

# Water Column Indicator Quantile Report

## SEACAR Analysis

Last compiled on 31 January, 2024

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# Overview

## Purpose

The purpose of the indicator quantiles is to flag records that are “unusual” relative to all of the data in the DDI for a given indicator in order to facilitate QA/QC. They are not used to filter any of the data for SEACAR analyses, and the presence of a LowerQuantile or UpperQuantile flag on a DDI record alone does not necessarily indicate there is any issue with the record (neither does the absence of a LowerQuantile or UpperQuantile flag necessarily mean that a data record is correct).

## Relevant file locations

Current values can be found in the “LowQuantile” and “HighQuantile” columns of the “Ref\_Parameters” worksheet.

The R script described below and the output file can be found in the *FloridaSEACAR IndicatorQuantiles* repository on GitHub:

- <https://github.com/FloridaSEACAR/IndicatorQuantiles>

## Process steps

### IQ\_Report\_Render.R & IQ\_Report.Rmd

1. The *IQ\_Report\_Render.R* script lists all files in a given directory and filters it to a list of DDI exports to evaluate considering a list of parameters to skip (user-defined).
2. User sets the desired upper and lower quantile thresholds, as well as a number of standard deviations away from the mean to use for the calculations.
3. User sets the string value(s) in the DDI exports that should be considered as NA values.
4. The remainder of the script loops through the file list, returning the values listed below and binding them together by row into a single Excel spreadsheet that is saved to the User’s working directory.
5. For each habitat included in the User’s working directory a PDF report will be created in the “output” folder using *IQ\_Report.Rmd*, which provides an overview of questionable / flagged values.
6. In addition to the PDF reports, each habitat will provide a .txt data output file in the “output/data” folder containing questionable values.

## Summary

The following quantile thresholds are used for flagging “questionable” values:

- Lower quantile: **0.001**
- Upper quantile: **0.999**

The following parameters are being excluded from this analysis:

- *Standard Length*

### Included Indicators and Parameters and the files used in this analysis:

#### Nekton

*Indicator: Nekton - All\_NEKTON\_Parameters-2024-Jan-10.txt*

- Presence/Absence
- Count

#### Discrete

*Indicator: Nutrients*

- Ammonia- Un-ionized (NH<sub>3</sub>)
  - *Combined\_WQ\_WC\_NUT\_Ammonia\_Un-ionized\_NH3-2024-Jan-10.txt*
- NH<sub>4</sub> Filtered
  - *Combined\_WQ\_WC\_NUT\_NH4\_Filtered-2024-Jan-10.txt*
- Nitrate (N)
  - *Combined\_WQ\_WC\_NUT\_Nitrate\_N-2024-Jan-10.txt*
- Nitrite (N)
  - *Combined\_WQ\_WC\_NUT\_Nitrite\_N-2024-Jan-10.txt*
- Nitrogen, organic
  - *Combined\_WQ\_WC\_NUT\_Nitrogen\_organic-2024-Jan-10.txt*
- NO<sub>2</sub>+3 Filtered
  - *Combined\_WQ\_WC\_NUT\_NO2\_3\_Filtered-2024-Jan-10.txt*
- PO<sub>4</sub> Filtered
  - *Combined\_WQ\_WC\_NUT\_PO4\_Filtered-2024-Jan-10.txt*
- Total Kjeldahl Nitrogen TKN
  - *Combined\_WQ\_WC\_NUT\_Total\_Kjeldahl\_Nitrogen\_TKN-2024-Jan-10.txt*
- Total Nitrogen (All)
  - *Combined\_WQ\_WC\_NUT\_Total\_Nitrogen-2024-Jan-10.txt*
- Total Nitrogen (No calc)
  - *Combined\_WQ\_WC\_NUT\_Total\_Nitrogen-2024-Jan-10.txt*
- Total Phosphorus
  - *Combined\_WQ\_WC\_NUT\_Total\_Phosphorus-2024-Jan-10.txt*

*Indicator: Water Clarity*

- Chlorophyll a corrected for pheophytin
  - *Combined\_WQ\_WC\_NUT\_Chlorophyll\_a\_corrected\_for\_pheophytin-2024-Jan-10.txt*
- Chlorophyll a uncorrected for pheophytin
  - *Combined\_WQ\_WC\_NUT\_Chlorophyll\_a\_uncorrected\_for\_pheophytin-2024-Jan-10.txt*
- Colored dissolved organic matter, CDOM
  - *Combined\_WQ\_WC\_NUT\_Colored\_dissolved\_organic\_matter\_CDOM-2024-Jan-10.txt*
- Light Extinction Coefficient
  - *Combined\_WQ\_WC\_NUT\_Light\_Extinction\_Coefficient-2024-Jan-10.txt*
- Secchi Depth
  - *Combined\_WQ\_WC\_NUT\_Secchi\_Depth-2024-Jan-10.txt*
- Total Suspended Solids, TSS
  - *Combined\_WQ\_WC\_NUT\_Total\_Suspended\_Solids\_TSS-2024-Jan-10.txt*

- Turbidity
  - *Combined\_WQ\_WC\_NUT\_Turbidity-2024-Jan-10.txt*

*Indicator:* Water Quality

- Dissolved Oxygen
  - *Combined\_WQ\_WC\_NUT\_Dissolved\_Oxygen-2024-Jan-10.txt*
- Dissolved Oxygen Saturation
  - *Combined\_WQ\_WC\_NUT\_Dissolved\_Oxygen\_Saturation-2024-Jan-10.txt*
- pH
  - *Combined\_WQ\_WC\_NUT\_pH-2024-Jan-10.txt*
- Salinity
  - *Combined\_WQ\_WC\_NUT\_Salinity-2024-Jan-10.txt*
- Specific Conductivity
  - *Combined\_WQ\_WC\_NUT\_Specific\_Conductivity-2024-Jan-10.txt*
- Water Temperature
  - *Combined\_WQ\_WC\_NUT\_Water\_Temperature-2024-Jan-10.txt*

### **Continuous**

*Indicator:* Water Quality

- Dissolved Oxygen
  - *Combined\_WQ\_WC\_NUT\_cont\_Dissolved\_Oxygen\_AllRegions-2024-Jan-10.txt*
- Dissolved Oxygen Saturation
  - *Combined\_WQ\_WC\_NUT\_cont\_Dissolved\_Oxygen\_Saturation\_AllRegions-2024-Jan-10.txt*
- pH
  - *Combined\_WQ\_WC\_NUT\_cont\_pH\_AllRegions-2024-Jan-10.txt*
- Salinity
  - *Combined\_WQ\_WC\_NUT\_cont\_Salinity\_AllRegions-2024-Jan-10.txt*
- Water Temperature
  - *Combined\_WQ\_WC\_NUT\_cont\_Water\_Temperature\_AllRegions-2024-Jan-10.txt*

*Indicator:* Water Clarity

- Turbidity
  - *Combined\_WQ\_WC\_NUT\_cont\_Turbidity\_AllRegions-2024-Jan-10.txt*

## Summary Tables

*q\_low*: Value corresponding to the *qval\_low* quantile for the parameter in the DDI export.

*q\_high*: Value corresponding to the *qval\_high* quantile for the parameter in the DDI export.

*mean*: Mean value for the parameter in the DDI export.

*n\_tot*: Total number of records in the DDI export for the parameter.

*n\_q\_low*: Number of records in the DDI export that are below *q\_low* for the parameter.

*n\_q\_high*: Number of records in the DDI export that are above *q\_high* for the parameter.

*%\_flagged*: Proportion of total records in the DDI export for the parameter which have been flagged as above *q\_high*, or below *q\_low*.

### Nekton

*Indicator*: **Nekton**

Table 1: Indicator Quantile Overview

Parameter	q_low	q_high	mean	n_tot	n_q_low	n_q_high	%_flagged
Count	1	1620.21	22.22	100789	0	101	0.1
Presence/Absence	0	1.00	0.40	250393	0	0	0.0

### Discrete

*Indicator*: **Nutrients**

Table 2: Indicator Quantile Overview

Parameter	q_low	q_high	mean	n_tot	n_q_low	n_q_high	%_flagged
Ammonia- Un-ionized (NH3)	0.00	0.48	0.03	523	1	1	0.38
NH4 Filtered	-0.03	5.73	0.09	120186	121	121	0.20
NO2+3 Filtered	0.00	3.24	0.05	132587	133	133	0.20
Nitrate (N)	0.00	0.79	0.02	19483	0	20	0.10
Nitrite (N)	0.00	0.07	0.00	28871	0	28	0.10
Nitrogen, organic	0.03	2.70	0.57	7121	6	7	0.18
PO4 Filtered	-0.01	0.77	0.04	57462	53	58	0.19
Total Kjeldahl Nitrogen TKN	0.00	5.22	5.70	90749	23	91	0.13
Total Nitrogen (All)	0.00	4.25	0.49	124070	120	125	0.20
Total Nitrogen (No calc)	0.00	2.66	0.35	79388	50	80	0.16
Total Phosphorus	0.00	0.74	0.18	133960	102	134	0.18

*Indicator*: **Water Clarity**

Table 3: Indicator Quantile Overview

Parameter	q_low	q_high	mean	n_tot	n_q_low	n_q_high	%_flagged
Chlorophyll a corrected for pheophytin	0	112.00	6.27	41240	26	41	0.16
Chlorophyll a uncorrected for pheophytin	0	119.61	17.63	77234	26	78	0.13
Colored dissolved organic matter, CDOM	0	718.17	26.09	21184	0	22	0.10

Parameter	q_low	q_high	mean	n_tot	n_q_low	n_q_high	%_flagged
Light Extinction Coefficient	0	7.94	0.56	15547	13	16	0.19
Secchi Depth	0	15.20	1.32	279196	0	274	0.10
Total Suspended Solids, TSS	0	185.78	14.36	69129	20	70	0.13
Turbidity	0	127.00	5.10	287544	67	287	0.12

*Indicator:* **Water Quality**

Table 4: Indicator Quantile Overview

Parameter	q_low	q_high	mean	n_tot	n_q_low	n_q_high	%_flagged
Dissolved Oxygen	0.22	14.30	6.52	758329	734	755	0.20
Dissolved Oxygen Saturation	0.31	177.32	73.44	137947	138	138	0.20
Salinity	0.00	41.10	24.69	758020	2	741	0.10
Specific Conductivity	0.00	60.70	14.59	389724	0	390	0.10
Water Temperature	2.08	33.89	24.29	809837	804	808	0.20
pH	0.79	9.31	7.92	594250	478	594	0.18

## Continuous

*Indicator:* **Water Quality**

Table 5: Indicator Quantile Overview

Parameter	q_low	q_high	mean	n_tot	n_q_low	n_q_high	%_flagged
Dissolved Oxygen	0.1	13.4	6.11	12826259	4589	12494	0.13
Dissolved Oxygen Saturation	1.7	170.1	82.31	12910505	12476	12875	0.20
Salinity	0.0	41.2	29.56	14248905	6041	13870	0.14
Water Temperature	7.9	33.8	25.59	36073434	35477	31375	0.19
pH	5.0	9.0	7.80	13402868	12258	12987	0.19

*Indicator:* **Water Clarity**

Table 6: Indicator Quantile Overview

Parameter	q_low	q_high	mean	n_tot	n_q_low	n_q_high	%_flagged
Turbidity	-1	533	11.48	12796786	12548	12783	0.2

## Nekton

### Low Quantile

There are no *Low* Quantile Flagged Values for Presence/Absence

There are no *Low* Quantile Flagged Values for Count



## High Quantile

There are no *High* Quantile Flagged Values for Presence/Absence

Count

Table 7: Flagged Values - High Indicator Quantile: **1620.212**

RowID	ProgramID	ProgramLocationID	SampleDate	ResultValue
2156673	69	TBM2001020713	2001-02-05	1671
2175189	69	TBM2002080502	2002-08-05	1647
2097544	69	TBM2003021611	2003-02-19	6128
2273220	69	TBM2004100204	2004-10-01	2585
2283538	69	TBM2006111002	2006-11-09	4597
1989812	69	TBM2007110605	2007-11-06	1843
2234957	69	TBM2008011202	2008-01-10	3882
2291264	69	TBM2008040406	2008-04-14	2532
2260430	69	TBM2008050606	2008-05-08	2236
2262822	69	TBM2008061105	2008-06-05	2432
2271220	69	TBM2008080802	2008-08-20	1621
2299936	69	TBM2008081305	2008-08-26	2051
2324359	69	TBM2008111104	2008-11-19	1775
2320940	69	TBM2008120803	2008-12-05	2181
2291665	69	TBM2009011001	2009-01-26	1688
2290555	69	TBM2009051005	2009-05-07	2457
2330965	69	TBM2009051209	2009-05-12	1887
2602714	69	TBM2009100601	2009-10-06	2562
1958672	69	TBM2009111405	2009-11-18	2046
2625332	69	TBM2010051304	2010-05-19	2816
2563671	69	TBM2010051308	2010-05-19	2327
1992452	69	TBM2010060909	2010-06-03	1635
2633894	69	TBM2010070205	2010-07-01	1689
2246644	69	TBM2010070405	2010-07-08	2465
2245912	69	TBM2010091403	2010-09-20	2865
2574541	69	TBM2010091404	2010-09-20	1629
1932179	69	TBM2010100805	2010-10-07	1897
2482413	69	TBM2011110605	2011-11-02	1874
2608886	69	TBM2012010203	2012-01-04	2633
2638308	69	TBM2012100304	2012-10-22	2416
2763119	69	TBM2013050702	2013-05-21	2195
2505065	69	TBM2013060701	2013-06-11	1841
2511952	69	TBM2013070208	2013-07-03	2110
2643674	69	TBM2013080404	2013-08-13	1773
2502945	69	TBM2013091302	2013-09-23	2114
2643478	69	TBM2013110103	2013-11-04	2734
2502625	69	TBM2014050208	2014-05-06	1749
2682071	69	TBM2014070408	2014-07-07	2530
2675198	69	TBM2014100906	2014-10-06	1695
2683099	69	TBM2014110404	2014-11-12	3094
2715994	69	TBM2014111002	2014-11-13	1713
2658302	69	TBM2015071501	2015-07-09	2546
2732115	69	TBM2015090704	2015-09-03	2509
1965134	69	TBM2015110901	2015-11-12	2013
1966976	69	TBM2016091807	2016-09-08	1623

RowID	ProgramID	ProgramLocationID	SampleDate	ResultValue
1951315	69	TBM2017100502	2017-10-16	1626
2285757	69	TBM2017100804	2017-10-10	2535
1957790	69	TBM2018090905	2018-09-10	1793
2400601	69	TBM2019060106	2019-06-03	1628
2686000	69	TBM2019061203	2019-06-17	1816
2439734	69	TBM2019071503	2019-07-09	2024
2715694	69	TBM2019071504	2019-07-09	1729
2660361	69	TBM2019080306	2019-08-05	2215
2693186	69	TBM2019090402	2019-09-24	1755
2714283	69	TBM2019090501	2019-09-16	1923
2729822	69	TBM2019101105	2019-10-15	1757
2428737	69	TBM2019111306	2019-11-14	1759
2391555	69	TBM2020081206	2020-08-13	3017
2553112	69	TBM2020081207	2020-08-13	1767
2067558	129	1	2011-02-17	3920
2069469	129	1	2011-02-17	2152
2087938	129	1	2011-02-17	4719
2093677	129	1	2011-03-15	1686
3217905	129	10	2011-02-16	1737
3218657	129	10	2011-02-16	1916
3224394	129	10	2011-02-16	2304
3227319	129	10	2011-02-16	1792
3208766	129	10	2011-03-16	1687
3210854	129	10	2011-03-16	3208
3250049	129	10	2022-03-29	1672
3255904	129	10	2022-03-29	2316
3257158	129	10	2022-03-29	1775
2423863	129	2	2011-02-17	1680
2395224	129	3	2002-04-16	2541
3238469	129	4	2011-02-16	1790
3239567	129	4	2011-02-16	2229
3243590	129	4	2011-02-16	2315
3245536	129	4	2011-02-16	3742
3278883	129	5	2003-03-19	4825
3281657	129	5	2003-03-19	2802
3287852	129	5	2003-03-19	6147
3288452	129	5	2003-03-19	2083
2098710	129	5	2010-01-20	1889
2103310	129	5	2010-01-20	5068
2100724	129	5	2011-02-16	2876
2101567	129	5	2011-02-16	3924
2130344	129	5	2011-02-16	4690
3214260	129	8	2003-02-19	1709
3271705	129	8	2011-02-16	5772
3272810	129	8	2011-02-16	4436
3273368	129	8	2011-02-16	4888
3274449	129	8	2011-02-16	3584
3275515	129	8	2011-02-16	5260
3281456	129	8	2011-04-12	1917
3313639	129	9	2001-03-28	1784
2032057	129	9	2011-02-16	8224
2033127	129	9	2011-02-16	4292

RowID	ProgramID	ProgramLocationID	SampleDate	ResultValue
2034238	129	9	2011-02-16	5616
2034610	129	9	2011-02-16	5940
2024938	129	9	2011-03-16	4984
2035140	129	9	2011-03-16	5060

**Programs containing flagged data:**

*69* - Fisheries-Independent Monitoring (FIM) Program

*129* - Apalachicola National Estuarine Research Reserve Juvenile Fish and Benthic Macroinvertebrate Monitoring

## Discrete

### Discrete - Nutrients

#### Ammonia- Un-ionized (NH3)

Quantile Values:

*Low: 0.00304 High: 0.4778*

Total data for *Ammonia- Un-ionized (NH3)* across all programs: **523**

Table 8: Flagged data, overview by program for **Ammonia- Un-ionized (NH3)**

ProgramID	n_flagged	n_low	n_high	n_Prog_data	pct_prog	pct_all
5028	2	1	1	523	0.38241	0.38241

#### Programs containing flagged data:

*5028* - Charlotte Harbor Aquatic Preserves Monthly Water Quality Program

#### NH4 Filtered

Quantile Values:

*Low: -0.02564 High: 5.73457*

Total data for *NH4 Filtered* across all programs: **120186**

Table 9: Flagged data, overview by program for **NH4 Filtered**

ProgramID	n_flagged	n_low	n_high	n_Prog_data	pct_prog	pct_all
3	101	0	101	2780	3.63309	0.08404
5002	141	121	20	57032	0.24723	0.11732

#### Programs containing flagged data:

*3* - Atlantic Oceanographic and Meteorological Laboratory (AOML) South Florida Program Synoptic Shipboard Surveys

*5002* - Florida STORET / WIN

#### Nitrate (N)

Quantile Values:

*Low: 0 High: 0.79036*

Total data for *Nitrate (N)* across all programs: **19483**

Table 10: Flagged data, overview by program for **Nitrate (N)**

ProgramID	n_flagged	n_low	n_high	n_Prog_data	pct_prog	pct_all
5002	20	0	20	9235	0.21657	0.10265

#### Programs containing flagged data:

*5002* - Florida STORET / WIN

### Nitrite (N)

Quantile Values:

Low: **0** High: **0.074**

Total data for *Nitrite (N)* across all programs: **28871**

Table 11: Flagged data, overview by program for **Nitrite (N)**

ProgramID	n_flagged	n_low	n_high	n_Prog_data	pct_prog	pct_all
4054	10	0	10	1646	0.60753	0.03464
5002	15	0	15	11536	0.13003	0.05196
5033	3	0	3	8373	0.03583	0.01039

### Programs containing flagged data:

*4054* - Guana Tolomato Matanzas National Estuarine Research Reserve System-Wide Monitoring Program

*5002* - Florida STORET / WIN

*5033* - Southeast Florida Water Quality Assessment Survey

### Nitrogen, organic

Quantile Values:

Low: **0.029** High: **2.7**

Total data for *Nitrogen, organic* across all programs: **7121**

Table 12: Flagged data, overview by program for **Nitrogen, organic**

ProgramID	n_flagged	n_low	n_high	n_Prog_data	pct_prog	pct_all
5002	13	6	7	7121	0.18256	0.18256

### Programs containing flagged data:

*5002* - Florida STORET / WIN

### NO2+3 Filtered

Quantile Values:

Low: **-0.00244** High: **3.24035**

Total data for *NO2+3 Filtered* across all programs: **132587**

Table 13: Flagged data, overview by program for **NO2+3 Filtered**

ProgramID	n_flagged	n_low	n_high	n_Prog_data	pct_prog	pct_all
3	129	0	129	2521	5.11702	0.09729
476	1	0	1	4118	0.02428	0.00075
4058	1	0	1	1859	0.05379	0.00075
5002	135	133	2	65022	0.20762	0.10182

### Programs containing flagged data:

3 - Atlantic Oceanographic and Meteorological Laboratory (AOML) South Florida Program Synoptic Shipboard Surveys  
 476 - Charlotte Harbor Estuaries Volunteer Water Quality Monitoring Network  
 4058 - City of Miami Beach Water Monitoring  
 5002 - Florida STORET / WIN

#### PO4 Filtered

Quantile Values:

Low: **-0.007** High: **0.76862**

Total data for *PO4 Filtered* across all programs: **57462**

Table 14: Flagged data, overview by program for **PO4 Filtered**

ProgramID	n_flagged	n_low	n_high	n_Prog_data	pct_prog	pct_all
3	15	0	15	4006	0.37444	0.02610
355	7	0	7	3176	0.22040	0.01218
513	2	0	2	1624	0.12315	0.00348
5002	87	53	34	36205	0.24030	0.15140

#### Programs containing flagged data:

3 - Atlantic Oceanographic and Meteorological Laboratory (AOML) South Florida Program Synoptic Shipboard Surveys  
 355 - Apalachicola National Estuarine Research Reserve System-Wide Monitoring Program  
 513 - Coastal Charlotte Harbor Monitoring Network  
 5002 - Florida STORET / WIN

#### Total Kjeldahl Nitrogen TKN

Quantile Values:

Low: **0** High: **5.21504**

Total data for *Total Kjeldahl Nitrogen TKN* across all programs: **90749**

Table 15: Flagged data, overview by program for **Total Kjeldahl Nitrogen TKN**

ProgramID	n_flagged	n_low	n_high	n_Prog_data	pct_prog	pct_all
303	3	0	3	416	0.72115	0.00331
513	1	0	1	1029	0.09718	0.00110
5002	107	23	84	64911	0.16484	0.11791
5014	3	0	3	1201	0.24979	0.00331

#### Programs containing flagged data:

303 - River, Estuary and Coastal Observing Network  
 513 - Coastal Charlotte Harbor Monitoring Network  
 5002 - Florida STORET / WIN  
 5014 - Guana River and Guana Lake Water Quality Monitoring

### Total Nitrogen (All)

Quantile Values:

Low: **7e-05** High: **4.24607**

Total data for *Total Nitrogen (All)* across all programs: **124070**

Table 16: Flagged data, overview by program for **Total Nitrogen (All)**

ProgramID	n_flagged	n_low	n_high	n_Prog_data	pct_prog	pct_all
103	9	9	0	532	1.69173	0.00725
297	1	1	0	25177	0.00397	0.00081
303	3	0	3	418	0.71770	0.00242
476	1	0	1	1369	0.07305	0.00081
479	2	0	2	8195	0.02441	0.00161
513	32	30	2	714	4.48179	0.02579
514	63	63	0	10392	0.60624	0.05078
4058	2	0	2	1831	0.10923	0.00161
5002	130	17	113	59396	0.21887	0.10478
5014	2	0	2	551	0.36298	0.00161

### Programs containing flagged data:

103 - EPA STOrage and RETrieval Data Warehouse (STORET)

297 - Florida Keys National Marine Sanctuary Water Quality Monitoring Project

303 - River, Estuary and Coastal Observing Network

476 - Charlotte Harbor Estuaries Volunteer Water Quality Monitoring Network

479 - Southwest Florida Water Management District - Water Quality Monitoring

513 - Coastal Charlotte Harbor Monitoring Network

514 - Florida LAKEWATCH Program

4058 - City of Miami Beach Water Monitoring

5002 - Florida STORET / WIN

5014 - Guana River and Guana Lake Water Quality Monitoring

### Total Nitrogen (No calc)

Quantile Values:

Low: **6e-05** High: **2.65613**

Total data for *Total Nitrogen (No calc)* across all programs: \*\*\*\*

Table 17: Flagged data, overview by program for **Total Nitrogen (No calc)**

ProgramID	n_flagged	n_low	n_high	n_Prog_data	pct_prog	pct_all
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### Programs containing flagged data:

103 - EPA STOrage and RETrieval Data Warehouse (STORET)

297 - Florida Keys National Marine Sanctuary Water Quality Monitoring Project

303 - River, Estuary and Coastal Observing Network

479 - Southwest Florida Water Management District - Water Quality Monitoring

509 - SERC Water Quality Monitoring Network

513 - Coastal Charlotte Harbor Monitoring Network  
 514 - Florida LAKEWATCH Program  
 5002 - Florida STORET / WIN  
 5058 - Southeast Florida Coral Reef Initiative (SEFCRI) Water Quality Monitoring Report  
 10000 - RiverKeeper

## Total Phosphorus

Quantile Values:

Low: **0** High: **0.74004**

Total data for *Total Phosphorus* across all programs: **133960**

Table 18: Flagged data, overview by program for **Total Phosphorus**

ProgramID	n_flagged	n_low	n_high	n_Prog_data	pct_prog	pct_all
103	7	0	7	5666	0.12354	0.00523
355	3	0	3	771	0.38911	0.00224
479	2	0	2	8183	0.02444	0.00149
513	6	0	6	1043	0.57526	0.00448
5002	198	85	113	52332	0.37835	0.14781
5014	3	0	3	603	0.49751	0.00224
5033	17	17	0	8365	0.20323	0.01269

## Programs containing flagged data:

103 - EPA STOrage and RETrieval Data Warehouse (STORET)  
 355 - Apalachicola National Estuarine Research Reserve System-Wide Monitoring Program  
 479 - Southwest Florida Water Management District - Water Quality Monitoring  
 513 - Coastal Charlotte Harbor Monitoring Network  
 5002 - Florida STORET / WIN  
 5014 - Guana River and Guana Lake Water Quality Monitoring  
 5033 - Southeast Florida Water Quality Assessment Survey

## Discrete - Water Clarity

### Chlorophyll a corrected for pheophytin

Quantile Values:

Low: **0** High: **112**

Total data for *Chlorophyll a corrected for pheophytin* across all programs: **41240**

Table 19: Flagged data, overview by program for **Chlorophyll a corrected for pheophytin**

ProgramID	n_flagged	n_low	n_high	n_Prog_data	pct_prog	pct_all
103	3	0	3	1353	0.22173	0.00727
303	1	0	1	607	0.16474	0.00242
476	1	0	1	1326	0.07541	0.00242
514	29	25	4	1140	2.54386	0.07032
540	3	0	3	468	0.64103	0.00727
5002	26	1	25	17990	0.14452	0.06305
5014	3	0	3	602	0.49834	0.00727



ProgramID	n_flagged	n_low	n_high	n_Prog_data	pct_prog	pct_all
10000	1	0	1	2179	0.04589	0.00242

**Programs containing flagged data:**

103 - EPA STORage and RETrieval Data Warehouse (STORET)  
303 - River, Estuary and Coastal Observing Network  
476 - Charlotte Harbor Estuaries Volunteer Water Quality Monitoring Network  
514 - Florida LAKEWATCH Program  
540 - Shellfish Harvest Area Classification Program  
5002 - Florida STORET / WIN  
5014 - Guana River and Guana Lake Water Quality Monitoring  
10000 - RiverKeeper

**Chlorophyll a uncorrected for pheophytin**

Quantile Values:

Low: **0** High: **119.6136**

Total data for *Chlorophyll a uncorrected for pheophytin* across all programs: **77234**

Table 20: Flagged data, overview by program for **Chlorophyll a uncorrected for pheophytin**

ProgramID	n_flagged	n_low	n_high	n_Prog_data	pct_prog	pct_all
95	12	0	12	1888	0.63559	0.01554
103	26	26	0	4780	0.54393	0.03366
479	2	0	2	1835	0.10899	0.00259
514	16	0	16	3278	0.48810	0.02072
540	3	0	3	458	0.65502	0.00388
4054	1	0	1	4421	0.02262	0.00129
5002	39	0	39	22598	0.17258	0.05050
5014	4	0	4	660	0.60606	0.00518
10000	1	0	1	2783	0.03593	0.00129

**Programs containing flagged data:**

95 - Harmful Algal Bloom Marine Observation Network  
103 - EPA STORage and RETrieval Data Warehouse (STORET)  
479 - Southwest Florida Water Management District - Water Quality Monitoring  
514 - Florida LAKEWATCH Program  
540 - Shellfish Harvest Area Classification Program  
4054 - Guana Tolomato Matanzas National Estuarine Research Reserve System-Wide Monitoring Program  
5002 - Florida STORET / WIN  
5014 - Guana River and Guana Lake Water Quality Monitoring  
10000 - RiverKeeper

**Colored dissolved organic matter, CDOM**

Quantile Values:

Low: **0** High: **718.17**

Total data for *Colored dissolved organic matter, CDOM* across all programs: **21184**

Table 21: Flagged data, overview by program for **Colored dissolved organic matter, CDOM**

ProgramID	n_flagged	n_low	n_high	n_Prog_data	pct_prog	pct_all
4054	17	0	17	1328	1.28012	0.08025
5002	5	0	5	6656	0.07512	0.02360

**Programs containing flagged data:**

4054 - Guana Tolomato Matanzas National Estuarine Research Reserve System-Wide Monitoring Program  
5002 - Florida STORET / WIN

**Light Extinction Coefficient**

Quantile Values:

Low: **0.001** High: **7.93948**

Total data for *Light Extinction Coefficient* across all programs: **15547**

Table 22: Flagged data, overview by program for **Light Extinction Coefficient**

ProgramID	n_flagged	n_low	n_high	n_Prog_data	pct_prog	pct_all
297	24	11	13	10401	0.23075	0.15437
4064	1	1	0	619	0.16155	0.00643
5002	3	0	3	2328	0.12887	0.01930
5058	1	1	0	133	0.75188	0.00643

**Programs containing flagged data:**

297 - Florida Keys National Marine Sanctuary Water Quality Monitoring Project  
4064 - A spatial model to improve site selection for seagrass restoration in shallow boating environments  
5002 - Florida STORET / WIN  
5058 - Southeast Florida Coral Reef Initiative (SEFCRI) Water Quality Monitoring Report

**Secchi Depth**

Quantile Values:

Low: **0** High: **15.2**

Total data for *Secchi Depth* across all programs: **279196**

Table 23: Flagged data, overview by program for **Secchi Depth**

ProgramID	n_flagged	n_low	n_high	n_Prog_data	pct_prog	pct_all
60	20	0	20	54	37.03704	0.00716
103	60	0	60	2973	2.01816	0.02149
470	1	0	1	298	0.33557	0.00036
479	4	0	4	8546	0.04681	0.00143
514	1	0	1	9257	0.01080	0.00036
537	1	0	1	217	0.46083	0.00036
3013	7	0	7	2181	0.32095	0.00251
5002	2	0	2	15689	0.01275	0.00072

ProgramID	n_flagged	n_low	n_high	n_Prog_data	pct_prog	pct_all
5026	1	0	1	426	0.23474	0.00036
5033	177	0	177	4797	3.68981	0.06340

**Programs containing flagged data:**

60 - Southeast Area Monitoring and Assessment Program (SEAMAP) - Gulf of Mexico Fall & Summer Shrimp/Groundfish Survey  
103 - EPA STOrage and RETrieval Data Warehouse (STORET)  
470 - St. Andrews Aquatic Preserve Water Quality Monitoring  
479 - Southwest Florida Water Management District - Water Quality Monitoring  
514 - Florida LAKEWATCH Program  
537 - Choctawhatchee Basin Alliance Living Shorelines Oyster Reef Monitoring  
3013 - Seagrass (SJRWMD)  
5002 - Florida STORET / WIN  
5026 - North Biscayne Bay Seagrass Loss Water Quality Program  
5033 - Southeast Florida Water Quality Assessment Survey

**Total Suspended Solids, TSS**

Quantile Values:

Low: **0** High: **185.7824**

Total data for *Total Suspended Solids, TSS* across all programs: **69129**

Table 24: Flagged data, overview by program for **Total Suspended Solids, TSS**

ProgramID	n_flagged	n_low	n_high	n_Prog_data	pct_prog	pct_all
103	3	0	3	3614	0.08301	0.00434
513	3	0	3	997	0.30090	0.00434
4054	8	0	8	3551	0.22529	0.01157
5002	68	18	50	42388	0.16042	0.09837
5033	8	2	6	8993	0.08896	0.01157

**Programs containing flagged data:**

103 - EPA STOrage and RETrieval Data Warehouse (STORET)  
513 - Coastal Charlotte Harbor Monitoring Network  
4054 - Guana Tolomato Matanzas National Estuarine Research Reserve System-Wide Monitoring Program  
5002 - Florida STORET / WIN  
5033 - Southeast Florida Water Quality Assessment Survey

**Turbidity**

Quantile Values:

Low: **0** High: **127**

Total data for *Turbidity* across all programs: **287544**

Table 25: Flagged data, overview by program for **Turbidity**

ProgramID	n_flagged	n_low	n_high	n_Prog_data	pct_prog	pct_all
95	1	0	1	398	0.25126	0.00035
103	233	11	222	19539	1.19249	0.08103
297	29	29	0	25746	0.11264	0.01009
303	34	11	23	473	7.18816	0.01182
354	14	0	14	734	1.90736	0.00487
469	5	5	0	299	1.67224	0.00174
505	2	2	0	74	2.70270	0.00070
4058	1	0	1	1869	0.05350	0.00035
5002	25	0	25	201217	0.01242	0.00869
5026	10	9	1	410	2.43902	0.00348

**Programs containing flagged data:**

95 - Harmful Algal Bloom Marine Observation Network  
 103 - EPA STORage and RETrieval Data Warehouse (STORET)  
 297 - Florida Keys National Marine Sanctuary Water Quality Monitoring Project  
 303 - River, Estuary and Coastal Observing Network  
 354 - Rookery Bay National Estuarine Research Reserve System-Wide Monitoring Program  
 469 - Central Panhandle Aquatic Preserve WQ Monitoring  
 505 - Pensacola Bay Water Quality Monitoring Program  
 4058 - City of Miami Beach Water Monitoring  
 5002 - Florida STORET / WIN  
 5026 - North Biscayne Bay Seagrass Loss Water Quality Program

**Discrete - Water Quality****Dissolved Oxygen**

Quantile Values:

Low: **0.22** High: **14.3**

Total data for *Dissolved Oxygen* across all programs: **758329**

Table 26: Flagged data, overview by program for **Dissolved Oxygen**

ProgramID	n_flagged	n_low	n_high	n_Prog_data	pct_prog	pct_all
69	402	42	360	224772	0.17885	0.05301
95	42	9	33	14463	0.29040	0.00554
103	1	0	1	23938	0.00418	0.00013
118	4	4	0	549	0.72860	0.00053
129	15	0	15	3884	0.38620	0.00198
297	3	1	2	31133	0.00964	0.00040
354	18	0	18	1242	1.44928	0.00237
355	2	2	0	2464	0.08117	0.00026
469	3	0	3	988	0.30364	0.00040
470	1	0	1	226	0.44248	0.00013
479	40	35	5	19874	0.20127	0.00527
509	2	1	1	12158	0.01645	0.00026
513	2	2	0	327	0.61162	0.00026
537	1	1	0	266	0.37594	0.00013

ProgramID	n_flagged	n_low	n_high	n_Prog_data	pct_prog	pct_all
540	1	0	1	393	0.25445	0.00013
557	1	0	1	841	0.11891	0.00013
3000	8	8	0	386	2.07254	0.00105
3001	18	14	4	12380	0.14540	0.00237
3013	3	0	3	2193	0.13680	0.00040
4043	4	4	0	2972	0.13459	0.00053
4054	6	0	6	2794	0.21475	0.00079
4058	7	1	6	1837	0.38106	0.00092
4067	45	37	8	17489	0.25730	0.00593
5002	849	563	286	364841	0.23270	0.11196
5014	4	3	1	274	1.45985	0.00053
5058	2	2	0	266	0.75188	0.00026
10000	5	5	0	6074	0.08232	0.00066

#### Programs containing flagged data:

69 - Fisheries-Independent Monitoring (FIM) Program  
 95 - Harmful Algal Bloom Marine Observation Network  
 103 - EPA STOrage and RETrieval Data Warehouse (STORET)  
 118 - National Aquatic Resource Surveys, National Coastal Condition Assessment  
 129 - Apalachicola National Estuarine Research Reserve Juvenile Fish and Benthic Macroinvertebrate Monitoring  
 297 - Florida Keys National Marine Sanctuary Water Quality Monitoring Project  
 354 - Rookery Bay National Estuarine Research Reserve System-Wide Monitoring Program  
 355 - Apalachicola National Estuarine Research Reserve System-Wide Monitoring Program  
 469 - Central Panhandle Aquatic Preserve WQ Monitoring  
 470 - St. Andrews Aquatic Preserve Water Quality Monitoring  
 479 - Southwest Florida Water Management District - Water Quality Monitoring  
 509 - SERC Water Quality Monitoring Network  
 513 - Coastal Charlotte Harbor Monitoring Network  
 537 - Choctawhatchee Basin Alliance Living Shorelines Oyster Reef Monitoring  
 540 - Shellfish Harvest Area Classification Program  
 557 - Central Panhandle Aquatic Preserves Seagrass Monitoring  
 3000 - Florida Keys Water Watch  
 3001 - Lagoon Watch (Formerly Marine Discovery Center)  
 3013 - Seagrass (SJRWMD)  
 4043 - RBNERR Fish Assessment  
 4054 - Guana Tolomato Matanzas National Estuarine Research Reserve System-Wide Monitoring Program  
 4058 - City of Miami Beach Water Monitoring  
 4067 - Tampa Bay Benthic Monitoring  
 5002 - Florida STORET / WIN  
 5014 - Guana River and Guana Lake Water Quality Monitoring  
 5058 - Southeast Florida Coral Reef Initiative (SEFCRI) Water Quality Monitoring Report  
 10000 - RiverKeeper

#### Dissolved Oxygen Saturation

Quantile Values:

Low: **0.30633** High: **177.32268**

Total data for *Dissolved Oxygen Saturation* across all programs: **137947**

Table 27: Flagged data, overview by program for **Dissolved Oxygen Saturation**

ProgramID	n_flagged	n_low	n_high	n_Prog_data	pct_prog	pct_all
95	2	1	1	1497	0.13360	0.00145
129	6	0	6	3874	0.15488	0.00435
297	12	0	12	25419	0.04721	0.00870
303	2	0	2	462	0.43290	0.00145
572	1	0	1	27	3.70370	0.00072
3001	127	109	18	12296	1.03286	0.09206
3013	3	0	3	1075	0.27907	0.00217
4064	1	0	1	619	0.16155	0.00072
4067	31	0	31	17033	0.18200	0.02247
5002	91	28	63	60424	0.15060	0.06597

**Programs containing flagged data:**

*95* - Harmful Algal Bloom Marine Observation Network  
*129* - Apalachicola National Estuarine Research Reserve Juvenile Fish and Benthic Macroinvertebrate Monitoring  
*297* - Florida Keys National Marine Sanctuary Water Quality Monitoring Project  
*303* - River, Estuary and Coastal Observing Network  
*572* - Rookery Bay National Estuarine Research Reserve Seagrass Monitoring  
*3001* - Lagoon Watch (Formerly Marine Discovery Center)  
*3013* - Seagrass (SJRWMD)  
*4064* - A spatial model to improve site selection for seagrass restoration in shallow boating environments  
*4067* - Tampa Bay Benthic Monitoring  
*5002* - Florida STORET / WIN

**pH**

Quantile Values:

*Low*: **0.79** *High*: **9.31**

Total data for *pH* across all programs: **594250**

Table 28: Flagged data, overview by program for **pH**

ProgramID	n_flagged	n_low	n_high	n_Prog_data	pct_prog	pct_all
69	215	2	213	223788	0.09607	0.03618
95	45	0	45	12206	0.36867	0.00757
103	1	0	1	13818	0.00724	0.00017
129	4	1	3	2138	0.18709	0.00067
303	18	0	18	404	4.45545	0.00303
354	13	0	13	887	1.46561	0.00219
355	7	0	7	1284	0.54517	0.00118
469	14	0	14	988	1.41700	0.00236
470	1	0	1	228	0.43860	0.00017
476	1	0	1	868	0.11521	0.00017
479	10	0	10	17482	0.05720	0.00168
557	64	5	59	757	8.45443	0.01077
3000	57	55	2	386	14.76684	0.00959
3001	3	1	2	11789	0.02545	0.00050

ProgramID	n_flagged	n_low	n_high	n_Prog_data	pct_prog	pct_all
3013	1	0	1	2189	0.04568	0.00017
4058	2	0	2	1878	0.10650	0.00034
4065	1	0	1	266	0.37594	0.00017
4067	23	14	9	13670	0.16825	0.00387
5002	592	400	192	270074	0.21920	0.09962

#### Programs containing flagged data:

69 - Fisheries-Independent Monitoring (FIM) Program  
 95 - Harmful Algal Bloom Marine Observation Network  
 103 - EPA STORage and RETrieval Data Warehouse (STORET)  
 129 - Apalachicola National Estuarine Research Reserve Juvenile Fish and Benthic Macroinvertebrate Monitoring  
 303 - River, Estuary and Coastal Observing Network  
 354 - Rookery Bay National Estuarine Research Reserve System-Wide Monitoring Program  
 355 - Apalachicola National Estuarine Research Reserve System-Wide Monitoring Program  
 469 - Central Panhandle Aquatic Preserve WQ Monitoring  
 470 - St. Andrews Aquatic Preserve Water Quality Monitoring  
 476 - Charlotte Harbor Estuaries Volunteer Water Quality Monitoring Network  
 479 - Southwest Florida Water Management District - Water Quality Monitoring  
 557 - Central Panhandle Aquatic Preserves Seagrass Monitoring  
 3000 - Florida Keys Water Watch  
 3001 - Lagoon Watch (Formerly Marine Discovery Center)  
 3013 - Seagrass (SJRWMD)  
 4058 - City of Miami Beach Water Monitoring  
 4065 - Northwest Florida Aquatic Preserve Seagrass Survey  
 4067 - Tampa Bay Benthic Monitoring  
 5002 - Florida STORET / WIN

#### Salinity

Quantile Values:

Low: **0** High: **41.1**

Total data for *Salinity* across all programs: **758020**

Table 29: Flagged data, overview by program for **Salinity**

ProgramID	n_flagged	n_low	n_high	n_Prog_data	pct_prog	pct_all
3	16	0	16	4287	0.37322	0.00211
69	110	0	110	226531	0.04856	0.01451
95	126	0	126	25921	0.48609	0.01662
115	2	0	2	327	0.61162	0.00026
118	16	0	16	535	2.99065	0.00211
297	33	0	33	30806	0.10712	0.00435
354	6	0	6	1282	0.46802	0.00079
456	6	0	6	134	4.47761	0.00079
476	1	0	1	893	0.11198	0.00013
479	1	0	1	19918	0.00502	0.00013
509	19	0	19	12034	0.15789	0.00251
557	2	0	2	866	0.23095	0.00026
965	8	0	8	4157	0.19245	0.00106

ProgramID	n_flagged	n_low	n_high	n_Prog_data	pct_prog	pct_all
3000	4	0	4	388	1.03093	0.00053
3001	14	0	14	12345	0.11341	0.00185
3013	4	0	4	2248	0.17794	0.00053
4043	1	0	1	3042	0.03287	0.00013
4049	27	0	27	1291	2.09140	0.00356
4057	3	0	3	230	1.30435	0.00040
4058	3	0	3	1870	0.16043	0.00040
4067	51	0	51	12571	0.40570	0.00673
5002	290	2	288	372865	0.07778	0.03826

#### Programs containing flagged data:

3 - Atlantic Oceanographic and Meteorological Laboratory (AOML) South Florida Program Synoptic Shipboard Surveys  
 69 - Fisheries-Independent Monitoring (FIM) Program  
 95 - Harmful Algal Bloom Marine Observation Network  
 115 - Environmental Monitoring Assessment Program  
 118 - National Aquatic Resource Surveys, National Coastal Condition Assessment  
 297 - Florida Keys National Marine Sanctuary Water Quality Monitoring Project  
 354 - Rookery Bay National Estuarine Research Reserve System-Wide Monitoring Program  
 456 - Oyster Sentinel  
 476 - Charlotte Harbor Estuaries Volunteer Water Quality Monitoring Network  
 479 - Southwest Florida Water Management District - Water Quality Monitoring  
 509 - SERC Water Quality Monitoring Network  
 557 - Central Panhandle Aquatic Preserves Seagrass Monitoring  
 965 - South Florida Seagrass Fish and Invertebrate Assessment Network  
 3000 - Florida Keys Water Watch  
 3001 - Lagoon Watch (Formerly Marine Discovery Center)  
 3013 - Seagrass (SJRWMD)  
 4043 - RBNERR Fish Assessment  
 4049 - The South Florida Fisheries Habitat Assessment Program (FHAP)  
 4057 - Biscayne Bay Water Watch  
 4058 - City of Miami Beach Water Monitoring  
 4067 - Tampa Bay Benthic Monitoring  
 5002 - Florida STORET / WIN

#### Specific Conductivity

Quantile Values:

Low: **0** High: **60.69928**

Total data for *Specific Conductivity* across all programs: **389724**

Table 30: Flagged data, overview by program for **Specific Conductivity**

ProgramID	n_flagged	n_low	n_high	n_Prog_data	pct_prog	pct_all
103	1	0	1	10667	0.00937	0.00026
354	11	0	11	425	2.58824	0.00282
355	1	0	1	628	0.15924	0.00026
479	12	0	12	15154	0.07919	0.00308
572	1	0	1	27	3.70370	0.00026



ProgramID	n_flagged	n_low	n_high	n_Prog_data	pct_prog	pct_all
3013	5	0	5	2211	0.22614	0.00128
4044	2	0	2	232	0.86207	0.00051
4058	13	0	13	1877	0.69259	0.00334
4067	4	0	4	13408	0.02983	0.00103
5002	339	0	339	103963	0.32608	0.08698
10000	1	0	1	6094	0.01641	0.00026

#### Programs containing flagged data:

103 - EPA STOrage and RETrieval Data Warehouse (STORET)  
 354 - Rookery Bay National Estuarine Research Reserve System-Wide Monitoring Program  
 355 - Apalachicola National Estuarine Research Reserve System-Wide Monitoring Program  
 479 - Southwest Florida Water Management District - Water Quality Monitoring  
 572 - Rookery Bay National Estuarine Research Reserve Seagrass Monitoring  
 3013 - Seagrass (SJRWMD)  
 4044 - NRDA Oyster Cultch Recovery Project  
 4058 - City of Miami Beach Water Monitoring  
 4067 - Tampa Bay Benthic Monitoring  
 5002 - Florida STORET / WIN  
 10000 - RiverKeeper

#### Water Temperature

Quantile Values:

Low: **2.08** High: **33.89**

Total data for *Water Temperature* across all programs: **809837**

Table 31: Flagged data, overview by program for **Water Temperature**

ProgramID	n_flagged	n_low	n_high	n_Prog_data	pct_prog	pct_all
69	289	1	288	226865	0.12739	0.03569
95	82	0	82	25145	0.32611	0.01013
103	5	0	5	25242	0.01981	0.00062
129	3	0	3	3825	0.07843	0.00037
297	32	1	31	30767	0.10401	0.00395
303	1	0	1	473	0.21142	0.00012
354	7	0	7	1281	0.54645	0.00086
456	1	1	0	134	0.74627	0.00012
479	6	0	6	18399	0.03261	0.00074
509	9	0	9	12044	0.07473	0.00111
537	1	0	1	266	0.37594	0.00012
540	2	0	2	435	0.45977	0.00025
557	1	0	1	866	0.11547	0.00012
558	2	0	2	417	0.47962	0.00025
965	6	0	6	4157	0.14433	0.00074
3000	16	3	13	383	4.17755	0.00198
3001	76	6	70	12412	0.61231	0.00938
3013	11	0	11	2238	0.49151	0.00136
3016	32	32	0	81	39.50617	0.00395
4043	3	0	3	3036	0.09881	0.00037

ProgramID	n_flagged	n_low	n_high	n_Prog_data	pct_prog	pct_all
4044	1	1	0	226	0.44248	0.00012
4054	7	1	6	2878	0.24322	0.00086
4057	1	0	1	227	0.44053	0.00012
4058	2	0	2	1867	0.10712	0.00025
4064	4	0	4	619	0.64620	0.00049
4067	4	0	4	16093	0.02486	0.00049
5002	1005	756	249	400128	0.25117	0.12410
5008	1	0	1	1876	0.05330	0.00012
5058	2	2	0	266	0.75188	0.00025

**Programs containing flagged data:**

*69* - Fisheries-Independent Monitoring (FIM) Program  
*95* - Harmful Algal Bloom Marine Observation Network  
*103* - EPA STOrage and RETrieval Data Warehouse (STORET)  
*129* - Apalachicola National Estuarine Research Reserve Juvenile Fish and Benthic Macroinvertebrate Monitoring  
*297* - Florida Keys National Marine Sanctuary Water Quality Monitoring Project  
*303* - River, Estuary and Coastal Observing Network  
*354* - Rookery Bay National Estuarine Research Reserve System-Wide Monitoring Program  
*456* - Oyster Sentinel  
*479* - Southwest Florida Water Management District - Water Quality Monitoring  
*509* - SERC Water Quality Monitoring Network  
*537* - Choctawhatchee Basin Alliance Living Shorelines Oyster Reef Monitoring  
*540* - Shellfish Harvest Area Classification Program  
*557* - Central Panhandle Aquatic Preserves Seagrass Monitoring  
*558* - Franklin County Coastal Waters Seagrass Monitoring  
*965* - South Florida Seagrass Fish and Invertebrate Assessment Network  
*3000* - Florida Keys Water Watch  
*3001* - Lagoon Watch (Formerly Marine Discovery Center)  
*3013* - Seagrass (SJRWMD)  
*3016* - Lake Worth Lagoon Seagrass Mapping Project  
*4043* - RBNERR Fish Assessment  
*4044* - NRDA Oyster Cultch Recovery Project  
*4054* - Guana Tolomato Matanzas National Estuarine Research Reserve System-Wide Monitoring Program  
*4057* - Biscayne Bay Water Watch  
*4058* - City of Miami Beach Water Monitoring  
*4064* - A spatial model to improve site selection for seagrass restoration in shallow boating environments  
*4067* - Tampa Bay Benthic Monitoring  
*5002* - Florida STORET / WIN  
*5008* - Project COAST (Coastal Assessment Team) - Springs Coast Ecosystem Region  
*5058* - Southeast Florida Coral Reef Initiative (SEFCRI) Water Quality Monitoring Report

## Continuous

### Continuous - Water Quality

#### Dissolved Oxygen

Quantile Values:

Low: **0.1** High: **13.4**

Total data for *Dissolved Oxygen* across all programs: **12826259**

Table 32: Flagged data, overview by program for **Dissolved Oxygen**

ProgramID	n_flagged	n_low	n_high	n_Prog_data	pct_prog	pct_all
7	2	0	2	5170	0.03868	0.00002
354	1795	578	1217	2502414	0.07173	0.01399
355	12537	2313	10224	2986109	0.41984	0.09774
467	118	76	42	197906	0.05962	0.00092
468	144	2	142	177846	0.08097	0.00112
471	78	1	77	726742	0.01073	0.00061
474	45	18	27	1382961	0.00325	0.00035
505	1	1	0	3794	0.02636	0.00001
512	851	446	405	1547117	0.05501	0.00663
4054	96	96	0	2345999	0.00409	0.00075
5006	17	17	0	238256	0.00714	0.00013
5061	143	38	105	161722	0.08842	0.00111
5077	1256	1003	253	461832	0.27196	0.00979

#### Programs containing flagged data:

7 - National Water Information System

354 - Rookery Bay National Estuarine Research Reserve System-Wide Monitoring Program

355 - Apalachicola National Estuarine Research Reserve System-Wide Monitoring Program

467 - Yellow River Marsh Aquatic Preserve Continuous Water Quality Monitoring

468 - Central Panhandle Aquatic Preserves Continuous Water Quality Monitoring

471 - Big Bend Seagrasses Aquatic Preserves Continuous Water Quality Monitoring

474 - Estero Bay Aquatic Preserve Continuous Water Quality Monitoring

505 - Pensacola Bay Water Quality Monitoring Program

512 - Charlotte Harbor Aquatic Preserves Continuous Water Quality Monitoring Program

4054 - Guana Tolomato Matanzas National Estuarine Research Reserve System-Wide Monitoring Program

5006 - Northeast Aquatic Preserves Continuous Water Quality Monitoring

5061 - St. Johns River Water Management District Continuous Water Quality Programs

5077 - Biscayne Bay Aquatic Preserves Continuous Water Quality Monitoring

#### Dissolved Oxygen Saturation

Quantile Values:

Low: **1.7** High: **170.1**

Total data for *Dissolved Oxygen Saturation* across all programs: **12910505**

Table 33: Flagged data, overview by program for **Dissolved Oxygen Saturation**

ProgramID	n_flagged	n_low	n_high	n_Prog_data	pct_prog	pct_all
354	4511	2697	1814	2527189	0.17850	0.03494
355	10333	7690	2643	2988573	0.34575	0.08004
467	274	268	6	204174	0.13420	0.00212
468	316	2	314	193941	0.16294	0.00245
471	481	10	471	728739	0.06600	0.00373
474	891	179	712	1396806	0.06379	0.00690
505	1	1	0	3748	0.02668	0.00001
512	4254	1009	3245	1546077	0.27515	0.03295
4054	104	104	0	2364394	0.00440	0.00081
5006	60	60	0	238289	0.02518	0.00046
5061	233	43	190	169016	0.13786	0.00180
5077	3893	413	3480	461168	0.84416	0.03015

**Programs containing flagged data:**

*354* - Rookery Bay National Estuarine Research Reserve System-Wide Monitoring Program  
*355* - Apalachicola National Estuarine Research Reserve System-Wide Monitoring Program  
*467* - Yellow River Marsh Aquatic Preserve Continuous Water Quality Monitoring  
*468* - Central Panhandle Aquatic Preserves Continuous Water Quality Monitoring  
*471* - Big Bend Seagrasses Aquatic Preserves Continuous Water Quality Monitoring  
*474* - Estero Bay Aquatic Preserve Continuous Water Quality Monitoring  
*505* - Pensacola Bay Water Quality Monitoring Program  
*512* - Charlotte Harbor Aquatic Preserves Continuous Water Quality Monitoring Program  
*4054* - Guana Tolomato Matanzas National Estuarine Research Reserve System-Wide Monitoring Program  
*5006* - Northeast Aquatic Preserves Continuous Water Quality Monitoring  
*5061* - St. Johns River Water Management District Continuous Water Quality Programs  
*5077* - Biscayne Bay Aquatic Preserves Continuous Water Quality Monitoring

**pH**

Quantile Values:

*Low: 5 High: 9*

Total data for *pH* across all programs: **13402868**

Table 34: Flagged data, overview by program for **pH**

ProgramID	n_flagged	n_low	n_high	n_Prog_data	pct_prog	pct_all
7	8	0	8	4675	0.17112	0.00006
355	15013	12183	2830	3024220	0.49643	0.11201
468	277	2	275	199162	0.13908	0.00207
471	4572	0	4572	887321	0.51526	0.03411
474	367	13	354	1625756	0.02257	0.00274
512	377	60	317	1447612	0.02604	0.00281
4054	97	0	97	2294634	0.00423	0.00072
5061	4534	0	4534	161484	2.80771	0.03383

**Programs containing flagged data:**

7 - National Water Information System  
 355 - Apalachicola National Estuarine Research Reserve System-Wide Monitoring Program  
 468 - Central Panhandle Aquatic Preserves Continuous Water Quality Monitoring  
 471 - Big Bend Seagrasses Aquatic Preserves Continuous Water Quality Monitoring  
 474 - Estero Bay Aquatic Preserve Continuous Water Quality Monitoring  
 512 - Charlotte Harbor Aquatic Preserves Continuous Water Quality Monitoring Program  
 4054 - Guana Tolomato Matanzas National Estuarine Research Reserve System-Wide Monitoring Program  
 5061 - St. Johns River Water Management District Continuous Water Quality Programs

## Salinity

Quantile Values:

Low: **0** High: **41.2**

Total data for *Salinity* across all programs: **14248905**

Table 35: Flagged data, overview by program for **Salinity**

ProgramID	n_flagged	n_low	n_high	n_Prog_data	pct_prog	pct_all
7	74	0	74	10138	0.72993	0.00052
354	8965	0	8965	2863398	0.31309	0.06292
355	208	0	208	3138431	0.00663	0.00146
474	1000	0	1000	1659989	0.06024	0.00702
4054	13	1	12	2331461	0.00056	0.00009
5006	9	0	9	250105	0.00360	0.00006
5061	3602	0	3602	159886	2.25286	0.02528
5062	6040	6040	0	40958	14.74681	0.04239

## Programs containing flagged data:

7 - National Water Information System  
 354 - Rookery Bay National Estuarine Research Reserve System-Wide Monitoring Program  
 355 - Apalachicola National Estuarine Research Reserve System-Wide Monitoring Program  
 474 - Estero Bay Aquatic Preserve Continuous Water Quality Monitoring  
 4054 - Guana Tolomato Matanzas National Estuarine Research Reserve System-Wide Monitoring Program  
 5006 - Northeast Aquatic Preserves Continuous Water Quality Monitoring  
 5061 - St. Johns River Water Management District Continuous Water Quality Programs  
 5062 - FDEP Bureau of Survey and Mapping Continuous Water Quality Program

## Water Temperature

Quantile Values:

Low: **7.9** High: **33.8**

Total data for *Water Temperature* across all programs: **36073434**

Table 36: Flagged data, overview by program for **Water Temperature**

ProgramID	n_flagged	n_low	n_high	n_Prog_data	pct_prog	pct_all
2	5	0	5	86204	0.00580	0.00001
5	8661	2436	6225	5807520	0.14913	0.02401
7	46	0	46	17244	0.26676	0.00013
296	2954	0	2954	3987025	0.07409	0.00819

ProgramID	n_flagged	n_low	n_high	n_Prog_data	pct_prog	pct_all
354	9754	50	9704	2947856	0.33088	0.02704
355	10668	10333	335	3226341	0.33065	0.02957
467	1089	1089	0	236813	0.45986	0.00302
468	2676	2005	671	217594	1.22981	0.00742
471	11143	10054	1089	1163533	0.95769	0.03089
474	5420	160	5260	1795754	0.30182	0.01502
505	9	8	1	3870	0.23256	0.00002
512	1200	249	951	1653946	0.07255	0.00333
986	306	0	306	8692018	0.00352	0.00085
989	104	1	103	1824357	0.00570	0.00029
4054	5158	2143	3015	2455571	0.21005	0.01430
5005	294	0	294	43791	0.67137	0.00082
5006	1317	1316	1	250109	0.52657	0.00365
5061	151	148	3	162181	0.09311	0.00042
5062	5485	5485	0	40958	13.39177	0.01521
5077	361	0	361	488333	0.07392	0.00100
10003	51	0	51	41374	0.12327	0.00014

#### Programs containing flagged data:

2 - Atlantic Oceanographic and Meteorological Laboratory (AOML) South Florida Program Moored Instrument Array  
 5 - National Data Buoy Center  
 7 - National Water Information System  
 296 - Florida Keys National Marine Sanctuary Seagrass Monitoring Project  
 354 - Rookery Bay National Estuarine Research Reserve System-Wide Monitoring Program  
 355 - Apalachicola National Estuarine Research Reserve System-Wide Monitoring Program  
 467 - Yellow River Marsh Aquatic Preserve Continuous Water Quality Monitoring  
 468 - Central Panhandle Aquatic Preserves Continuous Water Quality Monitoring  
 471 - Big Bend Seagrasses Aquatic Preserves Continuous Water Quality Monitoring  
 474 - Estero Bay Aquatic Preserve Continuous Water Quality Monitoring  
 505 - Pensacola Bay Water Quality Monitoring Program  
 512 - Charlotte Harbor Aquatic Preserves Continuous Water Quality Monitoring Program  
 986 - Water Temperature on Coral Reefs in the Florida Keys  
 989 - Continuous Bottom Temperature Measurements along the Florida Reef Tract  
 4054 - Guana Tolomato Matanzas National Estuarine Research Reserve System-Wide Monitoring Program  
 5005 - Indian River Lagoon Aquatic Preserves Continuous Water Quality Monitoring  
 5006 - Northeast Aquatic Preserves Continuous Water Quality Monitoring  
 5061 - St. Johns River Water Management District Continuous Water Quality Programs  
 5062 - FDEP Bureau of Survey and Mapping Continuous Water Quality Program  
 5077 - Biscayne Bay Aquatic Preserves Continuous Water Quality Monitoring  
 10003 - Tomoka Marsh Aquatic Preserve Continuous Water Quality Monitoring

#### Continuous - Water Clarity

##### Turbidity

Quantile Values:

Low: -1 High: **533**

Total data for *Turbidity* across all programs: **12796786**

Table 37: Flagged data, overview by program for **Turbidity**

ProgramID	n_flagged	n_low	n_high	n_Prog_data	pct_prog	pct_all
354	3364	2006	1358	2701119	0.12454	0.02629
355	11257	5895	5362	2928053	0.38445	0.08797
467	88	0	88	224149	0.03926	0.00069
468	84	0	84	156660	0.05362	0.00066
471	376	0	376	829999	0.04530	0.00294
473	25	0	25	8263	0.30255	0.00020
474	36	0	36	1377225	0.00261	0.00028
512	4035	0	4035	1353309	0.29816	0.03153
4054	5808	4647	1161	2280645	0.25466	0.04539
5006	223	0	223	241421	0.09237	0.00174
10003	35	0	35	41169	0.08502	0.00027

**Programs containing flagged data:**

*354* - Rookery Bay National Estuarine Research Reserve System-Wide Monitoring Program  
*355* - Apalachicola National Estuarine Research Reserve System-Wide Monitoring Program  
*467* - Yellow River Marsh Aquatic Preserve Continuous Water Quality Monitoring  
*468* - Central Panhandle Aquatic Preserves Continuous Water Quality Monitoring  
*471* - Big Bend Seagrasses Aquatic Preserves Continuous Water Quality Monitoring  
*473* - Terra Ceia Aquatic Preserve Continuous Water Quality Monitoring  
*474* - Estero Bay Aquatic Preserve Continuous Water Quality Monitoring  
*512* - Charlotte Harbor Aquatic Preserves Continuous Water Quality Monitoring Program  
*4054* - Guana Tolomato Matanzas National Estuarine Research Reserve System-Wide Monitoring Program  
*5006* - Northeast Aquatic Preserves Continuous Water Quality Monitoring  
*10003* - Tomoka Marsh Aquatic Preserve Continuous Water Quality Monitoring