

Biological Analysis Report

NW-DIST-2020-03-25-02

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

Overflow Analyses Performed By:
University of West Florida
11000 University Parkway
Pensacola, FL 32514
DOH Accreditation E71969

Event Description: **Shoal River**
Request ID: **RQ-2020-03-23-17**
Customer: **NW-DIST**
Project ID: **SMP**

Send Reports to:
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Date Certified: 17-APR-2020 10:15



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: Shoal River above Laird Road

Collection Date/Time: 03/24/2020 09:34

Field ID: G4NW0375

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2167642	SM 9223 B Quanti-Tray	Escherichia Coli-Quanti-Tray	226		MPN/100 mL		

Sample Location: Yellow River downstream of Gin Hole Landing

Collection Date/Time: 03/24/2020 10:40

Field ID: G4NW0494

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2167635	SM 10200 H (mod.)	Chlorophyll-a, Corrected	0.98	I	ug/L	P381765	
		Phaeophytin-a	0.90	U	ug/L	P381765	
		Chlorophyll-a, Uncorrected	1.2	I	ug/L	P381765	

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: Shoal River near Rattlesnake Bluff

Collection Date/Time: 03/24/2020 11:00

Field ID: G4NW0493

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2167633	SM 10200 H (mod.)	Chlorophyll-a, Corrected	0.84	I	ug/L	P381765	
		Phaeophytin-a	0.90	U	ug/L	P381765	
		Chlorophyll-a, Uncorrected	1.1	I	ug/L	P381765	
2167638	SM 9223 B Quanti-Tray	Escherichia Coli-Quanti-Tray	85		MPN/100 mL		
2167645	SOP-PCR-1.0	HF183-qPCR**	140	U	GEU/100 mL	P381259	
	SOP-PCR-1.2	GULL2-qPCR**	8.4E+03	U	TSC/100 mL	P381259	
	SOP-PCR-1.3	GFD-purified-qPCR**	84	U	TSC/100 mL	P381169	LCS
	SOP-PCR-1.4	BacR-qPCR**	1.5E+03	UJ	TSC/100 mL	P381259	MS
	SOP-PCR-1.5	DG3-qPCR**	1.3E+03	U	TSC/100 mL	P381259	

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.

SOP-PCR-1.4: Quality control failure(s) observed. See QA report for details.

Sample Location: Shoal River near Rattlesnake Bluff

Collection Date/Time: 03/24/2020 11:05

Field ID: G4NW0493_DUP

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2167634	SM 10200 H (mod.)	Chlorophyll-a, Corrected	0.82	U	ug/L	P381765	
		Phaeophytin-a	0.90	U	ug/L	P381765	
		Chlorophyll-a, Uncorrected	1.0	I	ug/L	P381765	
2167639	SM 9223 B Quanti-Tray	Escherichia Coli-Quanti-Tray	121		MPN/100 mL		
2167646	SOP-PCR-1.0	HF183-qPCR**	140	U	GEU/100 mL	P381259	
	SOP-PCR-1.2	GULL2-qPCR**	8.4E+03	U	TSC/100 mL	P381259	
	SOP-PCR-1.3	GFD-purified-qPCR**	84	U	TSC/100 mL	P381169	LCS
	SOP-PCR-1.4	BacR-qPCR**	1.5E+03	U	TSC/100 mL	P381259	MS
	SOP-PCR-1.5	DG3-qPCR**	1.3E+03	U	TSC/100 mL	P381259	

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: Yellow River above Metts Creek

Collection Date/Time: 03/24/2020 12:25

Field ID: G4NW0370

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2167643	SM 9223 B Quanti-Tray	Escherichia Coli-Quanti-Tray	109		MPN/100 mL		

Sample Location: Dead River upstream of Yellow River Collection Date/Time: 03/24/2020 13:26

Field ID: G4NW0408

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2167636	SM 10200 H (mod.)	Chlorophyll-a, Corrected	3.0		ug/L	P381765	
		Phaeophytin-a	0.90	U	ug/L	P381765	
		Chlorophyll-a, Uncorrected	3.5		ug/L	P381765	
2167640	SM 9223 B Quanti-Tray	Escherichia Coli-Quanti-Tray	20		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: Yellow River below Nichols Creek Confluence Collection Date/Time: 03/24/2020 13:57

Field ID: G4NW0270

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2167637	SM 10200 H (mod.)	Chlorophyll-a, Corrected	1.7	I	ug/L	P381765	
		Phaeophytin-a	0.90	U	ug/L	P381765	
		Chlorophyll-a, Uncorrected	2.0		ug/L	P381765	
2167641	SM 9223 B Quanti-Tray	Escherichia Coli-Quanti-Tray	122		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.

Quality Assurance Report Method Blank Results

Reference Method: SM 10200 H (mod.)
 Batch ID: P381765

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: P381259

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

Reference Method: SOP-PCR-1.2
 Batch ID: P381259

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: P381169

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

Reference Method: SOP-PCR-1.4
Batch ID: P381259

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

Reference Method: SOP-PCR-1.5
Batch ID: P381259

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: P381765

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Chlorophyll-a, Corrected	97.5		P	84 - 116

Reference Method: SOP-PCR-1.0
Batch ID: P381259

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
HF183-qPCR	90.1	109	P/P	50 - 175

Reference Method: SOP-PCR-1.2
Batch ID: P381259

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
GULL2-qPCR	85.4	67.4	P/P	50 - 300

Reference Method: SOP-PCR-1.3
Batch ID: P381169

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
GFD-purified-qPCR	88.9	13.3	P/F	50 - 175

Reference Method: SOP-PCR-1.4
Batch ID: P381259

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
BacR-qPCR	85.9	118	P/P	50 - 175

Reference Method: SOP-PCR-1.5
Batch ID: P381259

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
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Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: SOP-PCR-1.5
Batch ID: P381259

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
DG3-qPCR	89.7	127	P/P	50 - 175

Quality Assurance Report Matrix Spike Accuracy

Reference Method: SOP-PCR-1.0
Batch ID: P381259

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2167645	HF183-qPCR	68.5	83.2	P/P	50 - 175
2167646	HF183-qPCR	140		P	50 - 175

Reference Method: SOP-PCR-1.2
Batch ID: P381259

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2167645	GULL2-qPCR	62.6	59.6	P/P	50 - 300
2167646	GULL2-qPCR	56.5		P	50 - 300

Reference Method: SOP-PCR-1.3
Batch ID: P381169

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2165180	GFD-purified-qPCR	73.2		P	50 - 175
2165332	GFD-purified-qPCR	88.3		P	50 - 175
2166971	GFD-purified-qPCR	93.9		P	50 - 175
2167645	GFD-purified-qPCR	99.7	90.0	P/P	50 - 175
2167646	GFD-purified-qPCR	95.7		P	50 - 175

Reference Method: SOP-PCR-1.4
Batch ID: P381259

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2167645	BacR-qPCR	47.1	53.8	F/P	50 - 175
2167646	BacR-qPCR	50.3		P	50 - 175

Reference Method: SOP-PCR-1.5
Batch ID: P381259

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2167645	DG3-qPCR	79.5	77.3	P/P	50 - 175
2167646	DG3-qPCR	83.0		P	50 - 175

Quality Assurance Report Precision

Reference Method: SM 10200 H (mod.)
Batch ID: P381765

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

Reference Method: SM 10200 H (mod.)
 Batch ID: P381765

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2167456	Chlorophyll-a, Corrected	4.54	Sample	P	0 - 25
2167456	Chlorophyll-a, Uncorrected	4.88	Sample	P	0 - 25

Reference Method: SOP-PCR-1.0
 Batch ID: P381259

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2167645	HF183-qPCR	19.4	Spike	P	0 - 25

Reference Method: SOP-PCR-1.2
 Batch ID: P381259

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2167645	GULL2-qPCR	4.89	Spike	P	0 - 25

Reference Method: SOP-PCR-1.3
 Batch ID: P381169

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2167645	GFD-purified-qPCR	10.2	Spike	P	0 - 25

Reference Method: SOP-PCR-1.4
 Batch ID: P381259

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2167645	BacR-qPCR	13.4	Spike	P	0 - 25

Reference Method: SOP-PCR-1.5
 Batch ID: P381259

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2167645	DG3-qPCR	2.81	Spike	P	0 - 25

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

Quality Assurance Report Surrogates

Lab Sample ID: 2167645
 Field Sample ID: G4NW0493

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
SOP-PCR-1.0	SKETA-qPCR	68.4	P	50 - 300
SOP-PCR-1.2	SKETA-qPCR	85.0	P	50 - 300

Quality Assurance Report Surrogates

Lab Sample ID: 2167645
 Field Sample ID: G4NW0493

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
SOP-PCR-1.4	SKETA-qPCR	83.2	P	50 - 300
SOP-PCR-1.5	SKETA-qPCR	70.1	P	50 - 300

Lab Sample ID: 2167646
 Field Sample ID: G4NW0493_DUP

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
SOP-PCR-1.0	SKETA-qPCR	76.2	P	50 - 300
SOP-PCR-1.2	SKETA-qPCR	82.5	P	50 - 300
SOP-PCR-1.4	SKETA-qPCR	84.9	P	50 - 300
SOP-PCR-1.5	SKETA-qPCR	70.5	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	97.5							4.54	
	Chlorophyll-a, Uncorrected								4.88	
SOP-PCR-1.0	HF183-qPCR	109	90.1		68.5	83.2	140			19.4
SOP-PCR-1.2	GULL2-qPCR	67.4	85.4		62.6	59.6	56.5			4.89
SOP-PCR-1.3	GFD-purified-qPCR	13.3	88.9		73.2	88.3	93.9			10.2
					99.7					
SOP-PCR-1.4	BacR-qPCR	118	85.9		47.1	53.8	50.3			13.4
SOP-PCR-1.5	DG3-qPCR	127	89.7		79.5	77.3	83.0			2.81

Reference Method Descriptions

Method	Description	Associated Samples
SM 10200 H (mod.)	Phytoplankton chlorophyll-a corrected, uncorrected, and phaeophytin by spectrophotometry	2167633, 2167634, 2167635, 2167636, 2167637
SM 9223 B Quanti-Tray	E. coli by Colilert-18/QT by UWF in Pensacola	2167638, 2167639, 2167640, 2167641, 2167642, 2167643
SOP-PCR-1.0	Detection and quantification of human-specific HF183 Bacteroides genetic marker with quantitative polymerase chain reaction	2167645, 2167646
SOP-PCR-1.2	Detection and quantification of coastal bird specific Catellicoccus marimammalium Gull2 genetic marker with quantitative polymerase chain reaction	2167645, 2167646
SOP-PCR-1.3	Detection and quantification of bird specific Helicobacter GFD genetic marker with quantitative polymerase chain reaction	2167645, 2167646
SOP-PCR-1.4	Detection and quantification of Ruminant specific Bacteroidetes BacR genetic marker with quantitative polymerase chain reaction	2167645, 2167646
SOP-PCR-1.5	Detection and quantification of canine-specific DG3 Bacteroides genetic marker with quantitative polymerase chain reaction	2167645, 2167646

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
SM 10200 H (mod.)	03/25/2020	03/25/2020 16:09	Carina A. Tull	04/02/2020 06:40	Jessica Fetgatter	2167633, 2167634, 2167635, 2167636, 2167637
SM 9223 B Quanti-Tray	03/24/2020	03/24/2020 17:20		03/25/2020 12:30	UWF Lab	2167638, 2167639, 2167640, 2167641, 2167642, 2167643
SOP-PCR-1.0	03/25/2020	03/25/2020 13:45	Angela Smith	04/10/2020 10:30	Mailin Lopez	2167645, 2167646
SOP-PCR-1.2	03/25/2020	03/25/2020 13:45	Angela Smith	04/10/2020 16:30	Mailin Lopez	2167645, 2167646
SOP-PCR-1.3	03/25/2020	03/25/2020 13:45	Mailin Lopez	04/13/2020 08:59	Mailin Lopez	2167645, 2167646
SOP-PCR-1.4	03/25/2020	03/25/2020 13:45	Angela Smith	04/10/2020 11:30	Mailin Lopez	2167645, 2167646
SOP-PCR-1.5	03/25/2020	03/25/2020 13:45	Angela Smith	04/10/2020 15:24	Mailin Lopez	2167645, 2167646