

Big Bend Seagrasses Aquatic Preserve
SEACAR Discrete Water Quality Analysis

Last compiled on 14 August, 2024

Contents

Indicators	2
Nutrients	2
Total Nitrogen - Discrete	2
Total Phosphorus - Discrete	3
Water Quality	4
Dissolved Oxygen - Discrete	4
Dissolved Oxygen - Continuous	5
Dissolved Oxygen Saturation - Discrete	6
Dissolved Oxygen Saturation - Continuous	7
Salinity - Discrete	8
Salinity - Continuous	9
Water Temperature - Discrete	10
Water Temperature - Continuous	11
pH - Discrete	13
pH - Continuous	14
Water Clarity	15
Turbidity - Discrete	15
Turbidity - Continuous	16
Total Suspended Solids - Discrete	17
Chlorophyll a, Uncorrected for Pheophytin - Discrete	18
Chlorophyll a, Corrected for Pheophytin - Discrete	19
Secchi Depth - Discrete	20
Colored Dissolved Organic Matter - Discrete	21

Indicators

Nutrients

Total Nitrogen - Discrete

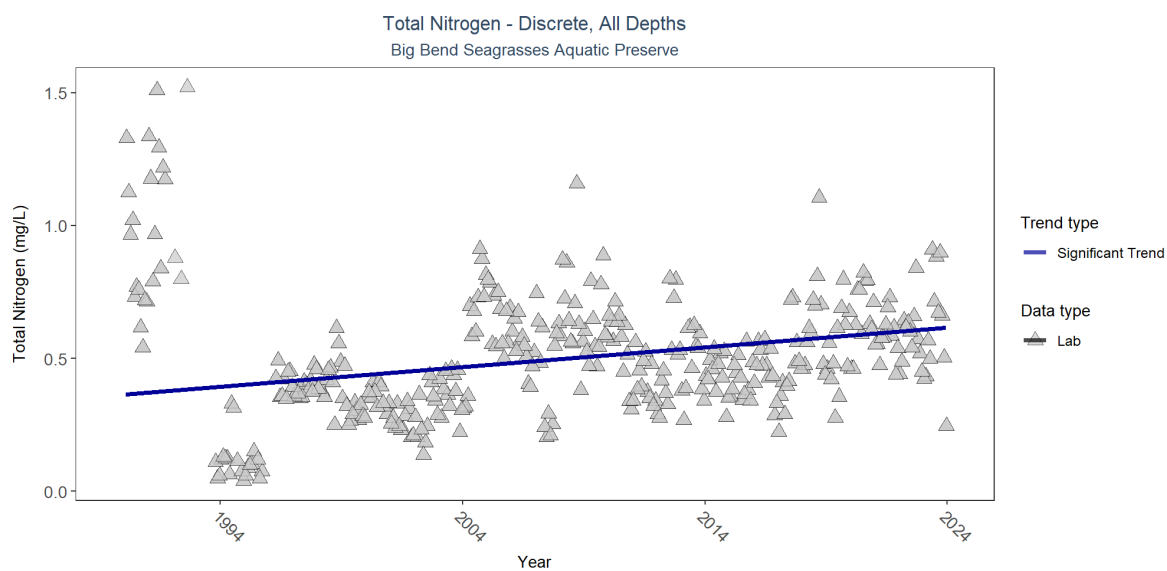


Table 1: Seasonal Kendall-Tau Results for - Total Nitrogen

ActivityType	Statistical Trend	N-Data	N-Years	Period of Record	Median	tau	SennIntercept	SennSlope	p
Lab	Significantly increasing trend	7766	34	1990 - 2023	0.464	0.2211	0.3632	0.00745	0.0000

Total Phosphorus - Discrete

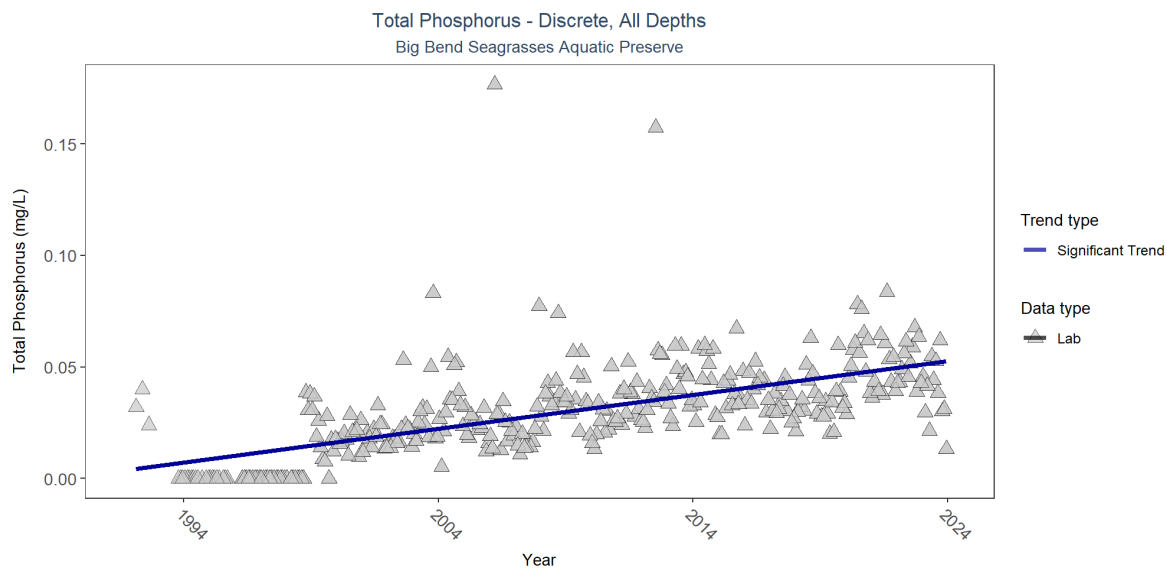


Table 2: Seasonal Kendall-Tau Results for - Total Phosphorus

ActivityType	Statistical Trend	N-Data	N-Years	Period of Record	Median	tau	SennIntercept	SennSlope	p
Lab	Significantly increasing trend	6019	32	1992 - 2023	0.031	0.5453	0.00421	0.00151	0.0000

Water Quality

Dissolved Oxygen - Discrete

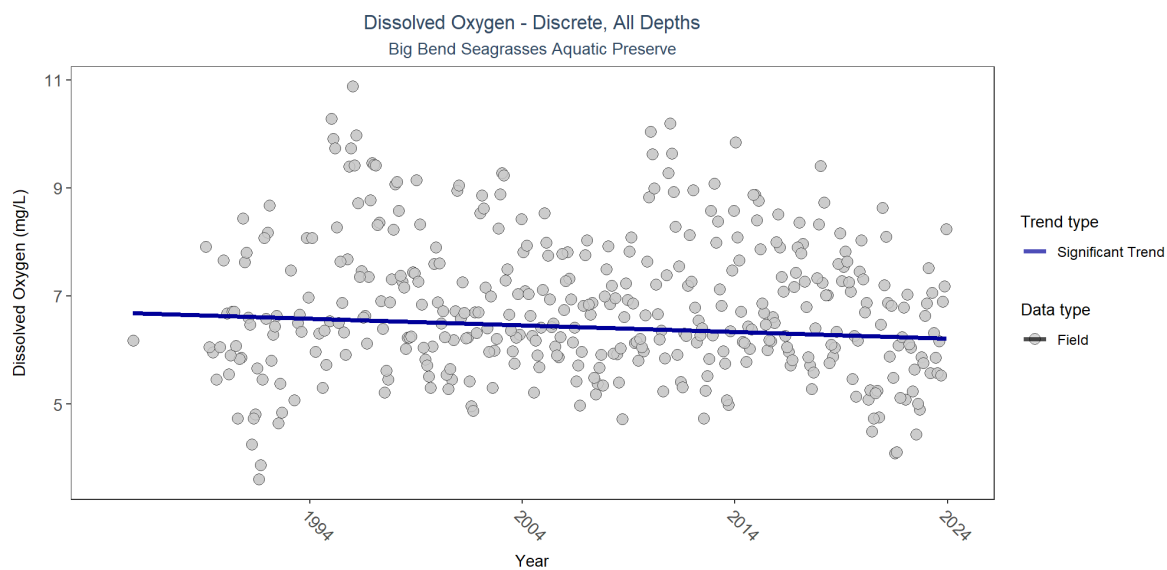


Table 3: Seasonal Kendall-Tau Results for - Dissolved Oxygen

ActivityType	Statistical Trend	N-Data	N-Years	Period of Record	Median	tau	SennIntercept	SennSlope	p
Field	Significantly decreasing trend	137502	36	1985 - 2023	6.7	-0.099	6.68836	-0.01207	0.0056

Dissolved Oxygen - Continuous

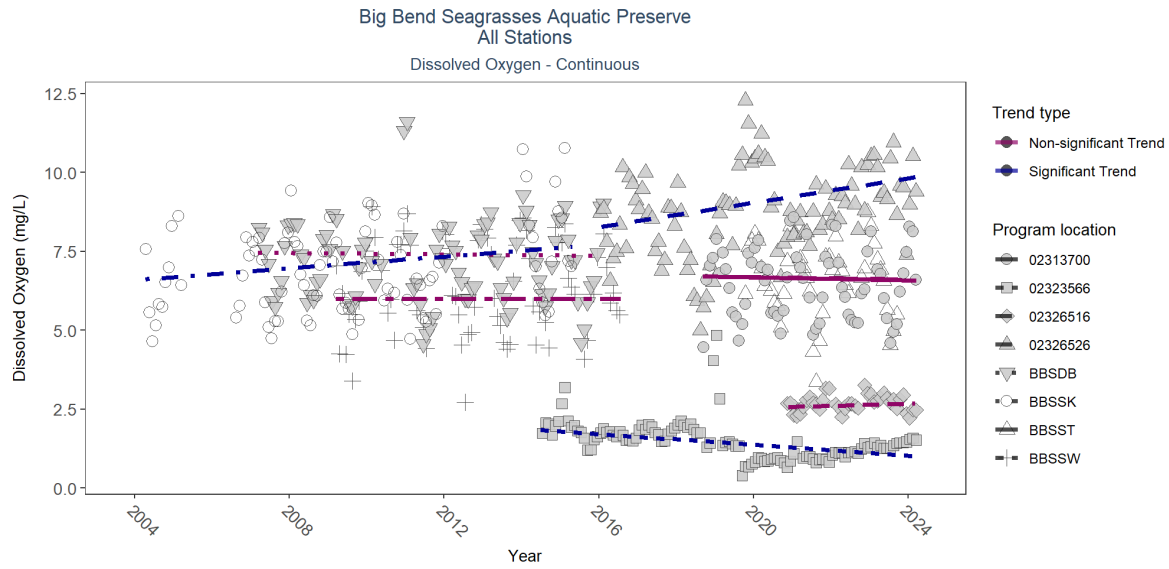


Table 4: Seasonal Kendall-Tau Results for All Stations - Dissolved Oxygen

ProgramLocationID	Statistical Trend	N-Data	N-Years	Period of Record	Median	tau	SennIntercept	SennSlope	p
BBSSST	No significant trend	111411	5	2019 - 2023	6.9	-0.14	6.72	-0.02	0.3964
BBSSW	No significant trend	182327	8	2009 - 2016	6.2	0.00	6.00	0.00	1.0000
BBSDb	No significant trend	184327	10	2007 - 2016	7.3	-0.05	7.46	-0.01	0.6066
BBSSK	Significantly increasing trend	134287	10	2004 - 2015	7.1	0.28	6.60	0.09	0.0023
02323566	Significantly decreasing trend	3363	11	2014 - 2024	1.4	-0.40	1.88	-0.09	0.0000
02326526	Significantly increasing trend	2817	9	2016 - 2024	8.9	0.29	8.27	0.19	0.0006
02326516	No significant trend	1019	5	2020 - 2024	2.7	0.20	2.54	0.04	0.3714
02313700	No significant trend	1933	7	2018 - 2024	6.3	-0.09	6.73	-0.02	0.5032

Dissolved Oxygen Saturation - Discrete

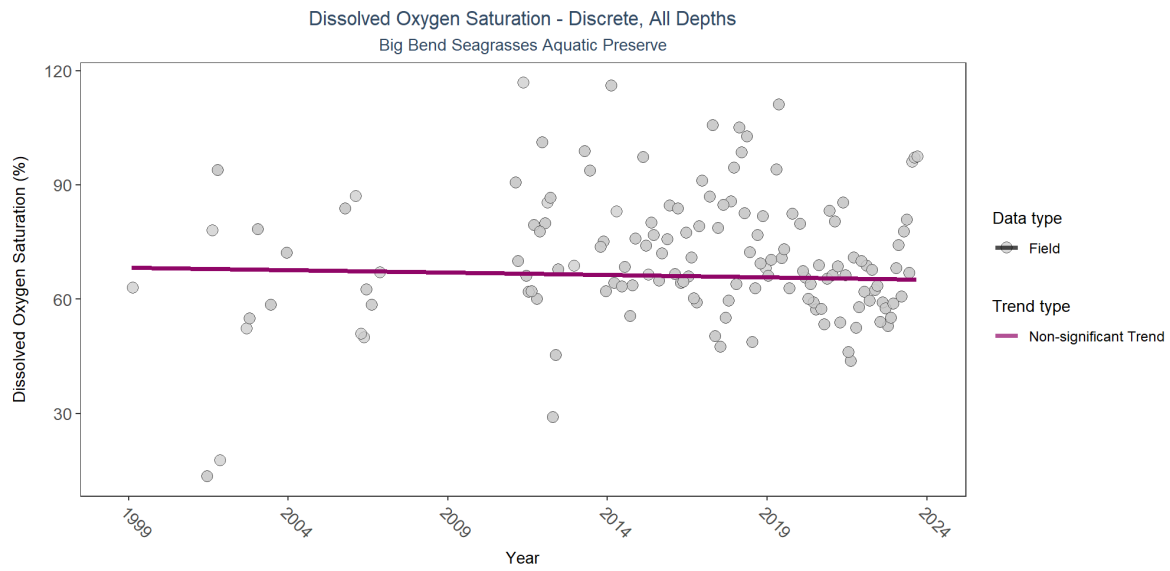


Table 5: Seasonal Kendall-Tau Results for - Dissolved Oxygen Saturation

ActivityType	Statistical Trend	N-Data	N-Years	Period of Record	Median	tau	SennIntercept	SennSlope	p
Field	No significant trend	1239	19	1999 - 2023	71	-0.0374	68.32973	-0.12932	0.7106

Dissolved Oxygen Saturation - Continuous

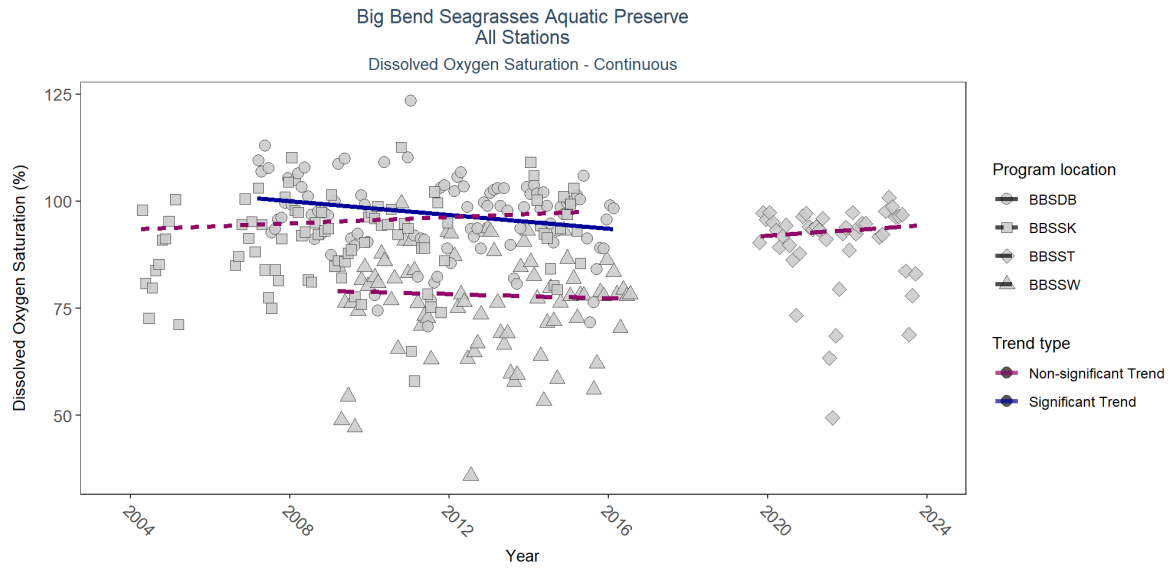


Table 6: Seasonal Kendall-Tau Results for All Stations - Dissolved Oxygen Saturation

ProgramLocationID	Statistical Trend	N-Data	N-Years	Period of Record	Median	tau	SennIntercept	SennSlope	p
BBSST	No significant trend	114465	5	2019 - 2023	93.3	0.13	91.37	0.64	0.3964
BBSSW	No significant trend	182158	8	2009 - 2016	75.8	-0.05	79.14	-0.25	0.6835
BBSDDB	Significantly decreasing trend	183530	10	2007 - 2016	97.6	-0.30	100.88	-0.81	0.0003
BBSSK	No significant trend	134196	10	2004 - 2015	91.8	0.12	93.37	0.36	0.2612

Salinity - Discrete

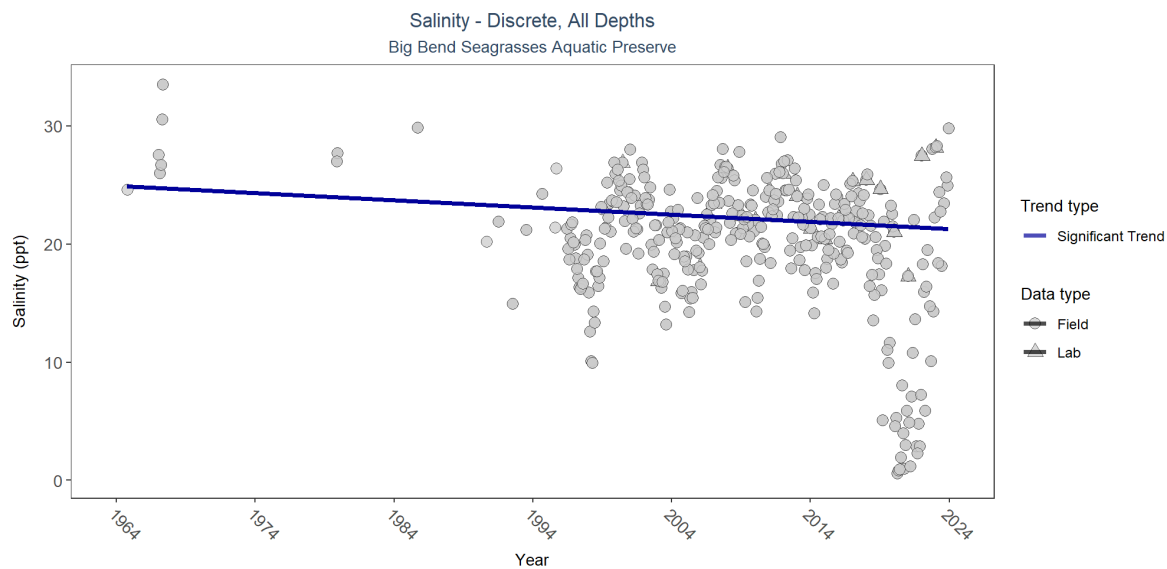


Table 7: Seasonal Kendall-Tau Results for - Salinity

ActivityType	Statistical Trend	N-Data	N-Years	Period of Record	Median	tau	SennIntercept	SennSlope	p
All	Significantly decreasing trend	142979	38	1964 - 2023	23.2	-0.0983	24.91413	-0.06017	0.0079

Salinity - Continuous

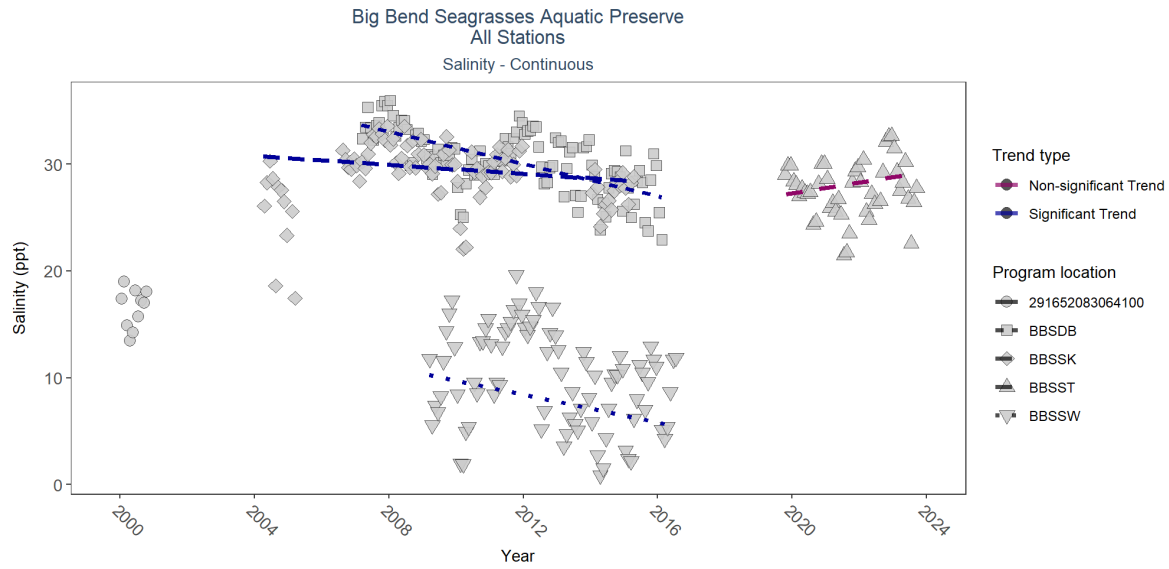


Table 8: Seasonal Kendall-Tau Results for All Stations - Salinity

ProgramLocationID	Statistical Trend	N-Data	N-Years	Period of Record	Median	tau	SennIntercept	SennSlope	p
BBSST	No significant trend	121984	5	2019 - 2023	28.6	0.21	26.79	0.5	0.1594
BBSSW	Significantly decreasing trend	221696	8	2009 - 2016	7.5	-0.23	10.39	-0.65	0.0160
BBSDDB	Significantly decreasing trend	265544	10	2007 - 2016	30.6	-0.53	33.78	-0.75	0.0000
BBSSK	Significantly decreasing trend	178356	10	2004 - 2015	29.6	-0.22	30.77	-0.21	0.0197
291652083064100	Insufficient data to calculate trend	634	1	2000 - 2000	17.0	-	-	-	-

Water Temperature - Discrete

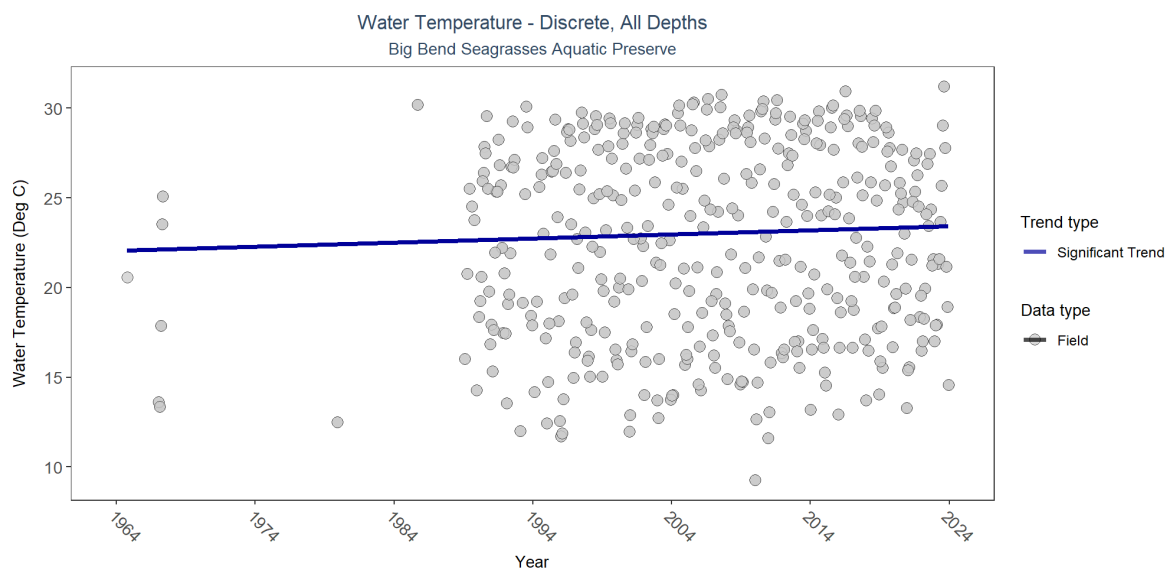


Table 9: Seasonal Kendall-Tau Results for - Water Temperature

ActivityType	Statistical Trend	N-Data	N-Years	Period of Record	Median	tau	SennIntercept	SennSlope	p
Field	Significantly increasing trend	144311	39	1964 - 2023	24	0.1016	22.05288	0.0231	0.0026

Water Temperature - Continuous

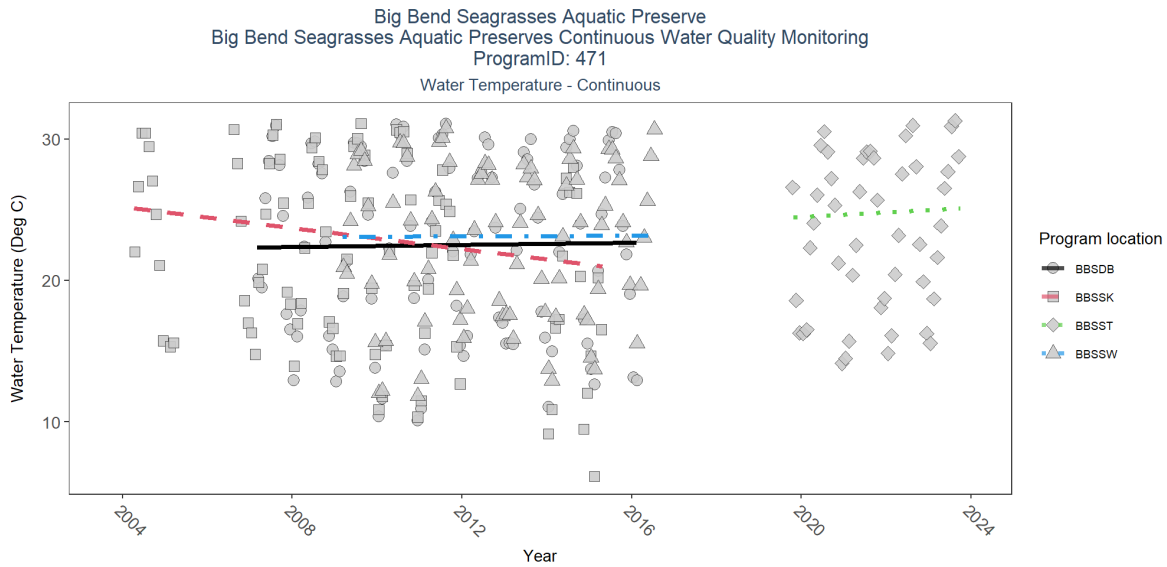


Table 10: Seasonal Kendall-Tau Results for All Stations - Water Temperature

ProgramLocationID	Statistical Trend	N-Data	N-Years	Period of Record	Median	tau	SennIntercept	SennSlope	p
BBST	No significant trend	128489	5	2019 - 2023	23.6	0.16	24.34	0.15	0.3149
BBSSW	No significant trend	227996	8	2009 - 2016	23.7	0.02	23.09	0.01	0.9025
BBSDb	No significant trend	265988	10	2007 - 2016	23.2	0.08	22.34	0.04	0.2922
BBSSK	Significantly decreasing trend	179213	10	2004 - 2015	21.7	-0.33	25.19	-0.37	0.0002

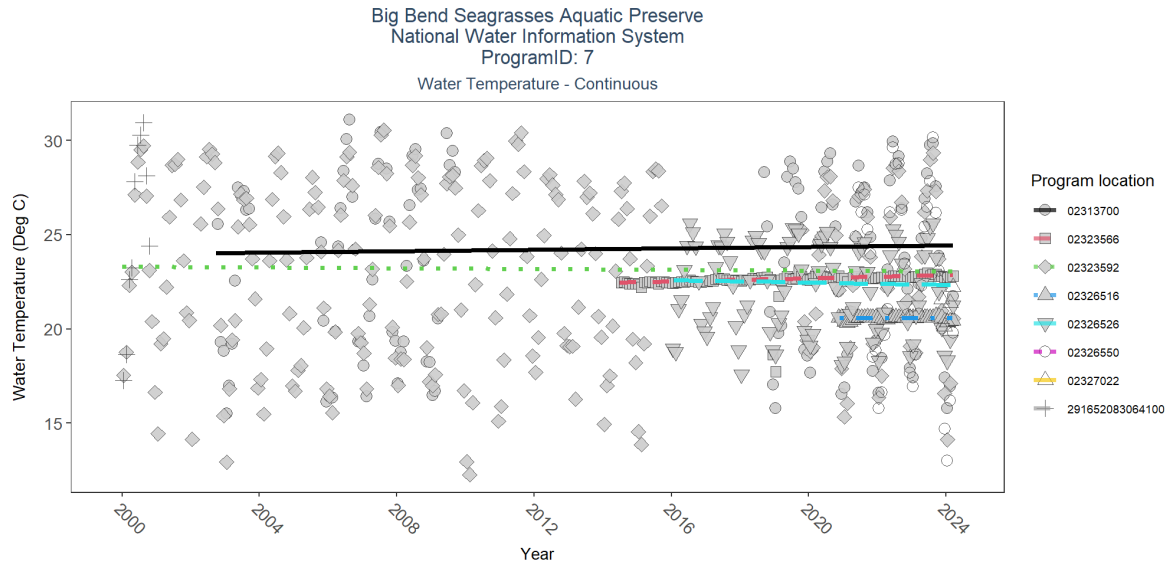


Table 11: Seasonal Kendall-Tau Results for All Stations - Water Temperature

ProgramLocationID	Statistical Trend	N-Data	N-Years	Period of Record	Median	tau	SennIntercept	SennSlope	p
02313700	No significant trend	3591	14	2002 - 2024	24.00	0.1	24.03	0.02	0.1789
291652083064100	Insufficient data to calculate trend	484	1	2000 - 2000	27.00	-	-	-	-
02323592	No significant trend	11875	22	2000 - 2024	24.00	-0.04	23.31	-0.01	0.4075
02323566	Significantly increasing trend	3503	11	2014 - 2024	22.70	0.77	22.44	0.04	0.0000
02326550	Insufficient data to calculate trend	1521	4	2021 - 2024	23.30	-	-	-	-
02326526	No significant trend	2875	9	2016 - 2024	22.40	-0.09	22.58	-0.03	0.2916
02326516	No significant trend	1097	5	2020 - 2024	20.60	0.27	20.57	0	0.2530
02327022	Insufficient data to calculate trend	144	2	2023 - 2024	21.05	-	-	-	-

pH - Discrete

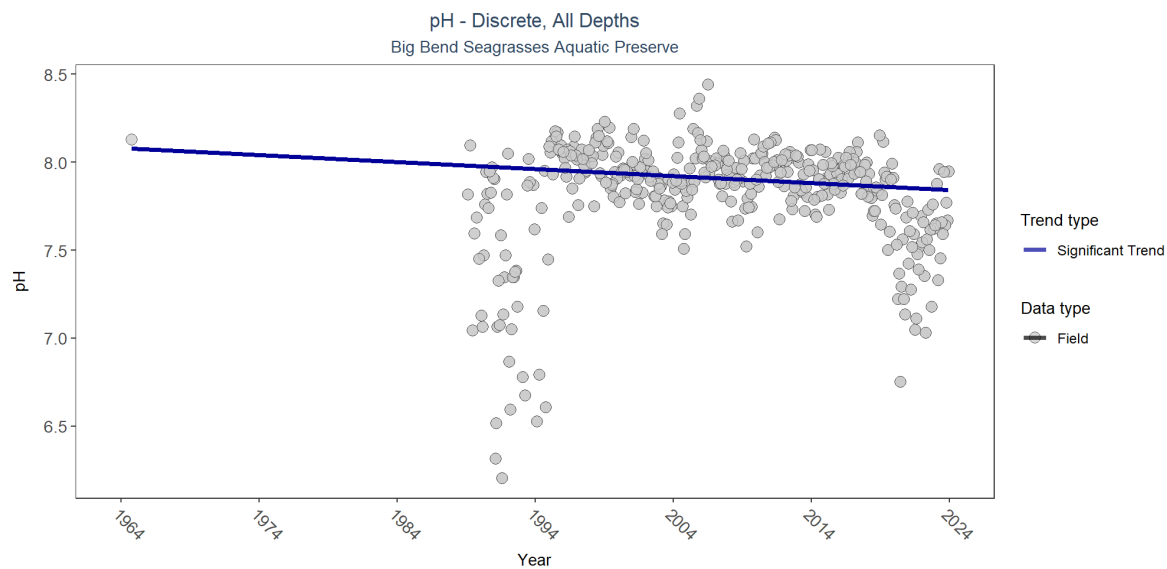


Table 12: Seasonal Kendall-Tau Results for - pH

ActivityType	Statistical Trend	N-Data	N-Years	Period of Record	Median	tau	SennIntercept	SennSlope	p
Field	Significantly decreasing trend	95264	36	1964 - 2023	8	-0.1256	8.08134	-0.00396	0.0006

pH - Continuous

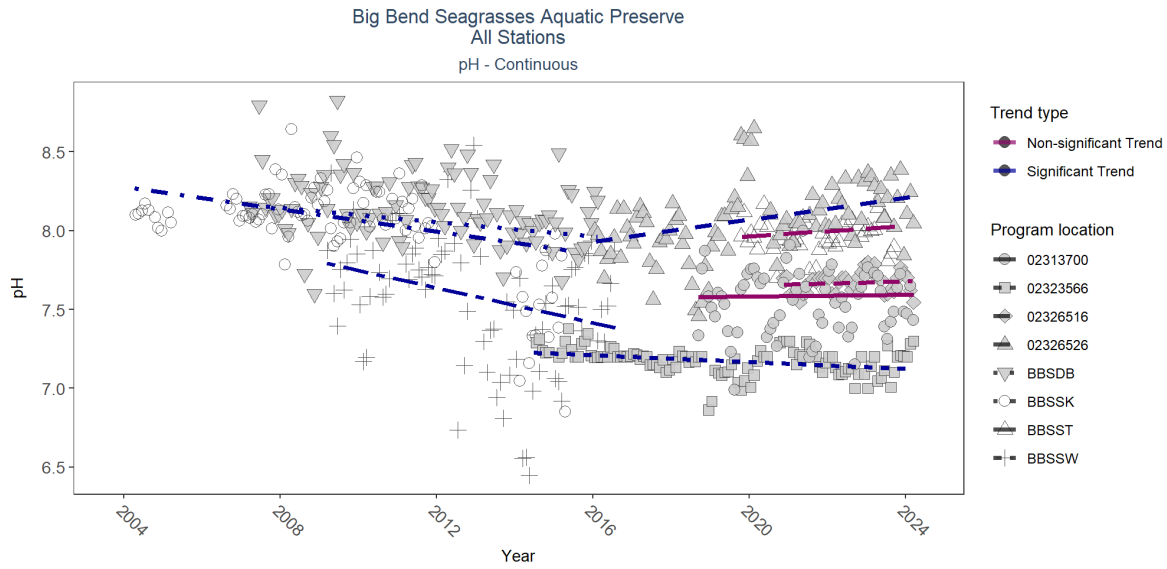


Table 13: Seasonal Kendall-Tau Results for All Stations - pH

ProgramLocationID	Statistical Trend	N-Data	N-Years	Period of Record	Median	tau	SennIntercept	SennSlope	p
BBSSST	No significant trend	121092	5	2019 - 2023	8.0	0.16	7.95	0.02	0.3533
BBSSW	Significantly decreasing trend	224733	8	2009 - 2016	7.6	-0.29	7.80	-0.06	0.0017
BBSDb	Significantly decreasing trend	250183	10	2007 - 2016	8.1	-0.28	8.17	-0.02	0.0004
BBSSK	Significantly decreasing trend	168278	10	2004 - 2015	8.1	-0.37	8.28	-0.04	0.0000
02323566	Significantly decreasing trend	3204	11	2014 - 2024	7.2	-0.27	7.23	-0.01	0.0005
02326516	No significant trend	1080	5	2020 - 2024	7.7	0.16	7.65	0.01	0.2218
02326526	Significantly increasing trend	2629	9	2016 - 2024	8.0	0.36	7.93	0.04	0.0001
02313700	No significant trend	1896	7	2018 - 2024	7.6	0.04	7.58	0.00	0.9515

Water Clarity

Turbidity - Discrete

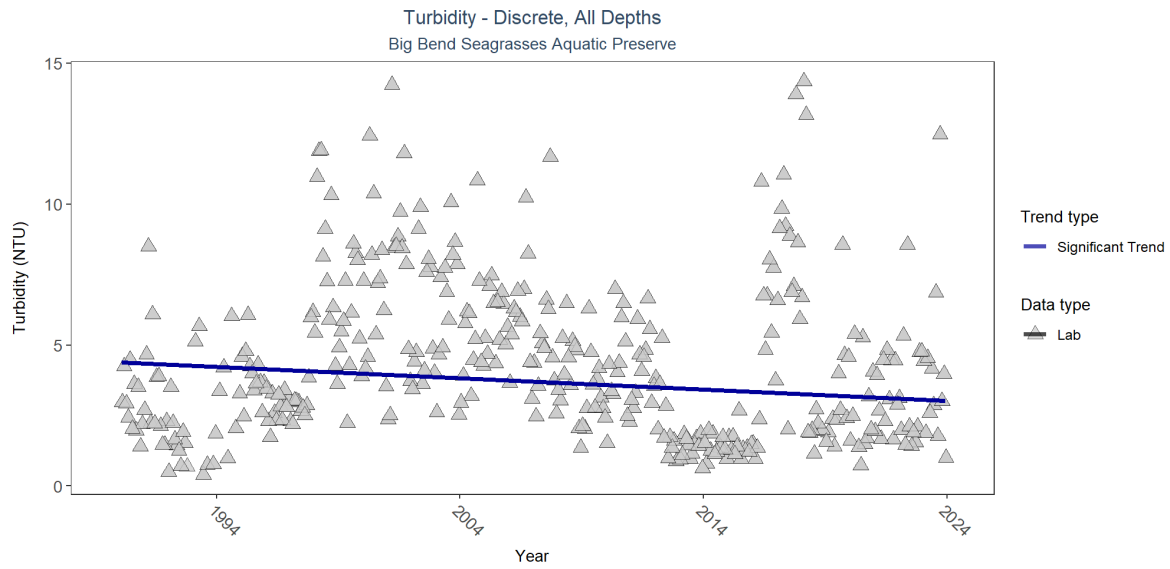


Table 14: Seasonal Kendall-Tau Results for - Turbidity

ActivityType	Statistical Trend	N-Data	N-Years	Period of Record	Median	tau	SennIntercept	SennSlope	p
Lab	Significantly decreasing trend	42434	34	1990 - 2023	3.4	-0.1134	4.37912	-0.04006	0.0012

Turbidity - Continuous

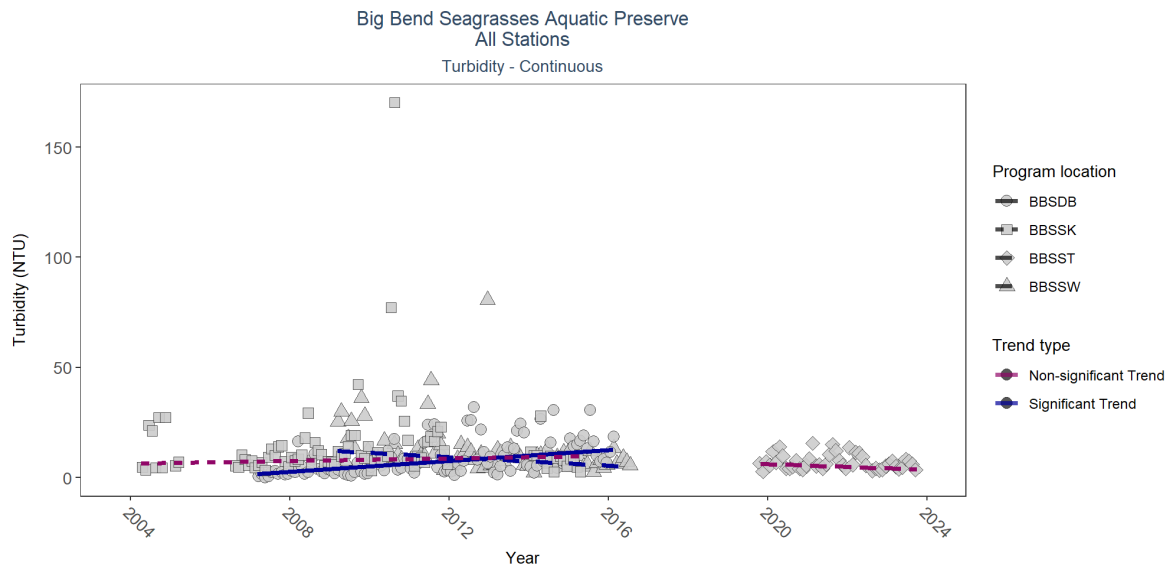


Table 15: Seasonal Kendall-Tau Results for All Stations - Turbidity

ProgramLocationID	Statistical Trend	N-Data	N-Years	Period of Record	Median	tau	SennIntercept	SennSlope	p
BBSST	No significant trend	125246	5	2019 - 2023	4	-0.15	6.58	-0.57	0.3149
BBSSW	Significantly decreasing trend	202699	8	2009 - 2016	6	-0.35	12.41	-0.99	0.0001
BBSD	Significantly increasing trend	224613	10	2007 - 2016	1	0.49	1.47	1.22	0.0000
BBSSK	No significant trend	165043	10	2004 - 2015	5	0.11	6.35	0.30	0.1867

Total Suspended Solids - Discrete

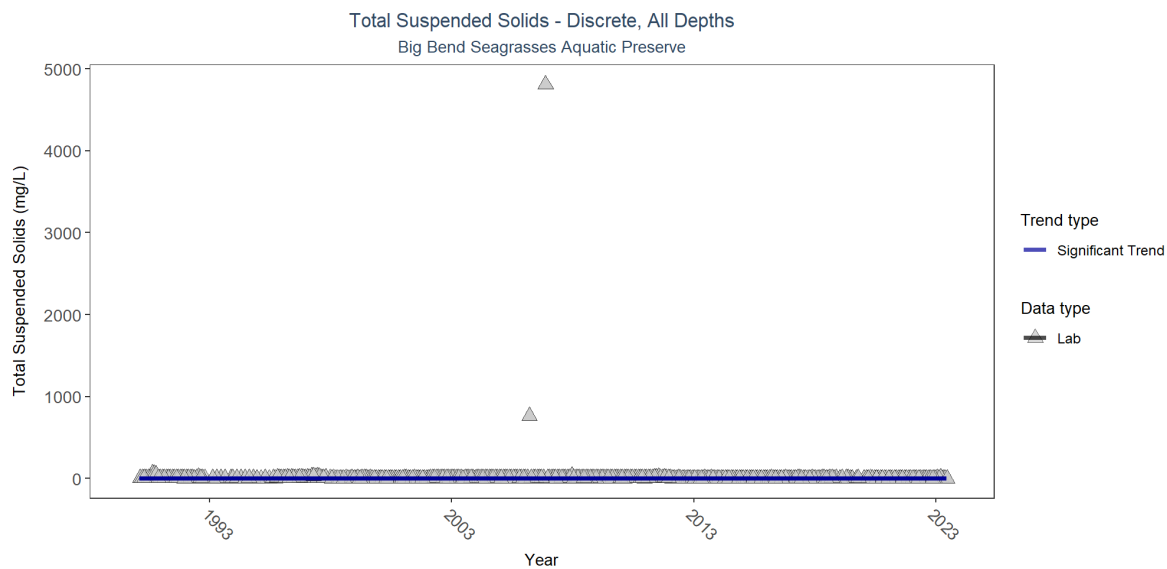


Table 16: Seasonal Kendall-Tau Results for - Total Suspended Solids

ActivityType	Statistical Trend	N-Data	N-Years	Period of Record	Median	tau	SennIntercept	SennSlope	p
Lab	Significantly decreasing trend	2831	34	1990 - 2023	4	-0.352	5.38506	-0.07833	0.0000

Chlorophyll a, Uncorrected for Pheophytin - Discrete

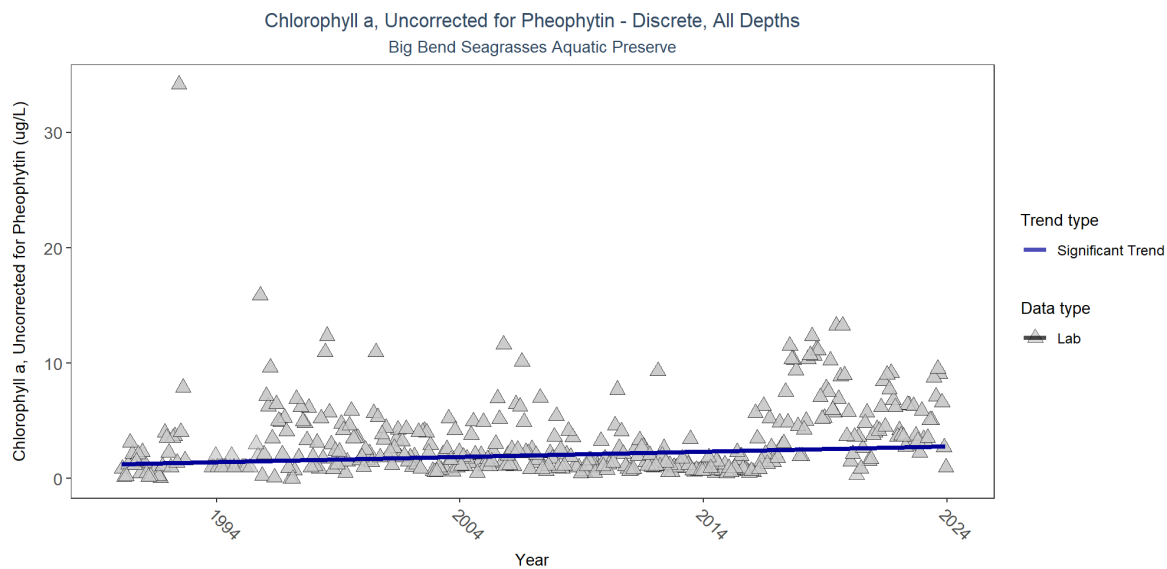


Table 17: Seasonal Kendall-Tau Results for - Chlorophyll a, Uncorrected for Pheophytin

ActivityType	Statistical Trend	N-Data	N-Years	Period of Record	Median	tau	SennIntercept	SennSlope	p
Lab	Significantly increasing trend	5930	34	1990 - 2023	1.2	0.171	1.22626	0.04555	0.0000

Chlorophyll a, Corrected for Pheophytin - Discrete

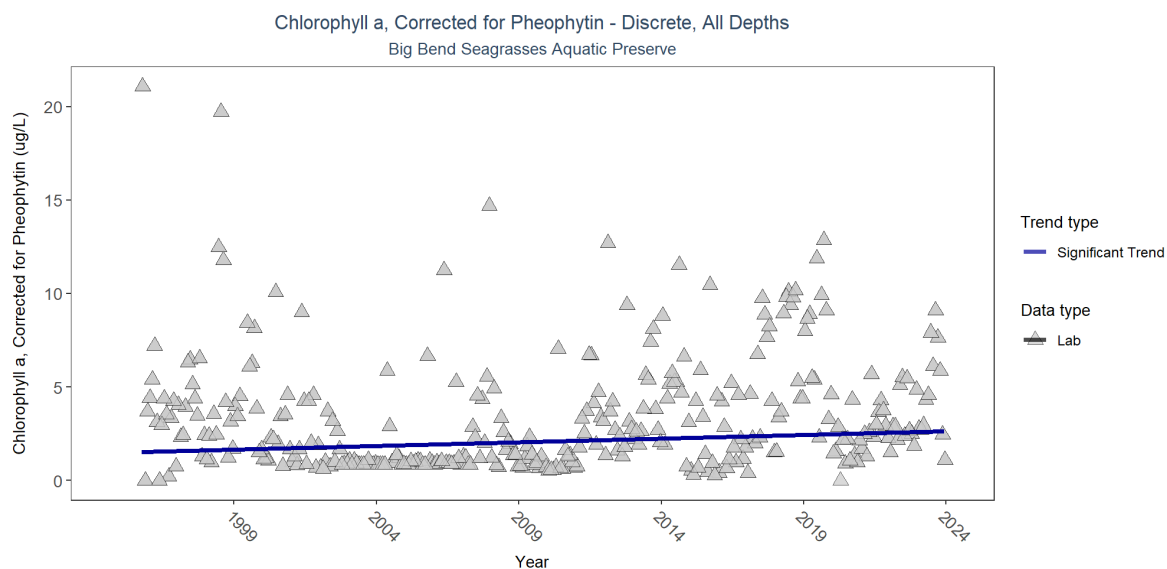


Table 18: Seasonal Kendall-Tau Results for - Chlorophyll a, Corrected for Pheophytin

ActivityType	Statistical Trend	N-Data	N-Years	Period of Record	Median	tau	SennIntercept	SennSlope	p
Lab	Significantly increasing trend	4424	29	1995 - 2023	1.0173	0.1277	1.4954	0.03981	0.0009

Secchi Depth - Discrete

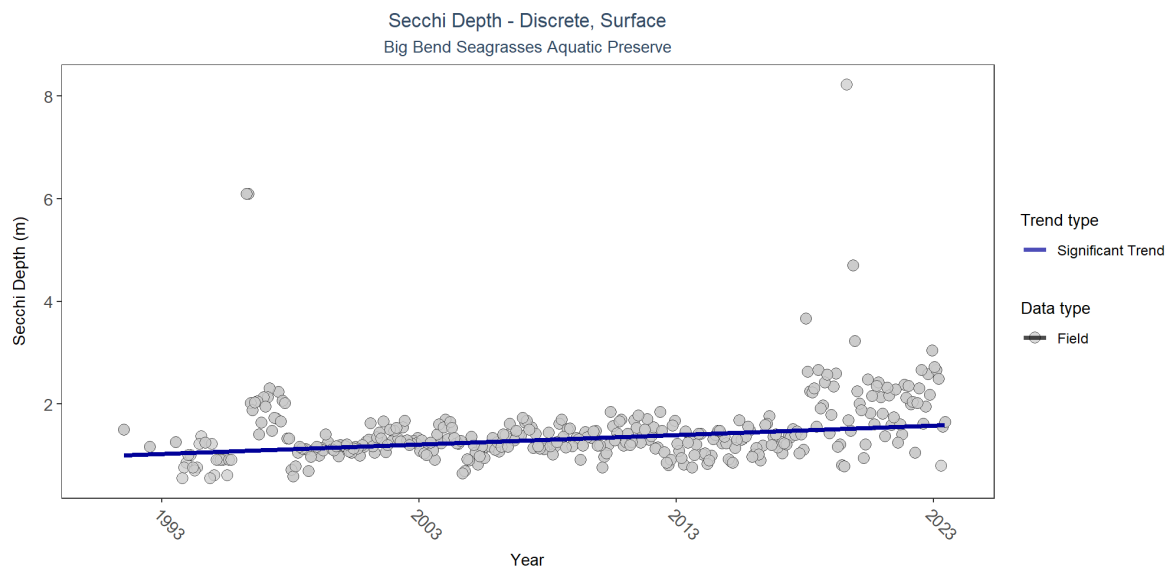


Table 19: Seasonal Kendall-Tau Results for - Secchi Depth

ActivityType	Statistical Trend	N-Data	N-Years	Period of Record	Median	tau	SennIntercept	SennSlope	p
Field	Significantly increasing trend	47287	33	1991 - 2023	0.9	0.2754	0.98699	0.01859	0.0000

Colored Dissolved Organic Matter - Discrete

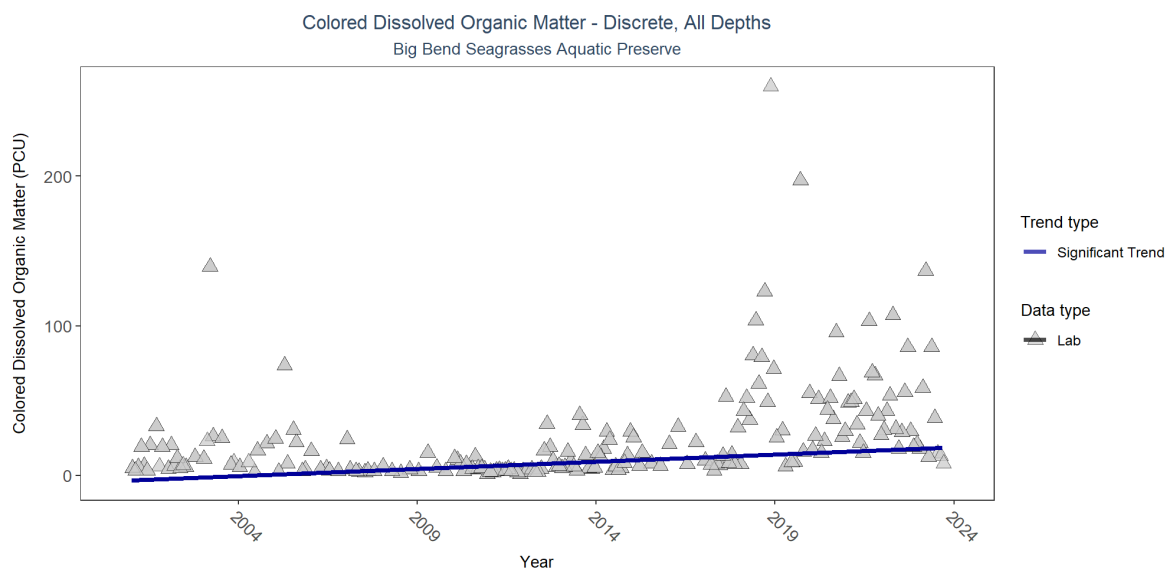


Table 20: Seasonal Kendall-Tau Results for - Colored Dissolved Organic Matter

ActivityType	Statistical Trend	N-Data	N-Years	Period of Record	Median	tau	SennIntercept	SennSlope	p
Lab	Significantly increasing trend	2444	23	2001 - 2023	16.7125	0.3852	-3.37565	0.97083	0.0000