

# Big Bend Seagrasses Aquatic Preserve

## Seagrass and Water Quality Trend Analysis

Florida SEACAR

2024-08-26

## Contents

<b>Horseshoe Beach</b>	<b>10</b>
Chlorophyll a, Corrected for Pheophytin . . . . .	12
Chlorophyll a, Uncorrected for Pheophytin . . . . .	13
Colored Dissolved Organic Matter . . . . .	14
Dissolved Oxygen Saturation . . . . .	15
Dissolved Oxygen . . . . .	16
pH . . . . .	17
Salinity . . . . .	18
Secchi Depth . . . . .	19
Total Nitrogen . . . . .	20
Total Phosphorus . . . . .	21
Total Suspended Solids . . . . .	22
Turbidity . . . . .	23
Water Temperature . . . . .	24
<b>Steinhatchee</b>	<b>25</b>
Chlorophyll a, Corrected for Pheophytin . . . . .	28
Chlorophyll a, Uncorrected for Pheophytin . . . . .	29
Colored Dissolved Organic Matter . . . . .	30
Dissolved Oxygen Saturation . . . . .	31
Dissolved Oxygen . . . . .	32
pH . . . . .	33
Salinity . . . . .	34
Secchi Depth . . . . .	35
Total Nitrogen . . . . .	36
Total Phosphorus . . . . .	37
Total Suspended Solids . . . . .	38
Turbidity . . . . .	39

Water Temperature . . . . .	40
Submerged Aquatic Vegetation . . . . .	41
Median Percent Cover - Species Trends . . . . .	42
Median Percent Cover - Species Trend Table . . . . .	43
Frequency of Occurrence Barplots . . . . .	44
<b>St. Marks</b>	<b>45</b>
Chlorophyll a, Corrected for Pheophytin . . . . .	47
Chlorophyll a, Uncorrected for Pheophytin . . . . .	48
Colored Dissolved Organic Matter . . . . .	49
Dissolved Oxygen Saturation . . . . .	50
Dissolved Oxygen . . . . .	51
pH . . . . .	52
Salinity . . . . .	53
Secchi Depth . . . . .	54
Total Nitrogen . . . . .	55
Total Phosphorus . . . . .	56
Total Suspended Solids . . . . .	57
Turbidity . . . . .	58
Water Temperature . . . . .	59
Submerged Aquatic Vegetation . . . . .	60
Median Percent Cover - Species Trends . . . . .	61
Median Percent Cover - Species Trend Table . . . . .	62
Frequency of Occurrence Barplots . . . . .	63
<b>Econfina</b>	<b>64</b>
Chlorophyll a, Corrected for Pheophytin . . . . .	66
Chlorophyll a, Uncorrected for Pheophytin . . . . .	67
Colored Dissolved Organic Matter . . . . .	68
Dissolved Oxygen Saturation . . . . .	69
Dissolved Oxygen . . . . .	70
pH . . . . .	71
Salinity . . . . .	72
Secchi Depth . . . . .	73
Total Nitrogen . . . . .	74
Total Phosphorus . . . . .	75
Total Suspended Solids . . . . .	76
Turbidity . . . . .	77
Water Temperature . . . . .	78

<b>Aucilla</b>	<b>79</b>
Chlorophyll a, Corrected for Pheophytin . . . . .	81
Chlorophyll a, Uncorrected for Pheophytin . . . . .	82
Colored Dissolved Organic Matter . . . . .	83
Dissolved Oxygen Saturation . . . . .	84
Dissolved Oxygen . . . . .	85
pH . . . . .	86
Salinity . . . . .	87
Secchi Depth . . . . .	88
Total Nitrogen . . . . .	89
Total Phosphorus . . . . .	90
Total Suspended Solids . . . . .	91
Turbidity . . . . .	92
Water Temperature . . . . .	93
<b>Keaton Beach</b>	<b>94</b>
Chlorophyll a, Corrected for Pheophytin . . . . .	96
Chlorophyll a, Uncorrected for Pheophytin . . . . .	97
Colored Dissolved Organic Matter . . . . .	98
Dissolved Oxygen Saturation . . . . .	99
Dissolved Oxygen . . . . .	100
pH . . . . .	101
Salinity . . . . .	102
Secchi Depth . . . . .	103
Total Nitrogen . . . . .	104
Total Phosphorus . . . . .	105
Total Suspended Solids . . . . .	106
Turbidity . . . . .	107
Water Temperature . . . . .	108
Submerged Aquatic Vegetation . . . . .	109
Median Percent Cover - Species Trends . . . . .	110
Median Percent Cover - Species Trend Table . . . . .	111
Frequency of Occurrence Barplots . . . . .	112
<b>Cedar Key</b>	<b>113</b>
Chlorophyll a, Corrected for Pheophytin . . . . .	115
Chlorophyll a, Uncorrected for Pheophytin . . . . .	116
Colored Dissolved Organic Matter . . . . .	117
Dissolved Oxygen Saturation . . . . .	118

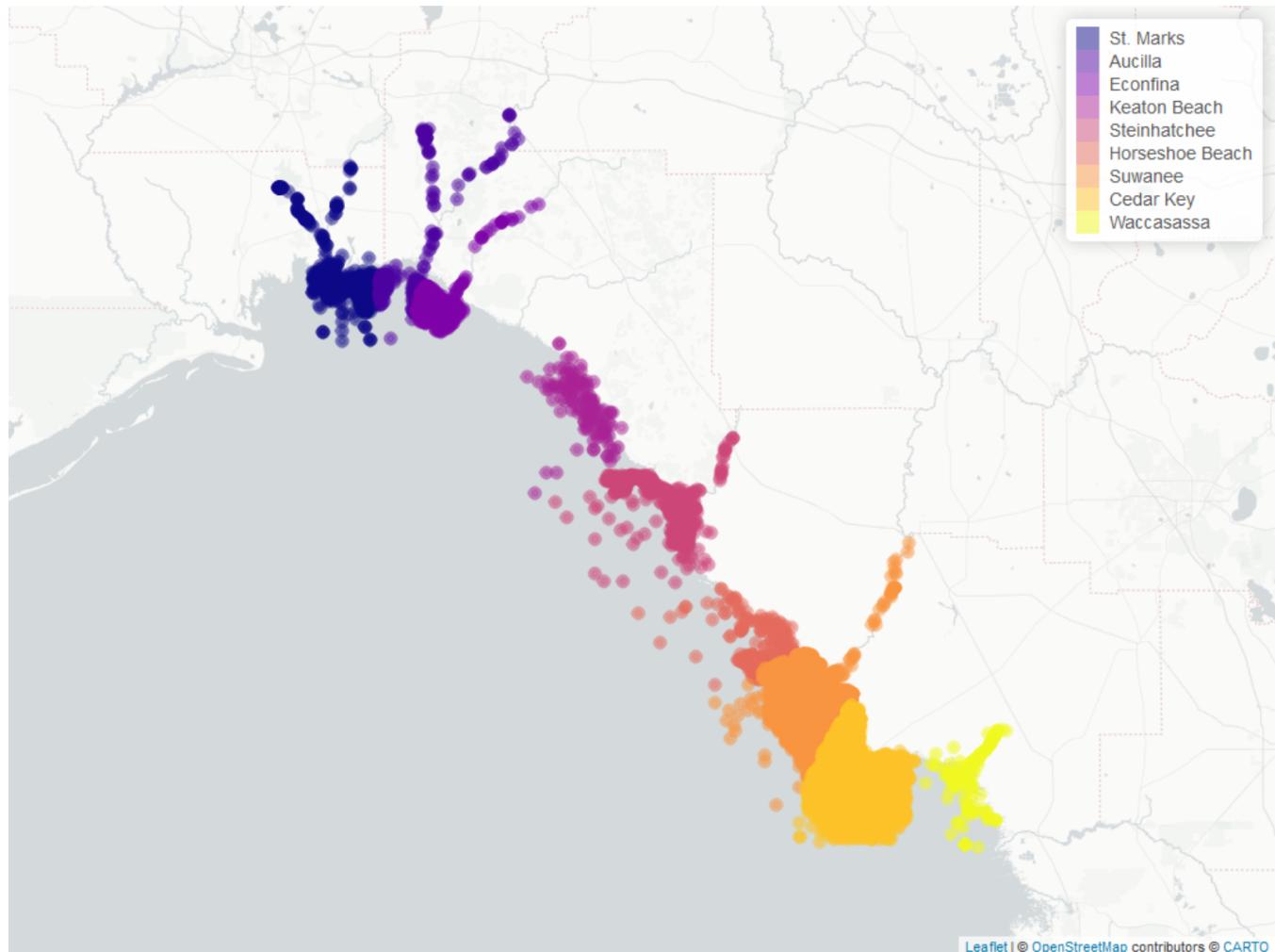
Dissolved Oxygen . . . . .	119
pH . . . . .	120
Salinity . . . . .	121
Secchi Depth . . . . .	122
Total Nitrogen . . . . .	123
Total Phosphorus . . . . .	124
Total Suspended Solids . . . . .	125
Turbidity . . . . .	126
Water Temperature . . . . .	127
Submerged Aquatic Vegetation . . . . .	128
Median Percent Cover - Species Trends . . . . .	129
Median Percent Cover - Species Trend Table . . . . .	130
Frequency of Occurrence Barplots . . . . .	131
<b>Suwanee</b>	<b>132</b>
Chlorophyll a, Corrected for Pheophytin . . . . .	135
Chlorophyll a, Uncorrected for Pheophytin . . . . .	136
Colored Dissolved Organic Matter . . . . .	137
Dissolved Oxygen Saturation . . . . .	138
Dissolved Oxygen . . . . .	139
pH . . . . .	140
Salinity . . . . .	141
Secchi Depth . . . . .	142
Total Nitrogen . . . . .	143
Total Phosphorus . . . . .	144
Total Suspended Solids . . . . .	145
Turbidity . . . . .	146
Water Temperature . . . . .	147
<b>Waccasassa</b>	<b>148</b>
Chlorophyll a, Corrected for Pheophytin . . . . .	151
Chlorophyll a, Uncorrected for Pheophytin . . . . .	152
Colored Dissolved Organic Matter . . . . .	153
Dissolved Oxygen Saturation . . . . .	154
Dissolved Oxygen . . . . .	155
pH . . . . .	156
Salinity . . . . .	157
Secchi Depth . . . . .	158
Total Nitrogen . . . . .	159

Total Phosphorus . . . . .	160
Total Suspended Solids . . . . .	161
Turbidity . . . . .	162
Water Temperature . . . . .	163
<b>Submerged Aquatic Vegetation - Generalized Additive Models</b>	<b>164</b>
<i>Halophila engelmannii</i> . . . . .	164
<i>Halodule wrightii</i> . . . . .	165
<i>Thalassia testudinum</i> . . . . .	166
<i>Syringodium filiforme</i> . . . . .	167

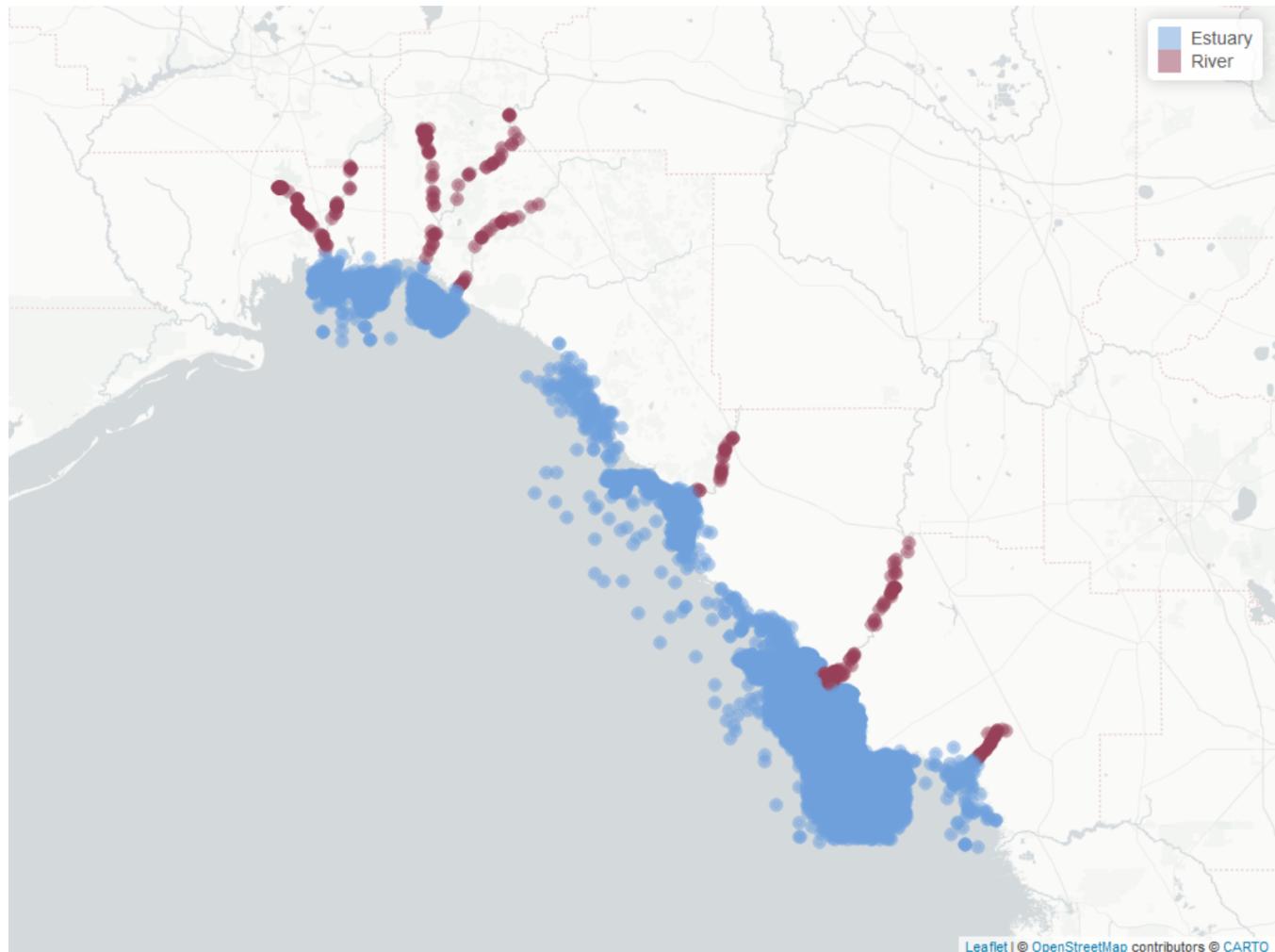
The following files were used in the analysis:

- *Combined\_WQ\_WC\_NUT\_Ammonia\_Un-ionized\_NH3-2024-Jul-11.txt*
- *Combined\_WQ\_WC\_NUT\_Chlorophyll\_a\_corrected\_for\_pheophytin-2024-Jul-11.txt*
- *Combined\_WQ\_WC\_NUT\_Chlorophyll\_a\_uncorrected\_for\_pheophytin-2024-Jul-11.txt*
- *Combined\_WQ\_WC\_NUT\_Colored\_dissolved\_organic\_matter\_CDOM-2024-Jul-11.txt*
- *Combined\_WQ\_WC\_NUT\_Dissolved\_Oxygen-2024-Jul-11.txt*
- *Combined\_WQ\_WC\_NUT\_Dissolved\_Oxygen\_Saturation-2024-Jul-11.txt*
- *Combined\_WQ\_WC\_NUT\_Light\_Exinction\_Coefficient-2024-Jul-11.txt*
- *Combined\_WQ\_WC\_NUT\_NH4\_Filtered-2024-Jul-11.txt*
- *Combined\_WQ\_WC\_NUT\_Nitrate\_N-2024-Jul-11.txt*
- *Combined\_WQ\_WC\_NUT\_Nitrite\_N-2024-Jul-11.txt*
- *Combined\_WQ\_WC\_NUT\_Nitrogen\_organic-2024-Jul-11.txt*
- *Combined\_WQ\_WC\_NUT\_NO2\_3\_Filtered-2024-Jul-11.txt*
- *Combined\_WQ\_WC\_NUT\_pH-2024-Jul-11.txt*
- *Combined\_WQ\_WC\_NUT\_PO4\_Filtered-2024-Jul-11.txt*
- *Combined\_WQ\_WC\_NUT\_Salinity-2024-Jul-11.txt*
- *Combined\_WQ\_WC\_NUT\_Secchi\_Depth-2024-Jul-11.txt*
- *Combined\_WQ\_WC\_NUT\_Specific\_Conductivity-2024-Jul-11.txt*
- *Combined\_WQ\_WC\_NUT\_Total\_Kjeldahl\_Nitrogen\_TKN-2024-Jul-11.txt*
- *Combined\_WQ\_WC\_NUT\_Total\_Nitrogen-2024-Jul-11.txt*
- *Combined\_WQ\_WC\_NUT\_Total\_Phosphorus-2024-Jul-11.txt*
- *Combined\_WQ\_WC\_NUT\_Total\_Suspended\_Solids\_TSS-2024-Jul-11.txt*
- *Combined\_WQ\_WC\_NUT\_Turbidity-2024-Jul-11.txt*
- *Combined\_WQ\_WC\_NUT\_Water\_Temperature-2024-Jul-11.txt*

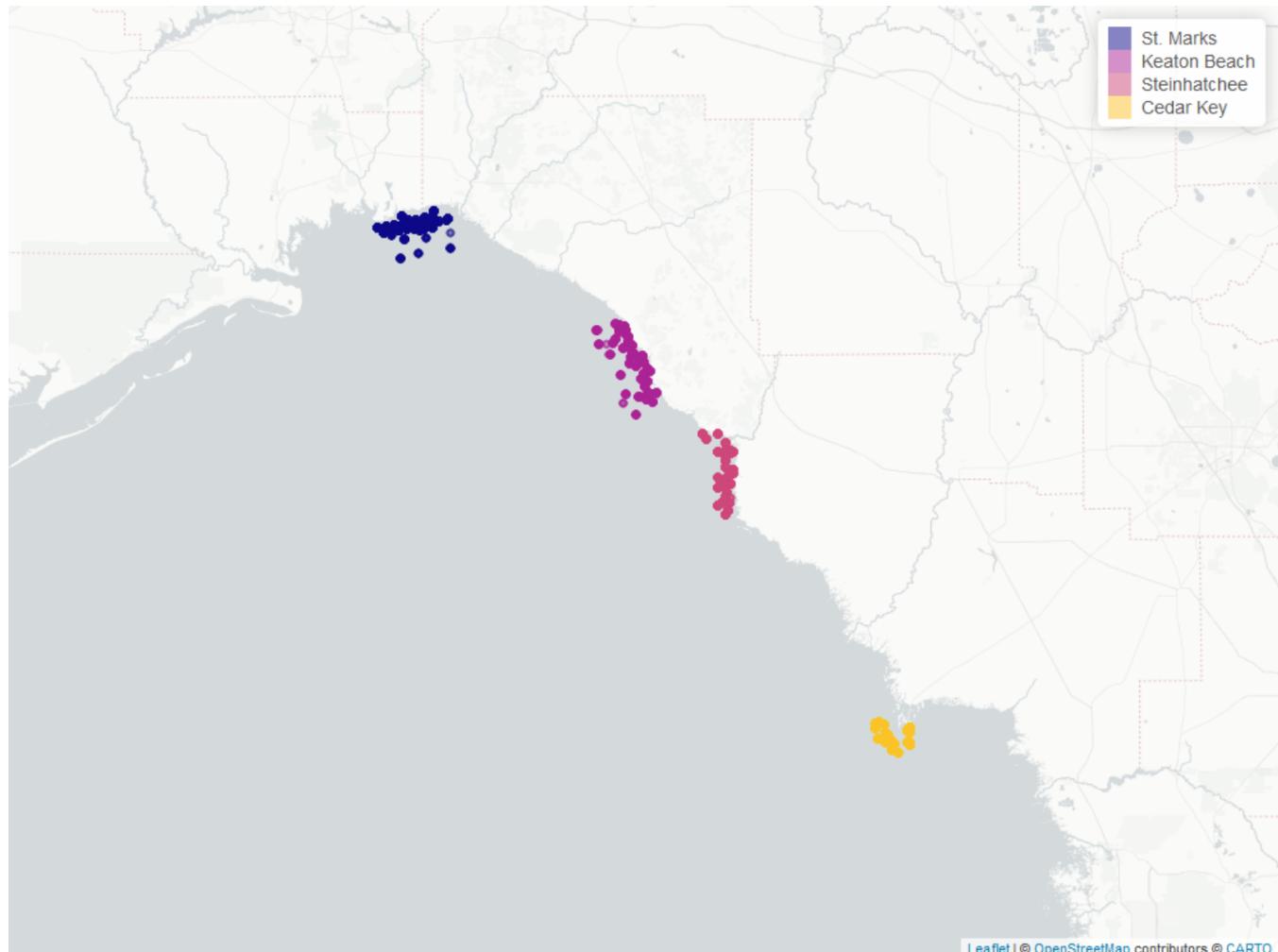
## Water Quality Discrete - Sample Locations - All Parameters



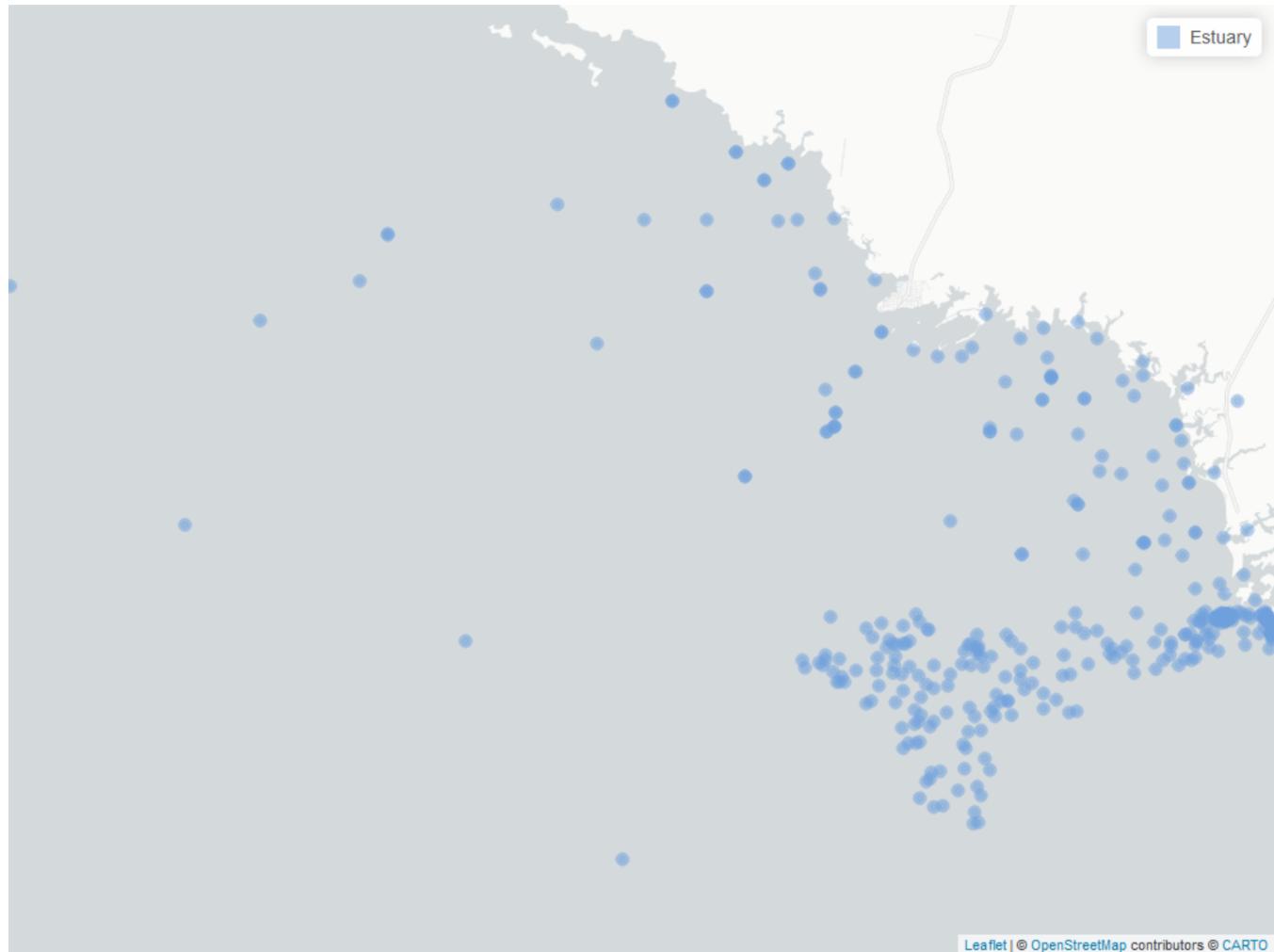
Water Quality Discrete - Sample Locations - Estuary and River Delineations



## Submerged Aquatic Vegetation - Sample Locations



## 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 value.

Table 1: 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 - 2024	10	207	TRUE	-0.01	6.18	1.0000	0
Estuary	Chlorophyll a, Uncorrected for Pheophytin	2002 - 2024	9	240	FALSE	-	-	-	-
Estuary	Colored Dissolved Organic Matter	2020 - 2021	2	9	FALSE	-	-	-	-
Estuary	Dissolved Oxygen	1993 - 2024	31	25905	TRUE	-0.01	7.18	0.3724	0
Estuary	Dissolved Oxygen Saturation	2017 - 2017	1	3	FALSE	-	-	-	-
Estuary	Salinity	1993 - 2024	31	27459	TRUE	0.03	23.04	0.3261	0
Estuary	Secchi Depth	1993 - 2021	25	928	TRUE	-0.01	1.17	0.0208	↓
Estuary	Total Nitrogen	2002 - 2024	11	209	TRUE	-0.02	1.09	0.0364	↓
Estuary	Total Phosphorus	2002 - 2024	11	228	TRUE	0.00	0.05	0.7078	0
Estuary	Total Suspended Solids	2017 - 2017	1	2	FALSE	-	-	-	-
Estuary	Turbidity	1995 - 2024	27	10402	TRUE	0.00	3.61	0.8383	0
Estuary	Water Temperature	1993 - 2024	31	27449	TRUE	0.05	22.24	0.0013	↑
Estuary	pH	1993 - 2024	31	14191	TRUE	0.00	8.00	0.1813	0

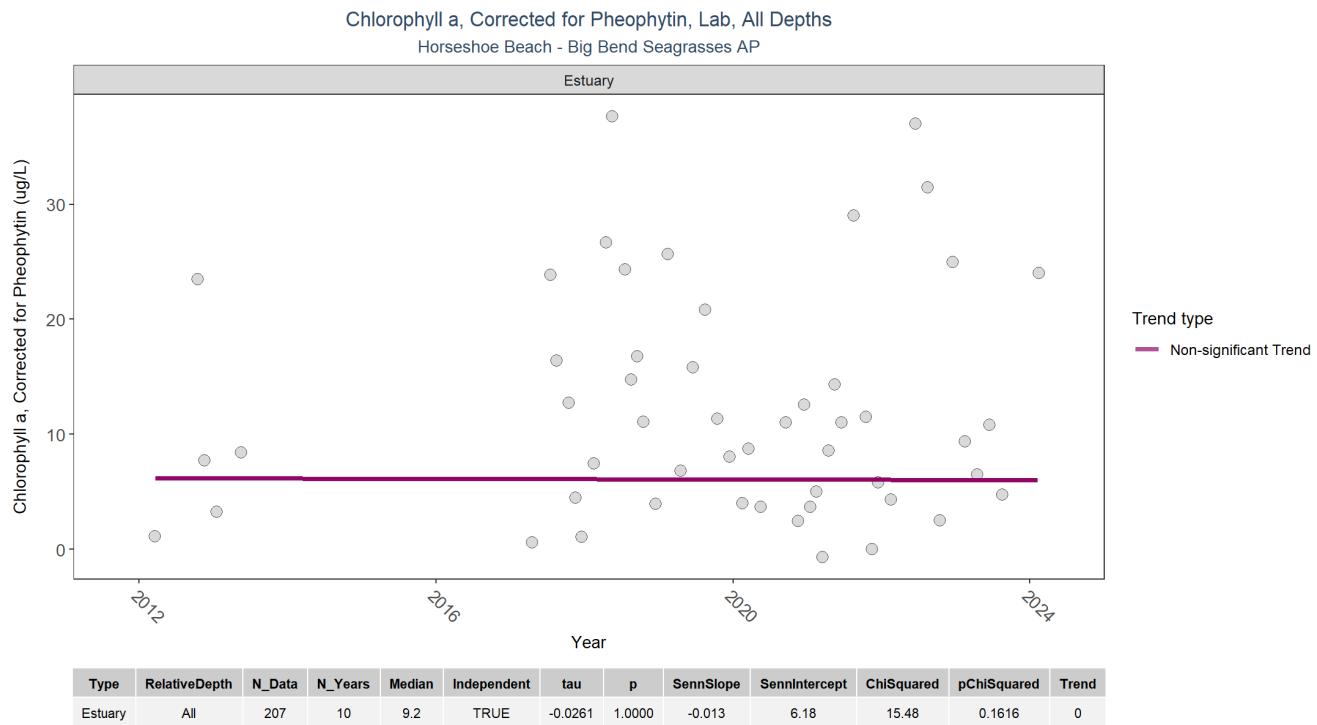
Table containing overview of Programs contributing data for Horseshoe Beach

Table 2: Overview of Program Data for Horseshoe Beach

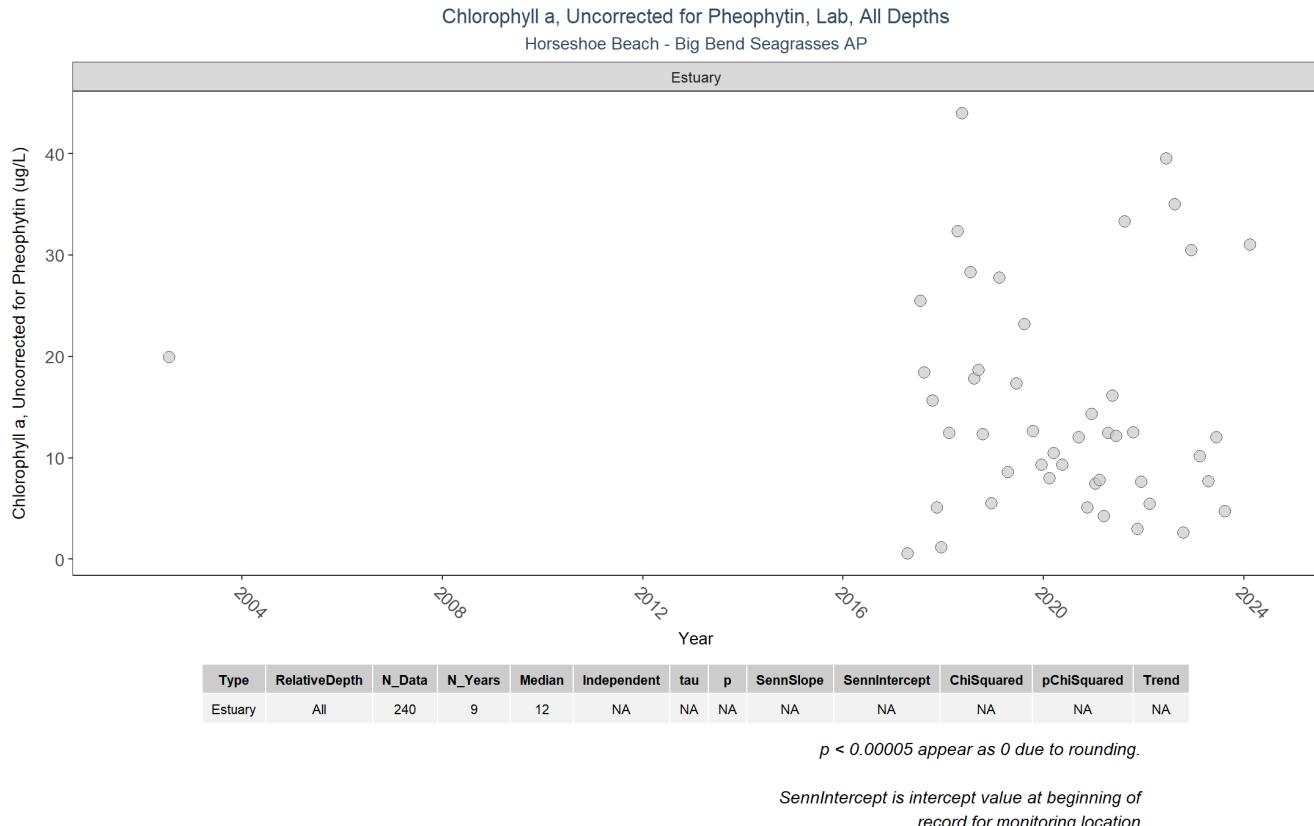
ParameterName	ProgramID	n-data-Estuary	n-data-River
Ammonium, Filtered (NH4)	103	1	-
Ammonium, Filtered (NH4)	115	1	-
Ammonium, Filtered (NH4)	5002	2	-
Chlorophyll a, Corrected for Pheophytin	514	27	-
Chlorophyll a, Corrected for Pheophytin	5002	188	-
Chlorophyll a, Uncorrected for Pheophytin	60	3	-
Chlorophyll a, Uncorrected for Pheophytin	103	54	-
Chlorophyll a, Uncorrected for Pheophytin	115	1	-
Chlorophyll a, Uncorrected for Pheophytin	514	27	-
Chlorophyll a, Uncorrected for Pheophytin	5002	165	-
Colored Dissolved Organic Matter	103	6	-
Colored Dissolved Organic Matter	514	9	-
Dissolved Oxygen	60	6	-
Dissolved Oxygen	69	884	-
Dissolved Oxygen	95	258	-
Dissolved Oxygen	103	12	-
Dissolved Oxygen	115	3	-
Dissolved Oxygen	5002	24745	-
Dissolved Oxygen Saturation	60	3	-
Dissolved Oxygen Saturation	5002	3	-
NO2+3, Filtered	115	1	-
NO2+3, Filtered	5002	179	-
Phosphate, Filtered (PO4)	103	1	-
Phosphate, Filtered (PO4)	115	1	-
Phosphate, Filtered (PO4)	5002	1	-
Salinity	60	6	-
Salinity	69	890	-
Salinity	95	277	-
Salinity	115	3	-
Salinity	5002	26283	-
Secchi Depth	69	890	-
Secchi Depth	115	2	-
Secchi Depth	514	33	-
Secchi Depth	5002	3	-
Specific Conductivity	69	883	-
Specific Conductivity	95	1	-
Specific Conductivity	514	9	-
Specific Conductivity	5002	3	-
Total Kjeldahl Nitrogen	5002	187	-
Total Nitrogen	103	2	-
Total Nitrogen	115	1	-
Total Nitrogen	514	27	-
Total Nitrogen	5002	187	-
Total Phosphorus	103	28	-
Total Phosphorus	115	1	-
Total Phosphorus	514	21	-
Total Phosphorus	5002	183	-
Total Suspended Solids	5002	2	-
Turbidity	103	12	-
Turbidity	5002	10403	-

Water Temperature	60	6	-
Water Temperature	69	889	-
Water Temperature	95	260	-
Water Temperature	103	12	-
Water Temperature	115	3	-
Water Temperature	5002	26282	-
pH	69	882	-
pH	95	187	-
pH	103	12	-
pH	115	3	-
pH	5002	13107	-

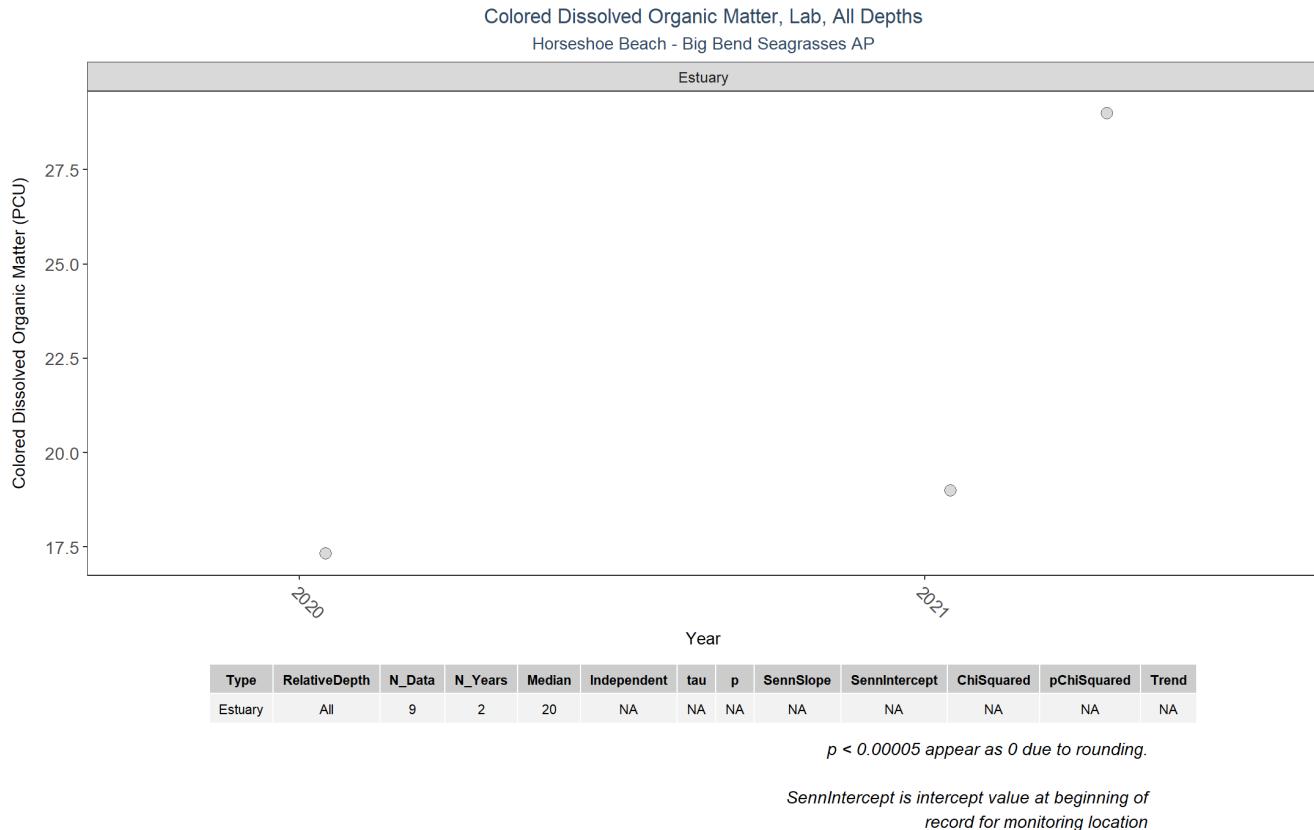
## Chlorophyll a, Corrected for Pheophytin



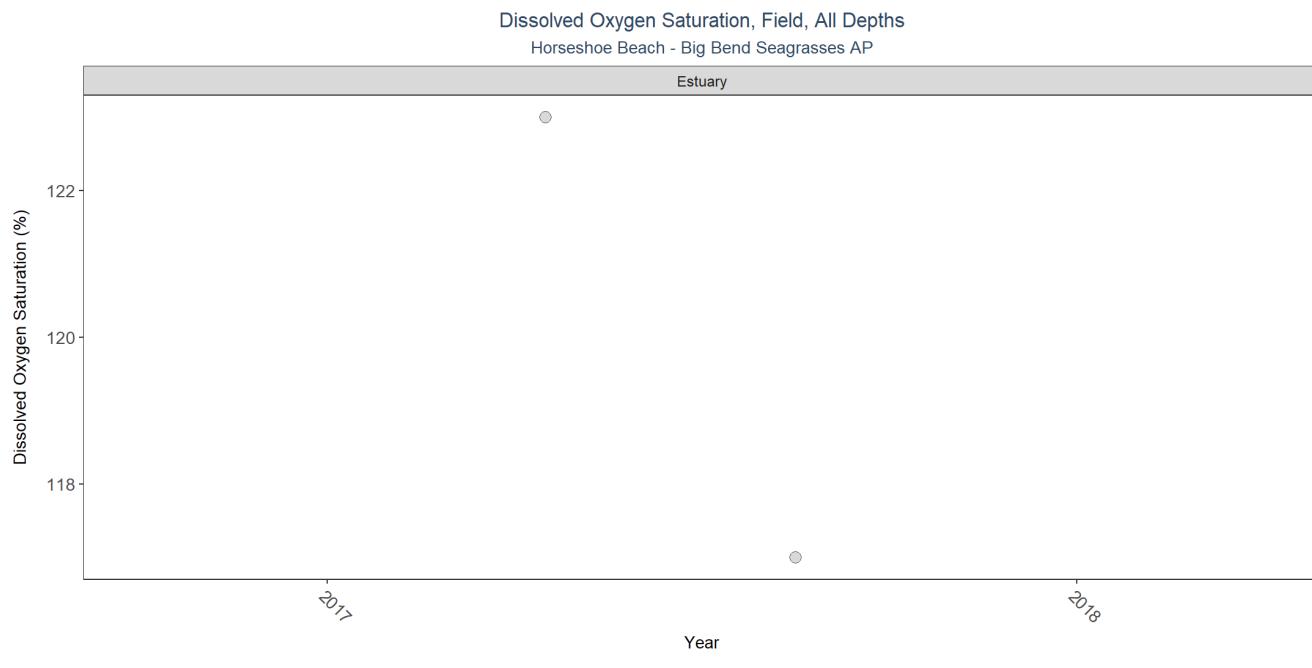
## Chlorophyll a, Uncorrected for Pheophytin



## Colored Dissolved Organic Matter



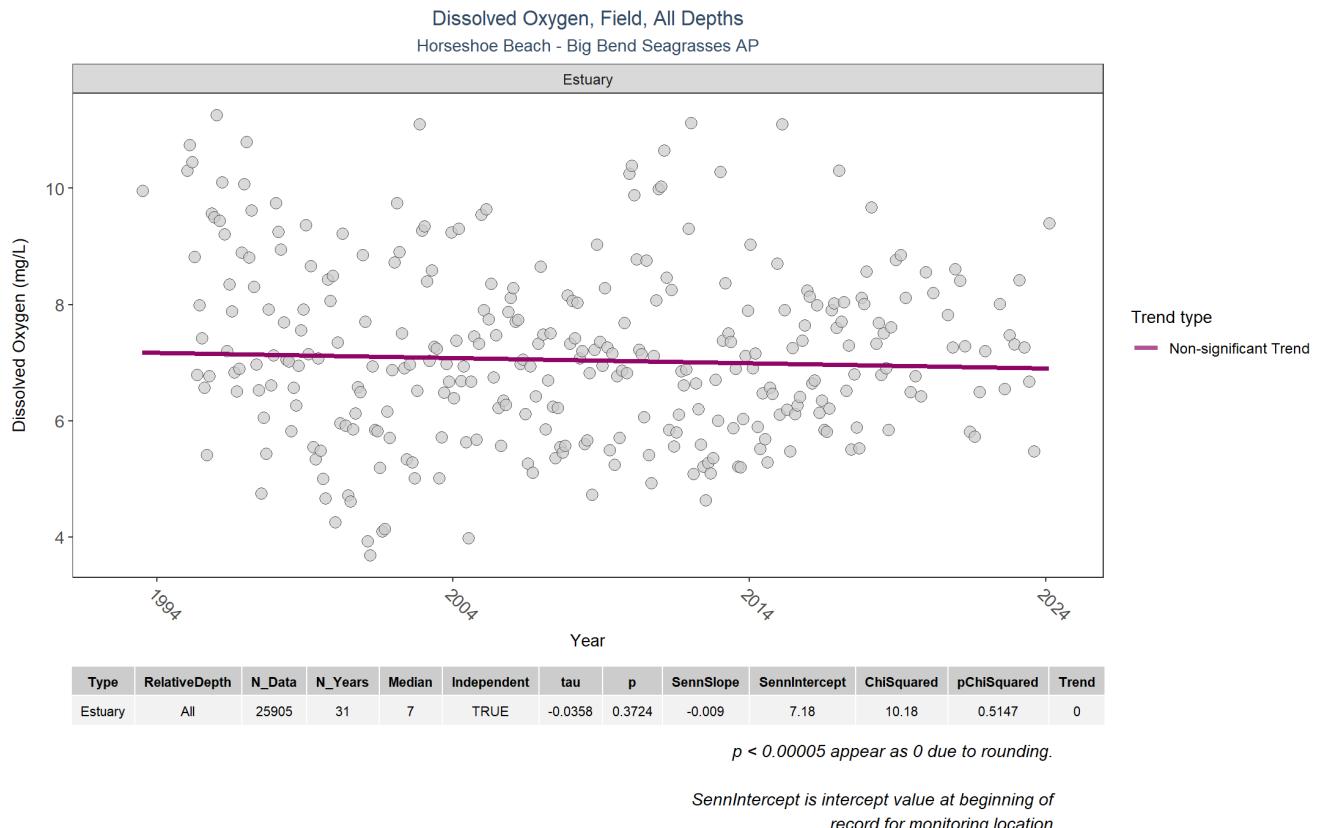
## Dissolved Oxygen Saturation



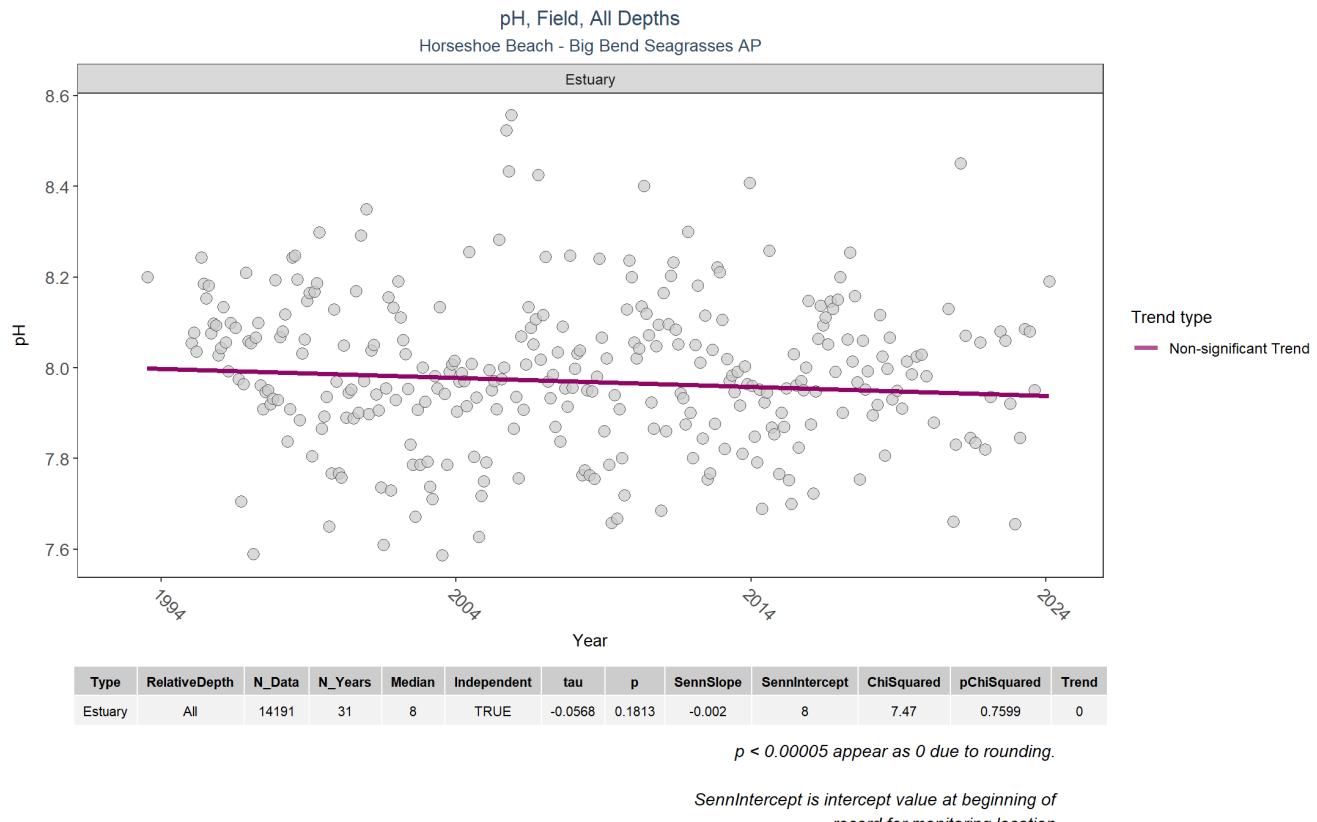
$p < 0.00005$  appear as 0 due to rounding.

*SennIntercept* is intercept value at beginning of record for monitoring location

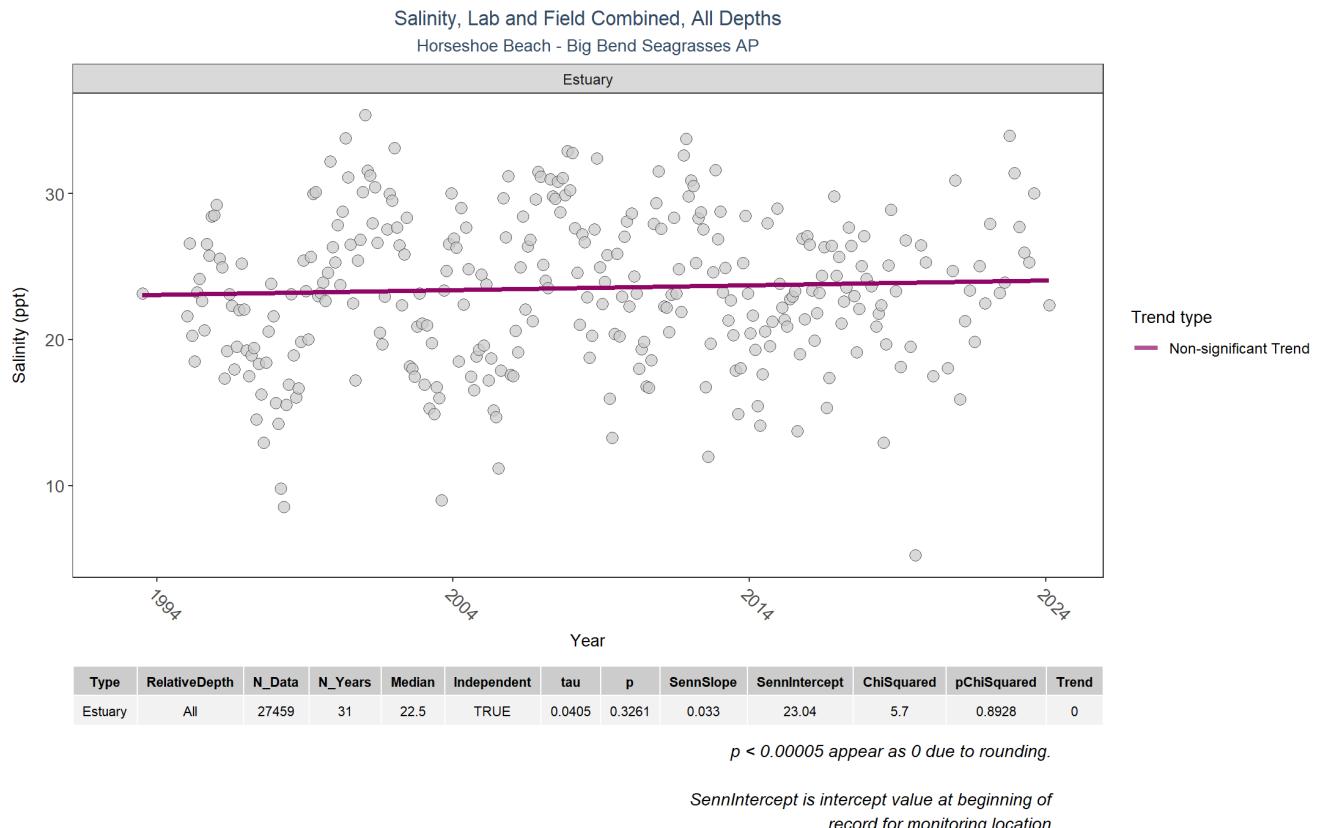
## Dissolved Oxygen



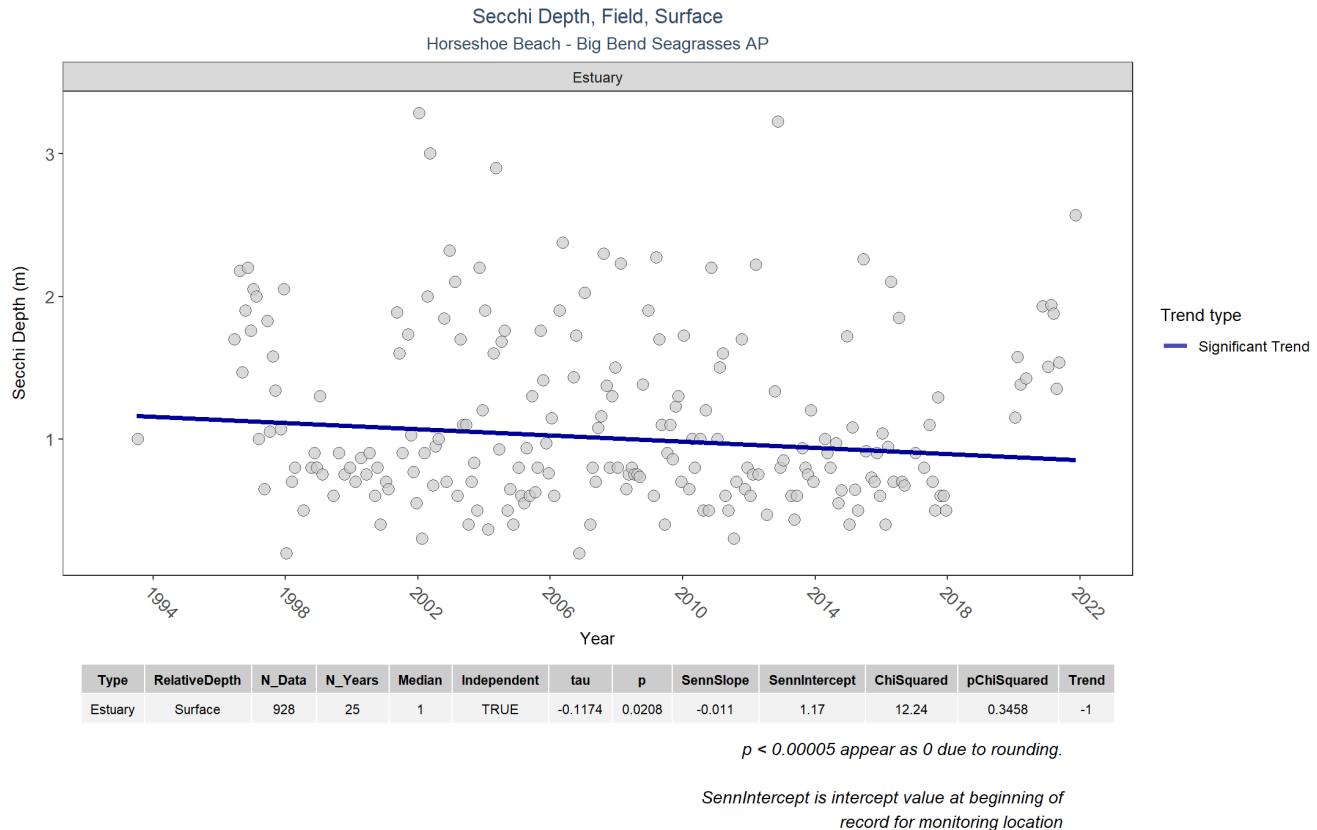
## pH



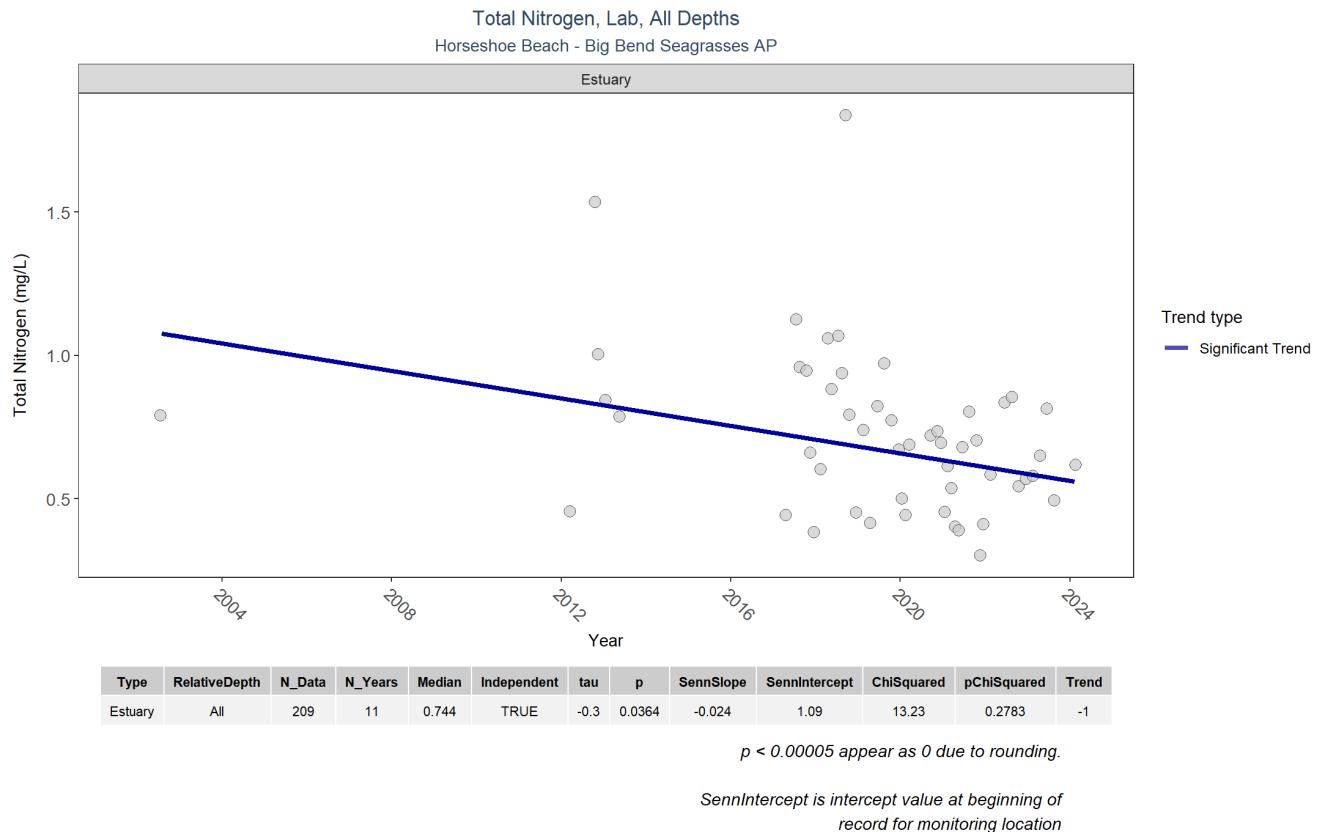
## Salinity



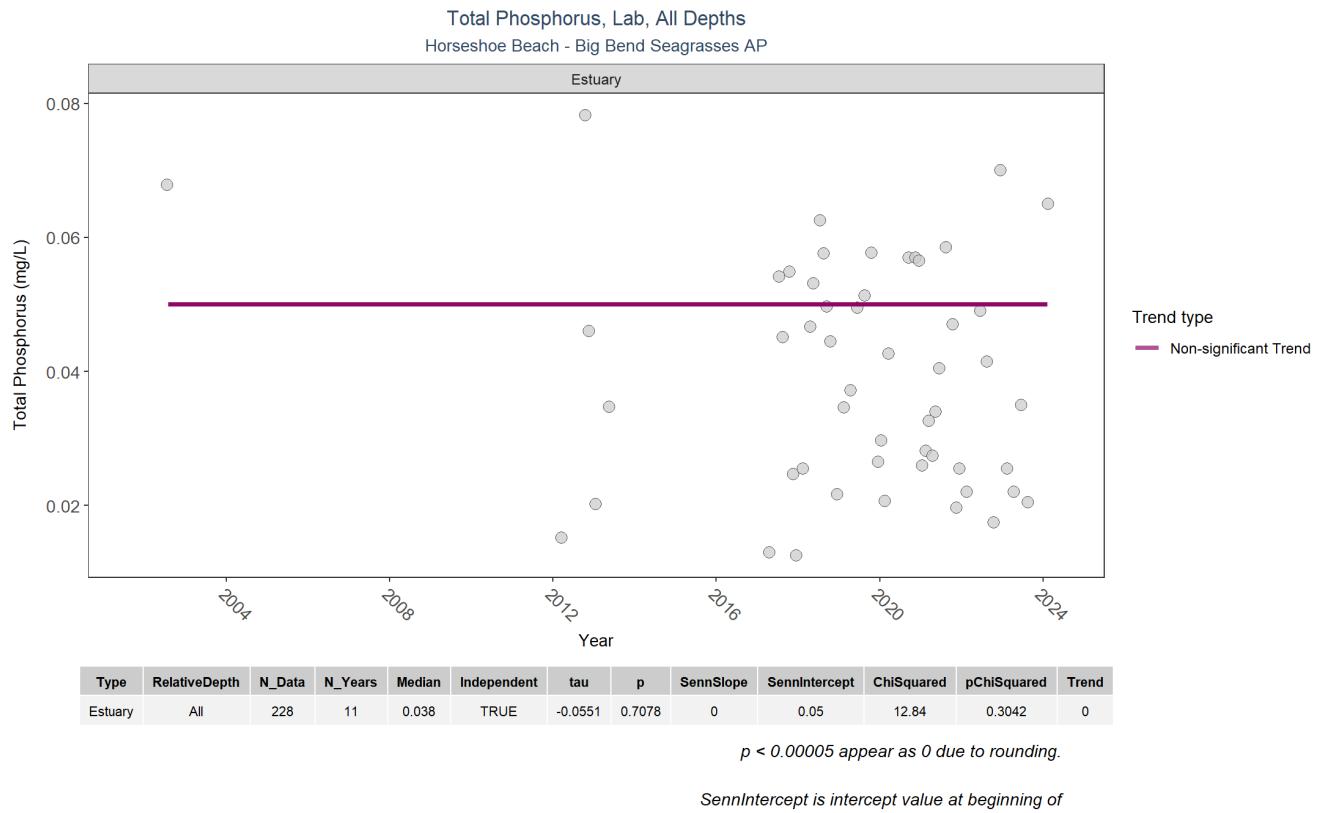
## Secchi Depth



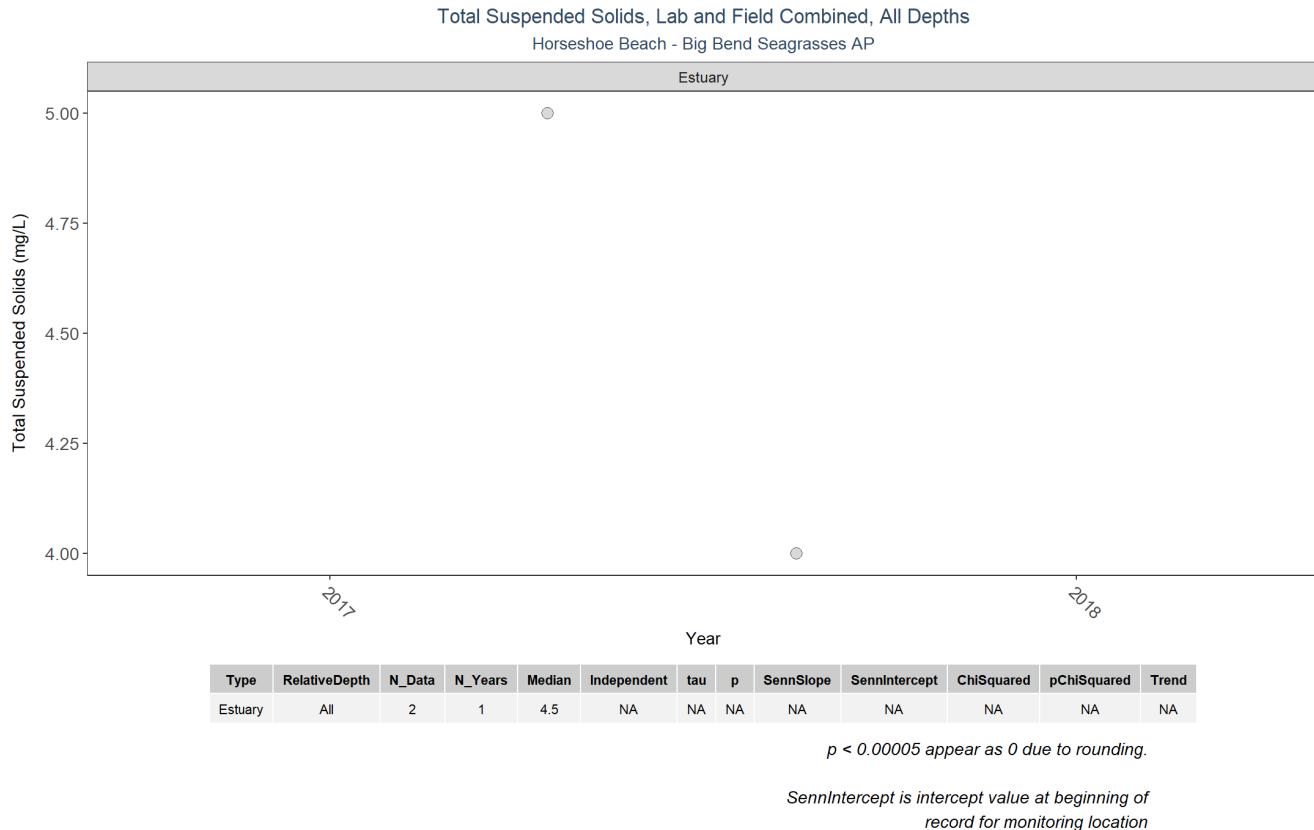
## Total Nitrogen



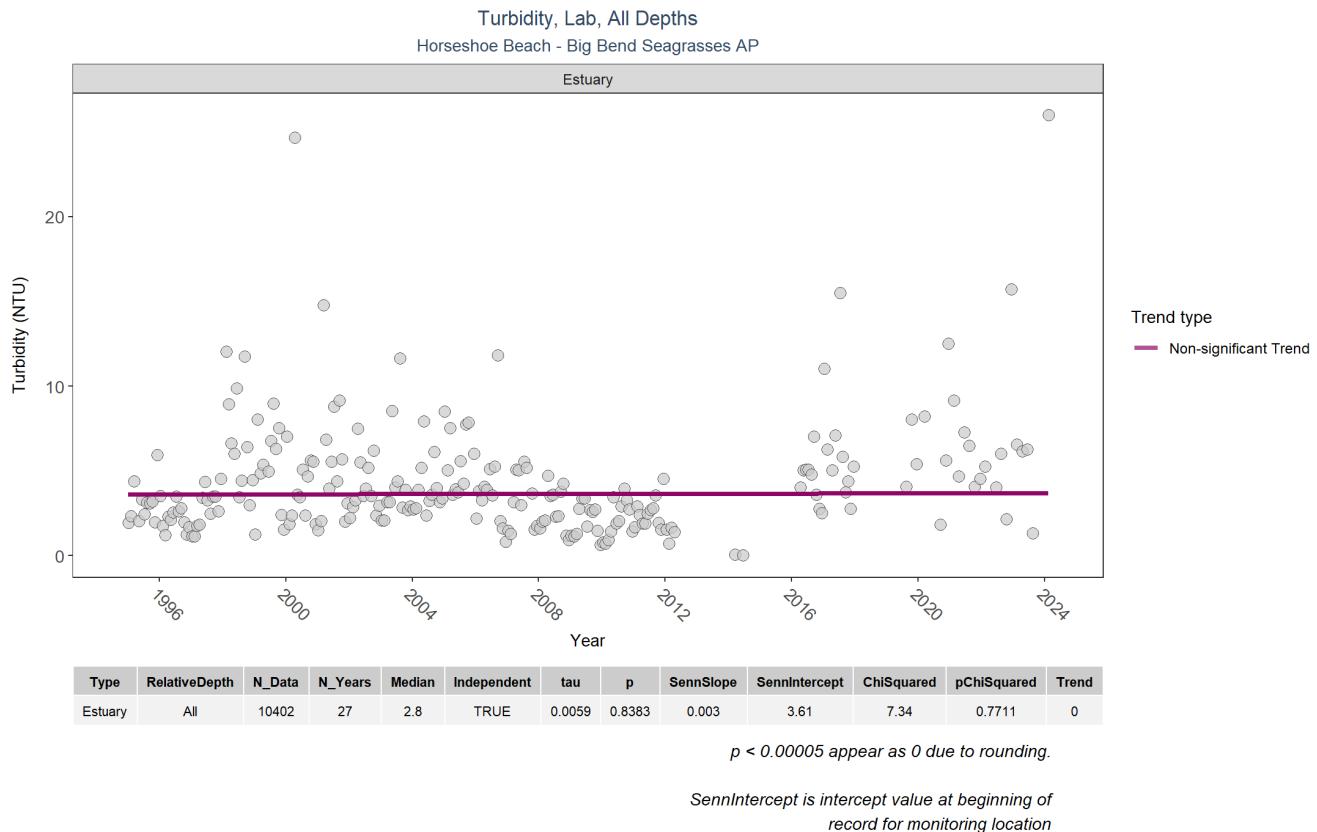
## Total Phosphorus



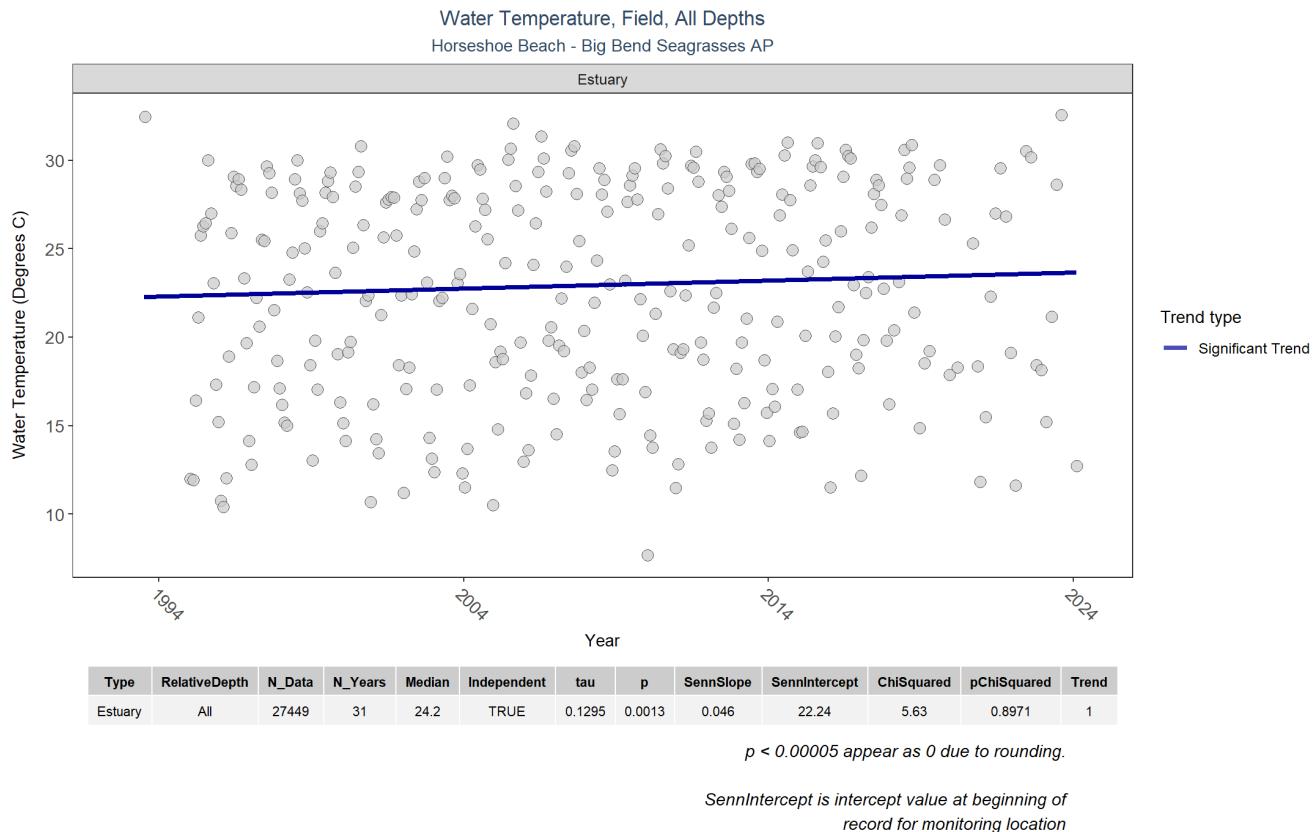
## Total Suspended Solids



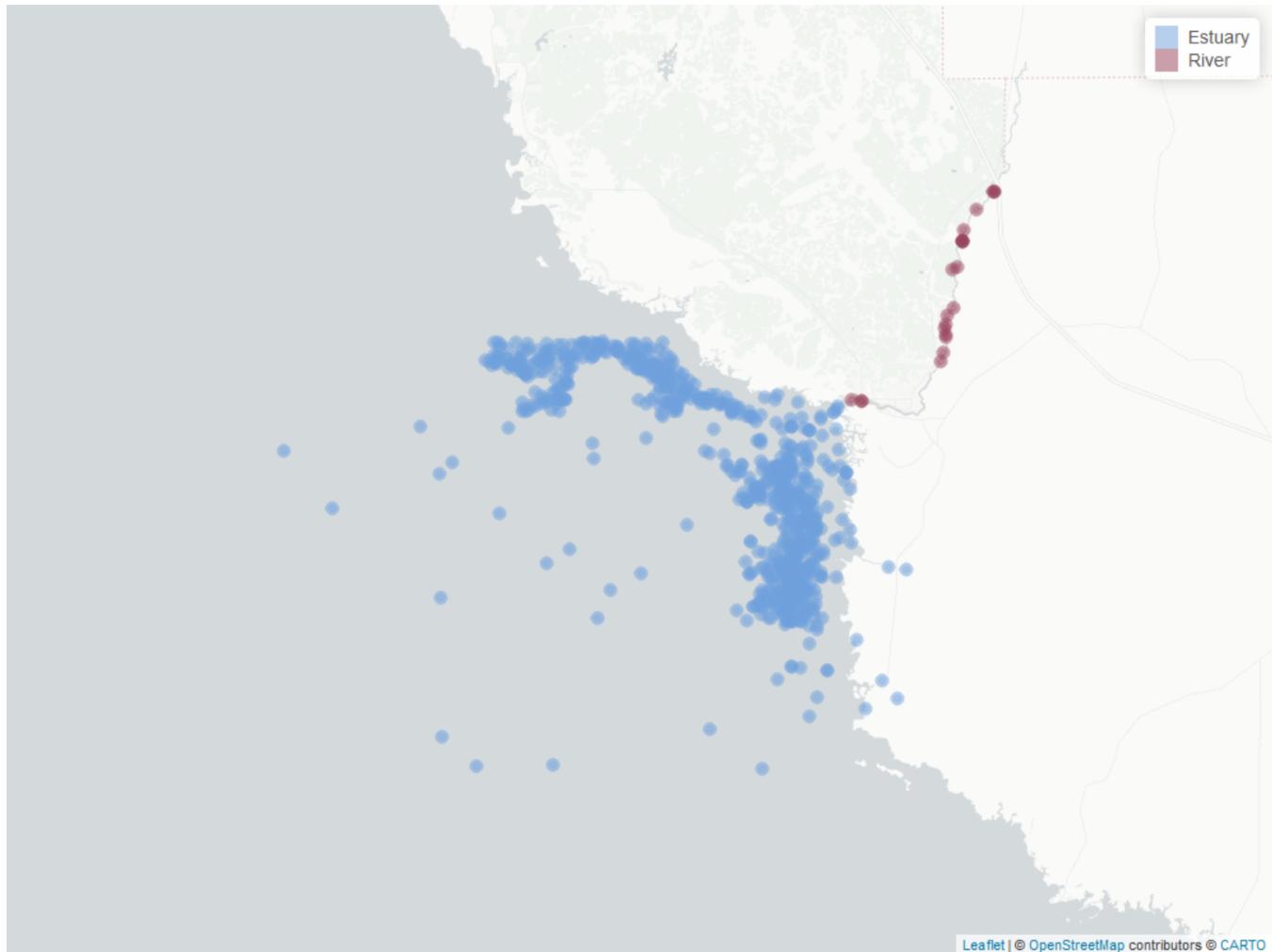
## Turbidity



## Water Temperature



## 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 value.

Table 3: 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 - 2024	12	175	TRUE	0.05	0.32	0.1332	0
River	Chlorophyll a, Corrected for Pheophytin	2002 - 2023	12	67	TRUE	0.00	1.02	0.7579	0
Estuary	Chlorophyll a, Uncorrected for Pheophytin	2001 - 2024	20	230	TRUE	0.05	1.28	0.0446	↑
River	Chlorophyll a, Uncorrected for Pheophytin	2013 - 2023	9	60	FALSE	-	-	-	-
Estuary	Colored Dissolved Organic Matter	2019 - 2023	5	18	FALSE	-	-	-	-
River	Colored Dissolved Organic Matter	2019 - 2023	5	17	FALSE	-	-	-	-
Estuary	Dissolved Oxygen	1993 - 2024	28	2623	TRUE	0.00	7.60	0.9305	0
River	Dissolved Oxygen	1999 - 2023	16	85	TRUE	0.05	3.76	0.2163	0
Estuary	Dissolved Oxygen Saturation	2013 - 2023	10	52	TRUE	0.40	87.97	0.7822	0
River	Dissolved Oxygen Saturation	2001 - 2023	10	40	TRUE	-0.25	8.96	0.9095	0
Estuary	Salinity	1990 - 2024	29	3071	TRUE	-0.17	34.49	0.0001	↓
River	Salinity	2001 - 2022	12	66	TRUE	0.00	0.27	1.0000	0
Estuary	Secchi Depth	1993 - 2023	25	2323	TRUE	0.00	1.21	0.7701	0
River	Secchi Depth	2001 - 2023	12	40	TRUE	0.00	1.02	1.0000	0
Estuary	Total Nitrogen	2002 - 2024	18	187	TRUE	-0.01	0.84	0.0247	↓
River	Total Nitrogen	2001 - 2022	12	51	TRUE	0.02	0.24	0.0287	↑
Estuary	Total Phosphorus	2002 - 2024	16	211	TRUE	0.00	0.07	0.0001	↓
River	Total Phosphorus	2001 - 2023	14	78	TRUE	0.00	0.04	0.0840	0
Estuary	Total Suspended Solids	1994 - 2020	7	22	FALSE	-	-	-	-
River	Total Suspended Solids	2001 - 2022	7	23	FALSE	-	-	-	-
Estuary	Turbidity	1994 - 2024	25	178	TRUE	-0.02	2.33	0.2396	0
River	Turbidity	2001 - 2023	12	54	TRUE	0.00	2.06	1.0000	0
Estuary	Water Temperature	1990 - 2024	29	2643	TRUE	0.02	23.16	0.3950	0
River	Water Temperature	1999 - 2023	16	87	TRUE	0.07	22.64	0.3299	0
Estuary	pH	1993 - 2024	27	2612	TRUE	-0.01	8.13	0.0023	↓
River	pH	1999 - 2023	16	87	TRUE	0.00	7.13	1.0000	0

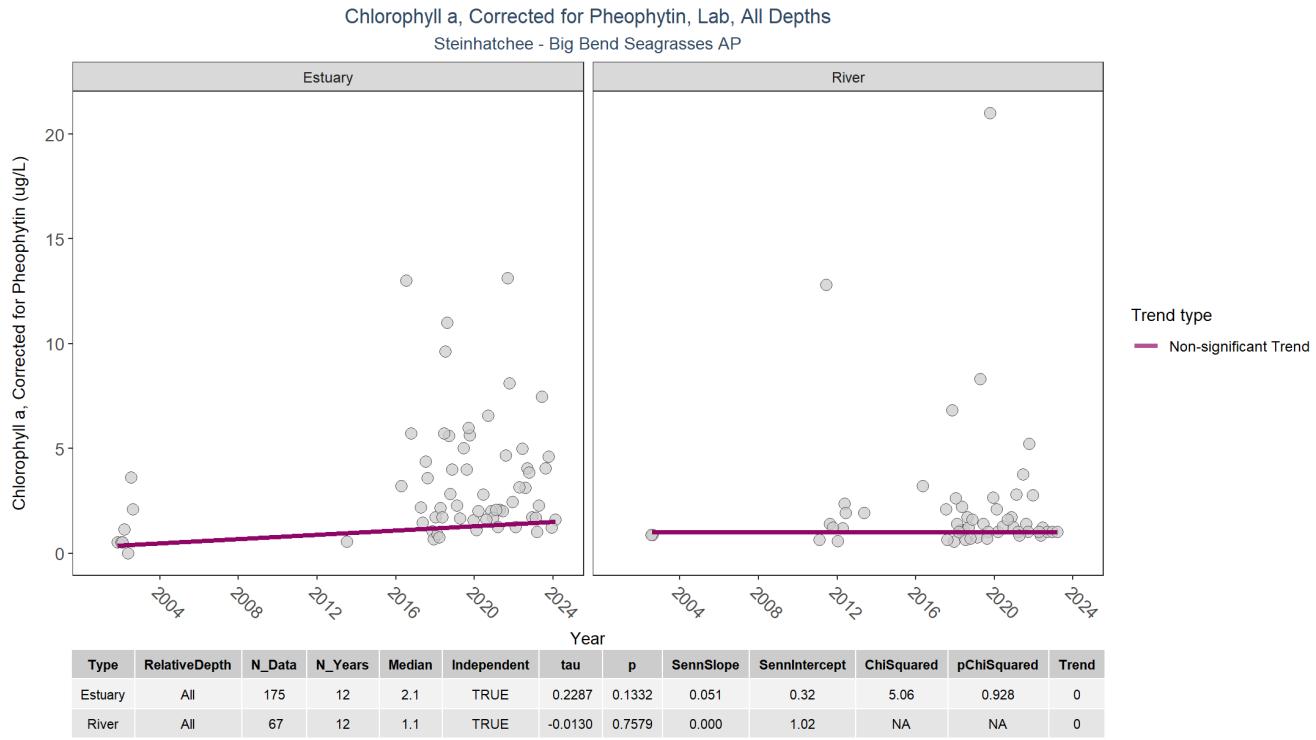
Table containing overview of Programs contributing data for Steinhatchee

Table 4: Overview of Program Data for Steinhatchee

ParameterName	ProgramID	n-data-Estuay	n-data-River
Ammonium, Filtered (NH4)	477	17	16
Ammonium, Filtered (NH4)	5002	96	24
Chlorophyll a, Corrected for Pheophytin	103	2	-
Chlorophyll a, Corrected for Pheophytin	477	15	14
Chlorophyll a, Corrected for Pheophytin	5002	167	54
Chlorophyll a, Uncorrected for Pheophytin	60	6	-
Chlorophyll a, Uncorrected for Pheophytin	103	23	12
Chlorophyll a, Uncorrected for Pheophytin	118	1	-
Chlorophyll a, Uncorrected for Pheophytin	477	15	14
Chlorophyll a, Uncorrected for Pheophytin	5002	201	34
Colored Dissolved Organic Matter	103	2	-
Colored Dissolved Organic Matter	477	17	16
Colored Dissolved Organic Matter	5002	1	1
Dissolved Oxygen	60	12	-
Dissolved Oxygen	69	2255	2
Dissolved Oxygen	95	77	1
Dissolved Oxygen	103	14	6
Dissolved Oxygen	115	2	-
Dissolved Oxygen	118	4	-
Dissolved Oxygen	477	14	15
Dissolved Oxygen	560	422	-
Dissolved Oxygen	5002	257	75
Dissolved Oxygen Saturation	60	6	-
Dissolved Oxygen Saturation	477	14	15
Dissolved Oxygen Saturation	5002	38	25
NO2+3, Filtered	477	17	16
NO2+3, Filtered	5002	234	58
Nitrate (NO3)	5002	-	1
Phosphate, Filtered (PO4)	5002	81	21
Salinity	60	12	-
Salinity	69	2255	2
Salinity	95	91	1
Salinity	115	2	-
Salinity	118	6	-
Salinity	477	13	15
Salinity	560	443	-
Salinity	5002	249	48

Secchi Depth	60	2	-
Secchi Depth	69	2255	2
Secchi Depth	103	2	-
Secchi Depth	115	1	-
Secchi Depth	118	2	-
Secchi Depth	477	15	16
Secchi Depth	560	25	-
Secchi Depth	5002	50	30
Specific Conductivity	69	2255	1
Specific Conductivity	95	13	-
Specific Conductivity	103	4	-
Specific Conductivity	477	30	30
Specific Conductivity	5002	164	56
Total Kjeldahl Nitrogen	477	17	16
Total Kjeldahl Nitrogen	5002	255	54
Total Nitrogen	118	1	-
Total Nitrogen	5002	199	52
Total Phosphorus	103	14	6
Total Phosphorus	118	1	-
Total Phosphorus	477	17	16
Total Phosphorus	5002	190	56
Total Suspended Solids	5002	22	23
Turbidity	103	16	6
Turbidity	477	31	32
Turbidity	5002	173	40
Water Temperature	60	11	-
Water Temperature	69	2255	2
Water Temperature	95	91	1
Water Temperature	103	14	6
Water Temperature	115	2	-
Water Temperature	118	6	-
Water Temperature	477	15	16
Water Temperature	560	444	-
Water Temperature	5002	262	76
pH	69	2255	2
pH	95	70	1
pH	103	14	6
pH	115	2	-
pH	118	4	-
pH	477	15	16
pH	560	331	-
pH	5002	272	78

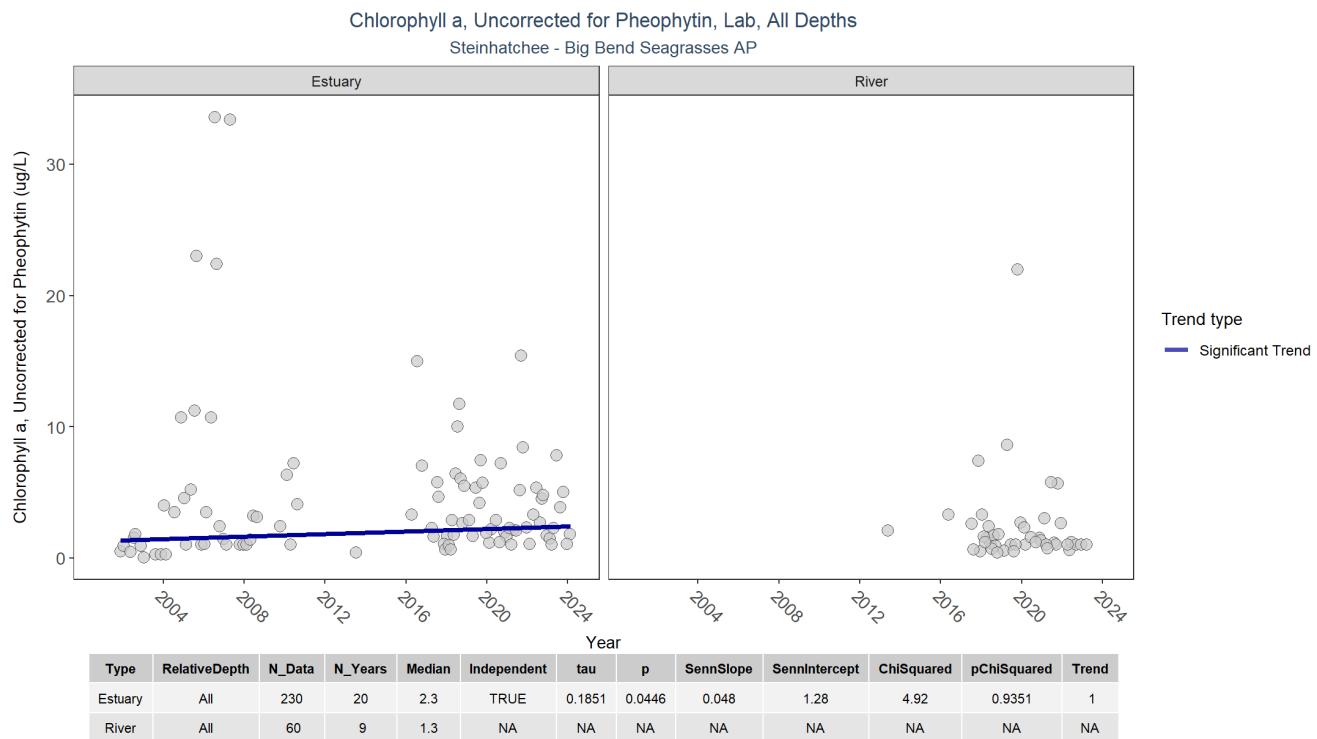
## Chlorophyll a, Corrected for Pheophytin



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

*SennIntercept is intercept value at beginning of record for monitoring location*

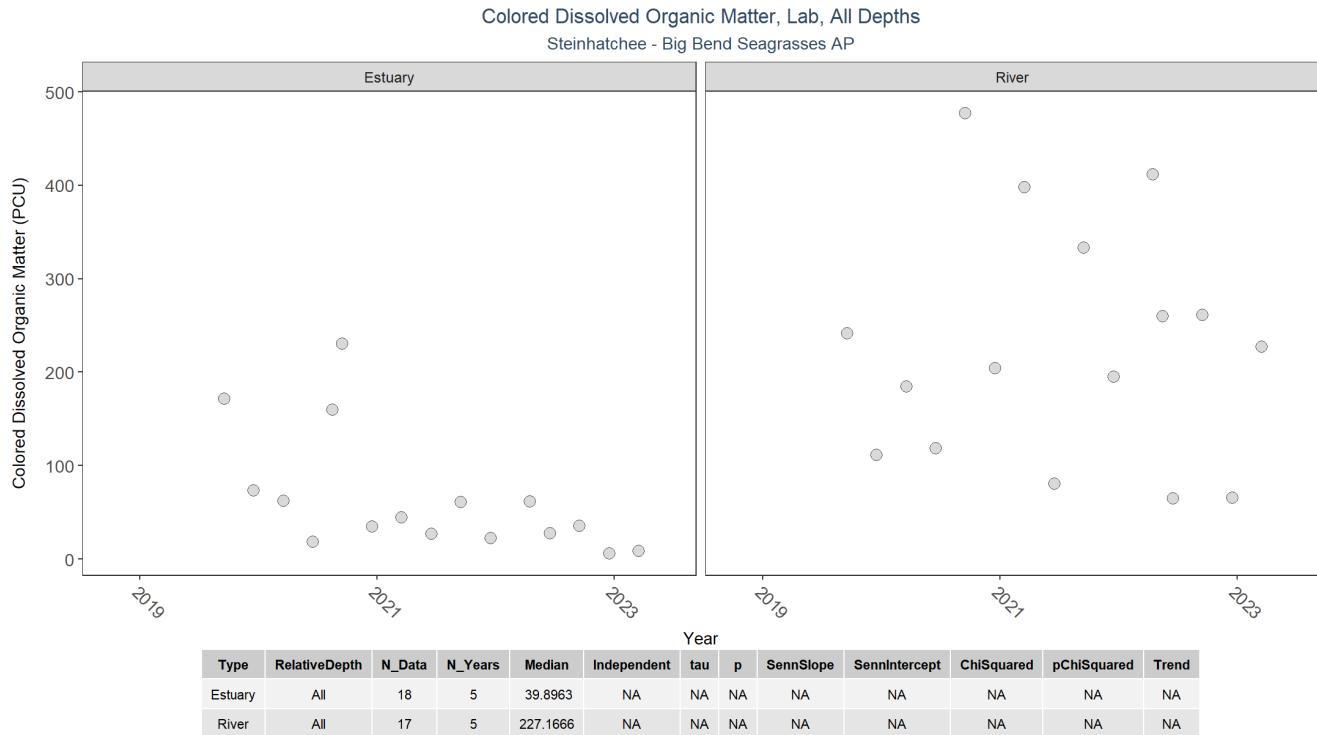
## Chlorophyll a, Uncorrected for Pheophytin



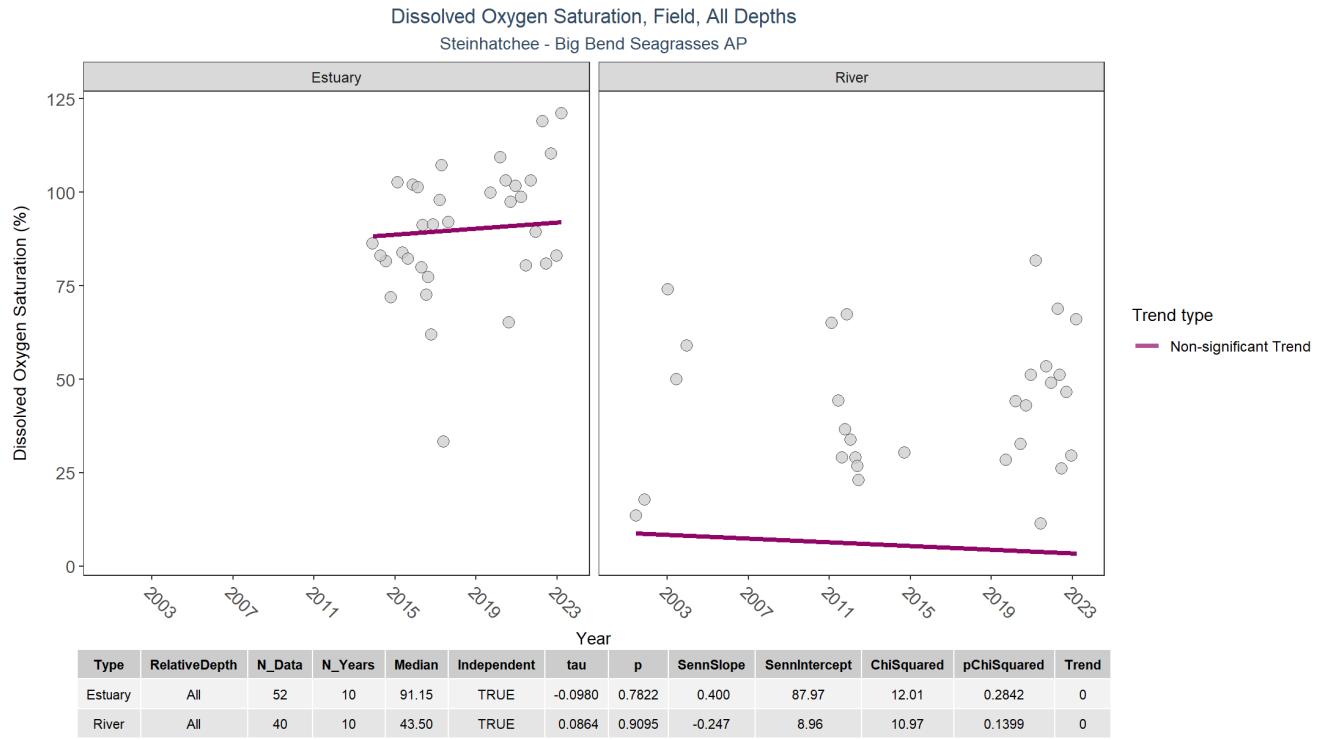
*p < 0.00005 appear as 0 due to rounding.*

*SennIntercept is intercept value at beginning of record for monitoring location*

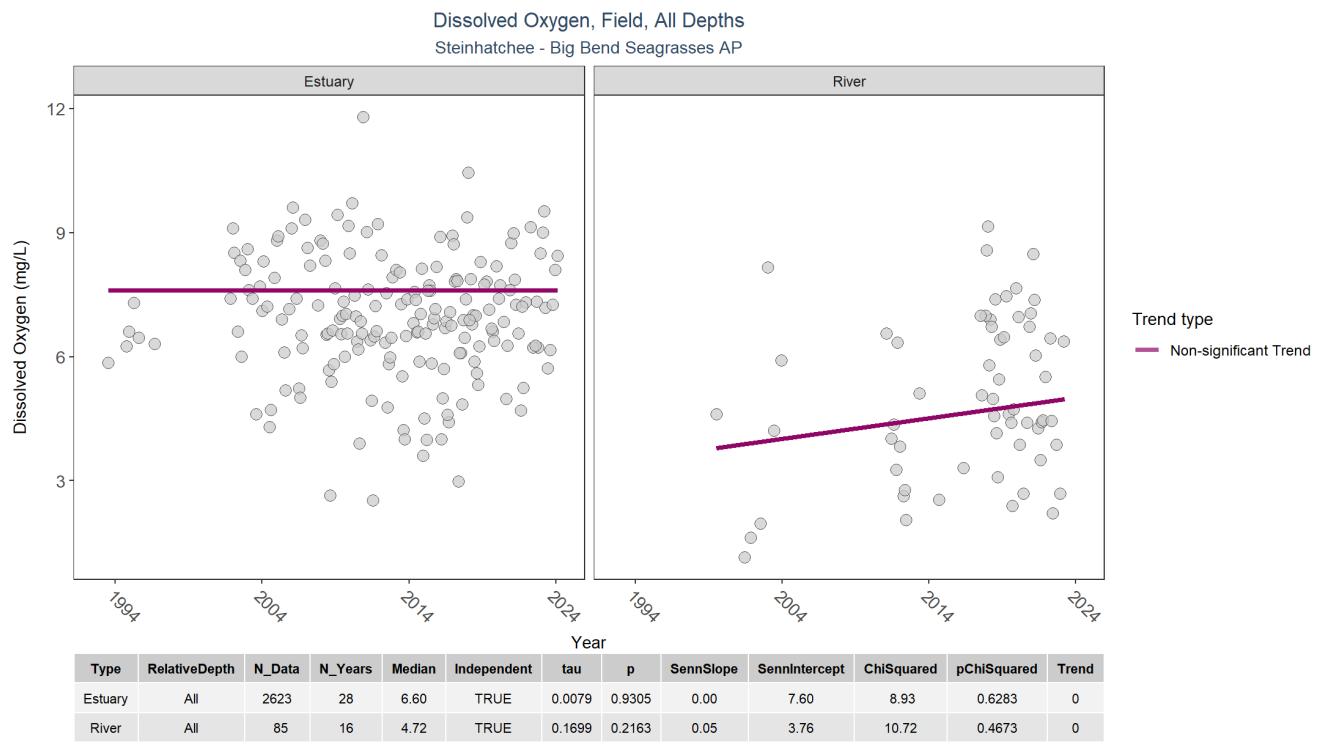
## Colored Dissolved Organic Matter



## Dissolved Oxygen Saturation



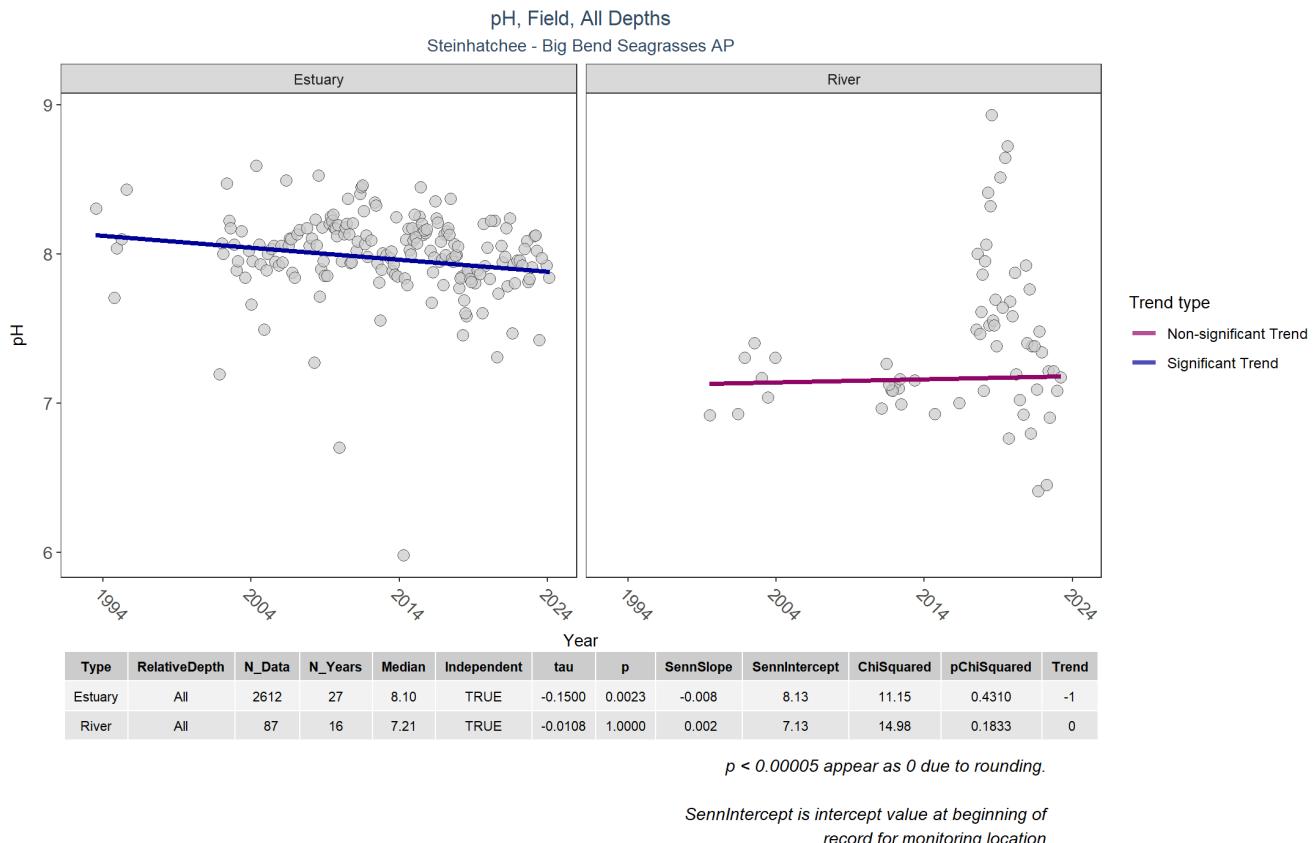
## Dissolved Oxygen



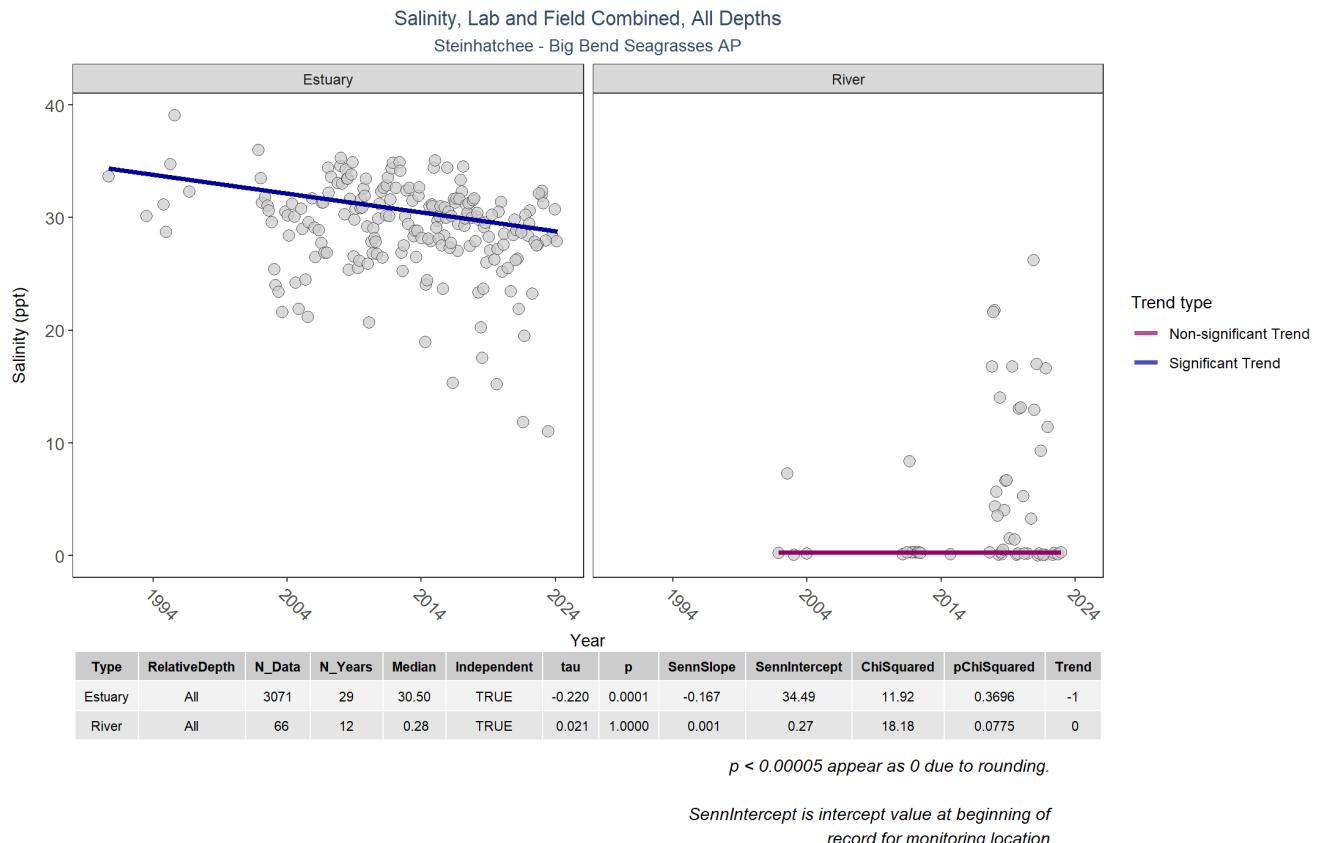
$p < 0.00005$  appear as 0 due to rounding.

SennIntercept is intercept value at beginning of record for monitoring location

## pH



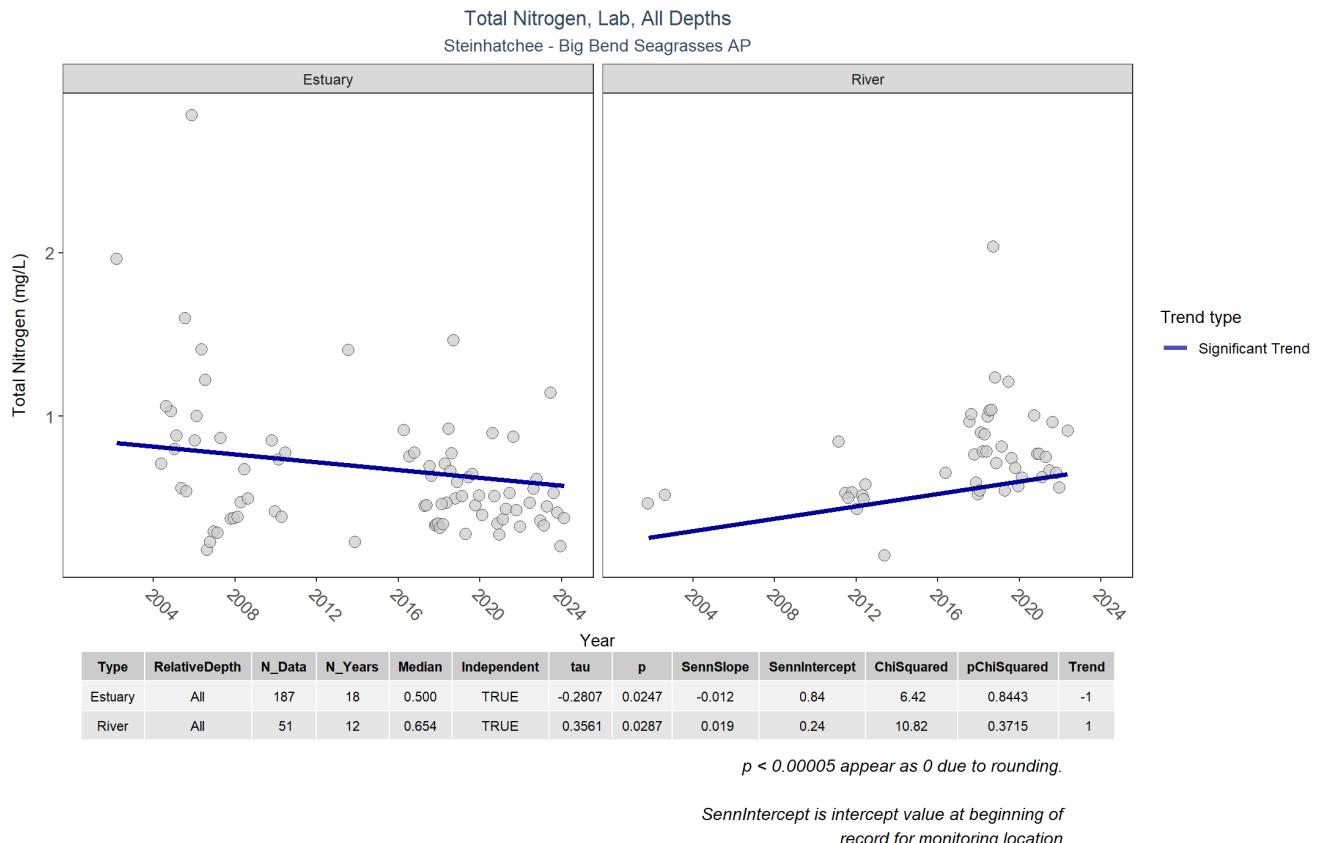
## Salinity



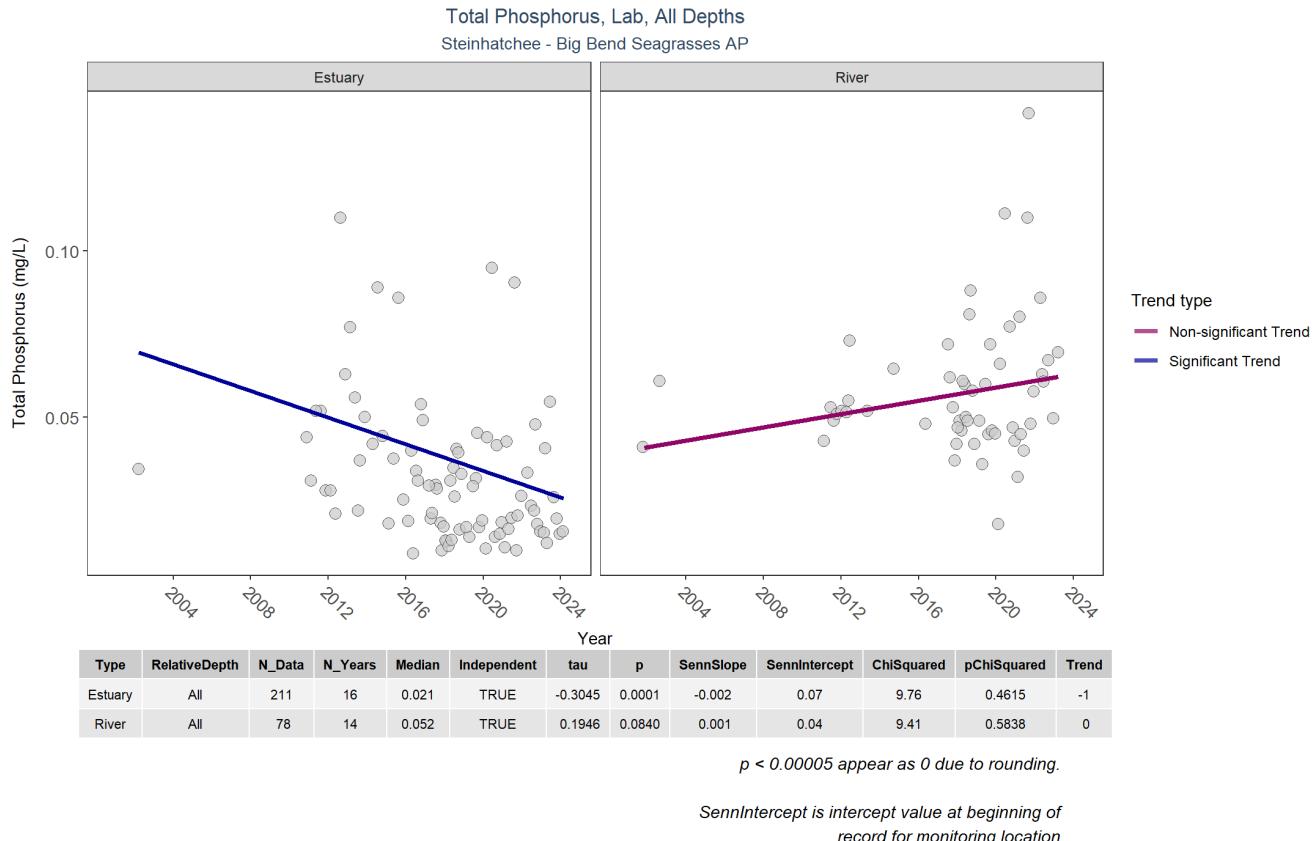
## Secchi Depth



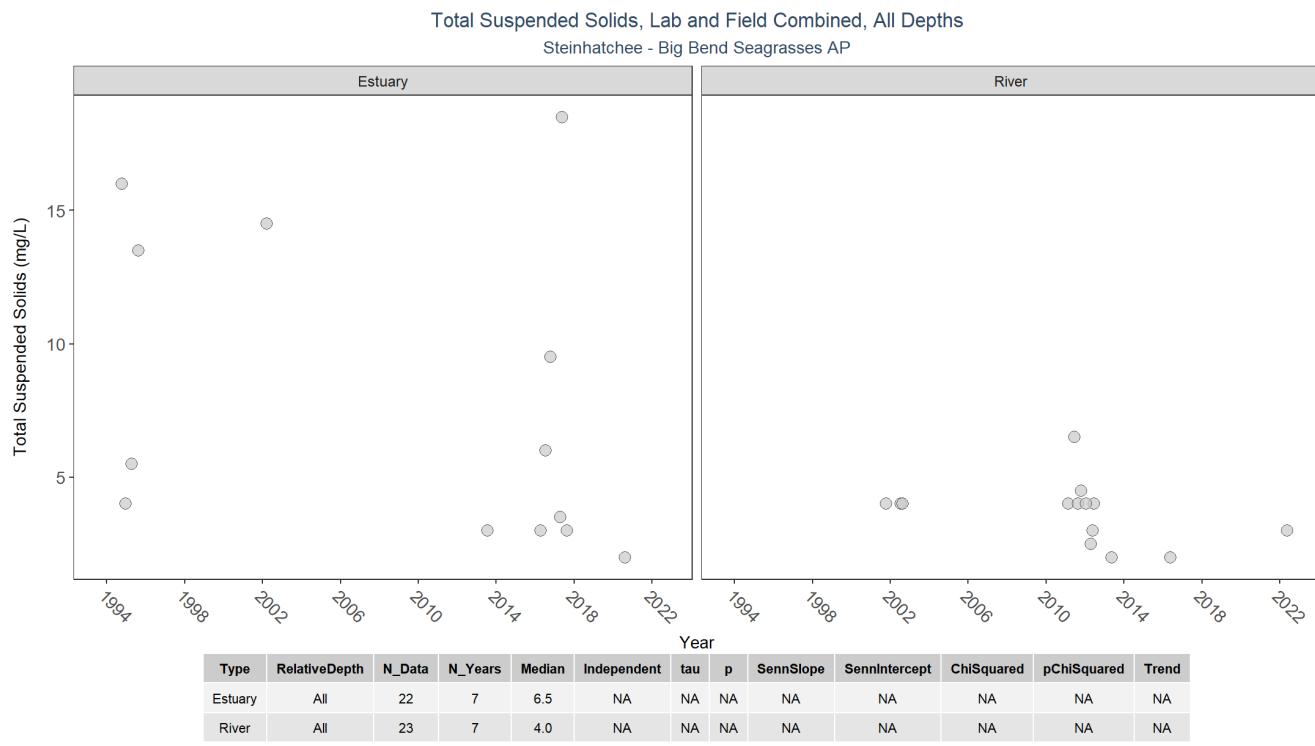
## Total Nitrogen



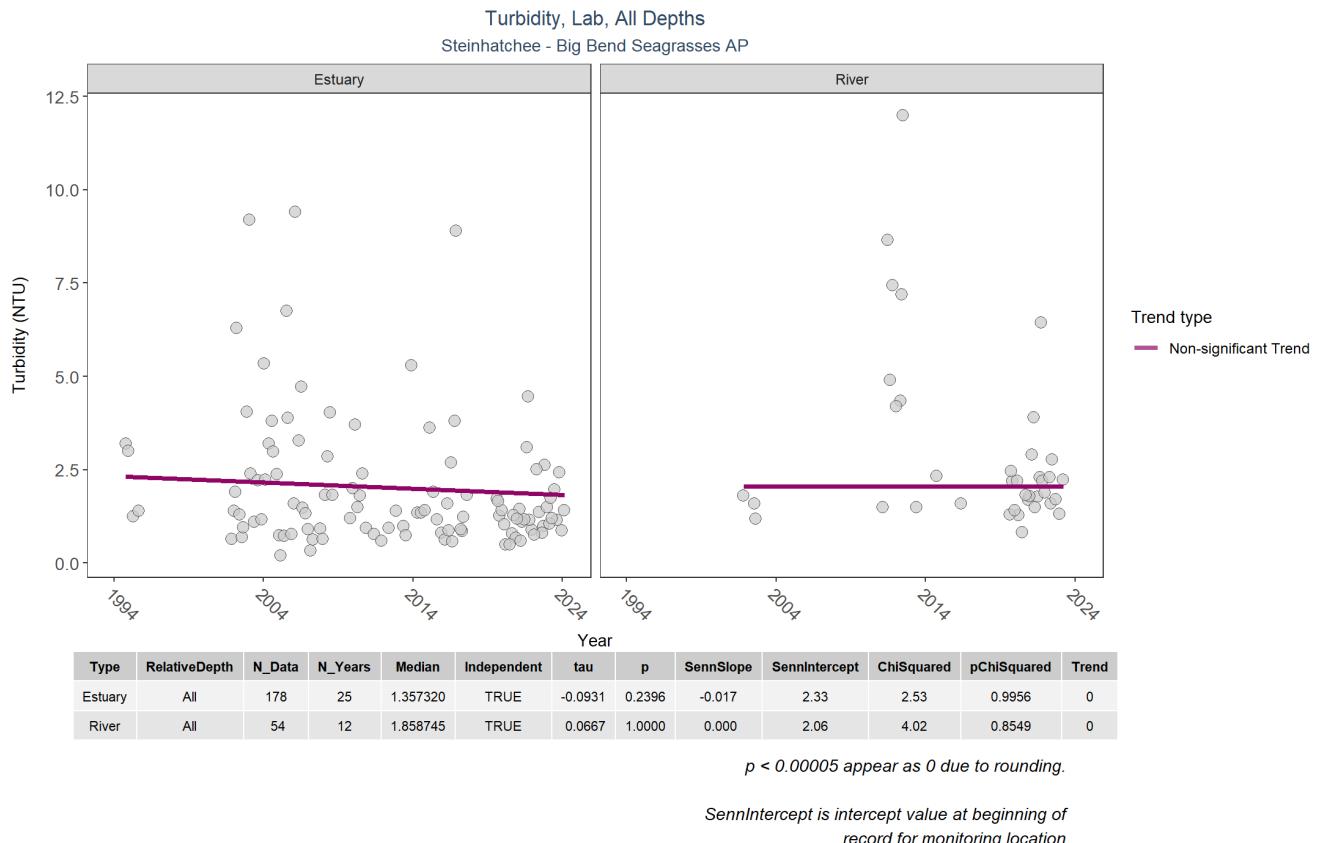
## Total Phosphorus



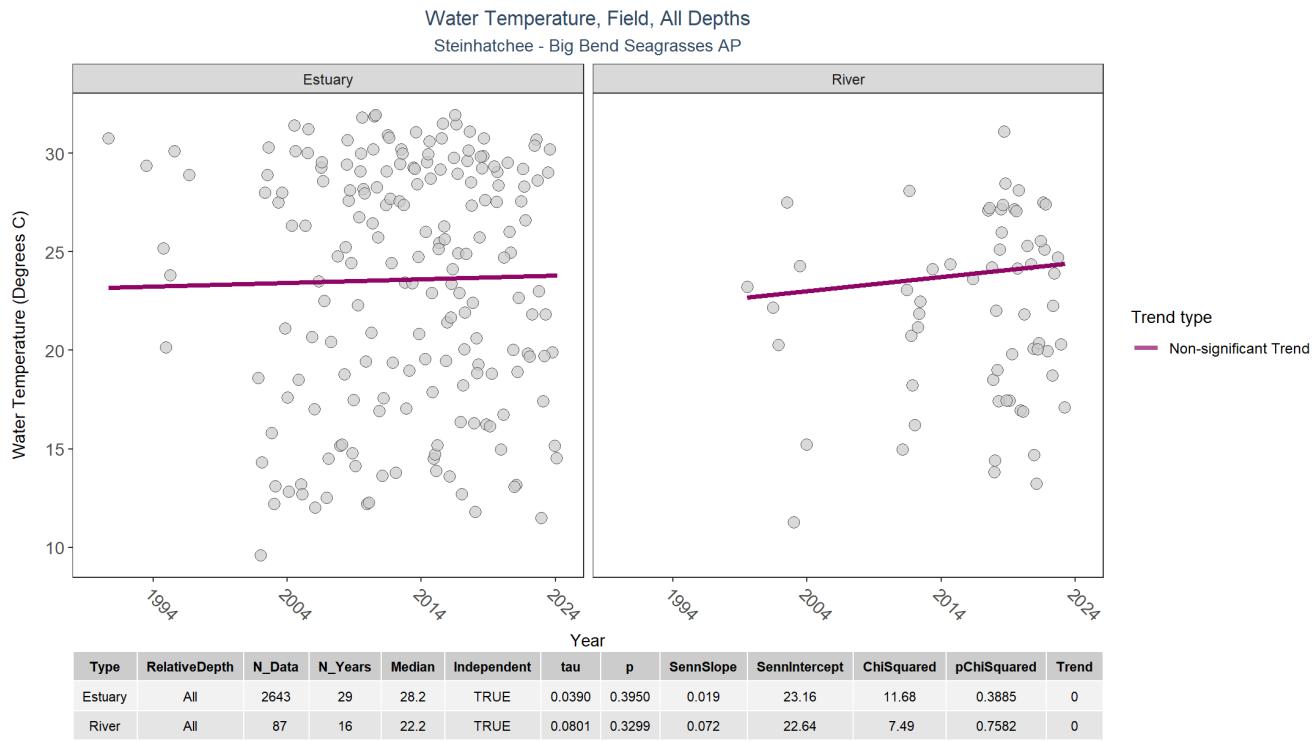
## Total Suspended Solids



## Turbidity



## Water Temperature



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

*SennIntercept is intercept value at beginning of record for monitoring location*

## Submerged Aquatic Vegetation

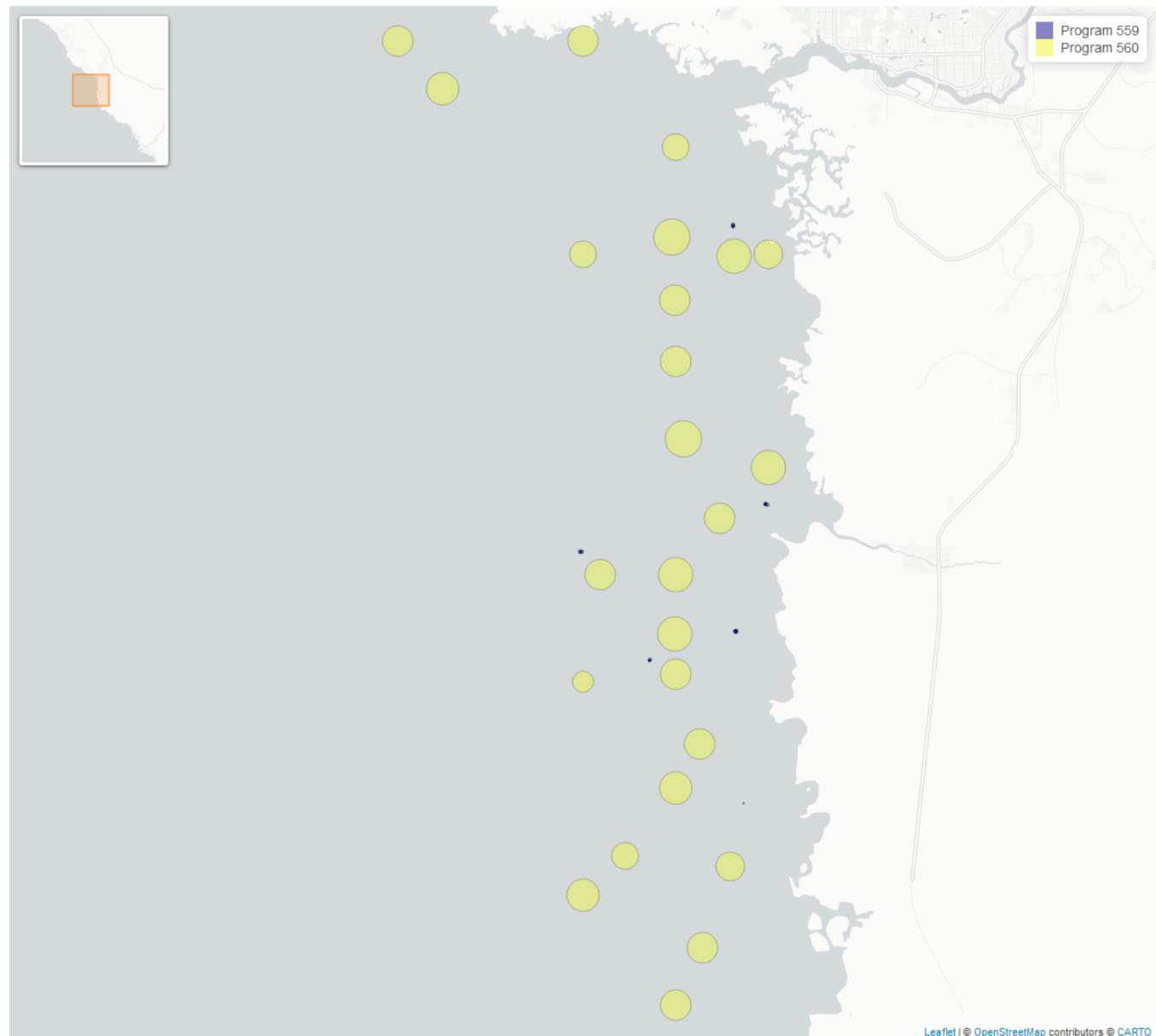


Table 5: Northern Big Bend Seagrass Monitoring - *Program 559*

<i>N_Data</i>	<i>YearMin</i>	<i>YearMax</i>	<i>Collection Method</i>	<i>Sample Locations</i>
82	2012	2018	Modified Braun Blanquet	32

Table 6: Big Bend Seagrasses & Nature Coast Aquatic Preserves - Seagrass Monitoring - *Program 560*

<i>N_Data</i>	<i>YearMin</i>	<i>YearMax</i>	<i>Collection Method</i>	<i>Sample Locations</i>
5932	2000	2023	Modified Braun Blanquet	25

<i>N_Data</i>	<i>YearMin</i>	<i>YearMax</i>	<i>Collection Method</i>	<i>Sample Locations</i>
650	2022	2023	Percent Cover	25

### Median Percent Cover - Species Trends



## Median Percent Cover - Species Trend Table

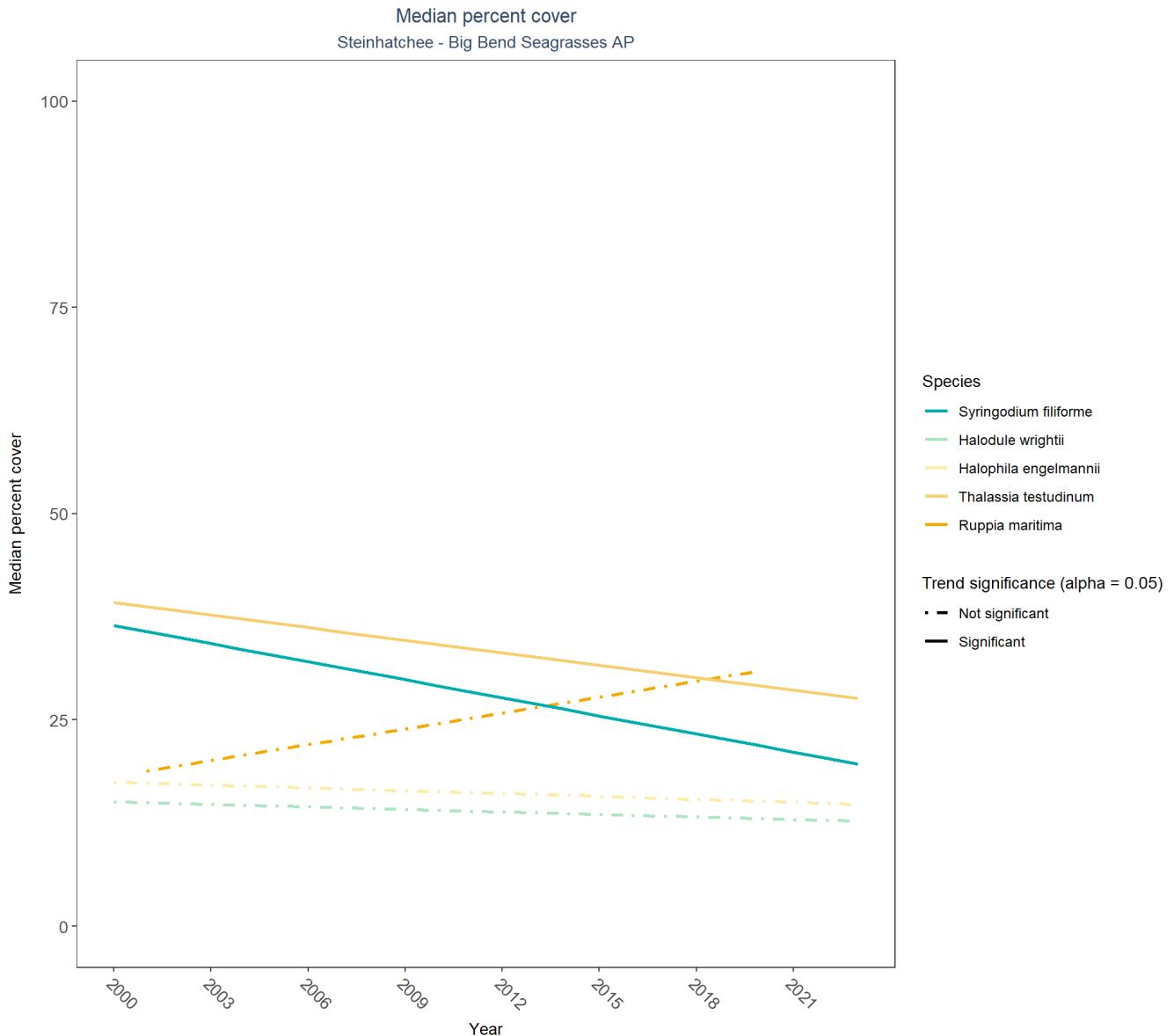
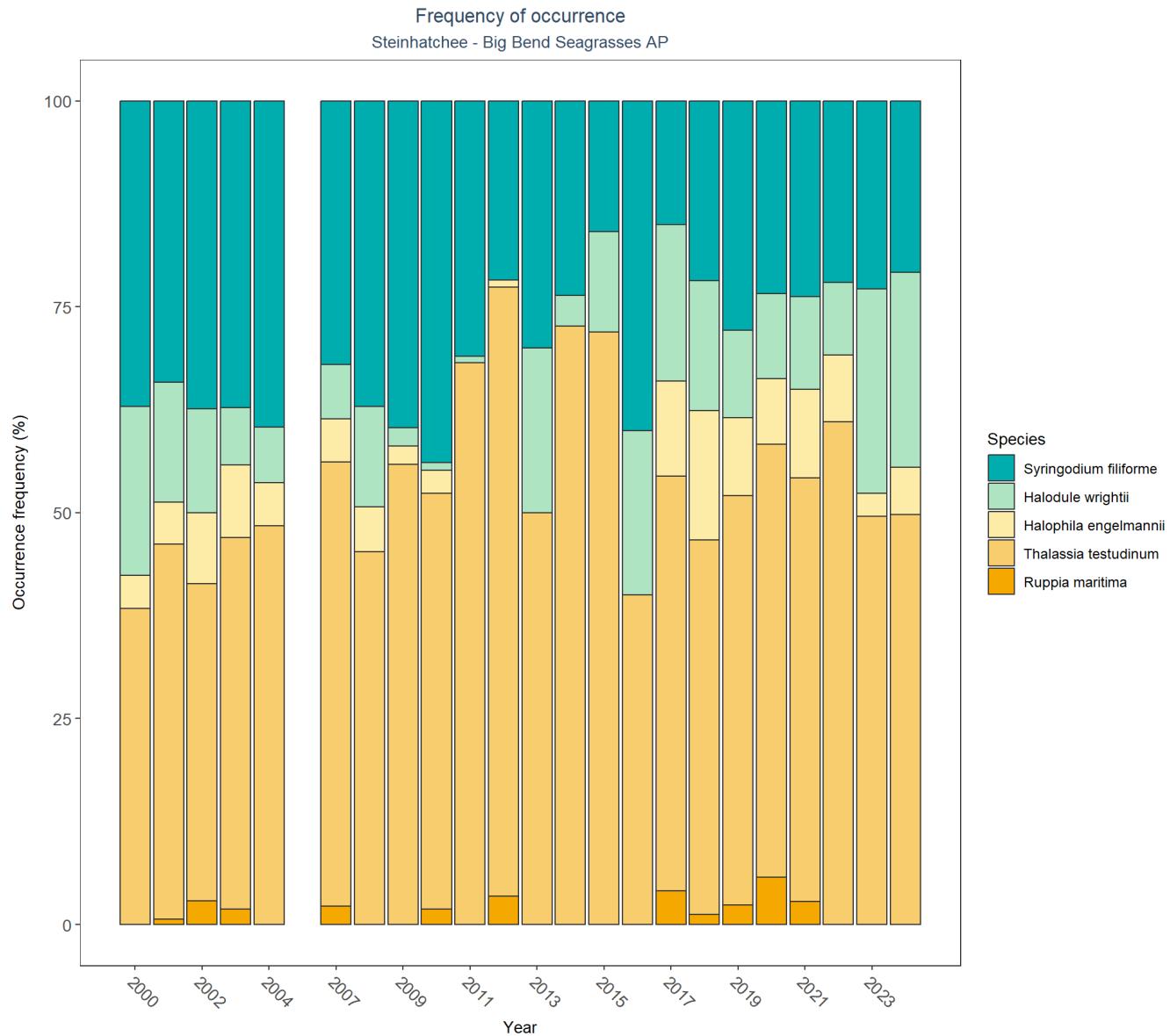


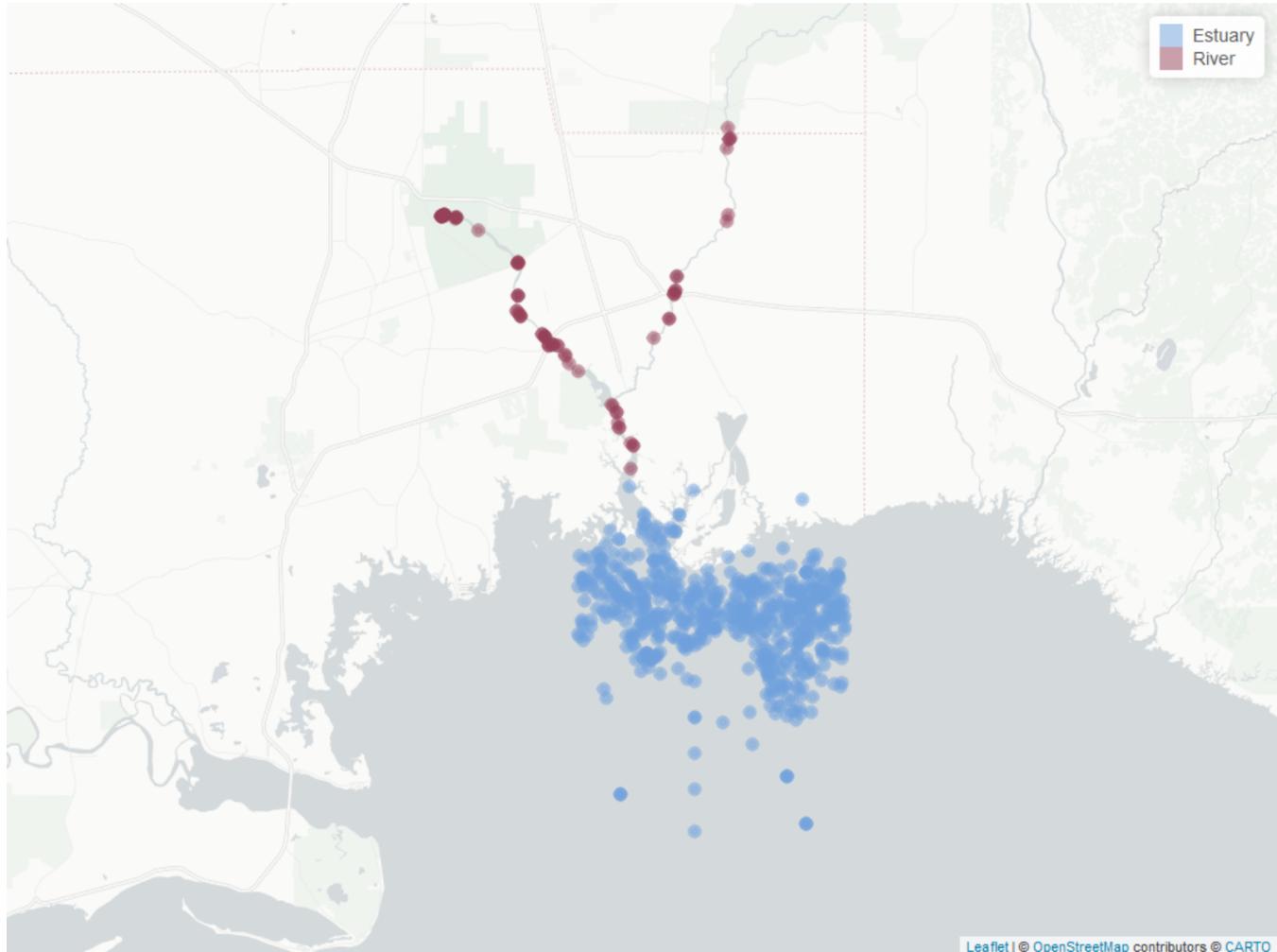
Table 7: Percent Cover Trend Analysis for Steinhatchee

Species	Trend Significance (0.05)	Period of Record	LME_Intercept	LME_Slope	p
Drift algae	No significant trend	2000 - 2023	17.0667	0.1788	0.3118
Halodule wrightii	No significant trend	2000 - 2023	15.0706	-0.1016	0.6153
Halophila engelmannii	No significant trend	2000 - 2023	17.4504	-0.1148	0.6068
No grass In Quadrat	Model did not fit the available data	2004 - 2023	-	-	-
Ruppia maritima	No significant trend	2001 - 2020	18.1473	0.6401	0.2906
Syringodium filiforme	Significantly decreasing trend	2000 - 2023	36.4470	-0.7298	0.0000
Thalassia testudinum	Significantly decreasing trend	2000 - 2023	39.2270	-0.5062	0.0000

## Frequency of Occurrence Barplots



## 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 value.

St. Marks contains a *large trend*. Trends marked in  $\uparrow$  or  $\downarrow$  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 8: 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 - 2018	8	99	FALSE	-	-	-	-
River	Chlorophyll a, Corrected for Pheophytin	1999 - 2023	25	1138	TRUE	-0.02	1.06	0.0000	⬇
Estuary	Chlorophyll a, Uncorrected for Pheophytin	2001 - 2018	9	118	FALSE	-	-	-	-
River	Chlorophyll a, Uncorrected for Pheophytin	1996 - 2023	28	2382	TRUE	0.00	0.68	0.7772	0
Estuary	Colored Dissolved Organic Matter	2001 - 2018	3	8	FALSE	-	-	-	-
River	Colored Dissolved Organic Matter	2001 - 2023	23	1936	TRUE	0.50	1.83	0.0000	↑
Estuary	Dissolved Oxygen	1993 - 2018	19	2255	TRUE	0.00	6.41	0.9241	0
River	Dissolved Oxygen	2001 - 2023	22	1068	TRUE	-0.09	6.08	0.0000	⬇
Estuary	Dissolved Oxygen Saturation	2001 - 2018	7	80	FALSE	-	-	-	-
River	Dissolved Oxygen Saturation	2001 - 2023	13	264	TRUE	-2.12	107.26	0.0008	⬇
Estuary	Salinity	1964 - 2022	26	2654	TRUE	-0.11	32.01	0.0159	⬇
River	Salinity	2000 - 2023	19	867	TRUE	-0.16	3.36	0.0000	⬇
Estuary	Secchi Depth	1993 - 2018	17	1908	TRUE	0.00	1.64	0.8713	0
River	Secchi Depth	1996 - 2023	28	2317	TRUE	-0.04	4.45	0.0000	⬇
Estuary	Total Nitrogen	2001 - 2018	10	143	TRUE	0.00	0.33	0.8026	0
River	Total Nitrogen	1992 - 2023	29	4021	TRUE	0.00	0.34	0.0162	⬇
Estuary	Total Phosphorus	2001 - 2018	10	137	TRUE	0.00	0.01	0.2787	0
River	Total Phosphorus	1992 - 2023	29	2519	TRUE	0.00	0.00	0.0000	↑
Estuary	Total Suspended Solids	2005 - 2018	8	100	FALSE	-	-	-	-
River	Total Suspended Solids	1992 - 2023	27	759	TRUE	-0.10	5.80	0.0000	⬇
Estuary	Turbidity	2005 - 2018	11	452	TRUE	0.04	1.61	0.2495	0
River	Turbidity	1992 - 2023	27	774	TRUE	0.00	0.73	0.3553	0
Estuary	Water Temperature	1964 - 2018	21	2594	TRUE	0.04	21.15	0.2015	0
River	Water Temperature	2001 - 2023	22	1068	TRUE	0.01	20.69	0.5158	0
Estuary	pH	1964 - 2018	19	2072	TRUE	0.00	7.54	0.6118	0
River	pH	2001 - 2023	22	1028	TRUE	0.00	7.52	0.9568	0

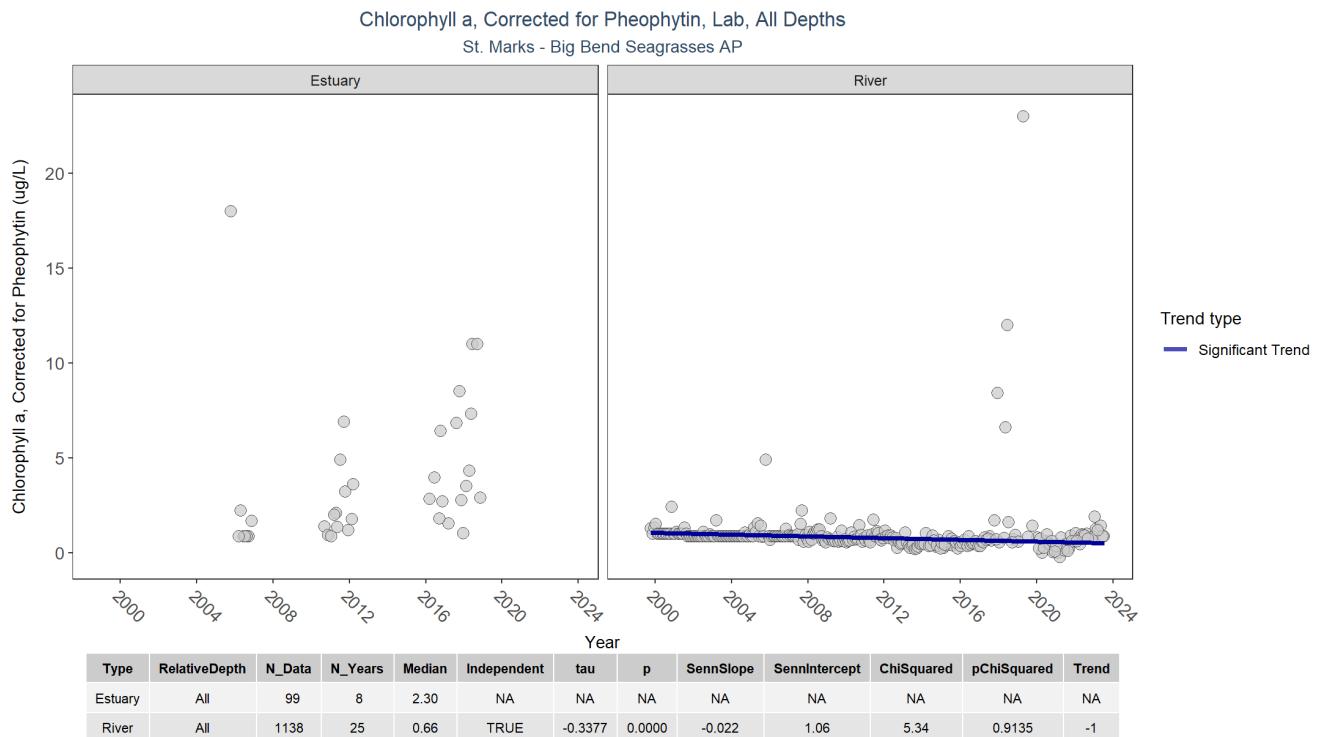
Table containing overview of Programs contributing data for St. Marks

Table 9: Overview of Program Data for St. Marks

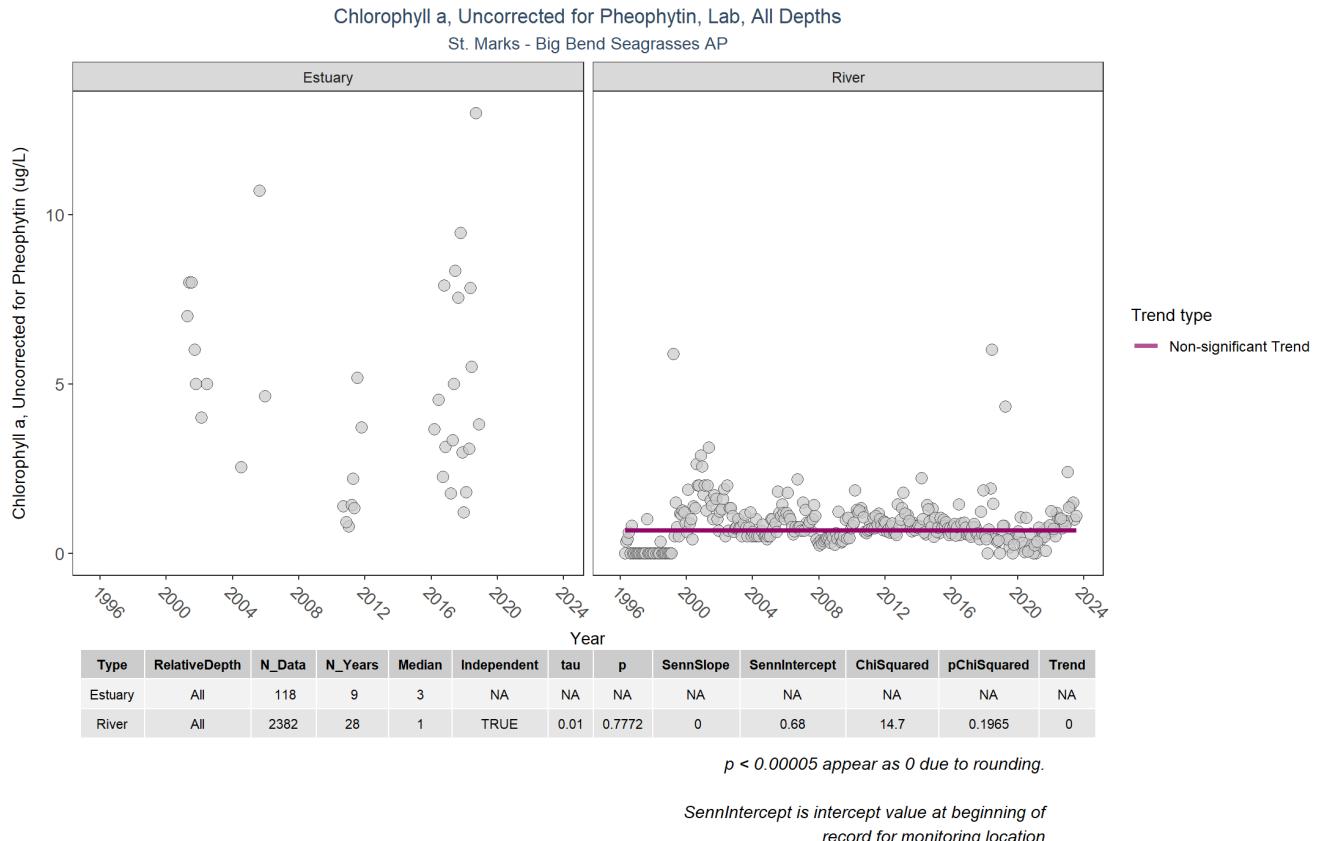
ParameterName	ProgramID	n-data-Estuary	n-data-River
Ammonium, Filtered (NH4)	5002	96	675
Chlorophyll a, Corrected for Pheophytin	514	-	136
Chlorophyll a, Corrected for Pheophytin	5002	99	1003
Chlorophyll a, Uncorrected for Pheophytin	103	8	-
Chlorophyll a, Uncorrected for Pheophytin	115	1	-
Chlorophyll a, Uncorrected for Pheophytin	118	5	-
Chlorophyll a, Uncorrected for Pheophytin	514	28	1812
Chlorophyll a, Uncorrected for Pheophytin	5002	78	571
Colored Dissolved Organic Matter	514	8	731
Colored Dissolved Organic Matter	5002	-	1206
Dissolved Oxygen	69	1844	-
Dissolved Oxygen	95	4	-
Dissolved Oxygen	115	5	-
Dissolved Oxygen	118	16	3
Dissolved Oxygen	560	179	-
Dissolved Oxygen	5002	399	1230
Dissolved Oxygen Saturation	5002	80	264
NO2+3, Filtered	5002	98	1789
Nitrate (NO3)	5002	-	3
Nitrite (NO2)	5002	-	10
Phosphate, Filtered (PO4)	5002	44	296
Salinity	69	1851	-
Salinity	95	21	-
Salinity	115	5	-
Salinity	118	15	1
Salinity	560	181	-
Salinity	5002	581	866
Secchi Depth	69	1808	-
Secchi Depth	115	3	-
Secchi Depth	118	2	-
Secchi Depth	514	28	1796
Secchi Depth	5002	69	616
Specific Conductivity	69	1842	-
Specific Conductivity	514	8	34
Specific Conductivity	5002	108	2726
Total Kjeldahl Nitrogen	5002	96	693
Total Nitrogen	103	12	-

Total Nitrogen	118	2	-
Total Nitrogen	514	28	1819
Total Nitrogen	5002	103	2203
Total Phosphorus	103	12	-
Total Phosphorus	514	28	1818
Total Phosphorus	5002	97	702
Total Suspended Solids	5002	100	759
Turbidity	103	6	-
Turbidity	5002	452	779
Water Temperature	69	1851	-
Water Temperature	95	139	-
Water Temperature	115	5	-
Water Temperature	118	13	5
Water Temperature	560	180	-
Water Temperature	5002	599	1232
pH	69	1842	-
pH	95	1	-
pH	115	5	-
pH	118	8	3
pH	560	142	-
pH	5002	224	1182

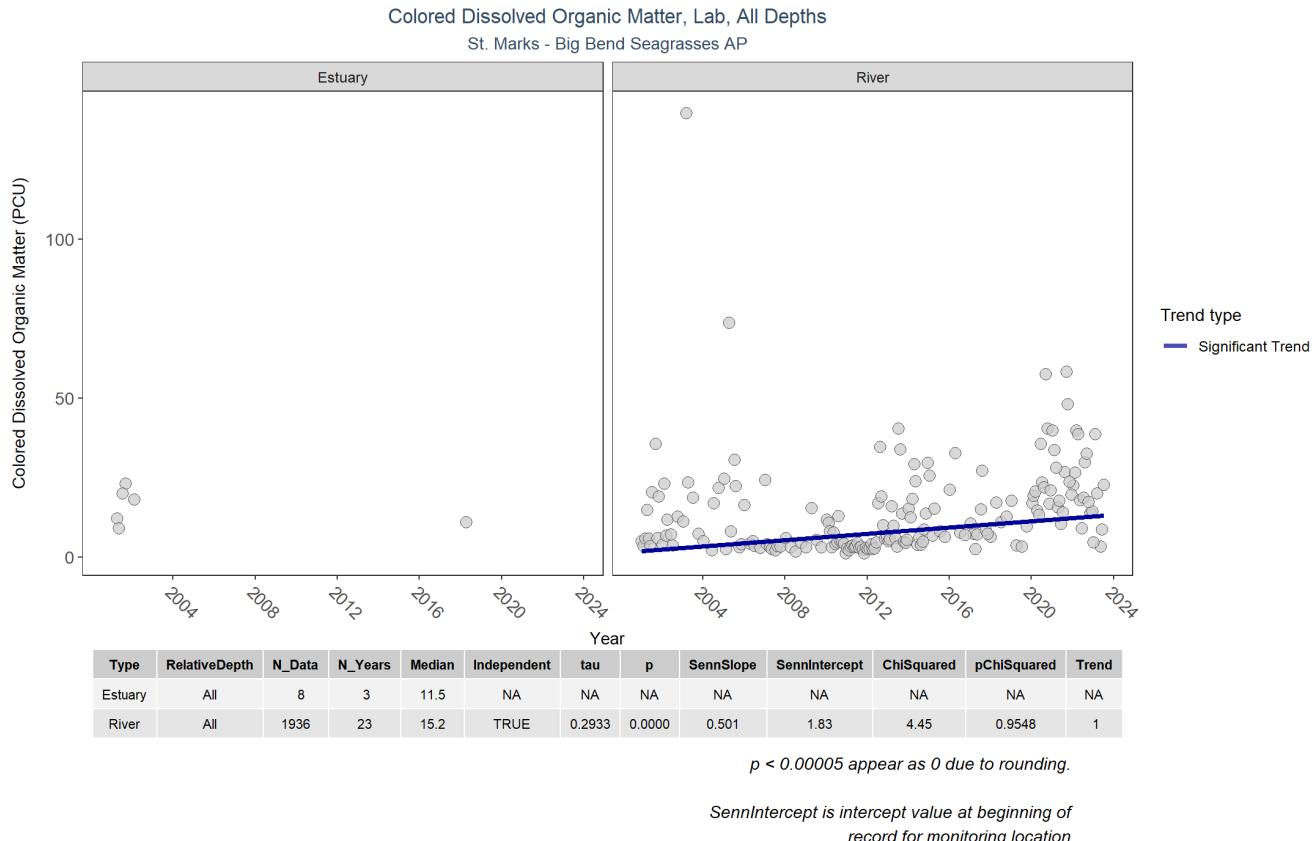
## Chlorophyll a, Corrected for Pheophytin



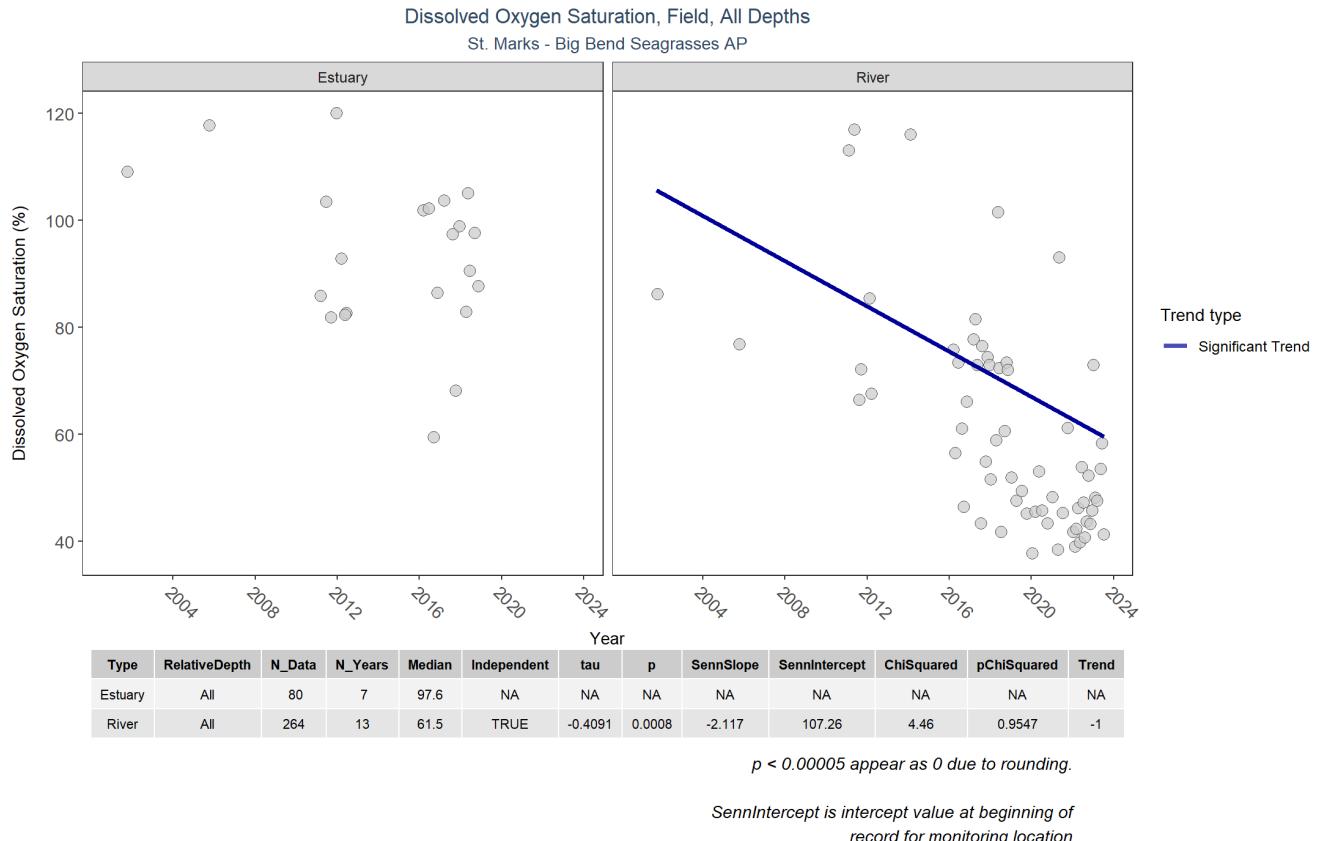
## Chlorophyll a, Uncorrected for Pheophytin



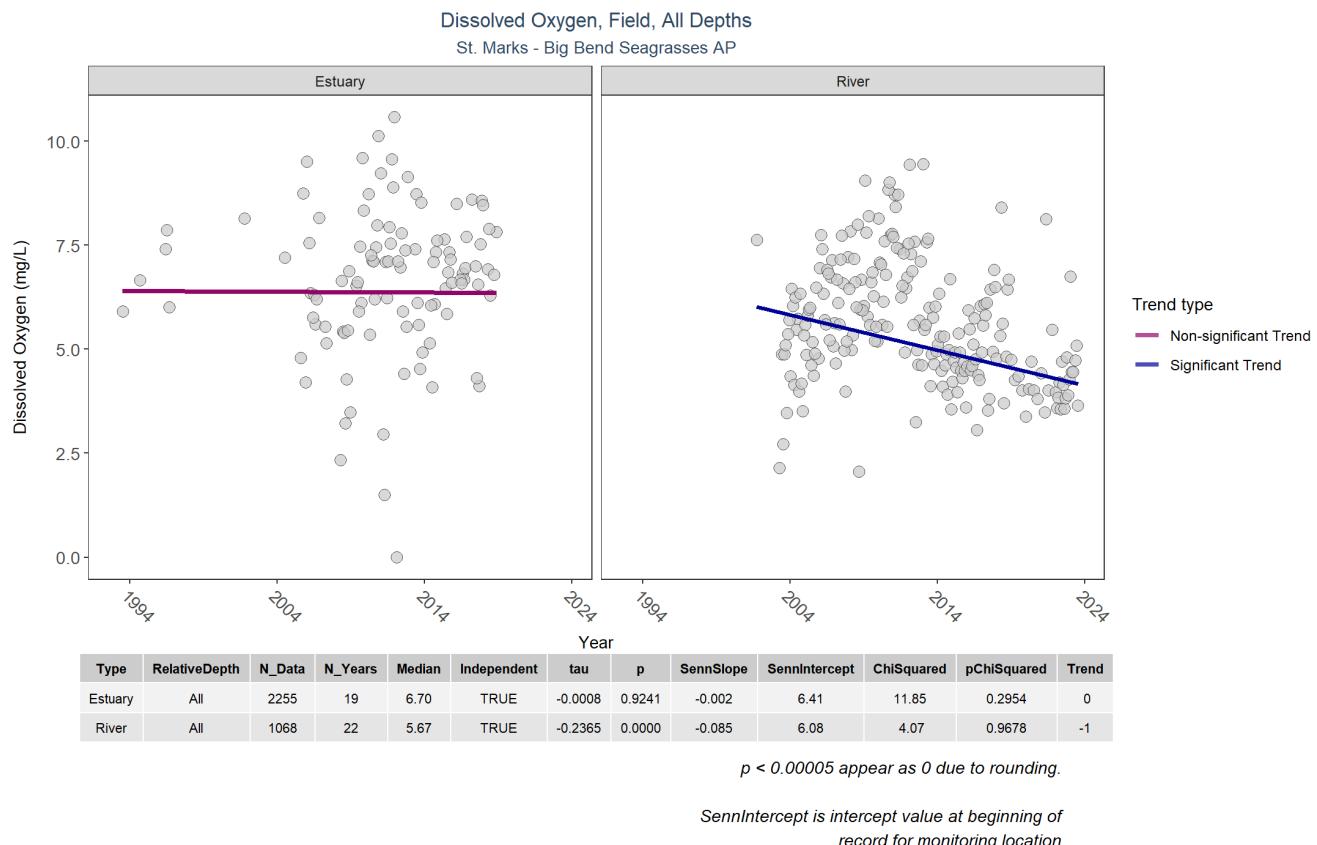
## Colored Dissolved Organic Matter



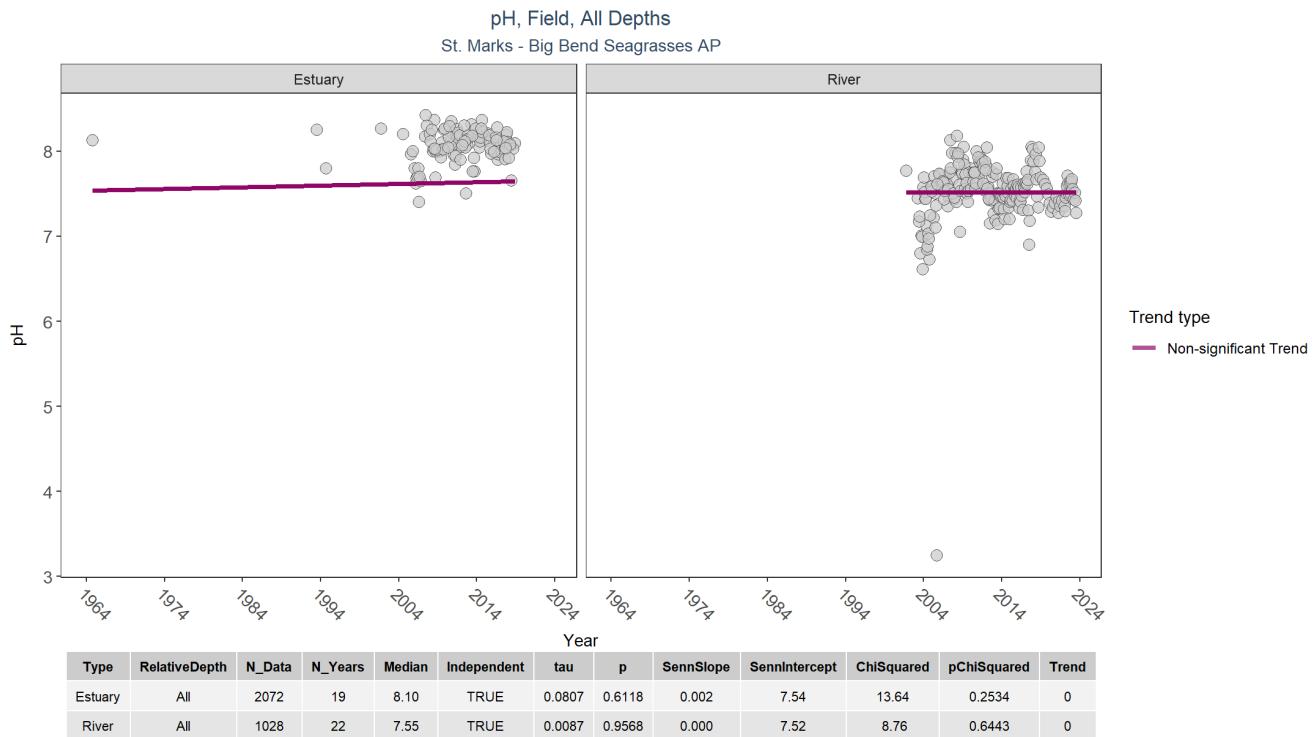
## Dissolved Oxygen Saturation



## Dissolved Oxygen



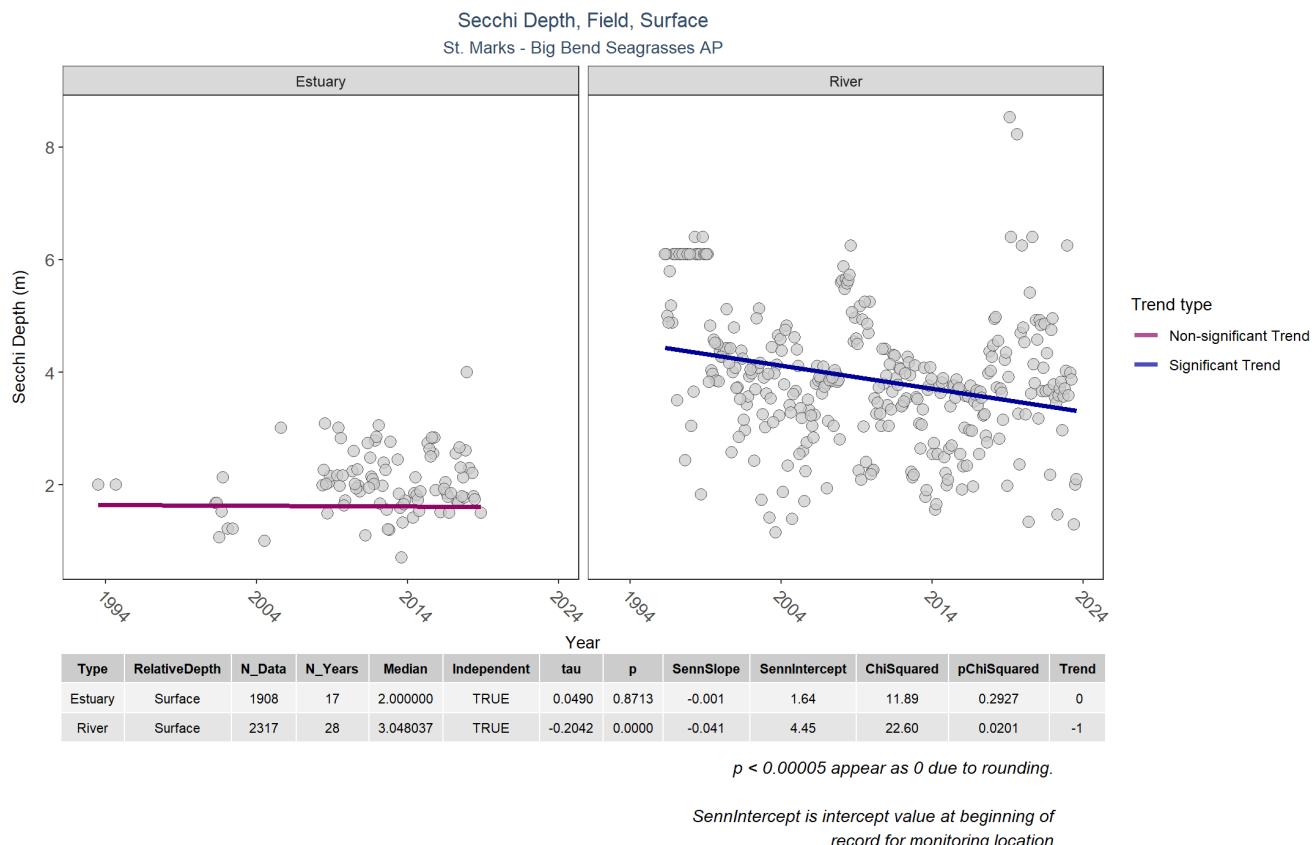
## pH



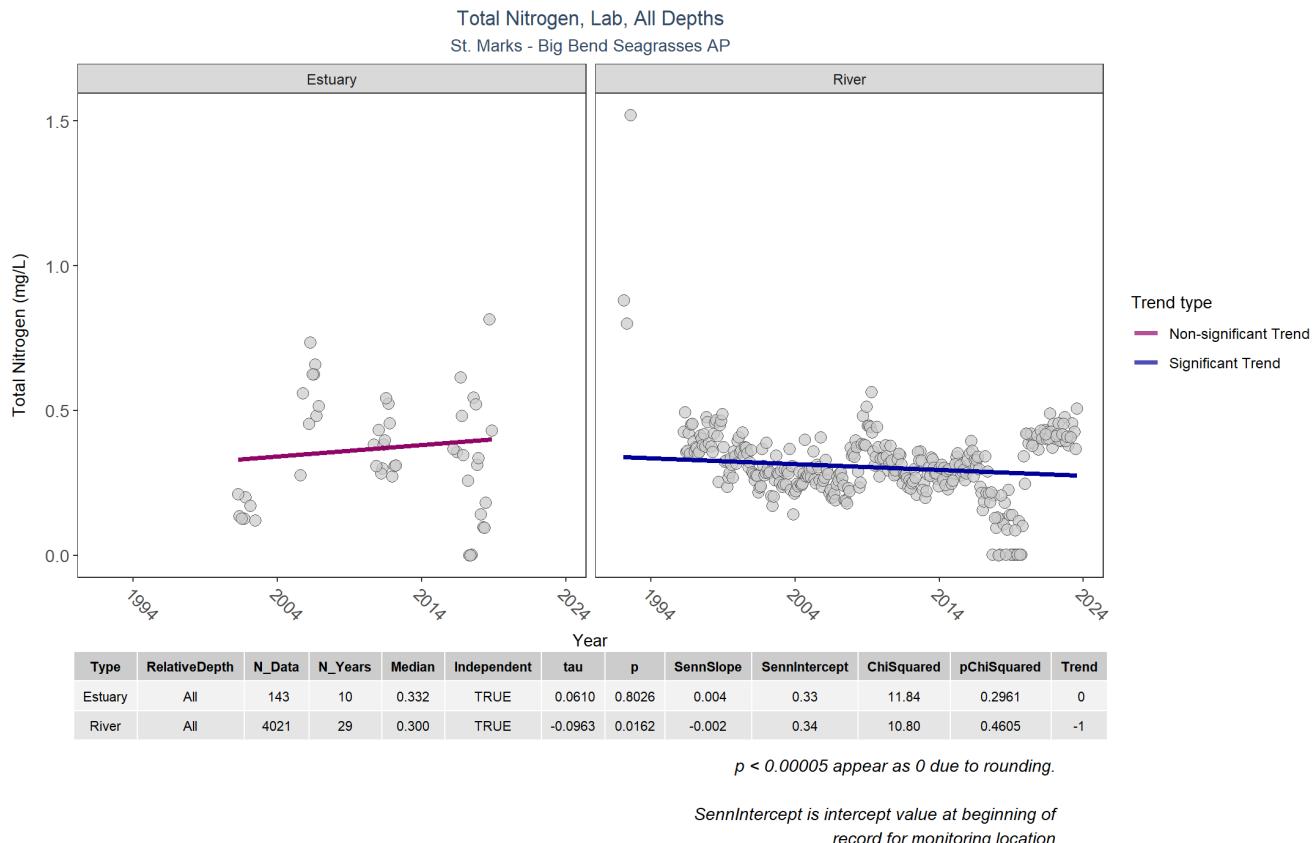
## Salinity



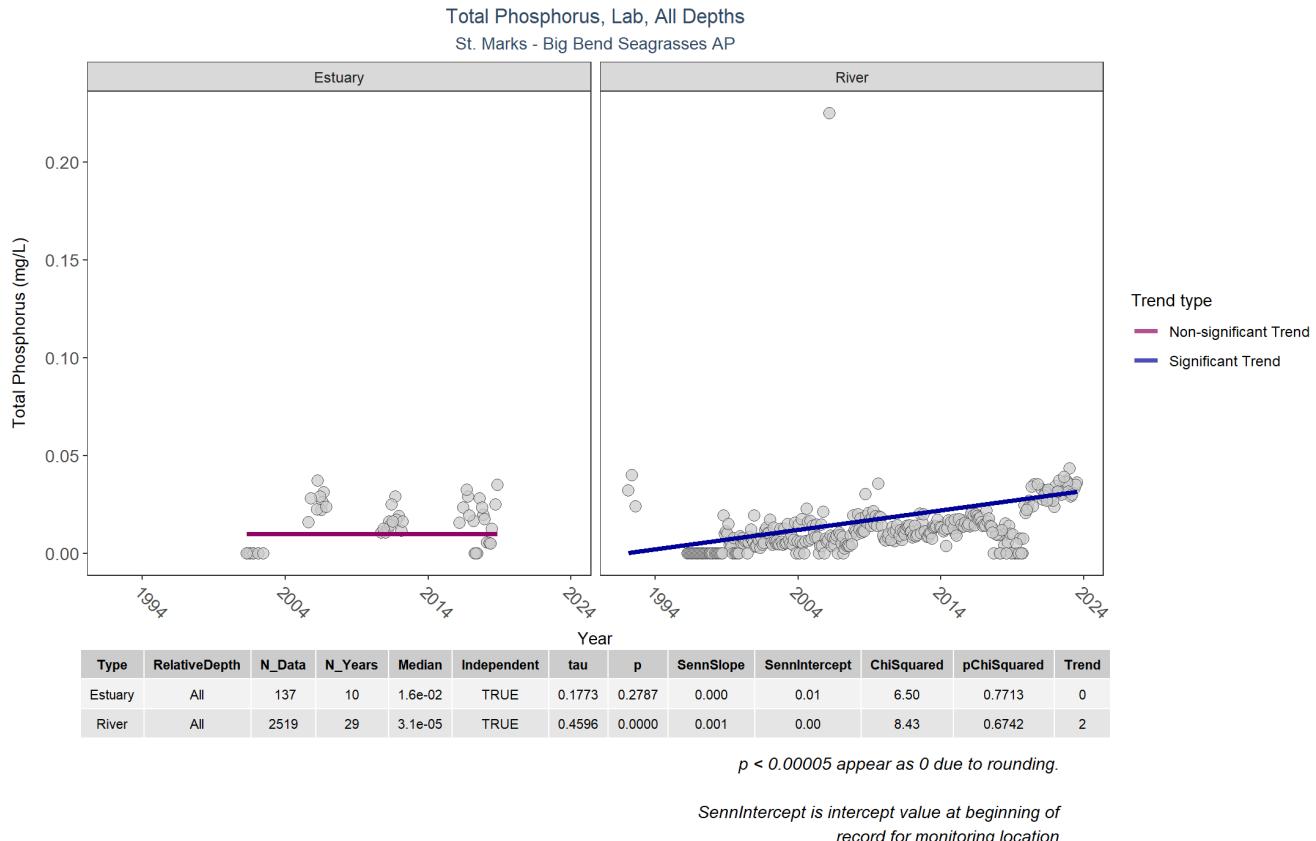
## Secchi Depth



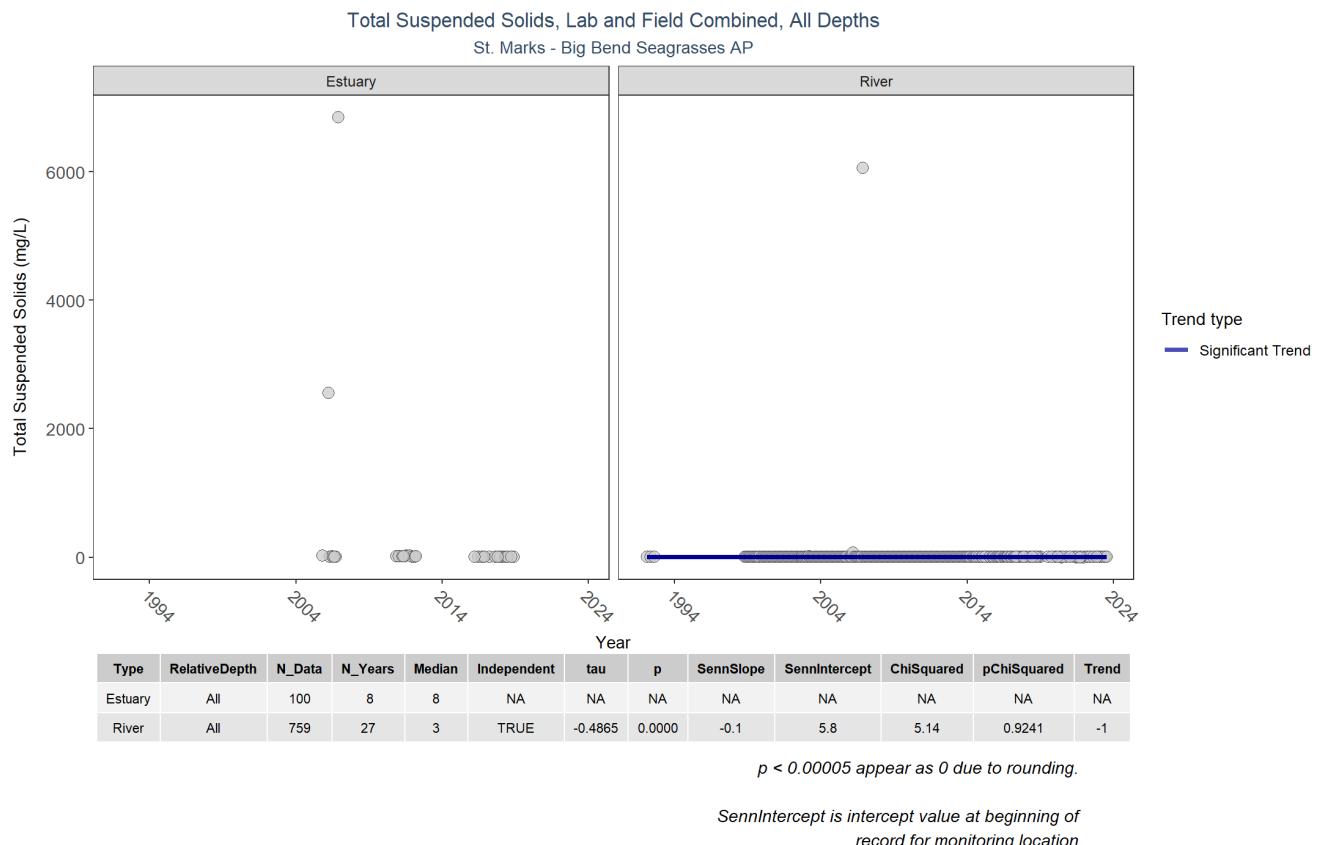
## Total Nitrogen



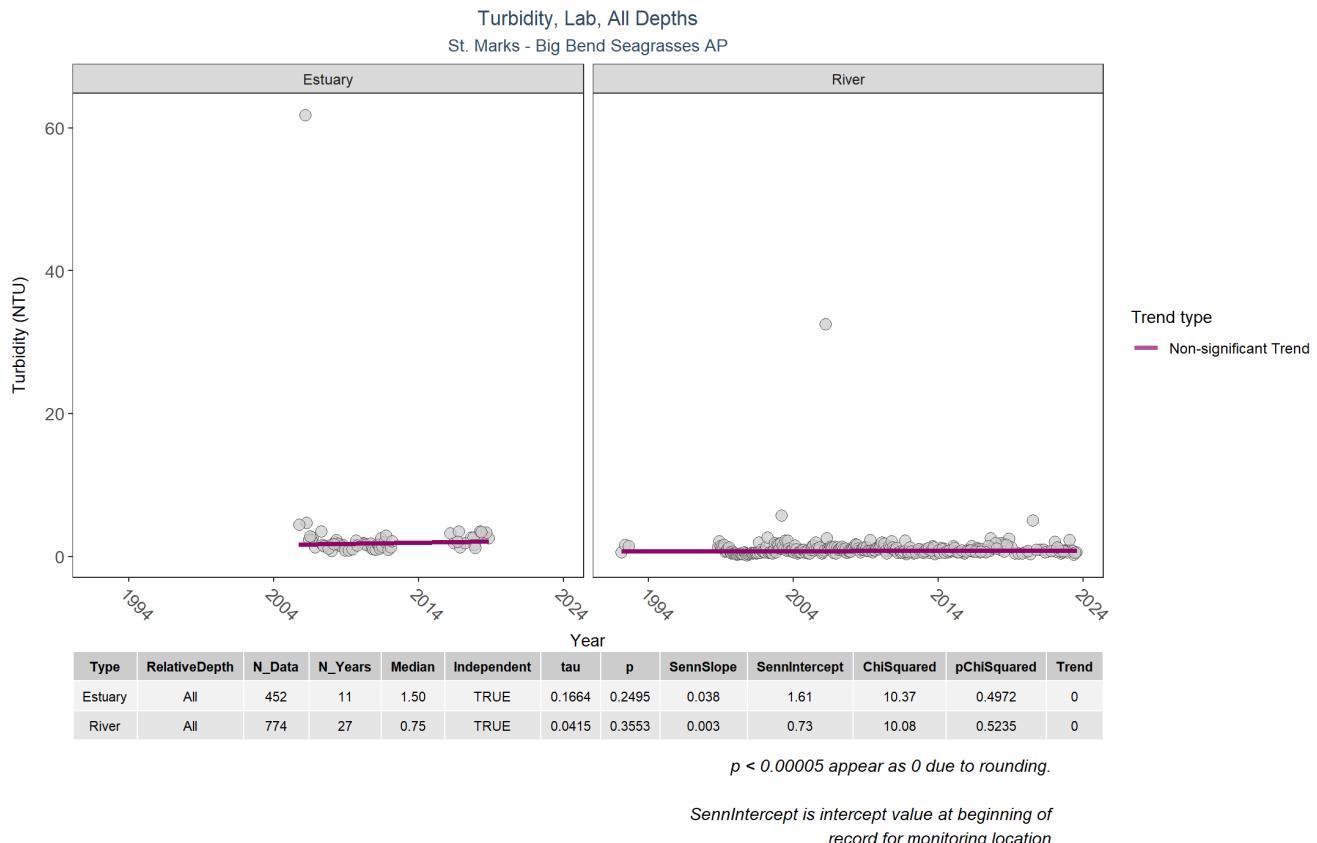
## Total Phosphorus



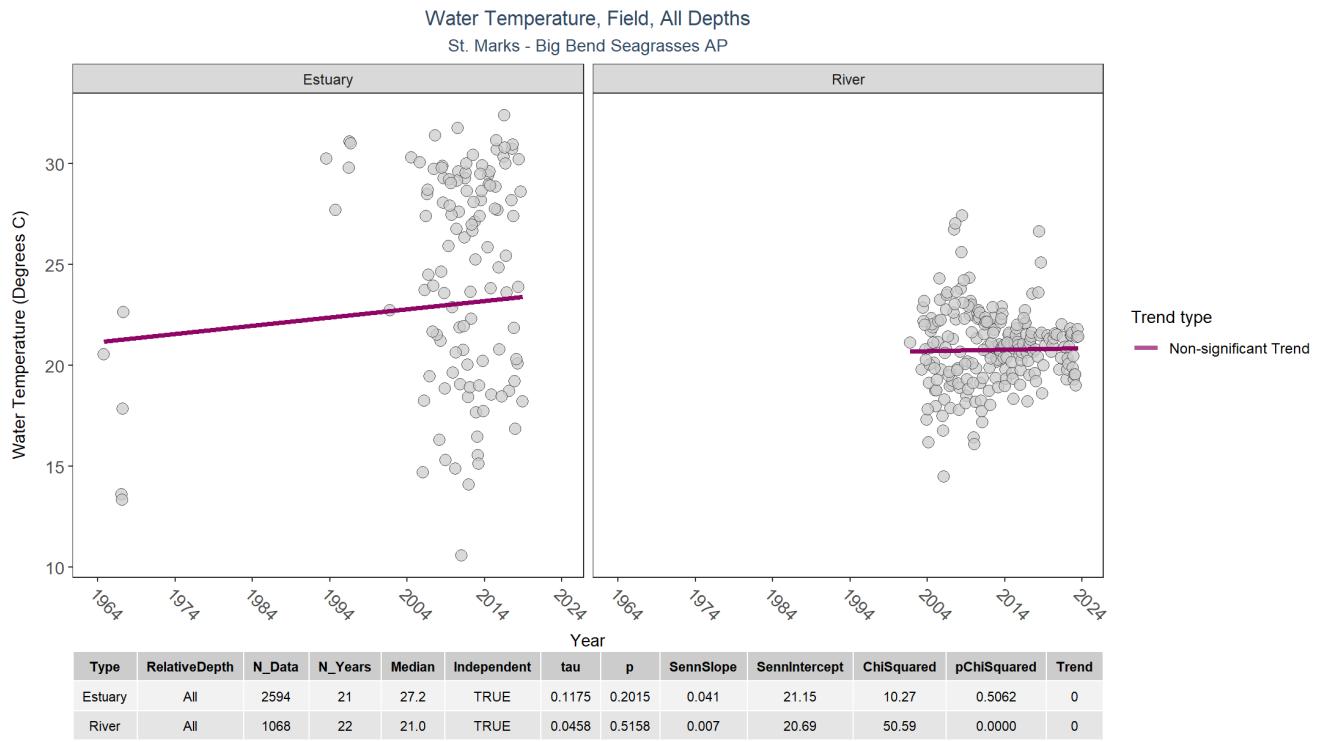
## Total Suspended Solids



## Turbidity



## Water Temperature



## Submerged Aquatic Vegetation

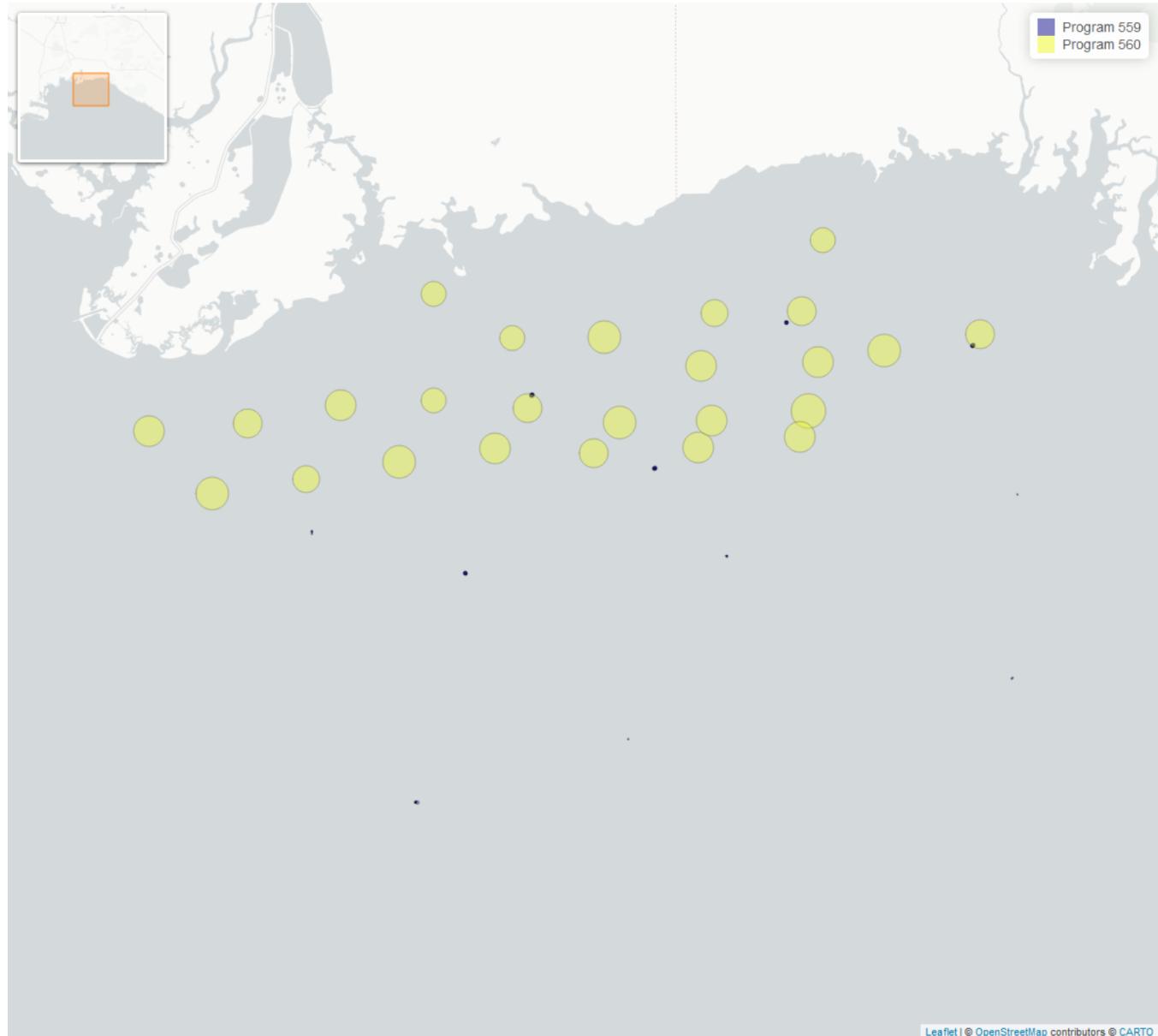


Table 10: Northern Big Bend Seagrass Monitoring - *Program 559*

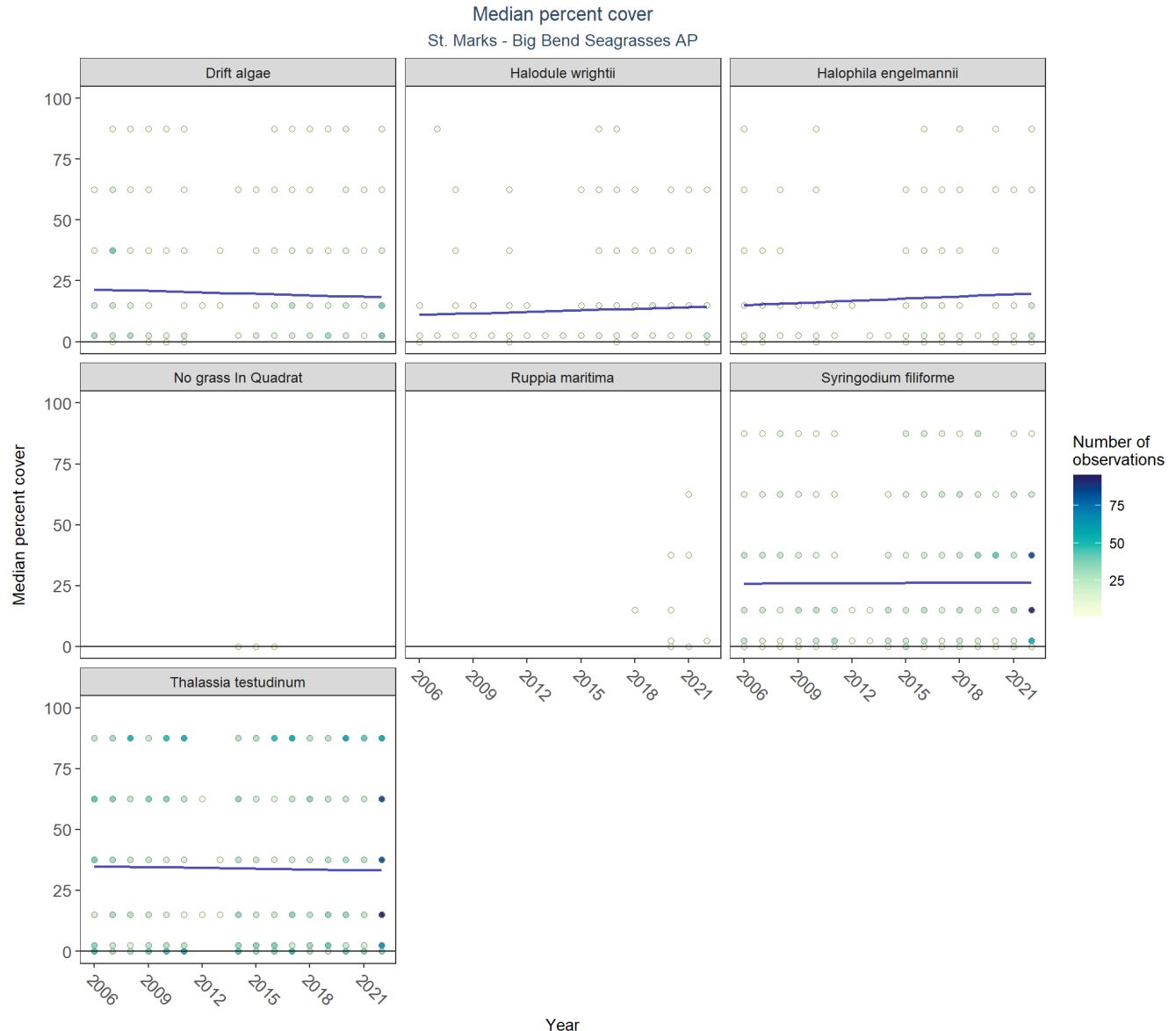
<i>N_Data</i>	<i>YearMin</i>	<i>YearMax</i>	<i>Collection Method</i>	<i>Sample Locations</i>
131	2012	2018	Modified Braun Blanquet	54

Table 11: Big Bend Seagrasses & Nature Coast Aquatic Preserves - Seagrass Monitoring - *Program 560*

<i>N_Data</i>	<i>YearMin</i>	<i>YearMax</i>	<i>Collection Method</i>	<i>Sample Locations</i>
5495	2006	2022	Modified Braun Blanquet	25

<i>N_Data</i>	<i>YearMin</i>	<i>YearMax</i>	<i>Collection Method</i>	<i>Sample Locations</i>
493	2022	2022	Percent Cover	25

### Median Percent Cover - Species Trends



## Median Percent Cover - Species Trend Table

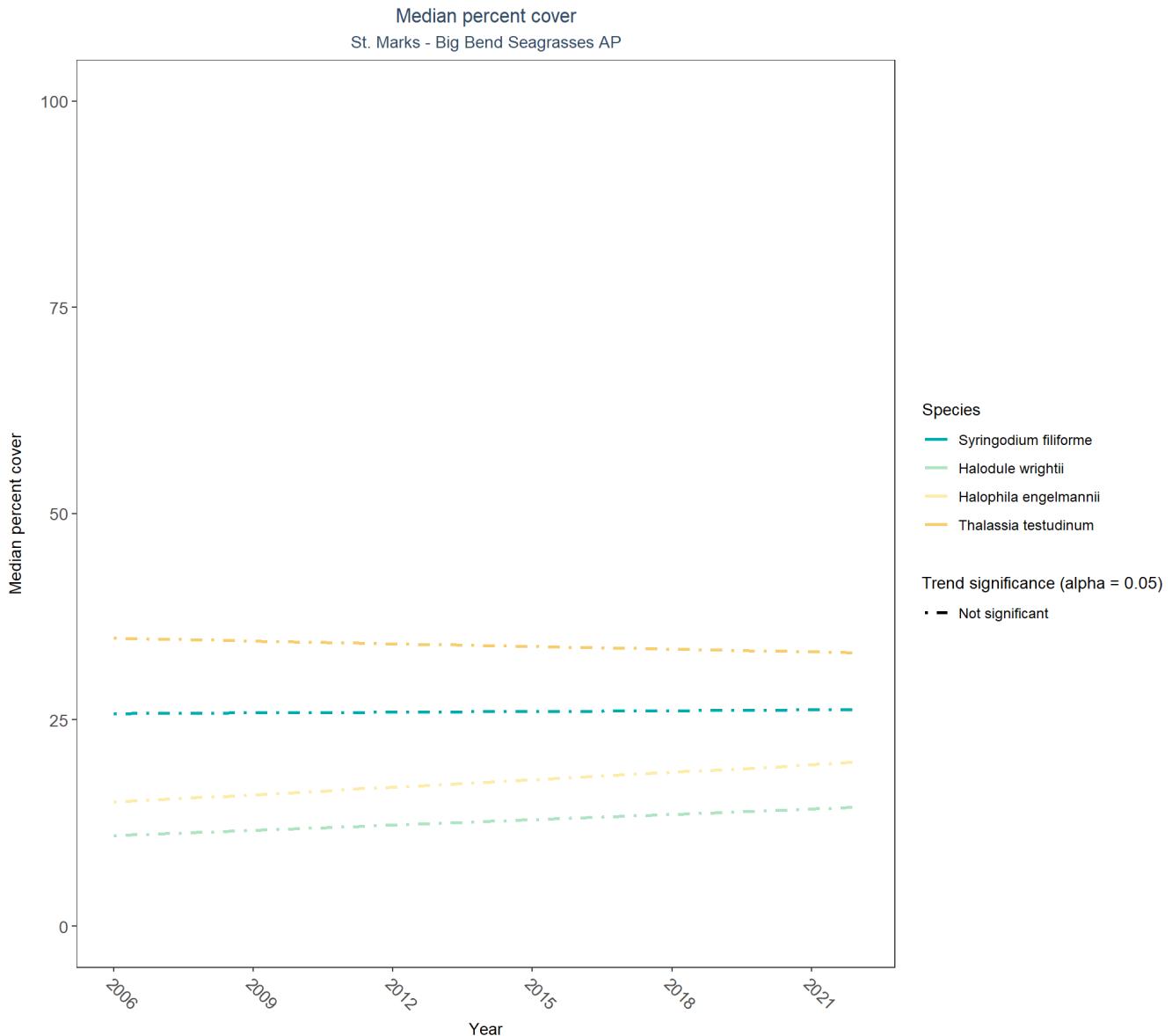
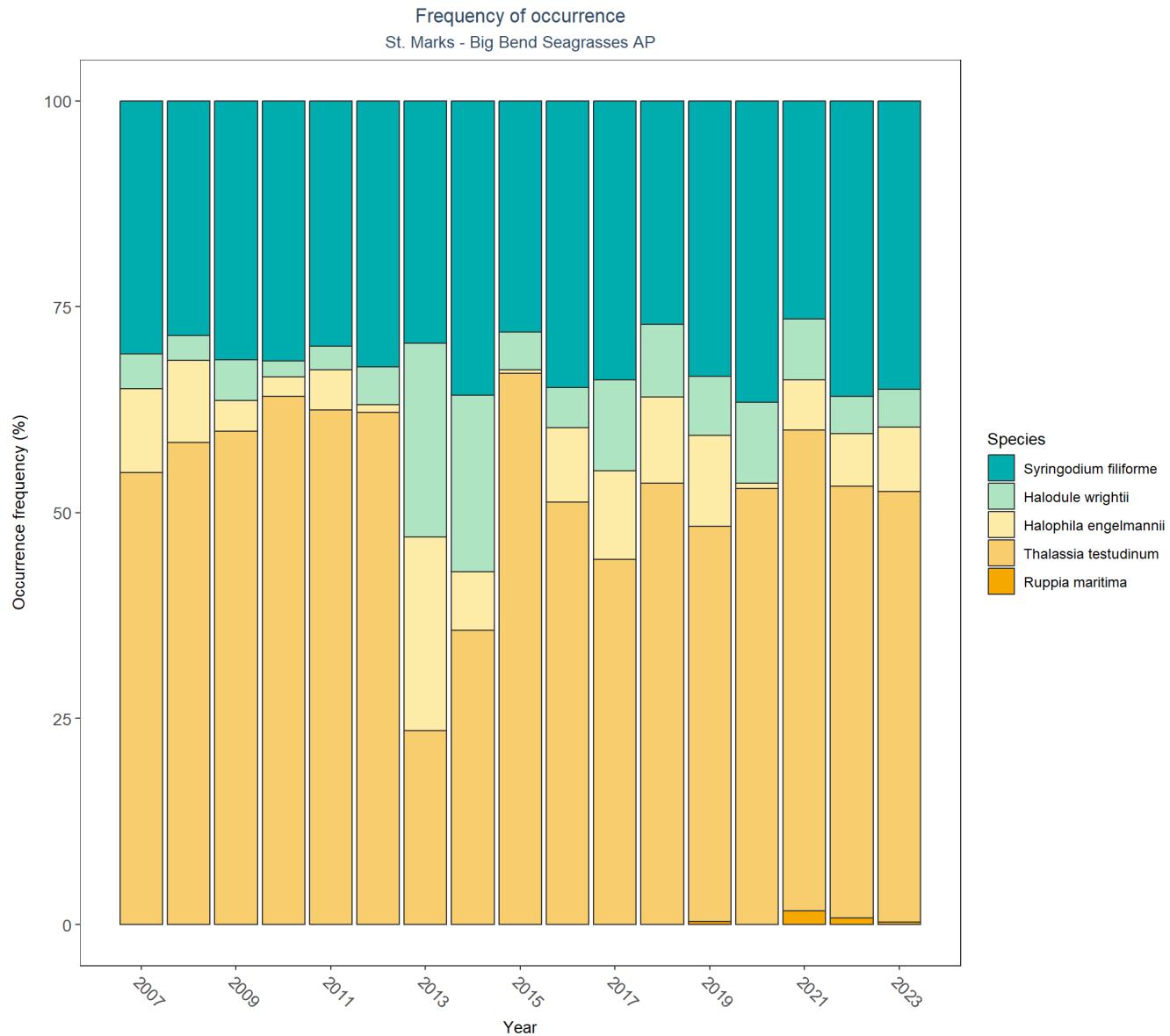


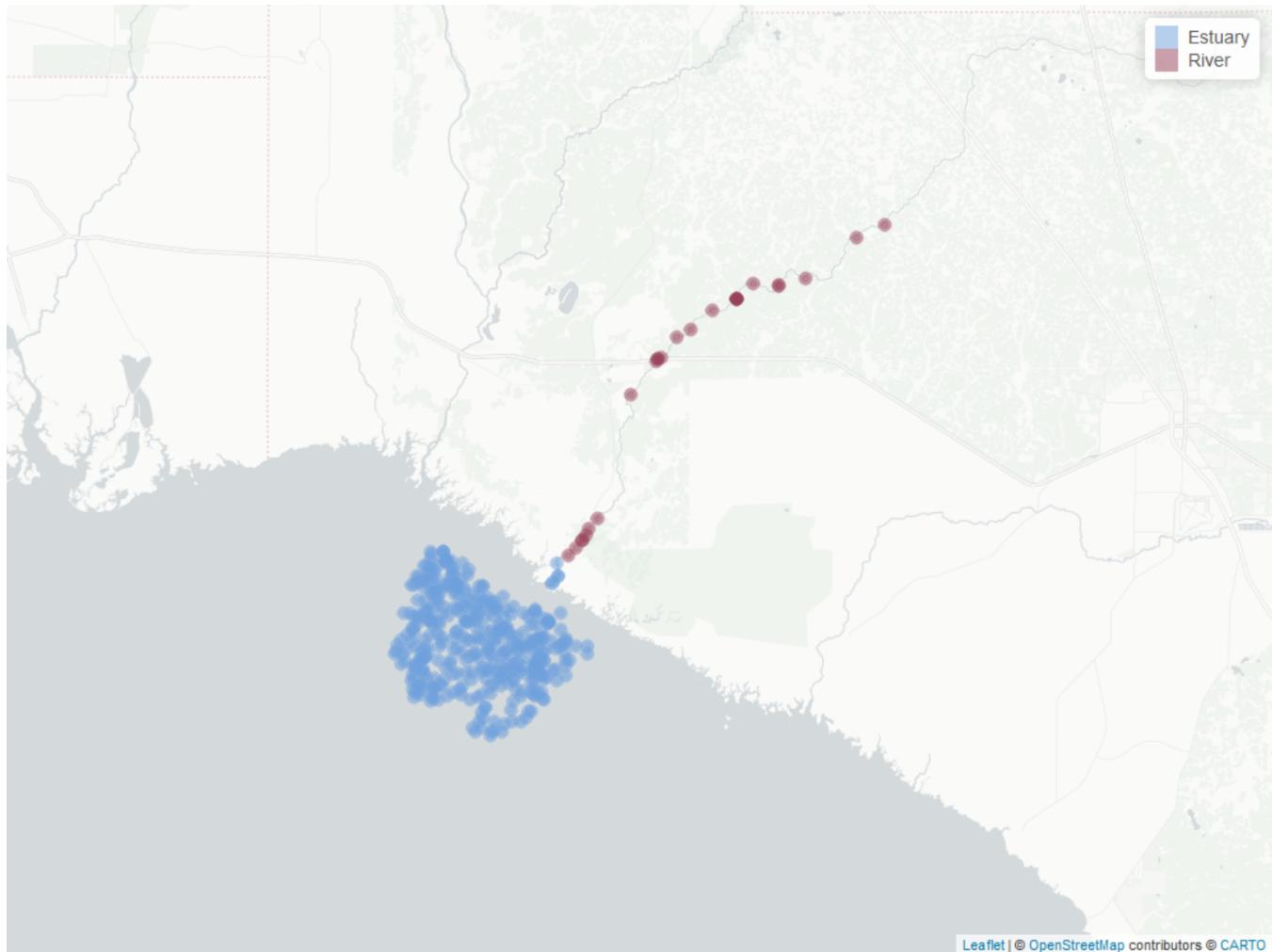
Table 12: Percent Cover Trend Analysis for St. Marks

Species	Trend Significance (0.05)	Period of Record	LME_Intercept	LME_Slope	p
Drift algae	No significant trend	2006 - 2022	22.6671	-0.1993	0.3994
<i>Halodule wrightii</i>	No significant trend	2006 - 2022	9.7163	0.2137	0.4598
<i>Halophila engelmannii</i>	No significant trend	2006 - 2022	13.2398	0.3004	0.3774
No grass In Quadrat	Insufficient data to calculate trend	-	-	-	-
<i>Ruppia maritima</i>	Insufficient data to calculate trend	-	-	-	-
<i>Syringodium filiforme</i>	No significant trend	2006 - 2022	25.5948	0.0297	0.8922
<i>Thalassia testudinum</i>	No significant trend	2006 - 2022	35.5687	-0.1105	0.5326

## Frequency of Occurrence Barplots



## 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 value.

Table 13: 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 - 2023	23	289	TRUE	-0.01	0.90	0.0000	↓
Estuary	Chlorophyll a, Uncorrected for Pheophytin	2004 - 2019	6	29	FALSE	-	-	-	-
River	Chlorophyll a, Uncorrected for Pheophytin	1990 - 2023	17	162	TRUE	0.00	0.40	0.0008	↑
Estuary	Colored Dissolved Organic Matter	2018 - 2019	2	3	FALSE	-	-	-	-
River	Colored Dissolved Organic Matter	2020 - 2023	4	24	FALSE	-	-	-	-
Estuary	Dissolved Oxygen	1991 - 2019	17	1217	TRUE	-0.03	9.67	0.2920	0
River	Dissolved Oxygen	1989 - 2023	32	577	TRUE	0.01	5.25	0.0135	↑
Estuary	Dissolved Oxygen Saturation	2011 - 2019	6	49	FALSE	-	-	-	-
River	Dissolved Oxygen Saturation	1999 - 2023	11	78	TRUE	-0.30	76.00	0.5228	0
Estuary	Salinity	1991 - 2019	17	1218	TRUE	-0.44	38.60	0.0002	↓
River	Salinity	1999 - 2016	14	116	TRUE	0.00	0.10	0.2441	0
Estuary	Secchi Depth	1991 - 2019	17	1195	TRUE	-0.04	2.48	0.0286	↓
River	Secchi Depth	1992 - 2023	27	398	TRUE	-0.01	0.67	0.0003	↓
Estuary	Total Nitrogen	2004 - 2019	8	42	FALSE	-	-	-	-
River	Total Nitrogen	1990 - 2023	26	359	TRUE	0.00	0.78	0.4320	0
Estuary	Total Phosphorus	2004 - 2019	8	38	FALSE	-	-	-	-
River	Total Phosphorus	1998 - 2023	24	291	TRUE	0.00	0.08	0.6542	0
Estuary	Total Suspended Solids	2011 - 2019	6	33	FALSE	-	-	-	-
River	Total Suspended Solids	1990 - 2023	31	363	TRUE	0.00	4.00	0.0017	↓
Estuary	Turbidity	2011 - 2019	6	32	FALSE	-	-	-	-
River	Turbidity	1990 - 2023	31	468	TRUE	0.02	2.02	0.0263	↑
Estuary	Water Temperature	1991 - 2019	17	1219	TRUE	0.06	26.68	0.2680	0
River	Water Temperature	1989 - 2023	32	573	TRUE	0.01	19.76	0.2182	0
Estuary	pH	1991 - 2019	17	1215	TRUE	0.00	8.37	0.3301	0
River	pH	1989 - 2023	32	567	TRUE	0.00	7.08	0.6873	0

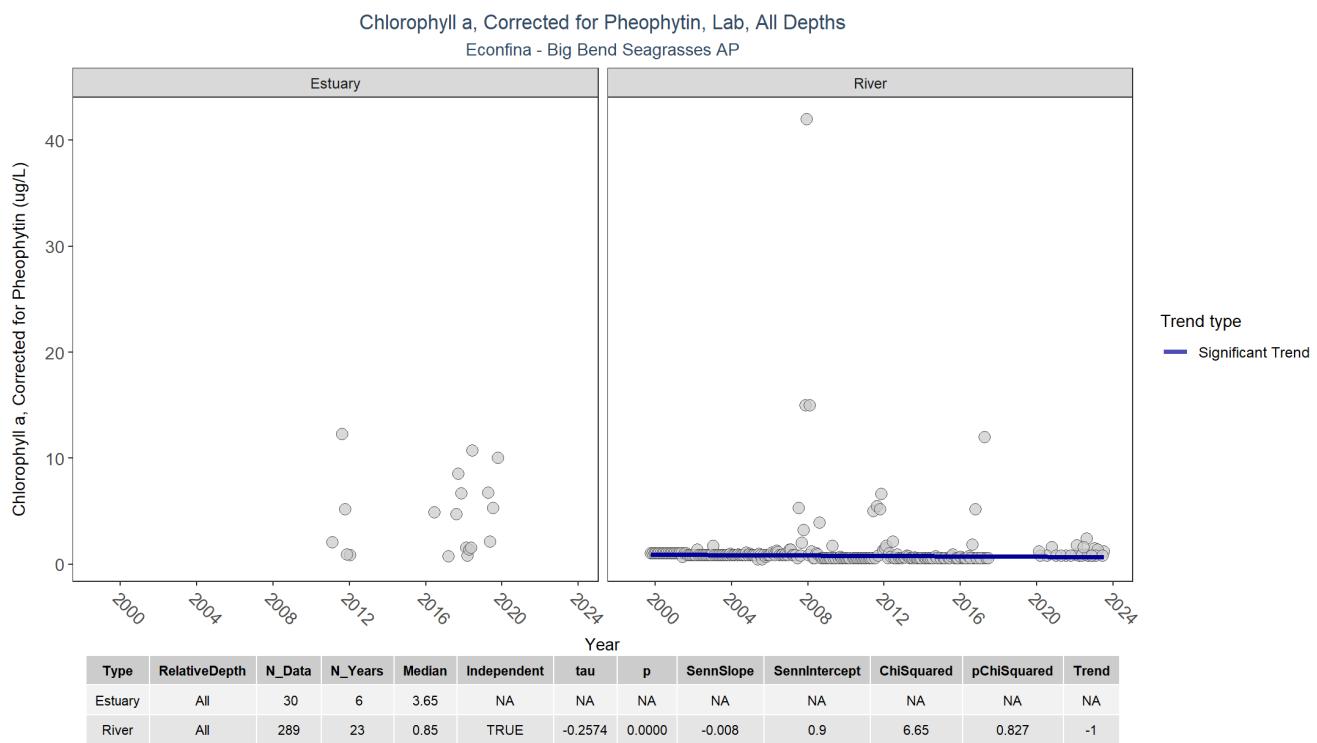
Table containing overview of Programs contributing data for Econfina

Table 14: Overview of Program Data for Econfina

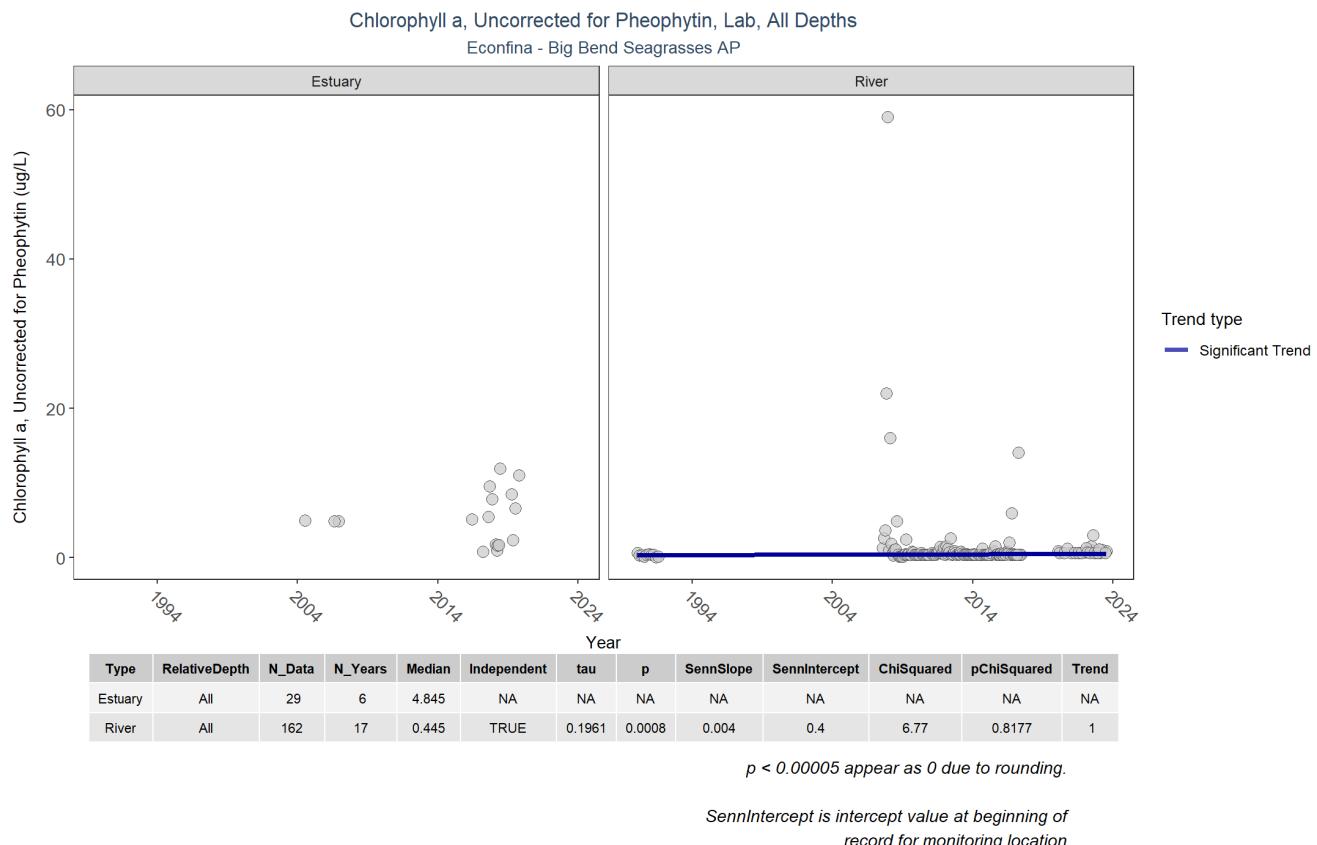
ParameterName	ProgramID	n-data-Estuay	n-data-River
Ammonium, Filtered (NH4)	103	1	-
Ammonium, Filtered (NH4)	115	1	-
Ammonium, Filtered (NH4)	5002	33	454
Chlorophyll a, Corrected for Pheophytin	5002	31	289
Chlorophyll a, Uncorrected for Pheophytin	103	5	-
Chlorophyll a, Uncorrected for Pheophytin	115	2	-
Chlorophyll a, Uncorrected for Pheophytin	118	1	-
Chlorophyll a, Uncorrected for Pheophytin	5002	22	162
Colored Dissolved Organic Matter	5002	3	24
Dissolved Oxygen	69	1150	-
Dissolved Oxygen	95	3	-
Dissolved Oxygen	103	2	-
Dissolved Oxygen	115	13	-
Dissolved Oxygen	118	1	-
Dissolved Oxygen	5002	48	646
Dissolved Oxygen Saturation	95	1	-
Dissolved Oxygen Saturation	5002	48	78
NO2+3, Filtered	5002	33	450
Nitrate (NO3)	5002	-	10
Nitrite (NO2)	5002	-	10
Phosphate, Filtered (PO4)	103	1	-
Phosphate, Filtered (PO4)	115	1	-
Phosphate, Filtered (PO4)	5002	13	298
Salinity	69	1150	-
Salinity	95	4	-
Salinity	103	2	-
Salinity	115	13	-
Salinity	5002	49	116
Secchi Depth	69	1150	-
Secchi Depth	115	6	-
Secchi Depth	5002	39	464
Specific Conductivity	69	1150	-
Specific Conductivity	5002	49	958
Total Kjeldahl Nitrogen	5002	33	465
Total Nitrogen	103	9	-
Total Nitrogen	115	1	-
Total Nitrogen	5002	33	359

Total Phosphorus	103	5	-
Total Phosphorus	115	1	-
Total Phosphorus	5002	33	291
Total Suspended Solids	5002	33	363
Turbidity	103	1	-
Turbidity	5002	33	472
Water Temperature	69	1150	-
Water Temperature	95	4	-
Water Temperature	103	3	-
Water Temperature	115	13	-
Water Temperature	5002	49	642
pH	69	1150	-
pH	95	1	-
pH	103	2	-
pH	115	13	-
pH	5002	49	637

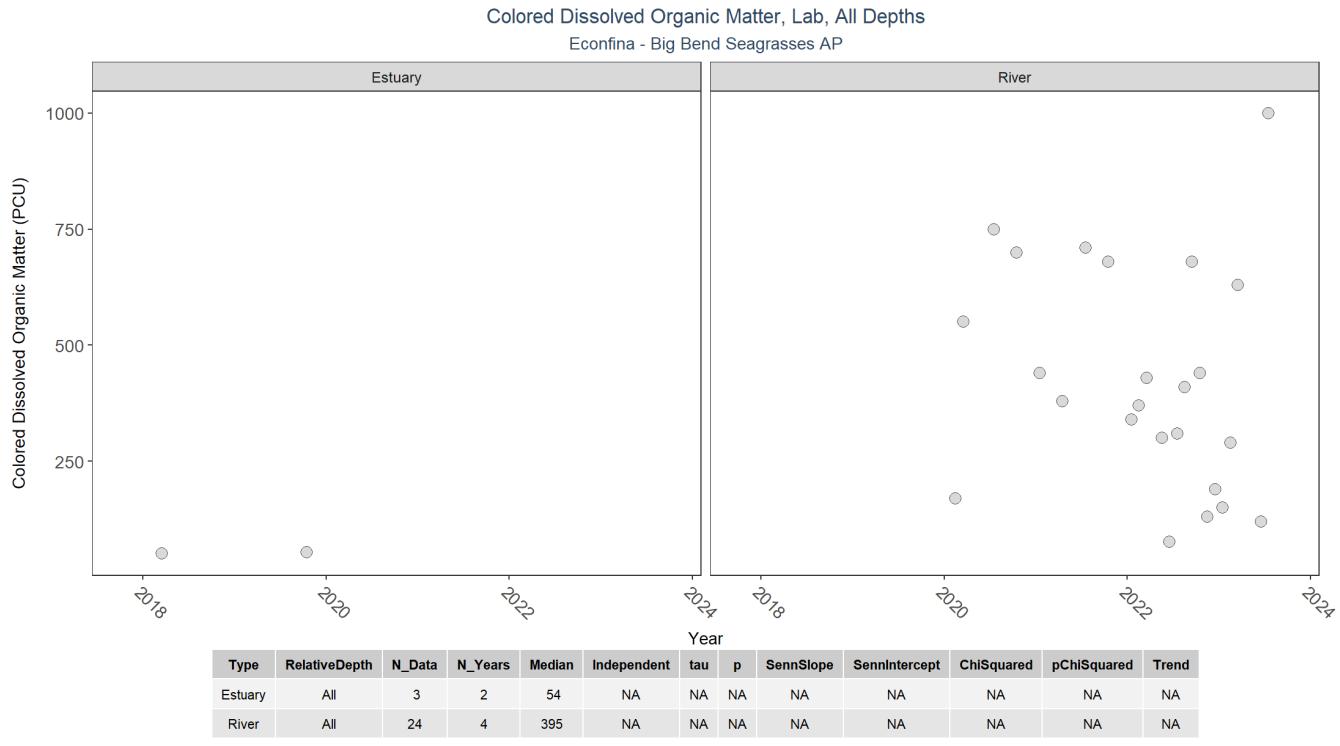
## Chlorophyll a, Corrected for Pheophytin



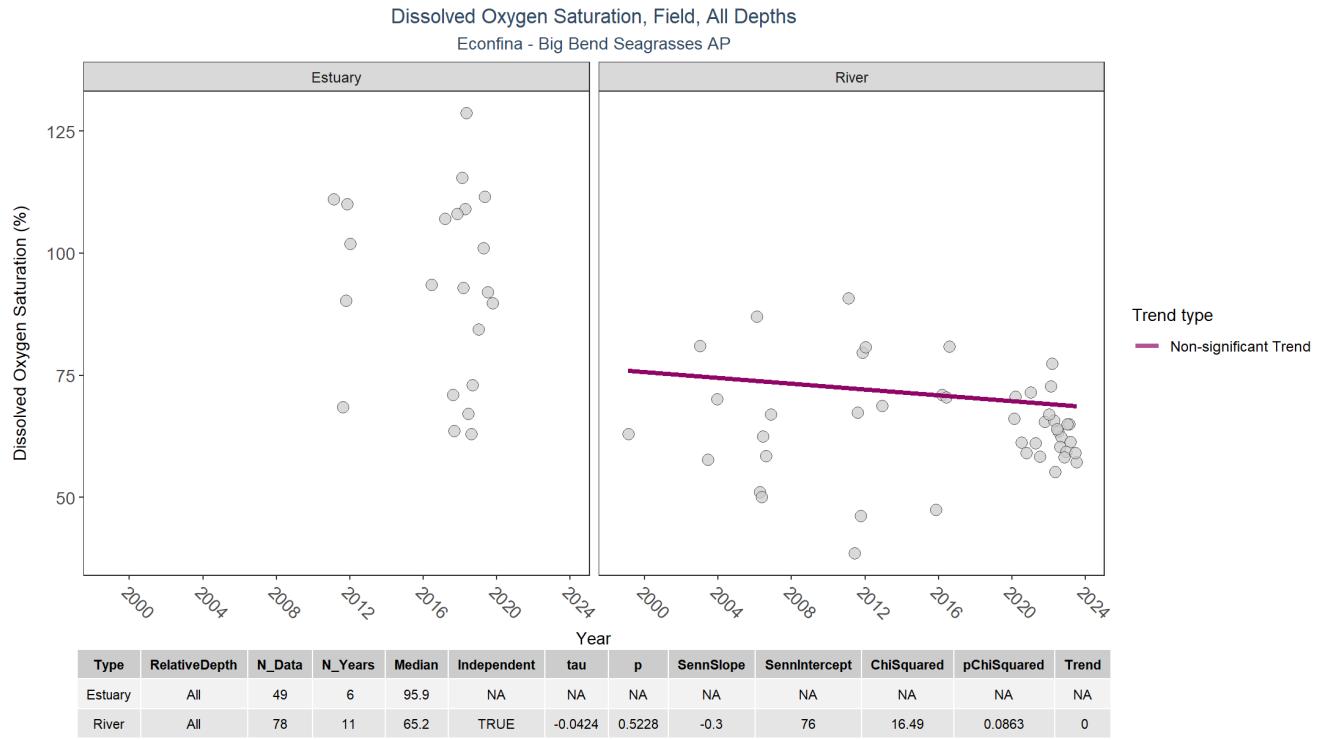
## Chlorophyll a, Uncorrected for Pheophytin



## Colored Dissolved Organic Matter



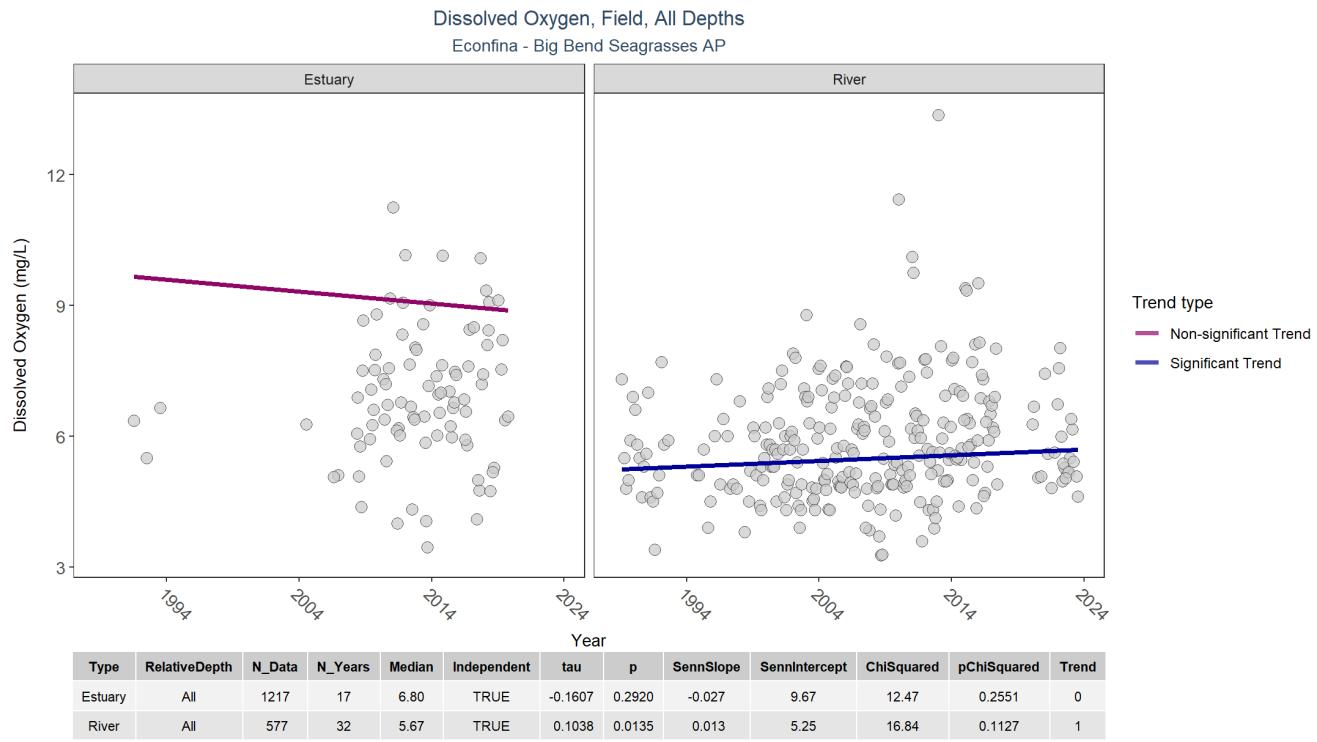
## Dissolved Oxygen Saturation



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

*SennIntercept is intercept value at beginning of record for monitoring location*

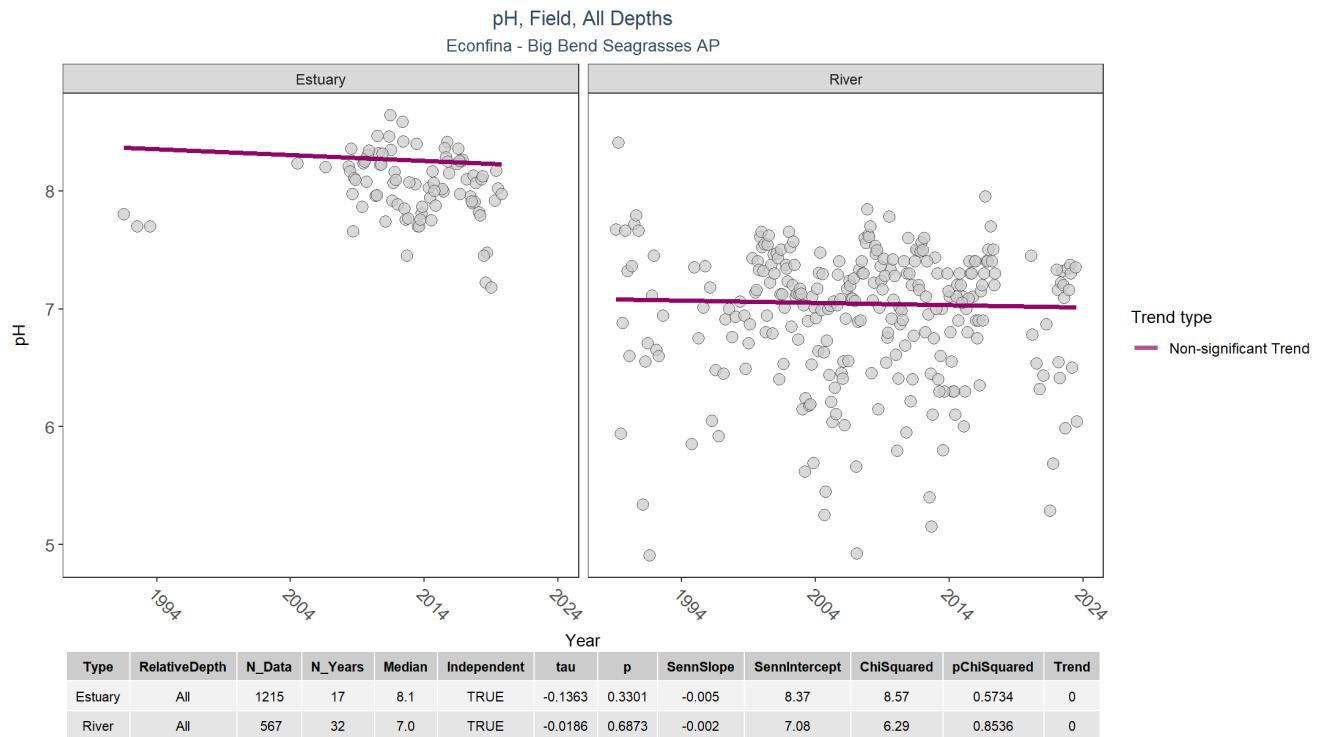
## Dissolved Oxygen



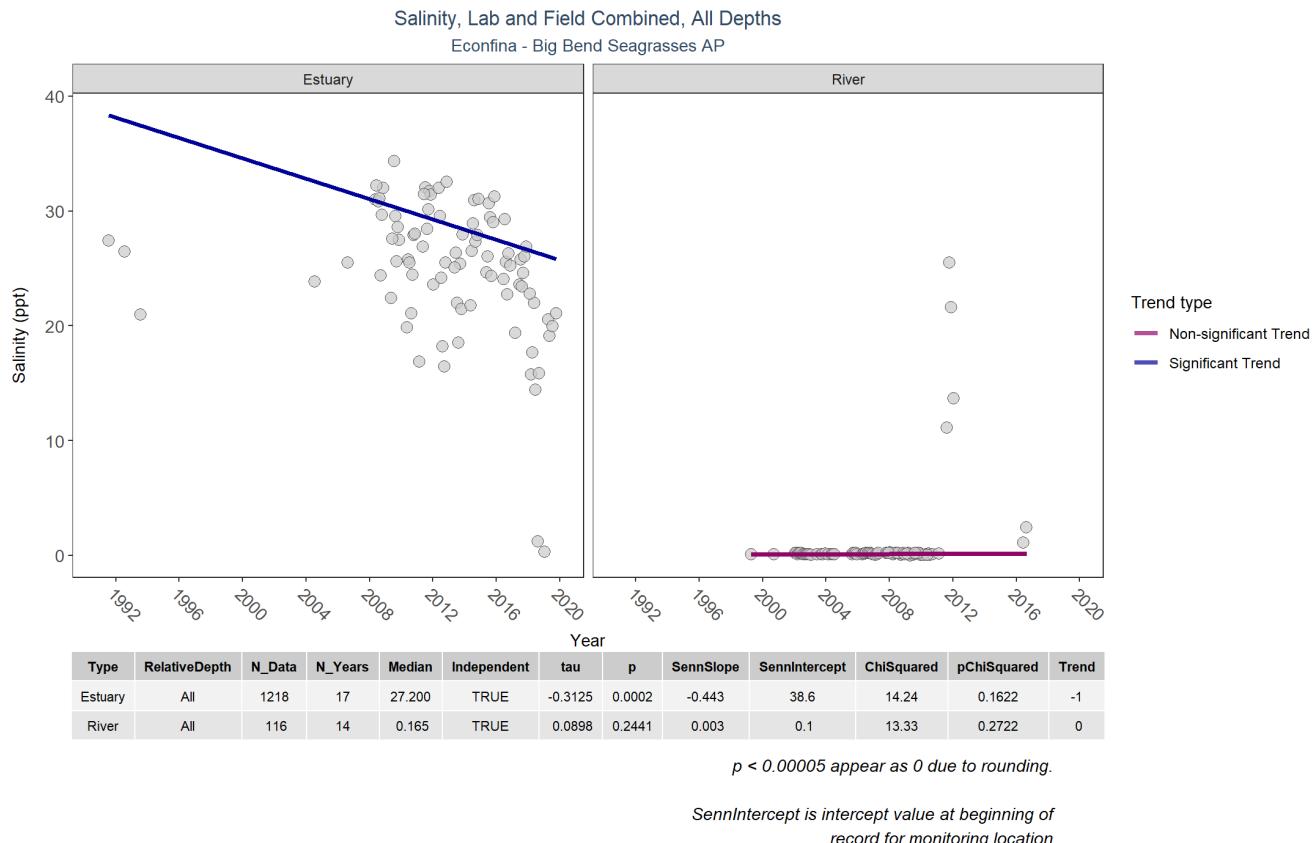
*p < 0.00005 appear as 0 due to rounding.*

*SennIntercept is intercept value at beginning of record for monitoring location*

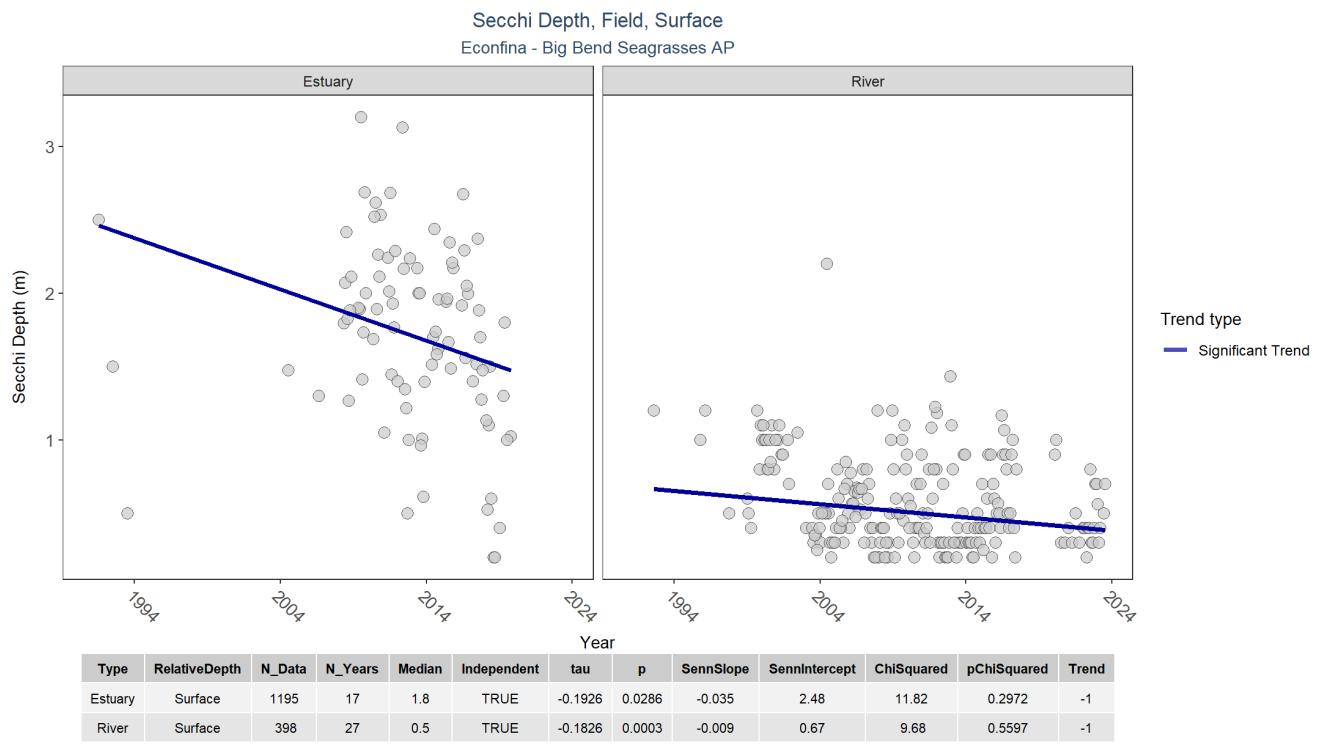
## pH



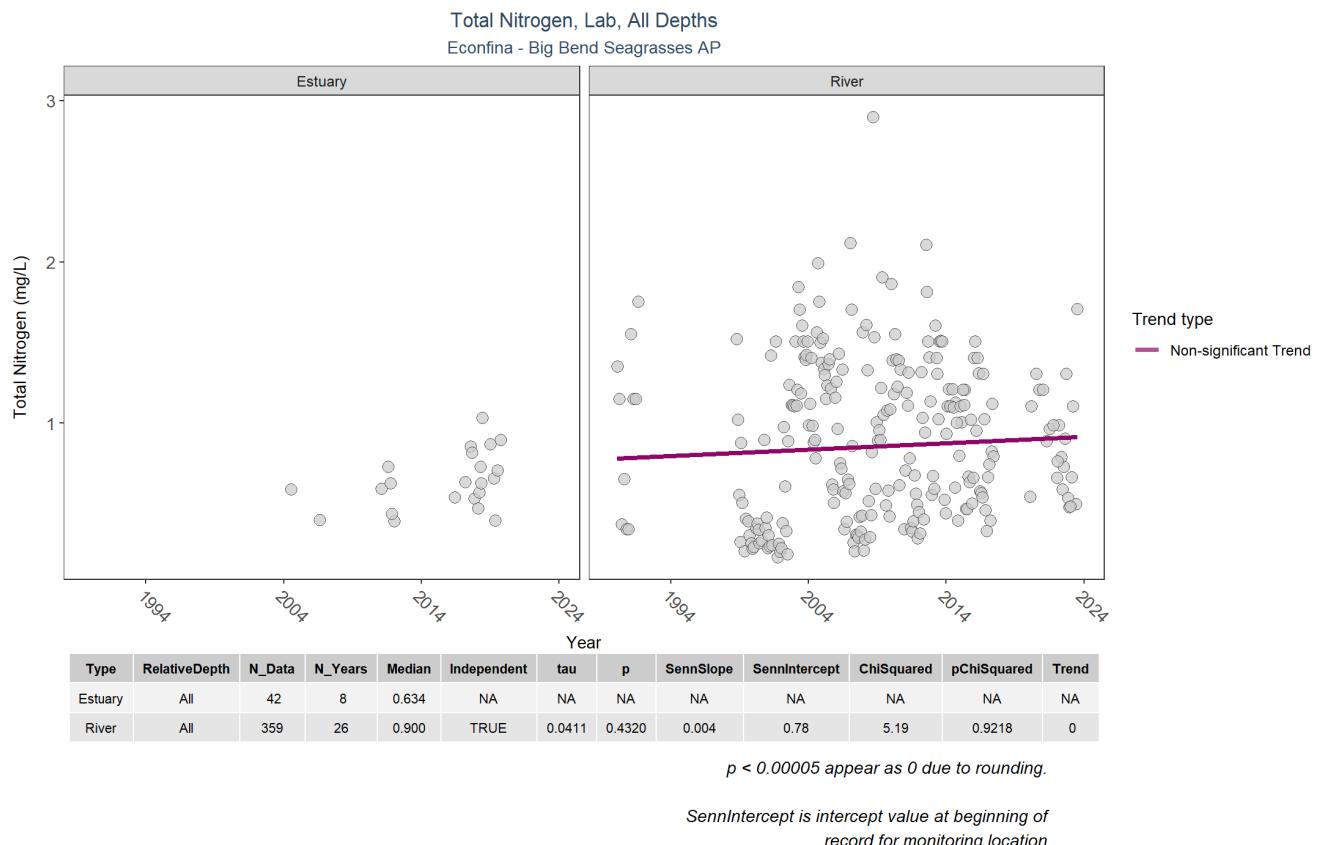
## Salinity



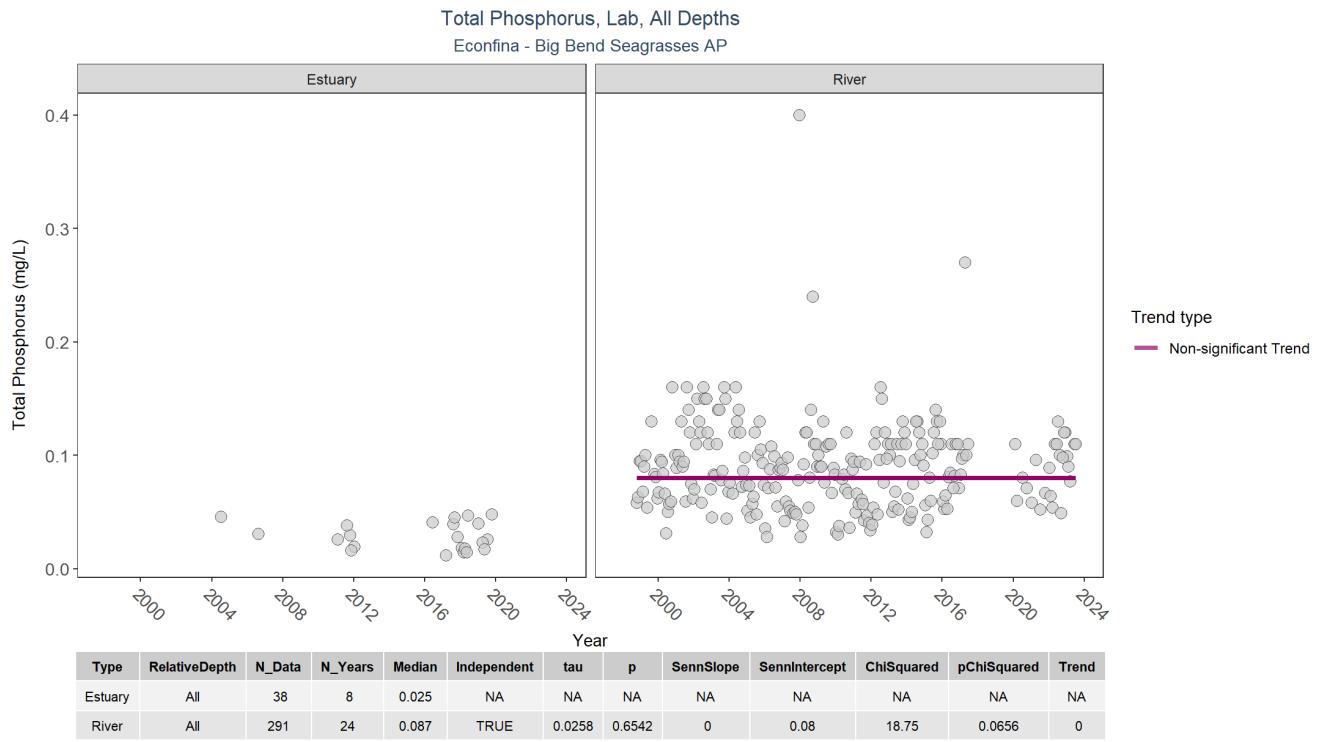
## Secchi Depth



## Total Nitrogen



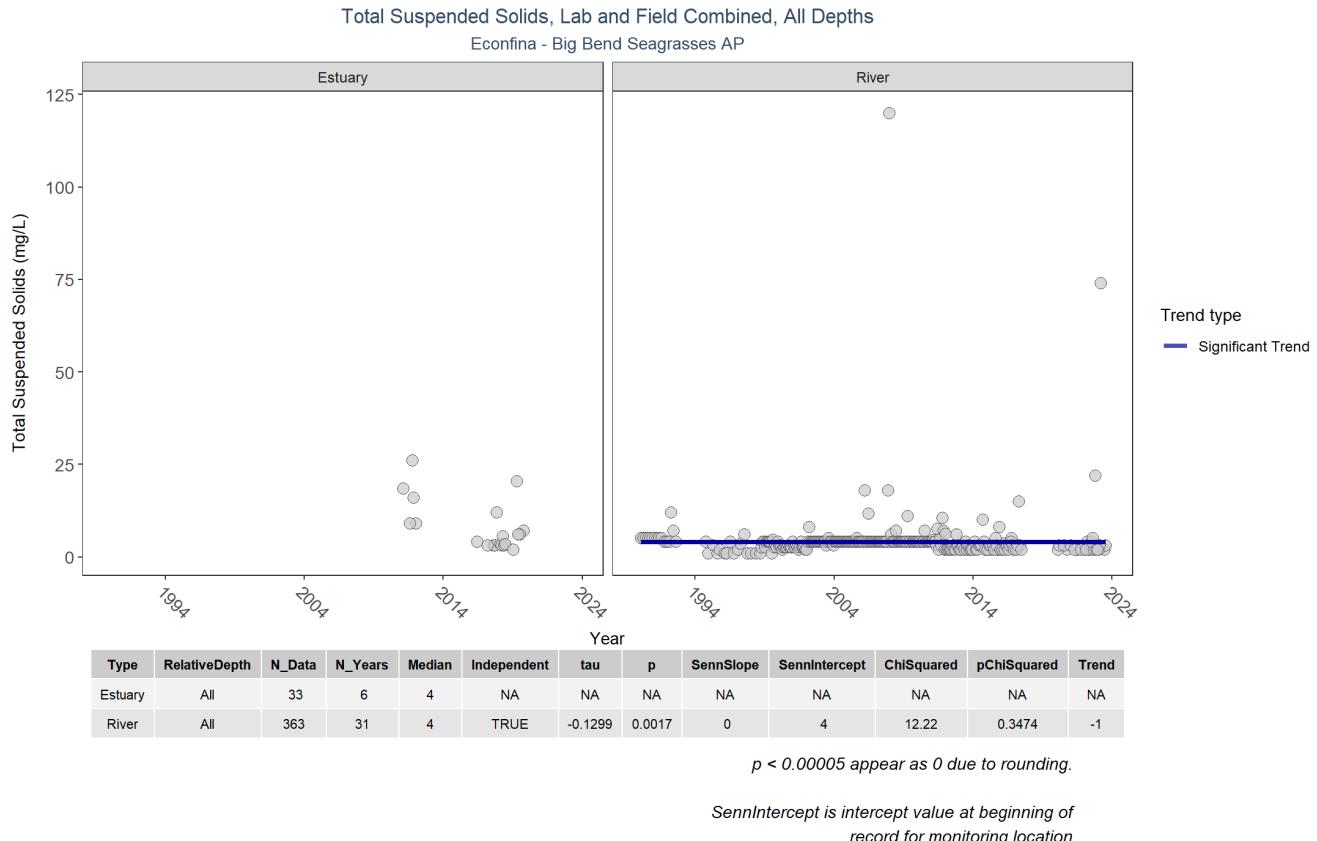
## Total Phosphorus



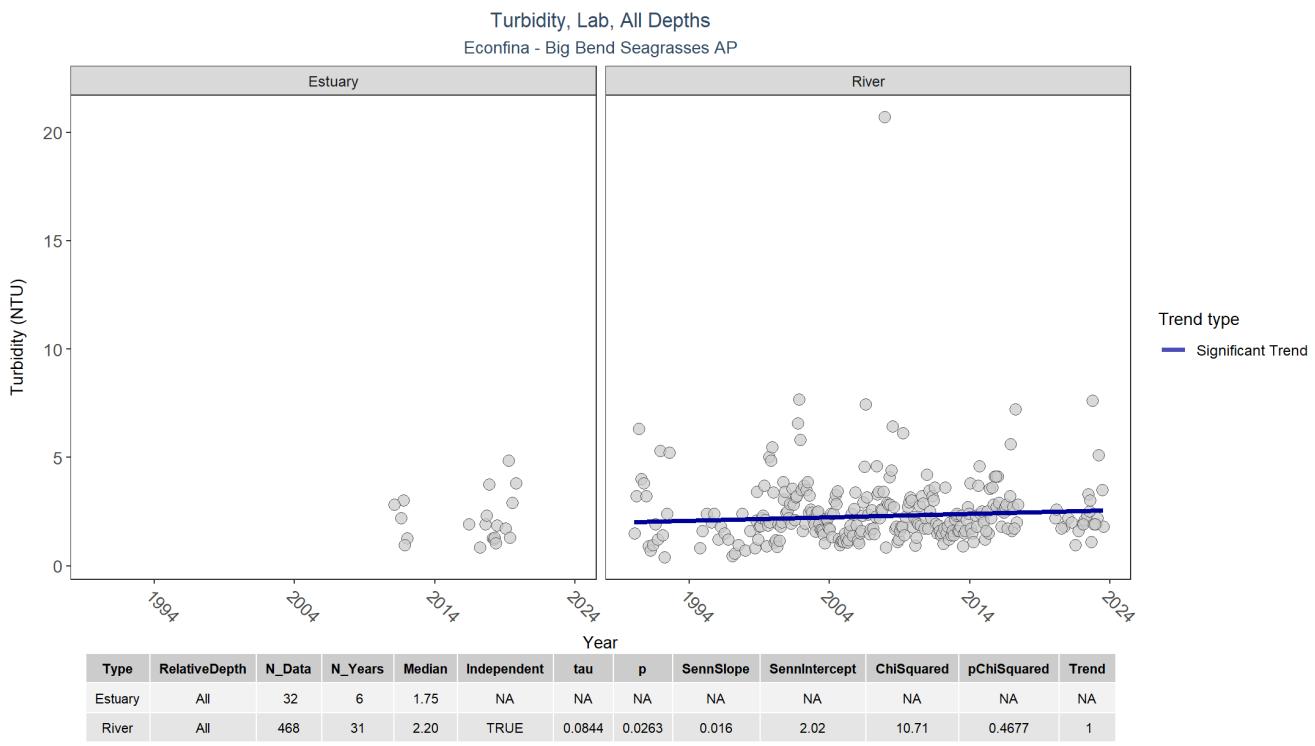
*p < 0.00005 appear as 0 due to rounding.*

*SennIntercept is intercept value at beginning of record for monitoring location*

## Total Suspended Solids



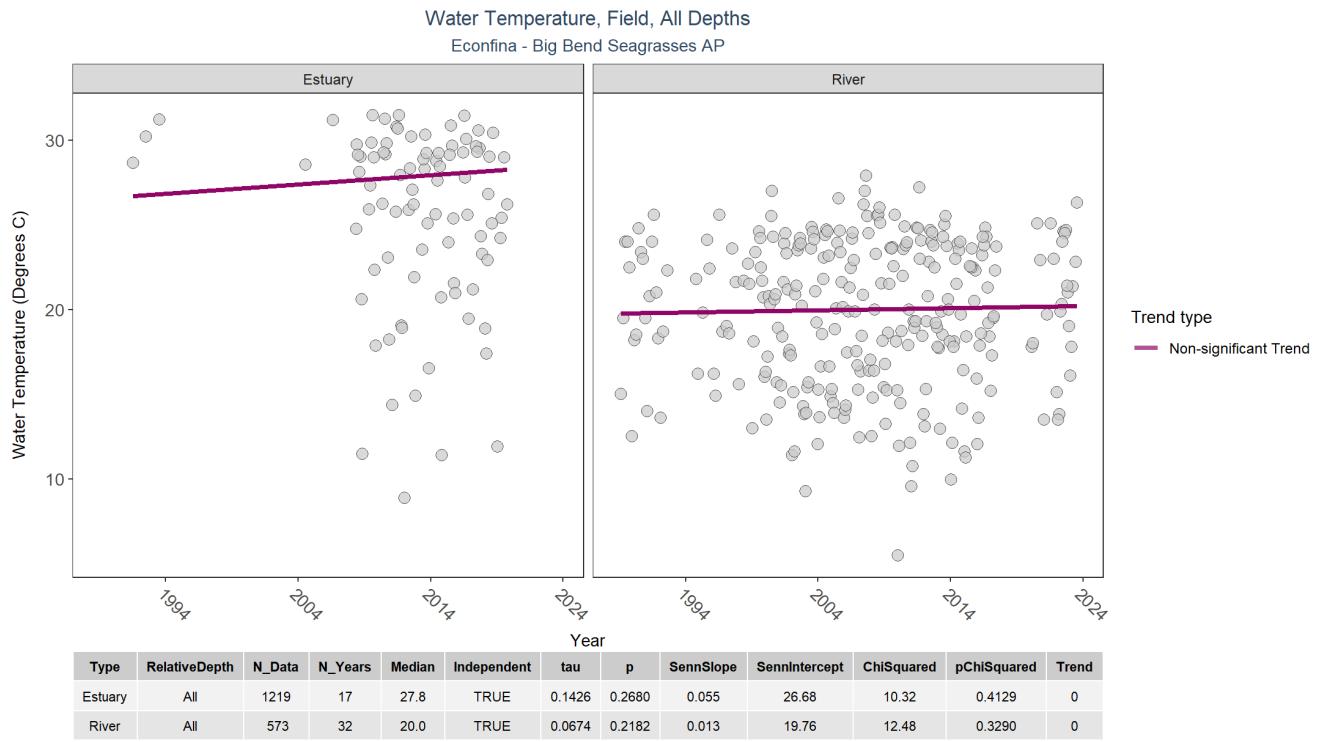
## Turbidity



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

*SennIntercept* is intercept value at beginning of record for monitoring location

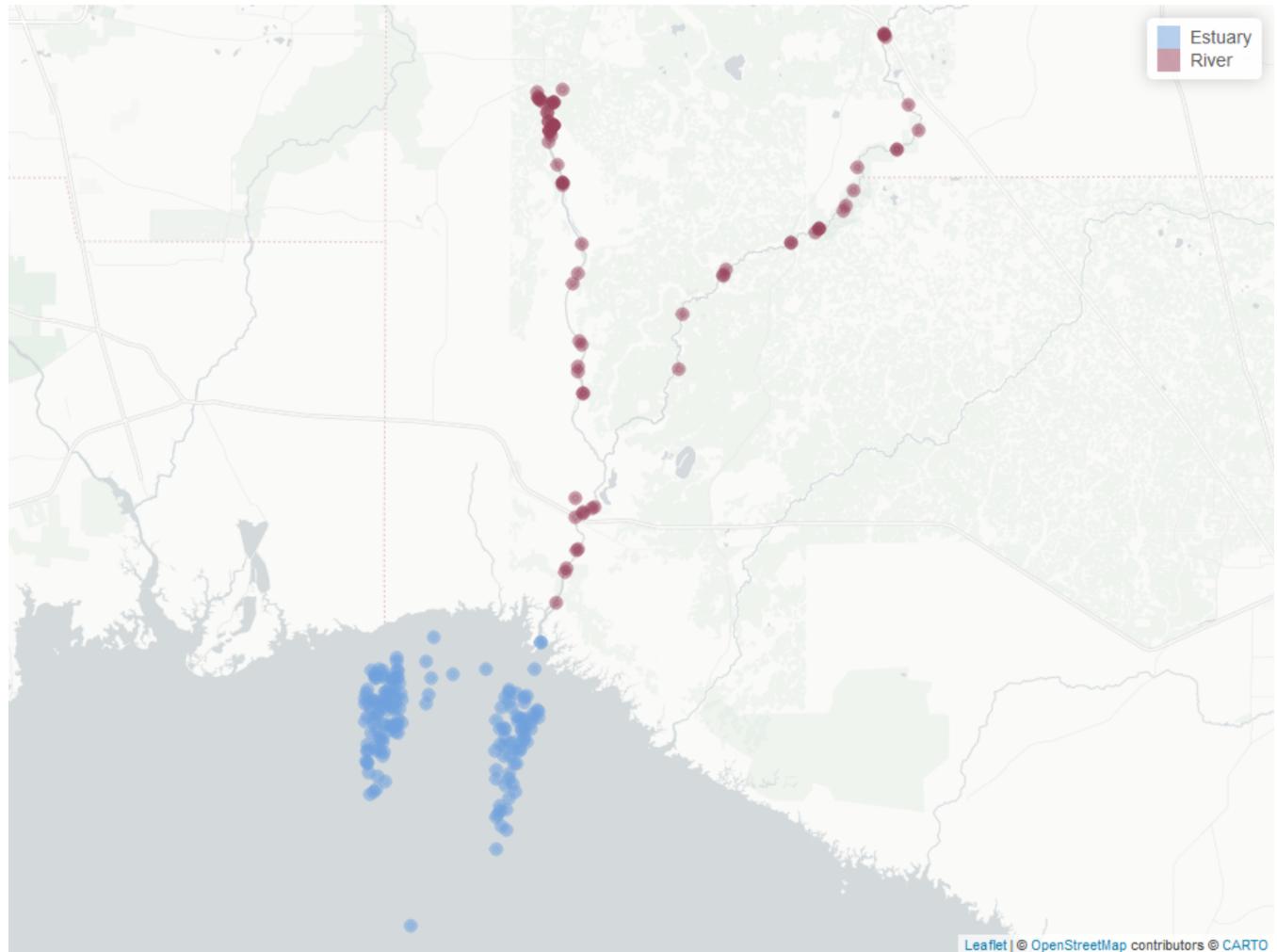
## Water Temperature



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

*SennIntercept is intercept value at beginning of record for monitoring location*

## 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 value.

Table 15: 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 - 2023	25	365	TRUE	0.00	0.91	0.0002	↓
Estuary	Chlorophyll a, Uncorrected for Pheophytin	2010 - 2021	6	55	FALSE	-	-	-	-
River	Chlorophyll a, Uncorrected for Pheophytin	1993 - 2023	26	292	TRUE	-0.02	1.32	0.0000	↓
Estuary	Colored Dissolved Organic Matter	2020 - 2020	1	1	FALSE	-	-	-	-
River	Colored Dissolved Organic Matter	2001 - 2024	13	98	TRUE	-1.79	273.59	0.1342	0
Estuary	Dissolved Oxygen	2008 - 2022	15	599	TRUE	-0.06	7.11	0.0999	0
River	Dissolved Oxygen	1994 - 2024	31	1024	TRUE	-0.06	6.84	0.0000	↓
Estuary	Dissolved Oxygen Saturation	2018 - 2022	5	45	FALSE	-	-	-	-
River	Dissolved Oxygen Saturation	2002 - 2024	15	243	TRUE	-0.27	67.81	0.4971	0
Estuary	Salinity	2006 - 2022	17	769	TRUE	-0.79	34.39	0.0000	↓
River	Salinity	1995 - 2024	24	347	TRUE	0.00	0.10	0.6986	0
Estuary	Secchi Depth	2008 - 2022	15	552	TRUE	-0.08	2.34	0.0297	↓
River	Secchi Depth	1993 - 2023	31	657	TRUE	0.00	1.21	0.2982	0
Estuary	Total Nitrogen	2010 - 2021	6	41	FALSE	-	-	-	-
River	Total Nitrogen	1993 - 2024	30	703	TRUE	0.01	0.21	0.0000	↑
Estuary	Total Phosphorus	2010 - 2021	6	49	FALSE	-	-	-	-
River	Total Phosphorus	1993 - 2024	30	634	TRUE	0.00	0.02	0.0000	↑
Estuary	Total Suspended Solids	2010 - 2021	6	47	FALSE	-	-	-	-
River	Total Suspended Solids	1994 - 2024	31	525	TRUE	0.00	3.83	0.0061	↓
Estuary	Turbidity	2010 - 2021	6	42	FALSE	-	-	-	-
River	Turbidity	1994 - 2024	31	832	TRUE	0.00	1.13	0.8579	0
Estuary	Water Temperature	2008 - 2022	15	602	TRUE	-0.04	25.92	0.5690	0
River	Water Temperature	1994 - 2024	31	1021	TRUE	0.03	20.46	0.0438	↑
Estuary	pH	2008 - 2022	15	600	TRUE	-0.03	8.22	0.0011	↓
River	pH	1994 - 2024	31	1014	TRUE	0.00	7.23	0.2232	0

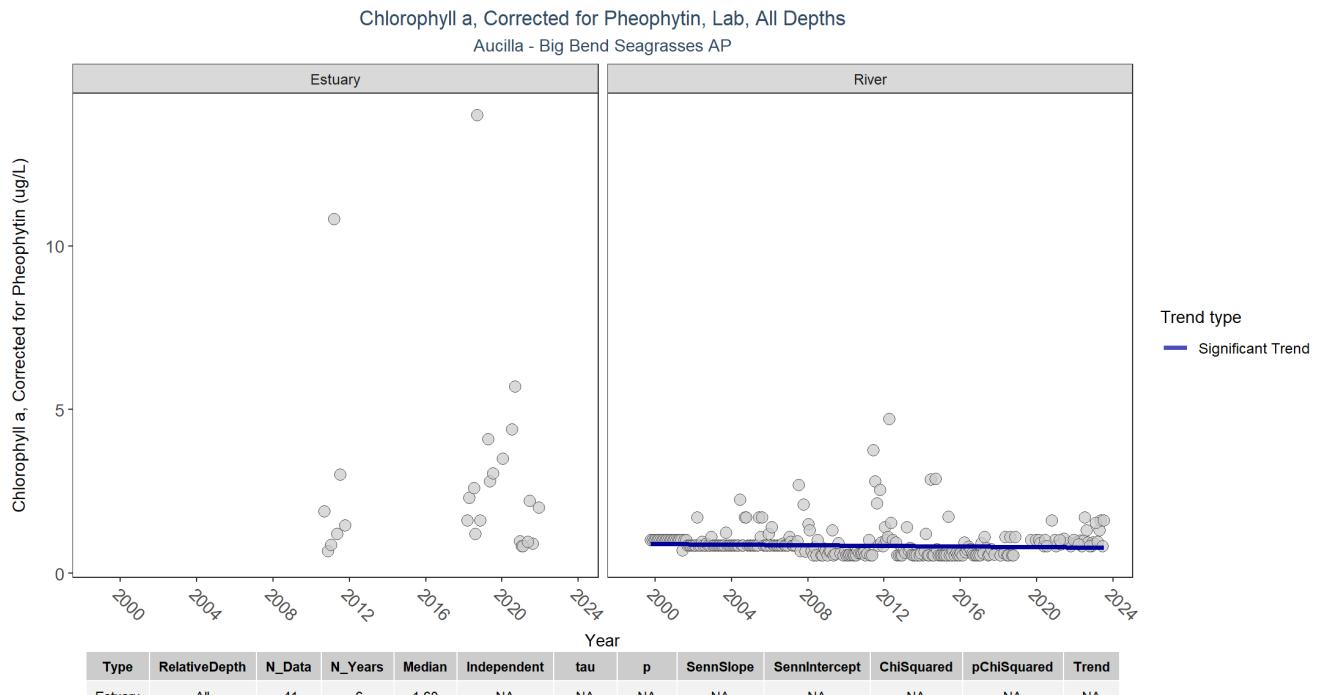
Table containing overview of Programs contributing data for Aucilla

Table 16: Overview of Program Data for Aucilla

ParameterName	ProgramID	n-data-Estuay	n-data-River
Ammonium, Filtered (NH4)	477	-	29
Ammonium, Filtered (NH4)	5002	42	797
Chlorophyll a, Corrected for Pheophytin	477	-	27
Chlorophyll a, Corrected for Pheophytin	5002	41	338
Chlorophyll a, Uncorrected for Pheophytin	103	14	-
Chlorophyll a, Uncorrected for Pheophytin	477	-	27
Chlorophyll a, Uncorrected for Pheophytin	514	-	73
Chlorophyll a, Uncorrected for Pheophytin	5002	41	192
Colored Dissolved Organic Matter	103	1	-
Colored Dissolved Organic Matter	477	-	29
Colored Dissolved Organic Matter	514	-	9
Colored Dissolved Organic Matter	5002	1	60
Dissolved Oxygen	69	521	-
Dissolved Oxygen	103	13	-
Dissolved Oxygen	118	16	-
Dissolved Oxygen	477	-	27
Dissolved Oxygen	560	164	-
Dissolved Oxygen	5002	65	1084
Dissolved Oxygen Saturation	95	1	-
Dissolved Oxygen Saturation	477	-	27
Dissolved Oxygen Saturation	5002	44	216
NO2+3, Filtered	477	-	29
NO2+3, Filtered	5002	41	812
Nitrate (NO3)	5002	-	2
Phosphate, Filtered (PO4)	5002	-	573
Salinity	69	522	-
Salinity	95	1	-
Salinity	118	19	-
Salinity	477	-	27
Salinity	560	165	-
Salinity	5002	62	320
Secchi Depth	69	519	-
Secchi Depth	103	7	-
Secchi Depth	118	1	-
Secchi Depth	477	-	29
Secchi Depth	514	-	21
Secchi Depth	5002	26	696

Specific Conductivity	69	521	-
Specific Conductivity	103	13	-
Specific Conductivity	477	-	56
Specific Conductivity	5002	47	1548
Total Kjeldahl Nitrogen	477	-	29
Total Kjeldahl Nitrogen	5002	42	834
Total Nitrogen	514	-	76
Total Nitrogen	5002	41	627
Total Phosphorus	103	7	-
Total Phosphorus	477	-	29
Total Phosphorus	514	-	76
Total Phosphorus	5002	42	529
Total Suspended Solids	103	7	-
Total Suspended Solids	5002	40	525
Turbidity	103	7	-
Turbidity	477	-	58
Turbidity	5002	42	844
Water Temperature	69	522	-
Water Temperature	95	2	-
Water Temperature	103	13	-
Water Temperature	118	7	-
Water Temperature	477	-	29
Water Temperature	560	164	-
Water Temperature	5002	65	1081
pH	69	521	-
pH	95	1	-
pH	103	13	-
pH	118	8	-
pH	477	-	29
pH	560	139	-
pH	5002	65	1118

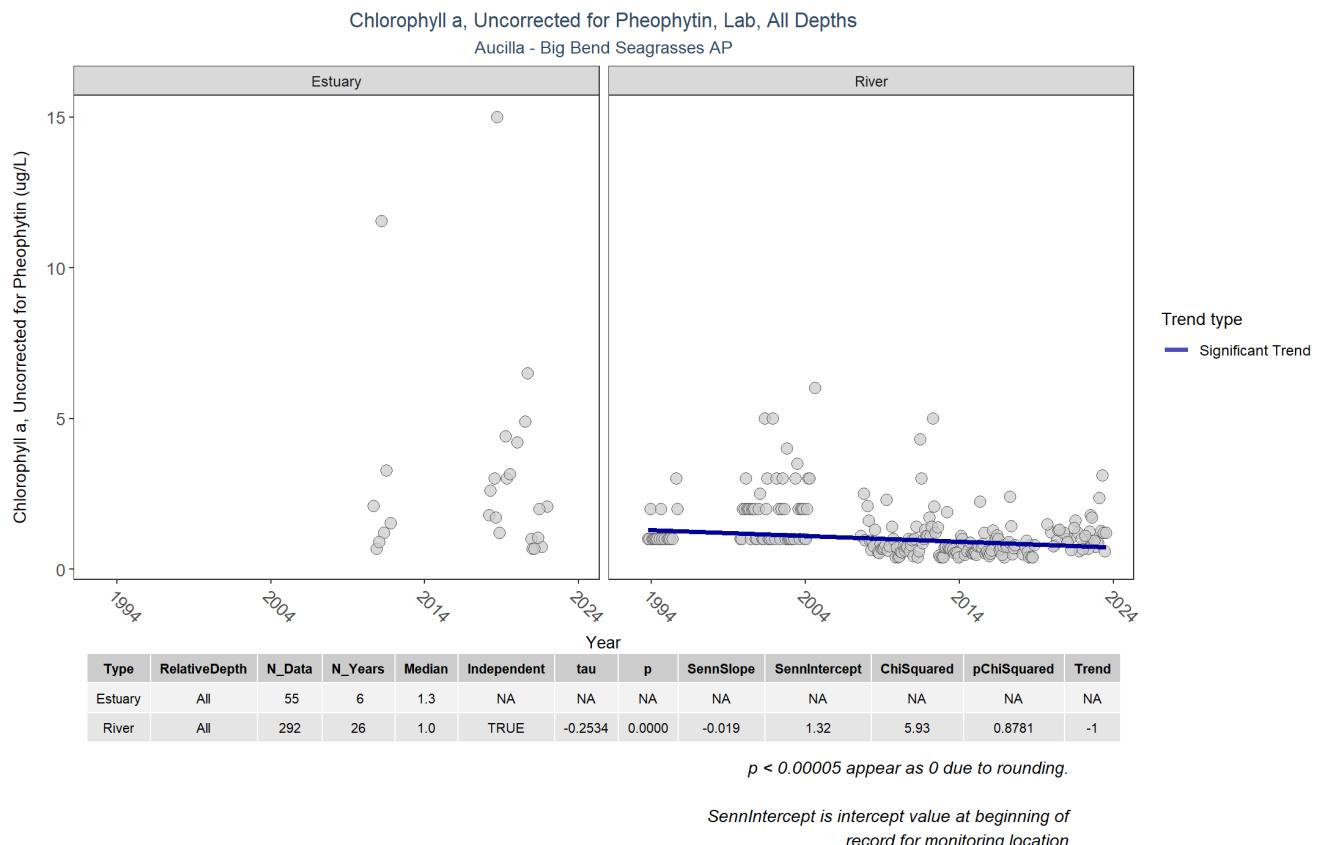
## Chlorophyll a, Corrected for Pheophytin



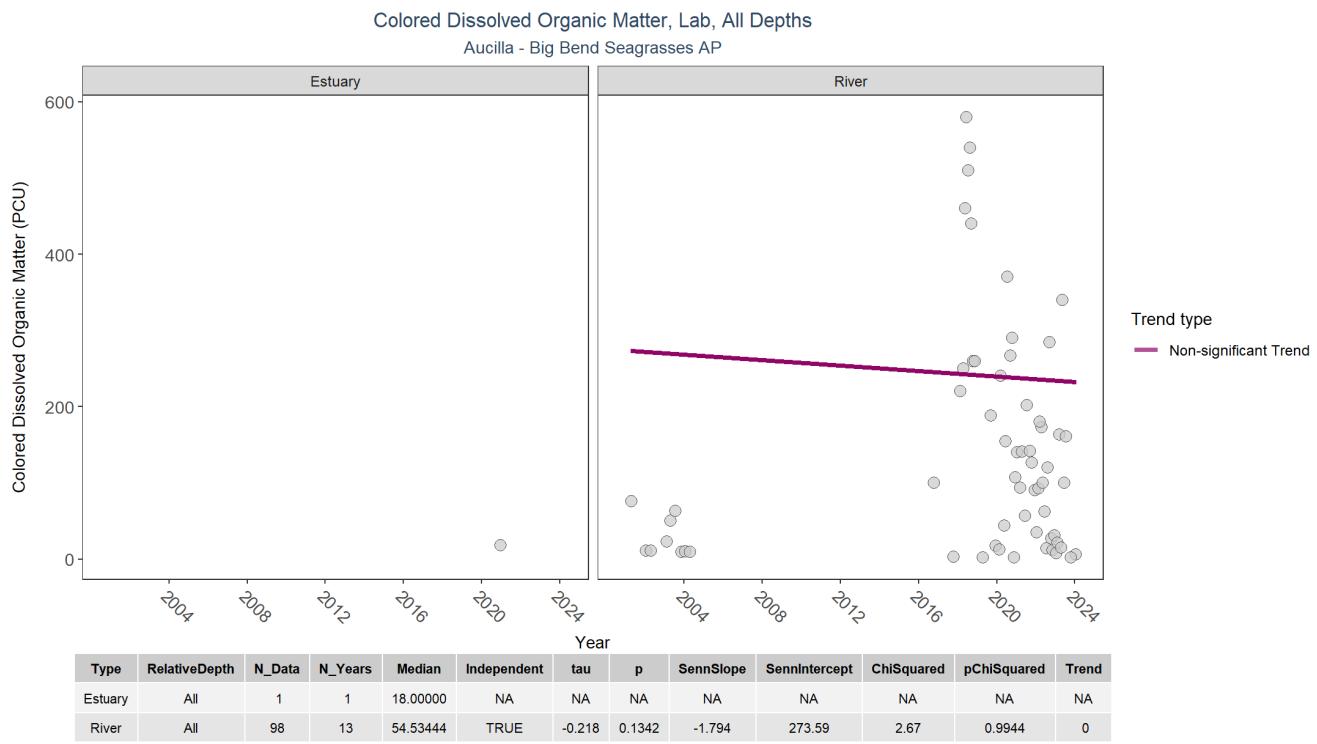
$p < 0.00005$  appear as 0 due to rounding.

SennIntercept is intercept value at beginning of record for monitoring location

## Chlorophyll a, Uncorrected for Pheophytin



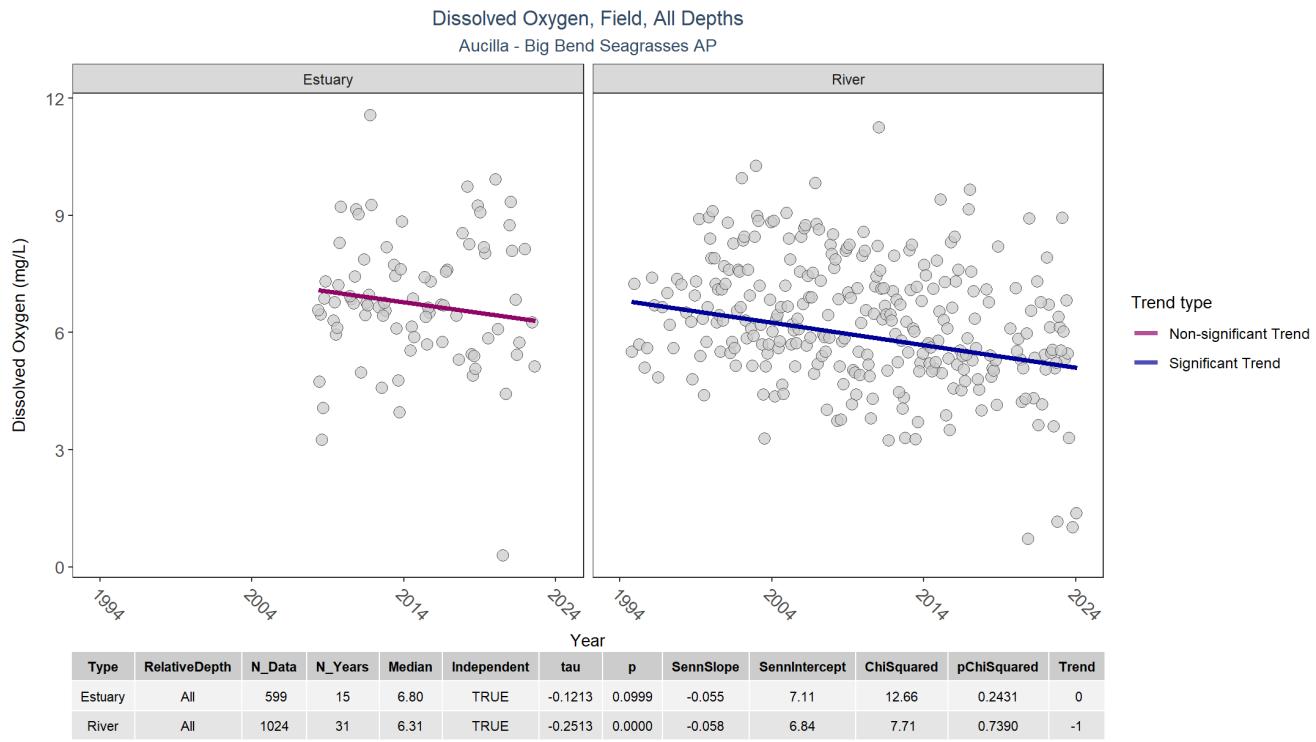
## Colored Dissolved Organic Matter



## Dissolved Oxygen Saturation



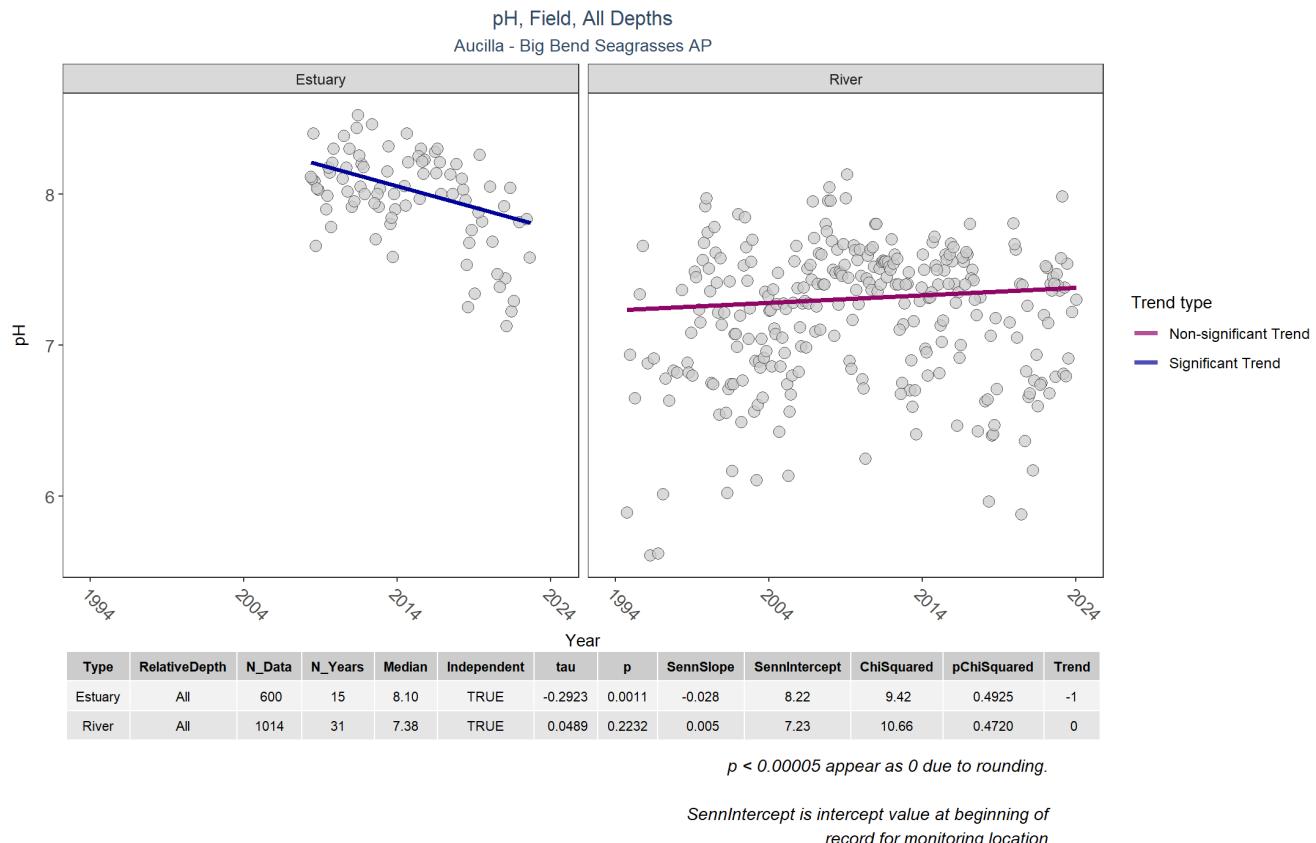
## Dissolved Oxygen



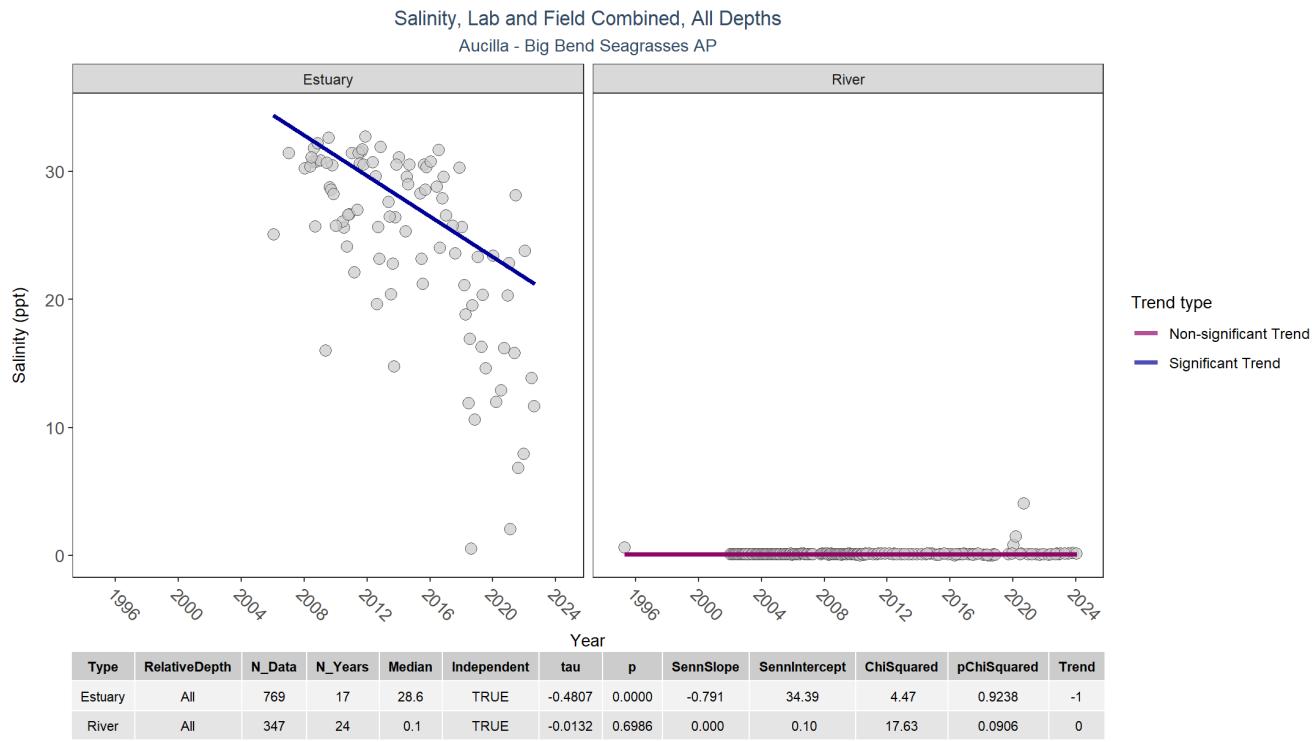
*p < 0.00005 appear as 0 due to rounding.*

*SennIntercept is intercept value at beginning of record for monitoring location*

## pH



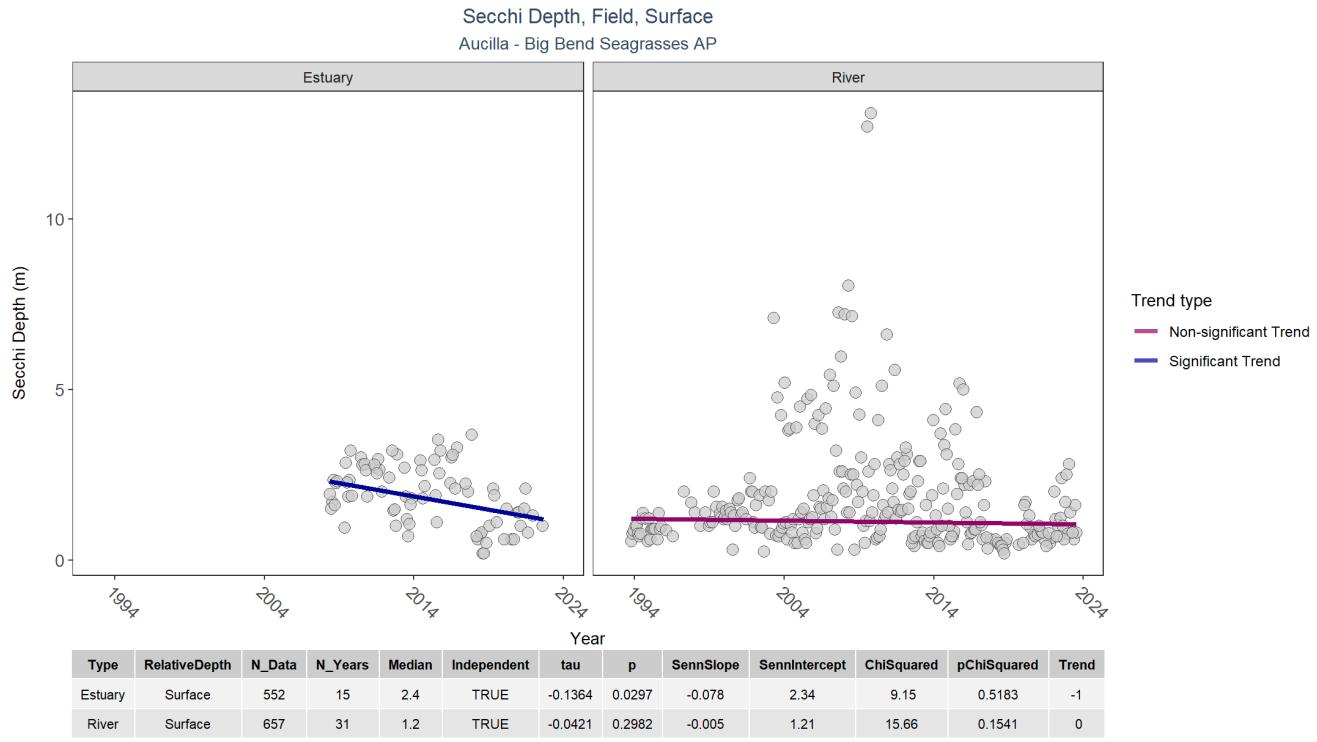
## Salinity



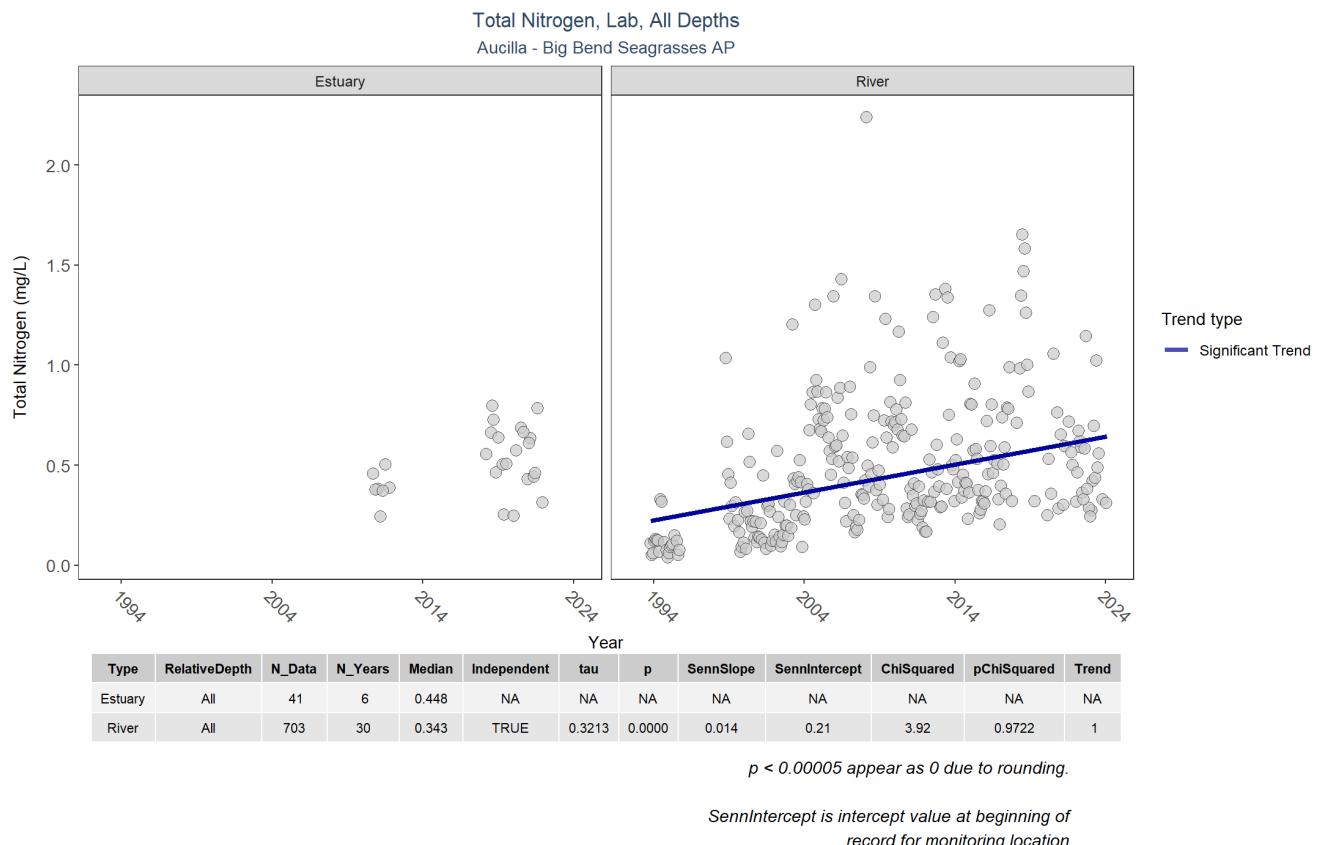
*p < 0.00005 appear as 0 due to rounding.*

*SennIntercept is intercept value at beginning of record for monitoring location*

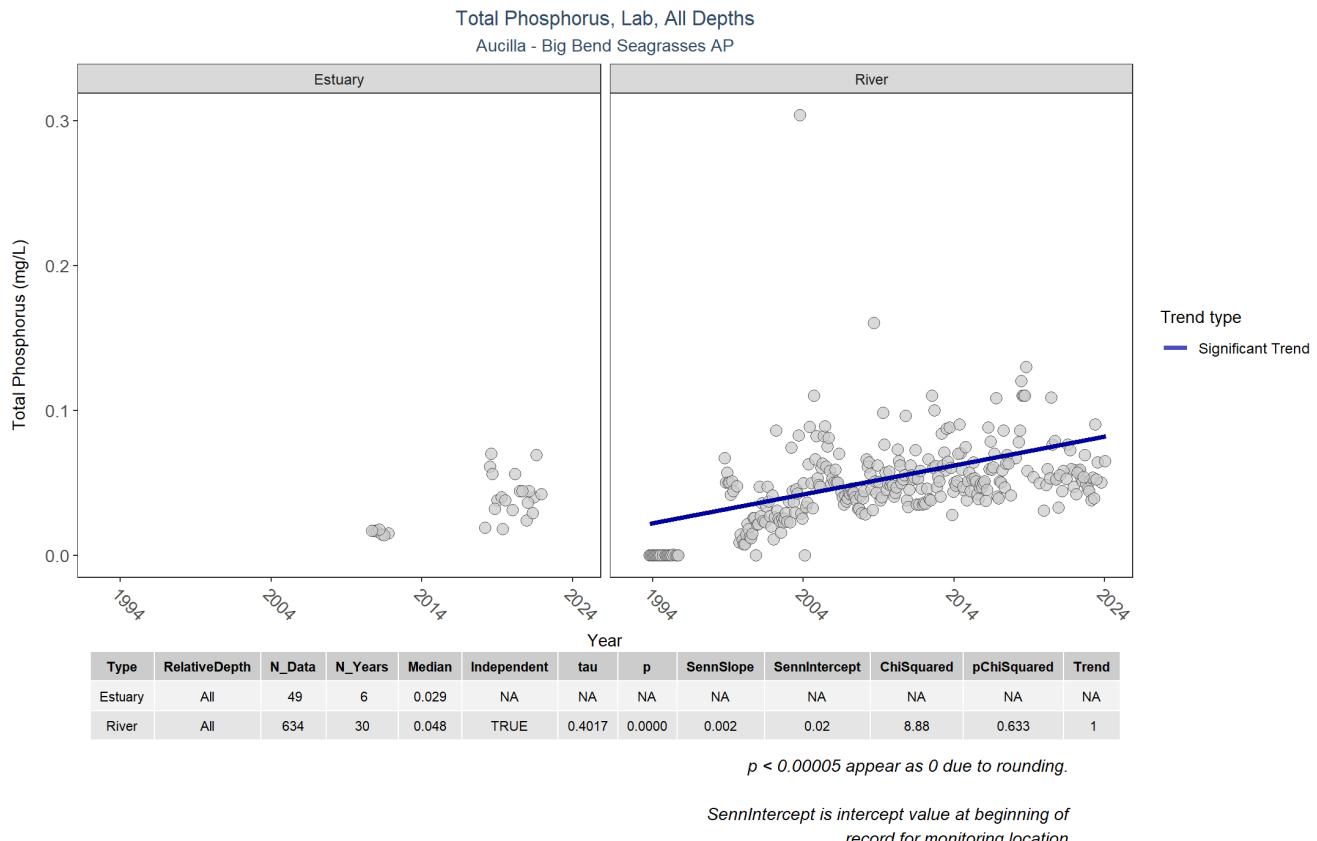
## Secchi Depth



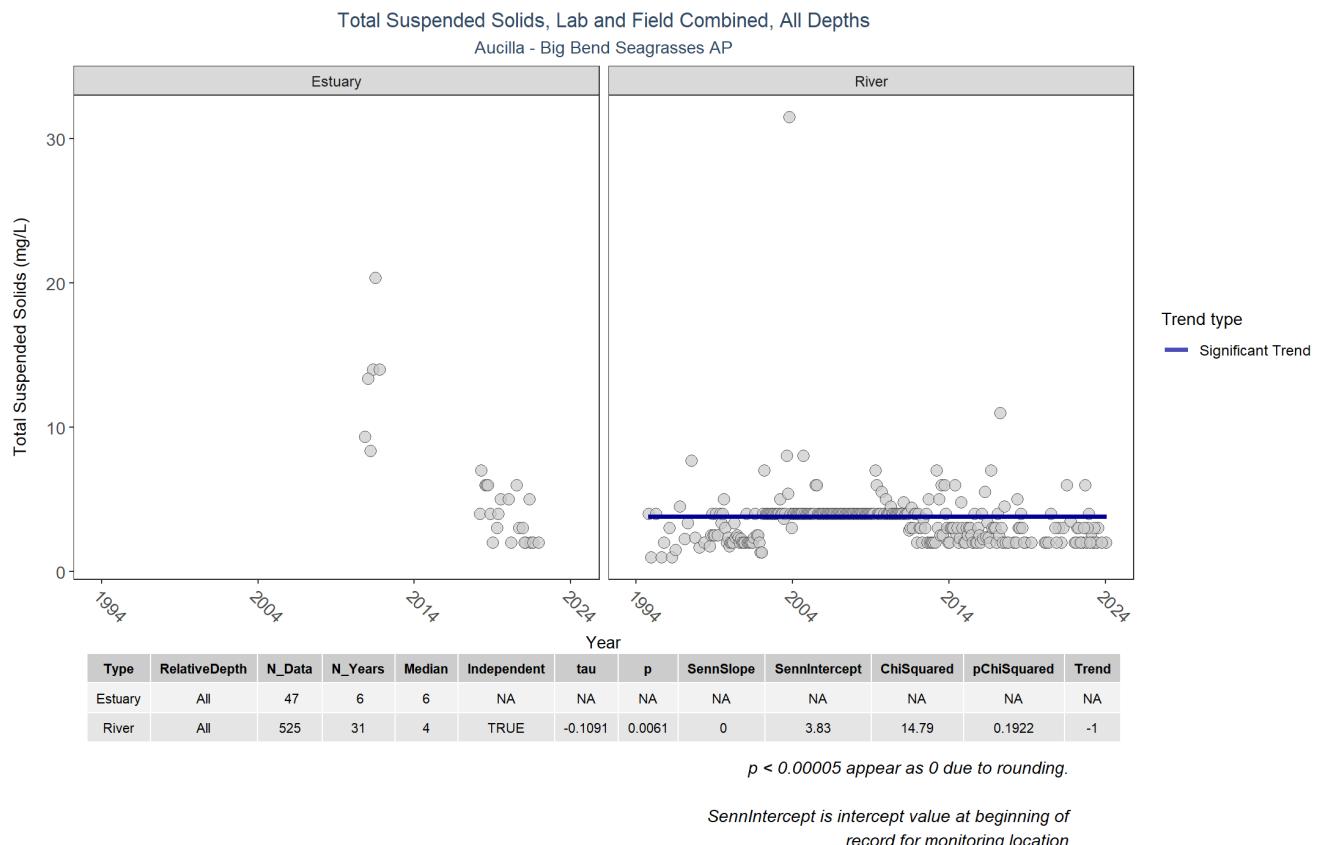
## Total Nitrogen



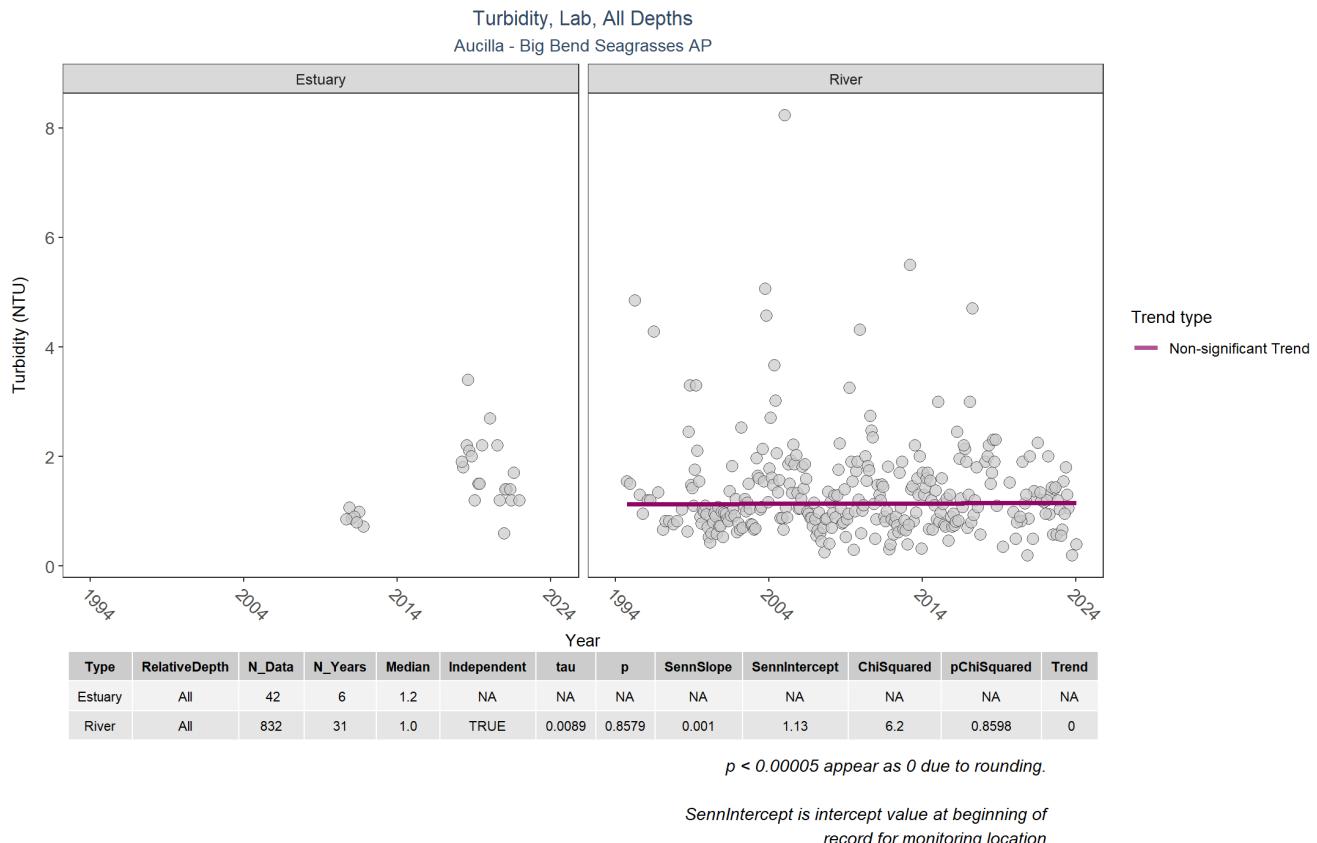
## Total Phosphorus



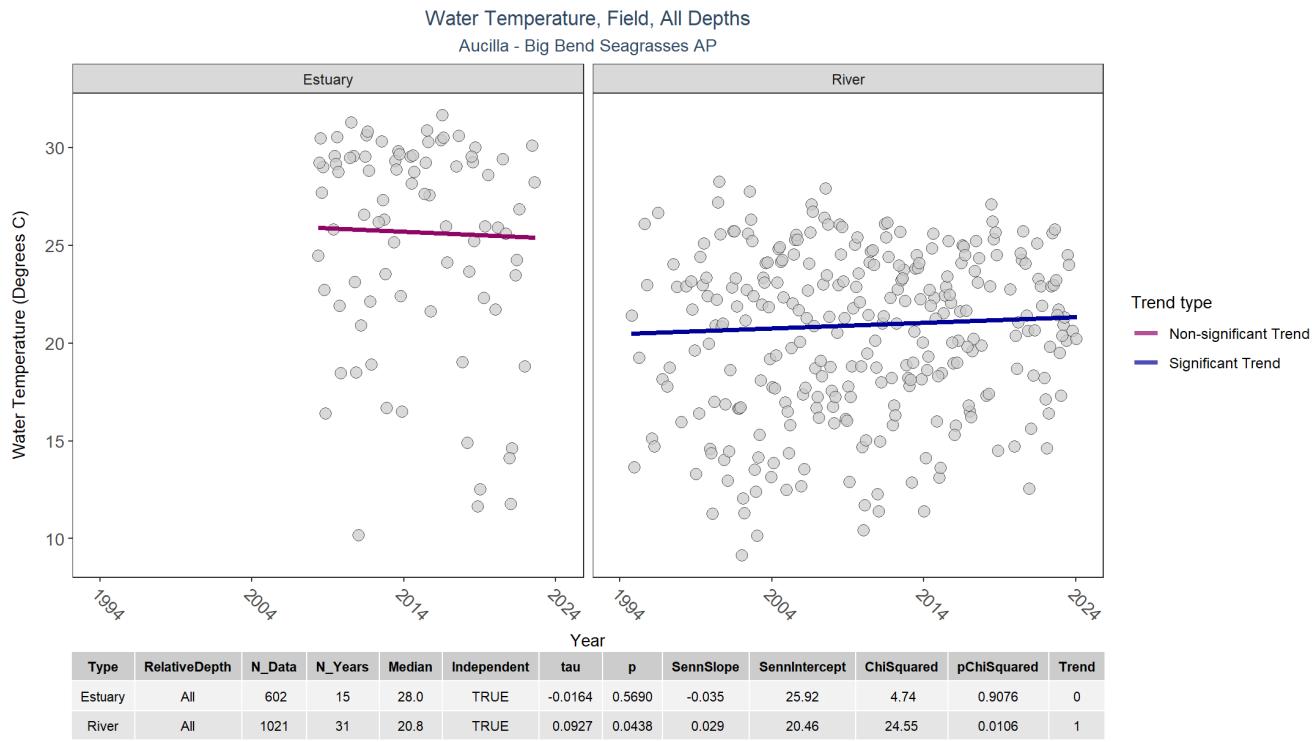
## Total Suspended Solids



## Turbidity



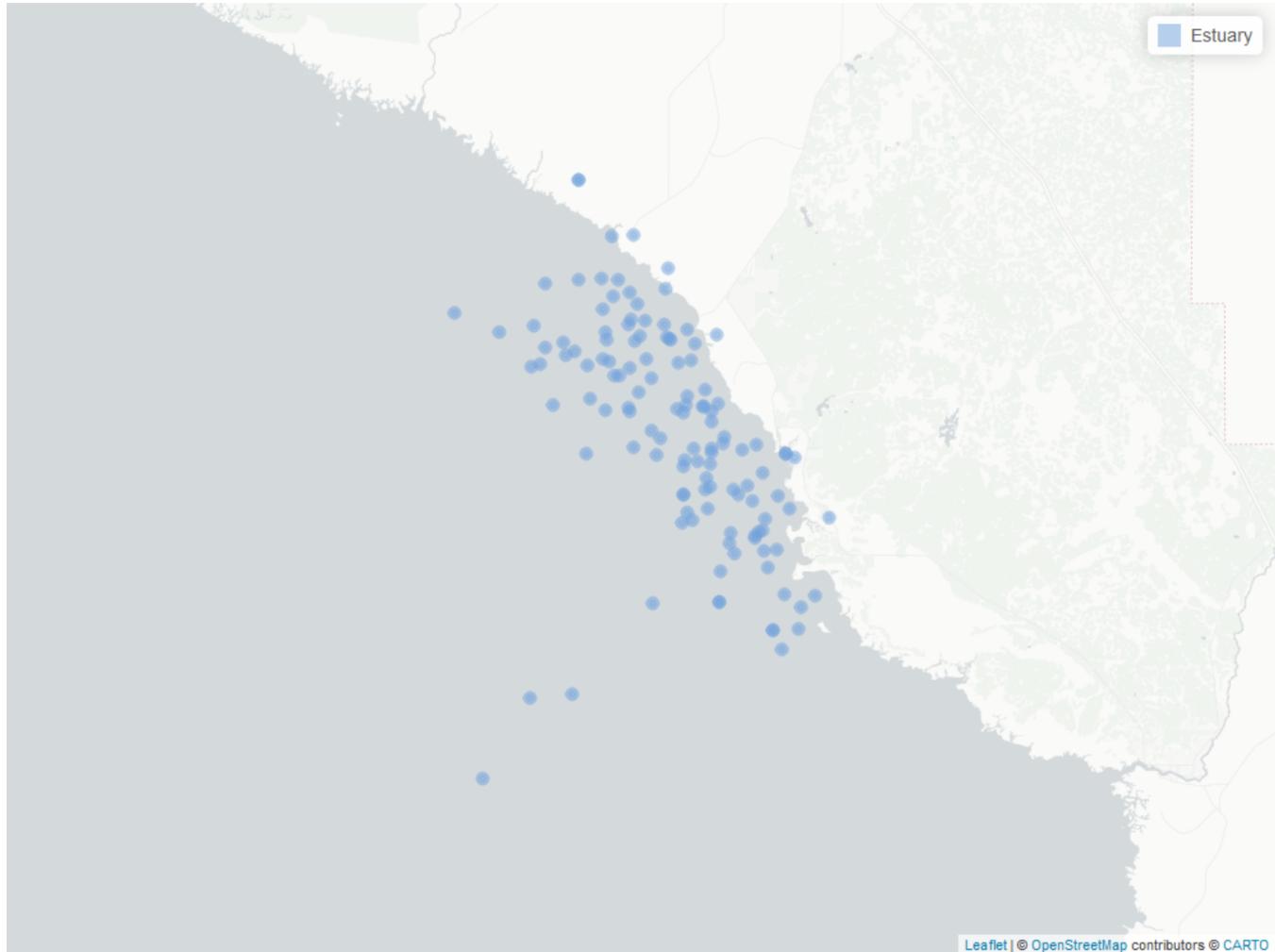
## Water Temperature



*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 value.

Table 17: Seasonal Kendall-Tau Results for Keaton Beach

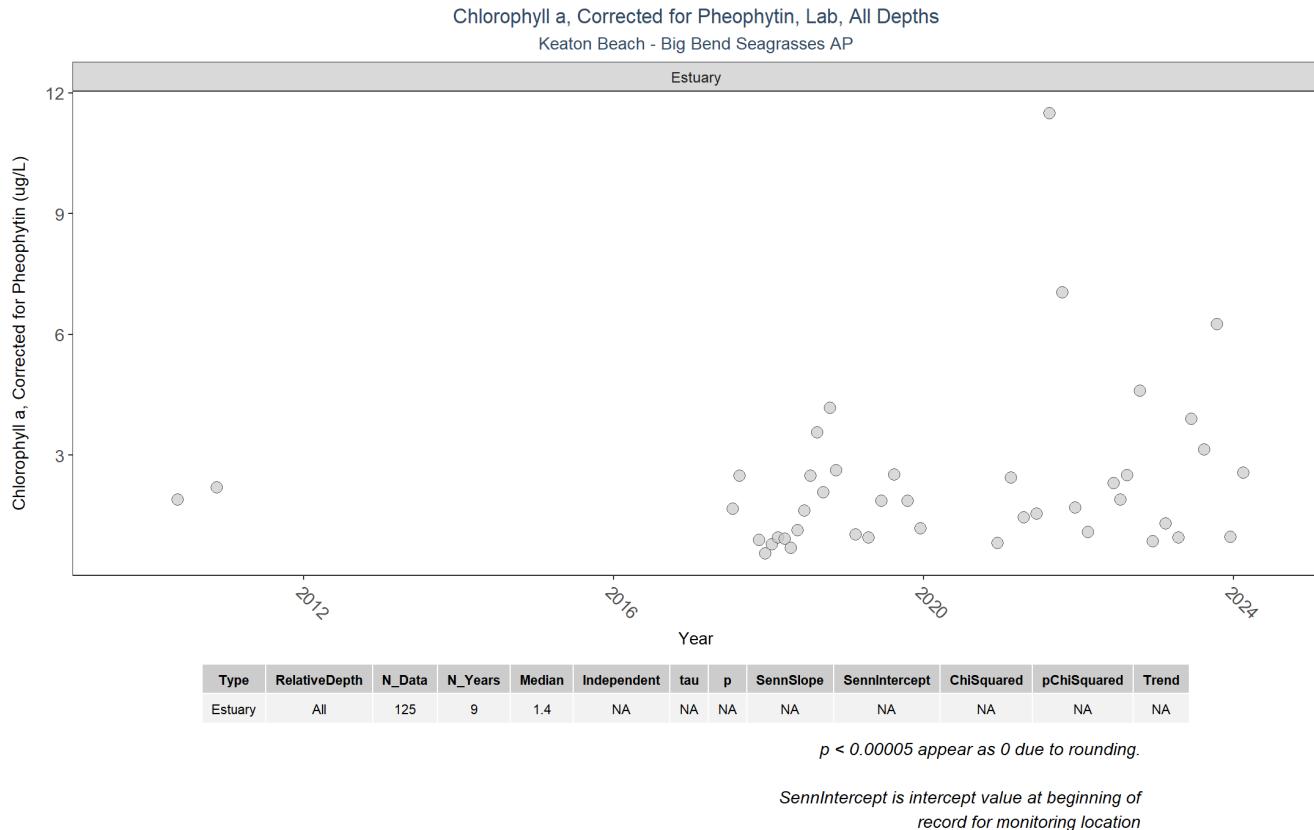
Type	ParameterName	Period-of-Record	N-Years	N-Data	SufficientData	SennSlope	SennIntercept	p	Trend
Estuary	Chlorophyll a, Corrected for Pheophytin	2010 - 2024	9	125	FALSE	-	-	-	-
Estuary	Chlorophyll a, Uncorrected for Pheophytin	2010 - 2024	9	149	FALSE	-	-	-	-
Estuary	Colored Dissolved Organic Matter	2022 - 2022	1	1	FALSE	-	-	-	-
Estuary	Dissolved Oxygen	1996 - 2024	16	390	TRUE	0.01	5.58	0.4901	0
Estuary	Dissolved Oxygen Saturation	2003 - 2022	2	4	FALSE	-	-	-	-
Estuary	Salinity	1996 - 2024	16	551	TRUE	-0.30	36.85	0.0218	↓
Estuary	Secchi Depth	2002 - 2022	5	241	FALSE	-	-	-	-
Estuary	Total Nitrogen	2010 - 2024	9	127	FALSE	-	-	-	-
Estuary	Total Phosphorus	2010 - 2024	9	140	FALSE	-	-	-	-
Estuary	Total Suspended Solids	2010 - 2022	2	3	FALSE	-	-	-	-
Estuary	Turbidity	2010 - 2024	7	54	FALSE	-	-	-	-
Estuary	Water Temperature	1996 - 2024	18	401	TRUE	-0.08	27.40	0.1118	0
Estuary	pH	1999 - 2024	14	391	TRUE	-0.02	8.33	0.2623	0

Table containing overview of Programs contributing data for Keaton Beach

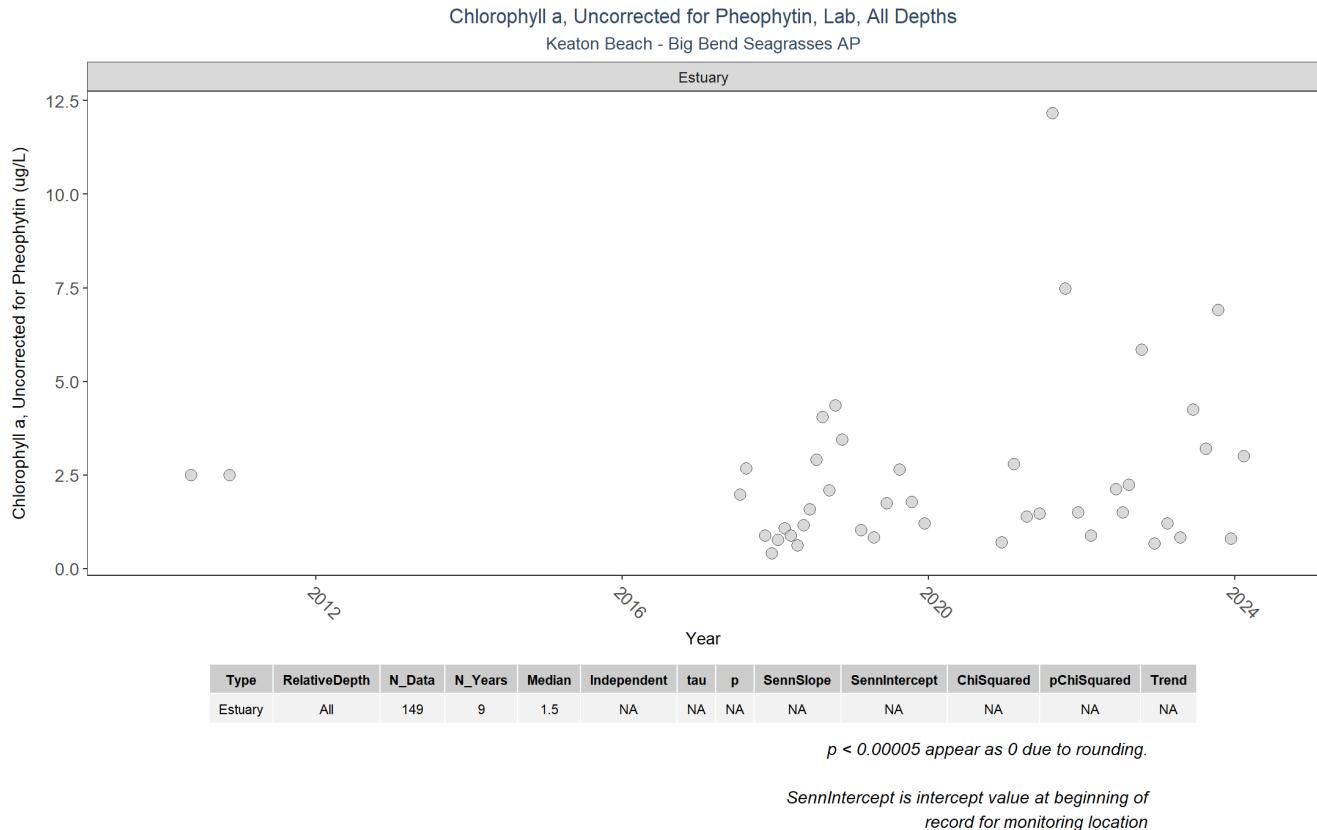
Table 18: Overview of Program Data for Keaton Beach

ParameterName	ProgramID	n-data-Estuary	n-data-River
Ammonium, Filtered (NH4)	5002	3	-
Chlorophyll a, Corrected for Pheophytin	5002	133	-
Chlorophyll a, Uncorrected for Pheophytin	103	24	-
Chlorophyll a, Uncorrected for Pheophytin	5002	133	-
Colored Dissolved Organic Matter	5002	1	-
Dissolved Oxygen	69	236	-
Dissolved Oxygen	95	11	-
Dissolved Oxygen	103	12	-
Dissolved Oxygen	560	175	-
Dissolved Oxygen	5002	131	-
Dissolved Oxygen Saturation	5002	4	-
NO2+3, Filtered	5002	131	-
Salinity	69	236	-
Salinity	95	18	-
Salinity	560	175	-
Salinity	5002	122	-
Secchi Depth	69	236	-
Secchi Depth	560	25	-
Secchi Depth	5002	5	-
Specific Conductivity	69	236	-
Specific Conductivity	5002	19	-
Total Kjeldahl Nitrogen	5002	136	-
Total Nitrogen	5002	136	-
Total Phosphorus	103	12	-
Total Phosphorus	5002	136	-
Total Suspended Solids	5002	3	-
Turbidity	103	12	-
Turbidity	5002	55	-
Water Temperature	69	236	-
Water Temperature	95	16	-
Water Temperature	103	12	-
Water Temperature	560	175	-
Water Temperature	5002	137	-
pH	69	236	-
pH	95	6	-
pH	103	12	-
pH	560	175	-
pH	5002	137	-

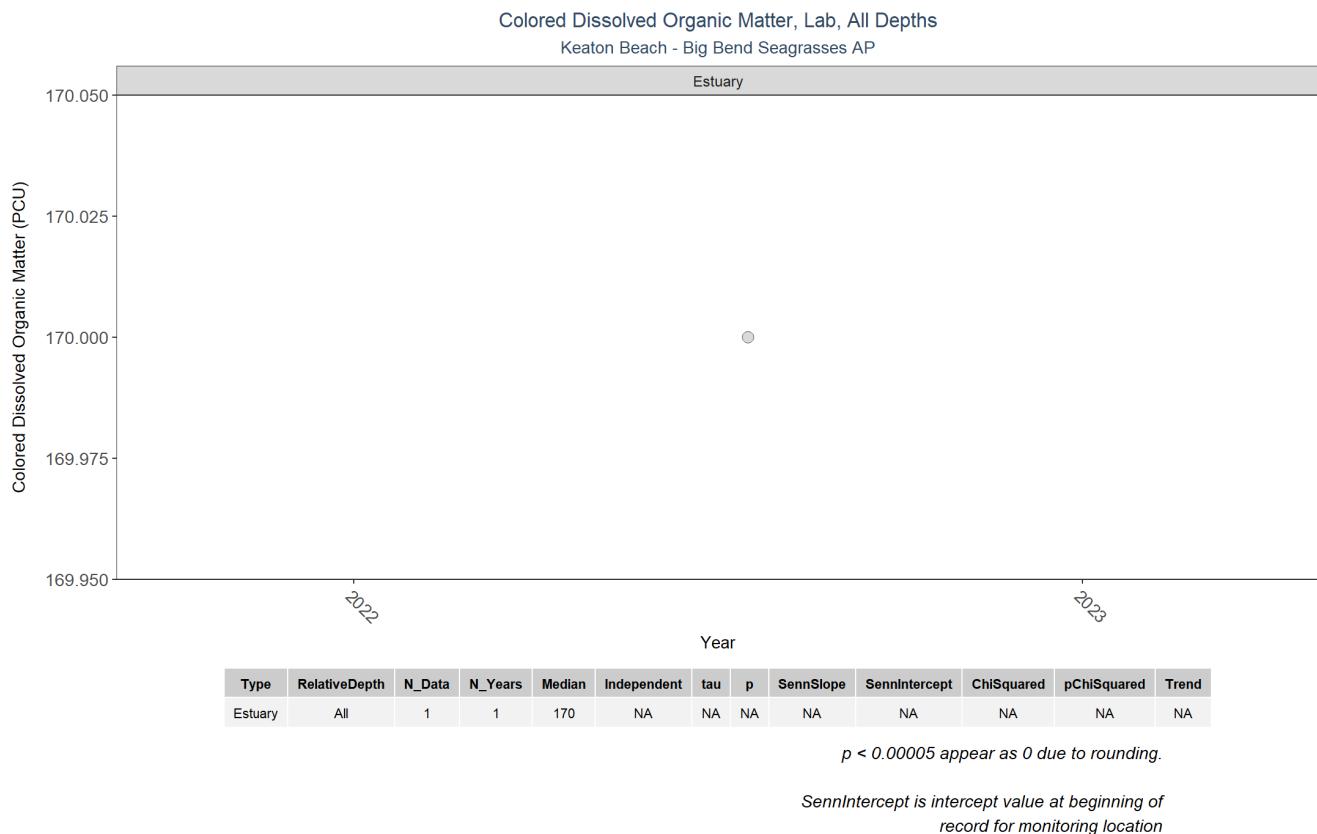
## Chlorophyll a, Corrected for Pheophytin



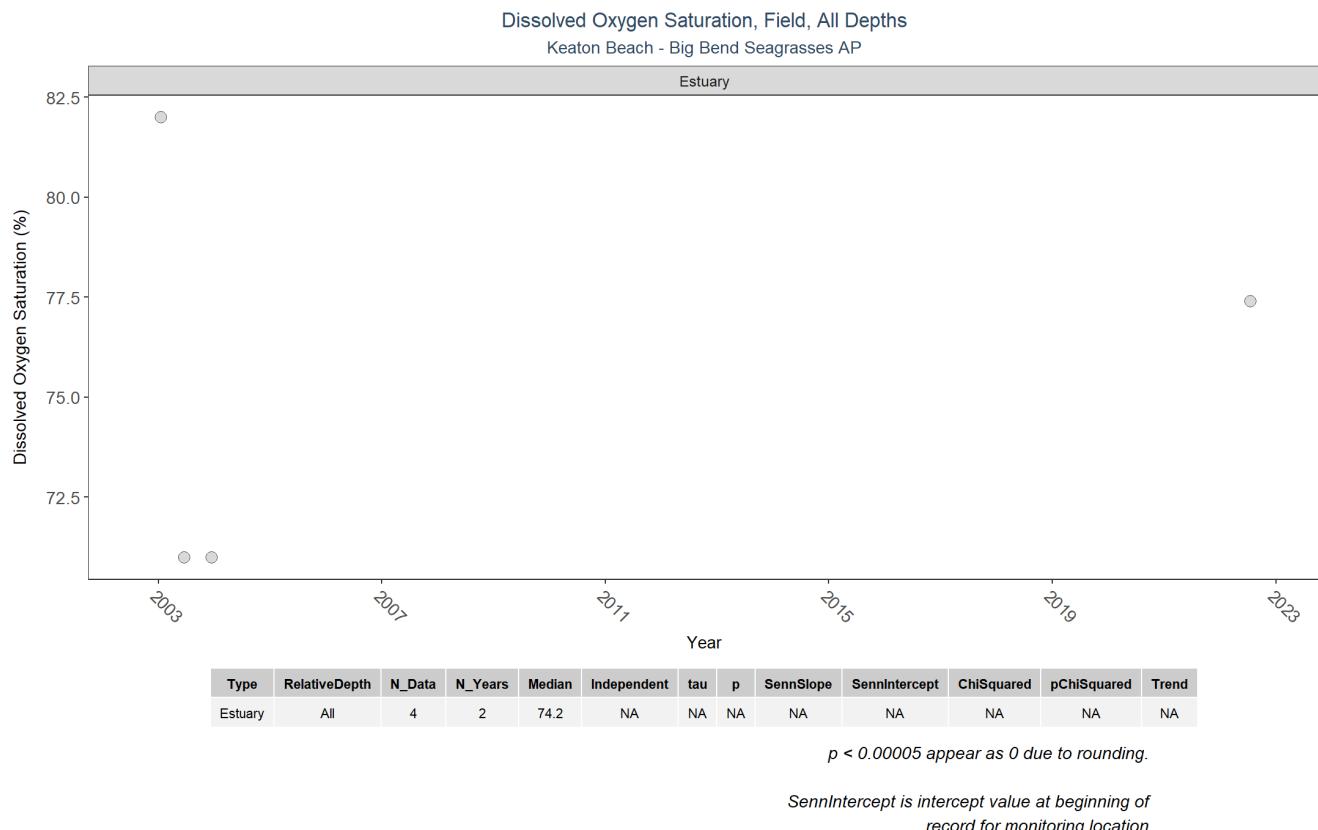
## Chlorophyll a, Uncorrected for Pheophytin



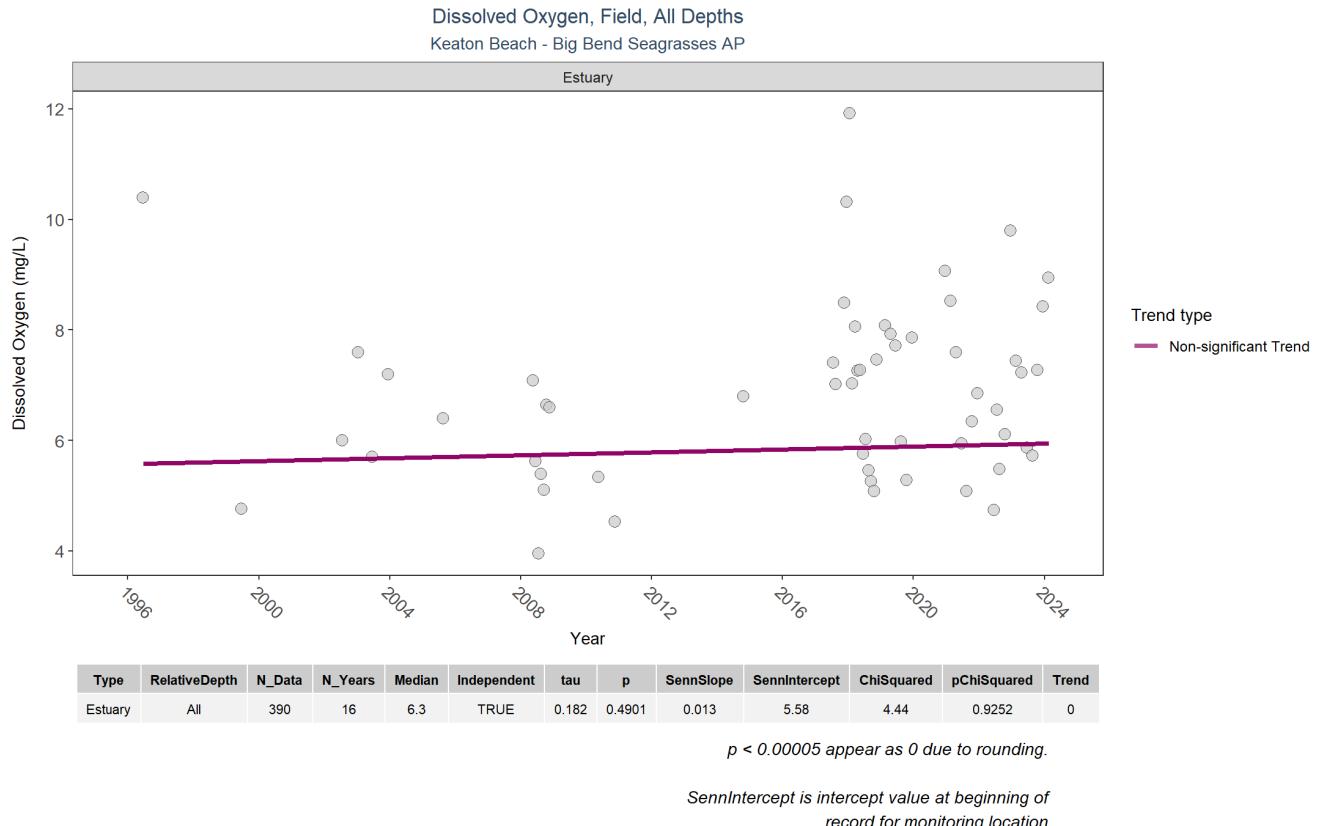
## Colored Dissolved Organic Matter



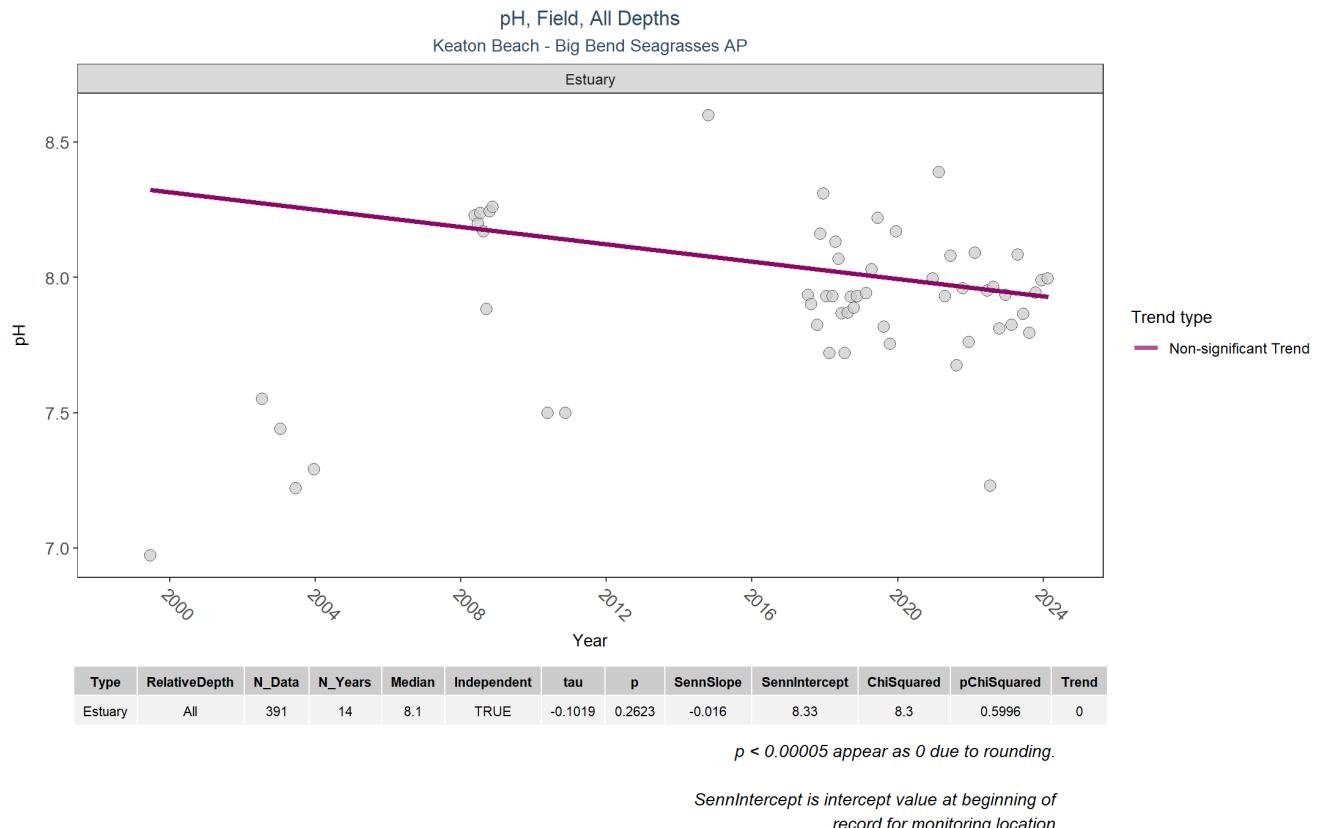
## Dissolved Oxygen Saturation



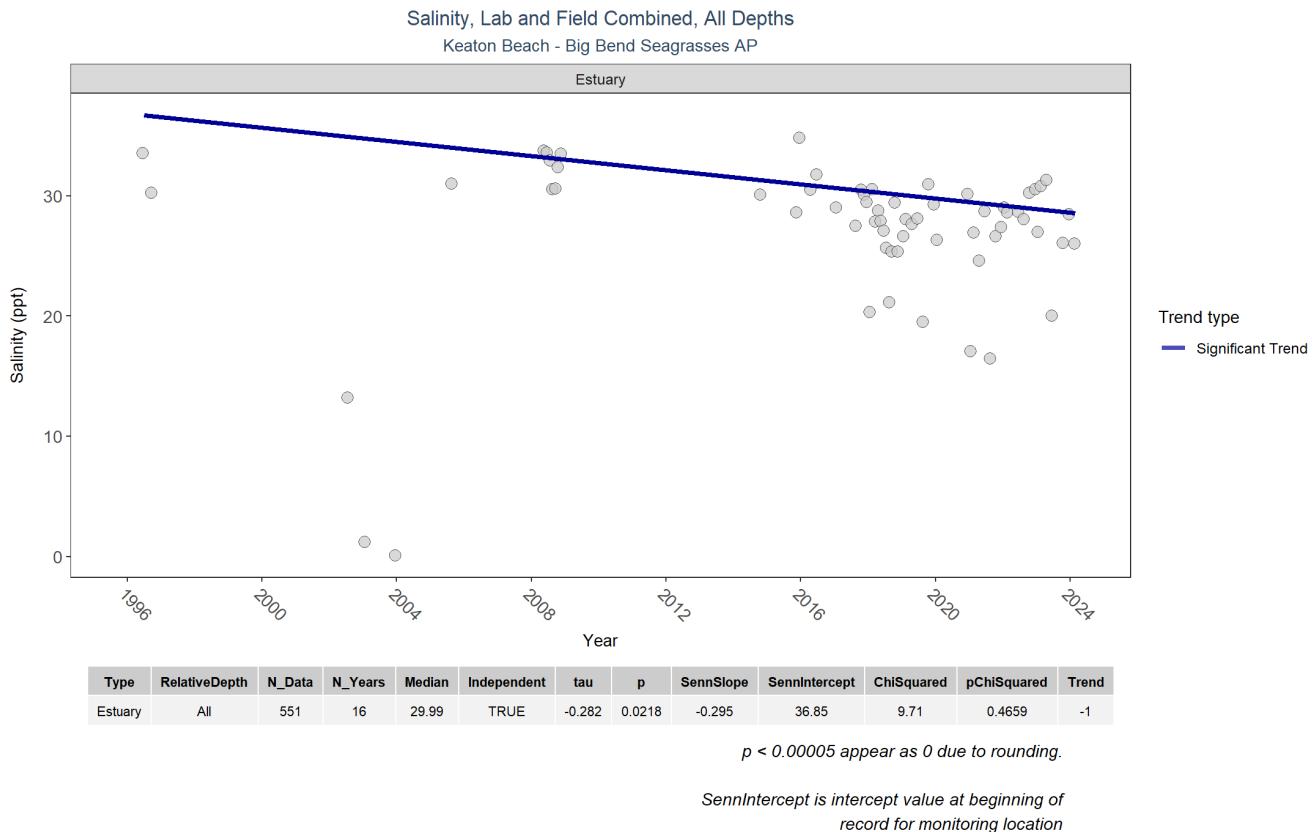
## Dissolved Oxygen



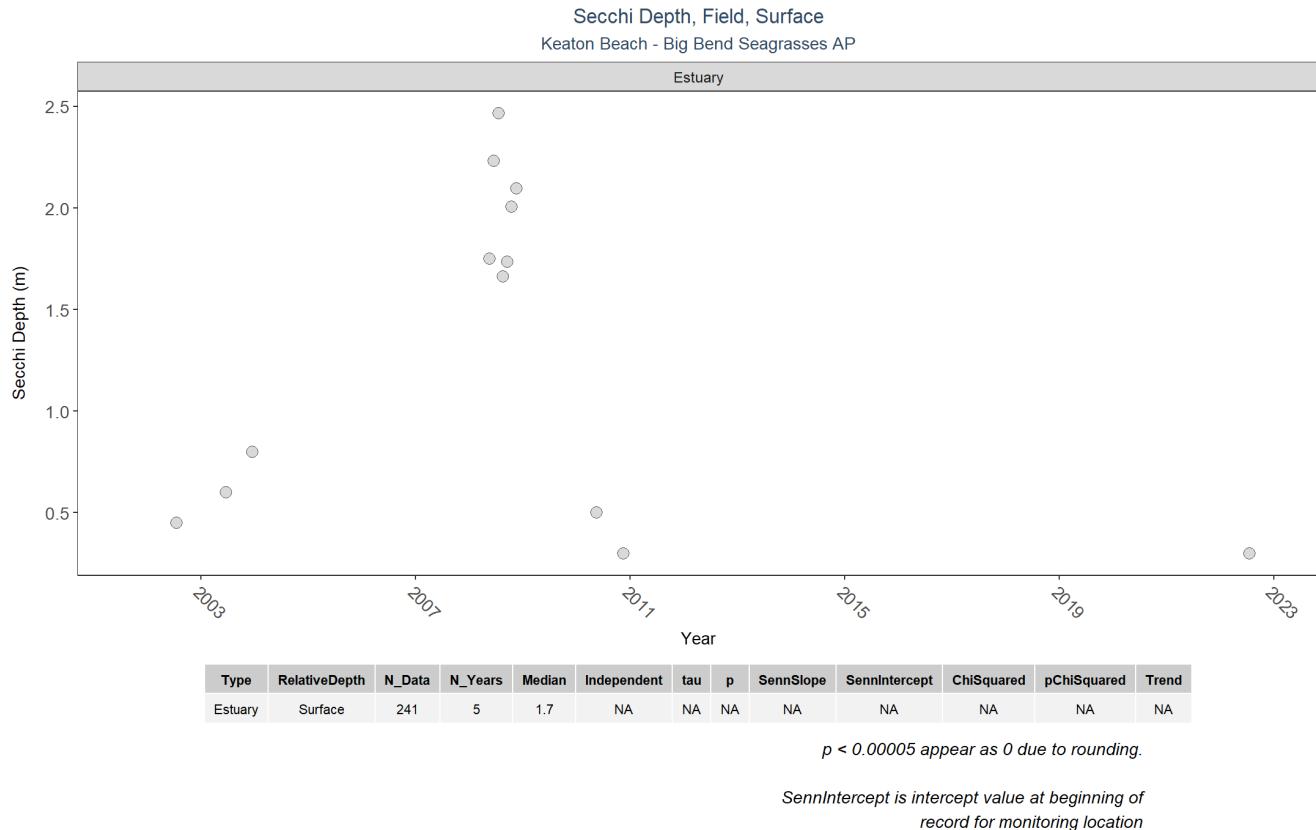
## pH



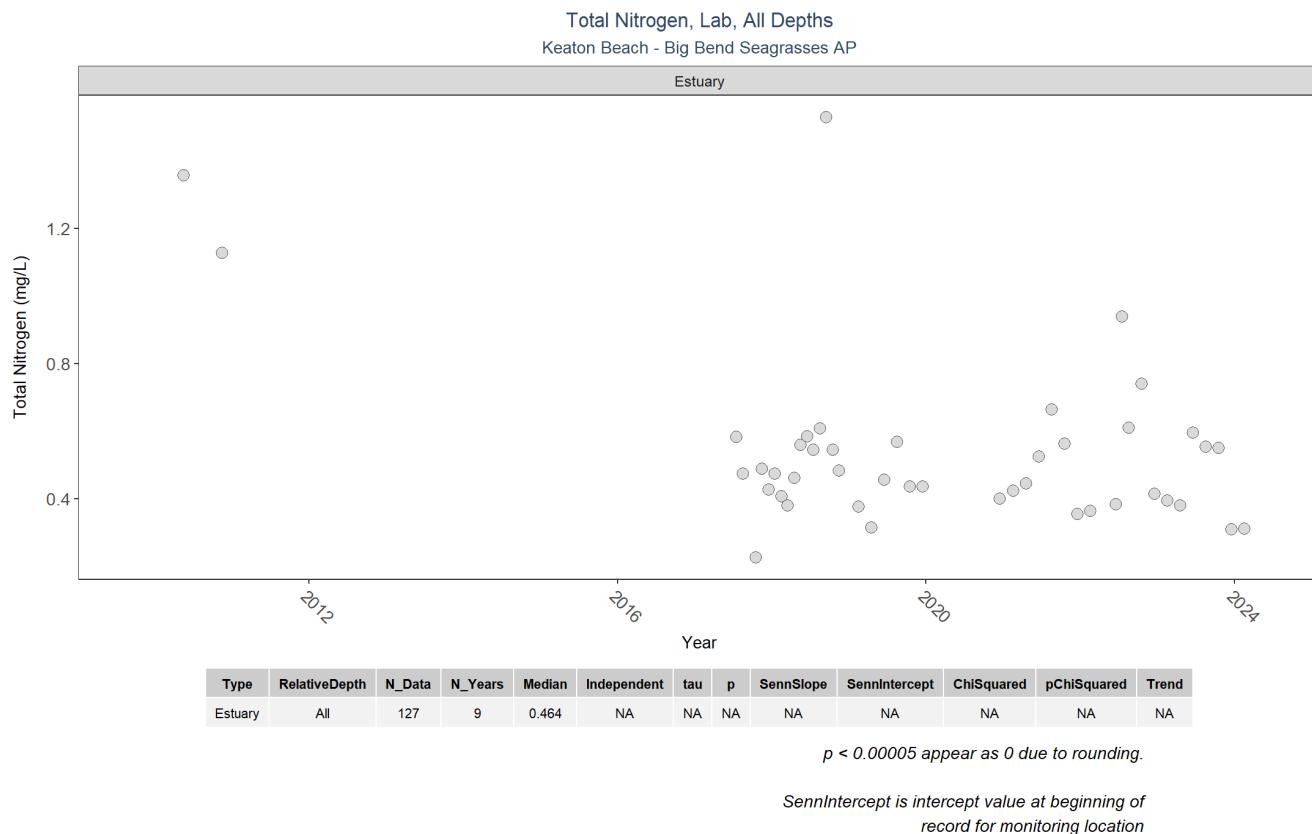
## Salinity



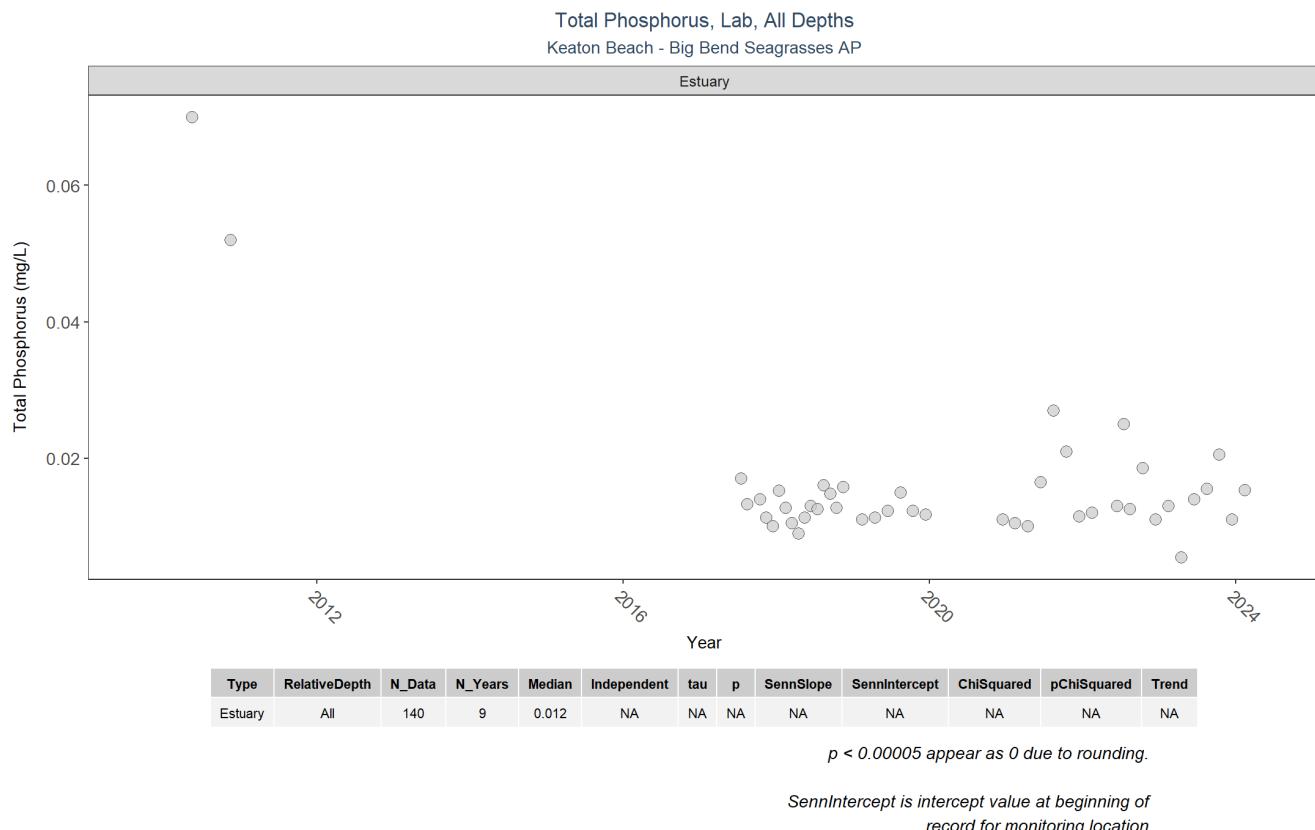
## Secchi Depth



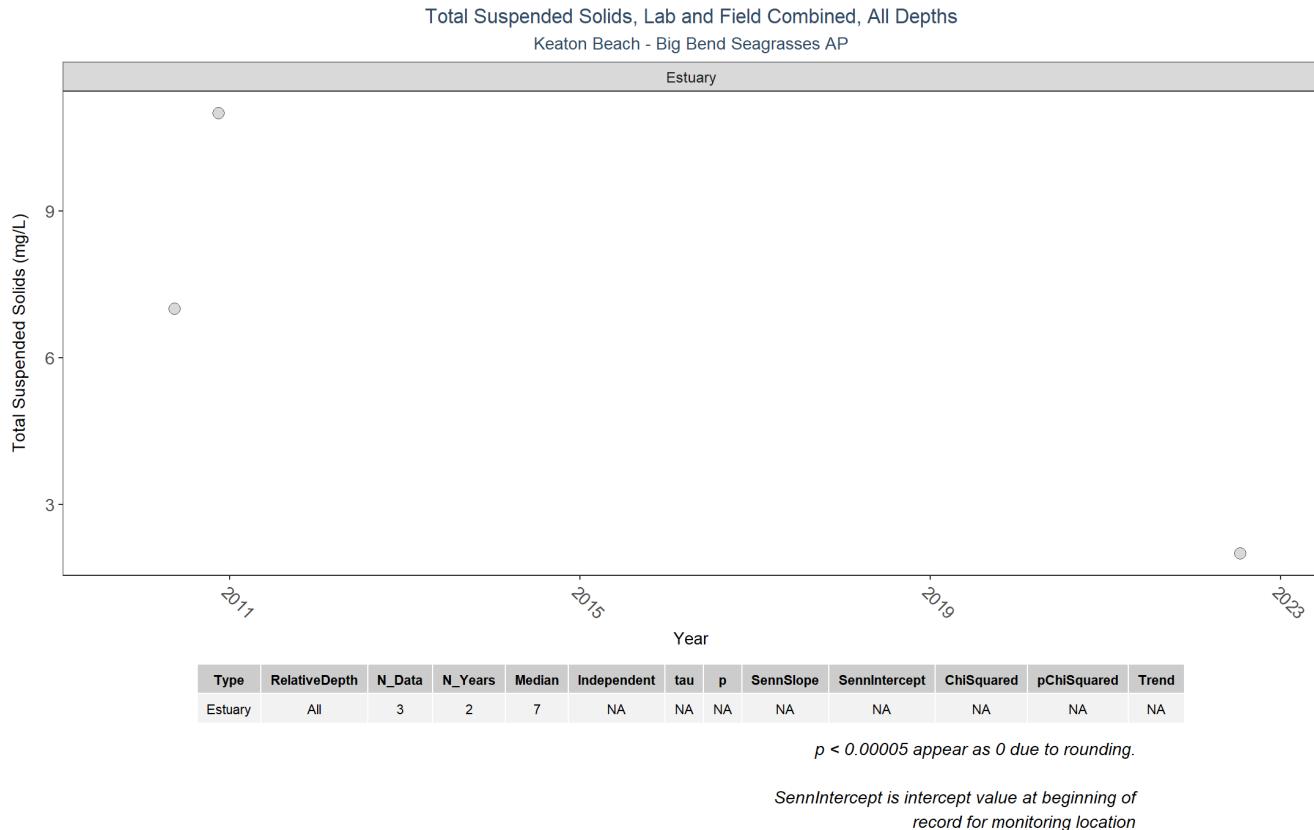
## Total Nitrogen



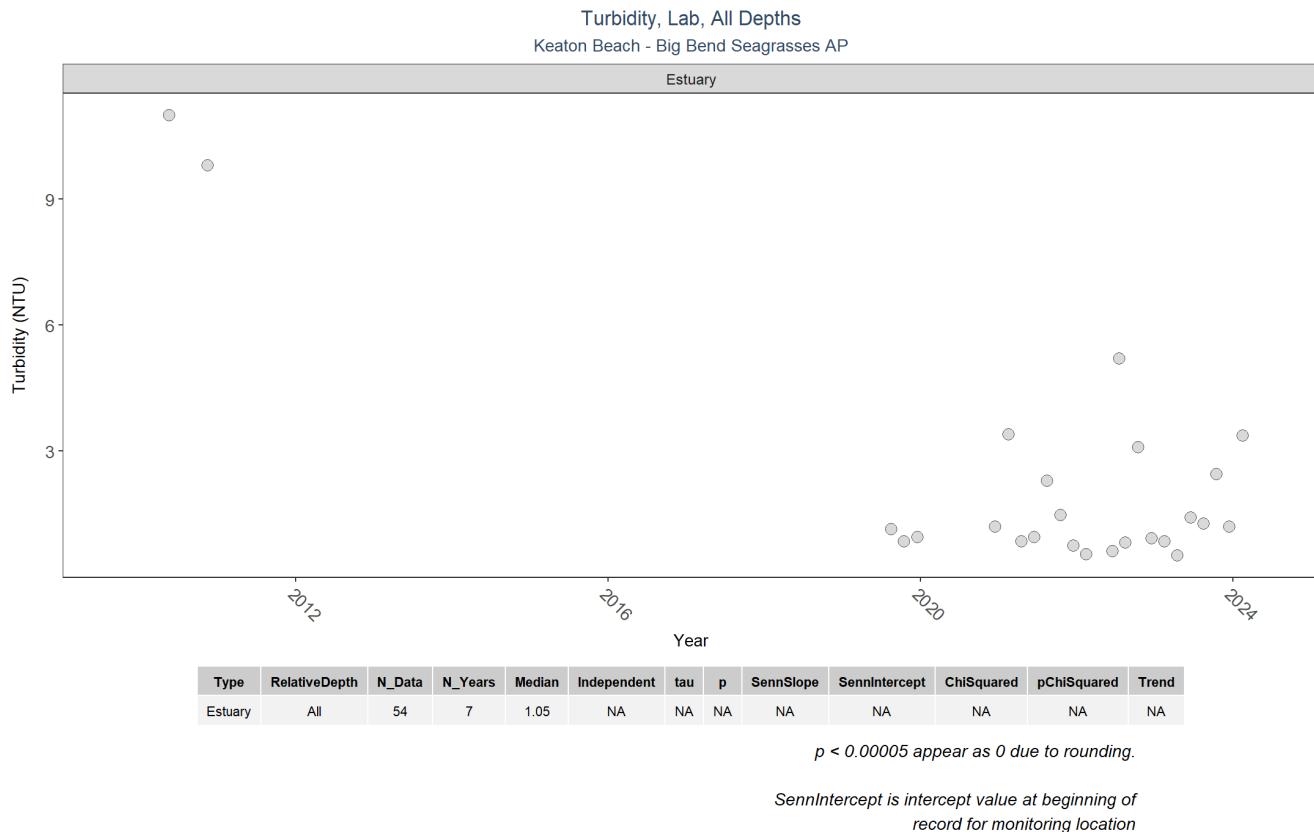
## Total Phosphorus



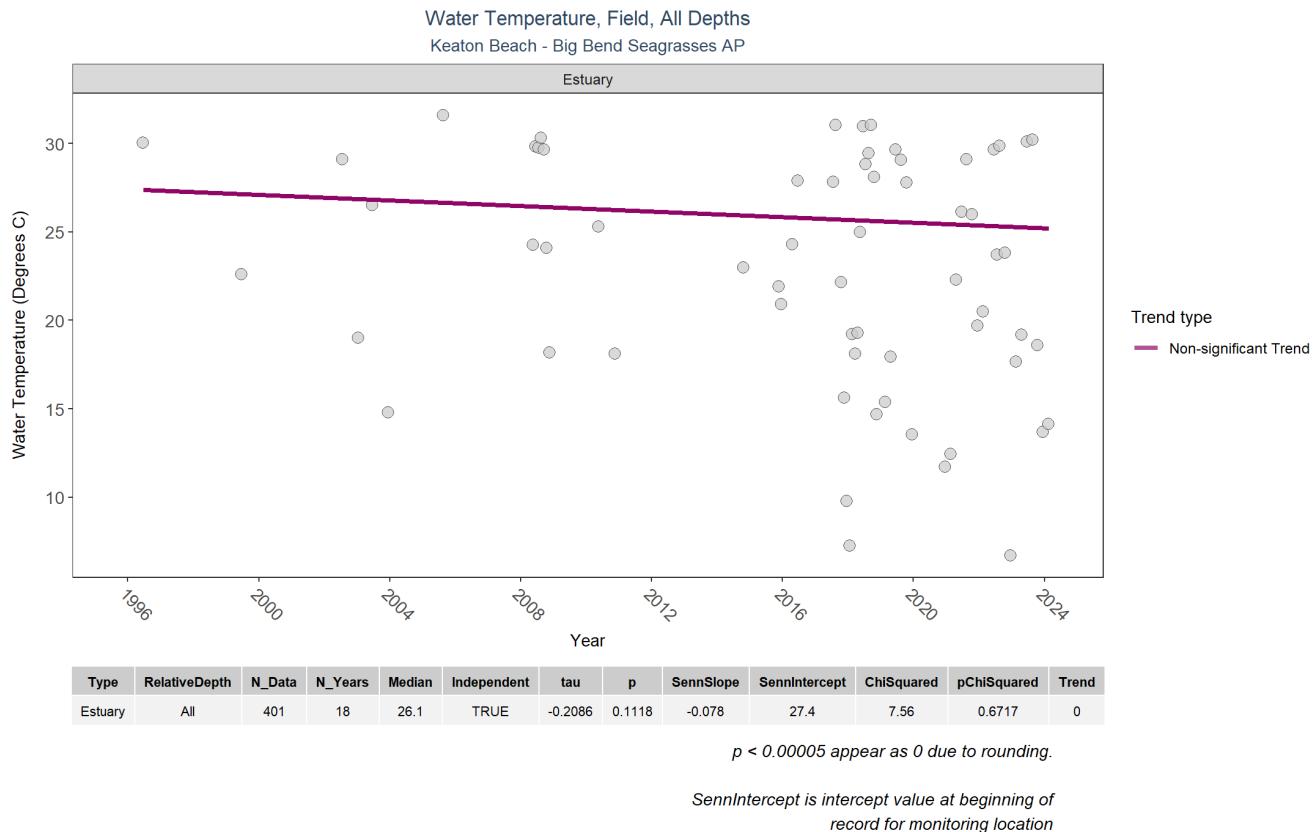
## Total Suspended Solids



## Turbidity



## Water Temperature



## Submerged Aquatic Vegetation

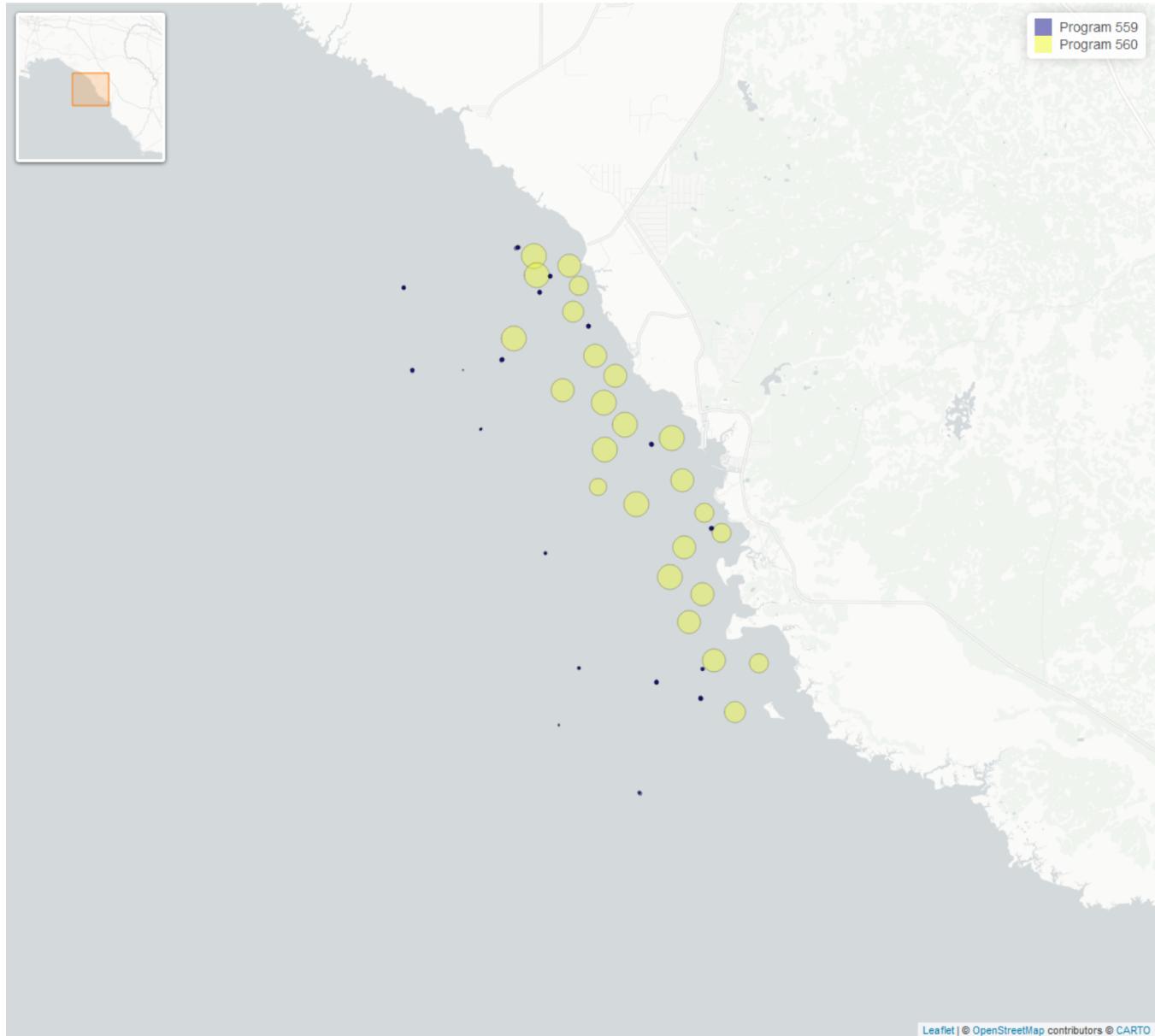


Table 19: Northern Big Bend Seagrass Monitoring - *Program 559*

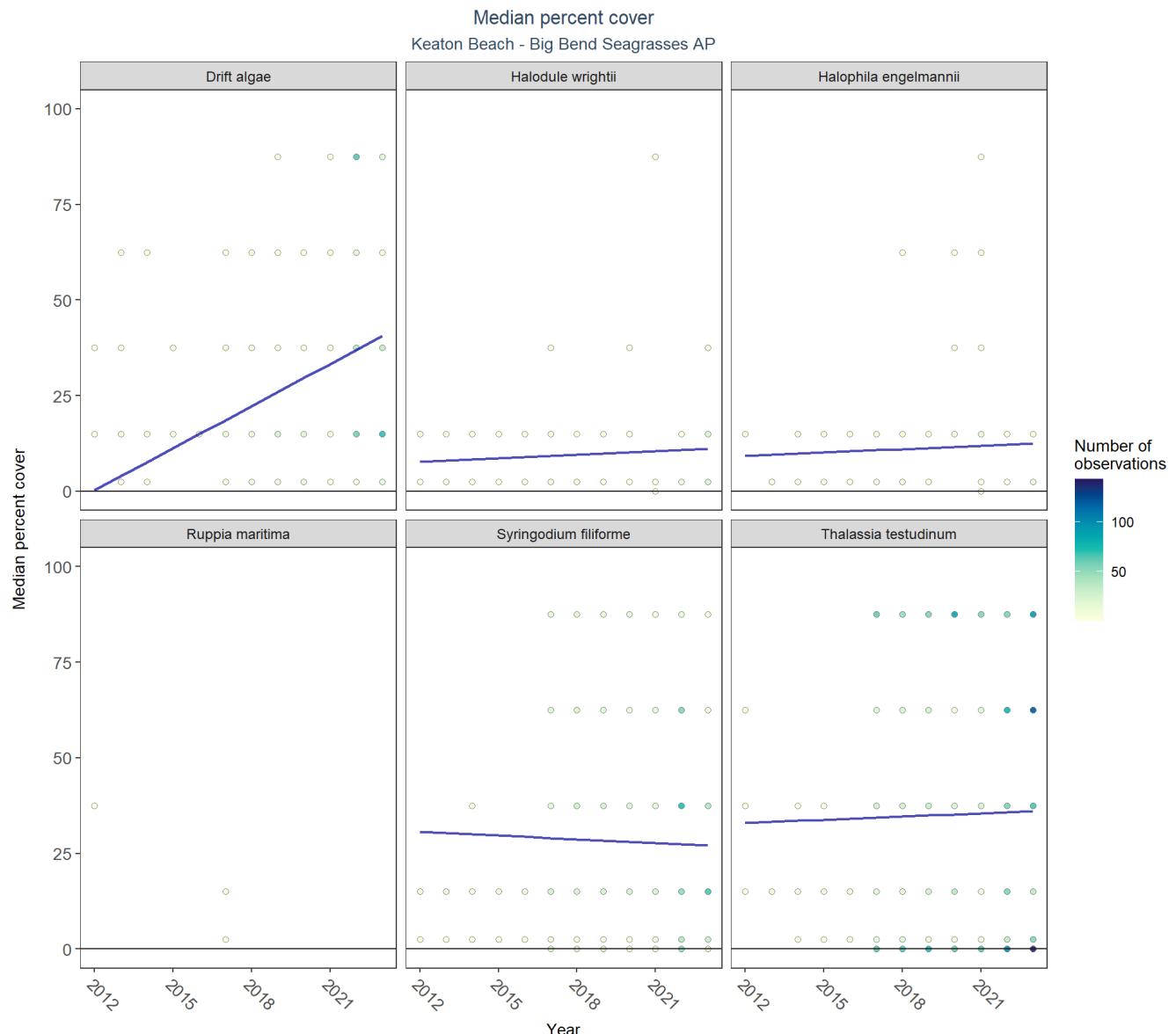
<i>N_Data</i>	<i>YearMin</i>	<i>YearMax</i>	<i>Collection Method</i>	<i>Sample Locations</i>
324	2012	2018	Modified Braun Blanquet	109

Table 20: Big Bend Seagrasses & Nature Coast Aquatic Preserves - Seagrass Monitoring - *Program 560*

<i>N_Data</i>	<i>YearMin</i>	<i>YearMax</i>	<i>Collection Method</i>	<i>Sample Locations</i>
2624	2017	2023	Modified Braun Blanquet	25

<i>N_Data</i>	<i>YearMin</i>	<i>YearMax</i>	<i>Collection Method</i>	<i>Sample Locations</i>
923	2022	2023	Percent Cover	25

### Median Percent Cover - Species Trends



## Median Percent Cover - Species Trend Table

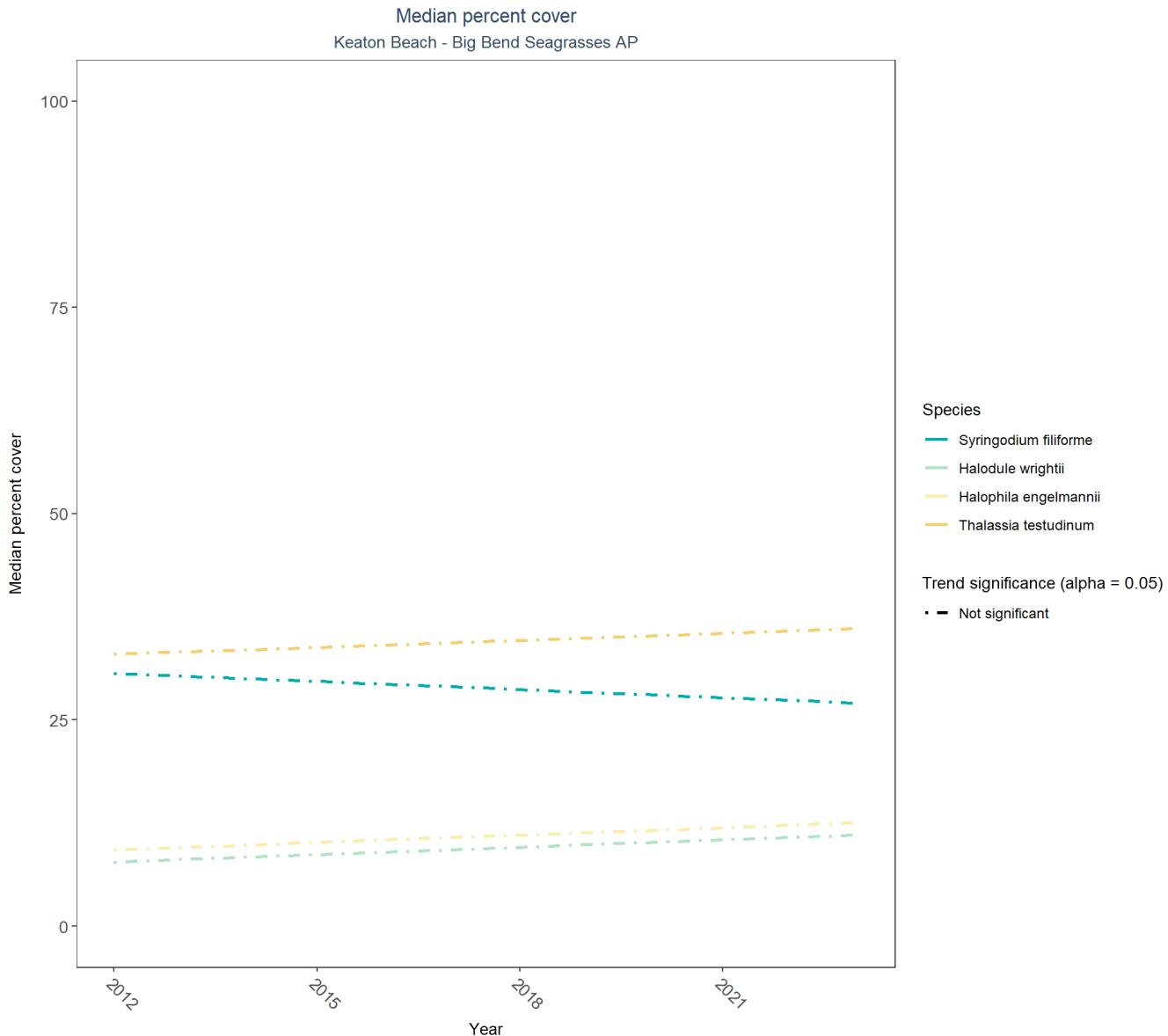
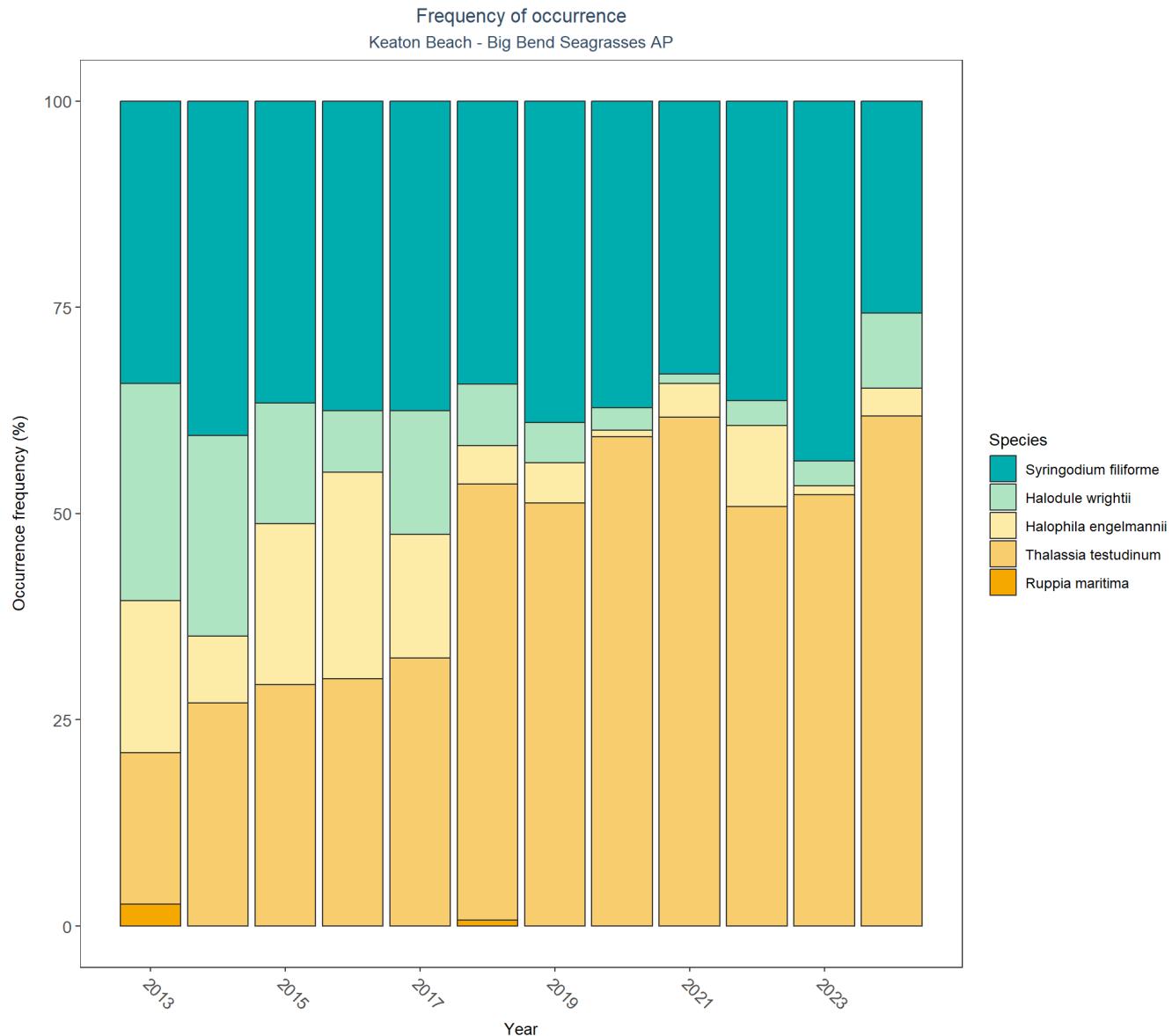


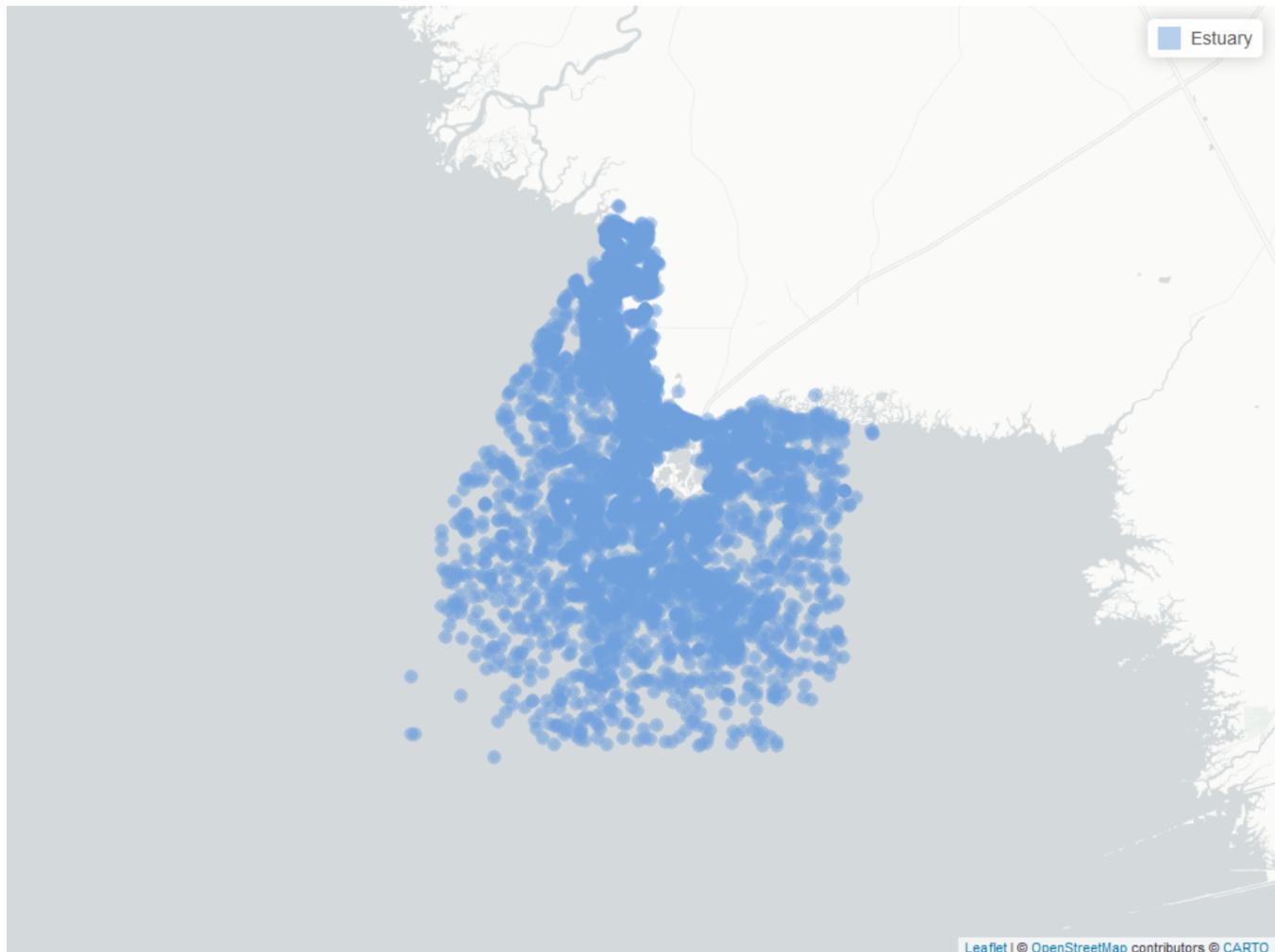
Table 21: Percent Cover Trend Analysis for Keaton Beach

Species	Trend Significance (0.05)	Period of Record	LME_Intercept	LME_Slope	p
Drift algae	Significantly increasing trend	2012 - 2023	-43.6145	3.6603	0.0000
Halodule wrightii	No significant trend	2012 - 2023	4.1770	0.3000	0.3295
Halophila engelmannii	No significant trend	2012 - 2023	5.6838	0.2979	0.4728
Ruppia maritima	Insufficient data to calculate trend	-	-	-	-
Syringodium filiforme	No significant trend	2012 - 2023	34.5480	-0.3252	0.5980
Thalassia testudinum	No significant trend	2012 - 2023	29.6075	0.2800	0.5202

## Frequency of Occurrence Barplots



## 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 value.

Table 22: 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 - 2023	18	458	TRUE	-0.06	13.83	0.4199	0
Estuary	Chlorophyll a, Uncorrected for Pheophytin	1997 - 2023	19	478	TRUE	0.22	8.27	0.0042	↑
Estuary	Colored Dissolved Organic Matter	2017 - 2023	7	127	FALSE	-	-	-	-
Estuary	Dissolved Oxygen	1985 - 2022	29	49647	TRUE	-0.02	7.23	0.0071	↓
Estuary	Dissolved Oxygen Saturation	2013 - 2016	2	8	FALSE	-	-	-	-
Estuary	Salinity	1967 - 2023	33	52408	TRUE	0.02	24.03	0.4818	0
Estuary	Secchi Depth	1994 - 2023	30	17839	TRUE	-0.01	1.03	0.0092	↓
Estuary	Total Nitrogen	2000 - 2023	17	512	TRUE	-0.02	0.97	0.0001	↓
Estuary	Total Phosphorus	2000 - 2023	15	490	TRUE	0.00	0.04	0.3812	0
Estuary	Total Suspended Solids	1995 - 2013	4	48	FALSE	-	-	-	-
Estuary	Turbidity	1995 - 2022	24	13310	TRUE	0.04	7.94	0.2974	0
Estuary	Water Temperature	1967 - 2022	31	52026	TRUE	0.03	22.53	0.0075	↑
Estuary	pH	1994 - 2022	28	34175	TRUE	-0.01	8.09	0.0000	↓

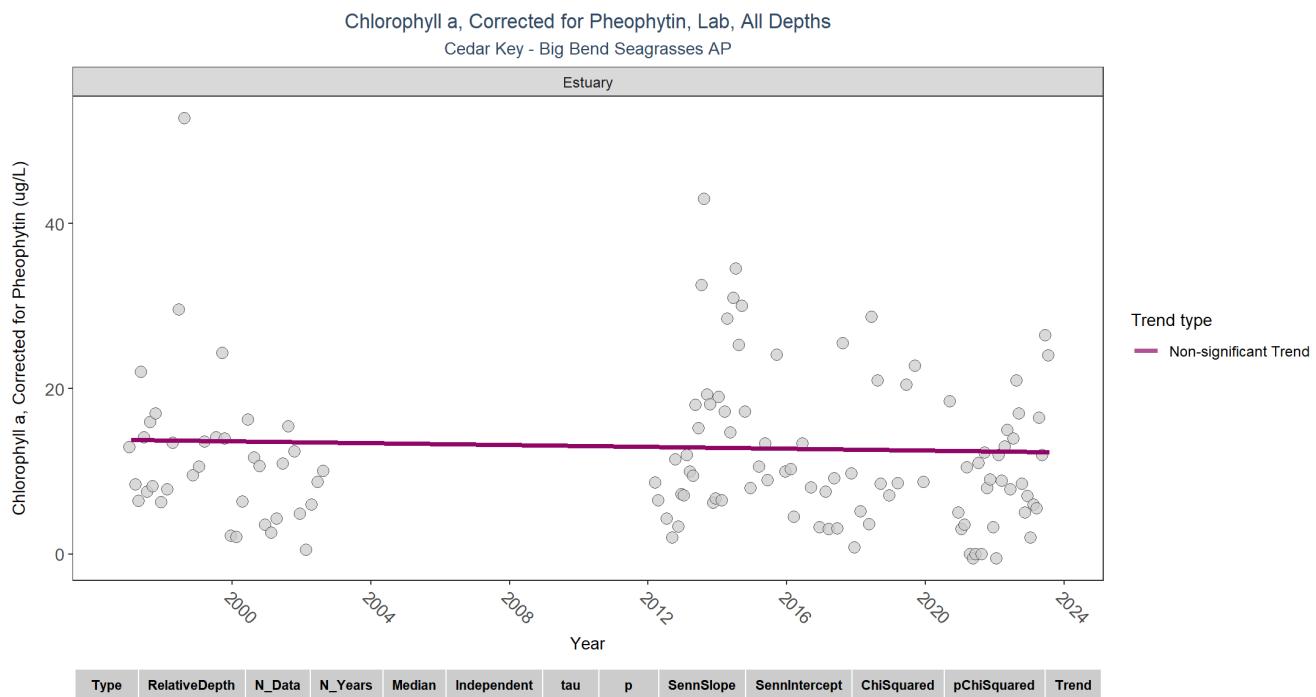
Table containing overview of Programs contributing data for Cedar Key

Table 23: Overview of Program Data for Cedar Key

ParameterName	ProgramID	n-data-Estuary	n-data-River
Ammonium, Filtered (NH4)	103	2	-
Ammonium, Filtered (NH4)	115	2	-
Ammonium, Filtered (NH4)	5002	179	-
Chlorophyll a, Corrected for Pheophytin	514	108	-
Chlorophyll a, Corrected for Pheophytin	540	104	-
Chlorophyll a, Corrected for Pheophytin	5002	255	-
Chlorophyll a, Uncorrected for Pheophytin	103	56	-
Chlorophyll a, Uncorrected for Pheophytin	115	2	-
Chlorophyll a, Uncorrected for Pheophytin	118	4	-
Chlorophyll a, Uncorrected for Pheophytin	514	128	-
Chlorophyll a, Uncorrected for Pheophytin	540	104	-
Chlorophyll a, Uncorrected for Pheophytin	5002	194	-
Colored Dissolved Organic Matter	103	6	-
Colored Dissolved Organic Matter	514	63	-
Colored Dissolved Organic Matter	540	71	-
Dissolved Oxygen	69	17569	-
Dissolved Oxygen	95	394	-
Dissolved Oxygen	103	6	-
Dissolved Oxygen	115	5	-
Dissolved Oxygen	118	2	-
Dissolved Oxygen	540	72	-
Dissolved Oxygen	560	410	-
Dissolved Oxygen	5002	31599	-
Dissolved Oxygen Saturation	95	1	-
Dissolved Oxygen Saturation	5002	7	-
NO2+3, Filtered	115	2	-
NO2+3, Filtered	540	106	-
NO2+3, Filtered	5002	341	-
Nitrate (NO3)	5002	1	-
Phosphate, Filtered (PO4)	103	2	-
Phosphate, Filtered (PO4)	115	2	-
Phosphate, Filtered (PO4)	5002	176	-
Salinity	69	17610	-
Salinity	95	442	-
Salinity	115	5	-
Salinity	540	88	-
Salinity	560	410	-
Salinity	5002	33853	-
Secchi Depth	69	17626	-
Secchi Depth	115	2	-
Secchi Depth	514	190	-
Secchi Depth	560	25	-
Secchi Depth	5002	21	-
Specific Conductivity	69	17496	-
Specific Conductivity	95	5	-
Specific Conductivity	514	63	-
Specific Conductivity	5002	364	-
Total Kjeldahl Nitrogen	540	106	-
Total Kjeldahl Nitrogen	5002	346	-
Total Nitrogen	103	17	-

Total Nitrogen	115	2	-
Total Nitrogen	118	1	-
Total Nitrogen	514	190	-
Total Nitrogen	540	106	-
Total Nitrogen	5002	207	-
Total Phosphorus	103	38	-
Total Phosphorus	115	2	-
Total Phosphorus	118	1	-
Total Phosphorus	514	190	-
Total Phosphorus	540	105	-
Total Phosphorus	5002	165	-
Total Suspended Solids	5002	48	-
Turbidity	103	10	-
Turbidity	540	35	-
Turbidity	5002	13278	-
Water Temperature	69	17626	-
Water Temperature	95	422	-
Water Temperature	103	6	-
Water Temperature	115	5	-
Water Temperature	540	88	-
Water Temperature	560	411	-
Water Temperature	5002	33879	-
pH	69	17543	-
pH	95	202	-
pH	103	4	-
pH	115	5	-
pH	540	56	-
pH	560	367	-
pH	5002	16365	-

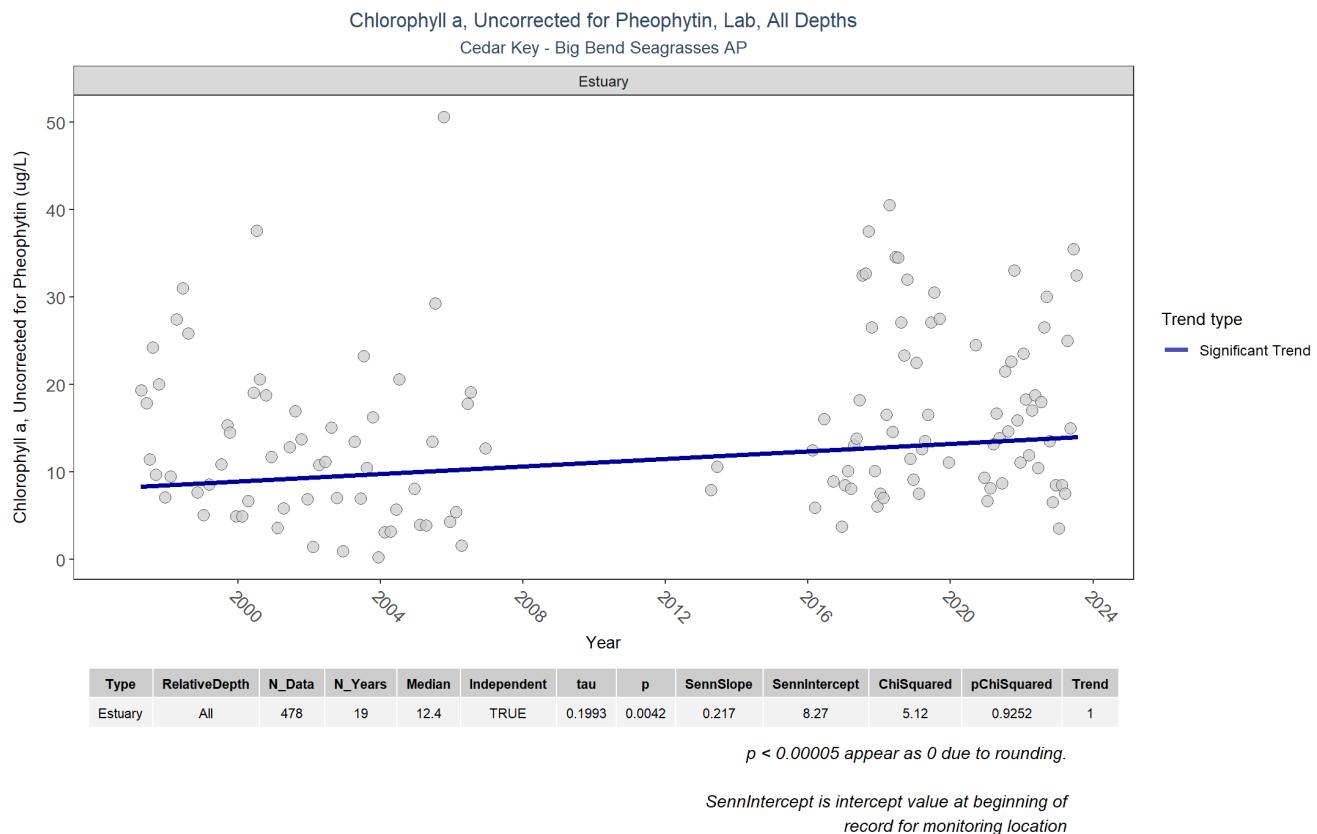
## Chlorophyll a, Corrected for Pheophytin



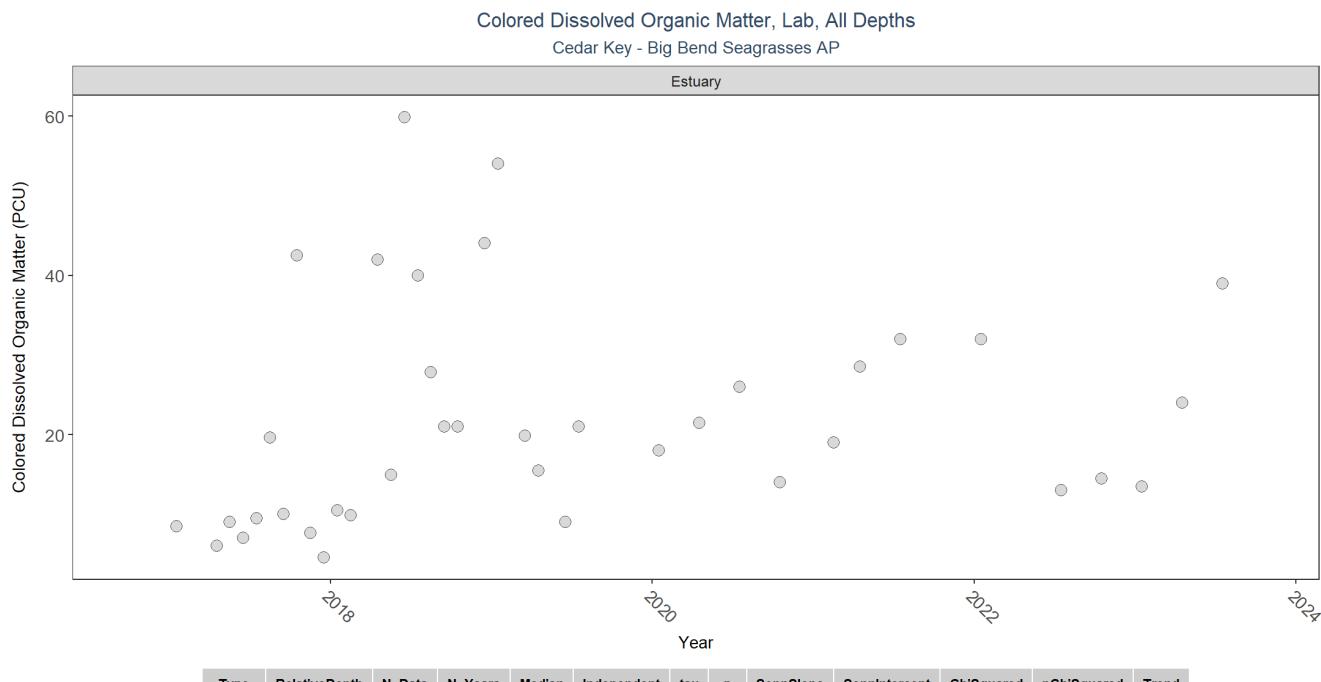
*p < 0.00005 appear as 0 due to rounding.*

*SennIntercept is intercept value at beginning of record for monitoring location*

## Chlorophyll a, Uncorrected for Pheophytin



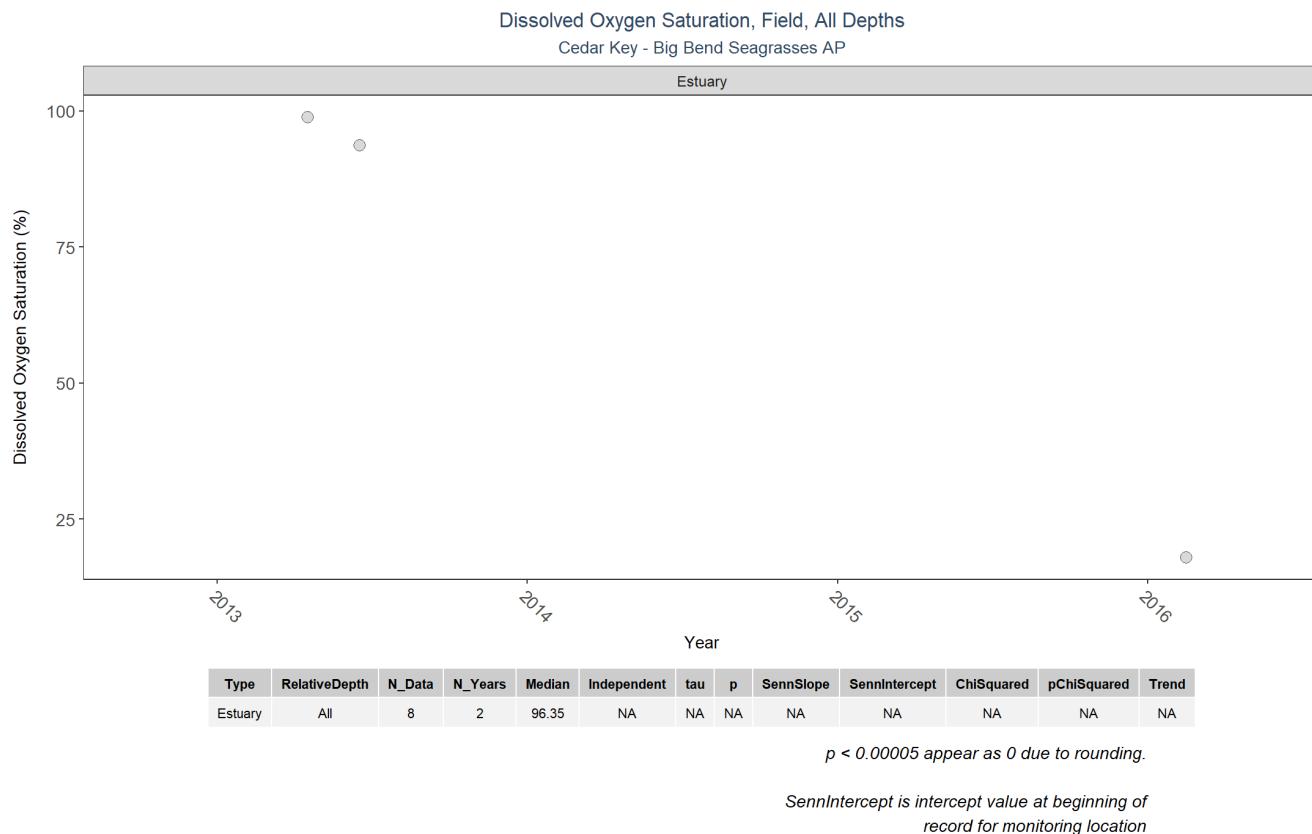
## Colored Dissolved Organic Matter



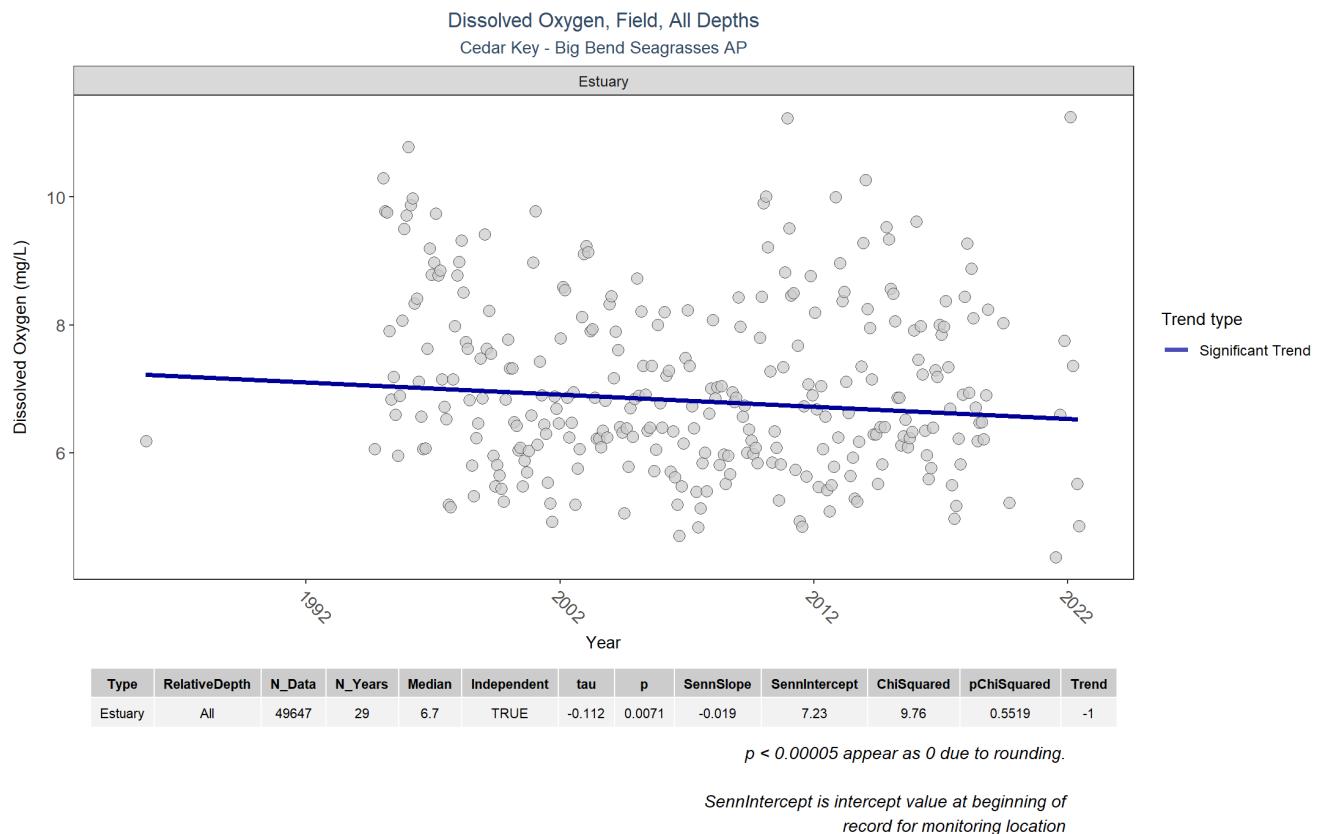
*p < 0.00005 appear as 0 due to rounding.*

*SennIntercept is intercept value at beginning of record for monitoring location*

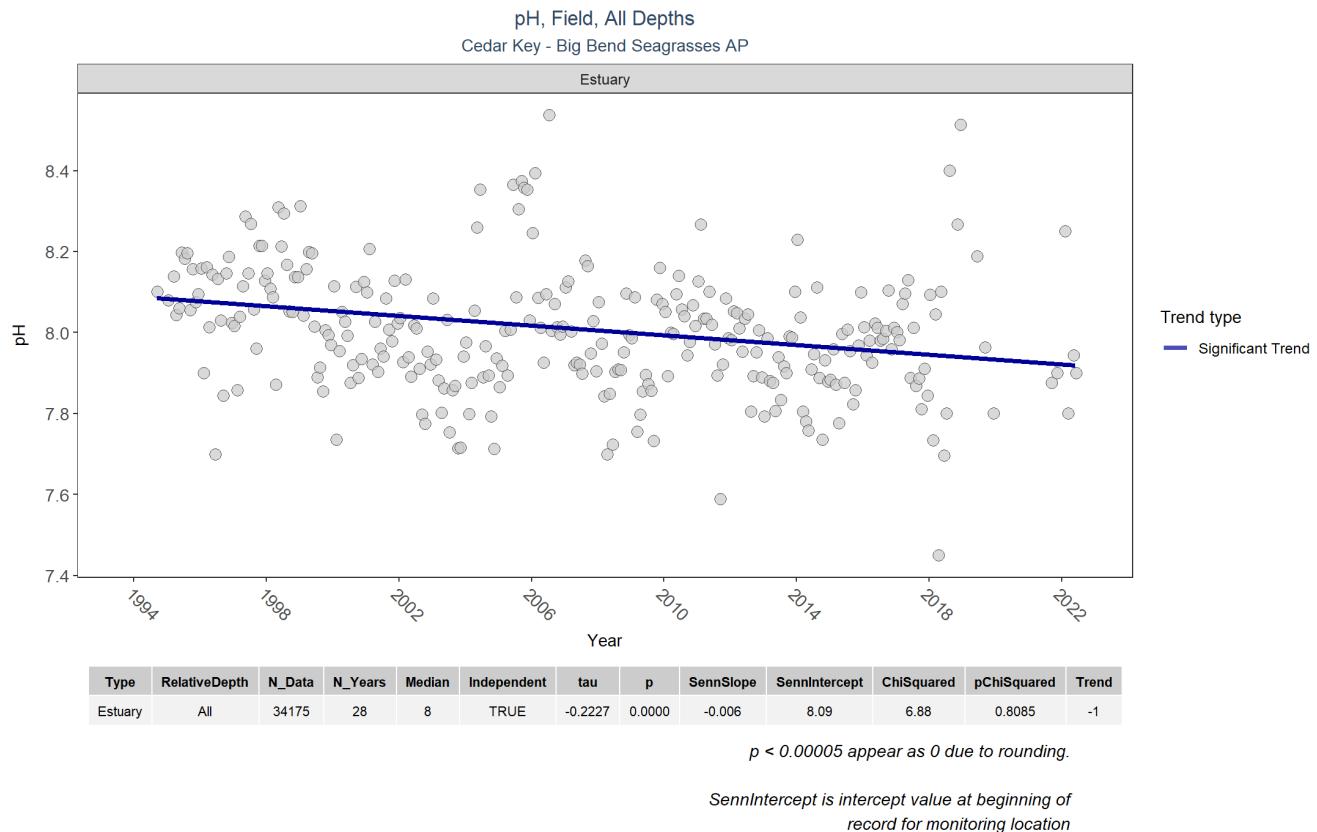
## Dissolved Oxygen Saturation



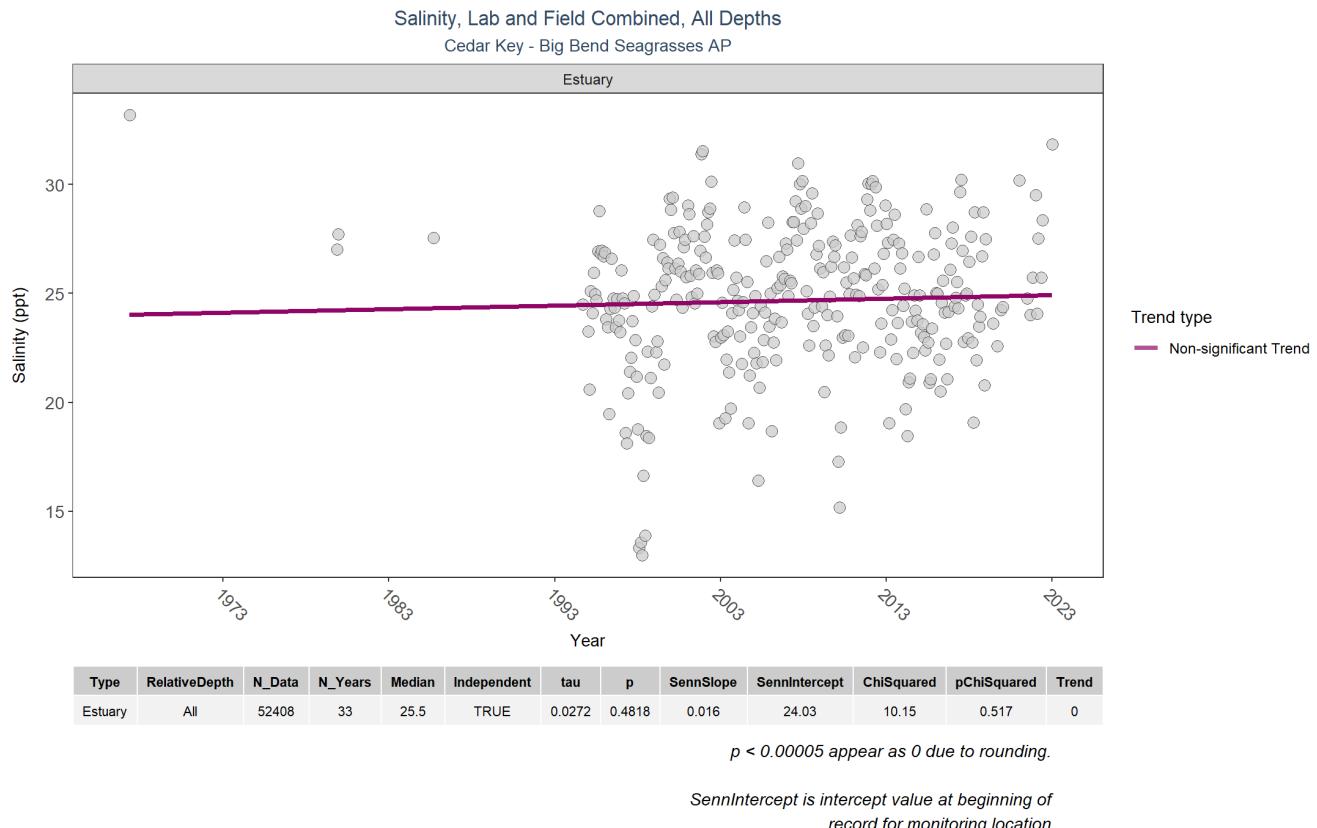
## Dissolved Oxygen



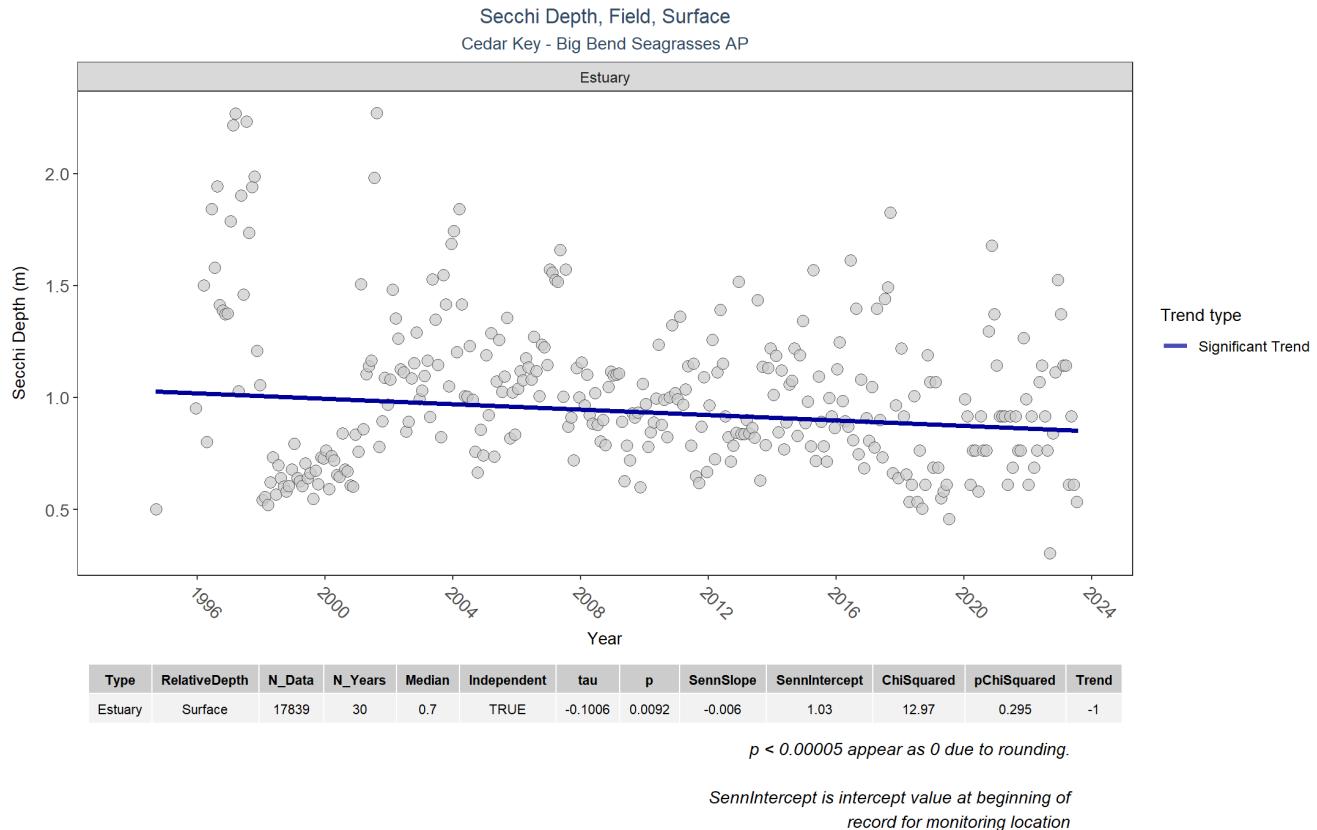
## pH



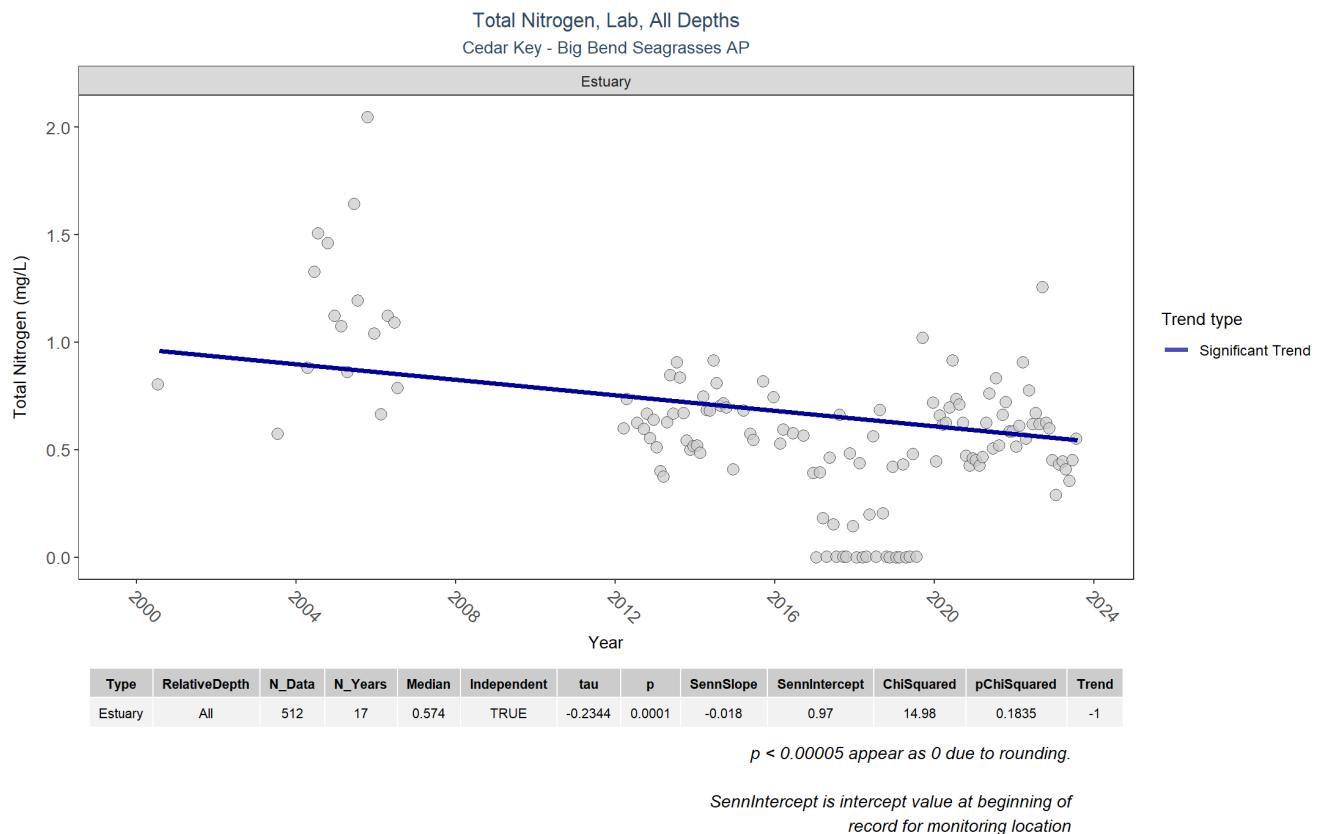
## Salinity



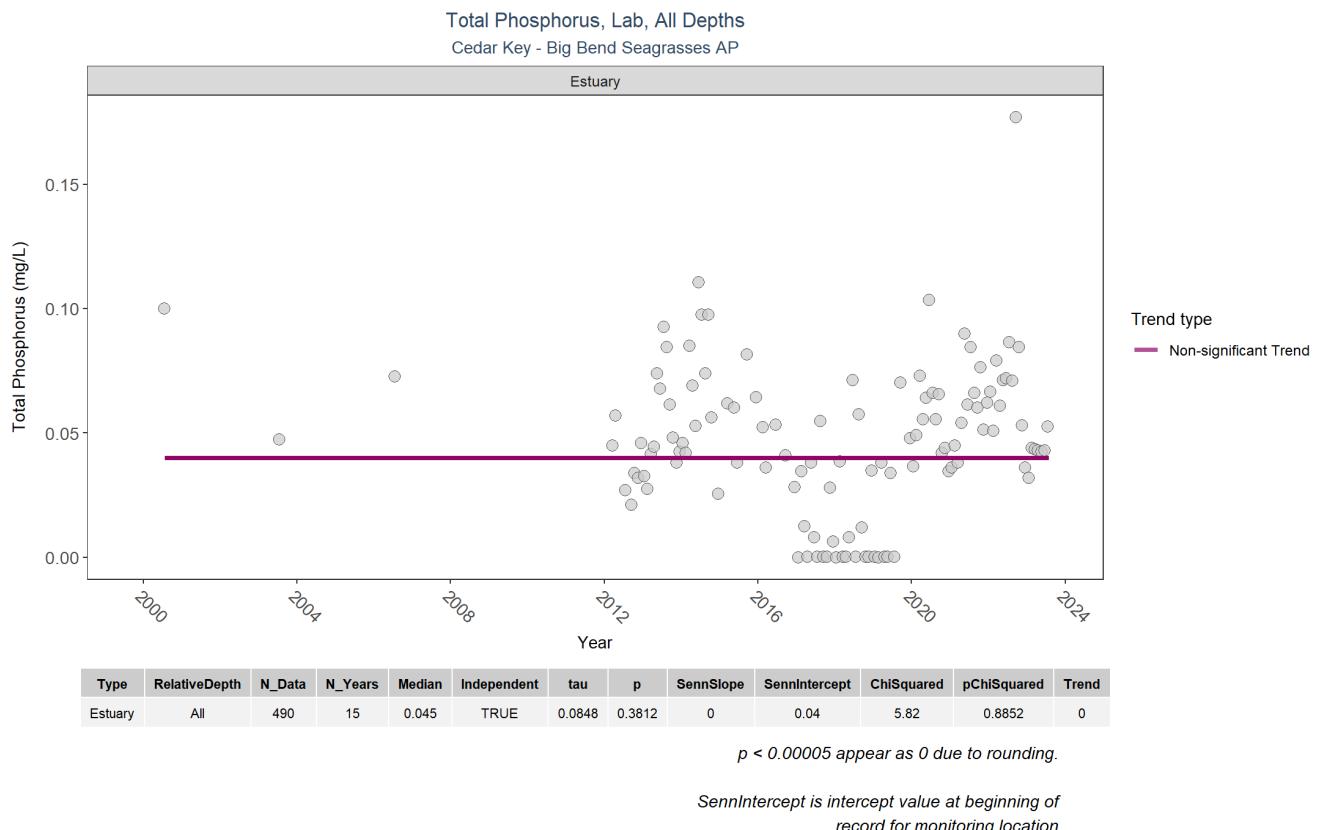
## Secchi Depth



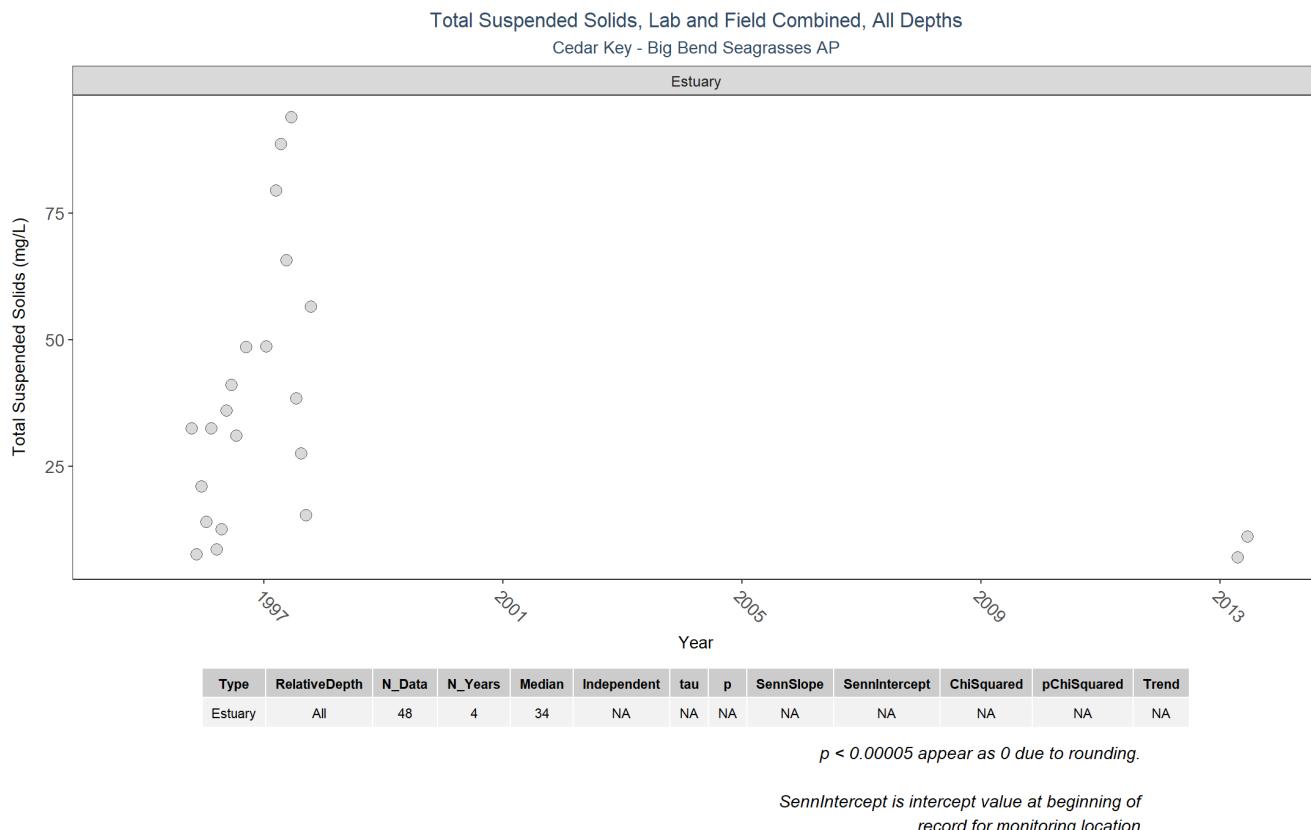
## Total Nitrogen



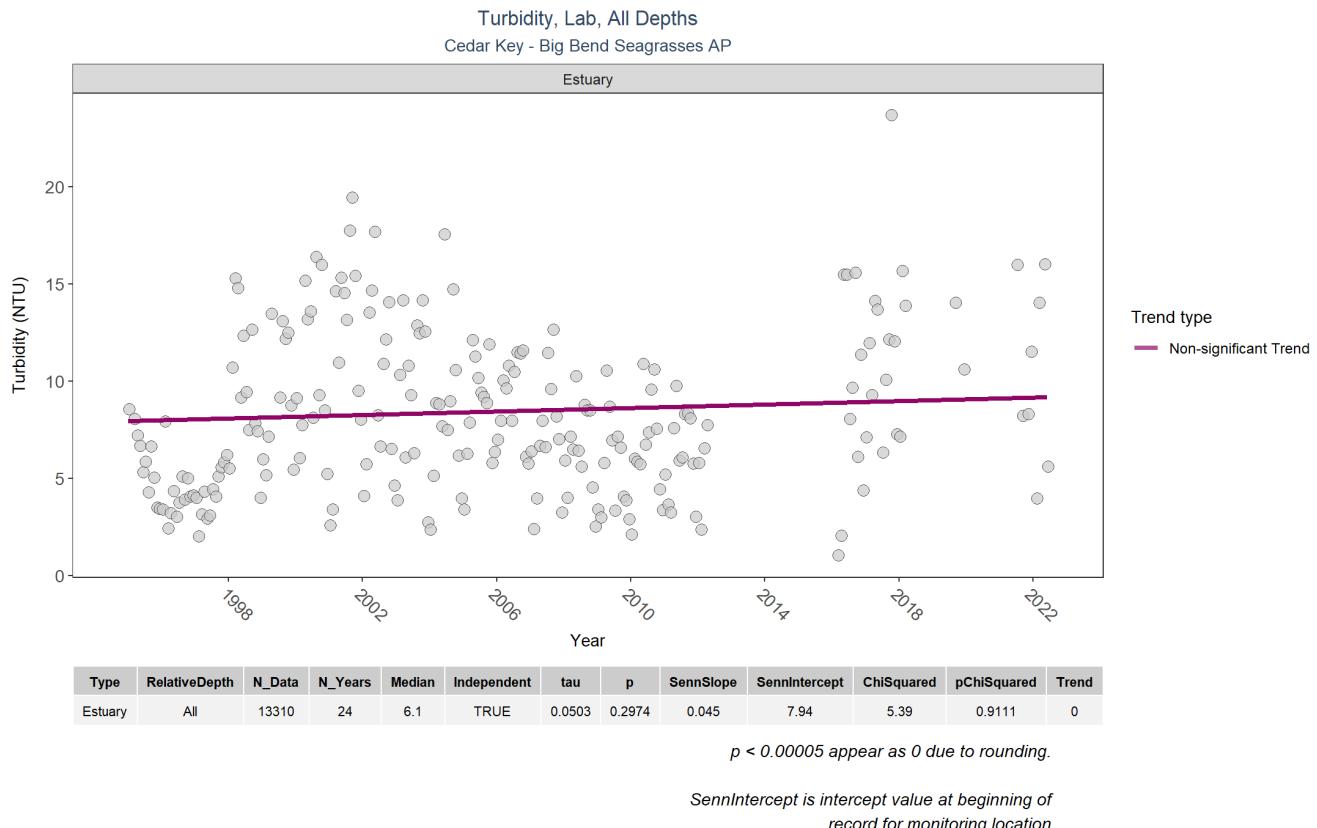
## Total Phosphorus



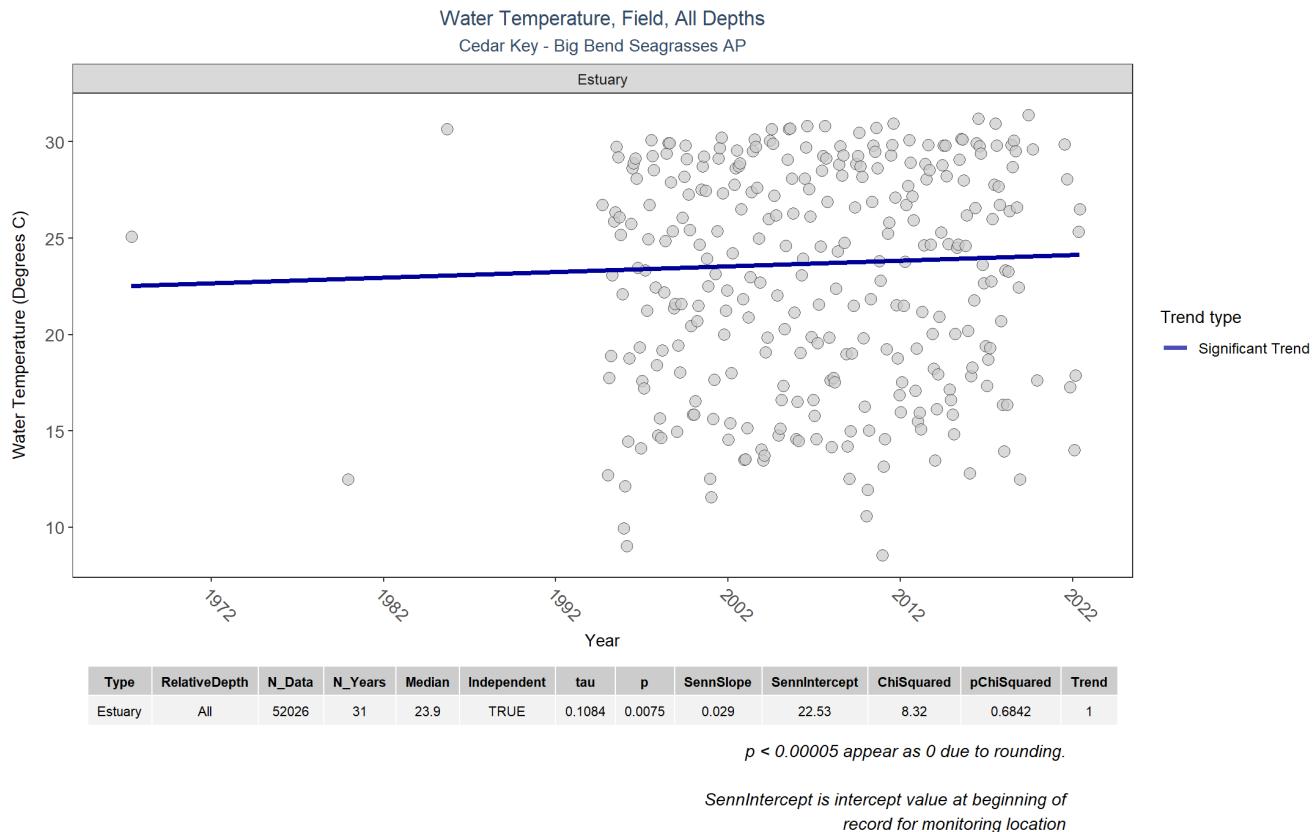
## Total Suspended Solids



## Turbidity



## Water Temperature



## Submerged Aquatic Vegetation

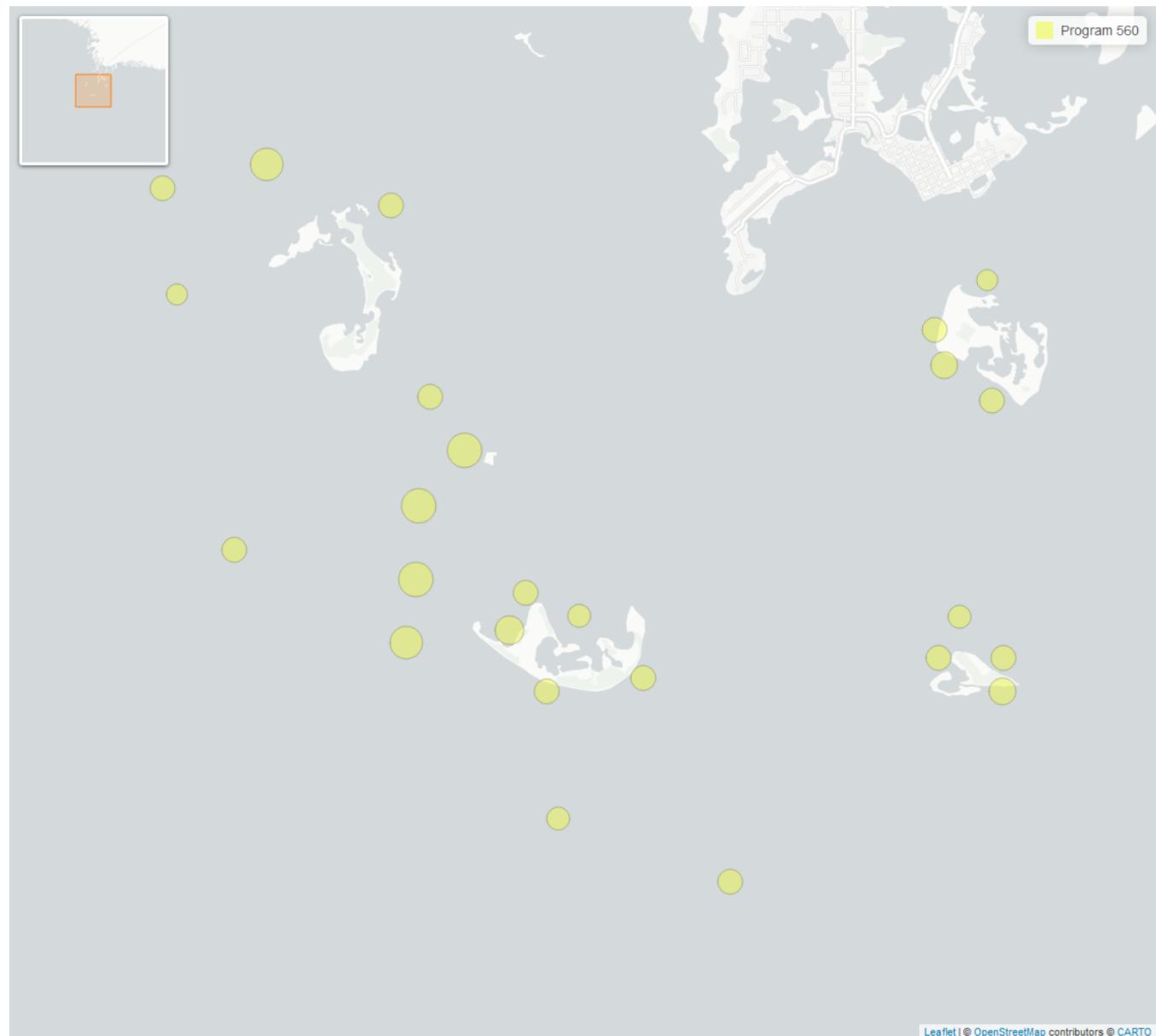


Table 24: Big Bend Seagrasses & Nature Coast Aquatic Preserves - Seagrass Monitoring - *Program 560*

<i>N_Data</i>	<i>YearMin</i>	<i>YearMax</i>	<i>Collection Method</i>	<i>Sample Locations</i>
4284	2006	2023	Modified Braun Blanquet	25
604	2022	2023	Percent Cover	25

## Median Percent Cover - Species Trends



## Median Percent Cover - Species Trend Table

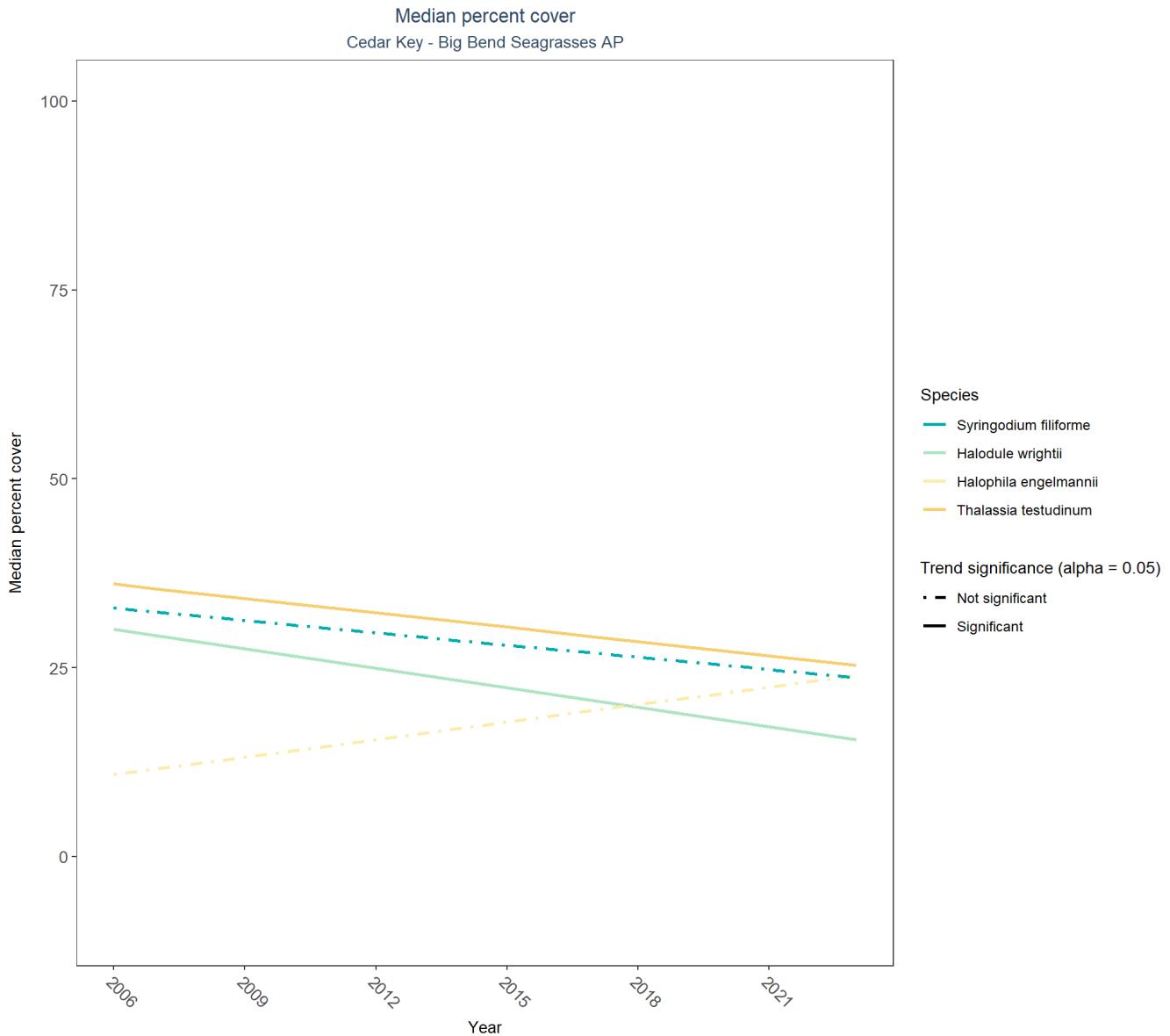
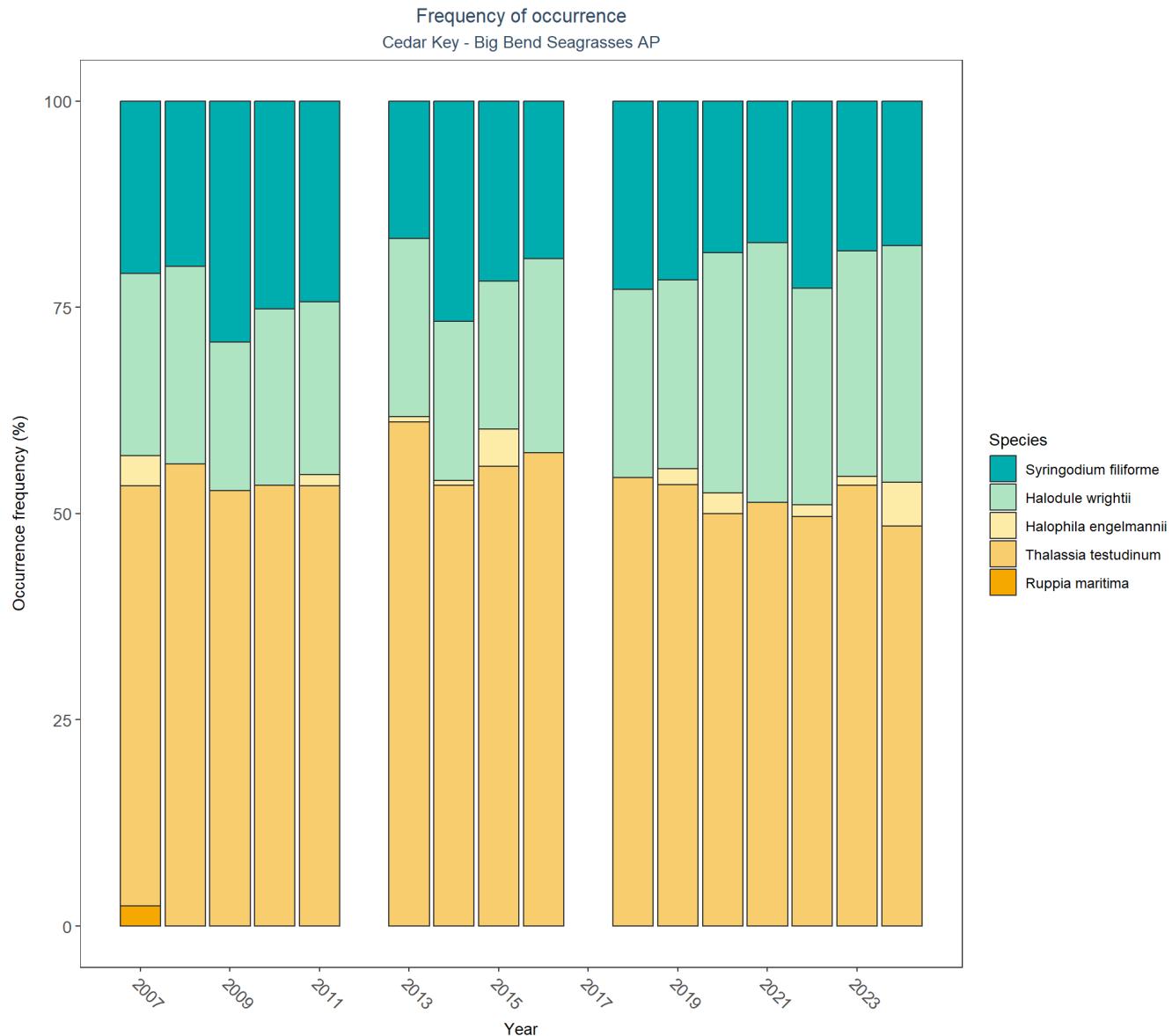


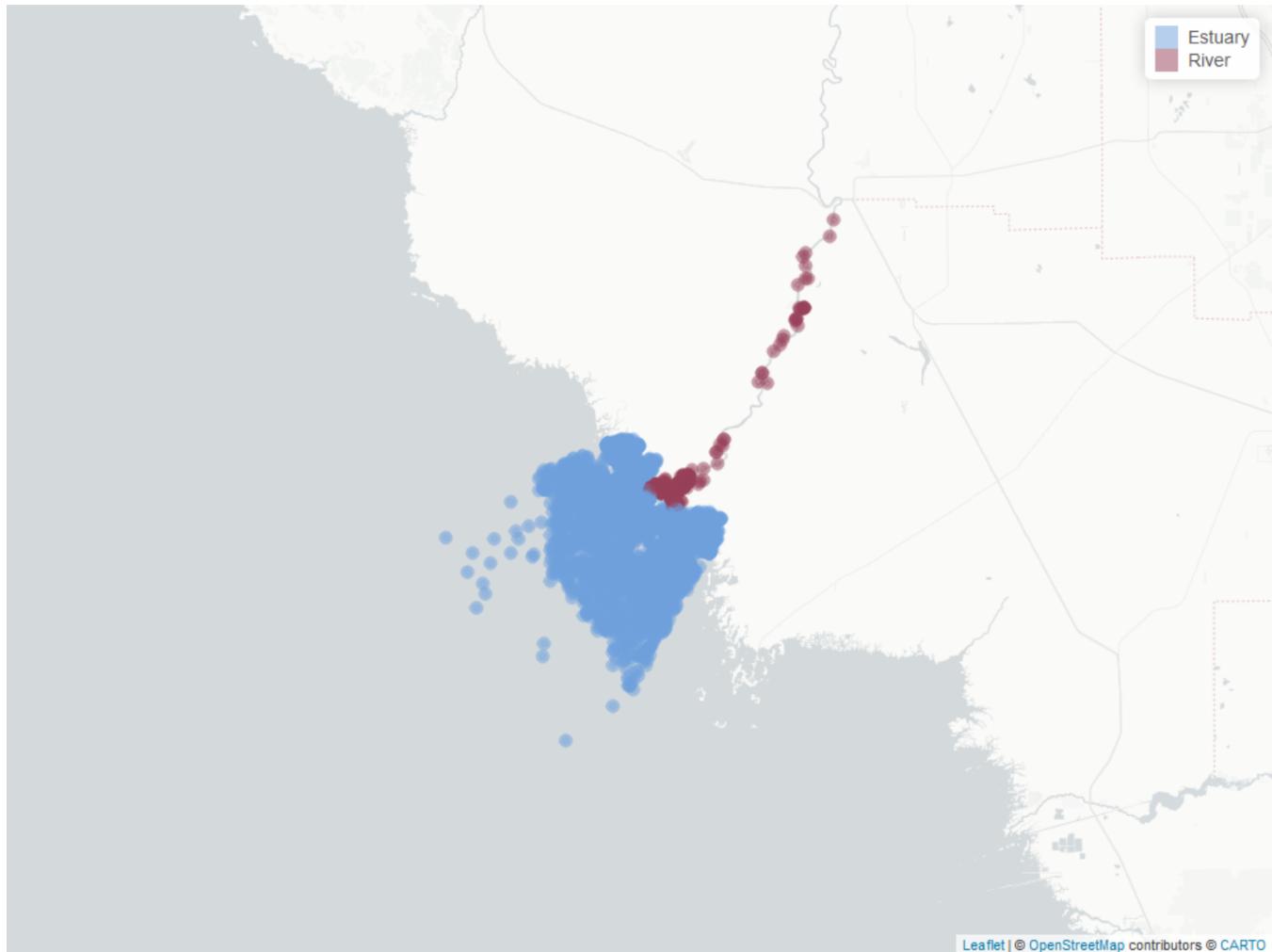
Table 25: Percent Cover Trend Analysis for Cedar Key

Species	Trend Significance (0.05)	Period of Record	LME_Intercept	LME_Slope	p
Drift algae	Significantly increasing trend	2006 - 2023	-25.1735	2.7656	0.0004
Halodule wrightii	Significantly decreasing trend	2006 - 2023	35.3026	-0.8630	0.0000
Halophila engelmannii	No significant trend	2006 - 2023	6.1752	0.7753	0.1595
No grass In Quadrat	Model did not fit the available data	2007 - 2023	-	-	-
Ruppia maritima	Insufficient data to calculate trend	-	-	-	-
Syringodium filiforme	No significant trend	2006 - 2023	36.1352	-0.5411	0.0829
Thalassia testudinum	Significantly decreasing trend	2006 - 2023	39.8844	-0.6344	0.0000

## Frequency of Occurrence Barplots



## Suwanee



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 value.

Suwanee contains a *large trend*. Trends marked in  $\uparrow$  or  $\downarrow$  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 26: Seasonal Kendall-Tau Results for Suwanee

Type	ParameterName	Period-of-Record	N-Years	N-Data	SufficientData	SennSlope	SennIntercept	p	Trend
Estuary	Chlorophyll a, Corrected for Pheophytin	1995 - 2024	18	667	TRUE	0.12	1.92	0.0000	↑
River	Chlorophyll a, Corrected for Pheophytin	1999 - 2023	20	135	TRUE	0.01	0.90	0.0812	0
Estuary	Chlorophyll a, Uncorrected for Pheophytin	1990 - 2024	27	992	TRUE	0.14	1.09	0.0000	↑
River	Chlorophyll a, Uncorrected for Pheophytin	1990 - 2023	28	301	TRUE	0.00	1.08	0.4218	0
Estuary	Colored Dissolved Organic Matter	2020 - 2023	4	51	FALSE	-	-	-	-
River	Colored Dissolved Organic Matter	2002 - 2023	6	80	FALSE	-	-	-	-
Estuary	Dissolved Oxygen	1990 - 2024	33	36566	TRUE	0.01	6.63	0.3047	0
River	Dissolved Oxygen	1989 - 2023	35	3821	TRUE	-0.03	6.38	0.0005	↓
Estuary	Dissolved Oxygen Saturation	2013 - 2023	9	84	FALSE	-	-	-	-
River	Dissolved Oxygen Saturation	2013 - 2023	10	102	TRUE	-6.60	83.98	0.0000	↓
Estuary	Salinity	1967 - 2024	35	37996	TRUE	0.07	13.97	0.0485	↑
River	Salinity	1990 - 2022	30	3484	TRUE	0.00	0.20	0.0055	↓
Estuary	Secchi Depth	1991 - 2023	29	15758	TRUE	-0.01	1.09	0.0167	↓
River	Secchi Depth	1993 - 2023	23	3052	TRUE	0.00	1.11	0.4740	0
Estuary	Total Nitrogen	1990 - 2024	19	439	TRUE	-0.01	1.27	0.0036	↓
River	Total Nitrogen	1990 - 2023	25	308	TRUE	0.02	1.10	0.0000	↑
Estuary	Total Phosphorus	2004 - 2024	16	283	TRUE	0.00	0.12	0.0143	↓
River	Total Phosphorus	2001 - 2023	23	271	TRUE	0.00	0.11	0.0086	↑
Estuary	Total Suspended Solids	1990 - 2001	9	381	FALSE	-	-	-	-
River	Total Suspended Solids	1990 - 2023	31	248	TRUE	-0.01	4.00	0.0025	↓
Estuary	Turbidity	1990 - 2024	33	10060	TRUE	0.02	3.03	0.0664	0
River	Turbidity	1990 - 2023	33	667	TRUE	-0.02	1.78	0.0267	↓
Estuary	Water Temperature	1967 - 2024	35	38335	TRUE	0.02	22.32	0.0454	↑
River	Water Temperature	1989 - 2023	35	3864	TRUE	0.02	22.48	0.1122	0
Estuary	pH	1990 - 2024	33	27101	TRUE	0.00	7.87	0.6333	0
River	pH	1989 - 2023	35	3649	TRUE	0.00	7.71	0.5292	0

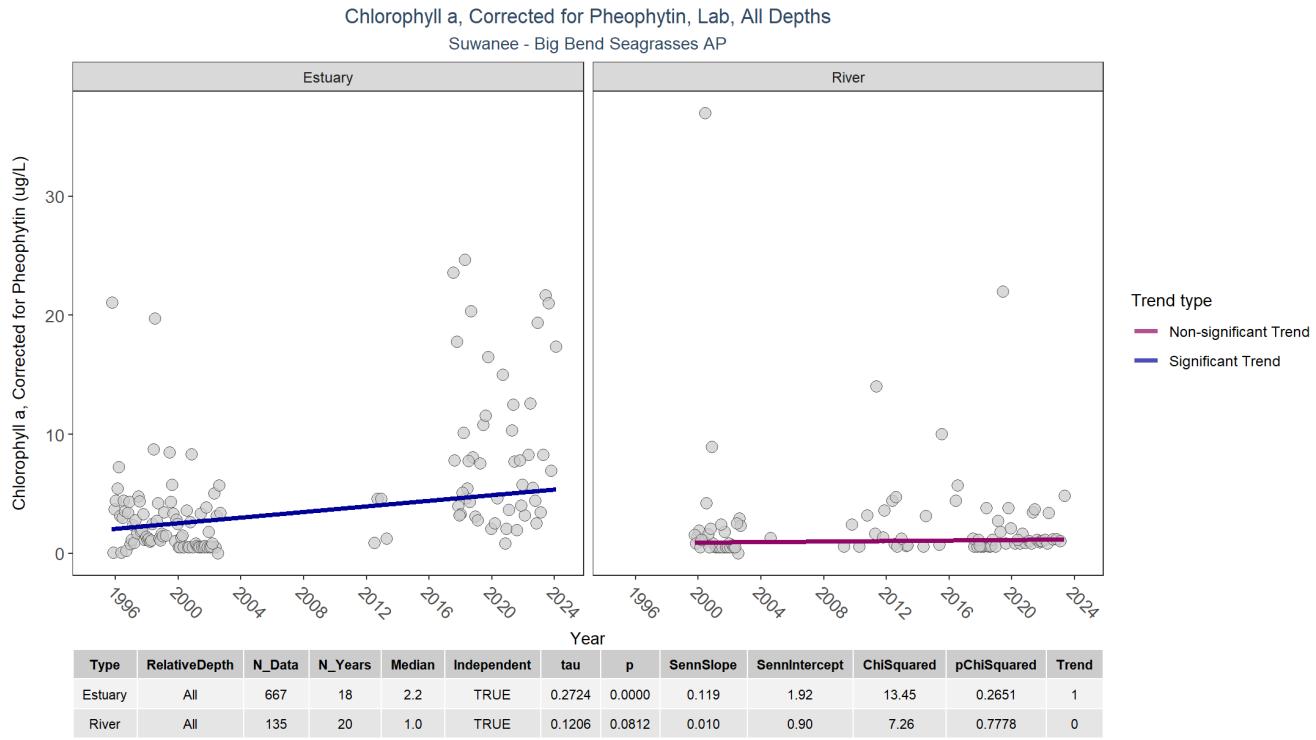
Table containing overview of Programs contributing data for Suwanee

Table 27: Overview of Program Data for Suwanee

ParameterName	ProgramID	n-data-Estuay	n-data-River
Ammonium, Filtered (NH4)	103	1	-
Ammonium, Filtered (NH4)	115	1	-
Ammonium, Filtered (NH4)	477	52	59
Ammonium, Filtered (NH4)	5002	1023	442
Chlorophyll a, Corrected for Pheophytin	103	6	2
Chlorophyll a, Corrected for Pheophytin	477	40	20
Chlorophyll a, Corrected for Pheophytin	5002	627	113
Chlorophyll a, Uncorrected for Pheophytin	103	28	-
Chlorophyll a, Uncorrected for Pheophytin	115	1	-
Chlorophyll a, Uncorrected for Pheophytin	118	-	1
Chlorophyll a, Uncorrected for Pheophytin	477	48	24
Chlorophyll a, Uncorrected for Pheophytin	514	-	57
Chlorophyll a, Uncorrected for Pheophytin	5002	921	219
Colored Dissolved Organic Matter	103	6	2
Colored Dissolved Organic Matter	477	51	60
Colored Dissolved Organic Matter	514	-	12
Colored Dissolved Organic Matter	5002	-	8
Dissolved Oxygen	69	15431	2868
Dissolved Oxygen	95	241	-
Dissolved Oxygen	103	21	2
Dissolved Oxygen	115	7	2
Dissolved Oxygen	118	6	1
Dissolved Oxygen	477	52	58
Dissolved Oxygen	5002	20814	893
Dissolved Oxygen Saturation	477	52	58
Dissolved Oxygen Saturation	5002	32	44
NO2+3, Filtered	477	52	59
NO2+3, Filtered	5002	1196	498
Nitrate (NO3)	5002	37	20
Nitrite (NO2)	5002	37	20
Phosphate, Filtered (PO4)	103	1	-
Phosphate, Filtered (PO4)	115	1	-
Phosphate, Filtered (PO4)	5002	950	363
Salinity	69	15509	2874
Salinity	95	259	-
Salinity	103	2	-
Salinity	115	7	2

Salinity	118	5	-
Salinity	477	48	31
Salinity	5002	22166	577
Secchi Depth	69	15519	2874
Secchi Depth	103	6	2
Secchi Depth	115	3	1
Secchi Depth	118	1	-
Secchi Depth	477	52	58
Secchi Depth	514	-	54
Secchi Depth	5002	178	66
Specific Conductivity	69	11573	81
Specific Conductivity	95	9	-
Specific Conductivity	103	12	4
Specific Conductivity	477	100	116
Specific Conductivity	5002	1902	856
Total Kjeldahl Nitrogen	477	52	59
Total Kjeldahl Nitrogen	5002	1162	505
Total Nitrogen	103	7	-
Total Nitrogen	115	1	-
Total Nitrogen	514	-	60
Total Nitrogen	5002	437	248
Total Phosphorus	103	22	2
Total Phosphorus	115	1	-
Total Phosphorus	477	52	59
Total Phosphorus	514	-	60
Total Phosphorus	5002	214	150
Total Suspended Solids	477	-	26
Total Suspended Solids	5002	381	222
Turbidity	103	25	4
Turbidity	477	100	117
Turbidity	5002	10033	619
Water Temperature	69	15515	2874
Water Temperature	95	268	-
Water Temperature	103	20	2
Water Temperature	115	7	2
Water Temperature	118	5	-
Water Temperature	477	52	59
Water Temperature	5002	22473	930
pH	69	15385	2861
pH	95	164	-
pH	103	19	2
pH	115	7	2
pH	118	2	-
pH	477	52	58
pH	5002	11502	743

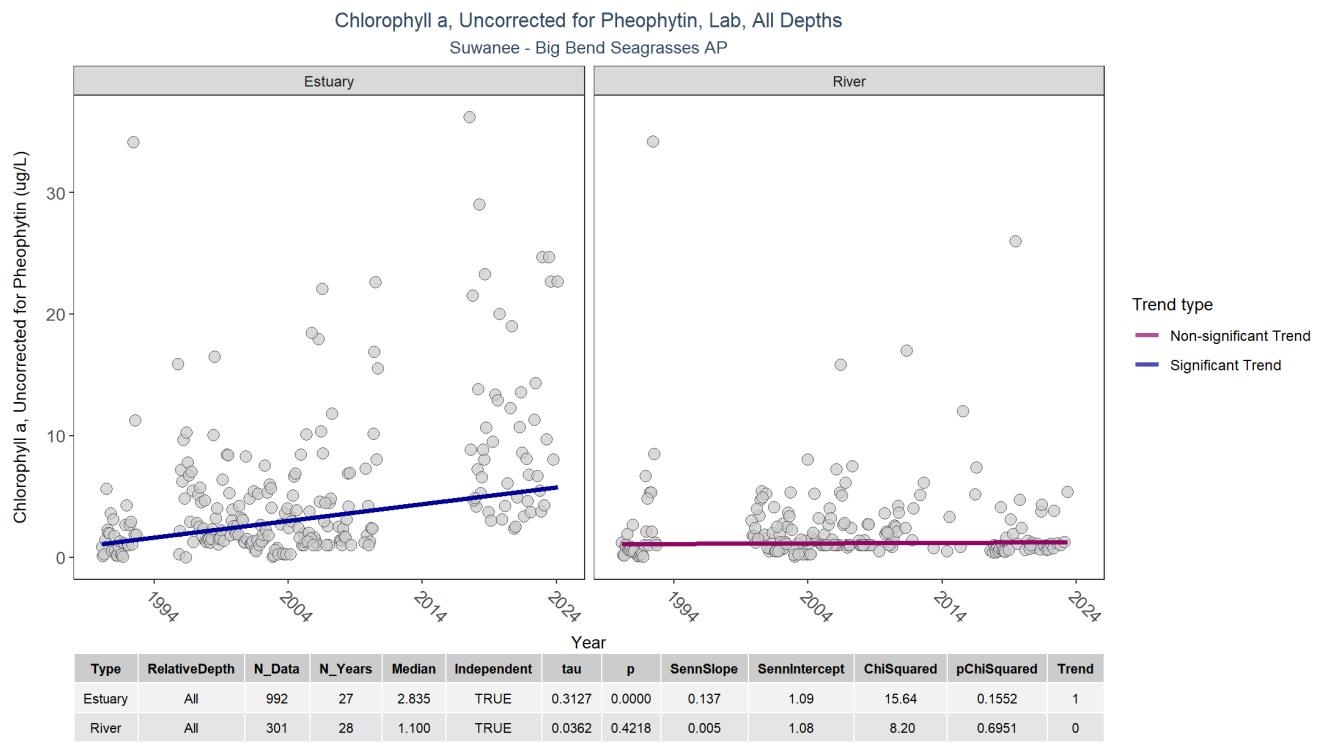
## Chlorophyll a, Corrected for Pheophytin



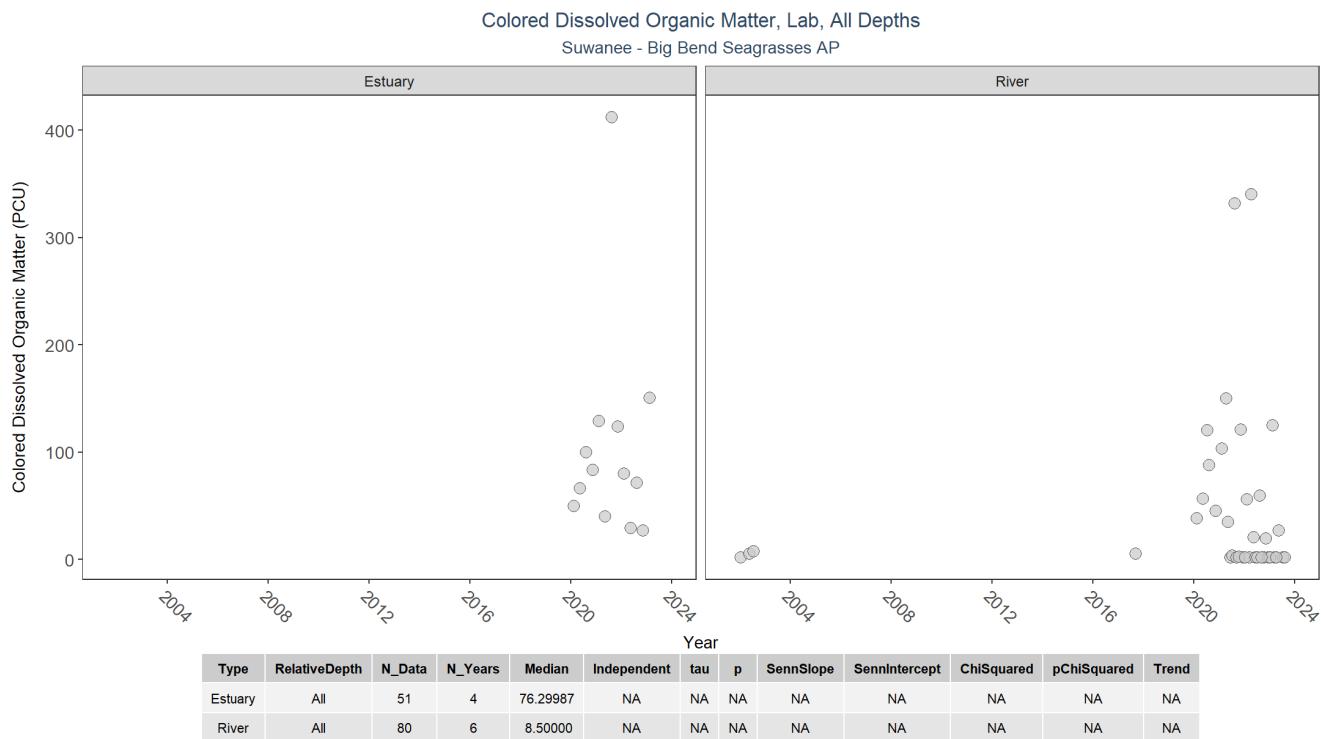
*p < 0.00005 appear as 0 due to rounding.*

*SennIntercept is intercept value at beginning of record for monitoring location*

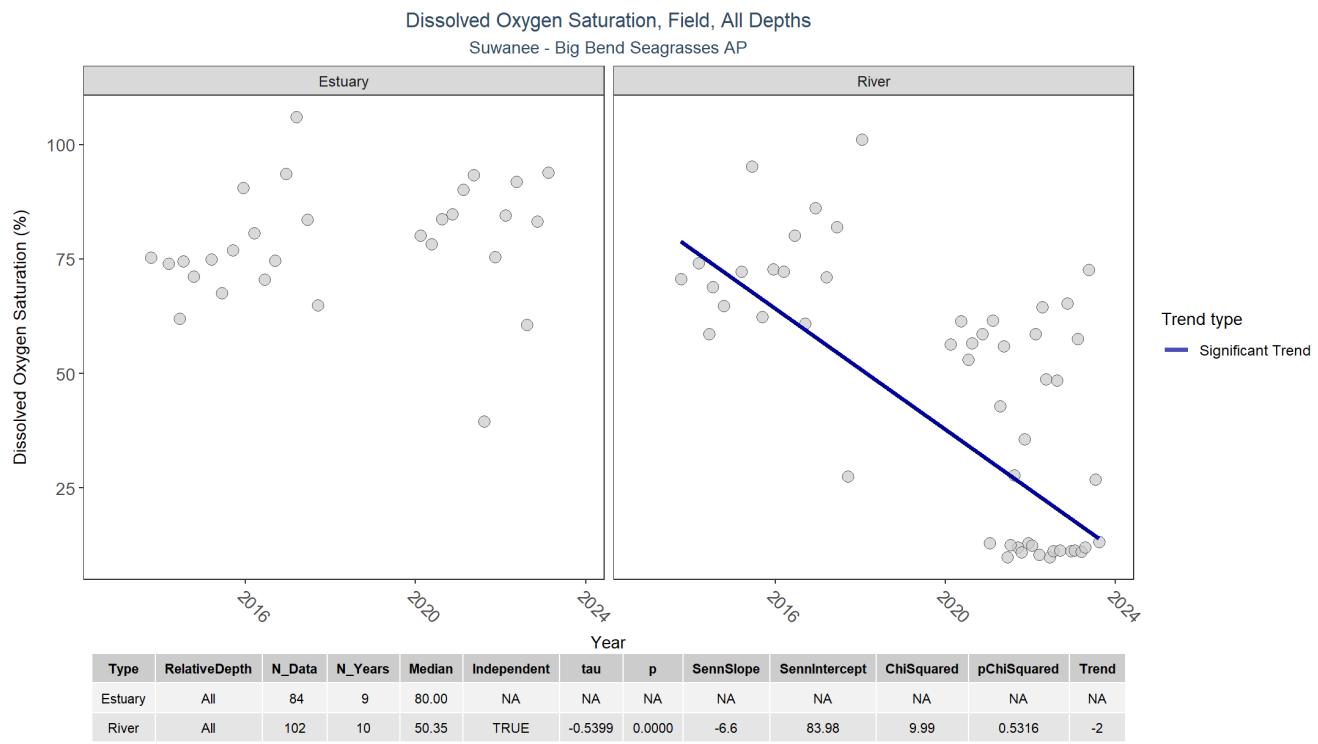
## Chlorophyll a, Uncorrected for Pheophytin



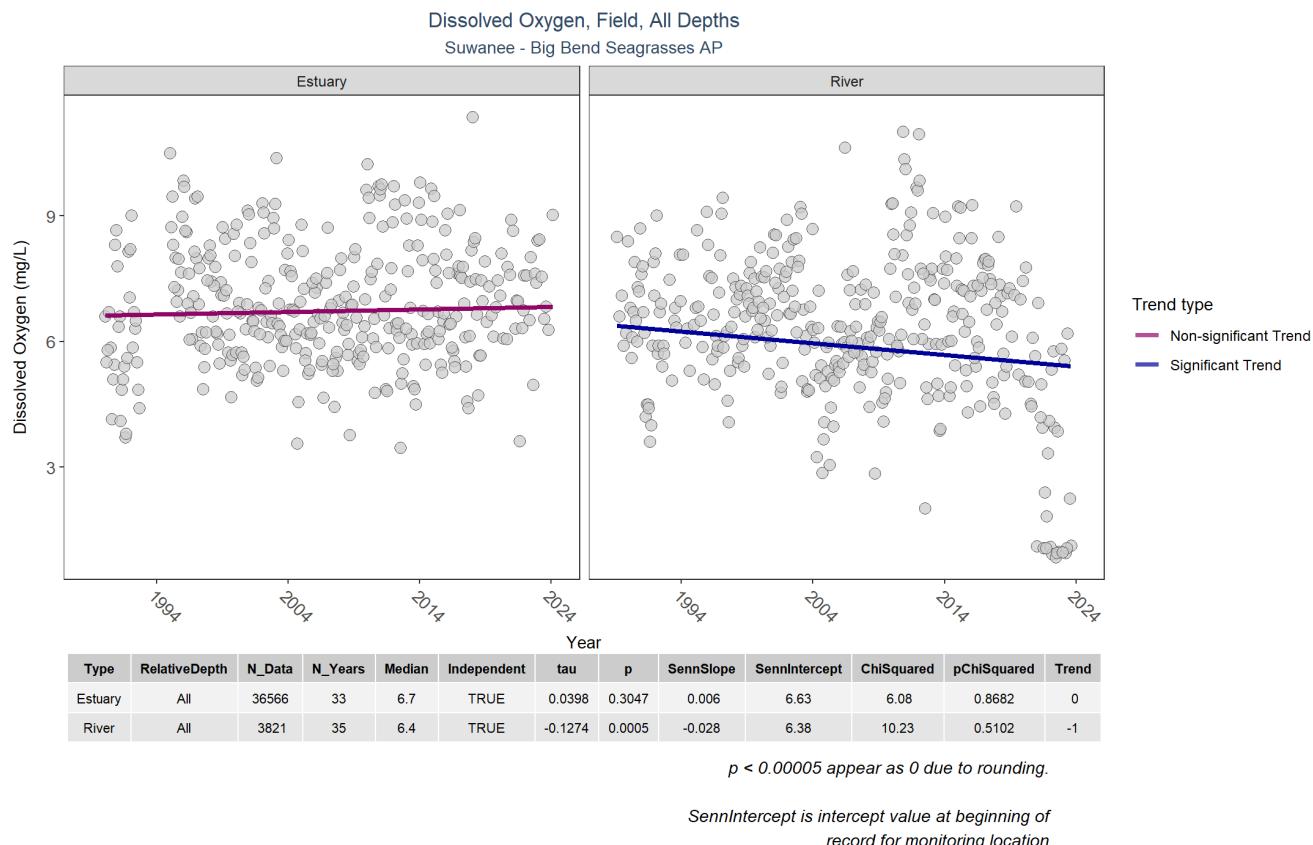
## Colored Dissolved Organic Matter



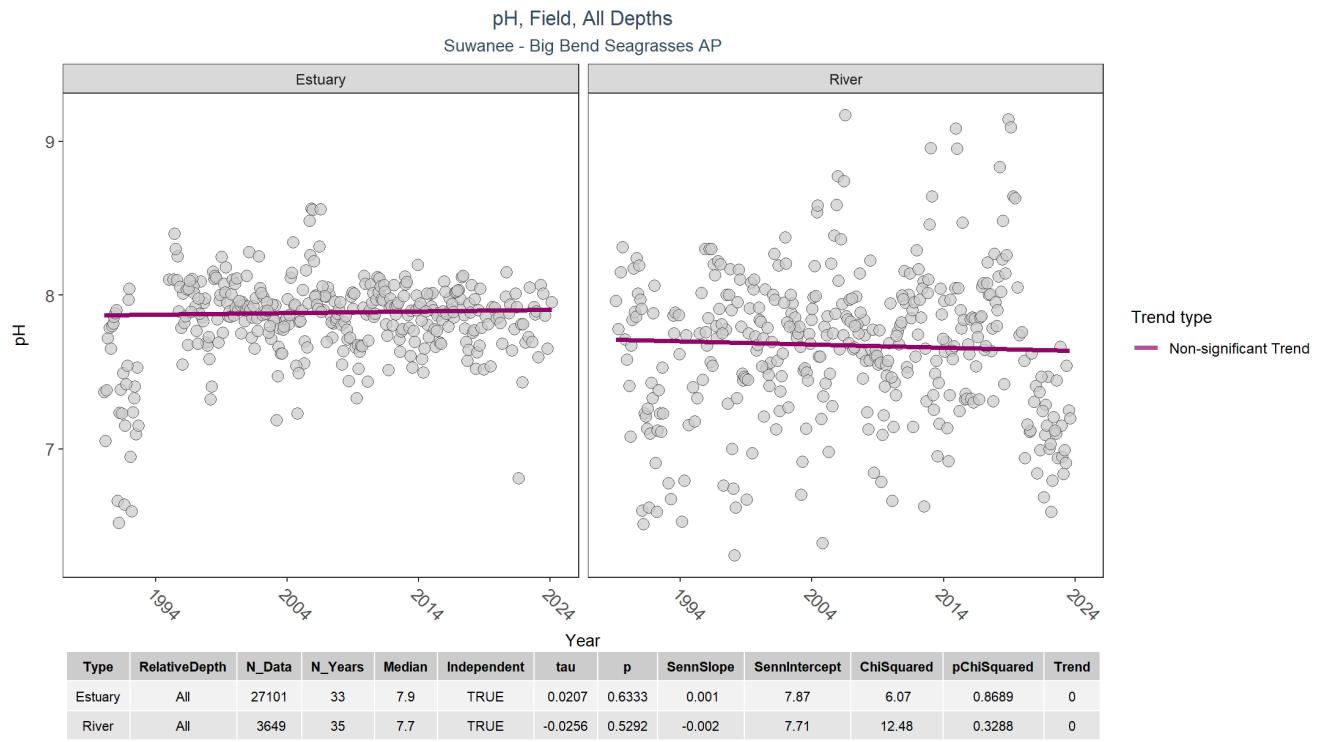
## Dissolved Oxygen Saturation



## Dissolved Oxygen



## pH



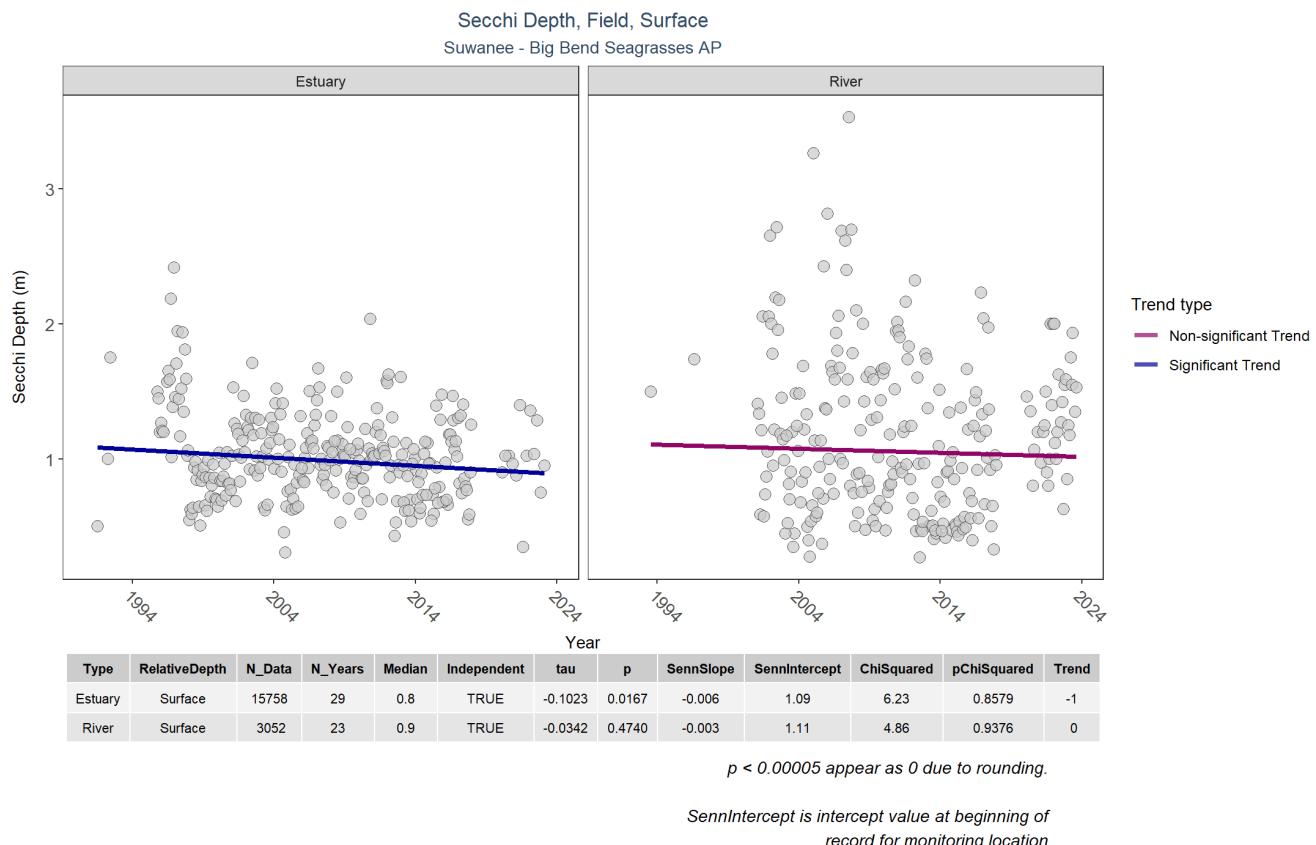
*p < 0.00005 appear as 0 due to rounding.*

*SennIntercept is intercept value at beginning of record for monitoring location*

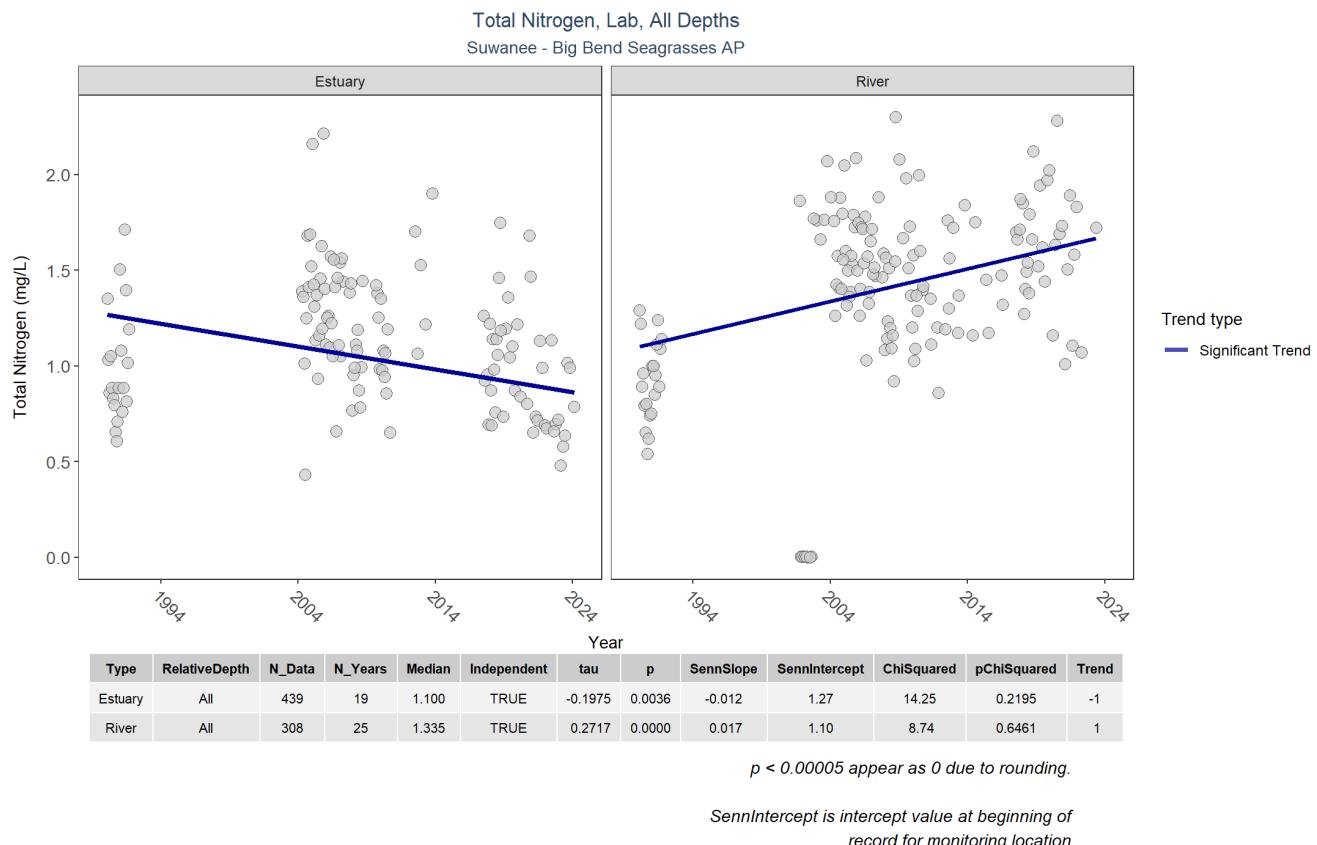
## Salinity



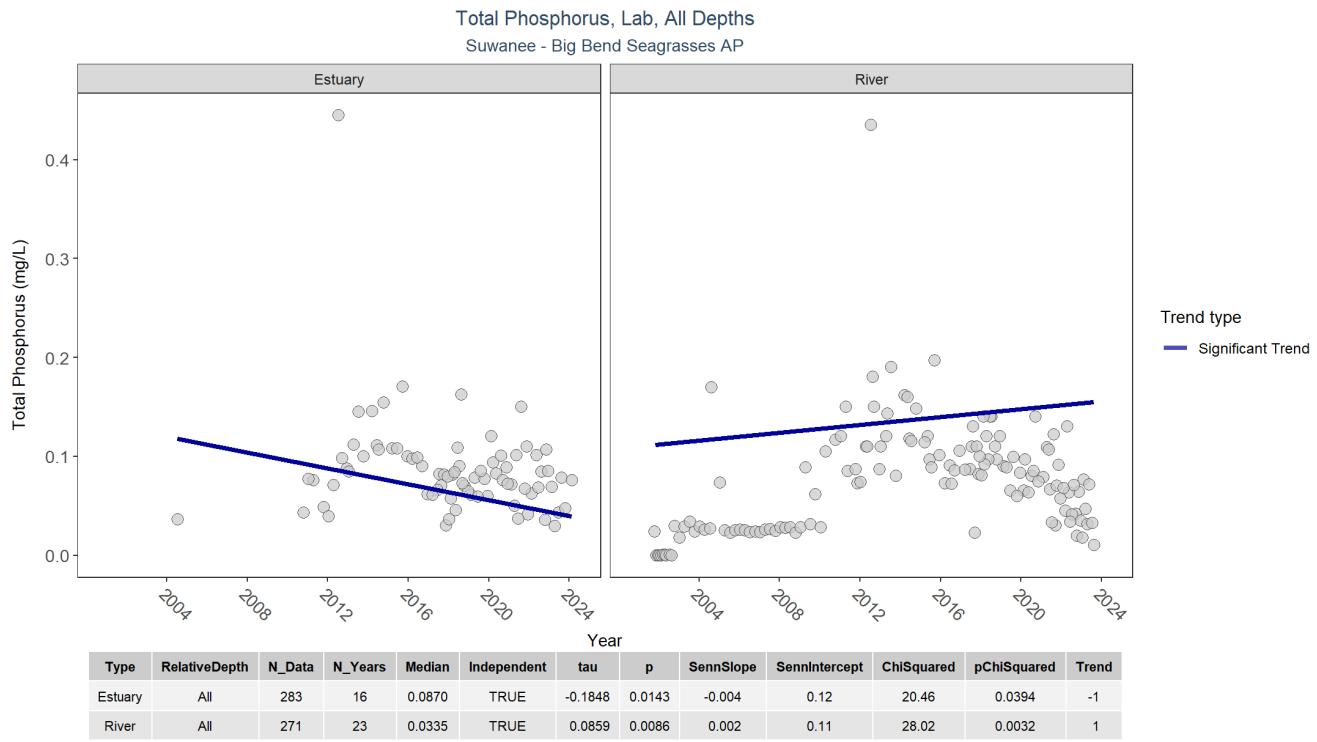
## Secchi Depth



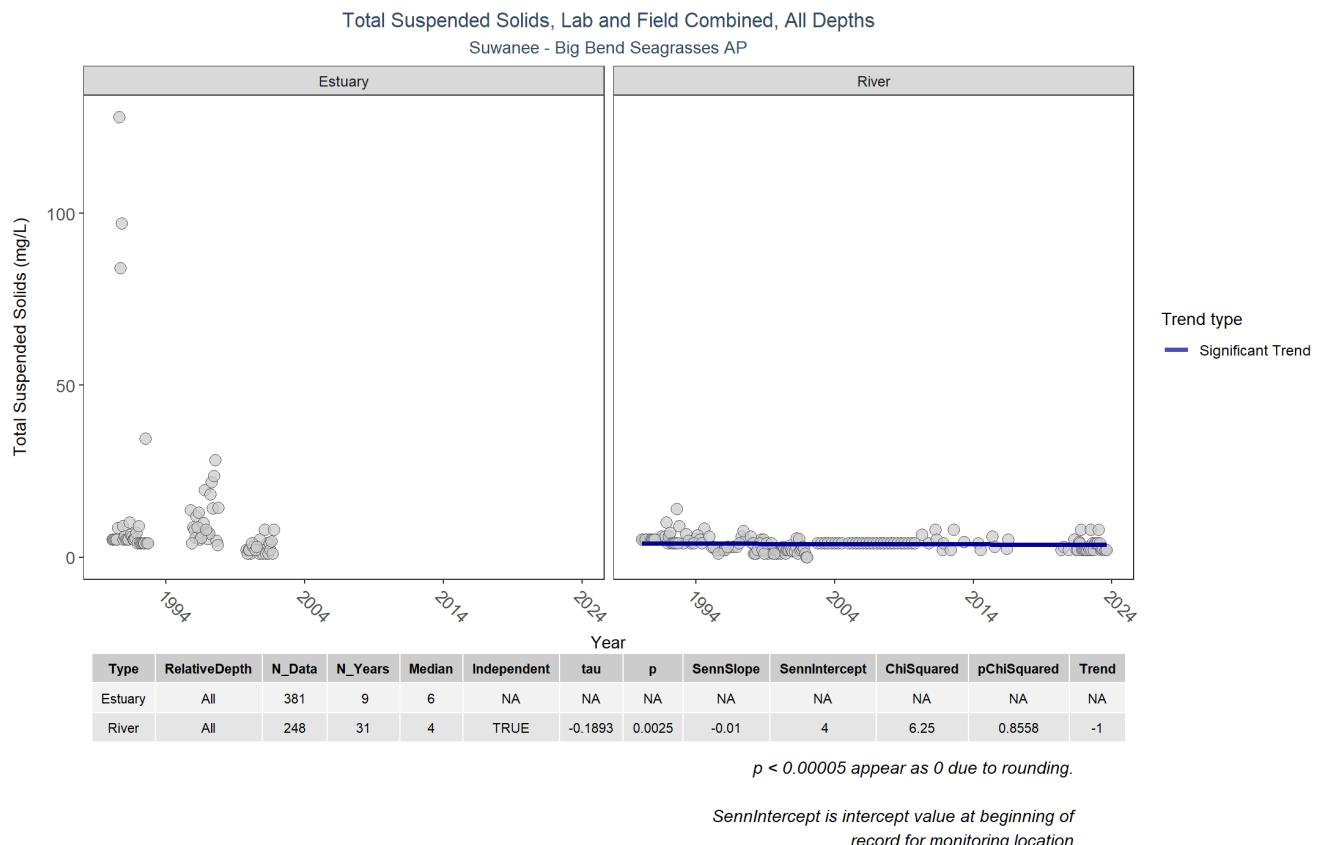
## Total Nitrogen



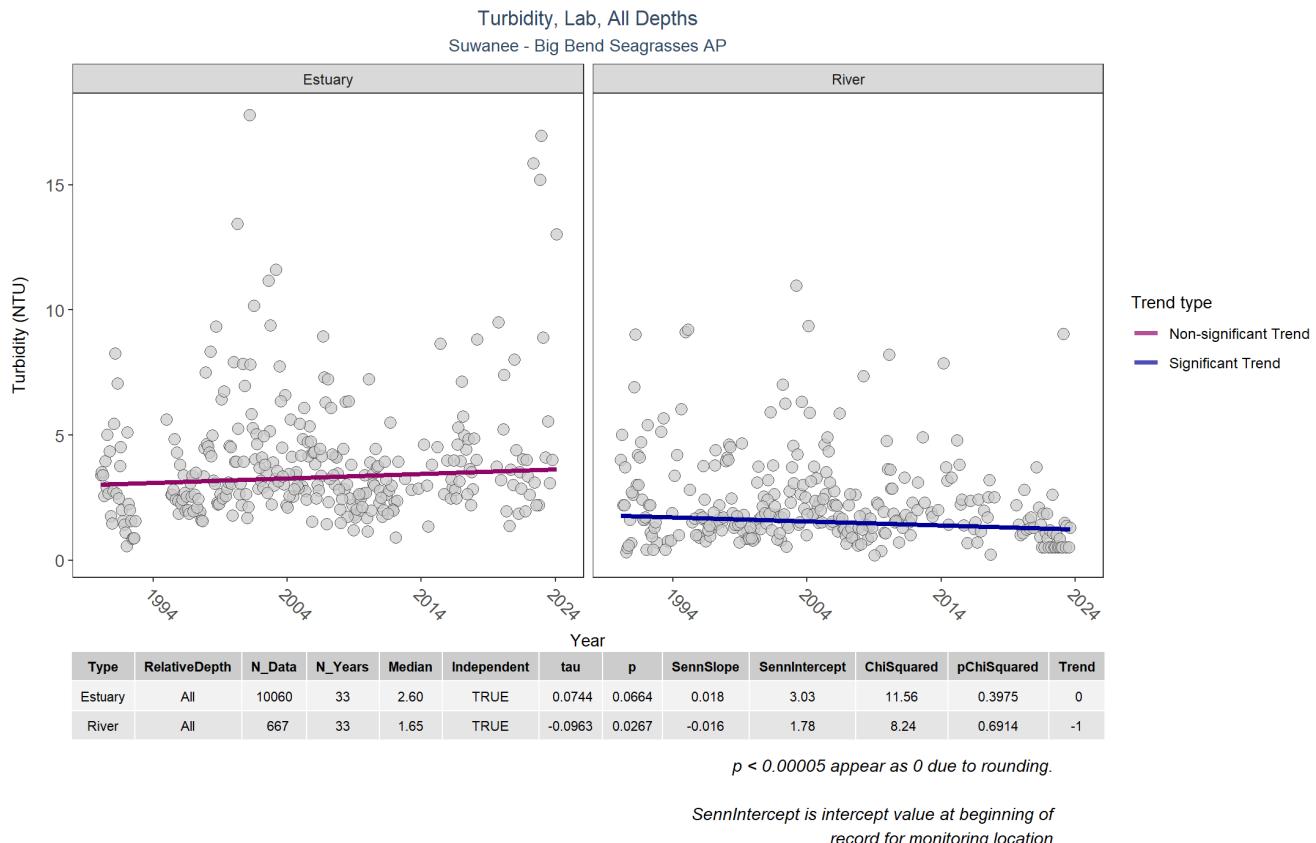
## Total Phosphorus



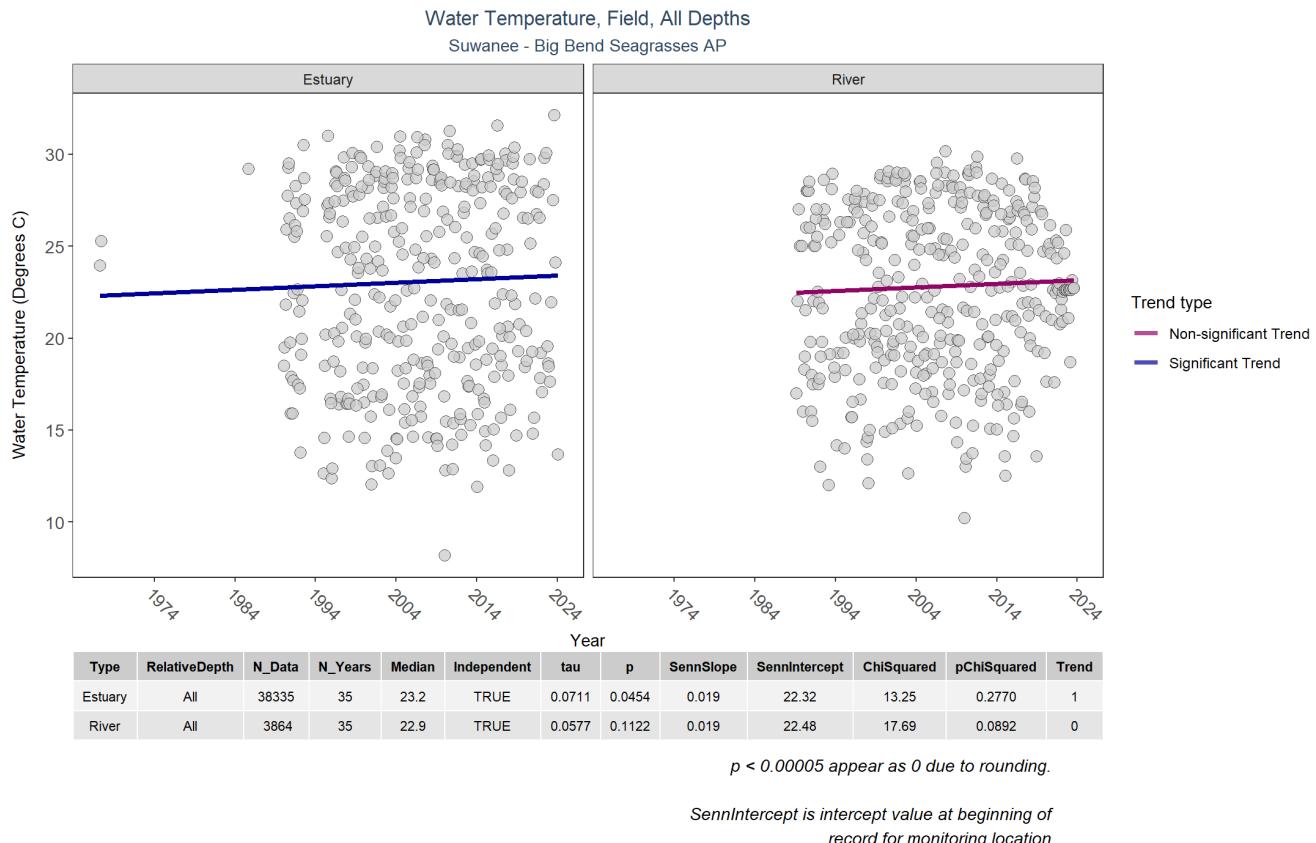
## Total Suspended Solids



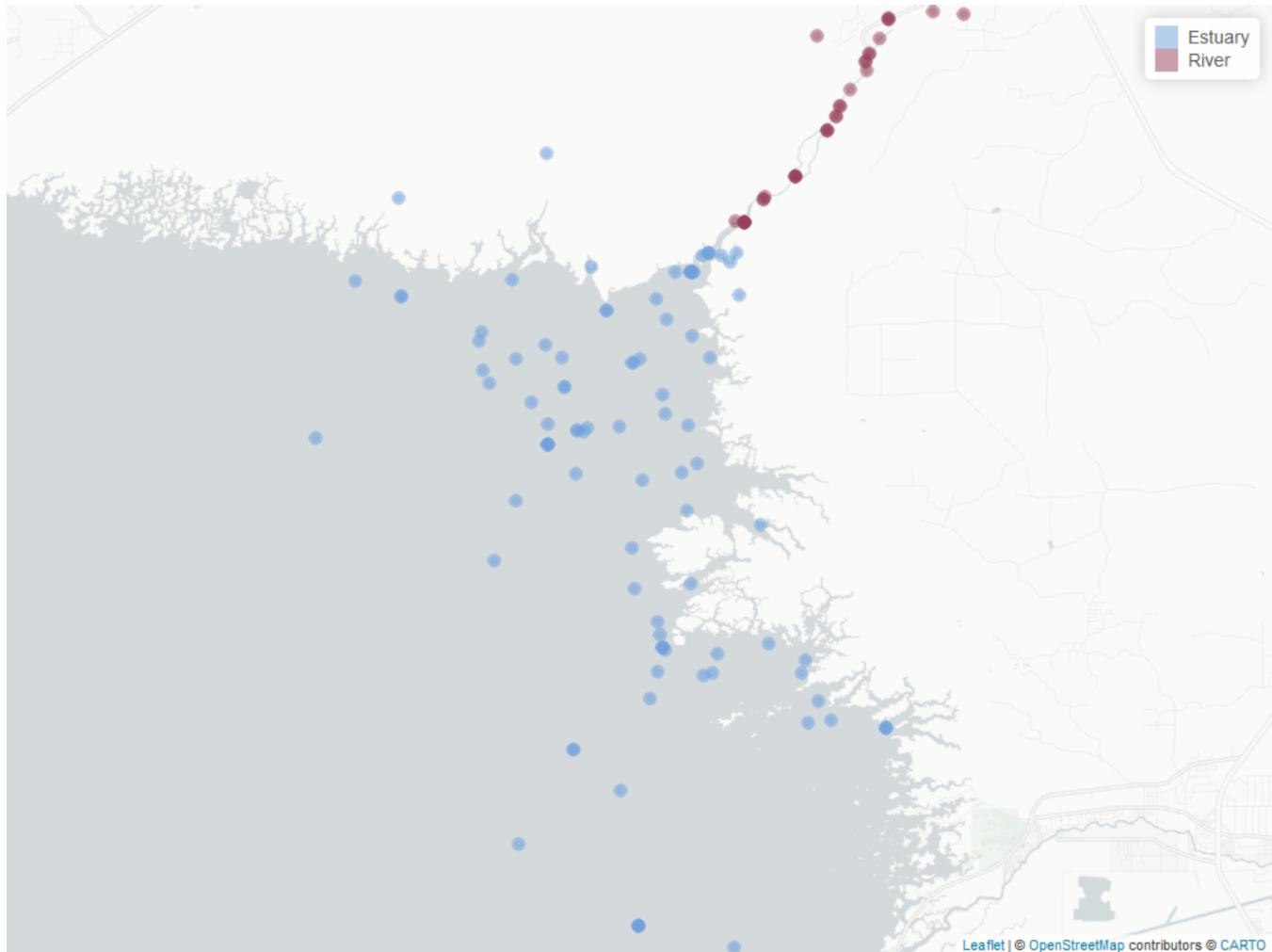
## Turbidity



## Water Temperature



## 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 value.

Table 28: 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 - 2024	14	301	TRUE	-0.09	6.01	0.4236	0
River	Chlorophyll a, Corrected for Pheophytin	1999 - 2024	26	358	TRUE	0.01	1.07	0.0466	↑
Estuary	Chlorophyll a, Uncorrected for Pheophytin	2016 - 2024	9	257	FALSE	-	-	-	-
River	Chlorophyll a, Uncorrected for Pheophytin	2007 - 2024	18	235	TRUE	-0.01	1.56	0.4412	0
Estuary	Colored Dissolved Organic Matter	2017 - 2024	7	62	FALSE	-	-	-	-
River	Colored Dissolved Organic Matter	2017 - 2023	7	35	FALSE	-	-	-	-
Estuary	Dissolved Oxygen	1992 - 2024	32	10927	TRUE	0.00	6.89	0.8115	0
River	Dissolved Oxygen	1992 - 2024	31	1275	TRUE	-0.01	6.38	0.4206	0
Estuary	Dissolved Oxygen Saturation	2011 - 2024	5	64	FALSE	-	-	-	-
River	Dissolved Oxygen Saturation	2001 - 2023	8	156	FALSE	-	-	-	-
Estuary	Salinity	1992 - 2023	31	11511	TRUE	0.01	21.59	0.8604	0
River	Salinity	1992 - 2023	30	849	TRUE	0.04	6.14	0.3161	0
Estuary	Secchi Depth	1992 - 2023	7	116	FALSE	-	-	-	-
River	Secchi Depth	1992 - 2023	22	445	TRUE	0.00	1.05	0.4288	0
Estuary	Total Nitrogen	2011 - 2024	14	307	TRUE	-0.02	0.84	0.0000	↓
River	Total Nitrogen	1998 - 2024	27	346	TRUE	0.01	0.52	0.0000	↑
Estuary	Total Phosphorus	2011 - 2024	14	325	TRUE	0.00	0.06	0.0007	↓
River	Total Phosphorus	1998 - 2024	27	370	TRUE	0.00	0.07	0.0000	↓
Estuary	Total Suspended Solids	2011 - 2011	1	18	FALSE	-	-	-	-
River	Total Suspended Solids	1998 - 2023	26	304	TRUE	-0.06	4.66	0.0000	↓
Estuary	Turbidity	1995 - 2024	27	4584	TRUE	0.07	5.28	0.0384	↑
River	Turbidity	1995 - 2024	30	591	TRUE	-0.03	2.68	0.0021	↓
Estuary	Water Temperature	1992 - 2024	32	11597	TRUE	0.03	22.03	0.0024	↑
River	Water Temperature	1992 - 2024	31	1317	TRUE	-0.02	22.19	0.2992	0
Estuary	pH	1992 - 2024	32	6094	TRUE	0.00	8.02	0.0005	↓
River	pH	1992 - 2024	31	912	TRUE	-0.01	7.73	0.0002	↓

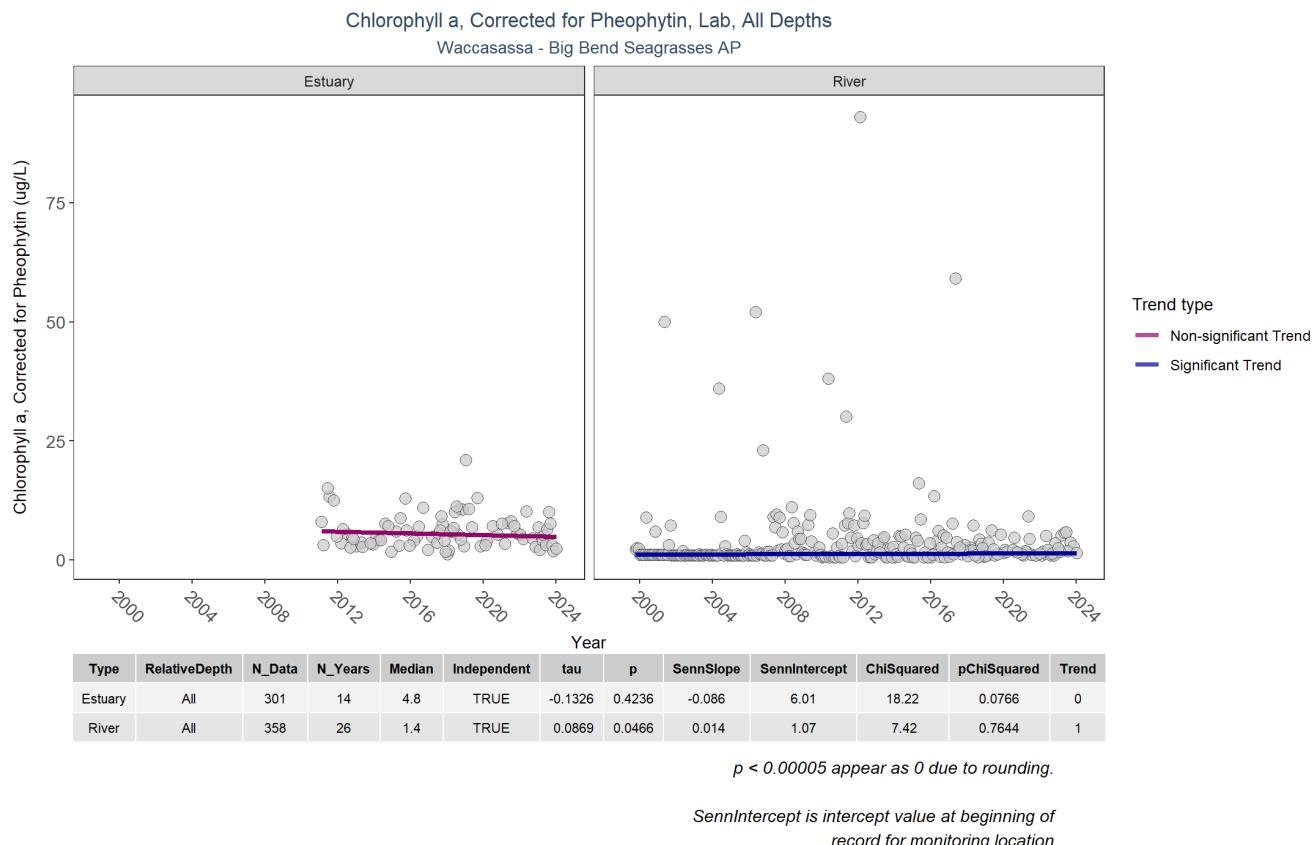
Table containing overview of Programs contributing data for Waccasassa

Table 29: Overview of Program Data for Waccasassa

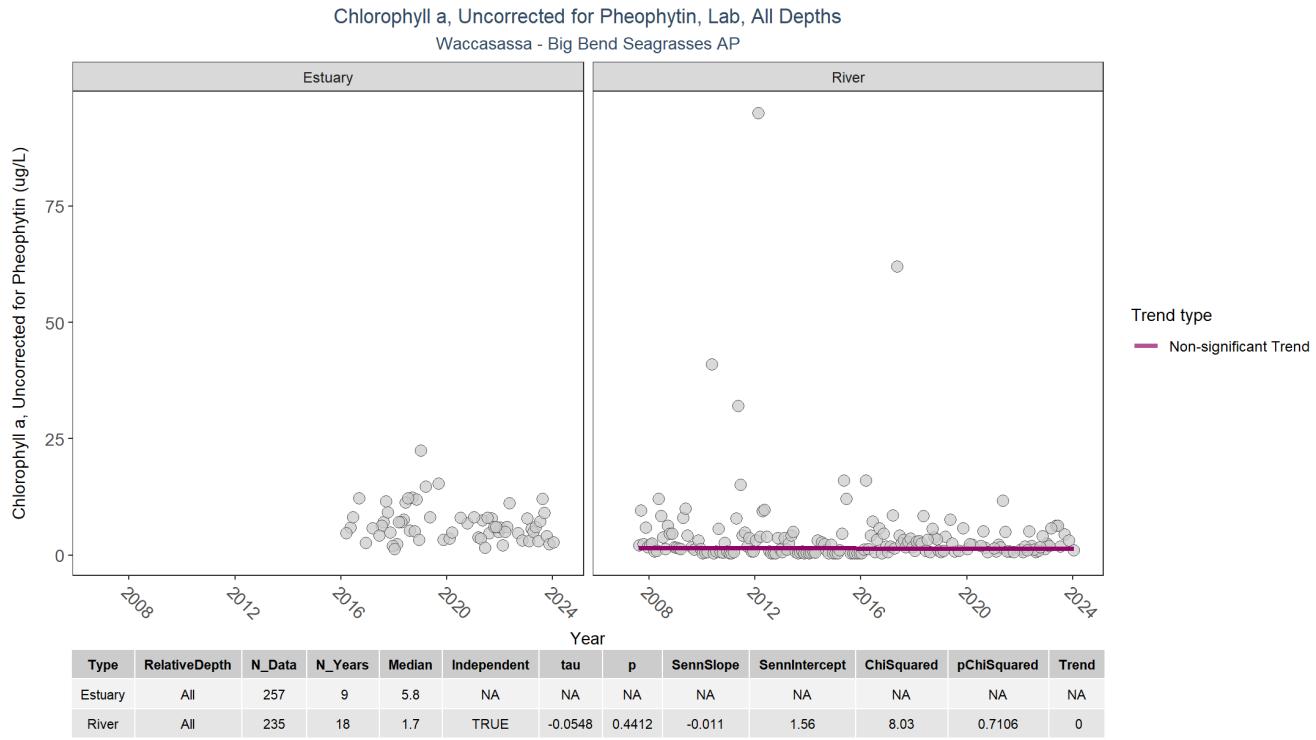
ParameterName	ProgramID	n-data-Estuary	n-data-River
Ammonium, Filtered (NH4)	477	-	1
Ammonium, Filtered (NH4)	5002	18	298
Chlorophyll a, Corrected for Pheophytin	540	29	7
Chlorophyll a, Corrected for Pheophytin	5002	271	352
Chlorophyll a, Corrected for Pheophytin	5008	11	-
Chlorophyll a, Uncorrected for Pheophytin	103	34	12
Chlorophyll a, Uncorrected for Pheophytin	514	9	-
Chlorophyll a, Uncorrected for Pheophytin	540	29	7
Chlorophyll a, Uncorrected for Pheophytin	5002	183	217
Chlorophyll a, Uncorrected for Pheophytin	5008	12	-
Colored Dissolved Organic Matter	477	-	1
Colored Dissolved Organic Matter	540	30	7
Colored Dissolved Organic Matter	5002	-	27
Colored Dissolved Organic Matter	5008	34	-
Dissolved Oxygen	69	51	-
Dissolved Oxygen	95	159	-
Dissolved Oxygen	103	20	50
Dissolved Oxygen	115	4	2
Dissolved Oxygen	118	4	-
Dissolved Oxygen	477	-	1
Dissolved Oxygen	540	21	5
Dissolved Oxygen	5002	10638	1304
Dissolved Oxygen	5008	34	-
Dissolved Oxygen Saturation	477	-	1
Dissolved Oxygen Saturation	5002	30	155
Dissolved Oxygen Saturation	5008	34	-
NO2+3, Filtered	477	-	1
NO2+3, Filtered	540	30	7
NO2+3, Filtered	5002	267	346
Phosphate, Filtered (PO4)	5002	18	135
Salinity	69	51	-
Salinity	95	160	-
Salinity	115	4	2
Salinity	118	5	-
Salinity	477	-	1
Salinity	540	24	5
Salinity	5002	11267	841

Secchi Depth	69	51	-
Secchi Depth	103	5	25
Secchi Depth	115	2	1
Secchi Depth	118	2	-
Secchi Depth	477	-	1
Secchi Depth	514	9	-
Secchi Depth	5002	23	503
Secchi Depth	5008	26	-
Specific Conductivity	69	49	-
Specific Conductivity	103	9	49
Specific Conductivity	477	-	2
Specific Conductivity	5002	30	804
Specific Conductivity	5008	34	-
Total Kjeldahl Nitrogen	477	-	1
Total Kjeldahl Nitrogen	540	30	7
Total Kjeldahl Nitrogen	5002	266	357
Total Nitrogen	514	9	-
Total Nitrogen	540	30	7
Total Nitrogen	5002	266	340
Total Nitrogen	5008	12	-
Total Phosphorus	103	17	6
Total Phosphorus	477	-	1
Total Phosphorus	514	9	-
Total Phosphorus	540	30	7
Total Phosphorus	5002	266	357
Total Phosphorus	5008	12	-
Total Suspended Solids	103	-	5
Total Suspended Solids	5002	18	299
Turbidity	103	11	6
Turbidity	477	-	2
Turbidity	5002	4585	590
Water Temperature	69	51	-
Water Temperature	95	160	-
Water Temperature	103	20	50
Water Temperature	115	4	2
Water Temperature	118	3	-
Water Temperature	477	-	1
Water Temperature	540	24	6
Water Temperature	5002	11304	1345
Water Temperature	5008	34	-
pH	69	51	-
pH	95	130	-
pH	103	20	50
pH	115	4	2
pH	118	6	-
pH	477	-	1
pH	540	15	4
pH	5002	5840	942
pH	5008	34	-

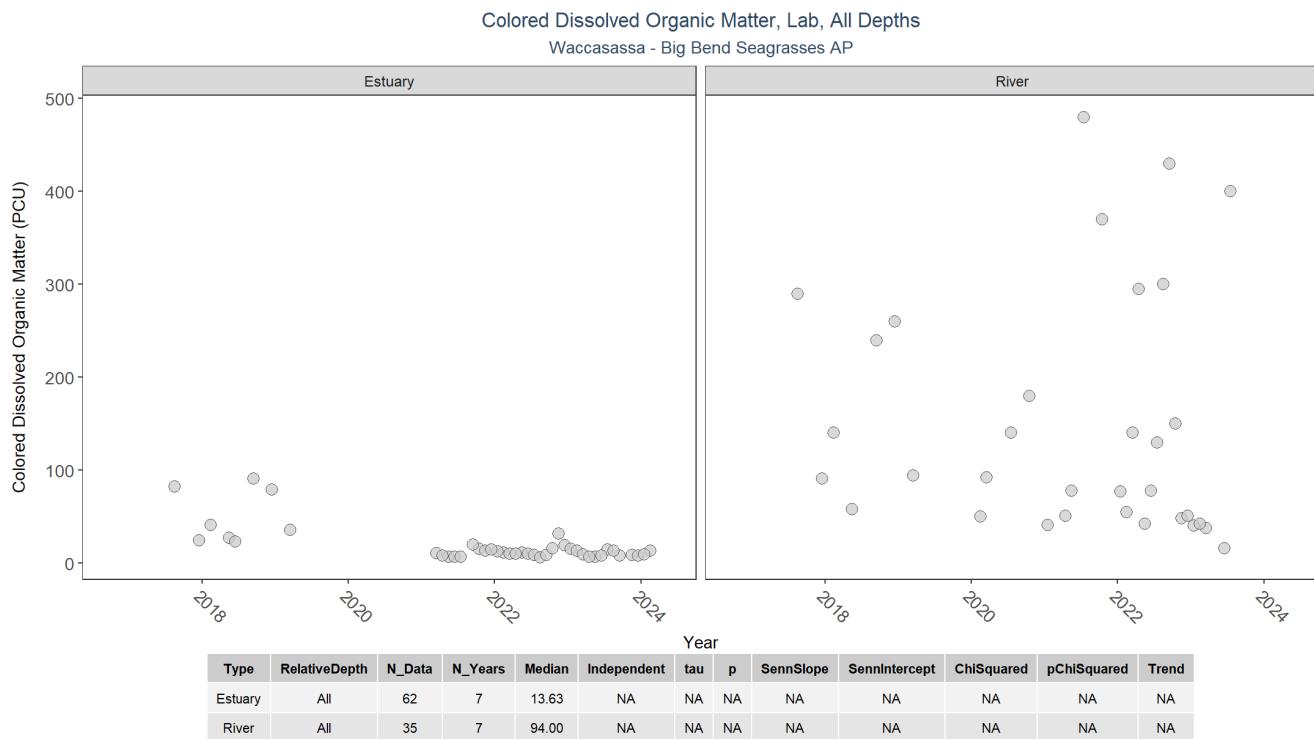
## Chlorophyll a, Corrected for Pheophytin



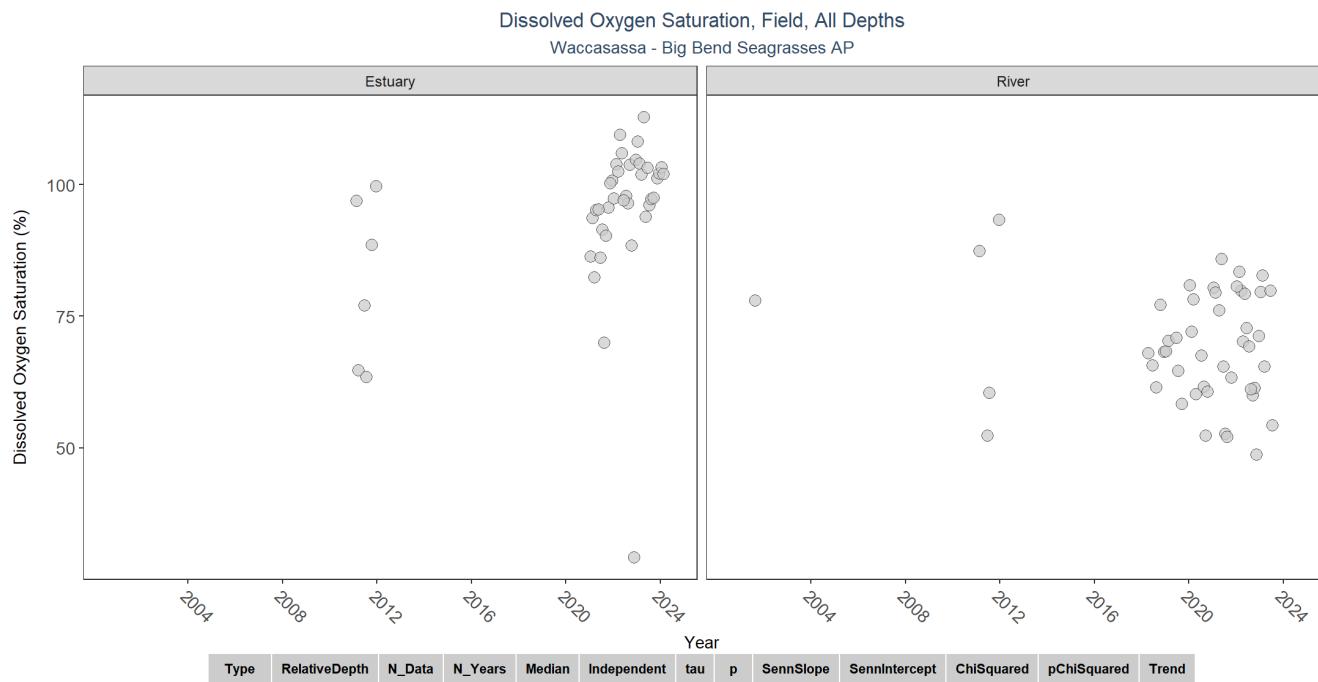
## Chlorophyll a, Uncorrected for Pheophytin



## Colored Dissolved Organic Matter



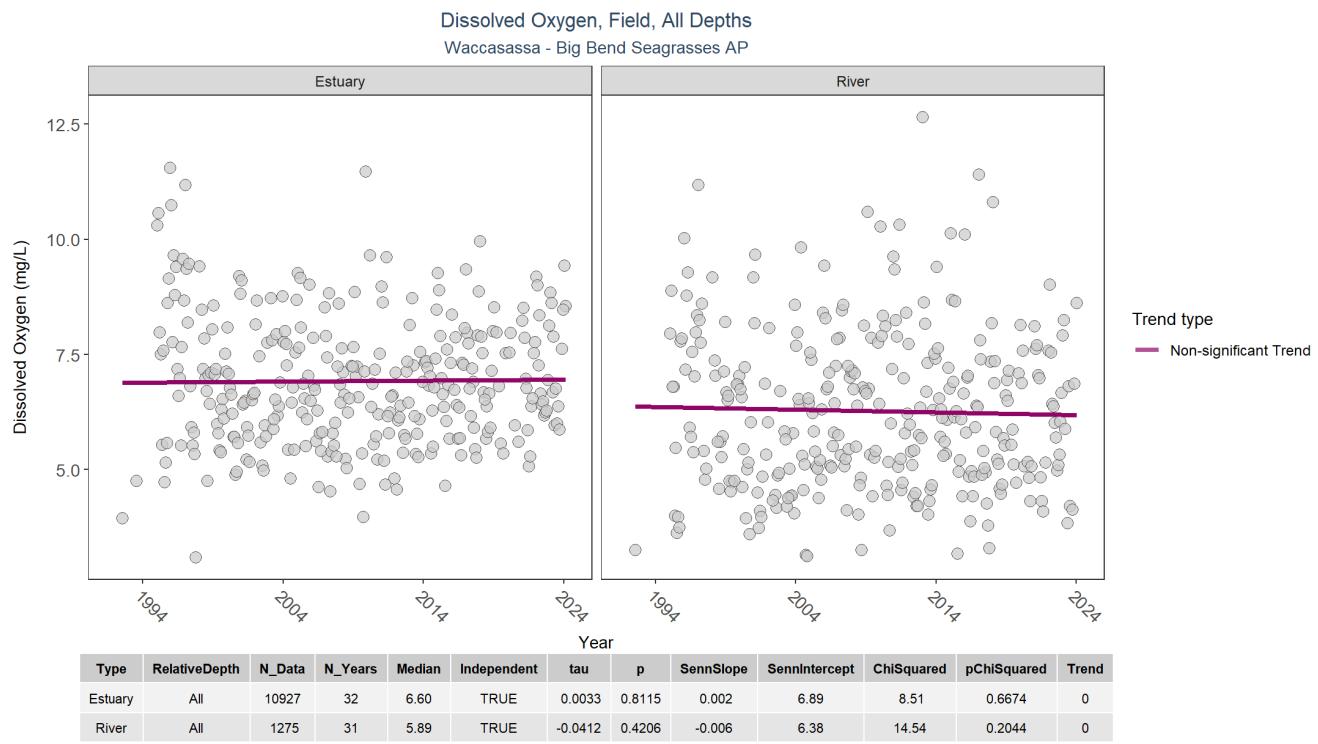
## Dissolved Oxygen Saturation



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

*SennIntercept is intercept value at beginning of record for monitoring location*

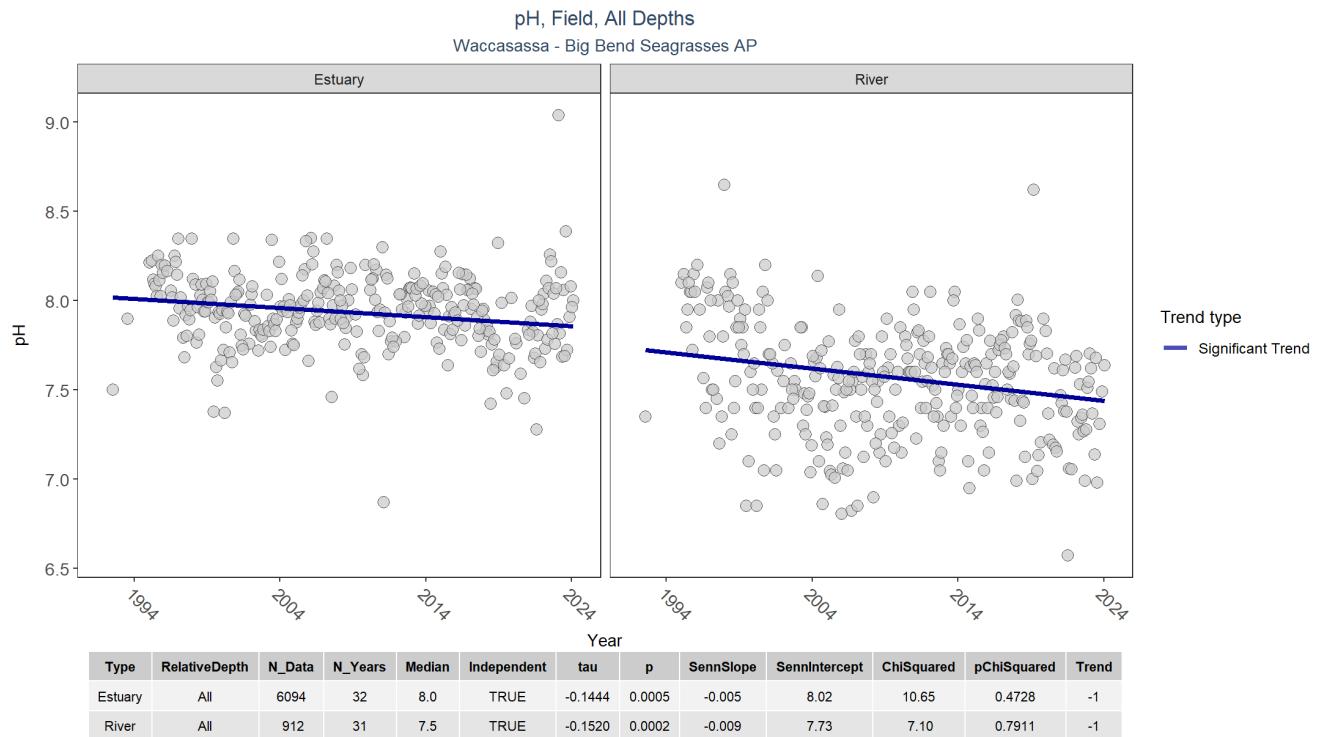
## Dissolved Oxygen



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

*SennIntercept is intercept value at beginning of record for monitoring location*

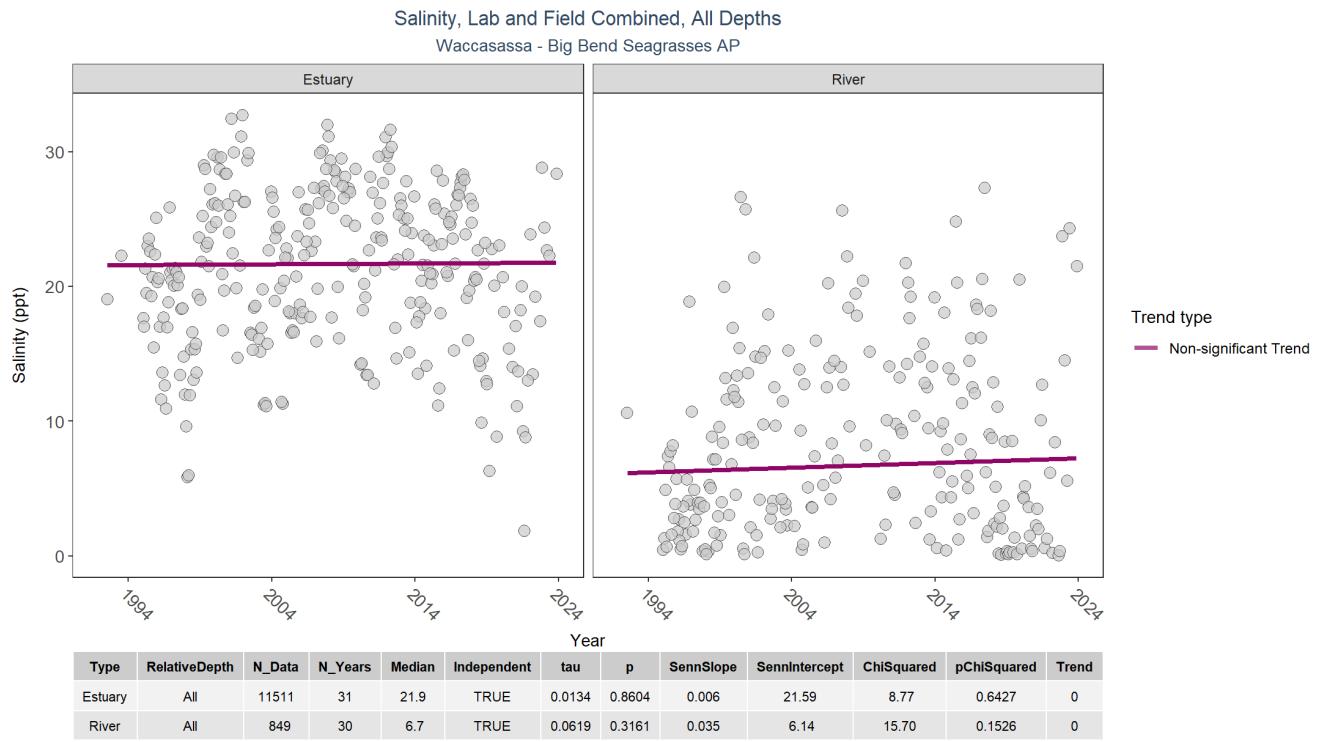
## pH



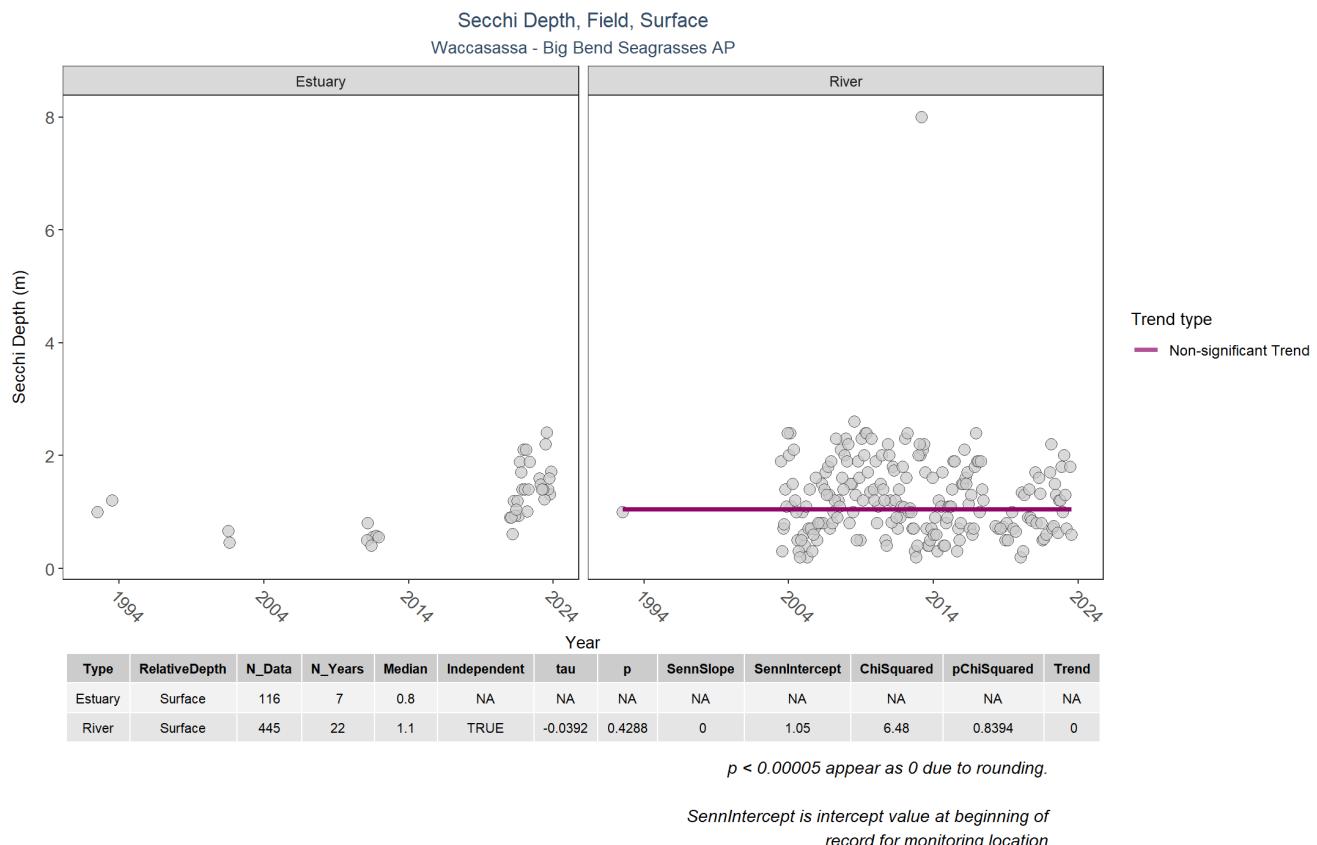
$p < 0.00005$  appear as 0 due to rounding.

SennIntercept is intercept value at beginning of record for monitoring location

## Salinity



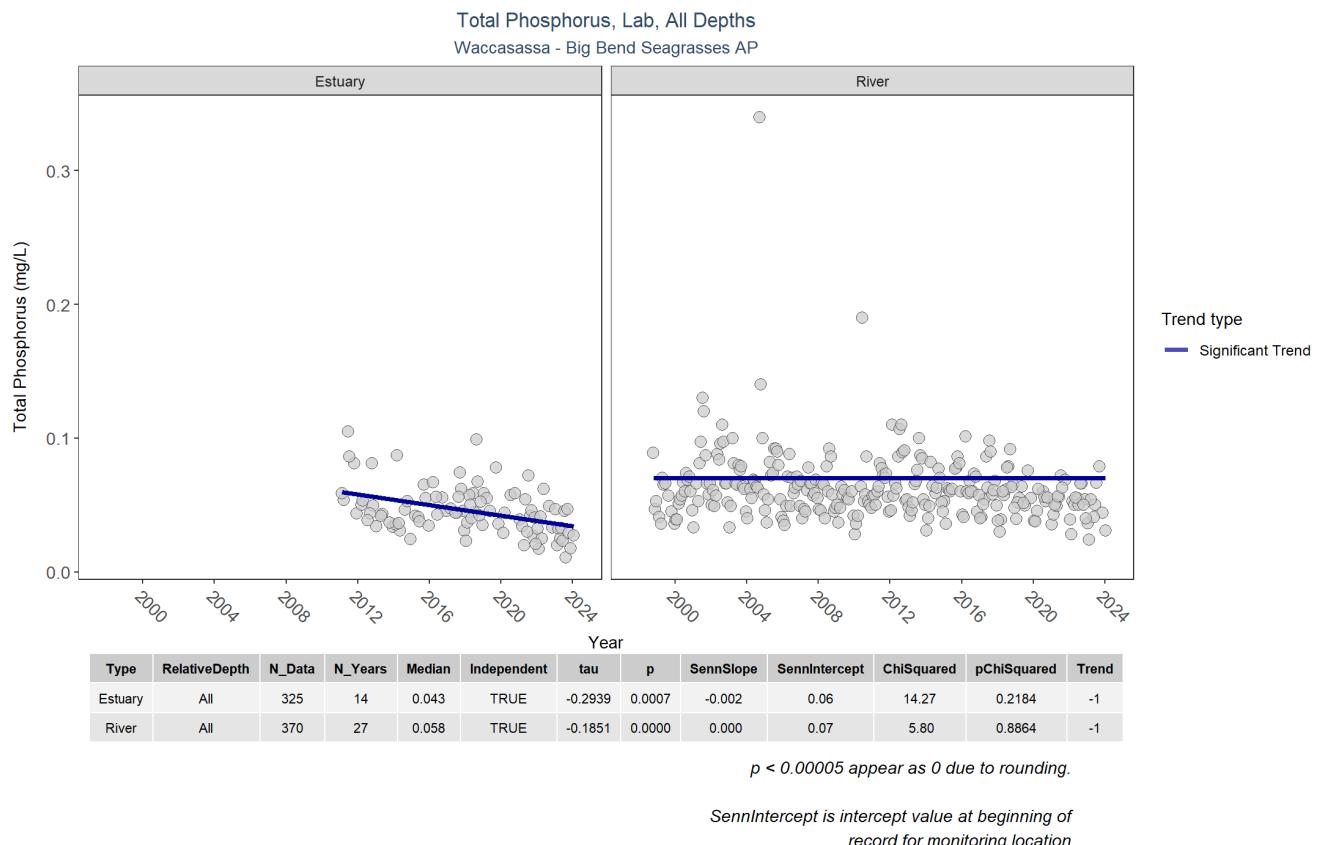
## Secchi Depth



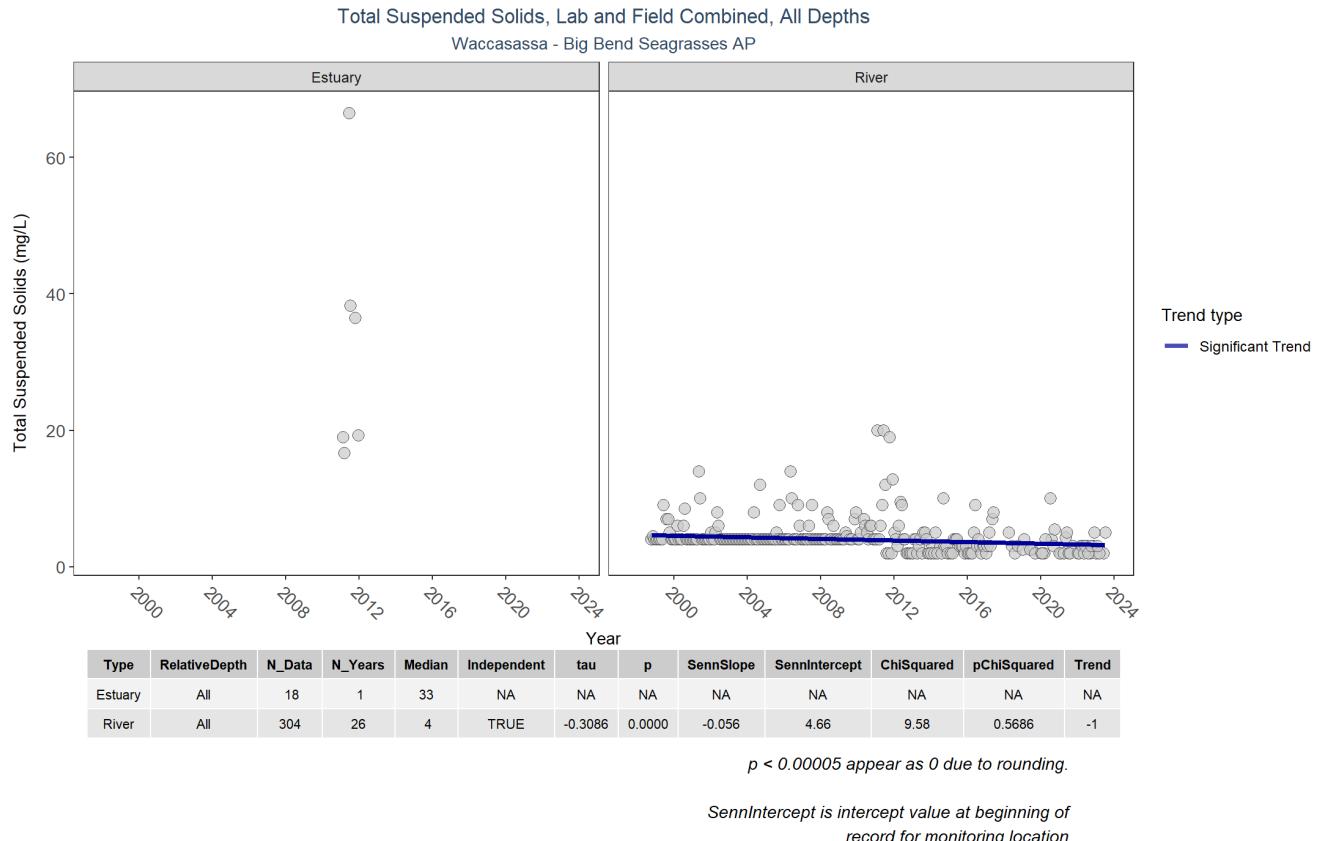
## Total Nitrogen



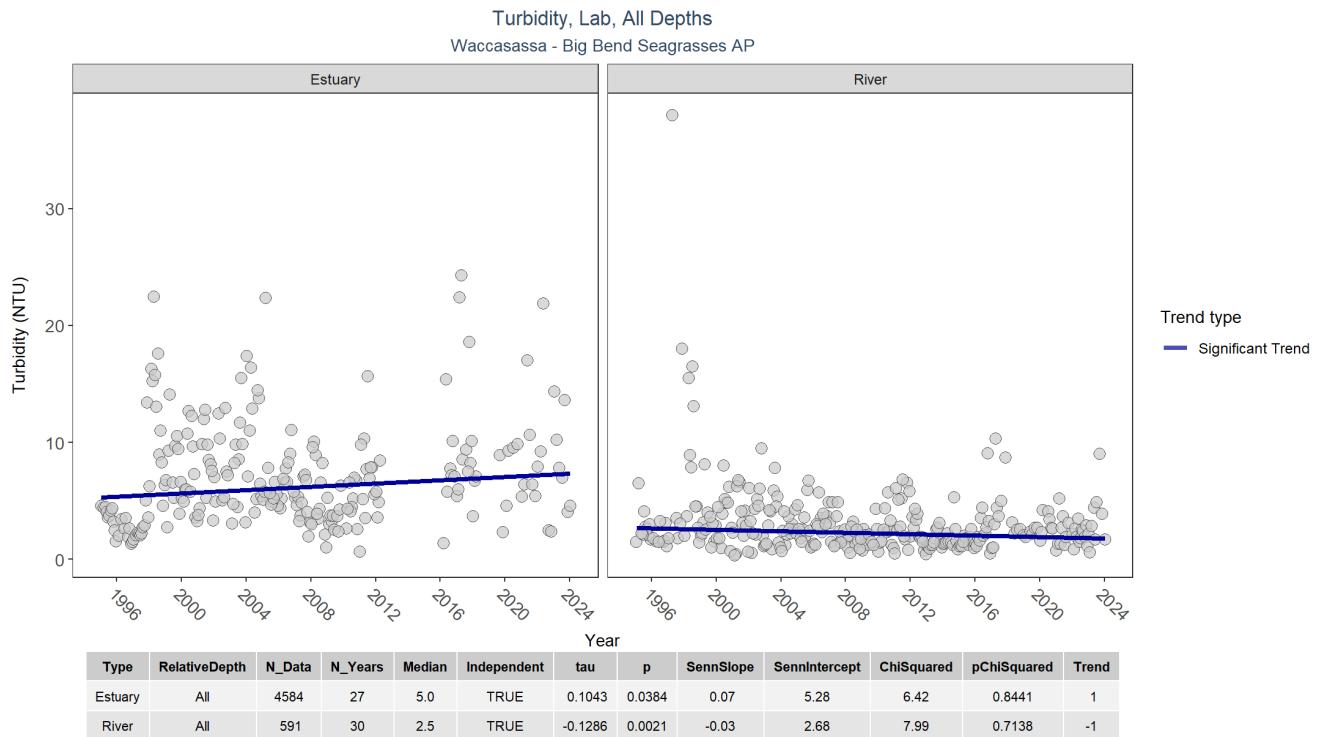
## Total Phosphorus



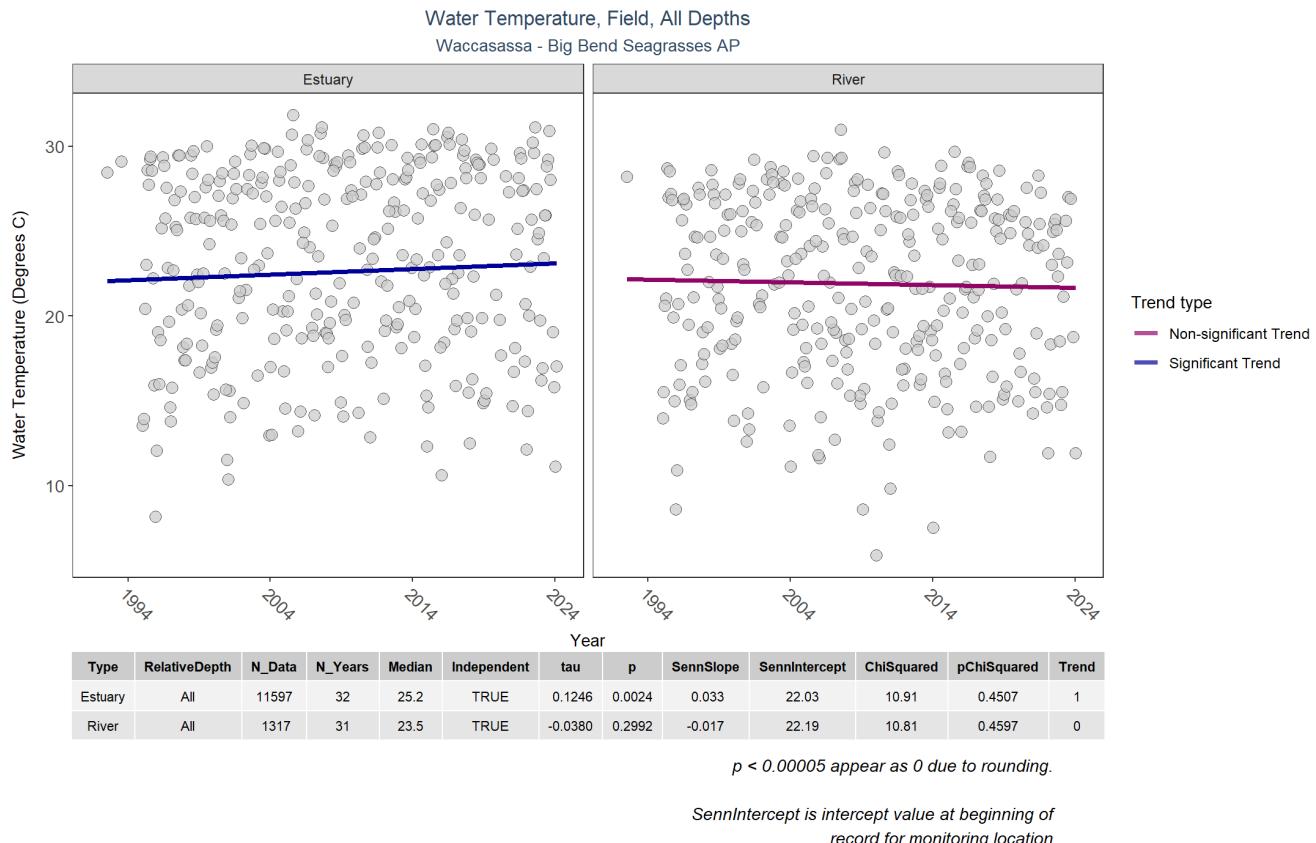
## Total Suspended Solids



## Turbidity



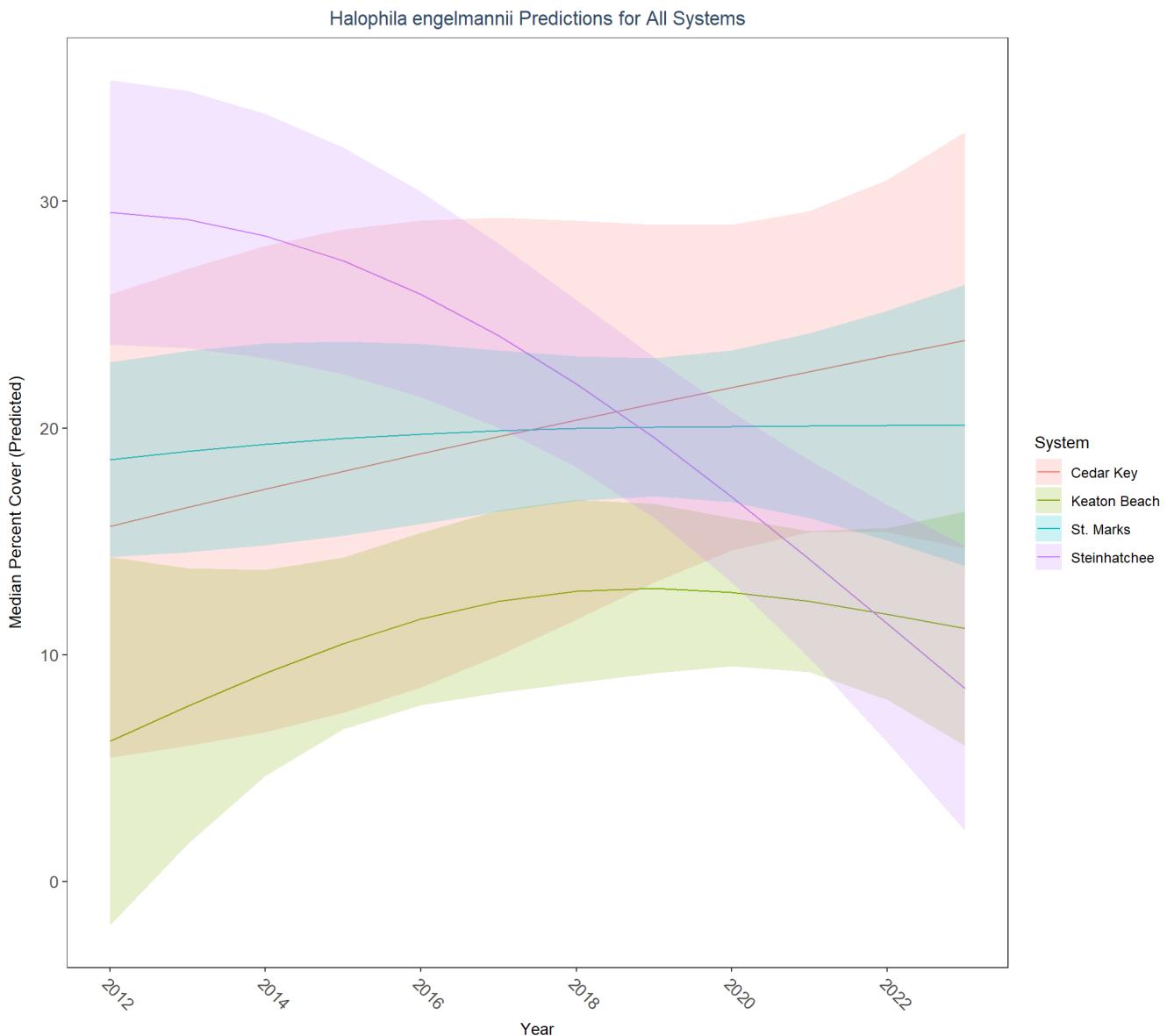
## Water Temperature



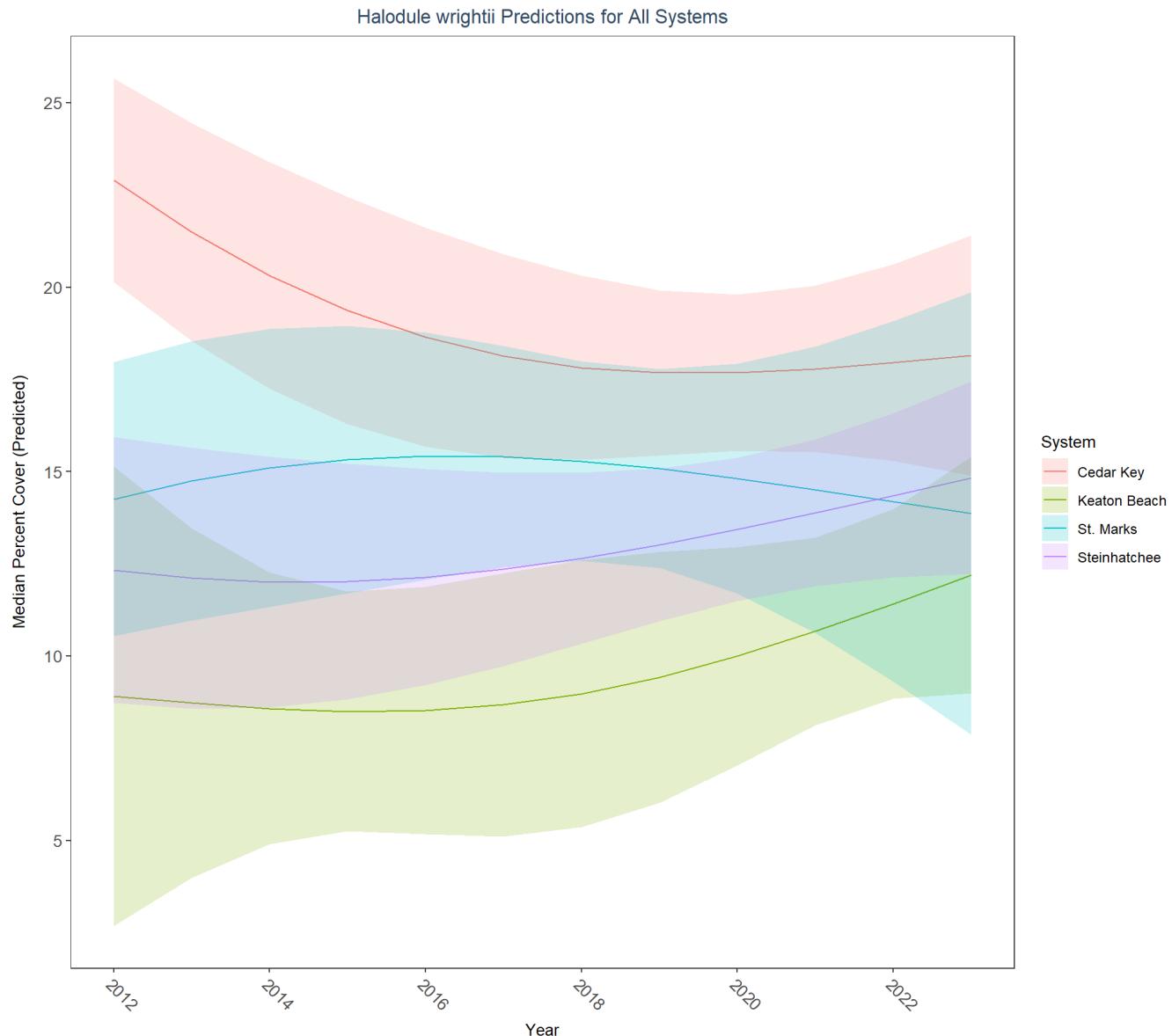
# Submerged Aquatic Vegetation - Generalized Additive Models

Models generated for all systems

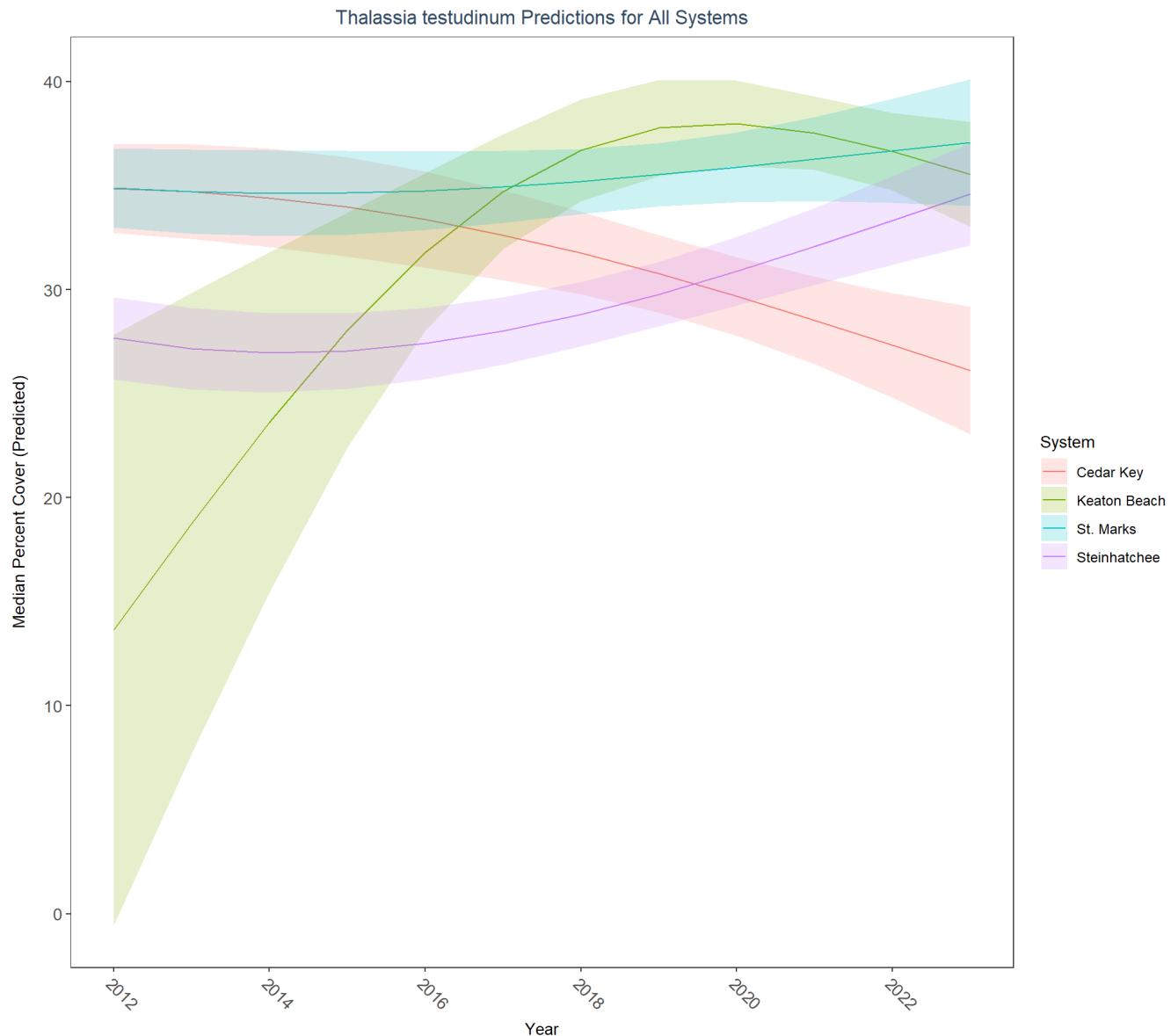
## *Halophila engelmannii*



## *Halodule wrightii*



## **Thalassia testudinum**



## Syringodium filiforme

