Annual Report Form
For Individual NPDES Permits For
Municipal Separate Storm Sewer Systems
(RULE 62-624.600(2), F.A.C.)

- This Annual Report Form must be completed and submitted to the Department to satisfy the annual reporting requirements established in Rule 62-621.600, F.A.C.
- Submit this fully completed and signed form and any REQUIRED attachments by email to the NPDES Stormwater Program Administrator or to the MS4 coordinator (http://www.dep.state.fl.us/water/stormwater/npdes/contacts.htm). Files larger than 10MB may be placed on the FTP site at: ftp://ftp.dep.state.fl.us/pub/NPDES_Stormwater/. After uploading files, email the MS4 coordinator or NPDES Program Administrator to notify them the report is ready for downloading; or by mail to the address in the box at right.
- Refer to the Form Instructions for guidance on completing each section.
- **Please print or type information in the appropriate areas below.**

Submit the form and attachments to:
Florida Department of Environmental Protection
Mail Station 3585
2600 Blair Stone Road
Tallahassee, Florida 32399-2400

SECTION I. BACKGROUND INFORMATION			
A.	Permittee Name: **City of Boca Raton**		
B.	Permit Name: **Palm Beach County MS4**		
C.	Permit Number: FLS000018-004		
D.	Annual Report Year: ☐ Year 1 ☒ Year 2 ☐ Year 3 ☐ Year 4 ☐ Year 5 ☐ Other, specify Year:		
E.	Reporting Time Period (month/year): October / 2017 through September / 2018		
F.	Name of the Responsible Authority: Maurice Morel, PE		
	Title: City Civil Engineer		
	Mailing Address: 201 West Palmetto Park Road		
	City: Boca Raton	Zip Code: 33432	County: Palm Beach
	Telephone Number: 561-416-3425	Fax Number: 561-416-3343	
	E-mail Address: MMorel@ci.boca-raton.fl.us		
G.	Name of the Designated Stormwater Management Program Contact (if different from Section I.F above): Zach Bihr		
	Title: Assistant City Engineer		
	Department: Municipal Services		
	Mailing Address: 201 West Palmetto Park Road		
	City: Boca Raton	Zip Code: 33432	County: Palm Beach
	Telephone Number: 561-416-3430	Fax Number: 561-416-3418	
	E-mail Address: zbihr@myboca.us		

SECTION II. MS4 MAJOR OUTFALL INVENTORY (Not Applicable in Year 1)	
A.	Number of outfalls ADDED to the outfall inventory in the current reporting year (insert "0" if none): 0 (Does this number include non-major outfalls? ☐ Yes ☐ No ☒ Not Applicable)
B.	Number of outfalls REMOVED from the outfall inventory in the current reporting year (insert "0" if none): 0 (Does this number include non-major outfalls? ☒ Yes ☐ No ☐ Not Applicable)
C.	Is the change in the total number of outfalls due to lands annexed or vacated? ☐ Yes ☐ No ☒ Not Applicable

SECTION III. PART V.B. ASSESSMENT PROGRAM	
A.	Provide a brief statement as to the status of water quality monitoring plan implementation. Status may include sampling frequency changes, monitoring location changes, or sampling waiver conditions. *DEP Note: If permittee participates in a collaborative monitoring plan, permittee may refer to a joint response as defined by the interlocal agreement.* Name and date of the approved plan: 5/15/2018 (via email) Status: The monitoring program is carried out jointly by the PBC Co-permittees. See the PBC Joint Annual Report. The information relevant to the City's outfalls is addressed within the Annual Assessment Report document, provided herewith.
B.	Provide a brief discussion of the monitoring and loading results to date which includes a summary of the water quality monitoring data and / or stormwater pollutant loading changes from the reporting year. *DEP Note: Results must be specific to the permittee's SWMP.* The monitoring program is carried out jointly by the PBC Co-permittees; see the PBC Joint Annual Report. The information relevant to the City's outfalls is addressed within the Annual Assessment Report document, provided herewith.
C.	Attach a monitoring data summary as required by the permit. An analysis of the data discussing changes in water quality and/or stormwater pollutant loading from previous reporting years. *DEP Note: Analysis must be specific to the permittee's SWMP.* See provided Annual Assessment Report.

SECTION IV. FISCAL ANALYSIS	
A.	Total expenditures for the NPDES stormwater management program for the current reporting year: $10,807,800
B.	Total budget for the NPDES stormwater management program for the subsequent reporting year: $10,128,000
C.	Did subsequent program resources decrease from the current reporting period? Y ☐ / N ☒ If program resources decreased, provide a discussion of the impacts on the implementation of the SWMP. n/a

SECTION V. MATERIALS TO BE SUBMITTED WITH THIS ANNUAL REPORT FORM

Only the following materials are to be submitted to the Department along with this fully completed and signed Annual Report Form (check the appropriate box to indicate whether the item is attached or is not applicable):

Attached	N/A	Required Attachments	Permit Citation	Attachment Number/Title
☐	☒	Any additional information required to be submitted in this current annual reporting year in accordance with Part III.A of your permit that is not otherwise included in Section VII below.	Part III.A	Copy of Fertilizer Ordinance available at www.pbco-npdes.org/annual.asp
☐	☒	If program resources have decreased from the previous year, a discussion of the impacts on the implementation of the SWMP.	Part II.F	
☐	☒	An explanation of why the minimum inspection frequency in Table II.A.1.a. was not met, if applicable.	Part II.A.1	
☐	☒	A list of the flood control projects that did not include stormwater treatment and an explanation for each of why it did not (if applicable).	Part III.A.4	
☒	☐	A monitoring data summary as directed in Section III.C above and in accordance with Rule 62-624.600(2)(c), F.A.C.	Part V.B.3	See Joint Annual Report & City's Annual Assessment Report
☐	☒	YEAR 1 ONLY: An inventory of all known major outfalls and a map depicting the location of the major outfalls (hard copy or CD-ROM) in accordance with Rule 62-624.600(2)(a), F.A.C.	Part III.A.1	
☒	☐	YEAR 2: A summary review of codes and regulations to reduce the stormwater impact from development.	Part III.A.2	Summary of Recommendations Report
☐	☒	Year 3 ONLY: The estimates of pollutant loadings and event mean concentrations for each major outfall or each major watershed in accordance with Rule 62-624.600(2)(b), F.A.C.	Part V.A	
☐	☒	YEAR 3: Summary of TMDL Monitoring Results (if applicable).	Part VIII.B.2	
☐	☒	YEAR 3: Bacteria Pollution Control Plan (if applicable).	Part VIII.B.3	
☐	☒	YEAR 4: A follow-up report on plan implementation of changes to codes and regulations to reduce the stormwater impact from development.	Part III.A.2	
☐	☒	YEAR 4: A report on any amendments to the applicable legal authority (if applicable).	Part III.A.7.a	
☐	☒	YEAR 4: Permit re-application information in accordance with Rule 62-624.420(2), F.A.C. • The monitoring plan (with revisions, if applicable). • If the total annual pollutant loadings have not decreased over the past two permit cycles, revisions to the SWMP, as appropriate.	Part V.B.3 Part V.A.3	
☐	☒	YEAR 4: TMDL Supplemental SWMP (if applicable).	Part VIII.B.3	

DO NOT SUBMIT ANY OTHER MATERIALS
(such as records and logs of activities, monitoring raw data, public outreach materials, etc.)

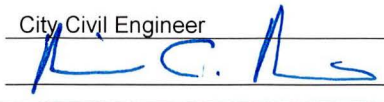
SECTION VI. CERTIFICATION STATEMENT AND SIGNATURE

The Responsible Authority listed in Section I.F above must sign the following certification statement, as per Rule 62-620.305, F.A.C:

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. Based upon my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Name of Responsible Authority (type or print): Maurice Morel, PE

Title: City Civil Engineer

Signature:  Date: 3 / 27 / 19

SECTION VII.	STORMWATER MANAGEMENT PROGRAM (SWMP) SUMMARY TABLE									
A.	B.						C.	D.	E.	F.
Permit Citation/ SWMP Element	Permit Requirement/Quantifiable SWMP Activity						Number of Activities Performed	Documentation / Record	Entity Performing the Activity	Comments
Part III.A.1	Structural Controls and Stormwater Collection Systems Operation									
	Report the current known inventory. Report the number of inspection and maintenance activities conducted for each applicable type of structure included in Table II.A.1.a, and the percentage of the total inventory of each type of structure inspected and maintained. *Note: Delete structures that are not in your MS4's inventory. The permittee may choose its own unit of measurement for each structural control to be consistent with the unit of measurement in the documentation. Unit options include: miles, linear feet, acres, etc.*									
	Type of Structure	**Number of Structures**	**Number of Inspections**	**Percent Inspected**	**Number of Maintenance Activities**	**Percent Maintained**				
	Dry retention systems	3	33	100	0	0		Work Orders/ Inspection Forms	Streets Supervisor	Systems mowed, but no restoration done
	Underdrain filter systems	0								
	Exfiltration trench / French drains (miles)	3.33	8*	100	0	0		Work Orders/ Inspection Forms	Streets Supervisor	* Number of inspections and maintenance is in miles
	Grass treatment swales (miles)	18*	18	100	0	0		Work Orders	Streets Supervisor	*Swales are still being re-inventoried and evaluated for those that provide treatment. Map will be provided with next year's report.
	Dry detention systems	1	12	100	0	0		Work Orders/ Inspection Forms	Streets Supervisor	Systems mowed, but no restoration done
	Wet detention systems	6	72	100	0	0		Work Order	Streets	Banks mowed,

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							Forms	Supervisor	but no restoration done
	Detention with filtration systems	0							
	Alum Injection systems	0							
	Pollution control boxes	0							
	Pump Stations	1	2	100	0	0	Insp. Forms	Engineering Insp	Texas Trail
	Major outfalls	16	27	94*	0	0	Work Order Forms	Streets Supervisor	*One outfall was left out of the inspection list. This has since been corrected and inspected.
	Weirs or other control structures	13	13	100	0	0	Insp. Forms	Engineering Insp	
	pipes / culverts (miles)	29	10	35	3.1	11	Work Orders/ Inspection Forms	Streets Supervisor	
	Canals (miles)	2.4*	19.2**	100	0.34	14%	Work Orders/ Inspection Forms	Streets Supervisor	* Canal inventory was updated & removed from the MS4 2 segments that are “waters of the State. ** Number of inspections and maintenance is in miles.
	Inlets / catch basins / grates	3,149	1111	35	926	29	Inspection Forms	Streets Supervisor	
	Ditches / conveyance swales (miles)	0							
	If the minimum inspection frequencies set forth in Table II.A.1.a. were not met, provide as an attachment an explanation of why they were not and a description of the actions that will be taken to ensure that they will be met.	☐							

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Part III.A.1 Summary	Provide an evaluation of the Stormwater Management Program according to Part VI.B.2 of the permit.				
	Strengths: Insp. and maint. of structural components of the MS4 enhance water quality and flood protection. The inspections also identify drainage areas that are problematic and that may require additional programs.				
	Limitations: The mandate to meet the specified minimum number of inspections may not be appropriate for all components within a system. This leads to wasted time and resources that could be better spent elsewhere.				
	SWMP revisions implemented to address limitations: None.				
Part III.A.2	**Areas of New Development and Significant Redevelopment**				
	Report the number of significant development projects, including new and redevelopment, reviewed and approved by the permittee for post-development stormwater considerations.				
	Number of significant development projects reviewed	29	\\Abyss\Common\Land Development\PWR\2018	Stormwater Manager	
	Number of significant development projects approved	10	\\Abyss\Common\Land Development\PWR\2018	Stormwater Manager	
	Provide in the Year 2 Annual Report the summary report of the review activity. Provide in the Year 4 Annual Report the follow-up report on plan implementation.				
	Year 2 ONLY: Attach the summary report of the review activity	☒			
	Year 4 ONLY: Attach the follow-up report on plan implementation	☐			N/A, year 2
Part III.A.2 Summary	Provide an evaluation of the Stormwater Management Program according to Part VI.B.2 of the permit.				
	Strengths: The review of Land Development Regulations to ensure they are as relevant as they should be is beneficial.				
	Limitations: Annual tracking and reporting of the number of projects reviewed does not improve water quality.				
	SWMP revisions implemented to address limitations: None.				
Part III.A.3	**Roadways**				
	Report on the litter control program, including the frequency of litter collection, an estimate of the total number of road miles cleaned or amount of area covered by the activities, and an estimate of the quantity of litter collected. *Note: If the permittee does not contract activities, delete CONTRACTOR activities.*				
	PERMITTEE Litter Control: Frequency of litter collection	None			Majority of swales maintained by adjacent property owner (City code 10-27). For swales mowed & maintained
	PERMITTEE Litter Control: Estimated amount of area maintained (lf)	0			
	PERMITTEE Litter Control: Estimated amount of litter collected (cy)	0			

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					by City, litter is collected during mowing and is a negligible amount.
	OPTIONAL: If an Adopt-A-Road or similar program is implemented, report the total number of road miles cleaned and an estimate of the quantity of litter collected. If you do not participate in an Adopt-A-Road program, report "0".				
	Trash Pick-up Events: Total miles cleaned	0			City does not participate in these events
	Trash Pick-up Events: Estimated amount of litter collected (cy)	0			
	Adopt-A-Road: Total miles cleaned	0			City does not have this program
	Adopt-A-Road: Estimated amount of litter collected (cy)	0			
	Report on the street sweeping program, including the frequency of the sweeping, total miles swept, an estimate of the quantity of sweepings collected, and the total nitrogen and total phosphorus loadings that were removed by the collection of sweepings. If no street sweeping program is implemented, provide the explanation of why not in column F.				
	Frequency of street sweeping	Weekly	Naviline Work Order System	Supervisor of Streets	
	Total miles swept	819.5	Naviline Work Order System	Supervisor of Streets	
	Estimated quantity of sweeping material collected (cy)	1005	Naviline Work Order System	Supervisor of Streets	
	Total phosphorous loadings removed (pounds)	832	Hard & e-copy of Speadsheet	Stormwater Manager	Calculated using FDEP Nutrient Load Reduction Assessment Tool
	Total nitrogen loadings removed (pounds)	1,297	Hard & e-copy of speadsheet	Stormwater Manager	
	Report the equipment yards and maintenances shops that support road maintenance activities, and the number of inspections conducted for each facility.				
	Name of Facility	**Number of Inspections**			
	Municipal Services Complex	12	Monthly Safety Inspection Reports	Risk Management Safety Officer	
	Municipal Services Complex	12	Monthly Yard Inspection Reports	Supervisor of Streets/Municipal Services	

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Part III.A.3 Summary	Provide an evaluation of the Stormwater Management Program according to Part VI.B.2 of the permit.				
	Strengths: The street sweeping program definitely removes potential pollutants from receiving waters.				
	Limitations: None noted.				
	SWMP revisions implemented to address limitations: None.				
Part III.A.4	**Flood Control Projects**				
	Report the total number of flood control projects that were constructed by the permittee during the reporting period and the number of those projects that did NOT include stormwater treatment. The permittee shall provide a list of the projects where stormwater treatment was not included with an explanation for each of why it was not. Report on any stormwater retrofit planning activities and the associated implementation of retrofitting projects to reduce stormwater pollutant loads from existing drainage systems that do not have treatment BMPs.				
	Flood control projects completed during the reporting period	0	Q:\CIP DESIGN - ROW\2017-18 CIP	Stormwater Manager	
	Flood control projects completed that did <u>not</u> include stormwater treatment	0		Stormwater Manager	
	Stormwater retrofit projects planned/under construction	2	Q:\CIP DESIGN - ROW\2017-18 CIP	Stormwater Manager	
	Stormwater retrofit projects completed	2	Q:\CIP DESIGN - ROW\2017-18 CIP	Stormwater Manager	
	If there were projects that did not include stormwater treatment, provide as an attachment a list of the projects and an explanation for each of why it did not.	☐			N/A
Part III.A.4 Summary	Provide an evaluation of the Stormwater Management Program according to Part VI.B.2 of the permit.				
	Strengths: None.				
	Limitations: This tracking requirement is unhelpful in improving water quality. Permitting with the SFWMD requires the inclusion of water quality features whenever possible/feasible for a project.				
	SWMP revisions implemented to address limitations: None at this time.				

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Part III.A.5	**Municipal Waste Treatment, Storage, and Disposal Facilities Not Covered by an NPDES Stormwater Permit**				
	Report the applicable facilities and the number of the inspections conducted for each facility.				
	Name of Facility	**Number of Inspections**			
	Municipal Services Complex Washrack	22*	Naviline Work Order System	Supervisor of Streets	*washrack is inspected during cleaning
Part III.A.5 Summary	Provide an evaluation of the Stormwater Management Program according to Part VI.B.2 of the permit.				
	Strengths: Good housekeeping practices decrease the chance of unwanted pollutant discharges into the MS4.				
	Limitations: None.				
	SWMP revisions implemented to address limitations: None.				
Part III.A.6	**Pesticides, Herbicides, and Fertilizer Application**				
	Report the number of permittee personnel applicators and contracted commercial applicators of pesticides and herbicides who are FDACS certified / licensed. Report the number of permittee personnel who have been trained through the Green Industry BMP Program and the number of contracted commercial applicators of fertilizer who are FDACS certified / licensed.				
	PERSONNEL: FDACS public applicators of pesticides/herbicides	23	Personnel Records	Muni Services & Rec Services	
	CONTRACTORS: FDACS commercial applicators of pesticides/ herbicides	4	Contracts	Muni Services & Rec Services	
	PERSONNEL: Green Industry BMP Program training completed	69	Attendance Records	Rec Services	
	CONTRACTORS: FDACS certified / licensed applicators of fertilizer	1	Contracts	Rec Services	
	Provide a copy of the adopted ordinance with the Year 2 Annual Report. If this provision is not applicable because the permittee is not within the watershed of a nutrient-impaired water body, indicate that in Column F.				
	Year 2 ONLY: Attach copy of adopted Florida-friendly ordinance	☒			attached
	Report on the public education and outreach activities that are performed or sponsored by the permittee within the permittee's jurisdiction to encourage citizens to reduce their use of pesticides, herbicides and fertilizers including the type and number of activities conducted, the type and number of materials distributed, and the number of Web site visits (if applicable).				
		Public outreach and education is funded and carried out as a joint program by the Palm Beach County MS4 co-permittees. Please see the Joint Annual Report for a description of the public education and outreach activities.			
	Number of visitors to stormwater-related pages	236	web stats report	IT Network Analyst	Stormwater pages on City website

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Part III.A.6 Summary	Provide an evaluation of the Stormwater Management Program according to Part VI.B.2 of the permit.				
	Strengths: Training and education improve the chance that proper procedures and application of chemicals will occur. Local training for municipal staff and the state requirements that licensed contractors be certified should prove beneficial.				
	Limitations: Public Education on this topic should be state-wide, not just local.				
	SWMP revisions implemented to address limitations: None at this time.				
Part III.A.7.a	**Illicit Discharges and Improper Disposal — Inspections, Ordinances, and Enforcement Measures**				
	Report amendments in Year 4.				
	Year 4 ONLY: Attach a report on amendments to applicable legal authority	☐			N/A, Year 2
Part III.A.7.c	**Illicit Discharges and Improper Disposal — Investigation of Suspected Illicit Discharges and/or Improper Disposal**				
	Report on the proactive inspection program, including the number of inspections conducted by the permittee, the number of illicit activities found, and the number and type of enforcement actions taken.				
	Proactive inspections for suspected illicit discharges	442	Inspection Reports & Logs	Supervisor of Streets	
	Illicit discharges found during a proactive inspection	3	Inspection Reports	Supervisor of Streets	
	NOV/WL/citation/fines issued for illicit discharges found during proactive inspection	0	Code Enforcement HTE System	Code Enforcement	
	Report on the reactive investigation program as it relates to responding to reports of suspected illicit discharges, including the number of reports received, the number of investigations conducted, the number of illicit activities found, and the number and type of enforcement actions taken.				
	Reports of suspected illicit discharges received	2	Inspection Forms	Stormwater Manager	
	Reactive investigations of reports of suspected illicit discharges etc.	2	Inspection Forms	Stormwater Manager	
	Illicit discharges etc. found during reactive investigation	0	Inspection Forms	Stormwater Manager	
	NOV/WL/citation/fines issued for illicit discharges etc. found during reactive investigation	0	Code Enforcement HTE System	Code Enforcement	
	Report the type of training activities, and the number of permittee personnel and contractors trained (both in-house and outside training) within the reporting year.				
	Personnel trained	7	Sign-In Sheets	Municipal Services	3/21/2018 Joe Ahern, Paul Robinson, Elsa Tellez, Paul Baker, Moe Morel, Andre Bigatao,

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					J. Ramkhalawa
	Contractors trained	0			No Contractors used by City
Part III.A.7.d	**Illicit Discharges and Improper Disposal — Spill Prevention and Response**				
	Report on the spill prevention and response activities, including the number of spills addressed.				
	Hazardous and non-hazardous material spills responded to	179	NFIRS Fire Reports	City Fire Rescue Services	
	Report the type of training activities, and the number of permittee personnel and contractors trained (both in-house and outside training) within the reporting year.				
	Personnel trained	7	Sign-In Sheets	Municipal Services	3/21/2018 Joe Ahern, Paul Robinson, Elsa Tellez, Paul Baker, Moe Morel, Andre Bigatao, J. Ramkhalawa
	Personnel trained	96	Dept Records & class certifications	Training & Safety Division Chief	All staff receive annual training
	Contractors trained	0			No contractors used
Part III.A.7.e	**Illicit Discharges and Improper Disposal — Public Reporting**				
	Report on the public education and outreach activities that are performed or sponsored by the permittee within the permittee's jurisdiction to encourage the public reporting of suspected illicit discharges and improper disposal of materials, including the type and number of activities conducted, the type and number of materials distributed, and the number of Web site visits (if applicable).				
		Public outreach and education is funded and carried out as a joint program by the Palm Beach County MS4 co-permittees. Please see the Joint Annual Report for a description of the public education and outreach activities.			
	Number of visitors to stormwater-related pages	43	web stats report	IT Network Analyst	Stormwater pages on City website
Part III.A.7.f	**Illicit Discharges and Improper Disposal — Oils, Toxics, and Household Hazardous Waste Control**				
	Report on the public education and outreach activities that are performed or sponsored by the permittee within the permittee's jurisdiction to encourage the proper use and disposal of oils, toxics, and household hazardous waste, including the type and number of activities conducted, the type and number of materials distributed, the amount of waste collected / recycled / properly disposed, and the number of Web site visits (if applicable).				
		Public outreach and education is funded and carried out as a joint			

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		program by the Palm Beach County MS4 co-permittees. Please see the Joint Annual Report for a description of the public education and outreach activities.			
	Number of visitors to stormwater-related pages	742	web stats report	IT Network Analyst	HHHW pages on City website
Part III.A.7.g	**Illicit Discharges and Improper Disposal — Limitation of Sanitary Sewer Seepage**				
	Report on the type and number of activities undertaken to reduce or eliminate SSOs and inflow/ infiltration, the number of SSOs or inflow / infiltration incidents found and the number resolved, and the name of the owner of the sanitary sewer system within the permittee's jurisdiction. Report only the SSOs and inflow / infiltration incidents into the MS4.				
	Owner of the sanitary sewer system	City of Boca Raton			
	Activity to reduce/eliminate SSOs and I&I: (repair/lining of SS pipe, LF)	14,841	Utility Services records	Utility Services	An additional 7,409 LF of gravity main and 25 laterals are currently being lined.
	Activity to reduce/eliminate SSOs and I&I: (repair/lining of SS manholes, #)	47	Utility Services records	Utility Services	An additional 131 manholes are currently being lined
	Activity to reduce/eliminate SSOs and I&I: (septic systems removed, #)	0	Utility Services records	Utility Services	Very few left in the City
	Activity to reduce/eliminate SSOs and I&I: (emergency generators added, #)	4 Replacements	Utility Services records	Utility Services	System now includes 71 emergency generators
	Activity to reduce/eliminate SSOs and I&I: (*Training*)	1	Utility Services records	Utility Services	Performed Annual Training on SSO Response Plan
	SSO incidents discovered	1	Utility Services records	Utility Services	
	SSO incidents resolved	1	Utility Services records	Utility Services	
	Inflow / infiltration incidents discovered	0	Municipal Services wastewater system records	Stormwater Manager	
	Inflow / infiltration incidents resolved	0	Municipal Services	Stormwater Manager	

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			wastewater system records		
Part III.A.7 Summary	For activities required by Part III.A.7: Provide an evaluation of the Stormwater Management Program according to Part VI.B.2 of the permit.				
	Strengths: Training and education improve the chance that illicit discharges and illegal dumping will be reported. Local training for municipal staff is beneficial.				
	Limitations: Public education would be more effective with a wider (national or state-wide), more commercial message.				
	SWMP Revisions implemented to address limitations: None.				
Part III.A.8.a	**Industrial and High-Risk Runoff — Identification of Priorities and Procedures for Inspections**				
	Report on the high-risk facilities inventory, including the type and total number of high risk facilities and the number of facilities newly added each year. Report on the high-risk facilities inspection program, including the number of inspections conducted and the number and type of enforcement actions taken.				

Type of Facility	Number of Facilities	Number of Inspections	Enforcement Actions			
Operating municipal landfills	0	0	0			City has none
Hazardous waste treatment, storage, disposal and recovery (HWTSDR) facilities	30	30	0	Inspection log & photos	City SW Consultant (Mock•Roos)	All 43 potential HR facilis were inspected; 30 remain on list.
EPCRA Title III, Section 313 facilities (TRI)	0			High Risk Facilities GIS database & Inspection Reports	Engineering Inspector, Muni Services	
Facilities determined as high risk by the permittee	0				Stormwater Manager, Muni Services	

Part III.A.8.b	**Industrial and High-Risk Runoff — Monitoring for High Risk Industries**				
	Report the number of high risk facilities sampled.				
	High risk facilities sampled	0			

SECTION VII. STORMWATER MANAGEMENT PROGRAM (SWMP) SUMMARY TABLE					
A.	**B.**	**C.**	**D.**	**E.**	**F.**
Permit Citation/ SWMP Element	**Permit Requirement/Quantifiable SWMP Activity**	**Number of Activities Performed**	**Documentation / Record**	**Entity Performing the Activity**	**Comments**
Part III.A.8 Summary	Provide an evaluation of the Stormwater Management Program according to Part VI.B.2 of the permit.				
	Strengths: None. This SWMP element is repetitive to the IDDE program and provides no additional benefit to Water Quality.				
	Limitations: Program is redundant to the proactive illicit inspection program. The two programs need to be combined for increased effectiveness.				
	SWMP revisions implemented to address limitations: None.				
Part III.A.9.a	**Construction Site Runoff — Site Planning and Non-Structural and Structural Best Management Practices**				
	Report the number of permittee and private pre-construction site plans reviewed for stormwater, erosion, and sedimentation controls, and the number approved.				
	PERMITTEE SITES: Construction site plans reviewed	22	Public Works Review Agenda	Chief of Design & Stormwater Mgr.	
	PERMITTEE SITES: Construction site plans approved	22	Public Works Review Agenda	Chief of Design & Stormwater Mgr.	
	PRIVATE SITES: Construction site plans reviewed	29	Public Works Review Agenda	Chief of Design & Stormwater Mgr.	
	PRIVATE SITES: Construction site plans approved	10	Public Works Review Agenda	Chief of Design & Stormwater Mgr.	
	Report the number of development permit applicants notified of the ERP and CGP, and the number of applicants who confirmed ERP and CGP coverage.				
	Notified of ERP stormwater permit requirements	29	Permit Files	Stormwater Manager	
	Confirmed ERP coverage	10	Permit Files	Stormwater Manager	
	Notified of CGP stormwater permit requirements	29	Permit Files	Stormwater Manager	
	Confirmed CGP coverage	10	Permit Files	Stormwater Manager	
Part III.A.9.b	**Construction Site Runoff — Inspection and Enforcement**				
	Report on the inspection program for privately-operated and permittee-operated construction sites, including the number of active construction sites during the reporting year, the number of inspections of active construction sites, the percentage of active construction sites inspected, and the number and type of enforcement actions / referrals taken.				
	PERMITTEE SITES: Active construction sites	19	Inspection Reports	Chief Constr. Insp, Muni Services	All projects less than 1 acre
	PERMITTEE SITES: Pre-, During, and Post inspections of active construction sites for E&S and waste control BMPs	0	Construction Site Inspection Reports	Construction Inspectors, Muni Services	
	PERMITTEE SITES: Percentage of active construction sites inspected	0	calculation	Chief Constr.	

SECTION VII. STORMWATER MANAGEMENT PROGRAM (SWMP) SUMMARY TABLE					
A.	**B.**	**C.**	**D.**	**E.**	**F.**
Permit Citation/ SWMP Element	**Permit Requirement/Quantifiable SWMP Activity**	**Number of Activities Performed**	**Documentation / Record**	**Entity Performing the Activity**	**Comments**
				Insp,, Muni Services	
	PRIVATE SITES: Active construction sites	29	Inspection Reports	Chief Constr. Insp,, Muni Services	
	PRIVATE SITES: Pre-, During, and Post inspections of active construction sites for E&S and waste control BMPs	63	Construction Site Inspection Reports	Construction Inspectors, Muni Services	
	PRIVATE SITES: Percentage of active construction sites inspected	100	calculation	Chief Constr. Insp,, Muni Services	
	Enforcement Action	0	Dept. Records	Code Enforcement	
Part III.A.9.c	**Construction Site Runoff — Site Operator Training**				
	Report the type of training activities, the number of inspectors, site plan reviewers and site operators trained (both in-house and outside training).				
		DEP Certification	**Annual Training**		
	Permittee construction site inspectors	4	5	Certifications/ Sign-In Sheets	Municipal Services
	Permittee construction site plan reviewers		2	Sign-In Sheets	Municipal Services
	Permittee construction site operators		0	Sign-In Sheets	Municipal Services
Part III.A.9 Summary	Provide an evaluation of the Stormwater Management Program according to Part VI.B.2 of the permit.				
	Strengths: The program for inspecting sites that discharge to the MS4 is beneficial. The state's training program is beneficial. The inclusion of personnel from site plan reviewers, to operators, to inspectors is beneficial.				
	Limitations: None noted at this time.				
	SWMP revisions implemented to address limitations: None.				

SECTION VIII. CHANGES TO THE STORMWATER MANAGEMENT PROGRAM (SWMP) ACTIVITIES (Not Applicable in Year 4)		
A.	**Permit Citation/ SWMP Element**	**Proposed Changes to the Stormwater Management Program Activities Established as Specific Requirements Under Part III.A of the Permit (Including the Rationale for the Change) — REQUIRES DEP APPROVAL PRIOR TO CHANGE IF PROPOSING TO REPLACE OR DELETE AN ACTIVITY.**
		None.
B.	**Permit Citation/ SWMP Element**	**Changes to the Stormwater Management Program Activities NOT Established as Specific Requirements Under Part III.A of the Permit (Including the Rationale for the Change)**
		None.

SECTION IX. TMDL Status Report

A. YEAR 1 Provide a table summarizing the status of the TMDL process. Include a list of prioritized TMDLs and their monitoring and implementation schedule; and include the Identification number of the outfall prioritized for TMDL monitoring.

WBID Number	Segment/ Waterbody/ Basin	Pollutant of Concern	TMDL DEP / EPA	Percent Reduction (WLA)	Priority Rank	Priority Outfall	Monitoring Summary / BPCP Due Date	Supplemental SWMP Due Date
NONE			☐ / ☐		1		(*Year 3 AR*)	(*Year 4 AR; N/A) if BPCP*)

B. YEAR 3 and annually thereafter, provide a summary of the estimated load reductions that have occurred for the pollutant(s) of concern being discharged from the MS4 to the TMDL water body during the reporting period and cumulatively since the date the Supplemental SWMP was implemented.

Year 3: Submit a Monitoring data summary or BPCP (if applicable).

Year 4: Submit a Supplemental SWMP (if applicable).

WBID Number	Pollutant of Concern	Monitoring Summary / BPCP Submitted	Supplemental SWMP Submitted	Projected load reductions OR Actual load reductions to date
NONE		(*Year 3 AR*)	(*Year 4 AR; N/A if BPCP*)	

C. Provide a brief statement as to the status of TMDL implementation according to Part VIII.B of the permit (e.g. status of monitoring to validate WLA):

The City does not discharge to any water body with an FDEP adopted TMDL.

The Palm Beach County NPDES MS4 permit, in Part III.A.2., requires that the permittee

> "Conduct an inter-departmental review of the permittee's current local codes and land development regulations to identify potential changes to existing codes and regulations that will further reduce the stormwater impacts of new development and areas of significant redevelopment. In particular, focus on changes to the code that will promote low impact design, also termed green infrastructure: reductions in impervious surfaces, the use of swales or other retention BMPs, the incorporation of low impact development principles, reduction in flow and volume of stormwater, increase in natural hydrology, and adherence to the principles of the Florida Yards and Neighborhoods program in new landscaping."

The City has completed a review of its Comprehensive Plan policies (elements listed below), its relevant local code land development regulations (listed below), and its Engineering Design Standards Manual.

The following Comprehensive Plan Elements were reviewed:

- Capital Improvements Element
- Coastal Management Element
- Conservation Element
- Community Profile Element
- Future Land Use Element
- Housing Element
- Historic Preservation Element
- Intergovernmental Coordination Element
- Infrastructure Element
- Public Schools Facilities Element
- Recreation and Open Space Element
- Transportation Element
- Water Supply Facilities Work Plan

The following Chapters of the City's municipal code were reviewed:

- Chapter 2 – Administration
- Chapter 5 – Animals
- Chapter 9 – Miscellaneous Offenses
- Chapter 10 – Nuisances
- Chapter 14 – Solid Waste
- Chapter 15 – Taxation and Finance
- Chapter 17 – Utilities
- Chapter 19 – Building Regulations
- Chapter 20 – Environmental Protection

- Chapter 21 – Flood Damage Prevention and Floodplain Management
- Chapter 23 – Planning and Development
- Chapter 26 – Subdivision Regulations
- Chapter 28 – Zoning

The City's primary drainage facilities are the Hillsboro and C-15 Canals, which are under the jurisdiction of the South Florida Water Management District (SFWMD), and The City's secondary drainage facilities are under the jurisdiction of Lake Worth Drainage District (LWDD). The City's drainage criteria is based on SFWMD's criteria and policies, and accordingly, the City's stormwater policies in the Comprehensive Plan reflect SFWMD's and LWDD's policies.

The result of the review was that the City of Boca Raton's Land Development Regulations are in accord with SFWMD policies.

City of Boca Raton

NPDES MS4 Discharge Permit

SWMP Assessment Program Annual Report – 2017/2018 (Permit Cycle 4, Year 2)

Prepared: January 2019

Table of Contents

Status of Water Quality Monitoring Plan

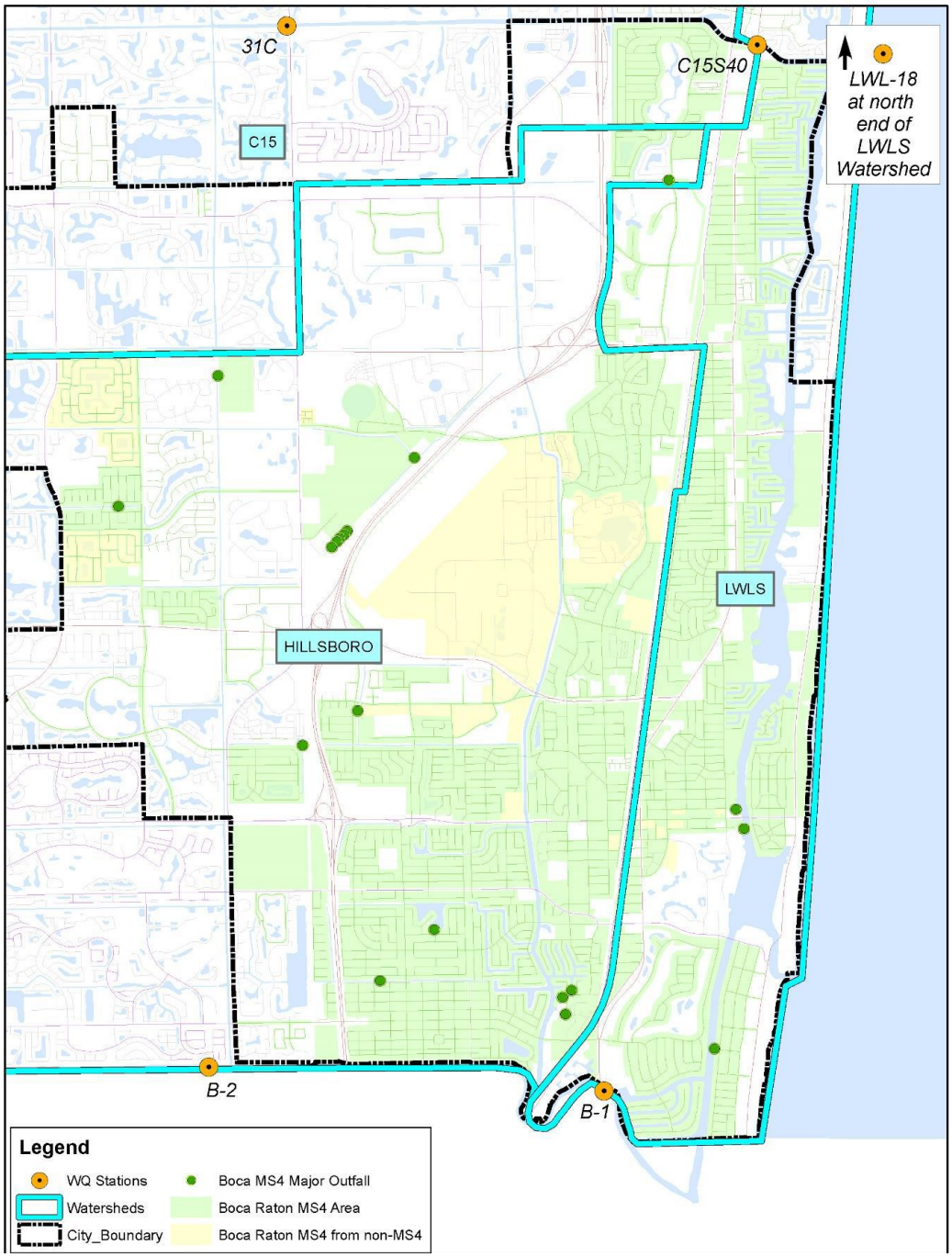
As noted in the approved Assessment Plan, the water quality data being used for the assessment is sourced from the Palm Beach County ambient water quality program, as well as water quality data from Broward County (Hillsboro Canal). Both programs have been in place for many years, with implementation on-going.

Discussion of Assessment Program Results

Summary of WQ monitoring data

The City of Boca Raton's MS4, and its associated contributing area, lie within three watersheds: the Hillsboro, the Lake Worth Lagoon South (LWLS), and the C-15. The MS4 has at least one major MS4 outfall to each of these watersheds.

The water quality monitoring stations are the 31C and C15S40/31B (C-15 Canal), the LWL-18 (Intracoastal Waterway), and B-1 and B-2 (Hillsboro Canal).



C-15 Canal

Station C15S40 (also known as Station 31B) in the C-15 Canal is the water quality station closest to the discharge from the City's MS4. The location of Station 31C is upstream of the City's MS4 discharge, however, it is provided for reference in this first Assessment Report. The water quality results for the period October 1, 2010 through September 30, 2018, for Sites 31B and 31C, were graphed and are provided in Appendix A. In summary, the water quality trends for Site 31B are as follows:

Parameter	Trend	Comment
Chlorophyll-a	Downward	Site 31B has trended below exceedance level. The Annual Geometric Mean has been below 20 µg/L since 2014.
Conductivity (salinity)	Flat	No exceedance recorded.
Copper, Dissolved	Downward	Measured values below calculated limit.
Hardness	Downward	
Nitrate + Nitrite	Upward	
Nitrogen, Total Kjeldahl	Downward	
Nitrogen, Total	Downward	
Oxygen, Dissolved	Upward	Site 31B has no recorded insufficiency.
pH	Flat, to slightly upward	Trend is nearing upper limit of range.
Phosphorus, Total	Flat, to slightly downward	
Suspended Solids, Total	Downward	
Turbidity	Downward	No exceedance recorded at Site 31B..
Zinc, Dissolved	Flat, to slightly upward	No exceedance recorded at Site 31B.

Lake Worth Lagoon South/Intracoastal Waterway

Site LWL-18 is located in the Intracoastal Waterway (ICWW), south of the discharge from the C-16 Canal in Boynton Beach and represents the southern extents of the ICWW system within Palm Beach County. It is the closest existing ambient water quality station to the City's discharge into the ICWW. The water quality measured at the station may be more reflective of the discharge from the C-16 and C-15 Canals than of the direct discharge from the City. However, it is reflective of the quality of the water into which the City discharges.

The water quality results for the period October 1, 2010 through September 30, 2018, for Site LWL-18 were graphed and are provided in Appendix A. In summary, the water quality trends are as follows:

Parameter	Trend	Comment
Chlorophyll-a	Upward	
Conductivity (salinity)	Flat, to slightly upward	No limit for this parameter in marine waters.
Copper, Dissolved	No current data	Data collection ended in 2012.
Hardness	No data	
Nitrate + Nitrite	Slightly downward	
Nitrogen, Total Kjeldahl	Upward	
Nitrogen, Total	Upward	Annual Geometric Mean has remained below WQ limit.
Oxygen, Dissolved	Downward	Site LWL-18 has no recorded insufficiency.
pH	Upward	Values have exceeded upper limit.
Phosphorus, Total	Upward	
Suspended Solids, Total	Upward	No limit for this parameter in marine waters.
Turbidity	Upward	No exceedance recorded.
Zinc, Dissolved	No current data	Data collection ended in 2012.

Hillsboro Canal

Station B-1 in the Hillsboro Canal is the water quality station most closely located to the discharge from the City's MS4. However, it is also influenced by all the contributions made upstream of the City's MS4. The station is also downstream of the Hillsboro Canal's control structure and subject to tide. Station B-2 is unlikely to be influenced by discharge from the City's MS4 area, however it does give an idea of what is coming into this segment of the Hillsboro Canal before the City makes its contribution. Station B-2 is provided for reference only for this Assessment Report.

The water quality results for the period October 1, 2010 through September 30, 2018, for Sites B-1 and B-2, were graphed and are provided in Appendix A. In summary, the water quality trends for Site B-1 are as follows:

Parameter	Trend	Exceedance of State WQ Standard(s)
Chlorophyll-a	Flat	The Annual Geometric Mean values for Site B-1 have not exceeded the WQ limit.
Conductivity (salinity)	Downward	No limit for this parameter in marine waters.
Copper, Dissolved	No data	
Hardness	No data	
Nitrate + Nitrite	Slightly downward	
Nitrogen, Total Kjeldahl	Upward	
Nitrogen, Total	Upward	Narrative criteria
Oxygen, Dissolved	Downward	Site B-1 has no recorded insufficiency.
pH	Flat	
Phosphorus, Total	Flat to slightly upward	Narrative criteria
Suspended Solids, Total	No data	
Turbidity	Flat to slightly upward	No exceedance recorded.
Zinc, Dissolved	No data	

Summary of pollutant loading changes

Pollutant loading information will be sourced from the Palm Beach County county-wide pollutant loading effort being conducted during Year 3 of this permit cycle. As that information is not yet available, no summary is provided for this component this year. It will be included in next year's annual report.

One very measurable program, in terms of a loading reduction, is the City's street sweeping program. Over the past 10 years, the City's program has resulted in the removal of 8.8 tons of total nitrogen and 5.7 tons of total phosphorus loading to the receiving waters.

Analysis of Data

Changes in WQ from previous reporting year(s)

As the trend graphs indicate, water quality is improving for almost all parameters at station 31B.

Water quality in the Lake Worth Lagoon South appears to be worsening for several parameters, including nutrients.

The water quality in the Hillsboro Canal appears to be predominantly stable at Station B-1.

The current permit programs (SWMP) have been in place since 1997, with only minor changes over the years. At the surface, the 10-year period of record trend graphs do not appear to indicate a clear-cut determination of the benefits of the SWMP. However, from 2010 to 2017, the City experienced an 11.3% increase in population (source: https://www.towncharts.com/Florida/Demographics/Boca-Raton-city-FL-Demographics-data.html); given that growth, a stable or improving trend in receiving water quality, is suggestive of a positive effective of the SWMP.

Changes in loading estimates from previous year(s)

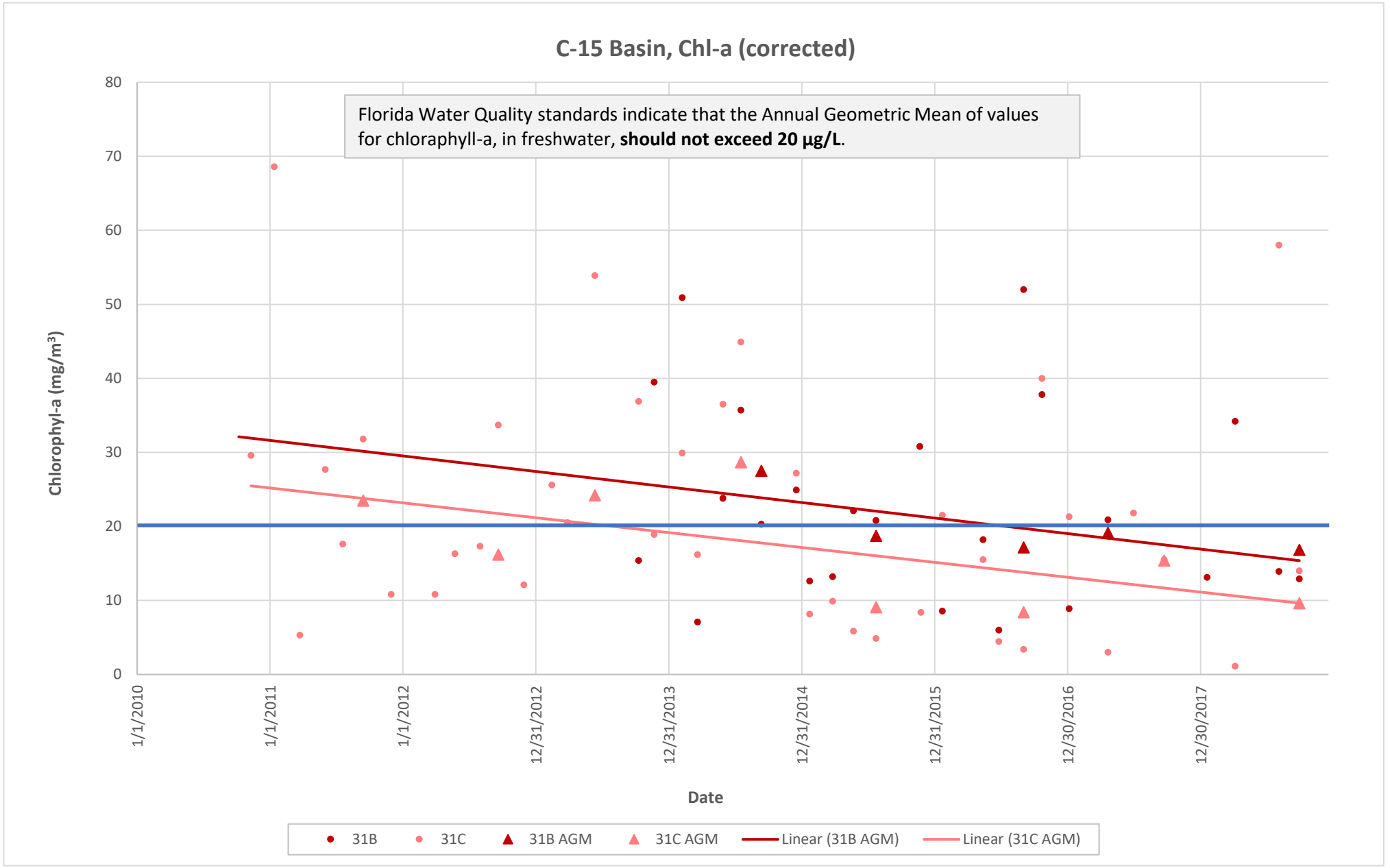
Reserved. This review/evaluation will be completed when the county-wide pollutant loading estimate is completed and will be included in next year's report.

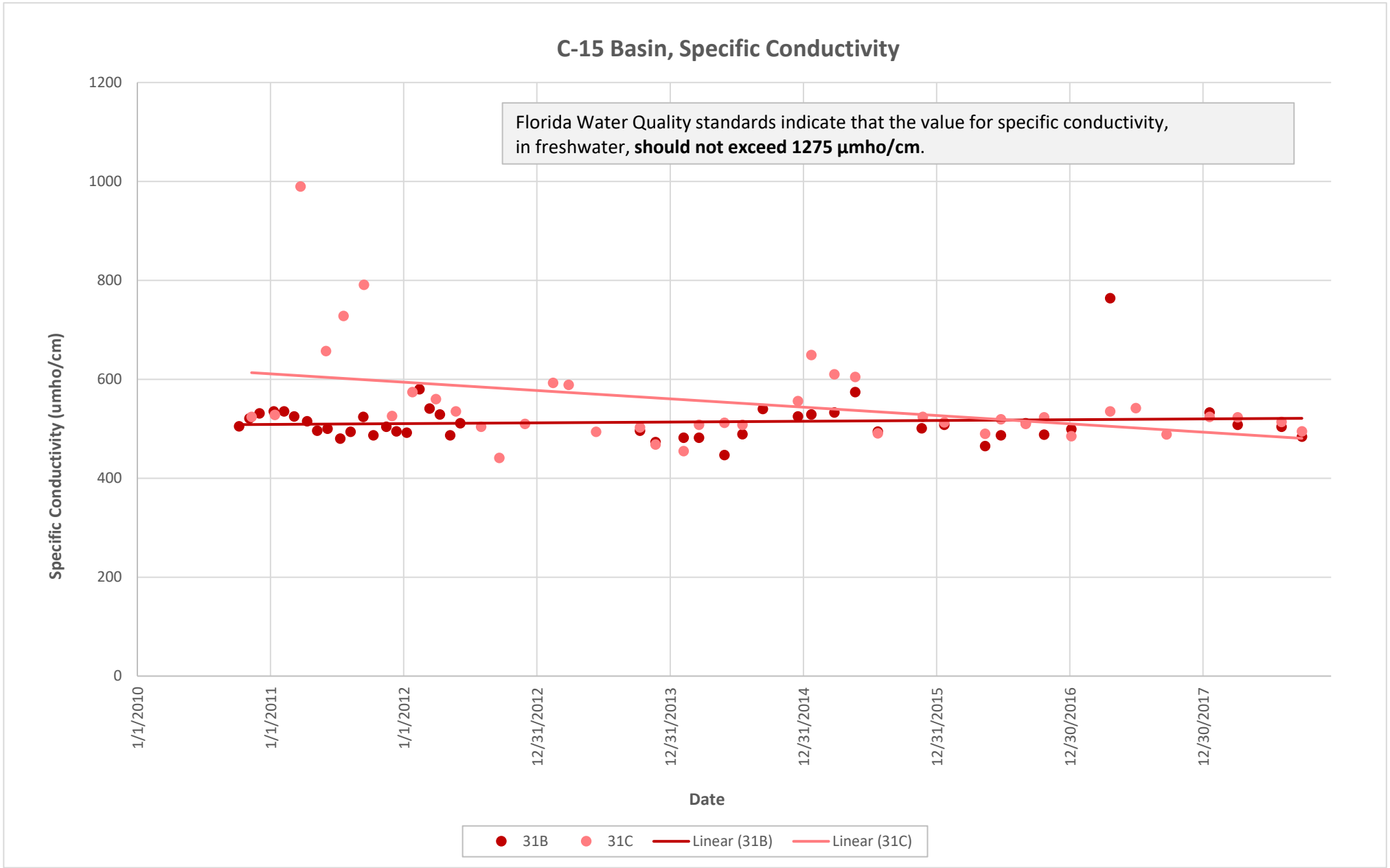
Identification of areas within MS4 that should be targeted for additional programs

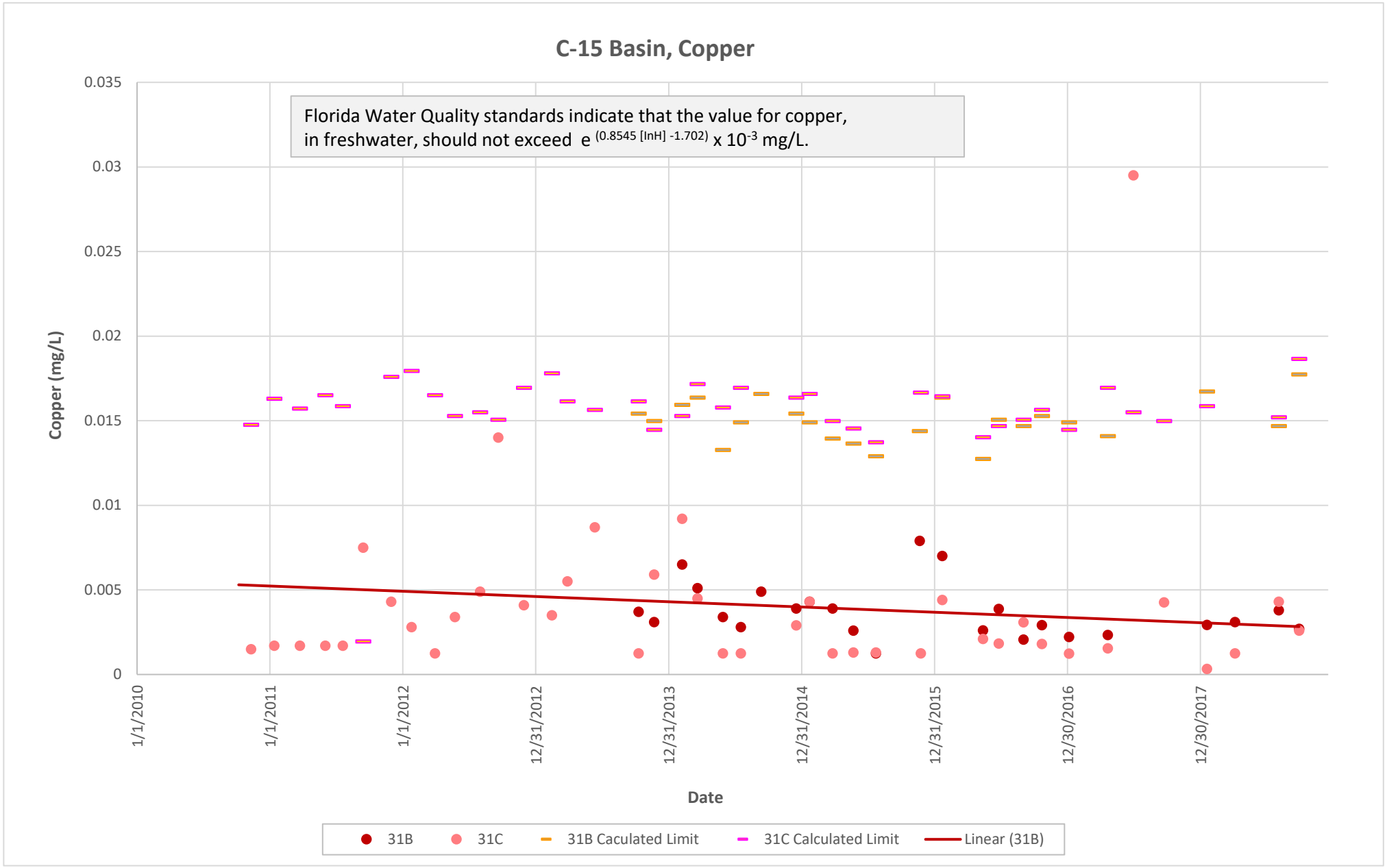
At this time, no specific area of Boca's MS4 contributing area appears to require additional programs.

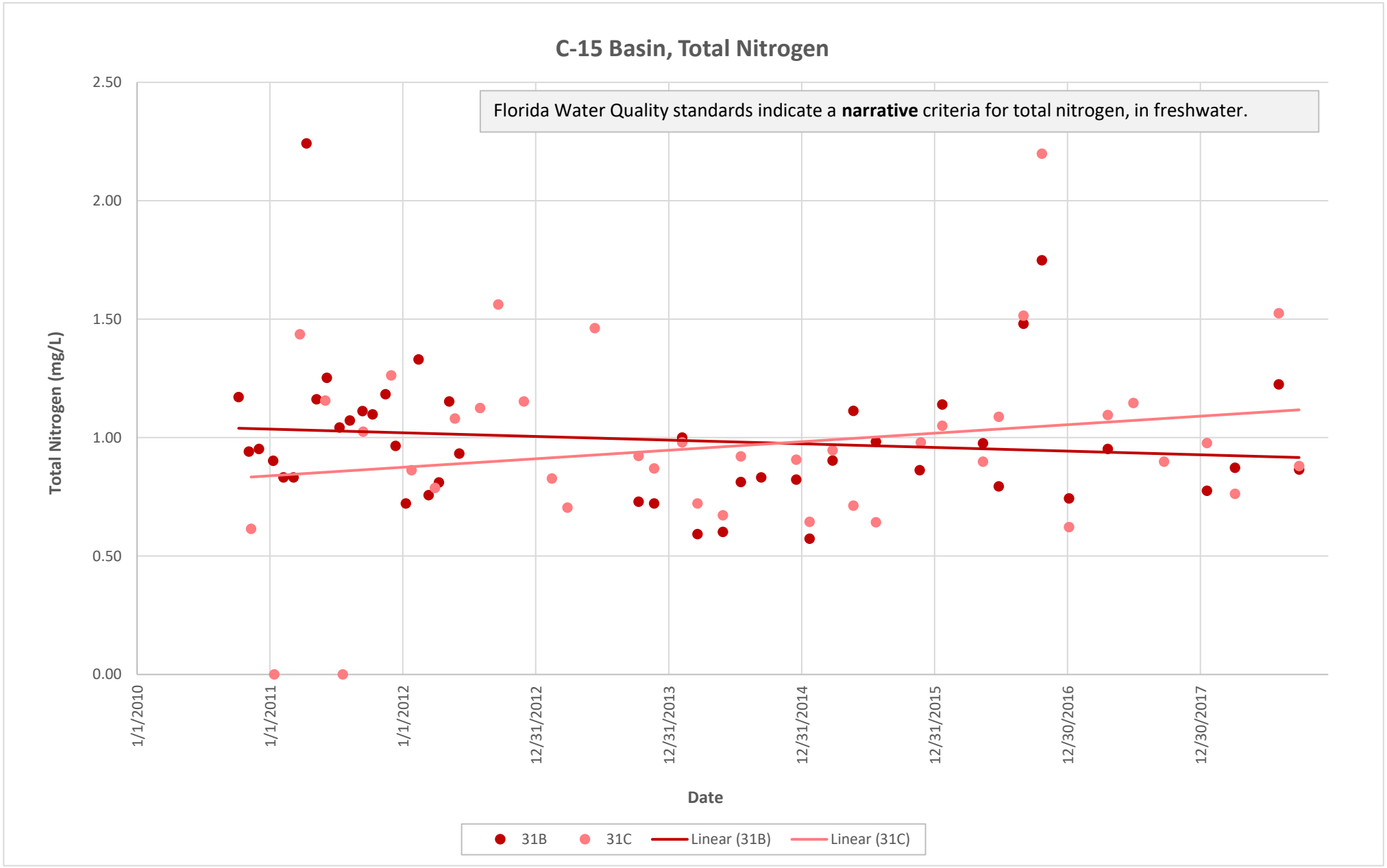
Request(s) for Changes to Approved Assessment Program

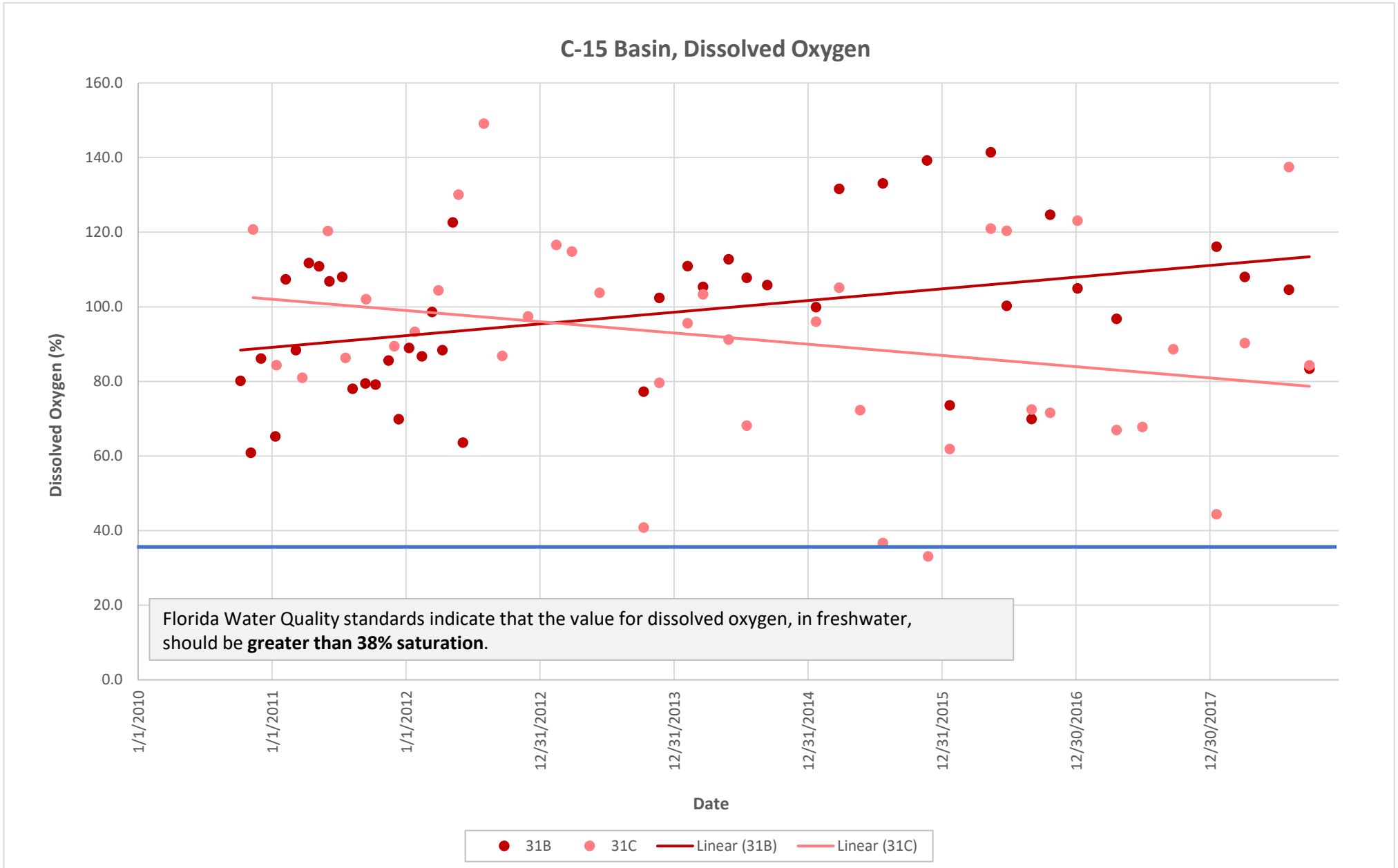
In future annual reporting, water quality monitoring stations B2 in the Hillsboro Canal and 31C in the C-15 Canal will not be extensively analyzed or trended. They may be reviewed for selected parameters if state water quality standards are not being met, but in general, they are less representative of the City's MS4 discharge than the remaining monitoring stations.

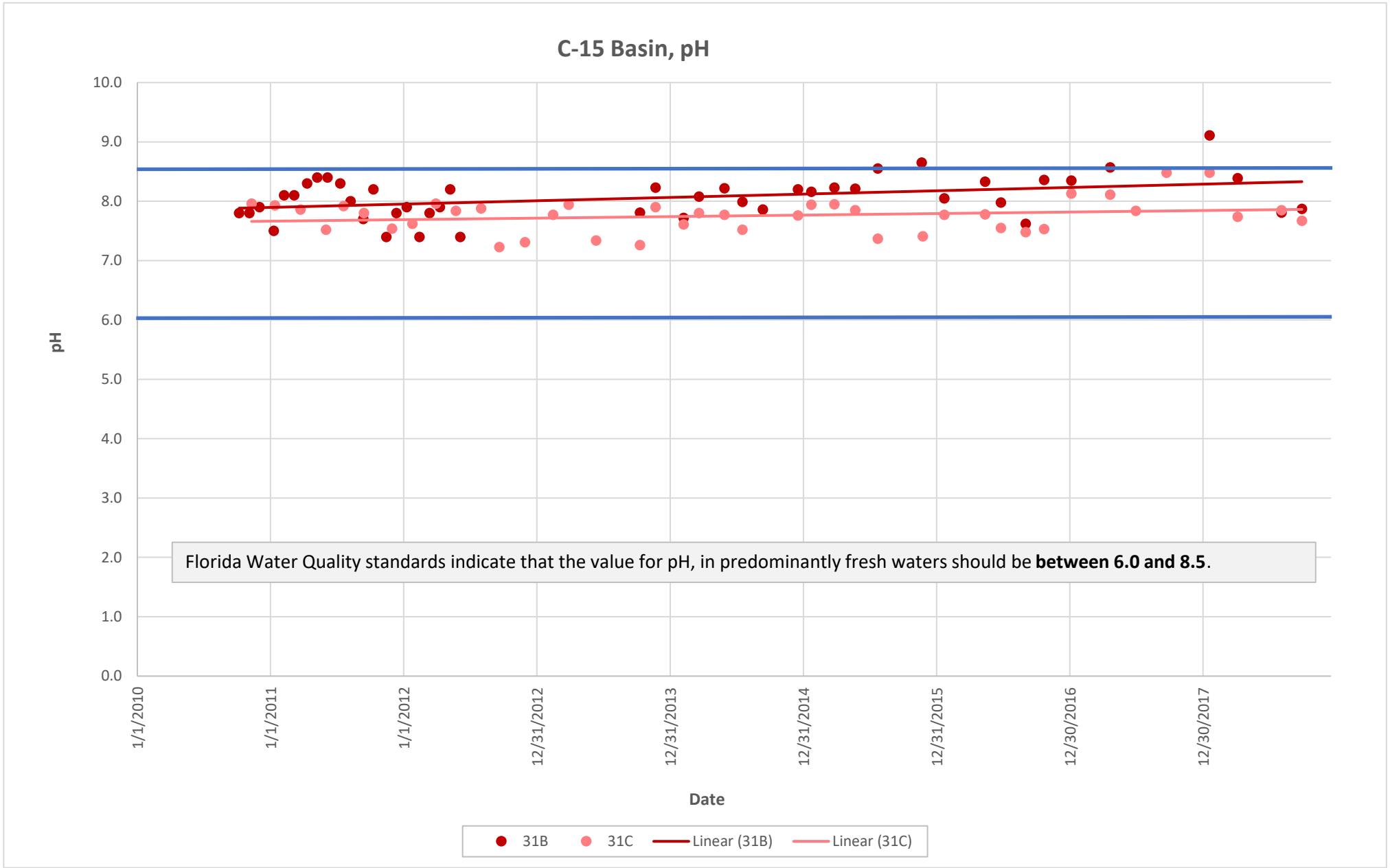

C-15 Basin, Chl-a (corrected)
Florida Water Quality standards indicate that the Annual Geometric Mean of values for chloraphyll-a, in freshwater, **should not exceed 20 µg/L**.
Chlorophyl-a (mg/m³)
80
70
60
50
40
30
20
10
0
1/1/2010
1/1/2011
1/1/2012
12/31/2012
12/31/2013
12/31/2014
12/31/2015
12/30/2016
12/30/2017
Date
31B
31C
31B AGM
31C AGM
Linear (31B AGM)
Linear (31C AGM)

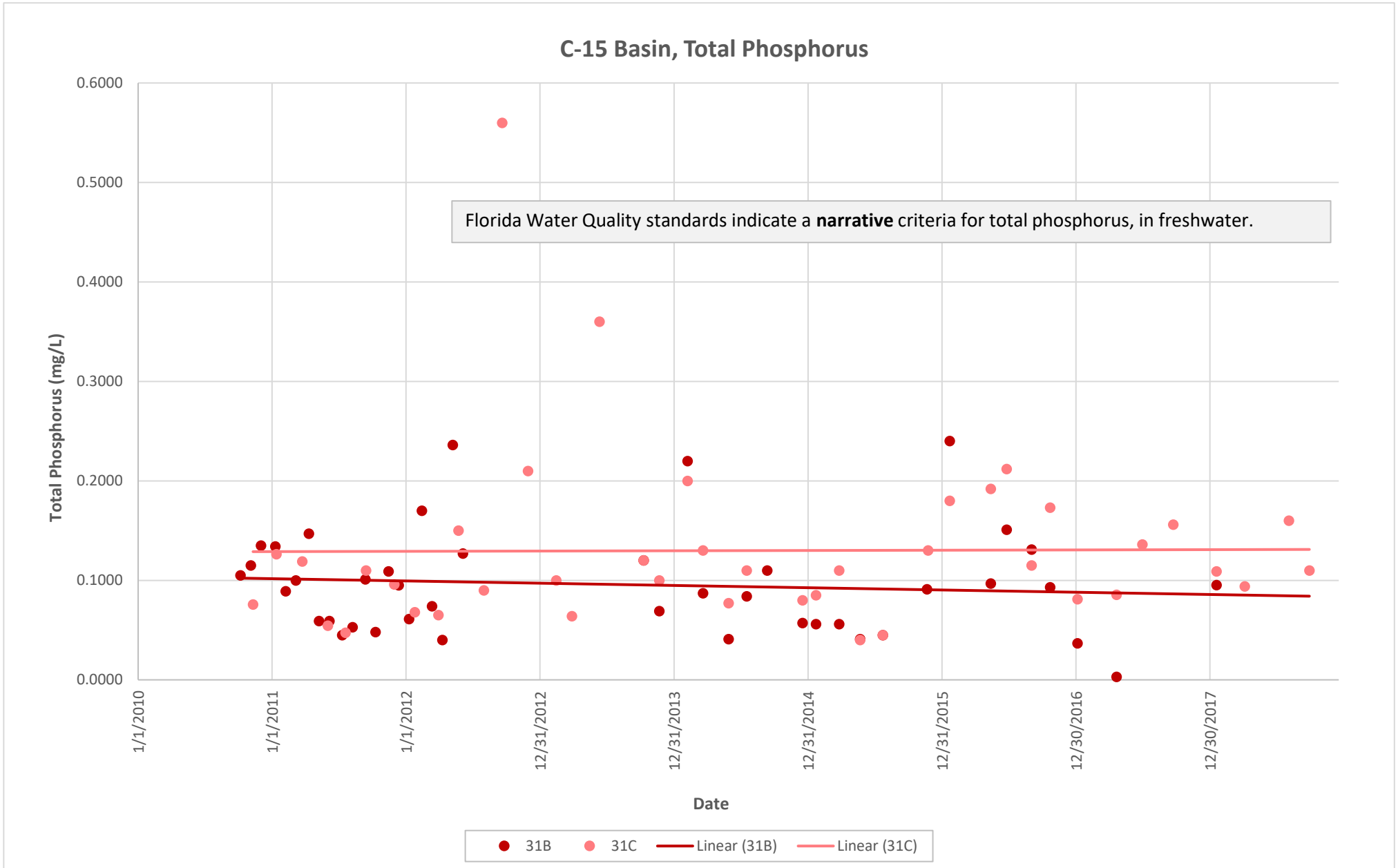

C-15 Basin, Specific Conductivity
Florida Water Quality standards indicate that the value for specific conductivity, in freshwater, **should not exceed 1275 µmho/cm**.
Specific Conductivity (umho/cm)
1200
1000
800
600
400
200
0
1/1/2010
1/1/2011
1/1/2012
12/31/2012
12/31/2013
12/31/2014
12/31/2015
12/30/2016
12/30/2017
Date
31B
31C
Linear (31B)
Linear (31C)

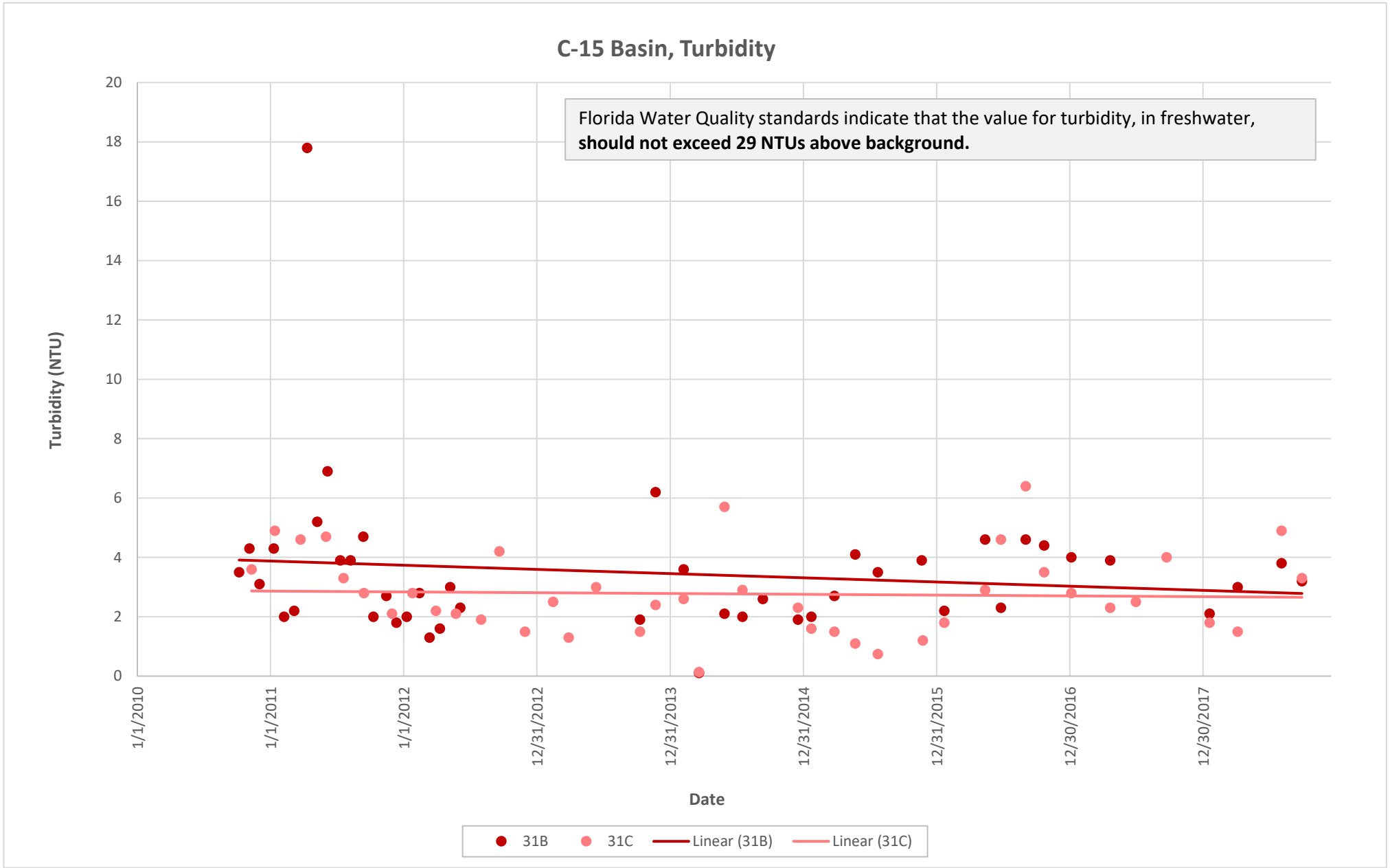

C-15 Basin, Copper
Florida Water Quality standards indicate that the value for copper, in freshwater, should not exceed e (0.8545 [lnH] -1.702) x 10-3 mg/L.
Copper (mg/L)
0.035
0.03
0.025
0.02
0.015
0.01
0.005
0
1/1/2010
1/1/2011
1/1/2012
12/31/2012
12/31/2013
12/31/2014
12/31/2015
12/30/2016
12/30/2017
Date
31B
31C
31B Caculated Limit
31C Calculated Limit
Linear (31B)

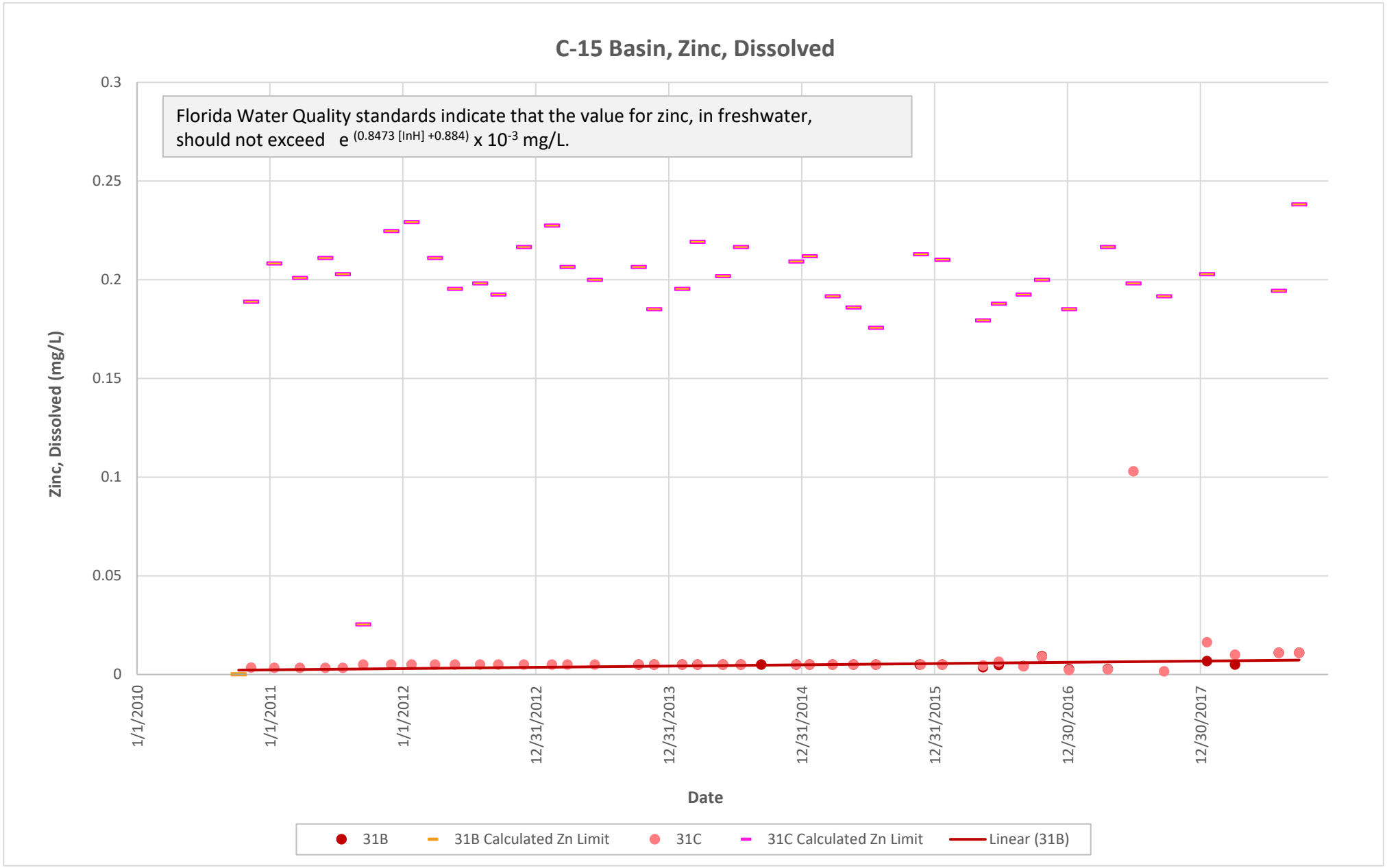

C-15 Basin, Total Nitrogen
Florida Water Quality standards indicate a **narrative** criteria for total nitrogen, in freshwater.
Total Nitrogen (mg/L)
2.50
2.00
1.50
1.00
0.50
0.00
1/1/2010
1/1/2011
1/1/2012
12/31/2012
12/31/2013
12/31/2014
12/31/2015
12/30/2016
12/30/2017
Date
31B
31C
Linear (31B)
Linear (31C)

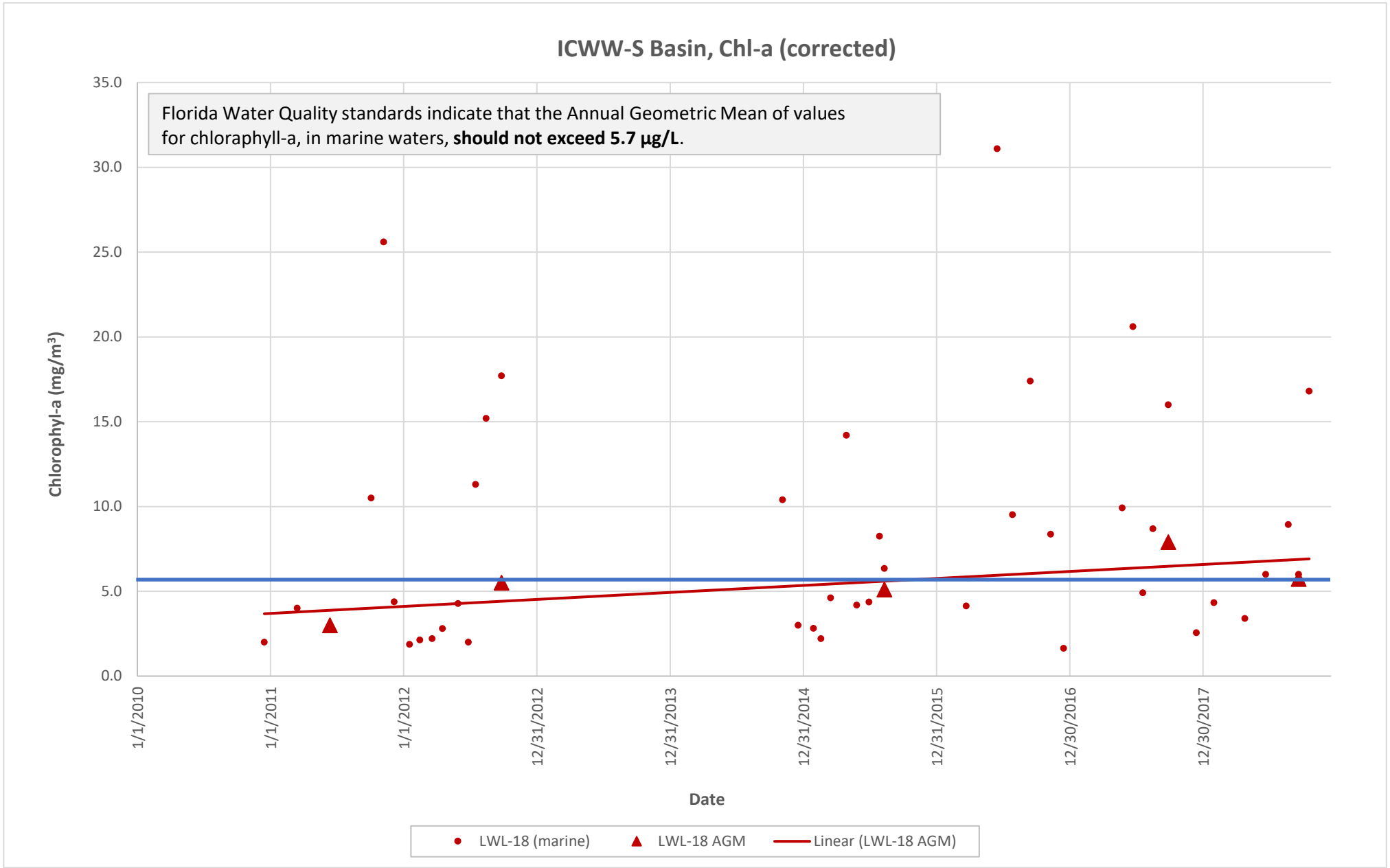

C-15 Basin, Dissolved Oxygen
Dissolved Oxygen (%)
160.0
140.0
120.0
100.0
80.0
60.0
40.0
20.0
0.0
1/1/2010
1/1/2011
1/1/2012
12/31/2012
12/31/2013
12/31/2014
12/31/2015
12/30/2016
12/30/2017
Date
Florida Water Quality standards indicate that the value for dissolved oxygen, in freshwater, should be **greater than 38% saturation**.
31B
31C
Linear (31B)
Linear (31C)

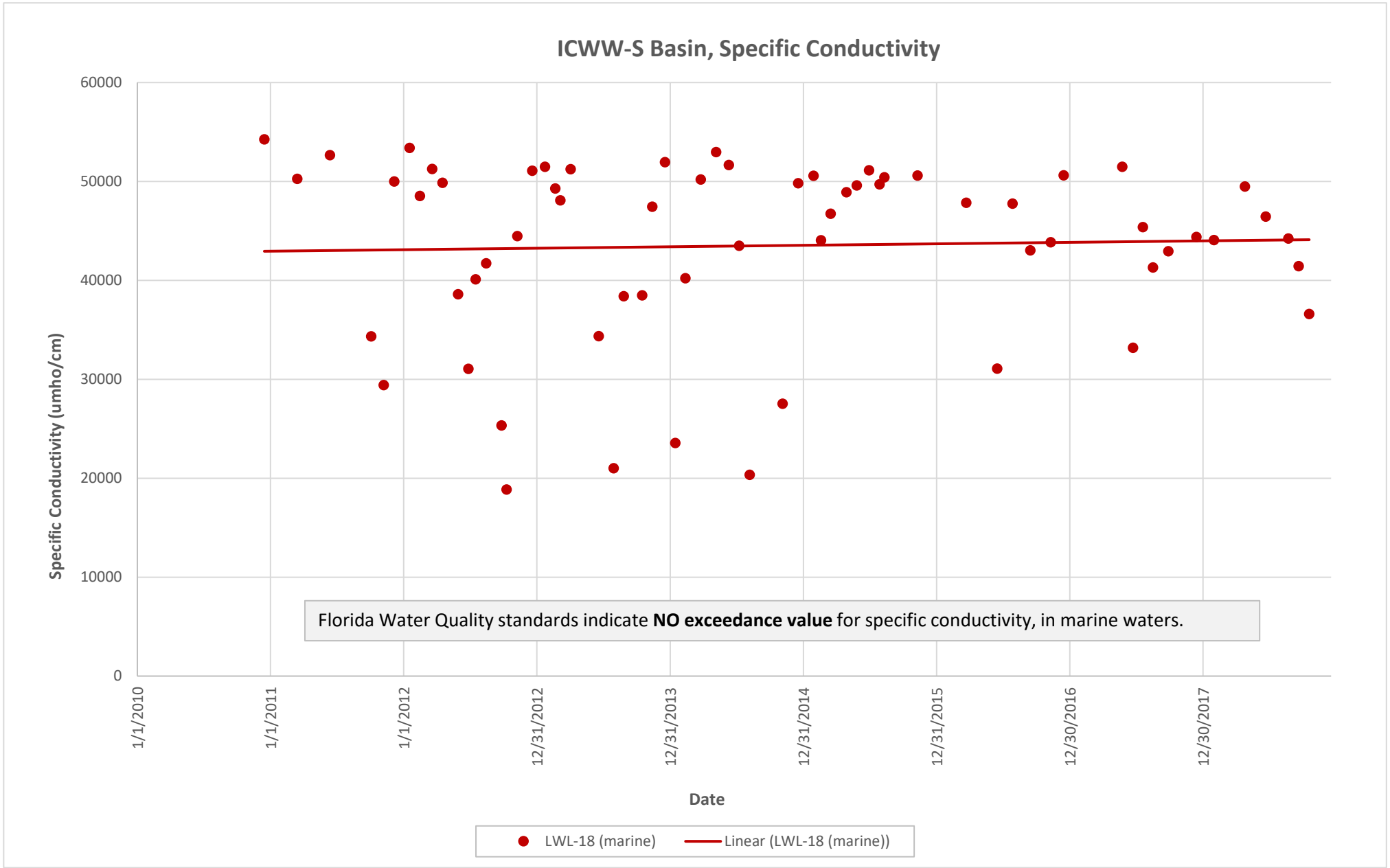

C-15 Basin, pH
10.0
9.0
8.0
7.0
6.0
5.0
4.0
3.0
2.0
1.0
0.0
pH
1/1/2010
1/1/2011
1/1/2012
12/31/2012
12/31/2013
12/31/2014
12/31/2015
12/30/2016
12/30/2017
Date
Florida Water Quality standards indicate that the value for pH, in predominantly fresh waters should be **between 6.0 and 8.5**.
31B
31C
Linear (31B)
Linear (31C)

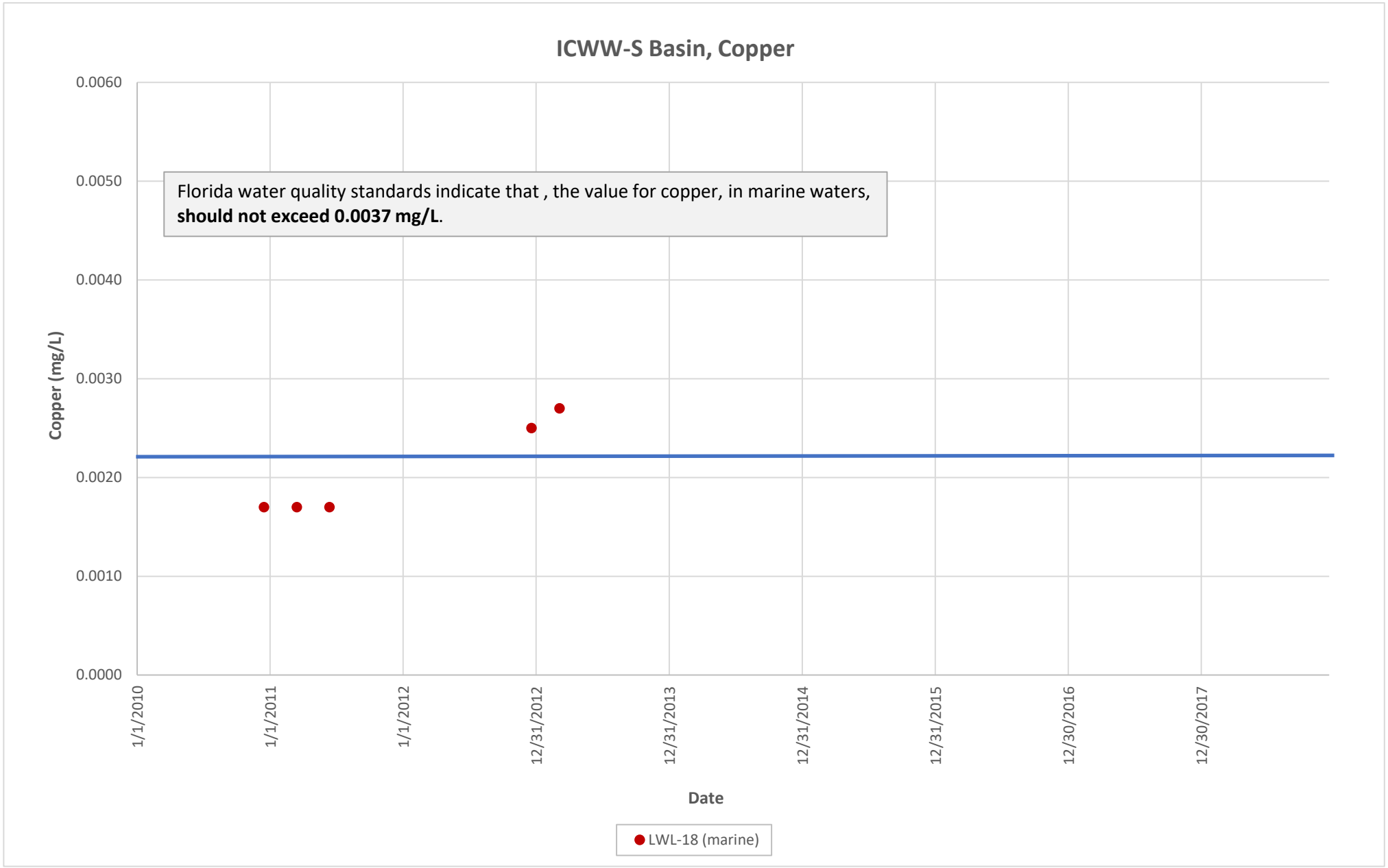

C-15 Basin, Total Phosphorus
Florida Water Quality standards indicate a **narrative** criteria for total phosphorus, in freshwater.
Total Phosphorus (mg/L)
0.6000
0.5000
0.4000
0.3000
0.2000
0.1000
0.0000
1/1/2010
1/1/2011
1/1/2012
12/31/2012
12/31/2013
12/31/2014
12/31/2015
12/30/2016
12/30/2017
Date
31B
31C
Linear (31B)
Linear (31C)

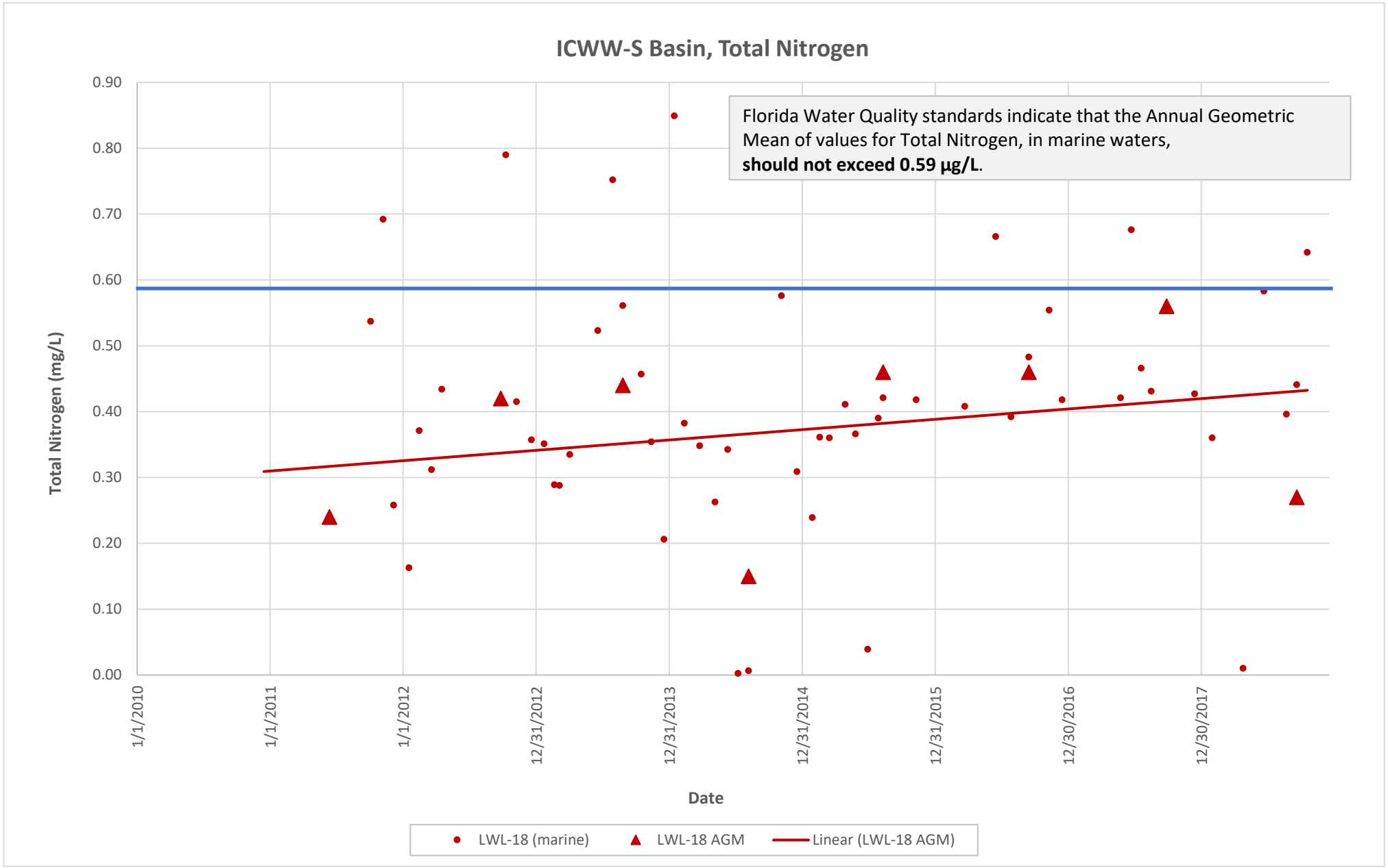

C-15 Basin, Turbidity
Florida Water Quality standards indicate that the value for turbidity, in freshwater, should not exceed 29 NTUs above background.
Turbidity (NTU)
20
18
16
14
12
10
8
6
4
2
0
1/1/2010
1/1/2011
1/1/2012
12/31/2012
12/31/2013
12/31/2014
12/31/2015
12/30/2016
12/30/2017
Date
31B
31C
Linear (31B)
Linear (31C)

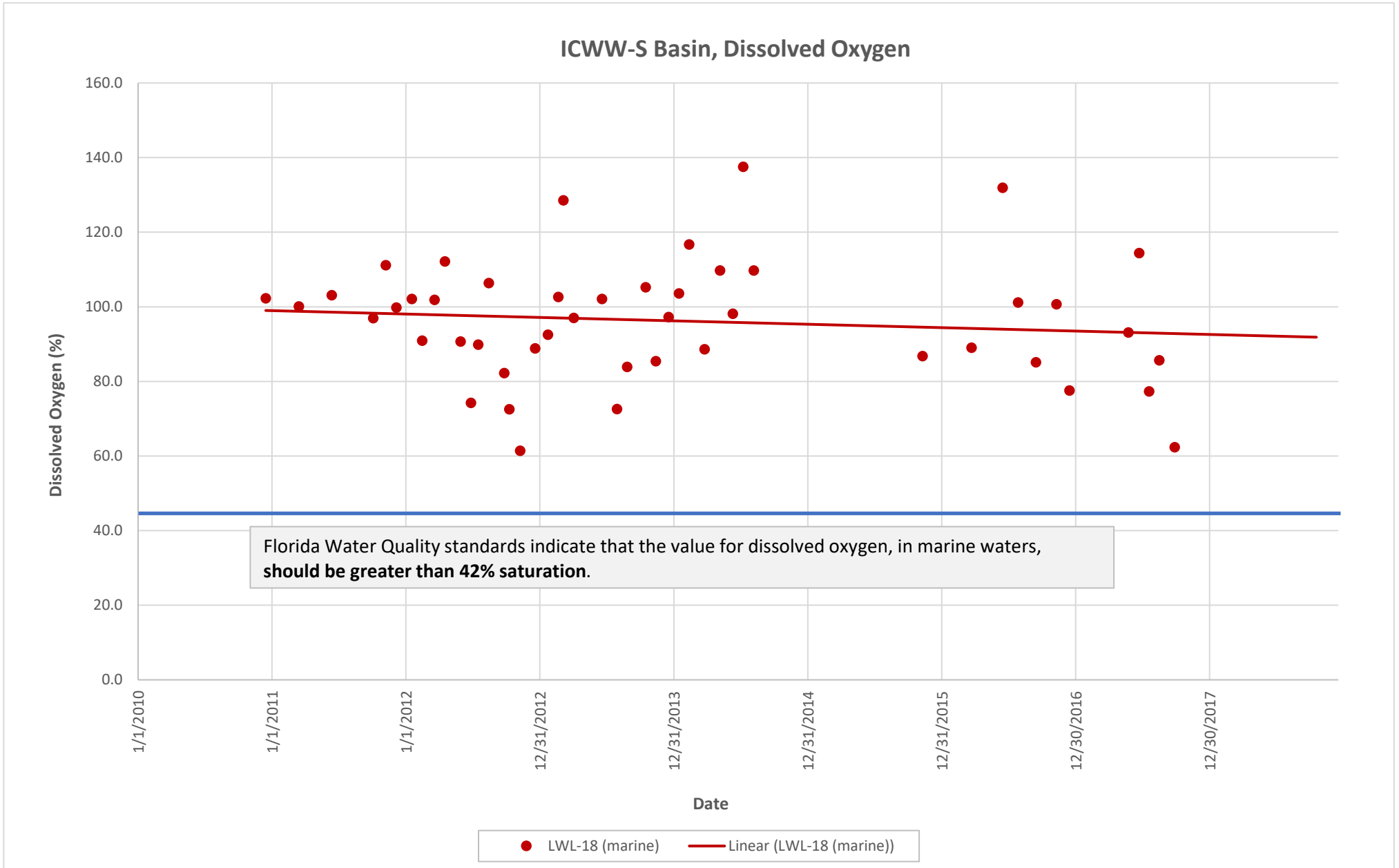

C-15 Basin, Zinc, Dissolved
Florida Water Quality standards indicate that the value for zinc, in freshwater, should not exceed e (0.8473 [lnH] +0.884) x 10-3 mg/L.
Zinc, Dissolved (mg/L)
0.3
0.25
0.2
0.15
0.1
0.05
0
1/1/2010
1/1/2011
1/1/2012
12/31/2012
12/31/2013
12/31/2014
12/31/2015
12/30/2016
12/30/2017
Date
31B
31B Calculated Zn Limit
31C
31C Calculated Zn Limit
Linear (31B)

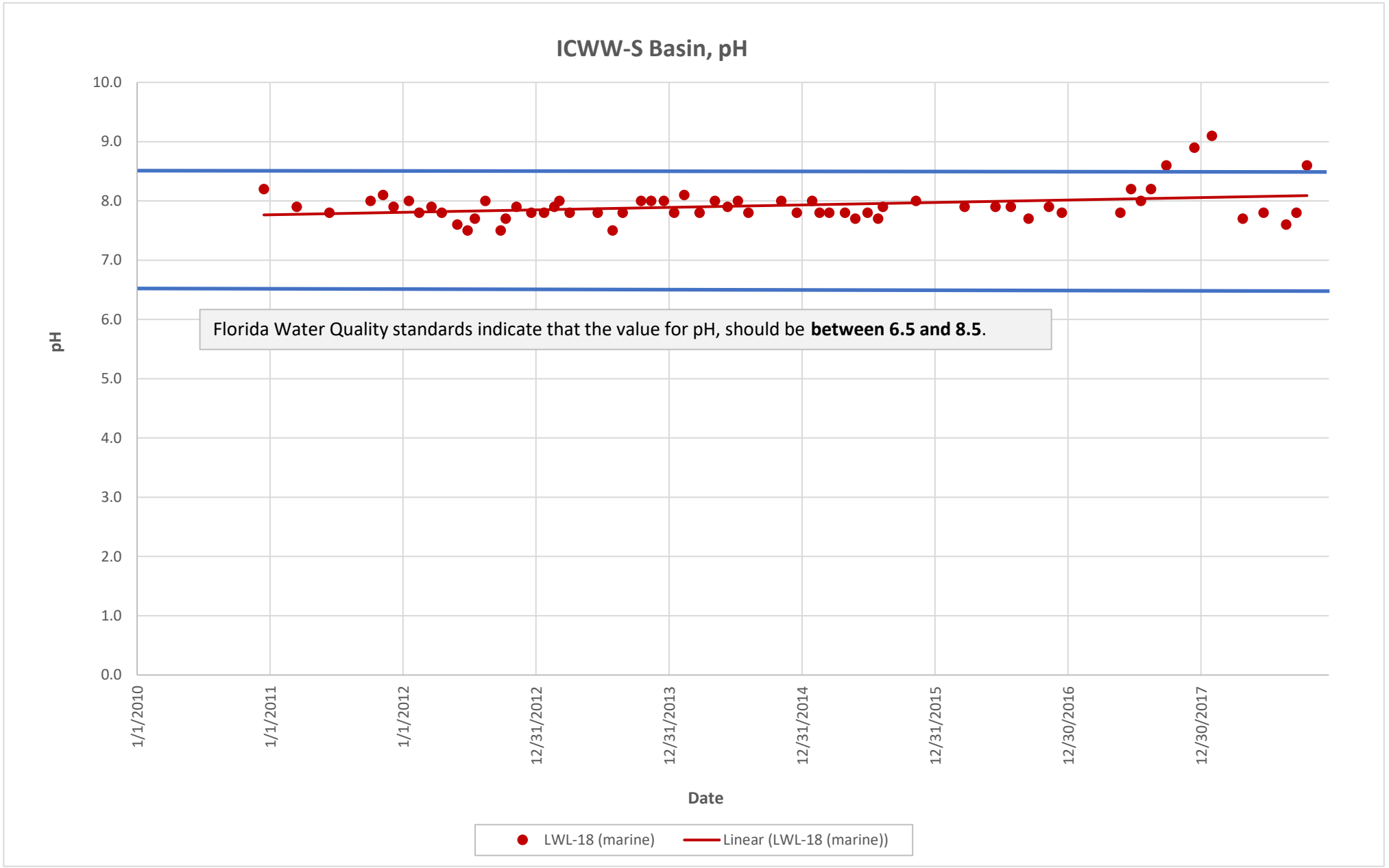

ICWW-S Basin, Chl-a (corrected)
Florida Water Quality standards indicate that the Annual Geometric Mean of values for chloraphyll-a, in marine waters, **should not exceed 5.7 µg/L**.
Chlorophyl-a (mg/m³)
35.0
30.0
25.0
20.0
15.0
10.0
5.0
0.0
1/1/2010
1/1/2011
1/1/2012
12/31/2012
12/31/2013
12/31/2014
12/31/2015
12/30/2016
12/30/2017
Date
LWL-18 (marine)
LWL-18 AGM
Linear (LWL-18 AGM)

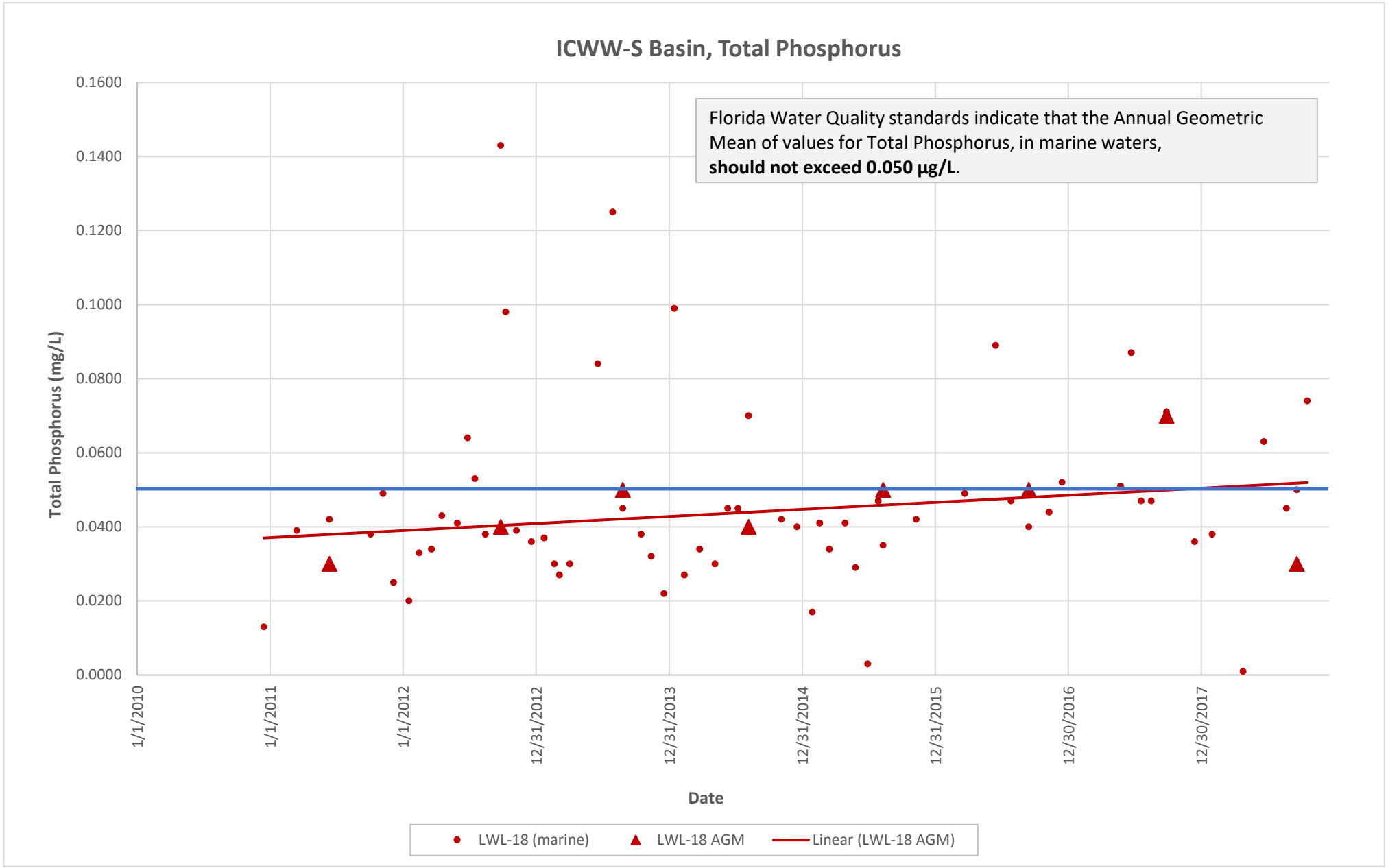

ICWW-S Basin, Specific Conductivity
Specific Conductivity (umho/cm)
60000
50000
40000
30000
20000
10000
0
1/1/2010
1/1/2011
1/1/2012
12/31/2012
12/31/2013
12/31/2014
12/31/2015
12/30/2016
12/30/2017
Date
Florida Water Quality standards indicate **NO exceedance value** for specific conductivity, in marine waters.
LWL-18 (marine)
Linear (LWL-18 (marine))

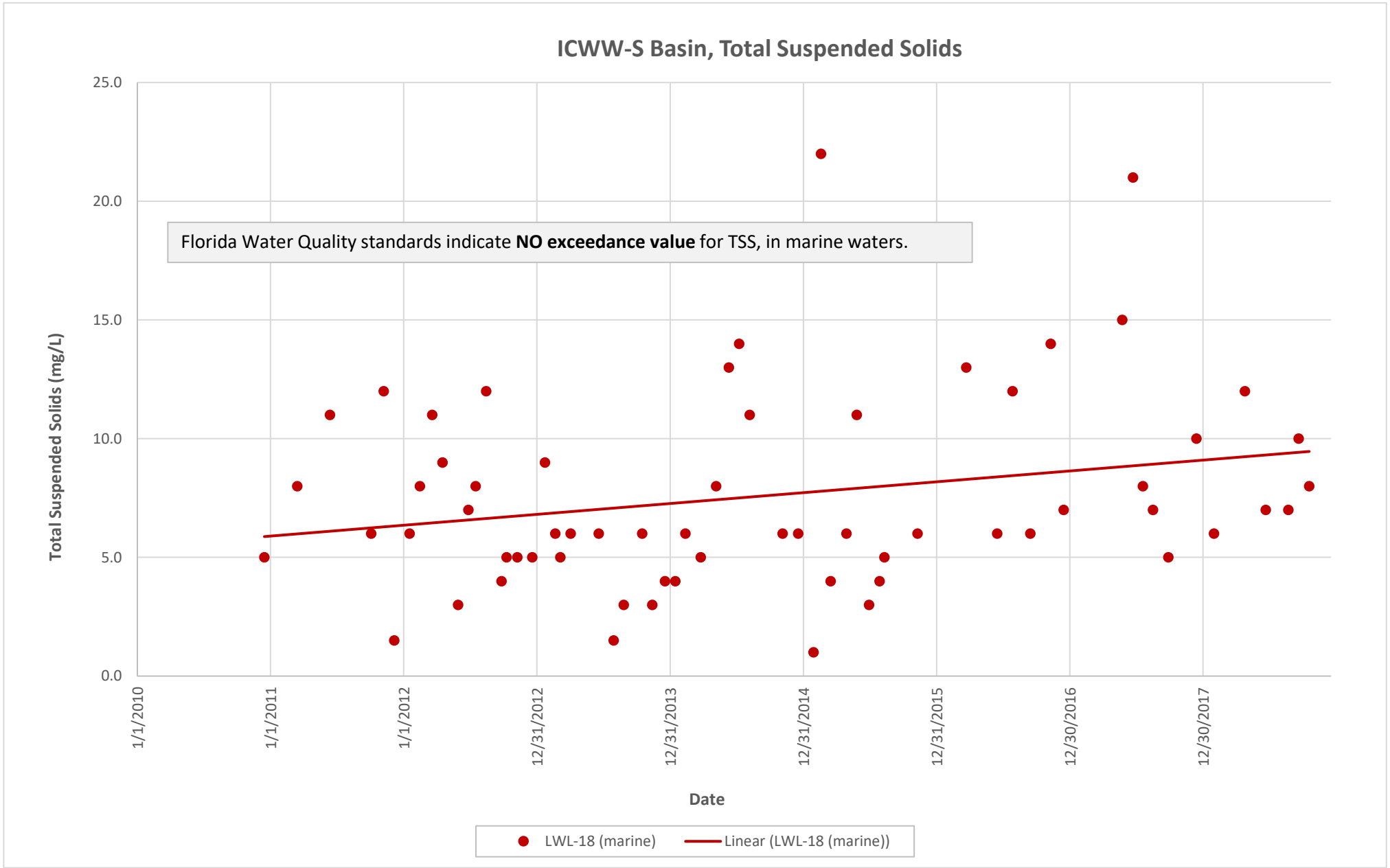

ICWW-S Basin, Copper
Florida water quality standards indicate that , the value for copper, in marine waters, should not exceed 0.0037 mg/L.
Copper (mg/L)
0.0060
0.0050
0.0040
0.0030
0.0020
0.0010
0.0000
1/1/2010
1/1/2011
1/1/2012
12/31/2012
12/31/2013
12/31/2014
12/31/2015
12/30/2016
12/30/2017
Date
LWL-18 (marine)

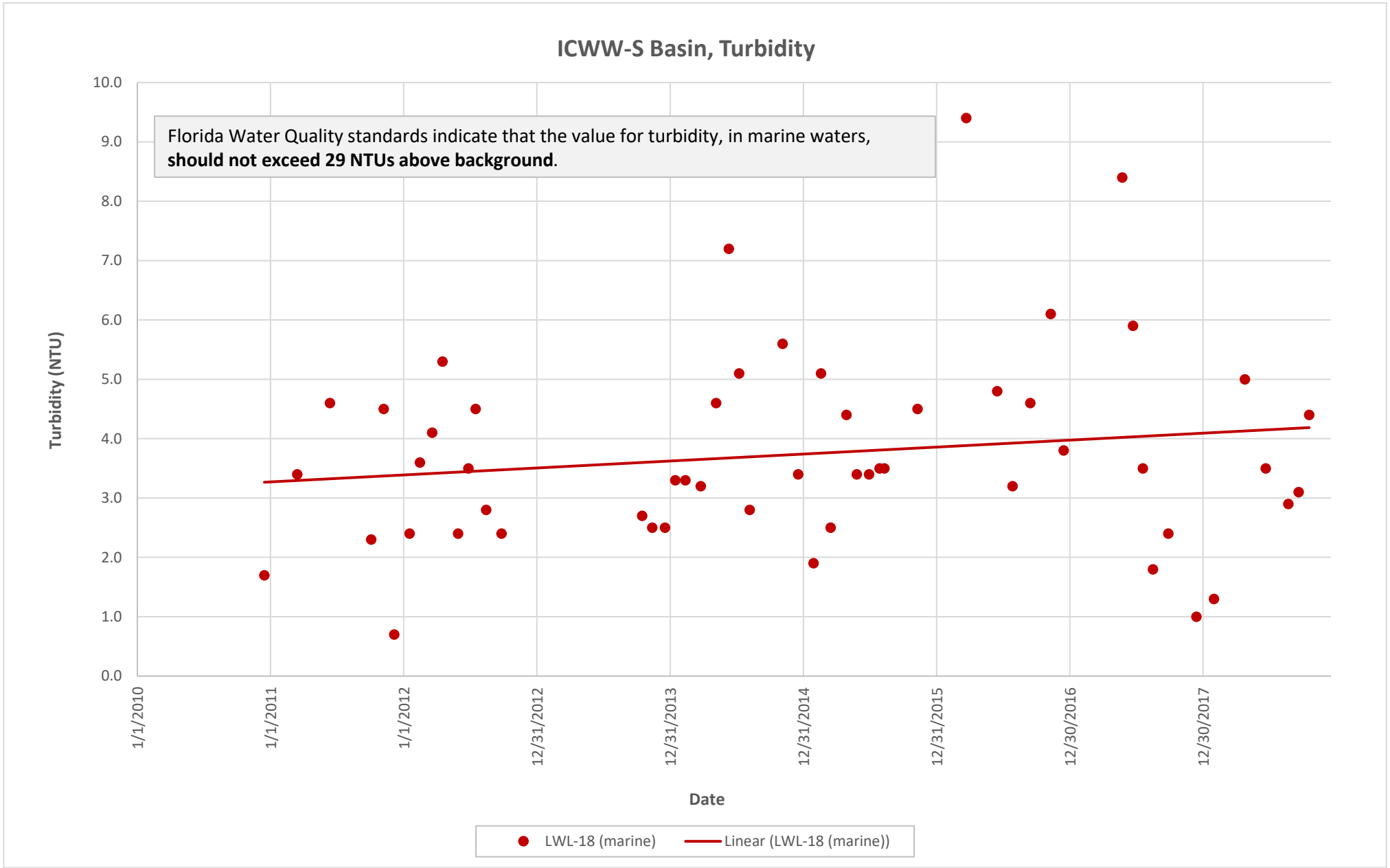

ICWW-S Basin, Total Nitrogen
Florida Water Quality standards indicate that the Annual Geometric Mean of values for Total Nitrogen, in marine waters, should not exceed 0.59 µg/L.
Total Nitrogen (mg/L)
0.90
0.80
0.70
0.60
0.50
0.40
0.30
0.20
0.10
0.00
1/1/2010
1/1/2011
1/1/2012
12/31/2012
12/31/2013
12/31/2014
12/31/2015
12/30/2016
12/30/2017
Date
LWL-18 (marine)
LWL-18 AGM
Linear (LWL-18 AGM)

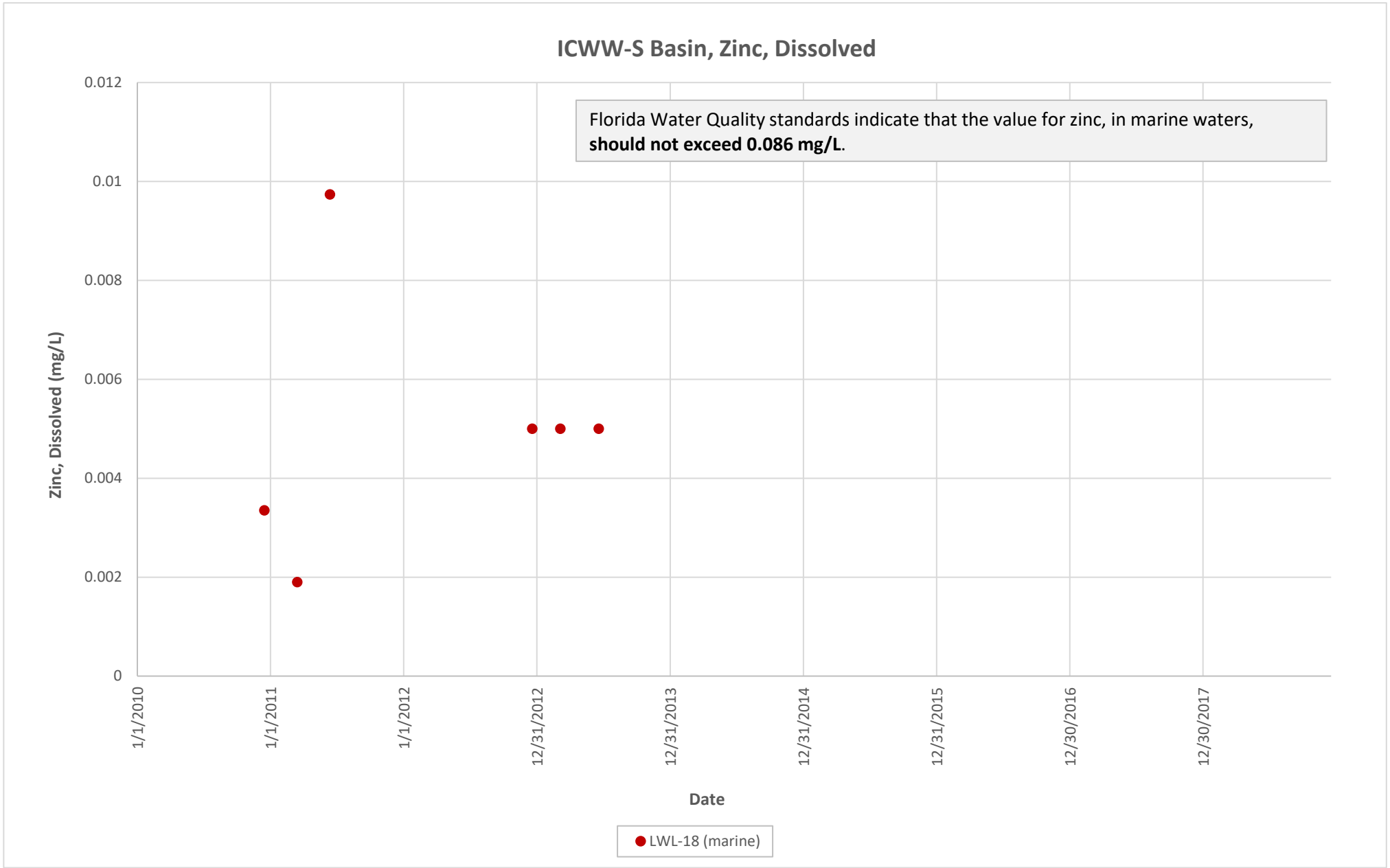

ICWW-S Basin, Dissolved Oxygen
160.0
140.0
120.0
100.0
80.0
60.0
40.0
20.0
0.0
Dissolved Oxygen (%)
1/1/2010
1/1/2011
1/1/2012
12/31/2012
12/31/2013
12/31/2014
12/31/2015
12/30/2016
12/30/2017
Date
Florida Water Quality standards indicate that the value for dissolved oxygen, in marine waters, **should be greater than 42% saturation**.
LWL-18 (marine)
Linear (LWL-18 (marine))

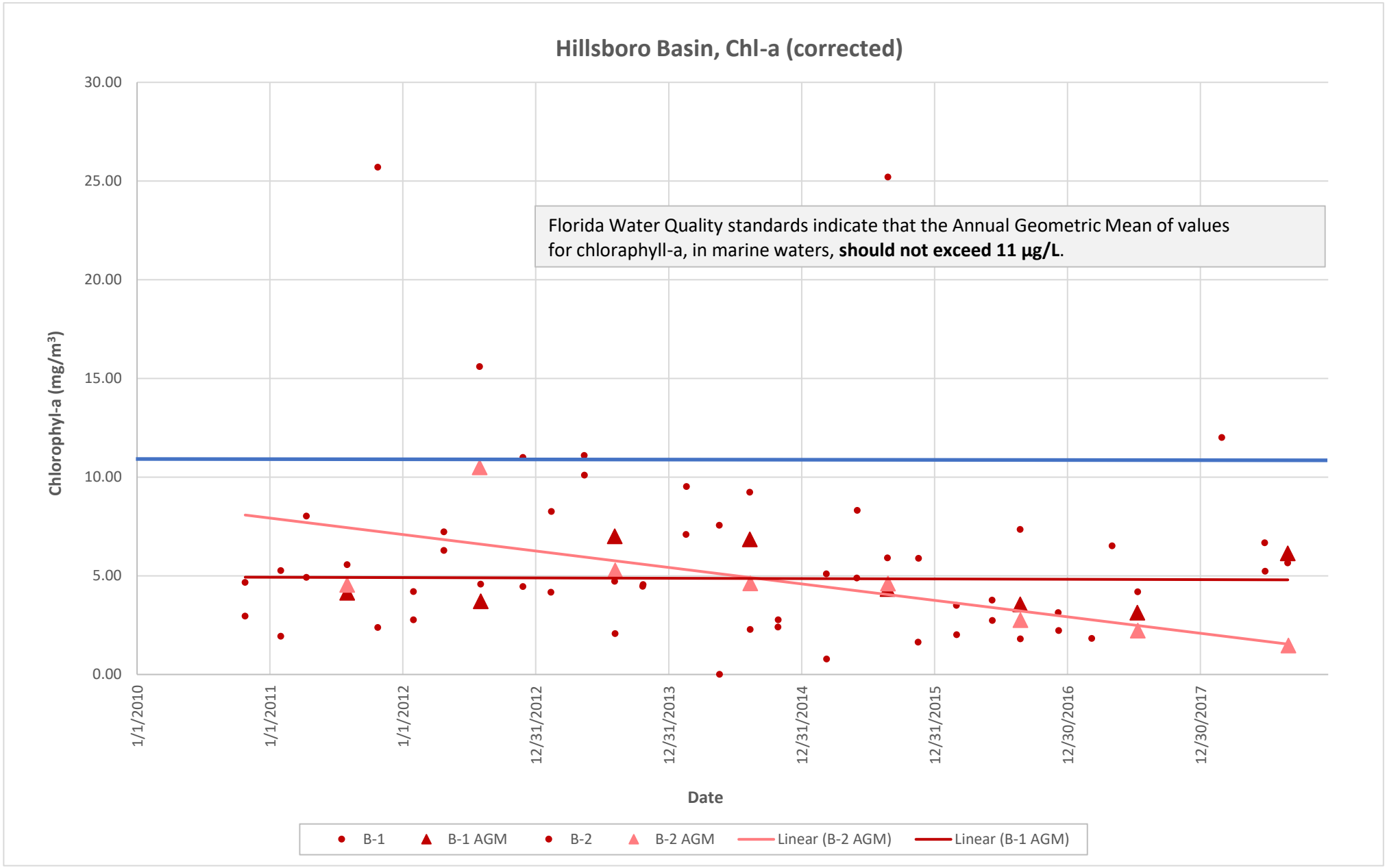

ICWW-S Basin, pH
10.0
9.0
8.0
7.0
6.0
5.0
4.0
3.0
2.0
1.0
0.0
pH
Florida Water Quality standards indicate that the value for pH, should be **between 6.5 and 8.5**.
1/1/2010
1/1/2011
1/1/2012
12/31/2012
12/31/2013
12/31/2014
12/31/2015
12/30/2016
12/30/2017
Date
LWL-18 (marine)
Linear (LWL-18 (marine))

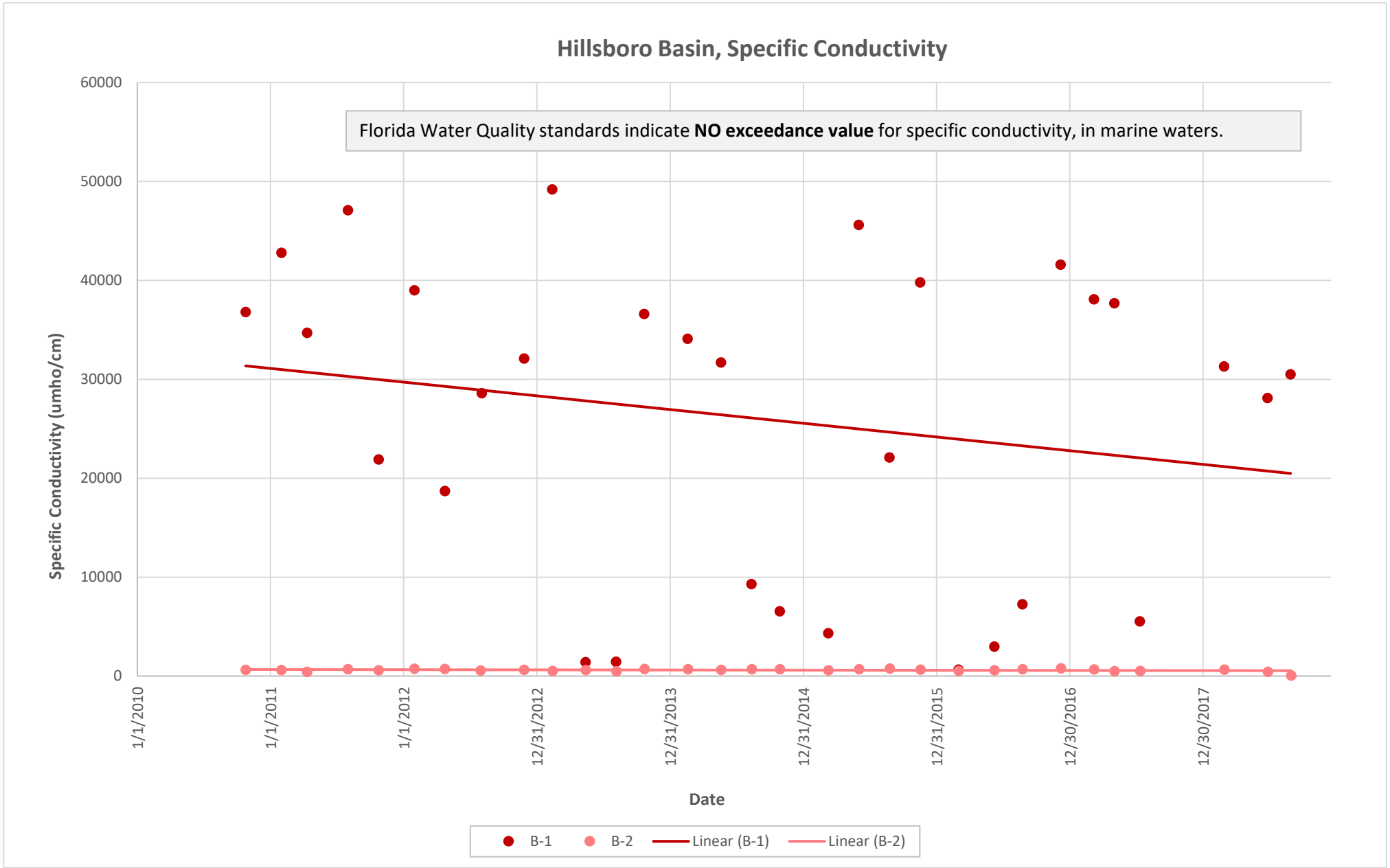

ICWW-S Basin, Total Phosphorus
Florida Water Quality standards indicate that the Annual Geometric Mean of values for Total Phosphorus, in marine waters, should not exceed 0.050 µg/L.
Total Phosphorus (mg/L)
0.1600
0.1400
0.1200
0.1000
0.0800
0.0600
0.0400
0.0200
0.0000
1/1/2010
1/1/2011
1/1/2012
12/31/2012
12/31/2013
12/31/2014
12/31/2015
12/30/2016
12/30/2017
Date
LWL-18 (marine)
LWL-18 AGM
Linear (LWL-18 AGM)

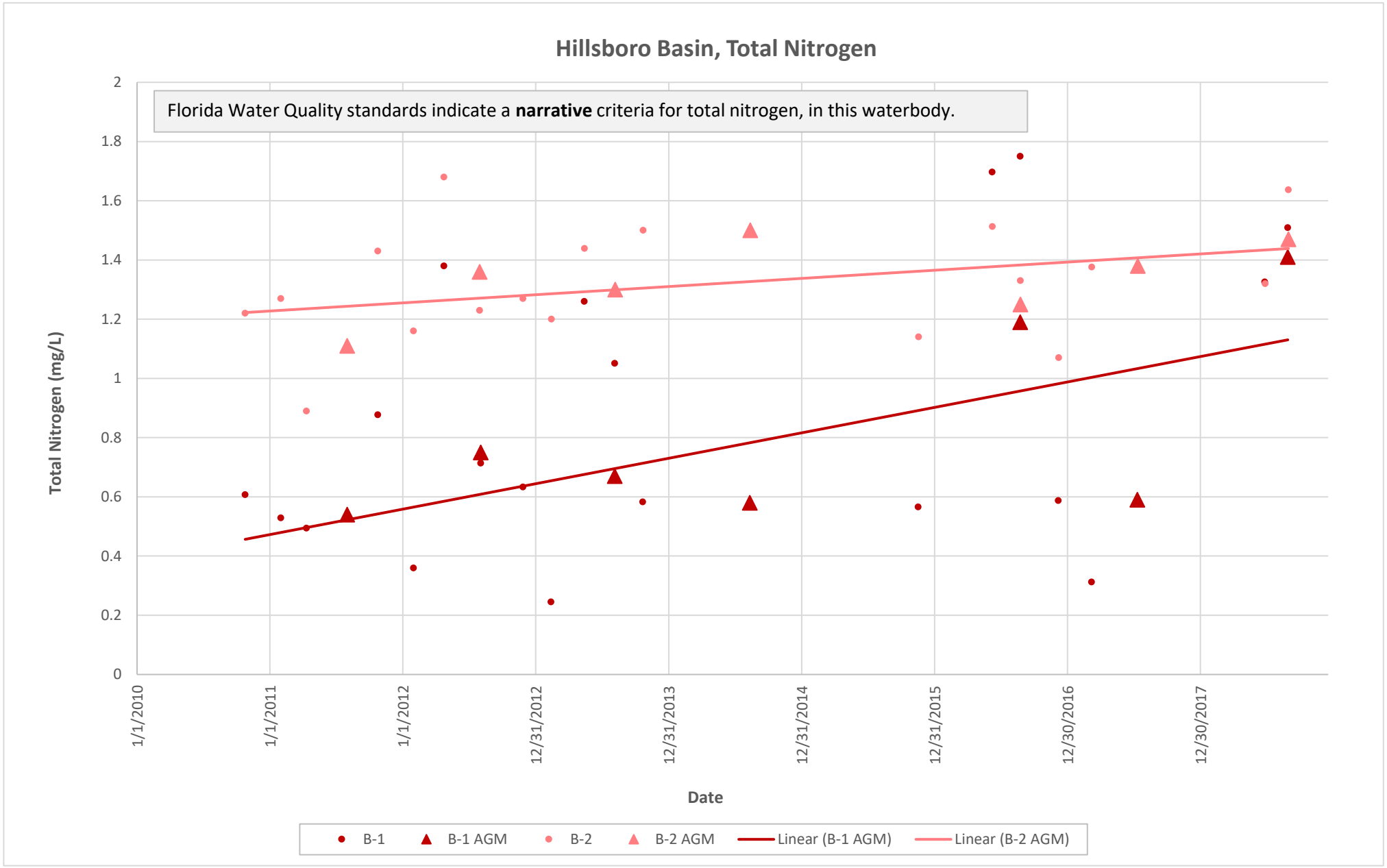

ICWW-S Basin, Total Suspended Solids
Florida Water Quality standards indicate **NO exceedance value** for TSS, in marine waters.
Total Suspended Solids (mg/L)
25.0
20.0
15.0
10.0
5.0
0.0
1/1/2010
1/1/2011
1/1/2012
12/31/2012
12/31/2013
12/31/2014
12/31/2015
12/30/2016
12/30/2017
Date
LWL-18 (marine)
Linear (LWL-18 (marine))

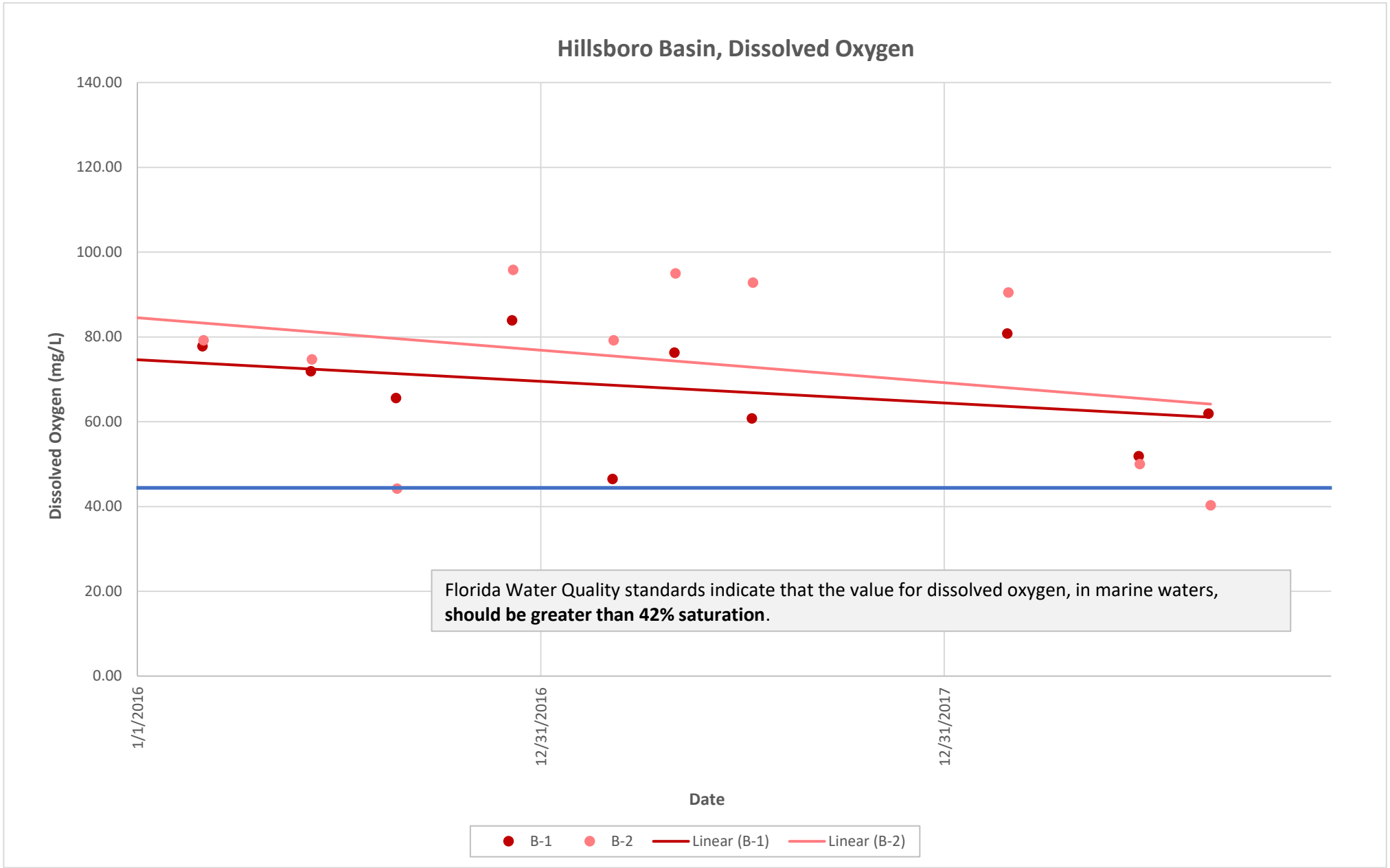

ICWW-S Basin, Turbidity
Florida Water Quality standards indicate that the value for turbidity, in marine waters, should not exceed 29 NTUs above background.
Turbidity (NTU)
10.0
9.0
8.0
7.0
6.0
5.0
4.0
3.0
2.0
1.0
0.0
1/1/2010
1/1/2011
1/1/2012
12/31/2012
12/31/2013
12/31/2014
12/31/2015
12/30/2016
12/30/2017
Date
LWL-18 (marine)
Linear (LWL-18 (marine))

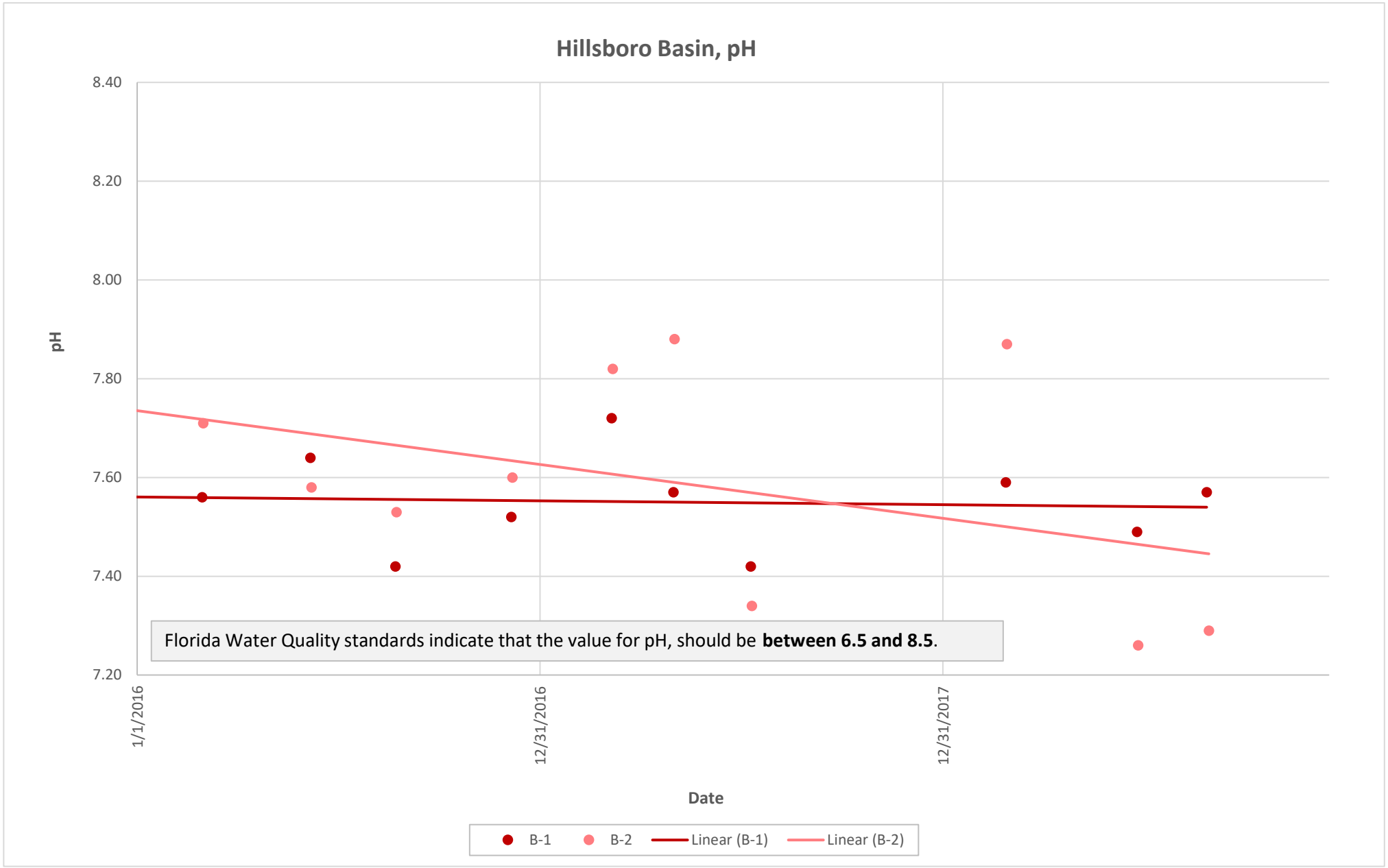

ICWW-S Basin, Zinc, Dissolved
Florida Water Quality standards indicate that the value for zinc, in marine waters, **should not exceed 0.086 mg/L**.
Zinc, Dissolved (mg/L)
0.012
0.01
0.008
0.006
0.004
0.002
0
1/1/2010
1/1/2011
1/1/2012
12/31/2012
12/31/2013
12/31/2014
12/31/2015
12/30/2016
12/30/2017
Date
LWL-18 (marine)

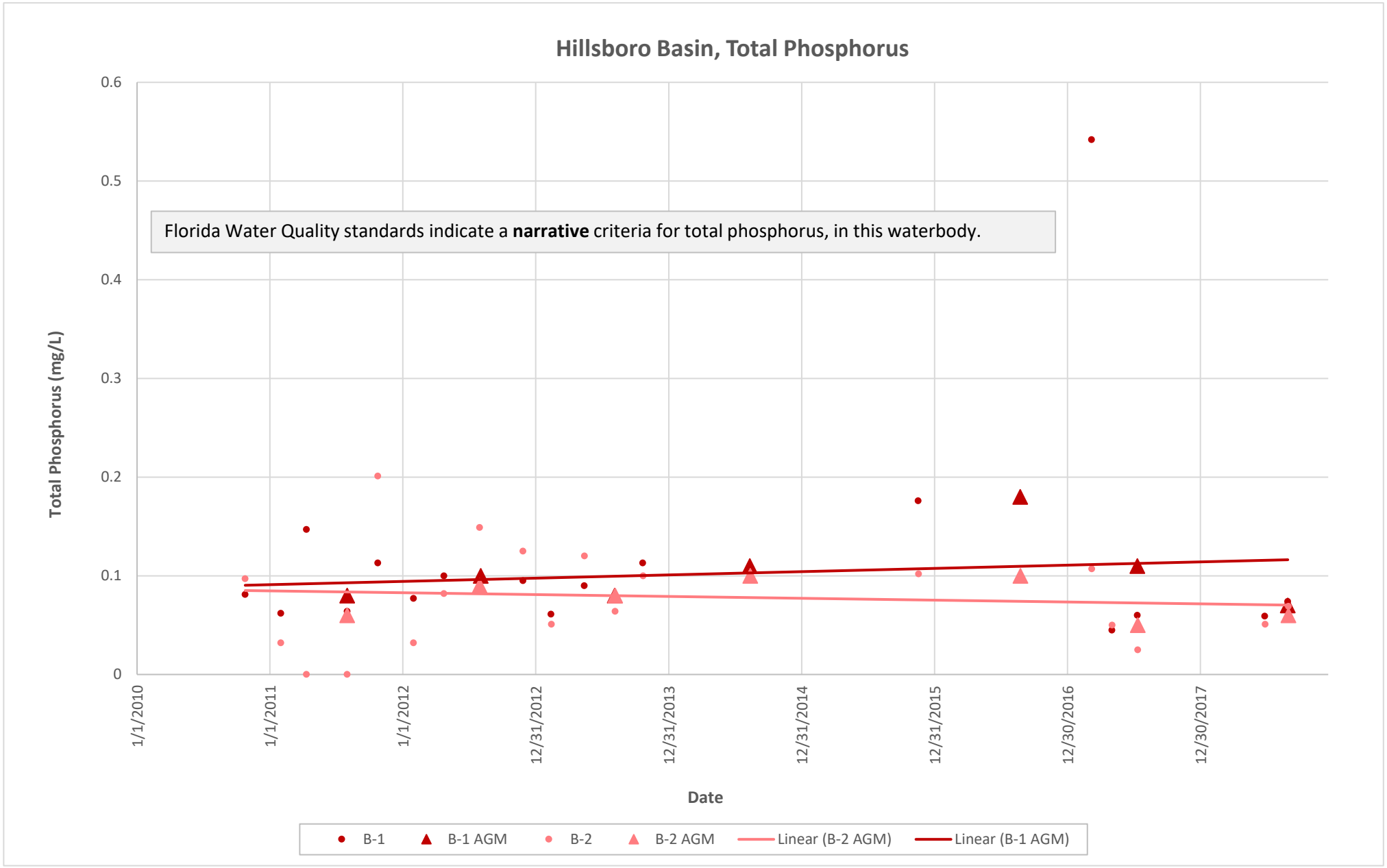

Hillsboro Basin, Chl-a (corrected)
Florida Water Quality standards indicate that the Annual Geometric Mean of values for chloraphyll-a, in marine waters, **should not exceed 11 µg/L**.
Chlorophyl-a (mg/m³)
30.00
25.00
20.00
15.00
10.00
5.00
0.00
1/1/2010
1/1/2011
1/1/2012
12/31/2012
12/31/2013
12/31/2014
12/31/2015
12/30/2016
12/30/2017
Date
B-1
B-1 AGM
B-2
B-2 AGM
Linear (B-2 AGM)
Linear (B-1 AGM)

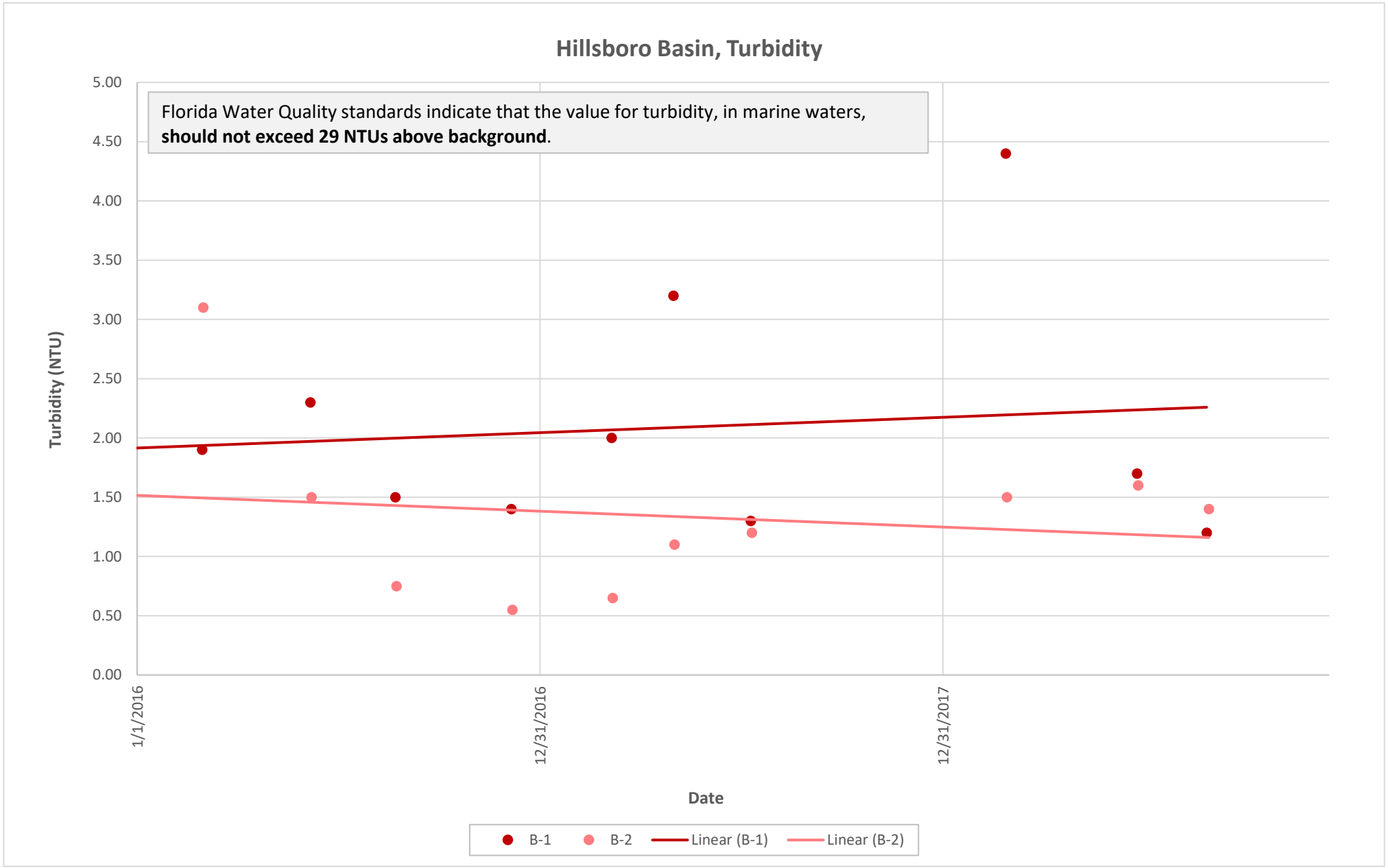

Hillsboro Basin, Specific Conductivity
Florida Water Quality standards indicate **NO exceedance value** for specific conductivity, in marine waters.
Specific Conductivity (umho/cm)
60000
50000
40000
30000
20000
10000
0
1/1/2010
1/1/2011
1/1/2012
12/31/2012
12/31/2013
12/31/2014
12/31/2015
12/30/2016
12/30/2017
Date
B-1
B-2
Linear (B-1)
Linear (B-2)


Hillsboro Basin, Total Nitrogen
Florida Water Quality standards indicate a **narrative** criteria for total nitrogen, in this waterbody.
Total Nitrogen (mg/L)
2
1.8
1.6
1.4
1.2
1
0.8
0.6
0.4
0.2
0
1/1/2010
1/1/2011
1/1/2012
12/31/2012
12/31/2013
12/31/2014
12/31/2015
12/30/2016
12/30/2017
Date
B-1
B-1 AGM
B-2
B-2 AGM
Linear (B-1 AGM)
Linear (B-2 AGM)


Hillsboro Basin, Dissolved Oxygen
140.00
120.00
100.00
80.00
60.00
40.00
20.00
0.00
Dissolved Oxygen (mg/L)
1/1/2016
12/31/2016
12/31/2017
Date
Florida Water Quality standards indicate that the value for dissolved oxygen, in marine waters, **should be greater than 42% saturation**.
B-1
B-2
Linear (B-1)
Linear (B-2)


Hillsboro Basin, pH
8.40
8.20
8.00
7.80
7.60
7.40
7.20
pH
1/1/2016
12/31/2016
12/31/2017
Date
Florida Water Quality standards indicate that the value for pH, should be **between 6.5 and 8.5**.
B-1
B-2
Linear (B-1)
Linear (B-2)


Hillsboro Basin, Total Phosphorus
Florida Water Quality standards indicate a **narrative** criteria for total phosphorus, in this waterbody.
Total Phosphorus (mg/L)
0.6
0.5
0.4
0.3
0.2
0.1
0
1/1/2010
1/1/2011
1/1/2012
12/31/2012
12/31/2013
12/31/2014
12/31/2015
12/30/2016
12/30/2017
Date
B-1
B-1 AGM
B-2
B-2 AGM
Linear (B-2 AGM)
Linear (B-1 AGM)


Hillsboro Basin, Turbidity
Florida Water Quality standards indicate that the value for turbidity, in marine waters, **should not exceed 29 NTUs above background**.
Turbidity (NTU)
5.00
4.50
4.00
3.50
3.00
2.50
2.00
1.50
1.00
0.50
0.00
1/1/2016
12/31/2016
12/31/2017
Date
B-1
B-2
Linear (B-1)
Linear (B-2)