Big Bend Seagrasses Aquatic Preserve

Seagrass and Water Quality Trend Analysis

Florida SEACAR

2025-10-20

Contents

Funding & Acknowledgements

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Watershed Designations

Water quality sampling locations were divided into watershed designations based on recommendations from BBSAP staff, with influence from *Seagrass Integrated Mapping and Monitoring Program Mapping and Monitoring Report No. 2*[1]. Submerged Aquatic Vegetation sampling locations contain watershed-based prefixes within their location names and naturally fall within these boundaries. BBSAP staff considered salinity, tidal exchange, and seasonal variation when designating sample locations as river or estuary.

SEACAR Data Methods

Data Matching

Data accessed through the Florida Department of Environmental Protection (FDEP) Watershed Information Network (WIN) are matched to a specific SEACAR program, when possible, based on a combination of multiple fields (e.g., WIN OrgID, ProjectID, SamplingAgency, MonitoringLocationID, etc.). WIN datasets that are not matched to a specific program page in the SEACAR DDI are maintained in the generic *Florida STORET/WIN*[2] program.

Data De-duplication Process

Coordination and overlap between monitoring programs in data collection activities has led to cases where datasets from two or more programs/data sources include some of the same result records (i.e., data from the same sampling event), leading to some risk of data duplication in the SEACAR data export tables. To mitigate this risk, a de-duplication process is run on the final export tables to check for and identify duplicate records (i.e., those with the same location, date, parameter, activity depth, species, quad/site identifier, and result values) before the tables are made public.

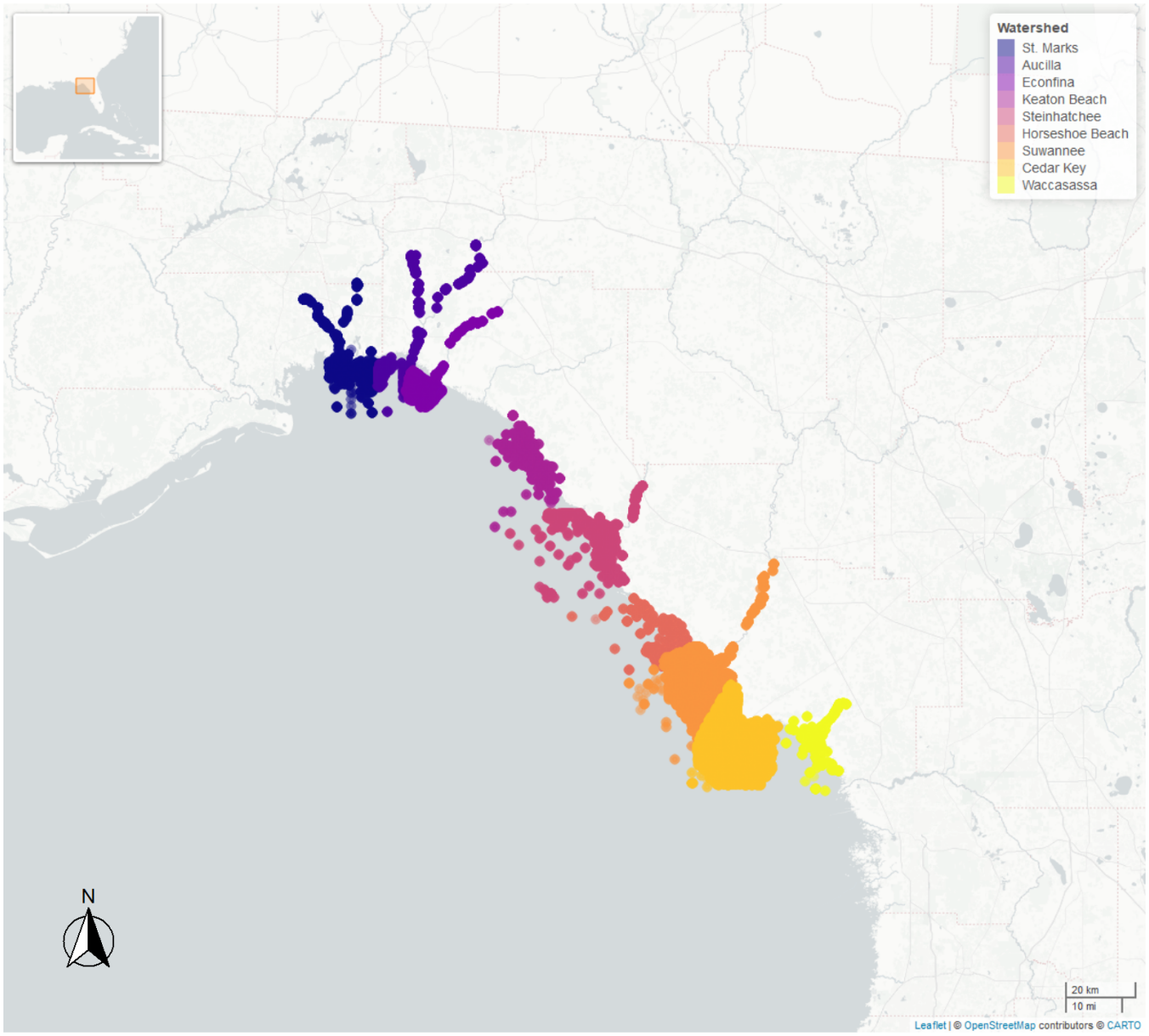
Seasonal Kendall-Tau Analysis

For discrete Water Quality data, indicators must have a minimum of ten years of data within the geographic range of the analysis to be included in the analysis. If there are insufficient years of data, the number of years of data

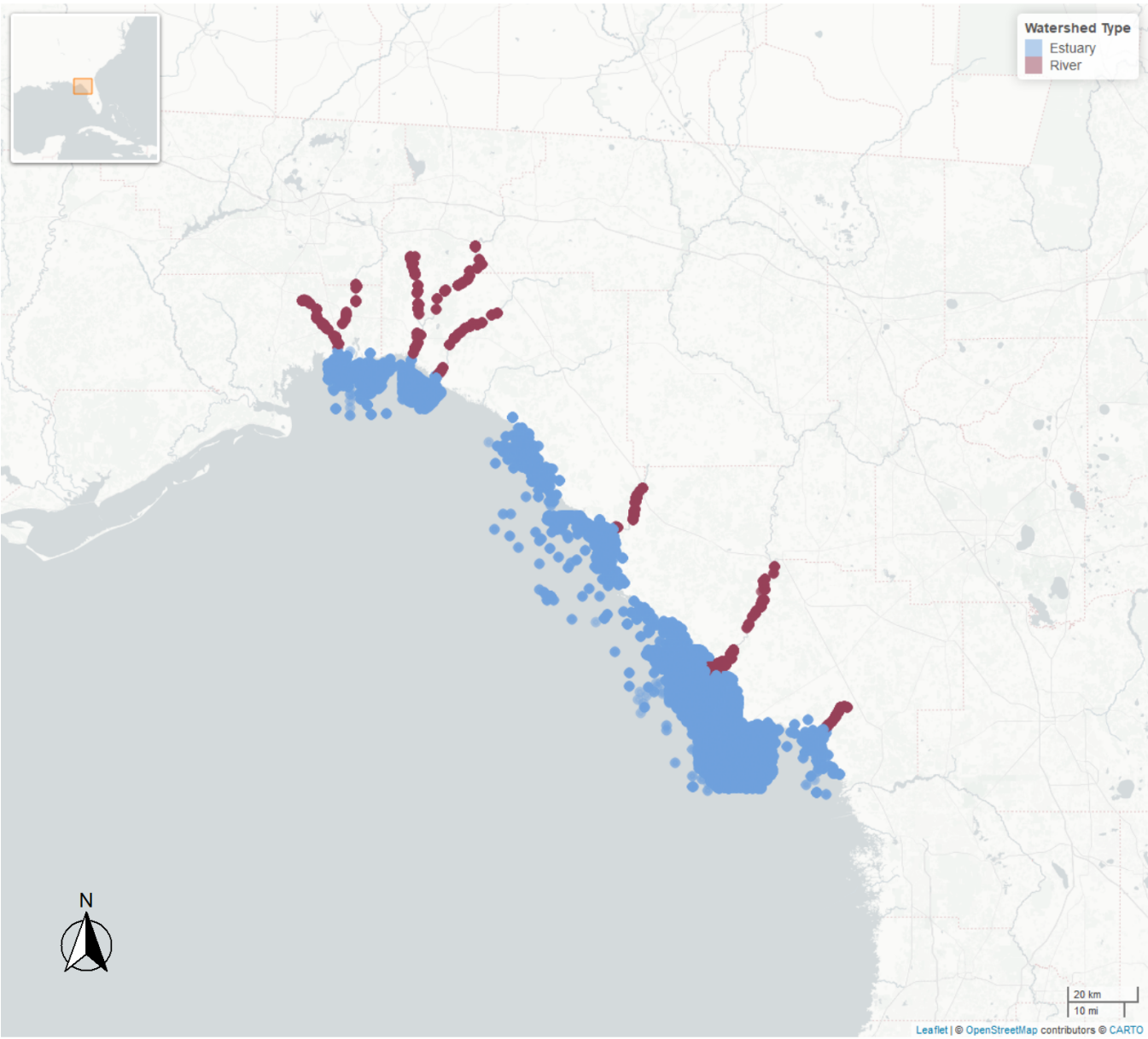
available will be noted and labeled as "insufficient data to conduct analysis". Further, for the preferred Seasonal Kendall-Tau test, there must be data from at least two months in common across at least two consecutive years within the RCP managed area being analyzed. Values that pass both of these tests will be included in the analysis and be labeled as *Use_In_Analysis* = **TRUE**. Any that fail either test will be excluded from the analyses and labeled as *Use_In_Analysis* = **FALSE**. The points for all Water Quality plots displayed in this report are monthly averages. Trend significance will be denoted as "Significant Trend" (when $p < 0.05$), or "Non-significant Trend" (when $p >= 0.05$). Any parameters with insufficient data to perform Seasonal Kendall-Tau test will have their monthly averages plotted without a corresponding trend line.

Maps

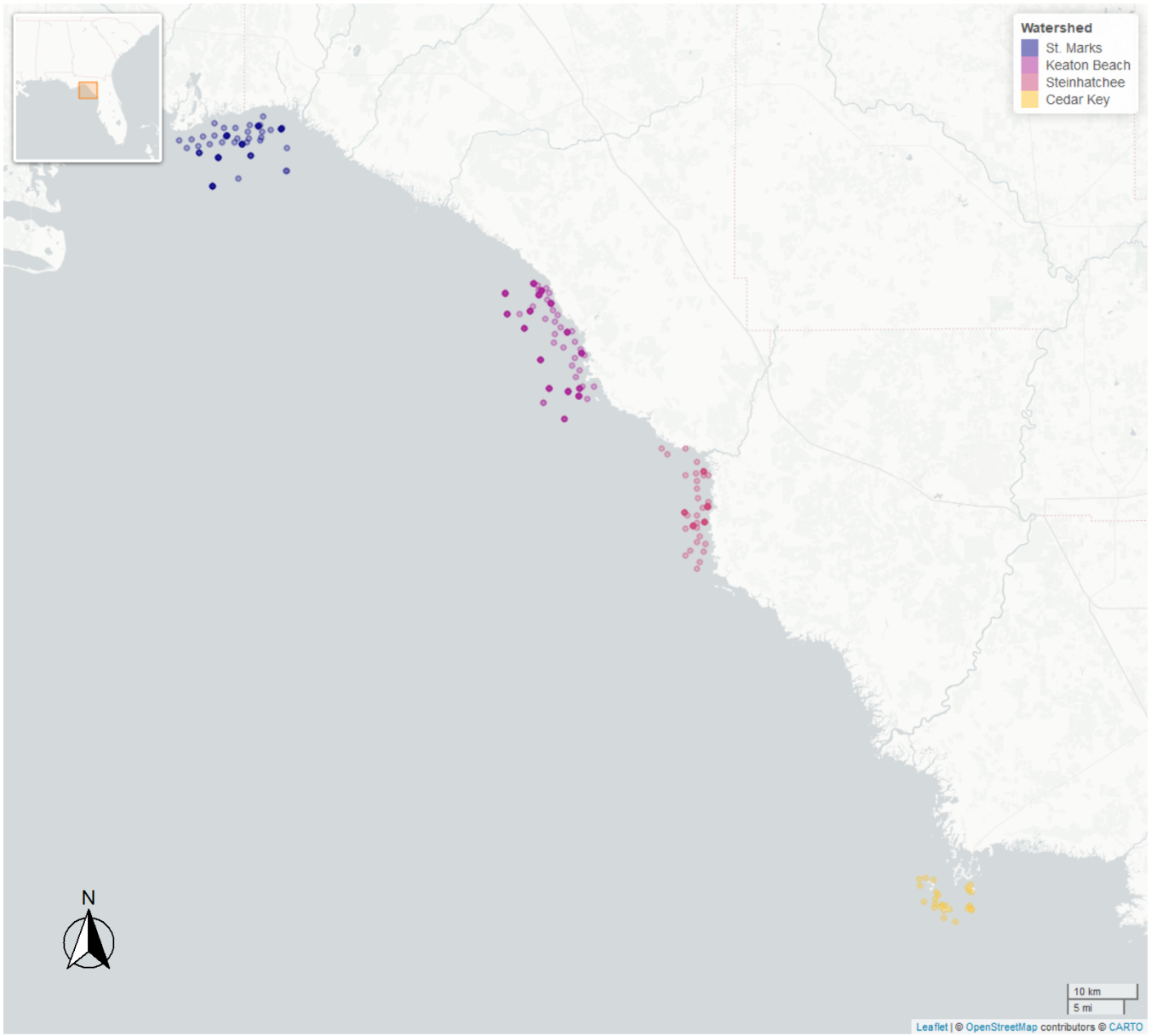
Water Quality Discrete - Sample Locations - All Parameters



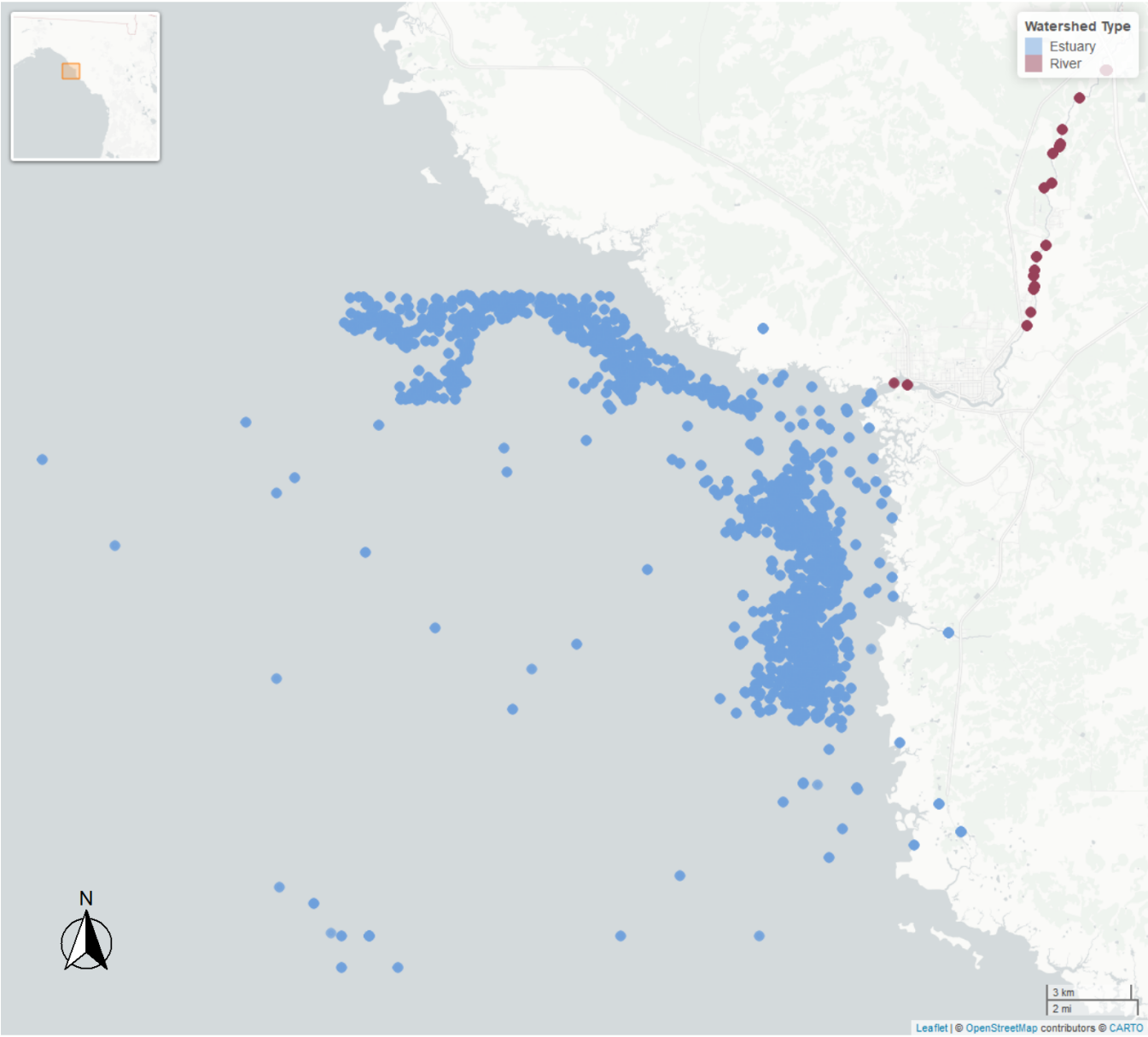
Water Quality Discrete - Sample Locations - Estuary and River Delineations



Submerged Aquatic Vegetation - Sample Locations



Steinhatchee



Plots will be produced below for all parameters. A Seasonal Kendall-Tau trendline will be plotted only for parameters where *SufficientData* is **TRUE**.

Trend arrows denote trends where the p value is less than 0.05 and the slope is less than 10% of the median parameter value.

Table 1: Seasonal Kendall-Tau Results for Steinhatchee

Type	*ParameterName*	*Period-of-Record*	*N-Years*	*N-Data*	*SufficientData*	*SennSlope*	*SennIntercept*	*p*	*Trend*
Estuary	Chlorophyll a, Corrected for Pheophytin	2001 - 2025	12	211	TRUE	0.05	1.08	0.0640	0
River	Chlorophyll a, Corrected for Pheophytin	2002 - 2025	14	85	TRUE	0.00	1.02	0.1459	0
Estuary	Chlorophyll a, Uncorrected for Pheophytin	2001 - 2025	21	245	TRUE	0.05	1.77	0.0411	⇑
River	Chlorophyll a, Uncorrected for Pheophytin	2013 - 2025	11	66	TRUE	0.00	1.10	0.3077	0
Estuary	Colored Dissolved Organic Matter	2016 - 2024	9	36	FALSE	-	-	-	-
River	Colored Dissolved Organic Matter	2017 - 2025	9	37	FALSE	-	-	-	-
Estuary	Dissolved Oxygen	1986 - 2025	32	4458	TRUE	0.01	7.17	0.5189	0
River	Dissolved Oxygen	1999 - 2025	18	100	TRUE	-0.01	5.13	0.9303	0
Estuary	Dissolved Oxygen Saturation	2013 - 2024	12	77	TRUE	-0.24	93.67	0.9431	0
River	Dissolved Oxygen Saturation	2001 - 2025	14	61	TRUE	-0.12	36.13	0.8105	0
Estuary	Salinity	1986 - 2025	32	4920	TRUE	-0.07	31.48	0.0064	⇓
River	Salinity	2001 - 2025	15	85	TRUE	-0.01	0.40	0.0950	0
Estuary	Secchi Depth	1986 - 2024	29	4110	TRUE	0.00	1.43	0.5745	0
River	Secchi Depth	2001 - 2025	16	61	TRUE	-0.01	0.76	0.4534	0
Estuary	Total Nitrogen	2002 - 2025	19	206	TRUE	-0.01	0.88	0.0507	0
River	Total Nitrogen	2001 - 2024	13	52	TRUE	0.02	0.24	0.0189	⇑
Estuary	Total Phosphorus	2002 - 2025	17	232	TRUE	0.00	0.06	0.0010	⇓
River	Total Phosphorus	2001 - 2025	16	92	TRUE	0.00	0.04	0.0159	⇑
Estuary	Total Suspended Solids	1994 - 2020	6	21	FALSE	-	-	-	-
River	Total Suspended Solids	2001 - 2024	8	24	FALSE	-	-	-	-
Estuary	Turbidity	1994 - 2025	27	217	TRUE	-0.01	1.94	0.3651	0
River	Turbidity	2001 - 2025	16	75	TRUE	0.02	2.59	0.5226	0
Estuary	Water Temperature	1986 - 2025	32	4475	TRUE	0.04	22.56	0.0238	⇑
River	Water Temperature	1999 - 2025	18	102	TRUE	0.14	20.33	0.0506	0
Estuary	pH	1993 - 2025	28	4410	TRUE	0.00	8.03	0.7268	0
River	pH	1999 - 2025	18	102	TRUE	0.00	7.18	0.8281	0

Table 2: Overview of Program Data for Steinhatchee

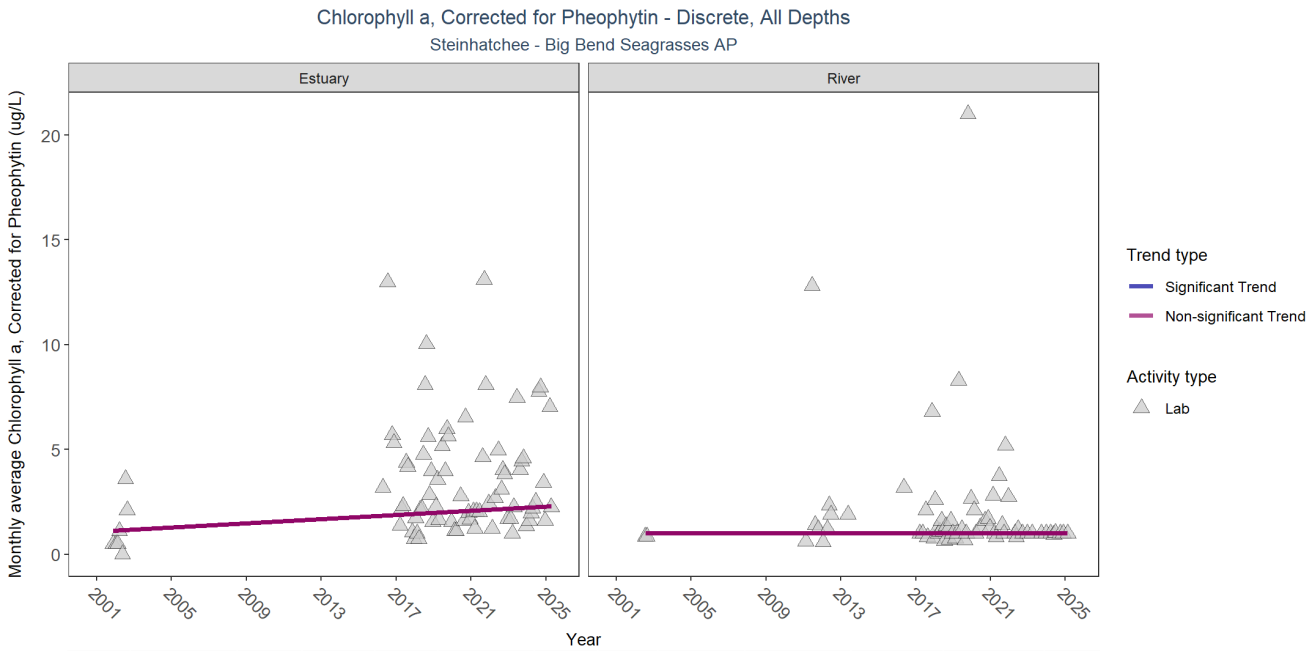
ParameterName	*ProgramID*	*n-data-Estuary*	*n-data-River*
Ammonium, Filtered (NH4)	477	35	36
Ammonium, Filtered (NH4)	5002	96	25
Chlorophyll a, Corrected for Pheophytin	477	33	31
Chlorophyll a, Corrected for Pheophytin	5002	187	55
Chlorophyll a, Uncorrected for Pheophytin	60	15	-
Chlorophyll a, Uncorrected for Pheophytin	103	1	-
Chlorophyll a, Uncorrected for Pheophytin	118	1	-
Chlorophyll a, Uncorrected for Pheophytin	477	33	31
Chlorophyll a, Uncorrected for Pheophytin	5002	221	35
Colored Dissolved Organic Matter	477	35	35
Colored Dissolved Organic Matter	5002	1	2
Dissolved Oxygen	60	38	-
Dissolved Oxygen	69	4021	2
Dissolved Oxygen	95	77	1
Dissolved Oxygen	103	2	-
Dissolved Oxygen	115	2	-
Dissolved Oxygen	118	4	-
Dissolved Oxygen	477	34	35
Dissolved Oxygen	560	447	-
Dissolved Oxygen	5002	282	76
Dissolved Oxygen Saturation	60	18	-
Dissolved Oxygen Saturation	477	34	35
Dissolved Oxygen Saturation	5002	43	26
NO2+3, Filtered	477	35	36
NO2+3, Filtered	5002	254	59
Nitrate (NO3)	5002	-	1
Phosphate, Filtered (PO4)	5002	81	21
Salinity	60	37	-
Salinity	69	4021	2
Salinity	95	91	1
Salinity	115	2	-
Salinity	118	6	-
Salinity	477	31	34
Salinity	560	468	-
Salinity	5002	264	48
Secchi Depth	60	3	-
Secchi Depth	69	4022	2
Secchi Depth	103	1	-
Secchi Depth	115	1	-
Secchi Depth	118	2	-

Secchi Depth	477	33	36
Secchi Depth	560	50	-
Secchi Depth	5002	52	31
Specific Conductivity	69	4021	1
Specific Conductivity	95	13	-
Specific Conductivity	477	67	69
Specific Conductivity	5002	176	58
Total Kjeldahl Nitrogen	477	35	36
Total Kjeldahl Nitrogen	5002	275	55
Total Nitrogen	118	1	-
Total Nitrogen	5002	219	53
Total Phosphorus	103	1	-
Total Phosphorus	118	1	-
Total Phosphorus	477	35	36
Total Phosphorus	5002	210	57
Total Suspended Solids	5002	21	24
Turbidity	477	59	63
Turbidity	5002	193	41
Water Temperature	60	41	-
Water Temperature	69	4021	2
Water Temperature	95	91	1
Water Temperature	115	2	-
Water Temperature	118	6	-
Water Temperature	477	35	36
Water Temperature	560	469	-
Water Temperature	5002	287	77
pH	69	4021	2
pH	95	70	1
pH	103	2	-
pH	115	2	-
pH	118	4	-
pH	477	35	36
pH	560	356	-
pH	5002	297	79

Program names:

60 - Southeast Area Monitoring and Assessment Program (SEAMAP) - Gulf of Mexico Fall & Summer Shrimp/Groundfish Survey -[3]
69 - Fisheries-Independent Monitoring (FIM) Program -[4]
95 - Harmful Algal Bloom Marine Observation Network -[5]
103 - EPA STOrage and RETrieval Data Warehouse (STORET)/WQX -[6]
115 - Environmental Monitoring Assessment Program -[7]
118 - National Aquatic Resource Surveys, National Coastal Condition Assessment -[8]
477 - Suwannee River Water Management District Water Resource Monitoring Program -[9]
560 - Big Bend Seagrasses & Nature Coast Aquatic Preserves - Seagrass Monitoring -[10]
5002 - Florida STORET / WIN -[2]

Chlorophyll a, Corrected for Pheophytin

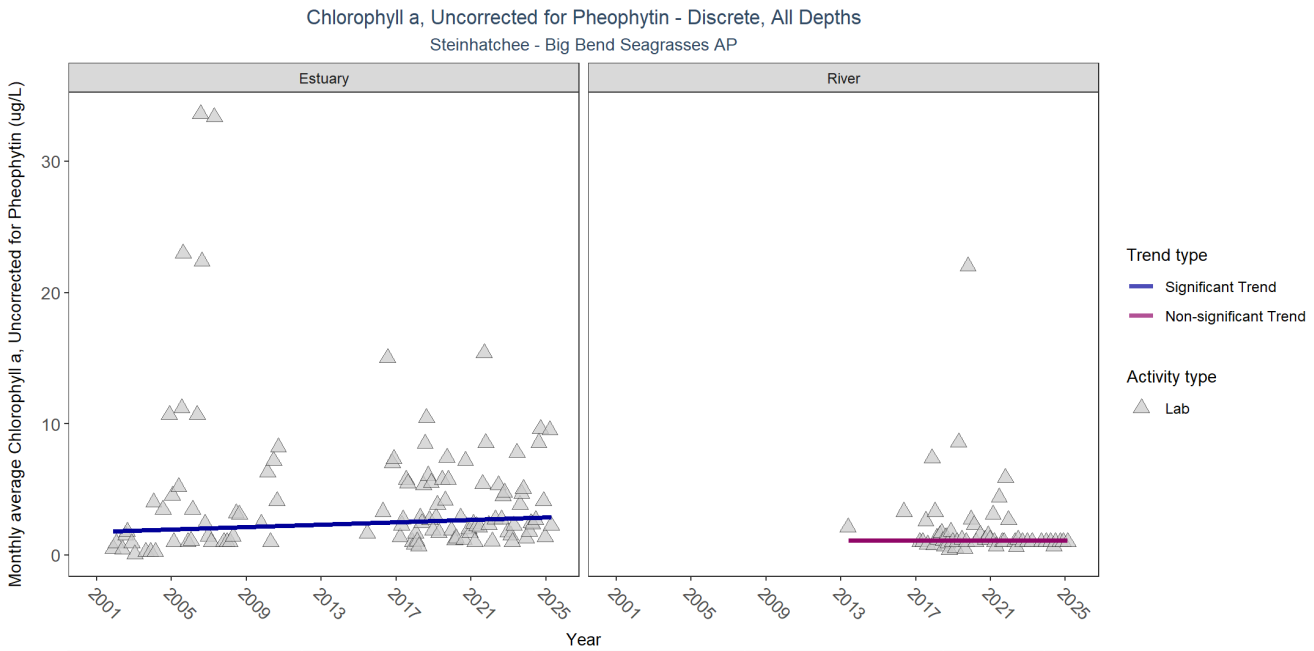


Type	RelativeDepth	N_Data	N_Years	Median	Independent	tau	p	SennSlope	SennIntercept	ChiSquared	pChiSquared	Trend
Estuary	All	211	12	2.2	TRUE	0.2021	0.0640	0.05	1.08	2.63	0.9947	0
River	All	85	14	1.0	TRUE	-0.1170	0.1459	0.00	1.02	NA	NA	0

p < 0.00005 appear as 0 due to rounding.

SennIntercept is intercept value at beginning of record for monitoring location

Chlorophyll a, Uncorrected for Pheophytin

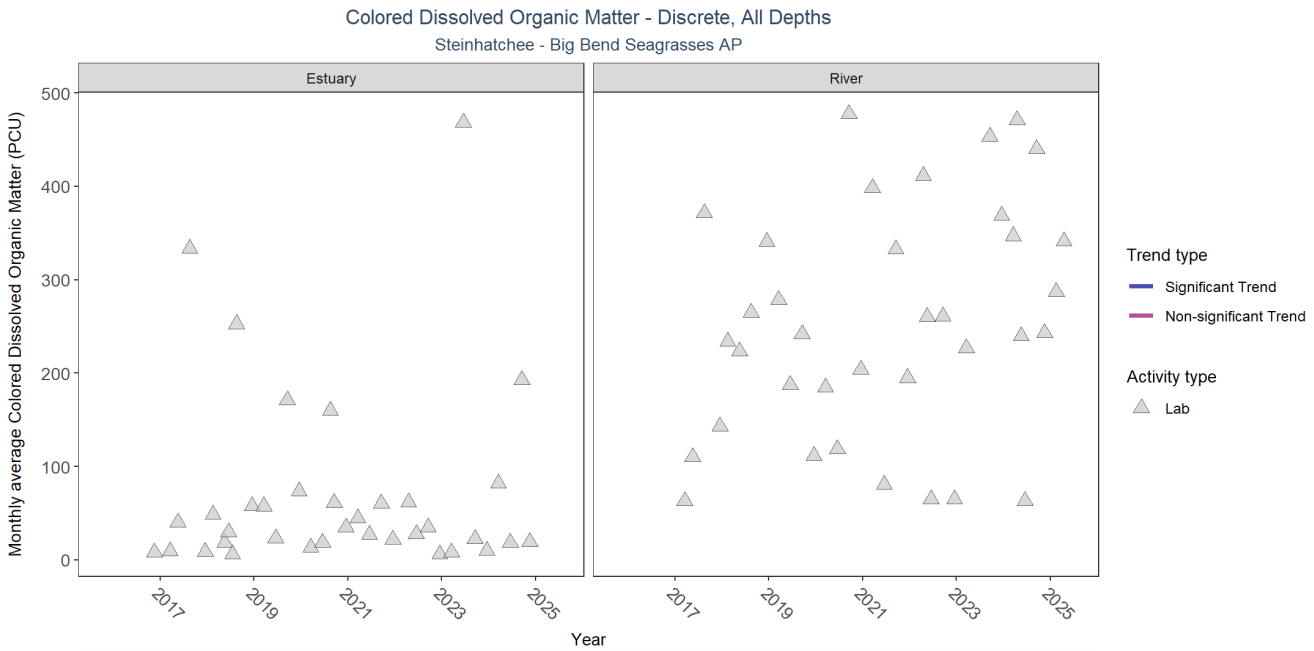


Type	RelativeDepth	N_Data	N_Years	Median	Independent	tau	p	SennSlope	SennIntercept	ChiSquared	pChiSquared	Trend
Estuary	All	245	21	2.4	TRUE	0.1675	0.0411	0.046	1.77	5.39	0.9108	1
River	All	66	11	1.0	TRUE	-0.1636	0.3077	0.000	1.10	8.44	0.5862	0

p < 0.00005 appear as 0 due to rounding.

SennIntercept is intercept value at beginning of record for monitoring location

Colored Dissolved Organic Matter

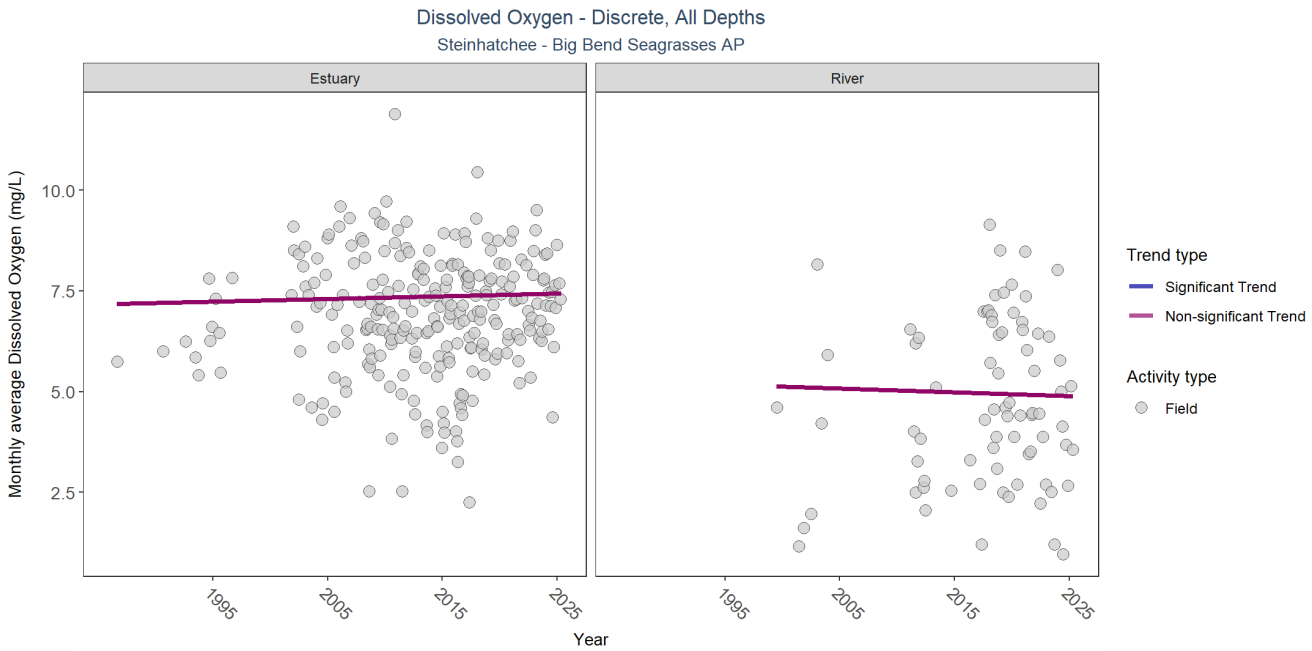


Type	RelativeDepth	N_Data	N_Years	Median	Independent	tau	p	SennSlope	SennIntercept	ChiSquared	pChiSquared	Trend
Estuary	All	36	9	32.25973	NA	NA	NA	NA	NA	NA	NA	NA
River	All	37	9	243.42370	NA	NA	NA	NA	NA	NA	NA	NA

p < 0.00005 appear as 0 due to rounding.

SennIntercept is intercept value at beginning of record for monitoring location

Dissolved Oxygen

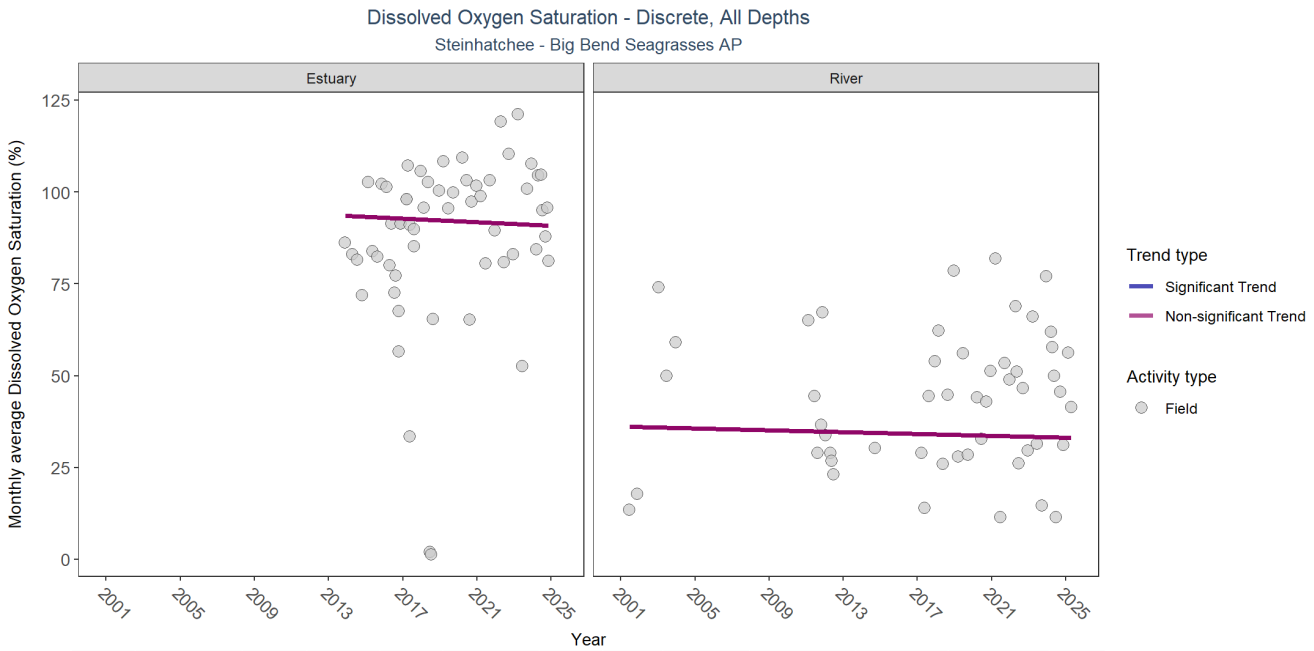


Type	RelativeDepth	N_Data	N_Years	Median	Independent	tau	p	SennSlope	SennIntercept	ChiSquared	pChiSquared	Trend
Estuary	All	4458	32	6.60	TRUE	0.0320	0.5189	0.007	7.17	11.18	0.4286	0
River	All	100	18	4.53	TRUE	0.0284	0.9303	-0.009	5.13	6.02	0.8719	0

p < 0.00005 appear as 0 due to rounding.

SennIntercept is intercept value at beginning of record for monitoring location

Dissolved Oxygen Saturation

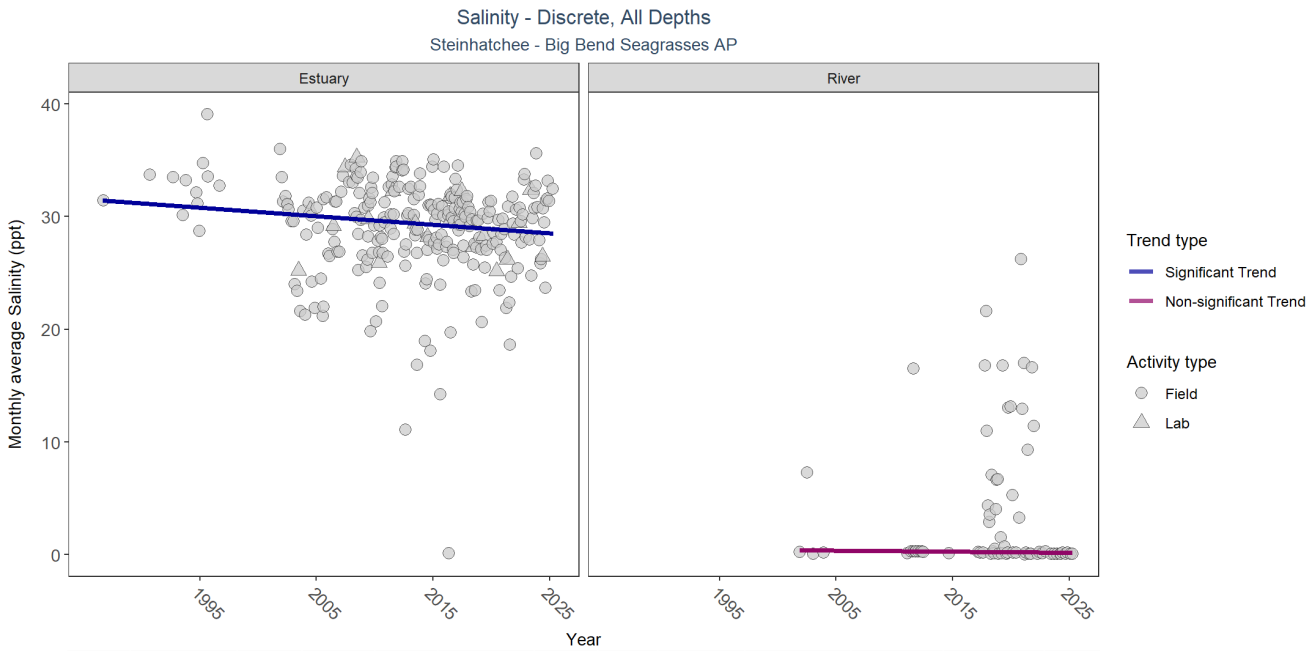


Type	RelativeDepth	N_Data	N_Years	Median	Independent	tau	p	SennSlope	SennIntercept	ChiSquared	pChiSquared	Trend
Estuary	All	77	12	93.0	TRUE	-0.0478	0.9431	-0.243	93.67	7.56	0.6720	0
River	All	61	14	44.5	TRUE	-0.0040	0.8105	-0.123	36.13	11.34	0.2532	0

p < 0.00005 appear as 0 due to rounding.

SennIntercept is intercept value at beginning of record for monitoring location

Salinity

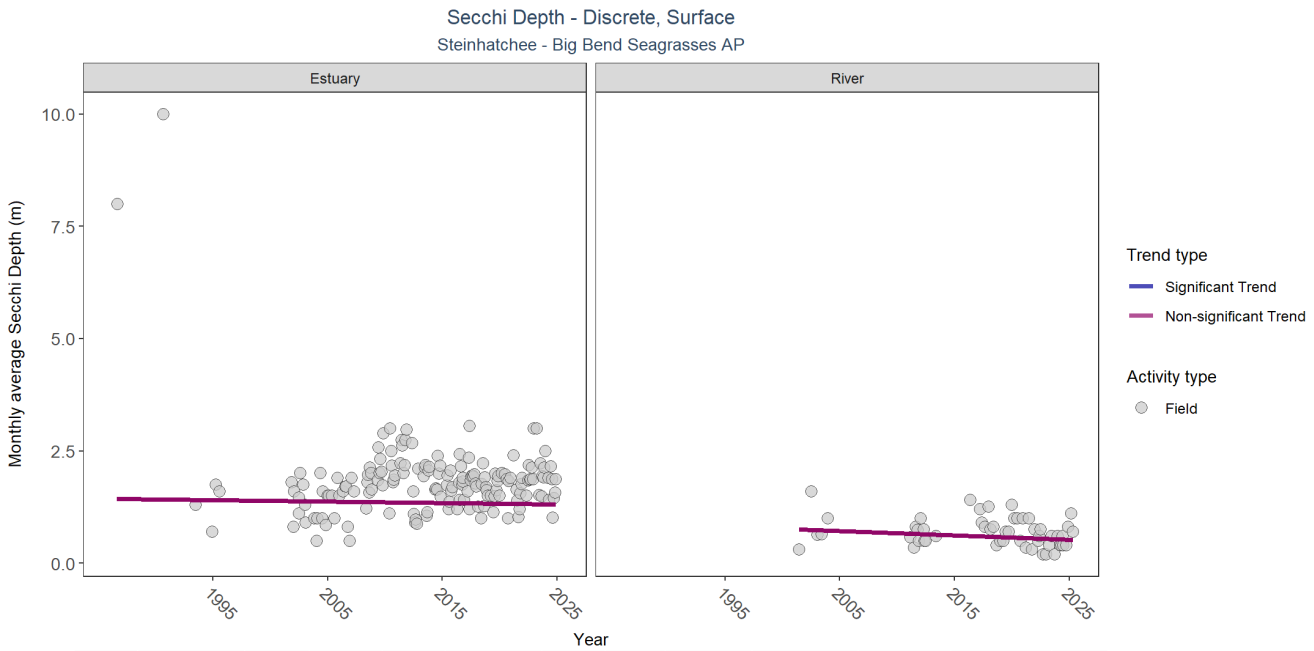


Type	RelativeDepth	N_Data	N_Years	Median	Independent	tau	p	SennSlope	SennIntercept	ChiSquared	pChiSquared	Trend
Estuary	All	4920	32	30.30	TRUE	-0.1348	0.0064	-0.075	31.48	10.06	0.5253	-1
River	All	85	15	0.25	TRUE	-0.1384	0.0950	-0.008	0.40	13.94	0.2361	0

p < 0.00005 appear as 0 due to rounding.

SennIntercept is intercept value at beginning of record for monitoring location

Secchi Depth

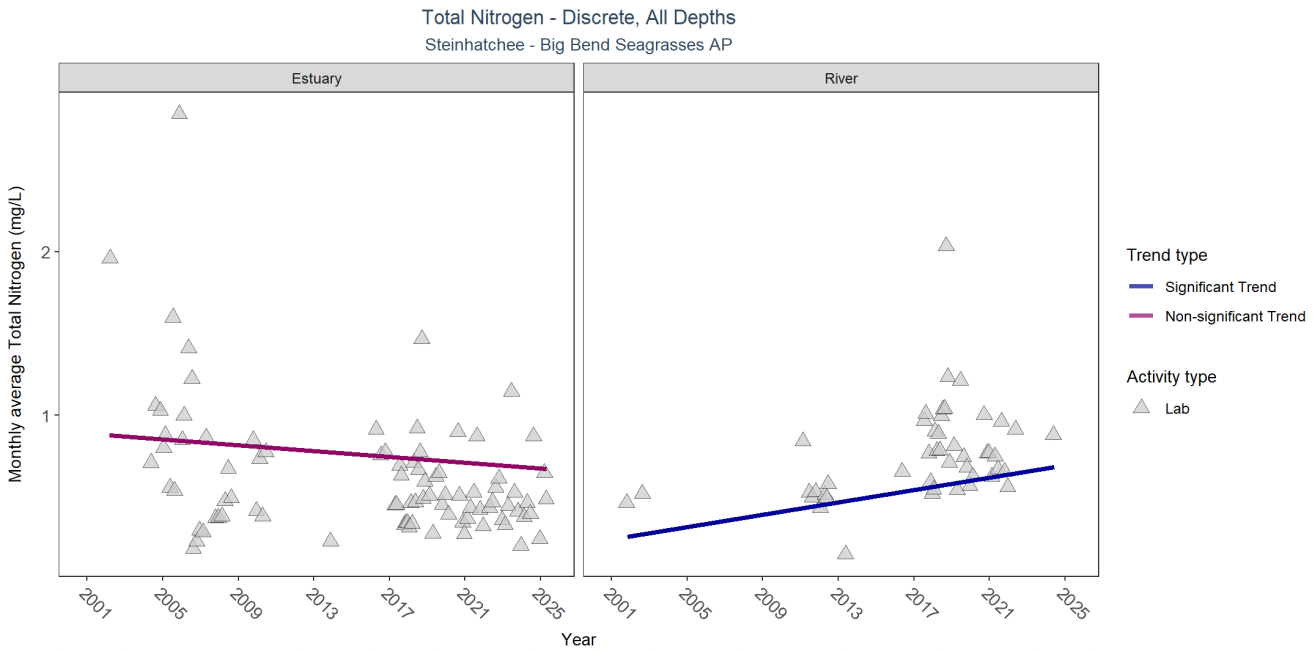


Type	RelativeDepth	N_Data	N_Years	Median	Independent	tau	p	SennSlope	SennIntercept	ChiSquared	pChiSquared	Trend
Estuary	Surface	4110	29	1.8	TRUE	0.0115	0.5745	-0.003	1.43	22.69	0.0195	0
River	Surface	61	16	0.7	TRUE	-0.0629	0.4534	-0.010	0.76	13.86	0.1276	0

p < 0.00005 appear as 0 due to rounding.

SennIntercept is intercept value at beginning of record for monitoring location

Total Nitrogen

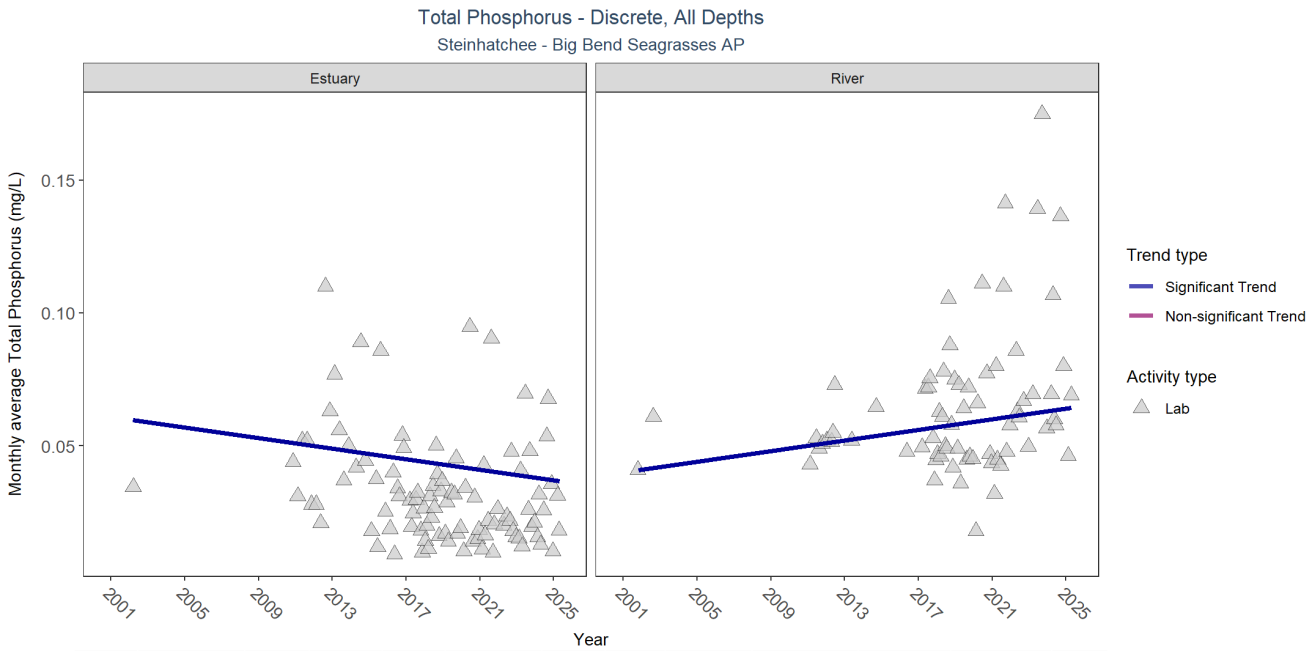


Type	RelativeDepth	N_Data	N_Years	Median	Independent	tau	p	SennSlope	SennIntercept	ChiSquared	pChiSquared	Trend
Estuary	All	206	19	0.4950	TRUE	-0.2503	0.0507	-0.009	0.88	7.91	0.7213	0
River	All	52	13	0.6615	TRUE	0.3570	0.0189	0.019	0.24	11.10	0.3497	1

p < 0.00005 appear as 0 due to rounding.

SennIntercept is intercept value at beginning of record for monitoring location

Total Phosphorus

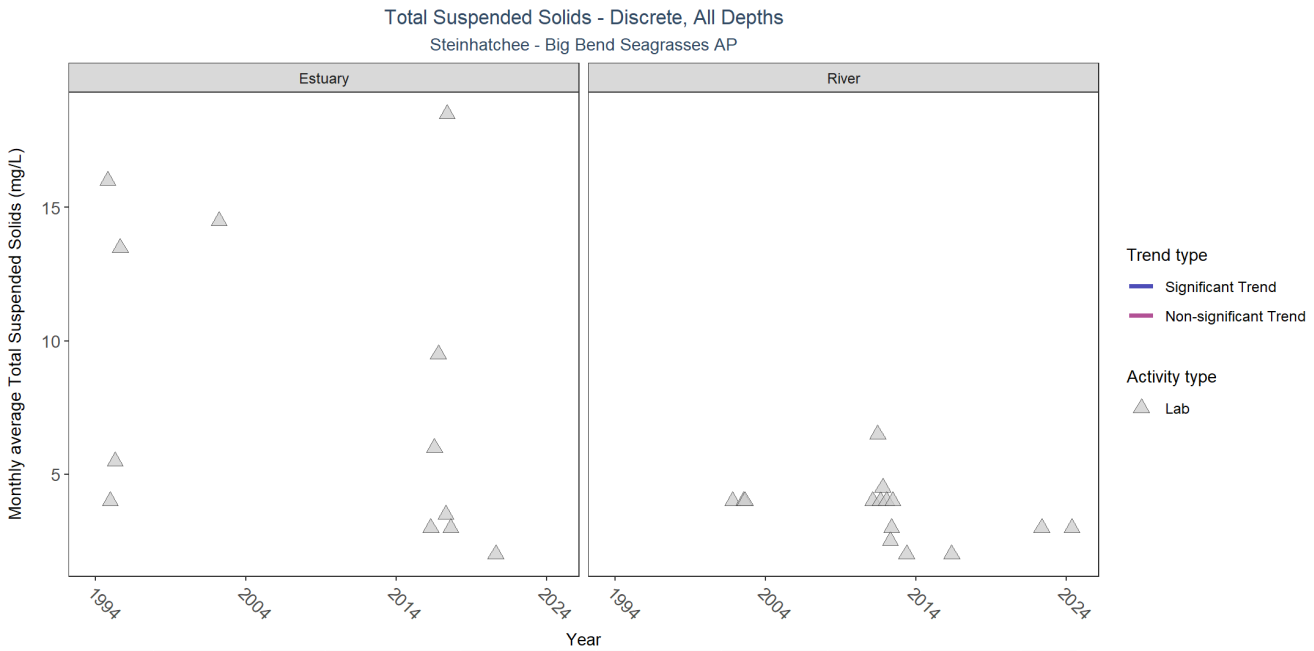


Type	RelativeDepth	N_Data	N_Years	Median	Independent	tau	p	SennSlope	SennIntercept	ChiSquared	pChiSquared	Trend
Estuary	All	232	17	0.0220	TRUE	-0.2686	0.0010	-0.001	0.06	17.50	0.0641	-1
River	All	92	16	0.0558	TRUE	0.2126	0.0159	0.001	0.04	10.64	0.4743	1

p < 0.00005 appear as 0 due to rounding.

SennIntercept is intercept value at beginning of record for monitoring location

Total Suspended Solids

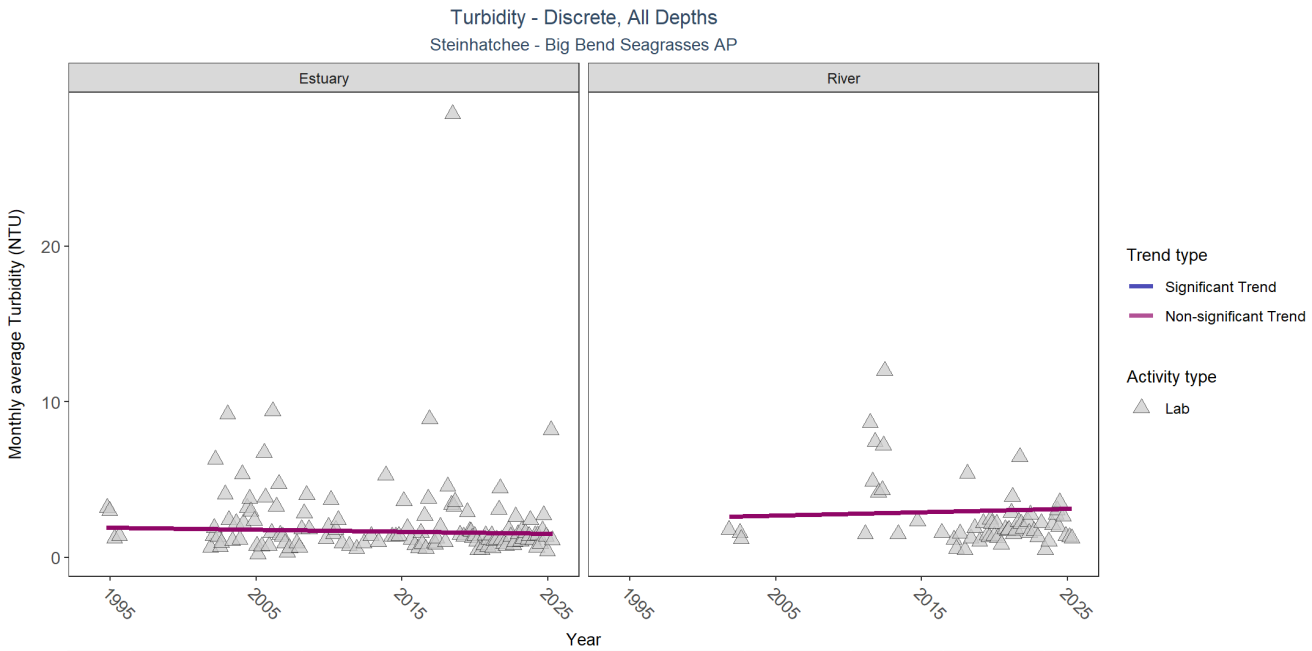


Type	RelativeDepth	N_Data	N_Years	Median	Independent	tau	p	SennSlope	SennIntercept	ChiSquared	pChiSquared	Trend
Estuary	All	21	6	7	NA	NA	NA	NA	NA	NA	NA	NA
River	All	24	8	4	NA	NA	NA	NA	NA	NA	NA	NA

p < 0.00005 appear as 0 due to rounding.

SennIntercept is intercept value at beginning of record for monitoring location

Turbidity

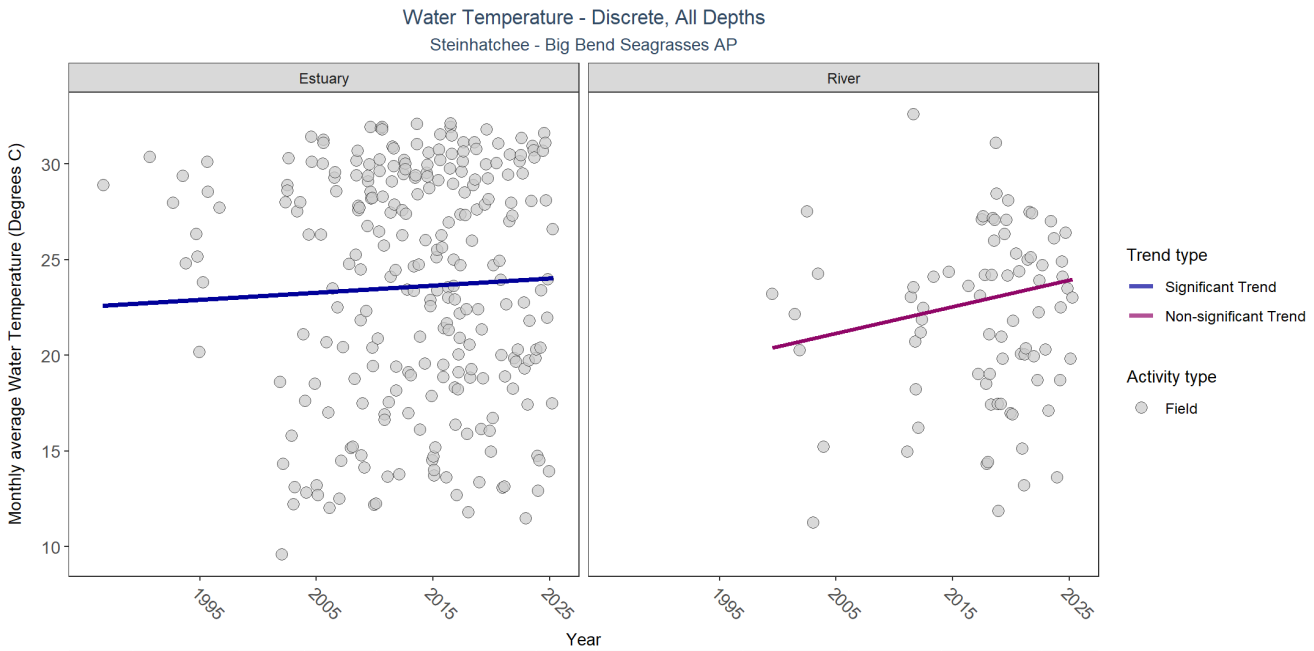


Type	RelativeDepth	N_Data	N_Years	Median	Independent	tau	p	SennSlope	SennIntercept	ChiSquared	pChiSquared	Trend
Estuary	All	217	27	1.4	TRUE	-0.0647	0.3651	-0.013	1.94	4.74	0.9431	0
River	All	75	16	1.8	TRUE	0.0483	0.5226	0.023	2.59	11.19	0.2629	0

p < 0.00005 appear as 0 due to rounding.

SennIntercept is intercept value at beginning of record for monitoring location

Water Temperature

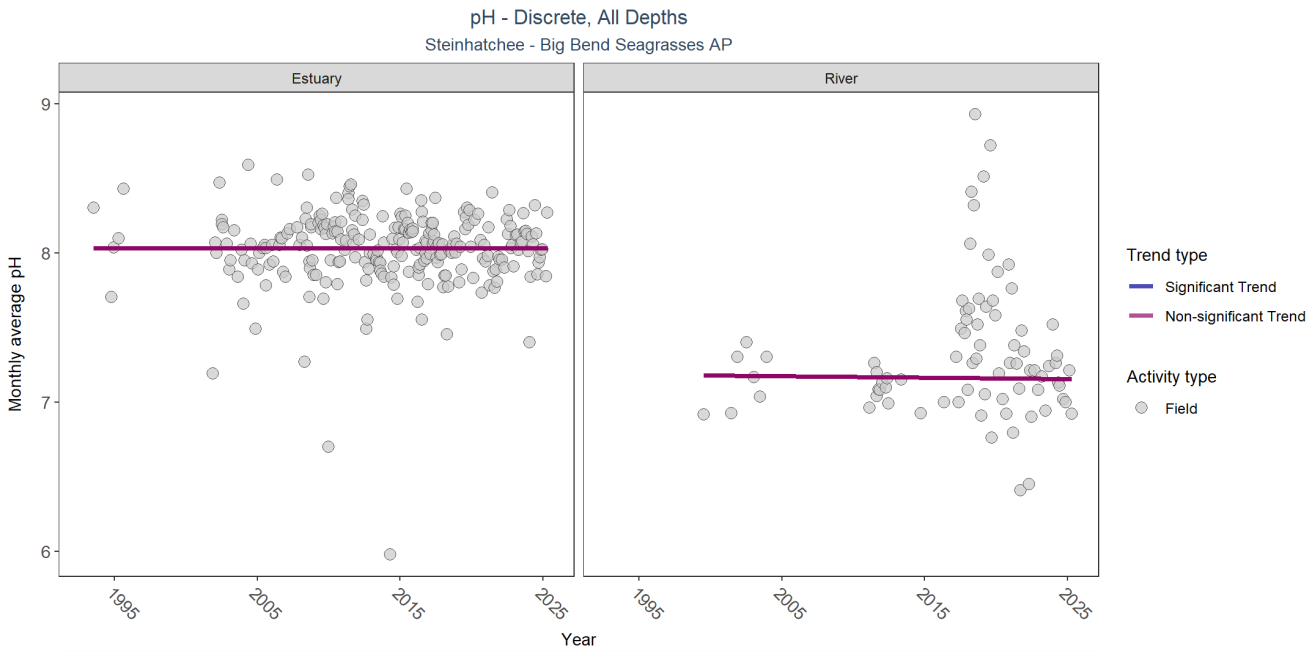


Type	RelativeDepth	N_Data	N_Years	Median	Independent	tau	p	SennSlope	SennIntercept	ChiSquared	pChiSquared	Trend
Estuary	All	4475	32	28.400	TRUE	0.0947	0.0238	0.037	22.56	14.54	0.2046	1
River	All	102	18	22.375	TRUE	0.1759	0.0506	0.138	20.33	6.69	0.8233	0

p < 0.00005 appear as 0 due to rounding.

SennIntercept is intercept value at beginning of record for monitoring location

pH



Type	RelativeDepth	N_Data	N_Years	Median	Independent	tau	p	SennSlope	SennIntercept	ChiSquared	pChiSquared	Trend
Estuary	All	4410	28	8.1	TRUE	-0.0234	0.7268	0.000	8.03	10.89	0.4524	0
River	All	102	18	7.2	TRUE	-0.0116	0.8281	-0.001	7.18	10.14	0.5178	0

p < 0.00005 appear as 0 due to rounding.

SennIntercept is intercept value at beginning of record for monitoring location

Submerged Aquatic Vegetation

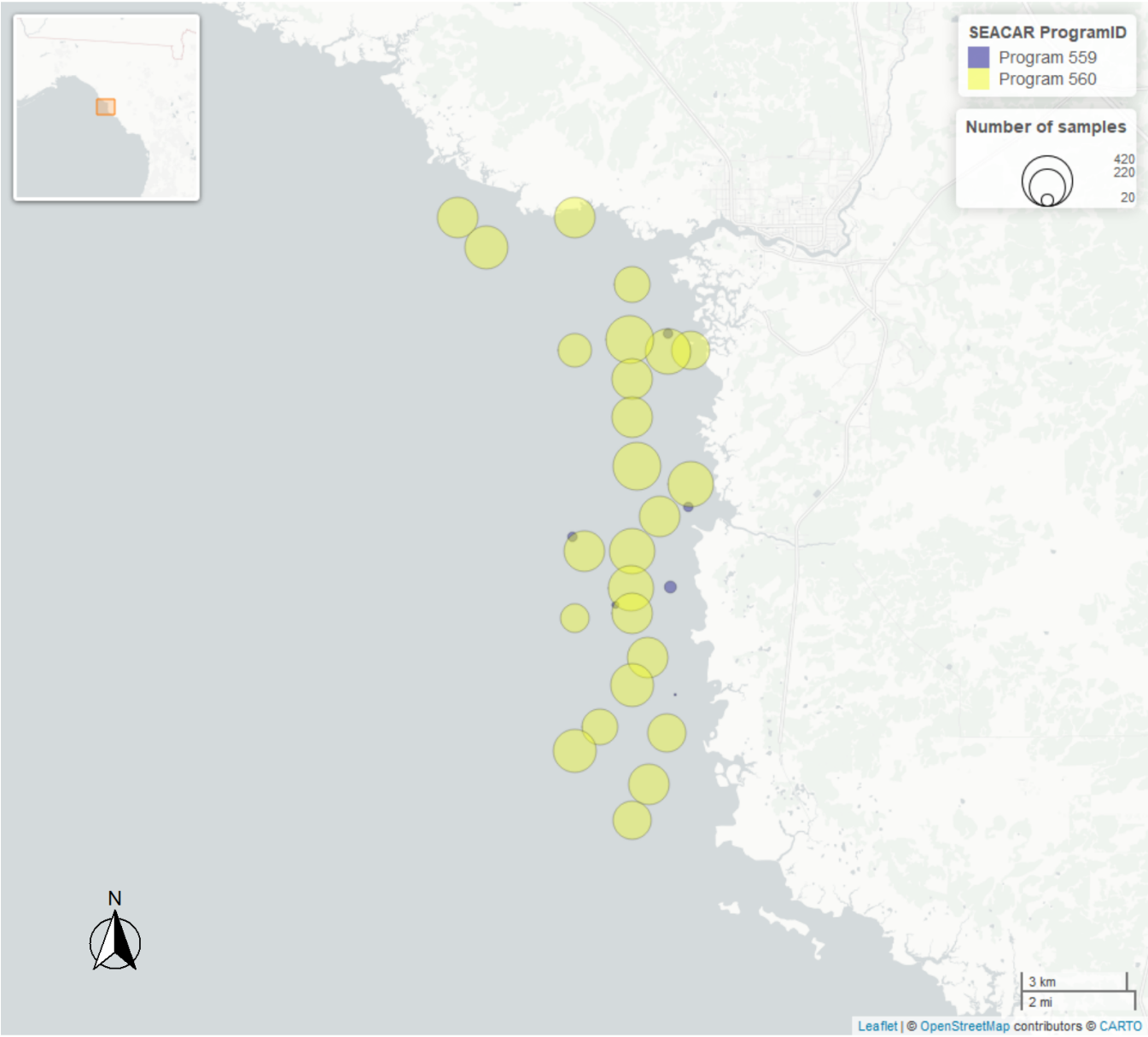


Table 3: Northern Big Bend Seagrass Monitoring - *Program 559*[11]

N_Data	*YearMin*	*YearMax*	*Collection Method*	*Sample Locations*
82	2012	2018	Modified Braun Blanquet	32

Note: [a]Northern Big Bend Seagrass Monitoring - Program 559 contains ProgramLocationID values with Year-based suffixes. Any discrepancy between the number of Sample Locations in the table above and those portrayed on the map are due to this naming convention.

Table 4: Big Bend Seagrasses & Nature Coast Aquatic Preserves - Seagrass Monitoring - *Program 560*[10]

N_Data	*YearMin*	*YearMax*	*Collection Method*	*Sample Locations*
6268	2000	2024	Modified Braun Blanquet	25
1038	2022	2024	Percent Cover	25

Median Percent Cover - Species Trend Table

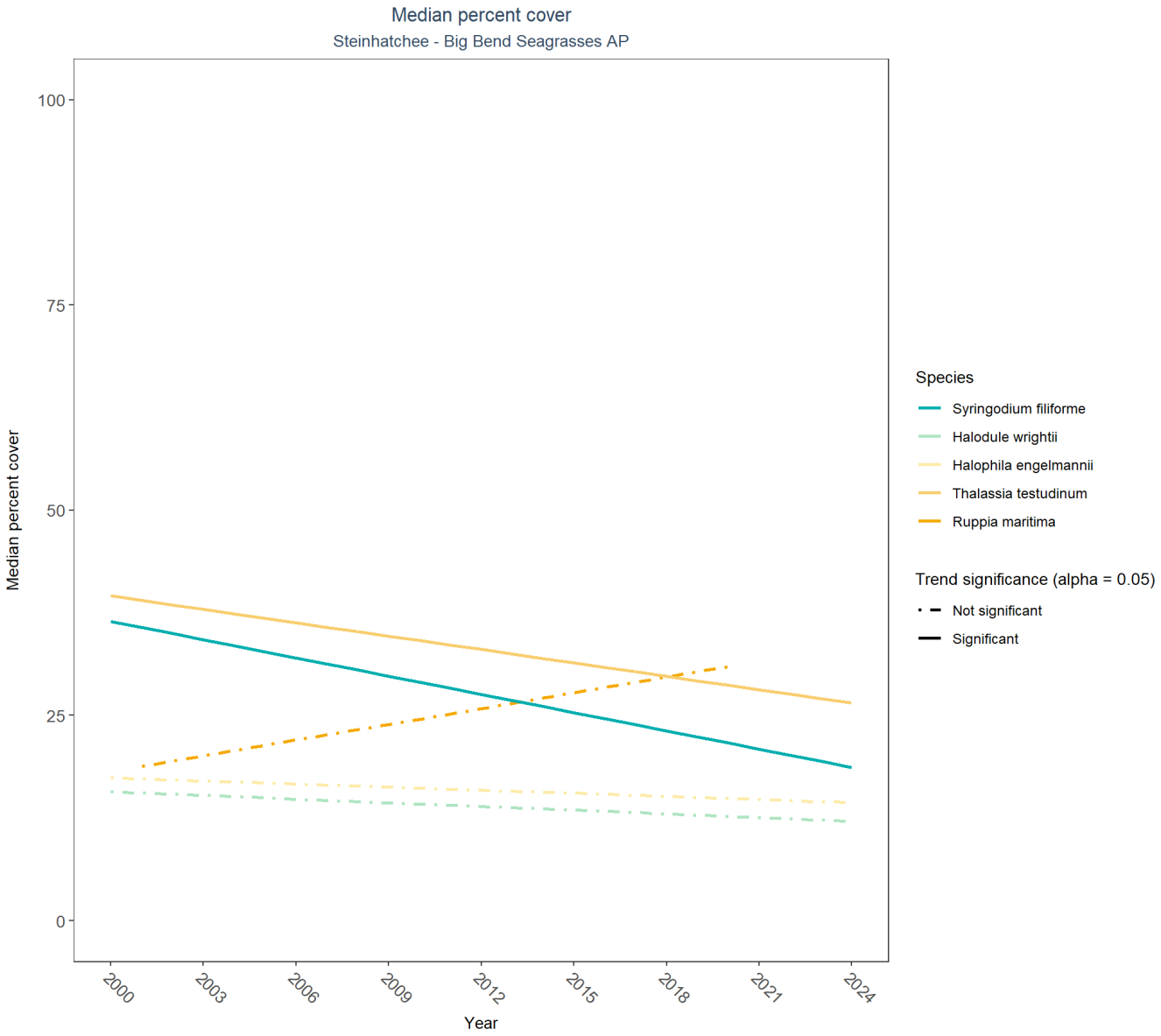
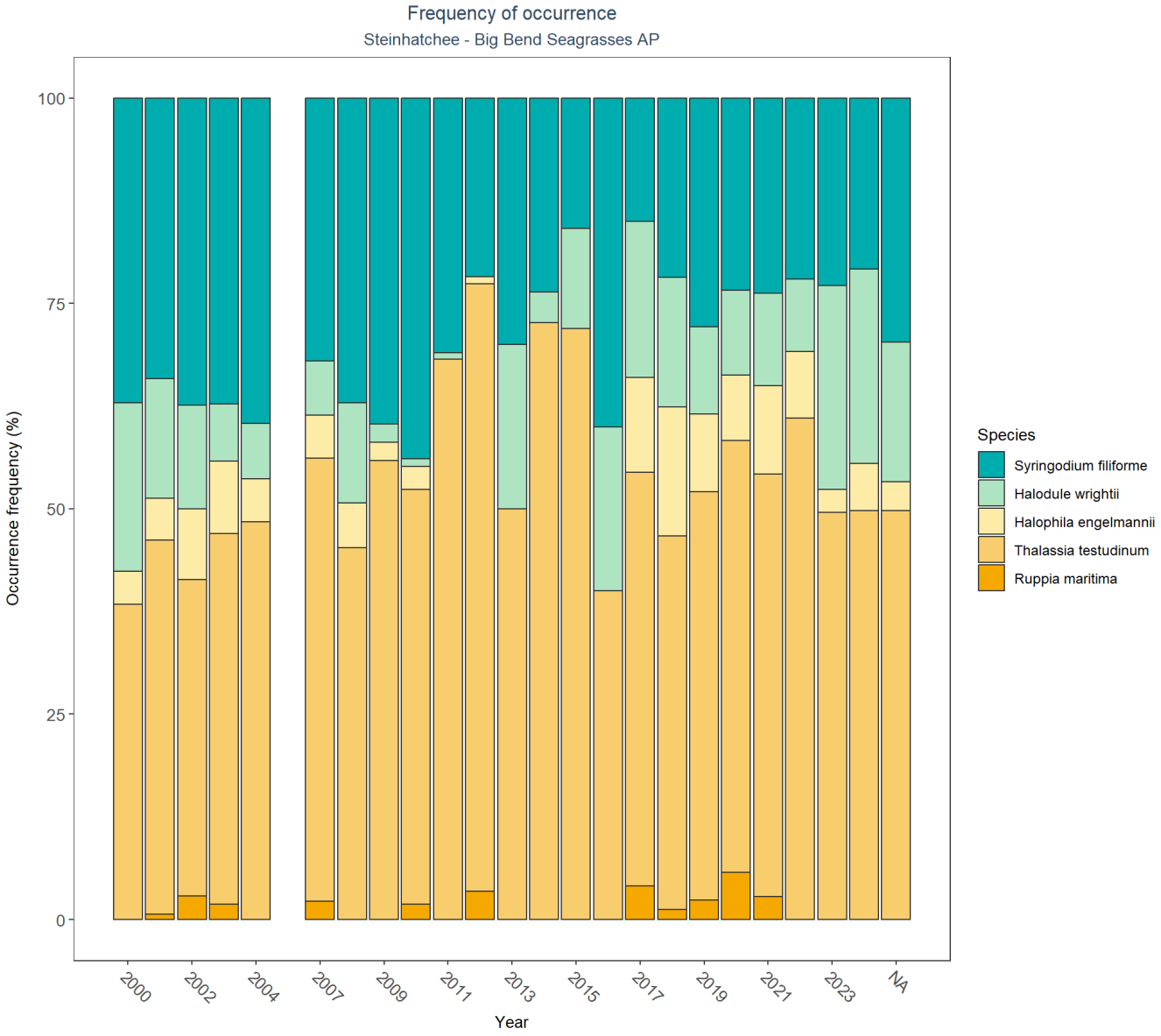


Table 5: Percent Cover Trend Analysis for Steinhatchee

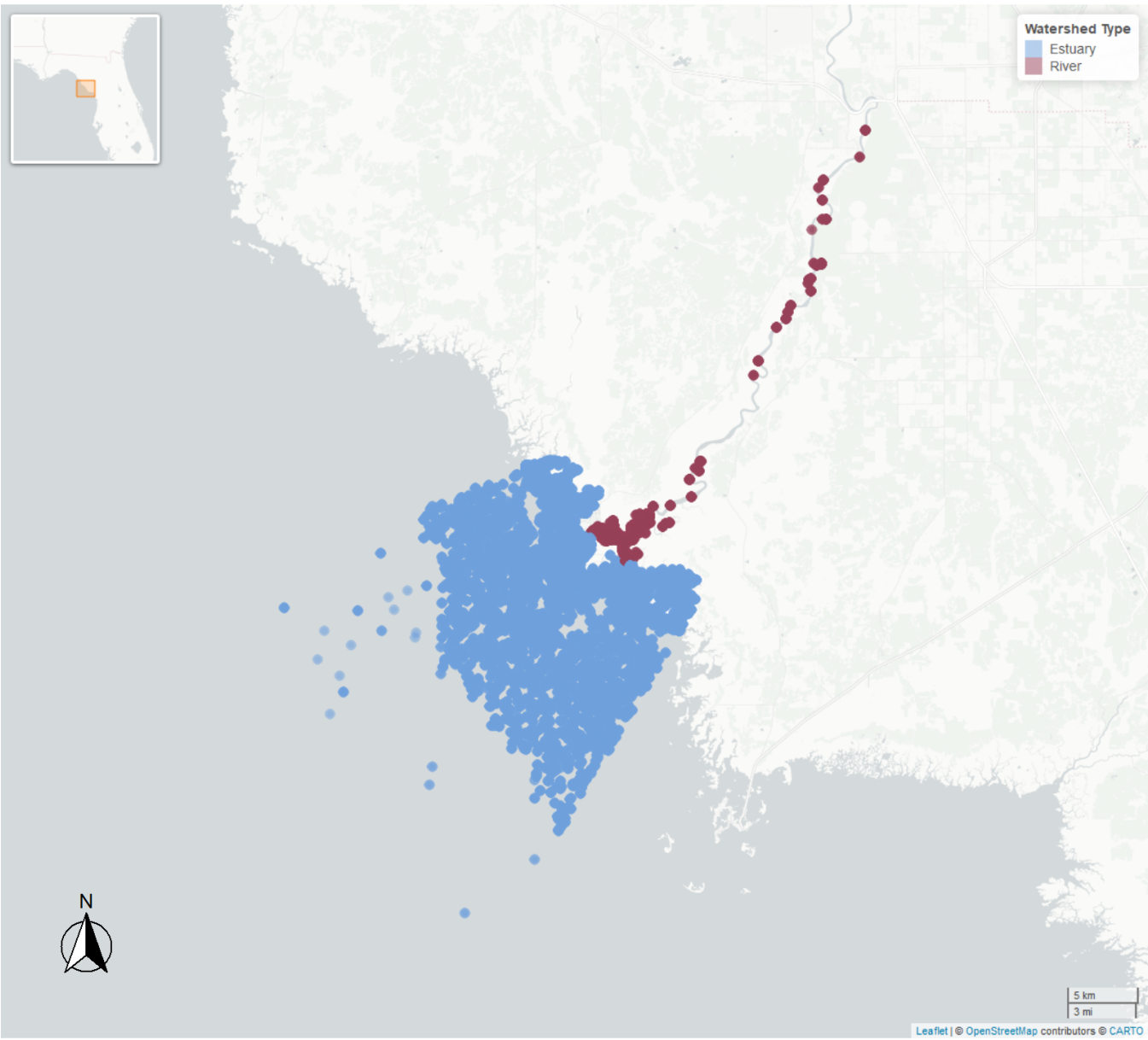
Species	*Trend Significance* (0.05)	*Period of Record*	*LME_Intercept*	*LME_Slope*	*p*
Drift algae	Significantly increasing trend	2000 - 2024	12.2254	0.8203	0.0000
Halodule wrightii	No significant trend	2000 - 2024	15.7037	-0.1492	0.4048
Halophila engelmannii	No significant trend	2000 - 2024	17.4130	-0.1259	0.5401
No grass in quadrat	Model did not fit the available data	2004 - 2024	-	-	-
Ruppia maritima	No significant trend	2001 - 2020	18.1473	0.6401	0.2906

Species	*Trend Significance* (0.05)	*Period of Record*	*LME_Intercept*	*LME_Slope*	*p*
Syringodium filiforme	Significantly decreasing trend	2000 - 2024	36.4735	-0.7414	0.0000
Thalassia testudinum	Significantly decreasing trend	2000 - 2024	39.5636	-0.5440	0.0000

Frequency of Occurrence



Suwannee



Plots will be produced below for all parameters. A Seasonal Kendall-Tau trendline will be plotted only for parameters where *SufficientData* is **TRUE**.

Trend arrows denote trends where the p value is less than 0.05 and the slope is less than 10% of the median parameter value.

Table 6: Seasonal Kendall-Tau Results for Suwannee

Type	*ParameterName*	*Period-of-Record*	*N-Years*	*N-Data*	*SufficientData*	*SennSlope*	*SennIntercept*	*p*	*Trend*
Estuary	Chlorophyll a, Corrected for Pheophytin	1995 - 2025	20	742	TRUE	0.13	1.54	0.0000	⇑
River	Chlorophyll a, Corrected for Pheophytin	1999 - 2025	22	166	TRUE	0.01	0.93	0.1910	0
Estuary	Chlorophyll a, Uncorrected for Pheophytin	1990 - 2025	29	1052	TRUE	0.14	0.93	0.0000	⇑
River	Chlorophyll a, Uncorrected for Pheophytin	1990 - 2025	30	337	TRUE	0.00	1.12	0.5217	0
Estuary	Colored Dissolved Organic Matter	2016 - 2024	9	117	FALSE	-	-	-	-
River	Colored Dissolved Organic Matter	2002 - 2025	10	133	TRUE	0.00	10.34	0.5837	0
Estuary	Dissolved Oxygen	1990 - 2025	34	41322	TRUE	0.00	6.52	0.4904	0
River	Dissolved Oxygen	1989 - 2025	37	4596	TRUE	-0.02	6.44	0.0010	⇓
Estuary	Dissolved Oxygen Saturation	2013 - 2024	12	149	TRUE	0.27	80.46	0.8884	0
River	Dissolved Oxygen Saturation	2013 - 2025	13	155	TRUE	-1.80	58.17	0.0096	⇓
Estuary	Salinity	1967 - 2024	35	42761	TRUE	-0.15	22.04	0.0000	⇓
River	Salinity	1990 - 2025	33	4258	TRUE	0.00	0.20	0.0001	⇓
Estuary	Secchi Depth	1991 - 2024	32	20505	TRUE	-0.01	1.22	0.0000	⇓
River	Secchi Depth	1993 - 2025	27	3830	TRUE	-0.02	1.27	0.0000	⇓
Estuary	Total Nitrogen	1990 - 2025	20	460	TRUE	-0.01	1.32	0.0006	⇓
River	Total Nitrogen	1990 - 2023	25	308	TRUE	0.02	1.10	0.0000	⇑
Estuary	Total Phosphorus	2004 - 2025	17	349	TRUE	0.00	0.12	0.0041	⇓
River	Total Phosphorus	2001 - 2025	25	321	TRUE	0.00	0.08	0.0191	⇑
Estuary	Total Suspended Solids	1990 - 2001	9	381	FALSE	-	-	-	-
River	Total Suspended Solids	1990 - 2023	31	249	TRUE	-0.02	4.00	0.0017	⇓
Estuary	Turbidity	1990 - 2025	34	10145	TRUE	0.02	2.97	0.0352	⇑
River	Turbidity	1990 - 2025	36	719	TRUE	-0.02	1.81	0.0011	⇓
Estuary	Water Temperature	1967 - 2025	36	43095	TRUE	0.03	22.62	0.0003	⇑
River	Water Temperature	1989 - 2025	37	4639	TRUE	0.02	22.47	0.0547	0
Estuary	pH	1990 - 2025	34	31856	TRUE	0.00	7.93	0.0930	0
River	pH	1989 - 2025	37	4421	TRUE	0.00	7.78	0.1934	0

Table 7: Overview of Program Data for Suwannee

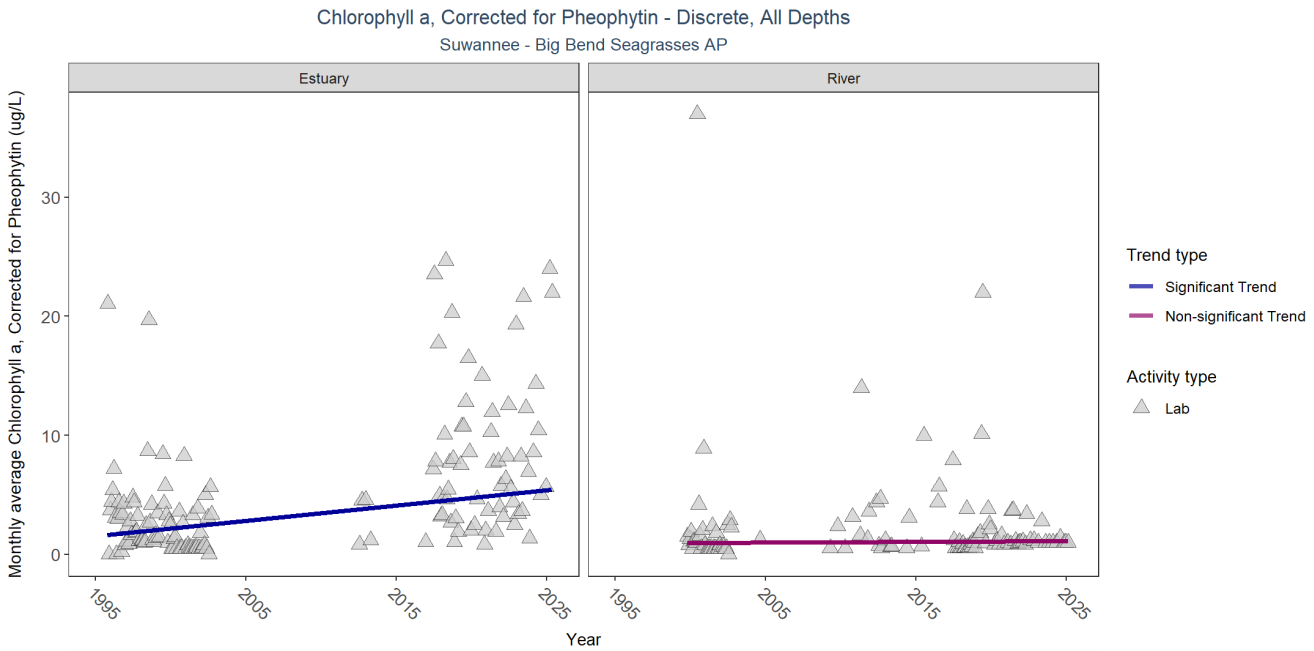
ParameterName	*ProgramID*	*n-data-Estuary*	*n-data-River*
Ammonium, Filtered (NH4)	115	1	-
Ammonium, Filtered (NH4)	477	118	113
Ammonium, Filtered (NH4)	5002	1021	441
Chlorophyll a, Corrected for Pheophytin	477	100	54
Chlorophyll a, Corrected for Pheophytin	5002	648	112
Chlorophyll a, Uncorrected for Pheophytin	103	1	-
Chlorophyll a, Uncorrected for Pheophytin	115	1	-
Chlorophyll a, Uncorrected for Pheophytin	118	-	1
Chlorophyll a, Uncorrected for Pheophytin	477	114	61
Chlorophyll a, Uncorrected for Pheophytin	514	-	57
Chlorophyll a, Uncorrected for Pheophytin	5002	942	218
Colored Dissolved Organic Matter	477	117	114
Colored Dissolved Organic Matter	514	-	12
Colored Dissolved Organic Matter	5002	-	7
Dissolved Oxygen	69	20107	3592
Dissolved Oxygen	95	252	-
Dissolved Oxygen	115	7	2
Dissolved Oxygen	118	6	1
Dissolved Oxygen	477	122	115
Dissolved Oxygen	5002	20828	889
Dissolved Oxygen Saturation	477	122	115
Dissolved Oxygen Saturation	5002	27	40
NO2+3, Filtered	477	118	113
NO2+3, Filtered	5002	1215	496
Nitrate (NO3)	5002	37	20
Nitrite (NO2)	5002	37	20
Phosphate, Filtered (PO4)	115	1	-
Phosphate, Filtered (PO4)	5002	950	363
Salinity	69	20193	3598
Salinity	95	270	-
Salinity	115	7	2
Salinity	118	5	-
Salinity	477	114	83
Salinity	5002	22172	575
Secchi Depth	69	20202	3598
Secchi Depth	115	3	1
Secchi Depth	118	1	-
Secchi Depth	477	122	115
Secchi Depth	514	-	54
Secchi Depth	5002	178	65

Specific Conductivity	69	14862	86
Specific Conductivity	95	9	-
Specific Conductivity	477	232	223
Specific Conductivity	5002	1906	850
Total Kjeldahl Nitrogen	477	118	113
Total Kjeldahl Nitrogen	5002	1181	503
Total Nitrogen	103	4	-
Total Nitrogen	115	1	-
Total Nitrogen	477	2	1
Total Nitrogen	514	-	60
Total Nitrogen	5002	458	247
Total Phosphorus	103	3	-
Total Phosphorus	115	1	-
Total Phosphorus	477	118	113
Total Phosphorus	514	-	60
Total Phosphorus	5002	233	148
Total Suspended Solids	477	-	28
Total Suspended Solids	5002	381	221
Turbidity	477	208	202
Turbidity	5002	10050	617
Water Temperature	69	20199	3598
Water Temperature	95	279	-
Water Temperature	115	7	2
Water Temperature	118	5	-
Water Temperature	477	122	116
Water Temperature	5002	22488	926
pH	69	20068	3585
pH	95	174	-
pH	115	7	2
pH	118	2	-
pH	477	118	112
pH	5002	11517	739

Program names:

69 - Fisheries-Independent Monitoring (FIM) Program -[4]
95 - Harmful Algal Bloom Marine Observation Network -[5]
103 - EPA STOrage and RETrieval Data Warehouse (STORET)/WQX -[6]
115 - Environmental Monitoring Assessment Program -[7]
118 - National Aquatic Resource Surveys, National Coastal Condition Assessment -[8]
477 - Suwannee River Water Management District Water Resource Monitoring Program -[9]
514 - Florida LAKEWATCH Program -[12]
5002 - Florida STORET / WIN -[2]

Chlorophyll a, Corrected for Pheophytin

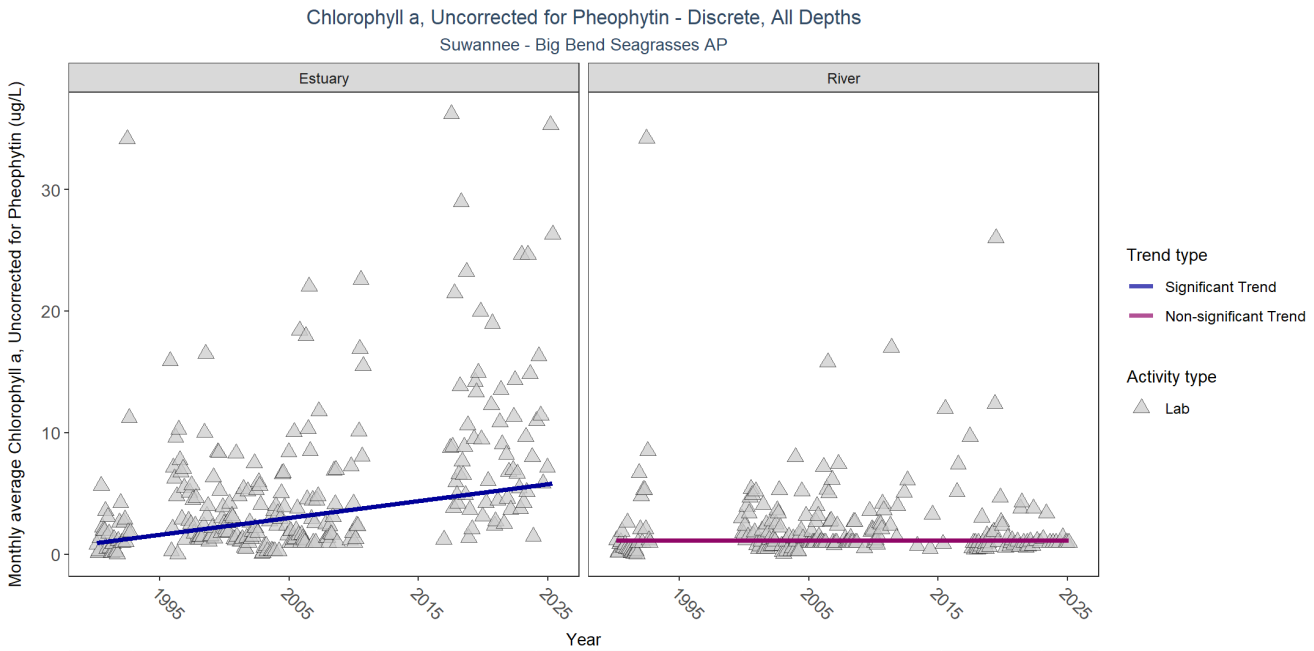


Type	RelativeDepth	N_Data	N_Years	Median	Independent	tau	p	SennSlope	SennIntercept	ChiSquared	pChiSquared	Trend
Estuary	All	742	20	2.28285	TRUE	0.2902	0.0000	0.128	1.54	15.03	0.1811	1
River	All	166	22	1.00000	TRUE	0.0896	0.1910	0.006	0.93	5.31	0.9150	0

p < 0.00005 appear as 0 due to rounding.

SennIntercept is intercept value at beginning of record for monitoring location

Chlorophyll a, Uncorrected for Pheophytin

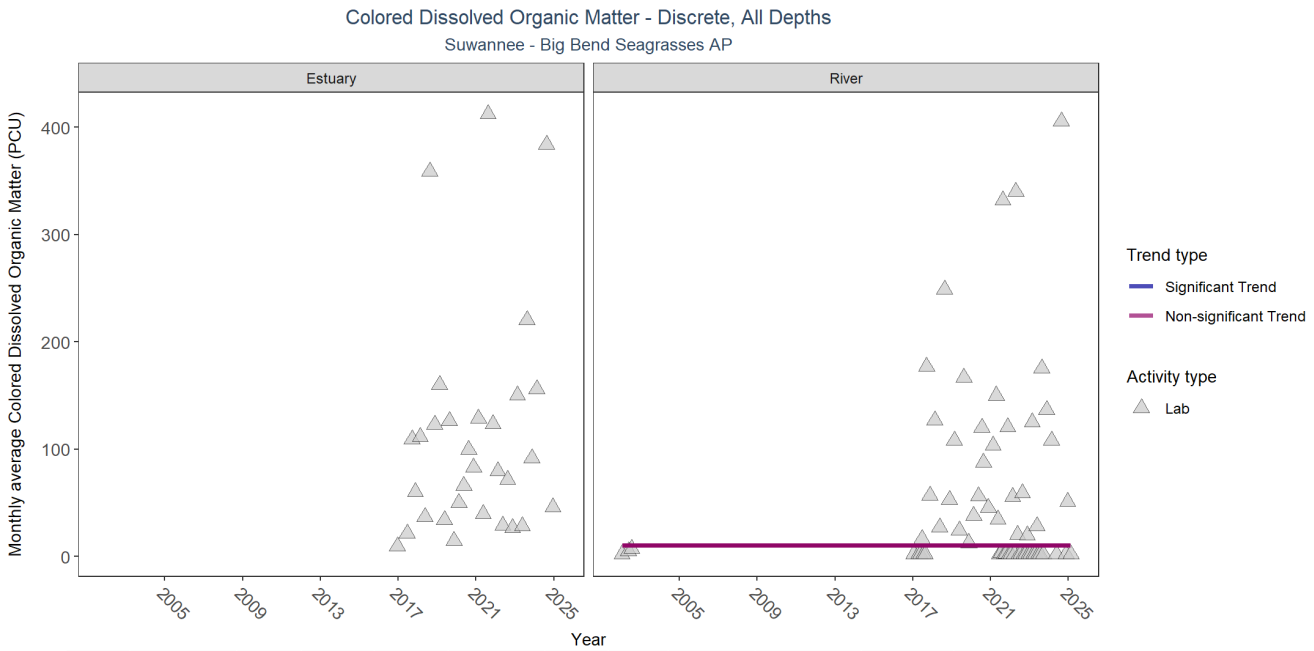


Type	RelativeDepth	N_Data	N_Years	Median	Independent	tau	p	SennSlope	SennIntercept	ChiSquared	pChiSquared	Trend
Estuary	All	1052	29	2.9	TRUE	0.3241	0.0000	0.139	0.93	15.45	0.1627	1
River	All	337	30	1.0	TRUE	0.0276	0.5217	0.000	1.12	6.85	0.8114	0

p < 0.00005 appear as 0 due to rounding.

SennIntercept is intercept value at beginning of record for monitoring location

Colored Dissolved Organic Matter

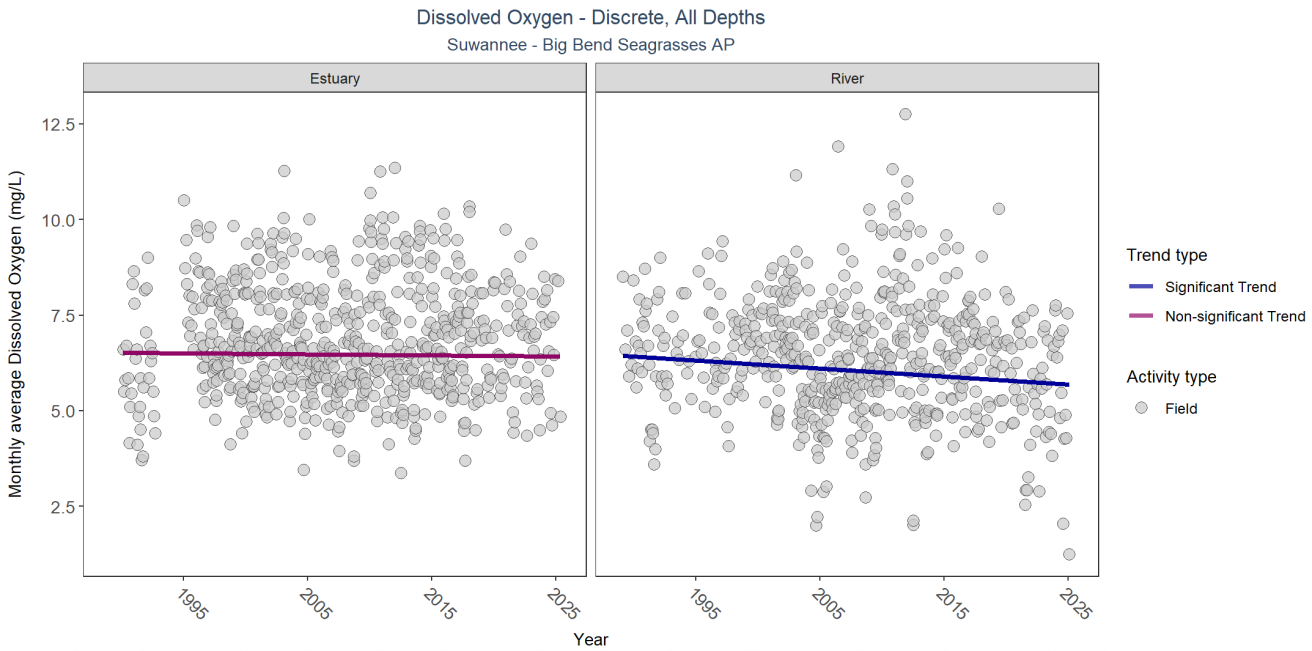


Type	RelativeDepth	N_Data	N_Years	Median	Independent	tau	p	SennSlope	SennIntercept	ChiSquared	pChiSquared	Trend
Estuary	All	117	9	76.29987	NA	NA	NA	NA	NA	NA	NA	NA
River	All	133	10	11.00000	TRUE	-0.0988	0.5837	0	10.34	NA	NA	0

p < 0.00005 appear as 0 due to rounding.

SennIntercept is intercept value at beginning of record for monitoring location

Dissolved Oxygen

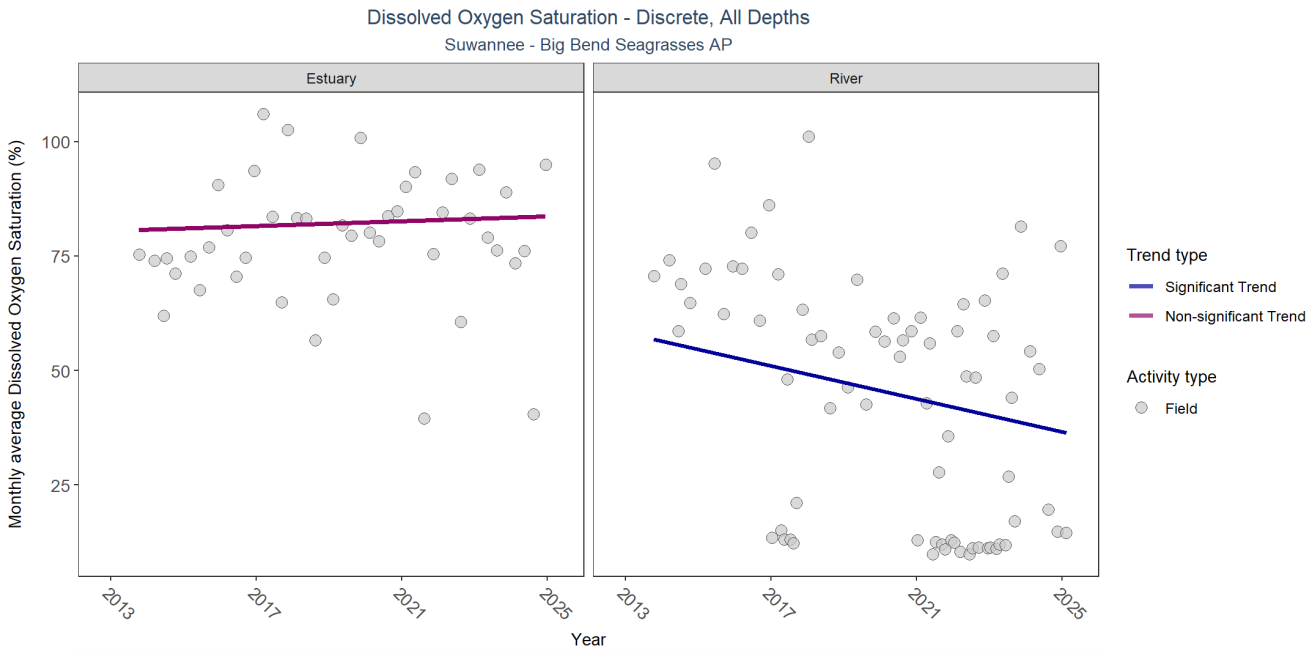


Type	RelativeDepth	N_Data	N_Years	Median	Independent	tau	p	SennSlope	SennIntercept	ChiSquared	pChiSquared	Trend
Estuary	All	41322	34	6.7	TRUE	-0.0245	0.4904	-0.003	6.52	5.88	0.8812	0
River	All	4596	37	6.4	TRUE	-0.1144	0.0010	-0.021	6.44	15.47	0.1618	-1

p < 0.00005 appear as 0 due to rounding.

SennIntercept is intercept value at beginning of record for monitoring location

Dissolved Oxygen Saturation

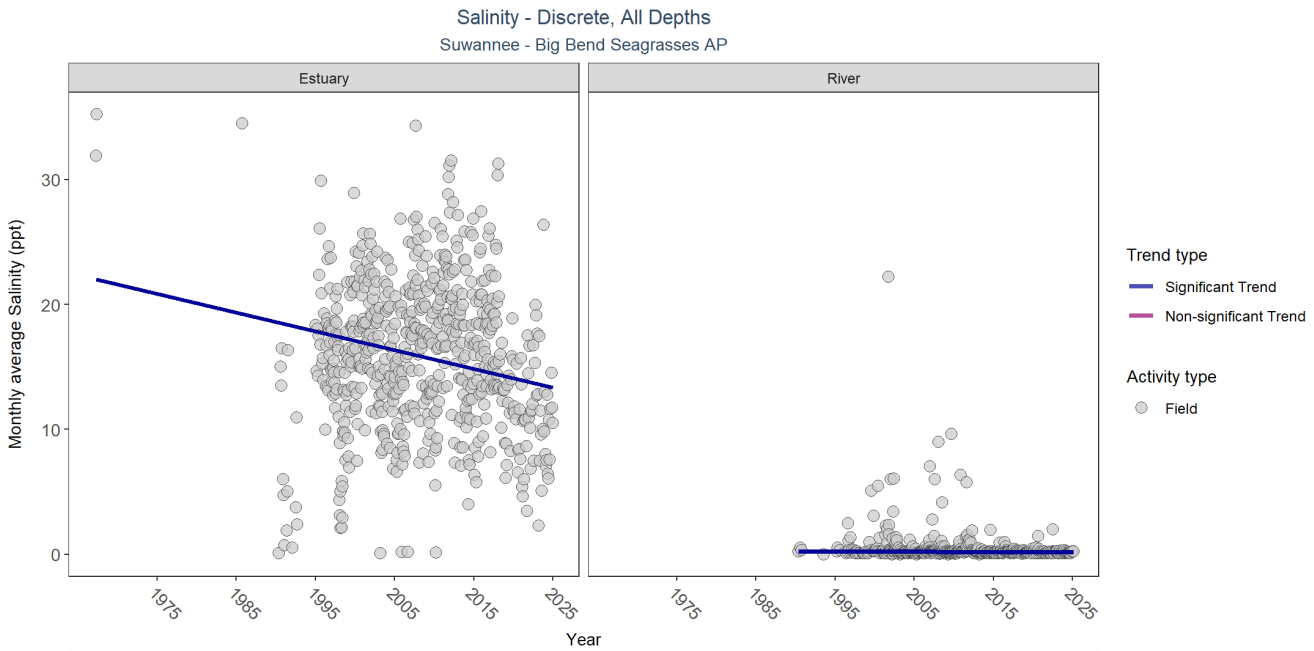


Type	RelativeDepth	N_Data	N_Years	Median	Independent	tau	p	SennSlope	SennIntercept	ChiSquared	pChiSquared	Trend
Estuary	All	149	12	79.7	TRUE	0.0758	0.8884	0.267	80.46	15.90	0.0438	0
River	All	155	13	53.1	TRUE	-0.3243	0.0096	-1.800	58.17	10.93	0.4490	-1

p < 0.00005 appear as 0 due to rounding.

SennIntercept is intercept value at beginning of record for monitoring location

Salinity

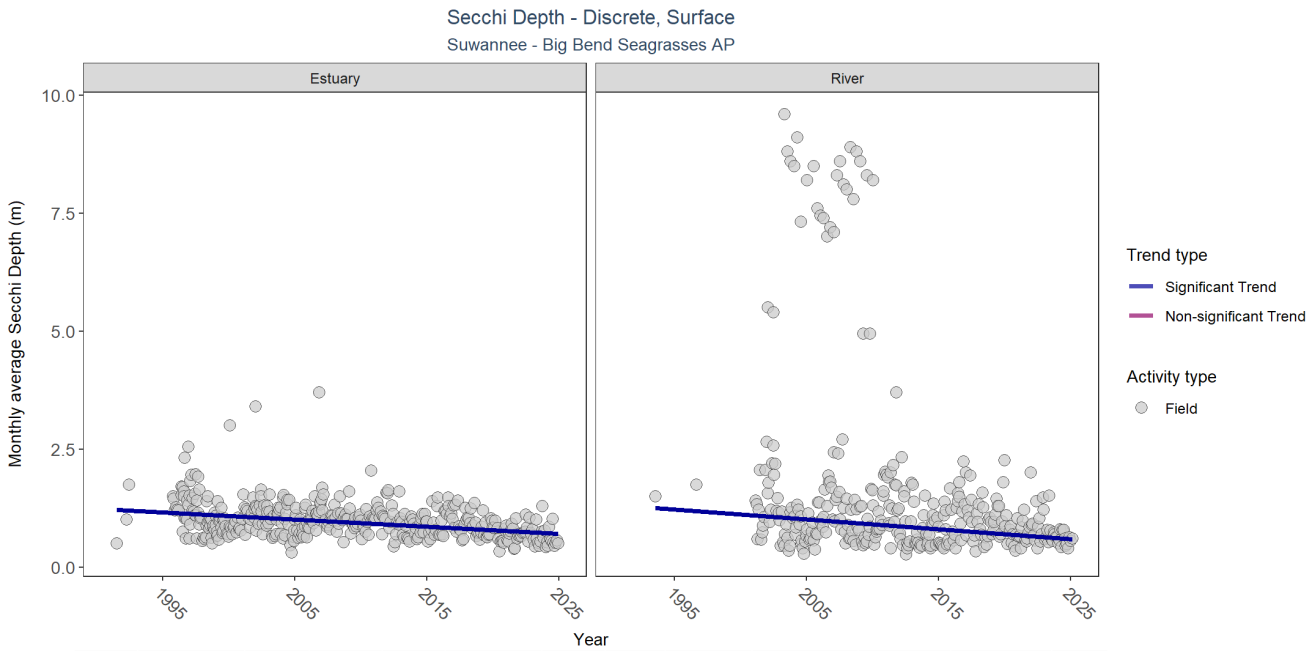


Type	RelativeDepth	N_Data	N_Years	Median	Independent	tau	p	SennSlope	SennIntercept	ChiSquared	pChiSquared	Trend
Estuary	All	42761	35	17.9	TRUE	-0.1852	0.0000	-0.150	22.04	13.89	0.2391	-1
River	All	4258	33	0.2	TRUE	-0.1467	0.0001	-0.001	0.20	4.69	0.9453	-1

p < 0.00005 appear as 0 due to rounding.

SennIntercept is intercept value at beginning of record for monitoring location

Secchi Depth

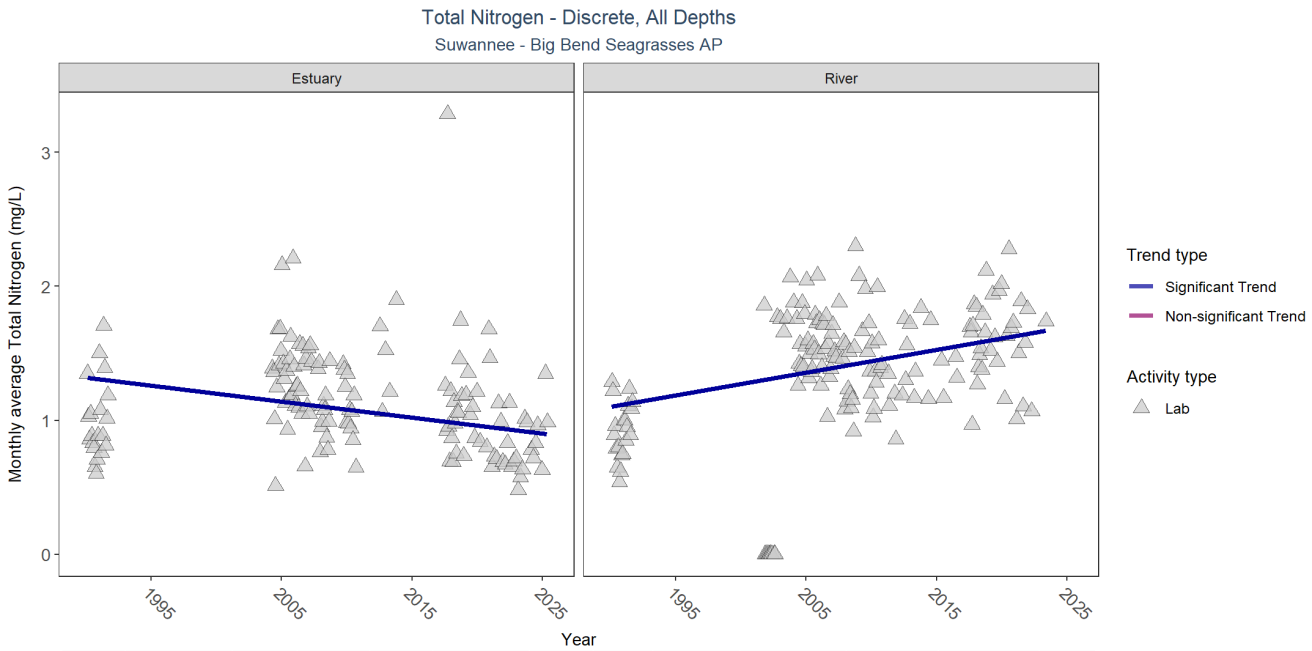


Type	RelativeDepth	N_Data	N_Years	Median	Independent	tau	p	SennSlope	SennIntercept	ChiSquared	pChiSquared	Trend
Estuary	Surface	20505	32	0.8	TRUE	-0.2846	0.0000	-0.015	1.22	11.59	0.3956	-1
River	Surface	3830	27	0.8	TRUE	-0.2305	0.0000	-0.021	1.27	8.47	0.6703	-1

p < 0.00005 appear as 0 due to rounding.

SennIntercept is intercept value at beginning of record for monitoring location

Total Nitrogen

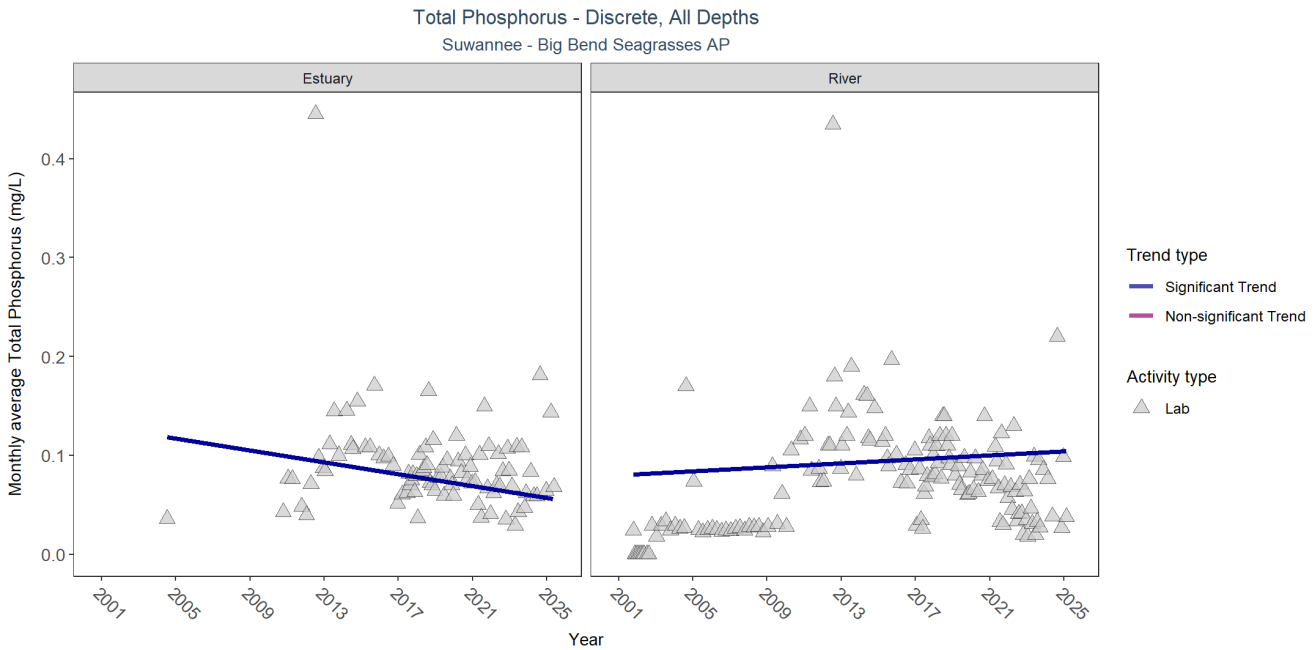


Type	RelativeDepth	N_Data	N_Years	Median	Independent	tau	p	SennSlope	SennIntercept	ChiSquared	pChiSquared	Trend
Estuary	All	460	20	1.09	TRUE	-0.2194	0.0006	-0.012	1.32	18.37	0.0733	-1
River	All	308	25	1.33	TRUE	0.2627	0.0000	0.017	1.10	9.29	0.5953	1

p < 0.00005 appear as 0 due to rounding.

SennIntercept is intercept value at beginning of record for monitoring location

Total Phosphorus

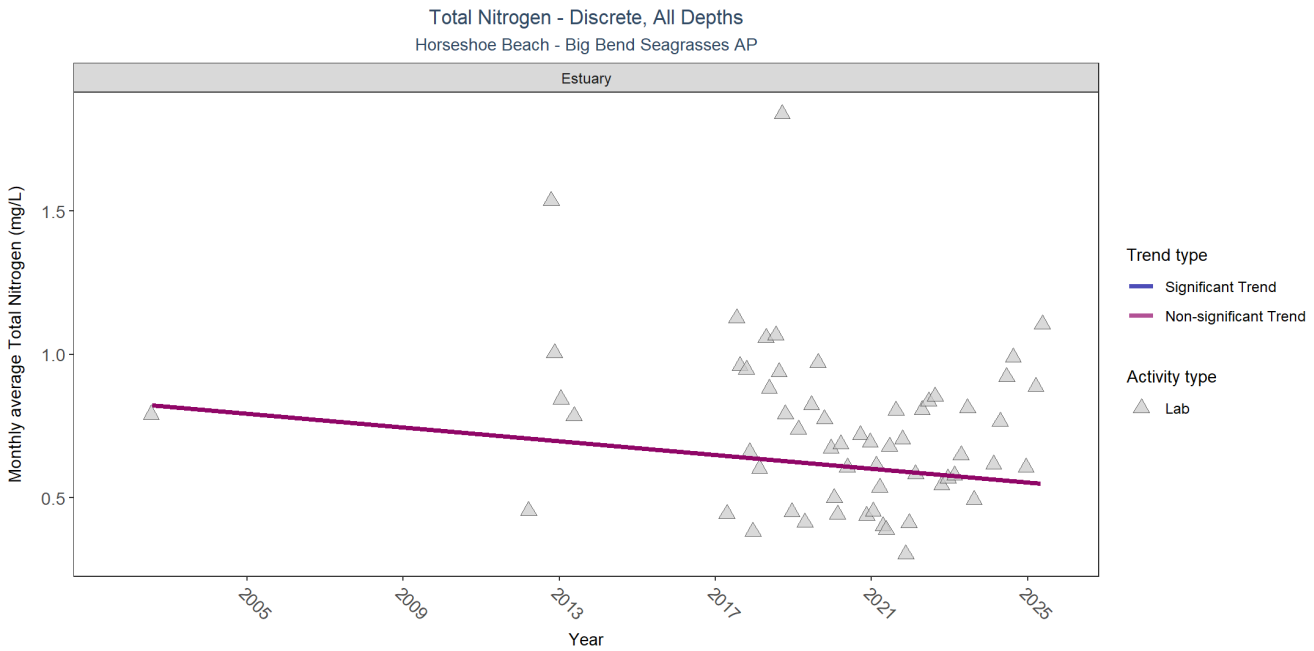


Type	RelativeDepth	N_Data	N_Years	Median	Independent	tau	p	SennSlope	SennIntercept	ChiSquared	pChiSquared	Trend
Estuary	All	349	17	0.0900	TRUE	-0.2393	0.0041	-0.003	0.12	11.83	0.3762	-1
River	All	321	25	0.0405	TRUE	0.0688	0.0191	0.001	0.08	29.71	0.0018	1

$p < 0.00005$ appear as 0 due to rounding.

SennIntercept is intercept value at beginning of record for monitoring location

Total Suspended Solids

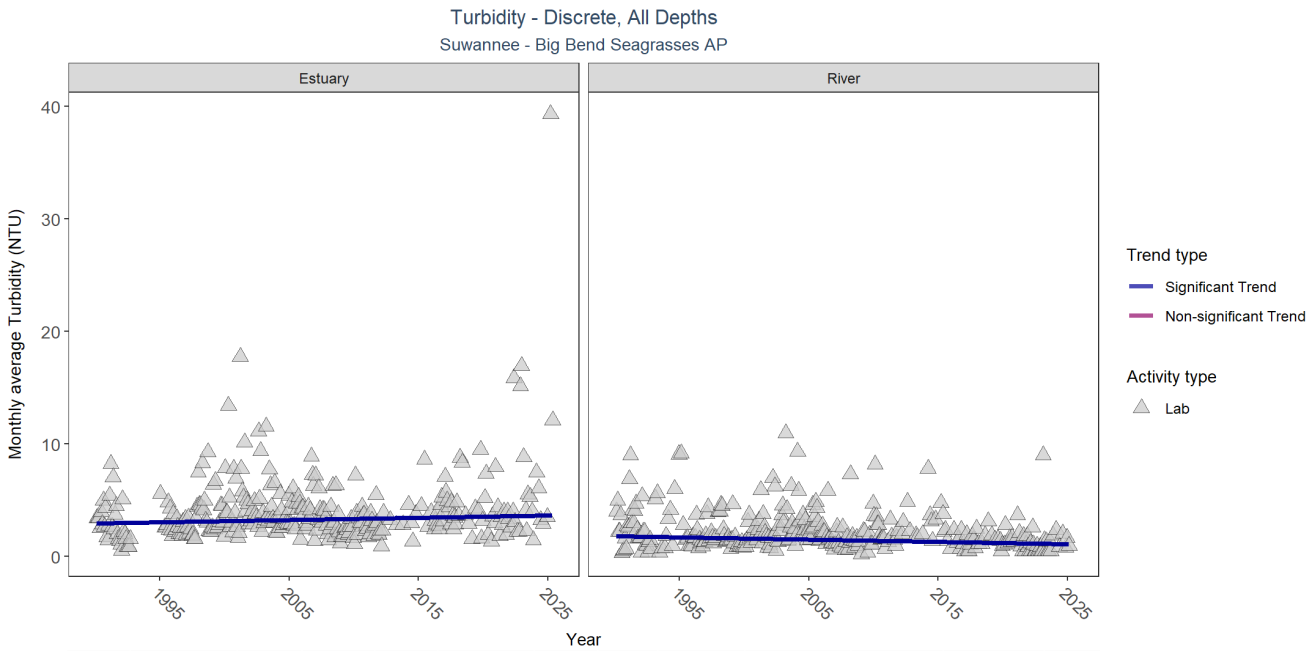


Type	RelativeDepth	N_Data	N_Years	Median	Independent	tau	p	SennSlope	SennIntercept	ChiSquared	pChiSquared	Trend
Estuary	All	227	12	0.744	TRUE	-0.1333	0.4989	-0.012	0.83	18.67	0.0672	0

p < 0.00005 appear as 0 due to rounding.

SennIntercept is intercept value at beginning of record for monitoring location

Turbidity

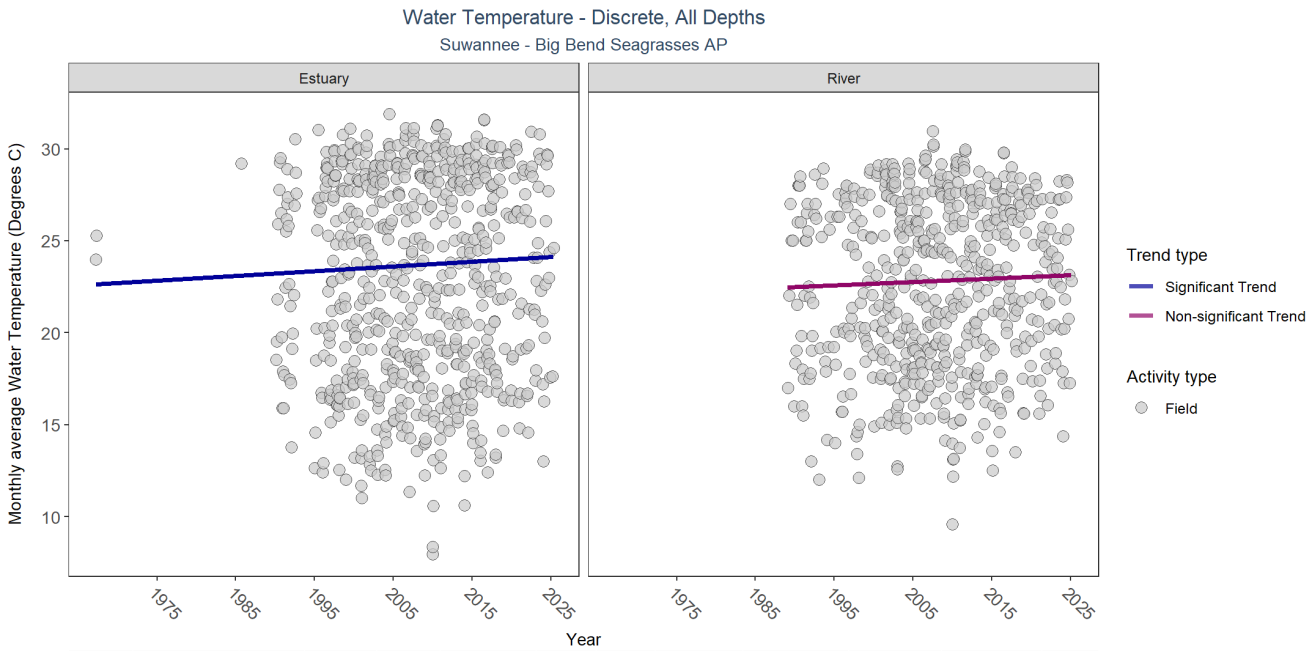


Type	RelativeDepth	N_Data	N_Years	Median	Independent	tau	p	SennSlope	SennIntercept	ChiSquared	pChiSquared	Trend
Estuary	All	10145	34	2.6	TRUE	0.0820	0.0352	0.02	2.97	9.72	0.5555	1
River	All	719	36	1.6	TRUE	-0.1344	0.0011	-0.02	1.81	11.46	0.4055	-1

p < 0.00005 appear as 0 due to rounding.

SennIntercept is intercept value at beginning of record for monitoring location

Water Temperature

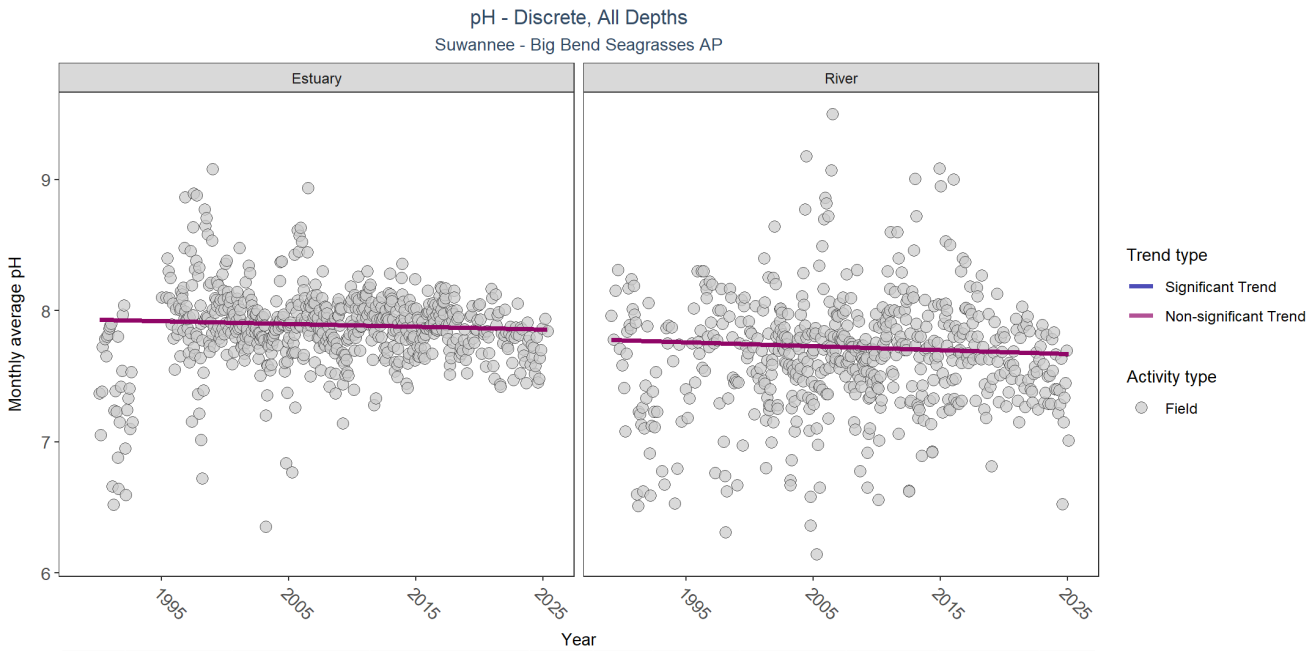


Type	RelativeDepth	N_Data	N_Years	Median	Independent	tau	p	SennSlope	SennIntercept	ChiSquared	pChiSquared	Trend
Estuary	All	43095	36	23.3	TRUE	0.1278	0.0003	0.026	22.62	9.50	0.5759	1
River	All	4639	37	23.0	TRUE	0.0641	0.0547	0.018	22.47	14.18	0.2235	0

p < 0.00005 appear as 0 due to rounding.

SennIntercept is intercept value at beginning of record for monitoring location

pH

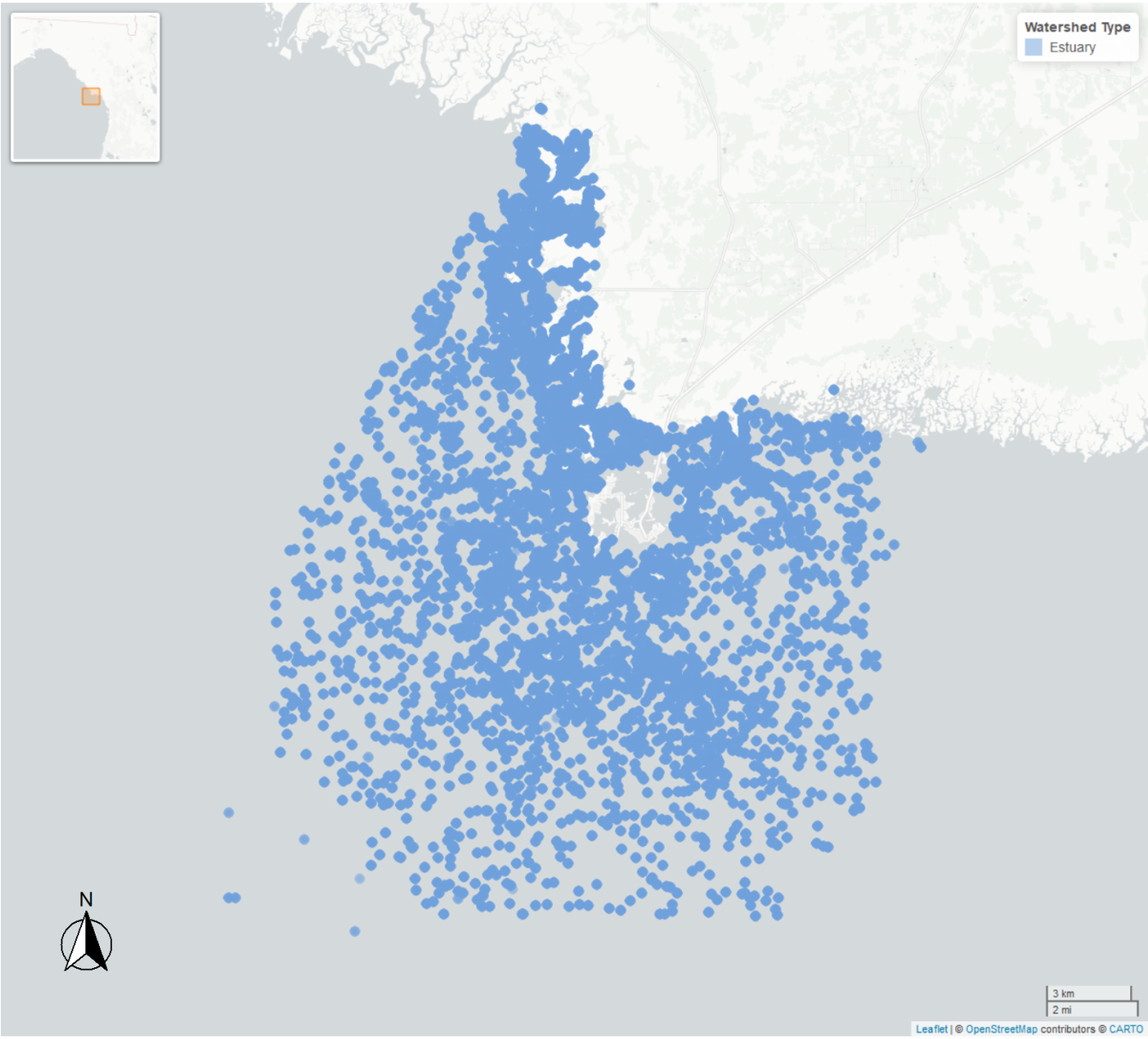


Type	RelativeDepth	N_Data	N_Years	Median	Independent	tau	p	SennSlope	SennIntercept	ChiSquared	pChiSquared	Trend
Estuary	All	31856	34	7.9	TRUE	-0.0583	0.0930	-0.002	7.93	14.75	0.1942	0
River	All	4421	37	7.7	TRUE	-0.0457	0.1934	-0.003	7.78	13.53	0.2599	0

p < 0.00005 appear as 0 due to rounding.

SennIntercept is intercept value at beginning of record for monitoring location

Cedar Key



Plots will be produced below for all parameters. A Seasonal Kendall-Tau trendline will be plotted only for parameters where *SufficientData* is **TRUE**.

Trend arrows denote trends where the p value is less than 0.05 and the slope is less than 10% of the median parameter value.

Table 8: Seasonal Kendall-Tau Results for Cedar Key

Type	*ParameterName*	*Period-of-Record*	*N-Years*	*N-Data*	*SufficientData*	*SennSlope*	*SennIntercept*	*p*	*Trend*
Estuary	Chlorophyll a, Corrected for Pheophytin	1997 - 2025	20	475	TRUE	0.07	11.04	0.1499	0
Estuary	Chlorophyll a, Uncorrected for Pheophytin	1997 - 2025	22	474	TRUE	0.34	8.33	0.0000	⇑
Estuary	Colored Dissolved Organic Matter	2017 - 2024	8	147	FALSE	-	-	-	-
Estuary	Dissolved Oxygen	1985 - 2025	33	55440	TRUE	0.00	6.94	0.6413	0
Estuary	Dissolved Oxygen Saturation	2013 - 2025	4	17	FALSE	-	-	-	-
Estuary	Salinity	1967 - 2025	35	58238	TRUE	0.01	24.78	0.4177	0
Estuary	Secchi Depth	1994 - 2025	32	23696	TRUE	-0.01	1.14	0.0000	⇓
Estuary	Total Nitrogen	2000 - 2025	19	567	TRUE	-0.01	0.83	0.0649	0
Estuary	Total Phosphorus	2000 - 2025	17	521	TRUE	0.00	0.01	0.0014	⇑
Estuary	Total Suspended Solids	1995 - 2025	6	57	FALSE	-	-	-	-
Estuary	Turbidity	1995 - 2025	26	13323	TRUE	0.11	6.60	0.0104	⇑
Estuary	Water Temperature	1967 - 2025	35	57825	TRUE	0.04	22.14	0.0000	⇑
Estuary	pH	1994 - 2025	32	39964	TRUE	0.00	8.03	0.0002	⇓

Table 9: Overview of Program Data for Cedar Key

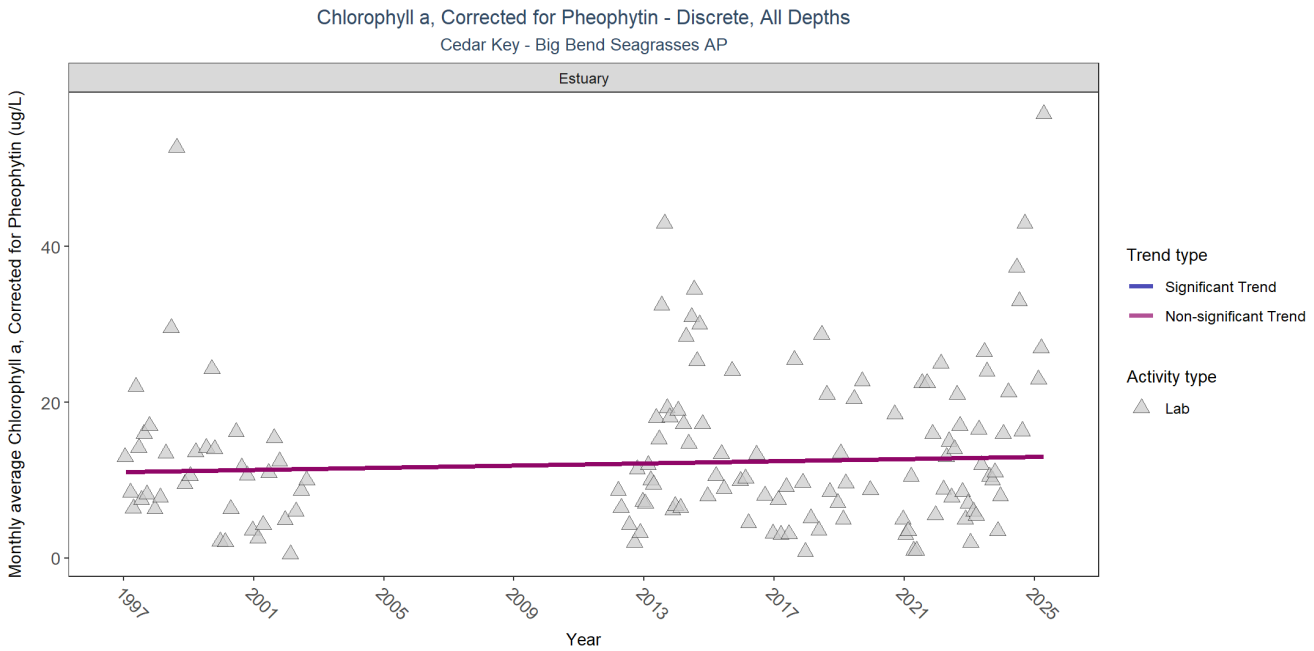
ParameterName	*ProgramID*	*n-data-Estuary*	*n-data-River*
Ammonium, Filtered (NH4)	115	2	-
Ammonium, Filtered (NH4)	5002	188	-
Chlorophyll a, Corrected for Pheophytin	514	116	-
Chlorophyll a, Corrected for Pheophytin	540	104	-
Chlorophyll a, Corrected for Pheophytin	5002	264	-
Chlorophyll a, Uncorrected for Pheophytin	103	6	-
Chlorophyll a, Uncorrected for Pheophytin	115	2	-
Chlorophyll a, Uncorrected for Pheophytin	118	4	-
Chlorophyll a, Uncorrected for Pheophytin	514	164	-
Chlorophyll a, Uncorrected for Pheophytin	540	104	-
Chlorophyll a, Uncorrected for Pheophytin	5002	203	-
Colored Dissolved Organic Matter	514	81	-
Colored Dissolved Organic Matter	540	71	-
Colored Dissolved Organic Matter	5002	2	-
Dissolved Oxygen	69	23357	-
Dissolved Oxygen	95	396	-
Dissolved Oxygen	115	5	-
Dissolved Oxygen	118	2	-
Dissolved Oxygen	540	72	-
Dissolved Oxygen	560	435	-
Dissolved Oxygen	5002	31608	-
Dissolved Oxygen Saturation	95	1	-
Dissolved Oxygen Saturation	5002	16	-
NO2+3, Filtered	115	2	-
NO2+3, Filtered	540	106	-
NO2+3, Filtered	5002	350	-
Nitrate (NO3)	5002	1	-
Phosphate, Filtered (PO4)	115	2	-
Phosphate, Filtered (PO4)	5002	176	-
Salinity	69	23404	-
Salinity	95	444	-
Salinity	115	5	-
Salinity	540	88	-
Salinity	560	435	-
Salinity	5002	33862	-
Secchi Depth	69	23422	-
Secchi Depth	115	2	-
Secchi Depth	514	242	-
Secchi Depth	560	50	-
Secchi Depth	5002	30	-
Specific Conductivity	69	23283	-
Specific Conductivity	95	6	-
Specific Conductivity	514	81	-
Specific Conductivity	5002	373	-
Total Kjeldahl Nitrogen	540	106	-
Total Kjeldahl Nitrogen	5002	355	-
Total Nitrogen	103	13	-
Total Nitrogen	115	2	-
Total Nitrogen	118	1	-
Total Nitrogen	514	240	-
Total Nitrogen	540	106	-
Total Nitrogen	5002	216	-
Total Phosphorus	103	12	-

Total Phosphorus	115	2	-
Total Phosphorus	118	1	-
Total Phosphorus	514	238	-
Total Phosphorus	540	105	-
Total Phosphorus	5002	174	-
Total Suspended Solids	5002	57	-
Turbidity	103	4	-
Turbidity	540	35	-
Turbidity	5002	13287	-
Water Temperature	69	23421	-
Water Temperature	95	423	-
Water Temperature	115	5	-
Water Temperature	540	88	-
Water Temperature	560	436	-
Water Temperature	5002	33888	-
pH	69	23325	-
pH	95	204	-
pH	115	5	-
pH	540	56	-
pH	560	392	-
pH	5002	16374	-

Program names:

69 - Fisheries-Independent Monitoring (FIM) Program -[4]
95 - Harmful Algal Bloom Marine Observation Network -[5]
103 - EPA STOrage and RETrieval Data Warehouse (STORET)/WQX -[6]
115 - Environmental Monitoring Assessment Program -[7]
118 - National Aquatic Resource Surveys, National Coastal Condition Assessment -[8]
514 - Florida LAKEWATCH Program -[12]
540 - Shellfish Harvest Area Classification Program -[13]
560 - Big Bend Seagrasses & Nature Coast Aquatic Preserves - Seagrass Monitoring -[10]
5002 - Florida STORET / WIN -[2]

Chlorophyll a, Corrected for Pheophytin

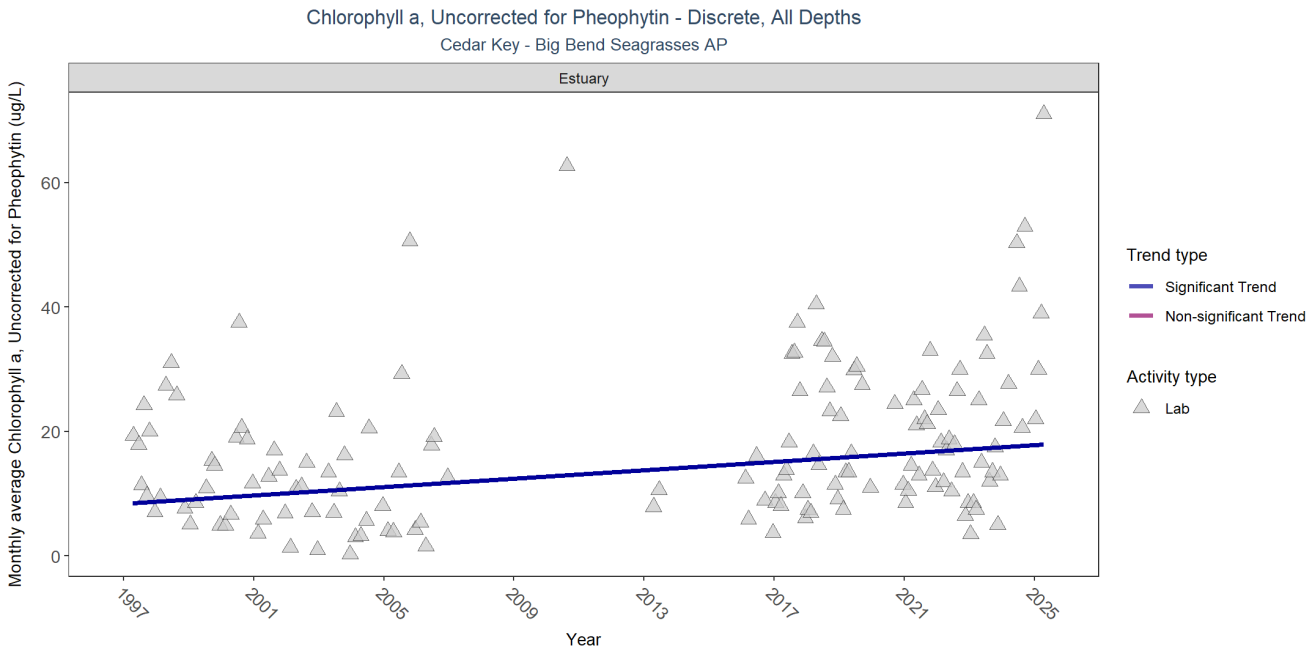


Type	RelativeDepth	N_Data	N_Years	Median	Independent	tau	p	SennSlope	SennIntercept	ChiSquared	pChiSquared	Trend
Estuary	All	475	20	10	TRUE	0.0678	0.1499	0.069	11.04	13.41	0.2676	0

p < 0.00005 appear as 0 due to rounding.

SennIntercept is intercept value at beginning of record for monitoring location

Chlorophyll a, Uncorrected for Pheophytin

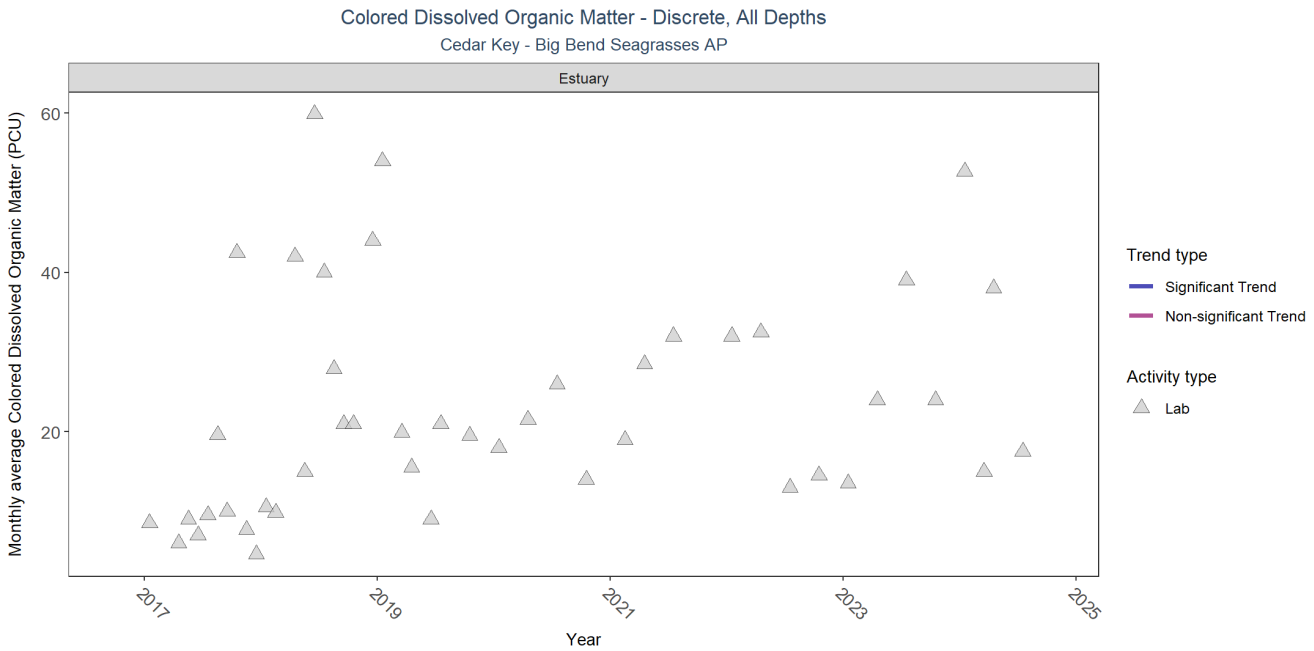


Type	RelativeDepth	N_Data	N_Years	Median	Independent	tau	p	SennSlope	SennIntercept	ChiSquared	pChiSquared	Trend
Estuary	All	474	22	13	TRUE	0.2675	0.0000	0.34	8.33	9.58	0.5688	1

p < 0.00005 appear as 0 due to rounding.

SennIntercept is intercept value at beginning of record for monitoring location

Colored Dissolved Organic Matter

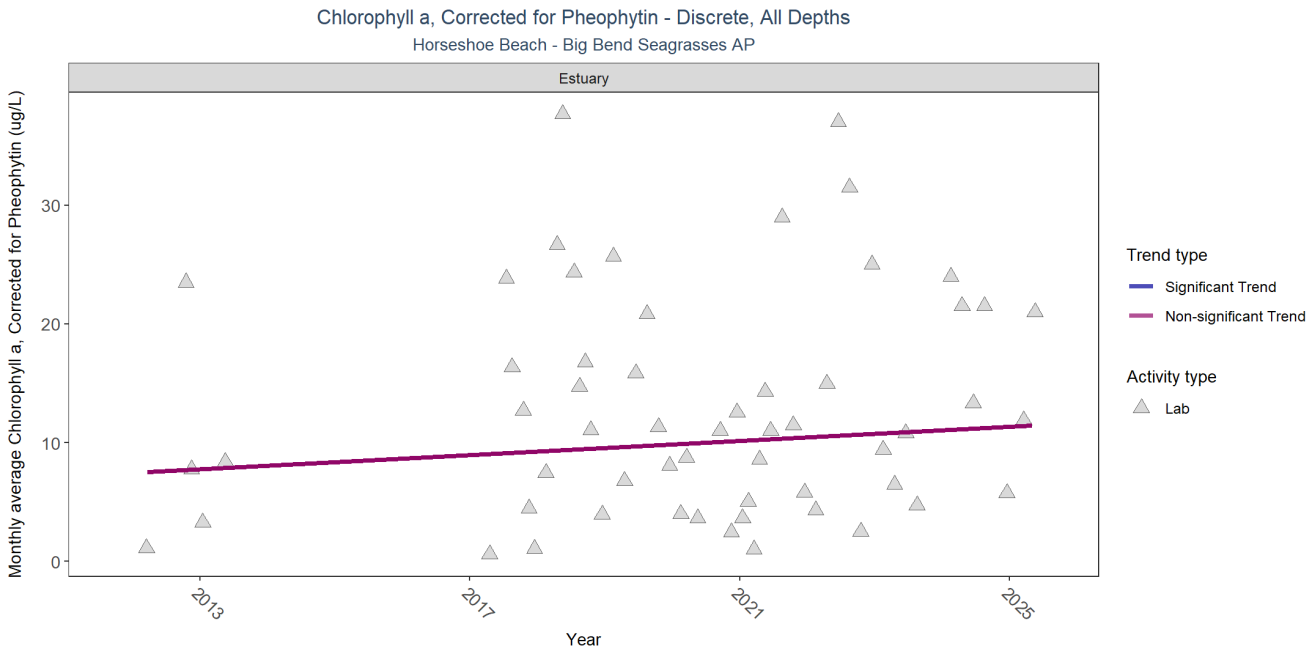


Type	RelativeDepth	N_Data	N_Years	Median	Independent	tau	p	SennSlope	SennIntercept	ChiSquared	pChiSquared	Trend
Estuary	All	147	8	18	NA	NA	NA	NA	NA	NA	NA	NA

p < 0.00005 appear as 0 due to rounding.

SennIntercept is intercept value at beginning of record for monitoring location

Dissolved Oxygen

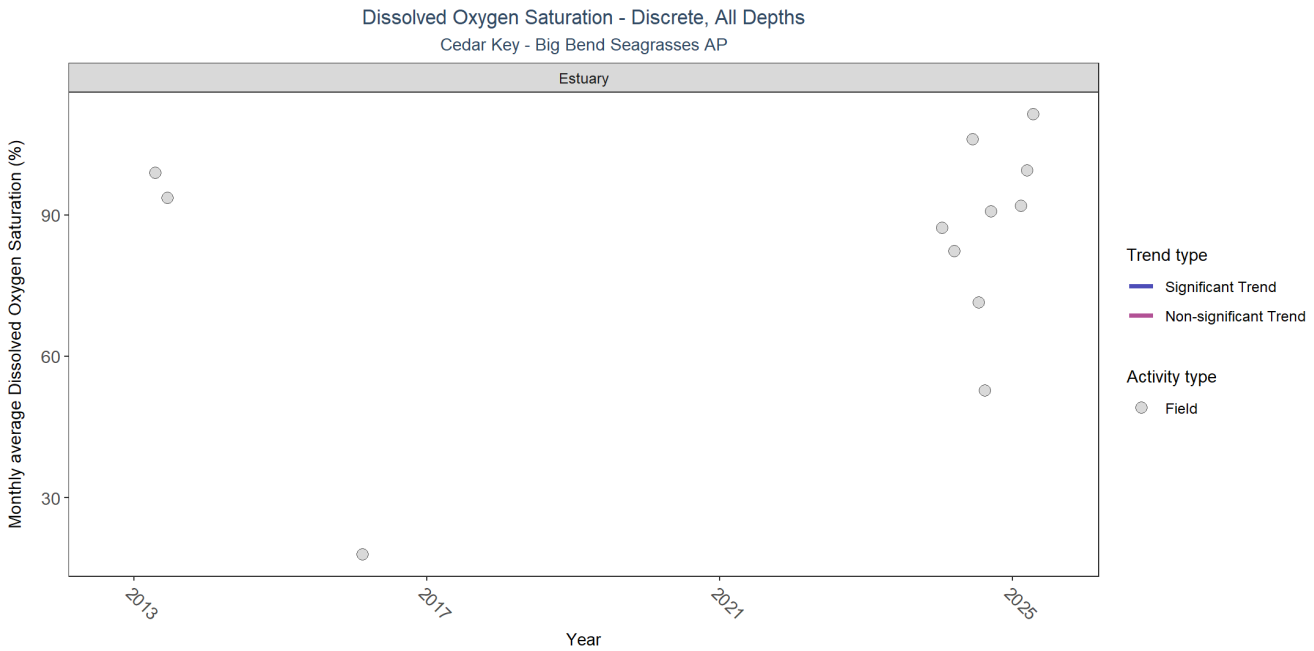


Type	RelativeDepth	N_Data	N_Years	Median	Independent	tau	p	SennSlope	SennIntercept	ChiSquared	pChiSquared	Trend
Estuary	All	217	11	9.9	TRUE	0.0713	0.4518	0.297	7.47	12.16	0.3514	0

p < 0.00005 appear as 0 due to rounding.

SennIntercept is intercept value at beginning of record for monitoring location

Dissolved Oxygen Saturation

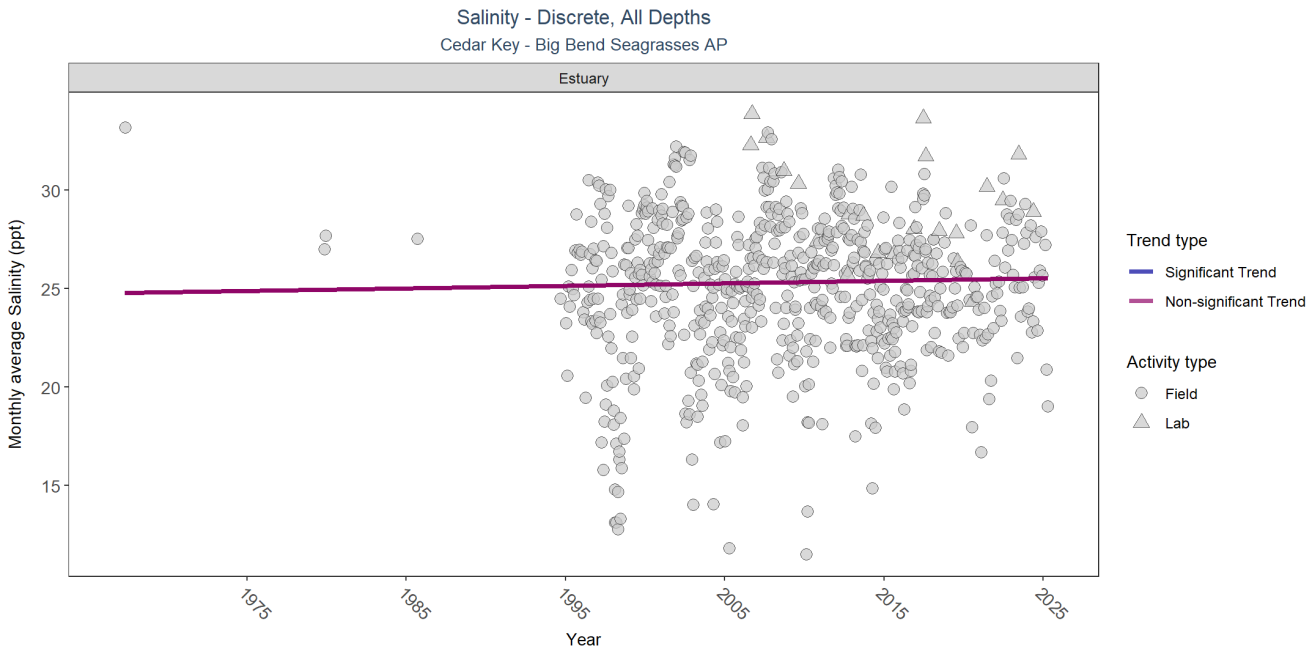


Type	RelativeDepth	N_Data	N_Years	Median	Independent	tau	p	SennSlope	SennIntercept	ChiSquared	pChiSquared	Trend
Estuary	All	17	4	91.9	NA	NA	NA	NA	NA	NA	NA	NA

p < 0.00005 appear as 0 due to rounding.

SennIntercept is intercept value at beginning of record for monitoring location

Salinity

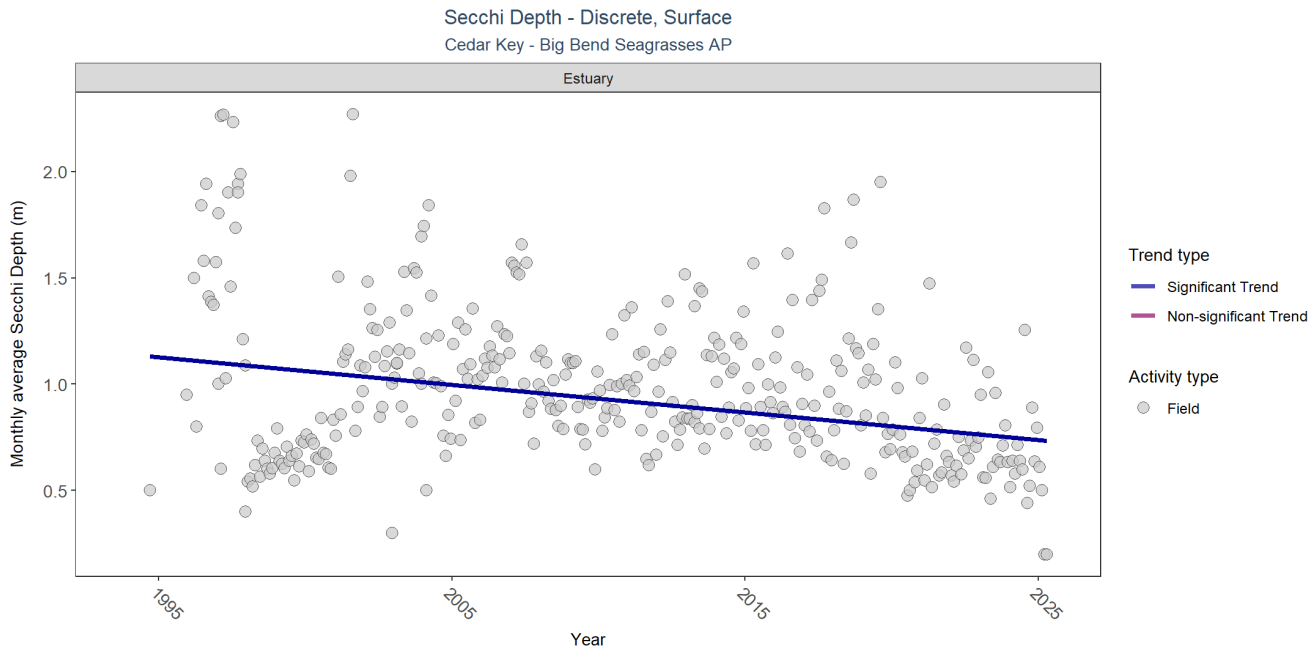


Type	RelativeDepth	N_Data	N_Years	Median	Independent	tau	p	SennSlope	SennIntercept	ChiSquared	pChiSquared	Trend
Estuary	All	58238	35	25.6	TRUE	0.0307	0.4177	0.013	24.78	7.08	0.7926	0

p < 0.00005 appear as 0 due to rounding.

SennIntercept is intercept value at beginning of record for monitoring location

Secchi Depth

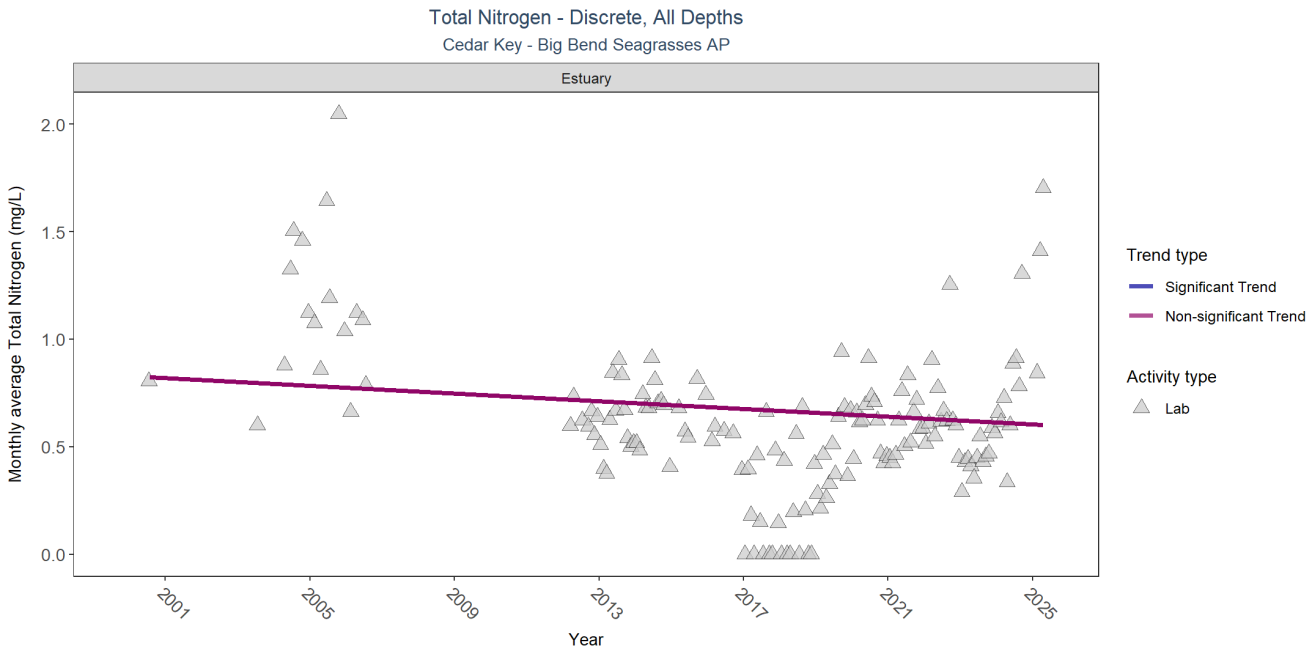


Type	RelativeDepth	N_Data	N_Years	Median	Independent	tau	p	SennSlope	SennIntercept	ChiSquared	pChiSquared	Trend
Estuary	Surface	23696	32	0.7	TRUE	-0.2128	0.0000	-0.013	1.14	12.06	0.3594	-1

p < 0.00005 appear as 0 due to rounding.

SennIntercept is intercept value at beginning of record for monitoring location

Total Nitrogen

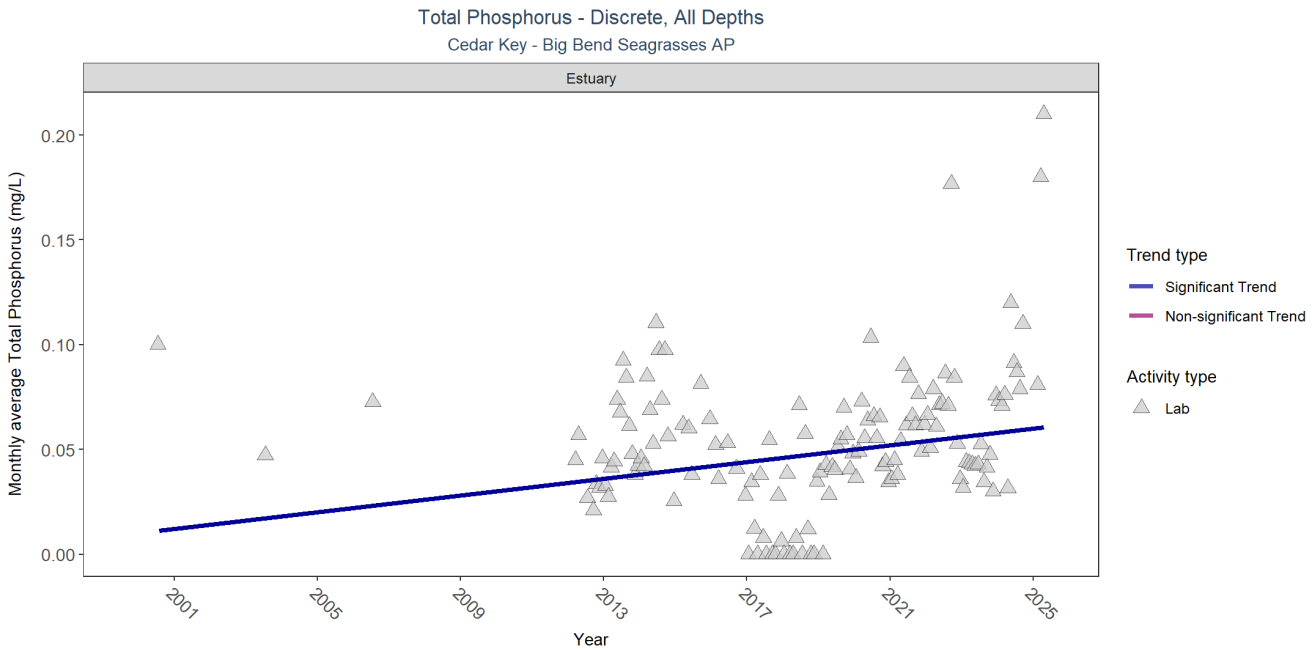


Type	RelativeDepth	N_Data	N_Years	Median	Independent	tau	p	SennSlope	SennIntercept	ChiSquared	pChiSquared	Trend
Estuary	All	567	19	0.574	TRUE	-0.0989	0.0649	-0.009	0.83	16.25	0.1323	0

p < 0.00005 appear as 0 due to rounding.

SennIntercept is intercept value at beginning of record for monitoring location

Total Phosphorus

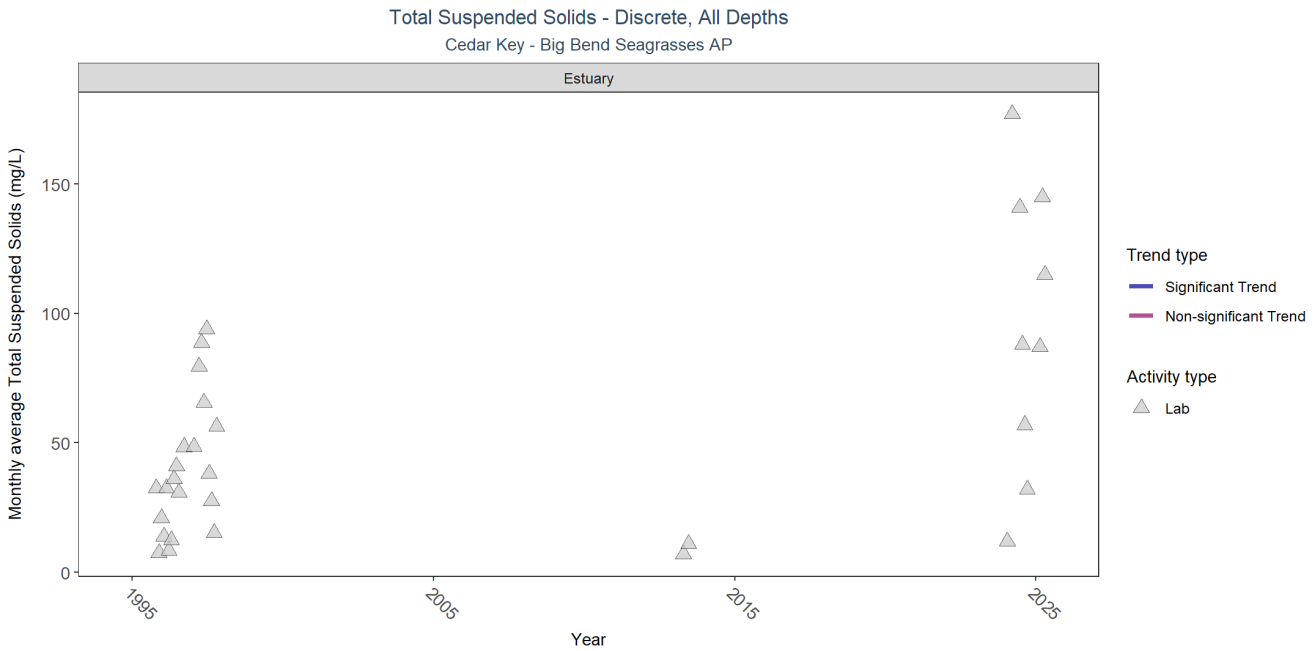


Type	RelativeDepth	N_Data	N_Years	Median	Independent	tau	p	SennSlope	SennIntercept	ChiSquared	pChiSquared	Trend
Estuary	All	521	17	0.047	TRUE	0.2161	0.0014	0.002	0.01	4.49	0.9535	1

p < 0.00005 appear as 0 due to rounding.

SennIntercept is intercept value at beginning of record for monitoring location

Total Suspended Solids

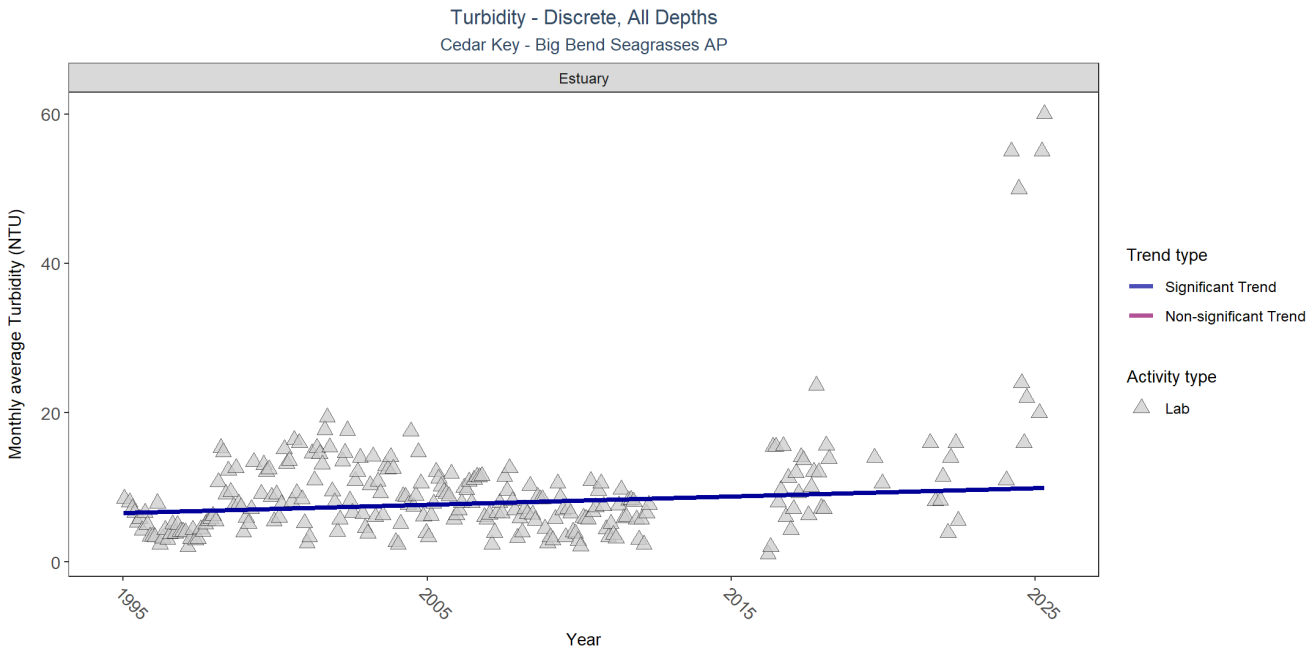


Type	RelativeDepth	N_Data	N_Years	Median	Independent	tau	p	SennSlope	SennIntercept	ChiSquared	pChiSquared	Trend
Estuary	All	57	6	36	NA	NA	NA	NA	NA	NA	NA	NA

p < 0.00005 appear as 0 due to rounding.

SennIntercept is intercept value at beginning of record for monitoring location

Turbidity

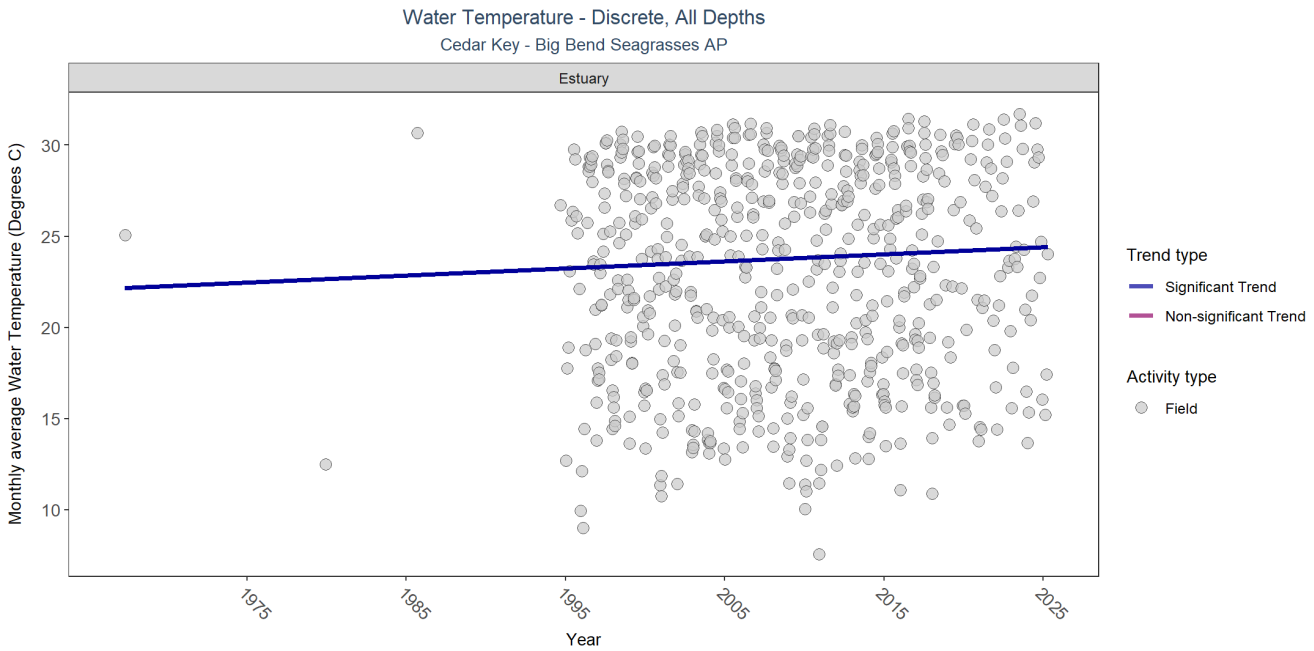


Type	RelativeDepth	N_Data	N_Years	Median	Independent	tau	p	SennSlope	SennIntercept	ChiSquared	pChiSquared	Trend
Estuary	All	13323	26	6.1	TRUE	0.1183	0.0104	0.109	6.6	3.67	0.9785	1

p < 0.00005 appear as 0 due to rounding.

SennIntercept is intercept value at beginning of record for monitoring location

Water Temperature

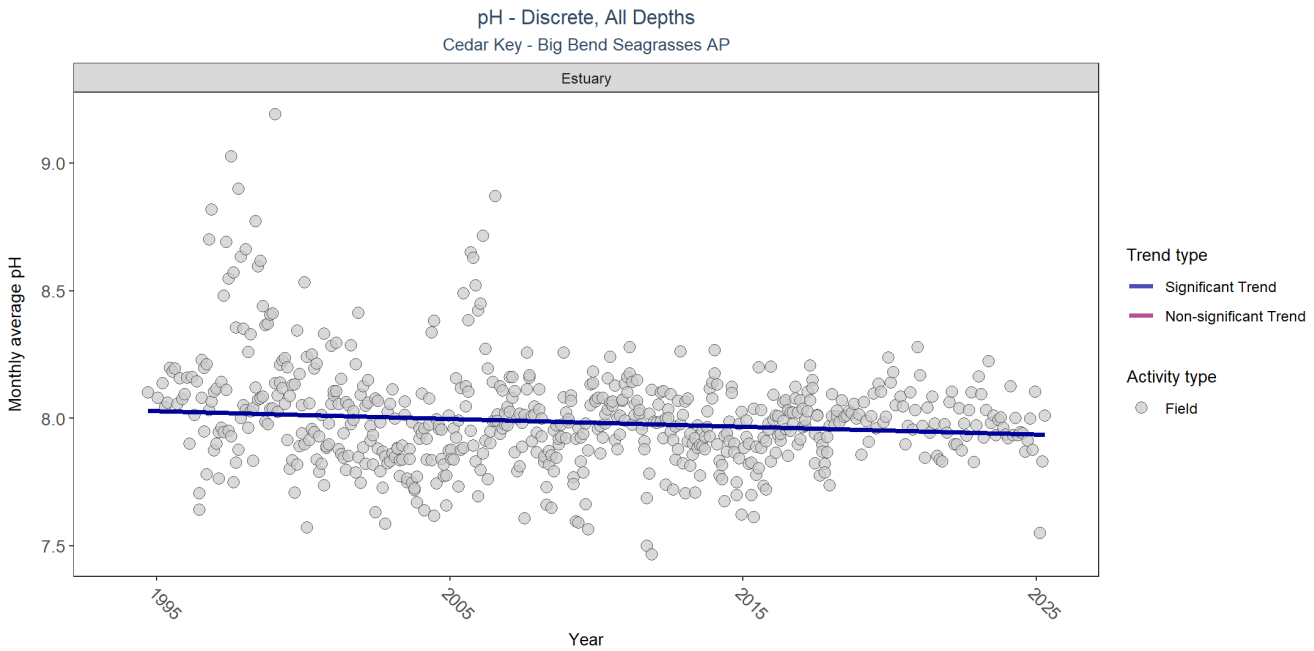


Type	RelativeDepth	N_Data	N_Years	Median	Independent	tau	p	SennSlope	SennIntercept	ChiSquared	pChiSquared	Trend
Estuary	All	57825	35	24	TRUE	0.1735	0.0000	0.039	22.14	10	0.5301	1

p < 0.00005 appear as 0 due to rounding.

SennIntercept is intercept value at beginning of record for monitoring location

pH



Type	RelativeDepth	N_Data	N_Years	Median	Independent	tau	p	SennSlope	SennIntercept	ChiSquared	pChiSquared	Trend
Estuary	All	39964	32	8	TRUE	-0.1389	0.0002	-0.003	8.03	11.04	0.4398	-1

p < 0.00005 appear as 0 due to rounding.

SennIntercept is intercept value at beginning of record for monitoring location

Submerged Aquatic Vegetation

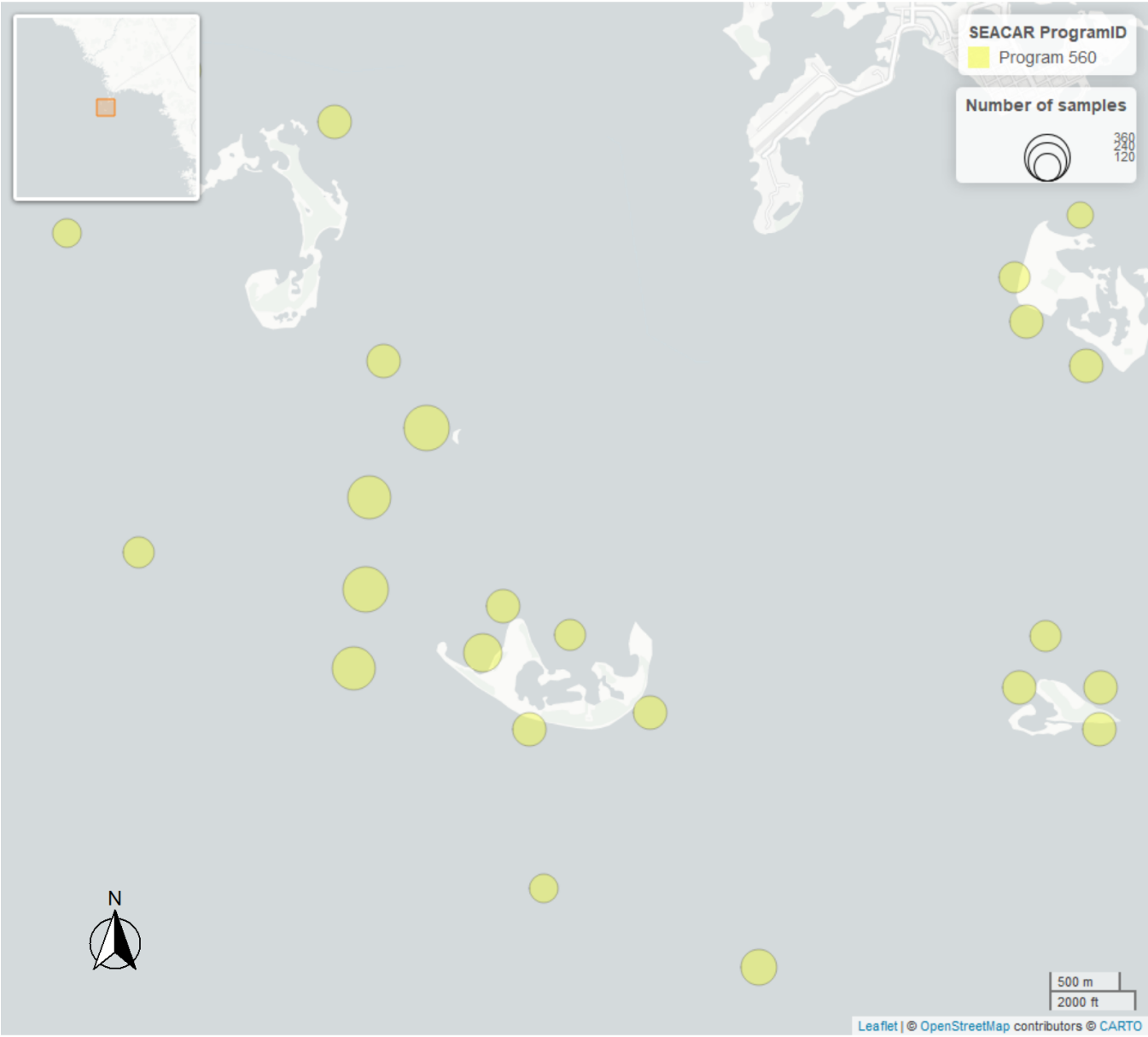


Table 10: Big Bend Seagrasses & Nature Coast Aquatic Preserves - Seagrass Monitoring - *Program 560*[10]

N_Data	*YearMin*	*YearMax*	*Collection Method*	*Sample Locations*
4539	2006	2024	Modified Braun Blanquet	25
875	2022	2024	Percent Cover	25

Median Percent Cover - Species Trend Table

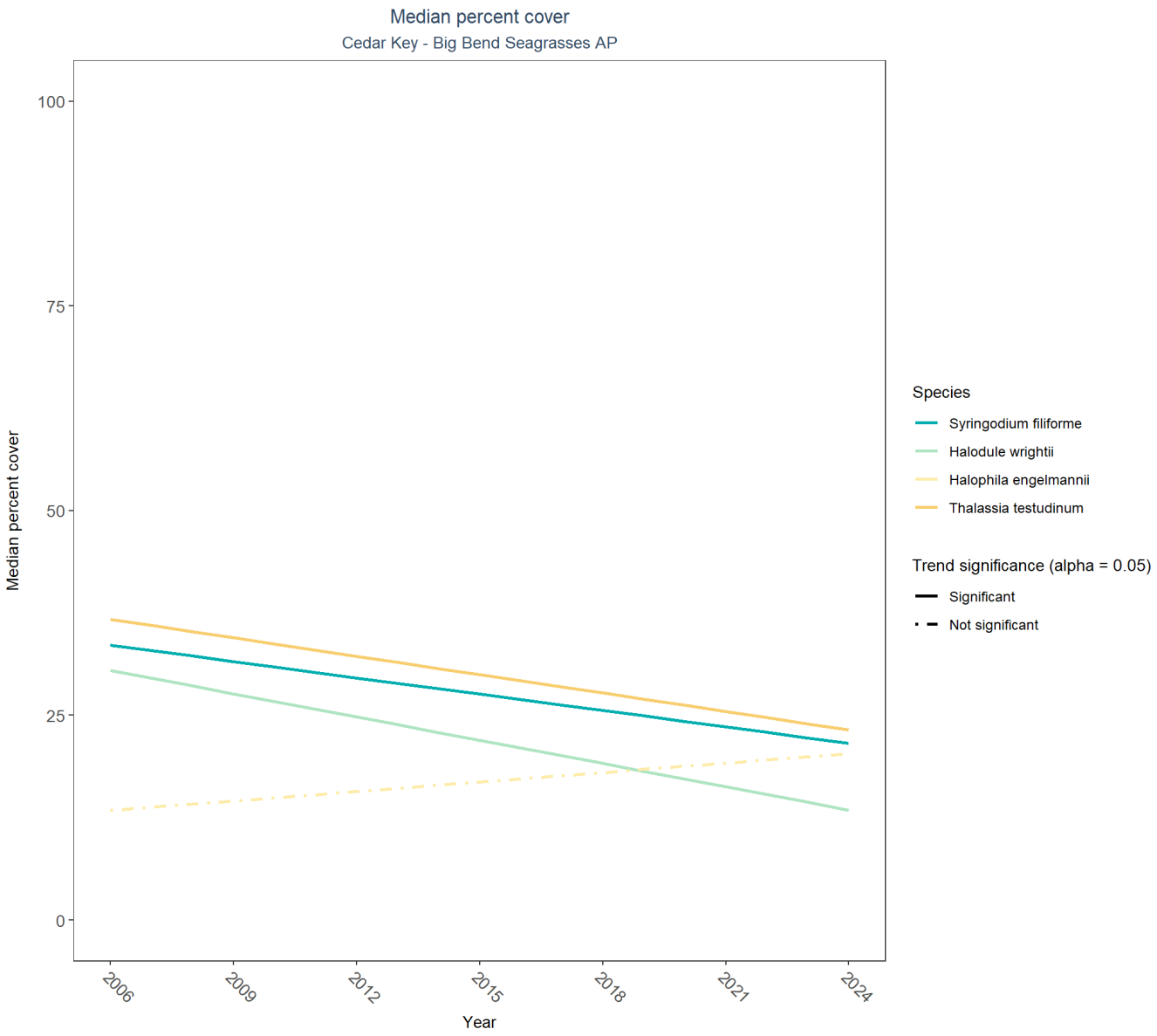
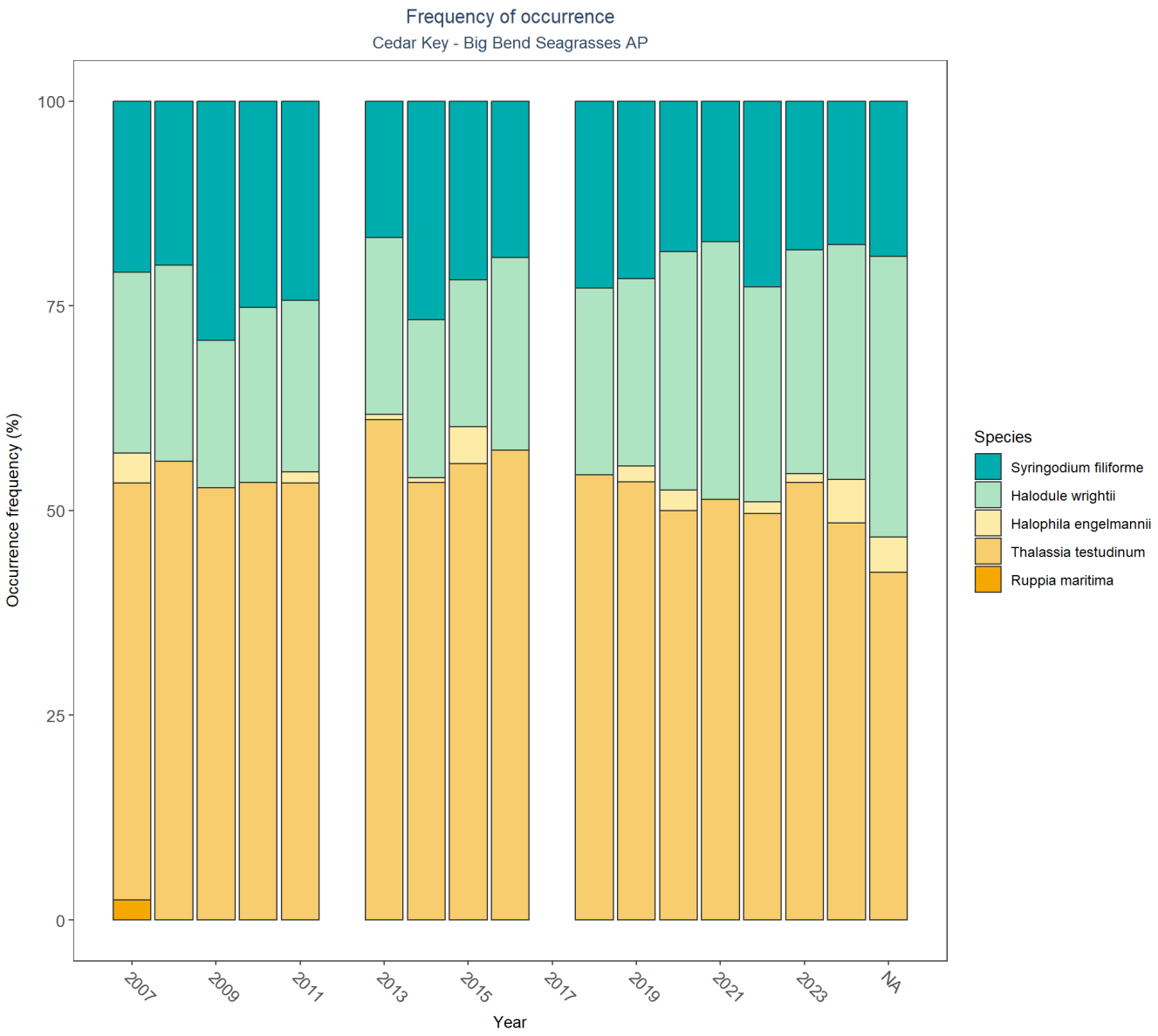


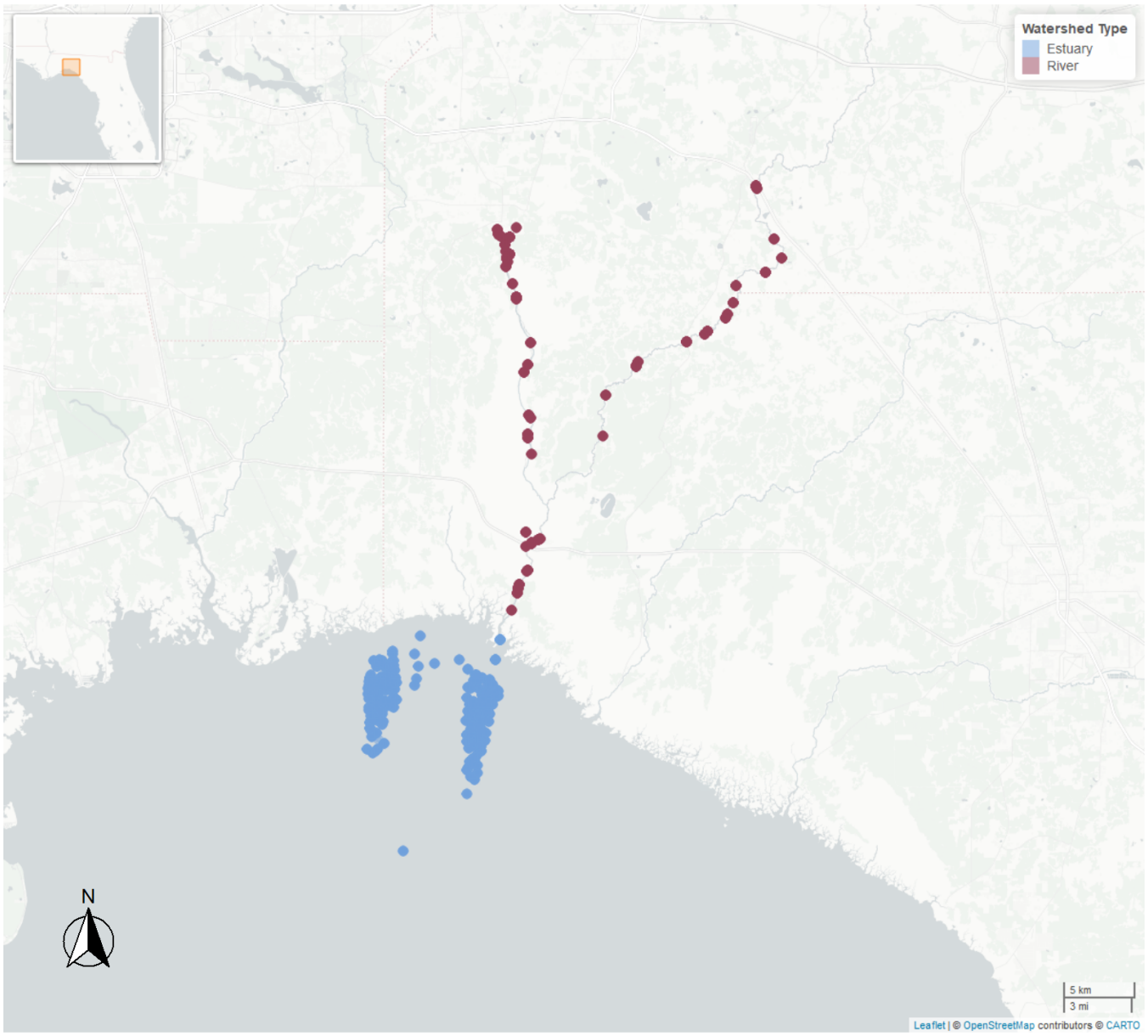
Table 11: Percent Cover Trend Analysis for Cedar Key

Species	*Trend Significance* (0.05)	*Period of Record*	*LME_Intercept*	*LME_Slope*	*p*
Drift algae	Significantly increasing trend	2006 - 2024	-12.0977	2.0225	0.0011
Halodule wrightii	Significantly decreasing trend	2006 - 2024	36.1611	-0.9468	0.0000
Halophila engelmannii	No significant trend	2006 - 2024	11.0734	0.3859	0.4057
No grass in quadrat	Model did not fit the available data	2007 - 2024	-	-	-
Ruppia maritima	Insufficient data to calculate trend	-	-	-	-
Syringodium filiforme	Significantly decreasing trend	2006 - 2024	37.5767	-0.6657	0.0092
Thalassia testudinum	Significantly decreasing trend	2006 - 2024	41.2361	-0.7503	0.0000

Frequency of Occurrence



Aucilla



Plots will be produced below for all parameters. A Seasonal Kendall-Tau trendline will be plotted only for parameters where *SufficientData* is **TRUE**.

Trend arrows denote trends where the p value is less than 0.05 and the slope is less than 10% of the median parameter value.

Table 12: Seasonal Kendall-Tau Results for Aucilla

Type	*ParameterName*	*Period-of-Record*	*N-Years*	*N-Data*	*SufficientData*	*SennSlope*	*SennIntercept*	*p*	*Trend*
Estuary	Chlorophyll a, Corrected for Pheophytin	2010 - 2021	6	41	FALSE	-	-	-	-
River	Chlorophyll a, Corrected for Pheophytin	1999 - 2025	27	419	TRUE	0.00	0.85	0.1773	0
Estuary	Chlorophyll a, Uncorrected for Pheophytin	2010 - 2021	6	41	FALSE	-	-	-	-
River	Chlorophyll a, Uncorrected for Pheophytin	1993 - 2025	28	346	TRUE	-0.01	1.18	0.0000	⇓
Estuary	Colored Dissolved Organic Matter	2020 - 2020	1	1	FALSE	-	-	-	-
River	Colored Dissolved Organic Matter	2001 - 2025	14	158	TRUE	1.64	31.18	0.2739	0
Estuary	Dissolved Oxygen	2008 - 2024	17	788	TRUE	-0.02	6.92	0.2043	0
River	Dissolved Oxygen	1994 - 2025	32	1101	TRUE	-0.05	6.74	0.0000	⇓
Estuary	Dissolved Oxygen Saturation	2018 - 2022	5	45	FALSE	-	-	-	-
River	Dissolved Oxygen Saturation	2002 - 2025	16	320	TRUE	-0.35	71.90	0.1380	0
Estuary	Salinity	2006 - 2024	19	967	TRUE	-0.31	30.58	0.0004	⇓
River	Salinity	1995 - 2025	25	381	TRUE	0.00	0.11	0.0770	0
Estuary	Secchi Depth	2008 - 2024	17	731	TRUE	0.00	2.12	0.8880	0
River	Secchi Depth	1993 - 2025	33	715	TRUE	-0.01	1.35	0.0014	⇓
Estuary	Total Nitrogen	2010 - 2021	6	41	FALSE	-	-	-	-
River	Total Nitrogen	1993 - 2025	31	727	TRUE	0.01	0.22	0.0000	⇑
Estuary	Total Phosphorus	2010 - 2021	6	42	FALSE	-	-	-	-
River	Total Phosphorus	1993 - 2025	31	691	TRUE	0.00	0.03	0.0000	⇑
Estuary	Total Suspended Solids	2010 - 2021	6	40	FALSE	-	-	-	-
River	Total Suspended Solids	1994 - 2025	32	550	TRUE	0.00	3.42	0.0040	⇓
Estuary	Turbidity	2010 - 2021	6	42	FALSE	-	-	-	-
River	Turbidity	1994 - 2025	32	891	TRUE	0.00	1.11	0.4682	0
Estuary	Water Temperature	2008 - 2024	17	775	TRUE	0.00	25.92	0.9632	0
River	Water Temperature	1994 - 2025	32	1099	TRUE	0.02	20.61	0.0575	0
Estuary	pH	2008 - 2024	17	764	TRUE	0.00	8.16	0.4781	0
River	pH	1994 - 2025	32	1091	TRUE	0.00	7.26	0.8037	0

Table 13: Overview of Program Data for Aucilla

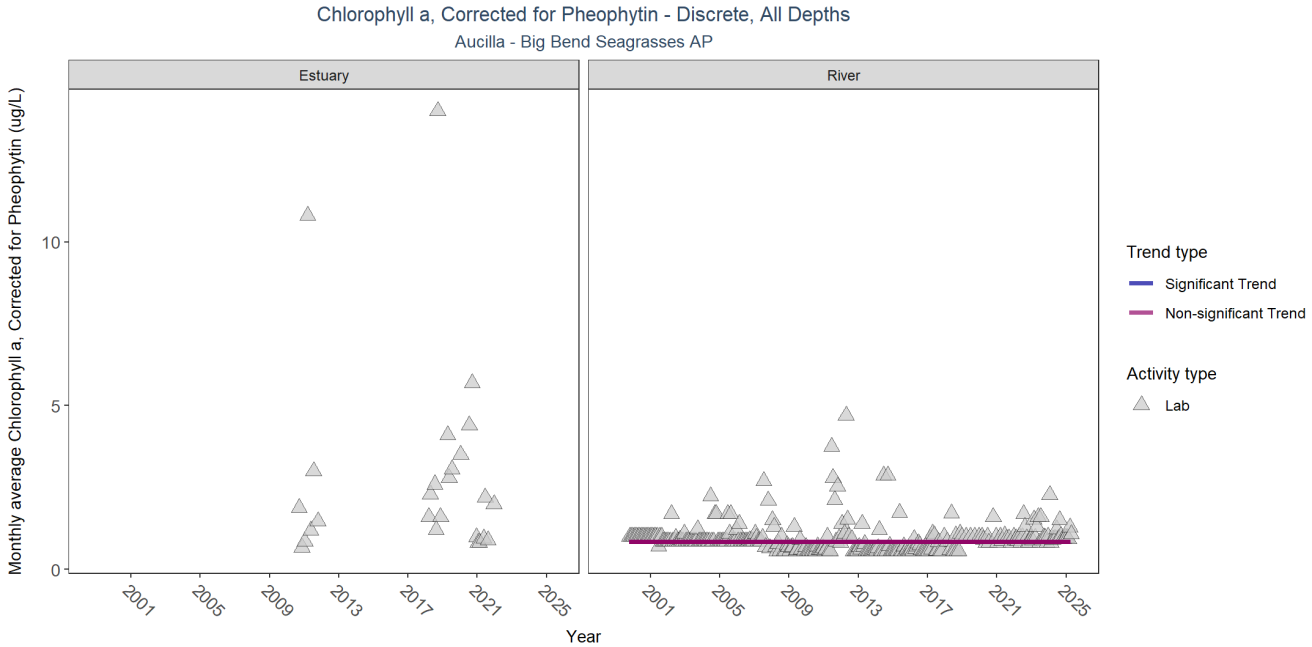
ParameterName	*ProgramID*	*n-data-Estuary*	*n-data-River*
Ammonium, Filtered (NH4)	477	-	63
Ammonium, Filtered (NH4)	5002	42	818
Chlorophyll a, Corrected for Pheophytin	477	-	58
Chlorophyll a, Corrected for Pheophytin	5002	41	361
Chlorophyll a, Uncorrected for Pheophytin	477	-	58
Chlorophyll a, Uncorrected for Pheophytin	514	-	73
Chlorophyll a, Uncorrected for Pheophytin	5002	41	215
Colored Dissolved Organic Matter	477	-	63
Colored Dissolved Organic Matter	514	-	9
Colored Dissolved Organic Matter	5002	1	86
Dissolved Oxygen	69	707	-
Dissolved Oxygen	118	16	-
Dissolved Oxygen	477	-	61
Dissolved Oxygen	560	176	-
Dissolved Oxygen	5002	65	1127
Dissolved Oxygen Saturation	95	1	-
Dissolved Oxygen Saturation	477	-	61
Dissolved Oxygen Saturation	5002	44	259
NO2+3, Filtered	477	-	63
NO2+3, Filtered	5002	41	834
Nitrate (NO3)	5002	-	2
Phosphate, Filtered (PO4)	5002	-	573
Salinity	69	708	-
Salinity	95	1	-
Salinity	118	19	-
Salinity	477	-	59
Salinity	560	177	-
Salinity	5002	62	322
Secchi Depth	69	705	-
Secchi Depth	118	1	-
Secchi Depth	477	-	63
Secchi Depth	514	-	21
Secchi Depth	560	12	-
Secchi Depth	5002	26	719
Specific Conductivity	69	707	-
Specific Conductivity	477	-	121
Specific Conductivity	5002	47	1601
Total Kjeldahl Nitrogen	477	-	63
Total Kjeldahl Nitrogen	5002	42	857
Total Nitrogen	514	-	76

Total Nitrogen	5002	41	651
Total Phosphorus	477	-	63
Total Phosphorus	514	-	76
Total Phosphorus	5002	42	552
Total Suspended Solids	5002	40	550
Turbidity	477	-	108
Turbidity	5002	42	870
Water Temperature	69	708	-
Water Temperature	95	2	-
Water Temperature	118	7	-
Water Temperature	477	-	63
Water Temperature	560	176	-
Water Temperature	5002	65	1123
pH	69	698	-
pH	95	1	-
pH	118	8	-
pH	477	-	63
pH	560	151	-
pH	5002	65	1161

Program names:

69 - Fisheries-Independent Monitoring (FIM) Program -[4]
95 - Harmful Algal Bloom Marine Observation Network -[5]
118 - National Aquatic Resource Surveys, National Coastal Condition Assessment -[8]
477 - Suwannee River Water Management District Water Resource Monitoring Program -[9]
514 - Florida LAKEWATCH Program -[12]
560 - Big Bend Seagrasses & Nature Coast Aquatic Preserves - Seagrass Monitoring -[10]
5002 - Florida STORET / WIN -[2]

Chlorophyll a, Corrected for Pheophytin

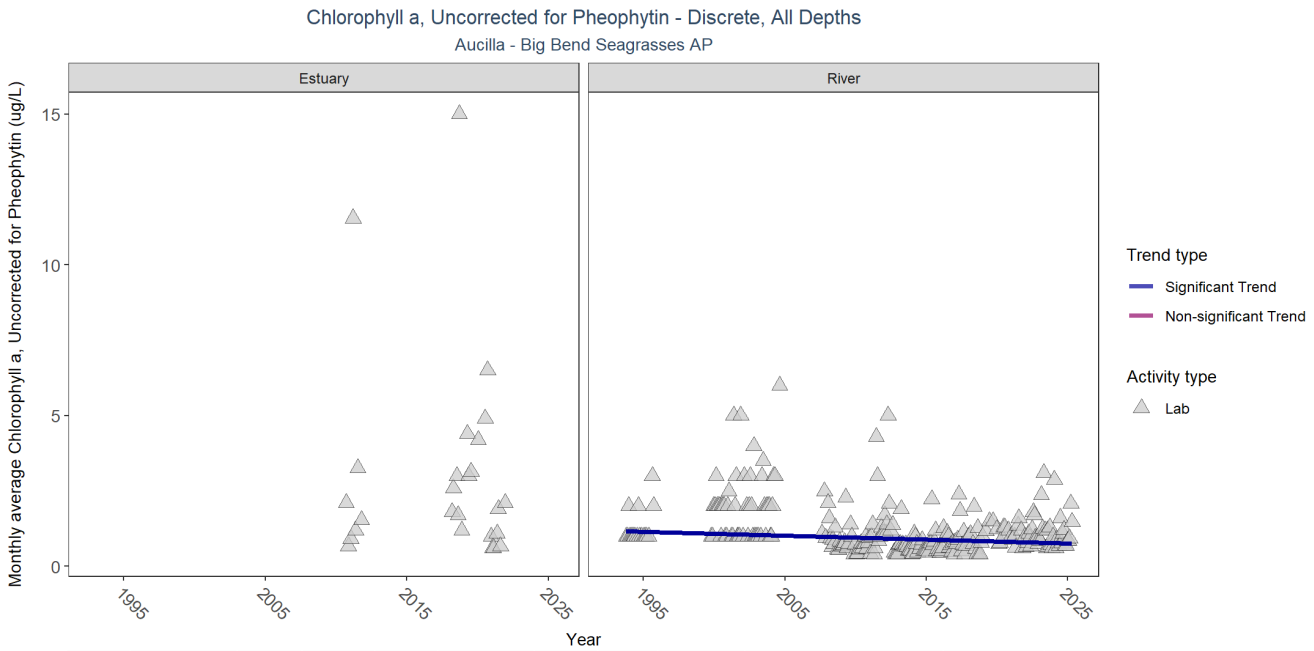


Type	RelativeDepth	N_Data	N_Years	Median	Independent	tau	p	SennSlope	SennIntercept	ChiSquared	pChiSquared	Trend
Estuary	All	41	6	1.60	NA	NA	NA	NA	NA	NA	NA	NA
River	All	419	27	0.85	TRUE	-0.0588	0.1773	0	0.85	4.57	0.9501	0

p < 0.00005 appear as 0 due to rounding.

SennIntercept is intercept value at beginning of record for monitoring location

Chlorophyll a, Uncorrected for Pheophytin

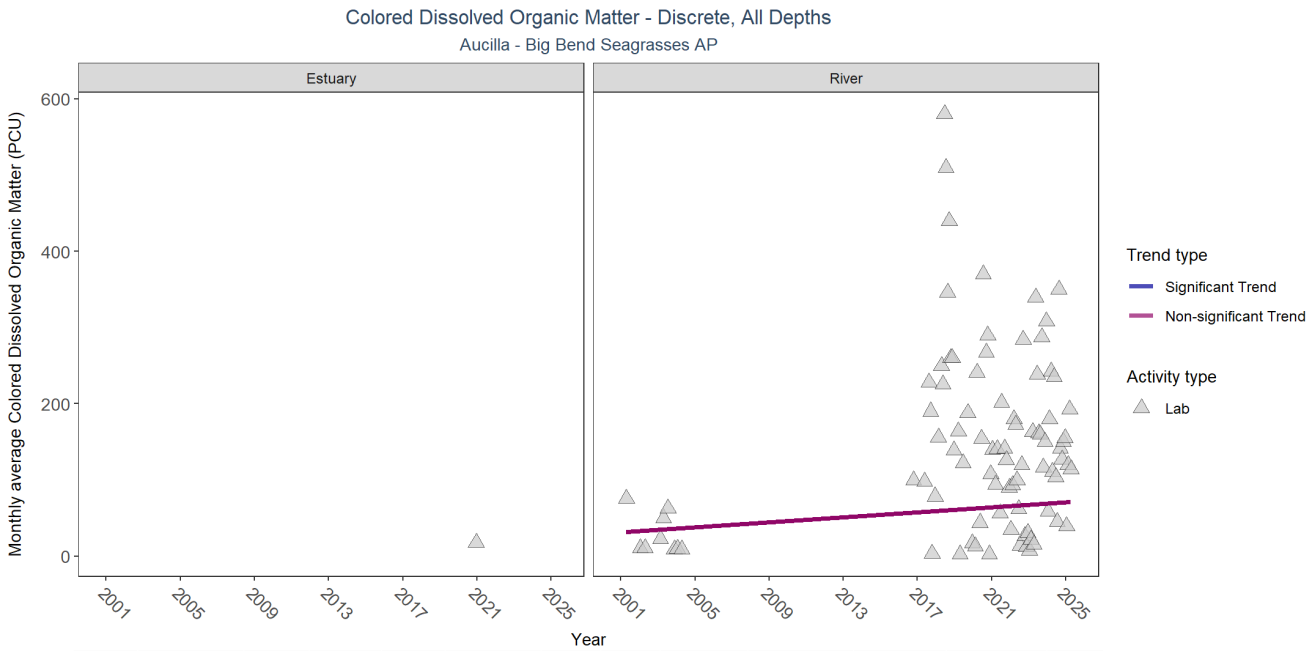


Type	RelativeDepth	N_Data	N_Years	Median	Independent	tau	p	SennSlope	SennIntercept	ChiSquared	pChiSquared	Trend
Estuary	All	41	6	1.7	NA	NA	NA	NA	NA	NA	NA	NA
River	All	346	28	1.0	TRUE	-0.1971	0.0000	-0.013	1.18	6.19	0.8605	-1

p < 0.00005 appear as 0 due to rounding.

SennIntercept is intercept value at beginning of record for monitoring location

Colored Dissolved Organic Matter

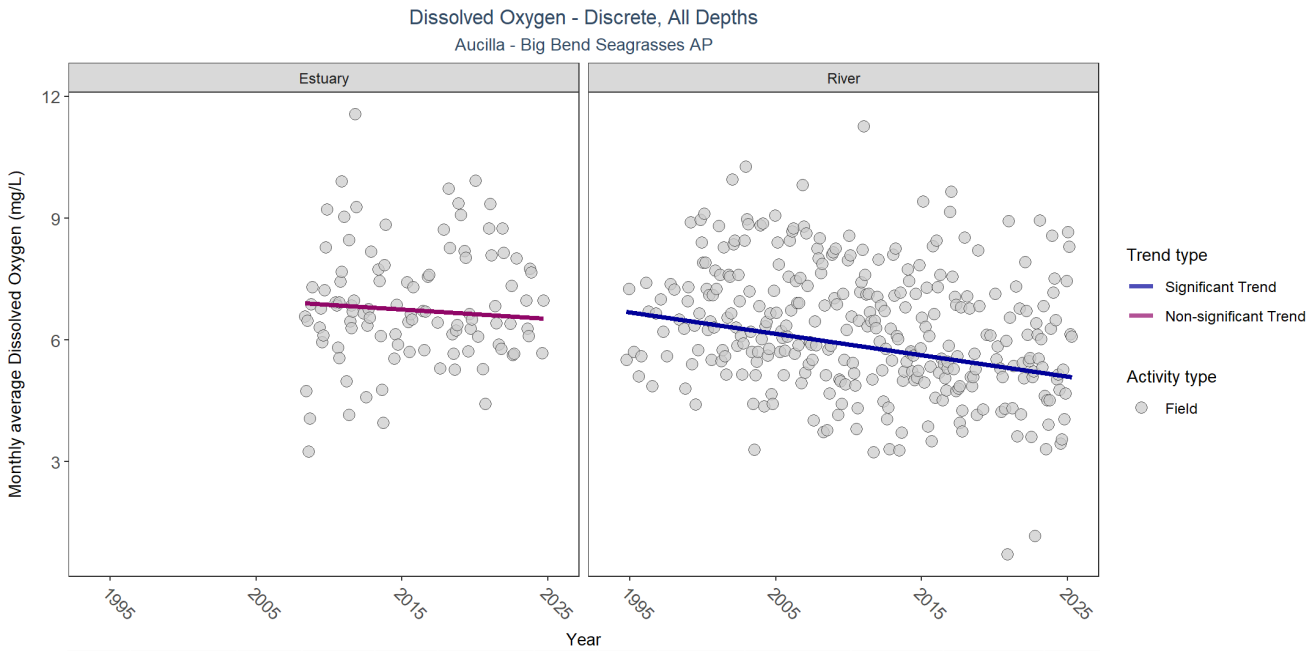


Type	RelativeDepth	N_Data	N_Years	Median	Independent	tau	p	SennSlope	SennIntercept	ChiSquared	pChiSquared	Trend
Estuary	All	1	1	18.0	NA	NA	NA	NA	NA	NA	NA	NA
River	All	158	14	96.5	TRUE	0.1052	0.2739	1.636	31.18	6.83	0.8128	0

p < 0.00005 appear as 0 due to rounding.

SennIntercept is intercept value at beginning of record for monitoring location

Dissolved Oxygen

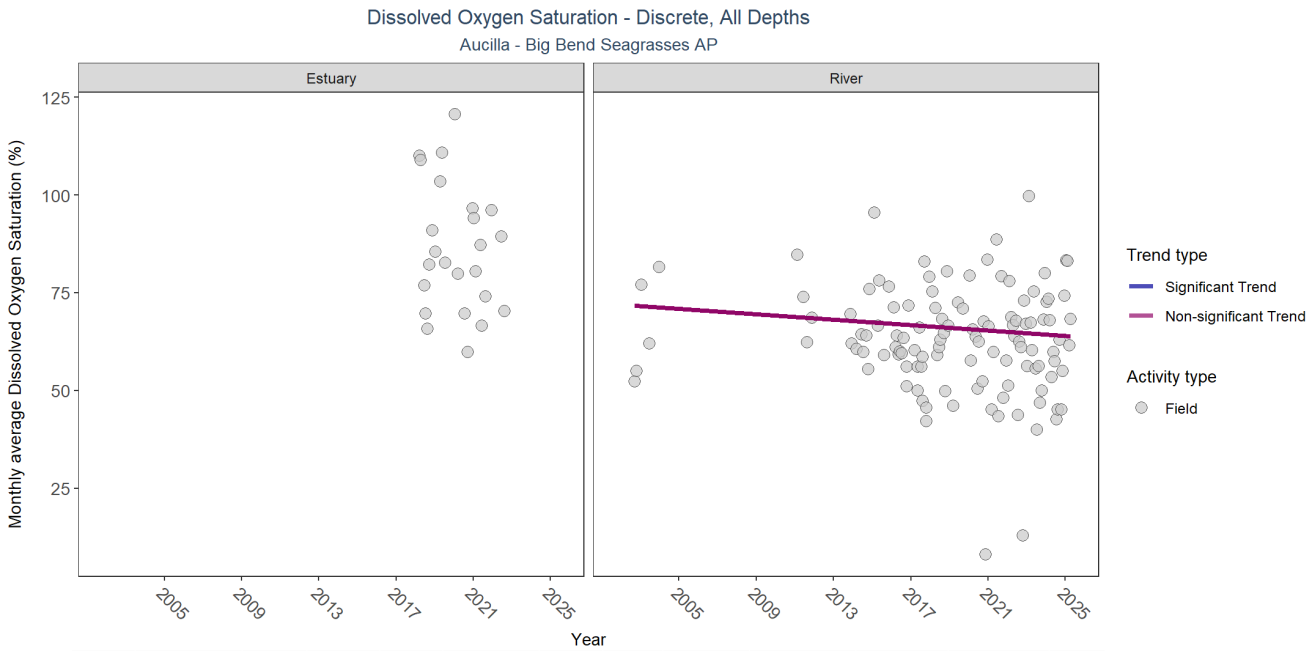


Type	RelativeDepth	N_Data	N_Years	Median	Independent	tau	p	SennSlope	SennIntercept	ChiSquared	pChiSquared	Trend
Estuary	All	788	17	6.70	TRUE	-0.0945	0.2043	-0.023	6.92	8.97	0.5346	0
River	All	1101	32	6.29	TRUE	-0.2521	0.0000	-0.053	6.74	9.03	0.6191	-1

p < 0.00005 appear as 0 due to rounding.

SennIntercept is intercept value at beginning of record for monitoring location

Dissolved Oxygen Saturation

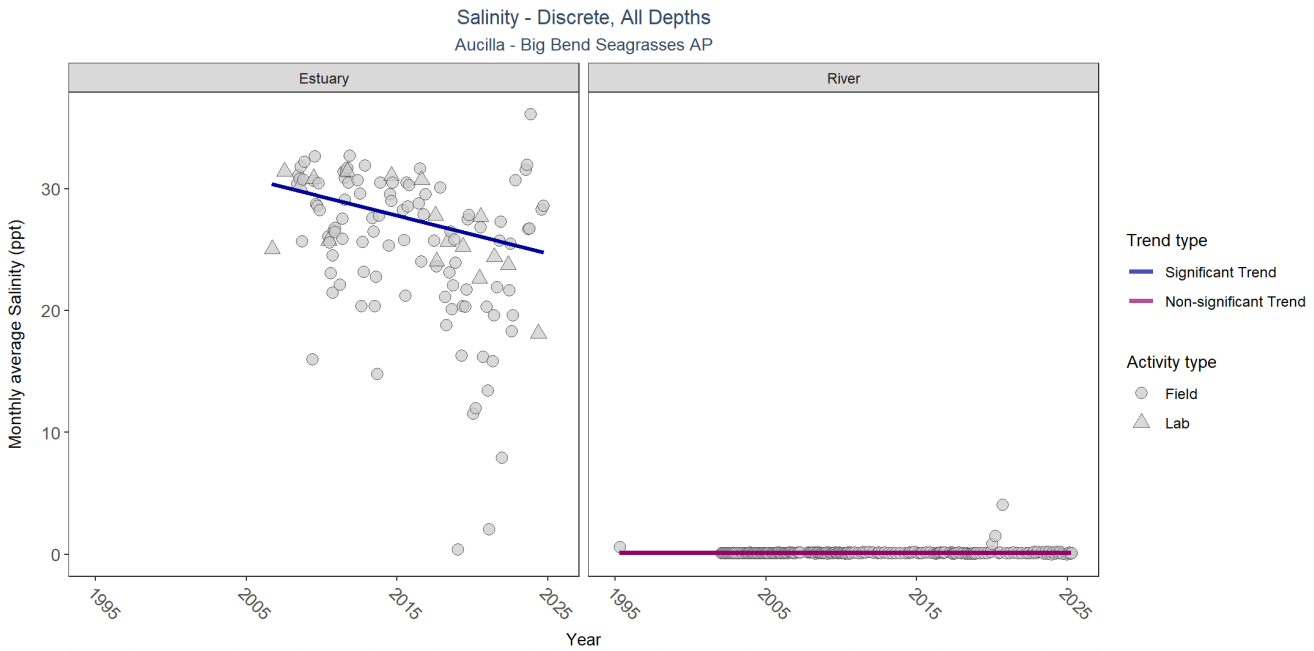


Type	RelativeDepth	N_Data	N_Years	Median	Independent	tau	p	SennSlope	SennIntercept	ChiSquared	pChiSquared	Trend
Estuary	All	45	5	84.5	NA	NA	NA	NA	NA	NA	NA	NA
River	All	320	16	66.0	TRUE	-0.1121	0.1380	-0.348	71.9	8.45	0.6727	0

p < 0.00005 appear as 0 due to rounding.

SennIntercept is intercept value at beginning of record for monitoring location

Salinity

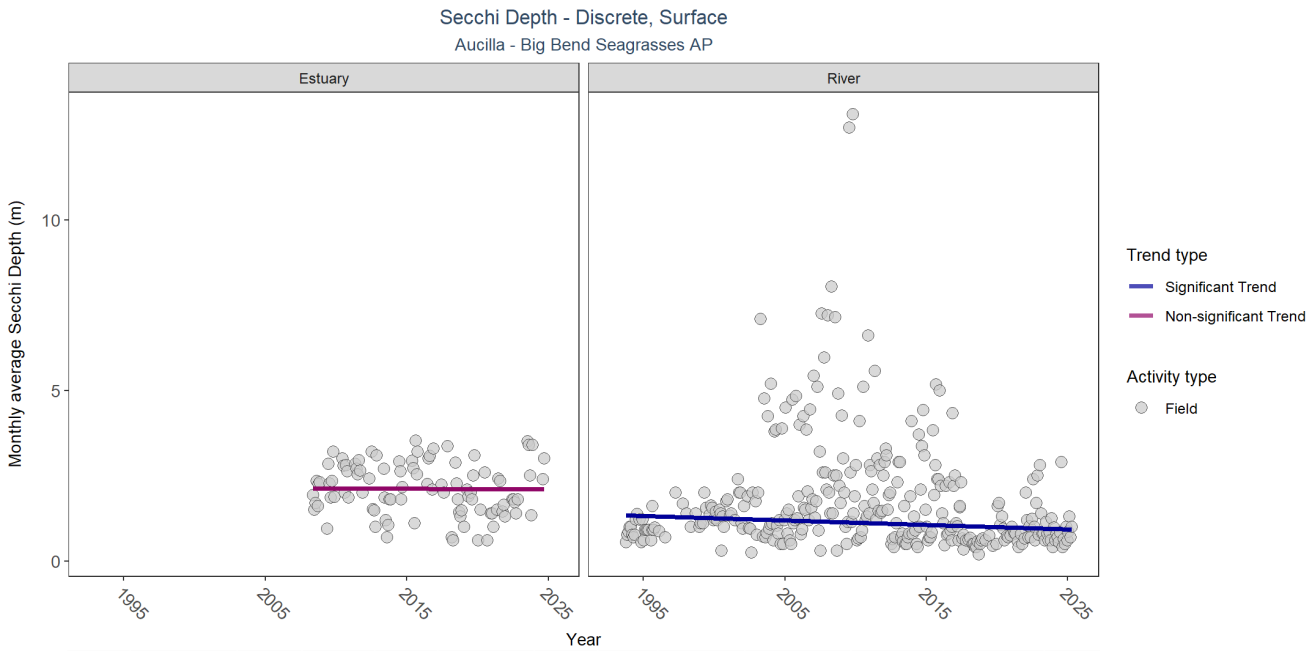


Type	RelativeDepth	N_Data	N_Years	Median	Independent	tau	p	SennSlope	SennIntercept	ChiSquared	pChiSquared	Trend
Estuary	All	967	19	27.8	TRUE	-0.2921	0.0004	-0.311	30.58	12.93	0.2277	-1
River	All	381	25	0.1	TRUE	-0.0783	0.0770	0.000	0.11	22.42	0.0213	0

p < 0.00005 appear as 0 due to rounding.

SennIntercept is intercept value at beginning of record for monitoring location

Secchi Depth

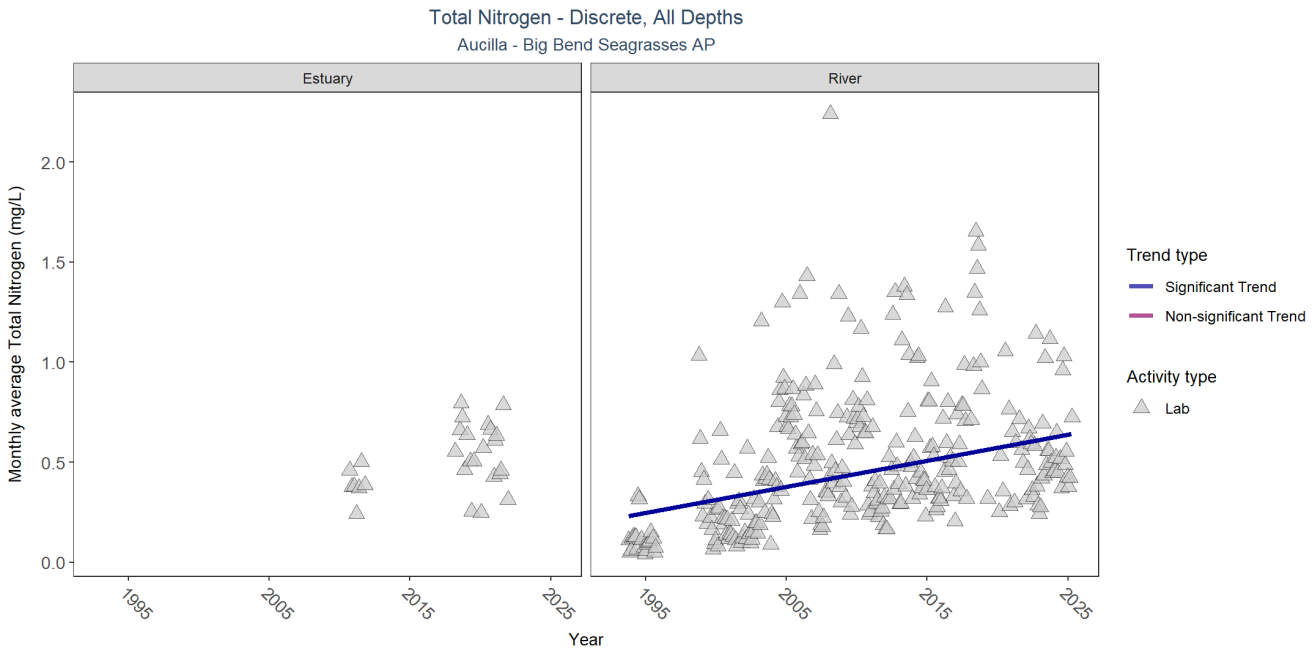


Type	RelativeDepth	N_Data	N_Years	Median	Independent	tau	p	SennSlope	SennIntercept	ChiSquared	pChiSquared	Trend
Estuary	Surface	731	17	2.3	TRUE	0.0053	0.8880	-0.001	2.12	5.30	0.8703	0
River	Surface	715	33	1.2	TRUE	-0.1275	0.0014	-0.013	1.35	10.59	0.4783	-1

p < 0.00005 appear as 0 due to rounding.

SennIntercept is intercept value at beginning of record for monitoring location

Total Nitrogen

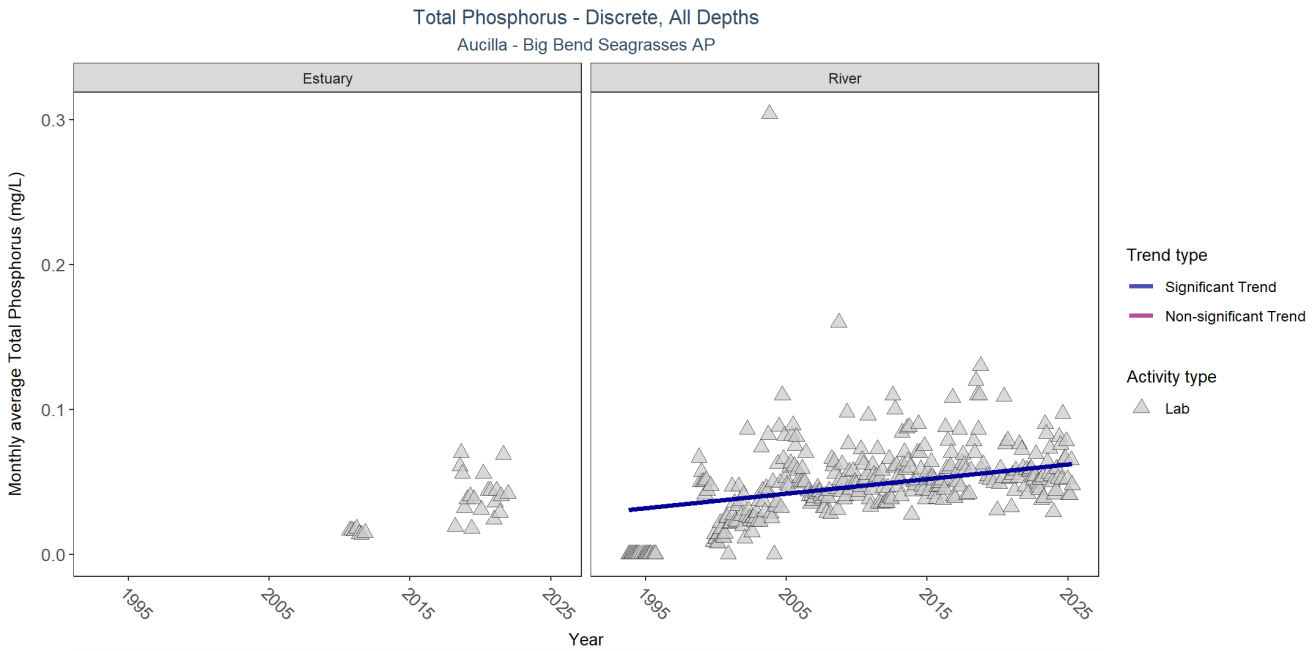


Type	RelativeDepth	N_Data	N_Years	Median	Independent	tau	p	SennSlope	SennIntercept	ChiSquared	pChiSquared	Trend
Estuary	All	41	6	0.448	NA	NA	NA	NA	NA	NA	NA	NA
River	All	727	31	0.350	TRUE	0.3244	0.0000	0.013	0.22	3.93	0.9719	1

p < 0.00005 appear as 0 due to rounding.

SennIntercept is intercept value at beginning of record for monitoring location

Total Phosphorus

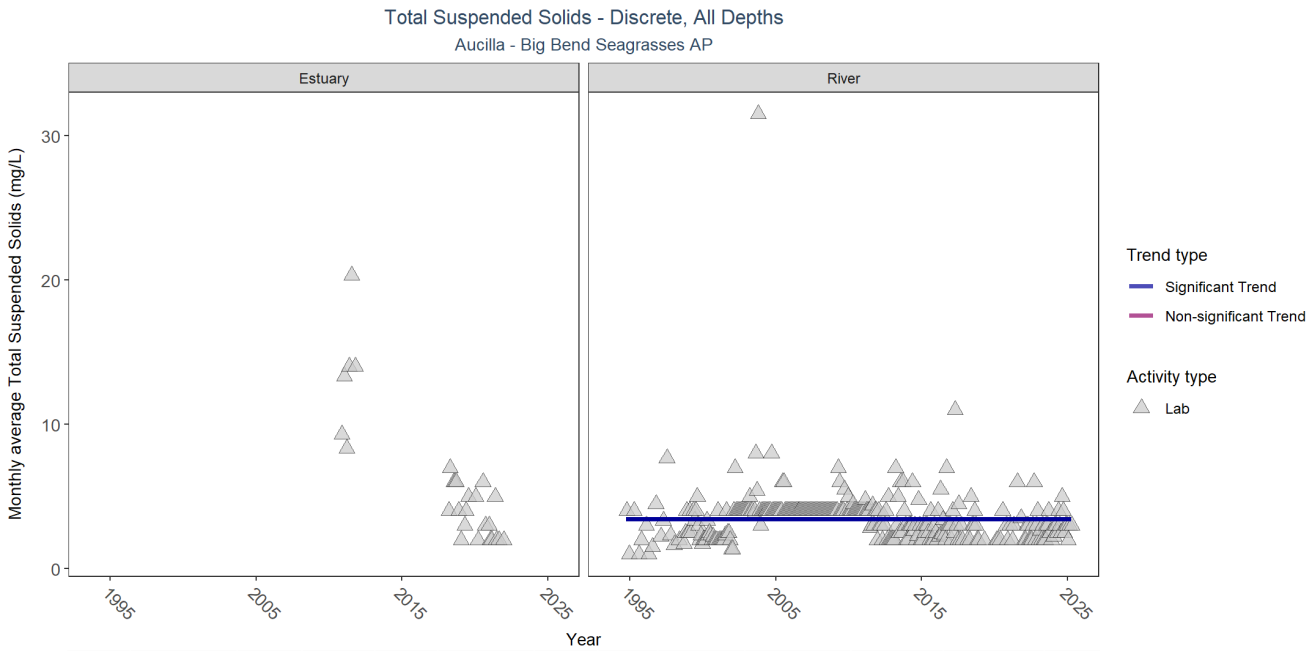


Type	RelativeDepth	N_Data	N_Years	Median	Independent	tau	p	SennSlope	SennIntercept	ChiSquared	pChiSquared	Trend
Estuary	All	42	6	0.026	NA	NA	NA	NA	NA	NA	NA	NA
River	All	691	31	0.049	TRUE	0.3872	0.0000	0.001	0.03	5.41	0.9098	1

p < 0.00005 appear as 0 due to rounding.

SennIntercept is intercept value at beginning of record for monitoring location

Total Suspended Solids

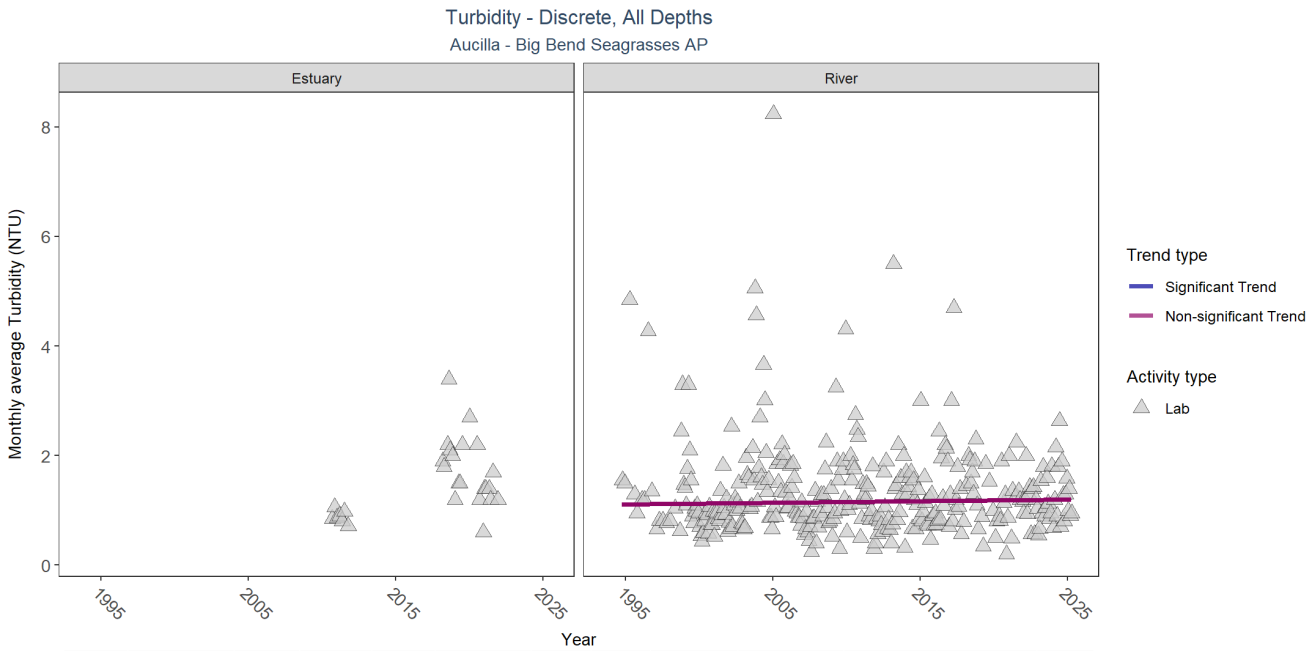


Type	RelativeDepth	N_Data	N_Years	Median	Independent	tau	p	SennSlope	SennIntercept	ChiSquared	pChiSquared	Trend
Estuary	All	40	6	6	NA	NA	NA	NA	NA	NA	NA	NA
River	All	550	32	3	TRUE	-0.1121	0.0040	0	3.42	13.15	0.2838	-1

p < 0.00005 appear as 0 due to rounding.

SennIntercept is intercept value at beginning of record for monitoring location

Turbidity

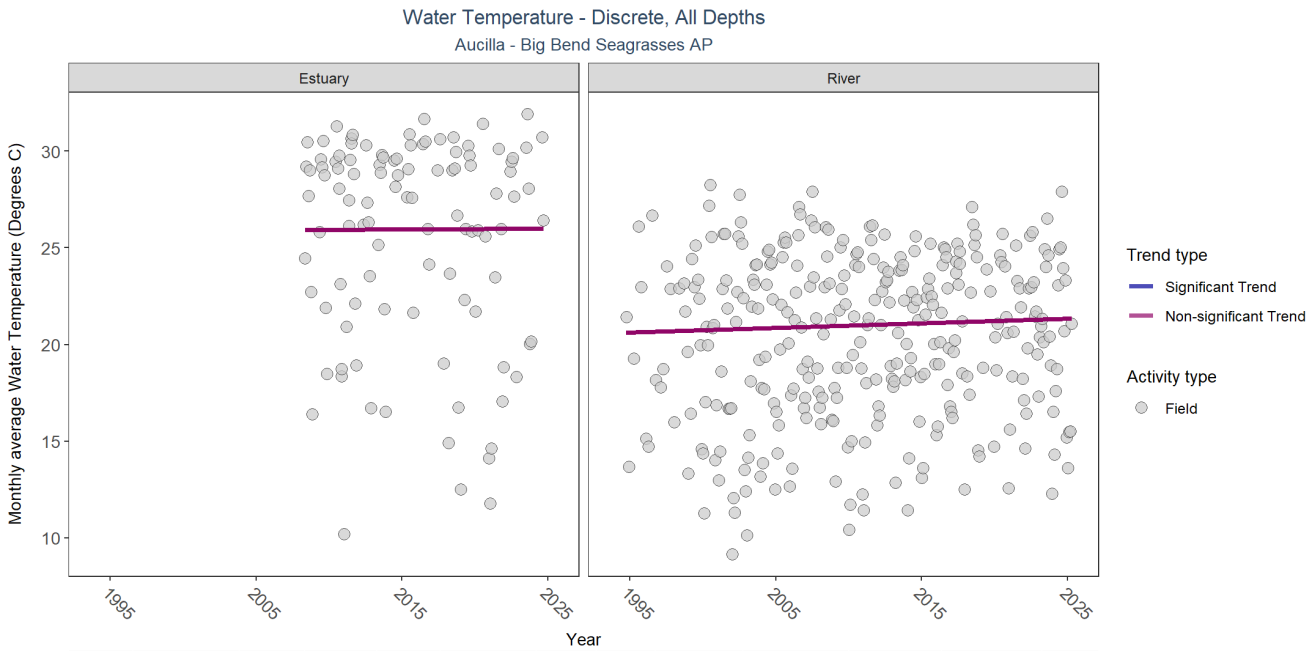


Type	RelativeDepth	N_Data	N_Years	Median	Independent	tau	p	SennSlope	SennIntercept	ChiSquared	pChiSquared	Trend
Estuary	All	42	6	1.2	NA	NA	NA	NA	NA	NA	NA	NA
River	All	891	32	1.0	TRUE	0.0322	0.4682	0.003	1.11	4.94	0.9341	0

p < 0.00005 appear as 0 due to rounding.

SennIntercept is intercept value at beginning of record for monitoring location

Water Temperature

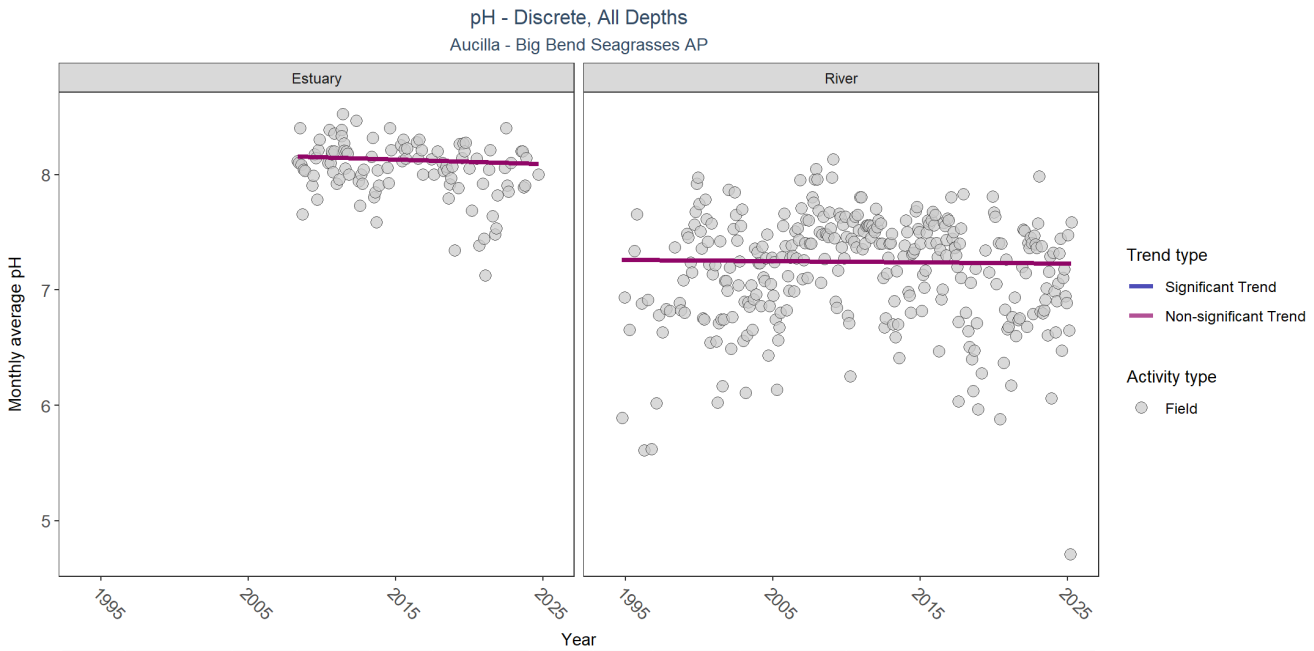


Type	RelativeDepth	N_Data	N_Years	Median	Independent	tau	p	SennSlope	SennIntercept	ChiSquared	pChiSquared	Trend
Estuary	All	775	17	28.5	TRUE	0.0148	0.9632	0.004	25.92	14.11	0.1681	0
River	All	1099	32	20.8	TRUE	0.0836	0.0575	0.024	20.61	18.65	0.0677	0

p < 0.00005 appear as 0 due to rounding.

SennIntercept is intercept value at beginning of record for monitoring location

pH

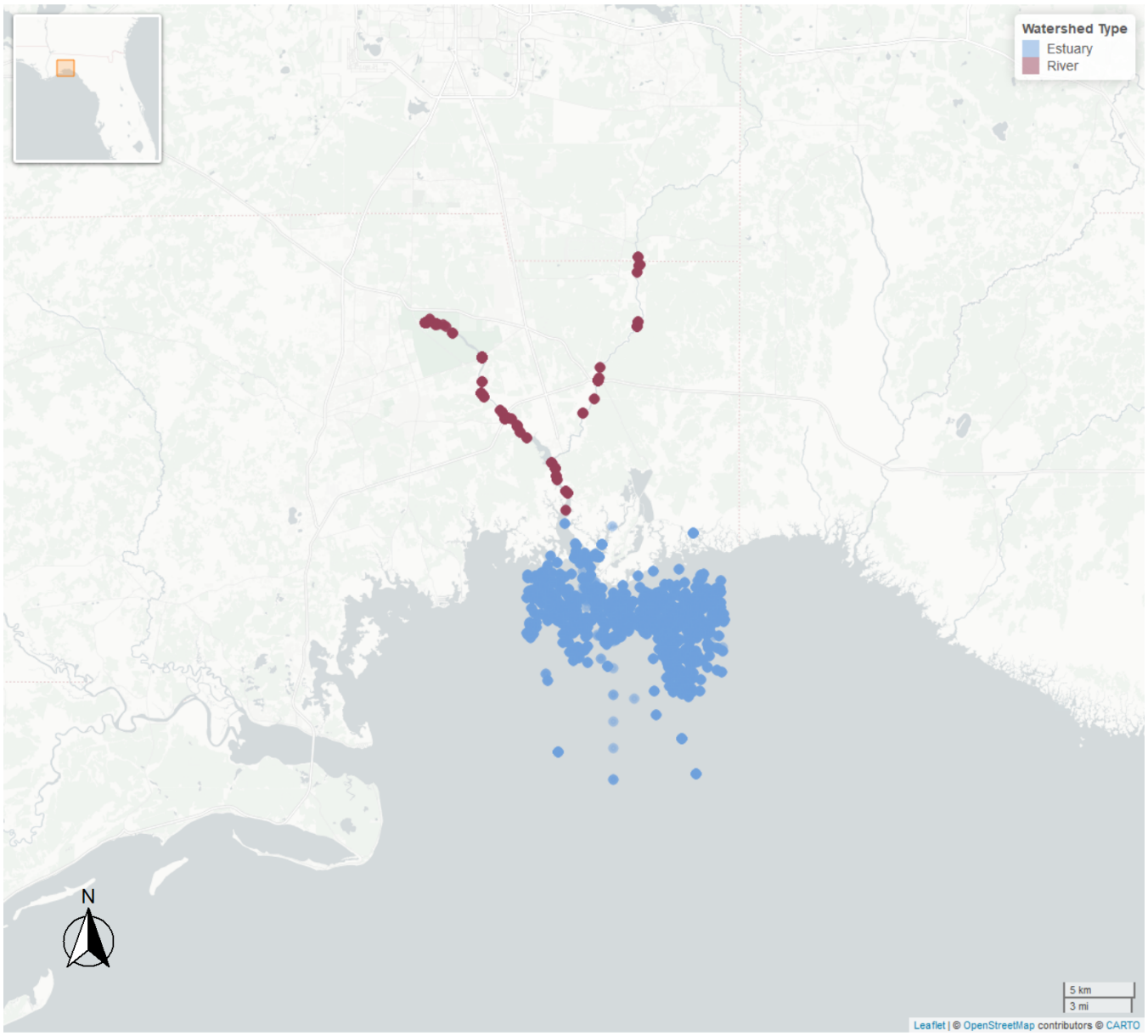


Type	RelativeDepth	N_Data	N_Years	Median	Independent	tau	p	SennSlope	SennIntercept	ChiSquared	pChiSquared	Trend
Estuary	All	764	17	8.10	TRUE	-0.0953	0.4781	-0.004	8.16	1.73	0.9980	0
River	All	1091	32	7.35	TRUE	-0.0137	0.8037	-0.001	7.26	12.74	0.3104	0

p < 0.00005 appear as 0 due to rounding.

SennIntercept is intercept value at beginning of record for monitoring location

St. Marks



Plots will be produced below for all parameters. A Seasonal Kendall-Tau trendline will be plotted only for parameters where *SufficientData* is **TRUE**.

Trend arrows denote trends where the p value is less than 0.05 and the slope is less than 10% of the median parameter value.

St. Marks contains a *large trend*. Trends marked in ⇑ or ⇓ are deemed *large* trends, meaning the p value is less than 0.05 and the slope is greater than 10% of the median value.

Table 14: Seasonal Kendall-Tau Results for St. Marks

Type	*ParameterName*	*Period-of-Record*	*N-Years*	*N-Data*	*SufficientData*	*SennSlope*	*SennIntercept*	*p*	*Trend*
Estuary	Chlorophyll a, Corrected for Pheophytin	2005 - 2025	10	116	TRUE	0.15	1.24	0.0028	⇑
River	Chlorophyll a, Corrected for Pheophytin	1999 - 2025	27	1234	TRUE	-0.01	0.91	0.0008	⇓
Estuary	Chlorophyll a, Uncorrected for Pheophytin	2001 - 2025	12	137	TRUE	0.12	2.80	0.2105	0
River	Chlorophyll a, Uncorrected for Pheophytin	1996 - 2025	30	2525	TRUE	0.01	0.60	0.0004	⇑
Estuary	Colored Dissolved Organic Matter	2001 - 2025	5	25	FALSE	-	-	-	-
River	Colored Dissolved Organic Matter	2001 - 2025	25	2041	TRUE	0.50	3.45	0.0000	⇑
Estuary	Dissolved Oxygen	1993 - 2025	22	2438	TRUE	-0.01	6.22	0.5826	0
River	Dissolved Oxygen	2001 - 2025	24	1354	TRUE	-0.12	6.37	0.0000	⇓
Estuary	Dissolved Oxygen Saturation	2001 - 2025	9	107	FALSE	-	-	-	-
River	Dissolved Oxygen Saturation	2001 - 2025	15	546	TRUE	-2.39	96.52	0.0000	⇓
Estuary	Salinity	1964 - 2025	28	2835	TRUE	-0.12	28.52	0.0144	⇓
River	Salinity	2000 - 2025	21	879	TRUE	-0.06	3.87	0.0006	⇓
Estuary	Secchi Depth	1993 - 2025	19	2068	TRUE	-0.01	1.86	0.5849	0
River	Secchi Depth	1996 - 2025	30	2476	TRUE	-0.04	4.43	0.0000	⇓
Estuary	Total Nitrogen	2001 - 2025	12	159	TRUE	0.01	0.33	0.3779	0
River	Total Nitrogen	1992 - 2025	31	4209	TRUE	0.00	0.30	0.5883	0
Estuary	Total Phosphorus	2001 - 2025	13	154	TRUE	0.00	0.02	0.1798	0
River	Total Phosphorus	1992 - 2025	31	2670	TRUE	0.00	0.00	0.0000	⇑
Estuary	Total Suspended Solids	2005 - 2025	10	117	TRUE	-0.42	9.27	0.0028	⇓
River	Total Suspended Solids	1992 - 2025	29	816	TRUE	-0.09	5.43	0.0000	⇓
Estuary	Turbidity	2005 - 2025	13	475	TRUE	0.02	1.72	0.3527	0
River	Turbidity	1992 - 2025	29	831	TRUE	0.00	0.74	0.1298	0
Estuary	Water Temperature	1964 - 2025	23	2765	TRUE	0.03	20.51	0.1932	0
River	Water Temperature	2001 - 2025	24	1349	TRUE	0.01	20.65	0.5196	0
Estuary	pH	1964 - 2025	21	2244	TRUE	0.00	8.09	0.7142	0
River	pH	2001 - 2025	24	1124	TRUE	0.00	7.55	0.3250	0

Table 15: Overview of Program Data for St. Marks

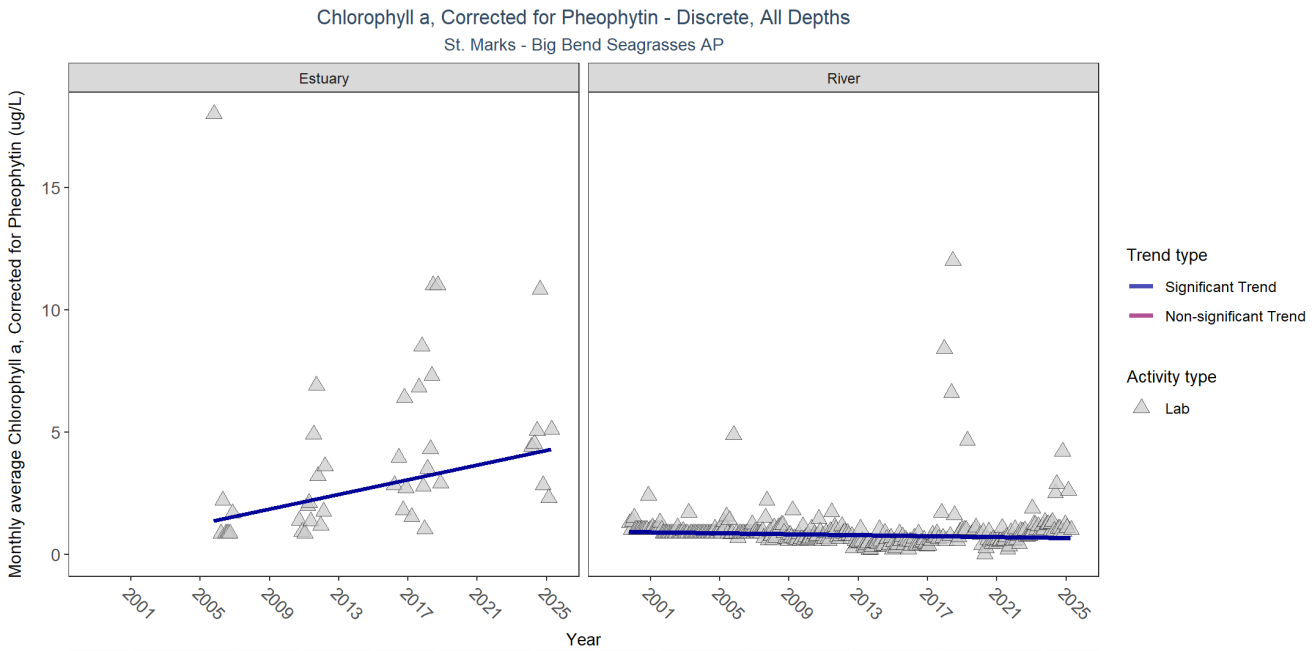
ParameterName	*ProgramID*	*n-data-Estuary*	*n-data-River*
Ammonium, Filtered (NH4)	5002	112	729
Chlorophyll a, Corrected for Pheophytin	514	-	174
Chlorophyll a, Corrected for Pheophytin	5002	116	1061
Chlorophyll a, Uncorrected for Pheophytin	103	8	1
Chlorophyll a, Uncorrected for Pheophytin	115	1	-
Chlorophyll a, Uncorrected for Pheophytin	118	5	-
Chlorophyll a, Uncorrected for Pheophytin	514	28	1896
Chlorophyll a, Uncorrected for Pheophytin	5002	95	629
Colored Dissolved Organic Matter	514	8	780
Colored Dissolved Organic Matter	5002	17	1262
Dissolved Oxygen	69	1988	-
Dissolved Oxygen	95	4	-
Dissolved Oxygen	103	2	3
Dissolved Oxygen	115	5	-
Dissolved Oxygen	118	16	3
Dissolved Oxygen	560	192	-
Dissolved Oxygen	5002	423	1510
Dissolved Oxygen Saturation	5002	107	546
NO2+3, Filtered	103	1	1
NO2+3, Filtered	5002	115	1848
Nitrate (NO3)	5002	-	3
Nitrite (NO2)	5002	-	10
Phosphate, Filtered (PO4)	5002	44	296
Salinity	69	1995	-
Salinity	95	21	-
Salinity	115	5	-
Salinity	118	15	1
Salinity	560	194	-
Salinity	5002	605	878
Secchi Depth	69	1952	-
Secchi Depth	103	2	-
Secchi Depth	115	3	-
Secchi Depth	118	2	-
Secchi Depth	514	28	1898
Secchi Depth	560	13	-
Secchi Depth	5002	83	673
Specific Conductivity	69	1986	-
Specific Conductivity	514	8	83
Specific Conductivity	5002	135	3044
Total Kjeldahl Nitrogen	5002	112	750

Total Nitrogen	103	12	-
Total Nitrogen	118	2	-
Total Nitrogen	514	28	1950
Total Nitrogen	5002	119	2260
Total Phosphorus	103	13	1
Total Phosphorus	514	28	1911
Total Phosphorus	5002	113	759
Total Suspended Solids	5002	117	816
Turbidity	103	6	-
Turbidity	5002	469	836
Water Temperature	69	1995	-
Water Temperature	95	139	-
Water Temperature	115	5	-
Water Temperature	118	13	5
Water Temperature	560	193	-
Water Temperature	5002	626	1513
pH	69	1986	-
pH	95	1	-
pH	103	2	4
pH	115	5	-
pH	118	8	3
pH	560	155	-
pH	5002	251	1275

Program names:

69 - Fisheries-Independent Monitoring (FIM) Program -[4]
95 - Harmful Algal Bloom Marine Observation Network -[5]
103 - EPA STOrage and RETrieval Data Warehouse (STORET)/WQX -[6]
115 - Environmental Monitoring Assessment Program -[7]
118 - National Aquatic Resource Surveys, National Coastal Condition Assessment -[8]
514 - Florida LAKEWATCH Program -[12]
560 - Big Bend Seagrasses & Nature Coast Aquatic Preserves - Seagrass Monitoring -[10]
5002 - Florida STORET / WIN -[2]

Chlorophyll a, Corrected for Pheophytin

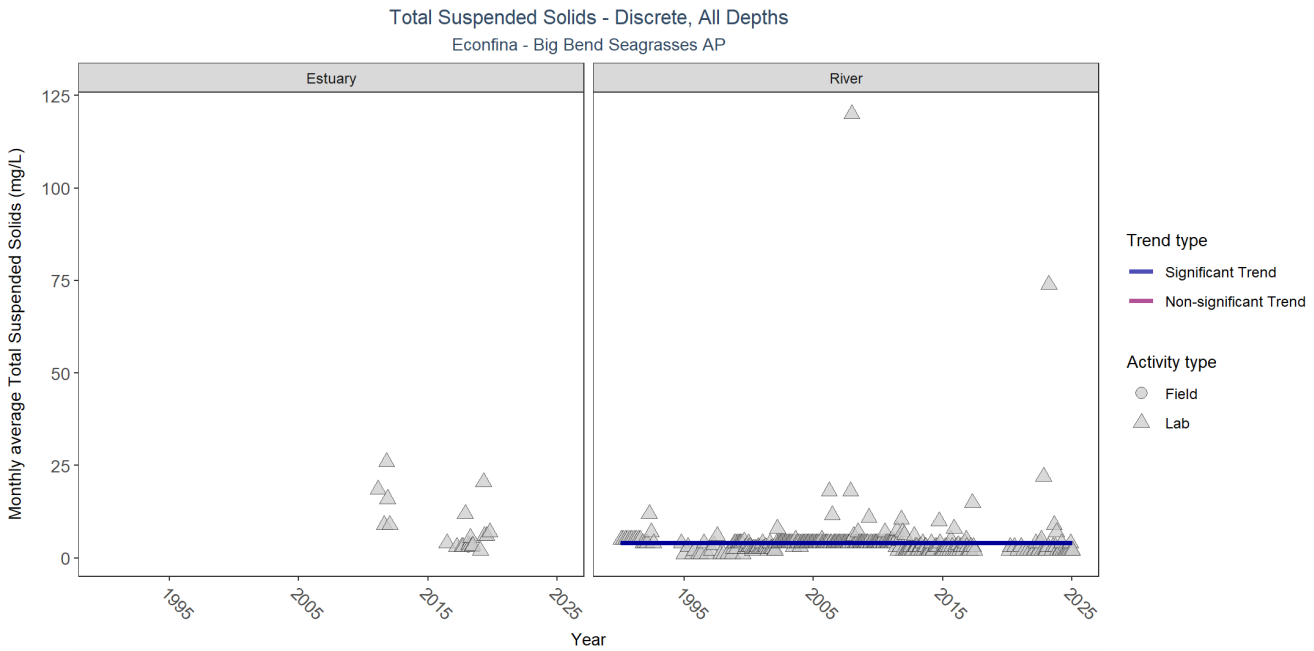


Type	RelativeDepth	N_Data	N_Years	Median	Independent	tau	p	SennSlope	SennIntercept	ChiSquared	pChiSquared	Trend
Estuary	All	116	10	2.50	TRUE	0.4762	0.0028	0.151	1.24	11.40	0.3270	1
River	All	1234	27	0.82	TRUE	-0.1409	0.0008	-0.009	0.91	2.58	0.9952	-1

p < 0.00005 appear as 0 due to rounding.

SennIntercept is intercept value at beginning of record for monitoring location

Chlorophyll a, Uncorrected for Pheophytin

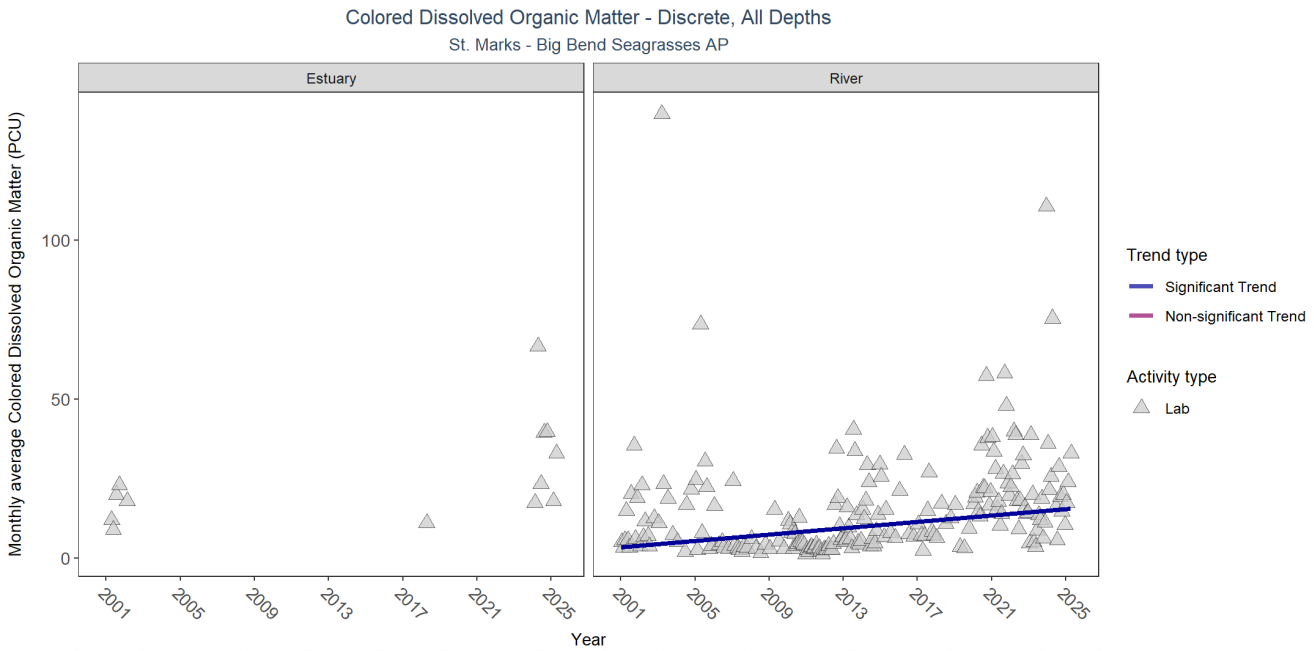


Type	RelativeDepth	N_Data	N_Years	Median	Independent	tau	p	SennSlope	SennIntercept	ChiSquared	pChiSquared	Trend
Estuary	All	33	6	4	NA	NA	NA	NA	NA	NA	NA	NA
River	All	379	33	4	TRUE	-0.1572	0.0001	0	4	12.76	0.3092	-1

p < 0.00005 appear as 0 due to rounding.

SennIntercept is intercept value at beginning of record for monitoring location

Colored Dissolved Organic Matter

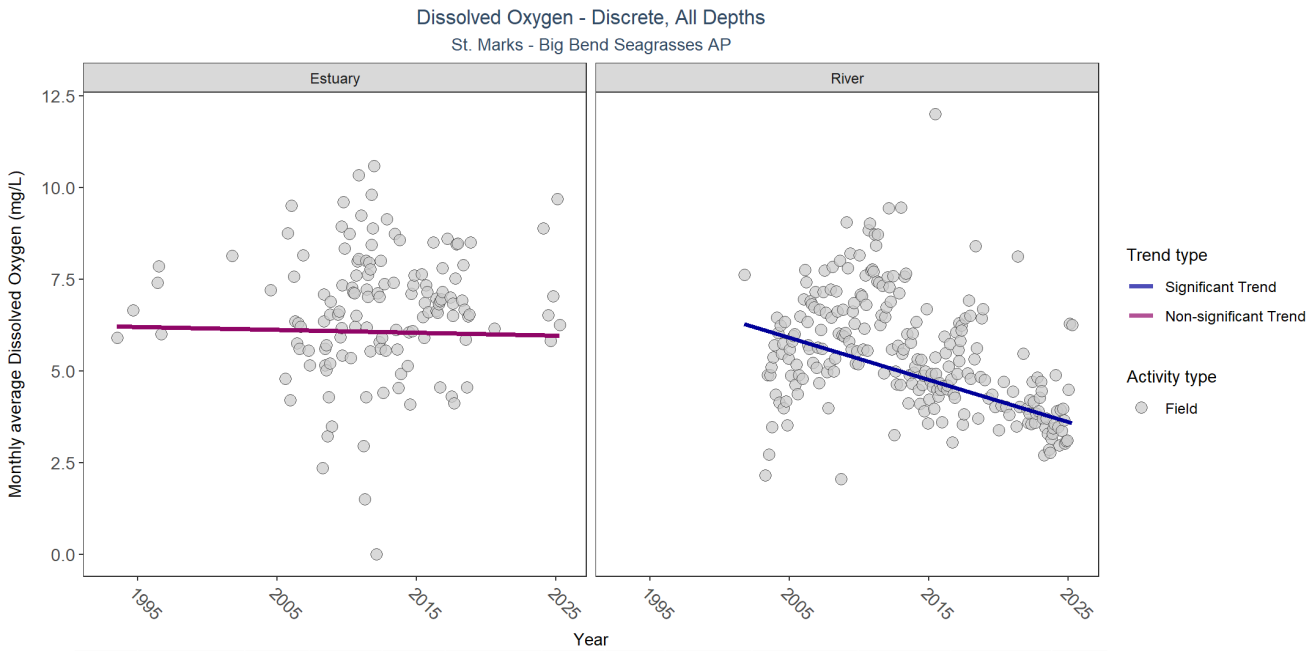


Type	RelativeDepth	N_Data	N_Years	Median	Independent	tau	p	SennSlope	SennIntercept	ChiSquared	pChiSquared	Trend
Estuary	All	25	5	20	NA	NA	NA	NA	NA	NA	NA	NA
River	All	2041	25	15	TRUE	0.3011	0.0000	0.502	3.45	5.65	0.8955	1

p < 0.00005 appear as 0 due to rounding.

SennIntercept is intercept value at beginning of record for monitoring location

Dissolved Oxygen

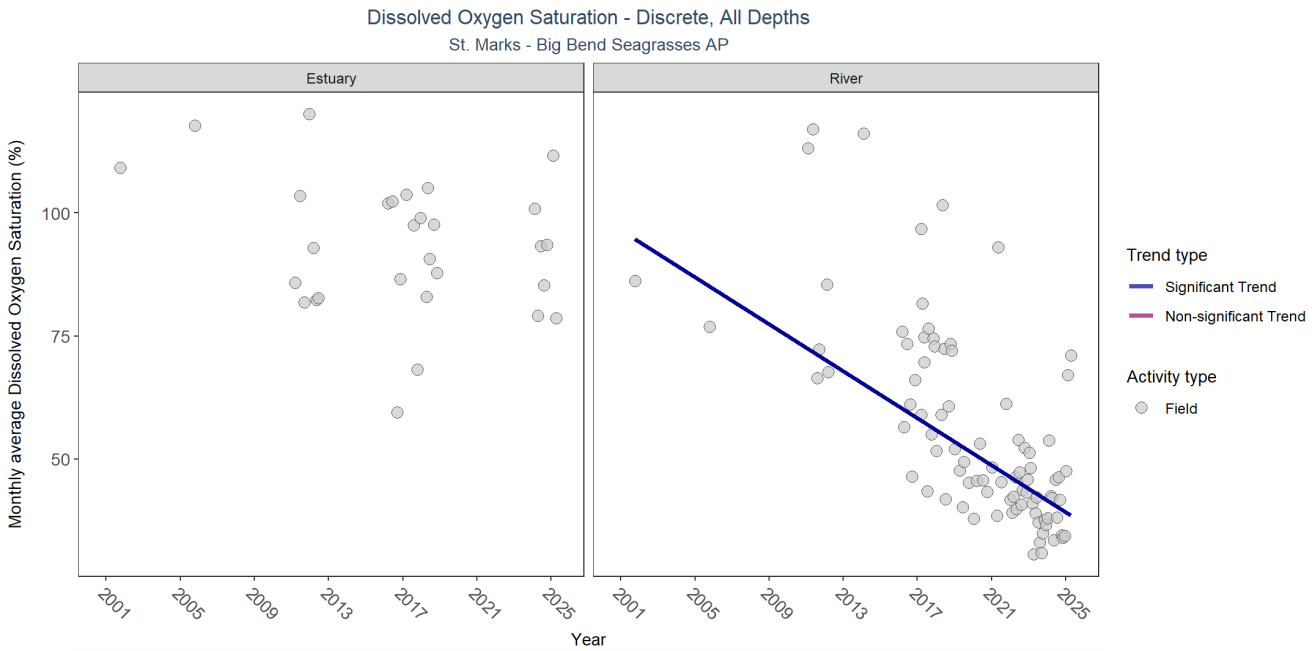


Type	RelativeDepth	N_Data	N_Years	Median	Independent	tau	p	SennSlope	SennIntercept	ChiSquared	pChiSquared	Trend
Estuary	All	2438	22	6.6	TRUE	0.0012	0.5826	-0.008	6.22	14.83	0.1906	0
River	All	1354	24	5.3	TRUE	-0.3302	0.0000	-0.115	6.37	3.63	0.9795	-1

p < 0.00005 appear as 0 due to rounding.

SennIntercept is intercept value at beginning of record for monitoring location

Dissolved Oxygen Saturation

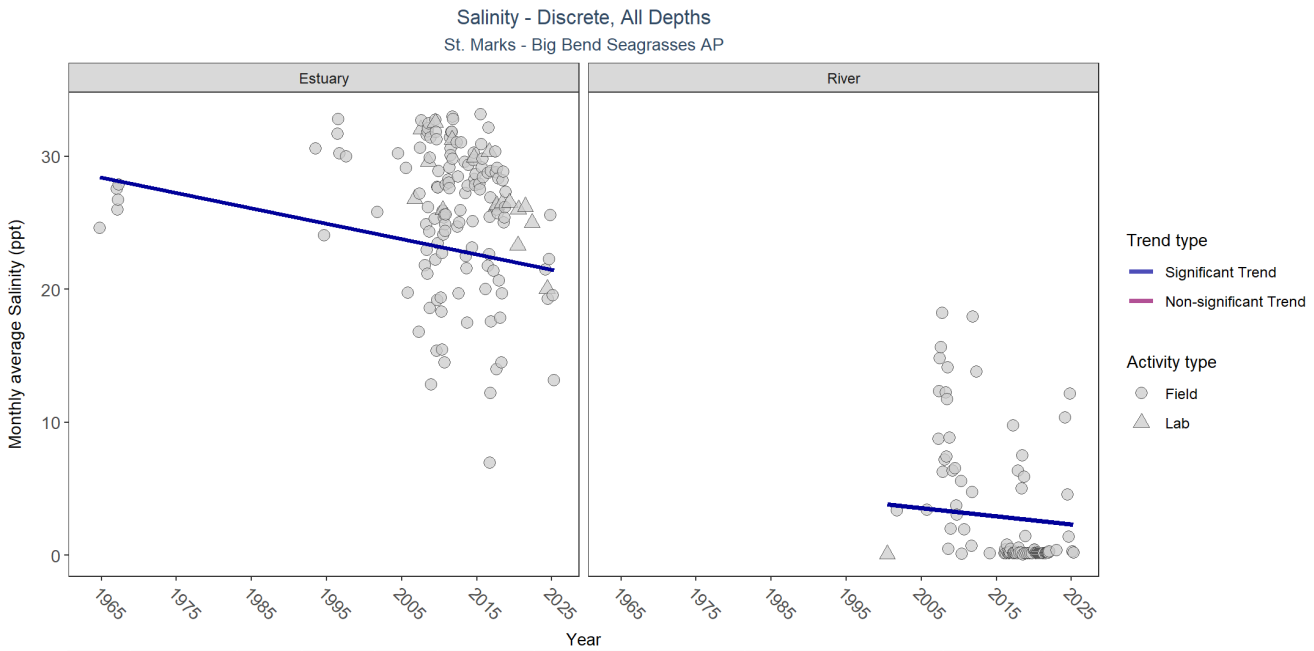


Type	RelativeDepth	N_Data	N_Years	Median	Independent	tau	p	SennSlope	SennIntercept	ChiSquared	pChiSquared	Trend
Estuary	All	107	9	96.30	NA	NA	NA	NA	NA	NA	NA	NA
River	All	546	15	47.35	TRUE	-0.5218	0.0000	-2.39	96.52	5.79	0.8869	-1

p < 0.00005 appear as 0 due to rounding.

SennIntercept is intercept value at beginning of record for monitoring location

Salinity

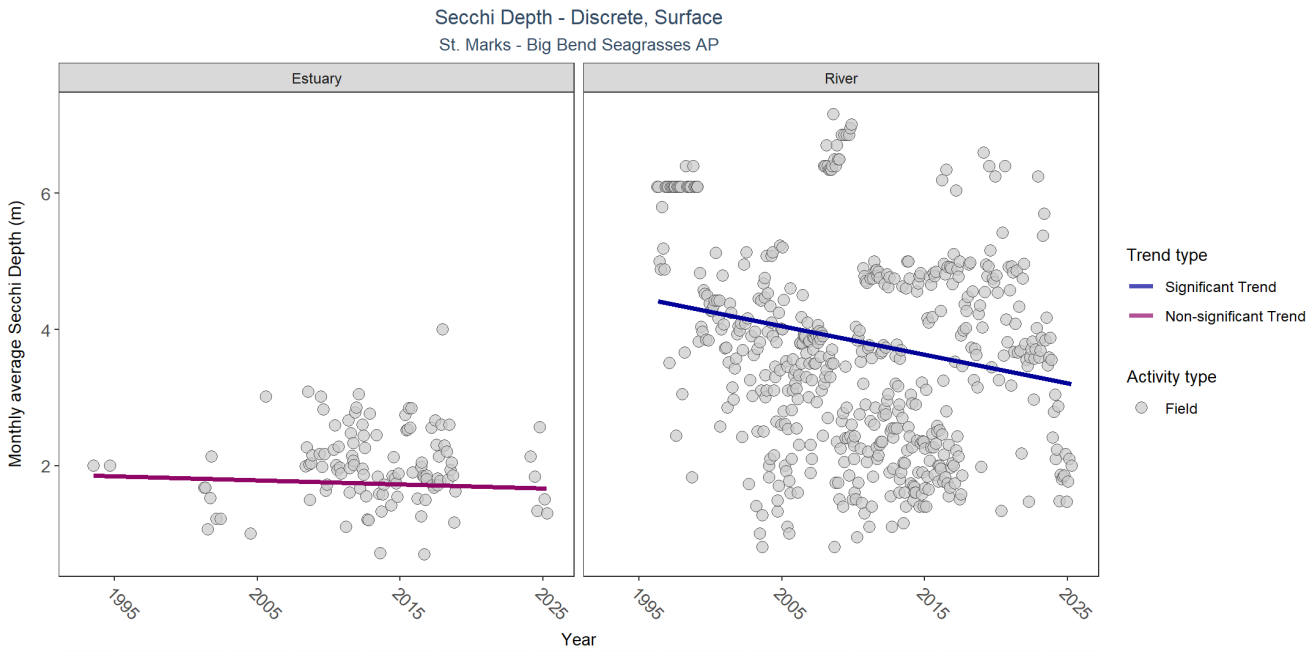


Type	RelativeDepth	N_Data	N_Years	Median	Independent	tau	p	SennSlope	SennIntercept	ChiSquared	pChiSquared	Trend
Estuary	All	2835	28	27.8	TRUE	-0.1796	0.0144	-0.116	28.52	15.04	0.1305	-1
River	All	879	21	0.2	TRUE	-0.3141	0.0006	-0.062	3.87	7.82	0.7297	-2

p < 0.00005 appear as 0 due to rounding.

SennIntercept is intercept value at beginning of record for monitoring location

Secchi Depth

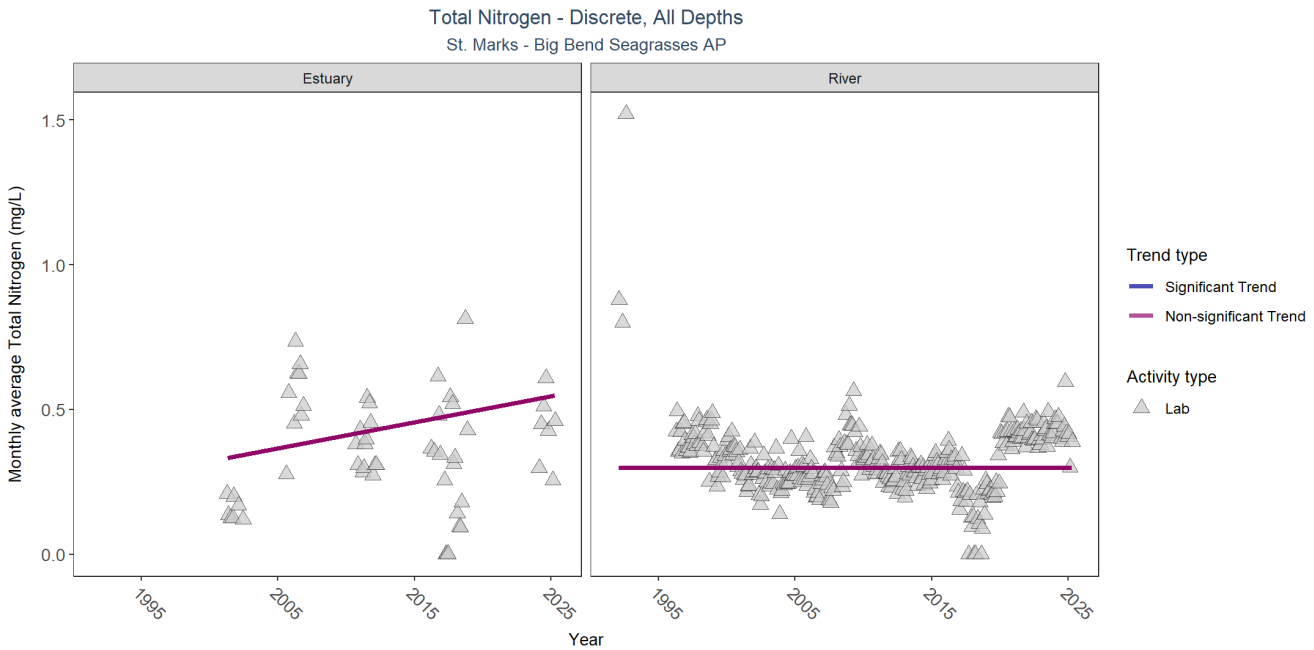


Type	RelativeDepth	N_Data	N_Years	Median	Independent	tau	p	SennSlope	SennIntercept	ChiSquared	pChiSquared	Trend
Estuary	Surface	2068	19	2.000000	TRUE	-0.0128	0.5849	-0.006	1.86	8.83	0.5487	0
River	Surface	2476	30	3.048037	TRUE	-0.2136	0.0000	-0.042	4.43	8.88	0.6333	-1

p < 0.00005 appear as 0 due to rounding.

SennIntercept is intercept value at beginning of record for monitoring location

Total Nitrogen

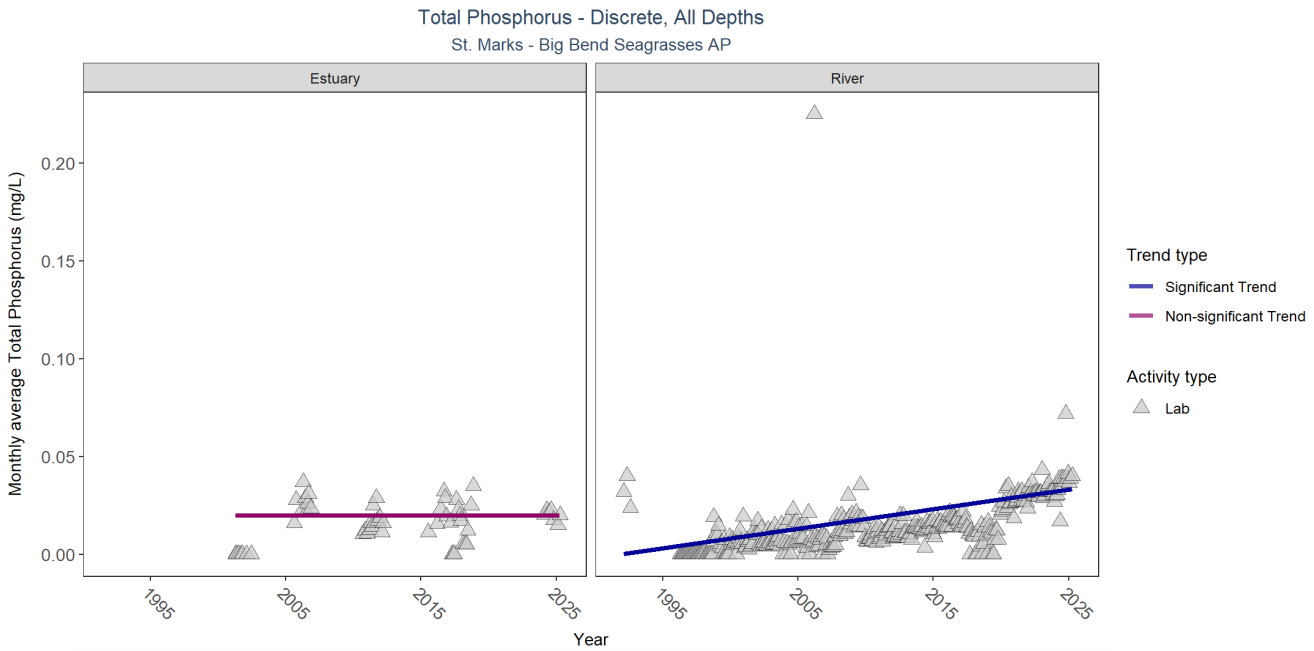


Type	RelativeDepth	N_Data	N_Years	Median	Independent	tau	p	SennSlope	SennIntercept	ChiSquared	pChiSquared	Trend
Estuary	All	159	12	0.34	TRUE	0.1346	0.3779	0.009	0.33	8.28	0.6010	0
River	All	4209	31	0.32	TRUE	0.0216	0.5883	0.000	0.30	6.28	0.8542	0

p < 0.00005 appear as 0 due to rounding.

SennIntercept is intercept value at beginning of record for monitoring location

Total Phosphorus

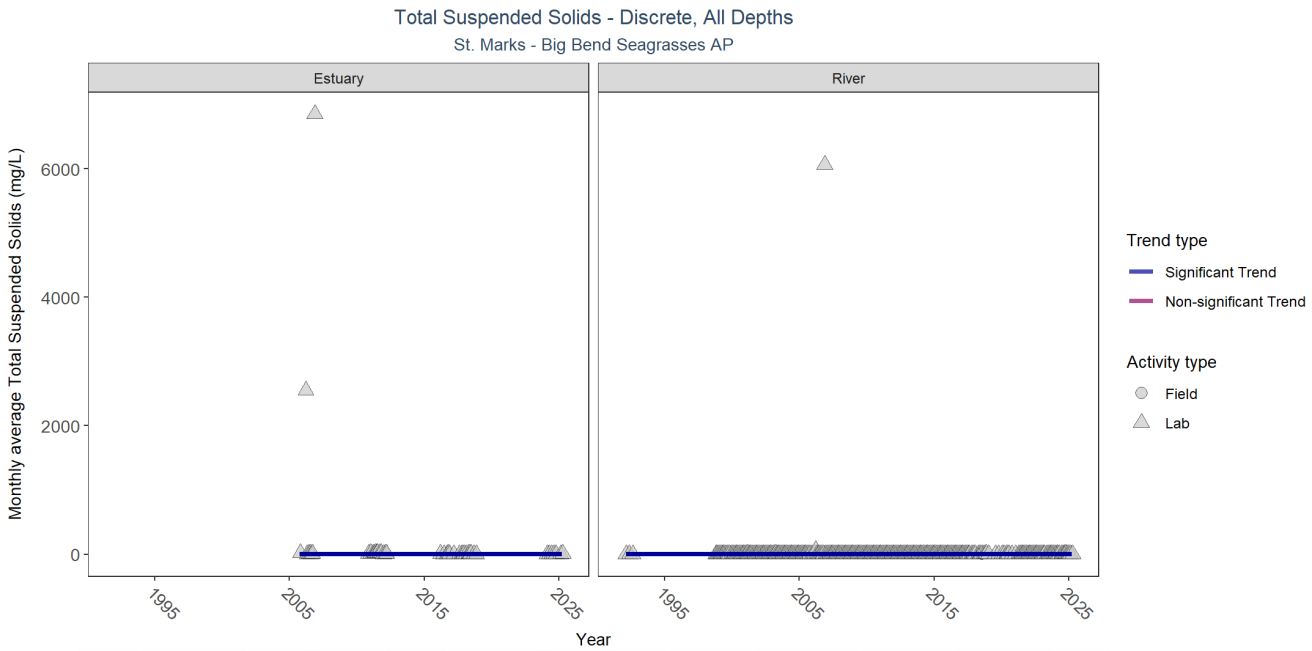


Type	RelativeDepth	N_Data	N_Years	Median	Independent	tau	p	SennSlope	SennIntercept	ChiSquared	pChiSquared	Trend
Estuary	All	154	13	0.016500	TRUE	0.1612	0.1798	0.000	0.02	5.68	0.8413	0
River	All	2670	31	0.000032	TRUE	0.5495	0.0000	0.001	0.00	3.50	0.9823	2

p < 0.00005 appear as 0 due to rounding.

SennIntercept is intercept value at beginning of record for monitoring location

Total Suspended Solids

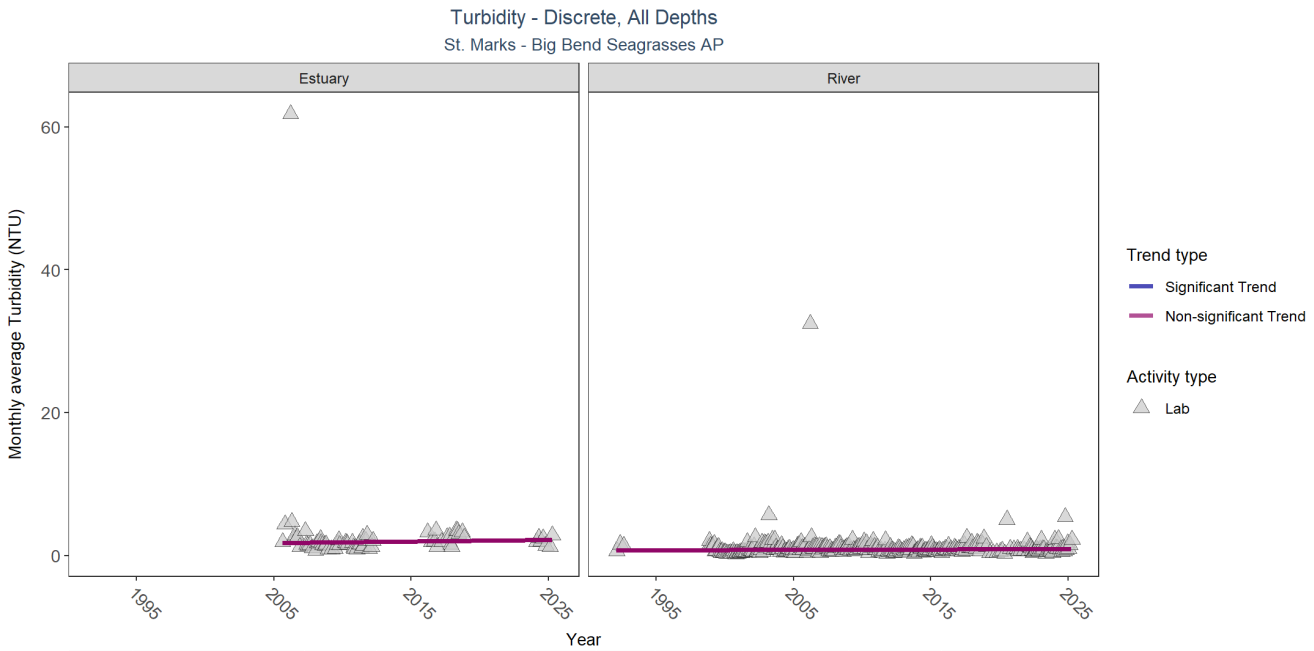


Type	RelativeDepth	N_Data	N_Years	Median	Independent	tau	p	SennSlope	SennIntercept	ChiSquared	pChiSquared	Trend
Estuary	All	117	10	7	TRUE	-0.4127	0.0028	-0.417	9.27	15.23	0.1238	-1
River	All	816	29	3	TRUE	-0.4522	0.0000	-0.086	5.43	5.41	0.9098	-1

p < 0.00005 appear as 0 due to rounding.

SennIntercept is intercept value at beginning of record for monitoring location

Turbidity

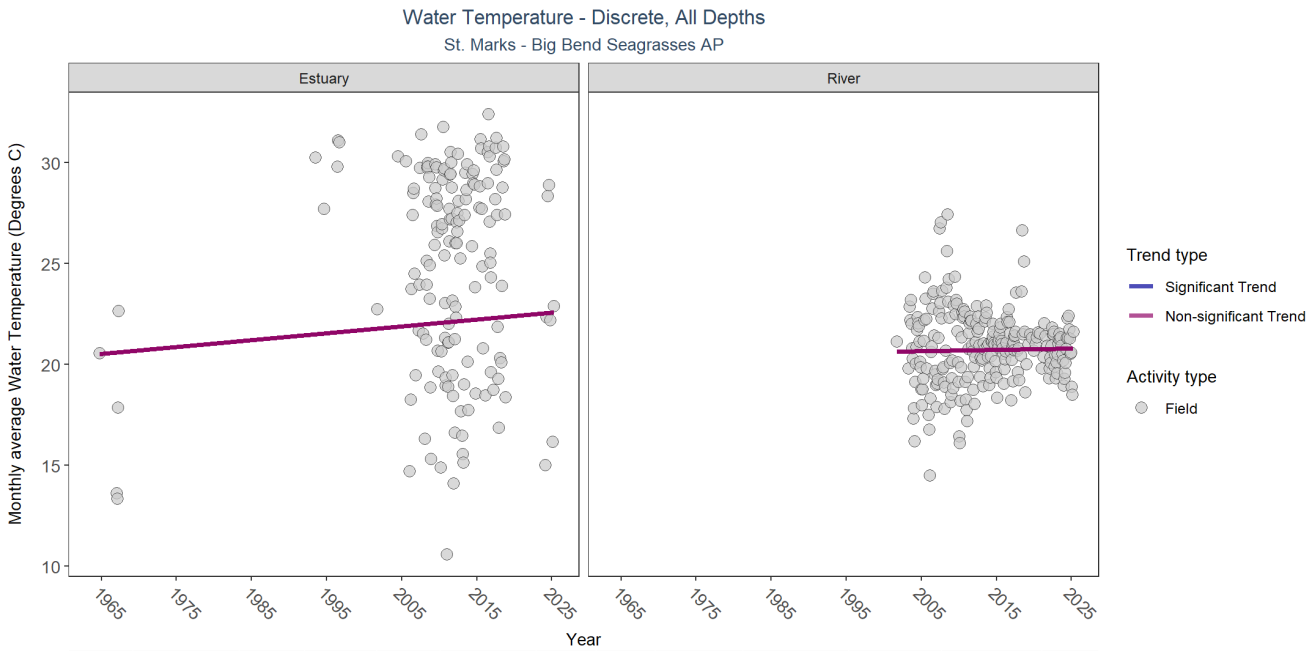


Type	RelativeDepth	N_Data	N_Years	Median	Independent	tau	p	SennSlope	SennIntercept	ChiSquared	pChiSquared	Trend
Estuary	All	475	13	1.60	TRUE	0.1335	0.3527	0.021	1.72	9.42	0.5834	0
River	All	831	29	0.75	TRUE	0.0611	0.1298	0.005	0.74	13.54	0.2596	0

p < 0.00005 appear as 0 due to rounding.

SennIntercept is intercept value at beginning of record for monitoring location

Water Temperature

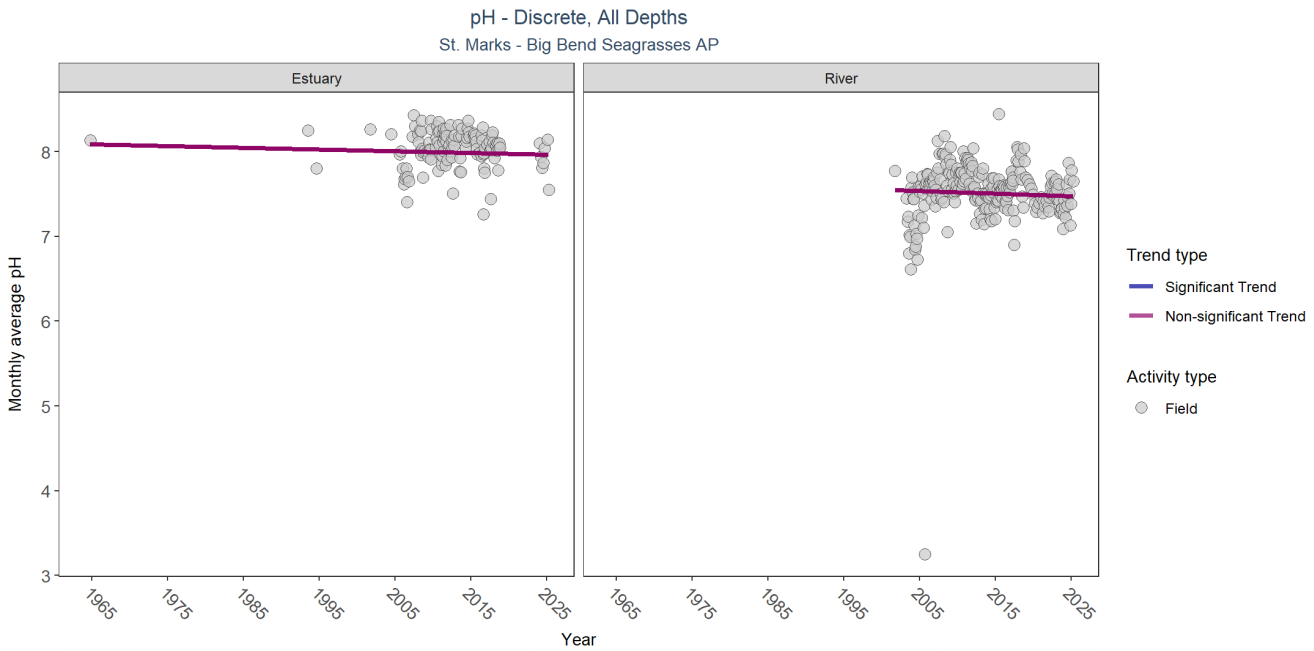


Type	RelativeDepth	N_Data	N_Years	Median	Independent	tau	p	SennSlope	SennIntercept	ChiSquared	pChiSquared	Trend
Estuary	All	2765	23	27.4	TRUE	0.1108	0.1932	0.034	20.51	7.72	0.7384	0
River	All	1349	24	21.0	TRUE	0.0377	0.5196	0.006	20.65	59.34	0.0000	0

p < 0.00005 appear as 0 due to rounding.

SennIntercept is intercept value at beginning of record for monitoring location

pH



Type	RelativeDepth	N_Data	N_Years	Median	Independent	tau	p	SennSlope	SennIntercept	ChiSquared	pChiSquared	Trend
Estuary	All	2244	21	8.10	TRUE	0.0329	0.7142	-0.002	8.09	13.12	0.2853	0
River	All	1124	24	7.54	TRUE	-0.0420	0.3250	-0.003	7.55	11.08	0.4365	0

p < 0.00005 appear as 0 due to rounding.

SennIntercept is intercept value at beginning of record for monitoring location

Submerged Aquatic Vegetation

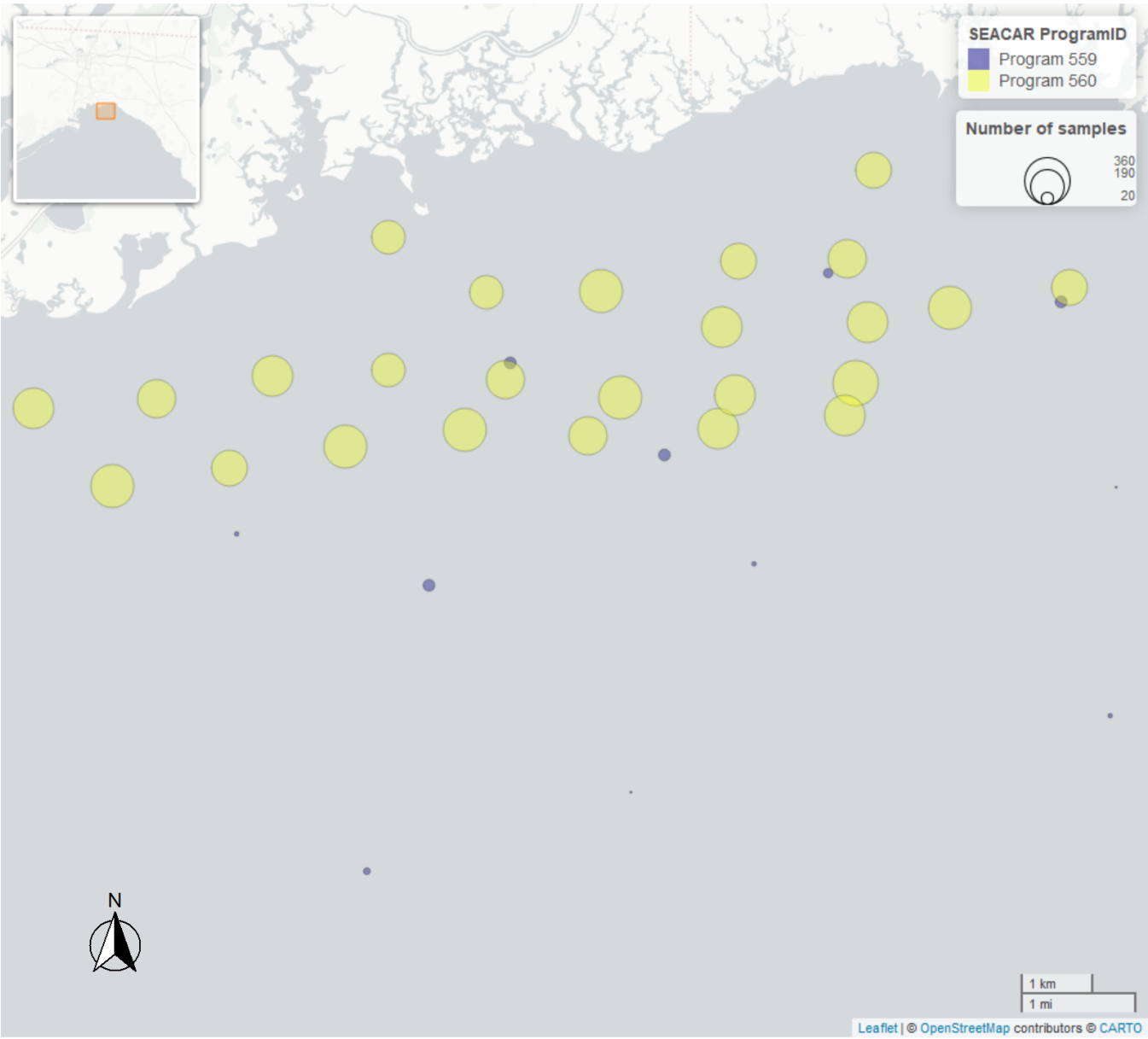


Table 16: Big Bend Seagrasses & Nature Coast Aquatic Preserves - Seagrass Monitoring - *Program 560*[10]

N_Data	*YearMin*	*YearMax*	*Collection Method*	*Sample Locations*
5879	2006	2024	Modified Braun Blanquet	25
953	2022	2024	Percent Cover	25

Table 17: Northern Big Bend Seagrass Monitoring - *Program 559*[11]

N_Data	*YearMin*	*YearMax*	*Collection Method*	*Sample Locations*
131	2012	2018	Modified Braun Blanquet	54

Note: [a]Northern Big Bend Seagrass Monitoring - Program 559 contains ProgramLocationID values with Year-based suffixes. Any discrepancy between the number of Sample Locations in the table above and those portrayed on the map are due to this naming convention.

Median Percent Cover - Species Trend Table

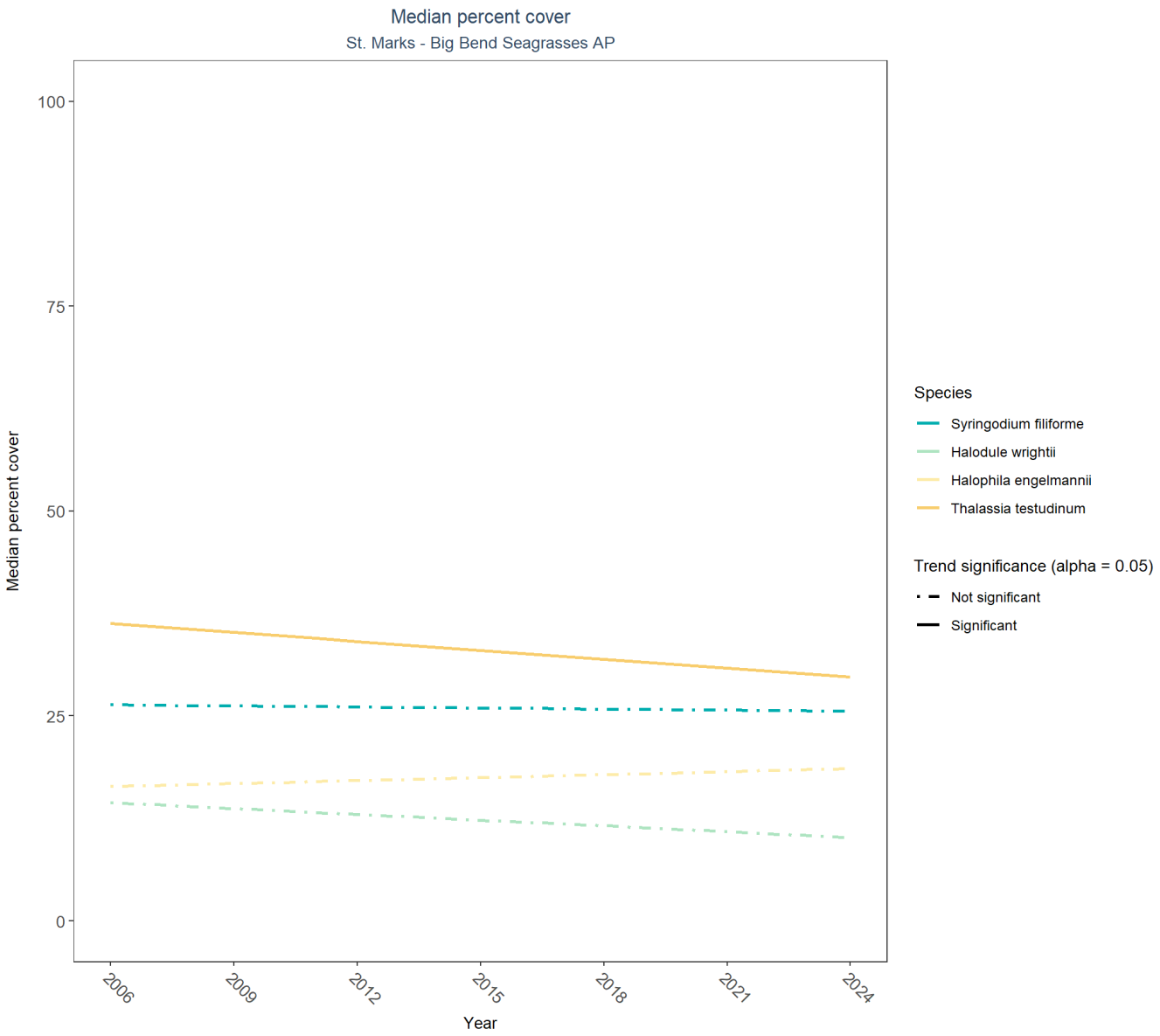
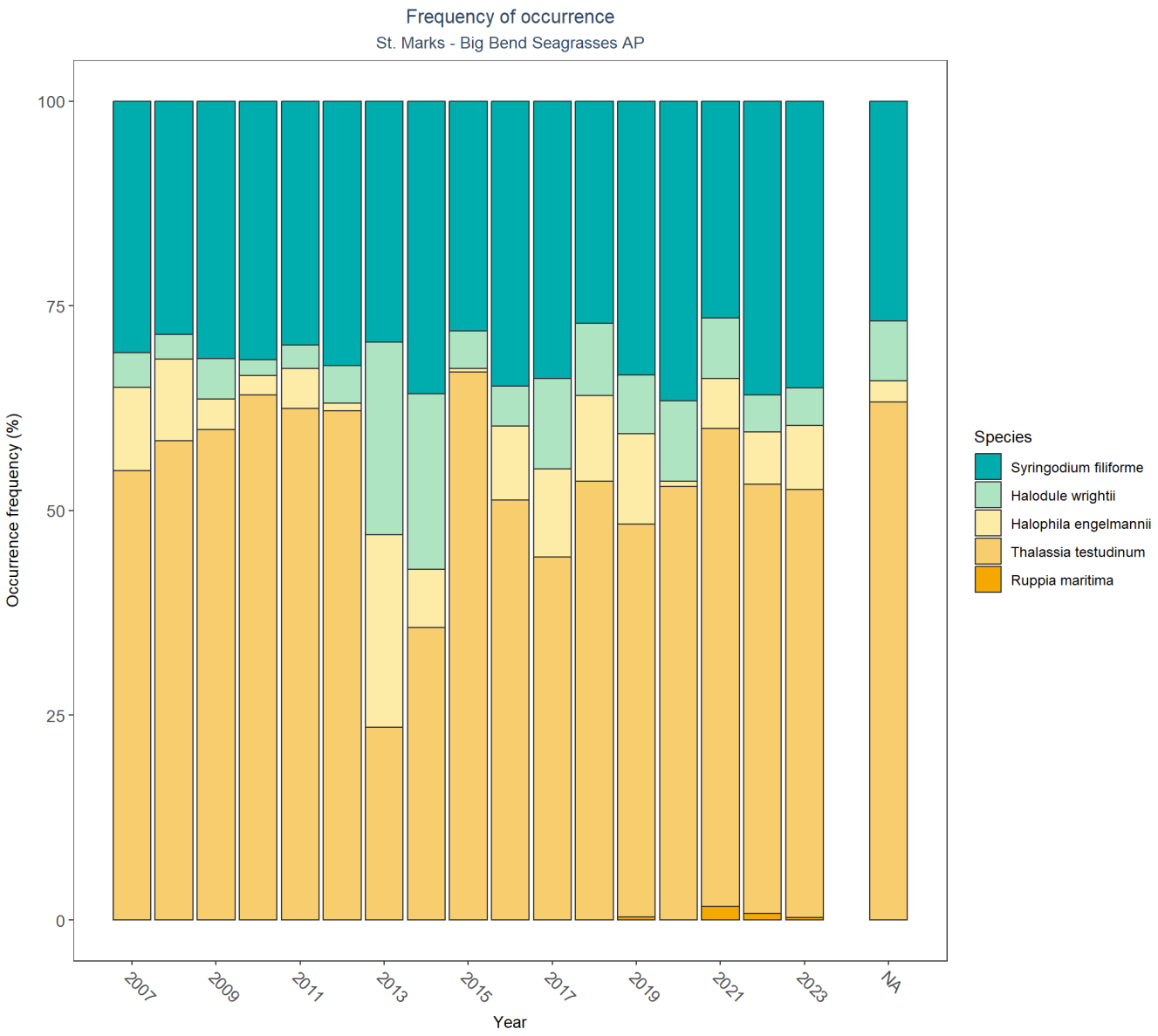


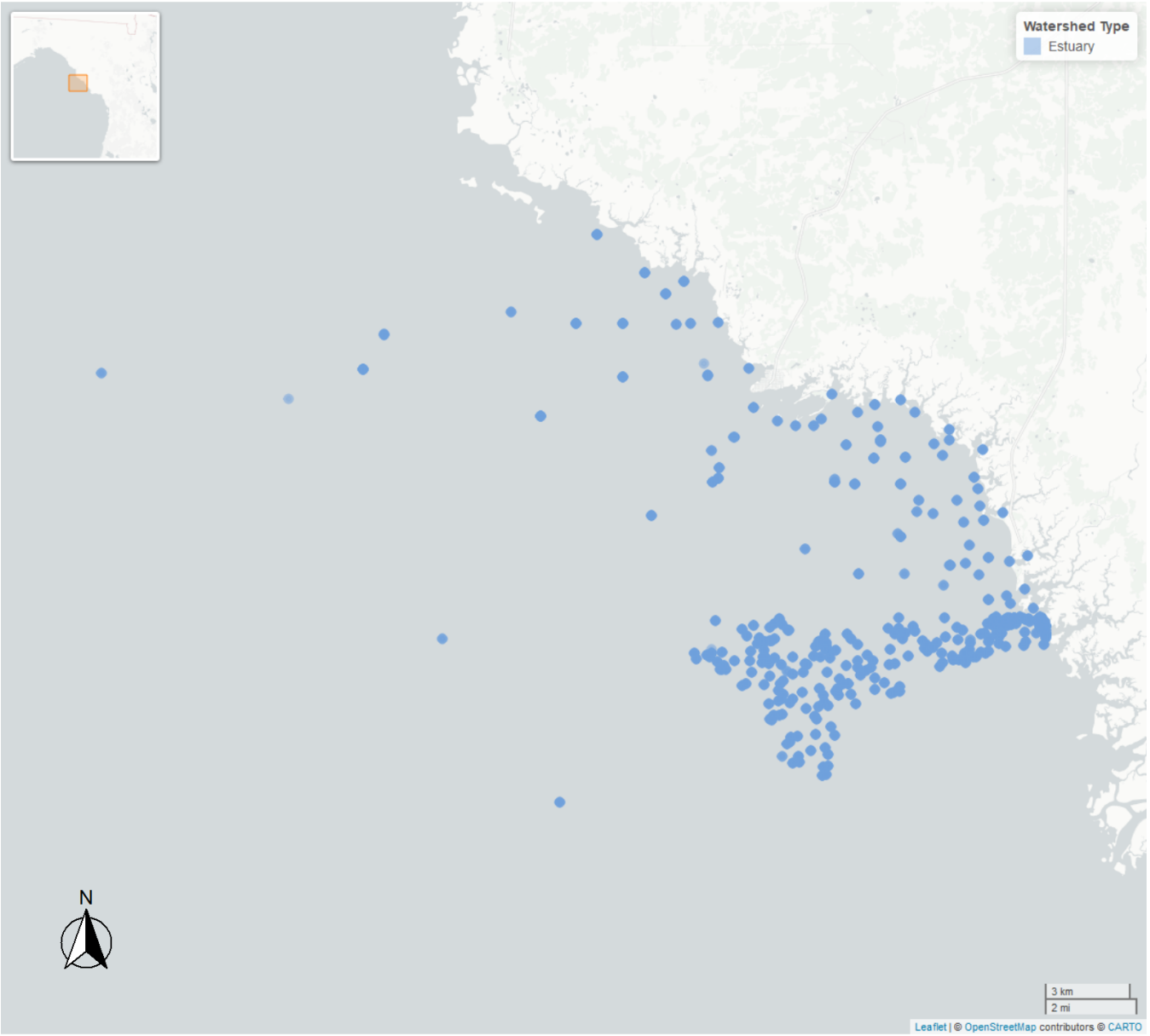
Table 18: Percent Cover Trend Analysis for St. Marks

Species	*Trend Significance* (0.05)	*Period of Record*	*LME_Intercept*	*LME_Slope*	*p*
Drift algae	No significant trend	2006 - 2024	22.5636	-0.1903	0.3803
Halodule wrightii	No significant trend	2006 - 2024	15.8143	-0.2347	0.2613
Halophila engelmannii	No significant trend	2006 - 2024	15.6710	0.1209	0.6904
No grass in quadrat	Insufficient data to calculate trend	-	-	-	-
Ruppia maritima	Insufficient data to calculate trend	-	-	-	-
Syringodium filiforme	No significant trend	2006 - 2024	26.6181	-0.0426	0.7872
Thalassia testudinum	Significantly decreasing trend	2006 - 2024	38.4349	-0.3606	0.0222

Frequency of Occurrence



Horseshoe Beach



Plots will be produced below for all parameters. A Seasonal Kendall-Tau trendline will be plotted only for parameters where *SufficientData* is **TRUE**.

Trend arrows denote trends where the p value is less than 0.05 and the slope is less than 10% of the median parameter value.

Table 19: Seasonal Kendall-Tau Results for Horseshoe Beach

Type	*ParameterName*	*Period-of-Record*	*N-Years*	*N-Data*	*SufficientData*	*SennSlope*	*SennIntercept*	*p*	*Trend*
Estuary	Chlorophyll a, Corrected for Pheophytin	2012 - 2025	11	217	TRUE	0.30	7.47	0.4518	0
Estuary	Chlorophyll a, Uncorrected for Pheophytin	2002 - 2025	10	200	TRUE	0.42	14.60	0.4695	0
Estuary	Colored Dissolved Organic Matter	2020 - 2021	2	9	FALSE	-	-	-	-
Estuary	Dissolved Oxygen	1993 - 2025	32	25932	TRUE	0.00	7.18	0.6900	0
Estuary	Dissolved Oxygen Saturation	2017 - 2017	1	3	FALSE	-	-	-	-
Estuary	Salinity	1993 - 2024	31	27475	TRUE	0.01	23.39	0.7256	0
Estuary	Secchi Depth	1993 - 2024	30	1102	TRUE	-0.01	1.10	0.0070	⇓
Estuary	Total Nitrogen	2002 - 2025	12	227	TRUE	-0.01	0.83	0.4989	0
Estuary	Total Phosphorus	2002 - 2025	12	213	TRUE	0.00	0.02	0.8999	0
Estuary	Total Suspended Solids	2017 - 2017	1	2	FALSE	-	-	-	-
Estuary	Turbidity	1995 - 2025	28	10365	TRUE	0.01	3.66	0.4970	0
Estuary	Water Temperature	1993 - 2025	32	27461	TRUE	0.05	21.98	0.0001	⇑
Estuary	pH	1993 - 2025	32	14304	TRUE	0.00	7.99	0.1740	0

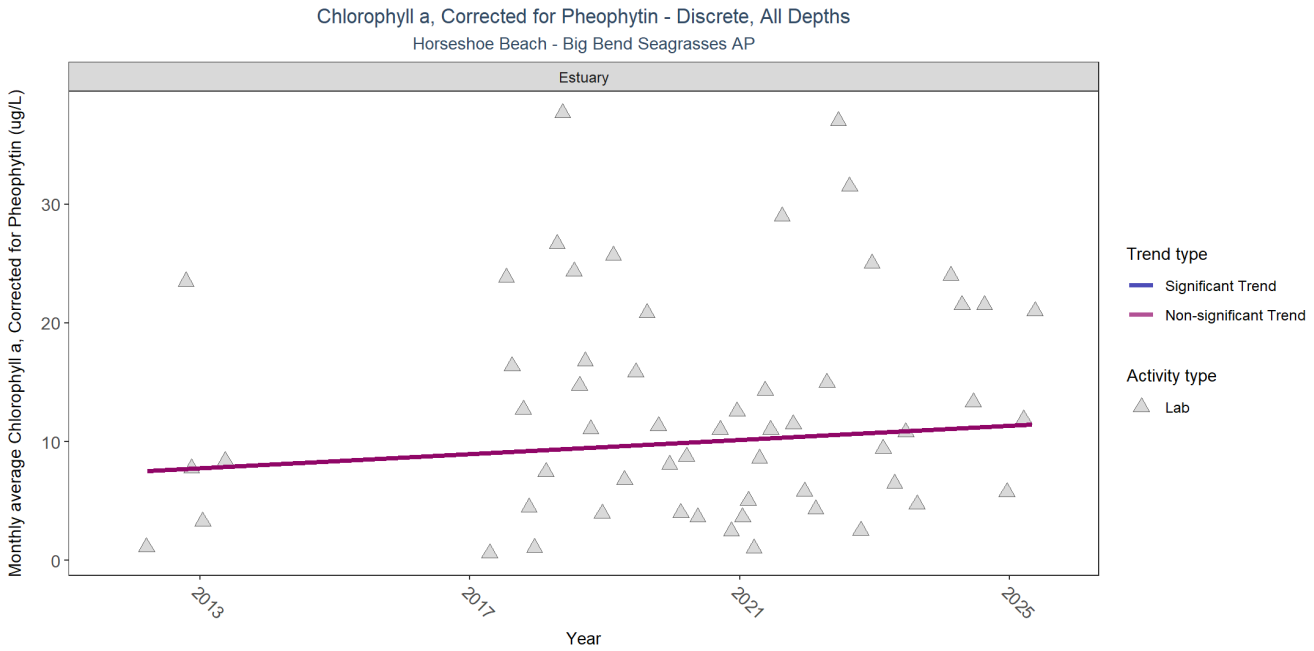
Table 20: Overview of Program Data for Horseshoe Beach

ParameterName	*ProgramID*	*n-data-Estuary*	*n-data-River*
Ammonium, Filtered (NH4)	115	1	-
Ammonium, Filtered (NH4)	5002	2	-
Chlorophyll a, Corrected for Pheophytin	514	24	-
Chlorophyll a, Corrected for Pheophytin	5002	201	-
Chlorophyll a, Uncorrected for Pheophytin	103	1	-
Chlorophyll a, Uncorrected for Pheophytin	115	1	-
Chlorophyll a, Uncorrected for Pheophytin	514	27	-
Chlorophyll a, Uncorrected for Pheophytin	5002	178	-
Colored Dissolved Organic Matter	514	9	-
Dissolved Oxygen	69	1058	-
Dissolved Oxygen	95	259	-
Dissolved Oxygen	115	3	-
Dissolved Oxygen	5002	24612	-
Dissolved Oxygen Saturation	5002	3	-
NO2+3, Filtered	115	1	-
NO2+3, Filtered	5002	192	-
Phosphate, Filtered (PO4)	115	1	-
Phosphate, Filtered (PO4)	5002	1	-
Salinity	69	1064	-
Salinity	95	278	-
Salinity	115	3	-
Salinity	5002	26130	-
Secchi Depth	69	1064	-
Secchi Depth	115	2	-
Secchi Depth	514	33	-
Secchi Depth	5002	3	-
Specific Conductivity	69	1057	-
Specific Conductivity	95	1	-
Specific Conductivity	514	9	-
Specific Conductivity	5002	10	-
Total Kjeldahl Nitrogen	5002	200	-
Total Nitrogen	103	1	-
Total Nitrogen	115	1	-
Total Nitrogen	514	33	-
Total Nitrogen	5002	200	-
Total Phosphorus	103	1	-
Total Phosphorus	115	1	-
Total Phosphorus	514	21	-
Total Phosphorus	5002	196	-
Total Suspended Solids	5002	2	-
Turbidity	5002	10366	-
Water Temperature	69	1063	-
Water Temperature	95	261	-
Water Temperature	115	3	-
Water Temperature	5002	26134	-
pH	69	1056	-
pH	95	188	-
pH	115	3	-
pH	5002	13057	-

Program names:

69 - Fisheries-Independent Monitoring (FIM) Program -[4]
95 - Harmful Algal Bloom Marine Observation Network -[5]
103 - EPA STOrage and RETrieval Data Warehouse (STORET)/WQX -[6]
115 - Environmental Monitoring Assessment Program -[7]
514 - Florida LAKEWATCH Program -[12]
5002 - Florida STORET / WIN -[2]

Chlorophyll a, Corrected for Pheophytin

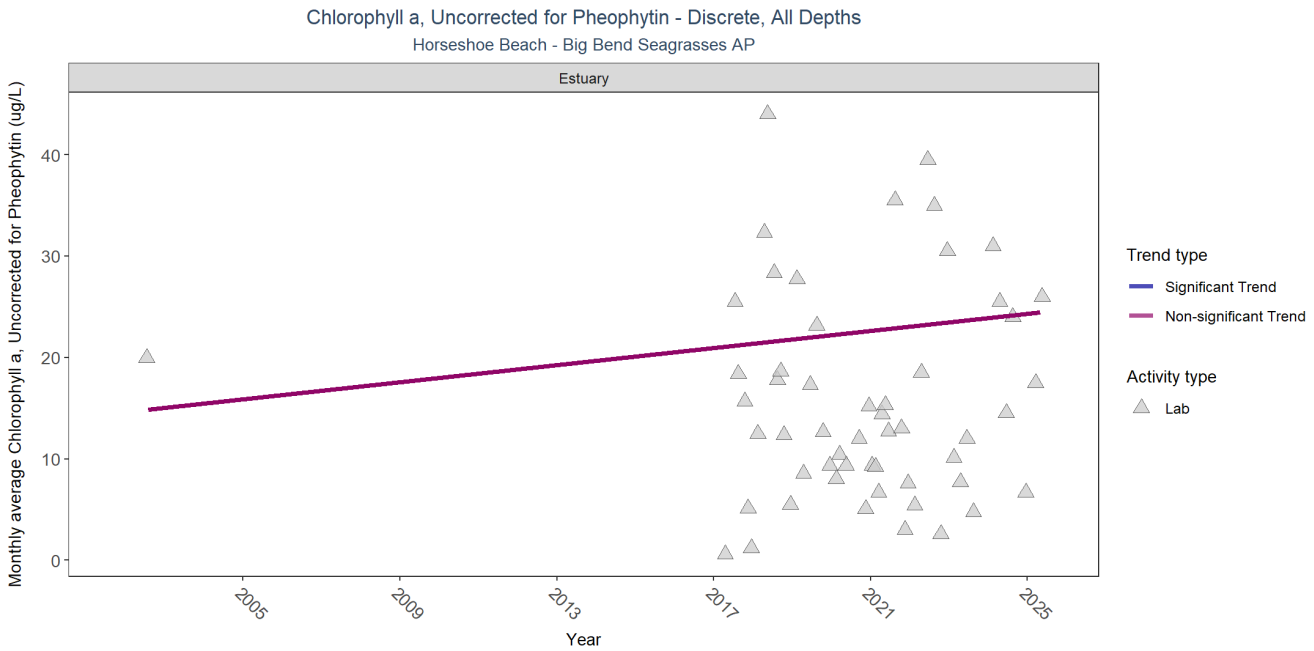


Type	RelativeDepth	N_Data	N_Years	Median	Independent	tau	p	SennSlope	SennIntercept	ChiSquared	pChiSquared	Trend
Estuary	All	217	11	9.9	TRUE	0.0713	0.4518	0.297	7.47	12.16	0.3514	0

p < 0.00005 appear as 0 due to rounding.

SennIntercept is intercept value at beginning of record for monitoring location

Chlorophyll a, Uncorrected for Pheophytin

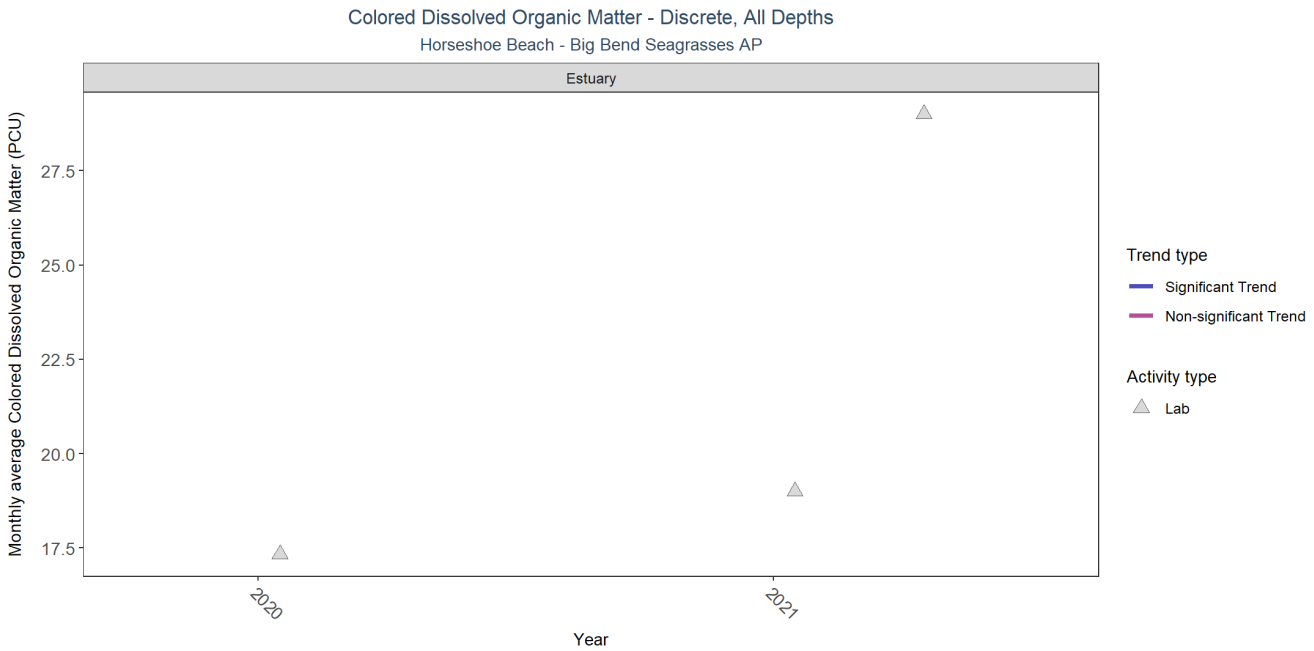


Type	RelativeDepth	N_Data	N_Years	Median	Independent	tau	p	SennSlope	SennIntercept	ChiSquared	pChiSquared	Trend
Estuary	All	200	10	13	TRUE	0.0377	0.4695	0.423	14.6	9.95	0.4452	0

p < 0.00005 appear as 0 due to rounding.

SennIntercept is intercept value at beginning of record for monitoring location

Colored Dissolved Organic Matter

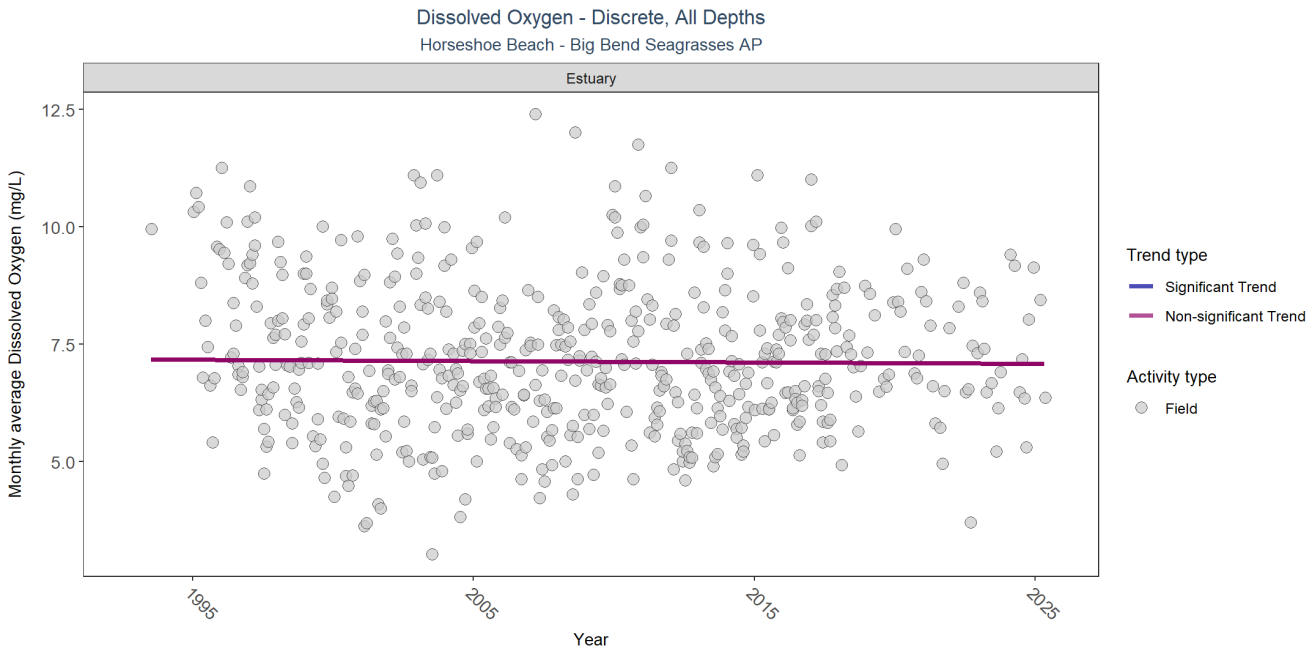


Type	RelativeDepth	N_Data	N_Years	Median	Independent	tau	p	SennSlope	SennIntercept	ChiSquared	pChiSquared	Trend
Estuary	All	9	2	20	NA	NA	NA	NA	NA	NA	NA	NA

p < 0.00005 appear as 0 due to rounding.

SennIntercept is intercept value at beginning of record for monitoring location

Dissolved Oxygen

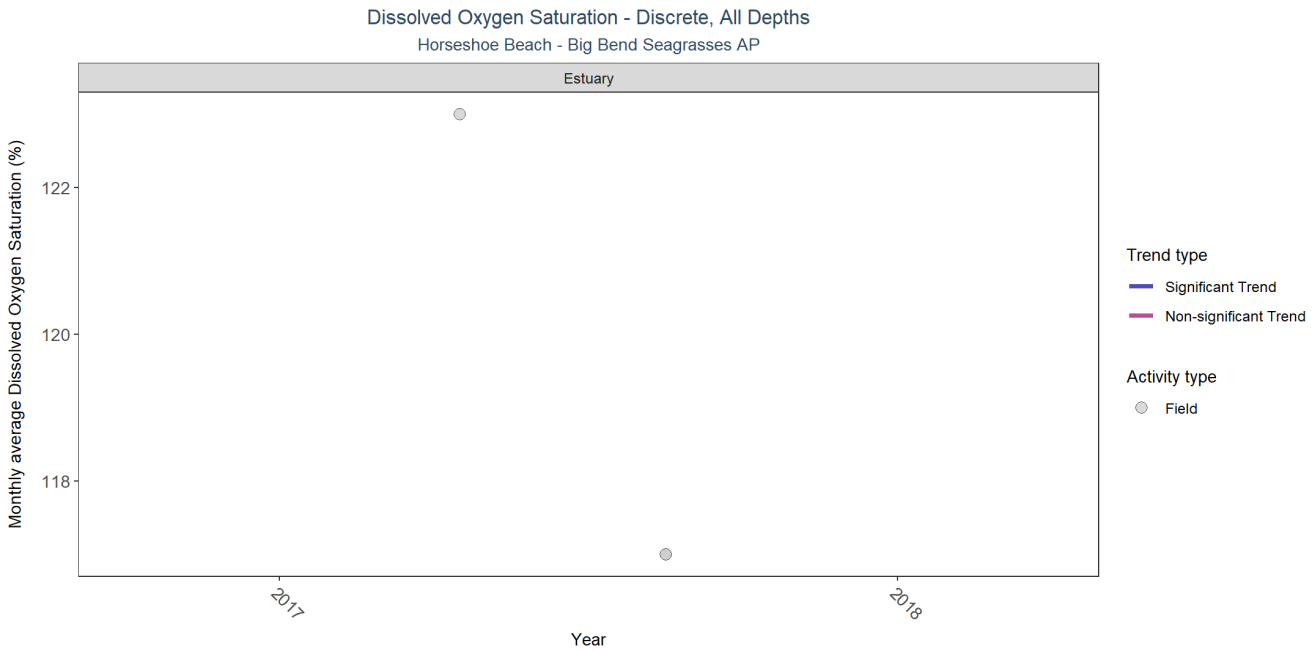


Type	RelativeDepth	N_Data	N_Years	Median	Independent	tau	p	SennSlope	SennIntercept	ChiSquared	pChiSquared	Trend
Estuary	All	25932	32	7	TRUE	-0.0164	0.6900	-0.003	7.18	6.38	0.8465	0

p < 0.00005 appear as 0 due to rounding.

SennIntercept is intercept value at beginning of record for monitoring location

Dissolved Oxygen Saturation

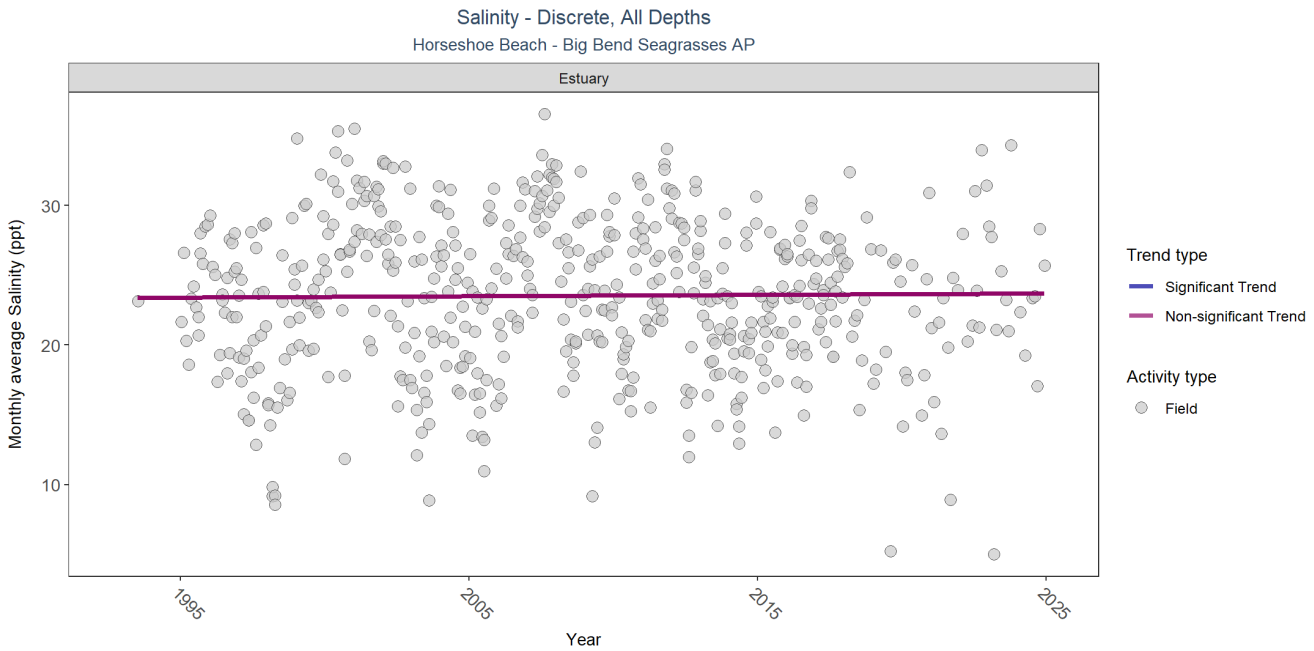


Type	RelativeDepth	N_Data	N_Years	Median	Independent	tau	p	SennSlope	SennIntercept	ChiSquared	pChiSquared	Trend
Estuary	All	3	1	117	NA	NA	NA	NA	NA	NA	NA	NA

p < 0.00005 appear as 0 due to rounding.

SennIntercept is intercept value at beginning of record for monitoring location

Salinity

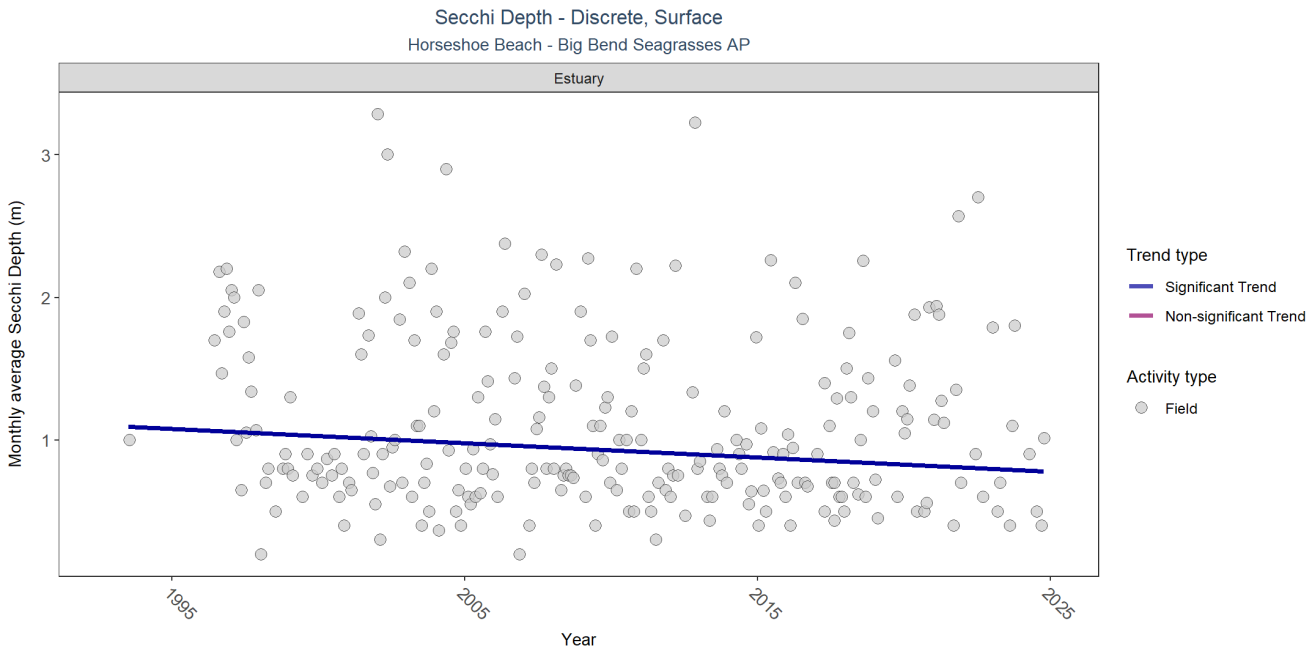


Type	RelativeDepth	N_Data	N_Years	Median	Independent	tau	p	SennSlope	SennIntercept	ChiSquared	pChiSquared	Trend
Estuary	All	27475	31	22.5	TRUE	0.0142	0.7256	0.01	23.39	7.31	0.7734	0

p < 0.00005 appear as 0 due to rounding.

SennIntercept is intercept value at beginning of record for monitoring location

Secchi Depth

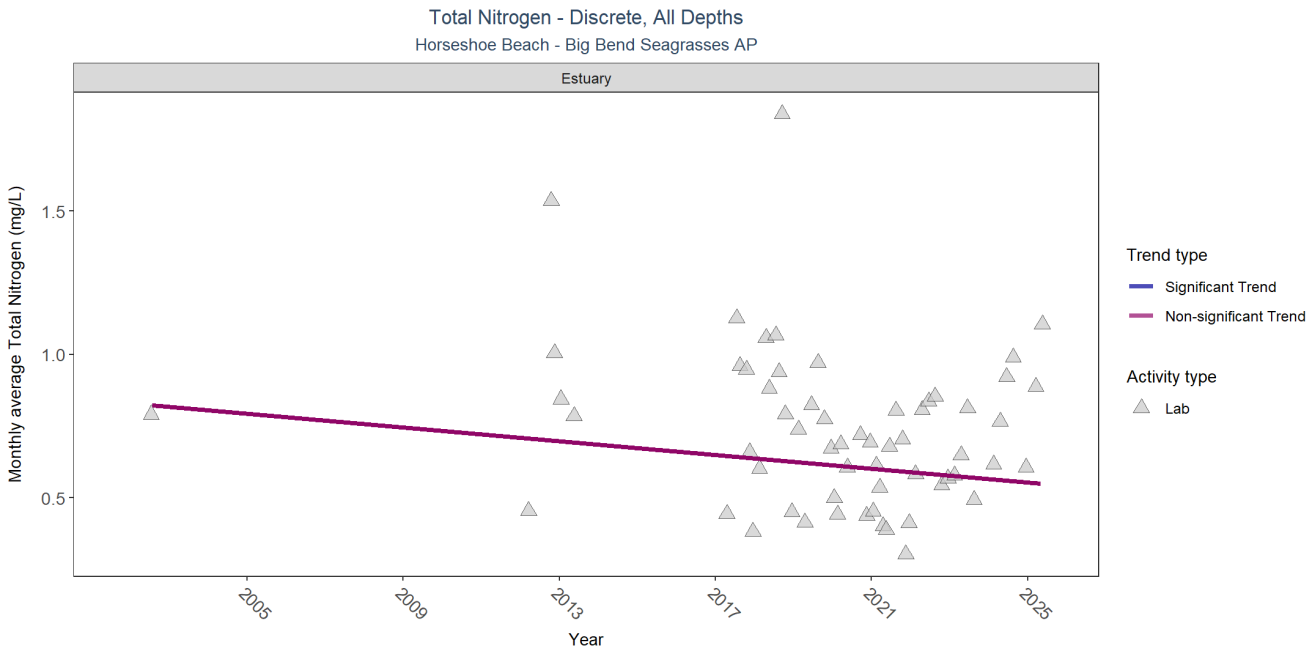


Type	RelativeDepth	N_Data	N_Years	Median	Independent	tau	p	SennSlope	SennIntercept	ChiSquared	pChiSquared	Trend
Estuary	Surface	1102	30	1	TRUE	-0.12	0.0070	-0.01	1.1	13.03	0.2913	-1

p < 0.00005 appear as 0 due to rounding.

SennIntercept is intercept value at beginning of record for monitoring location

Total Nitrogen

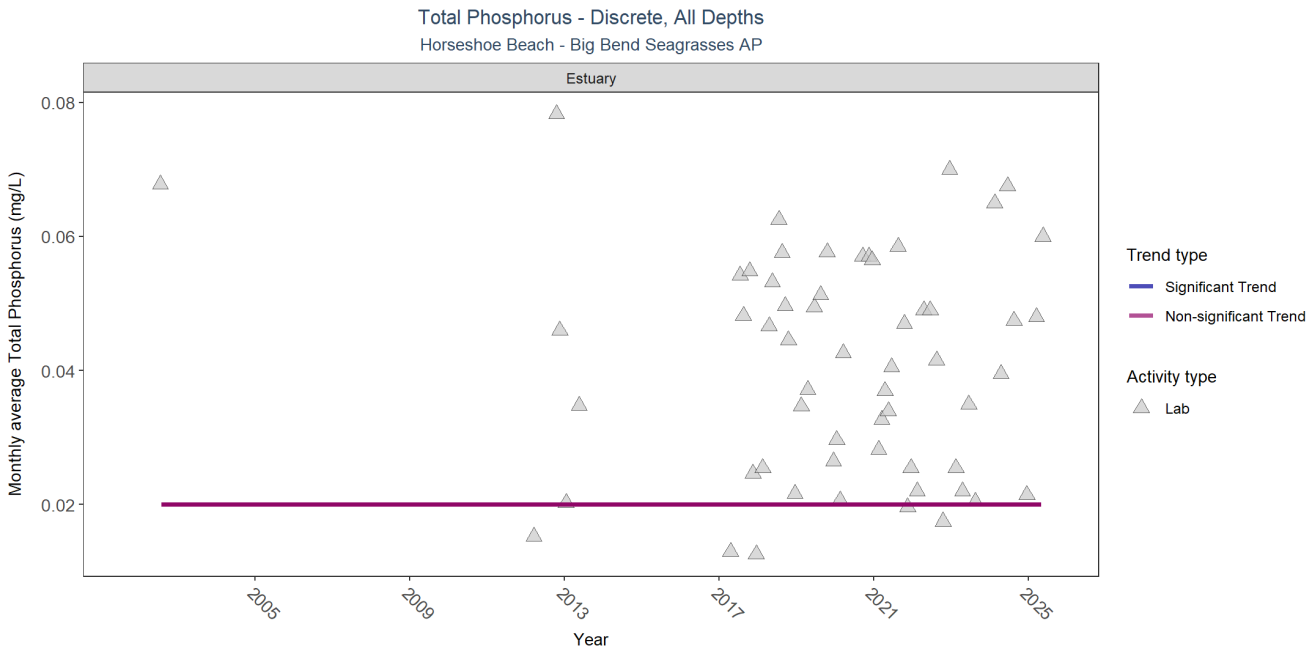


Type	RelativeDepth	N_Data	N_Years	Median	Independent	tau	p	SennSlope	SennIntercept	ChiSquared	pChiSquared	Trend
Estuary	All	227	12	0.744	TRUE	-0.1333	0.4989	-0.012	0.83	18.67	0.0672	0

p < 0.00005 appear as 0 due to rounding.

SennIntercept is intercept value at beginning of record for monitoring location

Total Phosphorus

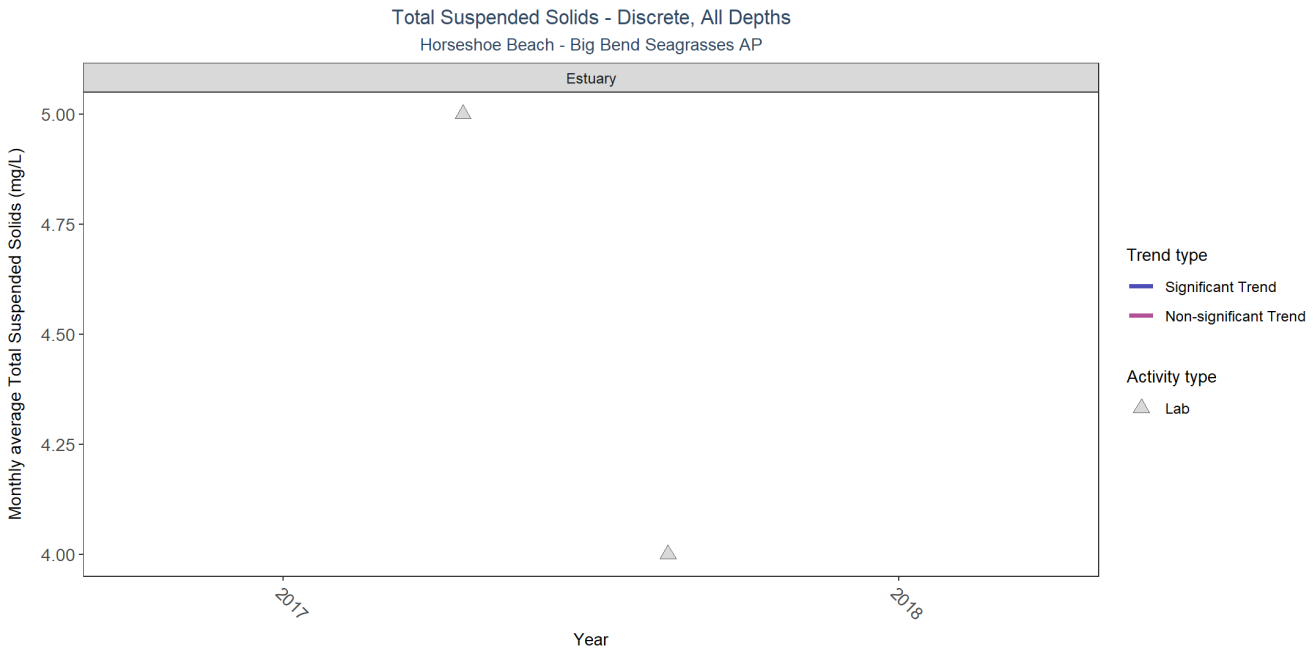


Type	RelativeDepth	N_Data	N_Years	Median	Independent	tau	p	SennSlope	SennIntercept	ChiSquared	pChiSquared	Trend
Estuary	All	213	12	0.039	TRUE	0.0759	0.8999	0	0.02	10.28	0.5055	0

p < 0.00005 appear as 0 due to rounding.

SennIntercept is intercept value at beginning of record for monitoring location

Total Suspended Solids

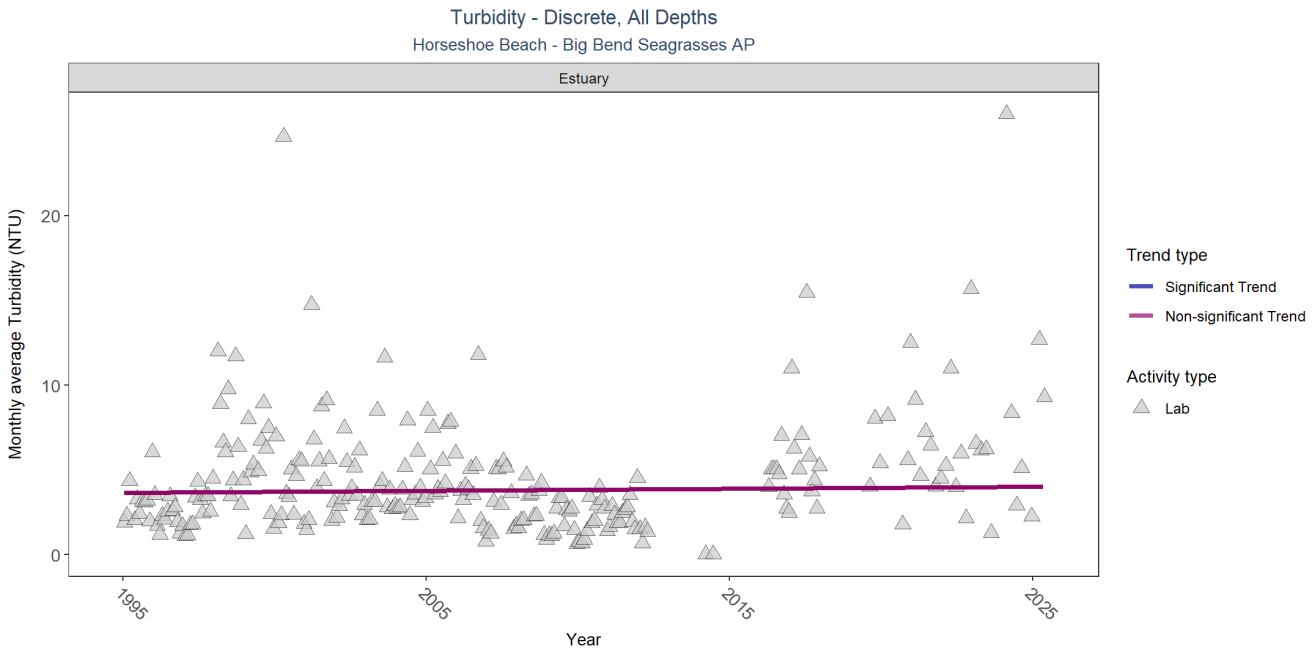


Type	RelativeDepth	N_Data	N_Years	Median	Independent	tau	p	SennSlope	SennIntercept	ChiSquared	pChiSquared	Trend
Estuary	All	2	1	4.5	NA	NA	NA	NA	NA	NA	NA	NA

p < 0.00005 appear as 0 due to rounding.

SennIntercept is intercept value at beginning of record for monitoring location

Turbidity

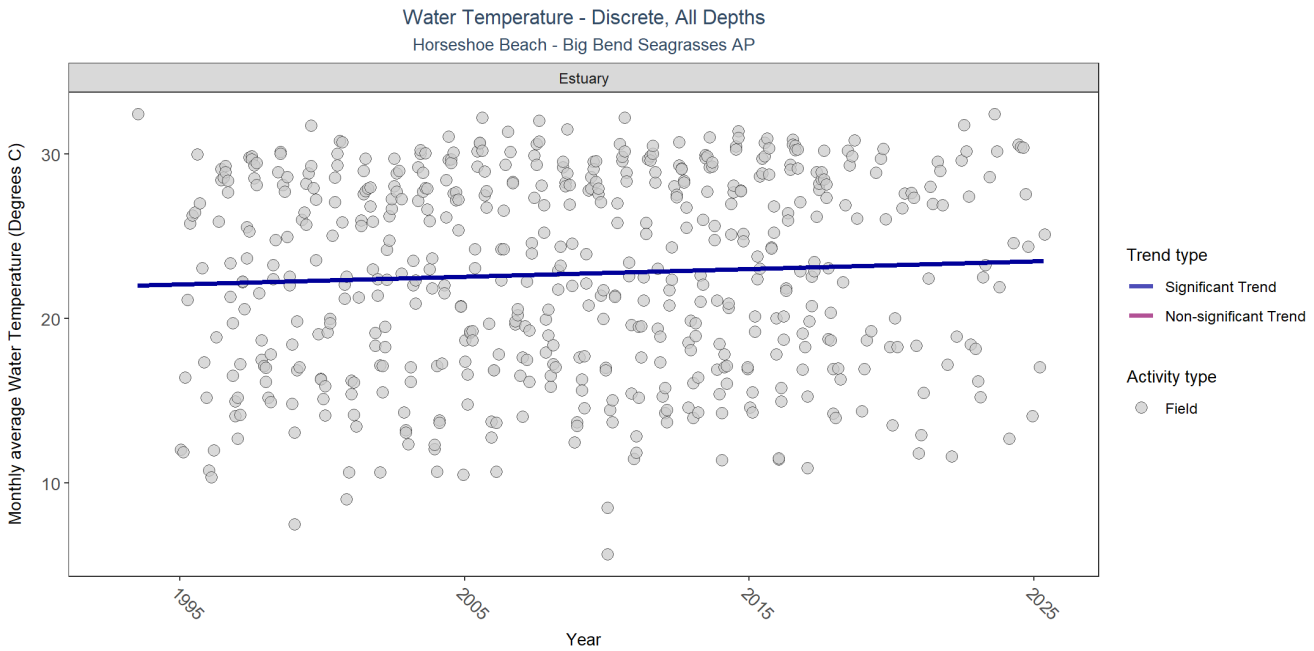


Type	RelativeDepth	N_Data	N_Years	Median	Independent	tau	p	SennSlope	SennIntercept	ChiSquared	pChiSquared	Trend
Estuary	All	10365	28	2.8	TRUE	0.0291	0.4970	0.012	3.66	5.03	0.9299	0

p < 0.00005 appear as 0 due to rounding.

SennIntercept is intercept value at beginning of record for monitoring location

Water Temperature

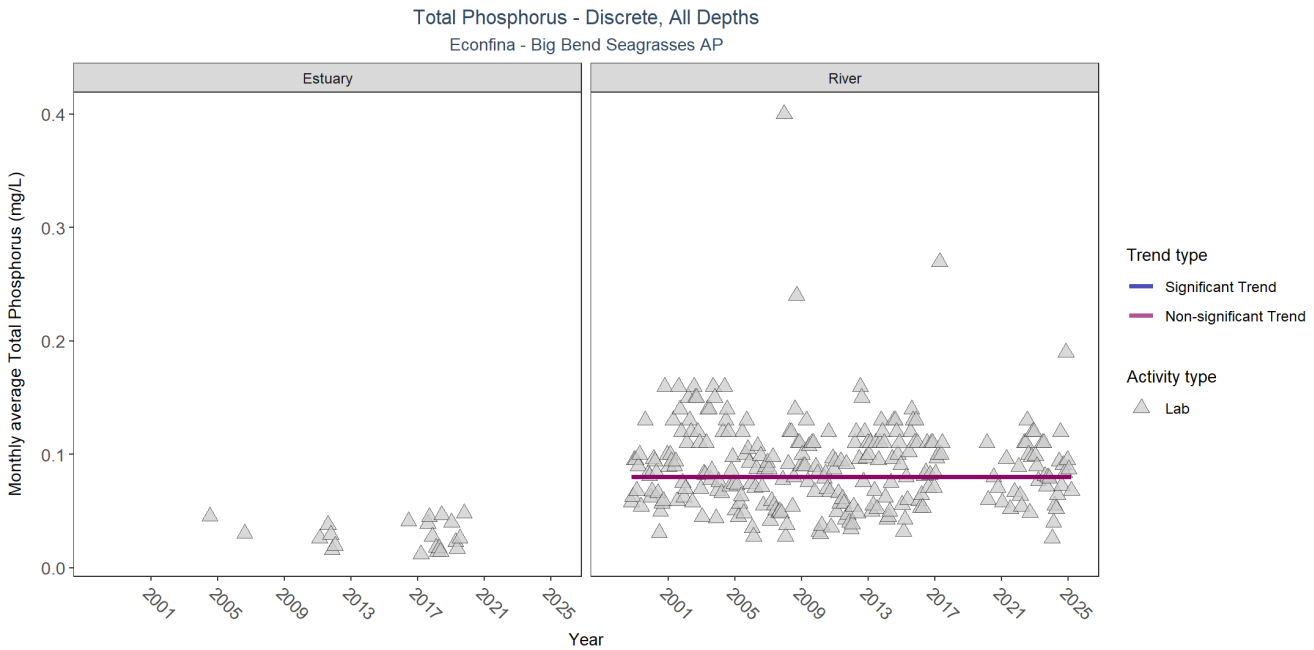


Type	RelativeDepth	N_Data	N_Years	Median	Independent	tau	p	SennSlope	SennIntercept	ChiSquared	pChiSquared	Trend
Estuary	All	27461	32	24.3	TRUE	0.1482	0.0001	0.047	21.98	4.87	0.9371	1

p < 0.00005 appear as 0 due to rounding.

SennIntercept is intercept value at beginning of record for monitoring location

pH

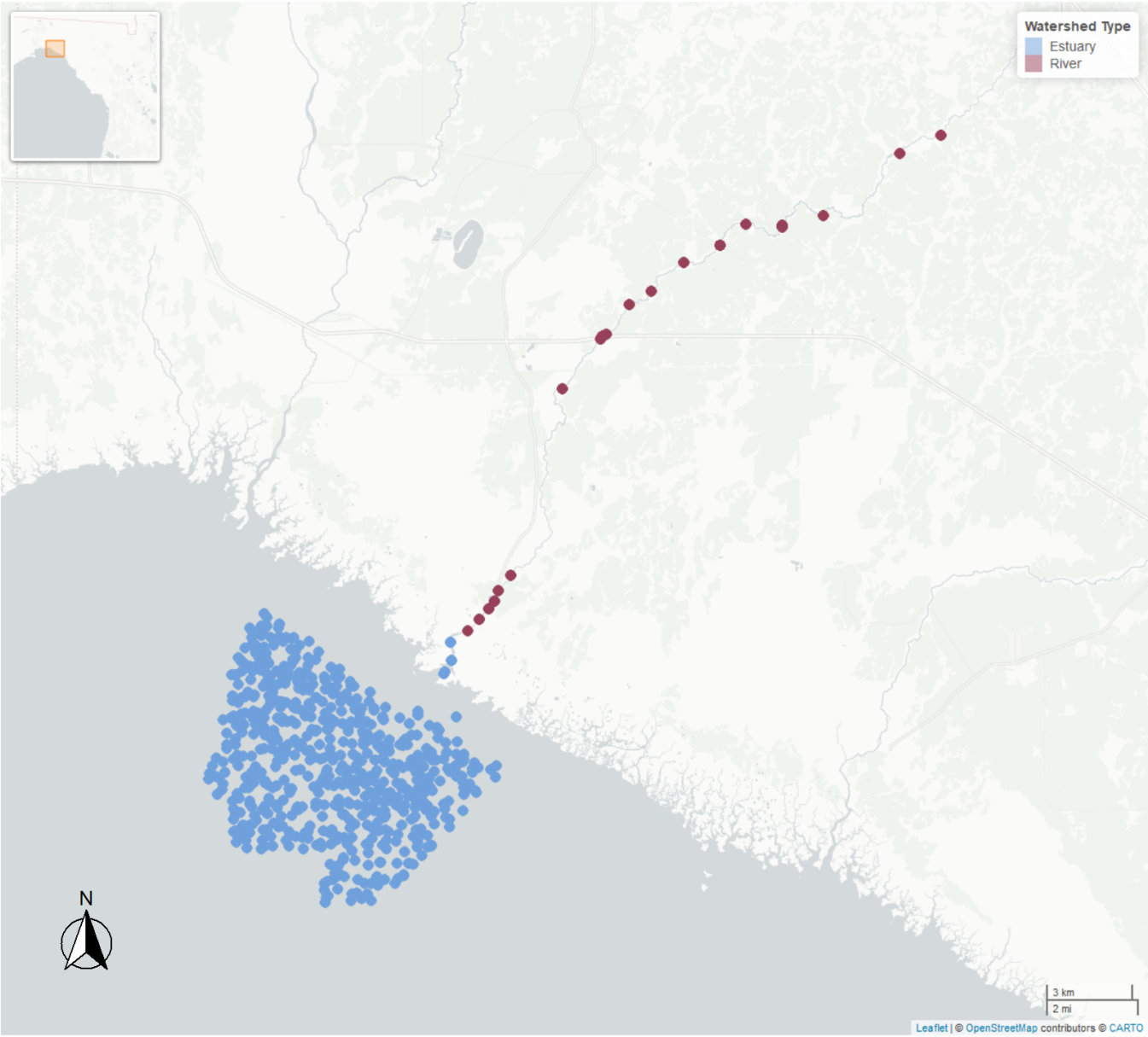


Type	RelativeDepth	N_Data	N_Years	Median	Independent	tau	p	SennSlope	SennIntercept	ChiSquared	pChiSquared	Trend
Estuary	All	38	8	0.0250	NA	NA	NA	NA	NA	NA	NA	NA
River	All	313	26	0.0848	TRUE	-0.0065	0.8016	0	0.08	21.91	0.0251	0

p < 0.00005 appear as 0 due to rounding.

SennIntercept is intercept value at beginning of record for monitoring location

Econfina



Plots will be produced below for all parameters. A Seasonal Kendall-Tau trendline will be plotted only for parameters where *SufficientData* is **TRUE**.

Trend arrows denote trends where the p value is less than 0.05 and the slope is less than 10% of the median parameter value.

Table 21: Seasonal Kendall-Tau Results for Econfina

Type	*ParameterName*	*Period-of-Record*	*N-Years*	*N-Data*	*SufficientData*	*SennSlope*	*SennIntercept*	*p*	*Trend*
Estuary	Chlorophyll a, Corrected for Pheophytin	2011 - 2019	6	30	FALSE	-	-	-	-
River	Chlorophyll a, Corrected for Pheophytin	1999 - 2025	25	312	TRUE	0.00	0.87	0.0007	⇓
Estuary	Chlorophyll a, Uncorrected for Pheophytin	2004 - 2019	6	27	FALSE	-	-	-	-
River	Chlorophyll a, Uncorrected for Pheophytin	1990 - 2025	19	185	TRUE	0.01	0.27	0.0000	⇑
Estuary	Colored Dissolved Organic Matter	2018 - 2019	2	3	FALSE	-	-	-	-
River	Colored Dissolved Organic Matter	2020 - 2025	6	47	FALSE	-	-	-	-
Estuary	Dissolved Oxygen	1991 - 2024	22	2210	TRUE	0.02	7.81	0.1281	0
River	Dissolved Oxygen	1989 - 2025	34	609	TRUE	0.01	5.14	0.0699	0
Estuary	Dissolved Oxygen Saturation	2011 - 2019	6	49	FALSE	-	-	-	-
River	Dissolved Oxygen Saturation	1999 - 2025	13	110	TRUE	-0.48	73.55	0.2596	0
Estuary	Salinity	1991 - 2024	22	2211	TRUE	-0.18	31.99	0.0074	⇓
River	Salinity	1999 - 2025	17	122	TRUE	0.00	0.10	0.6545	0
Estuary	Secchi Depth	1991 - 2024	22	2190	TRUE	0.01	2.23	0.7392	0
River	Secchi Depth	1992 - 2025	29	422	TRUE	-0.01	0.66	0.0002	⇓
Estuary	Total Nitrogen	2004 - 2019	8	39	FALSE	-	-	-	-
River	Total Nitrogen	1990 - 2025	28	375	TRUE	0.00	0.83	0.3912	0
Estuary	Total Phosphorus	2004 - 2019	8	38	FALSE	-	-	-	-
River	Total Phosphorus	1998 - 2025	26	313	TRUE	0.00	0.08	0.8016	0
Estuary	Total Suspended Solids	2011 - 2019	6	33	FALSE	-	-	-	-
River	Total Suspended Solids	1990 - 2025	33	379	TRUE	0.00	4.00	0.0001	⇓
Estuary	Turbidity	2006 - 2019	7	33	FALSE	-	-	-	-
River	Turbidity	1990 - 2025	33	491	TRUE	0.01	2.11	0.2429	0
Estuary	Water Temperature	1991 - 2024	22	2211	TRUE	0.06	26.68	0.0812	0
River	Water Temperature	1989 - 2025	34	605	TRUE	0.01	19.55	0.1089	0
Estuary	pH	1991 - 2024	22	2192	TRUE	0.00	8.15	0.5525	0
River	pH	1989 - 2025	34	599	TRUE	-0.01	7.16	0.0686	0

Table 22: Overview of Program Data for Econfina

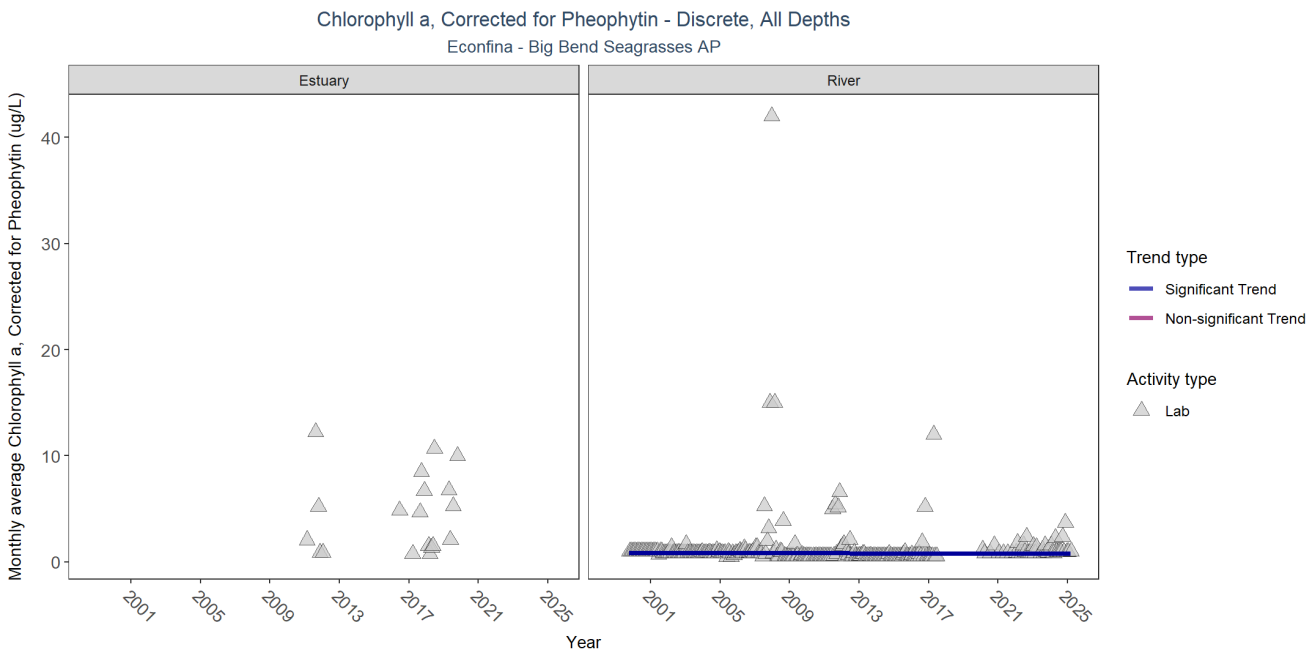
ParameterName	*ProgramID*	*n-data-Estuary*	*n-data-River*
Ammonium, Filtered (NH4)	115	1	-
Ammonium, Filtered (NH4)	477	-	6
Ammonium, Filtered (NH4)	5002	33	470
Chlorophyll a, Corrected for Pheophytin	477	-	6
Chlorophyll a, Corrected for Pheophytin	5002	31	306
Chlorophyll a, Uncorrected for Pheophytin	103	3	-
Chlorophyll a, Uncorrected for Pheophytin	115	2	-
Chlorophyll a, Uncorrected for Pheophytin	118	1	-
Chlorophyll a, Uncorrected for Pheophytin	477	-	6
Chlorophyll a, Uncorrected for Pheophytin	5002	22	179
Colored Dissolved Organic Matter	477	-	6
Colored Dissolved Organic Matter	5002	3	41
Dissolved Oxygen	69	2145	-
Dissolved Oxygen	95	3	-
Dissolved Oxygen	115	13	-
Dissolved Oxygen	118	1	-
Dissolved Oxygen	477	-	6
Dissolved Oxygen	5002	48	672
Dissolved Oxygen Saturation	95	1	-
Dissolved Oxygen Saturation	477	-	6
Dissolved Oxygen Saturation	5002	48	104
NO2+3, Filtered	477	-	6
NO2+3, Filtered	5002	33	466
Nitrate (NO3)	5002	-	10
Nitrite (NO2)	5002	-	10
Phosphate, Filtered (PO4)	115	1	-
Phosphate, Filtered (PO4)	5002	13	298
Salinity	69	2145	-
Salinity	95	4	-
Salinity	115	13	-
Salinity	477	-	6
Salinity	5002	49	116
Secchi Depth	69	2145	-
Secchi Depth	115	6	-
Secchi Depth	477	-	6
Secchi Depth	5002	39	482
Specific Conductivity	69	2145	-
Specific Conductivity	477	-	12
Specific Conductivity	5002	49	996
Total Kjeldahl Nitrogen	477	-	6

Total Kjeldahl Nitrogen	5002	33	481
Total Nitrogen	103	6	-
Total Nitrogen	115	1	-
Total Nitrogen	5002	33	375
Total Phosphorus	103	5	-
Total Phosphorus	115	1	-
Total Phosphorus	477	-	6
Total Phosphorus	5002	33	307
Total Suspended Solids	5002	33	379
Turbidity	103	1	-
Turbidity	477	-	12
Turbidity	5002	33	489
Water Temperature	69	2145	-
Water Temperature	95	4	-
Water Temperature	115	13	-
Water Temperature	477	-	6
Water Temperature	5002	49	668
pH	69	2129	-
pH	95	1	-
pH	115	13	-
pH	477	-	6
pH	5002	49	663

Program names:

69 - Fisheries-Independent Monitoring (FIM) Program -[4]
95 - Harmful Algal Bloom Marine Observation Network -[5]
103 - EPA STOrage and RETrieval Data Warehouse (STORET)/WQX -[6]
115 - Environmental Monitoring Assessment Program -[7]
118 - National Aquatic Resource Surveys, National Coastal Condition Assessment -[8]
477 - Suwannee River Water Management District Water Resource Monitoring Program -[9]
5002 - Florida STORET / WIN -[2]

Chlorophyll a, Corrected for Pheophytin

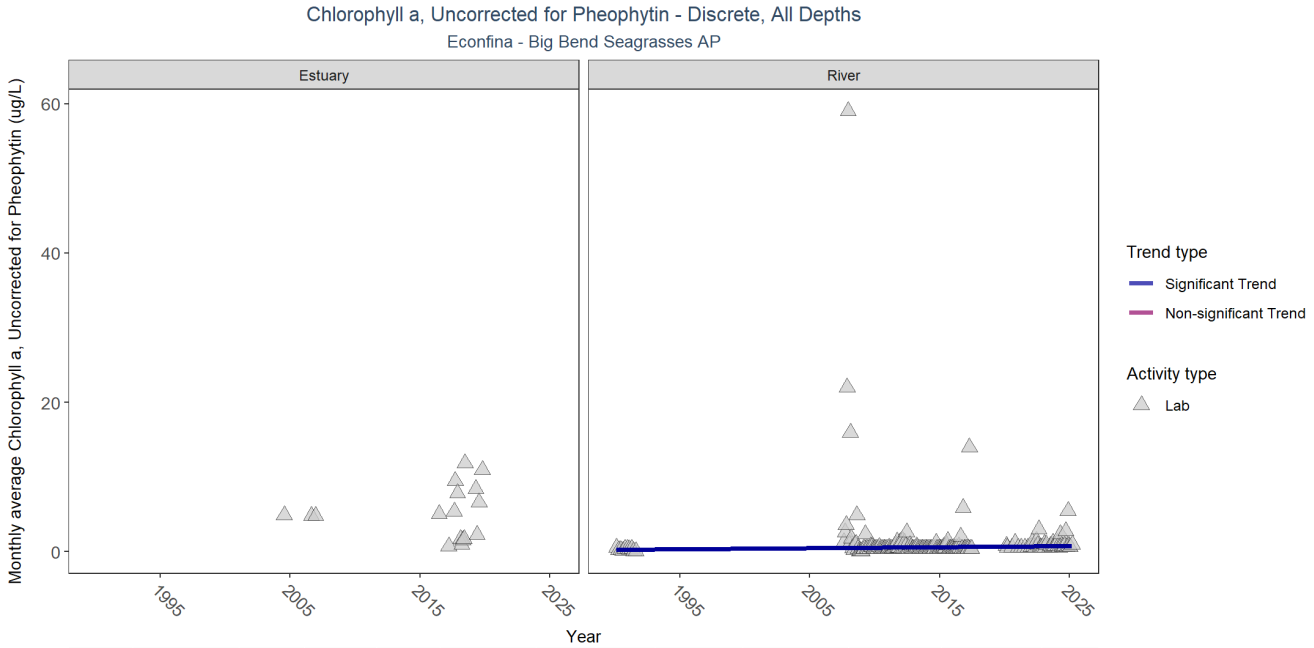


Type	RelativeDepth	N_Data	N_Years	Median	Independent	tau	p	SennSlope	SennIntercept	ChiSquared	pChiSquared	Trend
Estuary	All	30	6	3.65	NA	NA	NA	NA	NA	NA	NA	NA
River	All	312	25	0.85	TRUE	-0.1518	0.0007	-0.002	0.87	3.61	0.98	-1

p < 0.00005 appear as 0 due to rounding.

SennIntercept is intercept value at beginning of record for monitoring location

Chlorophyll a, Uncorrected for Pheophytin

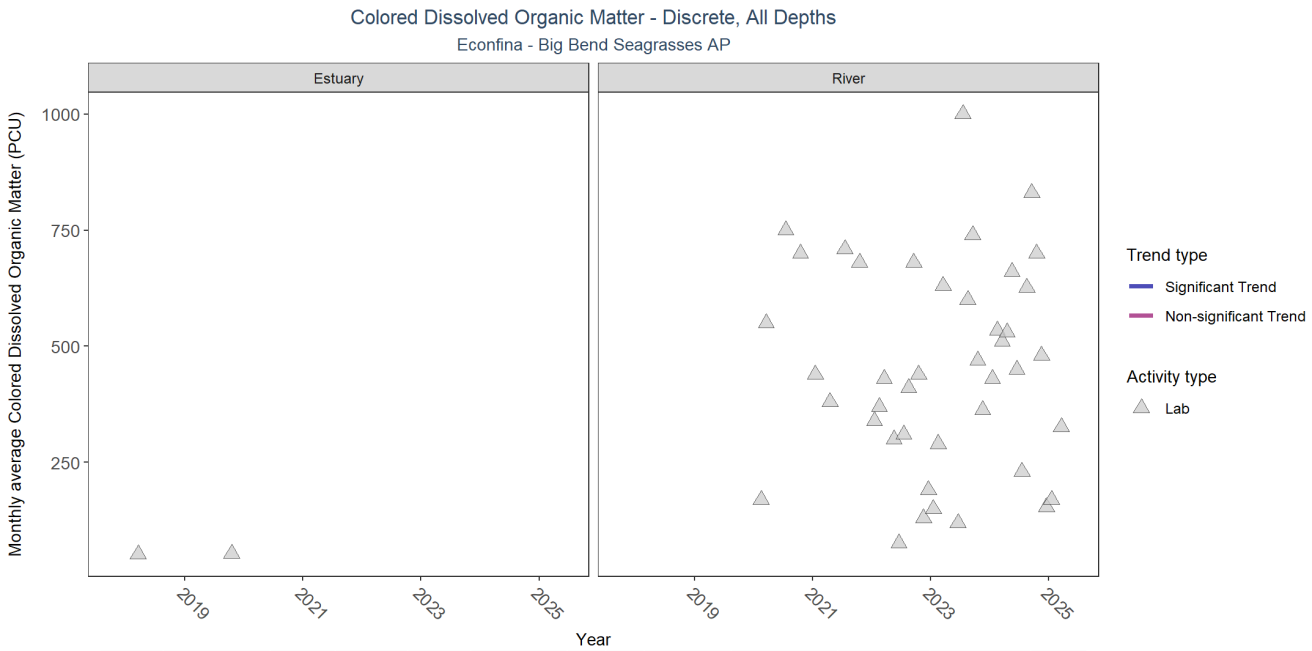


Type	RelativeDepth	N_Data	N_Years	Median	Independent	tau	p	SennSlope	SennIntercept	ChiSquared	pChiSquared	Trend
Estuary	All	27	6	4.845	NA	NA	NA	NA	NA	NA	NA	NA
River	All	185	19	0.550	TRUE	0.2787	0.0000	0.014	0.27	3.75	0.9766	1

p < 0.00005 appear as 0 due to rounding.

SennIntercept is intercept value at beginning of record for monitoring location

Colored Dissolved Organic Matter

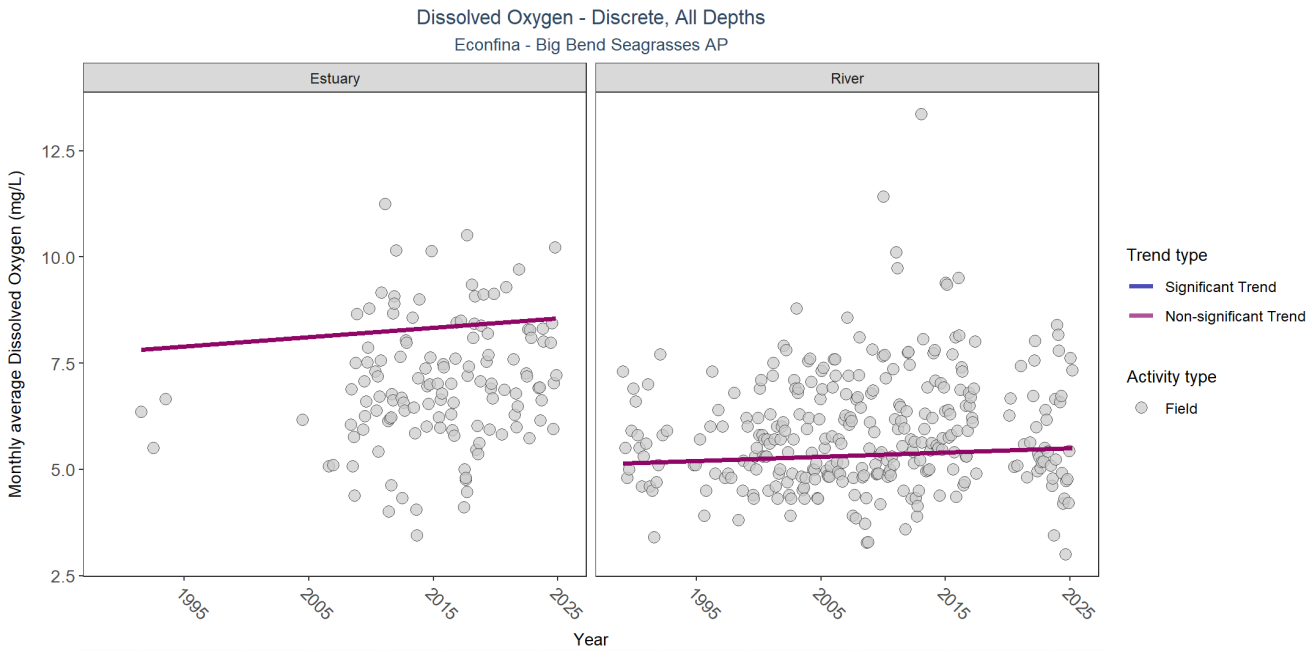


Type	RelativeDepth	N_Data	N_Years	Median	Independent	tau	p	SennSlope	SennIntercept	ChiSquared	pChiSquared	Trend
Estuary	All	3	2	54	NA	NA	NA	NA	NA	NA	NA	NA
River	All	47	6	450	NA	NA	NA	NA	NA	NA	NA	NA

p < 0.00005 appear as 0 due to rounding.

SennIntercept is intercept value at beginning of record for monitoring location

Dissolved Oxygen

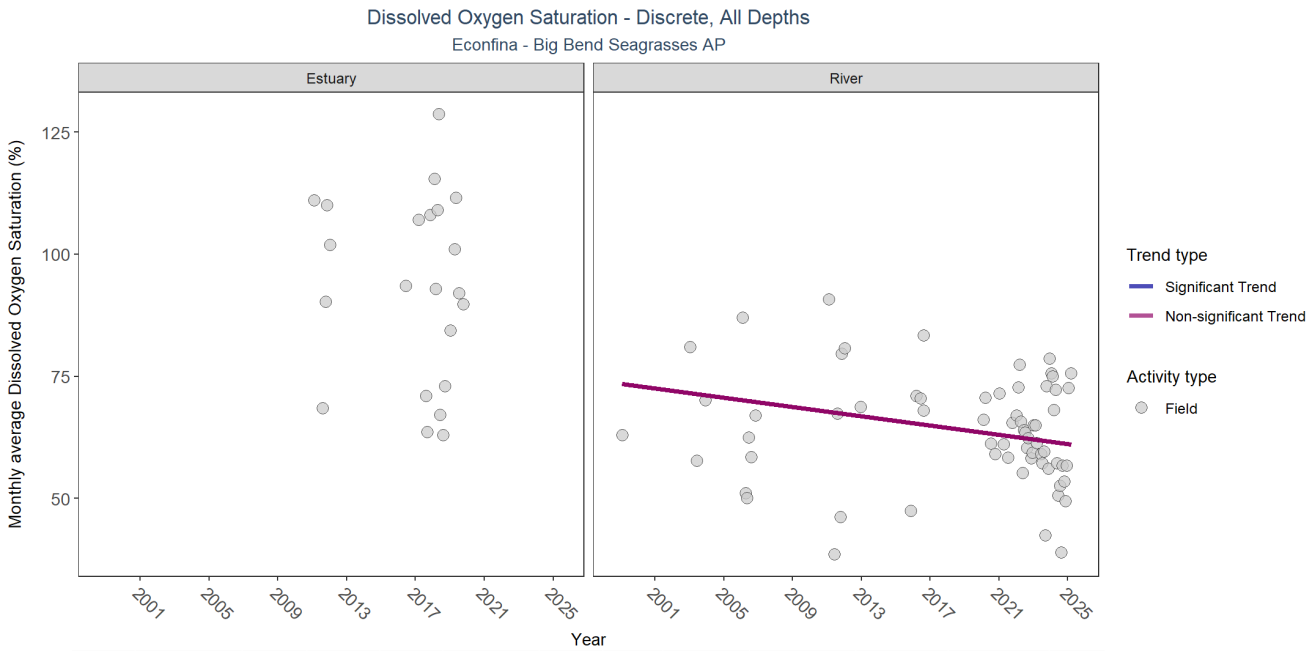


Type	RelativeDepth	N_Data	N_Years	Median	Independent	tau	p	SennSlope	SennIntercept	ChiSquared	pChiSquared	Trend
Estuary	All	2210	22	6.90	TRUE	0.0537	0.1281	0.022	7.81	14.30	0.1597	0
River	All	609	34	5.66	TRUE	0.0692	0.0699	0.010	5.14	15.67	0.1539	0

p < 0.00005 appear as 0 due to rounding.

SennIntercept is intercept value at beginning of record for monitoring location

Dissolved Oxygen Saturation

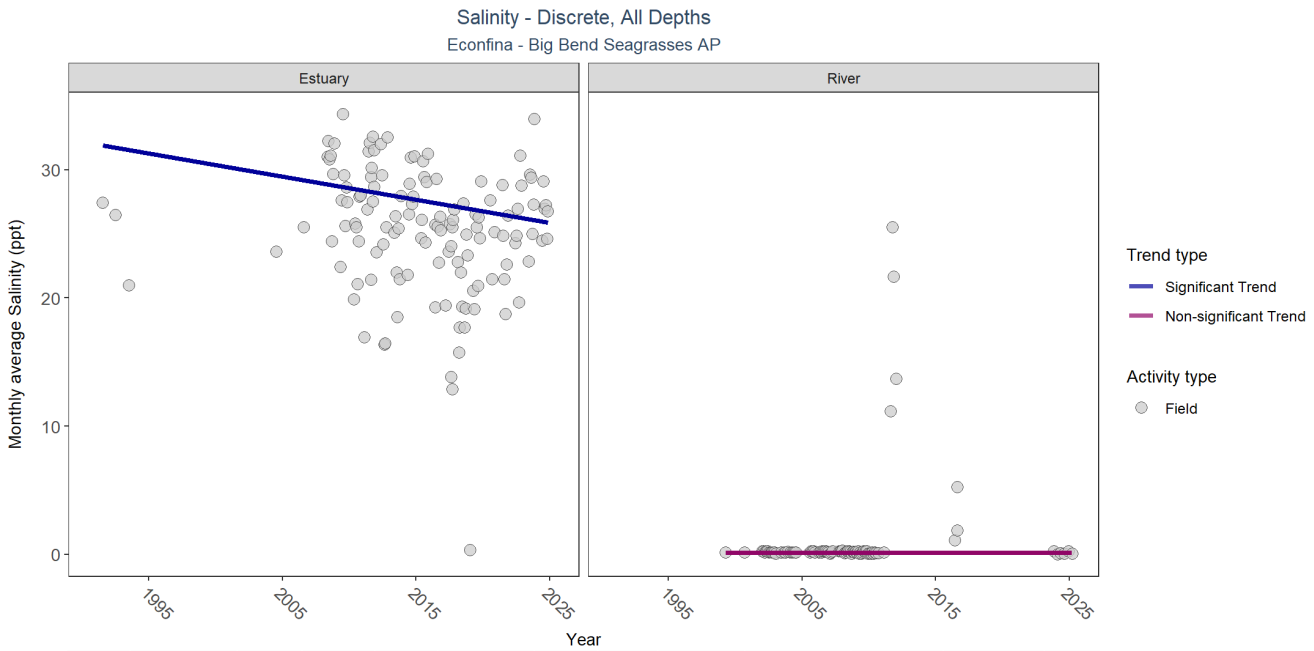


Type	RelativeDepth	N_Data	N_Years	Median	Independent	tau	p	SennSlope	SennIntercept	ChiSquared	pChiSquared	Trend
Estuary	All	49	6	95.90	NA	NA	NA	NA	NA	NA	NA	NA
River	All	110	13	63.75	TRUE	-0.0813	0.2596	-0.476	73.55	15.08	0.1787	0

p < 0.00005 appear as 0 due to rounding.

SennIntercept is intercept value at beginning of record for monitoring location

Salinity

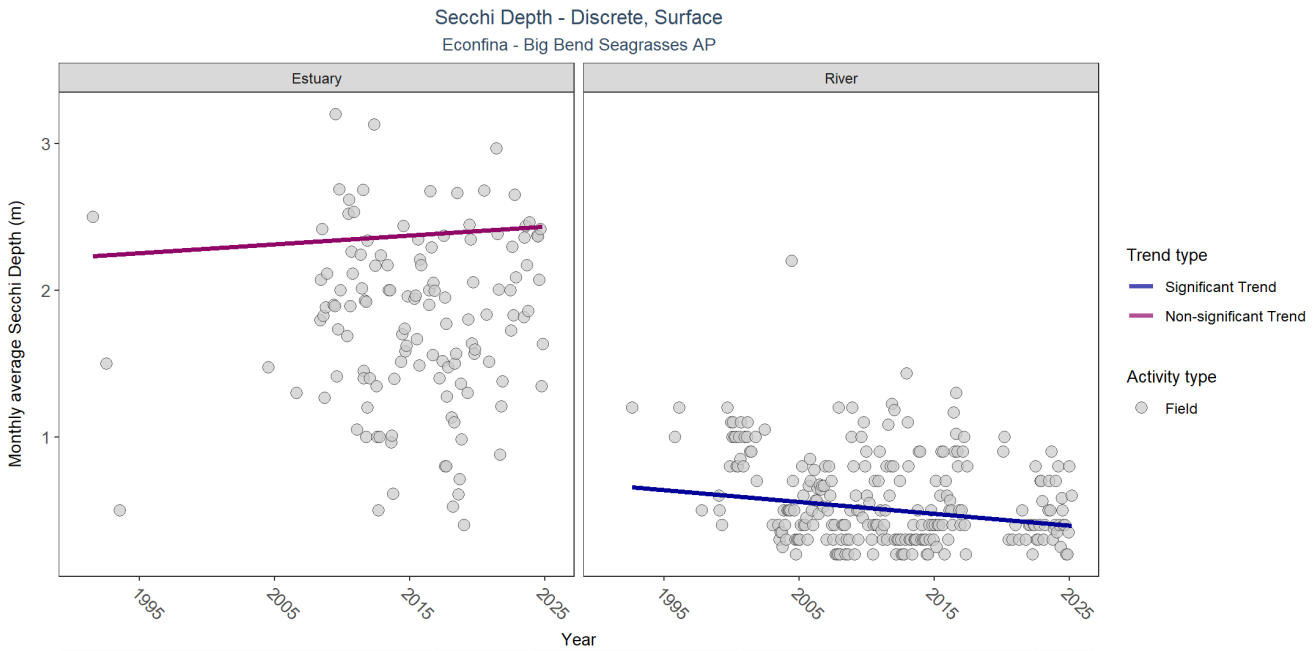


Type	RelativeDepth	N_Data	N_Years	Median	Independent	tau	p	SennSlope	SennIntercept	ChiSquared	pChiSquared	Trend
Estuary	All	2211	22	26.50	TRUE	-0.1958	0.0074	-0.18	31.99	12.65	0.2437	-1
River	All	122	17	0.16	TRUE	0.0235	0.6545	0.00	0.10	12.93	0.2980	0

p < 0.00005 appear as 0 due to rounding.

SennIntercept is intercept value at beginning of record for monitoring location

Secchi Depth

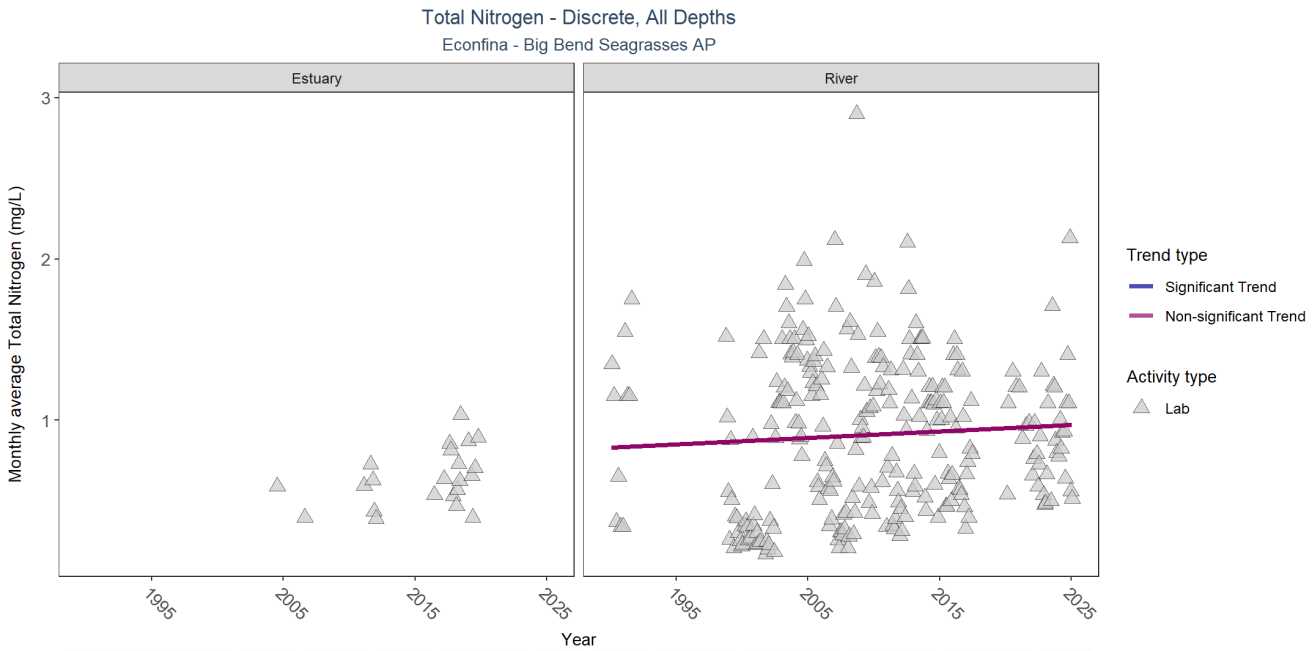


Type	RelativeDepth	N_Data	N_Years	Median	Independent	tau	p	SennSlope	SennIntercept	ChiSquared	pChiSquared	Trend
Estuary	Surface	2190	22	1.8	TRUE	0.0121	0.7392	0.006	2.23	13.38	0.2030	0
River	Surface	422	29	0.5	TRUE	-0.1804	0.0002	-0.008	0.66	13.10	0.2866	-1

p < 0.00005 appear as 0 due to rounding.

SennIntercept is intercept value at beginning of record for monitoring location

Total Nitrogen

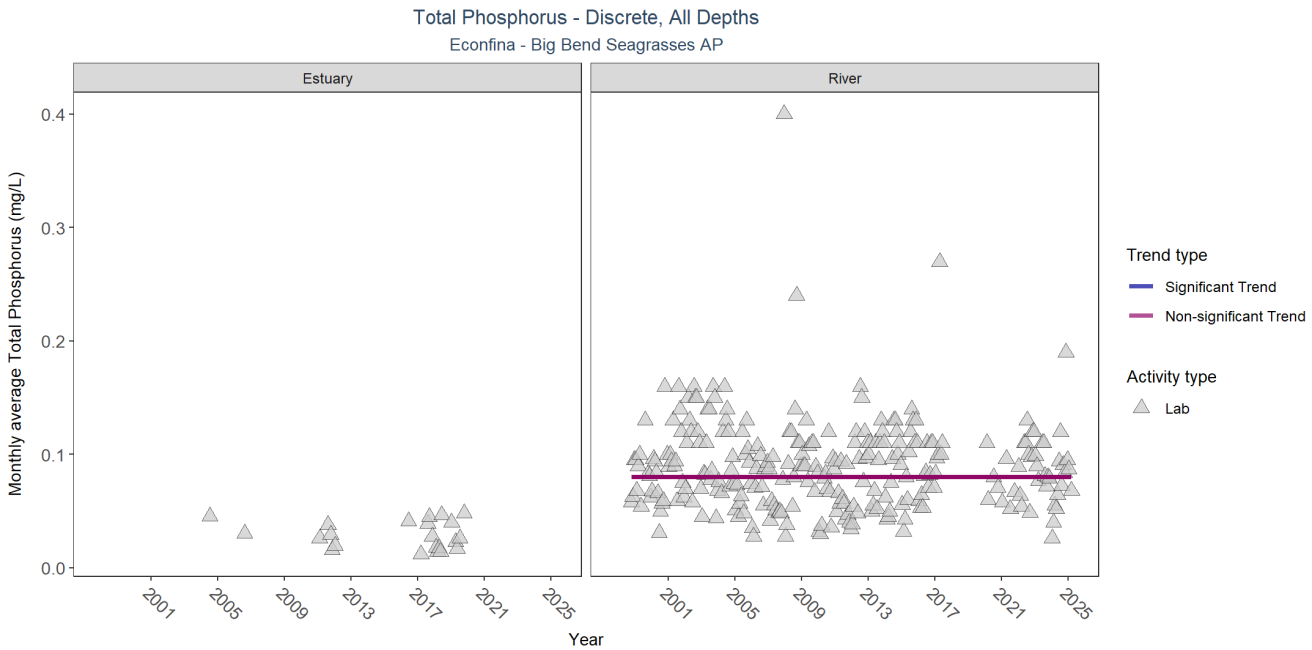


Type	RelativeDepth	N_Data	N_Years	Median	Independent	tau	p	SennSlope	SennIntercept	ChiSquared	pChiSquared	Trend
Estuary	All	39	8	0.634	NA	NA	NA	NA	NA	NA	NA	NA
River	All	375	28	0.900	TRUE	0.0441	0.3912	0.004	0.83	5.09	0.9266	0

p < 0.00005 appear as 0 due to rounding.

SennIntercept is intercept value at beginning of record for monitoring location

Total Phosphorus

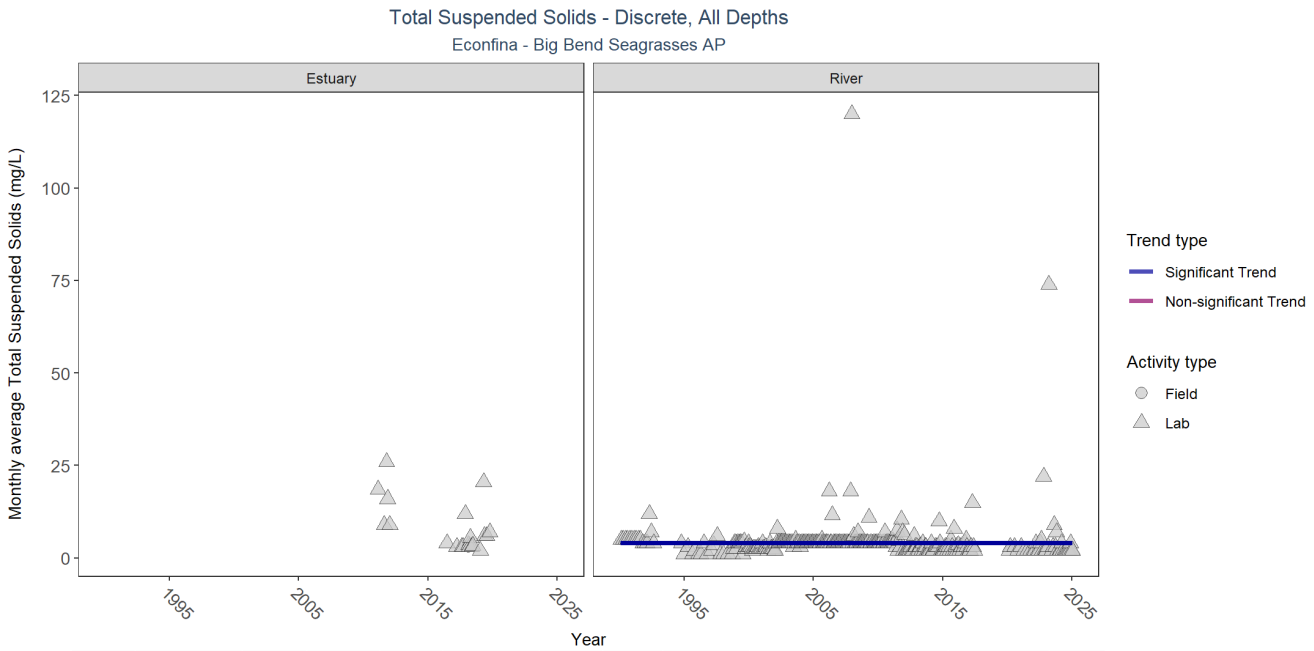


Type	RelativeDepth	N_Data	N_Years	Median	Independent	tau	p	SennSlope	SennIntercept	ChiSquared	pChiSquared	Trend
Estuary	All	38	8	0.0250	NA	NA	NA	NA	NA	NA	NA	NA
River	All	313	26	0.0848	TRUE	-0.0065	0.8016	0	0.08	21.91	0.0251	0

p < 0.00005 appear as 0 due to rounding.

SennIntercept is intercept value at beginning of record for monitoring location

Total Suspended Solids

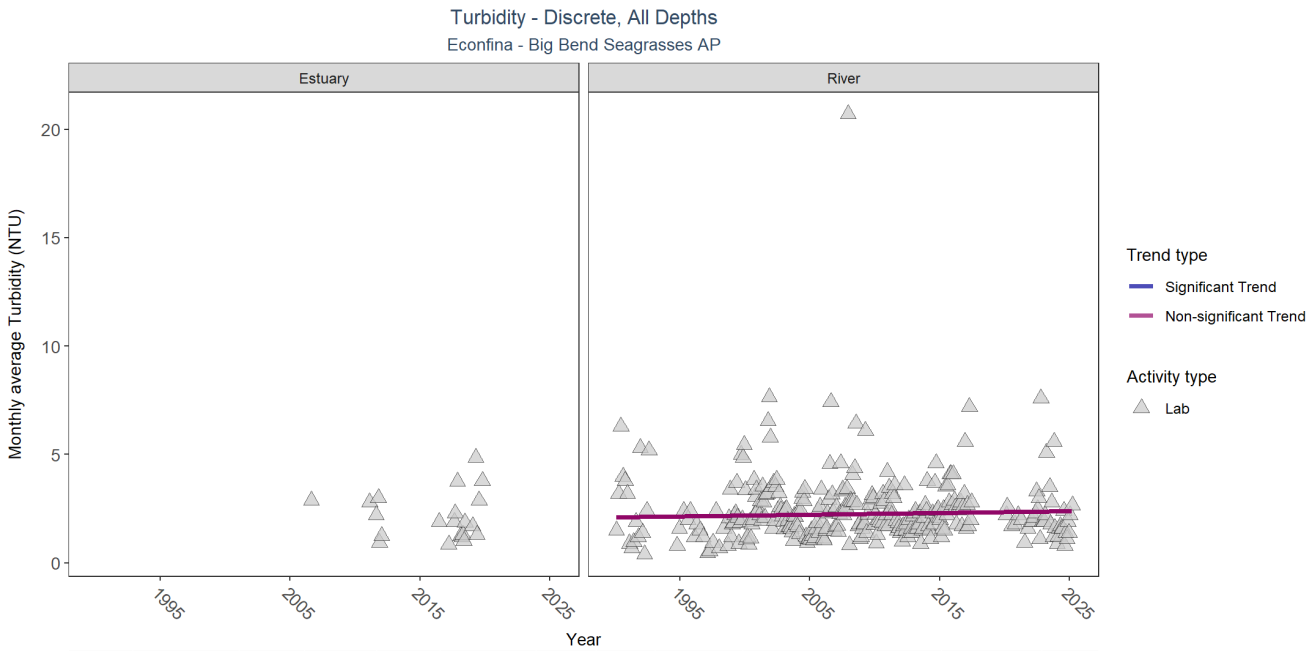


Type	RelativeDepth	N_Data	N_Years	Median	Independent	tau	p	SennSlope	SennIntercept	ChiSquared	pChiSquared	Trend
Estuary	All	33	6	4	NA	NA	NA	NA	NA	NA	NA	NA
River	All	379	33	4	TRUE	-0.1572	0.0001	0	4	12.76	0.3092	-1

p < 0.00005 appear as 0 due to rounding.

SennIntercept is intercept value at beginning of record for monitoring location

Turbidity

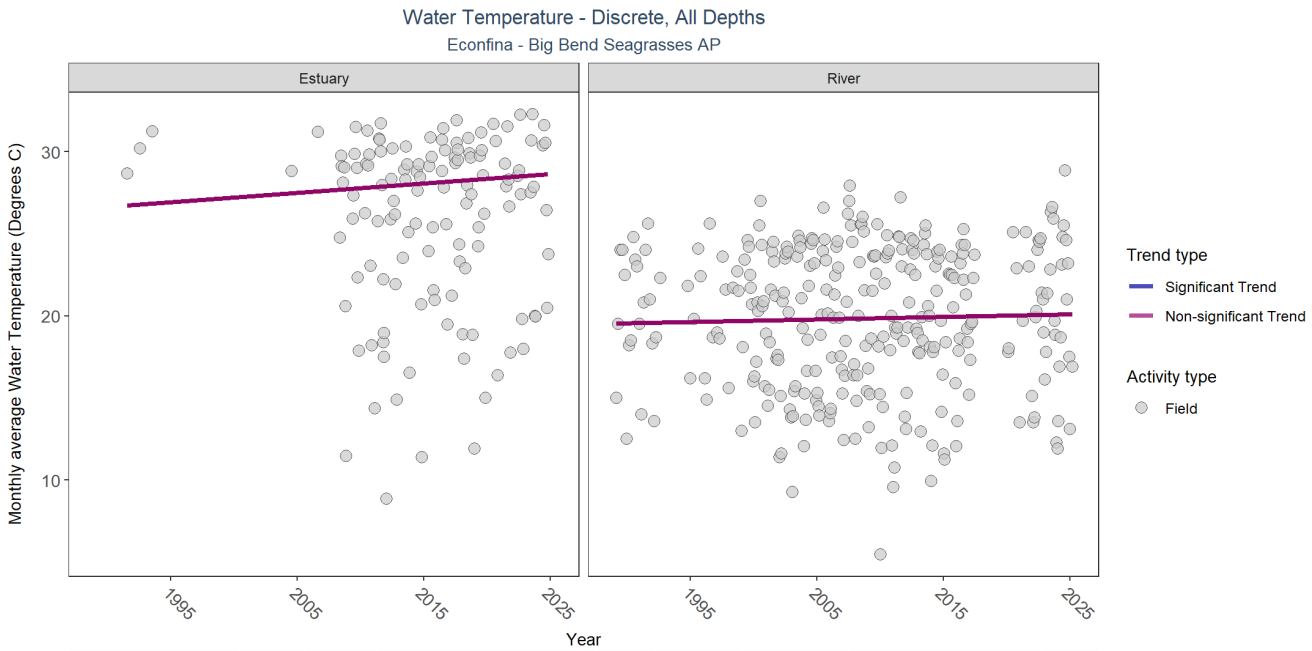


Type	RelativeDepth	N_Data	N_Years	Median	Independent	tau	p	SennSlope	SennIntercept	ChiSquared	pChiSquared	Trend
Estuary	All	33	7	1.8	NA	NA	NA	NA	NA	NA	NA	NA
River	All	491	33	2.1	TRUE	0.0382	0.2429	0.008	2.11	12.35	0.3378	0

p < 0.00005 appear as 0 due to rounding.

SennIntercept is intercept value at beginning of record for monitoring location

Water Temperature

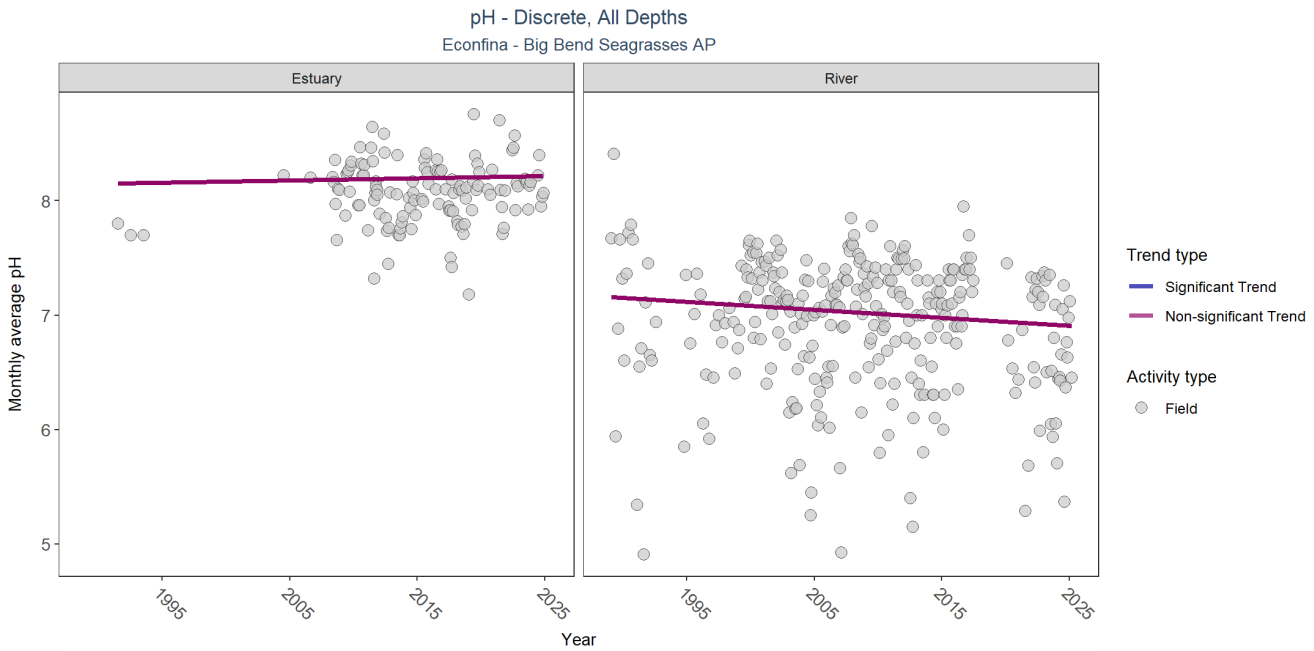


Type	RelativeDepth	N_Data	N_Years	Median	Independent	tau	p	SennSlope	SennIntercept	ChiSquared	pChiSquared	Trend
Estuary	All	2211	22	28	TRUE	0.1338	0.0812	0.058	26.68	9.30	0.5043	0
River	All	605	34	20	TRUE	0.0823	0.1089	0.015	19.55	17.93	0.0832	0

p < 0.00005 appear as 0 due to rounding.

SennIntercept is intercept value at beginning of record for monitoring location

pH

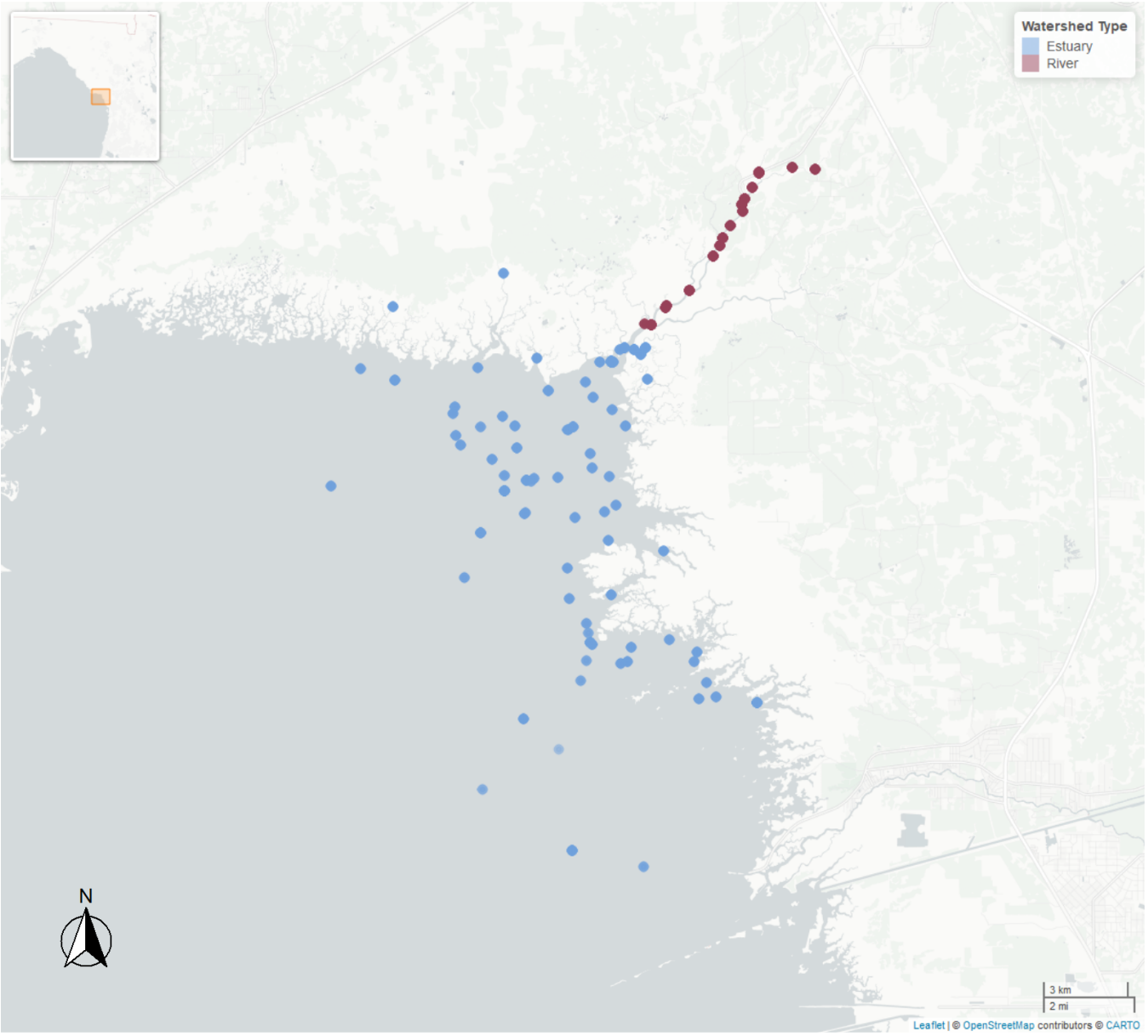


Type	RelativeDepth	N_Data	N_Years	Median	Independent	tau	p	SennSlope	SennIntercept	ChiSquared	pChiSquared	Trend
Estuary	All	2192	22	8.1	TRUE	-0.0021	0.5525	0.002	8.15	8.77	0.5538	0
River	All	599	34	7.0	TRUE	-0.0803	0.0686	-0.007	7.16	4.78	0.9414	0

p < 0.00005 appear as 0 due to rounding.

SennIntercept is intercept value at beginning of record for monitoring location

Waccasassa



Plots will be produced below for all parameters. A Seasonal Kendall-Tau trendline will be plotted only for parameters where *SufficientData* is **TRUE**.

Trend arrows denote trends where the p value is less than 0.05 and the slope is less than 10% of the median parameter value.

Table 23: Seasonal Kendall-Tau Results for Waccasassa

Type	*ParameterName*	*Period-of-Record*	*N-Years*	*N-Data*	*SufficientData*	*SennSlope*	*SennIntercept*	*p*	*Trend*
Estuary	Chlorophyll a, Corrected for Pheophytin	2011 - 2025	15	344	TRUE	-0.14	6.82	0.0450	⇓
River	Chlorophyll a, Corrected for Pheophytin	1999 - 2025	27	385	TRUE	0.02	1.02	0.0100	⇑
Estuary	Chlorophyll a, Uncorrected for Pheophytin	2015 - 2025	11	259	TRUE	-0.28	6.43	0.0751	0
River	Chlorophyll a, Uncorrected for Pheophytin	2007 - 2025	19	251	TRUE	0.00	1.57	0.8690	0
Estuary	Colored Dissolved Organic Matter	2017 - 2025	8	78	FALSE	-	-	-	-
River	Colored Dissolved Organic Matter	2017 - 2025	9	55	FALSE	-	-	-	-
Estuary	Dissolved Oxygen	1992 - 2025	33	10956	TRUE	0.00	6.78	0.5999	0
River	Dissolved Oxygen	1992 - 2025	32	1270	TRUE	-0.01	6.37	0.2312	0
Estuary	Dissolved Oxygen Saturation	2011 - 2025	6	76	FALSE	-	-	-	-
River	Dissolved Oxygen Saturation	2001 - 2025	10	191	TRUE	-0.38	81.54	0.5082	0
Estuary	Salinity	1992 - 2025	33	11581	TRUE	0.10	20.28	0.0021	⇑
River	Salinity	1992 - 2025	32	861	TRUE	0.02	5.84	0.6196	0
Estuary	Secchi Depth	1992 - 2025	10	121	TRUE	0.07	-0.44	0.0017	⇑
River	Secchi Depth	1992 - 2025	24	443	TRUE	-0.01	1.19	0.1205	0
Estuary	Total Nitrogen	2011 - 2025	15	340	TRUE	-0.02	0.81	0.0000	⇓
River	Total Nitrogen	1998 - 2025	28	367	TRUE	0.01	0.54	0.0000	⇑
Estuary	Total Phosphorus	2011 - 2025	15	340	TRUE	0.00	0.06	0.0000	⇓
River	Total Phosphorus	1998 - 2025	28	392	TRUE	0.00	0.07	0.0000	⇓
Estuary	Total Suspended Solids	2011 - 2011	1	18	FALSE	-	-	-	-
River	Total Suspended Solids	1998 - 2025	28	312	TRUE	-0.06	4.89	0.0000	⇓
Estuary	Turbidity	1995 - 2025	28	4611	TRUE	0.05	5.31	0.1051	0
River	Turbidity	1995 - 2025	31	619	TRUE	-0.02	2.59	0.0163	⇓
Estuary	Water Temperature	1992 - 2025	33	11620	TRUE	0.04	22.33	0.0002	⇑
River	Water Temperature	1992 - 2025	32	1312	TRUE	-0.02	22.69	0.2267	0
Estuary	pH	1992 - 2025	33	6118	TRUE	0.00	8.00	0.0004	⇓
River	pH	1992 - 2025	32	907	TRUE	-0.01	7.79	0.0000	⇓

Table 24: Overview of Program Data for Waccasassa

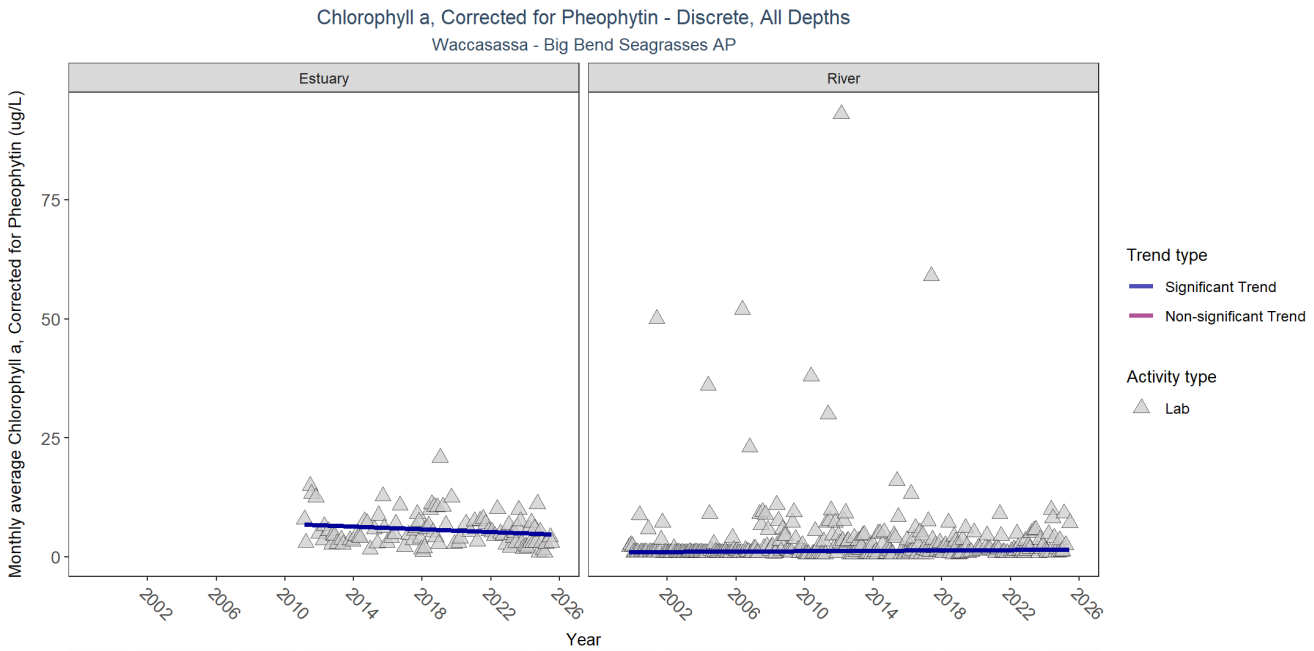
ParameterName	*ProgramID*	*n-data-Estuary*	*n-data-River*
Ammonium, Filtered (NH4)	477	-	7
Ammonium, Filtered (NH4)	5002	18	311
Chlorophyll a, Corrected for Pheophytin	477	-	6
Chlorophyll a, Corrected for Pheophytin	540	29	7
Chlorophyll a, Corrected for Pheophytin	5002	298	373
Chlorophyll a, Corrected for Pheophytin	5008	28	-
Chlorophyll a, Uncorrected for Pheophytin	103	1	-
Chlorophyll a, Uncorrected for Pheophytin	477	-	6
Chlorophyll a, Uncorrected for Pheophytin	540	29	7
Chlorophyll a, Uncorrected for Pheophytin	5002	210	239
Chlorophyll a, Uncorrected for Pheophytin	5008	29	-
Colored Dissolved Organic Matter	477	-	7
Colored Dissolved Organic Matter	540	30	7
Colored Dissolved Organic Matter	5002	-	41
Colored Dissolved Organic Matter	5008	50	-
Dissolved Oxygen	69	51	-
Dissolved Oxygen	95	160	-
Dissolved Oxygen	103	1	-
Dissolved Oxygen	115	4	2
Dissolved Oxygen	118	4	-
Dissolved Oxygen	477	-	7
Dissolved Oxygen	540	21	5
Dissolved Oxygen	5002	10665	1342
Dissolved Oxygen	5008	50	-
Dissolved Oxygen Saturation	477	-	7
Dissolved Oxygen Saturation	5002	27	184
Dissolved Oxygen Saturation	5008	49	-
NO2+3, Filtered	103	1	-
NO2+3, Filtered	477	-	7
NO2+3, Filtered	540	30	7
NO2+3, Filtered	5002	291	367
Phosphate, Filtered (PO4)	5002	18	134
Salinity	69	51	-
Salinity	95	161	-
Salinity	115	4	2
Salinity	118	5	-
Salinity	477	-	7
Salinity	540	24	5
Salinity	5002	11285	847
Salinity	5008	51	-

Secchi Depth	69	51	-
Secchi Depth	103	1	-
Secchi Depth	115	2	1
Secchi Depth	118	2	-
Secchi Depth	477	-	7
Secchi Depth	5002	23	519
Secchi Depth	5008	44	-
Specific Conductivity	69	49	-
Specific Conductivity	477	-	14
Specific Conductivity	5002	39	841
Specific Conductivity	5008	48	-
Total Kjeldahl Nitrogen	477	-	7
Total Kjeldahl Nitrogen	540	30	7
Total Kjeldahl Nitrogen	5002	290	378
Total Nitrogen	540	30	7
Total Nitrogen	5002	290	361
Total Nitrogen	5008	30	-
Total Phosphorus	103	1	-
Total Phosphorus	477	-	7
Total Phosphorus	540	30	7
Total Phosphorus	5002	290	379
Total Phosphorus	5008	29	-
Total Suspended Solids	5002	18	312
Turbidity	477	-	14
Turbidity	5002	4612	612
Water Temperature	69	51	-
Water Temperature	95	161	-
Water Temperature	115	4	2
Water Temperature	118	3	-
Water Temperature	477	-	7
Water Temperature	540	24	6
Water Temperature	5002	11331	1383
Water Temperature	5008	49	-
pH	69	51	-
pH	95	130	-
pH	103	4	-
pH	115	4	2
pH	118	6	-
pH	477	-	7
pH	540	15	4
pH	5002	5867	980
pH	5008	48	-

Program names:

69 - Fisheries-Independent Monitoring (FIM) Program -[4]
95 - Harmful Algal Bloom Marine Observation Network -[5]
103 - EPA STOrage and RETrieval Data Warehouse (STORET)/WQX -[6]
115 - Environmental Monitoring Assessment Program -[7]
118 - National Aquatic Resource Surveys, National Coastal Condition Assessment -[8]
477 - Suwannee River Water Management District Water Resource Monitoring Program -[9]
540 - Shellfish Harvest Area Classification Program -[13]
5002 - Florida STORET / WIN -[2]
5008 - Project COAST (Coastal Assessment Team) - Springs Coast Ecosystem Region -[14]

Chlorophyll a, Corrected for Pheophytin

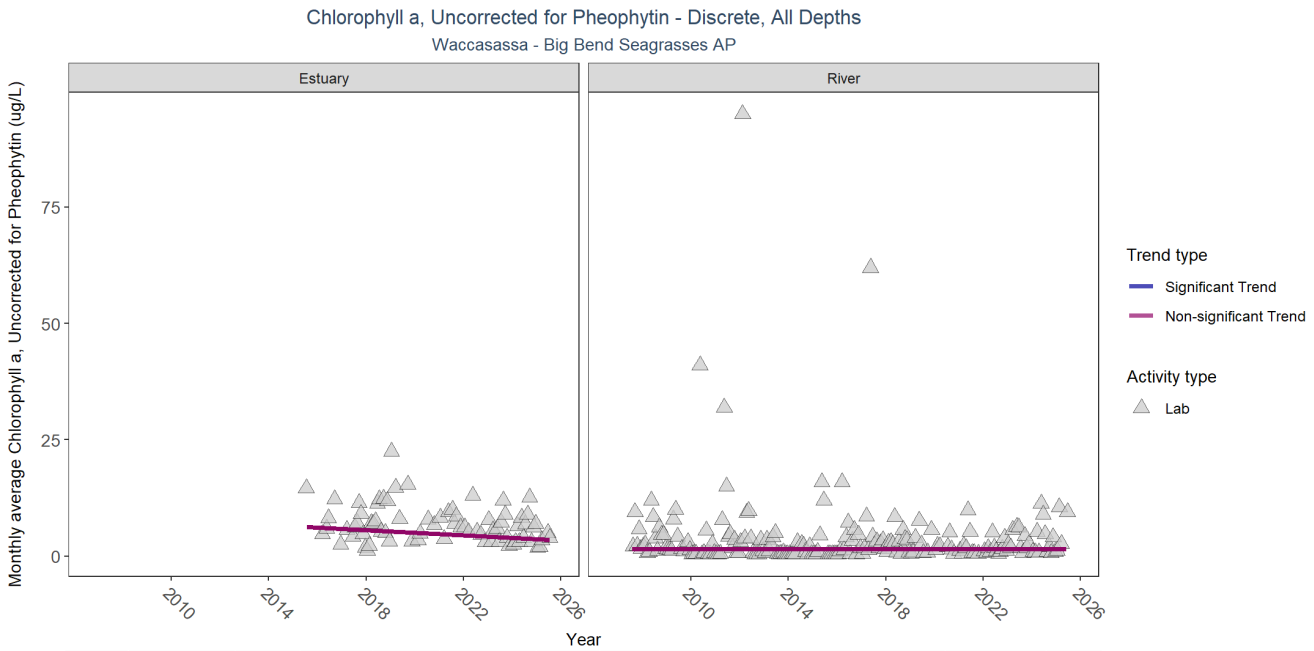


Type	RelativeDepth	N_Data	N_Years	Median	Independent	tau	p	SennSlope	SennIntercept	ChiSquared	pChiSquared	Trend
Estuary	All	344	15	4.5	TRUE	-0.2096	0.0450	-0.141	6.82	19.10	0.0594	-1
River	All	385	27	1.4	TRUE	0.1075	0.0100	0.017	1.02	8.14	0.7006	1

p < 0.00005 appear as 0 due to rounding.

SennIntercept is intercept value at beginning of record for monitoring location

Chlorophyll a, Uncorrected for Pheophytin

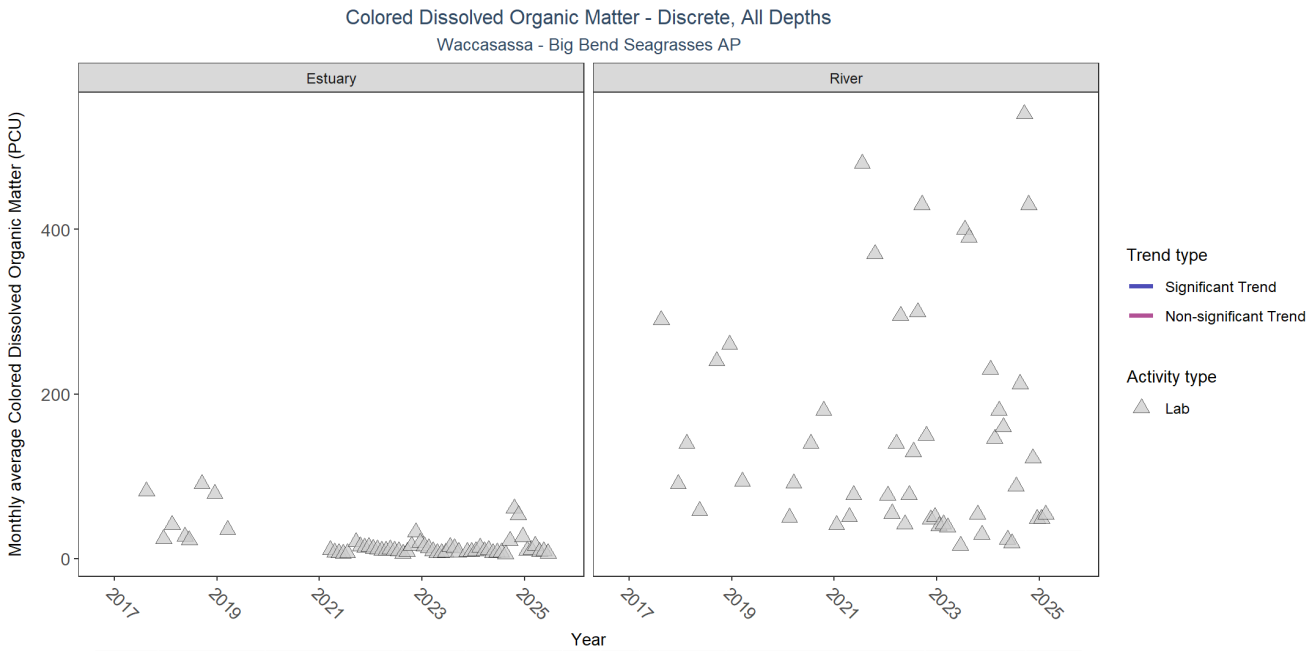


Type	RelativeDepth	N_Data	N_Years	Median	Independent	tau	p	SennSlope	SennIntercept	ChiSquared	pChiSquared	Trend
Estuary	All	259	11	5.60000	TRUE	-0.1761	0.0751	-0.277	6.43	15.60	0.1567	0
River	All	251	19	1.71461	TRUE	-0.0029	0.8690	0.000	1.57	10.33	0.5007	0

p < 0.00005 appear as 0 due to rounding.

SennIntercept is intercept value at beginning of record for monitoring location

Colored Dissolved Organic Matter

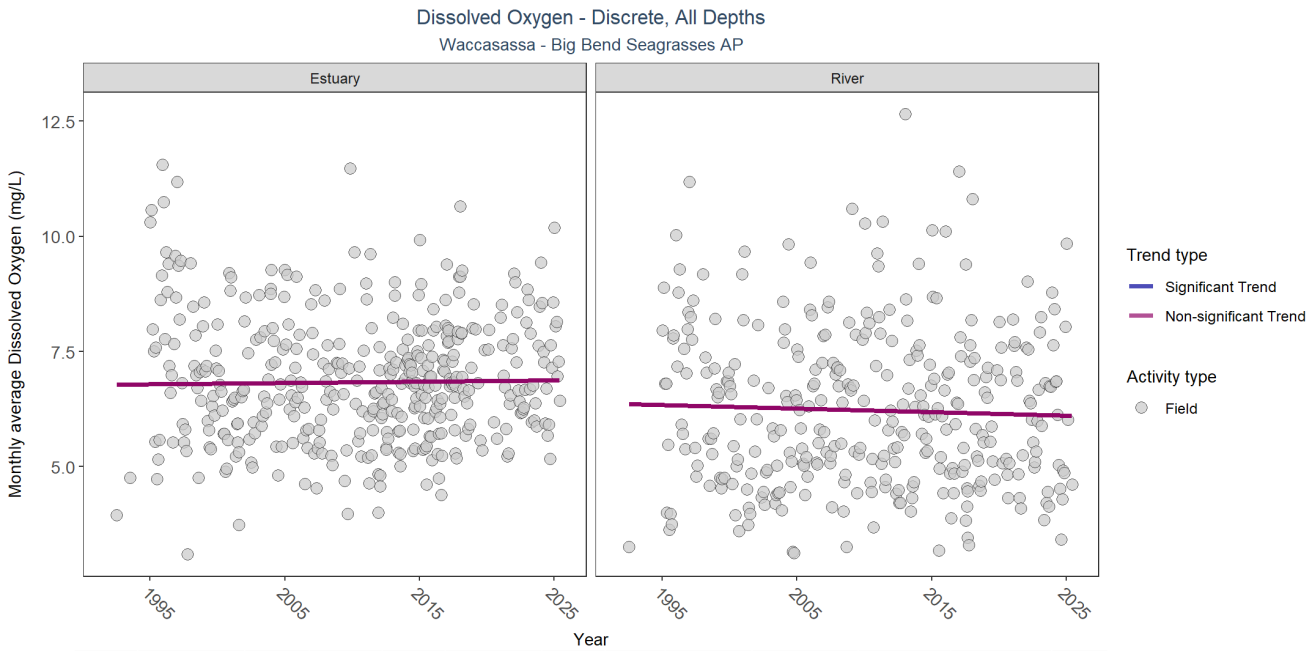


Type	RelativeDepth	N_Data	N_Years	Median	Independent	tau	p	SennSlope	SennIntercept	ChiSquared	pChiSquared	Trend
Estuary	All	78	8	13.083	NA	NA	NA	NA	NA	NA	NA	NA
River	All	55	9	99.000	NA	NA	NA	NA	NA	NA	NA	NA

p < 0.00005 appear as 0 due to rounding.

SennIntercept is intercept value at beginning of record for monitoring location

Dissolved Oxygen

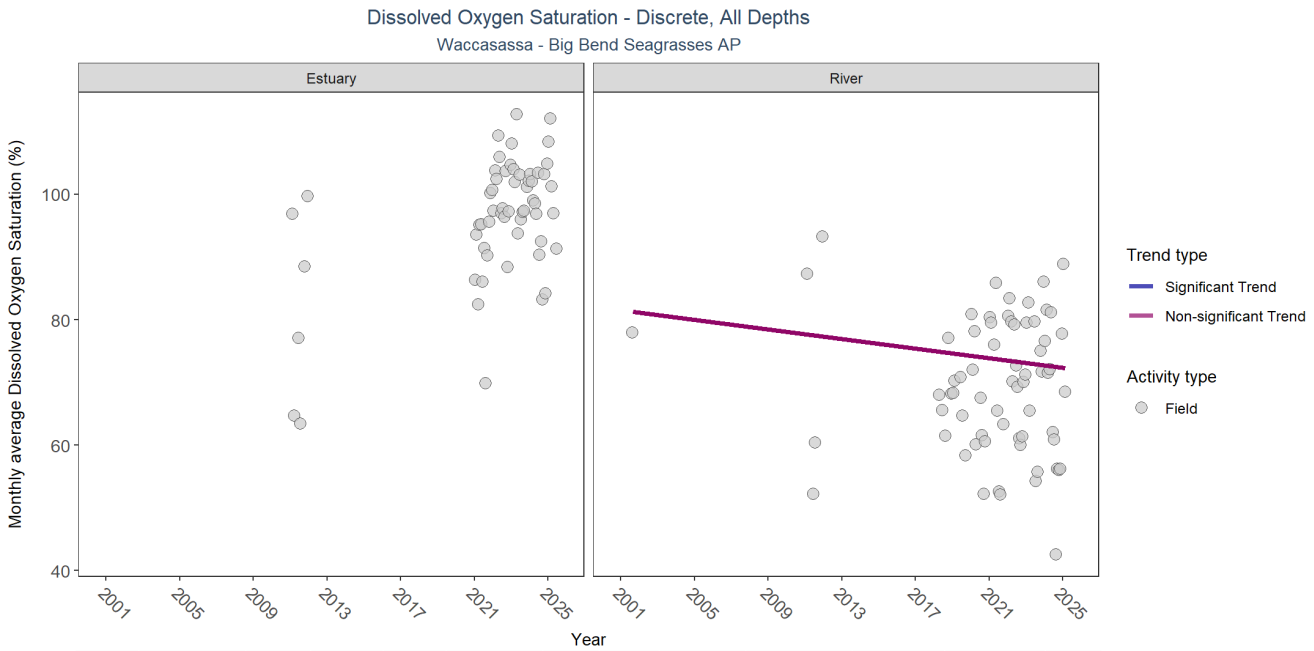


Type	RelativeDepth	N_Data	N_Years	Median	Independent	tau	p	SennSlope	SennIntercept	ChiSquared	pChiSquared	Trend
Estuary	All	10956	33	6.600	TRUE	0.0160	0.5999	0.003	6.78	7.71	0.739	0
River	All	1270	32	5.885	TRUE	-0.0511	0.2312	-0.008	6.37	11.58	0.396	0

p < 0.00005 appear as 0 due to rounding.

SennIntercept is intercept value at beginning of record for monitoring location

Dissolved Oxygen Saturation

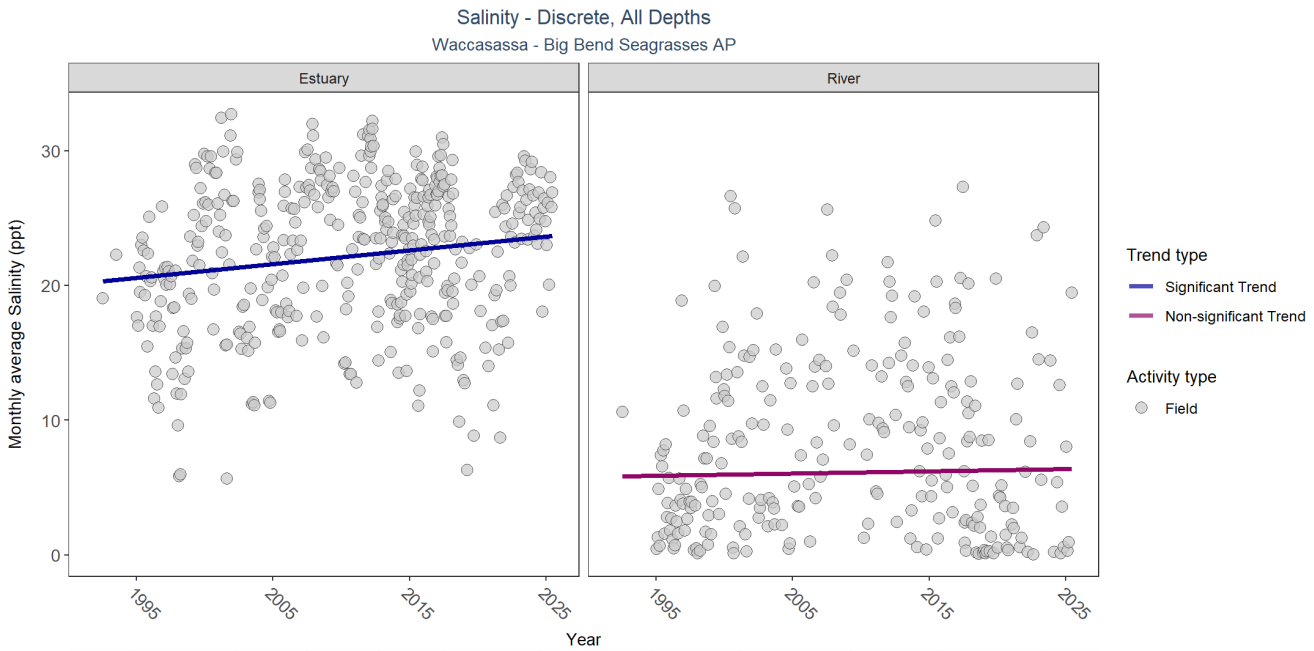


Type	RelativeDepth	N_Data	N_Years	Median	Independent	tau	p	SennSlope	SennIntercept	ChiSquared	pChiSquared	Trend
Estuary	All	76	6	96.95	NA	NA	NA	NA	NA	NA	NA	NA
River	All	191	10	71.10	TRUE	-0.088	0.5082	-0.383	81.54	8.86	0.6351	0

p < 0.00005 appear as 0 due to rounding.

SennIntercept is intercept value at beginning of record for monitoring location

Salinity

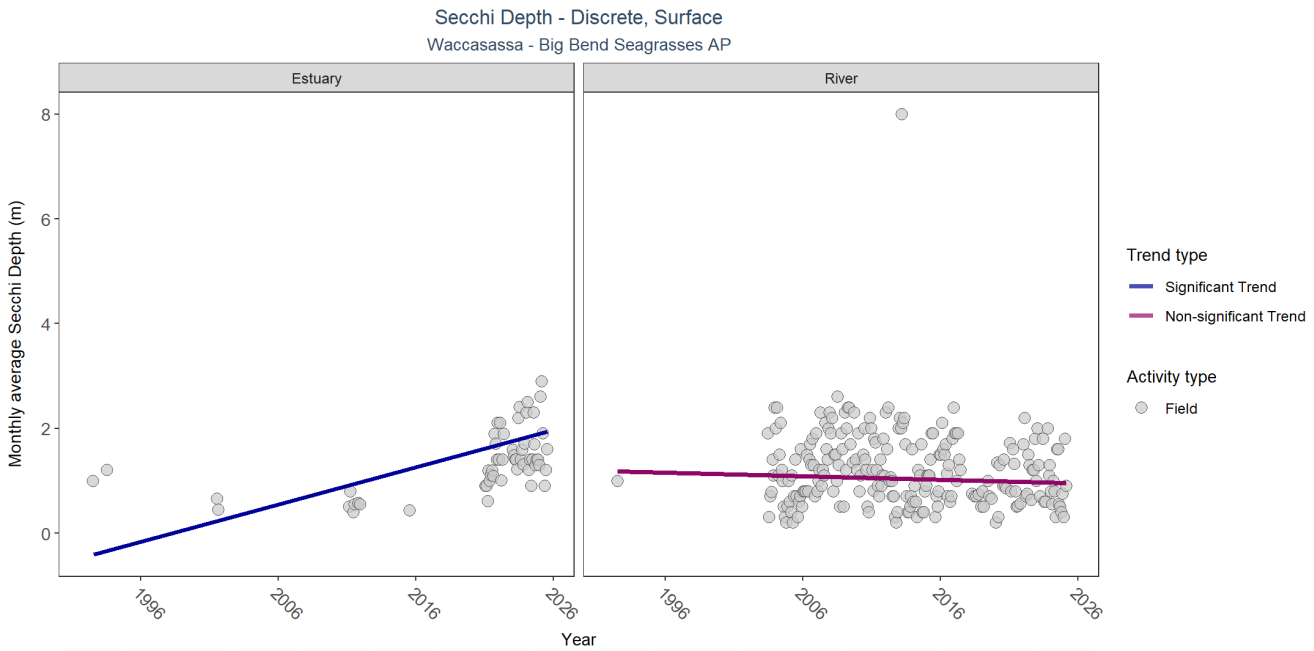


Type	RelativeDepth	N_Data	N_Years	Median	Independent	tau	p	SennSlope	SennIntercept	ChiSquared	pChiSquared	Trend
Estuary	All	11581	33	21.9	TRUE	0.1214	0.0021	0.101	20.28	5.39	0.9109	1
River	All	861	32	6.7	TRUE	0.0318	0.6196	0.017	5.84	12.24	0.3458	0

p < 0.00005 appear as 0 due to rounding.

SennIntercept is intercept value at beginning of record for monitoring location

Secchi Depth

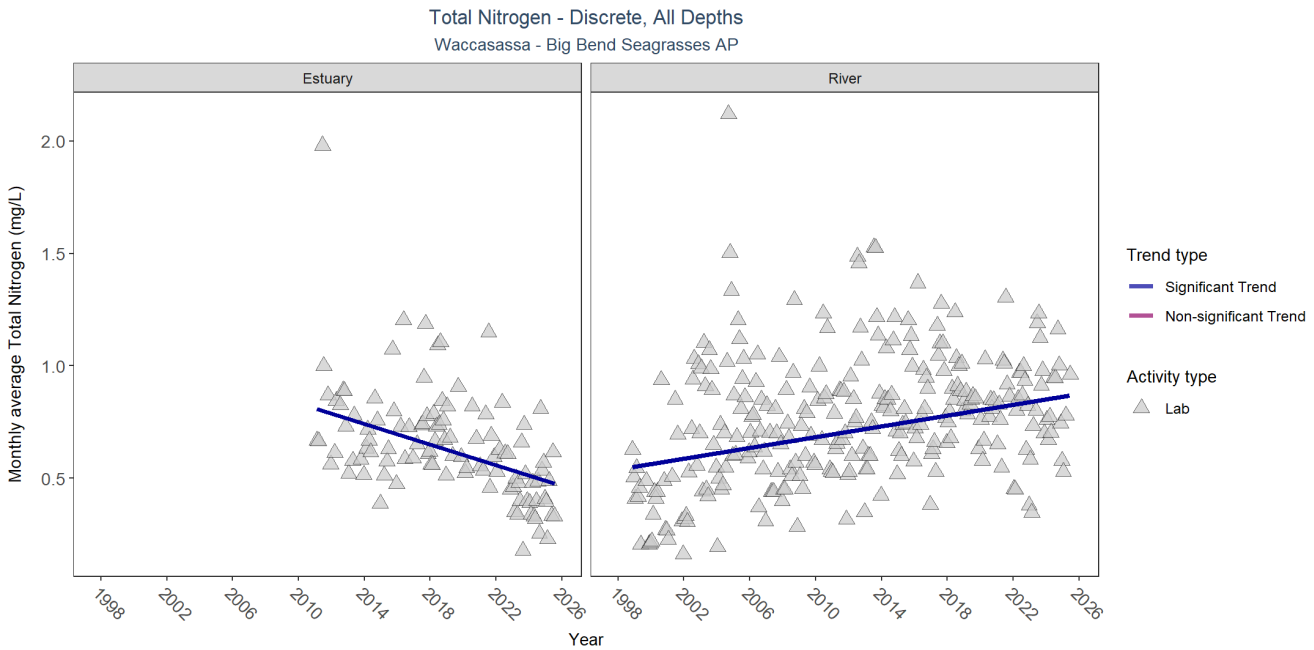


Type	RelativeDepth	N_Data	N_Years	Median	Independent	tau	p	SennSlope	SennIntercept	ChiSquared	pChiSquared	Trend
Estuary	Surface	121	10	0.8	TRUE	0.3439	0.0017	0.071	-0.44	20.53	0.0386	1
River	Surface	443	24	1.1	TRUE	-0.0762	0.1205	-0.007	1.19	2.97	0.9911	0

p < 0.00005 appear as 0 due to rounding.

SennIntercept is intercept value at beginning of record for monitoring location

Total Nitrogen

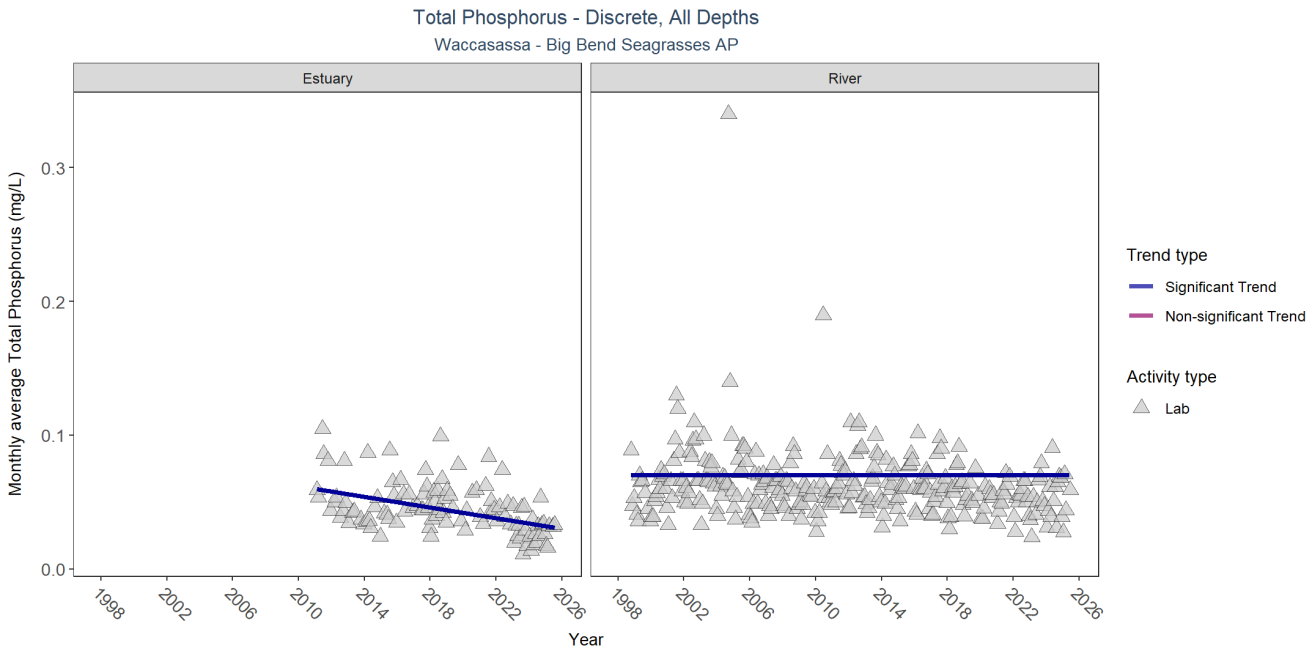


Type	RelativeDepth	N_Data	N_Years	Median	Independent	tau	p	SennSlope	SennIntercept	ChiSquared	pChiSquared	Trend
Estuary	All	340	15	0.626	TRUE	-0.5129	0.0000	-0.023	0.81	6.54	0.8353	-1
River	All	367	28	0.777	TRUE	0.2494	0.0000	0.012	0.54	7.96	0.7167	1

$p < 0.00005$ appear as 0 due to rounding.

SennIntercept is intercept value at beginning of record for monitoring location

Total Phosphorus

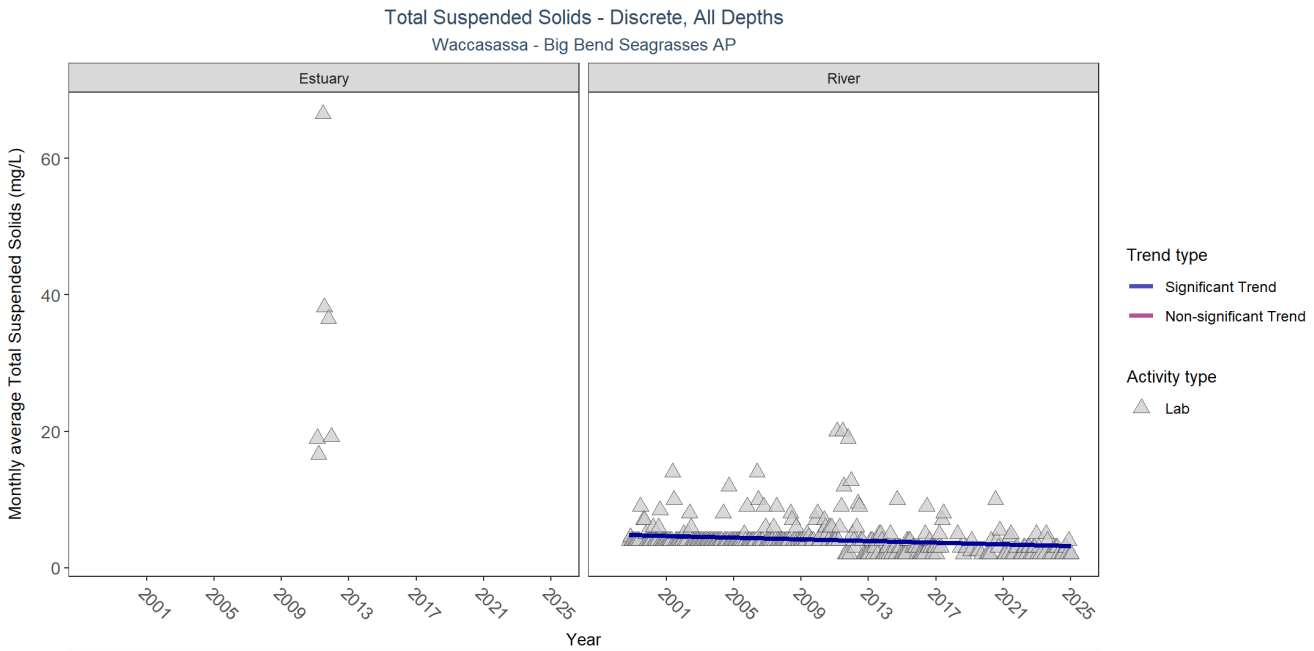


Type	RelativeDepth	N_Data	N_Years	Median	Independent	tau	p	SennSlope	SennIntercept	ChiSquared	pChiSquared	Trend
Estuary	All	340	15	0.0420	TRUE	-0.3915	0.0000	-0.002	0.06	8.99	0.6225	-1
River	All	392	28	0.0585	TRUE	-0.1841	0.0000	0.000	0.07	5.79	0.8869	-1

p < 0.00005 appear as 0 due to rounding.

SennIntercept is intercept value at beginning of record for monitoring location

Total Suspended Solids

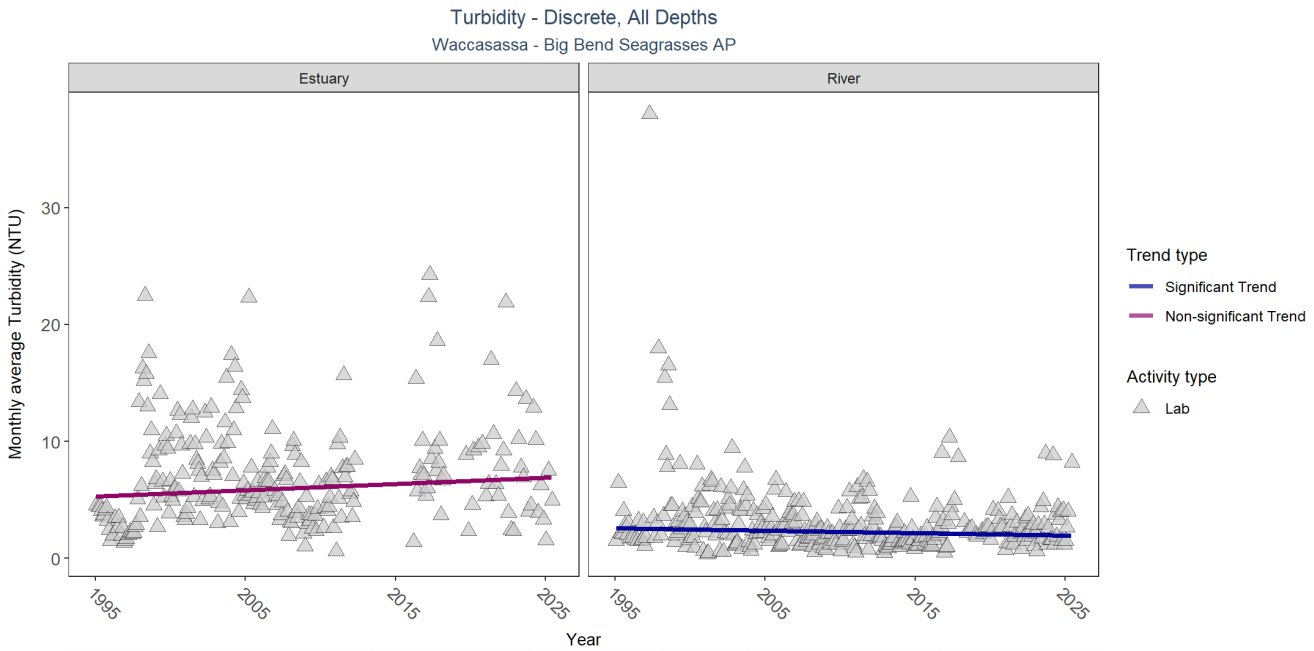


Type	RelativeDepth	N_Data	N_Years	Median	Independent	tau	p	SennSlope	SennIntercept	ChiSquared	pChiSquared	Trend
Estuary	All	18	1	33	NA	NA	NA	NA	NA	NA	NA	NA
River	All	312	28	4	TRUE	-0.3341	0.0000	-0.062	4.89	6.71	0.8219	-1

p < 0.00005 appear as 0 due to rounding.

SennIntercept is intercept value at beginning of record for monitoring location

Turbidity

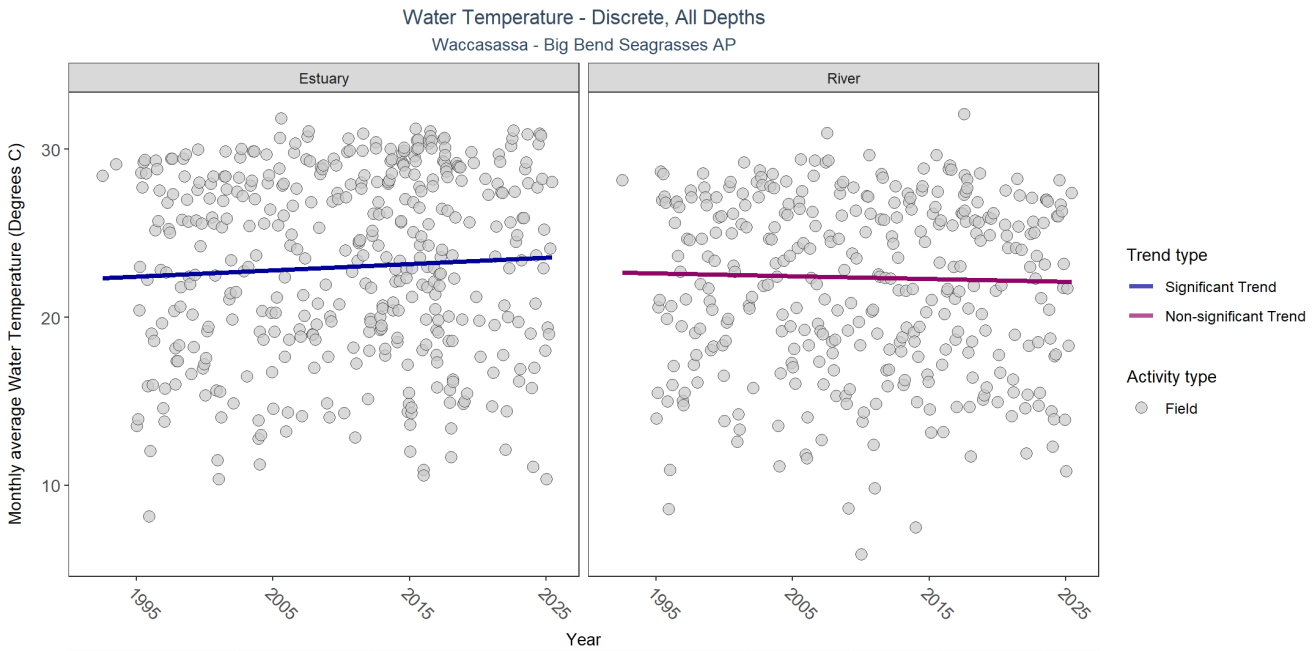


Type	RelativeDepth	N_Data	N_Years	Median	Independent	tau	p	SennSlope	SennIntercept	ChiSquared	pChiSquared	Trend
Estuary	All	4611	28	5.0	TRUE	0.0814	0.1051	0.052	5.31	5.72	0.8916	0
River	All	619	31	2.5	TRUE	-0.0974	0.0163	-0.021	2.59	7.06	0.7944	-1

p < 0.00005 appear as 0 due to rounding.

SennIntercept is intercept value at beginning of record for monitoring location

Water Temperature

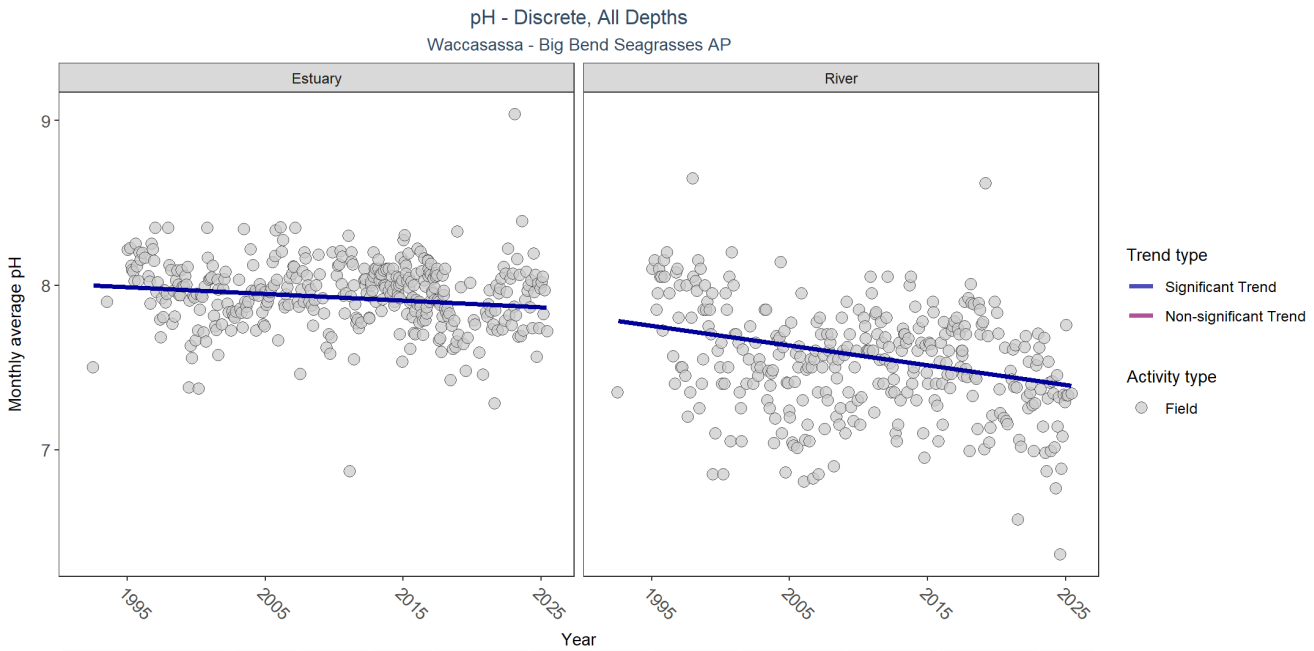


Type	RelativeDepth	N_Data	N_Years	Median	Independent	tau	p	SennSlope	SennIntercept	ChiSquared	pChiSquared	Trend
Estuary	All	11620	33	25.2	TRUE	0.1480	0.0002	0.037	22.33	11.56	0.3973	1
River	All	1312	32	23.3	TRUE	-0.0449	0.2267	-0.017	22.69	7.04	0.7955	0

p < 0.00005 appear as 0 due to rounding.

SennIntercept is intercept value at beginning of record for monitoring location

pH

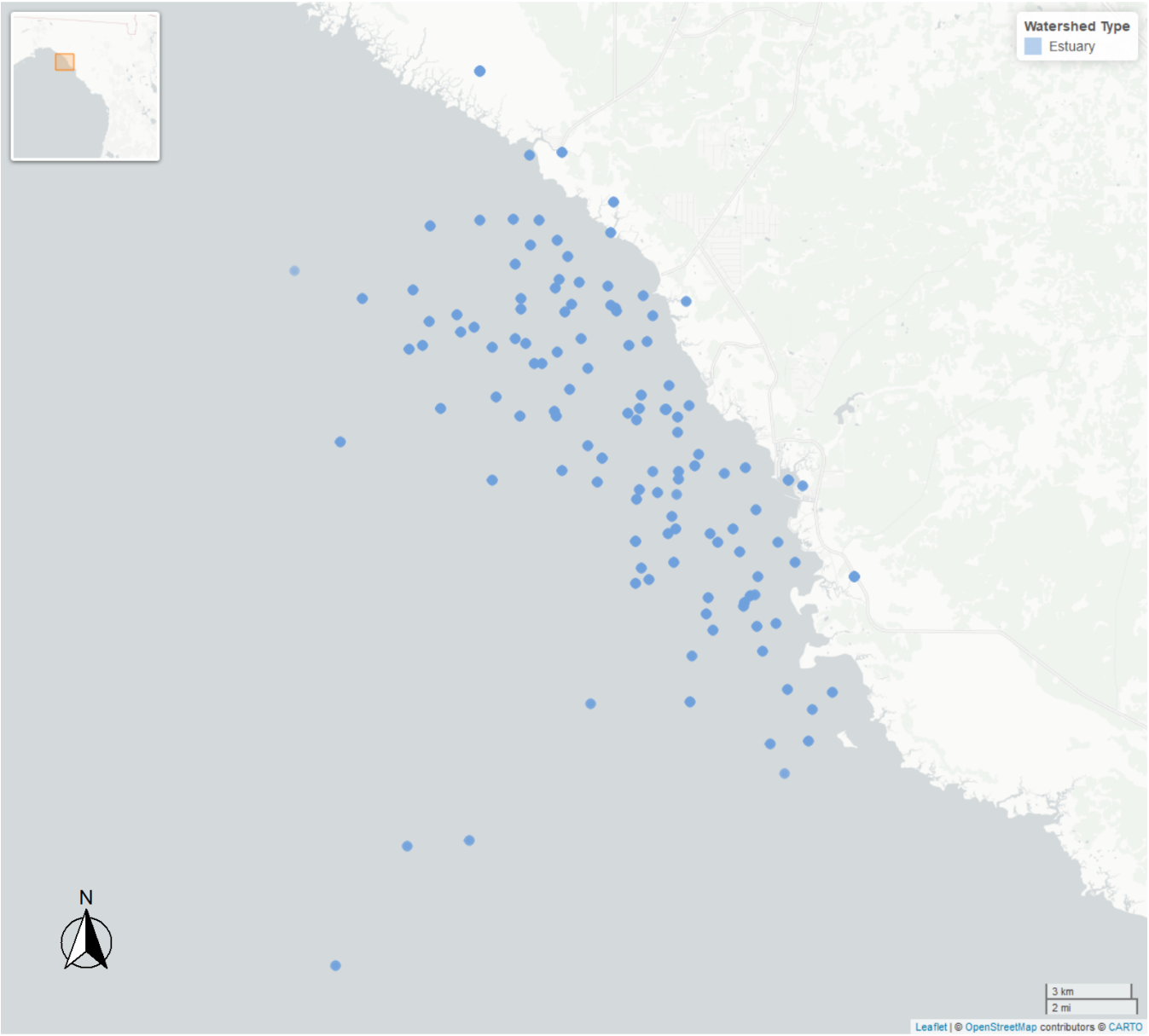


Type	RelativeDepth	N_Data	N_Years	Median	Independent	tau	p	SennSlope	SennIntercept	ChiSquared	pChiSquared	Trend
Estuary	All	6118	33	8.0	TRUE	-0.1412	0.0004	-0.004	8.00	13.44	0.2655	-1
River	All	907	32	7.5	TRUE	-0.2078	0.0000	-0.012	7.79	5.49	0.9054	-1

p < 0.00005 appear as 0 due to rounding.

SennIntercept is intercept value at beginning of record for monitoring location

Keaton Beach



Plots will be produced below for all parameters. A Seasonal Kendall-Tau trendline will be plotted only for parameters where *SufficientData* is **TRUE**.

Trend arrows denote trends where the p value is less than 0.05 and the slope is less than 10% of the median parameter value.

Keaton Beach contains a *large trend*. Trends marked in ⇑ or ⇓ are deemed *large* trends, meaning the p value is less than 0.05 and the slope is greater than 10% of the median value.

Table 25: Seasonal Kendall-Tau Results for Keaton Beach

Type	*ParameterName*	*Period-of-Record*	*N-Years*	*N-Data*	*SufficientData*	*SennSlope*	*SennIntercept*	*p*	*Trend*
Estuary	Chlorophyll a, Corrected for Pheophytin	2010 - 2025	10	140	TRUE	0.15	0.22	0.0004	⇑
Estuary	Chlorophyll a, Uncorrected for Pheophytin	2010 - 2025	10	140	TRUE	0.14	-0.26	0.0101	⇑
Estuary	Colored Dissolved Organic Matter	2022 - 2022	1	1	FALSE	-	-	-	-
Estuary	Dissolved Oxygen	1996 - 2025	18	398	TRUE	0.00	5.93	0.9630	0
Estuary	Dissolved Oxygen Saturation	2003 - 2022	2	4	FALSE	-	-	-	-
Estuary	Salinity	1996 - 2025	18	588	TRUE	-0.29	36.40	0.0035	⇓
Estuary	Secchi Depth	2002 - 2022	5	241	FALSE	-	-	-	-
Estuary	Total Nitrogen	2010 - 2025	10	142	TRUE	0.00	0.38	0.4683	0
Estuary	Total Phosphorus	2010 - 2025	10	143	TRUE	0.00	0.01	0.0167	⇑
Estuary	Total Suspended Solids	2010 - 2022	2	3	FALSE	-	-	-	-
Estuary	Turbidity	2010 - 2025	8	69	FALSE	-	-	-	-
Estuary	Water Temperature	1996 - 2025	20	409	TRUE	-0.02	24.86	0.4382	0
Estuary	pH	1999 - 2025	15	394	TRUE	-0.01	8.23	0.1923	0

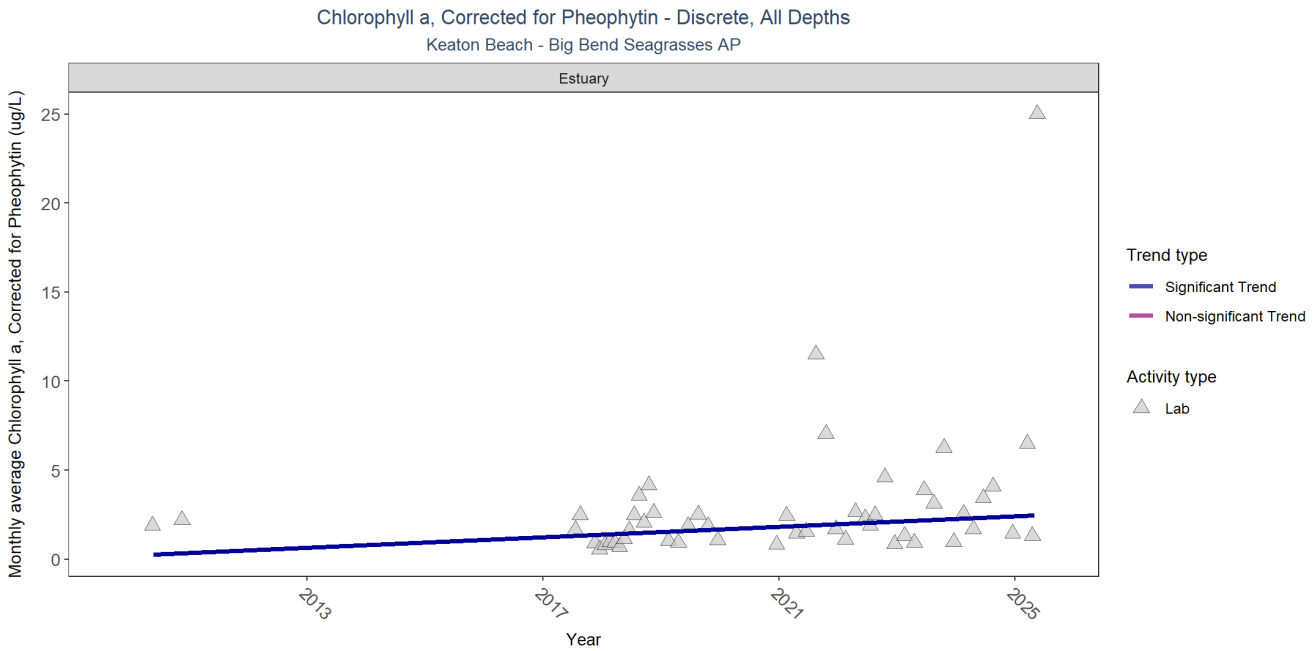
Table 26: Overview of Program Data for Keaton Beach

ParameterName	*ProgramID*	*n-data-Estuary*	*n-data-River*
Ammonium, Filtered (NH4)	5002	3	-
Chlorophyll a, Corrected for Pheophytin	5002	147	-
Chlorophyll a, Uncorrected for Pheophytin	60	3	-
Chlorophyll a, Uncorrected for Pheophytin	5002	147	-
Colored Dissolved Organic Matter	5002	1	-
Dissolved Oxygen	60	5	-
Dissolved Oxygen	69	236	-
Dissolved Oxygen	95	11	-
Dissolved Oxygen	560	200	-
Dissolved Oxygen	5002	146	-
Dissolved Oxygen Saturation	60	4	-
Dissolved Oxygen Saturation	5002	4	-
NO2+3, Filtered	5002	146	-
Salinity	60	4	-
Salinity	69	236	-
Salinity	95	18	-
Salinity	560	200	-
Salinity	5002	130	-
Secchi Depth	69	236	-
Secchi Depth	560	50	-
Secchi Depth	5002	5	-
Specific Conductivity	69	236	-
Specific Conductivity	5002	26	-
Total Kjeldahl Nitrogen	5002	151	-
Total Nitrogen	5002	151	-
Total Phosphorus	5002	151	-
Total Suspended Solids	5002	3	-
Turbidity	5002	70	-
Water Temperature	60	5	-
Water Temperature	69	236	-
Water Temperature	95	16	-
Water Temperature	560	200	-
Water Temperature	5002	152	-
pH	69	236	-
pH	95	6	-
pH	560	200	-
pH	5002	152	-

Program names:

60 - Southeast Area Monitoring and Assessment Program (SEAMAP) - Gulf of Mexico Fall & Summer Shrimp/Groundfish Survey -[3]
69 - Fisheries-Independent Monitoring (FIM) Program -[4]
95 - Harmful Algal Bloom Marine Observation Network -[5]
560 - Big Bend Seagrasses & Nature Coast Aquatic Preserves - Seagrass Monitoring -[10]
5002 - Florida STORET / WIN -[2]

Chlorophyll a, Corrected for Pheophytin

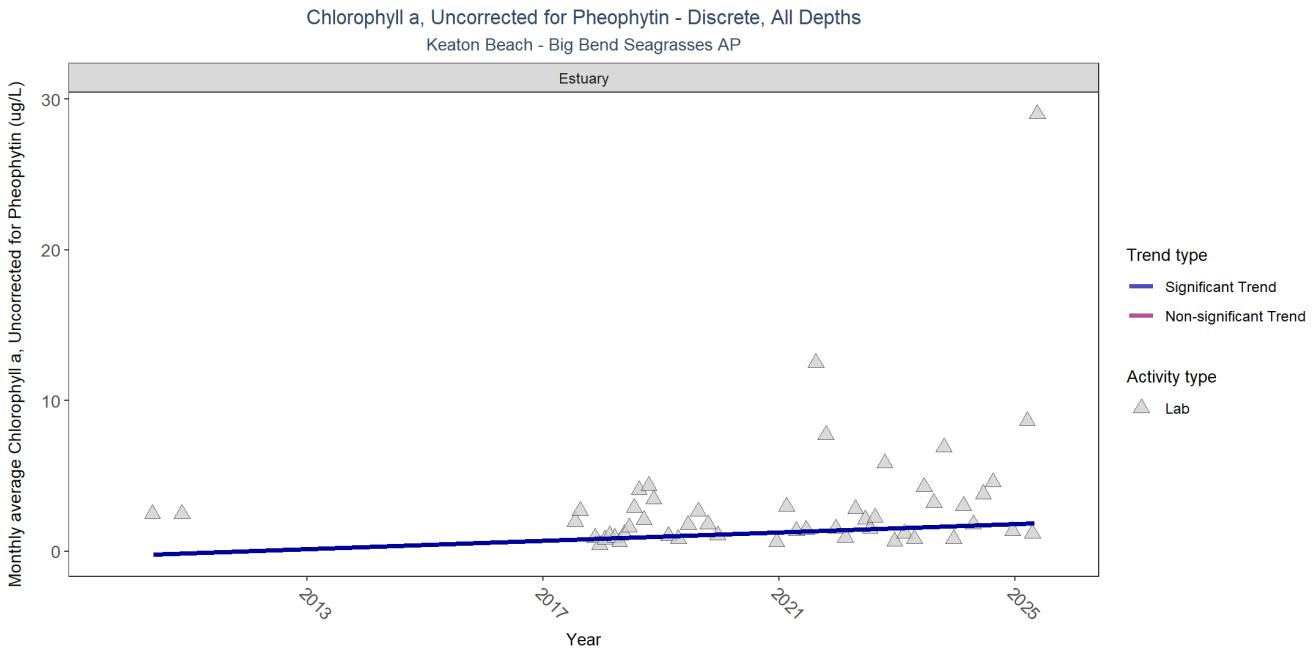


Type	RelativeDepth	N_Data	N_Years	Median	Independent	tau	p	SennSlope	SennIntercept	ChiSquared	pChiSquared	Trend
Estuary	All	140	10	1.4	TRUE	0.4762	0.0004	0.147	0.22	2.44	0.9825	2

p < 0.00005 appear as 0 due to rounding.

SennIntercept is intercept value at beginning of record for monitoring location

Chlorophyll a, Uncorrected for Pheophytin

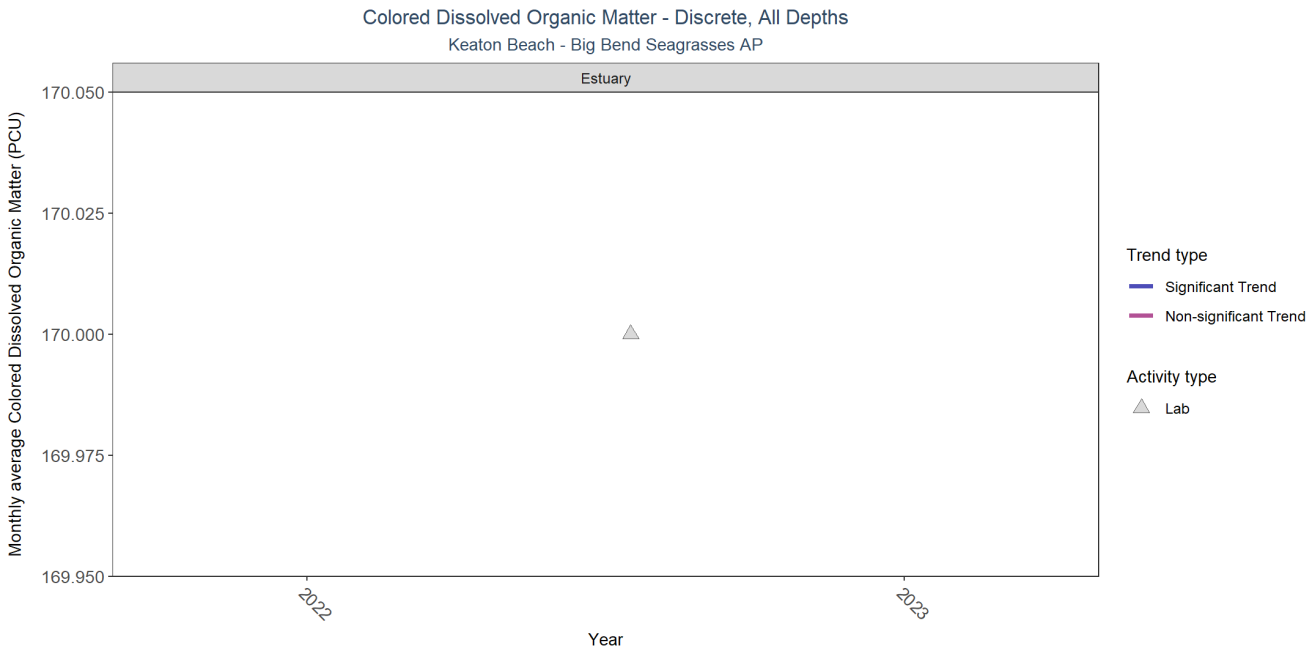


Type	RelativeDepth	N_Data	N_Years	Median	Independent	tau	p	SennSlope	SennIntercept	ChiSquared	pChiSquared	Trend
Estuary	All	140	10	1.5	TRUE	0.3456	0.0101	0.138	-0.26	3.28	0.9523	1

p < 0.00005 appear as 0 due to rounding.

SennIntercept is intercept value at beginning of record for monitoring location

Colored Dissolved Organic Matter

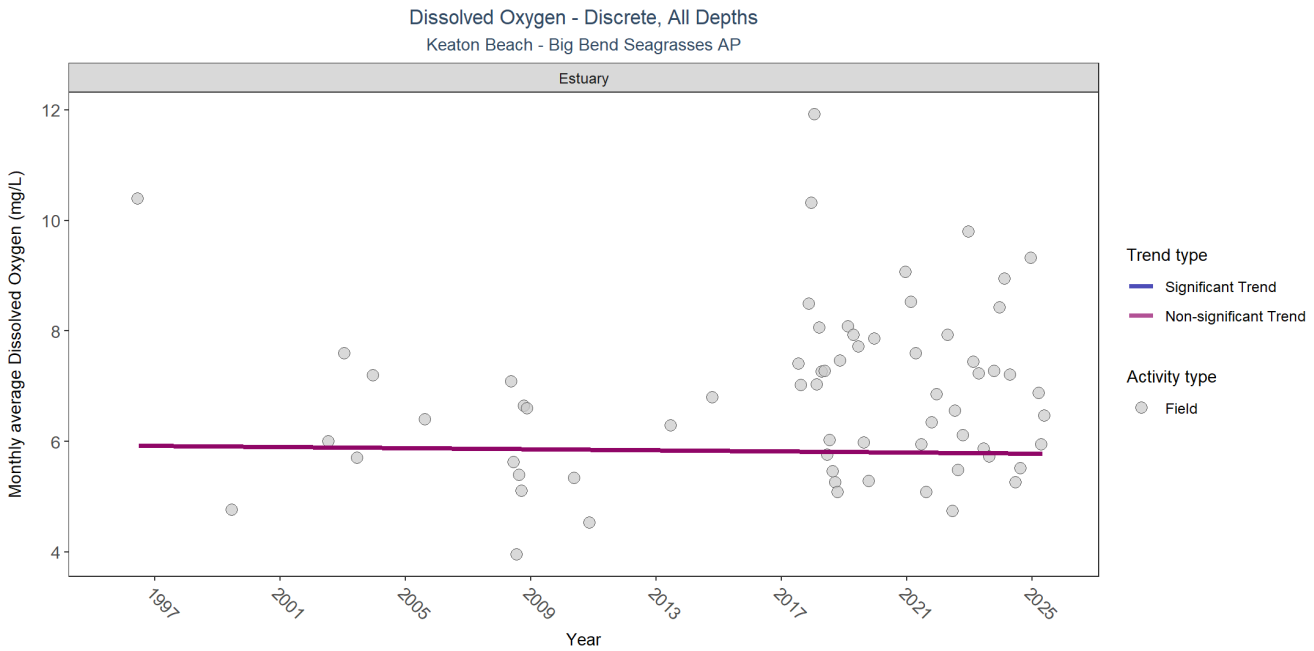


Type	RelativeDepth	N_Data	N_Years	Median	Independent	tau	p	SennSlope	SennIntercept	ChiSquared	pChiSquared	Trend
Estuary	All	1	1	170	NA	NA	NA	NA	NA	NA	NA	NA

p < 0.00005 appear as 0 due to rounding.

SennIntercept is intercept value at beginning of record for monitoring location

Dissolved Oxygen

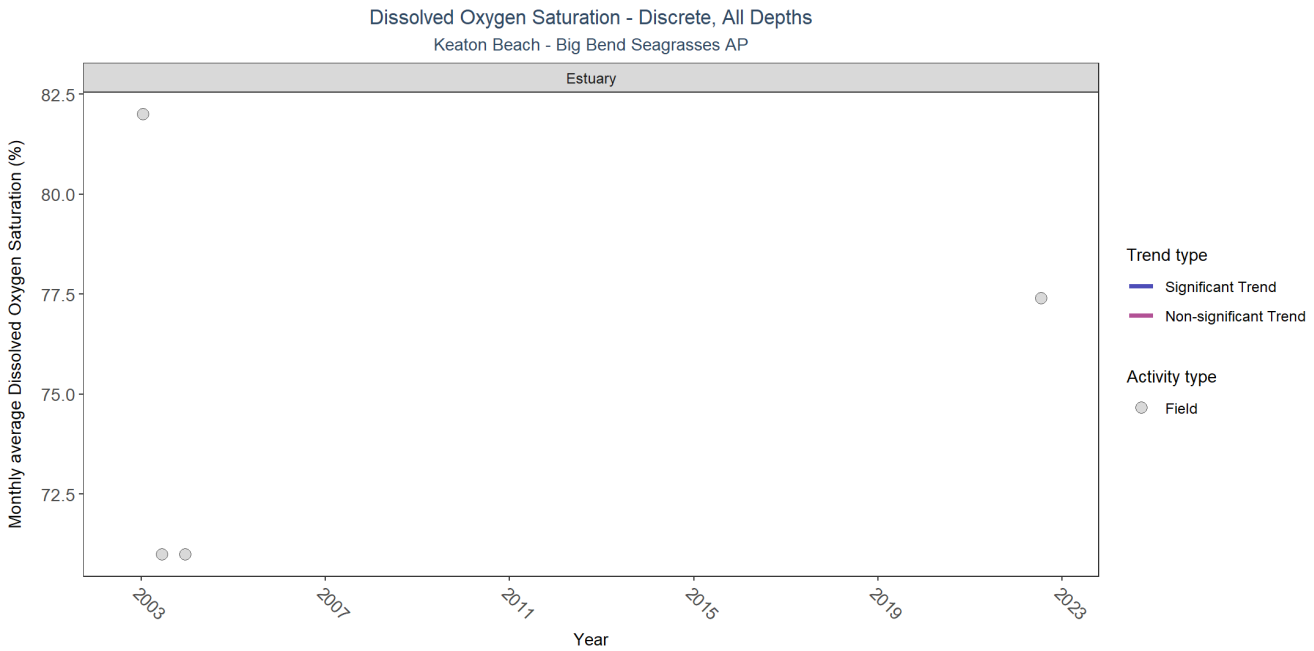


Type	RelativeDepth	N_Data	N_Years	Median	Independent	tau	p	SennSlope	SennIntercept	ChiSquared	pChiSquared	Trend
Estuary	All	398	18	6.3	TRUE	0.0668	0.9630	-0.005	5.93	9.73	0.5553	0

p < 0.00005 appear as 0 due to rounding.

SennIntercept is intercept value at beginning of record for monitoring location

Dissolved Oxygen Saturation

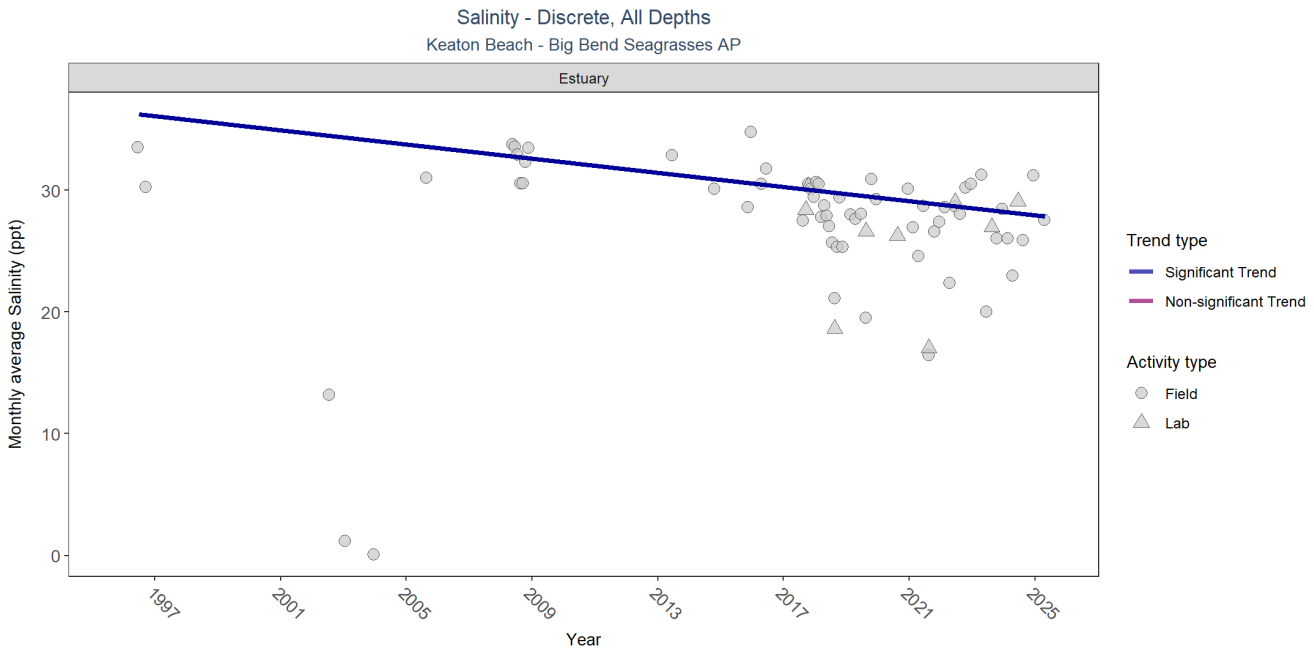


Type	RelativeDepth	N_Data	N_Years	Median	Independent	tau	p	SennSlope	SennIntercept	ChiSquared	pChiSquared	Trend
Estuary	All	4	2	74.2	NA	NA	NA	NA	NA	NA	NA	NA

p < 0.00005 appear as 0 due to rounding.

SennIntercept is intercept value at beginning of record for monitoring location

Salinity

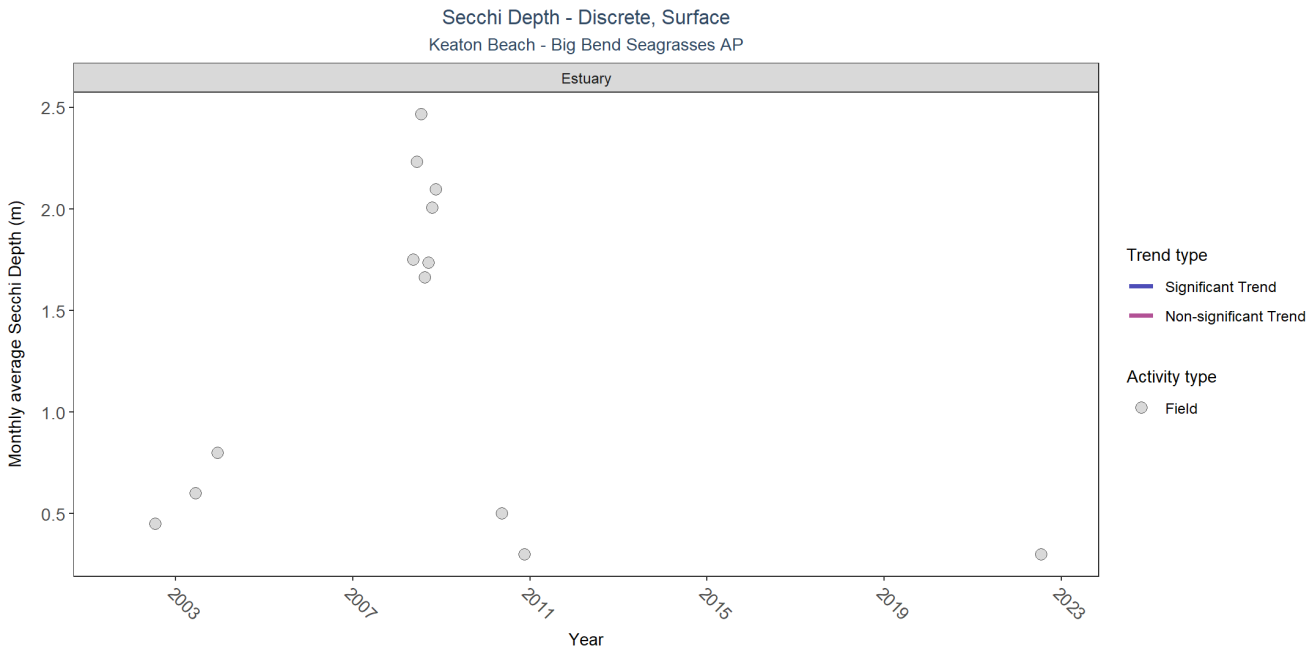


Type	RelativeDepth	N_Data	N_Years	Median	Independent	tau	p	SennSlope	SennIntercept	ChiSquared	pChiSquared	Trend
Estuary	All	588	18	29.91	TRUE	-0.3183	0.0035	-0.291	36.4	10.63	0.3869	-1

p < 0.00005 appear as 0 due to rounding.

SennIntercept is intercept value at beginning of record for monitoring location

Secchi Depth

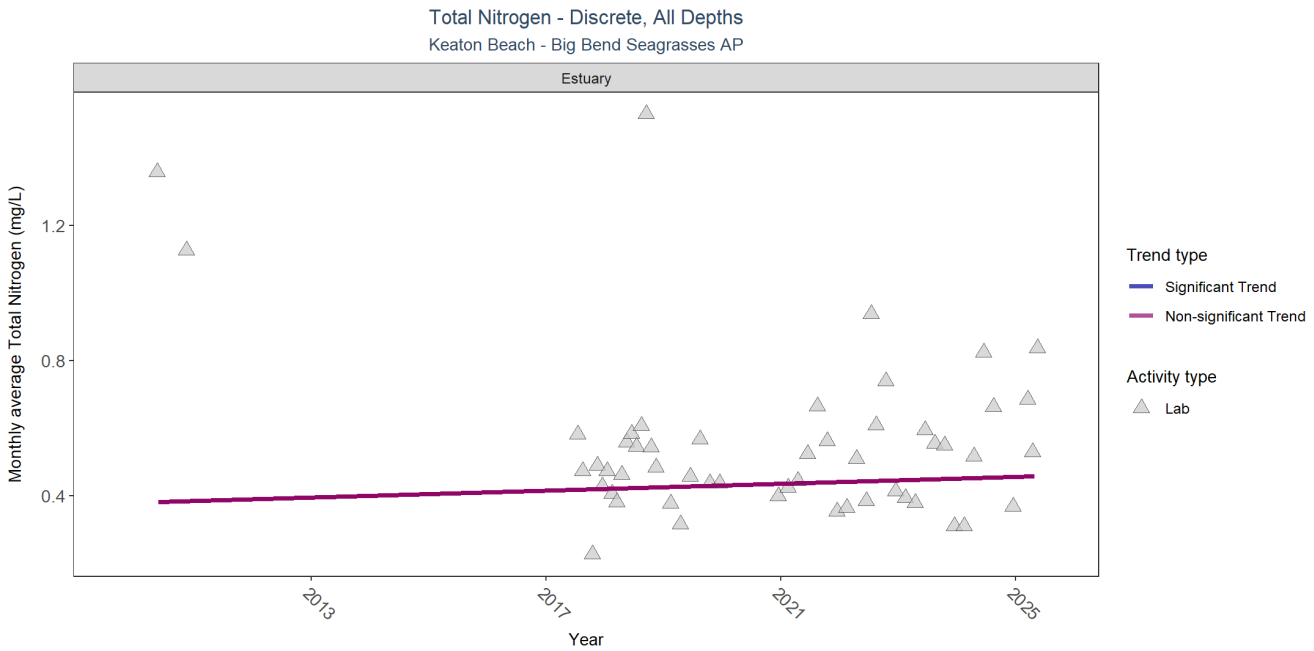


Type	RelativeDepth	N_Data	N_Years	Median	Independent	tau	p	SennSlope	SennIntercept	ChiSquared	pChiSquared	Trend
Estuary	Surface	241	5	1.7	NA	NA	NA	NA	NA	NA	NA	NA

p < 0.00005 appear as 0 due to rounding.

SennIntercept is intercept value at beginning of record for monitoring location

Total Nitrogen

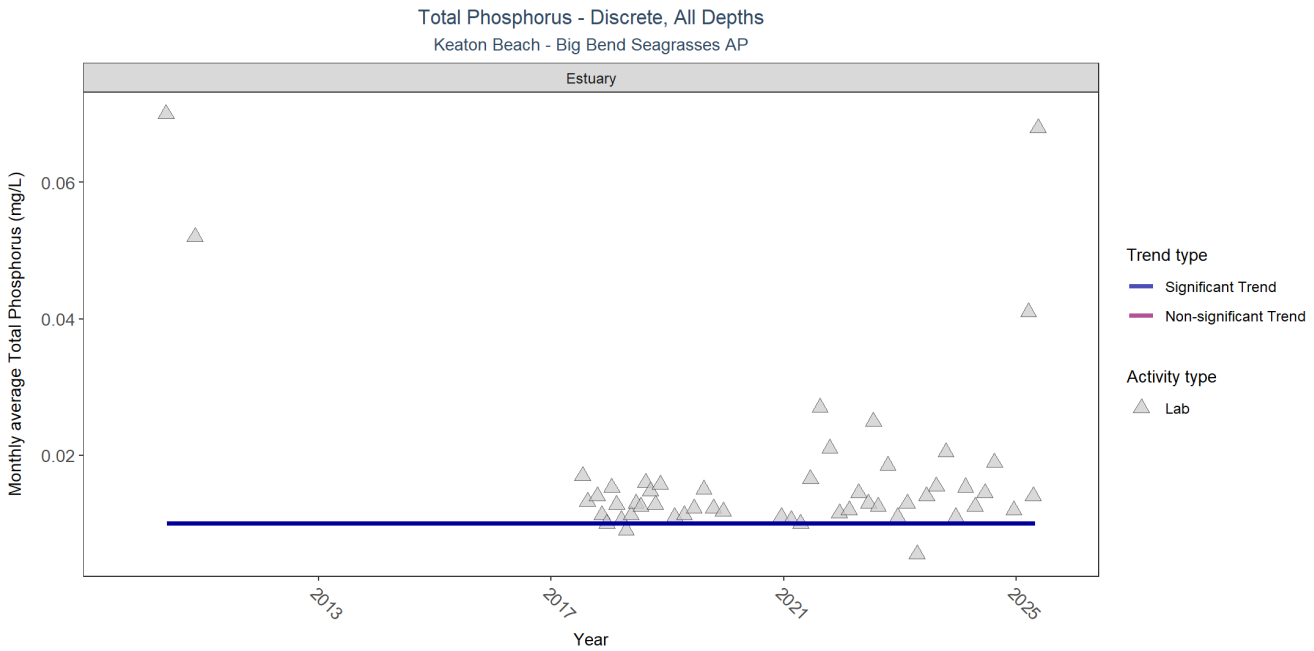


Type	RelativeDepth	N_Data	N_Years	Median	Independent	tau	p	SennSlope	SennIntercept	ChiSquared	pChiSquared	Trend
Estuary	All	142	10	0.468	TRUE	0.0827	0.4683	0.005	0.38	15.71	0.0732	0

p < 0.00005 appear as 0 due to rounding.

SennIntercept is intercept value at beginning of record for monitoring location

Total Phosphorus

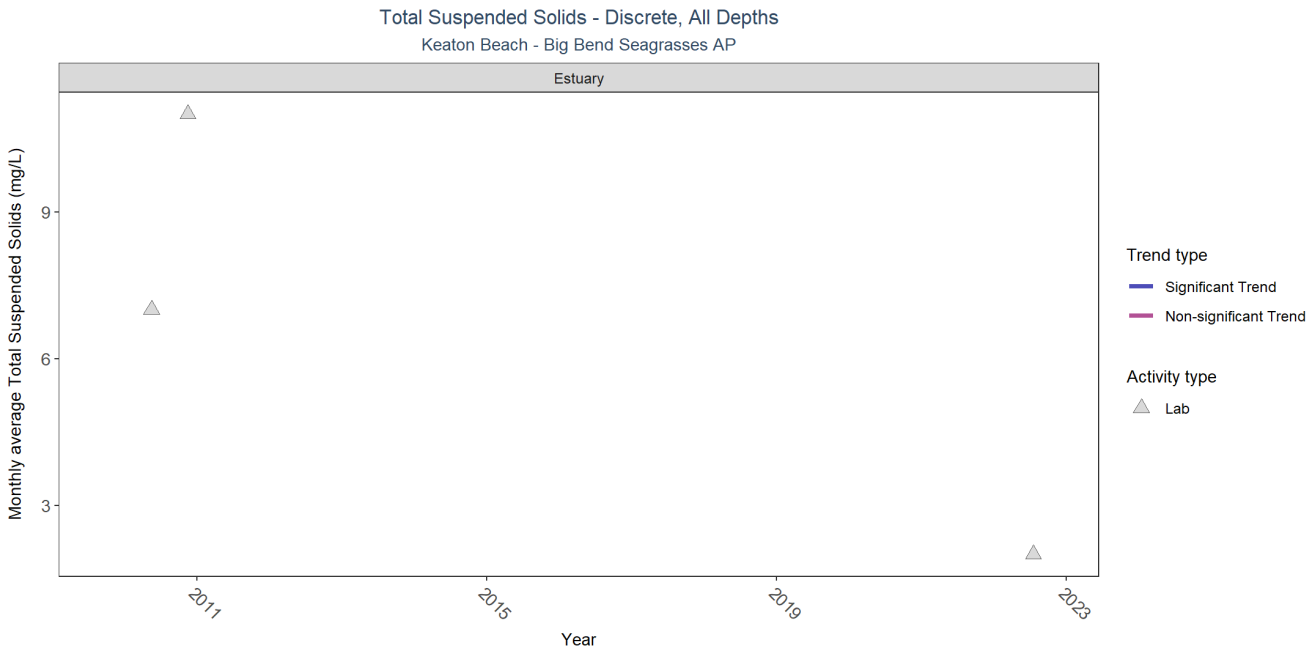


Type	RelativeDepth	N_Data	N_Years	Median	Independent	tau	p	SennSlope	SennIntercept	ChiSquared	pChiSquared	Trend
Estuary	All	143	10	0.012	TRUE	0.292	0.0167	0	0.01	4.1	0.9045	1

p < 0.00005 appear as 0 due to rounding.

SennIntercept is intercept value at beginning of record for monitoring location

Total Suspended Solids

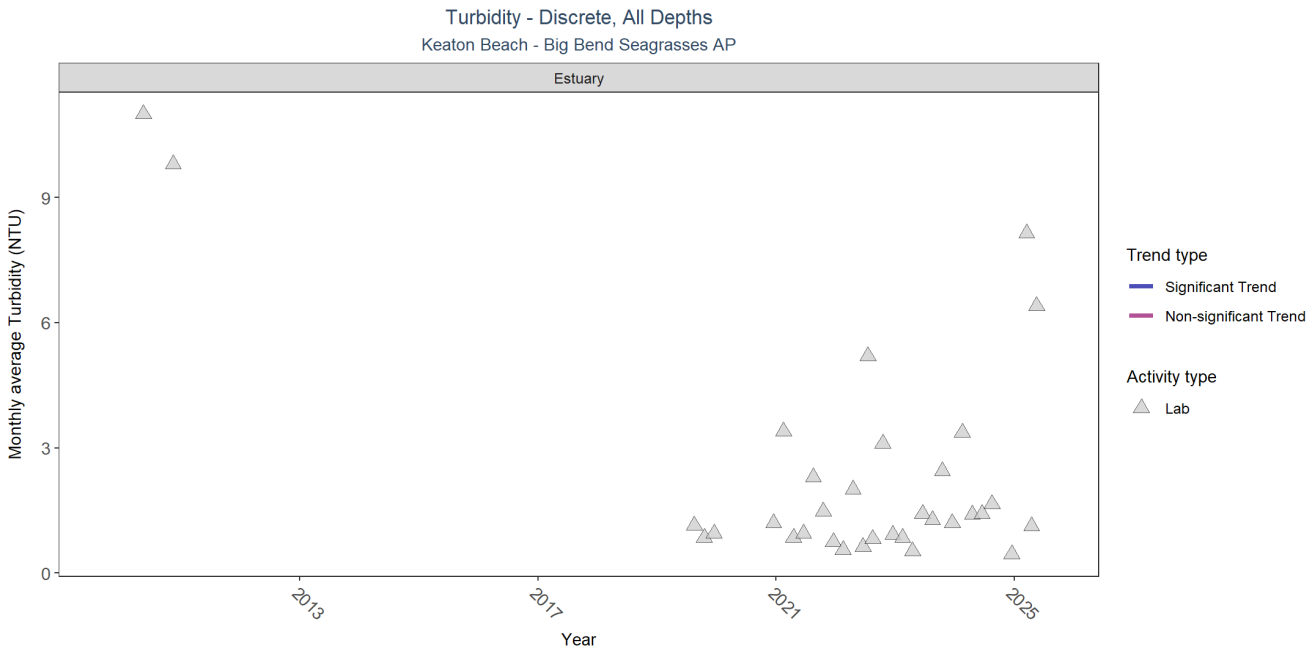


Type	RelativeDepth	N_Data	N_Years	Median	Independent	tau	p	SennSlope	SennIntercept	ChiSquared	pChiSquared	Trend
Estuary	All	3	2	7	NA	NA	NA	NA	NA	NA	NA	NA

p < 0.00005 appear as 0 due to rounding.

SennIntercept is intercept value at beginning of record for monitoring location

Turbidity

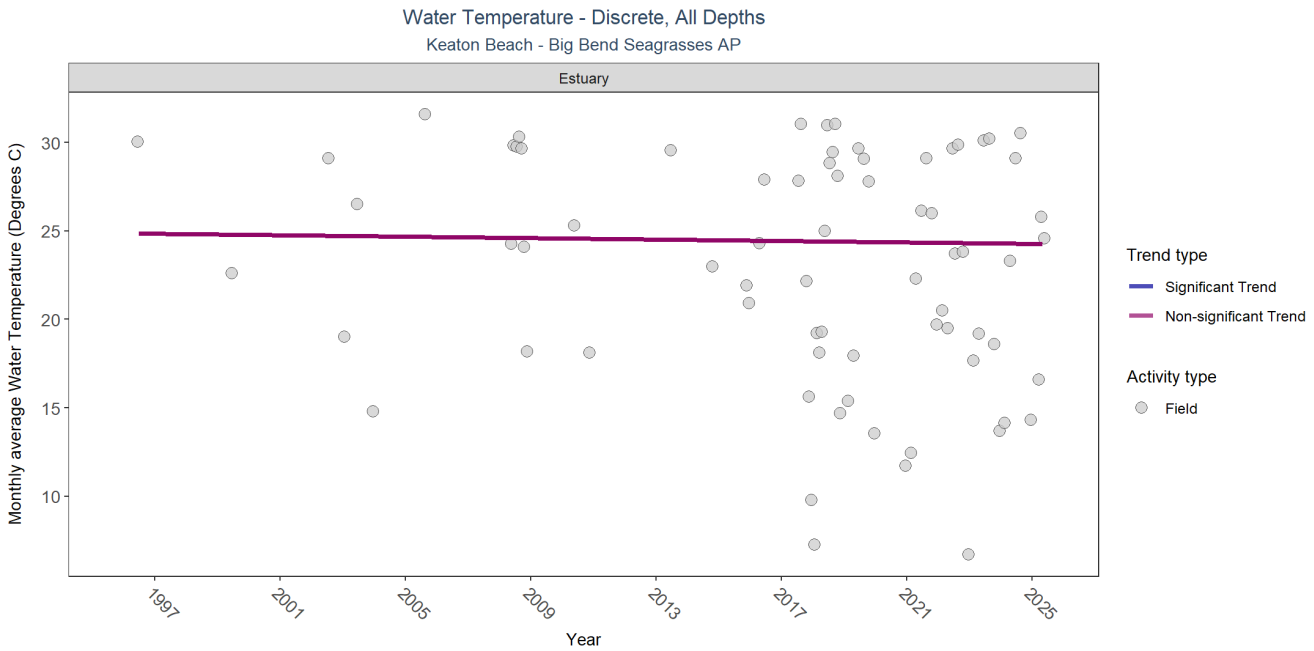


Type	RelativeDepth	N_Data	N_Years	Median	Independent	tau	p	SennSlope	SennIntercept	ChiSquared	pChiSquared	Trend
Estuary	All	69	8	1.1	NA	NA	NA	NA	NA	NA	NA	NA

p < 0.00005 appear as 0 due to rounding.

SennIntercept is intercept value at beginning of record for monitoring location

Water Temperature

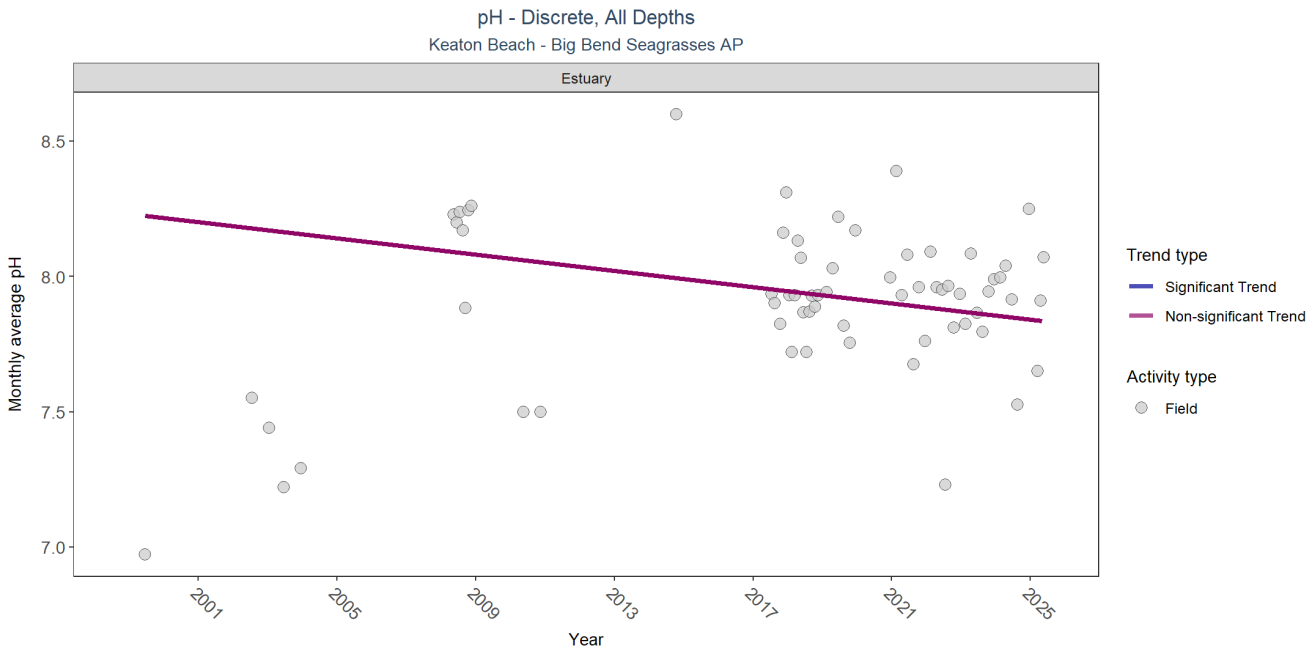


Type	RelativeDepth	N_Data	N_Years	Median	Independent	tau	p	SennSlope	SennIntercept	ChiSquared	pChiSquared	Trend
Estuary	All	409	20	26.8	TRUE	-0.1473	0.4382	-0.02	24.86	7.28	0.7762	0

p < 0.00005 appear as 0 due to rounding.

SennIntercept is intercept value at beginning of record for monitoring location

pH



Type	RelativeDepth	N_Data	N_Years	Median	Independent	tau	p	SennSlope	SennIntercept	ChiSquared	pChiSquared	Trend
Estuary	All	394	15	8.1	TRUE	-0.1204	0.1923	-0.015	8.23	11.22	0.425	0

p < 0.00005 appear as 0 due to rounding.

SennIntercept is intercept value at beginning of record for monitoring location

Submerged Aquatic Vegetation

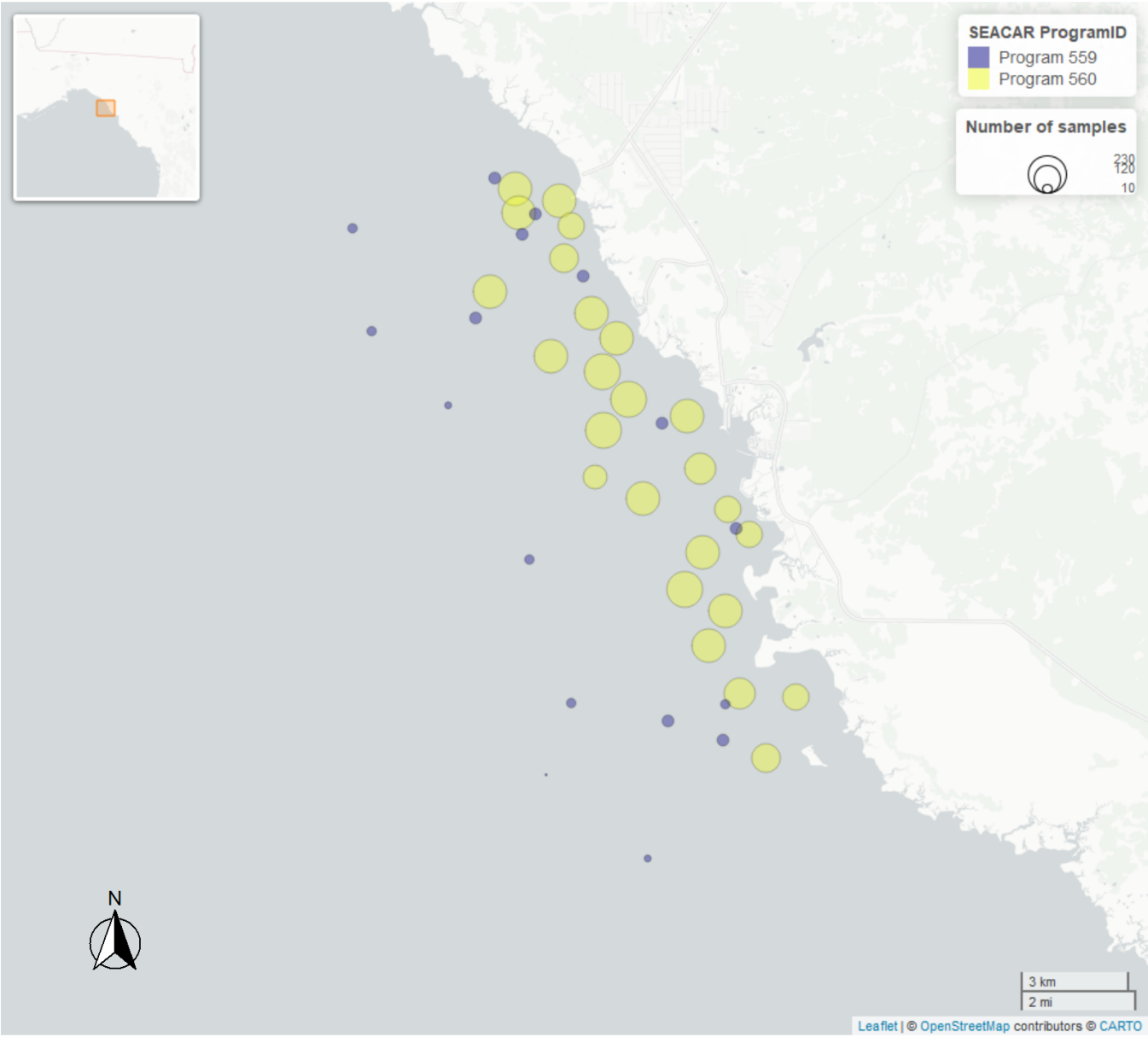


Table 27: Northern Big Bend Seagrass Monitoring - *Program 559*[11]

N_Data	*YearMin*	*YearMax*	*Collection Method*	*Sample Locations*
324	2012	2018	Modified Braun Blanquet	109

Note: [a]Northern Big Bend Seagrass Monitoring - Program 559 contains ProgramLocationID values with Year-based suffixes. Any discrepancy between the number of Sample Locations in the table above and those portrayed on the map are due to this naming convention.

Table 28: Big Bend Seagrasses & Nature Coast Aquatic Preserves - Seagrass Monitoring - *Program 560*[10]

N_Data	*YearMin*	*YearMax*	*Collection Method*	*Sample Locations*
3067	2017	2024	Modified Braun Blanquet	25
1405	2022	2024	Percent Cover	25

Median Percent Cover - Species Trend Table

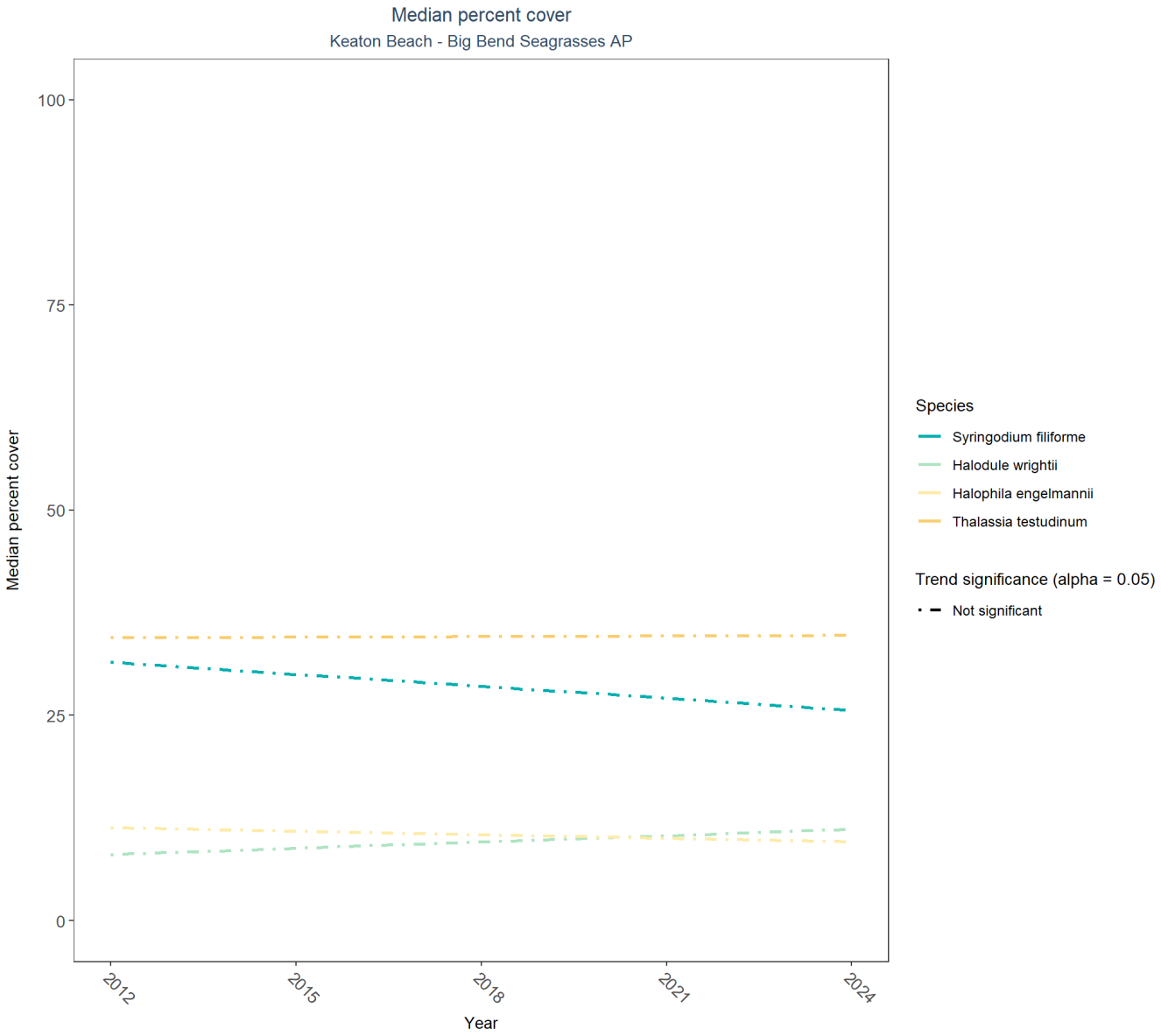
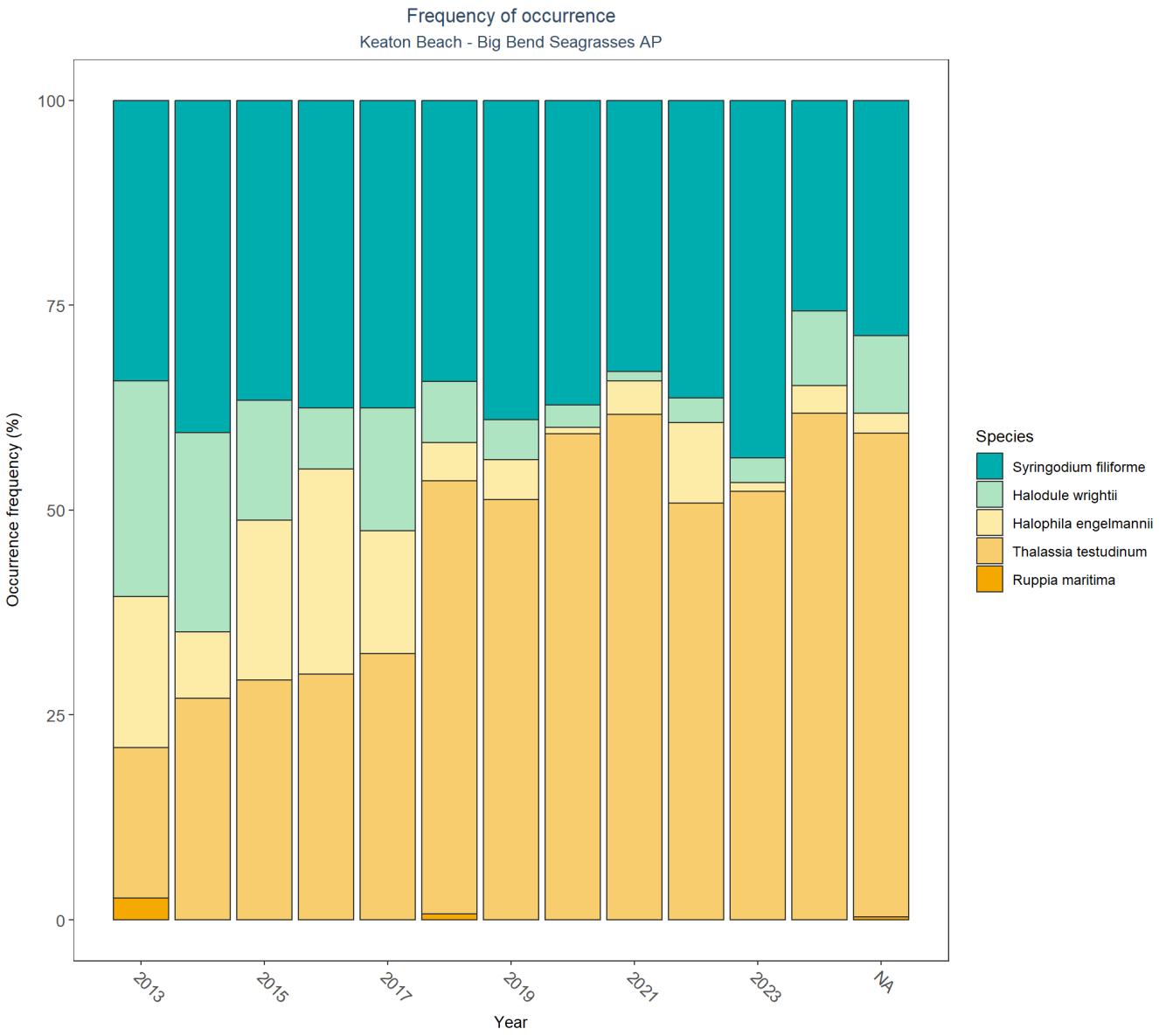


Table 29: Percent Cover Trend Analysis for Keaton Beach

Species	*Trend Significance* (0.05)	*Period of Record*	*LME_Intercept*	*LME_Slope*	*p*
Drift algae	Significantly increasing trend	2012 - 2024	-4.6803	1.6565	0.0056
Halodule wrightii	No significant trend	2012 - 2024	4.9694	0.2568	0.3072
Halophila engelmannii	No significant trend	2012 - 2024	13.1211	-0.1463	0.6842
Ruppia maritima	Insufficient data to calculate trend	-	-	-	-
Syringodium filiforme	No significant trend	2012 - 2024	37.3055	-0.4861	0.3933

Species	*Trend Significance* (0.05)	*Period of Record*	*LME_Intercept*	*LME_Slope*	*p*
Thalassia testudinum	No significant trend	2012 - 2024	34.1714	0.0253	0.9479

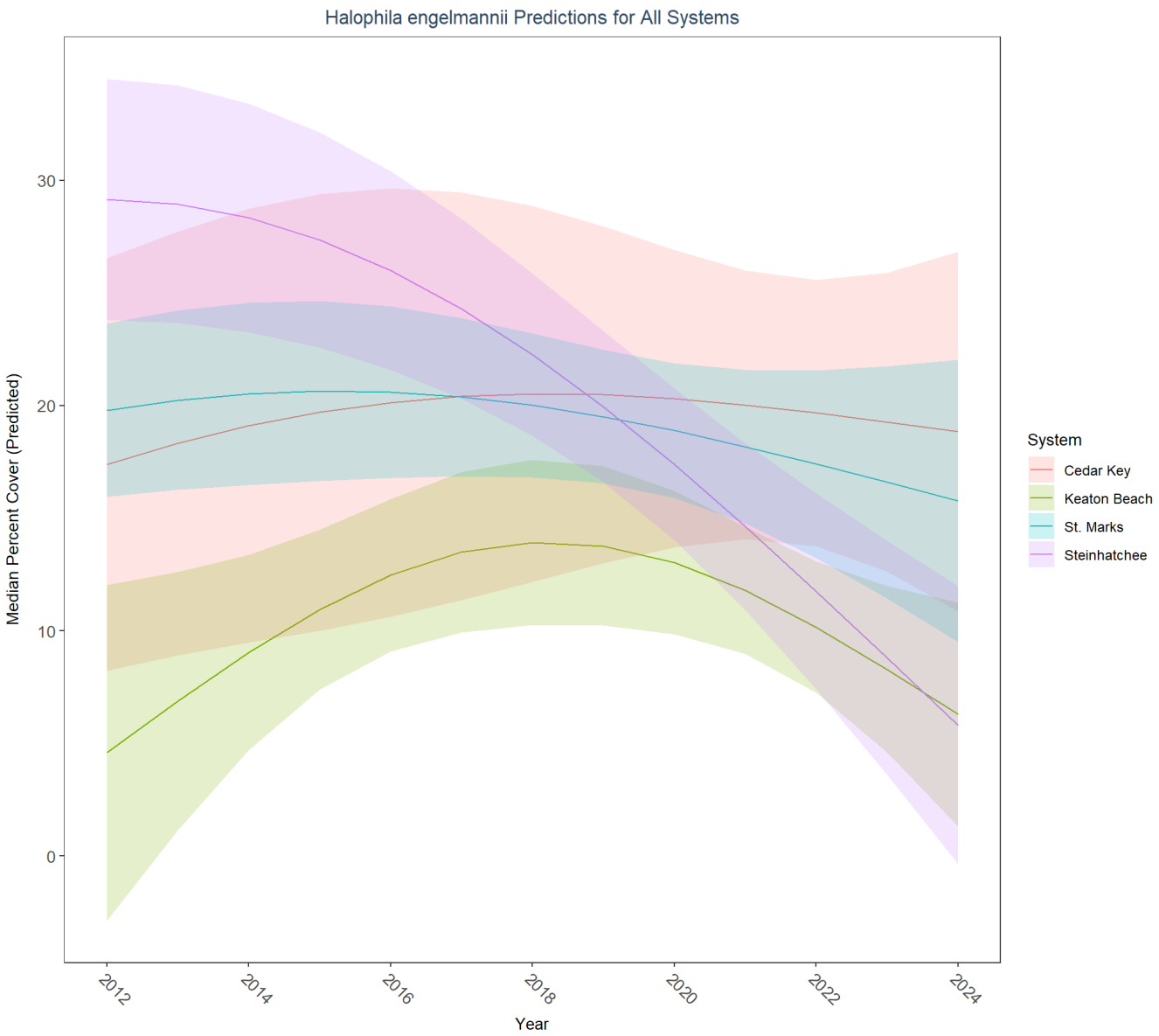
Frequency of Occurrence



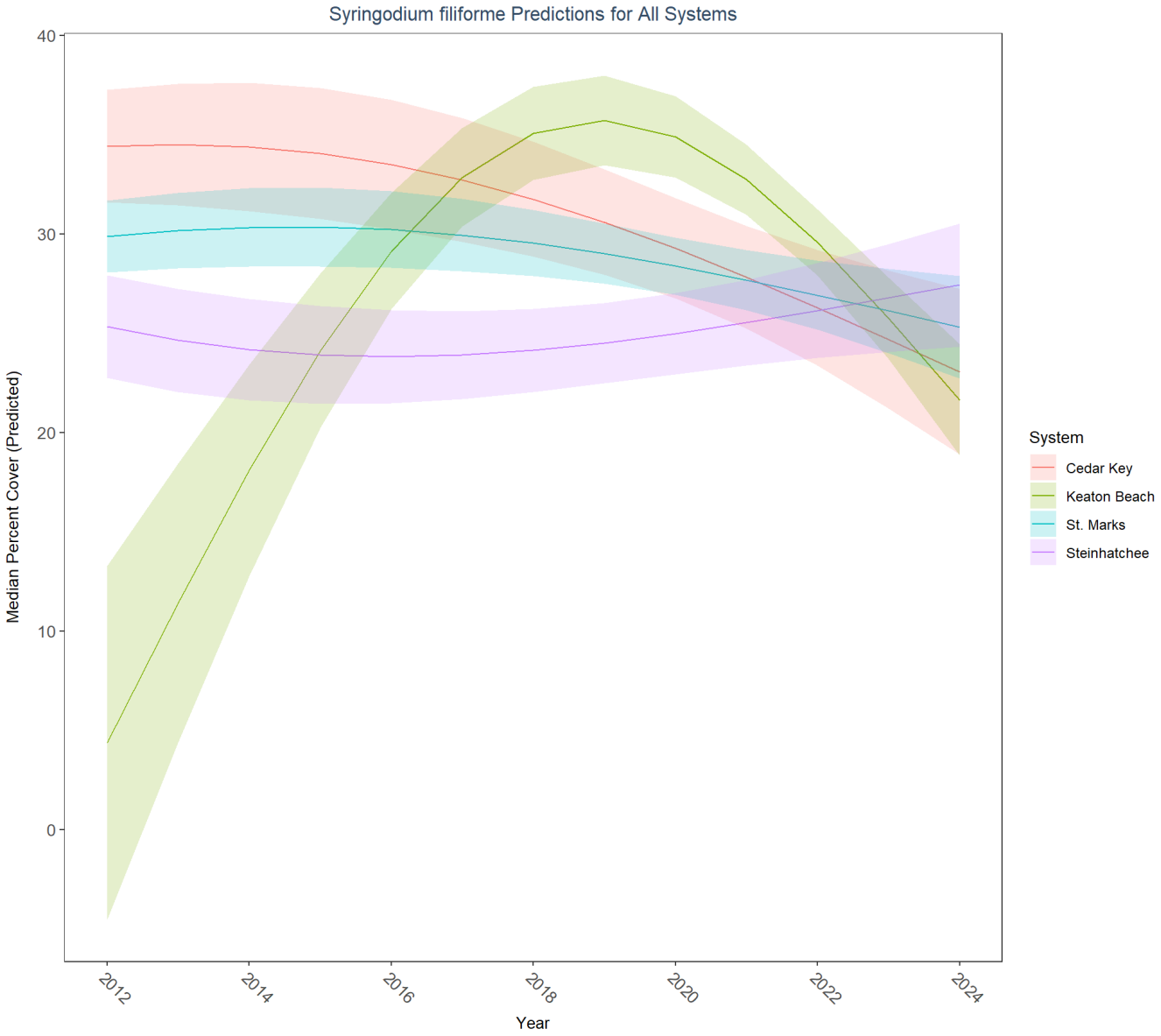
Submerged Aquatic Vegetation - Generalized Additive Models

Models generated for all systems

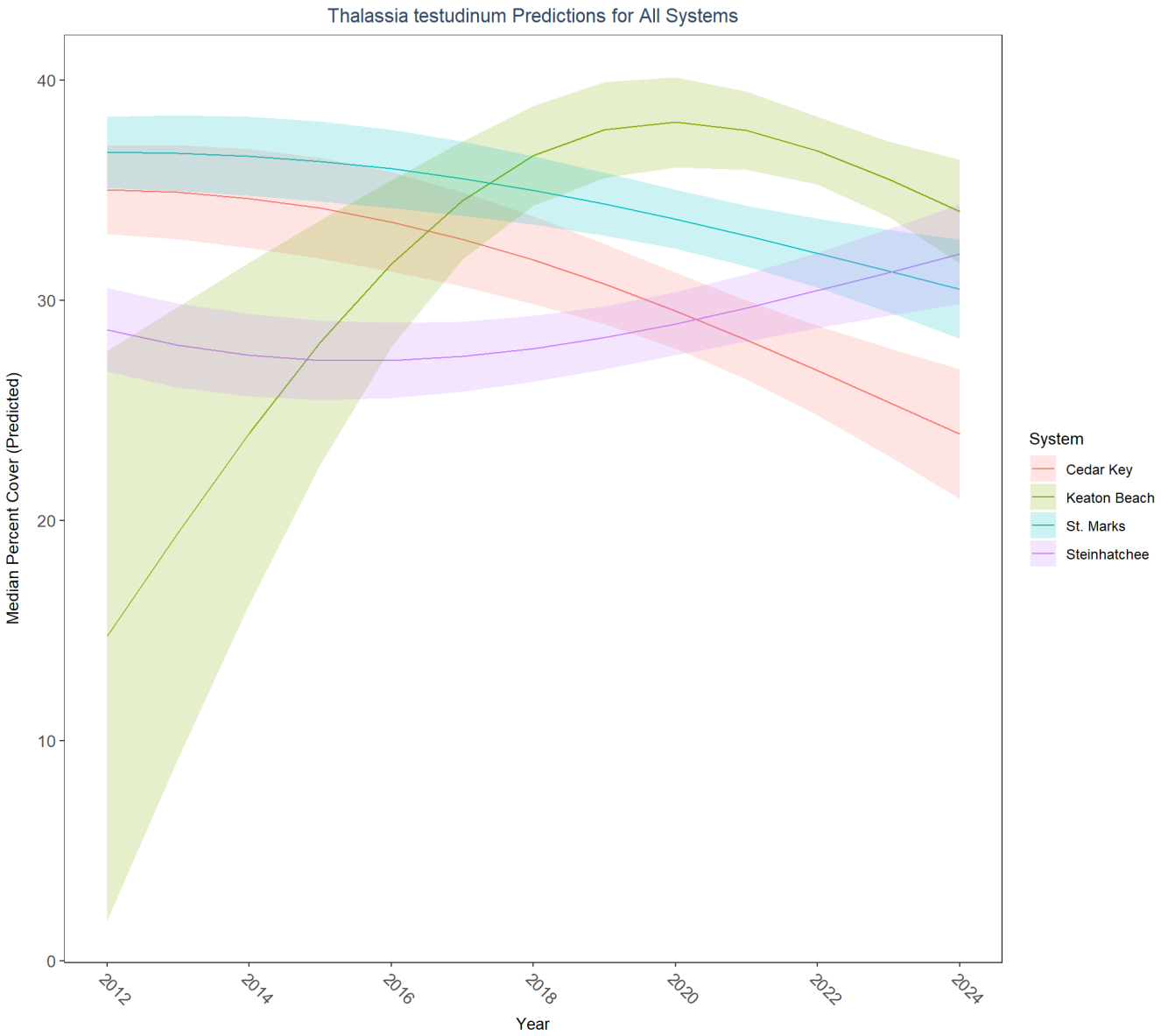
Halophila engelmannii



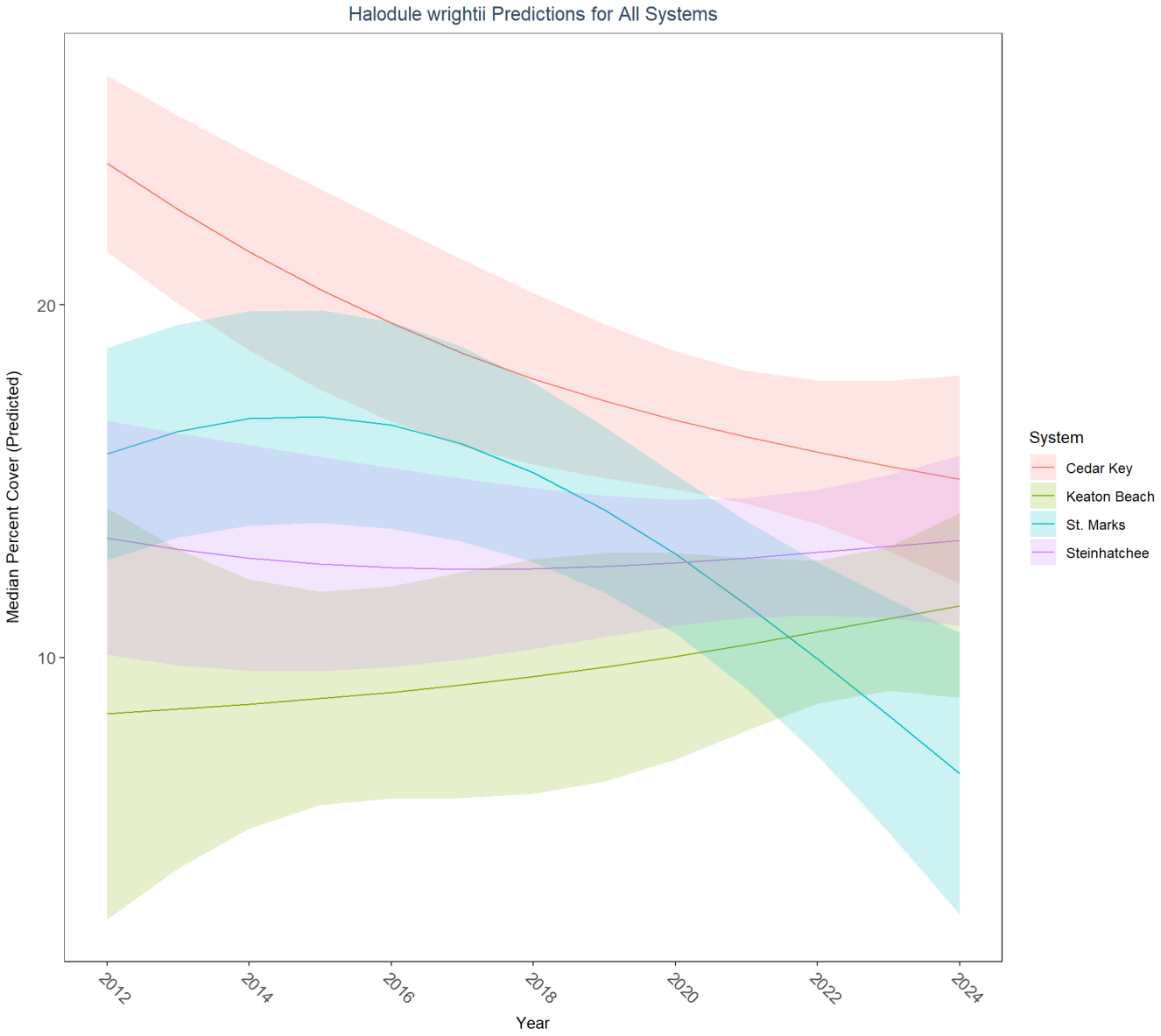
Syringodium filiforme



Thalassia testudinum



Halodule wrightii



SEACAR Files used in the analysis

The following files were used in the analysis:

- *Combined_WQ_WC_NUT_Ammonia_Un-ionized_NH3-2025-Sep-04.txt*
- *Combined_WQ_WC_NUT_Chlorophyll_a_corrected_for_pheophytin-2025-Sep-04.txt*
- *Combined_WQ_WC_NUT_Chlorophyll_a_uncorrected_for_pheophytin-2025-Sep-04.txt*
- *Combined_WQ_WC_NUT_Colored_dissolved_organic_matter_CDOM-2025-Sep-04.txt*
- *Combined_WQ_WC_NUT_Dissolved_Oxygen-2025-Sep-04.txt*
- *Combined_WQ_WC_NUT_Dissolved_Oxygen_Saturation-2025-Sep-04.txt*
- *Combined_WQ_WC_NUT_Light_Extinction_Coefficient-2025-Sep-04.txt*
- *Combined_WQ_WC_NUT_NH4_Filtered-2025-Sep-04.txt*
- *Combined_WQ_WC_NUT_Nitrate_N-2025-Sep-04.txt*
- *Combined_WQ_WC_NUT_Nitrite_N-2025-Sep-04.txt*
- *Combined_WQ_WC_NUT_Nitrogen_organic-2025-Sep-04.txt*
- *Combined_WQ_WC_NUT_NO2_3_Filtered-2025-Sep-04.txt*
- *Combined_WQ_WC_NUT_pH-2025-Sep-04.txt*
- *Combined_WQ_WC_NUT_PO4_Filtered-2025-Sep-04.txt*
- *Combined_WQ_WC_NUT_Salinity-2025-Sep-04.txt*
- *Combined_WQ_WC_NUT_Secchi_Depth-2025-Sep-04.txt*
- *Combined_WQ_WC_NUT_Specific_Conductivity-2025-Sep-04.txt*
- *Combined_WQ_WC_NUT_Total_Kjeldahl_Nitrogen_TKN-2025-Sep-04.txt*
- *Combined_WQ_WC_NUT_Total_Nitrogen-2025-Sep-04.txt*
- *Combined_WQ_WC_NUT_Total_Phosphorus-2025-Sep-04.txt*
- *Combined_WQ_WC_NUT_Total_Suspended_Solids_TSS-2025-Sep-04.txt*
- *Combined_WQ_WC_NUT_Turbidity-2025-Sep-04.txt*
- *Combined_WQ_WC_NUT_Water_Temperature-2025-Sep-04.txt*

Threshold file used in QA process:

- Database_Thresholds_20250409.xlsx

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