Operational Project Monitoring Plan

For

St. Lucie River Watershed Upstream

(SLRWU)

Effective Date Upon Final Signature

12/16/2024



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1.0 Project Organization

The following documents define the procedures used by South Florida Water Management District (SFWMD or District) Water Quality Monitoring Section (WQMS) personnel to meet the Florida Department of Environmental Protection's (FDEP or Department) Quality Assurance (QA) Rule, Florida Administrative Code (F.A.C.) 62-160, and should be referred to for details on key personnel and relevant responsibilities.

- Overall project organization and responsibilities -
 - SFWMD Water Quality Bureau (WQB) and Applied Sciences Bureau (ASB) Quality Management Plan (QMP).
- Field activity and data validation responsibilities -
 - SFWMD WQMS Quality Manual (QM), Field Sampling Manual (FSM), and applicable Standard Operating Procedures (SOP).
- Laboratory analysis and data validation responsibilities -
 - SFWMD Analytical Service's (AS) Chemistry Laboratory Quality Manual (CLQM) and applicable SOPs.

2.0 Project Description

2.1 Project Introduction and Background

This document serves as a reference for surface water quality monitoring for St. Lucie River Watershed Upstream (SLRWU). This operational monitoring plan (MP) contains descriptions of the mandate(s) justifying monitoring including frequency of collection and parameters by station.

Surface water monitoring for SLRWU began on 1/28/2020 in response to the Governor's Executive Order 19-12 (signed January 10, 2019) to expedite nutrient reductions in the Northern Everglades. The District' Applied Sciences Bureau and Everglades and Estuaries Protection Bureau (EEP) recommended an expansion of the District's water quality monitoring network. Specifically, the Bureau's recommendations are intended to

- 1. Measure progress of individual restoration projects toward attaining specific goals and maintaining compliance with FDEP and USACE permit requirements;
- Monitor non-point source contributions to assess long-term trends in water quality;
- 3. Evaluate necessary modifications to the Watershed Construction Projects to help achieve water quality standards;
- 4. Support FDEP with system wide monitoring to measure compliance with water quality standards (i.e. TMDLs) and progress toward achieving nutrient load goals in BMAPs; and
- 5. Support science-based recommendations for hydrologic and ecologic improvements.

SLRWU, one of several "expanded monitoring" projects, was recommended to augment available data in support of BMAPS as well as protecting SFWMD projects and works from water quality degradation. Station choice for expanded monitoring was made following evaluations made by the Everglades and Estuaries Protection Bureau that identified data gaps/needs. The SLRWU project incorporates stations previously sampled as part of the following projects, St Lucie Tributaries (SLT) (SFWMD-FIELD--MP-044), St Lucie Synoptic Monitoring (SLSM) (SFWMD-FIELD-MP-072), St Lucie (SL), and ACRA.

SLSM was originally designed to characterize runoff concentrations at representative stations within the C-23 and C-24 sub-watersheds in response to high loading rates, identified in the St. Lucie River Watershed Protection Plan (SLRWPP). Begining in 2010 sampling was triggered by "wet" season (May to November) "events". No samples were collected in 2013. Sampling frequency was changed in 2014 to Biweekly/Special Event and continued through September 2015 when the project was suspended. Of the original 11 SLSM stations, six (6) are included herein.

SLT monitoring began in 2001 in order to provide additional information related to the watershed and supporting the Coastal Structure Water Quality Monitoring sampling project (WQM) (SFWMD-FIELD--MP-056). The SLT sampling project currently collects surface water from 31 stations. SLRWU proposes to reinitiate sampling at one (1) station which was dropped in September 2003.

The SL project included 22 stations arrayed along the C-44 canal from the Lake Okeechobee inflow at the S-380 structure to the outfall into the St Lucie estuary through S-80. These stations were sampled from June 1988 to June 1990. One (1) SL station will be sampled as part of the SLRWU project.

The ACRA project, created to monitor the Allapattah Complex, was initiated in November 2003 with two (2) stations sampled thru December 2004 with another four (4) added in January 2005. All sampling was suspended in October 2010 with the exception of one station, ACRA1, which was sampled under the SLRWU Project Code on April 4th 2023. Future sampling work was moved to the SLRU Project collected by the District Everglades & Estuaries Protection Bureau Contractor.

A new EMRT approved sampling station, C24SR70, was added to the SLRWU Project starting on July 25th, 2023. This station was added to the SLRWU Project due to it's geographic location related to other SLRWU sampling stations. The EMRT approval reference number is 201909-3-A02.

SLRWU includes 15 stations (Table 1). The guidance contained herein is intended to assist in maintaining consistency of sampling locations, parameter lists, and frequencies. In addition, the plan documents the project's scope and provides an ongoing historical perspective.

2.2 Sampling Mandate(s)

Station locations, sampling frequencies, and parameters are being sampled at the request of the Everglades and Estuaries Protection Bureau. Sampling was approved by the Governing Board on 08/08/2019 (Appendix 1). There is no CMP associated with this project.

2.3 Project Objectives

The primary objective of project is to identify, quantify, and prioritize sources contributing to the nutrient load into the St. Lucie Estuary. This project will expand the foundational upstream monitoring network to ensure adequate data for scientific evaluations.

2.3.1 Modification or Termination Conditions

The monitoring described herein will continue as required by the District's mission.

3.0 Geographic Location

3.1 Regional Area

SLRWU is located within Martin and St. Lucie Counties and includes approximately 110,872 (C-23), 83,359 (C-24), and 132,705 (C-44) acres of land within the St. Lucie Estuary Watershed. (Figure 1).

3.2 Station Location and Access

Monitoring stations are depicted in Figure 1 with locations described in Table 1.

The gates on roadways and levee roads used to access several SLRWU stations are secured with a District Regional Area ID lock (Okeechobee or "O" lock). The lock requires an Okeechobee "O" key, which can be obtained through a request made through the Field Project Manager (FPM) and/or Science Technician Supervisor (STS).

Station	Latitude (ddmmss.ss s)	Longitude (ddmmss.ss s)	Description
C24SR70	272205.52	803247.663	C24 canal and SR70 Okeechobee Rd. Station is on walking path bridge on north side. UD code = 0
C44SC14	270332.17	801956.13	C44 Canal, secondary canal 14 at Citrus Blvd. Collect sample from the bridge on the south side of the road or from the concrete pad on west bank of canal near bridge. UD Code = 2
C44SC19	270036.90	803000.11	C44 Canal, secondary canal 19. Collect sample from the south side of Kanner Hwy. UD Code = 1
C44SC2	270317.52	801911.34	C44 Canal, secondary canal 2. Collect sample from the north side of Kanner Hwy., New Shoots Bamboo Nursery is nearby. UD Code = 2
C44SC23	270056.26	803200.14	C44 Canal, secondary canal 23. Collect sample from the north side of Kanner Hwy. UD Code = 2
C44SC24	270151.07	803222.82	C44 Canal, secondary canal 24. Collect sample from the south side of the road. UD Code = 2
C44SC5	270244.00	802107.19	C44 Canal, secondary canal 5. Collect sample from the south side of Kanner Hwy near intersection with Groveside Road. UD Code = 1
G79	272018.57	803248.37	G79 Dividing structure between C23 and C24. Collect sample from gate structure on the west side of the bridge over canal. UD Code = 1
PC32C23	271220.77	803245.88	District Project Culvert PC32 on the C-23 canal. Collect sample from gate on south side of levee. UD Code = 1
PC38C24	272346.99	803249.62	District Project Culvert PC38 on the C-24 canal. Collect sample on west side of bridge over canal. UD Code = 1
PC39C24	272400.93	803248.88	District Project Culvert PC39 on the C-23 canal. Collect sample from metal platform on west side of canal. UD Code = 1
PC49C23	271736.25	803448.23	District Project Culvert PC49 on the C-23 canal. Collect sample from metal walkway on top of culverts on the west side of the levee. UD Code = 1
PC54C23	272018.48	803446.11	In St. Lucie County, north side of C23 Canal, 2 miles west of CR613. Collect sample from metal platformon NW side of levee. Fenced gate to access platform. UD Code = 1
S153	265919.00	803617.30	St. Lucie Canal at S-153. An "O" lock fenced gate is utilized to sample from the gated structure on the north side. UD Code = 1
SLT-41 ¹	271542.00	802126.97	Surface Water Collection Site, Monterey Canal. Collect sample from the north side of structure. UD Code =1. A combo lock is in place to access sampling location.

Table 1: SLRWU Surface Water Monitoring Stations and GPS Coordinates

The standard positional goal for station coordinates is detailed in the Establishing & Verifying Water Quality Monitoring Station Registration SOP (SFWMD-FIELD-SOP-031). The coordinates are relative to NAD83 HARN horizontal datum.

¹Collected as part of the SLT project due to location. Refer to SFWMD-FIELD-MP-044.



Figure 1: SLRWU Station Locations

4.0 Field Activities

4.1 Monitoring Frequencies and Parameters Collected

All monitoring parameters, frequencies of collection and locations are listed in Table 2. Some analytes may be reported by the lab that are not requested by the project.

Stationon MethodFrequencyParameter TESTSC24SR70C44SC14C44SC19C44SC2C44SC23C44SC24	Station o Met
C24SR70 C44SC14 C44SC19 C44SC2 C44SC23 C44SC24	00.400.70
C44SC5 G79 PC32C23GrabBi-weekly if Flowing (BWF)Ammonium (NH4), Nitrate-Nitrite (NOX), Orthophos (OPO4), Total Nitrogen (TN), Total Phosphorus (TPO4 Dissolved Oxygen (DO*), pH (PH*), Specific conduct (SCOND*), Temperature (TEMP*)PC36C24 PC49C23 PC54C23PC54C23 S1E2Ammonium (NH4), Nitrate-Nitrite (NOX), Orthophos (OPO4), Total Nitrogen (TN), Total Phosphorus (TPO4 Dissolved Oxygen (DO*), pH (PH*), Specific conduct (SCOND*), Temperature (TEMP*)	C24SR70 C44SC14 C44SC19 C44SC2 C44SC23 C44SC24 C44SC5 G79 PC32C23 PC38C24 PC39C24 PC39C24 PC49C23 PC54C23

Table 2:	SLRWU Station	Frequency	and Parameter	TESTS
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*In Situ Grab

4.2 Project Specific Guidelines

Surface water grab samples are collected on the upstream side of the structure, at a depth of 0.5 meters, unless collection of a representative sample is inhibited by vegetation and/or other conditions, or if specific sampling depths are specified in the associated SOP or FSM for the sampling method. If an alternative sampling location is required, a consultation with a STS and/or the FPM must take place prior to the sampling being collected; this action must be documented in the field notes.

4.3 Grab Sampling Procedures

Sample collection for this project follows the procedures and requirements found in the *Grab Sampling Protocol* section of the WQMS FSM. Project-specific deviations are detailed in Section 4.2.

4.4 Field Parameters

The collection of field parameters follows the procedures and requirements outlined in the *Instrument Calibration and Field Measurements* section of the WQMS FSM.

4.5 Field Quality Control Requirements

Field quality control requirements shall follow the procedures found in the *Field Quality Control Measurements and Requirements* section of the WQMS FSM.

4.6 Autosampler Collection

There is no requirement for the use of autosamplers for this project.

4.7 Sample Submission

When the District laboratory is used, samples are transported to the laboratory and submitted for analyses in accordance with the requirements specified in the WQMS FSM. Samples are submitted to the laboratory on the same day as collection or via courier the following day. Sample acceptance criteria are detailed in Section 6 of the CLQM. If samples are submitted to another laboratory it must meet the contract laboratory requirements as specified in Section 5.2 below.

5.0 Data Quality Objectives (DQOs)

5.1 Data Usage and Reporting

Data for this project are summarized and reported by the Everglades and Estuaries Protection Bureau.

5.2 Data Quality

All monitoring described herein shall meet the requirements conveyed in the FDEP's QA Rule, 62-160 F.A.C. The District has adopted a uniform set of DQOs following criteria detailed within the *Analytical Methods and Default QA/QC Targets* table of the CLQM.

Field parameter DQOs are described in the *Field Instrument Minimum Accuracy Requirements* table found in the *Instrument Calibration and Field Measurements* section of the FSM. The most recent version of the FSM details the specific field testing DQOs at the time of sample collection.

Samples are analyzed according to the provisions within the FDEP QA Rule, 62-160 F.A.C. and the CLQM. The most recent version of the CLQM details DQOs at the time of sample collection for each specific laboratory analysis. Data are qualified in accordance with the FSM, CLQM and applicable data validation SOPs.

No contract laboratory is being used.

5.3 Completeness Target

The completeness target (i.e., the number of samples successfully collected and analyzed, as a percentage of those that were planned) has been set at 95% annually for this project. At times a sampling attempt will be made, but samples will not be able to be collected because of no flow or low water conditions, unsafe station conditions, equipment malfunction, vegetation or other site impacts that may affect the representativeness of a sample, tropical storms/hurricanes or other unforeseen problems that might affect sample collection and/or quality. If samples cannot be collected on an attempt, collectors shall document the sample as a "NOB" to indicate an attempt was made and/or the sample could not be collected for the documented reasons. Sampling attempts are included with successfully collected and analyzed samples in the completeness target.

6.0 Data and Records Management

The District evaluates data in accordance with the data quality objectives stated in the District's FSM and CLQM. All data submittals shall conform to existing District guidelines.

6.1 Contract Deliverables

There are no contract deliverables for this project.

6.2 Data and Record Storage

After the data validation process, all data and records are maintained so that end users can retrieve and review information relative to a sampling event. Field records are maintained in accordance with the *Archive Records Storage and Retention* SOP (SFWMD-FIELD-SOP-022). All analytical data and specified metadata are sent to the DBHYDRO database for long-term storage and retrieval.

The District shall maintain master copies of field and laboratory generated records. It is the responsibility of the District to maintain both records of current and historical methodologies and operating procedures so that at any given time the conditions that were applied to a sampling event can be evaluated.

Field records storage protocols are outlined in the *Archive Records Storage and Retention* (SFWMD-FIELD-SOP-022). Corrections of field data, records or data in DBHYDRO must follow the WQMS *Correction of Field Records SOP* (SFWMD-FIELD-SOP-032) and the FSM.

7.0 References

- FDEP (Florida Department of Environmental Protection). Quality Assurance Rule, 62-160 Florida Administrative Code (F.A.C.). April 16, 2018.
- SFWMD (South Florida Water Management District). *Archive Records Storage and Retention*, SFWMD-FIELD-SOP-022, Water Quality Monitoring Section.
- SFWMD. *Chemistry Laboratory Quality Manual (CLQM)*, SFWMD-LAB-QM-001, most current effective version, Analytical Services Section.
- SFWMD. Correction of Field Records, SFWMD-FIELD-SOP-032, Water Quality Monitoring Section.
- SFWMD. *Field Quality Manual (QM)*, SFWMD-FIELD-QM-001, Water Quality Monitoring Section.
- SFWMD. *Field Sampling Manual (FSM)*, SFWMD-FIELD-FSM-001, Water Quality Monitoring Section.
- SFWMD. *Sampling Flow-Related Stations*, SFWMD-FIELD-SOP-027, Water Quality Monitoring Section.
- SFWMD. Station Registration, SFWMD-FIELD-SOP-031, Water Quality Monitoring Section.
- SFWMD. Water Quality and Applied Sciences Bureaus Quality Management Plan (QMP), SFWMD-QS-QM-001. Applied Sciences and Water Quality Bureaus.SFWMD. COASTAL STRUCTURE WATER QUALITY MONITORING (WQM), SFWMD-FIELD-MP-056, Water Quality Monitoring Section.
- SFWMD. *ST. LUCIE ESTUARY TRIBUTARIES* (SLT), SFWMD-FIELD-MP-044, Water Quality Monitoring Section.
- SFWMD. *ST. LUCIE SYNOPTIC MONITORING* (SLSM), SFWMD-FIELD-MP-072, Water Quality Monitoring.

8.0 Revisions and Modifications

Version	Date	Section	Change/Reason
00	03/25/2020	All	Initial version as part of the expanded monitoring requested by the Everglades and Estuaries Protection Bureau. Formatting matches the current template. Updated references to the new FSM and QM documents. There is no requirement to sample Hg for this project.
01	12/0/2024	All	Updated to match the most current OMP Template language MPT-001-08 (Template Version Date 11/9/2023).
	12/3/2024	2.1, Table1, Table 2, Figure 1 & Appendix 1	Updated Tables, Figure & Appendix to reflect ACRA1 station removal and addition of C24SR70 station.

Appendix 1: Station Requirements by Mandate

Station	Mandate	Collection Method	Frequency	Parameters ACODES
C44SC14 C44SC19 C44SC2 C44SC23 C44SC24 C44SC5 G79 PC32C23 PC38C24 PC39C24 PC39C24 PC49C23 PC54C23 S153 SLT-41 ²	Governor's Executive Order 19-12 ¹	Grab	Bi-weekly if Flowing (BWF)	Ammonium (NH4), Nitrate-Nitrite (NOX), Orthophosphorus (OPO4), Total Nitrogen (TN), Total Phosphorus (TPO4), Dissolved Oxygen (DO*), pH (PH*), Specific conductance (SCOND*), Temperature (TEMP*)
C24SR70 ³	EMRT Reference #201909-3-A02	Grab	BWF	NH4, NOX, OPO4, TN, TPO4, DO*, PH*, SCOND*, TEMP*

¹Stations added as part of the 2019 Expanded Monitoring directed by the Governing Board

²SLT-41 is sampled as part of the SLT sampling project. *Refer to SFWMD-FIELD-MP-044*.

³ Station added 7/25/2023 after being approved by EMRT.

*In situ