

Biological Analysis Report

NE-DIST-2018-03-22-01

Florida Department of Environmental Protection
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DOH Accreditation E31780

Overflow Analyses Performed By:
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DOH Accreditation E82502

Event Description: **Bmap Tribs 1**
Request ID: **RQ-2018-03-19-15**
Customer: **NE-DIST**
Project ID: **SMP**

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Date Certified: 09-MAY-2018 11:22



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, Molecular and Overflow.

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 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: BUTCHER PEN CR AT WESCONNETT

Collection Date/Time: 03/21/2018 09:25

Field ID: 20030760

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1976649	SM 10200 H (mod.)	Chlorophyll-a, Corrected	1.5	I	ug/L	P342219	
		Phaeophytin-a	1.0	I	ug/L	P342219	
		Chlorophyll-a, Uncorrected	2.2		ug/L	P342219	
1976655	SM 9223 B	Escherichia Coli-Quanti-Tray**	2360		MPN/100 mL		
1976661	SOP-PCR-1.0	HF183-qPCR**	140	T	GEU/100 mL	P343695	
	SOP-PCR-4.0	HF183 - Human Source Marker**	Above Threshold				

Sample Location: BUTCHER PEN CR @ CONFEDERATE PT ROAD

Collection Date/Time: 03/21/2018 09:50

Field ID: 20030082

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1976650	SM 10200 H (mod.)	Chlorophyll-a, Corrected	14		ug/L	P342219	
		Phaeophytin-a	3.2		ug/L	P342219	
		Chlorophyll-a, Uncorrected	17		ug/L	P342219	
1976656	SM 9223 B	Escherichia Coli-Quanti-Tray**	1610		MPN/100 mL		
1976662	SOP-PCR-1.0	HF183-qPCR**	140	U	GEU/100 mL	P343695	
	SOP-PCR-1.2	GULL2-qPCR**	1.1E+04	T	TSC/100 mL	P343695	LCS
	SOP-PCR-1.4	BacR-qPCR**	3.0E+03	U	TSC/100 mL	P343695	LCS
	SOP-PCR-4.0	HF183 - Human Source Marker**	Above Threshold				

Ref. Method and Comment:

SOP-PCR-1.0: No amplification of HF183 marker.

SOP-PCR-1.2: Precision data unavailable for Analysis Batch A83398.

SOP-PCR-1.4: No amplification of BACR marker. Precision data unavailable for Analysis Batch A83390.

Sample Location: BIG FISHWEIR CR @ HAMILTON ST

Collection Date/Time: 03/21/2018 10:15

Field ID: 20030801

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1976651	SM 10200 H (mod.)	Chlorophyll-a, Corrected	7.7		ug/L	P342219	
		Phaeophytin-a	1.5		ug/L	P342219	
		Chlorophyll-a, Uncorrected	8.9		ug/L	P342219	
1976657	SM 9223 B	Escherichia Coli-Quanti-Tray**	712		MPN/100 mL		
1976663	SOP-PCR-1.0	HF183-qPCR**	30	T	GEU/100 mL	P343695	
	SOP-PCR-4.0	HF183 - Human Source Marker**	Above Threshold				

Sample Location: BIG FISHWEIR CR HERSCHELL ST

Collection Date/Time: 03/21/2018 11:00

Field ID: 20030139

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1976654	SM 10200 H (mod.)	Chlorophyll-a, Corrected	20	A	ug/L	P342219	
		Phaeophytin-a	3.8	A	ug/L	P342219	
		Chlorophyll-a, Uncorrected	23	A	ug/L	P342219	
1976660	ASTM D650399	ENTEROCOCCI-ENTEROLERT	130		MPN/100 mL		
1976666	SOP-PCR-1.0	HF183-qPCR**	13	T	GEU/100 mL	P343695	
	SOP-PCR-4.0	HF183 - Human Source Marker**	Above Threshold				

Sample Location: LITTLE FISHWEIR @ PARK ST

Collection Date/Time: 03/21/2018 11:35

Field ID: 20030798

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1976652	SM 10200 H (mod.)	Chlorophyll-a, Corrected	0.67	I	ug/L	P342219	
		Phaeophytin-a	0.40	U	ug/L	P342219	
		Chlorophyll-a, Uncorrected	0.68	I	ug/L	P342219	
1976658	SM 9223 B	Escherichia Coli-Quanti-Tray**	588		MPN/100 mL		
1976664	SOP-PCR-1.0	HF183-qPCR**	280	U	GEU/100 mL	P343695	
	SOP-PCR-1.2	GULL2-qPCR**	1.7E+04	U	TSC/100 mL	P343695	LCS
	SOP-PCR-1.3	GFD-purified-qPCR**	33	T	TSC/100 mL	P343720	LCS
	SOP-PCR-1.4	BacR-qPCR**	3.0E+03	U	TSC/100 mL	P343695	LCS
	SOP-PCR-4.0	HF183 - Human Source Marker**	Above Threshold				

Ref. Method and Comment:

SOP-PCR-1.0: No amplification of HF183 marker.

SOP-PCR-1.2: No amplification of GULL2 marker. Precision data unavailable for Analysis Batch A83398.

SOP-PCR-1.4: No amplification of BACR marker. Precision data unavailable for Analysis Batch A83390.

Sample Location: CRAIG CR. 100M DOWN FROM FOOTBRIDGE IN PARK

Collection Date/Time: 03/21/2018 12:10

Field ID: 20030958

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1976653	SM 10200 H (mod.)	Chlorophyll-a, Corrected	10		ug/L	P342219	
		Phaeophytin-a	2.9		ug/L	P342219	
		Chlorophyll-a, Uncorrected	12		ug/L	P342219	
1976659	SM 9223 B	Escherichia Coli-Quanti-Tray**	1120		MPN/100 mL		
1976665	SOP-PCR-1.0	HF183-qPCR**	93	T	GEU/100 mL	P343695	
	SOP-PCR-4.0	HF183 - Human Source Marker**	Above Threshold				

Quality Assurance Report Method Blank Results

Reference Method: SM 10200 H (mod.)

Batch ID: P342219

Component	Result	Code	Units
Chlorophyll-a, Corrected	0.55	U	ug/L
Chlorophyll-a, Uncorrected	0.40	U	ug/L
Phaeophytin-a	0.40	U	ug/L

Reference Method: SOP-PCR-1.0

Batch ID: P343695

Component	Result	Code	Units
HF183-qPCR	280	U	GEU/100 mL

Reference Method: SOP-PCR-1.2

Batch ID: P343695

Component	Result	Code	Units
GULL2-qPCR	1.7E+04	U	TSC/100 mL

Quality Assurance Report Method Blank Results

Reference Method: SOP-PCR-1.3
 Batch ID: P343720

Component	Result	Code	Units
GFD-purified-qPCR	340	U	TSC/100 mL

Reference Method: SOP-PCR-1.4
 Batch ID: P343695

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

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: SM 10200 H (mod.)
 Batch ID: P342219

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Chlorophyll-a, Corrected	101		P	84 - 116

Reference Method: SOP-PCR-1.0
 Batch ID: P343695

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
HF183-qPCR	121	79.5	P/P	50 - 175

Reference Method: SOP-PCR-1.2
 Batch ID: P343695

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
GULL2-qPCR	97.1	48.3	P/F	50 - 300

Reference Method: SOP-PCR-1.3
 Batch ID: P343720

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
GFD-purified-qPCR	20.1	34.1	F/F	50 - 175

Reference Method: SOP-PCR-1.4
 Batch ID: P343695

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
BacR-qPCR	117	35.2	P/F	50 - 175

Quality Assurance Report Matrix Spike Accuracy

Reference Method: SOP-PCR-1.0
 Batch ID: P343695

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1975972	HF183-qPCR	117		P	50 - 175
1976130	HF183-qPCR	98.8	94.3	P/P	50 - 175
1976661	HF183-qPCR	87.9		P	50 - 175

Quality Assurance Report Matrix Spike Accuracy

Reference Method: SOP-PCR-1.0
Batch ID: P343695

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1976662	HF183-qPCR	96.7		P	50 - 175
1976663	HF183-qPCR	94.3		P	50 - 175
1976664	HF183-qPCR	96.7		P	50 - 175
1976665	HF183-qPCR	80.7		P	50 - 175
1976666	HF183-qPCR	95.4		P	50 - 175
1977094	HF183-qPCR	101		P	50 - 175
1977095	HF183-qPCR	102		P	50 - 175
1977096	HF183-qPCR	99.4		P	50 - 175
1977097	HF183-qPCR	80.2		P	50 - 175
1978233	HF183-qPCR	81.0		P	50 - 175

Reference Method: SOP-PCR-1.2
Batch ID: P343695

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1975972	GULL2-qPCR	53.7		P	50 - 300
1976662	GULL2-qPCR	74.5		P	50 - 300
1976664	GULL2-qPCR	72.2		P	50 - 300
1977096	GULL2-qPCR	86.2		P	50 - 300

Reference Method: SOP-PCR-1.3
Batch ID: P343720

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1974755	GFD-purified-qPCR	119		P	50 - 175
1975972	GFD-purified-qPCR	95.5		P	50 - 175
1976664	GFD-purified-qPCR	156		P	50 - 175
1977096	GFD-purified-qPCR	83.4		P	50 - 175
1977097	GFD-purified-qPCR	119	153	P/P	50 - 175

Reference Method: SOP-PCR-1.4
Batch ID: P343695

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1975972	BacR-qPCR	77.8		P	50 - 175
1976662	BacR-qPCR	66.4		P	50 - 175
1976664	BacR-qPCR	94.7		P	50 - 175
1977094	BacR-qPCR	82.8		P	50 - 175
1977095	BacR-qPCR	70.2		P	50 - 175
1977096	BacR-qPCR	68.6		P	50 - 175
1977097	BacR-qPCR	57.3		P	50 - 175

Quality Assurance Report Precision

Reference Method: SM 10200 H (mod.)
Batch ID: P342219

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1976654	Chlorophyll-a, Corrected	7.03	Sample	P	0 - 25

Quality Assurance Report Precision

Reference Method: SM 10200 H (mod.)
Batch ID: P342219

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1976654	Chlorophyll-a, Uncorrected	7.16	Sample	P	0 - 25
1976654	Phaeophytin-a	8.48	Sample	P	0 - 25

Reference Method: SOP-PCR-1.0
Batch ID: P343695

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1976130	HF183-qPCR	4.65	Spike	P	0 - 25

Reference Method: SOP-PCR-1.3
Batch ID: P343720

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1977097	GFD-purified-qPCR	24.8	Spike	P	0 - 25

* Sample, spike and/or laboratory control sample precision (LCS) is reported.
Replicate spike precision may be reported when sample results are below quantifiable levels.

Quality Assurance Report Surrogates

Lab Sample ID: 1976661
Field Sample ID: 20030760

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
SOP-PCR-1.0	SKETA-qPCR	94.2	P	50 - 300

Lab Sample ID: 1976662
Field Sample ID: 20030082

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
SOP-PCR-1.0	SKETA-qPCR	94.7	P	50 - 300
SOP-PCR-1.2	SKETA-qPCR	99.1	P	50 - 300
SOP-PCR-1.4	SKETA-qPCR	91.8	P	50 - 300

Lab Sample ID: 1976663
Field Sample ID: 20030801

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
SOP-PCR-1.0	SKETA-qPCR	85.0	P	50 - 300

Lab Sample ID: 1976664
Field Sample ID: 20030798

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
SOP-PCR-1.0	SKETA-qPCR	149	P	50 - 300
SOP-PCR-1.2	SKETA-qPCR	109	P	50 - 300
SOP-PCR-1.4	SKETA-qPCR	104	P	50 - 300

Quality Assurance Report Surrogates

Lab Sample ID: 1976665
Field Sample ID: 20030958

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
SOP-PCR-1.0	SKETA-qPCR	97.5	P	50 - 300

Lab Sample ID: 1976666
Field Sample ID: 20030139

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
SOP-PCR-1.0	SKETA-qPCR	88.9	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	101			7.03	
	Chlorophyll-a, Uncorrected				7.16	
	Phaeophytin-a				8.48	
SOP-PCR-1.0	HF183-qPCR	79.5 121	117 87.9 96.7 94.3			4.65
SOP-PCR-1.2	GULL2-qPCR	48.3 97.1	53.7 74.5 72.2 86.2			
SOP-PCR-1.3	GFD-purified-qPCR	34.1 20.1	119 95.5 156 83.4			24.8
SOP-PCR-1.4	BacR-qPCR	35.2 117	77.8 66.4 94.7 82.8			

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
ASTM D650399 / E82502	Enterococci by MPN by ALS Environmental Overflow Laboratory for NED	1976660
SM 10200 H (mod.) / E31780	Phytoplankton chlorophyll-a corrected, uncorrected, and phaeophytin by spectrophotometry	1976649, 1976650, 1976651, 1976652, 1976653, 1976654
SM 9223 B / E82502	Escherichia coli by Colilert Quanti-Tray method by ALS Environmental Overflow Laboratory for Northeast District	1976655, 1976656, 1976657, 1976658, 1976659
SOP-PCR-1.0 / E31780	Detection and quantification of human-specific HF183 Bacteroides genetic marker with quantitative polymerase chain reaction	1976661, 1976662, 1976663, 1976664, 1976665, 1976666
SOP-PCR-1.2 / E31780	Detection and quantification of coastal bird specific Catellicoccus marimammalium Gull2 genetic marker with quantitative polymerase chain reaction	1976662, 1976664
SOP-PCR-1.3 / E31780	Detection and quantification of bird specific Helicobacter GFD genetic marker with quantitative polymerase chain reaction	1976664
SOP-PCR-1.4 / E31780	Detection and quantification of Ruminant specific Bacteroidetes BacR genetic marker with quantitative polymerase chain reaction	1976662, 1976664
SOP-PCR-4.0 / E31780	Preparation of Samples by Filtration and held for qPCR Analysis	1976661, 1976662, 1976663, 1976664, 1976665, 1976666

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
ASTM D650399	03/21/2018	03/21/2018 14:14		03/22/2018 15:36	ALS Environmental, Jax	1976660
SM 10200 H (mod.)	03/22/2018	03/22/2018 13:01	Cathy Sherrer	03/26/2018 13:35	Kim M. Spencer	1976649, 1976650, 1976651, 1976652, 1976653, 1976654
SM 9223 B	03/21/2018	03/21/2018 13:58		03/22/2018 15:31	ALS Environmental, Jax	1976655, 1976656, 1976657, 1976658, 1976659
SOP-PCR-1.0	03/22/2018	03/22/2018 12:45	Puja Jasrotia	04/20/2018 11:41	Mailin Lopez	1976661, 1976662, 1976663, 1976664, 1976665, 1976666
SOP-PCR-1.2	03/22/2018	03/22/2018 12:45	Puja Jasrotia	04/23/2018 12:32	Sarah Menz	1976662, 1976664
SOP-PCR-1.3	03/22/2018	03/22/2018 12:45	Sarah Menz	04/24/2018 10:24	Sarah Menz	1976664
SOP-PCR-1.4	03/22/2018	03/22/2018 12:45	Puja Jasrotia	04/20/2018 14:47	Sarah Menz	1976662, 1976664
SOP-PCR-4.0	03/22/2018	03/22/2018 12:45	Angela Smith	04/18/2018 15:52	Puja Jasrotia	1976661, 1976662, 1976663, 1976664, 1976665, 1976666