

Biological Analysis Report

SE-DIST-2022-09-08-01

Florida DEP Laboratory
2600 Blair Stone Road
Tallahassee, FL 32399-2400
DOH Accreditation E31780

Event Description: **Sebastian Boat and Blank**
Request ID: **RQ-2022-09-05-29**
Customer: **SE-DIST**
Project ID: **SMP**

Send Reports to:
FL Dept. of Environmental Protection
FL Dept. of Environmental Protection
2199 South Rock Road
Fort Pierce, FL 34945
Attn: Jordan Skaggs

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Certified by: Cheryl A. Swanson, Program Administrator

Date Certified: 25-OCT-2022 15:35



Case Narrative

Unless otherwise noted, all samples included in this report were received in accordance with protocols referenced in Chapter 62-160, Florida Administrative Code (F.A.C.). Results published in this report pertain only to the samples as submitted to, and received by the laboratory. All times in this report are adjusted to the applicable Eastern Time Zone (EST or EDT).

Results for the following analytical groups are included in this report: Chlorophyll/Grain Size/BOD, Microbiology and Molecular.

Scientific notation may be used in reporting very large or small values. Values reported using scientific notation will take the form of the following example: 1.3E+03, which is equivalent to 1.3×10^3 or 1300.

Unless otherwise noted, analytical values for soil and sediment samples are reported on a dry weight basis, and analytical values for waste and tissue samples are reported on a wet weight basis.

Results for TNI accredited tests met requirements established by The NELAC Institute. A double asterisk (**) is used to indicate an analyte/matrix/method for which the laboratory is not TNI accredited by the Florida Department of Health Environmental Laboratory Certification Program or where accreditation for that field of testing is not applicable.

Any significant anomalies or deviations from established protocols are documented in Non-Conformance Reports, which, where appropriate, are included within this analytical report. Additional comments related to specific analytical tests may be included as remarks following the analytical results for each sample. Such comments and remarks are for informational purposes only and are not intended to convey judgement about the usability of the reported data.

A quality control report on the performance of the test method for the submitted samples is included. Uncertainty associated with the analytical results contained in this report can be estimated from the reported quality assurance results and from published quality control acceptance limits for each analytical test. Matrix quality control results (matrix spike recoveries and matrix sample precision) pertain only to the matrix sample tested and do not necessarily reflect test method performance for other samples.

Typical matrix quality control (QC) measurements may include matrix spike recovery, matrix spike duplicate recovery, matrix spike precision and matrix sample precision. Not all matrix QC results may be available or reportable; where they are not an explanation is provided. Typical reasons for unavailable QC results include, but are not limited to, a) insufficient matrix sample to perform some or all QC measurements; b) analyte concentration in the sample replicated was too low for a meaningful measurement of precision and c) analyte concentration in the matrix sample spiked was too high (relative to the amount of analyte spiked) for a meaningful measurement of recovery. Where matrix QC results are unavailable, other method performance metrics (e.g., LCS recovery, LCS precision, surrogate recovery) may be used to assess performance of the method. Comments explaining any missing QC measurements are not intended to convey any adverse conclusions about the quality of the reported data.

Precision is reported as relative percent difference unless otherwise noted.

Quality Control codes as defined below may be used in this report to indicate results that are associated with one or more quality control elements which did not fall within established test method criteria. Such results may be qualified as estimates using a J qualifier as required by 62-160 F.A.C. Explanations are included in the report for any results that were reported as estimates for other reasons.

QC Codes used in this report may include:

- LCS – Recovery for the batch Laboratory Control Sample (LCS) was outside existing control limits;
- MS – Recovery for the batch matrix spike (MS) was outside existing control limits;
- CCV – Recovery for a continuing calibration verification (CCV) standard was outside existing control limits;
- SUR – Recovery of a surrogate (SUR) for associated analytes was outside existing control limits;
- RPD – The precision, measured as relative percent difference (RPD), of batch replicate measurements was outside existing control limits;
- RSD – The precision, measured as relative standard deviation (RSD), of batch replicate measurements was outside existing control limits;
- SMP – Sample - used precision derived from replicate analyses of a sample;

The following data qualifiers are used, where applicable, in this report as specified in 62-160 F.A.C.

- A - Value reported is the mean of two or more determinations.
- B - Results based on colony counts outside the acceptable range.
- I - The reported value is between the laboratory method detection limit and the laboratory practical quantitation limit.
- J - Estimated value and/or the analysis did not meet established quality control criteria.
- K - Actual value is known to be less than value given.
- L - Actual value is known to be greater than value given.
- N - Presumptive evidence of presence of material.
- O - Sampled, but analysis lost or not performed.
- Q - Sample held beyond normal holding time.
- T - Value reported is less than the criterion of detection.
- U - Material was analyzed for but not detected. The reported value is the method detection limit for the sample analyzed.
- V - Analyte was detected in both sample and method blank.
- X - Too few individuals to calculate SCI value.
- Y - The laboratory analysis was from an unpreserved or improperly preserved sample. The data may not be accurate.
- Z - Colonies were too numerous to count (TNTC).

Quality control information from overflow laboratories may not be included in this report. Please refer to the associated report from the overflow laboratory for additional information.

Sample Location: Sebastian @ Dale Wimbrow

Collection Date/Time: 09/07/2022 10:45

Field ID: G5SE0073

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2355035	Enterolert/QT	Enterococci-Quanti-Tray	10.0	Q	MPN/100 mL	P419418	
2355043	SOP-PCR-1.0	HF183-qPCR**	1.1E+03	U	TSC/100 mL	P419056	
	SOP-PCR-1.2	GULL2-qPCR**	1.2E+03	U	TSC/100 mL	P421189	
	SOP-PCR-1.3	GFD-qPCR**	2.2E+03		TSC/100 mL	P421190	
	SOP-PCR-1.4	BacR-qPCR**	1.0E+03	U	TSC/100 mL	P419056	
	SOP-PCR-1.5	DG3-qPCR**	860	U	TSC/100 mL	P419056	

Ref. Method and Comment:

Enterolert/QT: Precision data is unavailable for Enterococci due to the small amount of analyte in the QC sample for the batch.

SOP-PCR-1.2: Precision data unavailable for Gull2-qPCR component.

SOP-PCR-1.3: Precision data unavailable for GFD-qPCR component.

Sample Location: South Prong Sebastian @ Park Dock

Collection Date/Time: 09/07/2022 11:10

Field ID: G5SE0079

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2355032	SM 10200 H (mod.)	Chlorophyll-a, Corrected	54		ug/L	P419877	
		Phaeophytin-a	1.6	U	ug/L	P419877	
		Chlorophyll-a, Uncorrected	56		ug/L	P419877	

Ref. Method and Comment:

SM 10200 H (mod.): Precision data is not available for at least one component due to the small amount of analyte in the QC sample. Refer to QA report for available precision data.

Sample Location: Sebastian 970m downstream of S-157

Collection Date/Time: 09/07/2022 11:45

Field ID: G5SE0084

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2355030	SM 10200 H (mod.)	Chlorophyll-a, Corrected	38		ug/L	P419877	
		Phaeophytin-a	1.6	I	ug/L	P419877	
		Chlorophyll-a, Uncorrected	40		ug/L	P419877	
2355033	Enterolert/QT	Enterococci-Quanti-Tray	10.0	UQ	MPN/100 mL	P419418	

Ref. Method and Comment:

SM 10200 H (mod.): Precision data is not available for at least one component due to the small amount of analyte in the QC sample. Refer to QA report for available precision data.

Enterolert/QT: Precision data is unavailable for Enterococci due to the small amount of analyte in the QC sample for the batch.

Sample Location: C-54 confluence 1.25 miles downstream of S-157

Collection Date/Time: 09/07/2022 12:00

Field ID: G5SE0116

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2355031	SM 10200 H (mod.)	Chlorophyll-a, Corrected	77		ug/L	P419877	
		Phaeophytin-a	3.5	I	ug/L	P419877	
		Chlorophyll-a, Uncorrected	82		ug/L	P419877	
2355034	Enterolert/QT	Enterococci-Quanti-Tray	10.0	Q	MPN/100 mL	P419418	

Ref. Method and Comment:

SM 10200 H (mod.): Precision data is not available for at least one component due to the small amount of analyte in the QC sample. Refer to QA report for available precision data.

Enterolert/QT: Precision data is unavailable for Enterococci due to the small amount of analyte in the QC sample for the batch.

Quality Assurance Report Method Blank Results

Reference Method: Enterolert/QT
Batch ID: P419418

Component	Result	Code	Units
Enterococci-Quanti-Tray	1.0	U	MPN/100 mL

Reference Method: SM 10200 H (mod.)
Batch ID: P419877

Component	Result	Code	Units
Chlorophyll-a, Corrected	0.82	U	ug/L
Chlorophyll-a, Uncorrected	0.60	U	ug/L
Phaeophytin-a	0.90	U	ug/L

Reference Method: SOP-PCR-1.0
Batch ID: P419056

Component	Result	Code	Units
HF183-qPCR	3.3E+03	U	TSC/100 mL

Reference Method: SOP-PCR-1.2
Batch ID: P421189

Component	Result	Code	Units
GULL2-qPCR	3.6E+03	U	TSC/100 mL

Reference Method: SOP-PCR-1.3
Batch ID: P421190

Component	Result	Code	Units
GFD-qPCR	720	U	TSC/100 mL

Reference Method: SOP-PCR-1.4
Batch ID: P419056

Component	Result	Code	Units
BacR-qPCR	3.0E+03	U	TSC/100 mL

Reference Method: SOP-PCR-1.5
Batch ID: P419056

Component	Result	Code	Units
DG3-qPCR	2.6E+03	U	TSC/100 mL

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: SM 10200 H (mod.)
Batch ID: P419877

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Chlorophyll-a, Corrected	97.1		P	84 - 116

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: SOP-PCR-1.0
Batch ID: P419056

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
HF183-qPCR	89.9	91.9	P/P	50 - 175

Reference Method: SOP-PCR-1.2
Batch ID: P421189

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
GULL2-qPCR	96.4	110	P/P	50 - 300

Reference Method: SOP-PCR-1.3
Batch ID: P421190

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
GFD-qPCR	94.2	108	P/P	50 - 175

Reference Method: SOP-PCR-1.4
Batch ID: P419056

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
BacR-qPCR	119	83.8	P/P	50 - 175

Reference Method: SOP-PCR-1.5
Batch ID: P419056

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
DG3-qPCR	106	91.1	P/P	50 - 175

Quality Assurance Report Matrix Spike Accuracy

Reference Method: SOP-PCR-1.0
Batch ID: P419056

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2354008	HF183-qPCR	81.3	79.3	P	50 - 175
2354060	HF183-qPCR	77.0		P/P	50 - 175
2354154	HF183-qPCR	85.4	79.3	P	50 - 175
2354155	HF183-qPCR	83.4		P	50 - 175
2354276	HF183-qPCR	94.9	79.3	P	50 - 175
2354277	HF183-qPCR	92.3		P	50 - 175
2355043	HF183-qPCR	90.3	79.3	P	50 - 175
2355661	HF183-qPCR	82.6		P	50 - 175
2355662	HF183-qPCR	81.3	79.3	P	50 - 175
2355663	HF183-qPCR	82.8		P	50 - 175
2355948	HF183-qPCR	77.6	79.3	P	50 - 175
2355949	HF183-qPCR	76.1		P	50 - 175

Reference Method: SOP-PCR-1.2
Batch ID: P421189

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2355043	GULL2-qPCR	80.7		P	50 - 300

Quality Assurance Report Matrix Spike Accuracy

Reference Method: SOP-PCR-1.3
Batch ID: P421190

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2355043	GFD-qPCR	103		P	50 - 175

Reference Method: SOP-PCR-1.4
Batch ID: P419056

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2354060	BacR-qPCR	80.7	76.9	P/P	50 - 175
2354154	BacR-qPCR	93.5		P	50 - 175
2354155	BacR-qPCR	76.8		P	50 - 175
2354276	BacR-qPCR	67.3		P	50 - 175
2354277	BacR-qPCR	72.3		P	50 - 175
2355043	BacR-qPCR	77.8		P	50 - 175
2355661	BacR-qPCR	63.5		P	50 - 175
2355662	BacR-qPCR	75.6		P	50 - 175
2355663	BacR-qPCR	83.4		P	50 - 175
2355948	BacR-qPCR	71.1		P	50 - 175
2355949	BacR-qPCR	67.1		P	50 - 175
2356005	BacR-qPCR	85.5		P	50 - 175

Reference Method: SOP-PCR-1.5
Batch ID: P419056

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2354060	DG3-qPCR	97.5	91.6	P/P	50 - 175
2354154	DG3-qPCR	98.2		P	50 - 175
2354155	DG3-qPCR	97.7		P	50 - 175
2354276	DG3-qPCR	76.0		P	50 - 175
2354277	DG3-qPCR	90.2		P	50 - 175
2355043	DG3-qPCR	99.9		P	50 - 175
2355662	DG3-qPCR	91.4		P	50 - 175
2355663	DG3-qPCR	98.1		P	50 - 175
2355948	DG3-qPCR	87.1		P	50 - 175
2355949	DG3-qPCR	83.1		P	50 - 175
2356005	DG3-qPCR	91.7		P	50 - 175

Quality Assurance Report Precision

Reference Method: SM 10200 H (mod.)
Batch ID: P419877

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2355045	Chlorophyll-a, Corrected	7.03	Sample	P	0 - 25
2355045	Chlorophyll-a, Uncorrected	13.1	Sample	P	0 - 25

Reference Method: SOP-PCR-1.0
Batch ID: P419056

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
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Quality Assurance Report Precision

Reference Method: SOP-PCR-1.0
Batch ID: P419056

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2354060	HF183-qPCR	2.98	Spike	P	0 - 25

Reference Method: SOP-PCR-1.4
Batch ID: P419056

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2354060	BacR-qPCR	4.77	Spike	P	0 - 25

Reference Method: SOP-PCR-1.5
Batch ID: P419056

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2354060	DG3-qPCR	6.18	Spike	P	0 - 25

* Sample, spike and/or laboratory control sample precision (LCS) is reported.

Quality Assurance Report Surrogates

Lab Sample ID: 2355043
Field Sample ID: G5SE0073

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
SOP-PCR-1.0	SKETA-qPCR	96.7	P	50 - 300
SOP-PCR-1.2	SKETA-qPCR	104	P	50 - 300
SOP-PCR-1.3	SKETA-qPCR	103	P	50 - 300
SOP-PCR-1.4	SKETA-qPCR	89.8	P	50 - 300
SOP-PCR-1.5	SKETA-qPCR	103	P	50 - 300

Quality Assurance Report Summary

Ref. Method	Analyte	LCS % Recovery			MS % Recovery			LCS	Precision SMP	MS
SM 10200 H (mod.)	Chlorophyll-a, Corrected	97.1							7.03	
	Chlorophyll-a, Uncorrected								13.1	
SOP-PCR-1.0	HF183-qPCR	91.9	89.9		81.3	77.0	79.3			2.98
					85.4					
SOP-PCR-1.2	GULL2-qPCR	110	96.4		80.7					
SOP-PCR-1.3	GFD-qPCR	108	94.2		103					
SOP-PCR-1.4	BacR-qPCR	83.8	119		80.7	76.9	93.5			4.77
					76.8					
SOP-PCR-1.5	DG3-qPCR	91.1	106		97.7	76.0	90.2			6.18
					99.9					

Reference Method Descriptions

Method	Description	Associated Samples
Enterolert/QT	Enterococci by Enterolert Quanti-Tray method - non-chlorinated water systems	2355033, 2355034, 2355035
SM 10200 H (mod.)	Phytoplankton chlorophyll-a corrected, uncorrected, and phaeophytin by spectrophotometry	2355030, 2355031, 2355032
SOP-PCR-1.0	Detection and quantification of human-specific HF183 Bacteroides genetic marker with quantitative polymerase chain reaction	2355043
SOP-PCR-1.2	Detection and quantification of coastal bird specific Catellicoccus marimammalium Gull2 genetic marker with quantitative polymerase chain reaction	2355043
SOP-PCR-1.3	Detection and quantification of bird specific Helicobacter GFD genetic marker with quantitative polymerase chain reaction	2355043
SOP-PCR-1.4	Detection and quantification of Ruminant specific Bacteroidetes BacR genetic marker with quantitative polymerase chain reaction	2355043
SOP-PCR-1.5	Detection and quantification of canine-specific DG3 Bacteroides genetic marker with quantitative polymerase chain reaction	2355043

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
Enterolert/QT	09/08/2022	09/08/2022 14:36	Callie Williams	09/09/2022 15:27	Jillian G Hanley	2355033, 2355034, 2355035
SM 10200 H (mod.)	09/08/2022	09/08/2022 14:48	Megan Higbee	09/19/2022 11:42	Tynan A Branch	2355030, 2355031, 2355032
SOP-PCR-1.0	09/08/2022	09/08/2022 13:30	Claudia Castro	10/03/2022 16:07	Roberta Tatti	2355043
SOP-PCR-1.2	09/08/2022	09/08/2022 13:30	Claudia Castro	10/19/2022 08:33	Roberta Tatti	2355043
SOP-PCR-1.3	09/08/2022	09/08/2022 13:30	Claudia Castro	10/19/2022 08:33	Roberta Tatti	2355043
SOP-PCR-1.4	09/08/2022	09/08/2022 13:30	Claudia Castro	10/04/2022 13:22	Roberta Tatti	2355043
SOP-PCR-1.5	09/08/2022	09/08/2022 13:30	Claudia Castro	10/04/2022 14:48	Roberta Tatti	2355043