Request Number: RQ-2018-07-30-33

Algal Bloom Response - As needed

Florida Department of Environmental Protection
Central Laboratory Submittal Form

last revised Jan 25, 2018

Customer: WQAP

Project ID: BLOOM-RESP

Requester: Michael Linger

Collected By: Mike Drennan / Natalie Ayala

Field Report Prepared By: Mike Drennan

Sampling Agency: FDEP-CEROC

Algae Bloom Sampling Kit
RQ-2018-07-30-33
Location: North Lake Talmadge
12/17/2018 Mike Drennan

Location	☐ Comp ☑ Grab	Collection (comp begin or grab) Date 12/17/18 Time 1045 (Eastern) Central	Composite end Date Time	Bottle Group(s) (See pg 2) A, B, C, D
Field ID	Matrix (type, e.g., Salt, Fresh, etc) Fresh	Diss. Oxygen 8.35 ☑ mg/L ☐ % sat	Total Res. Chlorine (mg/L)	
WIN	Temp (C) 17.4	pH 7.28	Sample Depth 0.3 ☐ ft ☑ m	Sp. Conductance (umho/cm) 140.9
Latitude ☐ dd ☐ dms	Longitude ☐ dd ☐ dms	Salinity (ppt)	Comments	
Location	☐ Comp ☐ Grab	Collection (comp begin or grab) Date Time Eastern Central	Composite end Date Time	Bottle Group(s)
Field ID	Matrix (type, e.g., Salt, Fresh, etc)	Diss. Oxygen ☐ mg/L ☐ % sat	Total Res. Chlorine (mg/L)	
WIN/STORET #	Temp (C)	pH	Sample Depth ☐ ft ☐ m	Sp. Conductance (umho/cm)
Latitude ☐ dd ☐ dms	Longitude ☐ dd ☐ dms	Salinity (ppt)	Comments	
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Latitude ☐ dd ☐ dms	Longitude ☐ dd ☐ dms	Salinity (ppt)	Comments	
Location	☐ Comp ☐ Grab	Collection (comp begin or grab) Date Time Eastern Central	Composite end Date Time	Bottle Group(s)
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WIN/STORET #	Temp (C)	pH	Sample Depth ☐ ft ☐ m	Sp. Conductance (umho/cm)
Latitude ☐ dd ☐ dms	Longitude ☐ dd ☐ dms	Salinity (ppt)	Comments	

Relinquished By:	Date/Time	Shipping Method	Number of Coolers Shipped:	Received By:	Date/Time
Mike Drennan	12/17/18	FedEx	1		

Group: A	Bottle Type: PT-50ML	# of Bottles: 1	Preservative:	ICE	**Enter Number of Bottles Sent to Lab**	
	BLOOM-ID					
Group: B	Bottle Type: BG-500ML-WDMTH	# of Bottles: 1	Preservative:	ICE	**Enter Number of Bottles Sent to Lab**	
	W-MCYST-AA					
Group: C	Bottle Type: BP-1L	# of Bottles: 1	Preservative:	ICE	**Enter Number of Bottles Sent to Lab**	
	CHLSUITE-W					
Group: C	Bottle Type: P-500ML	# of Bottles: 1	Preservative:	ICE And H2SO4	**Enter Number of Bottles Sent to Lab**	
	W-NH3 W-NO2NO3 W-S-A-TP W-TKN					H2SO4 LOT# SA8197090 EXP: 07/16/2019
Group: C	Bottle Type: P-125ML	# of Bottles: 1	Preservative:	FILTER-ICE	**Enter Number of Bottles Sent to Lab**	
	W-PO4-F					
Group: D	Bottle Type: BP-1L	# of Bottles: 1	Preservative:	Lugols	**Enter Number of Bottles Sent to Lab**	
	DTY-QN-C PKD-QN-C					

Appendix A

CYANOBACTERIA BLOOM RESPONSE FIELD DATA SHEET (7-6-06 V2)

WATERBODY	DATE (M/D/YY):	TIME: (AM)	Case ID#:
North Lake Talmadge	12/17/18	1045	

COUNTY:	LOCATION:	NEAREST TOWN/CITY:
Volusia	South of East Lobe	Deland, FL

Visit Type: Initial ☐ Recon ☐ Sampling ☑ Follow- ☐

Samples collected: ☑ yes ☐ no — Samples submitted to: FDEP Central Lab — Photos Taken: ☑ yes ☐ no

Sample collection method: Single Grab: ☑ Grab Composite: ☐ Depth integrated composite: ☐

Sample & Analysis types: Aqueous: ☑ Surface Scum: ☐ Benthic mat: ☐ Tissue: ☐

Algal ID & enumeration: ☑ Nutrients: ☑ Chl-a: ☑ AGP: ☑ Turbidity: ☑ Toxin: ☑ _____ Specify

Estimated size of bloom: Remnants of bloom thought* — Impounded: ☐ yes ☑ no

Lake/Estuary Typical depth: 2.0 m deep — Inflows: ☑ yes ☐ no — Outflows: ☑ yes ☐ no

Stream/River/Canal: _____ m wide

Typical Transect: _____ m deep (Left bank) _____ m deep (Middle) _____ m deep (Right bank)

Water velocity: _____ m/s (Left bank) _____ m/s (Middle) _____ m/s (Right bank)

Canopy Cover: Open: ☑ Lightly Shaded (11-45%): ☐ Moderately Shaded (46-80%): ☐ Heavily Shaded: ☐

Description of Bloom/ Present Weather conditions: Upper 50's, NE Winds

Latitude / Longitude: 29.04464, -81.26122

Print a map from GIS tool or Internet mapping service (e.g., Mapquest, Google Map)

Sketch bloom area on the attached map. Indicate wind direction.

* Last rain event: 12/9/18

Rainfall amount: .87"

WATER QUALITY	Depth (m):	Temp. (°C):	pH (SU):	D.O. (mg/l):	Cond. (µmho/cm) or Salinity (ppt):	DO Sat		Secchi (m)
Top	0.3	17.4	7.28	8.35	~~87.3~~ N/A	87.3%		1.5
Mid-depth					140.9			
Bottom	1.5	17.4	6.72	8.17	140.8	85.2		

System Type: Stream: ☐ (1st - 2nd order, 3rd - 4th order, 5th - 6th order, 7th order or greater) Lake: ☑ Wetland: ☐ Estuary: ☐ Other: ☐ _____

Water Odors (check box): Normal: ☑ Sewage: ☐ Petroleum: ☐ Chemical: ☐ Other: ☐ _____

Water Surface (check box): Clear: ☑ Scum: ☐ Globs: ☑ Slick: ☐

Water Clarity (check box): Clear: ☐ Slightly turbid: ☑ Turbid: ☐ Opaque: ☐

Bloom Color (check box): Green: ☑ Red: ☐ Brown: ☐ Other: ☐ _____

Notes: Water tannic/slightly turbid w/ algae suspended throughout water column in fine particles and larger globs.

Abundance:	Absent	Rare	Common	Abundant
Periphyton	☐	☑	☐	☐
Fish	☐	☐	☐	☑
Aquatic Macrophytes	☐	☐	☐	☑
Iron/sulfur Bacteria	☑	☐	☐	☐

VISIT TEAM: FDEP - CEROC AGENCY: Mike Deangen / Natalie Ayala

H2S04
LOT# SH8197090
EXP: 07/16/2019

* Algae bloom reported 12/13/18 has since subsided considerably. It rained previous to the bloom (.87") + High °C increased significantly from 12/12 to 12/13.

CALIBRATION AND VERIFICATION LOG (FDEP SOP FT 1000-FT 1500, FD 1000-FD 4000)

Boldly "X" this box if there are qualified data on this page.

Meter ID: Scud Bucket RQ- 2018-07-30-33 Project: HAB

Notes: (1) Always wait for meter to stabilize before recording any readings.
(2) Report all digits displayed. Do not round before reporting measurements. (See special instructions for depth).
(3) For Calibrations, record calibrated meter reading. Do not record initial meter reading before calibration.

Temperature (Quarterly) FT 1400 Date of Last Temperature Verification 10/26/18

DO DEP SOP FT 1500	Name	Date	Time CT-ET	Temp °C	Baro-meter mmHg	D.O. Chart mg/L	Meter D.O. mg/L	% DO	Probe Charge	Probe Gain	Pass / Fail	Lab / Field
Calibr.	Mike Drennan	12/17/18	745	22.2	762.6	8.710	8.74	100.3	—	1.03	(P) / F	(L) / F
ICV	"	"	"	22.3	762.6	8.693	8.72	100.3	—	—	(P) / F	(L) / F
CCV	"	"	1300	19.7	761.8	9.147	9.16	100.2	—	—	P / F	L / F
CCV	"	"									P / F	L / F

DO Acceptance criteria from Table ± 0.3 mg/L. **Rapid-Pulse Sensors:** DO Gain Range 0.7 to 1.4; DO Charge Range 25-75.
Optical: DO gain range 0.85 to 1.15 (Pro DSS 0.75 to 1.50); DO charge N/A. **Steady-state & Galvanic Sensors:** DO Gain & Charge N/A.

Spec. Cond. FT 1200	Name	Date	Time CT-ET	Lot #	Expir. Date	Standard µmhos/cm	Meter Reading µmhos/cm	Pass / Fail	Lab / Field
Calibr.	"	"	745	1806158	6/19	1000	1000	(P) F	(L) F
ICV	"	"	"	180615A	6/19	100	104.5	(P) F	(L) F
CCV	"	"	1300	180615A	6/19	100	102.5	P / F	L / F
CCV	"	"						P / F	L / F

Conductivity Acceptance criteria ± 5%

pH DEP SOP FT 1100	Name	Date	Time CT-ET	Lot #	Expir. Date	pH Buffer SU	Temp °C	Meter reading SU	mV	Pass / Fail	Lab / Field
Calibr.	"	"	745	176157	8/19	7.00	22.1	7.00	-26.8	(P) F	(L) F
Calibr.	"	"	"	177759	10/19	4.00	22.0	4.00	150.5	(P) F	(L) F
Calibr.	"	"	"	181282	5/20	10.00	22.1	10.00	-204.7	(P) F	(L) F
ICV	"	"	"	181282	5/20	10.00	22.1	10.00	-204.5	(P) F	(L) F
CCV	"	"	1300	177759	10/19	4.00	22.0	4.02	149.4	(P) F	(L) F
CCV										P / F	L / F

pH Acceptance criteria ± 0.2 SU; mV pH 7 Range 0 ± 50; mV pH 4 Range +180 ± 50; mV pH 10 Range -180 ± 50;
If mV are recorded: slope from 7 to 10 177.9, slope from 4 to 7 177.3 (both must be between 165 and 180 mV)

Does meter have a depth sensor that will be used to measure total depth & sample depth? YES / (NO) NA (not surf. water project)
If YES, complete daily Calibr. & ICV below and list date of last quarterly depth verification: _____
If NO, what will be used? (circle one) **Secchi Disk Line** / Sonar Unique ID: Crusty ; Date of last verification: 11/30/18

Depth Sensor (Daily Calibration & ICV)	Name	Date	Time CT-ET	Calibrated Value (0.00 or Offset), meters	ICV Value, meters	Pass / Fail	Lab / Field
Pressure mode in air						P / F	L / F

Report two decimal places. Round numbers ≤ 4 down, ≥ 5 up. ICV acceptance criteria ± 5 % or ± 0.05m, whichever is greater.

COMMENTS: