing trend	2468	31	1989 - 2024	0.3761	0.13849	0.3711	0.00392	0.00162170090672333747951194827



## Total Phosphorus - Discrete

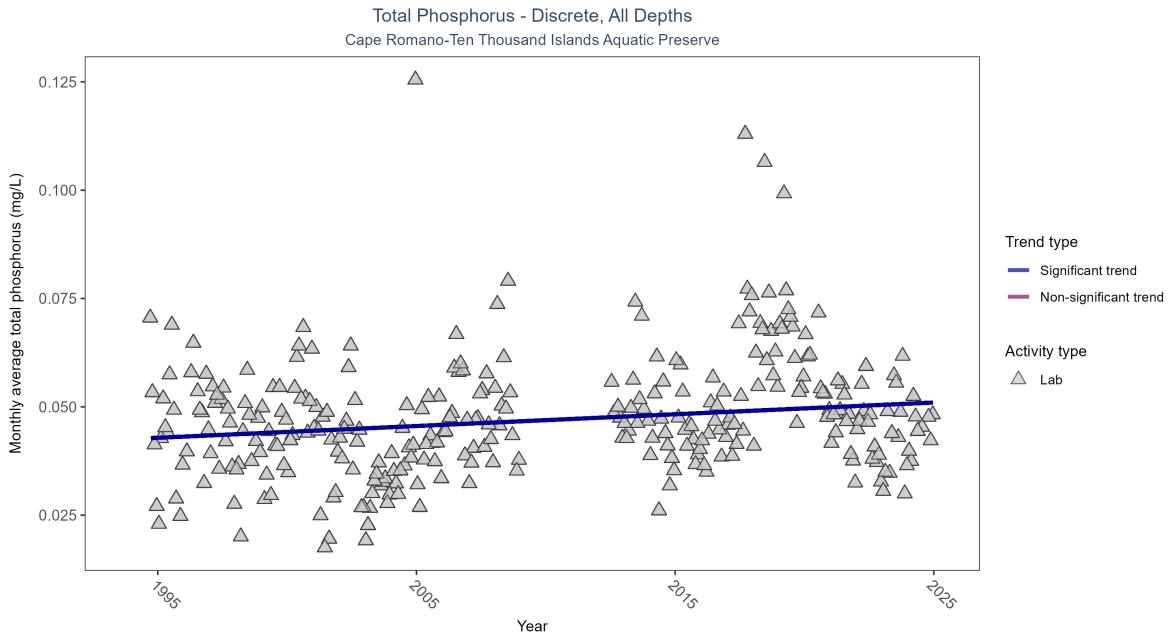
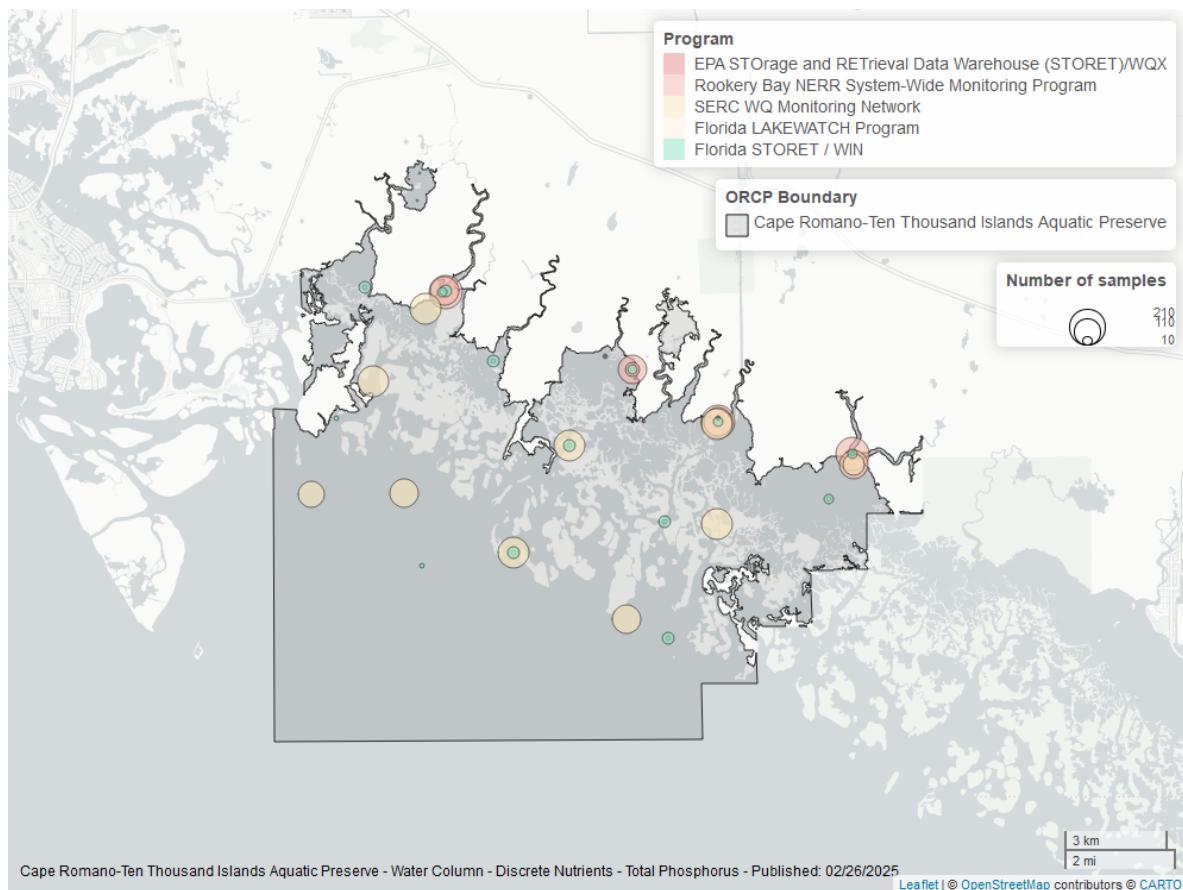


Table 2: Seasonal Kendall-Tau Results for - Total Phosphorus

Activity Type	Statistical Trend	Sample Count	Years with Data	Period of Record	Median Result Value	Tau	Sen Intercept	Sen Slope	P
Lab	Significantly increasing trend	2977	28	1994 - 2024	0.0431	0.1575	0.04258	0.00027	0.0001075842952236251063137875694231126995116163045167922973632812



## Water Quality

### Dissolved Oxygen - Discrete

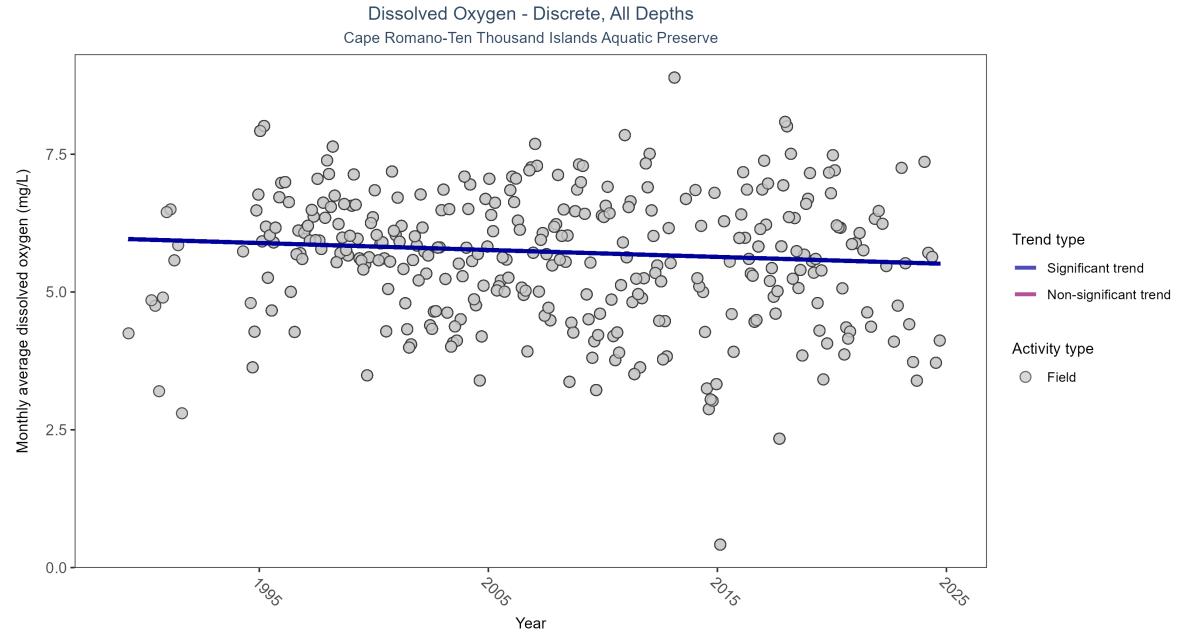
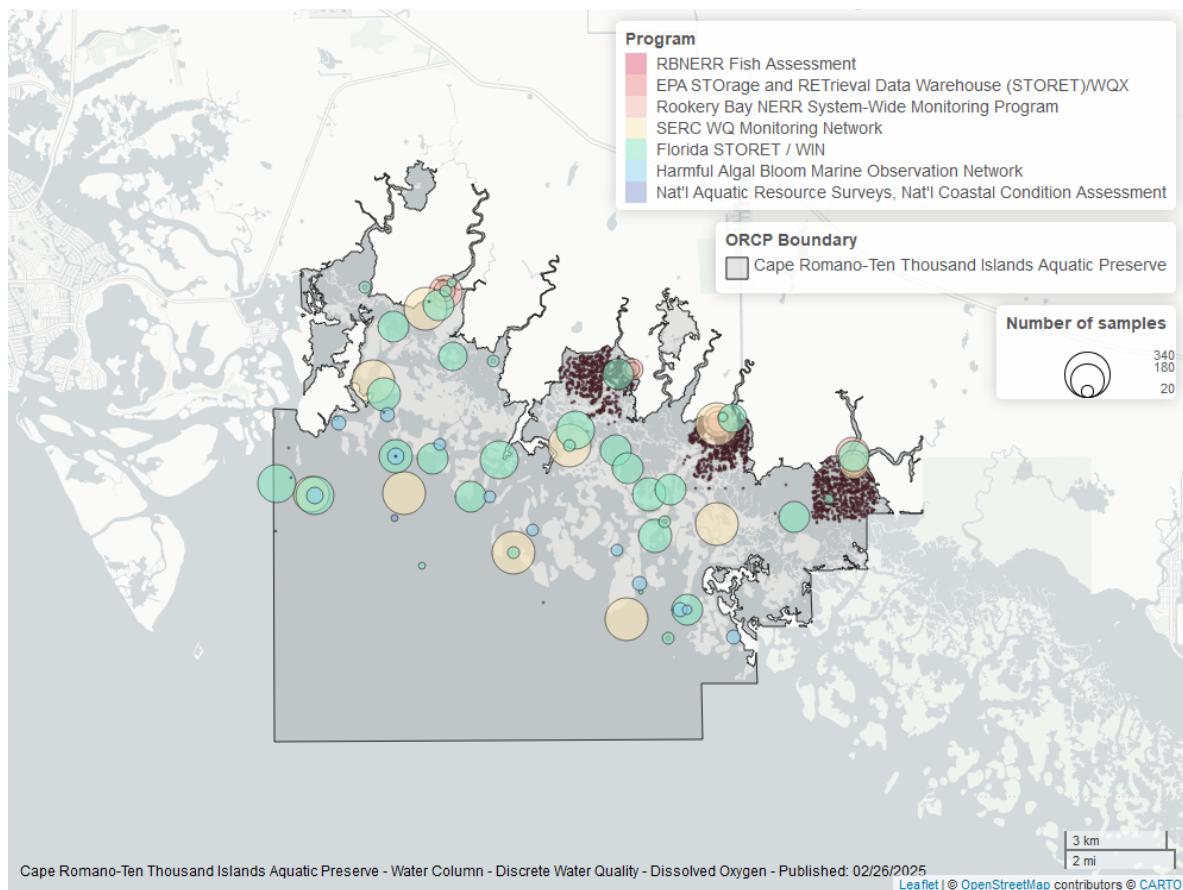


Table 3: Seasonal Kendall-Tau Results for - Dissolved Oxygen

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	10675	34	1989 - 2024	5.8	-0.08644	5.96421	-0.01259	0.02613826515564749



## Dissolved Oxygen - Continuous

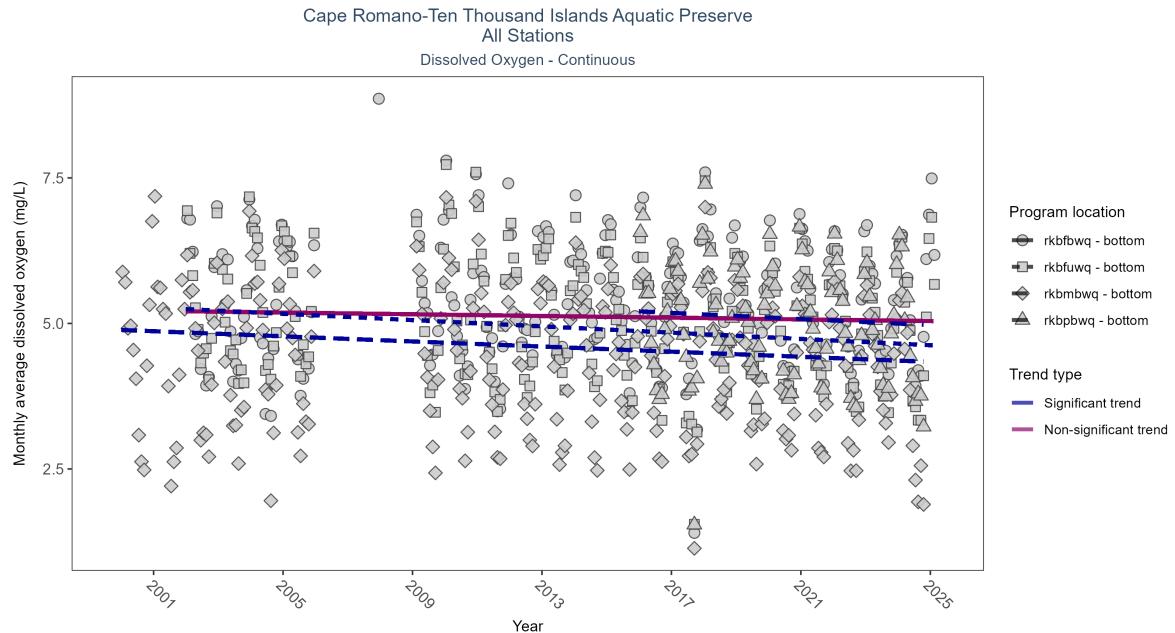
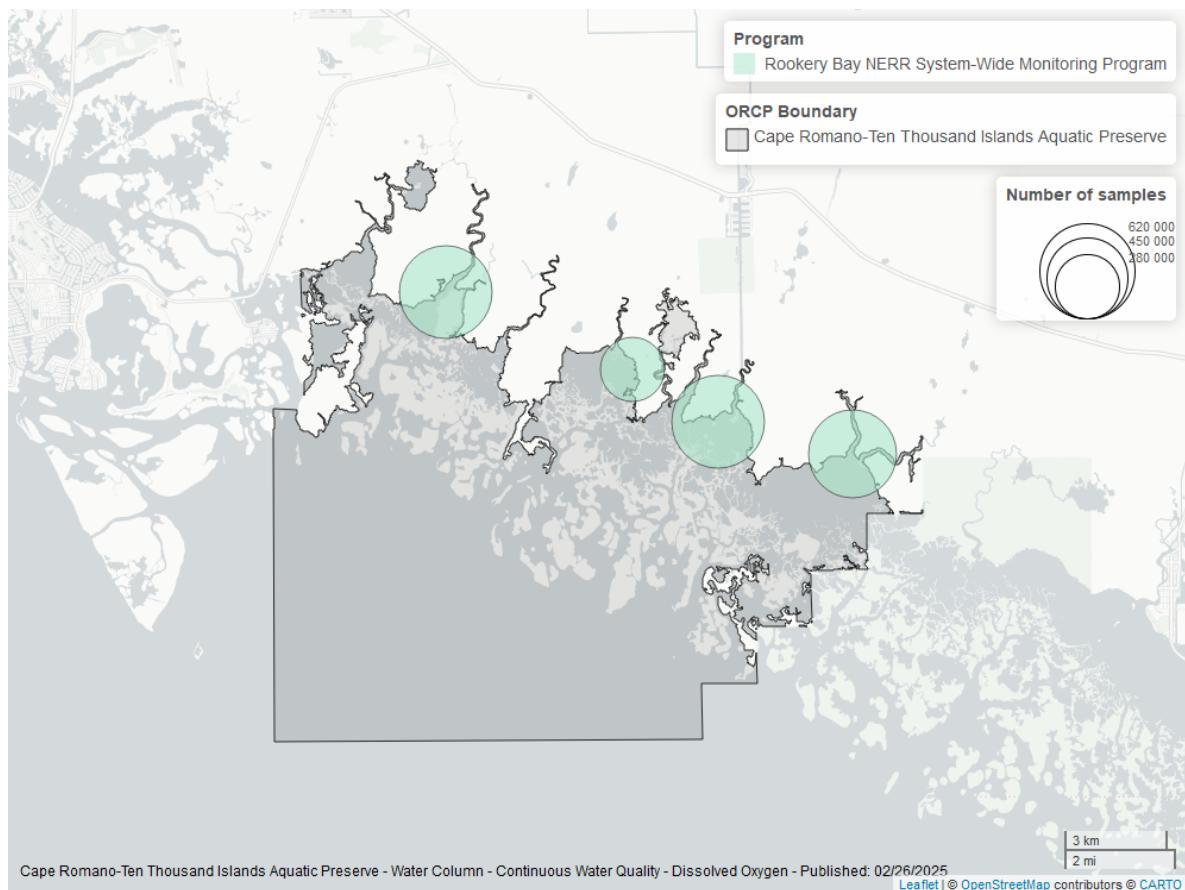


Table 4: Seasonal Kendall-Tau Results for All Stations - Dissolved Oxygen

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	0.00000000001291598
rkmbwq	Significantly decreasing trend	613238	22	2000 - 2024	4.4	-0.26	4.89	-0.02	0.0000001364233098
rkpbwq	Significantly decreasing trend	289726	9	2016 - 2024	4.9	-0.18	5.21	-0.03	0.02456237134347371



## Dissolved Oxygen Saturation - Discrete

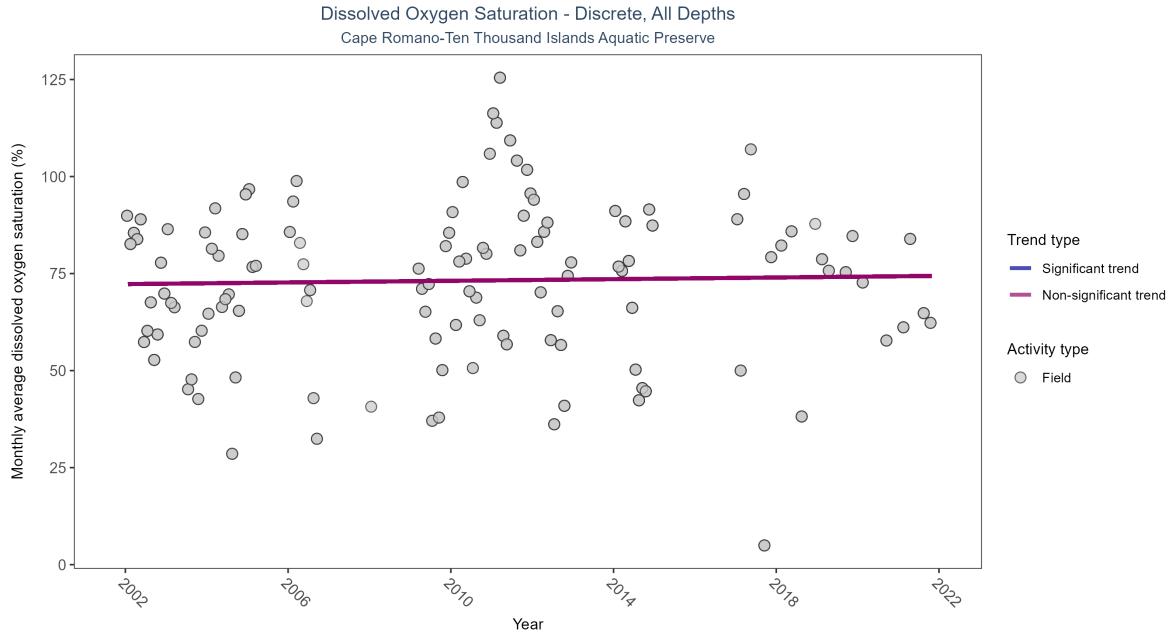
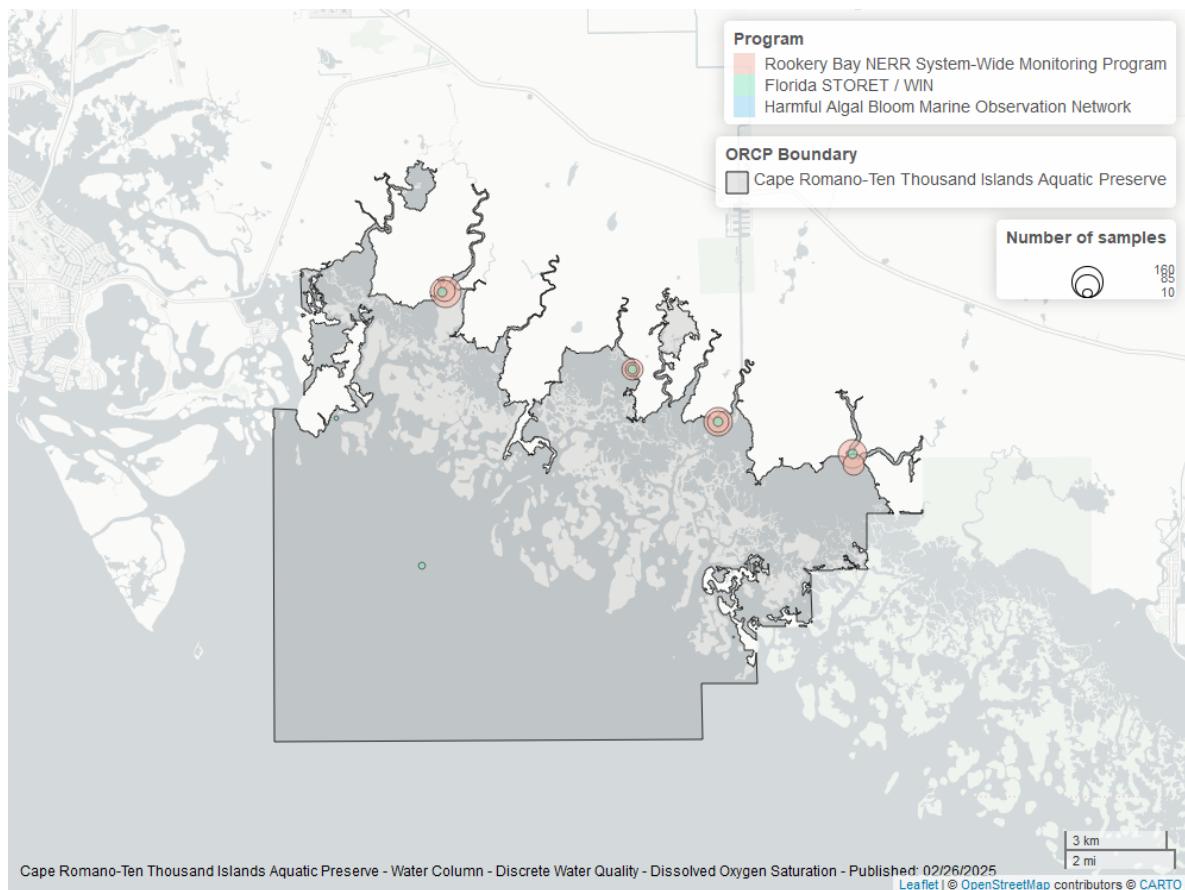


Table 5: Seasonal Kendall-Tau Results for - Dissolved Oxygen Saturation



## Dissolved Oxygen Saturation - Continuous

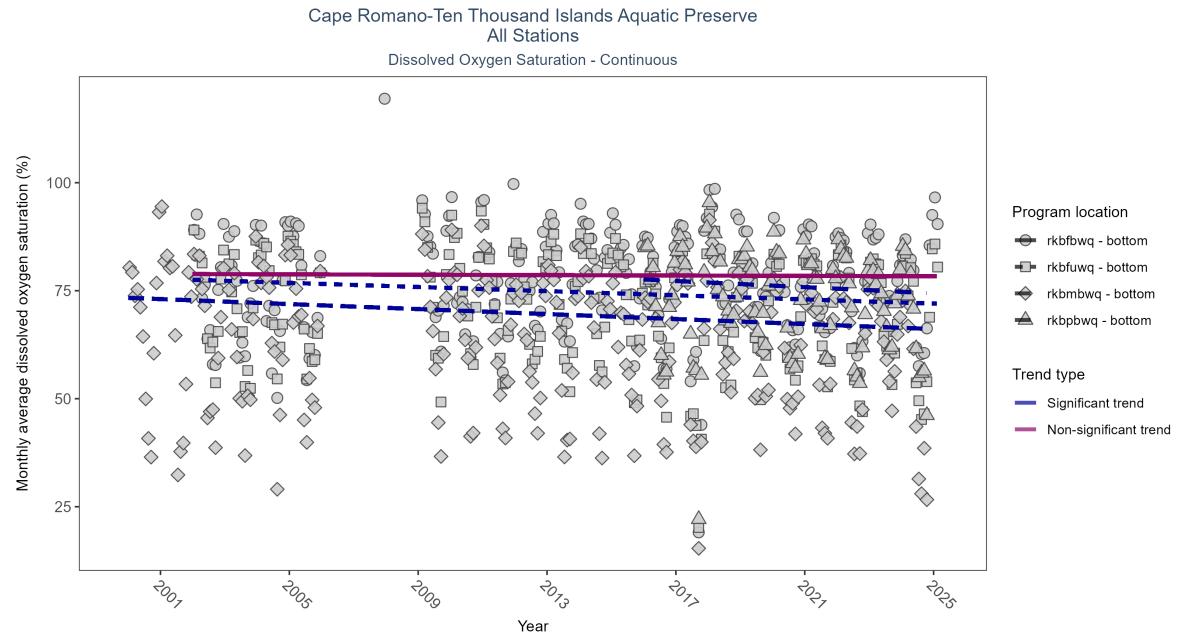
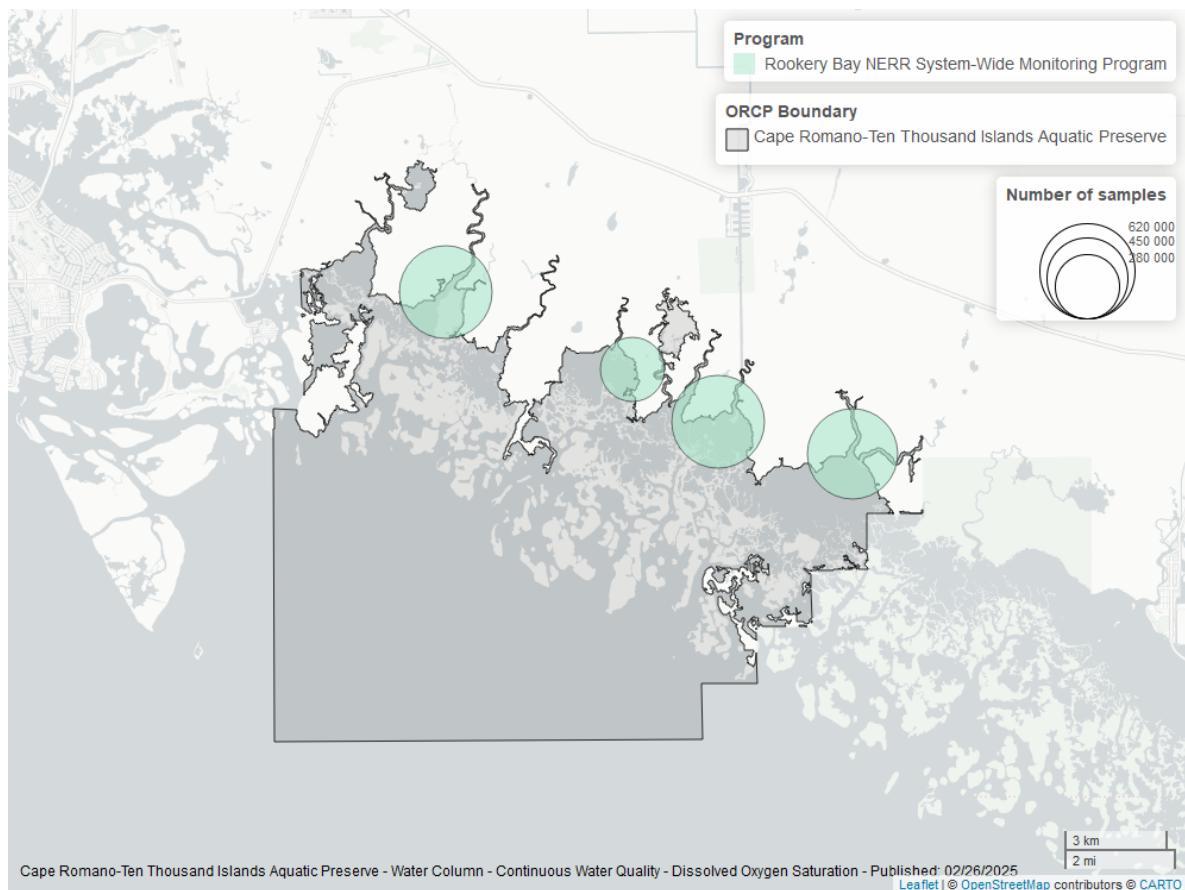


Table 6: Seasonal Kendall-Tau Results for All Stations - Dissolved Oxygen Saturation

Program Location	Statistical Trend	Sample Count	Years with Data	Period of Record	Median Result Value	Tau	Sen Intercept	Sen Slope	P
rkfbfwq	No significant trend	574626	22	2002 - 2025	78.7	-0.01	78.85	-0.02	0.7861719534125773956
rkbfuwq	Significantly decreasing trend	605778	21	2002 - 2025	72.4	-0.25	77.54	-0.24	0.0000001278059668553
rkmbwq	Significantly decreasing trend	619562	22	2000 - 2024	65.1	-0.23	73.35	-0.29	0.0000002477786594713
rkpbwq	Significantly decreasing trend	291357	9	2016 - 2024	72.3	-0.18	77.60	-0.36	0.0288971540067741069



## Salinity - Discrete

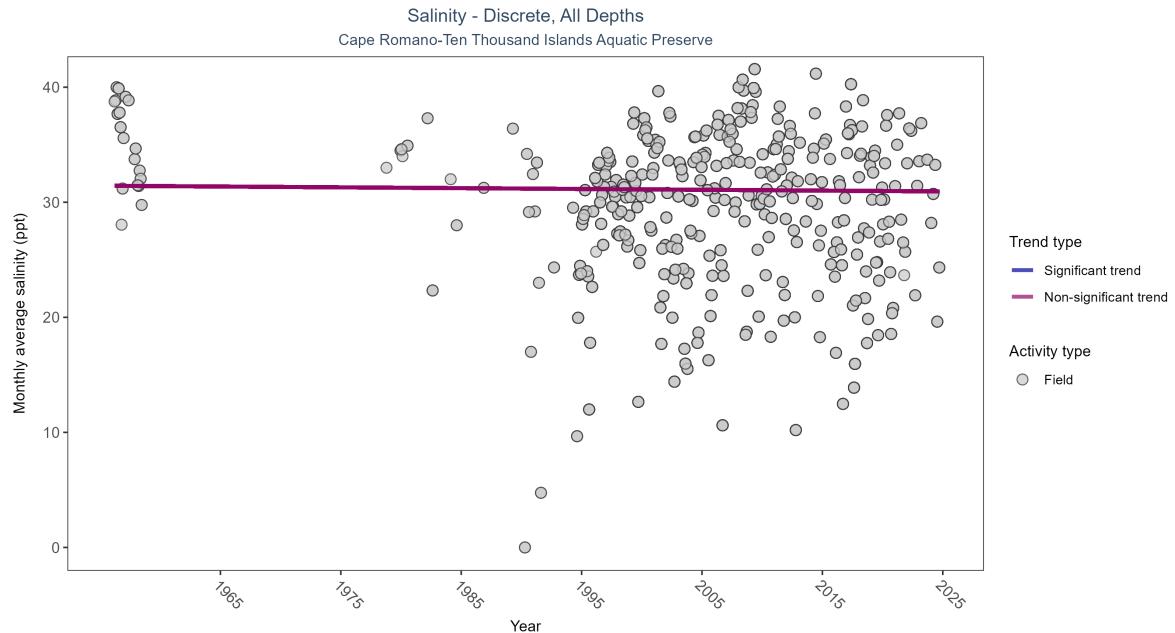
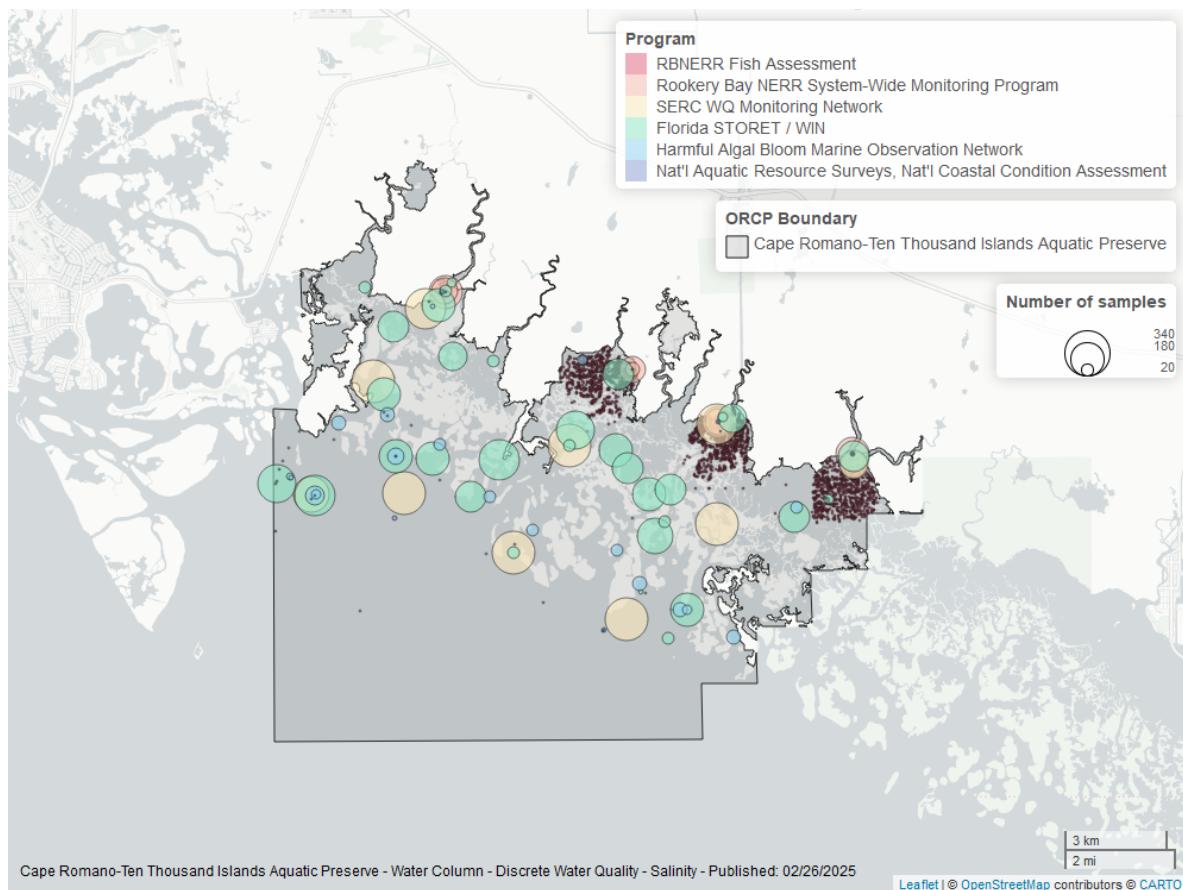


Table 7: Seasonal Kendall-Tau Results for - Salinity

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	10985	44	1956 - 2024	31.9	-0.0129	31.4304	-0.0071	0.76105416040657614118458695884328335523605346680



### Salinity - Continuous

National Water Information System - 7

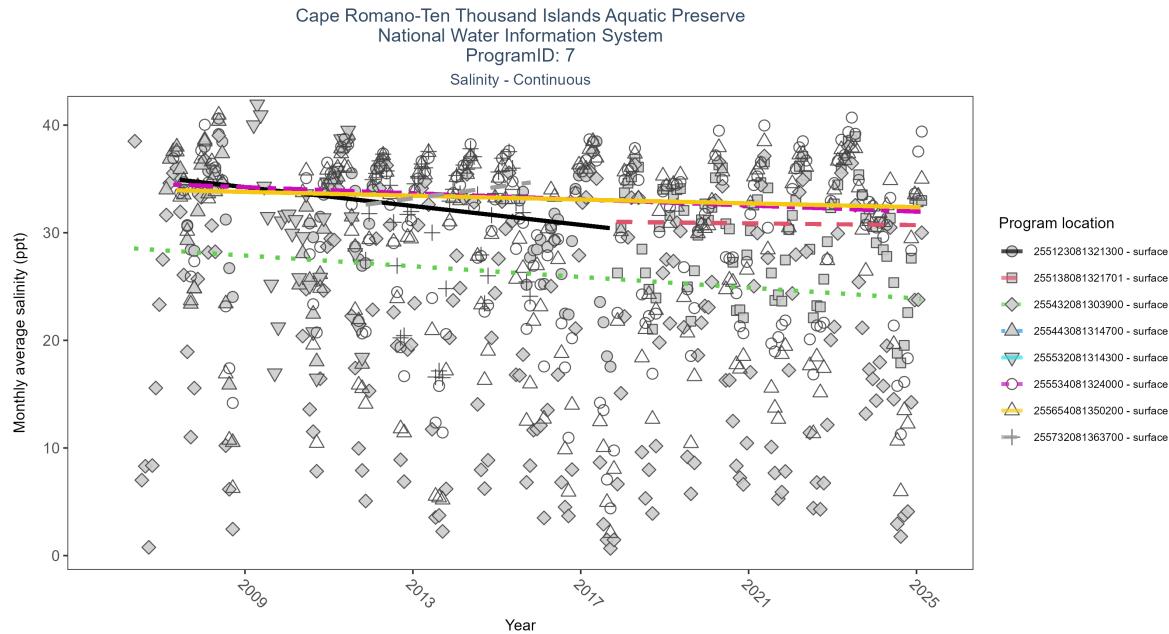
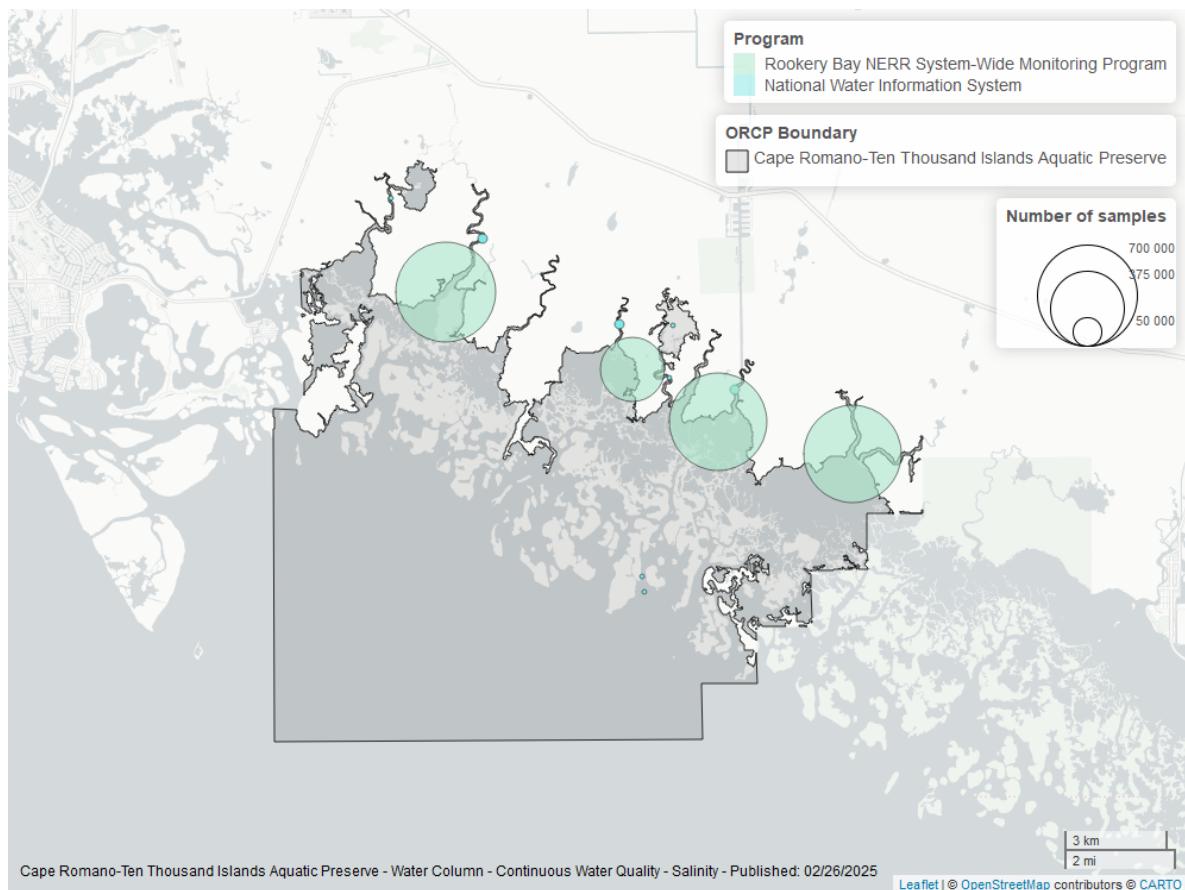


Table 8: Seasonal Kendall-Tau Results for All Stations - Salinity

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
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 -  
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Cape Romano-Ten Thousand Islands Aquatic Preserve  
 Rookery Bay National Estuarine Research Reserve System-Wide Monitoring Program  
 ProgramID: 354  
 Salinity - Continuous

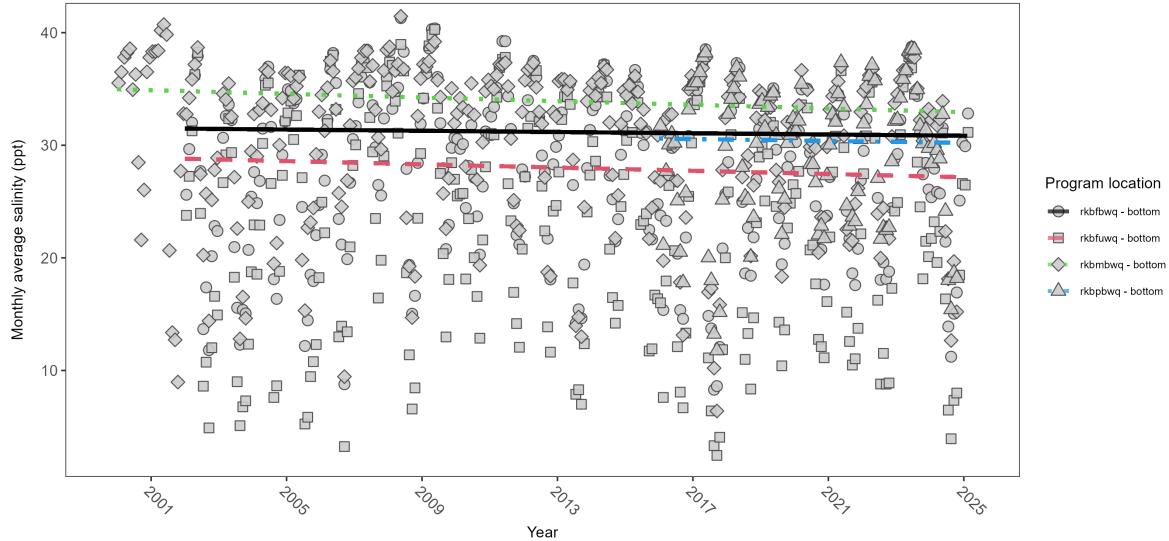
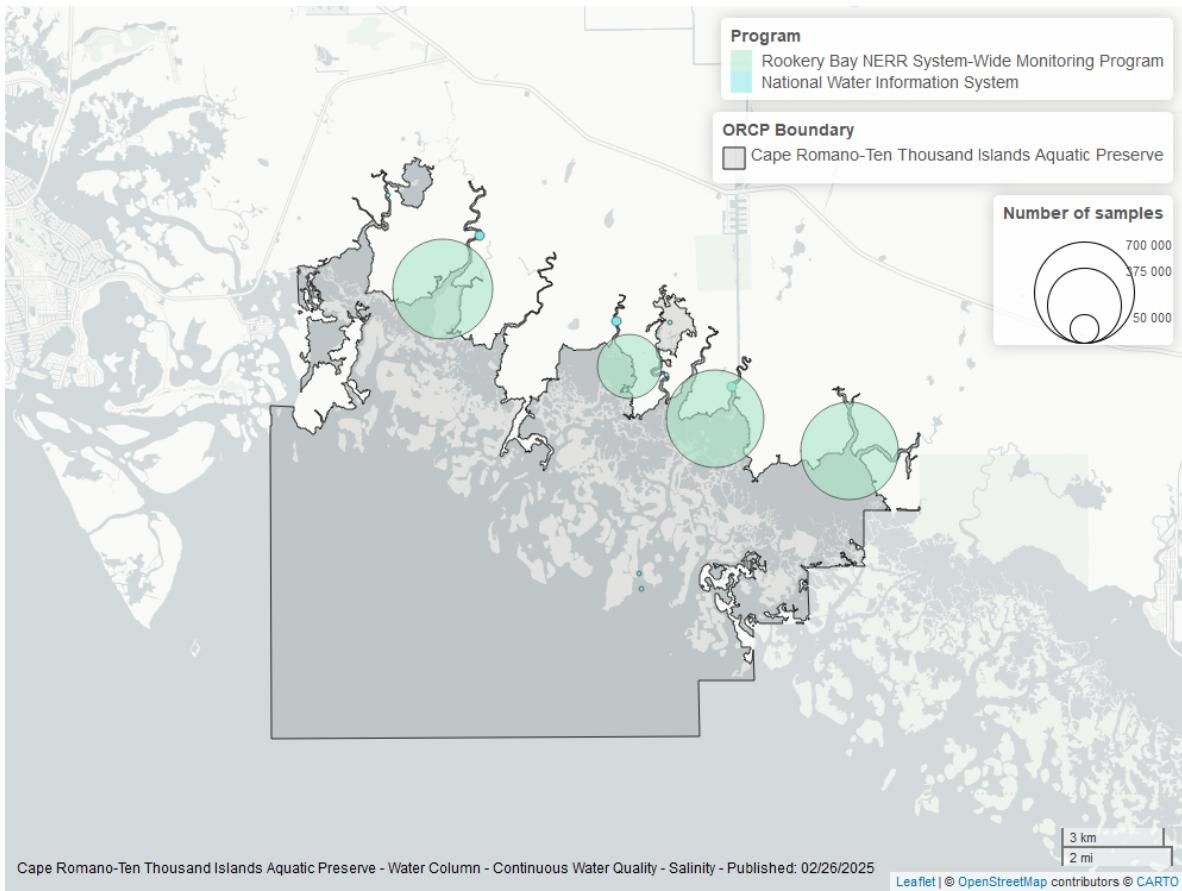


Table 9: Seasonal Kendall-Tau Results for All Stations - Salinity

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
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
rkbpbwq	No significant trend	290041	9	2016 - 2024	30.2	-0.01	30.60	-0.04	0.924318739242923293



## Water Temperature - Discrete

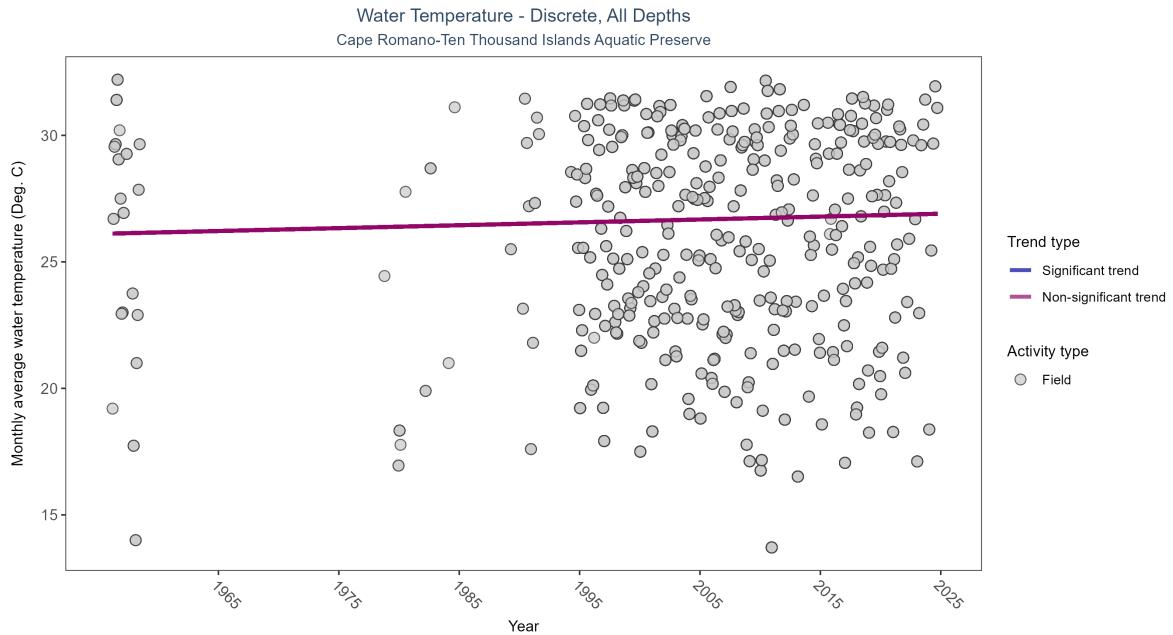
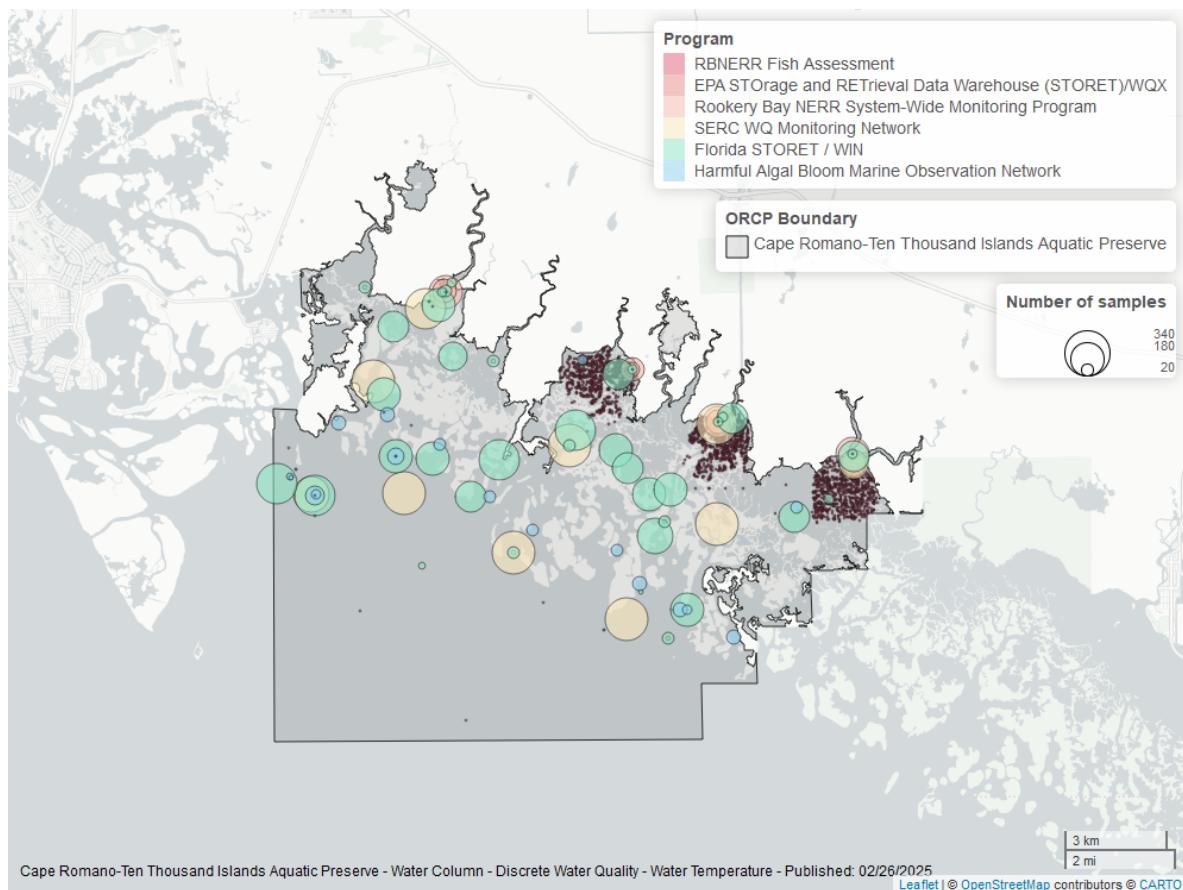


Table 10: Seasonal Kendall-Tau Results for - Water Temperature

Activity Type	Statistical Trend	Sample Count	Years with Data	Period of Record	Median Result Value	Tau	Sen Intercept	Sen Slope	P
Field	No significant trend	11203	42	1956 - 2024	26.7	0.06345	26.11692	0.01139	0.078052072376651779



### Water Temperature - Continuous

National Water Information System - 7

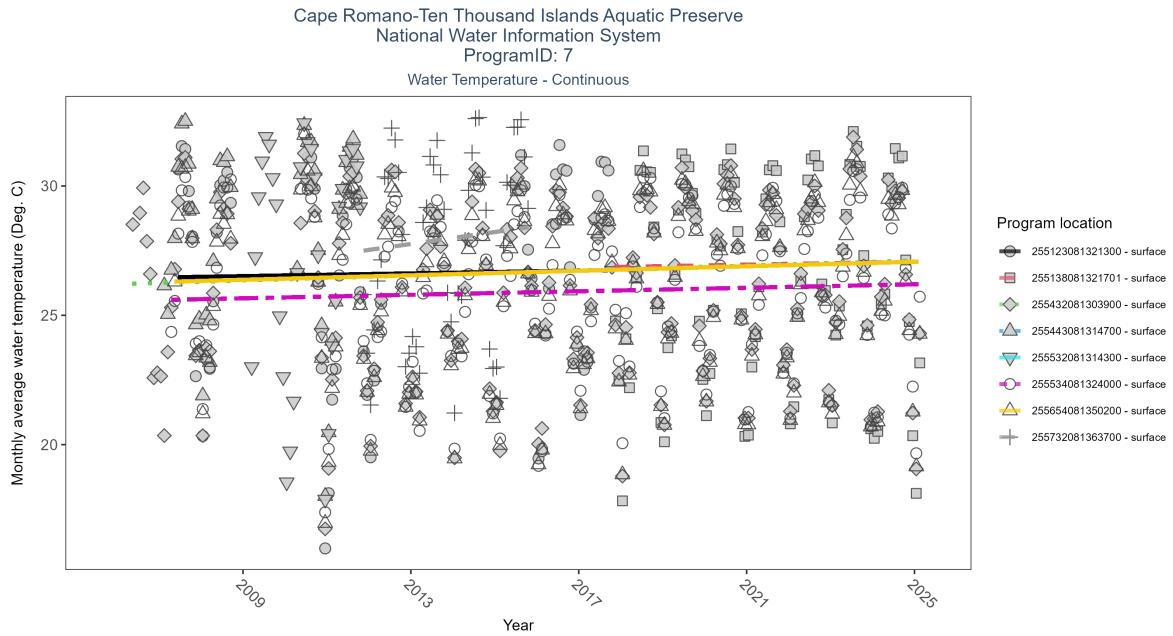
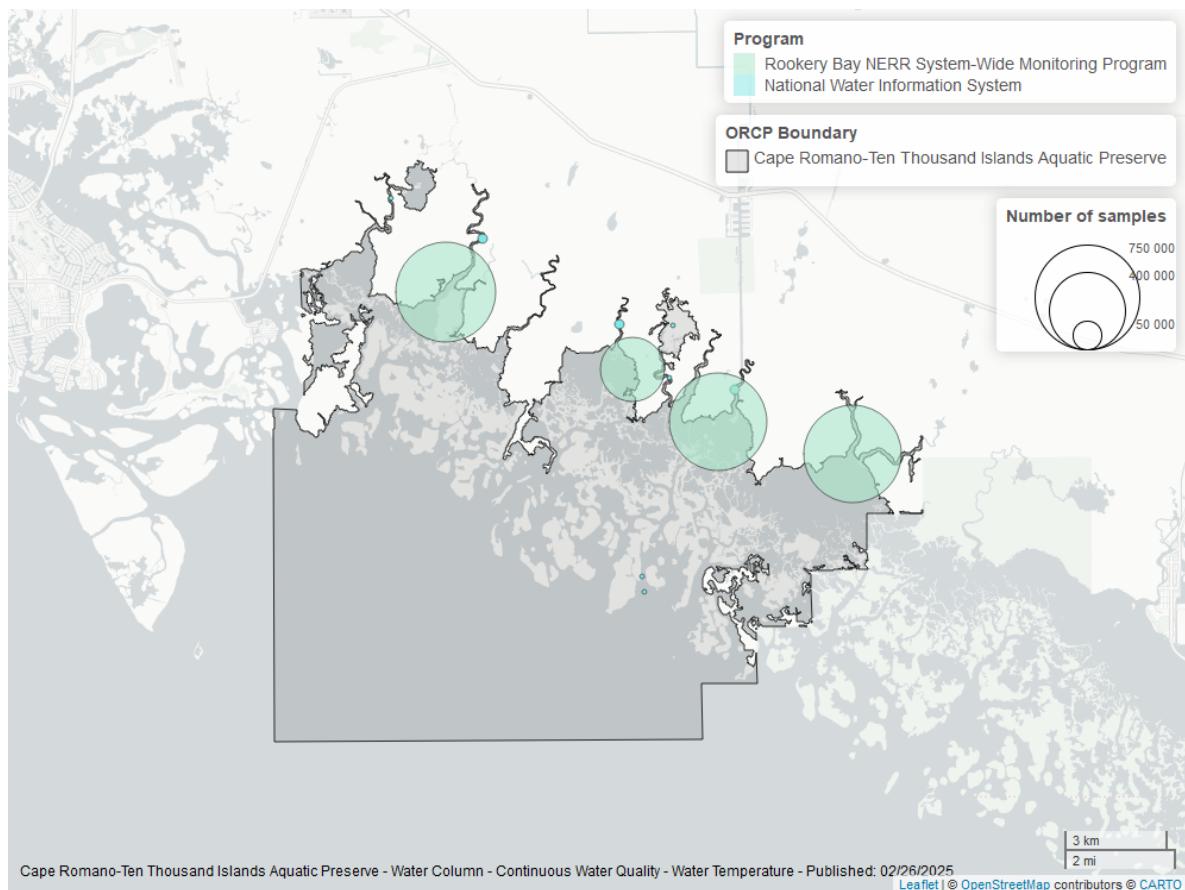


Table 11: Seasonal Kendall-Tau Results for All Stations - Water Temperature

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
255732081363700	No significant trend	1435	5	2011 - 2015	28.40	0.24	27.3	0.23	0.11490443706556004
255654081350200	Significantly increasing trend	5840	18	2007 - 2025	26.75	0.14	26.29	0.04	0.00872705243058571
255123081321300	No significant trend	1818	8	2007 - 2017	27.30	0.1	26.46	0.03	0.38434539693412062
255432081303900	Significantly increasing trend	6146	19	2006 - 2025	27.00	0.16	26.21	0.05	0.00254730946456049
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**

Cape Romano-Ten Thousand Islands Aquatic Preserve  
 Rookery Bay National Estuarine Research Reserve System-Wide Monitoring Program  
 ProgramID: 354  
 Water Temperature - Continuous

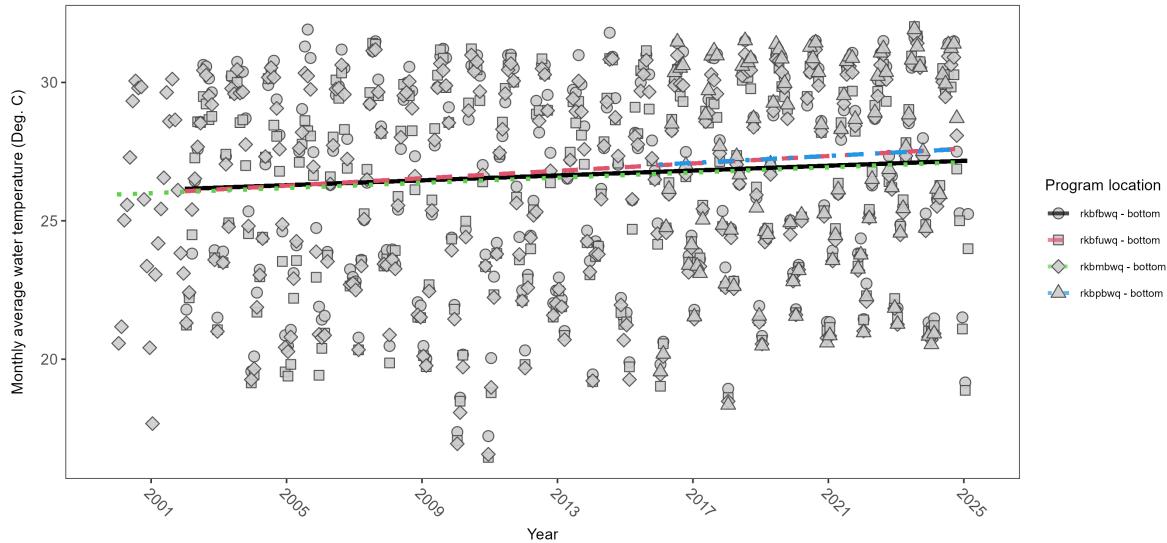
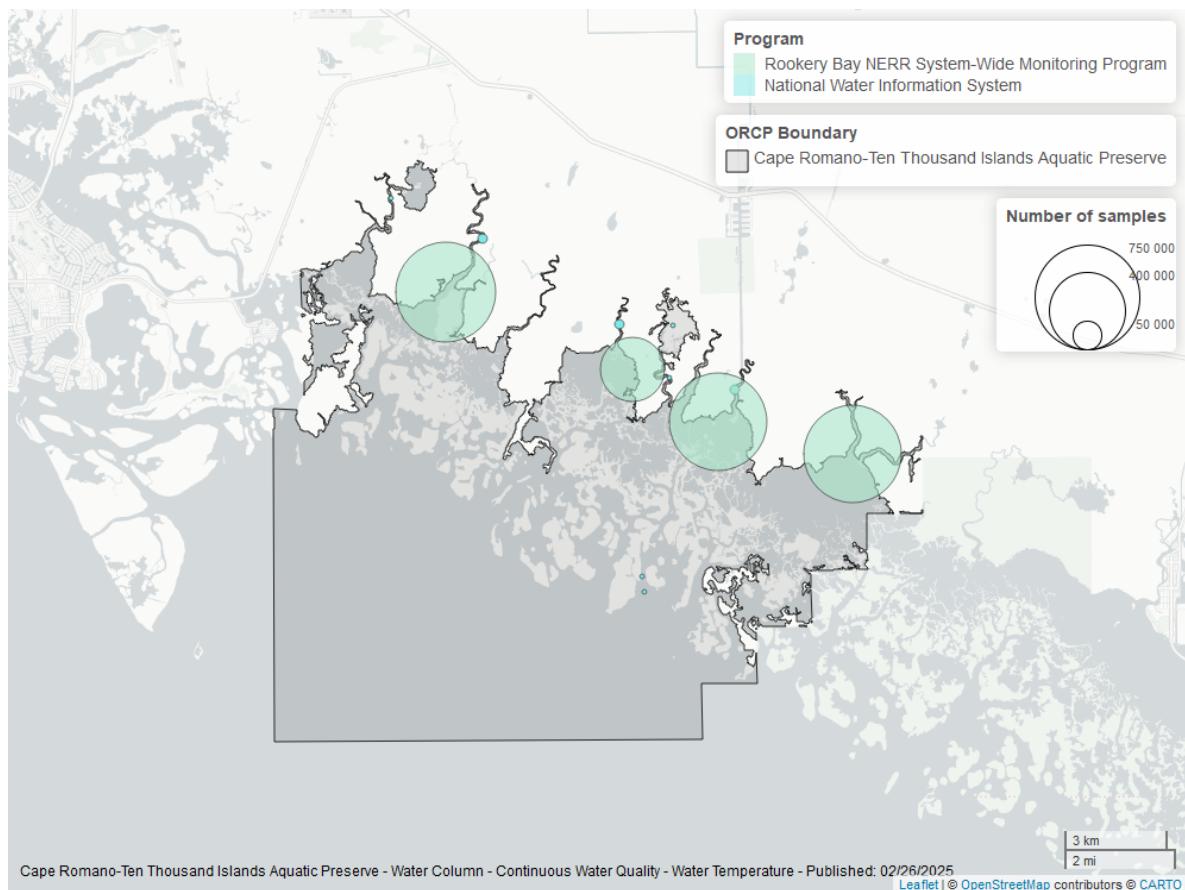


Table 12: Seasonal Kendall-Tau Results for All Stations - Water Temperature

Program Location	Statistical Trend	Sample Count	Years with Data	Period of Record	Median Result Value	Tau	Sen Intercept	Sen Slope	P
rkbfbwq	Significantly increasing trend	685432	24	2002 - 2025	27.0	0.23	26.15	0.04	0.00000008812825647
rkbfuwq	Significantly increasing trend	696504	24	2002 - 2025	26.9	0.26	26.07	0.07	0.00000000174144981
rkmbbwq	Significantly increasing trend	718152	25	2000 - 2024	26.9	0.26	25.95	0.05	0.00000000031952981
rkbpbwq	No significant trend	292925	9	2016 - 2024	27.6	0.14	27.03	0.06	0.07108932783997188



## pH - Discrete

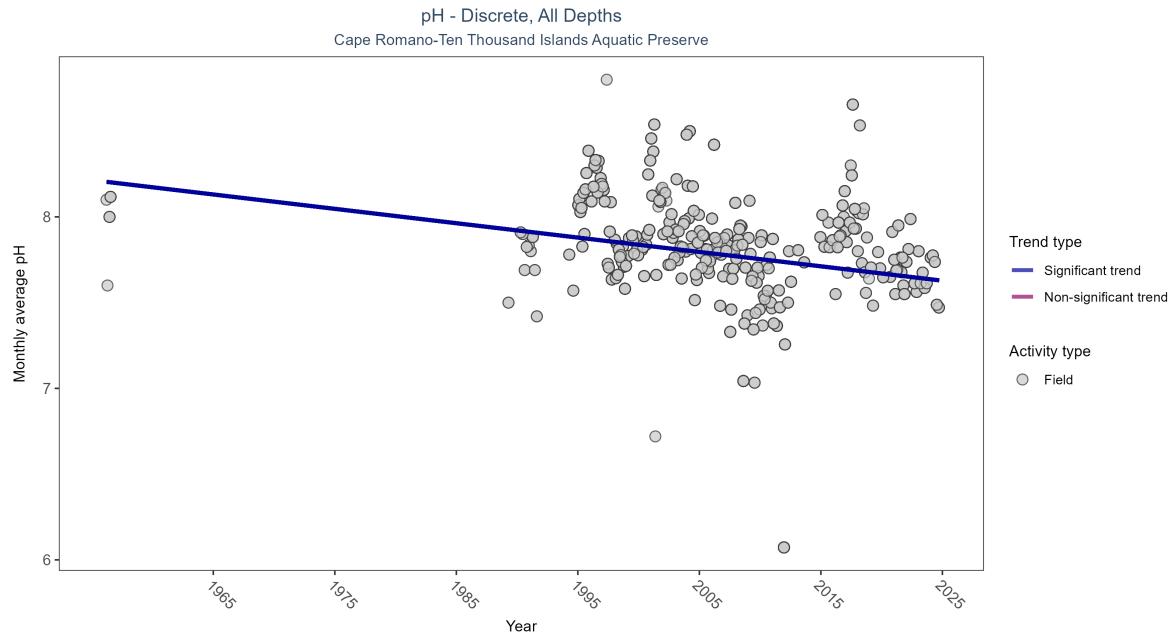
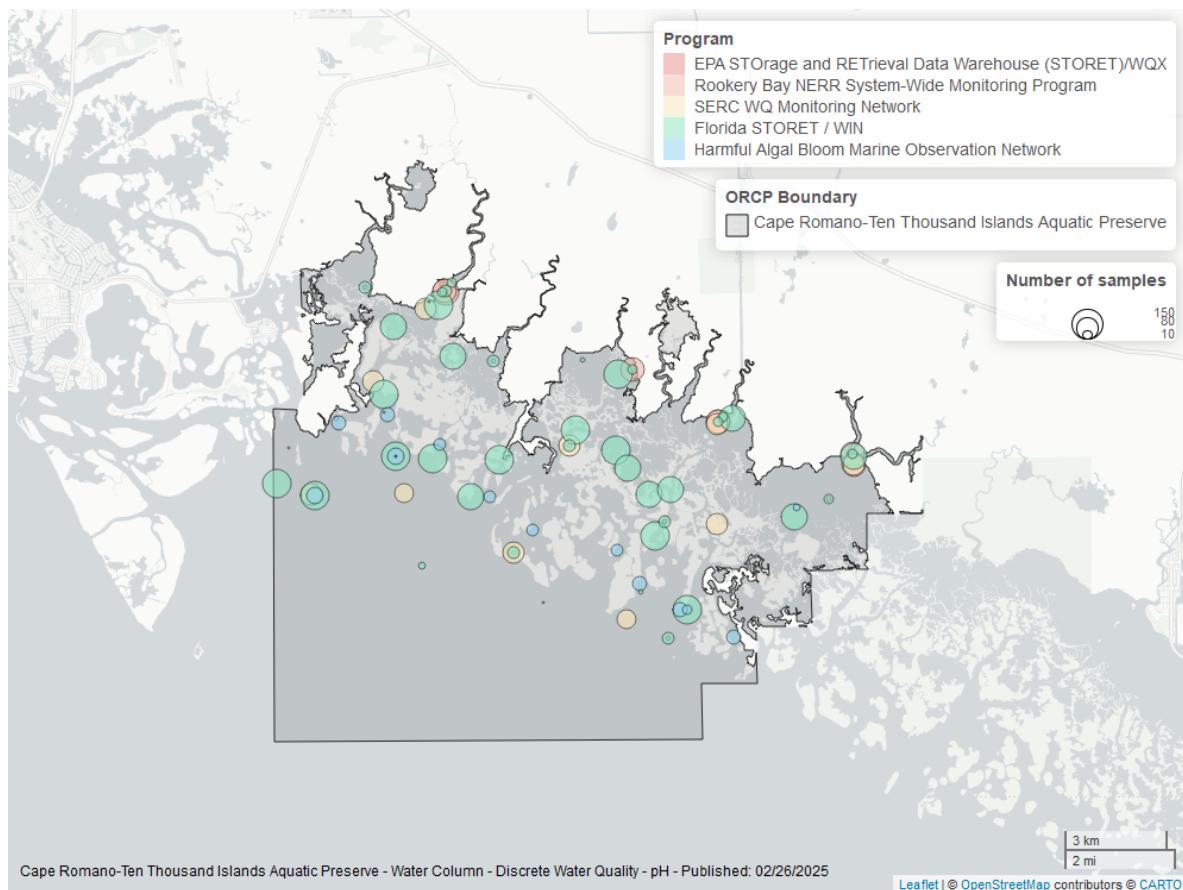


Table 13: Seasonal Kendall-Tau Results for - pH

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	4612	35	1956 - 2024	7.865	-0.23485	8.20614	-0.00838	0.00000009935224615430324508237591718540216



## pH - Continuous

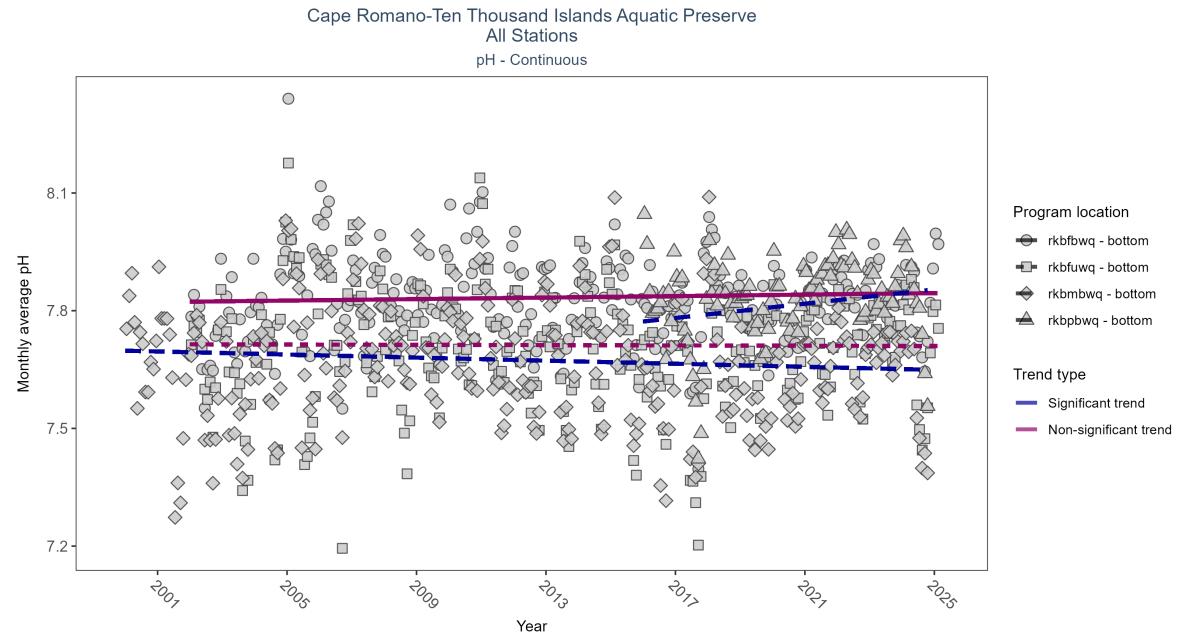
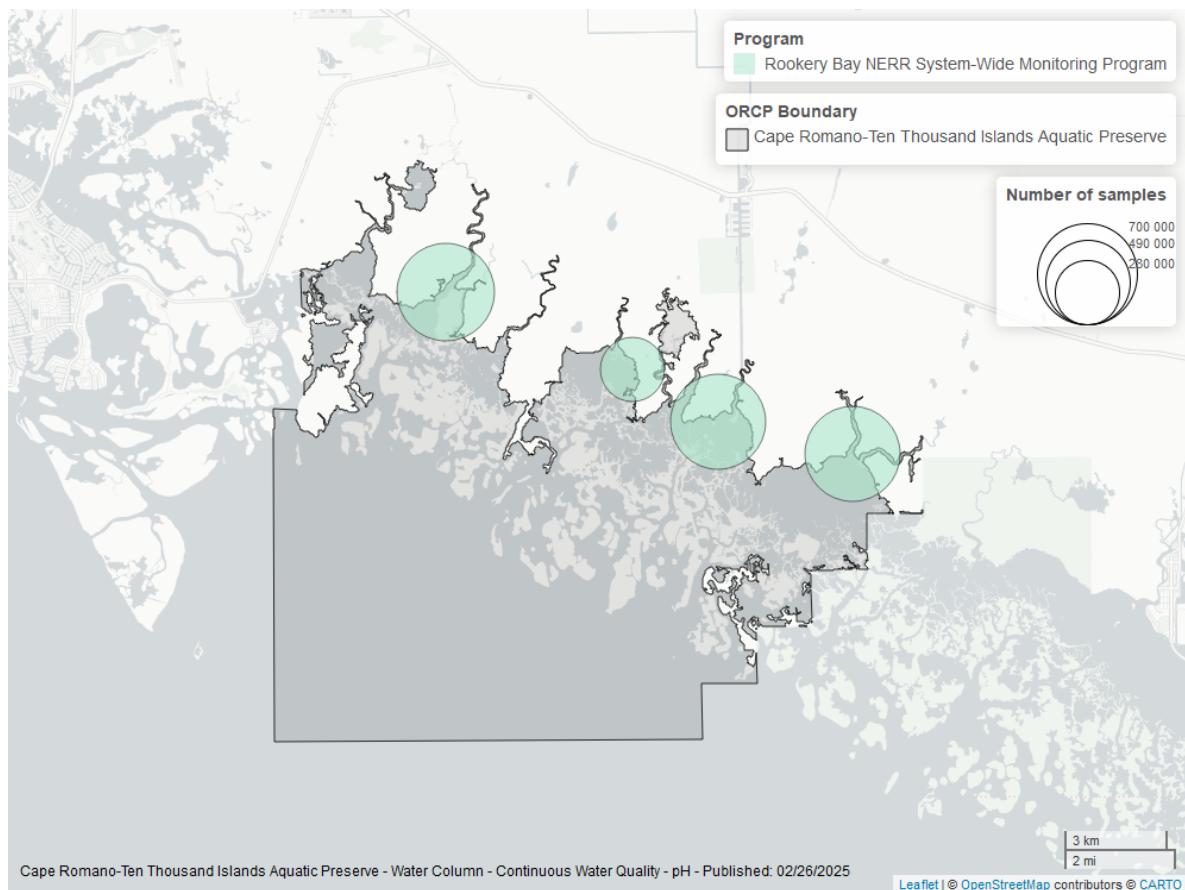


Table 14: Seasonal Kendall-Tau Results for All Stations - pH

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	0.00	0.23451468058
rkbfuwq	No significant trend	660818	24	2002 - 2025	7.7	-0.01	7.71	0.00	0.79452914892
rkmbbwq	Significantly decreasing trend	683502	25	2000 - 2024	7.7	-0.09	7.70	0.00	0.03461861851
rkpbpwq	Significantly increasing trend	283219	9	2016 - 2024	7.8	0.20	7.77	0.01	0.01755480552



## Water Clarity

### Turbidity - Discrete

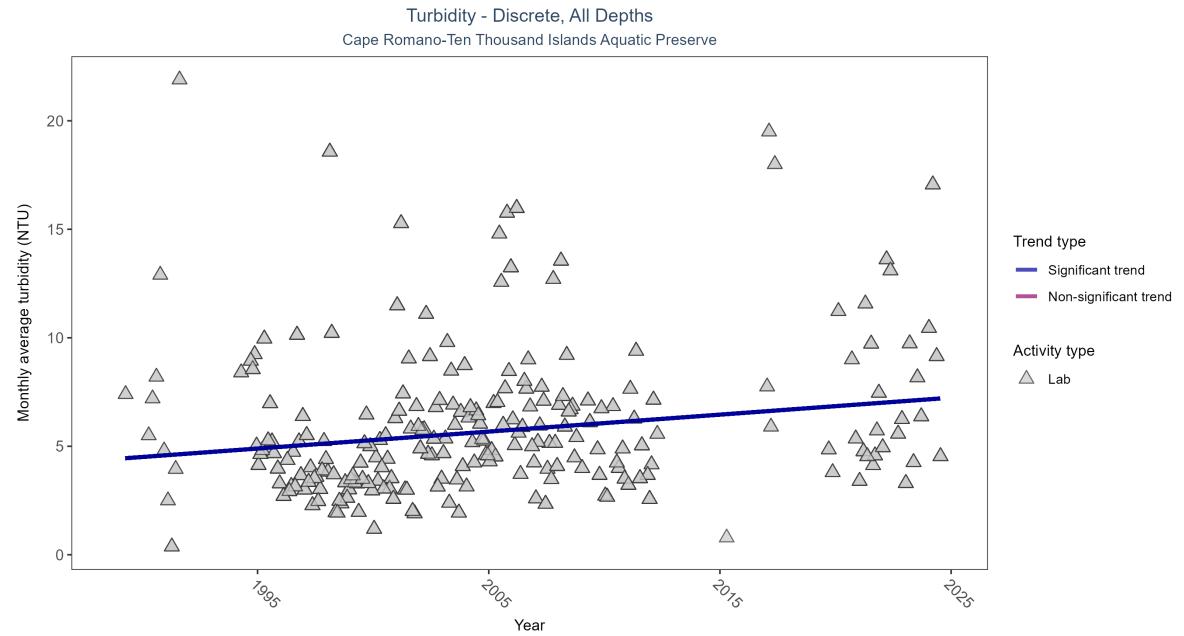
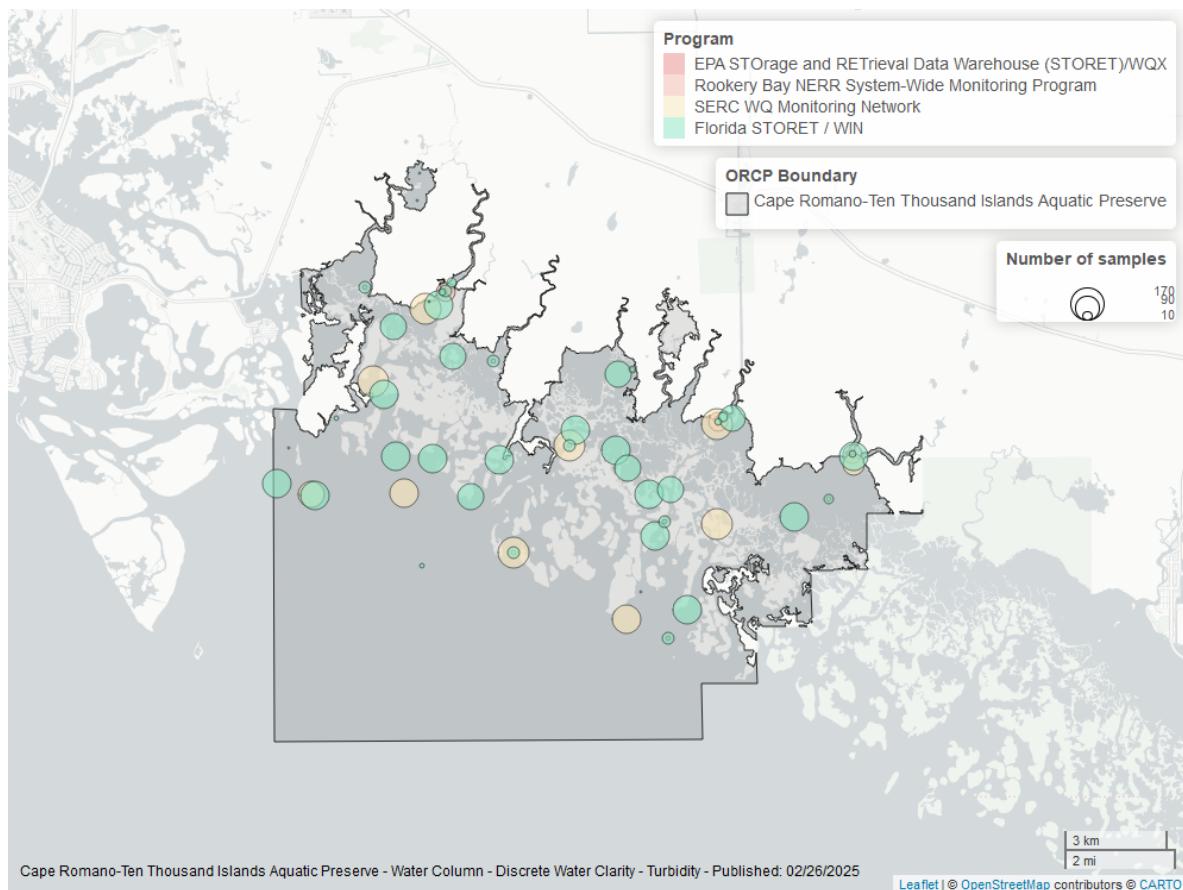


Table 15: Seasonal Kendall-Tau Results for - Turbidity

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	4652	30	1989 - 2024	4	0.15463	4.42636	0.07812	0.00072128038638074980



## Turbidity - Continuous

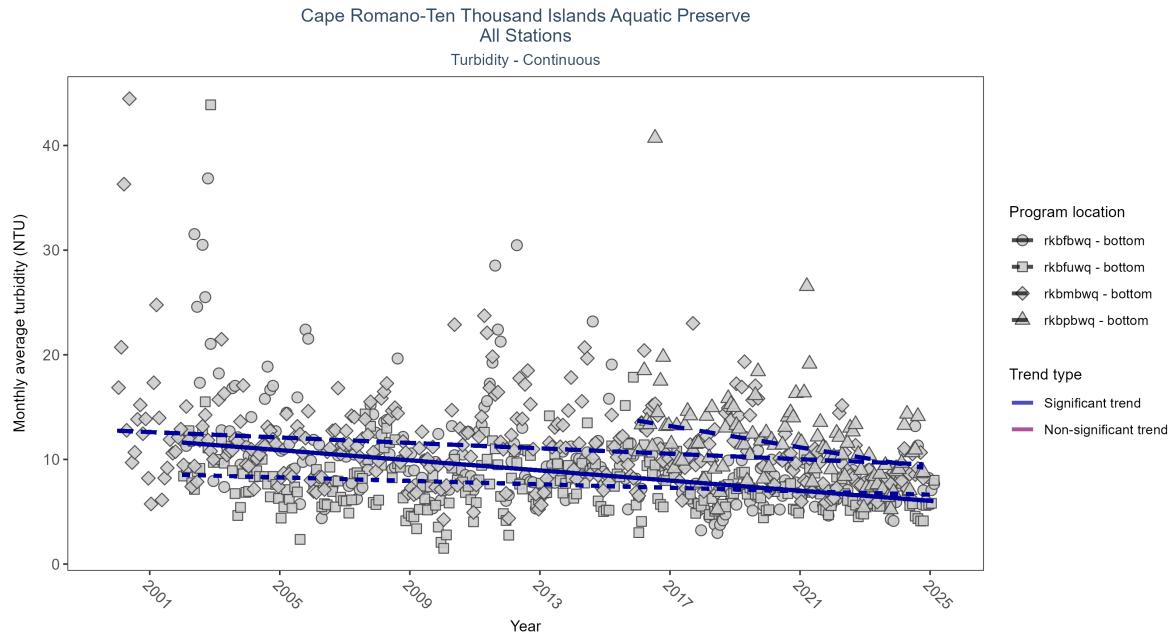
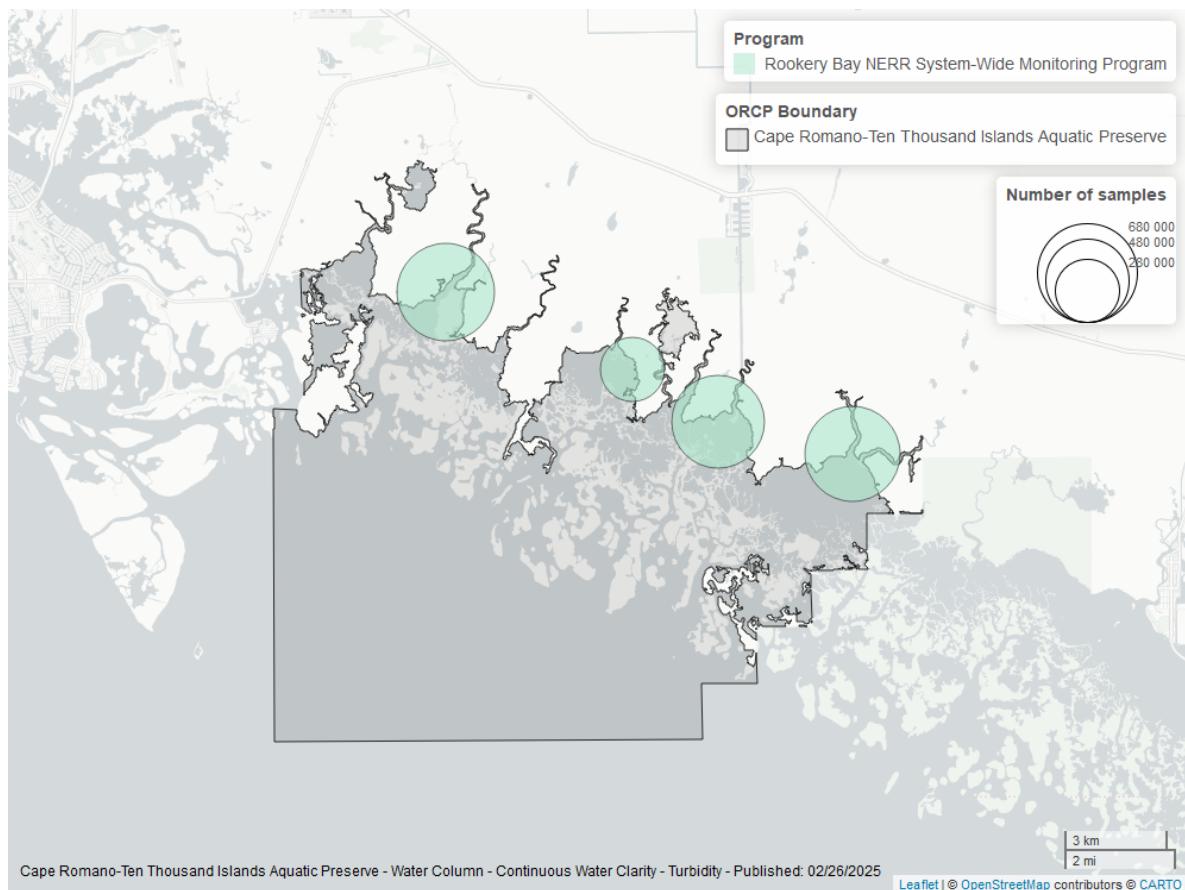


Table 16: Seasonal Kendall-Tau Results for All Stations - Turbidity

Program Location	Statistical Trend	Sample Count	Years with Data	Period of Record	Median Result Value	Tau	Sen Intercept	Sen Slope	P
rkfbfwq	Significantly decreasing trend	649336	24	2002 - 2025	7	-0.39	11.61	-0.24	0.00000000000000004833077
rkbfuwq	Significantly decreasing trend	626788	24	2002 - 2025	6	-0.20	8.53	-0.08	0.000082280680265802132256
rkmbwq	Significantly decreasing trend	670439	25	2000 - 2024	9	-0.22	12.74	-0.13	0.000001960698054549259000
rkbpbwq	Significantly decreasing trend	286433	9	2016 - 2024	10	-0.37	13.71	-0.51	0.0000032436042859530606541



## Total Suspended Solids - Discrete

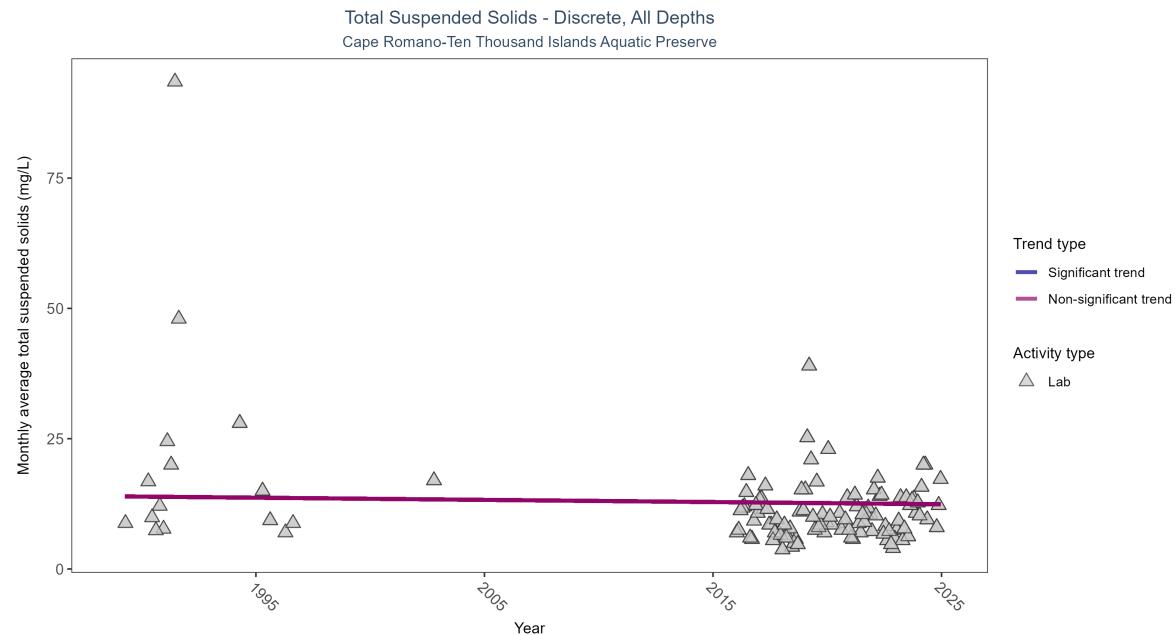
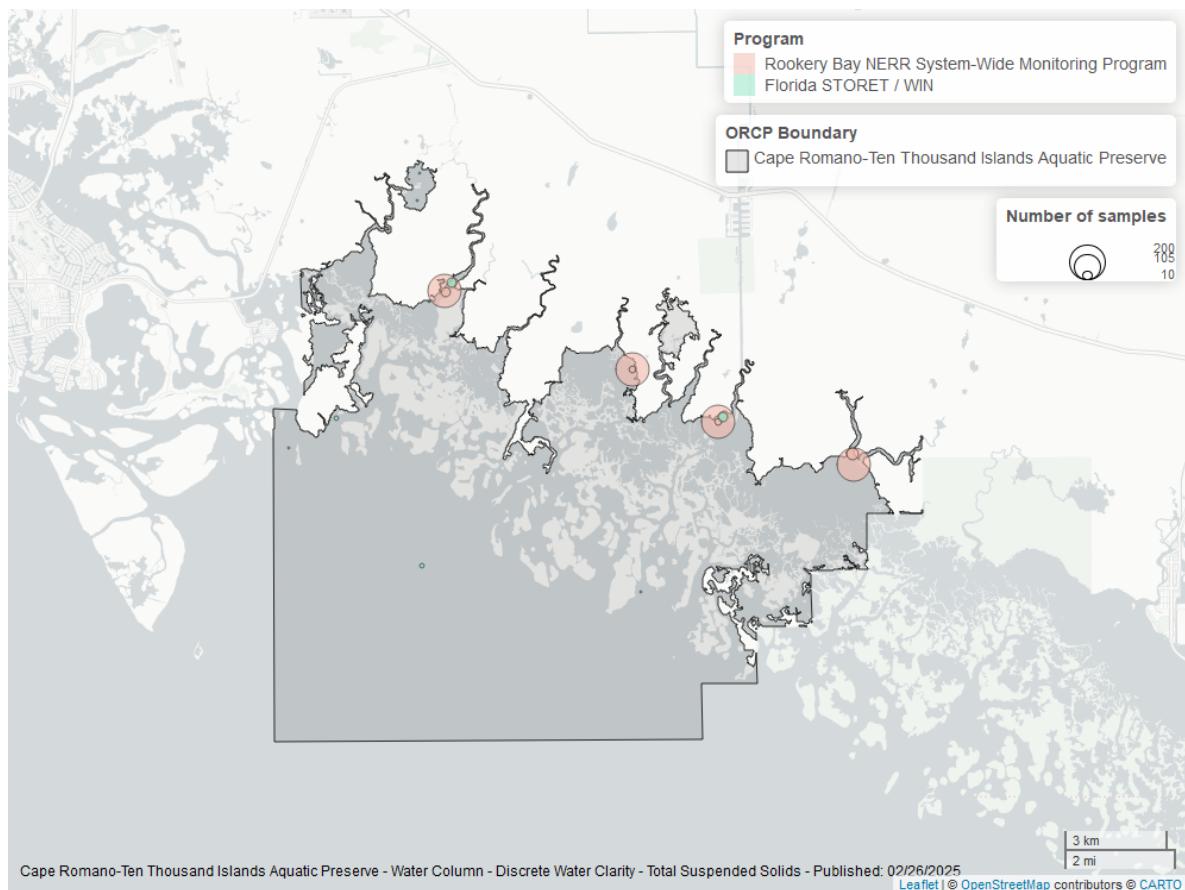


Table 17: Seasonal Kendall-Tau Results for - Total Suspended Solids

Activity Type	Statistical Trend	Sample Count	Years with Data	Period of Record	Median Result Value	Tau	Sen Intercept	Sen Slope	P
Lab	No significant trend	449	16	1989 - 2024	10	-0.03084	13.92995	-0.04187	0.590054678143744903984213578951312



## Chlorophyll a, Uncorrected for Pheophytin - Discrete

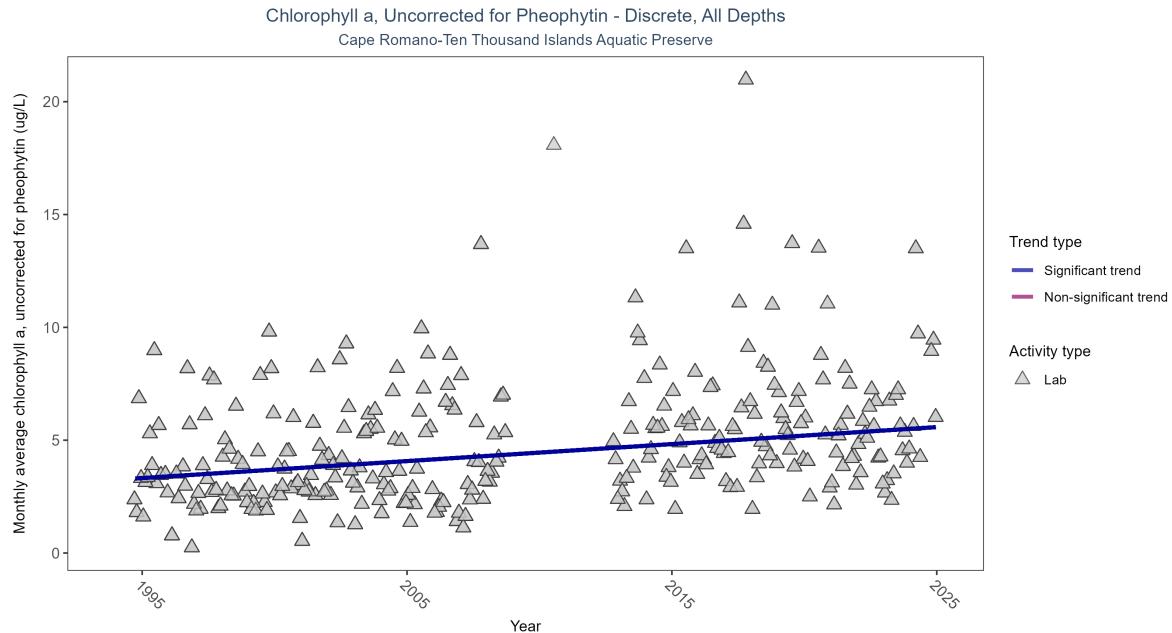
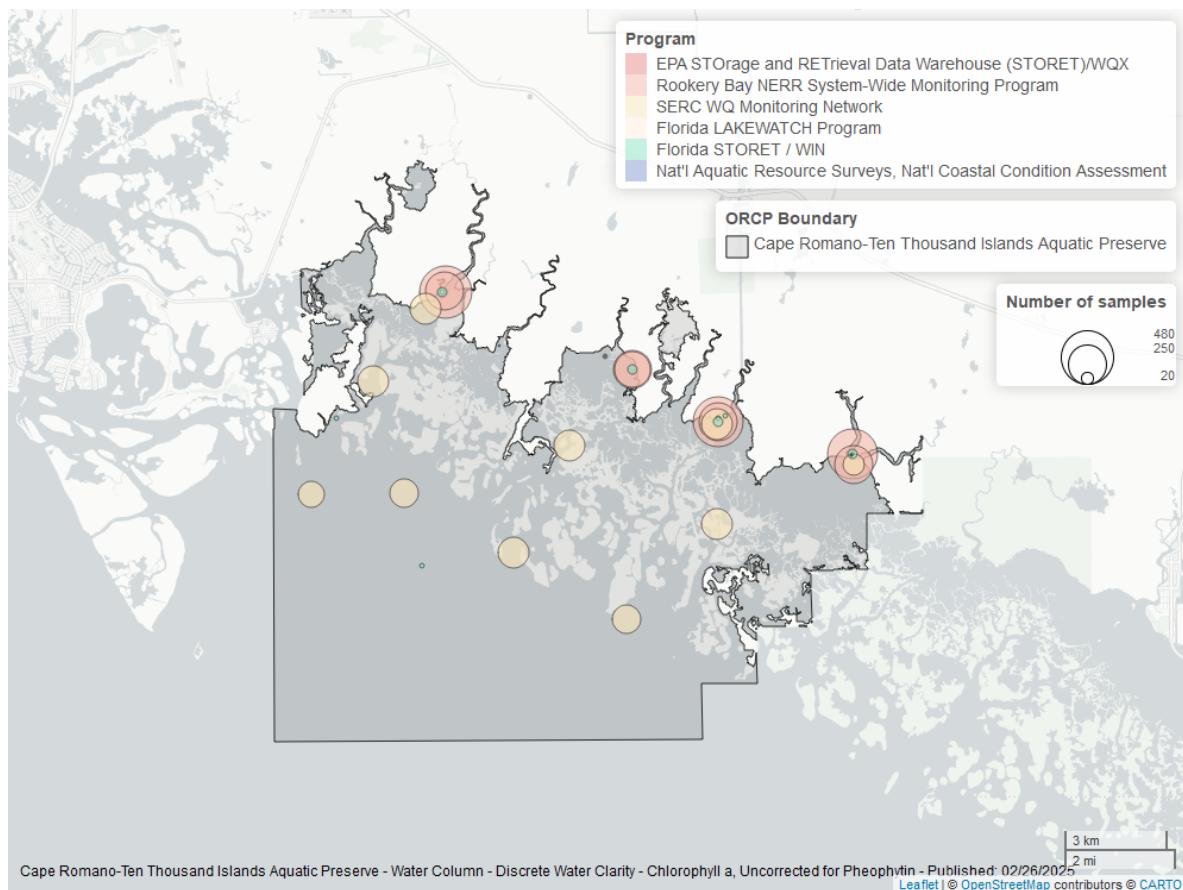


Table 18: Seasonal Kendall-Tau Results for - Chlorophyll a, Uncorrected for Pheophytin

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	2162	29	1994 - 2024	3.6389	0.27291	3.24566	0.07527	0.0000000002001873035722951



## Chlorophyll a, Corrected for Pheophytin - Discrete

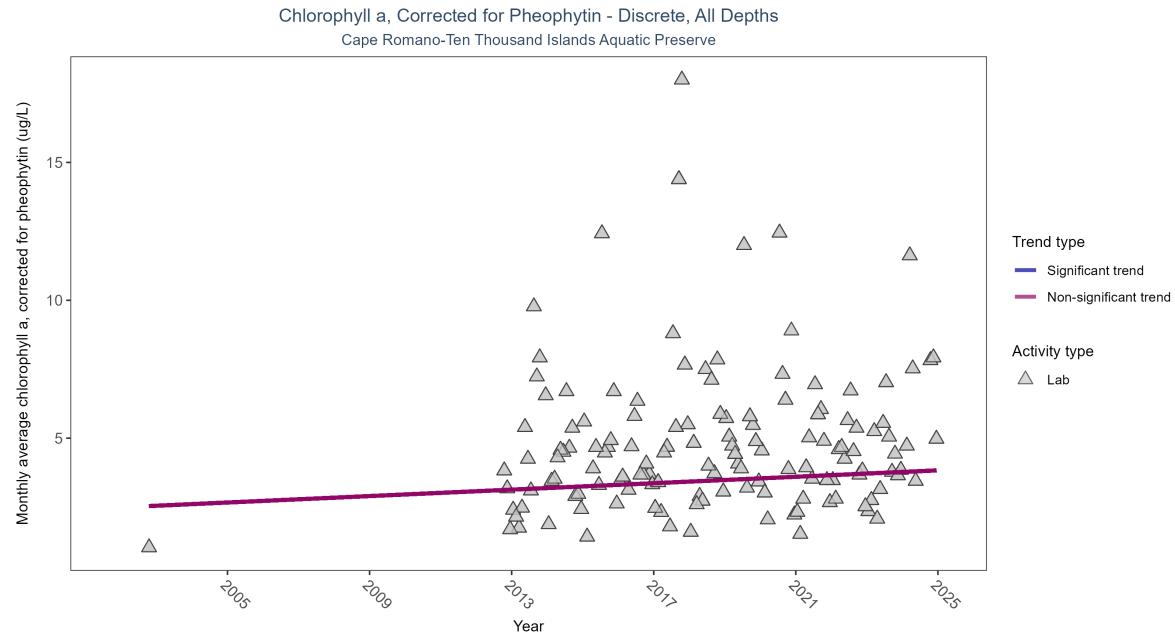
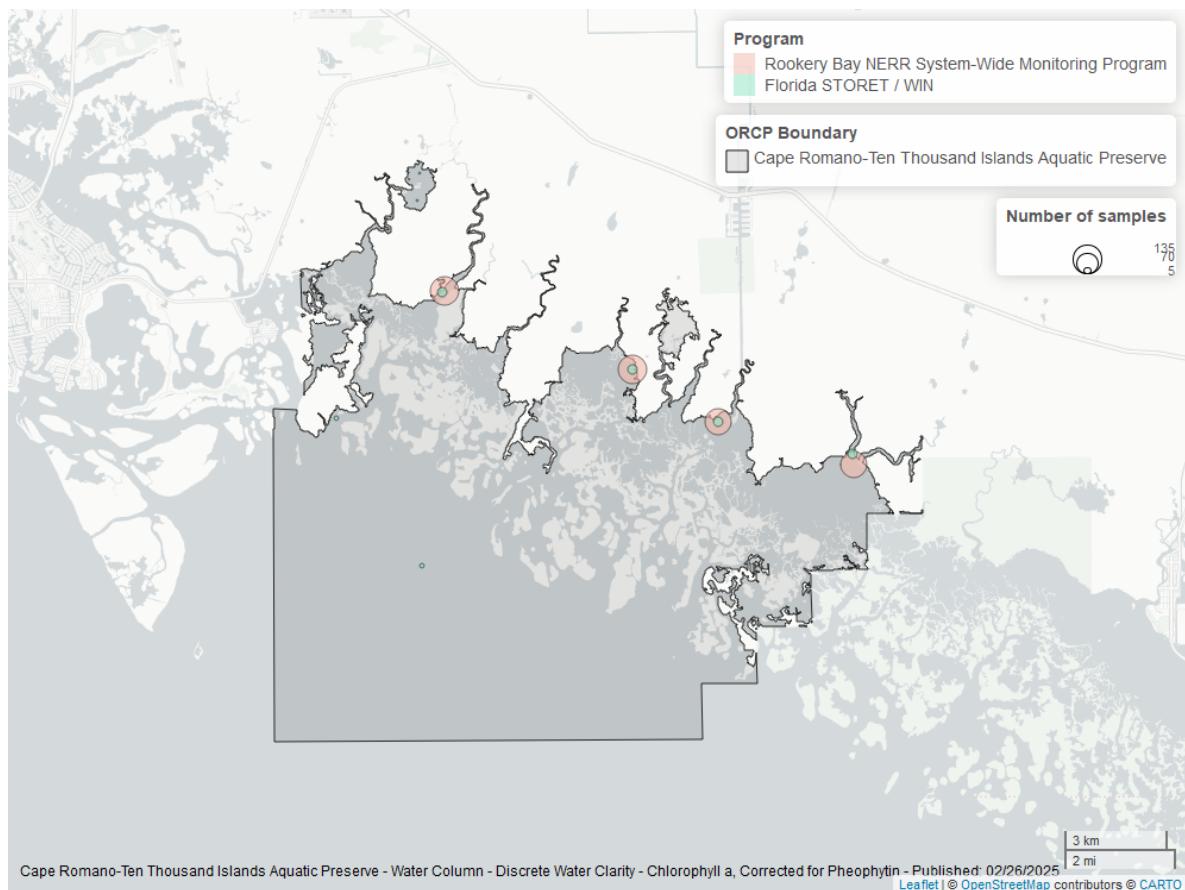


Table 19: Seasonal Kendall-Tau Results for - Chlorophyll a, Corrected for Pheophytin

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	605	14	2002 - 2024	3.8	0.10085	2.49098	0.05833	0.1183830604725235463581256568



## Secchi Depth - Discrete

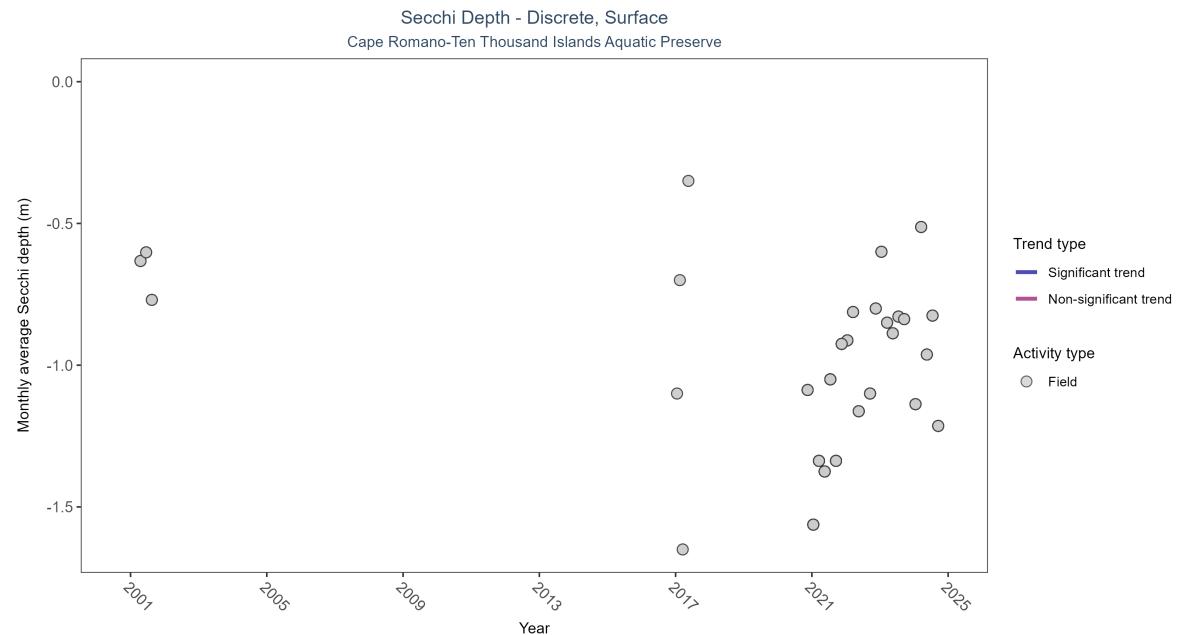
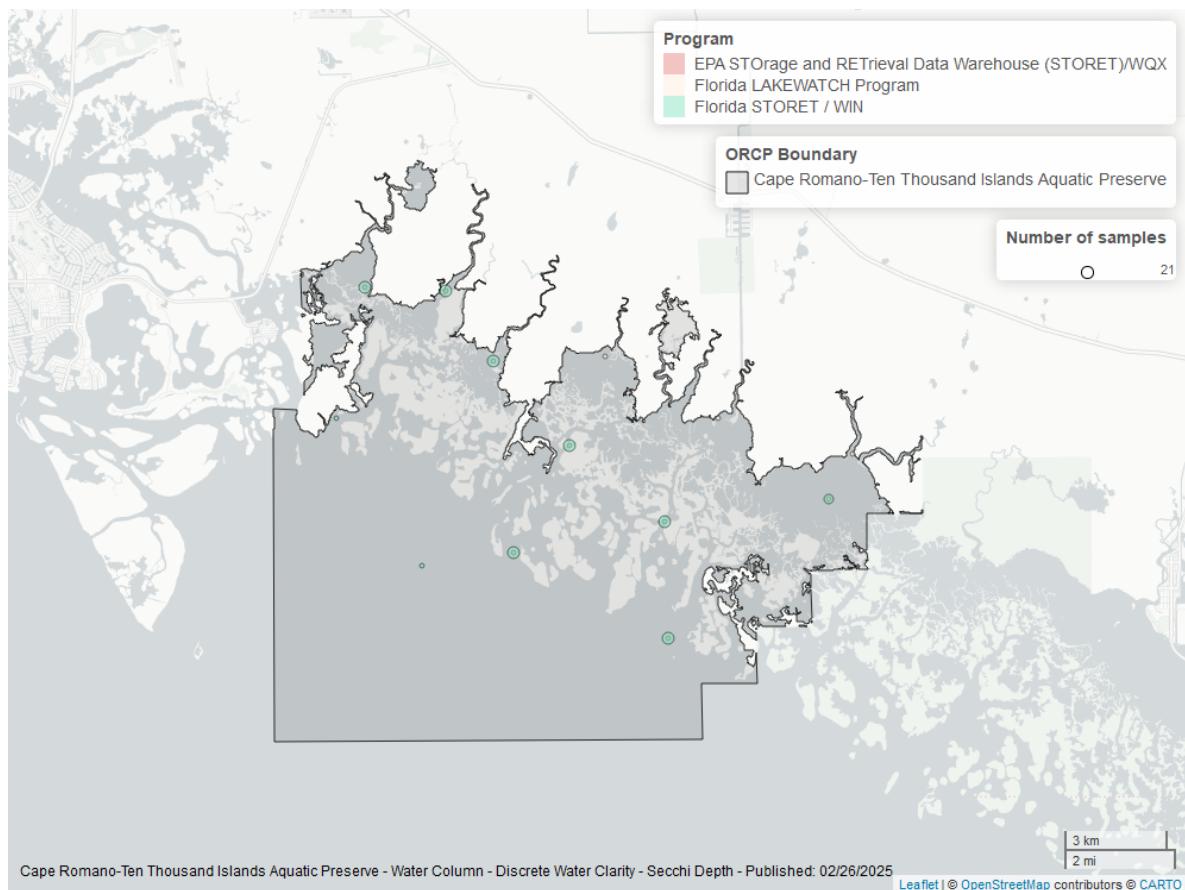


Table 20: Seasonal Kendall-Tau Results for - Secchi Depth

Activity Type	Statistical Trend	Sample Count	Years with Data	Period of Record	Median Result Value	Tau	Sen Intercept	Sen Slope	P
Field	Insufficient data to calculate trend	242	7	2001 - 2024	-0.9	-	-	-	NA



## Colored Dissolved Organic Matter - Discrete

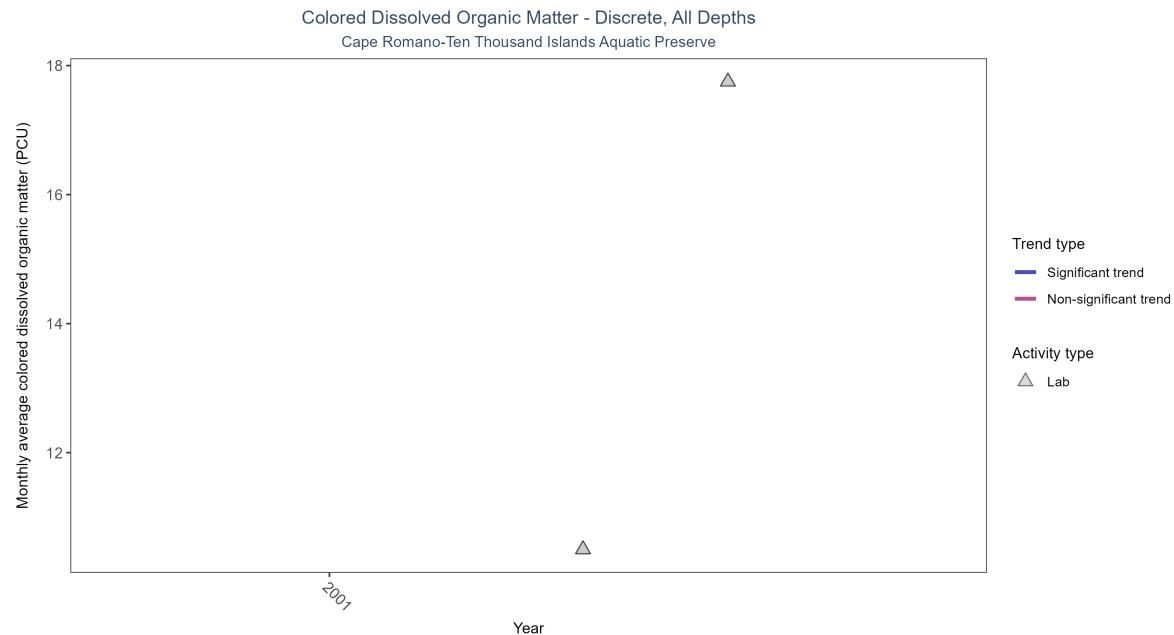


Table 21: Seasonal Kendall-Tau Results for - Colored Dissolved Organic Matter

