

Biological Analysis Report

NE-DIST-2019-08-08-01

Florida Department of Environmental Protection
Central Laboratory
2600 Blair Stone Road
Tallahassee, FL 32399-2400
DOH Accreditation E31780

Overflow Analyses Performed By:
ALS Environmental - Jacksonville
9143 Philips Highway, Suite 200
Jacksonville, FL 32256
DOH Accreditation E82502

Event Description: **LSJR Coast**
Request ID: **RQ-2019-08-05-33**
Customer: **NE-DIST**
Project ID: **SMP**

Send Reports to:
FL Dept. of Environmental Protection
8800 Baymeadows Way West
Suite 100
Jacksonville, FL 32256
Attn: Jeremy Parrish

For additional information please contact
Cheryl Swanson - Administrator
Jacqueline Savage - Microbiology
Diane Power - Bench Biology
Andrew Tintle - Aquatic Toxicology
Puja Jasrotia, Ph.D. - Molecular Biology
Amelia Rankin - Taxonomy (Invertebrate & Algal)
Thekkekalathil Chandrasekhar, Ph.D, QA Officer
Phone (850) 245-8177

Certified by: Cheryl A. Swanson, Program Administrator

Date Certified: 04-SEP-2019 12:49



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 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: DUNN CR AT FAYE ROAD

Collection Date/Time: 08/07/2019 09:20

Field ID: 20030140

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2109787	SM 10200 H (mod.)	Chlorophyll-a, Corrected	13		ug/L	P369177	
		Phaeophytin-a	3.1	I	ug/L	P369177	
		Chlorophyll-a, Uncorrected	15		ug/L	P369177	
2109792	ASTM D650399	ENTEROCOCCI-ENTEROLERT	52		MPN/100 mL		

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: St. Johns River at Ft. Caroline dock

Collection Date/Time: 08/07/2019 10:00

Field ID: G2NE1179

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2109788	SM 10200 H (mod.)	Chlorophyll-a, Corrected	5.3	I	ug/L	P369177	
		Phaeophytin-a	2.1	U	ug/L	P369177	
		Chlorophyll-a, Uncorrected	6.1		ug/L	P369177	
2109793	ASTM D650399	ENTEROCOCCI-ENTEROLERT	10	U	MPN/100 mL		

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: SISTERS CREEK AT HECKSCHER DR

Collection Date/Time: 08/07/2019 08:45

Field ID: 20030491

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2109789	SM 10200 H (mod.)	Chlorophyll-a, Corrected	5.9		ug/L	P369177	
		Phaeophytin-a	1.5	I	ug/L	P369177	
		Chlorophyll-a, Uncorrected	7.0		ug/L	P369177	
2109794	ASTM D650399	ENTEROCOCCI-ENTEROLERT	10		MPN/100 mL		

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: DEER CR @ TALLEYRAND AVE

Collection Date/Time: 08/07/2019 11:15

Field ID: 20030792

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2109786	SM 10200 H (mod.)	Chlorophyll-a, Corrected	1.9	I	ug/L	P369177	
		Phaeophytin-a	1.0	U	ug/L	P369177	
		Chlorophyll-a, Uncorrected	1.8	I	ug/L	P369177	
2109791	ASTM D650399	ENTEROCOCCI-ENTEROLERT	2419.6	J	MPN/100 mL		
2109796	SOP-PCR-1.0	HF183-qPCR**	1.06E+03		GEU/100 mL	P368687	

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.
ASTM D650399: Result maybe higher than recorded

Sample Location: Greenfield end of Bucaneer dr.

Collection Date/Time: 08/07/2019 10:30

Field ID: G2NE1154

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2109790	SM 10200 H (mod.)	Chlorophyll-a, Corrected	13		ug/L	P369177	
		Phaeophytin-a	1.3	I	ug/L	P369177	
		Chlorophyll-a, Uncorrected	14		ug/L	P369177	
2109795	ASTM D650399	ENTEROCOCCI-ENTEROLERT	63		MPN/100 mL		
2109797	SOP-PCR-1.0	HF183-qPCR**	140	U	GEU/100 mL	P368687	
	SOP-PCR-1.2	GULL2-qPCR**	8.4E+03	U	TSC/100 mL	P368687	
	SOP-PCR-1.3	GFD-purified-qPCR**	350	I	TSC/100 mL	P369452	LCS, MS
	SOP-PCR-1.4	BacR-qPCR**	1.5E+03	U	TSC/100 mL	P368687	
	SOP-PCR-1.5	DG3-qPCR**	1.3E+03	U	TSC/100 mL	P368687	

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.

Quality Assurance Report

Method Blank Results

Reference Method: SM 10200 H (mod.)
 Batch ID: P369177

Component	Result	Code	Units
Chlorophyll-a, Corrected	0.96	U	ug/L
Chlorophyll-a, Uncorrected	0.70	U	ug/L
Phaeophytin-a	1.0	U	ug/L

Reference Method: SOP-PCR-1.0
 Batch ID: P368687

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

Reference Method: SOP-PCR-1.2
 Batch ID: P368687

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

Reference Method: SOP-PCR-1.3
 Batch ID: P369452

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

Reference Method: SOP-PCR-1.4
 Batch ID: P368687

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

Reference Method: SOP-PCR-1.5
 Batch ID: P368687

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: P369177

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Chlorophyll-a, Corrected	89.0		P	84 - 116

Reference Method: SOP-PCR-1.0
Batch ID: P368687

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
HF183-qPCR	98.4	86.9	P/P	50 - 175

Reference Method: SOP-PCR-1.2
Batch ID: P368687

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
GULL2-qPCR	64.5	126	P/P	50 - 300

Reference Method: SOP-PCR-1.3
Batch ID: P369452

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
GFD-purified-qPCR	55.0	45.1	P/F	50 - 175

Reference Method: SOP-PCR-1.4
Batch ID: P368687

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
BacR-qPCR	95.7	101	P/P	50 - 175

Reference Method: SOP-PCR-1.5
Batch ID: P368687

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
DG3-qPCR	88.2	107	P/P	50 - 175

Quality Assurance Report Matrix Spike Accuracy

Reference Method: SOP-PCR-1.0
Batch ID: P368687

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2105159	HF183-qPCR	91.2		P	50 - 175
2108088	HF183-qPCR	82.1		P	50 - 175
2109624	HF183-qPCR	78.9		P	50 - 175
2109625	HF183-qPCR	92.8		P	50 - 175
2109626	HF183-qPCR	76.4		P	50 - 175
2109627	HF183-qPCR	84.2		P	50 - 175
2109763	HF183-qPCR	82.6		P	50 - 175
2109764	HF183-qPCR	77.7		P	50 - 175
2109796	HF183-qPCR	87.2		P	50 - 175
2109797	HF183-qPCR	84.0	84.7	P/P	50 - 175

Quality Assurance Report Matrix Spike Accuracy

Reference Method: SOP-PCR-1.2

Batch ID: P368687

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2105159	GULL2-qPCR	57.2		P	50 - 300
2108088	GULL2-qPCR	51.0		P	50 - 300
2109797	GULL2-qPCR	55.9	57.5	P/P	50 - 300

Reference Method: SOP-PCR-1.3

Batch ID: P369452

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2105159	GFD-purified-qPCR	194		F	50 - 175
2105231	GFD-purified-qPCR	123		P	50 - 175
2105233	GFD-purified-qPCR	136		P	50 - 175
2105879	GFD-purified-qPCR	180		F	50 - 175
2108088	GFD-purified-qPCR	186		F	50 - 175
2109108	GFD-purified-qPCR	160	174	P/P	50 - 175
2109620	GFD-purified-qPCR	154		P	50 - 175
2109621	GFD-purified-qPCR	139		P	50 - 175
2109622	GFD-purified-qPCR	206		F	50 - 175
2109623	GFD-purified-qPCR	139		P	50 - 175
2109797	GFD-purified-qPCR	149		P	50 - 175

Reference Method: SOP-PCR-1.4

Batch ID: P368687

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2105159	BacR-qPCR	72.4		P	50 - 175
2108088	BacR-qPCR	73.1		P	50 - 175
2109624	BacR-qPCR	58.0		P	50 - 175
2109625	BacR-qPCR	70.3		P	50 - 175
2109626	BacR-qPCR	65.1		P	50 - 175
2109627	BacR-qPCR	66.2		P	50 - 175
2109797	BacR-qPCR	65.3	61.7	P/P	50 - 175

Reference Method: SOP-PCR-1.5

Batch ID: P368687

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2109797	DG3-qPCR	87.0	84.8	P/P	50 - 175
2109895	DG3-qPCR	80.2		P	50 - 175
2109896	DG3-qPCR	76.1		P	50 - 175
2109897	DG3-qPCR	78.7		P	50 - 175

Quality Assurance Report Precision

Reference Method: SOP-PCR-1.0

Batch ID: P368687

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2109797	HF183-qPCR	0.848	Spike	P	0 - 25

Quality Assurance Report Precision

Reference Method: SOP-PCR-1.2
 Batch ID: P368687

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2109797	GULL2-qPCR	2.77	Spike	P	0 - 25

Reference Method: SOP-PCR-1.3
 Batch ID: P369452

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2109108	GFD-purified-qPCR	8.14	Spike	P	0 - 25

Reference Method: SOP-PCR-1.4
 Batch ID: P368687

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2109797	BacR-qPCR	5.77	Spike	P	0 - 25

Reference Method: SOP-PCR-1.5
 Batch ID: P368687

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2109797	DG3-qPCR	2.57	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: 2109796
 Field Sample ID: 20030792

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
SOP-PCR-1.0	SKETA-qPCR	167	P	50 - 300

Lab Sample ID: 2109797
 Field Sample ID: G2NE1154

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
SOP-PCR-1.0	SKETA-qPCR	161	P	50 - 300
SOP-PCR-1.2	SKETA-qPCR	113	P	50 - 300
SOP-PCR-1.4	SKETA-qPCR	158	P	50 - 300
SOP-PCR-1.5	SKETA-qPCR	101	P	50 - 300

Quality Assurance Report Summary

Ref. Method	Analyte	LCS % Recovery	MS % Recovery	Precision LCS	Precision SMP	Precision MS
SM 10200 H (mod.)	Chlorophyll-a, Corrected	89.0				

Quality Assurance Report Summary

Ref. Method	Analyte	LCS % Recovery		MS % Recovery			LCS	Precision SMP	MS
SOP-PCR-1.0	HF183-qPCR	86.9	98.4	78.9	92.8	76.4			0.848
SOP-PCR-1.2	GULL2-qPCR	126	64.5	55.9	57.5	57.2			2.77
SOP-PCR-1.3	GFD-purified-qPCR	45.1	55.0	123	136	180			8.14
SOP-PCR-1.4	BacR-qPCR	101	95.7	58.0	70.3	65.1			5.77
SOP-PCR-1.5	DG3-qPCR	107	88.2	87.0	84.8	80.2			2.57

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
ASTM D650399 / E82502	Enterococci by Enterolert/QT by ALS in Jacksonville	2109791, 2109792, 2109793, 2109794, 2109795
SM 10200 H (mod.) / E31780	Phytoplankton chlorophyll-a corrected, uncorrected, and phaeophytin by spectrophotometry	2109786, 2109787, 2109788, 2109789, 2109790
SOP-PCR-1.0 / E31780	Detection and quantification of human-specific HF183 Bacteroides genetic marker with quantitative polymerase chain reaction	2109796, 2109797
SOP-PCR-1.2 / E31780	Detection and quantification of coastal bird specific Catellicoccus marimammalium Gull2 genetic marker with quantitative polymerase chain reaction	2109797
SOP-PCR-1.3 / E31780	Detection and quantification of bird specific Helicobacter GFD genetic marker with quantitative polymerase chain reaction	2109797
SOP-PCR-1.4 / E31780	Detection and quantification of Ruminant specific Bacteroidetes BacR genetic marker with quantitative polymerase chain reaction	2109797
SOP-PCR-1.5 / E31780	Detection and quantification of canine-specific DG3 Bacteroides genetic marker with quantitative polymerase chain reaction	2109797

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
ASTM D650399	08/07/2019	08/07/2019 14:25		08/08/2019 14:25	ALS Environmental, Jax	2109791, 2109792, 2109793, 2109794, 2109795
SM 10200 H (mod.)	08/08/2019	08/08/2019 14:15	Peterson Janvier	08/15/2019 09:49	Yuliya Danyuk	2109786, 2109787, 2109788, 2109789, 2109790
SOP-PCR-1.0	08/08/2019	08/08/2019 14:00	Mailin Lopez	08/22/2019 15:08	Mailin Lopez	2109796, 2109797
SOP-PCR-1.2	08/08/2019	08/08/2019 14:00	Mailin Lopez	08/26/2019 09:16	Mailin Lopez	2109797
SOP-PCR-1.3	08/08/2019	08/08/2019 14:00	Mailin Lopez	08/27/2019 08:19	Mailin Lopez	2109797
SOP-PCR-1.4	08/08/2019	08/08/2019 14:00	Mailin Lopez	08/23/2019 12:25	Mailin Lopez	2109797
SOP-PCR-1.5	08/08/2019	08/08/2019 14:00	Mailin Lopez	08/27/2019 13:13	Mailin Lopez	2109797