

Oyster/Oyster Reef Indicator Quantile Report

SEACAR Analysis

Last compiled on 24 January, 2024

Contents

Overview	2
Purpose	2
Relevant file locations	2
Process steps	2
Summary	3
Summary Tables	3
Low Quantile	5
Indicator: Density	5
Indicator: Percent Live	5
Percent Live	5
Indicator: Size Class	6
High Quantile	7
Indicator: Density	7
Density	7
Number of Oysters Counted - Total	8
Number of Oysters Counted - Live	9
Number of Oysters Counted - Dead	10
Reef Height	11
Indicator: Percent Live	12
Indicator: Size Class	12

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**

Potential Included Indicators and Parameters:

Indicator: Density

- Density
- Number of Oysters Counted - Total
- Number of Oysters Counted - Live
- Number of Oysters Counted - Dead
- Reef Height

Indicator: Percent Live

- Percent Live

Indicator: Size Class

- Shell Height

The data file used for the analysis: **All_Oyster_Parameters-2024-Jan-10.txt**

Summary Tables

Indicator: **Density**

Table 1: Indicator Quantile Overview

Parameter	q_low	q_high	mean	n_tot	n_q_low	n_q_high	%_flagged
Density	1.00	7517.28	548.88	4311	0	5	0.12
Number of Oysters Counted - Dead	1.00	179.84	8.96	1921	0	2	0.10
Number of Oysters Counted - Dead	1.00	100.00	46.61	1114	0	1	0.09
Number of Oysters Counted - Dead	1.00	69.06	15.66	68	0	1	1.47
Number of Oysters Counted - Dead	0.18	174.47	16.87	85	1	1	2.35
Number of Oysters Counted - Dead	1.00	27.90	8.03	35	0	1	2.86
Number of Oysters Counted - Live	1.00	494.01	39.17	2328	0	3	0.13
Number of Oysters Counted - Live	1.00	223.86	40.95	1380	0	2	0.14
Number of Oysters Counted - Live	1.00	277.01	26.39	117	0	1	0.85
Number of Oysters Counted - Live	1.00	265.55	58.73	59	0	1	1.69
Number of Oysters Counted - Live	1.00	101.15	30.74	425	0	1	0.24
Number of Oysters Counted - Total	1.00	532.26	82.61	1902	0	2	0.11
Number of Oysters Counted - Total	1.00	590.00	43.62	2501	0	3	0.12
Number of Oysters Counted - Total	1.00	288.64	62.05	73	0	1	1.37
Number of Oysters Counted - Total	1.00	305.72	63.93	70	0	1	1.43
Number of Oysters Counted - Total	2.00	104.64	19.19	37	0	1	2.70
Reef Height	0.13	15687.00	389.79	2066	0	3	0.15

Indicator: **Percent Live**

Table 2: Indicator Quantile Overview

Parameter	q_low	q_high	mean	n_tot	n_q_low	n_q_high	%_flagged
Percent Live	0.38	100	54	5548	6	0	0.11

Indicator: **Size Class**

Table 3: Indicator Quantile Overview

Parameter	q_low	q_high	mean	n_tot	n_q_low	n_q_high	%_flagged
Shell Height	1.70	126.02	35.96	78830	78	79	0.20
Shell Height	2.00	105.00	38.70	425309	224	406	0.15
Shell Height	4.06	79.94	23.98	1060	2	2	0.38
Shell Height	2.00	118.40	27.23	636	0	1	0.16
Shell Height	3.72	151.23	42.47	7449	8	8	0.21
Shell Height	8.14	125.69	38.10	28895			

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.

Low Quantile

Indicator: Density

There are no *Low* Quantile Flagged Values for Density

There are no *Low* Quantile Flagged Values for Number of Oysters Counted - Total

There are no *Low* Quantile Flagged Values for Number of Oysters Counted - Live

There are no *Low* Quantile Flagged Values for Number of Oysters Counted - Dead

There are no *Low* Quantile Flagged Values for Reef Height

Indicator: Percent Live

Percent Live

Table 4: Flagged Values - Low Indicator Quantile: **0.38021**

RowID	ProgramID	ProgramLocationID	SampleDate	ResultValue
162653	972	AL1	2022-06-17	0.34
150135	972	AL1	2022-12-28	0.38
162652	972	AL1	2022-12-28	0.29
3612	972	AL2	2022-06-17	0.30
784476	972	FRK2	2022-12-28	0.03
189664	972	GOT1	2022-12-28	0.31

Programs containing flagged data:

972 - Sarasota County Comprehensive Oyster Monitoring Program

Indicator: Size Class

There are no *Low* Quantile Flagged Values for Shell Height

High Quantile

Indicator: Density

Density

Table 5: Flagged Values - High Indicator Quantile: **7517.28**

RowID	ProgramID	ProgramLocationID	SampleDate	ResultValue
193732	4000	PF323	2015-12-16	8208
455059	4000	PF323	2015-12-16	9136
31175	4000	PF415	2016-01-13	8448
183477	4000	PFD	2015-08-06	11104
190361	4000	PFD	2015-08-06	7552

Programs containing flagged data:

4000 - Guana Tolomato Matanzas NERR Oyster monitoring

Number of Oysters Counted - Total

Table 6: Flagged Values - High Indicator Quantile: **532.257**

RowID	ProgramID	ProgramLocationID	SampleDate	ResultValue
79472	4012	TB_Reference	2023-03-15	105

Programs containing flagged data:

4012 - SCCF Oyster Restoration Monitoring

Number of Oysters Counted - Live

Table 7: Flagged Values - High Indicator Quantile: **494.015**

RowID	ProgramID	ProgramLocationID	SampleDate	ResultValue
83523	4012	TB_Reference	2023-03-15	102

Programs containing flagged data:

4012 - SCCF Oyster Restoration Monitoring

Number of Oysters Counted - Dead

Table 8: Flagged Values - High Indicator Quantile: **179.84**

RowID	ProgramID	ProgramLocationID	SampleDate	ResultValue
83394	4012	TB_Reference	2021-03-11	28

Programs containing flagged data:

4012 - SCCF Oyster Restoration Monitoring

Reef Height

Table 9: Flagged Values - High Indicator Quantile: **15687**

RowID	ProgramID	ProgramLocationID	SampleDate	ResultValue
595749	5075	SGI02	2019-12-16	15700
793203	5075	SGI02	2019-12-16	16300
115979	5075	SGI03	2019-12-16	16100

Programs containing flagged data:

5075 - Apalachicola Bay Intertidal Oyster Sampling

Indicator: Percent Live

There are no *High* Quantile Flagged Values for Percent Live

Indicator: Size Class

There are no *High* Quantile Flagged Values for Shell Height