

# Apalachicola National Estuarine Research Reserve

## SEACAR Water Quality Analysis

Last compiled on 09 January, 2025

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# Indicators

## Nutrients

### Total Nitrogen - Discrete

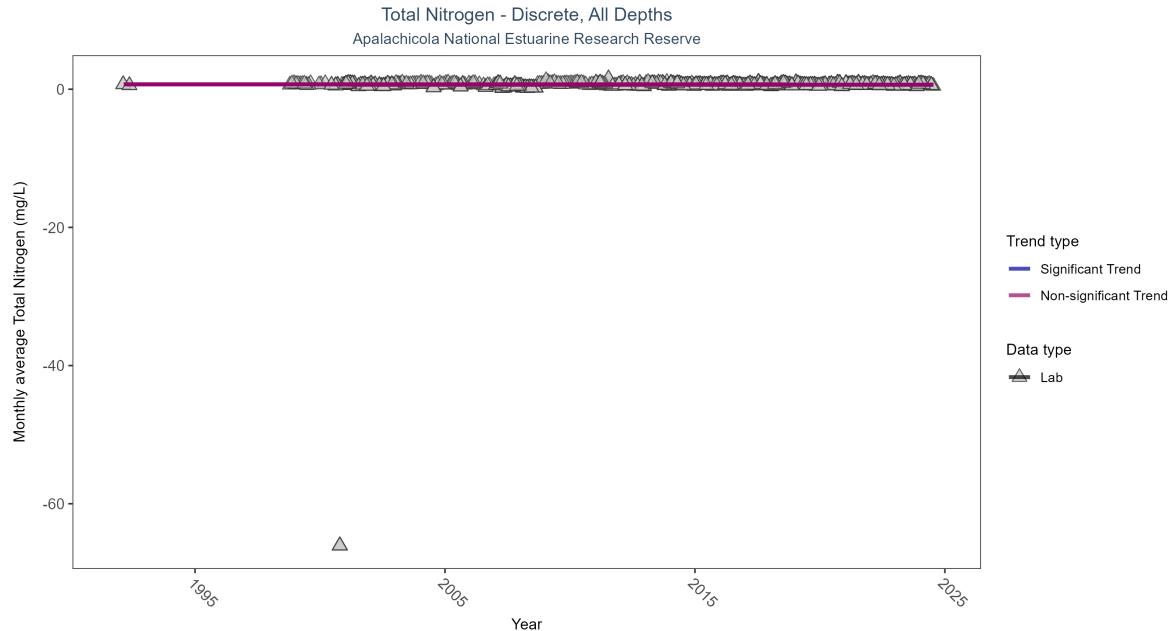


Table 1: Seasonal Kendall-Tau Results for - Total Nitrogen

ActivityType	Statistical Trend	N-Data	N-Years	Period of Record	Median	tau	SennIntercept	SennSlope	p
Lab	No significant trend	4164	28	1992 - 2024	0.63	-0.0658	0.71436	-0.00195	0.1371

## Total Phosphorus - Discrete

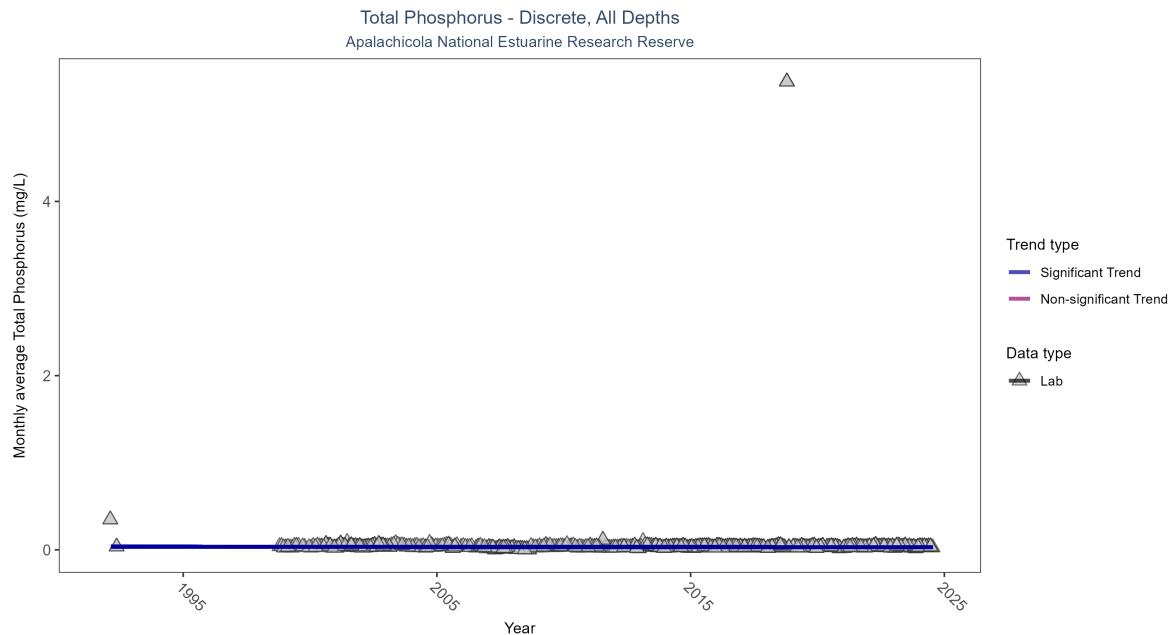


Table 2: Seasonal Kendall-Tau Results for - Total Phosphorus

ActivityType	Statistical Trend	N-Data	N-Years	Period of Record	Median	tau	SennIntercept	SennSlope	p
Lab	Significantly decreasing trend	4504	28	1992 - 2024	0.031	-0.1188	0.03598	-0.00019	0.0041

## Water Quality

### Dissolved Oxygen - Discrete

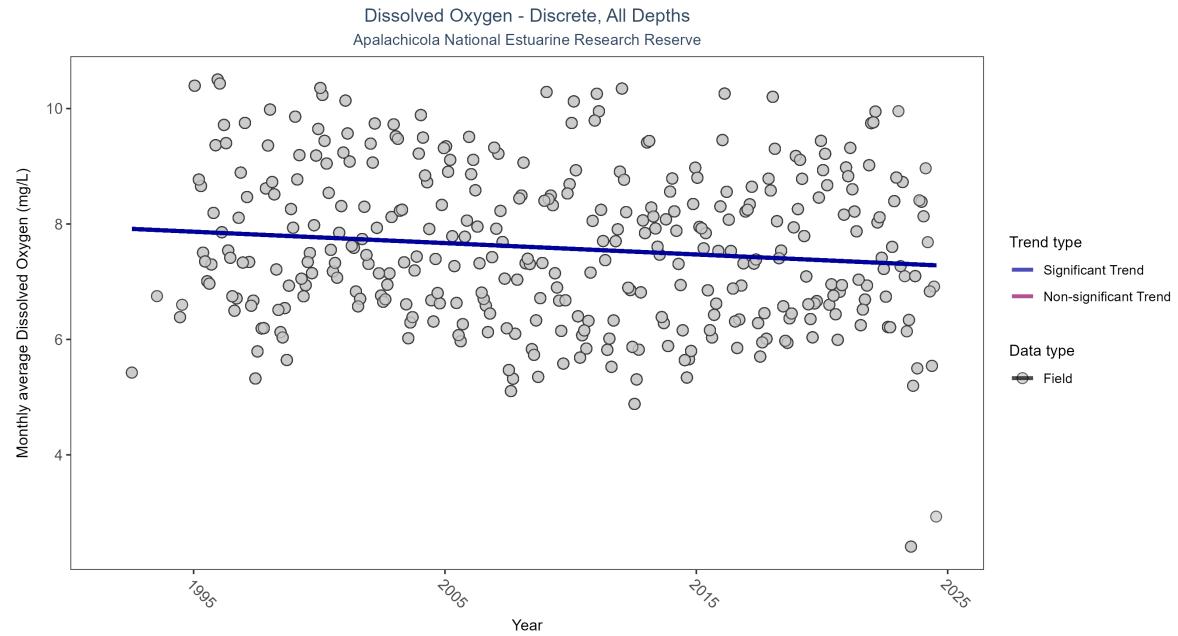


Table 3: Seasonal Kendall-Tau Results for - Dissolved Oxygen

ActivityType	Statistical Trend	N-Data	N-Years	Period of Record	Median	tau	SennIntercept	SennSlope	p
Field	Significantly decreasing trend	80793	33	1992 - 2024	7.5	-0.1569	7.9255	-0.01972	0.0000

## Dissolved Oxygen - Continuous

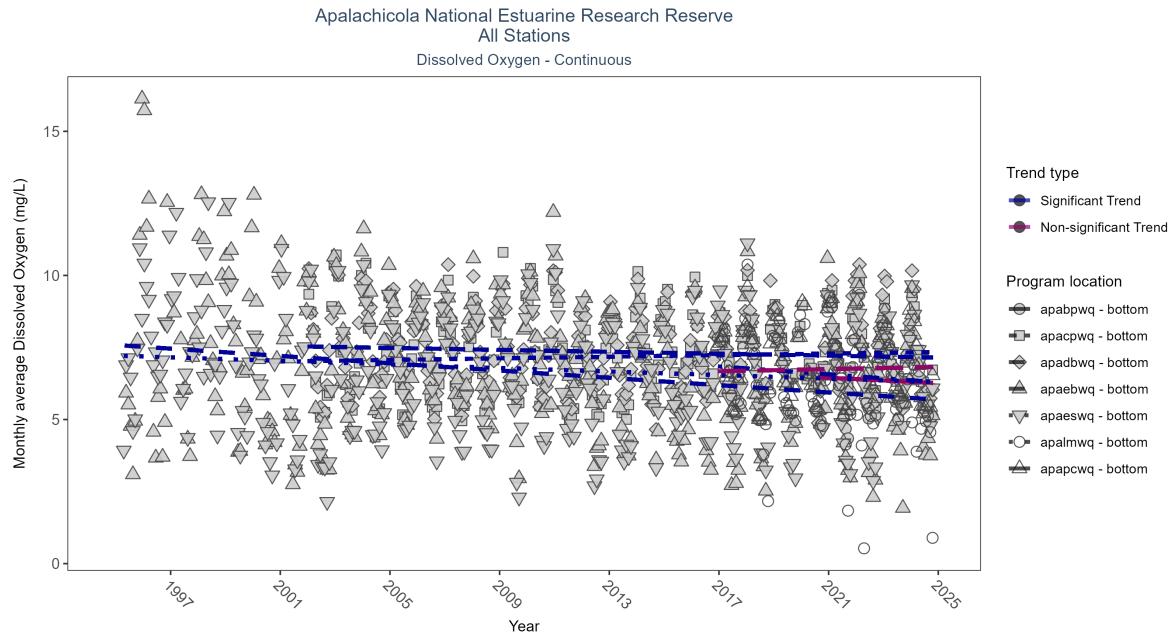


Table 4: Seasonal Kendall-Tau Results for All Stations - Dissolved Oxygen

ProgramLocationID	Statistical Trend	N-Data	N-Years	Period of Record	Median	tau	SennIntercept	SennSlope	p
apaebwq	Significantly decreasing trend	655847	30	1995 - 2024	6.8	-0.30	7.59	-0.06	0.0000
apadbwq	Significantly decreasing trend	611956	23	2002 - 2024	7.2	-0.16	7.53	-0.02	0.0004
apacpwq	Significantly increasing trend	607585	23	2002 - 2024	7.1	0.12	7.03	0.01	0.0052
apalmwq	Significantly decreasing trend	247064	9	2016 - 2024	6.3	-0.24	6.91	-0.07	0.0038
apapcwq	No significant trend	258495	9	2016 - 2024	6.9	0.06	6.66	0.02	0.4258
apaeswq	Significantly decreasing trend	705901	30	1995 - 2024	6.8	-0.16	7.22	-0.03	0.0000
apabpwq	No significant trend	139625	5	2020 - 2024	6.4	-0.12	6.50	-0.05	0.5361

## Dissolved Oxygen Saturation - Discrete

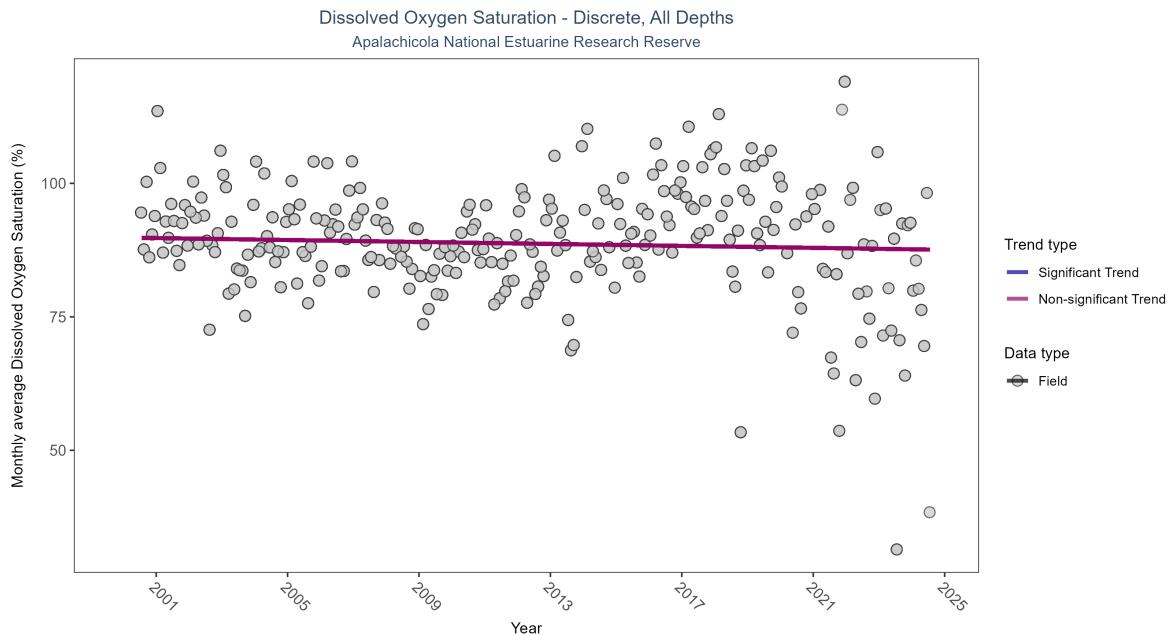


Table 5: Seasonal Kendall-Tau Results for - Dissolved Oxygen Saturation

ActivityType	Statistical Trend	N-Data	N-Years	Period of Record	Median	tau	SennIntercept	SennSlope	p
Field	No significant trend	6939	25	2000 - 2024	91.4	-0.0546	89.84157	-0.09142	0.1801

## Dissolved Oxygen Saturation - Continuous

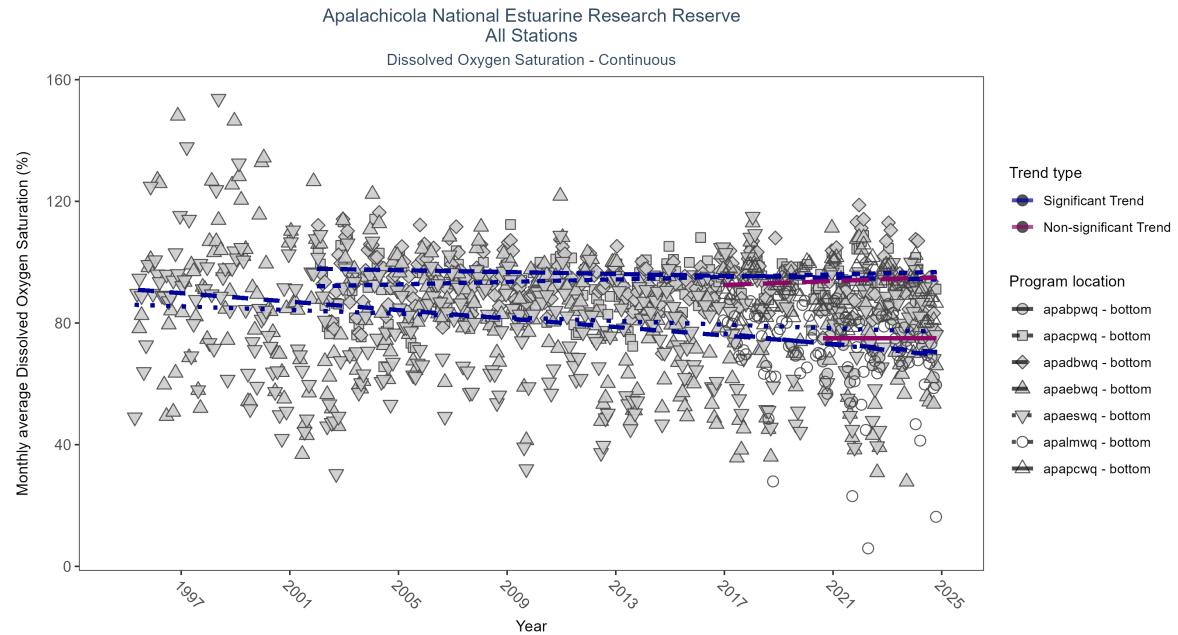


Table 6: Seasonal Kendall-Tau Results for All Stations - Dissolved Oxygen Saturation

ProgramLocationID	Statistical Trend	N-Data	N-Years	Period of Record	Median	tau	SennIntercept	SennSlope	p
apaeswq	Significantly decreasing trend	707065	30	1995 - 2024	83.9	-0.12	86.07	-0.30	0.0010
apadbwq	Significantly decreasing trend	615405	23	2002 - 2024	94.6	-0.11	97.83	-0.16	0.0180
apabpwq	No significant trend	139625	5	2020 - 2024	75.8	0.00	74.97	0.00	0.9296
apapcwq	No significant trend	261951	9	2016 - 2024	94.0	0.10	92.20	0.32	0.2467
apacpwq	Significantly increasing trend	609113	23	2002 - 2024	94.0	0.15	92.07	0.21	0.0003
apaebwq	Significantly decreasing trend	651672	30	1995 - 2024	84.5	-0.27	91.20	-0.70	0.0000
apalmwq	Significantly decreasing trend	247600	9	2016 - 2024	74.4	-0.25	77.37	-0.89	0.0030

## Salinity - Discrete

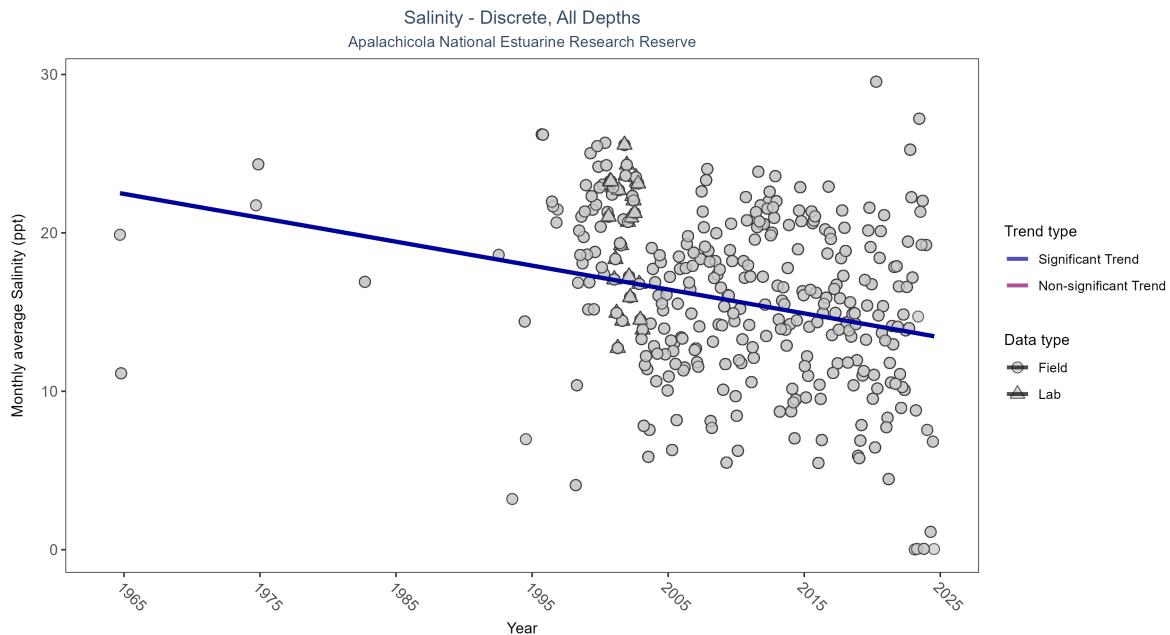


Table 7: Seasonal Kendall-Tau Results for - Salinity

ActivityType	Statistical Trend	N-Data	N-Years	Period of Record	Median	tau	SennIntercept	SennSlope	p
All	Significantly decreasing trend	93589	36	1964 - 2024	16.79	-0.2144	22.61307	-0.15092	0.0000

## Salinity - Continuous

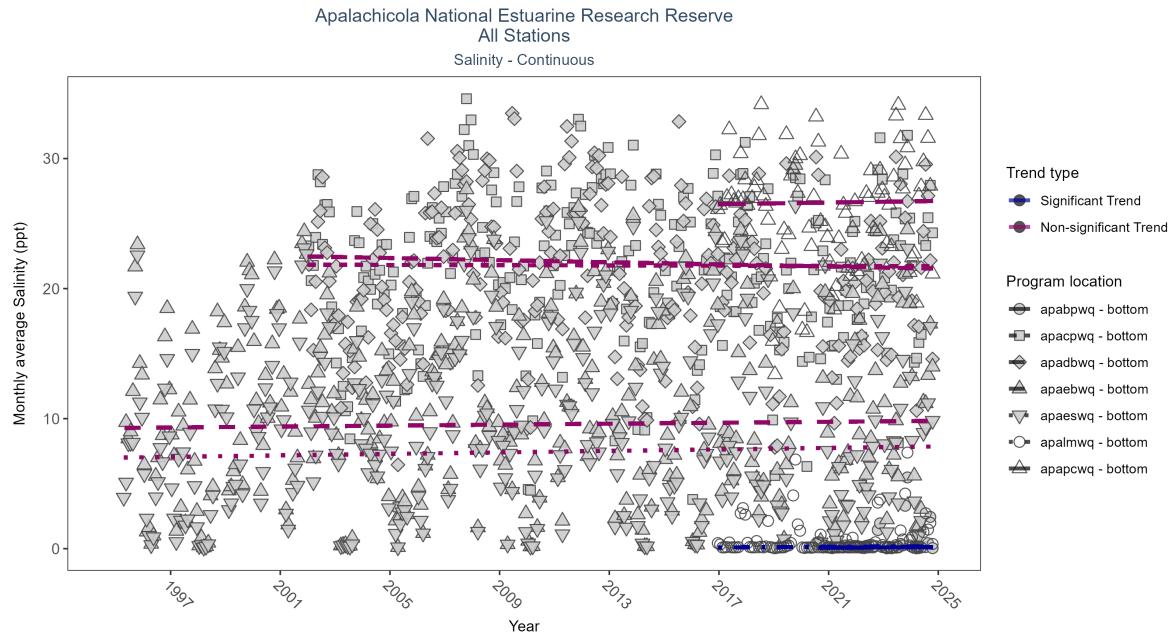


Table 8: Seasonal Kendall-Tau Results for All Stations - Salinity

ProgramLocationID	Statistical Trend	N-Data	N-Years	Period of Record	Median	tau	SennIntercept	SennSlope	p
apalmwq	Significantly increasing trend	262776	9	2016 - 2024	0.1	0.22	0.08	0.01	0.0091
apacpwq	No significant trend	621811	23	2002 - 2024	22.4	0.00	21.84	-0.01	0.8998
apapcwq	No significant trend	260825	9	2016 - 2024	26.7	0.02	26.46	0.03	0.8849
apaeswq	No significant trend	750078	30	1995 - 2024	7.4	0.05	7.00	0.03	0.2183
apadbwq	No significant trend	610043	23	2002 - 2024	22.1	-0.05	22.47	-0.04	0.2984
apaebwq	No significant trend	737639	30	1995 - 2024	9.8	0.03	9.28	0.02	0.4301
apabpwq	Significantly increasing trend	142177	5	2020 - 2024	0.1	0.33	0.07	0.01	0.0142

## Water Temperature - Discrete

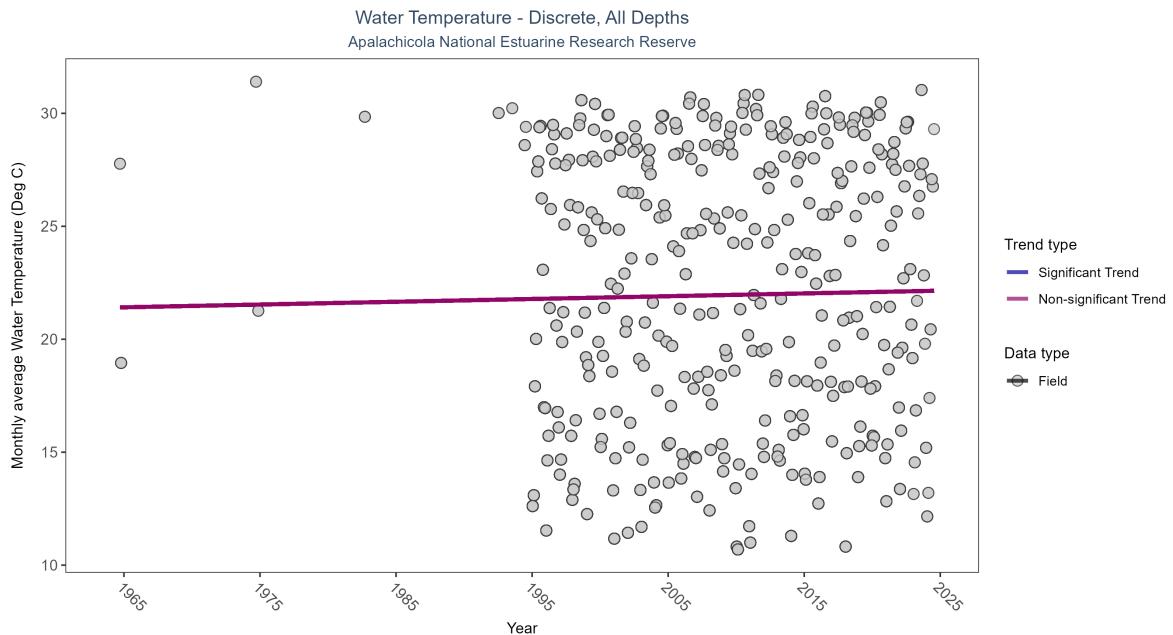


Table 9: Seasonal Kendall-Tau Results for - Water Temperature

ActivityType	Statistical Trend	N-Data	N-Years	Period of Record	Median	tau	SennIntercept	SennSlope	p
Field	No significant trend	93793	36	1964 - 2024	23.4	0.0683	21.40042	0.01229	0.0732

## Water Temperature - Continuous

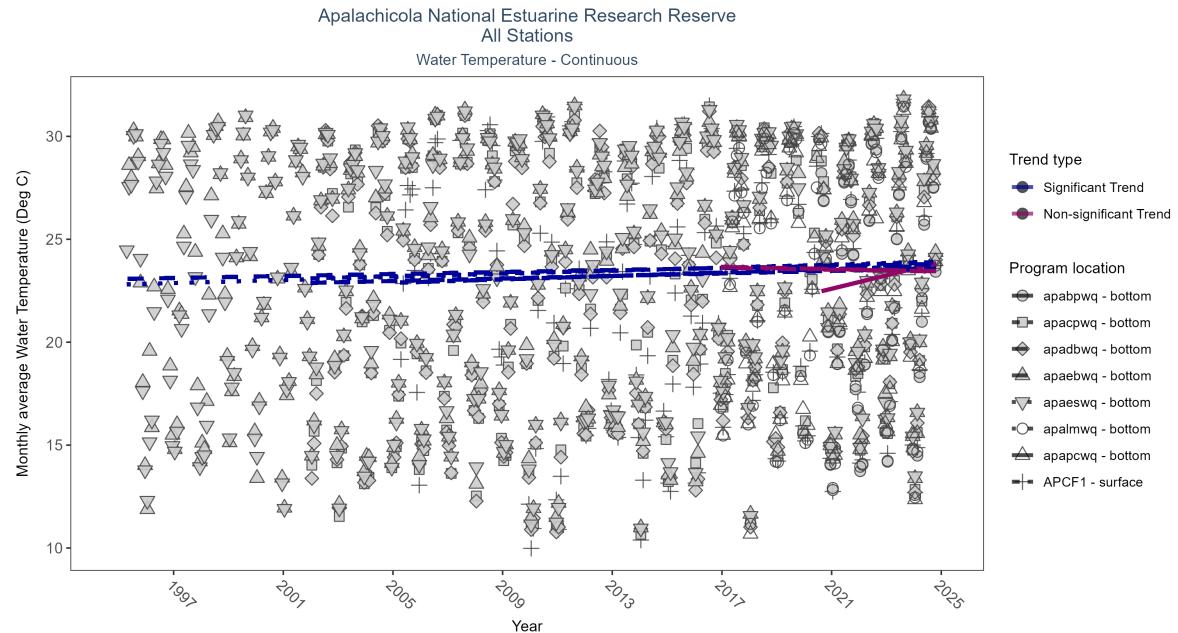


Table 10: Seasonal Kendall-Tau Results for All Stations - Water Temperature

ProgramLocationID	Statistical Trend	N-Data	N-Years	Period of Record	Median	tau	SennIntercept	SennSlope	p
APCF1	Significantly increasing trend	1317092	20	2005 - 2024	23.3	0.12	22.89	0.04	0.0324
apaebwq	Significantly increasing trend	752681	30	1995 - 2024	24.3	0.14	23.07	0.02	0.0002
apadbwq	Significantly increasing trend	635215	23	2002 - 2024	23.4	0.15	22.88	0.03	0.0010
apapcwq	No significant trend	264293	9	2016 - 2024	23.3	-0.05	23.68	-0.03	0.5624
apacpwq	Significantly increasing trend	660804	23	2002 - 2024	23.6	0.16	23.10	0.03	0.0004
apaeswq	Significantly increasing trend	759336	30	1995 - 2024	24.2	0.19	22.80	0.04	0.0000
apabpwq	No significant trend	142177	5	2020 - 2024	22.9	0.20	22.27	0.33	0.1329
apalmwq	No significant trend	265036	9	2016 - 2024	22.8	-0.03	23.64	-0.02	0.7721

## pH - Discrete

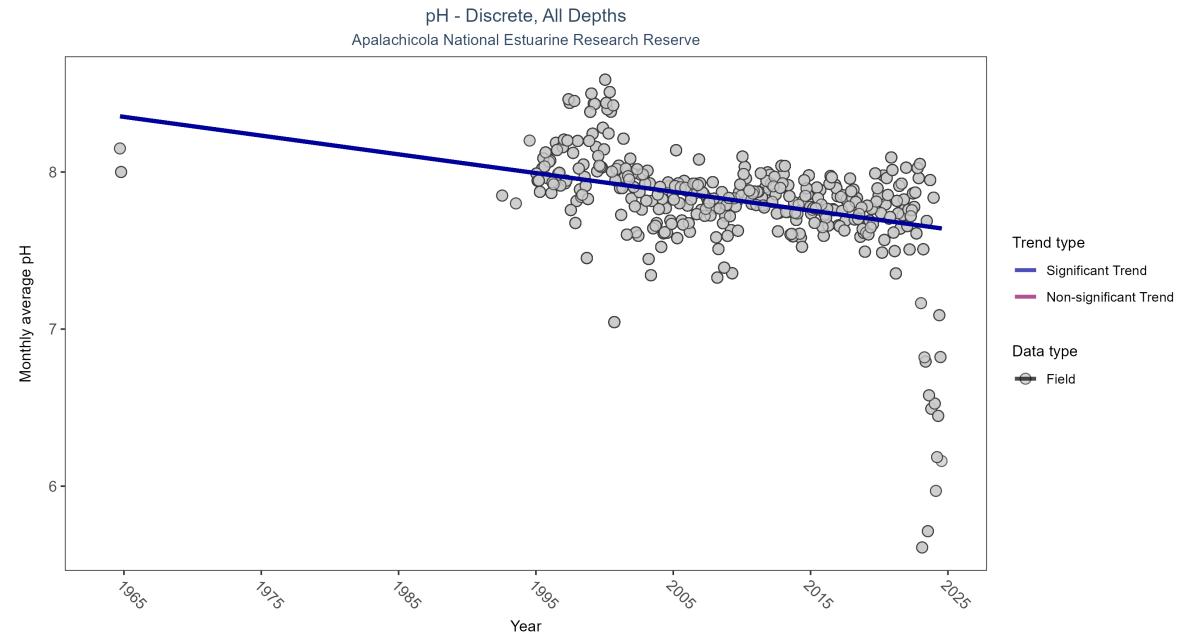


Table 11: Seasonal Kendall-Tau Results for - pH

ActivityType	Statistical Trend	N-Data	N-Years	Period of Record	Median	tau	SennIntercept	SennSlope	p
Field	Significantly decreasing trend	65060	34	1964 - 2024	7.95	-0.3699	8.36298	-0.01193	0.0000

## pH - Continuous

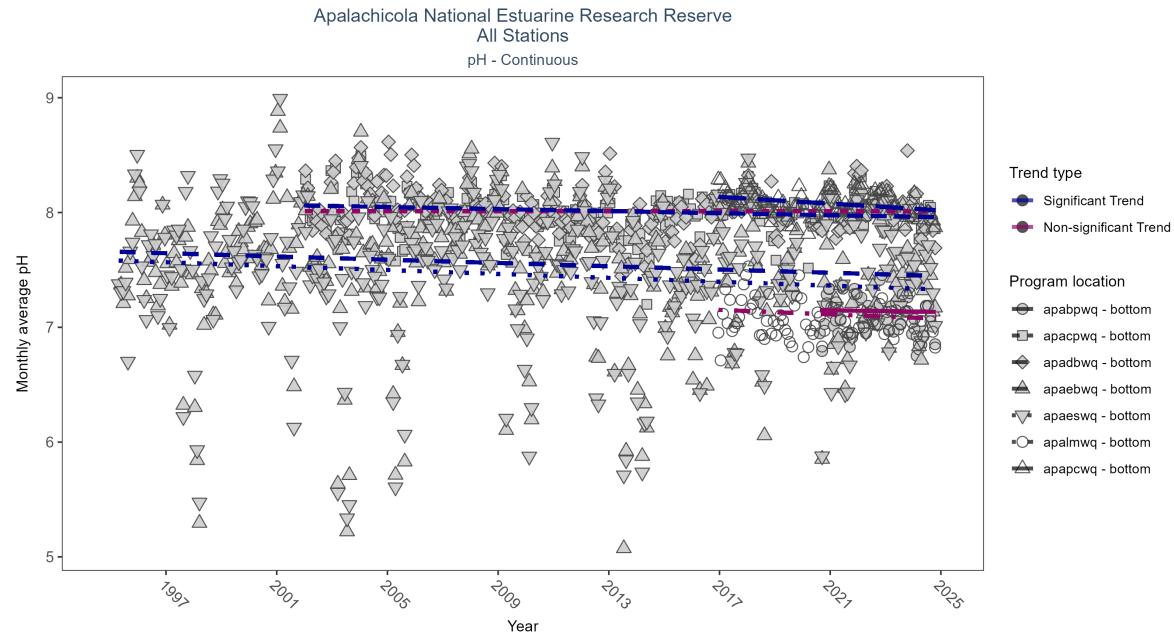


Table 12: Seasonal Kendall-Tau Results for All Stations - pH

ProgramLocationID	Statistical Trend	N-Data	N-Years	Period of Record	Median	tau	SennIntercept	SennSlope	p
apadbwq	Significantly decreasing trend	593014	23	2002 - 2024	8.0	-0.14	8.06	0.00	0.0015
apaeswq	Significantly decreasing trend	710133	30	1995 - 2024	7.5	-0.13	7.58	-0.01	0.0005
apapcwq	Significantly decreasing trend	258424	9	2016 - 2024	8.1	-0.29	8.15	-0.01	0.0007
apacpwq	No significant trend	606691	23	2002 - 2024	8.0	-0.01	8.01	0.00	0.9435
apaebwq	Significantly decreasing trend	708442	30	1995 - 2024	7.6	-0.12	7.66	-0.01	0.0010
apalmwq	No significant trend	255201	9	2016 - 2024	7.1	-0.07	7.16	-0.01	0.4258
apabpwq	No significant trend	140938	5	2020 - 2024	7.1	-0.03	7.15	0.00	1.0000

## Water Clarity

### Turbidity - Discrete

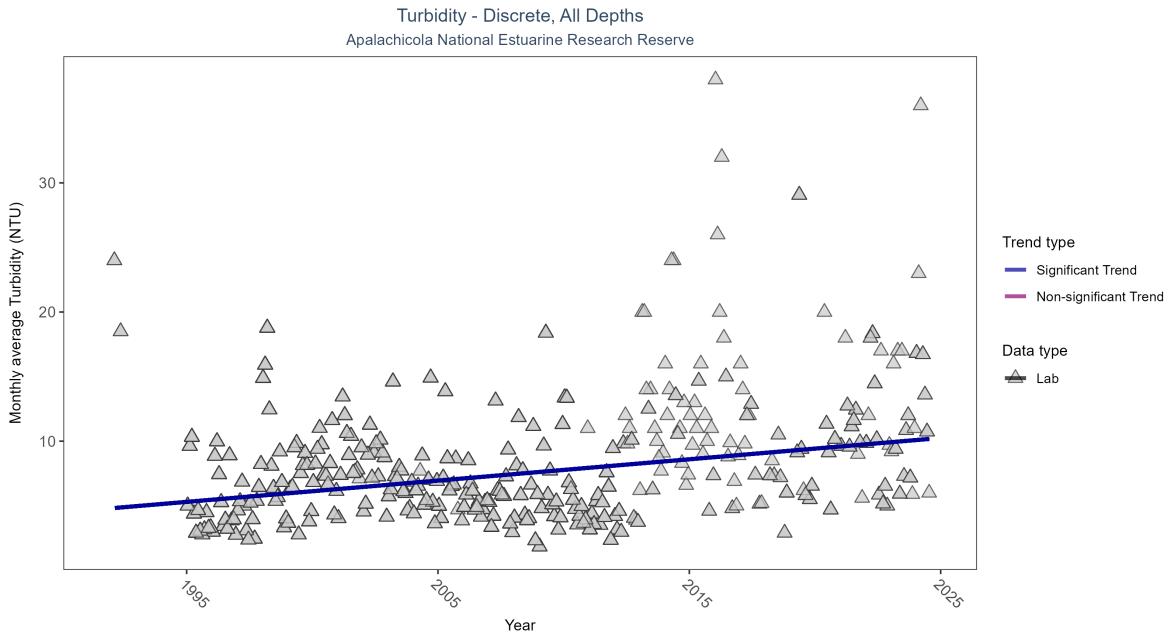


Table 13: Seasonal Kendall-Tau Results for - Turbidity

ActivityType	Statistical Trend	N-Data	N-Years	Period of Record	Median	tau	SennIntercept	SennSlope	p
Lab	Significantly increasing trend	22963	31	1992 - 2024	5.1	0.2567	4.80129	0.165	0.0000

## Turbidity - Continuous

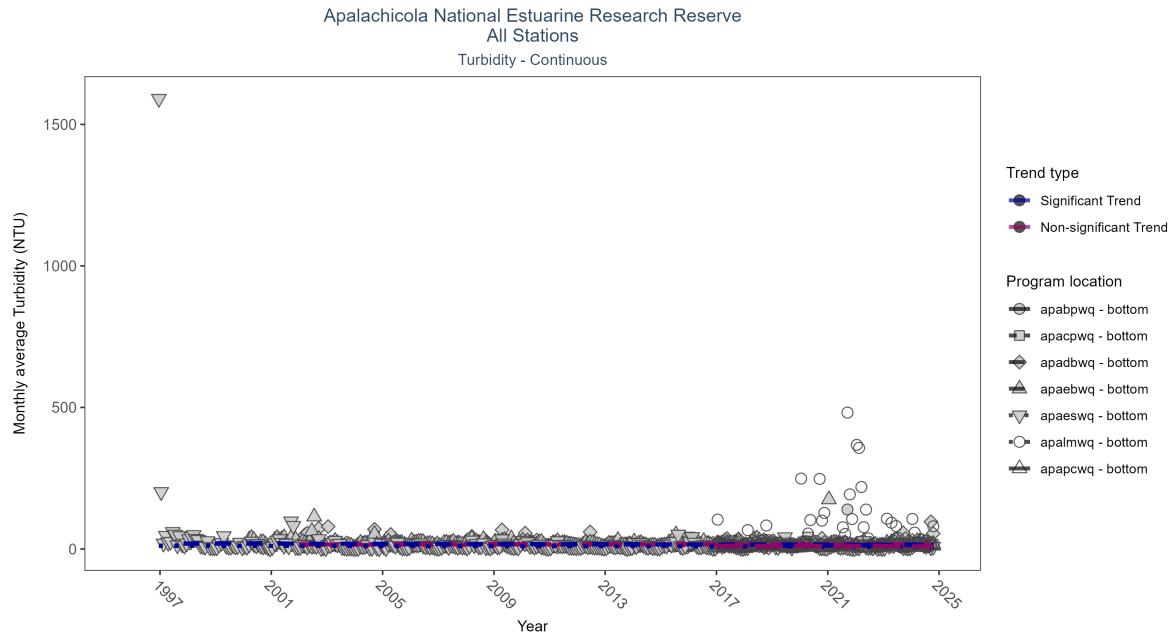


Table 14: Seasonal Kendall-Tau Results for All Stations - Turbidity

ProgramLocationID	Statistical Trend	N-Data	N-Years	Period of Record	Median	tau	SennIntercept	SennSlope	p
apaebwq	Significantly decreasing trend	626180	26	1997 - 2024	13	-0.19	19.68	-0.20	0.0000
apacpwq	No significant trend	618864	23	2002 - 2024	8	0.00	13.20	0.00	0.9938
apapcwq	No significant trend	249363	9	2016 - 2024	7	-0.06	10.47	-0.11	0.4855
apalmwq	Significantly increasing trend	235869	9	2016 - 2024	12	0.24	7.63	0.93	0.0047
apabpwq	No significant trend	142173	5	2020 - 2024	11	0.08	10.09	0.19	0.6585
apaeswq	Significantly decreasing trend	693953	29	1996 - 2024	9	-0.15	11.37	-0.11	0.0003
apadbwq	No significant trend	597217	23	2002 - 2024	10	0.02	16.11	0.03	0.6196

## Total Suspended Solids - Discrete

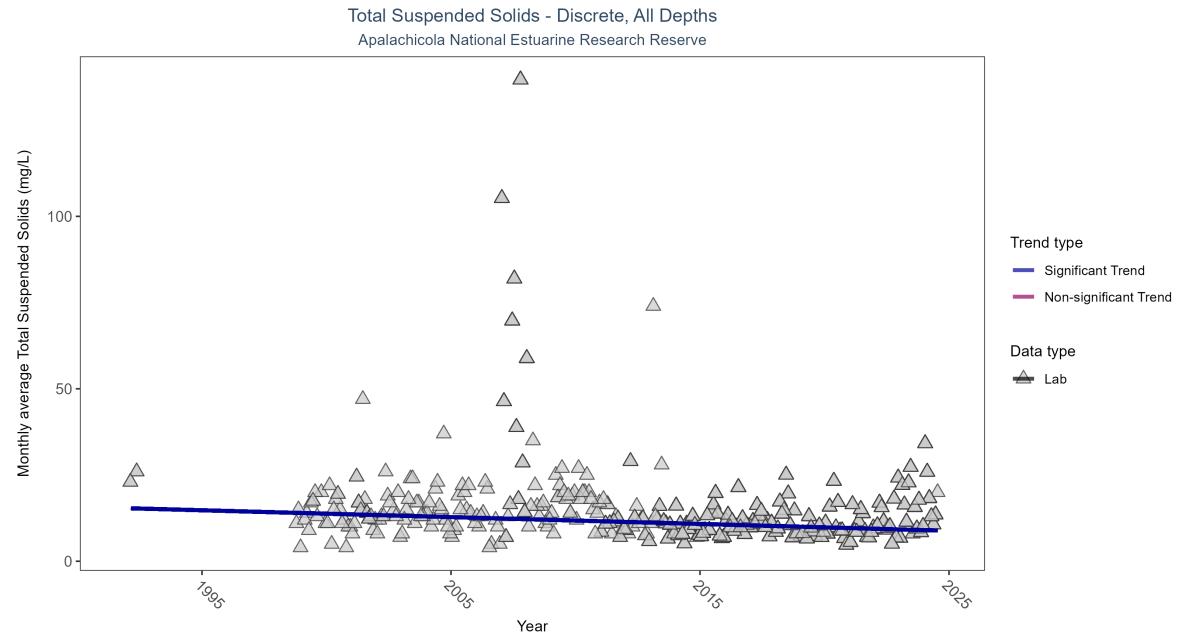


Table 15: Seasonal Kendall-Tau Results for - Total Suspended Solids

ActivityType	Statistical Trend	N-Data	N-Years	Period of Record	Median	tau	SennIntercept	SennSlope	p
Lab	Significantly decreasing trend	3976	28	1992 - 2024	10	-0.2109	15.37229	-0.19829	0.0000

## Chlorophyll a, Uncorrected for Pheophytin - Discrete

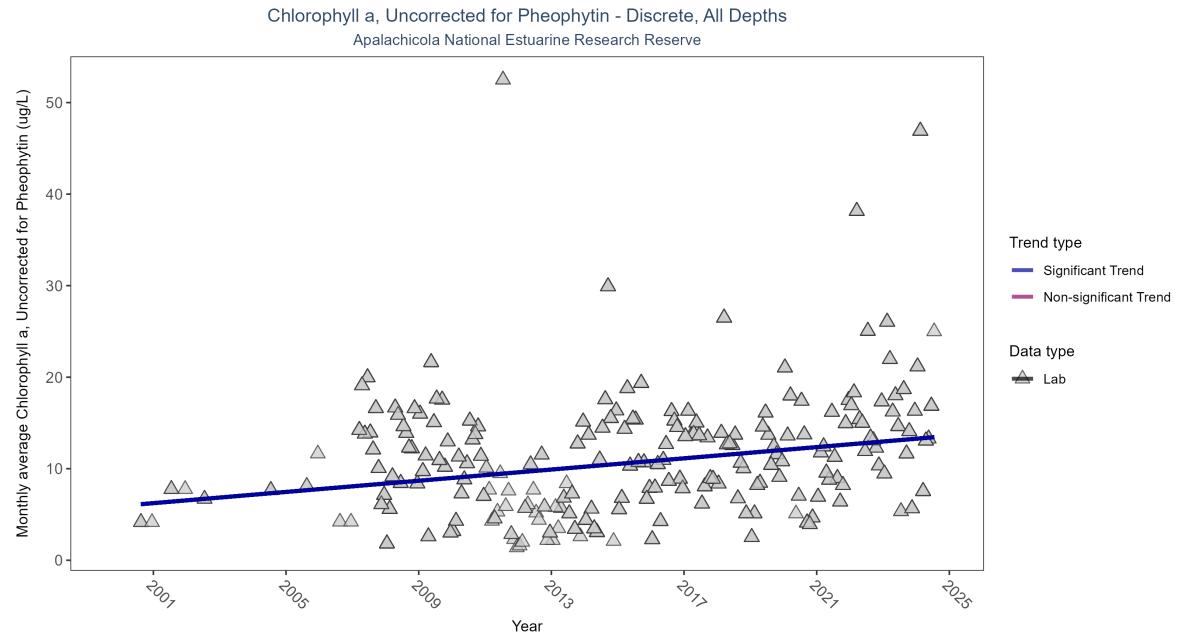


Table 16: Seasonal Kendall-Tau Results for - Chlorophyll a, Uncorrected for Pheophytin

ActivityType	Statistical Trend	N-Data	N-Years	Period of Record	Median	tau	SennIntercept	SennSlope	p
Lab	Significantly increasing trend	4711	24	2000 - 2024	10	0.1868	5.93275	0.30605	0.0002

## Chlorophyll a, Corrected for Pheophytin - Discrete

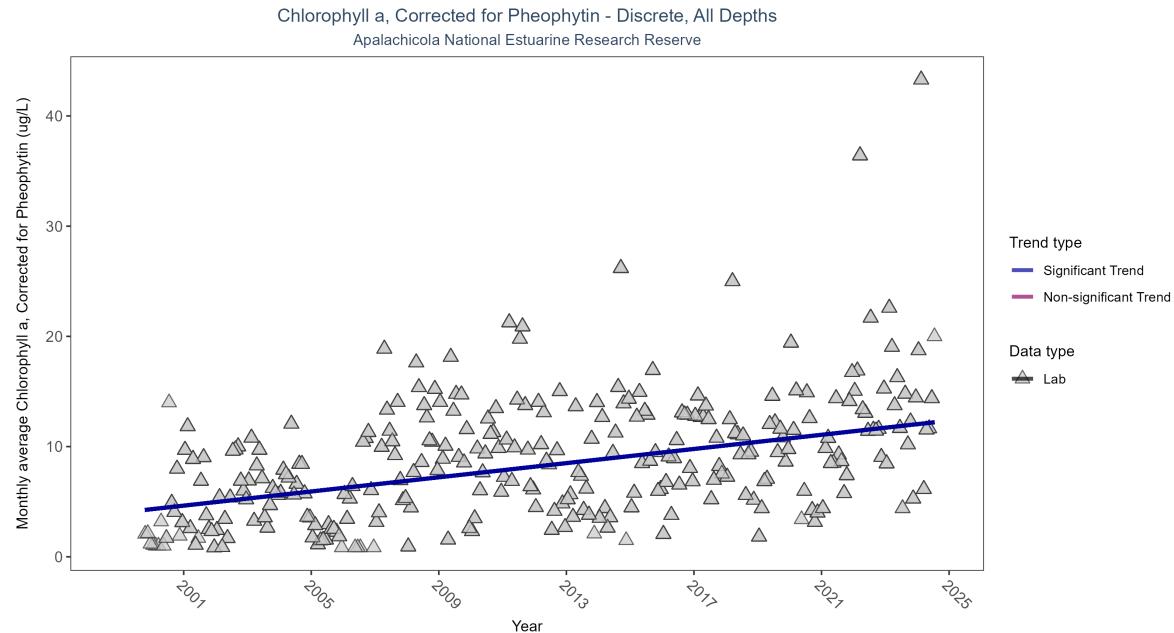


Table 17: Seasonal Kendall-Tau Results for - Chlorophyll a, Corrected for Pheophytin

ActivityType	Statistical Trend	N-Data	N-Years	Period of Record	Median	tau	SennIntercept	SennSlope	p
Lab	Significantly increasing trend	8985	26	1999 - 2024	7.6	0.3411	4.00057	0.32135	0.0000

## Secchi Depth - Discrete

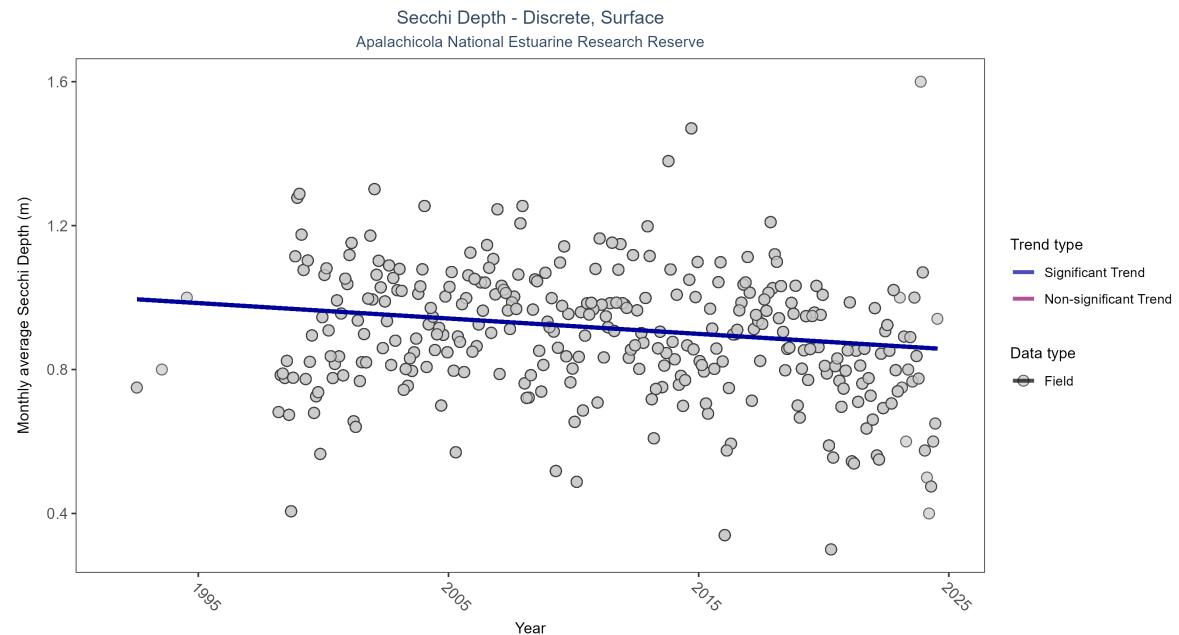


Table 18: Seasonal Kendall-Tau Results for - Secchi Depth

ActivityType	Statistical Trend	N-Data	N-Years	Period of Record	Median	tau	SennIntercept	SennSlope	p
Field	Significantly decreasing trend	45158	30	1992 - 2024	0.8	-0.1556	0.99753	-0.00428	0.0001

## Colored Dissolved Organic Matter - Discrete

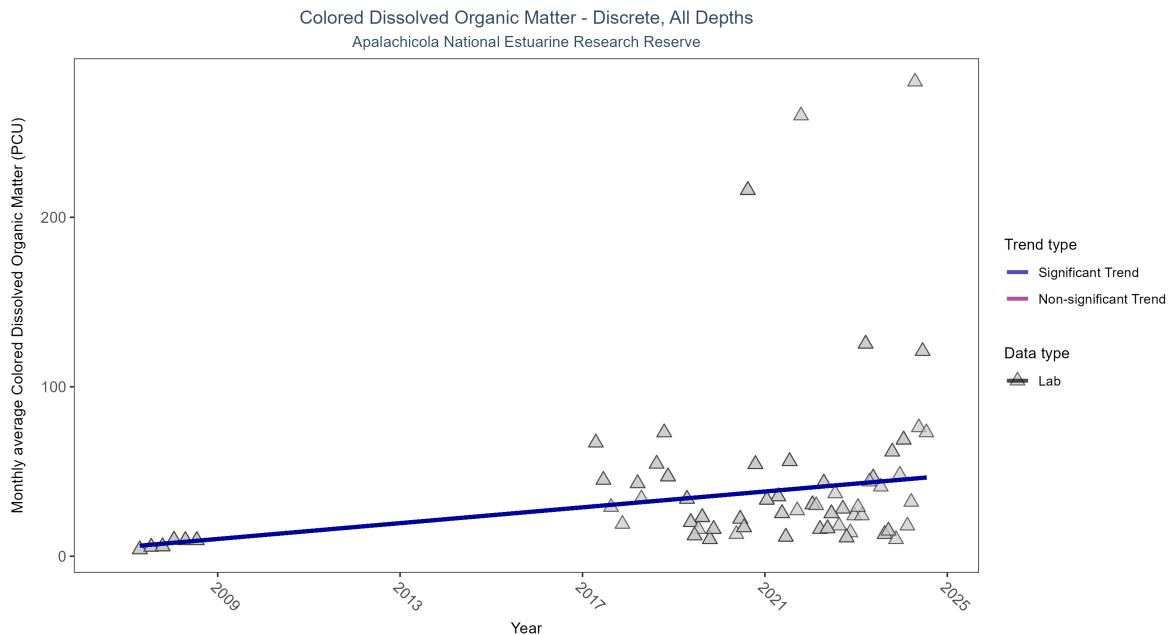


Table 19: Seasonal Kendall-Tau Results for - Colored Dissolved Organic Matter

ActivityType	Statistical Trend	N-Data	N-Years	Period of Record	Median	tau	SennIntercept	SennSlope	p
Lab	Significantly increasing trend	160	10	2007 - 2024	21.5	0.2061	5.51717	2.33333	0.0046