Elizabeth Wong

From: Elizabeth Wong
Sent: Tuesday, January 31, 2023 10:42 AM
To: Homann, Moira
Cc: Danny Quick; Tricia Wisner; Chuck Speake (cspeake@cityofnorthport.com)
Subject: FDEP Input on North Port Fertilizer Ordinance Revision
Attachments: Att 1 - Proposed Revision to North Port Fertilizer Ordinance Draft 2023-01-26.pdf; Att 2 - Resolution 2018-R-26 (Non-use of fertilizer).PDF; Att 3 - Photos of Green Algae in Cosmic Waterway.pdf; Att 4 - Rainfall Data and Total Nitrogen 2016-2022.pdf; Att 5 - FDEP Sample Results Cosmic Waterway Algal bloom.pdf; Att 6 - Alachua County Summary of Scientific Findings.pdf; Att 7 - Alachua County 2019 State Agencies Input on Fertilizer Ordinance Changes.pdf

Ms. Homann

I enjoyed our recent discussion and appreciate your advice to contact Stacie Greco of Alachua County who shared much information, literature review and her findings with me. In 2019 Stacie led the effort to revise their fertilizer ordinance to incorporate a summer ban (July Through Feb) on fertilizing due to the increased summer rainfall runoffs that can entrain fertilizers into surface waters.

This is a formal request to you to support our City of North Port's efforts to provide additional protection of our surface waters (our drinking water supply) with the following changes to our existing Fertilizer Ordinance that was adopted in 2007:

1. Extend the restricted season prohibiting fertilizing of turf grass from June 1 to through September 30 to start April 1 through September 30. In recent years, rain events are starting earlier and many residents are fertilizing in the months prior to the current restricted season which starts on June 1. The earlier rains in April and May can entrain fertilizer in the runoff and can cause the algae blooms in the City's waterways.
2. Delete the proof of training decal requirement in Section 15.02. Instead, require Fertilizer Applicator to produce a copy of the Fertilizer Applicator's Best Management Practices training certificate if checked while performing fertilizing activity. Decals fade in the sun. A decal on a vehicle does not necessarily mean the driver or passengers of the vehicle has received the Best Management Training on fertilizing. The driver of the vehicle with the decal may not necessarily be the applicator that have the required Best Management Training. It is more practical for enforcement staff to ask the Fertilizer Applicator to produce the Best Management Training certificate when observed spreading fertilizers.

Attached are several supporting files :

Att 1 - Proposed Revision to North Port Fertilizer Ordinance Draft 2023-01-26 - Strikeouts and underline show proposed changes to our fertilizer ordinance.

Att 2 - Resolution 2018-R-26 (Non-use of fertilizer) – The City of North Port passed this resolution in 2018 to ask residents to voluntarily refrain from applying fertilizers year round.

Att 3 - Photos of Green Algae in Cosmic Waterway in May 2022 - I drove around the neighborhood along Cosmic Canal and observed many extremely green lawns in the residential homes. I talked to one homeowner near where the photos were taken and he confirmed that he had instructed his commercial applicator to fertilizer his lawn in May as the current restriction starts on June 1.

Att 4 - Rainfall Data and Total Nitrogen 2016-2022 – showing frequent rain events in April and May (the proposed extended months) and corresponding increases of total nitrogen.

Att 5 - FDEP Sample Results Cosmic Waterway Algal bloom results from FDEP in May 24, 2022 showing high levels 100 ug/L of chlorophyll-a (pdf page 4), high levels of nitrogen (pdf page 8) TKN 1.9 mgN/L and NO2NO#-N 0.004 mgN/L resulting in total nitrogen of 1.904 mgN/L which is much higher than the flowing water numeric nutrient criteria (NNC) standard of 1.65 mgN/L.

Att 6 - Alachua County Summary of Scientific Findings – Highlighted in yellow are their relevant staff review of literature, in particularly, their Staff comments on 3(d)(i) and 69a)(i) related to the correlation of rainfall runoff and nitrogen pollution.

Att 7 - Alachua County 2019 State Agencies Input on Fertilizer Ordinance Changes – FDEP had supported Alachua County's proposed summer ban on fertilizing, even though IFAS was not supportive.

We will greatly appreciate your quick review and hope you can let us know that FDEP is supportive of our proposed Fertilizer Ordinance changes and efforts to protect our "One Water". Our North Port Commission is hoping to approve these Ordinance changes prior to this rainy season which may start as early as April. Thank you so much.

Elizabeth Wong P.E.
Stormwater Manager
City of North Port
Department of Public Works
1100 N. Chamberlain Blvd
North Port, FL 34286
Office: 941.240.8321
Cellphone: 941.628.1475
Fax 941.240.8063
ewong@northportfl.gov
https://www.northportfl.gov/

A City where you can "Achieve Anything."

City of North Port

ORDINANCE NO. 202__-__ [insert ordinance #]

AN ORDINANCE OF THE CITY OF NORTH PORT, FLORIDA, AMENDING THE CODE OF THE CITY OF NORTH PORT, FLORIDA, CHAPTER 22 ARTICLE II FERTILIZER AND LANDSCAPE MANAGEMENT, RELATING TO EXTENDING THE TIME PERIOD WHEN USE OF FERTILIZER IS RESTRICTED AND DELETING THE VEHICLE DECAL REQUIREMENT; PROVIDING FOR FINDINGS; PROVIDING FOR CONFLICTS; PROVIDING FOR SEVERABILITY; PROVIDING FOR CODIFICATION; AND PROVIDING AN EFFECTIVE DATE.

WHEREAS, stormwater runoff leaves residential neighborhoods, commercial centers, industrial areas, and other lands of the City of North Port and enters into natural and manmade stormwater and drainage conveyances and natural water bodies in the City of North Port; and

WHEREAS, the City of North Port's natural and manmade stormwater and drainage conveyances regulate the flow of stormwater to prevent flooding; and

WHEREAS, the overgrowth of vegetation in stormwater and drainage conveyances hinders the goal of flood prevention; and

WHEREAS, this ordinance is part of a multi-pronged effort by the City of North Port to reduce nutrient leaching into runoff through such policies as, but not limited to, stormwater management, water conservation, conversion from septic systems to central sewage treatment, public education, and development standards as set forth in the City of North Port's Unified Land Development Code; and

WHEREAS, the detrimental effects of nutrient-laden runoff are magnified in a community such as the City of North Port, due to the eventual discharge of stormwater and drainage conveyances to coastal waters; and

WHEREAS, nutrient-laden runoff fosters plant and algae growth; and

WHEREAS, leaching and runoff of nutrients from improper or excess fertilization practices can contribute to nitrogen and phosphorus pollution in the City's stormwater and drainage conveyances, and natural water bodies; and

WHEREAS, nitrogen and phosphorus pollution in the City's stormwater and drainage conveyances, and natural water bodies leads to the overgrowth of vegetation in these waterways; and

Attachment No. 1

WHEREAS, the quality of our bays, estuaries, streams, lakes, and the Gulf of Mexico is critical to environmental, economic, and recreational prosperity and to the health, safety, and welfare of the citizens of the City of North Port; and

WHEREAS, recent algae blooms and accumulation of red drift algae on local beaches have heightened community concerns about water quality and eutrophication of surrounding waters; and

WHEREAS, the Florida Department of Environmental Protection has identified specific water bodies such as the Myakka River as "impaired" as a result of excess nutrients under the Florida Impaired Waters Rule (Chapter 62-303, Florida Administrative Code); and

WHEREAS, nutrients are commonly found in various forms as a Fertilizer for Turf and Landscape application; and

WHEREAS, the amount of Fertilizer applied and the method of application of that Fertilizer have a large impact on the potential for creating pollution; and

WHEREAS, the amount of Fertilizer applied should be the minimum necessary for the Turf and Landscape to meet initial establishment and growth needs; and

WHEREAS, it is generally recognized that many Florida soils are naturally high in phosphorus; and

WHEREAS, it has been recognized by soil science professionals that the use of slow release nitrogen sources minimizes harmful nitrate leaching; and

WHEREAS, nitrogen from slow release sources is more likely to be used by plants and less likely to leach out or wash away in stormwater runoff; and

WHEREAS, multiple rain events can start as early as April and continue through September each year, and stormwater runoff can entrain fertilizers to discharge into waterways and cause algal blooms.

WHEREAS, the City Commission finds that these amendments serve the public health, safety, and welfare of the citizens of the City of North Port, Florida.

NOW, THEREFORE, BE IT ORDAINED BY THE CITY COMMISSION OF THE CITY OF NORTH PORT, FLORIDA:

SECTION 1 – FINDINGS

1.01 The above recitals are true and correct and are incorporated in this ordinance by reference.

SECTION 2 – ADOPTION

2.01 Chapter 22 of the Code of the City of North Port, Florida is hereby amended as follows:

"**Chapter 22 – ENVIRONMENTAL AND NATURAL RESOURCES**

. . .

ARTICLE II. – FERTILIZER AND LANDSCAPE MANAGEMENT

. . .

Sec. 22. – 55. – Definitions.

. . .

Restricted season means ~~June~~ April 1 through September 30.

Sec. 22. – 65. – Training.

. . .

(2) ~~A vehicle decal shall be affixed and maintained on the exterior of all vehicles and trailers used in connection with the application~~ Applicators of fertilizer within the area regulated by this article shall provide a copy of the Best Management Practices training certificate upon request when Applicator is observed spreading fertilizers. ~~The vehicle and trailer decals shall be provided by the City.~~

. . ."

SECTION 3 – CONFLICTS

3.01 In the event of any conflict between the provisions of this ordinance and any other ordinance, in whole or in part, the provisions of this ordinance will prevail to the extent of the conflict.

SECTION 4 – SEVERABILITY

4.01 If a court of competent jurisdiction finds that any section, subsection, sentence, clause, phrase, or provision of this ordinance is for any reason invalid or unconstitutional, that provision will be deemed a separate, distinct, and independent provision and will not affect the validity of the remaining portions of the ordinance.

SECTION 5 – CODIFICATION

5.01 In this ordinance, additions are shown as underlined and deletions as ~~strikethrough~~. Any additional codification information and notations appear in *italics*. These editorial notations are not intended to appear in the codified text.

SECTION 6 – EFFECTIVE DATE

6.01 This ordinance takes effect immediately upon adoption.

READ BY TITLE ONLY at first reading by the City Commission of the City of North Port, Florida, in public session on _____, 2023.

ADOPTED by the City Commission of the City of North Port, Florida, on the second and final reading in public session on _____, 2023.

CITY OF NORTH PORT, FLORIDA

_____
BARBARA LANGON
MAYOR

ATTEST:

_____
HEATHER FAUST, MMC
CITY CLERK

APPROVED AS TO FORM AND CORRECTNESS

_____
AMBER L. SLAYTON
CITY ATTORNEY

City of North Port

RESOLUTION NO. 2018-R-26

A RESOLUTION OF THE CITY COMMISSION OF THE CITY OF NORTH PORT, FLORIDA, ENCOURAGING THE NON-USE OF FERTILIZERS YEAR-ROUND; DIRECTING STAFF TO DEVELOP AN EDUCATIONAL PROGRAM; PROVIDING FOR CONFLICTS; PROVIDING FOR SEVERABILITY; AND PROVIDING AN EFFECTIVE DATE.

WHEREAS, the City of North Port recognizes that local nutrient pollutants can affect the regional watershed, and the City of North Port desires to be part of a regional effort to improve water quality; and,

WHEREAS, water quality is critical to the City of North Port's environmental, economic, and recreational prosperity and to the health, safety and welfare of the citizens of the City; and

WHEREAS, the current red tide bloom, other algae, and water related problems have heightened community concerns about water quality; and

WHEREAS, there is a need to develop a stronger knowledge of the connection between the stormwater flow from yards, commercial, light industrial and agricultural facilities, streets, and stormwater systems and natural water bodies among all those who live, work, and recreate in the City; and

WHEREAS, nutrients are essential elements for plant and algal growth and commonly used in various forms as a fertilizer for lawns and landscape application; and

WHEREAS, if reclaimed water is available, residents, commercial, light industrial, and agricultural users are encouraged to use reclaimed water which contains essential nutrients in lieu of fertilizers. Proper application of reclaimed water shall be practiced minimizing excessive reclaimed water runoff into the City's waterbodies; and

WHEREAS, leaching and runoff of nutrients from improper or excess fertilization practices can contribute to nitrogen and phosphorus pollution of the City's waterbodies; and

WHEREAS, the Code of the City of North Port, Florida, Chapter 22 – Environmental and Natural Resources, Article II – Fertilizer and Landscape Management prohibits the application of fertilizers containing nitrogen and/or phosphorus to turf from June 1 through September 30; and

WHEREAS, Florida law partially preempts local governments from regulating the use of fertilizers; and

Attachment No. 2

WHEREAS, the City finds that a voluntary expansion of the prohibition on the application of fertilizers on turf and/or landscape plants to year-round would improve water quality; and

WHEREAS, this Resolution is part of a multifaceted effort by the City to improve water quality.

NOW THEREFORE, BE IT RESOLVED BY THE CITY COMMISSION OF THE CITY OF NORTH PORT, FLORIDA, AS FOLLOWS:

SECTION 1 – INCORPORATION OF RECITALS

1.01 The above recitals are hereby ratified and confirmed as being true and correct and are incorporated herein by reference..

SECTION 2 – RESOLUTION

2.01 The City Commission hereby encourages all persons, businesses, associations, clubs, and/or organizations to discontinue, year-round, the application of any fertilizer, including pesticide/fertilizer mixtures, containing nitrogen and/or phosphorus to turf, sod, lawns, trees, shrubs, groundcover, or any other landscape plant, and encourages the reduction of fertilizer in hydroseed mixtures.

2.01 The City Commission hereby directs staff to develop an educational program for the residents, businesses, associations, clubs, and organizations of the City regarding the effects of fertilizer on water quality, methods to reduce fertilizer usage and the proper application and usage of fertilizer.

SECTION 3 – CONFLICTS

3.01 In the event of any conflict between the provisions of this Resolution and any other Resolution or portions thereof, the provisions of this Resolution shall prevail to the extent of such conflict.

SECTION 4 – SEVERABILITY

4.01 In any section, sentence, clause or phrase of this Resolution is held to be invalid or unconstitutional by any court of competent jurisdiction, then said holding shall in no way affect the validity of the remaining portions of this Resolution.

SECTION 5 – EFFECTIVE DATE

5.01 This Resolution shall take effect immediately after adoption by the City Commission of the City of North Port, Florida.

PASSED and DULY ADOPTED by the City Commission of the City of North Port, Florida this 9th day of October 2018.

THE CITY OF NORTH PORT, FLORIDA

VANESSA CARUSONE
MAYOR

ATTEST:

KATHRYN PETO
INTERIM CITY CLERK

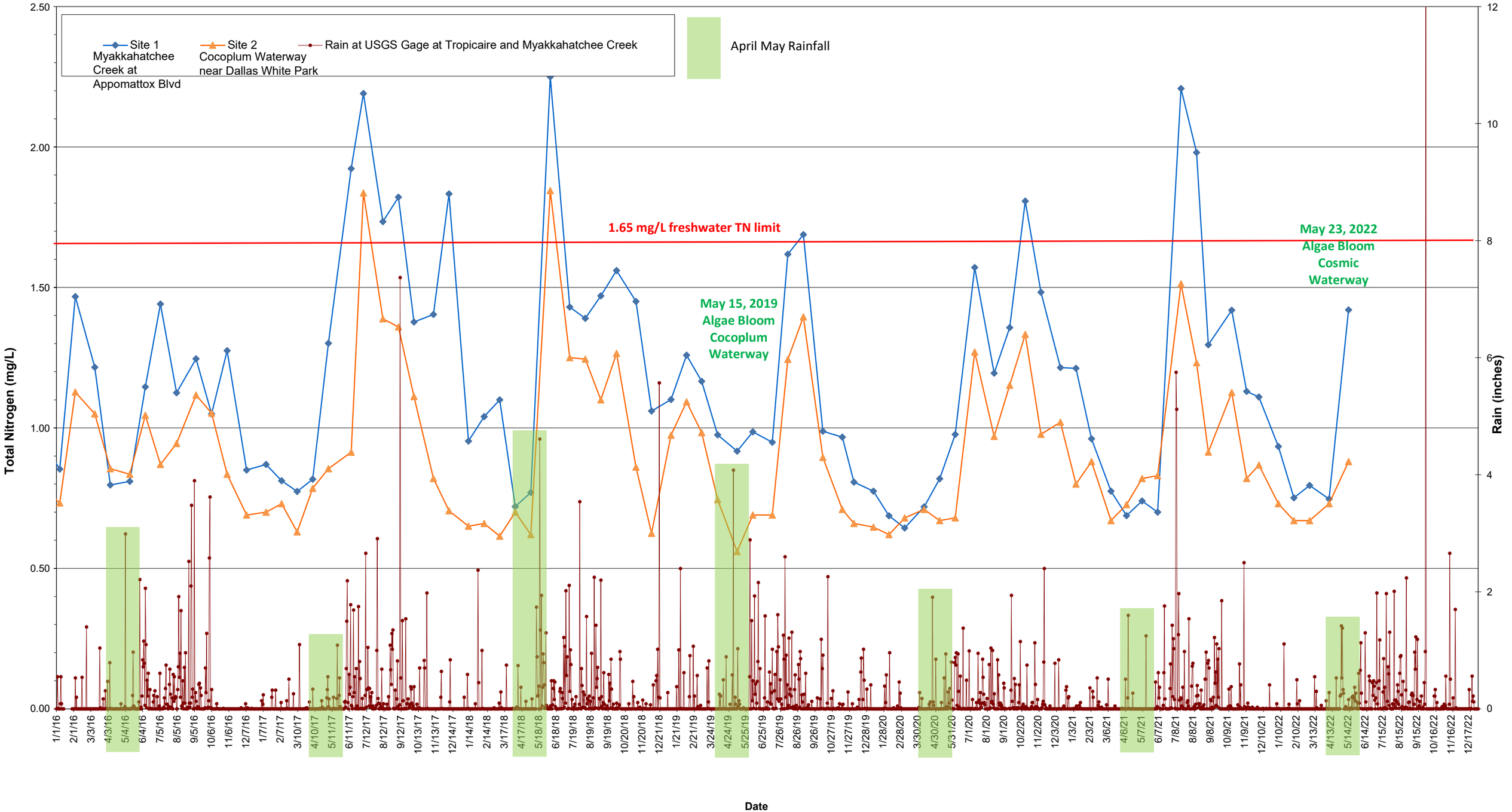
APPROVED AS TO FORM AND CORRECTNESS:

AMBER L. SLAYTON
CITY ATTORNEY

Attachment No. 3

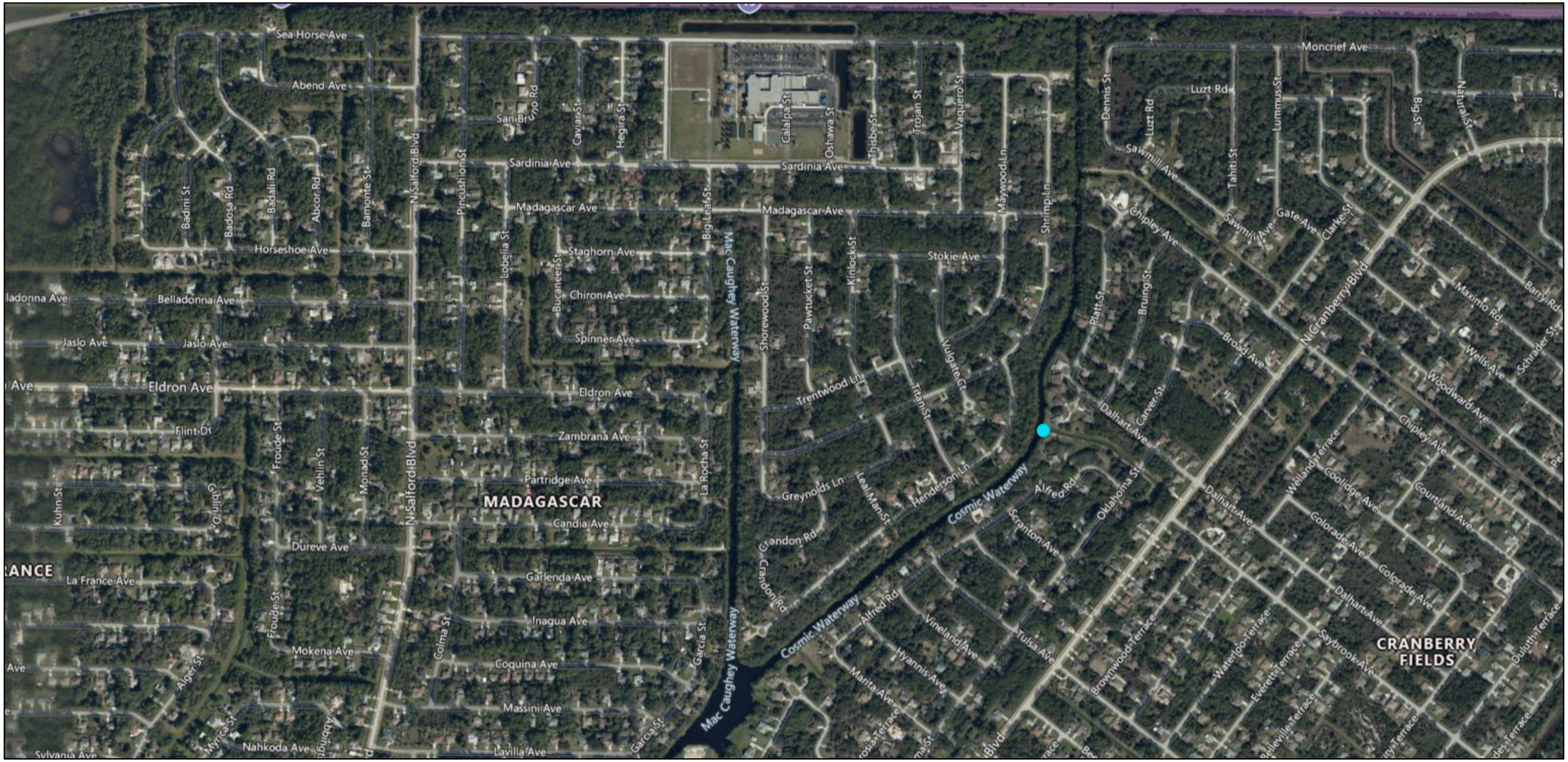
Cosmic Waterway Near Alfred Road May 23, 2022

TN rain 2016-2022 Algae Blooms



Attachment No. 4

Algal Bloom Sample Locations



6/1/2022, 1:40:04 PM

FL_Algal_Bloom_Site_Visits

1:9,028

0 0.07 0.15 0.3 mi

0 0.15 0.3 0.6 km

Attachment No. 5

Biological Analysis Report

WQAP-2022-05-25-04

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

Event Description: **Algal Bloom Response -SOROC**
Request ID: **RQ-2022-03-07-14**
Customer: **WQAP**
Project ID: **BLOOM-RESP**

Send Reports to:
FL Dept. of Environmental Protection
2295 Victoria AVE
Suite 364
Fort Myers, FL 33901
Attn: Kirby Wolfe

For additional information please contact
Cheryl Swanson - Administrator
Sarah Menz, Ph.D. - Bench Biology & Aquatic Toxicity
Puja Jasrotia, Ph.D. - Molecular Biology & Taxonomy
Thekkekalathil Chandrasekhar, Ph.D, QA Officer
Phone (850) 245-8177

Certified by: Puja Jasrotia, Environmental Administrator

Date Certified: 09-JUN-2022 15:00

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: AlgalBio and Chlorophyll/Grain Size/BOD.

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: Cosmic Canal - Oklahoma St. **Collection Date/Time: 05/24/2022 10:45**

Field ID: HAB-SD-052422-1045 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2329859	SOP-AB05	Dominant sample taxon**	No Dominant				

Ref. Method and Comment:
SOP-AB05: There was no clear dominant taxon in the sample.

Sample Location: Cosmic Canal - Oklahoma St. **Collection Date/Time: 05/24/2022 10:45**

Field ID: HAB-SD-052422-1045 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2329862	SM 10200 H (mod.)	Chlorophyll-a, Corrected	100		ug/L	P414647	
		Phaeophytin-a	8.6		ug/L	P414647	
		Chlorophyll-a, Uncorrected	110		ug/L	P414647	

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: P414647

Component	Result	Code	Units
Chlorophyll-a, Corrected	0.89	U	ug/L
Chlorophyll-a, Uncorrected	0.65	U	ug/L
Phaeophytin-a	0.98	U	ug/L

Quality Assurance Report
Laboratory Control Sample Accuracy

Reference Method: SM 10200 H (mod.)
Batch ID: P414647

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Chlorophyll-a, Corrected	95.4		P	84 - 116

Quality Assurance Report
Summary

Ref. Method	Analyte	LCS % Recovery	MS % Recovery	Precision		
				LCS	SMP	MS
SM 10200 H (mod.)	Chlorophyll-a, Corrected	95.4				

Reference Method Descriptions

Method	Description	Associated Samples
SM 10200 H (mod.)	Phytoplankton chlorophyll-a corrected, uncorrected, and phaeophytin by spectrophotometry	2329862
SOP-AB05	Assessment of dominant algal taxa in bloom or mat sample	2329859

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
SM 10200 H (mod.)	05/25/2022	05/25/2022 14:10	Amber S. Eells	06/01/2022 09:26	Joel Wharton	2329862
SOP-AB05	05/25/2022			05/25/2022 13:23	Rachael Dragon	2329859

Chemical Analysis Report

WQAP-2022-05-25-04

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

Event Description: **Algal Bloom Response -SOROC**
Request ID: **RQ-2022-03-07-14**
Customer: **WQAP**
Project ID: **BLOOM-RESP**

Send Reports to:
FL Dept. of Environmental Protection
2295 Victoria AVE
Suite 364
Fort Myers, FL 33901
Attn: Kirby Wolfe

For additional information please contact
Colin Wright, Ph.D.
Liang-Tsair Lin, Ph.D.
Kerry Tate, Ph.D.
Dr. rer. nat. Bettina Steinbock
Thekkekalathil Chandrasekhar, Ph.D, QA Officer
Phone (850) 245-8085

Certified by: Thekkekalathil Chandrasekhar, Environmental Consultant Date Certified: 17-JUN-2022 11:45

Case Narrative

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Results for the following analytical groups are included in this report: Nutrients and Pesticides.

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.

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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.

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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.

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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.

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K - Actual value is known to be less than value given.
L - Actual value is known to be greater than value given.
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O - Sampled, but analysis lost or not performed.
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Sample Location: Cosmic Canal - Oklahoma St. **Collection Date/Time: 05/24/2022 10:45**

Field ID: HAB-SD-052422-1045 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2329865	EPA 8321B	Anatoxin-a	0.25	U	ug/L	P414339	
		Cylindrospermopsin	0.10	U	ug/L	P414339	
		Desmethyl microcystin LR	0.25	U	ug/L	P414339	
		Microcystin HilR**	0.25	U	ug/L	P414339	
		Microcystin HtyR**	0.25	U	ug/L	P414339	
		Microcystin LA	0.11	I	ug/L	P414339	
		Microcystin LF	0.10	U	ug/L	P414339	
		Microcystin LR	0.25	U	ug/L	P414339	
		Microcystin LW	0.25	U	ug/L	P414339	
		Microcystin LY	0.10	U	ug/L	P414339	
		Microcystin RR	0.10	U	ug/L	P414339	
		Microcystin WR	0.50	U	ug/L	P414339	
		Microcystin YR	0.25	U	ug/L	P414339	
		Nodularin-R**	0.10	U	ug/L	P414339	
2329870	EPA 350.1 Rev. 2.0	Ammonia-N	0.011		mg N/L	P415146	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.9		mg N/L	P414563	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P414641	
	EPA 365.1 Rev. 2.0	Total-P	0.091		mg P/L	P414410	
2329871	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.006	I	mg P/L	P414425	

Quality Assurance Report
Method Blank Results

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P415146

Component	Result	Code	Units
Ammonia-N	0.002	U	mg N/L

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P414563

Component	Result	Code	Units
Kjeldahl Nitrogen	0.080	U	mg N/L

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P414641

Component	Result	Code	Units
NO2NO3-N	0.004	U	mg N/L

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P414410

Component	Result	Code	Units
Total-P	0.002	U	mg P/L

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P414425

Component	Result	Code	Units
O-Phosphate-P	0.004	U	mg P/L

Reference Method: EPA 8321B
Batch ID: P414339

Component	Result	Code	Units
Anatoxin-a	0.25	U	ug/L
Cylindrospermopsin	0.10	U	ug/L
Desmethyl microcystin LR	0.25	U	ug/L
Microcystin HilR	0.25	U	ug/L
Microcystin HtyR	0.25	U	ug/L
Microcystin LA	0.10	U	ug/L
Microcystin LF	0.10	U	ug/L
Microcystin LR	0.25	U	ug/L
Microcystin LW	0.25	U	ug/L
Microcystin LY	0.10	U	ug/L
Microcystin RR	0.10	U	ug/L
Microcystin WR	0.50	U	ug/L
Microcystin YR	0.25	U	ug/L
Nodularin-R	0.10	U	ug/L

Quality Assurance Report
Laboratory Control Sample Accuracy

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P415146

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Ammonia-N	98.2		P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P414563

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Kjeldahl Nitrogen	97.9		P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P414641

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
NO2NO3-N	97.5		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P414410

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total-P	102		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P414425

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
O-Phosphate-P	102		P	90 - 110

Reference Method: EPA 8321B
Batch ID: P414339

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Anatoxin-a	74.7		P	40 - 150
Cylindrospermopsin	77.3		P	40 - 150
Desmethyl microcystin LR	85.7		P	40 - 150
Microcystin HilR	69.4		P	40 - 150
Microcystin HtyR	71.7		P	40 - 150
Microcystin LA	56.3		P	40 - 150
Microcystin LF	68.9		P	40 - 150
Microcystin LR	76.2		P	40 - 150
Microcystin LW	51.2		P	40 - 150
Microcystin LY	52.7		P	40 - 150
Microcystin RR	78.4		P	40 - 150
Microcystin WR	78.3		P	40 - 150
Microcystin YR	75.6		P	40 - 150
Nodularin-R	71.5		P	40 - 150

Quality Assurance Report
Matrix Spike Accuracy

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P415146

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2329886	Ammonia-N	96.0	95.6	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P414563

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2329701	Kjeldahl Nitrogen	91.5	92.2	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P414641

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2329857	NO2NO3-N	96.0	96.5	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P414410

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2329857	Total-P	103	105	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P414425

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2329783	O-Phosphate-P	99.0	99.5	P/P	90 - 110

Reference Method: EPA 8321B
Batch ID: P414339

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2329415	Anatoxin-a	83.7	96.1	P/P	40 - 150
2329415	Cylindrospermopsin	78.7	85.7	P/P	40 - 150
2329415	Desmethyl microcystin LR	86.0	92.4	P/P	40 - 150
2329415	Microcystin HilR	69.7	81.1	P/P	40 - 150
2329415	Microcystin HtyR	72.7	77.9	P/P	40 - 150
2329415	Microcystin LA	63.1	51.8	P/P	40 - 150
2329415	Microcystin LF	63.6	55.8	P/P	40 - 150
2329415	Microcystin LR	73.2	77.6	P/P	40 - 150
2329415	Microcystin LW	47.9	64.1	P/P	40 - 150
2329415	Microcystin LY	57.7	51.6	P/P	40 - 150
2329415	Microcystin RR	78.0	86.5	P/P	40 - 150
2329415	Microcystin WR	69.4	81.4	P/P	40 - 150
2329415	Microcystin YR	78.3	85.5	P/P	40 - 150
2329415	Nodularin-R	71.6	79.0	P/P	40 - 150

Quality Assurance Report
Precision

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P415146

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2329886	Ammonia-N	0.362	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P414563

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2329701	Kjeldahl Nitrogen	0.685	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P414641

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2329857	NO2NO3-N	0.519	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P414410

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2329857	Total-P	1.79	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P414425

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2329783	O-Phosphate-P	0.504	Spike	P	0 - 20

Reference Method: EPA 8321B
Batch ID: P414339

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2329415	Anatoxin-a	13.8	Spike	P	0 - 30
2329415	Cylindrospermopsin	8.51	Spike	P	0 - 30
2329415	Desmethyl microcystin LR	7.11	Spike	P	0 - 30
2329415	Microcystin HilR	15.1	Spike	P	0 - 30
2329415	Microcystin HtyR	6.95	Spike	P	0 - 30
2329415	Microcystin LA	16.7	Spike	P	0 - 30
2329415	Microcystin LF	13.2	Spike	P	0 - 30
2329415	Microcystin LR	3.85	Spike	P	0 - 30
2329415	Microcystin LW	29.0	Spike	P	0 - 30
2329415	Microcystin LY	11.1	Spike	P	0 - 30
2329415	Microcystin RR	6.28	Spike	P	0 - 30
2329415	Microcystin WR	15.9	Spike	P	0 - 30
2329415	Microcystin YR	8.79	Spike	P	0 - 30
2329415	Nodularin-R	9.78	Spike	P	0 - 30

Quality Assurance Report
Precision

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

Quality Assurance Report
Surrogates

Lab Sample ID: 2329865
Field Sample ID: HAB-SD-052422-1045

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	Microcystin LR ethyl-d5	69.7	P	30 - 160

Quality Assurance Report
Calibration Verification

Reference Method: EPA 8321B
Run ID: A112405
Included Lab Sample IDs: 2329865

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Anatoxin-a	85.1	84.3	P/P	50 - 160
Cylindrospermopsin	91.3	89.5	P/P	50 - 160
Desmethyl microcystin LR	92.9	86.9	P/P	50 - 160
Microcystin HilR	80.8	78.1	P/P	50 - 160
Microcystin HtyR	79.0	81.7	P/P	50 - 160
Microcystin LA	64.6	76.8	P/P	50 - 160
Microcystin LF	64.2	69.9	P/P	50 - 160
Microcystin LR	91.0	80.4	P/P	50 - 160
Microcystin LW	70.8	78.9	P/P	50 - 160
Microcystin LY	61.1	65.2	P/P	50 - 160
Microcystin RR	92.5	96.2	P/P	50 - 160
Microcystin WR	85.7	83.0	P/P	50 - 160
Microcystin YR	85.9	76.9	P/P	50 - 160
Nodularin-R	76.8	74.5	P/P	50 - 160

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Run ID: A112422
Included Lab Sample IDs: 2329871

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	98.8	98.2	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Run ID: A112529
Included Lab Sample IDs: 2329870

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	99.0	101	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Run ID: A112565
Included Lab Sample IDs: 2329870

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	98.5	98.5	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Run ID: A112613
Included Lab Sample IDs: 2329870

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	91.3	98.7	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Run ID: A112802
Included Lab Sample IDs: 2329870

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	99.2	97.9	P/P	90 - 110

Quality Assurance Report
Calibration Verification

* Pass/Fail determinations are made for each bracketing calibration verification check.
Control limits for initial calibration checks may be different from those for continuing checks, depending on method requirements.
Where they are different, both control limits are provided.

Quality Assurance Report
Summary

Ref. Method	Analyte	LCS % Recovery	MS % Recovery		Precision		
					LCS	SMP	MS
EPA 350.1 Rev. 2.0	Ammonia-N	98.2	96.0	95.6			0.362
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	97.9	91.5	92.2			0.685
EPA 353.2 Rev. 2.0	NO2NO3-N	97.5	96.0	96.5			0.519
EPA 365.1 Rev. 2.0	Total-P	102	103	105			1.79
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	102	99.0	99.5			0.504
EPA 8321B	Anatoxin-a	74.7	83.7	96.1			13.8
	Cylindrospermopsin	77.3	78.7	85.7			8.51
	Desmethyl microcystin LR	85.7	86.0	92.4			7.11
	Microcystin HilR	69.4	69.7	81.1			15.1
	Microcystin HtyR	71.7	72.7	77.9			6.95
	Microcystin LA	56.3	63.1	51.8			16.7
	Microcystin LF	68.9	63.6	55.8			13.2
	Microcystin LR	76.2	73.2	77.6			3.85
	Microcystin LW	51.2	47.9	64.1			29.0
	Microcystin LY	52.7	57.7	51.6			11.1
	Microcystin RR	78.4	78.0	86.5			6.28
	Microcystin WR	78.3	69.4	81.4			15.9
	Microcystin YR	75.6	78.3	85.5			8.79
	Nodularin-R	71.5	71.6	79.0			9.78

Reference Method Descriptions

Method	Description	Associated Samples
EPA 350.1 Rev. 2.0	Ammonia in aqueous matrices as mg N/L	2329870
EPA 351.2 Rev. 2.0	Total Kjeldahl Nitrogen in aqueous matrices	2329870
EPA 353.2 Rev. 2.0	Nitrite/Nitrate in aqueous matrices as mg N/L	2329870
EPA 365.1 Rev. 2.0	Total Phosphorus in aqueous matrices as mg P/L	2329870
EPA 365.1 Rev. 2.0 dissolved	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	2329871
EPA 8321B	Microcystins in water matrices by HPLC/MS/MS	2329865

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
EPA 350.1 Rev. 2.0	05/25/2022			06/14/2022 10:02	Ping Hua	2329870
EPA 351.2 Rev. 2.0	05/25/2022	06/02/2022 15:43	Samantha L Bates	06/03/2022 14:41	Alexandra J Mattheus	2329870
EPA 353.2 Rev. 2.0	05/25/2022			06/01/2022 16:50	Nathaniel J Jones	2329870
EPA 365.1 Rev. 2.0	05/25/2022	05/27/2022 16:17	Adam P Silver	05/31/2022 12:12	James L Waggerby	2329870
EPA 365.1 Rev. 2.0 dissolved	05/25/2022			05/25/2022 18:25	Nathaniel J Jones	2329871
EPA 8321B	05/25/2022	05/26/2022 09:00	Manjita Shrestha	05/26/2022 13:54	Manjita Shrestha	2329865

From:	Reistad, Nicole
To:	Reaves, Shawn D
Cc:	Mullen, William
Subject:	RE: RQ-2022-03-07-14
Date:	Thursday, May 26, 2022 3:18:27 PM

Hi Shawn,

The matrix for the algal bloom sample was freshwater.

Thanks,

Nicole Reistad

From: Reaves, Shawn D <Shawn.Reaves@FloridaDEP.gov>
Sent: Thursday, May 26, 2022 11:14 AM
To: Reistad, Nicole <Nicole.Reistad@FloridaDEP.gov>
Cc: Mullen, William <William.Mullen@FloridaDEP.gov>
Subject: RQ-2022-03-07-14
Importance: High

Good Morning,

Can you verify the water matrix for the attached submittal form it's missing ?

Thanks

Shawn D. Reaves
DEP-Lab Support
Environmental Specialist I
Office: 850-245-8082
Direct: 58082
Email: Shawn.Reaves@FloridaDEP.gov

Login Checklist

RQ- 2022-03-07-14 Login Station ID: #4

Shipping Method: FedEx | UPS | HD | Greyhound Date/Time of Receipt: 05/25 /22 @ 9:35

*Cooler Temperature	Samples Frozen?	* All Samples in Cooler Preserved with		Number of Sample Containers in Cooler	Evidence Tape				Waybill Tracking #
					Present?		*Intact?		
	YES	HNO_3	Formalin		Yes	No	Yes	No	
2.4				5		X			5225 5546 4490

COOLER CHECK

***All samples received on ice unless otherwise noted. HNO3 and Formalin preserved samples do NOT have a temperature requirement.**

- If the temperature of a cooler exceeds 6.0 oC (above 10.0 oC for W-1-4-DIOX and microbiology) or received without ice, identify affected samples in an NCR. **NCR#** _____
- DOH coolers can exceed 2.0 °C above the standard temperature (6.0 or 10.0 °C for W-1-4-DIOX) without login confirmation from customer for samples requiring ice preservation; identify affected samples in an NCR. **NCR#** _____
- If cooler or samples are received with a damaged Evidence Seal; identify the affected samples in an NCR. **NCR#** _____
- If coolers or samples are received late; identify the affected samples in an NCR. **NCR#** _____

Chain of Custody/ Field Sheet(s) Included? Yes √ No_____

Micro-Biology Overflow Chain of Custody/ Field Sheet(s) Included? Yes _____ No X

CONTAINER CHECK

Evidence Tape on Bottles? Yes ____ No ____ NA X Evidence Tape intact? Yes _____ No _____

If Criminal, photographs taken? Yes ____ No ____ Containers intact? Yes √ No _____

Caps on tight? Yes √ No ____

Sufficient Sample Volume: Yes √ No ____

If NO is checked above, generate an NCR listing affected sample IDs in its appropriate category. NCR# _____

CHLORINE CHECK REQUIRED? *(Blue dot on container)* Yes_____ No X Init: R

Chlorine detected? *(One container checked per Field ID)* Yes_____ No _____ Init:_____

If chlorine is detected, generate an NCR listing affected sample IDs . NCR# _____

PRESERVATION CHECK *(EXCLUDING SAMPLES SENT TO OVERFLOW LABS, "OV-")*

**Acid Preserved Samples: pH< 2.0? Yes √ No_____ NA _____ Init: R

**W-1-4-DIOX *(Green dot on container)* preserved to pH<4.0? Yes_____ No_____ NA X Init: R

If samples were not preserved correctly, generate an NCR listing affected sample IDs . NCR# _____

Coolers Unpacked/Checked by: R **Date:** 05/25 /22 **Event contains NCRs (Y/N)?** N

Event I Algal Bloom Response -SOROC
WQAP-2022-05-25-04 (BLOOM-RESP)
Date Received: 25-MAY-2022 09:35

Login Checklist

Login Preservation Equipment	Lot # & Exp: Date
Infrared Thermometer ID:	#4 Temp Gun EXP:10/19/2022
pH Test Strips 0 – 6	223819AV EXP:08/30/2023
pH Paper 0 – 3	N/A
pH Paper 0 – 13	207621 EXP:03/15/2024
Chlorine Test Strips	0070 EXP:02/2023

Additional Comments:

ENCORE SAMPLES

S-VOC-MS samples in Encores must be frozen within 48 hours of collection.

Were Encore samples received? Yes_____ Init:_____

Date and time placed in freezer _____

Were all samples placed in freezer within 48 hours of collection? Yes_____ No _____

If no, were samples shipped on dry ice? Yes_____ No _____

If S-VOC-MS samples were not preserved correctly, generate an NCR listing affected sample IDs . NCR# _____

FOR CLEAN LAB USE ONLY – Total Mercury Preservation Check (W-HG-AF;W-HG-AF-F):

Samples preserved within 48 hours? Yes_____ No_____

Date and time samples preserved: _____

Revision Author: C. Swanson

Cyanobacteria Bloom Response Field Data Sheet (2019-12-16 v4)

Email scanned submittal forms to lab.receiving@FloridaDEP.gov

RQ - 2022-03-07-14		**Collected By:**	Nicole Reistad
Customer:	FDEP	**Field Report Prepared By:**	William Muller
Project ID:	HAB - Resp	**Sampling Agency:**	FDEP DEAR SoPoc
Location: Cosmic Coral - Oklahoma St		**Comments:**	
Field ID: HAB-SD-052422-1045		**Coordinates:**	
		Collection Equip:	Bottle, Pole
WIN ID: HA-SD-069		**High Tide Time:**	**Low Tide Time:**
Matrix:	Grab	**Tide:** ☐ Rising ☐ Falling ☐ Slack ☒ N/A	

Water Quality

Date	Time ☒ EST ☐ CEN	D.O. (%)	D.O. (mg/L)	Temp (°C)	pH (SU)	Sample Depth (m)	Total Depth (m)	Secchi Disk (m)	Sp. Cond. (µmho/cm)	Salinity (PPTh)
05/24/22	1045	153.0	11.84	28.5	8.15	0.25	0.5	0.5	1137	0.56

Bloom Observations

Algal Bloom Observed? ☒ Yes ☐ No

Water Surface	☒ Clear	☐ Scum	☐ Globs	☐ Slick			
Water Clarity	☐ Clear	☐ Slightly Turbid	☒ Turbid	☐ Opaque			
Bloom Color	☒ Green	☐ Red	☐ Brown	☐ Other: _____	☐ N/A		
Algae Distribution	☒ Suspended in water column		☐ On surface	☒ Other: _____	☐ N/A		
Water Odors	☒ Normal	☐ Sewage	☐ Petroleum	☐ Chemical	☐ Other: _____		

Parameter Suite	Parameter Methods	Preservation	pH Check	#Bottles Sent to Lab	Bottle Group
Bloom ID (PT-50mL)	☒ BLOOM-ID	☒ Ice		1	A
Chlorophyll (BP-1L)	☒ CHLSUITE-W	☒ Ice		1	B
Toxins (BG-WD250)	☒ W-MCYST-AA	☒ Ice		1	B
Preserved Nutrients (500mL HDPE)	☒ W-NH3 / W-NO2NO3 / W-TKN / W-S-A-TP	☒ Ice ☒ H2SO4	☒ <2	1	B
	Acid Lot: SA1308030	Exp: 12/01/22			
Filtered Nutrients (P125mL)	☒ W-PO4-F	☒ Field Filtered 0.45um Filter, Filter Lot # 1723823 ☒ Ice		1	B
Quantitative Algae	☐ DTY-QN-C / PKD-QN-C	☐ Ice Lugols? Y / N			

Relinquished By:	Date/Time	Number of Coolers Shipped	Received By:	Date/Time
William Muller	05/24/22 1300	1	[illegible]	5-25-2022 9:35

RQ-2022-03-07-14

Date of Request: 25-JAN-2022
Created By: WOLFE_K On: 25-JAN-2022
Modified By: JASROTIA_P On: 16-FEB-2022
Customer: WQAP
Project: BLOOM-RESP
Division: Division of Environmental Assessment and Restoration
District: SROC
Event Description: Algal Bloom Response -SOROC

Send Coolers To:

Phone: 850-245-8416
2295 Victoria AVE
Suite 364
Fort Myers, FL 33901
Attn: Kirby Wolfe
Cooler Ship EMail: kirby.wolfe@dep.state.fl.us

Priority: 1
Event Status: S
Criminal Investigation: NO
Chemistry Request Reviewed By: AYRES_J On: 15-FEB-2022
Biology Request Reviewed By: JASROTIA_P On: 16-FEB-2022
Sampling Kit Required: YES Ship on: 25-FEB-2022
Sampling Kit Shipped: YES On: 23-FEB-2022
Sampling Kit Packed By: SHAIK_A
Preservatives Needed: NO
Date to Receive Samples: 07-MAR-2022
Logged In By:

Send Final Report To:

2295 Victoria AVE
Suite 364
Fort Myers, FL 33901
Attn: Kirby Wolfe
Report Notification EMail:
kirby.wolfe@floridadep.gov;kalina.warren@dep.state.fl.us;Cheryl.Swanson@dep.state.fl.us;Nicole.Reistad@floridadep.gov;John.Barrington@floridadep.gov;Gary.Snorek@dep.state.fl.us

Comments: Unless peak algal bloom season, may analyze toxin after consultation with Biology's Taxonomy Manager.

Bottle Group A - Priority 1
For algal dominant taxon.

Bottle Group B - Priority 1
For toxins, nutrients, chlorophyll,

There are multiple bottles per Group in case multiple sample targets or sample locations are needed. Samplers use best professional judgement to decide which samples are appropriate to collect for a particular response. All sets of bottles do not have to be filled at one time.

Please print two copies of algal job labels at login

Bottle Group A (Biological) With 2 Samples:

Bottle Type: PT-50ML Number of Bottles: 2 Preserved With: ICE

BLOOM-ID	Template: DEFAULT	(SOP-AB05)	Assessment of dominant algal taxa in bloom or mat sample

Bottle Group B (Water) With 2 Samples:

Bottle Type: BP-1L Number of Bottles: 2 Preserved With: ICE

CHLSUITE-W	Template: DEFAULT	(SM 10200 H (mod.))	Phytoplankton chlorophyll-a corrected, uncorrected, and phaeophytin by spectrophotometry

Bottle Type: BG-250ML-WDMTH Number of Bottles: 2 Preserved With: ICE

W-MCYST-AA	Template:	(EPA 8321B)	Microcystins in water matrices by HPLC/MS/MS

Bottle Type: P-500ML Number of Bottles: 2 Preserved With: ICE And H2SO4

W-NH3	Template: DEFAULT	(EPA 350.1 Rev. 2.0)	Ammonia in aqueous matrices as mg N/L
W-NO2NO3	Template: DEFAULT	(EPA 353.2 Rev. 2.0)	Nitrite/Nitrate in aqueous matrices as mg N/L
W-S-A-TP	Template: DEFAULT	(EPA 365.1 Rev. 2.0)	Total Phosphorus in aqueous matrices as mg P/L
W-TKN	Template: DEFAULT	(EPA 351.2 Rev. 2.0)	Total Kjeldahl Nitrogen in aqueous matrices

Bottle Type: P-125ML Number of Bottles: 2 Preserved With: FILTER-ICE

W-PO4-F	Template: DEFAULT	(EPA 365.1 Rev. 2.0)	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L

* - The laboratory is not NELAP certified for this analyte/method, or certification is not applicable.

Summary of Relevant Science Considered for Alachua County Fertilizer Ordinance Amendments

1) Nitrate Leaching From Established Grasses (IFAS Research funded by FDEP)

a) **Finding:** Leaching highest following sod installation.
   i) **Staff Comment:** The Alachua County fertilizer ordinance prohibits fertilizer use for the first 30 days after sodding.

b) **Finding:** "These results suggest that actively growing, healthy turfgrass mitigates NO3–N leaching from fertilization events…. Further research is needed to determine the impacts of runoff from lawn fertilizers.
   i) Staff Comment: While staff understands the conclusion that healthy turf utilized nitrate in the study, there is concern about what "healthy" turf is and how achievable it is to maintain 100% healthy turf. With the introduction of homeowner behaviors (mowing height, over-irrigation, exceeding IFAS rates, etc) staff is concerned that leaching and runoff will exceed the study results.

c) **Finding:** Irrigation treatments consisted of 1.3 cm applied twice weekly or 2.6 cm (roughly one inch) applied once weekly. Irrigation rate had little effect on nutrient leaching across the three years of research.
   i) **Staff Comment:** Irrigation restrictions limit irrigation to ¾ of an inch per irrigation day and two days are allowed in the summer. This adds up to 1.5 inches a week, which exceeds the irrigation rate in the study. Based on local enforcement of irrigation restrictions and analyzing residential water use data, over irrigation definitely occurs in Alachua County. Research shows that over irrigation can lead to nutrient leaching (citations follow) from fertilized landscapes.

   (1) Starrett et al. (1995) reported 30 times greater N in leachate from the columns that received heavy irrigation following fertilization treatment compared to a lighter more frequent irrigation following fertilizer treatment.

   (2) Barton and Colmer 2004 highlight the importance of optimizing irrigation to minimize N losses

   (3) Potential Impacts of Improper Irrigation System Design. 2017. IFAS Document AE73 states, "Excess applications of water and the resulting leaching of chemicals can result in pollution of surface or groundwater supplies. In Florida, leaching can readily occur through the typical sandy soils. Water pollution can occur both as a result of inefficient applications of chemicals and from leaching."

d) **Finding:** "Monthly rainfall for all years of the study was generally below historical averages; rainfall on an annual basis over the months comprising the study period was 19 and 17% below average for 2006 and 2007, respectively.

However, there were months (Aug and Oct 2005, July 2006, and Oct 2007) when rainfall exceeded historical averages and some dates where daily rainfall events exceeded 25 mm (1 inch). For example, in 2006, there were 5 daily rainfall events during LSFC that exceeded 25 mm (1 inch)."

i) **Staff Comment:** It is of concern that rainfall was below average. What would the results look like if rainfall was above average? The study looked at leaching, not stormwater runoff. Many yards in Alachua County are sloped towards the street and have a high runoff potential.

2) **Quantifying nitrogen Leaching from residential soils in Alachua County. 2018. proposal by IFAS Faculty**

a) **Finding:** "Ultimately, this project found that healthy, actively growing turf did not exhibit significant NO3 - leaching (Carey et al. 2012), and the study recommended reducing fertilizer application rate recommendations for three of five common turfgrass species (Trenholm et al. 2012), but this project did not investigate other forms of N beyond NO3 - , and results were from idealized, experimental plot conditions. The age of the turf plots were also relatively young (<5yrs) and therefor may not have accounted for increasing source of mineralizable nitrogen as soil organic matter and thatch accumulates in the soil profile over time. Additional factors such as human behavior, non-turf landscapes, and other forms of N beyond NO3- such as organic N may contribute to N leaching from residential landscapes managed by individual homeowners or green- industry professionals."

i) **Staff Comment:** Staff agrees that leaching and runoff will likely vary in a real world situation verses a highly controlled study (like the study explored in item one above) that only looked at one form of nitrogen.

3) **The Fate of Nitrogen Applied to Florida Turfgrass by Shaddox and Unruh (IFAS)**

a) **Finding:** The authors recognize that 0 to 55% of nitrogen could be leached, with the higher percentages occurring when UF/IFAS recommendations are not followed.

i) **Staff comment:** While many point to the leaching study discussed in number one above (which leaching was reported as low), the literature and IFAS recognize that leaching can be much higher. Homeowner and applicator behavior is a major factor to consider.

b) **Finding:** "When all the N fertilizer applied in Florida is considered, the amount applied to turfgrass is comparatively low, contributing only 11% to the total N applied in Florida (FDAC 2017)."

i) **Staff comment:** While 11% may seem like a low percentage, Alachua County is responsible for reducing nitrogen pollution to local waterways through the various adopted BMAPs. Reducing any new inputs is much more economically feasible than restoration projects to attempt to remove nitrogen from the system.

c) **Finding:** "When UF/IFAS recommended N rates are followed, turfgrass uptake of applied N ranges from 40-68% (Brown 2003; Sartain 1985; Shaddox 2001; Stiegler et al. 2011)…"

i) **Staff comment:** If uptake is 40-68%, then that leaves 60-32% available for leaching or running off. Additionally, we know that IFAS rates are sometimes exceeded, which would increase the pollution potential.

d) **Finding:** "Thus, UF/IFAS recommends refraining from applying any N when the National Weather Service has issued a flood, tropical storm, or hurricane watch or warning, or if heavy rains are likely."

i) **Staff comment:** This indicates that UF/IFAS recognizes the potential of nitrogen pollution from recently fertilized landscapes due to excessive rain. It is difficult to determine when a rain forecast will become "heavy rain". Most businesses operate on a quarterly schedule and may feel pressure to apply nitrogen, even if rain is in the forecast.

4) **Effect of Fertilizer Source on Nitrate Leaching and St Augstinegrass Turfgrass Quality. Subhrajit Saha and Laurie Trenholm (UF IFAS). 2007. HortScience42(6)**

a) **Finding:** "In a nutrient management study comparing St. Augustine grass and a mixed landscape planting, Erickson et al (2001) observed that a greater amount of nitrate was leached from ornamentals (1.46 mg/L) than from turfgrass (less than 0.2 mg/L). More than 30% of the applied nitrogen was leached from the ornamental and less than 2% from the turfgrass."

i) **Staff Comment:** The Fertilizer ordinance applies to ornamentals and turf. While 2% leaching from turf is a low rate, it still adds up to additional nitrogen loading that the County may be accountable for in meeting TMDLs.

5) **Managing Landscape Irrigation to avoid Soil and Nutrient Losses. 2013. IFAS Publication SL384**

a) **Finding:** "Nonpoint source pollution can be caused by over-watering in two main ways. The first is leaching or percolating through the soil beyond the plant roots. Irrigation runoff transports sediment, soil, and landscape clippings. The second way is if fertilizer was recently applied and it not irrigated in, it can also be transported as runoff."

i) **Staff Comment:** Over irrigation occurs in Alachua County, so there is concern that it contributes to non-point source pollution.

6) **Urban Water Quality and Fertilizer Ordinances.**

a) Finding: "Losses are most likely when fertilizer is applied just before or duing heavy rainfall (Soldat and Petrovi, 2008), when fertilizer is applied before the turf root system is established (Erickson et al;, 2010;Trenholm et al., 2011), or when fertilizer is applied in excess of research-based recommendations (trenholm et al., 2011)."

i) Staff Comment: Again, it is difficult to predict when heavy rains will occur. To minimize losses fertilizer use should be prohibited during the periods when we get the most rain. The proposed ordinance would prohibit fertilizer use in the early months of the year when roots are not established.

b) Finding: "Healthy turfgrass means turfgrass that maintains a complete and dense cover over the soil to reduce erosion and weed growth. Healthy turfgrass has an expansive root system that fills the soil and absorbs nutrients and water. Healthy turfgrass is reflected in the medium-green color that is desired for aesthetic purposes and to add value to the home and community. Healthy turfgrass consists of strong plants that stand up to the wear and tear of athletic use."

i) Staff Comment: IFAS literature repeatedly states that "healthy" turf will utilize fertilizer effectively without leaching. As healthy is defined above, many yards do not fit this definition so may not perform as studied in research plots. The above definition includes expansive roots that fills the soil. It is difficult for roots to establish in compacted soils typical in new construction.

7) **Irrigation and Fertilizer Strategies for minimizing nitrogen leaching from turfgrass. 2004. Loiuse Barton and Tim Colmer. School of Plant Biology, Faculty of Natural Resources & Agricultural Sciences. The University of Western Australia.**

a) **Finding:** "Reported annual rates of N leaching from trufgrass range from 0 to 160 kg/N/ha/yr, representing up to 30% of applied N"… "Applying fertilizer to warm-season grasses at cooler times of the year can increase N leaching."

i) Staff comment: This study also shows a range of nitrate leaching and supports prohibiting fertilizers in cooler months.

8) **δ15N and δ18O Reveal the Sources of Nitrate-Nitrogen in Urban Residential Stormwater Runoff .Yun-Ya Yang and Gurpal S. Toor. Soil and Water Quality Laboratory, Gulf Coast Research and Education Center, University of Florida, IFAS.**

   a) **Finding:** "We are first to report and quantify the contribution of N fertilizers (average of 42%) to NO3-N in urban stormwater runoff from a residential catchment. This data suggests that proper application of urban N fertilizers in residential areas dominated by turfgrass is important to reduce NO3-N concentrations in stormwater runoff."

      i) **Staff Comment:** The study demonstrates that it is important to look at runoff also, not just leaching.

9) **Technical Memorandum: Model-based Estimates of Nitrogen Load Reductions Associated with Fertilizer Restriction Implementation. November 2008. Tampa Bay Estuary Program.**

   a) **Finding:** "One Study of the Lake Tarpon watershed found that an estimated 79% of the groundwater nitrogen load to the lake was derived from fertilizer sources (LBG 2004)."

      i) **Staff Comment:** This study shows residential fertilizer to be a major source of pollution.

10) **Identification of Nitrogen Sources and Transformations within Karst Springs Using Isotope Tracers of Nitrogen. 2010. Andrea Albertin, James Sickman, Agnieszka Pinowska, R Stevenson. Biogeochemistry 108:219-232.**

   a) **Finding:** "Our study demonstrates that nitrate inputs to Florida's springs are derived predominately from non-point sources….". "Katz and Griffin (2008) found that inorganic fertilizers were the major source of nitrogen at Ichetucknee Head Springs and Blue Hole…."

      i) **Staff Comment:** Residential fertilizer is one main non-point source in our County. Some of the inorganic fertilizers are also likely from agricultural sources.

11) **Sources of Nitrate and Estimated Groundwater Travel Times to Springs of the Santa Fe River Basis Revised Report. 2013. Conducted by AMEC for Alachua County.**

   a) **Finding:** Residential landscapes were estimated to contribute 229,000 lb/year of nitrate to the Santa Fe River Springsheds in 2004.

i) **Staff Comment:** Alachua County is accountable to reduce nitrate loading to the springs of the Santa Fe River through the BMAP process.

12) Fate and Transport of Nitrogen Applied to Six Warm-Season Turfgrasses. 2002. D.C. Bowman, C.T. Cherney, and T.W. Rufty, Jr. Crop Science 42,3.

a) **Finding:** This greenhouse study showed leaching was greater from Zoysiagrass compared to St Augustine grass. "These results document differences between the warm season turfgrasses for nitrate leaching potential, possibly related to root distribution, and emphasize that species selection is an important factor in minimizing environmental impacts from turfgrass management."

i) Staff Comment: Zoysiagrass is becoming the most prevalent turf used in new construction in Alachua County. In several studies reviewed by staff, it appears that this species has an even greater leaching potential. IFAS nitrogen recommendations in our region are lower for Zoysiagrass (2-3 lbs/1,000ft^2) compared to St Augustinegrass (2-4 lbs/1,000ft^2). However, in a recent discussion regarding the Fertilizer ordinance, a local fertilizer distributor stated that Zoysiagrass needs 3-5 lbs/year. This is a concern, as this distributor is advising professionals on purchases and they are not aware of the recommended rate.

13) Nitrogen Input from Residential Lawn Care Practices in Suburban Watersheds in Baltimore County, MD. 2004. Neely Law, Lawrence Band, and Morgan Grove. Journal of Environmental Planning and Management. Vol. 47, No. 5.

a) Finding: "Results indicated that the annual input of nitrogen from fertilizer is a major component of the urban watershed nitrogen budget and it is both spatially and temporally variable." "It was found that approximately 53% of the total nitrogen budget in Glyndon is from lawn fertilization."

b) Finding: "There is a wide range in the application rate of fertilizer N to residential lawns applied by homeowners and by professional lawn care companies." "The average application rate of fertilizer on a lawn area basis reported by professional lawn care companies is higher compared to that calculated for homeowners."

i) Staff Comment: This study does not support exempting lawn care companies.

14) Florida Department of Environmental Protection Department. Various Documents.

a) **Finding:** FDEP, in various Basin Management Action Plans and in guidance documents for calculating load reductions, assumes 30% of nitrogen from landscape fertilizers may be leached to the aquifer either directly where it is

applied (infiltration) or through stormwater management facilities after it has been transported by stormwater runoff.

i) **Staff Comment:** Alachua County is held responsible by FDEP for reducing load reductions from urban turf fertilizer, so must use their estimates of leaching.

ii) **Staff Comment:** FDEP gives load reduction credit for fertilizer ordinances, public education and stormwater retrofit projects.

iii) **Staff Comment:** FDEP also notes in various Basin Management Action Plans that local ordinances are the primary mechanism for controlling future growth in nutrient loads.

Demonstration of Compliance with Section 403.9337, Florida Statutes

Section 403.9337, Florida Statutes, authorizes local governments to adopt additional or more stringent standards than those contained in the State's Model Ordinance if both the following criteria are met:

1) The local government must demonstrate, as part of a program designed to address nonpoint sources of nutrient pollution that is both science-based and economically/technologically feasible, that the additional or more stringent standards are necessary in order to adequately address urban fertilizer contributions to nonpoint source nutrient loading of a water body; and

    a. **Staff Response:** The Powerpoint Presentation and document summarizing the scientific literature considered by staff demonstrates the need for a more stringent standard.

2) That the local government has considered all relevant scientific information, including any input provided by FDEP, FDACS, and IFAS, on the need for additional or more stringent fertilizer standards to address fertilizer use as a contributor to the degradation of water quality.

    a. **Staff Response:** Relevant scientific information considered by staff is summarized in a separate document. Below and attached is a summary of responses from Florida Department of Environmental Protection (FDEP), University of Florida Institute of Food and Agricultural Sciences (IFAS), and Florida Department of Agriculture Consumer Services (FDACs).

        i. **FDEP**- FDEP responded that the code meets the minimum requirements and looks fine.

        ii. **IFAS**- IFAS is not supportive of the summer ban. In the back up document summarizing the scientific evidence used in evaluating the draft fertilizer code, staff expands on why IFAS's recommendation on this point is not supported by staff.

        iii. **FDACs**- FDACs is under new leadership and their staff has not been able to provide comments on the draft ordinances shared by County staff.

Stacie Greco

From: Lyon, Celeste <Celeste.Lyon@FloridaDEP.gov>
Sent: Tuesday, April 2, 2019 10:39 AM
To: Stacie Greco
Subject: RE: Feedback on Proposed Fertilizer Ordinance

Hi Stacie,

Sorry for the late response! The recommended changes still meet, at a minimum, the requirements set forth by FDEP's Model Ordinance, so everything looks fine to me. Please let me know if there is any other way I can be of assistance.

Cheers,

Celeste Lyon
Environmental Consultant
Florida Department of Environmental Protection
Celeste.Lyon@dep.state.fl.us
Office: (850) 245-8652
Fax: (850) 245-8236

From: Stacie Greco <sgreco@AlachuaCounty.US>
Sent: Tuesday, March 26, 2019 5:48 PM
To: Lyon, Celeste <Celeste.Lyon@FloridaDEP.gov>
Subject: FW: Feedback on Proposed Fertilizer Ordinance

Hi. Celeste. I know you provided input on the initial proposed code I sent you that included a summer and winter fertilizer ban, but I wanted to check in to see if you have any feedback on the newest proposal which includes a 9 month ban (summer, fall, and winter). I have attached the draft. I appreciate FDEP's consideration.

Thanks!

Stacie Greco, Interim Water Resources Program Manager
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This letter is in regards to the proposed fertilizer ordinance amendments. The UF/IFAS Extension Alachua County Office recommends fertilizer applications to occur during turfgrass' active growing season. Based on scientific evidence, with some variability in turfgrass type and maintenance level, the optimal times for fertilizing turfgrass in North Florida are April through September.

Based on UF/IFAS recommendations, the proposed fertilizer schedule limits the application of appropriate nutrients to turfgrass during this time. Inability to apply fertilizer at the recommended times can result in soil erosion, loss of ability to filter stormwater runoff and will allow for increased weed encroachment. Additionally, we strongly encourage that homeowners follow the Florida-Friendly Landscaping™ principles when doing any lawn maintenance such as mowing and irrigating. This can result in a healthier lawn that may ultimately require less fertilizer and pesticides.

Sincerely,

Taylor B. Clem, PhD
Environmental and Community Horticulture Agent II
Master Gardener Coordinator
Alachua County UF/IFAS Extension

Tatiana Sanchez, DPM
Commercial Horticulture Agent II
Alachua County UF/IFAS Extension