



## City of North Port



National Pollutant Discharge Elimination System (NPDES)  
Municipal Separate Storm Sewer System (MS4)  
Permit # FLS000004

### Year 2 Annual Report

**Report period Jan 1, 2015  
to December 31, 2015**



Installing Pervious Concrete Parking Space at SCAT Park and Ride at North Port City Center



Testing Pervious Concrete Parking Space at Commercial Facility in North Port

Submitted by  
**Elizabeth Wong P.E.**  
**Stormwater Manager**  
**Department of Public Works**  
**Engineering Division**

1100 N. Chamberlain Blvd.  
North Port, Florida 34286  
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# 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. Their names and email addresses are available at: <http://www.dep.state.fl.us/water/stormwater/npdes/contacts.htm>. If files are larger than 10mb, materials may be placed on the NPDES Stormwater ftp site at: [ftp://ftp.dep.state.fl.us/pub/NPDES\\_Stormwater/](ftp://ftp.dep.state.fl.us/pub/NPDES_Stormwater/). After uploading the ANNUAL REPORT files, an email must be sent to the MS4 coordinator or the NPDES program administrator notifying them the report is ready for downloading
- Refer to the Form Instructions for guidance on completing each section.
- **Please print or type information in the appropriate areas below**

SECTION I. BACKGROUND INFORMATION																						
<b>A.</b>	Permittee Name: City of North Port																					
<b>B.</b>	Permit Name: Sarasota County Municipal Separate Storm Sewer System																					
<b>C.</b>	Permit Number: FLS000004-004 (Cycle 4)																					
<b>D.</b>	Annual Report Year: <input type="checkbox"/> Year 1 <input checked="" type="checkbox"/> Year 2 <input type="checkbox"/> Year 3 <input type="checkbox"/> Year 4 <input type="checkbox"/> Year 5 <input type="checkbox"/> Other, specify Year:																					
<b>E.</b>	Reporting Time Period (month/year): Jan/2015 through Dec/2015																					
<b>F.</b>	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td colspan="3">Name of the Responsible Authority: Jonathan R. Lewis</td> </tr> <tr> <td colspan="3">Title: City Manager</td> </tr> <tr> <td colspan="3">Mailing Address: 4970 City Hall Boulevard</td> </tr> <tr> <td>City: North Port</td> <td>Zip Code: 34286</td> <td>County: Sarasota</td> </tr> <tr> <td colspan="2">Telephone Number: 941-429-7076</td> <td>Fax Number: 941-429-7079</td> </tr> <tr> <td colspan="3">E-mail Address: jlewis@cityofnorthport.com</td> </tr> </table>	Name of the Responsible Authority: Jonathan R. Lewis			Title: City Manager			Mailing Address: 4970 City Hall Boulevard			City: North Port	Zip Code: 34286	County: Sarasota	Telephone Number: 941-429-7076		Fax Number: 941-429-7079	E-mail Address: jlewis@cityofnorthport.com					
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<b>G.</b>	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td colspan="3">Name of the Designated Stormwater Management Program Contact (if different from Section I.F above): Elizabeth Wong</td> </tr> <tr> <td colspan="3">Title: Stormwater Manager</td> </tr> <tr> <td colspan="3">Department: Department of Public Works, Operations Division</td> </tr> <tr> <td colspan="3">Mailing Address: 1100 Chamberlain Boulevard</td> </tr> <tr> <td>City: North Port</td> <td>Zip Code: 34286</td> <td>County: Sarasota County</td> </tr> <tr> <td colspan="2">Telephone Number: 941-240-8321</td> <td>Fax Number: 941-240-8063</td> </tr> <tr> <td colspan="3">E-mail Address: ewong@cityofnorthport.com</td> </tr> </table>	Name of the Designated Stormwater Management Program Contact (if different from Section I.F above): Elizabeth Wong			Title: Stormwater Manager			Department: Department of Public Works, Operations Division			Mailing Address: 1100 Chamberlain Boulevard			City: North Port	Zip Code: 34286	County: Sarasota County	Telephone Number: 941-240-8321		Fax Number: 941-240-8063	E-mail Address: ewong@cityofnorthport.com		
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SECTION II. MS4 MAJOR OUTFALL INVENTORY (Not Applicable In Year 1)	
<b>A.</b>	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? <input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Not Applicable)
<b>B.</b>	Number of outfalls REMOVED from the outfall inventory in the current reporting year (insert "0" if none): All outfalls included in the 2008 Annual report are not considered as Major Outfalls based on current understanding of the definition of Major Outfalls (Does this number include non-major outfalls? <input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Not Applicable) 0
<b>C.</b>	Is the change in the total number of outfalls due to lands annexed or vacated? <input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Not Applicable

### SECTION III. MONITORING PROGRAM

A.	<p>Provide a brief statement as to the status of monitoring plan implementation:</p> <p><b>DEP Note:</b> <i>The co-permittees may refer to the Sarasota County AR here as follows: "The monitoring plan is carried out through an inter-local agreement with Sarasota County. Please see the Sarasota County Annual Report for the monitoring information."</i></p> <p>The water quality monitoring plan in the new National Pollutant Discharge Elimination System (NPDES) permit approved the use of the City's Hydrobiological (HB) sampling sites and monitoring data collected under the City's Southwest Florida Water Management District (SWFWMD) Water Use Permit to satisfy the NPDES monitoring requirements. The HB data has very similar parameters to the Sarasota County's monitoring plan. The sampling locations provide specific water quality data for the surface water runoff from the City of North Port.</p>
B.	<p>Provide a brief discussion of the monitoring results to date:</p> <p><b>DEP Note:</b> <i>See Part V of the permit for the monitoring requirements. Each permittee must discuss the monitoring results as it relates to the implementation and effectiveness of their SWMP.</i></p> <p>Please see Appendix A for the discussion of the monitoring results.</p>
C.	<p>Attach a monitoring data summary, as required by the permit.</p> <p>Please see Appendix A and B for the monitoring data and graphs.</p>

### SECTION IV. FISCAL ANALYSIS

A.	<p>Total expenditures for the NPDES stormwater management program for the current reporting year: \$7,365,804.32 (City's Fiscal Year 2015 for Base and Enhanced Drainage and Mowing)</p> <p><b>DEP Note:</b> <i>If program resources have decreased from the previous year, attach a discussion of the impacts on the implementation of the SWMP as per Part II.F of the permit.</i></p>
B.	<p>Total budget for the NPDES stormwater management program for the subsequent reporting year: \$7,591,684.48 (City's Fiscal Year 2016 for Base and Enhanced Drainage and Mowing)</p>

### 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	<b>***DEP Note: Please complete Checklists A &amp; B at the end of the tailored form.***</b>
<input checked="" type="checkbox"/>	<input type="checkbox"/>	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.
<input checked="" type="checkbox"/>	<input type="checkbox"/>	A monitoring data summary as directed in Section III.C above and in accordance with Rule 62-624.600(2)(c), F.A.C.
<input type="checkbox"/>	<input checked="" type="checkbox"/>	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.
<input type="checkbox"/>	<input checked="" type="checkbox"/>	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.
<input type="checkbox"/>	<input checked="" type="checkbox"/>	Year 4 ONLY: Permit re-application information in accordance with Rule 62-624.420(2), F.A.C.

**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): Jonathan R. Lewis

Title: City Manager

Signature: *Yvonne F. Schultz for Jonathan R. Lewis* Date: 6/29/16

**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	<b>Structural Controls and Stormwater Collection Systems Operation</b>								
	Maintain an up-to-date inventory of the structural controls and roadway stormwater collection structures operated by the permittee, including, at a minimum, all of the types of control structures listed in Table II.A.1.a of the permit. <b>Report the current known inventory.</b>								
	<i>DEP Note: The permittee needs to "customize" this section by adding any structural controls to the list below that are part of the permittee's MS4 currently or are planned for the future. The permittee may remove any structural controls listed that it does not have currently or will likely not have during this permit cycle. Please see the attached description of each type of structure. In addition, 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.</i>								
	Provide an inventory of all known major outfalls covered by the permit and a map depicting the location of the major outfalls (hard copy or CD-ROM). Provide the outfall inventory and map with the Year 1 Annual Report.								
	Report the number of inspection and maintenance activities conducted for each 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. 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.								
	<i>DEP Note: If the minimum inspection frequencies set forth in Table II.A.1.a of the permit were not met for one or more type of structure, the permittee must 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. Please provide the title of the attached explanation in Column D and the name of the entity who finalized the explanation in Column E.</i>								
	Maintain documentation of the wet detention systems in the Adopt-A-Pond program. <b>Report the number of systems in the Adopt-A-Pond program.</b>								
	<b>Type of Structure</b>	<b>Number of Activities Performed</b>				<b>Documentation / Record</b>	<b>Entity Performing the Activity</b>	<b>Comments</b>	
		<b>Total Number of Structures</b>	<b>Number of Inspections</b>	<b>Percentage Inspected</b>	<b>Number of Maintenance Activities</b>	<b>Percentage Maintained</b>			
	<b>Dry retention systems</b>	85	85	100	85	100	NPDES Backup Binder, City Fac. Maintenance spreadsheet	Steve Platt & E. Wong inspect, PW Ops and NDS maintain	Ponds routinely mowed, add'l maintenance repair on 17 ponds
	<b>Exfiltration trench / French drains (linear feet)</b>	No exfiltration trench / french drains in City.							

**SECTION VII. STORMWATER MANAGEMENT PROGRAM (SWMP) SUMMARY TABLE**

A. Permit Citation/ SWMP Element	B. Permit Requirement/Quantifiable SWMP Activity			C. Number of Activities Performed		D. Documentation / Record	E. Entity Performing the Activity	F. Comments	
	Type of Structure	Total Number of Structures	Number of Inspections	Percentage Inspected	Number of Maintenance Activities	Percentage Maintained			
	<b>Grass treatment swales (miles)</b>	1613	1613	100	24,956 acres of swales mowed and 48.98 miles of swales rehabilitated	100 % mowed, 3.04% swales rehabilitated	NPDES Backup Binder, inspection spreadsheet, monthly commission reports	Steve Platt inspect, PW Ops maintain	City mowing records are in acres. All roadside swales are mowed several times per year, 48.98 miles swales are rehabilitated.
	<b>Dry detention systems</b>	No dry detention systems in City.							
	<b>Wet detention systems Ponds at City Facilities</b>	36	36	100	36	100	NPDES Backup Binder, City Fac. Maintenance spreadsheet	Steve Platt & E. Wong inspect, PW Ops and NDS maintain	Ponds routinely mowed more than once per year, add'l maintenance on 2 ponds.
	Stormwater wet Treatment ponds installed originally by General Development Corporation (GDC) as part of 1983 DER consent order for wetland compensation	245	245	245	83	34	NPDES Backup Binder GDC Pond Inspection Form	PW Ops maintain	All ponds were inspected in Dec 2015. The ponds will be inspected every 3 years and next inspection is 2018. Maintenance activities are based on ponds mowed.
	<b>Pollution control boxes</b>	7	7 x 2 = 14	100	14	100	NPDES Backup Binder, data from Rick St Louis	Rick St Louis, PW Ops	7 grate inlet baskets inspected 2 times a year, very little trash inside
	<b>Stormwater pump stations</b>	No stormwater pump stations in City.							

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	Permit Requirement/Quantifiable SWMP Activity			Number of Activities Performed		Documentation / Record	Entity Performing the Activity	Comments			
	<b>Major stormwater outfalls</b>	10	10	100	2	20	NPDES Backup Binder, outfalls at WCS and waterway inspection forms	E. Wong inspect and PW Ops maintain	WCS 101 and WCS 106 outfalls maintained routinely. The remaining outfalls did not require maintenance.		
	<b>Weirs or other control structures</b>	69	69	100	36	52.2	NPDES Backup Binder, annual WCS Inspection Form. Ops gated WCS daily inspection forms	PW Ops inspect and maintain	31 structures are equipped with gates and inspected several times a week. All structures are cleared of vegetation/debris as needed to prevent clogage. 31 gated structures are greased annually. Minor repairs on WCS 162, 124, 125, 114. Replace 3 gates on WCS 108.		
	<b>MS4 pipes / culverts (miles)</b>	69.05	13.25	19.2	1.61 miles replaced 25 pipe ends cleaned of debris	2.34% of pipes replaced	NPDES Backup Binder, \\cnpssvr8749\Engineering\NPDES\Pipe and Outfall Inventory\Pipe Inventory for 2015  J:\NPDES\NPDES Annual Report 2015 - Year 2\Maintenance Activities	PW Engineer Inspectors, PW Ops replaced some pipes and clean out debris in pipes. Road Bond contractors install some of the pipes	PW has several ongoing large road bond projects which include replacement of many existing CMP pipes and installation of new culvert pipes. Pipe inventory will be updated as		

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Permit Citation/ SWMP Element	Permit Requirement/Quantifiable SWMP Activity					Number of Activities Performed	Documentation / Record	Entity Performing the Activity	Comments
									information is available.
	<b>Inlets / catch basins / grates</b>	1358	1358	100	32	2.36	NPDES Backup Binder, City Fac. Maintenance spreadsheet, and Steve Platt's Inlet Inspections spreadsheet, existing catch basins replaced by Ops	Steve Platt & E. Wong inspect, PW Ops and NDS maintain	The remaining structures did not require maintenance.
	<b>Ditches / conveyance swales (miles)</b>	132 miles of R-Ditches and 79.1 miles of canals	132 miles of R-Ditches and 79.1 miles of canals	100	604 acres sprayed for vegetation control and 5,388 acres mowed. 52.27 miles of R-ditches rehabilitated.	100% R-Ditches mowed. 39.6% of R-ditches rehabilitated.	NPDES Backup Binder, monthly commission reports and Lucity Task Productivity Report	Mower Operator inspects R-Ditches, PW Ops inspect canals and maintain both.	All R-ditches mowed more than once per year and the mower operator inspect during mowing. Canals are sprayed 7d for vegetation control as needed in the developed areas west of I-75 about twice per year.
	<b>Systems in the Adopt-A-Pond program</b>	0							No City program
	<b>ATTACH explanation if any of the minimum inspection frequencies in Table II.A.1.a were not met</b>								
	<b>Year 1 ONLY: Attach a map of all known major outfalls</b>						N/A in Yr 2		
<b>Part III.A.2</b>	<b>Areas of New Development and Significant Redevelopment</b>								
	Report the number of significant redevelopment projects reviewed by the permittee for post-development stormwater considerations. Report the number of new development projects reviewed under Part III.A.9.a								
	<i>DEP Note: Please provide an explanation in Column F for any "0" reported in Column C.</i>								
	<b>Number of significant redevelopment projects reviewed</b>				0	N/A			No redevelopments
	Provide in the Year 2 Annual Report the summary report of the review of local codes activity. Provide in the Year 4 Annual Report the follow-up report on plan implementation of modifying codes to allow low impact design BMPs.								
	<i>DEP Note: Refer to Part III.A.2 of the permit for details regarding what the review entails, and what must be included in the summary report and follow-up report.</i>								



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<i>Please provide the title of the attached report in Column D and the name of the entity who finalized the report in Column E.</i>					
<b>Year 2 ONLY: Attach the summary report of the review activity</b>			See Appendix D	E.Wong	
<b>Year 4 ONLY: Attach the follow-up report on plan implementation</b>			N/A in Yr		
<b>Part III.A.3</b>	<b>Roadways</b>				
<p>Annually review (and revise, as needed) and implement the permittee's written procedures for the litter control program(s) for public streets, roads, and highways, including rights-of-way, employed within the permittee's jurisdictional area and properly dispose of collected material. Implement the program on a monthly, or on an as needed, basis. <b>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.</b></p>					
<p><b>DEP Note: Please provide an explanation in Column F for any "0" reported in Column C. In addition, the permittee may choose its own units of measurement for the reporting items. Unit options for the amount of litter include: bags, cubic yards, pounds, tons. Unit options for the amount of area covered by the activity include: square feet, linear feet, yards, miles, acres. If all litter collection is performed by staff or by contractors, but not by both, please remove the non-applicable reporting items.</b></p>					
<b>PERMITTEE Litter Control Program: Frequency of litter collection</b>		Daily	NPDES Backup Binder	PW Operations Rick St Louis	Mowing staff also pick up litter.
<b>PERMITTEE Litter Control Program: Estimated amount of area maintained (linear feet)</b>		4,292,640 feet (813 miles)	NPDES Backup Binder	PW Operations Rick St Louis	All 813 miles of North Port streets
<b>PERMITTEE Litter Control Program: Estimated amount of litter collected (cubic yards)</b>		72.83 tons	NPDES Backup Binder, Sarasota County invoices	PW Operations Lori Hollingshead for invoices	Litter collected is quantified in tons and not cubic yards
<b>CONTRACTOR Litter Control Program: Frequency of litter collection</b>		N/A	N/A	N/A	City does not retain contractor for litter control.
<b>CONTRACTOR Litter Control Program: Estimated amount of area maintained (linear feet)</b>		N/A	N/A	N/A	
<b>CONTRACTOR Litter Control Program: Estimated amount of litter collected (cubic yards)</b>		N/A	N/A	N/A	
<p><b>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.</b></p>					
<p><b>DEP Note: Please provide an explanation in Column F for any "0" reported in Column C. The permittee may choose its own unit of measurement for the amount of litter collected. Unit options include: bags, cubic yards, pounds, tons. If an Adopt-A-Road or similar program is not implemented by the permittee, please note that in Column F but do not remove the Adopt-A-Road Program reporting items.</b></p>					
<b>Trash Pick-up Events: Total miles cleaned</b>		12	NPDES Backup Binder Julie Bellia Email dated 6/21/16	Julie Bellia and Chelsea Buell	2 trash pick up events - International Coastal Cleanup, Great American Clean-up.
<b>Trash Pick-up Events: Estimated amount of litter collected (cubic yards)</b>		1750 pounds			
<b>Adopt-A-Road Program: Total miles cleaned</b>		608			
<b>Adopt-A-Road Program: Estimated amount of litter collected (cubic yards)</b>		1635 pounds			
<p><b>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 (TN) and total phosphorus (TP) loadings that were removed by the collection of sweepings. If no street sweeping program is implemented, provide the</b></p>					

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	<p>explanation of why not in the Year 1 Annual Report.</p> <p><i>DEP Note: Please provide an explanation in Column F for any "0" reported in Column C. Also, the permittee may choose its own unit of measurement for the amount of sweeping material collected. Unit options include: cubic yards, pounds, tons.</i></p> <p><i>DEP Note: If the permittee has curbs and gutters but no street sweeping program is implemented, the permittee must provide an explanation of why not in the Year 1 Annual Report. Refer to Part III.A.3 of the permit for the information that must be included in the explanation (including the alternate BMPs used or planned in lieu of street sweeping). Please provide the title of the attached explanation in Column D and the name of the entity who finalized the explanation in Column E.</i></p>				
	<p><b>Frequency of street sweeping</b></p>	<p>Quarterly</p>	<p>NPDES Backup Binder, J:\NPDES \NPDES Annual Report 2015 - Year 2\Litter and Street Sweeping</p>	<p>PW Operations Rick St Louis</p>	<p>Curbed Streets, 48 intersections Public Works Parking area swept quarterly. The Dec 2015 sweeping was postponed to Jan 2016 because of a pending PW Road-eo event in Jan 2016 which will be report in the next NPDES report</p>
	<p><b>Total miles swept (per year)</b></p>	<p>225.32</p>	<p>NPDES Backup Binder, J:\NPDES \NPDES Annual Report 2015 - Year 2\Litter and Street Sweeping</p>	<p>PW Operations Rick St Louis</p>	
	<p><b>Estimated quantity of sweeping material collected (pounds)</b></p>	<p>339,260</p>	<p>NPDES Backup Binder, J:\NPDES \NPDES Annual Report 2015 - Year 2\Litter and Street Sweeping, Disposal logs</p>	<p>PW Operations Rick St Louis</p>	
	<p><b>Total nitrogen loadings removed (pounds)</b></p>	<p>87</p>	<p>2015 Backup Binder, J:\NPDES \NPDES Annual Report 2015 - Year 2\Litter and Street Sweeping</p>	<p>E. Wong</p>	
	<p><b>Total phosphorus loadings removed (pounds)</b></p>	<p>191</p>	<p>NPDES Backup Binder, J:\NPDES \NPDES Annual Report 2015 - Year 2\Litter and Street Sweeping</p>	<p>E. Wong</p>	
	<p><b>Year 1 ONLY: If have curbs and gutters, attach explanation of why no street sweeping program and the alternate BMPs used or planned</b></p>				

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	<p>Annually review (and revise, as needed) and implement the permittee's written standard practices to reduce the pollutants in stormwater runoff from areas associated with road repair and maintenance, and from permittee-owned or operated equipment yards and maintenance shops that support road maintenance activities. <b>Report the number of applicable facilities and the number of inspections conducted for each facility.</b></p> <p><i>DEP Note: The permittee needs to "customize" this section by listing the names of the applicable facilities in Column B and the number of inspections of each facility in Column C. Add more rows if necessary. If "0" is reported in Column C for the number of inspections conducted and the permittee has one or more applicable facilities, please provide an explanation in Column F for why no inspections were conducted. In addition, if the same facility is applicable under both Parts III.A.3 and III.A.5 of the permit, the same site inspection can count towards both inspection requirements as long as it covers the applicable waste area(s). Be sure to report the site inspection under both Parts III.A.3 and III.A.5.</i></p>	<p><b>Number of Inspections</b></p>	<p>NPDES Backup Binder, Site Inspection Form</p>	<p>E. Wong</p>	
	<p><b>Name of facility #1: Public Works/Fleet Maintenance facilities</b></p>	<p>1</p>			
	<p><b>Name of facility #2:</b></p>				
	<p><b>Name of facility #3:</b></p>				
<p><b>Part III.A.4</b></p>	<p><b>Flood Control Projects</b></p>				
	<p>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.</p> <p><i>DEP Note: A "stormwater retrofit project" is one implemented primarily to provide stormwater treatment for areas currently without treatment.</i></p> <p><i>DEP Note: The status of the flood control and retrofit projects should be reported as of the last day of the applicable reporting period. Therefore, there should be no duplication for those reported as planned, for those reported as under construction and for those reported as completed.</i></p> <p><i>DEP Note: If applicable, please provide the title of the attached list of flood control projects that did not include stormwater treatment in Column D and the name of the entity who finalized the list in Column E. Please provide an explanation in Column F for any "0" reported in Column C.</i></p>				
	<p><b>Flood control projects completed during the reporting period</b></p>	<p>3</p>	<p>Appendix C</p>	<p>E. Wong</p>	
	<p><b>Flood control projects completed during the reporting period that did <u>not</u> include stormwater treatment</b></p>	<p>2</p>	<p>Appendix C</p>	<p>E. Wong</p>	<p>2 projects are flood studies. Third project is design for replacement of a WCS 115 which allows canal treatment</p>
	<p><b>ATTACH a list of the flood control projects that did <u>not</u> include stormwater treatment and an explanation for each of why it was not</b></p>				<p>See Appendix C</p>
	<p><b>Stormwater retrofit projects planned</b></p>	<p>0</p>	<p>N/A</p>		<p>No retrofit</p>

**SECTION VII. STORMWATER MANAGEMENT PROGRAM (SWMP) SUMMARY TABLE**

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Permit Citation/ SWMP Element	Permit Requirement/Quantifiable SWMP Activity	Number of Activities Performed	Documentation / Record	Entity Performing the Activity	Comments																									
	<p>Stormwater retrofit projects under construction during the reporting period</p> <p>Stormwater retrofit projects completed during the reporting period</p>	0	N/A		<p>projects in 2015. North Port requires all commercial, industrial and planned residential subdivision to provide stormwater treatment. Single family platted lots typically run off to roadways grass treatment swales.</p>																									
		0	N/A																											
<b>Part III.A.5</b>	<b>Municipal Waste Treatment, Storage, and Disposal Facilities Not Covered by an NPDES Stormwater Permit</b>																													
	<p>Annually review (and revise, as needed) and implement the permittee's written procedures for inspections and the implementation of measures to control discharges from the following facilities that are not otherwise covered by an NPDES stormwater permit:</p> <ul style="list-style-type: none"> <li>• Operating municipal landfills;</li> <li>• Municipal waste transfer stations;</li> <li>• Municipal waste fleet maintenance facilities; and</li> <li>• Any other municipal waste treatment, waste storage, and waste disposal facilities.</li> </ul> <p><b>Report the number of applicable facilities and the number of the inspections conducted for each facility.</b></p> <p><i>DEP Note: The permittee needs to "customize" this section by listing the names of the applicable facilities in Column B and the number of inspections of each facility in Column C. Add more rows if necessary. If "0" is reported in Column C for the number of inspections conducted and the permittee has one or more applicable facilities, please provide an explanation in Column F for why no inspections were conducted. An applicable facility under Part III.A.5 includes, but is not limited to, those facilities/yards where street sweeping material and/or yard waste are temporary stockpiled, and where solid waste collection vehicles are parked and/or maintained. In addition, if the same facility is applicable under both Parts III.A.3 and III.A.5 of the permit, the same site inspection can count towards both inspection requirements as long as it covers the applicable waste area(s). Be sure to report the site inspection under both Parts III.A.3 and III.A.5.</i></p> <table border="1" data-bbox="216 1243 2011 1469"> <thead> <tr> <th data-bbox="216 1243 1096 1300"></th> <th data-bbox="1096 1243 1327 1300">Number of Inspections</th> <th data-bbox="1327 1243 1575 1300"></th> <th data-bbox="1575 1243 1801 1300"></th> <th data-bbox="1801 1243 2011 1300"></th> </tr> </thead> <tbody> <tr> <td data-bbox="216 1300 1096 1382"><b>Name of facility #1:</b> Public Works/Fleet Maintenance facilities</td> <td data-bbox="1096 1300 1327 1382">1</td> <td data-bbox="1327 1300 1575 1382">NPDES Backup Binder Site Inspection Form</td> <td data-bbox="1575 1300 1801 1382">E. Wong</td> <td data-bbox="1801 1300 2011 1382"></td> </tr> <tr> <td data-bbox="216 1382 1096 1414"><b>Name of facility #2:</b></td> <td data-bbox="1096 1382 1327 1414"></td> <td data-bbox="1327 1382 1575 1414"></td> <td data-bbox="1575 1382 1801 1414"></td> <td data-bbox="1801 1382 2011 1414"></td> </tr> <tr> <td data-bbox="216 1414 1096 1446"><b>Name of facility #3:</b></td> <td data-bbox="1096 1414 1327 1446"></td> <td data-bbox="1327 1414 1575 1446"></td> <td data-bbox="1575 1414 1801 1446"></td> <td data-bbox="1801 1414 2011 1446"></td> </tr> <tr> <td data-bbox="216 1446 1096 1469"><b>Name of facility #4:</b></td> <td data-bbox="1096 1446 1327 1469"></td> <td data-bbox="1327 1446 1575 1469"></td> <td data-bbox="1575 1446 1801 1469"></td> <td data-bbox="1801 1446 2011 1469"></td> </tr> </tbody> </table>						Number of Inspections				<b>Name of facility #1:</b> Public Works/Fleet Maintenance facilities	1	NPDES Backup Binder Site Inspection Form	E. Wong		<b>Name of facility #2:</b>					<b>Name of facility #3:</b>					<b>Name of facility #4:</b>				
	Number of Inspections																													
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Part III.A.6	<b>Pesticides, Herbicides, and Fertilizer Application</b>				
<p>Continue to require proper certification and licensing by the Florida Department of Agriculture and Consumer Services (FDACS) for all applicators contracted to apply pesticides, herbicides, or fertilizers on permittee-owned property, as well as any permittee personnel employed in the application of these products. 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 and contractors who have been trained through the Green Industry BMP Program, and the number of contracted commercial applicators of fertilizer who are FDACS certified / licensed.</p> <p><i>DEP Note: If "0" is reported in Column C for any of the reporting items, please include in Column F an explanation of why training was not provided to / obtained by personnel and contractors during the applicable reporting year, the most recent year that training / certification was previously provided / obtained, and the names of the personnel and contractors previously trained / certified.</i></p>					
<p><b>PERSONNEL: Florida Department of Agriculture and Consumer Services (FDACS) certified applicators of pesticides and herbicides</b></p>		2	NPDES Backup Binder, FDACS certificate	PW Ops Rick St Louis	
<p><b>CONTRACTORS: FDACS certified / licensed applicators of pesticides and herbicides</b></p>		1	NPDES Backup Binder, FDACS certificate	NDS Marcia Rubin	
<p><b>PERSONNEL: FDACS certified / licensed applicators of fertilizer</b></p>		15	NPDES Backup Binder, List from University of Florida IFAS Extension	Marvin, Jennifer Wheeler jwmarvin@ufl.edu IFAS	All City Staff
<p><b>CONTRACTORS: FDACS certified / licensed applicators of fertilizer</b></p>		4 contractors Retained by North Port Neighborhood Development Services Dept.	NPDES Backup Binder, List from University of Florida IFAS Extension Green industries BMP training	NDS Marcia Rubin Marvin, Jennifer Wheeler jwmarvin@ufl.edu IFAS	263 other contractors Working or Living in North Port have Green industries BMP training
<p>Pursuant to SB 2080 (2009), all local governments are encouraged to adopt a Florida-friendly Landscaping Ordinance similar to the one set forth in the document "Florida-friendly Guidance Models for Ordinances, Covenants and Restrictions." If the broader Florida-friendly ordinance described above is not adopted, then <u>all local governments within the watershed of a nutrient-impaired water body</u> shall adopt the Department's Model Ordinance for Florida-Friendly Fertilizer Use on Urban Landscapes pursuant to SB 494 (2009) or an ordinance that includes all of the requirements set forth in the Model Ordinance. The ordinance shall be adopted within 24 months of the date of permit issuance. Provide a copy of the adopted ordinance with the subsequent Year 1 or Year 2 Annual Report.</p> <p><i>DEP Note: If this provision is not applicable because the permittee is not within the watershed of a nutrient-impaired water body, then please indicate that in Column F, but do not remove this reporting item.</i></p> <p><i>DEP Note: Please provide the title and citation of the ordinance in Column D, and the name of the entity who finalized the ordinance in Column E.</i></p>					
<p><b>Year 1 or Year 2 ONLY: Attach copy of adopted Florida-friendly ordinance</b></p>			Fertilizer Ordinance provided in Year 1 report		
<p>During Year 1 of the permit, develop and implement a written public education and outreach program plan to encourage citizens to reduce their use of pesticides, herbicides, and fertilizers. Report on the public education and outreach activities that are performed or sponsored by the permittee within the permittee's jurisdiction to</p>					

**SECTION VII. STORMWATER MANAGEMENT PROGRAM (SWMP) SUMMARY TABLE**

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Permit Citation/ SWMP Element	Permit Requirement/Quantifiable SWMP Activity	Number of Activities Performed	Documentation / Record	Entity Performing the Activity	Comments																														
	<p>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, the percentage of the population reached by the activities in total, and the number of Web site visits (if applicable). Activities performed under the Florida Yards and Neighborhoods (FYN) program should only be reported if the permittee is contributing funding towards the FYN staff and program within its jurisdiction.</p> <p><i>DEP Note: The permittee should "customize" the list of public outreach activities by removing items or adding items to the list below as appropriate to their particular public outreach program. However, the reporting item of "Estimated percentage of the population reached by the activities in total" must remain. The permittee may add more specifics to the reporting items, such as the name of the brochure or newsletter distributed. If "0" is reported in Column C for all the reporting items please include in Column F an explanation for why no outreach was performed.</i></p> <p><i>DEP Note: IF APPLICABLE Sarasota County is to report the public education and outreach activities that it performed county-wide (and not just in the unincorporated areas of Sarasota County). The co-permittees are to report just the public education and outreach activities that they performed.</i></p> <p><i>DEP Note: Indicate under Column E "Entity Performing the Activity" if FYN or IFAS is performing any of the reported public education and outreach activities. In addition, please complete the following line:</i></p> <p style="text-align: center;"><b>FYN PROGRAM FUNDING: Permittee Provides Funding? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Amount of Funding = \$</b></p>	<table border="1"> <tr><td>Estimated percentage of the population reached by the activities in total</td><td>51.2%</td></tr> <tr><td>Brochures/Flyers/Fact sheets distributed</td><td>20,556</td></tr> <tr><td>FYN: Brochure/Flyers/Fact sheets distributed</td><td>N/A</td></tr> <tr><td>Neighborhood presentations: Number conducted</td><td>2</td></tr> <tr><td>FYN: Neighborhood presentations: Number of participants</td><td>N/A</td></tr> <tr><td>FYN: Neighborhood presentations: Number conducted</td><td>N/A</td></tr> <tr><td>Neighborhood presentations: Number of participants</td><td>93</td></tr> <tr><td>Newspapers &amp; newsletters: Number of articles/notices published</td><td>1</td></tr> <tr><td>Newsletters: Number of newspaper &amp; newsletters distributed</td><td>4193</td></tr> <tr><td>Public displays (e.g., kiosks, storyboards, posters, etc.)</td><td>2</td></tr> <tr><td>FYN: Public displays (e.g., kiosks, storyboards, posters, etc.)</td><td>N/A</td></tr> <tr><td>Radio or television Public Service Announcements (PSAs)</td><td>0</td></tr> <tr><td>FYN: Radio or television Public Service Announcements (PSAs)</td><td>N/A</td></tr> <tr><td>School presentations: Number conducted</td><td>2</td></tr> <tr><td>School presentations: Number of participants</td><td>103</td></tr> </table>	Estimated percentage of the population reached by the activities in total	51.2%	Brochures/Flyers/Fact sheets distributed	20,556	FYN: Brochure/Flyers/Fact sheets distributed	N/A	Neighborhood presentations: Number conducted	2	FYN: Neighborhood presentations: Number of participants	N/A	FYN: Neighborhood presentations: Number conducted	N/A	Neighborhood presentations: Number of participants	93	Newspapers & newsletters: Number of articles/notices published	1	Newsletters: Number of newspaper & newsletters distributed	4193	Public displays (e.g., kiosks, storyboards, posters, etc.)	2	FYN: Public displays (e.g., kiosks, storyboards, posters, etc.)	N/A	Radio or television Public Service Announcements (PSAs)	0	FYN: Radio or television Public Service Announcements (PSAs)	N/A	School presentations: Number conducted	2	School presentations: Number of participants	103	<p>NPDES Backup Binder, J:\NPDES\NPDES Annual Report 2015 - Year 2\Public outreach and Training Summary\2015 Public Outreach</p>	<p>E. Wong coordinate</p> <p>E. Wong coordinate</p> <p>FYN</p> <p>E. Wong coordinate</p> <p>FYN</p> <p>FYN</p> <p>E. Wong coordinate</p> <p>E. Wong coordinate</p> <p>E. Wong coordinate</p> <p>FYN</p> <p>FYN</p> <p>E. Wong coordinate</p> <p>E. Wong, Mike Fear coordinate</p>	<p>Not part of FYN</p> <p>Not part of FYN</p> <p>Not part of FYN</p> <p>Newspaper Ad in Sun Herald</p> <p>Other forms of Public outreach used</p> <p>Not part of FYN</p> <p>Not part of FYN</p>
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	FYN: School presentations: Number conducted	N/A		FYN	Not part of FYN
	FYN: School presentations: Number of participants	N/A		FYN	Not part of FYN
	Seminars/Workshops: Number conducted	2		E. Wong coordinate	
	Seminars/Workshops: Number of participants	41		E. Wong coordinate	
	FYN: Seminars/Workshops: Number conducted	N/A		FYN	Not part of FYN
	FYN: Seminars/Workshops: Number of participants	N/A		FYN	Not part of FYN
	Special events: Number conducted	6		E. Wong and J Bellia coordinate	
	Special events: Number of participants	8315		E. Wong and J Bellia coordinate	
	FYN: Special events: Number conducted	N/A		FYN	Not part of FYN
	FYN: Special events: Number of participants	N/A		FYN	Not part of FYN
	Web Site: Number of hits / visitors to the stormwater-related pages	2818 (flood related, Environmental Services, Stormwater Management and Quality webpages)	NPDES Backup Binder Email from IT	Michael Fear, PW Customer Service Coordinator	* 2818 hits only from 9/7/15-12/31/15. Data prior to 9/7/15 was erased when the City switched to new website and URLs changed
<b>Part III.A.7.a</b>	<b>Illicit Discharges and Improper Disposal — Inspections, Ordinances, and Enforcement Measures</b>				
	Where applicable, strengthen the legal authority to conduct inspections, conduct monitoring, control illicit discharges, illicit connections, illegal dumping and spills into the MS4 and to require compliance with conditions in ordinances, permits, contracts, and orders. <b>Report amendments, as needed.</b>				
	<i>DEP Note: If applicable, please provide the title of the attached report in Column D and the name of the entity who finalized the report in Column E.</i>				
	<b>ATTACH a report on any amendments to the applicable legal authority</b>		No amendments		
<b>Part III.A.7.c</b>	<b>Illicit Discharges and Improper Disposal — Investigation of Suspected Illicit Discharges and/or Improper Disposal</b>				
	During Year 1 of the permit, develop and implement a written proactive inspection program plan for identifying and eliminating sources of illicit discharges, illicit connections, or dumping to the MS4. <b>Report on the proactive inspection program, including the number of inspections conducted, the number of illicit activities found, and the number and type of enforcement actions taken.</b>				
	<i>DEP Note: If "0" is reported in Column C for the first reporting item, please include an explanation in Column F for why no proactive inspections were performed. In addition, the permittee should re-word the "NOVs / warning letters / citations issued" reporting item to more accurately reflect its particular initial enforcement activity, if necessary.</i>				
	<i>DEP Note: Proactive inspections may include, for example, suspect areas (e.g., industrial areas), commercial businesses (e.g., restaurants, car washes, service</i>				

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	<p>stations, laundries / dry cleaners, auto body shops, mobile carpet cleaners) or temporary activities (e.g., special events / fairs / circuses) that would not otherwise be inspected during routine inspections and maintenance of the MS4, in association with high risk industrial facilities or construction sites, or in response to citizen or staff reports.</p>				
	<p><i>DEP Note: Refer to Part III.A.7.c of the permit for what must be included in the written proactive inspection program plan. Please provide the title of the attached plan in Column D and the name of the entity who finalized the plan in Column E.</i></p>				
	<p><b>Proactive inspections for suspected illicit discharges / connections / dumping</b></p>	10	<p>NPDES Backup Binder Site Inspection Form</p>	<p>Steve Platt E. Wong</p>	
	<p><b>Illicit discharges / connections / dumping found during a proactive inspection</b></p>	3	<p>NPDES Backup Binder Site Inspection Form</p>	<p>Steve Platt E. Wong</p>	<p>Very minor issues were corrected quickly</p>
	<p><b>Notices of Violation (NOVs) / warning letters / citations issued for illicit discharges / connections / dumping found during a proactive inspection</b></p>	0	<p>Email dated 6/16/16 from Carol Kozabo of Code Compliance</p>	<p>Carol Kozabo of Code Compliance</p>	<p>No NOVs needed, none issued</p>
	<p><b>Fines issued for illicit discharges / connections / dumping found during a proactive inspection</b></p>	0			<p>None issued</p>
	<p><b>Year 1 ONLY: Attach the written proactive inspection program plan</b></p>				
	<p>Annually review (and revise, as needed) and implement the permittee's written procedures to conduct reactive investigations to identify and eliminate the source(s) of illicit discharges, illicit connections or improper disposal to the MS4, based on reports received from permittee personnel, contractors, citizens, or other entities regarding suspected illicit activity. 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.</p>				
	<p><i>DEP Note: If the number of reports received differs from the number of reactive investigations, please provide an explanation for the discrepancy in Column F. In addition, the permittee should re-word the "NOVs / warning letters / citations issued" reporting item to more accurately reflect its particular initial enforcement activity, if necessary.</i></p>				
	<p><b>Reports of suspected illicit connections / discharges / dumping received</b></p>	6	<p>NPDES Backup Binder Site Inspection Form</p>	<p>E. Wong</p>	
	<p><b>Reactive investigations of reports of suspected illicit discharges/ connections / dumping</b></p>	6	<p>NPDES Backup Binder Site Inspection Form</p>	<p>E. Wong and Steve Platt</p>	
	<p><b>Illicit discharges / connections / dumping found during a reactive investigation</b></p>	5			<p>Sites were cleaned up</p>
	<p><b>Notices of Violation (NOVs) / warning letters / citations issued for illicit discharges / connections / dumping found during a reactive investigation</b></p>	0	<p>Email dated 6/16/16 from Carol Kozabo of Code Compliance</p>	<p>Carol Kozabo of Code Compliance</p>	<p>No NOVs needed, none issued</p>
	<p><b>Fines issued for illicit discharges / connections / dumping found during a reactive investigation</b></p>	0			<p>None issued</p>
	<p>During Year 1 of the permit, develop and implement a written plan for the training of all appropriate permittee personnel (including field crews, fleet maintenance staff, and inspectors) and contractors to identify and report conditions in the stormwater facilities that may indicate the presence of illicit discharges / connections / dumping to the MS4. Refresher training shall be provided annually. Report the type of training activities, and the number of permittee personnel and contractors trained (both in-</p>				



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	<p>house and outside training).</p> <p><i>DEP Note: If "0" is reported for either reporting item, please include in Column F an explanation of why training was not provided to / obtained by personnel and contractors during the applicable reporting year, the most recent year that training was previously provided / obtained, and the names of the personnel and contractors previously trained.</i></p>						
	<b>Personnel trained</b>	<p><b>Initial Training</b></p> <p>4 City staff trained by E. Wong</p>	<p><b>Refresher Training</b></p> <p>18 City staff trained by E. Wong 86 Hazmat trained in Fire Dept</p>		<p>NPDES Backup Binder, Sign-in Sheet Hazmat Training log and Karl Bennett email 6/14/16</p>	<p>E. Wong Karl Bennett – NP Fire Dept.</p>	<p>E. Wong In-House training Hazmat training</p>
	<b>Contractors trained</b>	<p>37 trained by E. Wong</p>			<p>NPDES Backup Binder, Pre-con Sign-in sheet</p>	<p>E. Wong</p>	<p>Mandatory pre-construction meeting by E. Wong</p>
	<b>Part III.A.7.d</b>	<b>Illicit Discharges and Improper Disposal — Spill Prevention and Response</b>					
	<p>Annually review (and revise, as needed) and implement the permittee's written spill-prevention/spill-response plan and procedures to prevent, contain, and respond to spills that discharge into the MS4. Report on the spill prevention and response activities, including the number of spills addressed.</p> <p><i>DEP Note: The permittee may report the number of hazardous material spills separately from the number of non-hazardous material spills, or report one combined number, to more accurately reflect its tracking of these spills.</i></p>						
	<b>Hazardous and non-hazardous material spills responded to</b>	11	<p>NPDES Backup Binder, NP Fire Rescue Incident List Report received from Rich Berman email 5/31/16</p>	<p>Fire Dept. – Rich Berman</p>	<p>During Year 1 of the permit, develop and implement a written plan for the training of all appropriate permittee personnel (including field crews, firefighters, fleet maintenance staff and inspectors) and contractors on proper spill prevention, containment, and response techniques and procedures. Refresher training shall be provided annually. Report the type of training activities, and the number of permittee personnel and contractors trained (both in-house and outside training).</p> <p><i>DEP Note: If "0" is reported for either reporting item, please include in Column F an explanation of why training was not provided to / obtained by personnel and contractors during the applicable reporting year, the most recent year that training was previously provided / obtained, and the names of the personnel and contractors previously trained.</i></p>		
<b>Personnel trained</b>	<p><b>Initial Training</b></p> <p>4 City staff trained by E. Wong</p>	<p><b>Refresher Training</b></p> <p>18 City staff trained by E. Wong 86 Hazmat trained in</p>		<p>NPDES Backup Binder, Sign-in Sheet</p>		<p>E. Wong Karl Bennett – NP Fire Dept.</p>	<p>E. Wong In-House training Hazmat training</p>

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		Fire Dept		Hazmat Training log and Karl Bennett email 6/14/16		
	<b>Contractors trained</b>	37 trained by E. Wong		NPDES Backup Binder, Pre-con Sign-in sheet	E. Wong	Mandatory pre-construction meeting by E.Wong
<b>Part III.A.7.e</b>	<b>Illicit Discharges and Improper Disposal — Public Reporting</b>					
	<p>During Year 1 of the permit, develop and implement a written public education and outreach program plan to promote, publicize, and facilitate public reporting of the presence of illicit discharges and improper disposal of materials into the MS4. 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, the percentage of the population reached by the activities in total, and the number of Web site visits (if applicable).</p> <p><i>DEP Note: The permittee should "customize" the list of public outreach activities by removing items or adding items to the list below as appropriate to their particular public outreach program. However, the reporting item of "Estimated percentage of the population reached by the activities in total" must remain. The permittee may add more specifics to the reporting items, such as the name of the brochure or newsletter distributed. If "0" is reported in Column C for all the reporting items, please include in Column F an explanation for why no outreach was performed.</i></p> <p><i>DEP Note: IF APPLICABLE Sarasota County is to report the public education and outreach activities that it performed county-wide (and not just in the unincorporated areas of Sarasota County). The co-permittees are to report just the public education and outreach activities that they performed.</i></p>					
	<b>Estimated percentage of the population reached by the activities in total</b>		51.2%	NPDES Backup Binder, J:\NPDES\NPDES Annual Report 2015 - Year 2\Public outreach and Training Summary\2015 Public Outreach	E. Wong coordinate	
	<b>Brochures/Flyers/Fact sheets distributed</b>		20,556		E. Wong coordinate	
	<b>Neighborhood presentations: Number conducted</b>		2		E. Wong coordinate	
	<b>Neighborhood presentations: Number of participants</b>		93		E. Wong coordinate	
	<b>Newspapers &amp; newsletters: Number of articles/notices published</b>		1		E. Wong coordinate	
	<b>Newspapers &amp; newsletters: Number of newsletters distributed</b>		4192		E. Wong coordinate	Newspaper Ad Sun Herald
	<b>Public displays (e.g., kiosks, storyboards, posters, etc.)</b>		2		E. Wong coordinate	
	<b>Radio or television Public Service Announcements (PSAs)</b>		0			Other forms of Public outreach used
	<b>School presentations: Number conducted</b>		2		E. Wong coordinate	
	<b>School presentations: Number of participants</b>		103		E. Wong, Mike Fear coordinate	

**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
	<p><b>Seminars/Workshops: Number conducted</b></p> <p><b>Seminars/Workshops: Number of participants</b></p> <p><b>Special events: Number conducted</b></p> <p><b>Special events: Number of participants</b></p> <p><b>Web Site: Number of visitors to the stormwater-related pages</b></p>	<p>2</p> <p>41</p> <p>46</p> <p>8315</p> <p>2818 (flood related, Environmental Services, Stormwater Management and Quality webpages)</p>	<p>NPDES Backup Binder Email from Michael Fear</p>	<p>E. Wong coordinate</p> <p>E. Wong coordinate</p> <p>E. Wong and J. Bellia coordinate</p> <p>E. Wong and J. Bellia coordinate</p> <p>Michael Fear, PW Customer Service Coordinator</p>	<p>* 2818 hits only from 9/7/15-12/31/15. Data prior to 9/7/15 was erased when the City switched to new website and URLs changed</p>
<b>Part III.A.7.f</b>	<b>Illicit Discharges and Improper Disposal — Oils, Toxics, and Household Hazardous Waste Control</b>				
	<p>During Year 1 of the permit, develop and implement a written public education and outreach program plan to encourage the proper use and disposal of used motor vehicle fluids, leftover hazardous household products, and lead acid batteries. 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, the percentage of the population reached by the activities in total, and the number of Web site visits (if applicable).</p> <p><i>DEP Note: The permittee should "customize" the list of public outreach activities by removing items or adding items to the list below as appropriate to their particular public outreach program. However, the reporting items of "Estimated percentage of the population reached by the activities in total" and "Household Chemical Collection Center Program: Amount of waste collected / recycled / properly disposed (tons)" must remain. The permittee may add more specifics to the reporting items, such as the name of the brochure or newsletter distributed. If "0" is reported in Column C for all the reporting items, please include in Column F an explanation for why no outreach was performed.</i></p> <p><i>DEP Note: IF APPLICABLE Sarasota County is to report the public education and outreach activities that it performed county-wide (and not just in the unincorporated areas of Sarasota County). The co-permittees are to report just the public education and outreach activities that they performed.</i></p>				
	<p><b>Estimated percentage of the population reached by the activities in total</b></p> <p><b>Household Chemical Collection Center Program: Amount of waste collected / recycled / properly disposed (tons)</b></p> <p><b>Household Chemical Collection Center Program: Events</b></p> <p><b>Household Hazardous Waste Materials Guides distributed</b></p> <p><b>Brochures/Flyers/Fact sheets distributed</b></p> <p><b>Neighborhood presentations: Number conducted</b></p>	<p>5.8%</p> <p>116.9</p> <p>1</p> <p>896</p> <p>896</p> <p>2</p>	<p>2015 Backup Binder</p>	<p>Solid Waste Manager – Monica Bramble</p>	

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Permit Citation/ SWMP Element	Permit Requirement/Quantifiable SWMP Activity	Number of Activities Performed	Documentation / Record	Entity Performing the Activity	Comments
	<p>Neighborhood presentations: Number of participants</p> <p>Newspapers &amp; newsletters: Number of articles/notices published</p> <p>Newsletters: Number of newsletters distributed</p> <p>Public displays (e.g., kiosks, storyboards, posters, etc.)</p> <p>Radio or television Public Service Announcements (PSAs)</p> <p>School presentations: Number conducted</p> <p>School presentations: Number of participants</p> <p>Seminars/Workshops: Number conducted</p> <p>Seminars/Workshops: Number of participants</p> <p>Special events: Number conducted</p> <p>Special events: Number of participants</p> <p>Storm sewer inlets newly marked/replaced</p> <p>Web Site: Number of visitors to the stormwater-related pages</p>	<p>150</p> <p>0</p> <p>0</p> <p>0</p> <p>40</p> <p>3</p> <p>866</p> <p>0</p> <p>0</p> <p>9</p> <p>2576</p> <p>0</p> <p>2818 (flood related, Environmental Services, Stormwater Management and Quality webpages)</p>	<p></p> <p>H:\My Documents\SWFW MD Cooperative Funding</p> <p>NPDES Backup Binder Email from Michael Fear</p>	<p></p> <p>Stormwater Manager – Elizabeth Wong</p> <p>Michael Fear, PW Customer Service Coordinator</p>	<p>Other forms of Public outreach used</p> <p>Other forms of Public outreach used</p> <p>100 Markers installed in 2010</p> <p>* 2818 hits only from 9/7/15-12/31/15. Data prior to 9/7/15 was erased when the City switched to new website and URLs changed</p>
Part III.A.7.g	<b>Illicit Discharges and Improper Disposal — Limitation of Sanitary Sewer Seepage</b>				
	<p>Annually review (and revise, as needed) and implement the permittee’s written procedures to reduce or eliminate sanitary wastewater contamination into the MS4, including discharges to the MS4 from sanitary sewer overflows (SSOs) and from inflow / infiltration from collection / transmission systems and/or septic tank systems. Advise the appropriate utility owner of a violation if constituents common to wastewater contamination are discovered in the MS4. 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.</p> <p><i>DEP Note: The permittee needs to “customize” this section as it pertains to the type of activities undertaken to reduce or eliminate SSOs and inflow / infiltration into the MS4. The first five reporting items below are examples.</i></p> <p><i>DEP Note: The permittee should contact the appropriate authorities for accurate reporting information, such as the sanitary sewer system operator who is responsible for investigating and eliminating SSOs and the local health department who is responsible for permitting / overseeing septic tank systems.</i></p> <p><i>DEP Note: Report only the SSOs and inflow / infiltration incidents into the MS4.</i></p>				
	<b>Activity to reduce/eliminate SSOs and inflow / infiltration: Sanitary sewer pipe inspected for infiltration (linear feet)</b>	21,891	Utilities TV records	Utilities Field Operations	

**SECTION VII. STORMWATER MANAGEMENT PROGRAM (SWMP) SUMMARY TABLE**

A. Permit Citation/ SWMP Element	B. Permit Requirement/Quantifiable SWMP Activity	C. Number of Activities Performed	D. Documentation / Record	E. Entity Performing the Activity	F. Comments
				Manager Mike Vuolo	
	<b>Activity to reduce/eliminate SSOs and inflow / infiltration: Sanitary sewer pipe sealed, lined, and / or replaced (linear feet)</b>	9,054	Contract package in Utilities Dept.	Utilities Field Operations Manager Mike Vuolo	Pipe and Manhole lining program to continue
	<b>Activity to reduce/eliminate SSOs and inflow / infiltration: Sanitary sewer line breaks repaired</b>	7	NPDES Backup Binder, Sewer spill report to DOH SCPCD	Utilities Field Operations Manager Mike Vuolo	
	<b>Activity to reduce/eliminate SSOs and inflow / infiltration: Septic systems removed</b>	0	NPDES Backup Binder, email 6/17/16	Utilities Field Operations Manager Mike Vuolo	None were removed by North Port Utilities
	<b>Activity to reduce/eliminate SSOs and inflow / infiltration: Emergency generator added</b>	0	NPDES Backup Binder, email 6/17/16	Utilities Field Operations Manager Mike Vuolo	None added
	<b>SSO incidents discovered</b>	7	NPDES Backup Binder, Sewer spill report to DOH SCPCD	Utilities Field Operations Manager Mike Vuolo	
	<b>SSO incidents resolved</b>	7	NPDES Backup Binder, Sewer spill report to DOH SCPCD	Utilities Field Operations Manager Mike Vuolo	
	<b>Inflow / infiltration incidents discovered</b>	Numerous	Utilities TV records	Utilities Field Operations Manager Mike Vuolo	Pipe and Manhole lining program to continue
	<b>Inflow / infiltration incidents resolved</b>	0	NPDES Backup Binder, email 6/17/16	Utilities Field Operations Manager Mike Vuolo	Pipe and Manhole lining program to continue
	<b>Name of owner of the sanitary sewer system</b>	North Port Utilities Department			
<b>Part III.A.8.a</b>	<b>Industrial and High-Risk Runoff — Identification of Priorities and Procedures for Inspections</b>				
	Continue to maintain an up-to-date inventory of all existing high risk facilities discharging into the permittee's MS4. The inventory shall identify the outfall and surface water body into which each high risk facility discharges. For the purposes of this permit, high risk facilities include: <ul style="list-style-type: none"> <li>• Operating municipal landfills;</li> <li>• Hazardous waste treatment, storage, disposal and recovery facilities;</li> <li>• Facilities that are subject to EPCRA Title III, Section 313 (also known as the Toxics Release Inventory (TRI) maintained by the U.S. EPA); and</li> </ul>				

**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																																	
	<ul style="list-style-type: none"> <li>Any other industrial or commercial discharge that the permittee determines is contributing a substantial pollutant loading to the permittee's MS4. This could include facilities identified through the proactive inspection program as per Part III.A.7.c of the permit.</li> </ul> <p>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. If a permittee relies on Sarasota County to conduct these activities on its behalf, the permittee shall obtain (and, upon request, Sarasota County shall make available) the necessary annual report information from the County.</p> <p><i>DEP Note: The TRI is updated every spring / summer by the U.S. EPA at <a href="http://www.epa.gov/triexplorer">www.epa.gov/triexplorer</a>. Select "Facility" on the left, chose your Geographic Location, and then select "Generate Report." Please indicate in Column F when (month / year) you last checked EPA's TRI for applicable facilities.</i></p> <p>During Year 1 of the permit, develop and implement a written plan for conducting inspections of high risk facilities to determine compliance with all appropriate aspects of the stormwater program. While the permittee may determine the order and frequency of the inspections, the permittee shall inspect each identified facility at least once during the permit term; however, facilities identified as high risk due to the findings of the proactive inspection program as per Part III.A.7.c of the permit shall be inspected annually. Report on the high risk facilities inspection program, including the number of inspections conducted and the number and type of enforcement actions taken. If a permittee relies on Sarasota County to conduct these activities on its behalf, the permittee shall obtain (and, upon request, Sarasota County shall make available) the necessary annual report information from the County.</p> <p><i>DEP Note: If "0" is reported for the number of inspections conducted and the permittee has one or more high risk facilities, please provide an explanation in Column F for why no inspections were conducted. In addition, the permittee should re-word the "NOVs / warning letters / citations issued" reporting item to more accurately reflect its particular initial enforcement activity, if necessary.</i></p> <p><i>DEP Note: Sarasota County is to report ONLY the inventory of high risk facilities in the unincorporated areas of Sarasota County – the inventory of high risk facilities located in the co-permittees' jurisdictions are to be reported by the co-permittees. Likewise, the County is to report ONLY the high risk facility inspections it performed in the unincorporated areas of Sarasota County – any high risk facility inspections it performed in the co-permittees' jurisdictions are to be reported by the co-permittees. Each co-permittee is to obtain the necessary information from Sarasota County that pertains to its jurisdiction.</i></p>																																						
		<table border="1"> <thead> <tr> <th rowspan="2"></th> <th rowspan="2">Number of Facilities</th> <th rowspan="2">Number of Inspections</th> <th colspan="2">For violations discovered during a high risk inspection</th> </tr> <tr> <th>Fines issued</th> <th>Notices of Violation (NOVs) / warning letters / citations issued</th> </tr> </thead> <tbody> <tr> <td>Total high risk facilities</td> <td>0</td> <td></td> <td></td> <td></td> </tr> <tr> <td>New high risk facilities added to the inventory during the current reporting period</td> <td>0</td> <td></td> <td></td> <td></td> </tr> <tr> <td>Operating municipal landfills</td> <td>0</td> <td></td> <td></td> <td></td> </tr> <tr> <td>Hazardous waste treatment, storage, disposal and recovery (HWTSDR) facilities</td> <td>0</td> <td></td> <td></td> <td></td> </tr> <tr> <td>EPCRA Title III, Section 313 facilities (that are not landfills or HWTSDR facilities)</td> <td>0</td> <td></td> <td></td> <td></td> </tr> </tbody> </table>		Number of Facilities	Number of Inspections	For violations discovered during a high risk inspection		Fines issued	Notices of Violation (NOVs) / warning letters / citations issued	Total high risk facilities	0				New high risk facilities added to the inventory during the current reporting period	0				Operating municipal landfills	0				Hazardous waste treatment, storage, disposal and recovery (HWTSDR) facilities	0				EPCRA Title III, Section 313 facilities (that are not landfills or HWTSDR facilities)	0								City of North Port has no high risk facilities
	Number of Facilities	Number of Inspections				For violations discovered during a high risk inspection																																	
			Fines issued	Notices of Violation (NOVs) / warning letters / citations issued																																			
Total high risk facilities	0																																						
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**SECTION VII. STORMWATER MANAGEMENT PROGRAM (SWMP) SUMMARY TABLE**

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Permit Citation/ SWMP Element	Permit Requirement/Quantifiable SWMP Activity			Number of Activities Performed	Documentation / Record	Entity Performing the Activity	Comments
	Facilities determined as high risk by the permittee through the proactive inspections as per Part III.A.7.c	0					
	Other facilities determined as high risk by the permittee (that are <u>not</u> facilities identified through the proactive inspections)	0					
<b>Part III.A.8.b</b>	<b>Industrial and High-Risk Runoff — Monitoring for High Risk Industries</b>						
	Sampling of the discharge to the stormwater system may be required on an as-needed basis in the event that inspections of high-risk facilities disclose suspected illicit discharges to the MS4. New high-risk industrial facilities as defined in 40 CFR 122.26(d)(2)(iv)(C) must be evaluated to determine if the new discharge is contributing a substantial pollutant load to the MS4. The evaluation may include site-specific monitoring. Report the number of high risk facilities sampled.						
	High risk facilities sampled	0	N/A		City of North Port has no high risk facilities		
<b>Part III.A.9.a</b>	<b>Construction Site Runoff — Site Planning and Non-Structural and Structural Best Management Practices</b>						
	Continue to implement the local codes or land development regulations and the written pre-construction site plan review procedures that require the use and maintenance of appropriate structural and non-structural erosion and sedimentation controls during construction to reduce the discharge of pollutants to the MS4. Report the number of permittee and private pre-construction site plans reviewed for stormwater, erosion, and sedimentation controls, and the number approved.						
	<i>DEP Note: Please provide an explanation in Column F for any "0" reported in Column C.</i>						
	PERMITTEE SITES: Construction site plans reviewed	2	NPDES Backup Binder, Naviline database	E. Wong			
	PERMITTEE SITES: Construction site plans approved	1	NPDES Backup Binder, Naviline database	E. Wong	One site did not require Development Order Approval		
	PRIVATE SITES: Construction site plans reviewed	17	NPDES Backup Binder, Naviline database	E. Wong			
PRIVATE SITES: Construction site plans approved	14	NPDES Backup Binder, Naviline database	E. Wong	2 sites did not require Development Order Approval, 1 site is resubmitting plans			
	Annually review (and revise, as needed) and implement the permittee's written procedures to notify all new development / redevelopment permit applicants of the need to obtain all required stormwater permits. Report the number of new development/redevelopment permit applicants notified of the ERP and CGP, and the number of applicants who confirmed ERP and CGP coverage.						
	<i>DEP Note: Please provide an explanation in Column F for any "0" reported in Column C. If the number of applicants notified of ERP or CGP coverage is less than</i>						

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A. Permit Citation/ SWMP Element	B. Permit Requirement/Quantifiable SWMP Activity	C. Number of Activities Performed	D. Documentation / Record	E. Entity Performing the Activity	F. Comments
<i>the number of construction site plans reviewed, please provide an explanation for the discrepancy in Column F.</i>					
	Notified of ERP stormwater permit requirements	16	NPDES Backup Binder, Naviline database	E. Wong	Not all projects required ERP and CGP and there is time lapse between notification and receipt of ERP/CGP. Several sites <1acre.
	Confirmed ERP coverage	6	NPDES Backup Binder, L:\SDR Projects SWFWMD Permits	E. Wong	
	Notified of CGP stormwater permit requirements	16	NPDES Backup Binder, Naviline database	E. Wong	
	Confirmed CGP coverage	9	NPDES Backup Binder, NOI Letter approval	E. Wong	
<b>Part III.A.9.b</b>	<b>Construction Site Runoff — Inspection and Enforcement</b>				
<p>As an attachment to the Year 1 Annual Report, the permittee shall submit a written plan that details the standard operating procedures for implementation of the stormwater, erosion and sedimentation inspection program for construction sites discharging stormwater to the MS4. The permittee shall implement the plan for inspecting construction sites immediately upon written approval by the Department. Prior to Department approval, the permittee shall continue to perform inspections in accordance with its previously developed construction site inspection procedures. 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.</p> <p><i>DEP Note: If "0" is reported in Column C for the number of inspections conducted, please provide an explanation in Column F of why no inspections were conducted. If the number of inspections reported is equal to or less than the number of active construction sites, or the percentage inspected is less than 100%, please provide an explanation in Column F. In addition, the permittee should re-word the "NOVs / warning letters / citations issued" reporting item to more accurately reflect its particular initial enforcement activity, if necessary.</i></p> <p><i>DEP Note: Refer to Part III.A.9.b of the permit for what must be included in the construction site inspection program plan. Please provide the title of the attached plan in Column D and the name of the entity who finalized the plan in Column E.</i></p>					
	<b>PERMITTEE SITES: Active construction sites</b>	2	NPDES Backup Binder, Naviline Database, site inspection forms, Eng Division files	E. Wong and PW infrastructure inspectors, NDS inspectors	NDS performs silt fence inspection for all residential and also the <u>initial</u> inspection for SDR projects.
	<b>PERMITTEE SITES: Inspections of active construction sites for proper stormwater, erosion and sedimentation BMPs</b>	7			
	<b>PERMITTEE SITES: Percentage of active construction sites inspected</b>	100			
	<b>PRIVATE SITES: Active construction sites</b>	14 SDR projects and 933 residential homes			
	<b>PRIVATE SITES: Inspections of active construction sites for proper stormwater, erosion and sedimentation BMPs</b>	2142 by NDS and 41 by PW			
	<b>PRIVATE SITES: Percentage of active construction sites inspected</b>	100			NDS, E. Wong and PW inspectors do follow up



**SECTION VII. STORMWATER MANAGEMENT PROGRAM (SWMP) SUMMARY TABLE**

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Permit Citation/ SWMP Element	Permit Requirement/Quantifiable SWMP Activity			Number of Activities Performed	Documentation / Record	Entity Performing the Activity	Comments	
	Red Tags issued Notices of Violation (NOVs) issued Stop Work Orders issued Fines issued <b>Year 1 ONLY: Attach the written construction site inspection program plan</b>						inspections on SDR projects.	
				0			None issued	
				0				
				0				
				0				
<b>Part III.A.9.c</b>	<b>Construction Site Runoff — Site Operator Training</b>							
	<p>During Year 1 of the permit, develop and implement a written plan for stormwater training / outreach for construction site plan reviewers, site inspectors and site operators. Provide training for permittee personnel (employed by <u>or under contract with</u> the permittee) involved in the site plan review, inspection or construction of stormwater management, erosion, and sedimentation controls. Also provide training for private construction site operators. All permittee inspectors (employed by or under contract with the permittee) of construction sites shall be certified through the Florida Stormwater, Erosion and Sedimentation Control Inspector Training program, or an equivalent program approved by the Department. <b>Refresher training shall be provided annually. Report the type of training activities, the number of inspectors, site plan reviewers and site operators trained (both in-house and outside training), and the number of private construction site operators trained by the permittee.</b></p> <p><b>DEP Note: If "0" is reported for any of these reporting items, please include in Column F an explanation of why training was not provided to / obtained by the permittee's staff and private construction site operators during the applicable reporting year.</b></p> <p><b>DEP Note: The permittee should report only the number of staff and private construction site operators trained / certified during the applicable reporting year, and then note in Column F the number of staff who were previously trained / certified. Private site operator training can include pre-construction meetings.</b></p>							
		<b>Certification Training</b>	<b>Initial Training (non-certification)</b>	<b>Refresher Training</b>				
	<b>Permittee construction site inspectors</b>	14 FDEP Stormwater Management Inspectors		18 City staff in-house refresher training by E. Wong		NPDES Backup Binder, FDEP certificates, Sign-sheets for in-house refresher training	FDEP for the Stormwater Management Inspector Certification, E. Wong conducted in-house refresher training	E. Wong in-house training based on a powerpoint previous approved by FDEP. Same powerpoint used for contractor training.
	<b>Permittee construction site plan reviewers</b>		1			NPDES Backup Binder, FDEP certificate for E.Wong	E. Wong attended FDEP training in 2008 and 2014	
	<b>Permittee construction site operators</b>		4 City staff in-house training by E. Wong			NPDES Backup Binder, Sign-sheets for in-house training	E. Wong	
	<b>Private construction site</b>		37 Contractors			NPDES Backup	E. Wong, Jane	

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	operators		trained by E. Wong		Binder, Sign-sheets for pre-construction meeting training	Harry	

**SECTION VIII. EVALUATION OF THE STORMWATER MANAGEMENT PROGRAM (SWMP)**

Permit Citation/ SWMP Element	SWMP EVALUATION	
A.	<b>Part II.A.1 Structural control inspection and maintenance</b>	Strengths: Good guidance and criteria for inspection frequency
		Weaknesses: Difficult to calculate percentage maintenance due to different reporting units, for example, NPDES report form requires <u>miles</u> of roadside swales mowed but City existing internal tracking system reports <u>acres</u> of swales mowed.
		SWMP Revisions to address deficiencies: Allow narrative discussion of maintenance accomplishments.
	<b>Part II.A.2 Significant redevelopment</b>	Strengths: No significant redevelopment in North Port
		Weaknesses: None
		SWMP Revisions to address deficiencies: None
	<b>Part II.A.3 Roadways</b>	Strengths: Requirement to document street maintenance and litter control frequency and calculate nitrogen and phosphorus removal in street sweepings
		Weaknesses: Report form specifies reporting of volume in cubic yards of roadway litter collected. City measures the weight of litter collected.
		SWMP Revisions to address deficiencies: Change the reporting requirement to weight of roadway litter collected.
	<b>Part II.A.4 Flood control</b>	Strengths: Good to document flood control projects. The City's flood control structures also serve to retain water in the canal system much like a linear wet detention pond system. This provide additional water quality treatment.
		Weaknesses: Some flood control projects are specific to flood control and may not have a water quality treatment component.
		SWMP Revisions to address deficiencies: Remove requirement to explain why a flood control project does not have a water quality treatment component or modify the form to reflect two categories of flood control projects - with or without water quality treatment.
	<b>Part II.A.5 Waste TSD Facilities</b>	Strengths: No TSD in North Port
		Weaknesses: No TSD in North Port

**SECTION VIII. EVALUATION OF THE STORMWATER MANAGEMENT PROGRAM (SWMP)**

		SWMP Revisions to address deficiencies: No TSD in North Port
<b>Part II.A.5 Waste TSD Facilities</b>		Strengths: No TSD in North Port
		Weaknesses: No TSD in North Port
		SWMP Revisions to address deficiencies: No TSD in North Port
<b>Part II.A.6 Pesticide, herbicide, fertilizer application</b>		Strengths: Good requirement for training on Fertilizer BMPs
		Weaknesses: None
		SWMP Revisions to address deficiencies: None
<b>Part II.A.7 Illicit Discharge Detection and Elimination</b>		Strengths: Good requirement for training on Illicit Discharge Detection and Elimination
		Weaknesses: Consider reducing the frequency of the annual refresher training from annually to every three years as the subject matter does not change each year.
		SWMP Revisions to address deficiencies: Suggest refresher every three years and initial training for all new employees.
<b>Part II.A.8 High Risk Industry Runoff</b>		Strengths: No High Risk Industry in North Port.
		Weaknesses: None
		SWMP Revisions to address deficiencies: None
<b>Part II.A.9 Construction Site Runoff</b>		Strengths: Good requirement for training and documentation of inspections. City's mandatory preconstruction meeting includes provide a BMP and illicit discharge and spill control training to site supervisors attending the meeting. This is documented in the sign-in sheet.
		Weaknesses: Consider reducing the frequency of the annual refresher training from annually to every three years as the subject matter does not change each year.
		SWMP Revisions to address deficiencies: Suggest refresher every three years and initial training for all new employees.

**SECTION IX. CHANGES TO THE STORMWATER MANAGEMENT PROGRAM (SWMP) ACTIVITIES (Not Applicable In Year 4)**

<b>A.</b>	<b>Permit Citation/ SWMP Element</b>	<b>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.</b> <i>DEP Note: There may be changes deemed necessary after developing / reviewing your plans and SOPs as per Part III.A of the permit, after completing your SWMP evaluation as per Part VI.B.2 of the permit, or due to a TMDL / BMAP as per Part VIII.B of the permit.</i>
		See above Section VIII suggestions on the reporting form and frequency of refresher training.

**SECTION IX. CHANGES TO THE STORMWATER MANAGEMENT PROGRAM (SWMP) ACTIVITIES (Not Applicable In Year 4)**

B.	Permit Citation/ SWMP Element	<p><b>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)</b></p> <p><i>DEP Note: There may be changes deemed necessary after developing / reviewing your plans and SOPs as per Part III.A of the permit, after completing your SWMP evaluation as per Part VI.B.2 of the permit, or due to a TMDL / BMAP as per Part VIII.B of the permit.</i></p>
		None.

## CHECKLIST A: ATTACHMENTS TO BE SUBMITTED WITH THE ANNUAL REPORTS

Below is a list of items required by the permit that may need to be attached to the annual report. Please check the appropriate box to indicate whether the item is attached or is not applicable for the current reporting period. Please provide the number and the title of the attachments in the blanks provided.

Attached	N/A	Rule / Permit Citation	Required Attachment	Attachment Number	Attachment Title
<input type="checkbox"/>	<input checked="" type="checkbox"/>	Part II.F	<b>EACH ANNUAL REPORT:</b> If program resources have decreased from the previous year, a discussion of the impacts on the implementation of the SWMP.		
<input type="checkbox"/>	<input checked="" type="checkbox"/>	Part III.A.1	<b>EACH ANNUAL REPORT:</b> An explanation of why the minimum inspection frequency in Table II.A.1.a was not met, if applicable.		Met minimum inspection frequency
<input checked="" type="checkbox"/>	<input type="checkbox"/>	Part III.A.4	<b>EACH ANNUAL REPORT:</b> A list of the flood control projects that did <u>not</u> include stormwater treatment and an explanation for each of why it did not, if applicable.	Appendix C	Flood Control Projects Summary
<input type="checkbox"/>	<input checked="" type="checkbox"/>	Part III.A.7.a	<b>EACH ANNUAL REPORT:</b> A report on amendments / changes to the legal authority to control illicit discharges, connections, dumping, and spills, if applicable.		No changes
<input checked="" type="checkbox"/>	<input type="checkbox"/>	Part V.B.9	<b>EACH ANNUAL REPORT:</b> Reporting and assessment of monitoring results. <b>[Also addressed in Section III of the Annual Report Form]</b>	Appendix A & B	Water Quality Data and Graphs
<input checked="" type="checkbox"/>	<input type="checkbox"/>	Part VI.B.2	<b>EACH ANNUAL REPORT:</b> An evaluation of the effectiveness of the SWMP in reducing pollutant loads discharged from the MS4 that, <u>at a minimum</u> , must include responses to the questions listed in the permit.		See Section VIII of NPDES report form
<input type="checkbox"/>	<input checked="" type="checkbox"/>	Part VIII.B.3.e	<b>EACH ANNUAL REPORT:</b> A status report on the implementation of the requirements in this section of the permit and on the estimated load reductions that have occurred for the pollutant(s) of concern.		Will be done when TMDL is implemented
<input checked="" type="checkbox"/>	<input type="checkbox"/>	Part VIII.B.4.f	<b>EACH ANNUAL REPORT after approval of the BPCP:</b> The status of the implementation of the Bacterial Pollution Control Plan (BPCP).	Appendix E	Sarasota County lead the Walk the WBID for the Gottfried Creek WBID#2049 – Report Dated 2015
<input type="checkbox"/>	<input checked="" type="checkbox"/>	Part III.A.1	<b>YEAR 1:</b> An inventory of all known major outfalls and a map depicting the location of the major outfalls (hard copy or CD-ROM).		Submitted in Year 1
<input type="checkbox"/>	<input checked="" type="checkbox"/>	Part III.A.3	<b>YEAR 1:</b> If have curbs and gutters but no street sweeping program, an explanation of why no street sweeping program and the alternate BMPs used or planned.		City has street sweeping program
<input type="checkbox"/>	<input checked="" type="checkbox"/>	Part III.A.6	<b>YEAR 1 or YEAR 2:</b> A copy of the adopted Florida-friendly Ordinance, if applicable.		Submitted in Year 1
<input type="checkbox"/>	<input checked="" type="checkbox"/>	Part III.A.7.c	<b>YEAR 1:</b> A proactive illicit discharge / connection / dumping inspection program plan.		Submitted in Year 1
<input type="checkbox"/>	<input checked="" type="checkbox"/>	Part III.A.9.b	<b>YEAR 1:</b> A construction site inspection program plan. <b>[For approval by DEP]</b>		Submitted in Year 1
<input checked="" type="checkbox"/>	<input type="checkbox"/>	Part III.A.2	<b>YEAR 2:</b> A summary report of a review of codes and regulations to reduce the stormwater impact from new development / redevelopment.	Appendix D	Summary of codes and regulations to reduce the stormwater impact from new development / redevelopment
<input type="checkbox"/>	<input checked="" type="checkbox"/>	Part V.A.2	<b>YEAR 3:</b> Estimates of annual pollutant loadings and EMCs, and a table comparing the current calculated loadings with those from the previous two Year 3 ARs.		
<input type="checkbox"/>	<input checked="" type="checkbox"/>	Part III.A.2	<b>YEAR 4:</b> A follow-up report on plan implementation of changes to codes and regulations to reduce the stormwater impact from new development / redevelopment.		
<input type="checkbox"/>	<input checked="" type="checkbox"/>	Part V.A.3	<b>YEAR 4:</b> If the total annual pollutant loadings have not decreased over the past two permit cycles, revisions to the SWMP, as appropriate.		
<input type="checkbox"/>	<input checked="" type="checkbox"/>	Part V.B.3	<b>YEAR 4:</b> The monitoring plan (with revisions, if applicable).		
<input type="checkbox"/>	<input checked="" type="checkbox"/>	Part VII.C	<b>YEAR 4:</b> An application to renew the permit.		
<input type="checkbox"/>	<input checked="" type="checkbox"/>	Part VIII.B.3.d	<b>YEAR 4:</b> A TMDL Implementation Plan / Supplemental SWMP.		

## CHECKLIST B: THE REQUIRED ANNUAL REVIEWS OF WRITTEN STANDARD OPERATING PROCEDURES (SOPs) & PLANS

The permit requires annual review, and revision if needed, of written Standard Operating Procedures (SOPs) and plans (e.g., public education and outreach, training, inspections). Please indicate your review status below. **If you have made revisions that need DEP approval, you must complete Section VIII.A of the annual report.**

Did not complete review of existing SOP / Plan	Developed <u>new</u> written SOP / Plan	Reviewed & <u>no revision needed</u> to existing SOP / Plan	Reviewed & <u>revised</u> existing SOP / Plan	Permit Citation	Description of Required SOPs / Plans
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Part III.A.1	SOP and/or schedule of inspections and maintenance activities of the structural controls and roadway stormwater collection system.
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Part III.A.2	SOP for development project review and permitting procedures and/or local codes and regulations for new development / areas of significant development.
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Part III.A.3	SOP for the litter control program.
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Part III.A.3	SOP for the street sweeping program.
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Part III.A.3	SOP for inspections of equipment yards and maintenance shops that support road maintenance activities.
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Part III.A.5	SOP for inspections of waste treatment, storage, and disposal facilities not covered by an NPDES stormwater permit.
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Part III.A.6	Plan for public education and outreach on reducing the use of pesticides, herbicides and fertilizer.
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Part III.A.6	SOP for reducing the use of pesticides, herbicides and fertilizer, and for the proper application, storage and mixing of these products.
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<b>Part III.A.7.c</b>	<b>Plan for proactive illicit discharge / connections / dumping inspections.*</b>
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Part III.A.7.c	SOP for reactive illicit discharge / connections / dumping investigations.
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Part III.A.7.c	Plan for illicit discharge training.
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Part III.A.7.d	SOP for spill prevention and response efforts.
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Part III.A.7.d	Plan for spill prevention and response training.
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Part III.A.7.e	Plan for public education and outreach on how to identify and report the illicit discharges and improper disposal to the MS4.
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Part III.A.7.f	Plan for public education and outreach on the proper use and disposal of oils, toxics and household hazardous waste.
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Part III.A.7.g	SOP to reduce / eliminate sanitary wastewater contamination of the MS4.
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Part III.A.8	SOP for inspections of high risk industrial facilities.
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Part III.A.9.a	SOP for construction site plan review for stormwater, erosion and sedimentation controls, and ERP and CGP coverage.
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<b>Part III.A.9.b</b>	<b>Plan for inspections of construction sites.*</b>
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Part III.A.9.c	Plan for stormwater, erosion and sedimentation BMPs training.

\* Revisions to these plans require DEP approval – please complete Section VIII.A of the annual report.

**REMINDER LIST OF THE TMDL / BMAP REPORTS TO BE SUBMITTED SEPARATELY FROM AN ANNUAL REPORT**

<b>Rule / Permit Citation</b>	<b>Report Title</b>	<b>Due Date</b>
Part VIII.B.3.a	<b>6 MONTHS from effective date of permit:</b> TMDL Prioritization Report.	Completed 6/5/14
Part VIII.B.3.b	<b>12 MONTHS from effective date of permit:</b> TMDL Monitoring and Assessment Plan.	January 2025 WBID #1991C Myakka River at Big Slough
Part VIII.B.3.c	<b>6 MONTHS from receiving analyses from the lab:</b> TMDL Monitoring Report.	Start January 2027 WBID #1991C Myakka River at Big Slough
Part VIII.B.4	<b>30 MONTHS from start date per TMDL Prioritization Report:</b> A Bacterial Pollution Control Plan (BPCP).	June 2021 WBID #1976 Big Slough Canal

### BMAP Reporting

MS4 permittees are NOT required to submit the annual report required by any BMAP that applies to them since the NPDES Stormwater Staff can obtain them from the department's Watershed Planning and Coordination staff. However, to assure that the stormwater staff are aware of which BMAPs apply to the MS4 permittees and when the latest BMAP annual report was submitted, please complete the information below, if applicable:

<b>Rule/Permit Citation</b>	<b>BMAP Title</b>	<b>Date BMAP Annual Report Submitted to DEP</b>
Part VIII.B.2	Not Applicable	
Part VIII.B.2		
Part VIII.B.2		
Part VIII.B.2		

**END OF REVISED TAILORED MS4 AR FORM**

# APPENDIX A

## WATER QUALITY DATA



## 2015 WATER QUALITY DATA DISCUSSION

The water quality monitoring plan in the new National Pollutant Discharge Elimination System (NPDES) permit approved the use of the City's Hydrobiological (HB) sampling sites and monitoring data collected under the City's Southwest Florida Water Management District (SWFWMD) Water Use Permit to satisfy the NPDES monitoring requirements. The HB data has very similar parameters to the Sarasota County's monitoring plan. The sampling locations provide specific water quality data for the surface water runoff from the City of North Port.

### Appendix A includes the following:

- A location map of the HB sampling sites.
- Appendices A-1 through A-10 provides all the monthly HB sampling data from each of the 10 sites.
- Appendices A-11 and A-12 gives a summary comparison of the geometric means of all the sites for year 2015 and 2014 respectively.
- Appendices A-13 and A-14 gives a summary comparison of the year 2015 and 2014 geometric means of the average of the fresh water sites #1 and 2, and for the tidal sites 3 through 10, respectively.
- Appendix A-15 gives a summary of the geometric means for all sites for all data collected since the start of the monitoring from April 2006 to December 2015.
- Appendix A-16 gives a summary of the geometric means for the fresh water site Nos. 1 and 2 for the last three years 2015, 2014, 2013. Three year comparisons are needed as FAC 62-302.531 criteria for nutrients total nitrogen and total phosphorus are annual geometric mean concentrations must not to be exceeded more than once in any three calendar year period.
- Appendix A-17 gives the arithmetic mean for 2015 for all sites.
- Appendix A-18 and A-19 gives the comparison of total ammonia nitrogen (TAN) concentration for fresh water site Nos. 1 and 2 respectively, in comparison with the newly established TAN limit per FAC 62.302-530 that was effective on February 17, 2016.
- Appendix A-20 gives summary of the updated relevant regulatory standards.

### Total Nitrogen and Total Phosphorus

#### Fresh Water sites

The City of North Port is located within the numeric nutrient criteria (NNC) watershed region called the "West Central", and the NNC water quality standards for fresh water flowing streams per FAC 62-302.531 are as follows:

- Total Nitrogen (TN) = 1.65 mg/L
- Total Phosphorus (TP) = 0.49 mg/L
- The annual geometric mean for TN or TP shall not be exceeded more than once in any three calendar year period.

As shown in Appendix A-16, for North Port's flowing stream Site No. 1 (Myakkahatchee Creek at Appomatox Blvd.), the maximum of the geometric means for the last three years for TN and TP are 1.11 mg/L and 0.26 mg/L for TN and TP respectively, and did not exceed the NNC.

The other freshwater site No. 2 (Cocoplum Waterway at Sumter Blvd) is not considered a flowing stream per the NNC rules.

Chlorophyll *a* data is higher for the current reporting period. FDEP has not established a flowing stream criteria for Chlorophyll *a* for comparison.

### Tidal Water Sites Nos. 3-10

Site 3 through 8 falls in the tidal creek classification and the NNC has not been established yet for these tidal creek sites.

Sites 9 and 10 fall close to the border between the Tidal Myakka River Estuary and a tidal creek. FAC 62-302.532 for Tidal Myakka River estuary is given in the table below. However, the City's water quality sampling parameters for sites 9 and 10 do not include these nutrient parameters:

<i>Estuary</i>	<i>Total Phosphorus</i>	<i>Total Nitrogen</i>	<i>Chlorophyll a</i>
<i>Tidal Myakka River</i>	<i>0.31 mg/L</i>	<i>1.02 mg/L</i>	<i>11.7 µg/L</i>

*The Annual arithmetic mean values for nutrients and annual arithmetic means for chlorophyll a, not to be exceeded more than once in a three year period. Nutrient and nutrient response values do not apply to tidally influenced areas that fluctuate between predominantly marine and predominantly fresh waters during typical climatic and hydrologic conditions*

Appendices A-14 shows the 2015 nitrate/nitrite, ammonia, total Kjeldahl nitrogen and total nitrogen to decrease very slightly from the 2014 data. There is a very slight increase in ortho phosphorus and no change in total phosphorus concentration from the previous year data.

There is a slight decrease in chlorophyll *a* concentration from the previous year data. A tidal creek chlorophyll *a* standard is not available for comparison.

### **Total Ammonia Nitrogen (TAN)**

In this current reporting year, the new TAN criteria in FAC 62.302-530 was effective on February 17, 2016. The TAN criteria is not a one number value but is based on a complex formula given in Appendix A-20 with input variables of pH and temperature. Since temperature was not measured for fresh water site nos. 1 and 2 in the monitoring program, the temperature of the downstream site no. 3 was used in the calculation of the allowable TAN limit. Appendix A-18 and 19 TAN water quality data are all well below the TAN criteria.

### **Other Water Quality Parameters**

Following is a discussion of the comparison of average data for the 10 sampling sites between the current reporting period and for the previous reporting period.

#### Fresh Water Site Nos. 1 and 2 (Appendix A-13)

- Comparable data for total suspended solids, turbidity, pH, specific conductance and salinity between the previous and current reporting periods. Color is a bit higher in current reporting period.

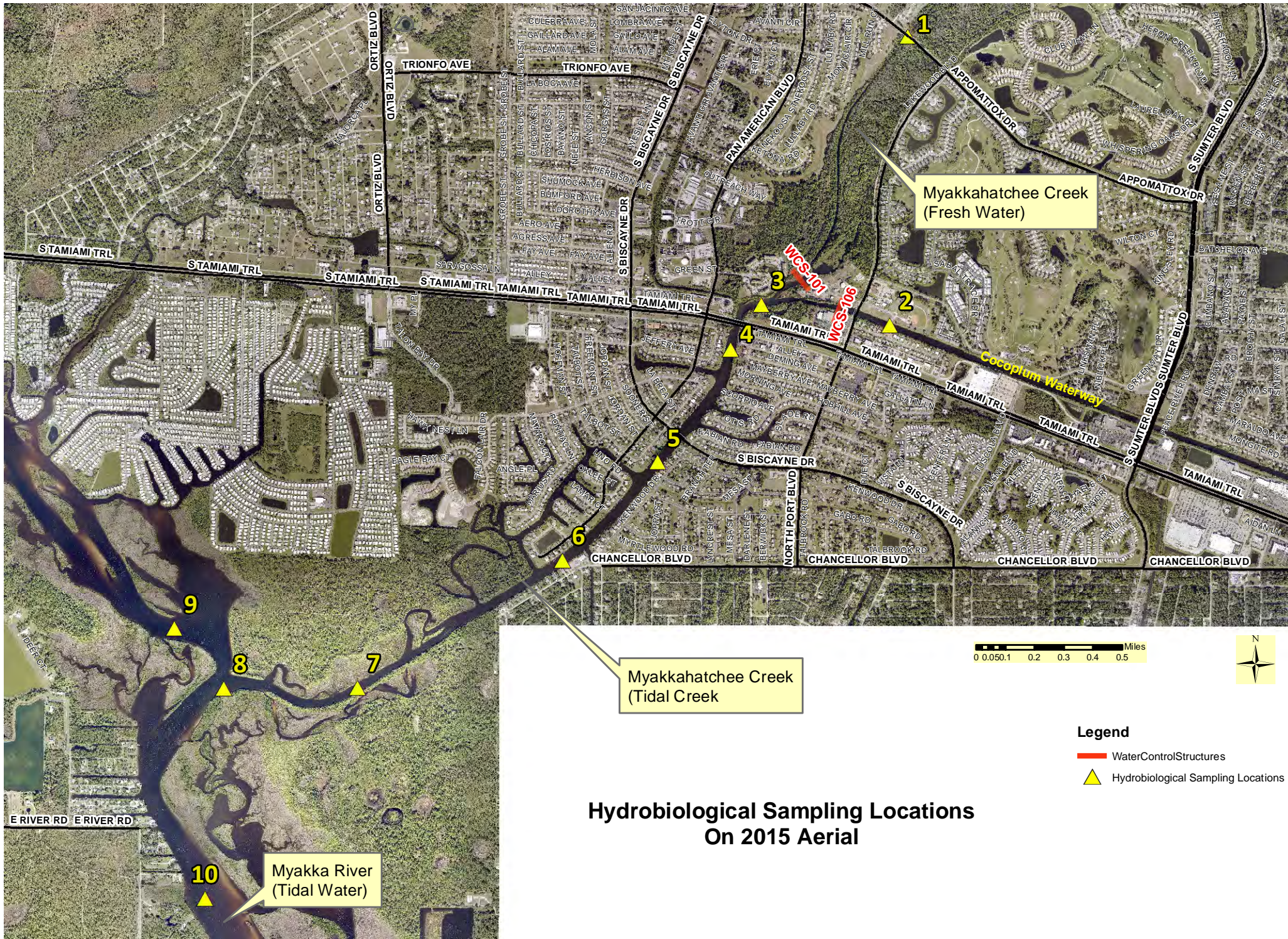
#### Estuarine Tidal Water Site Nos. 3-10 (Appendix A-14)

- Tidal water data is subject to tidal and flow conditions at the time of measurement, so it is difficult to absolutely compare data from current report year with the previous year.
- Comparable data for suspended solids, and turbidity between the current and previous reporting periods. Color is a bit higher in 2015 than in 2014.
- The physical parameters of pH and Secchi depth are not significantly different between the previous and current reporting periods.

- Specific conductance and salinity are very subject to tidal conditions at the time of sampling and will differ from site to site.
- In 2013, FDEP adopted in FAC 62-302.533, a percent saturation dissolved oxygen (D.O.) criteria which replace the historical D.O. concentration standard. The percent saturation D.O. criteria for the City in the FDEP defined "Peninsula bioregion" is no more than 10% of daily average % D.O. saturation shall be below 38% saturation in fresh waters and 42% saturation in marine waters. The data in Appendix A-3 through 10 and A-17 shows the tidal sites 3 through 10 to meet this criteria except for the 31.8% saturation measured at Site No. 8 on one occasion on 8/6/15. Hot summer conditions tend to result in lower dissolved oxygen condition.

**Appendix B includes the following:**

- Graphs are provided for all the data collected from the City's HB monitoring program for the reporting period and all previous reporting periods. Separate graphs are prepared for each parameter.
- Site No. 6 is the location that represents most closely the water quality immediately downstream of the City of North Port. For Site No, 6, comparison graphs are also included for the following :
  - Nutrients - Nitrate, Nitrite, Ammonia-N, TKN, Orthophosphorus, and Total Phosphorus – This graph shows a correlation of the nitrogen data with the phosphorus data. Higher concentrations are typically seen in the wet season months between August and October.
  - Turbidity, Total Suspended Solids, Color - The turbidity, total suspended and also with color are higher in the wet season. This is probably due to influence of more surface water flow entraining turbidity, suspended solids and dissolution of organic color material in the surface water flow path.
  - Dissolved Oxygen, and Temperature – As expected, the dissolved oxygen content is inversely proportional to temperature.
- The last three graphs show a correlation between rain and color/total nitrogen/total phosphorus concentration. This is attributed to rainwater runoff entraining pollutants into the waterways.



### Hydrobiological Data - Site 1 Myk Creek at Appomattox

Date	1/7/15	2/4/15	3/4/15	4/2/15	5/6/15	6/11/15	7/9/15	8/6/15	9/10/15	10/8/15	11/5/15	12/3/15	2015 Max	2015 Min	2015 Arith Mean	2015 Geom Mean	2014 Geom Mean	2013 Geom Mean	Max of last 3 year Geom Mean	All Years Geom Mean	All Years Arith Mean
Nitrate, Nitrite as N (mg/L)	0.165	0.045	0.071	0.056	0.052	0.100	0.092	0.054	0.026	0.067	0.138	0.154	0.165	0.026	0.085	0.074	0.084	0.039	0.084	0.051	0.087
Ammonia as N (mg/L)	0.049	0.034	0.046	0.035	0.036	0.07	0.033	0.111	0.083	0.088	0.057	0.043	0.111	0.033	0.057	0.053	0.056	0.053	0.056	0.049	0.057
Total Kjeldahl Nitrogen as N (mg/L)	0.88	0.72	1.01	0.81	0.73	0.79	0.8	1.39	1.57	1.29	1.17	0.81	1.57	0.72	1.00	0.96	0.98	0.93	0.98	0.95	1.00
Total Nitrogen as N (mg/L)	1.05	0.77	1.08	0.87	0.78	0.89	0.89	1.44	1.60	1.36	1.31	0.96	1.60	0.77	1.08	1.05	1.11	0.99	1.11	1.03	1.09
Ortho Phosphorus as P (mg/L)	0.242	0.179	0.239	0.251	0.174	0.172	0.300	0.201	0.219	0.185	0.225	0.181	0.300	0.172	0.214	0.211	0.189	0.166	0.211	0.179	0.196
Total Phosphorus as P (mg/L)	0.27	0.21	0.26	0.31	0.22	0.24	0.39	0.24	0.25	0.25	0.30	0.21	0.39	0.21	0.26	0.26	0.24	0.20	0.26	0.23	0.25
Total Suspended Solids (mg/L)	U2	U2	U2	3 l	2 l	7 l	3 l	U2	6 l	7 l	4 l	U 2	7	2	4	3	3	5	5	3	4
Turbidity (NTU)	4.5	2.8	3.3	4.8	3.4	7.4	5.4	3.9	4.8	5.3	5.6	4.6	7.4	2.8	4.7	4.5	5.9	5.3	5.9	4.3	4.8
Color Apparent (PCU)	120	85	120	110	70	70	110	280	360	360	170	120	360	70	165	139	134	124	139	118	146
Color pH SU	7.58	7.5	7.55	7.42	7.42	7.68	7.71	7.58	7.21	7.37	7.58	7.60	7.71	7.21	7.52	7.52	7.44	7.16	7.52	7.42	7.42
Chlorophyll a - Pheo Corrected (ug/L)	1.35	0.75	2.61	1.95	2.54	5.29	3.98	1.40	2.54	1.91	1.43	1.96	5.29	0.75	2.31	2.04	2.22	3.67	3.67	2.81	4.63
Specific Conductance (mmhos)/cm	0.816	0.917	0.699	0.810	1.08	0.536	0.442	0.548	0.245	0.346	0.567	0.808	1.080	0.245	0.651	0.603	0.658	0.604	0.658	0.699	0.758
Salinity - Lab (PSU)	0.3 l	0.4 l	0.3 l	0.3 l	0.5 l	U 0.2	U 0.2	0.2 l	U 0.2	U 0.2	0.2 l	0.3 l	0.5	0.2	0.3	0.3	0.3	0.3	0.3	0.3	0.3
Overall Depth (meters)																					
Depth of Measurement (meters)																					
Field Salinity (PSU)																					
Field Specific Conductance (mmhos)/cm																					
Field Temperature (°C)																					
Field pH (SU)																					
Field Dissolved Oxygen (mg/L)																					
Percent Saturation of D.O. (%)																					
Secchi Depth (meters)																					
	Blank Cell = No data																				
	U = Less than Method Detection Limit																				
	S = Secchi Depth greater than the bottom channel. For average and graphing purposes, the total depth is used instead.																				
	l = Value is between the MDL and Practical Quantitation Limit (PQL)																				

### Hydrobiological Data - Site 2 Cocoplum at Sumter

Date	1/7/15	2/4/15	3/4/15	4/2/15	5/6/15	6/11/15	7/9/15	8/6/15	9/10/15	10/8/15	11/5/15	12/3/15	2015 Max	2015 Min	2015 Arith Mean	2015 Geom Mean	2014 Geom Mean	2013 Geom Mean	Max of last 3 year Geom Mean	All Years Geom Mean	All Years Arith Mean
Nitrate, Nitrite as N (mg/L)	U 0.005	U 0.005	U 0.005	U 0.005	U 0.005	U 0.005	U 0.005	0.0245	0.027	0.0665	0.020	U 0.005	0.067	0.005	0.015	0.009	0.011	0.016	0.016	0.009	0.017
Ammonia as N (mg/L)	0.0075 I	0.0095	U 0.005	U 0.005	U 0.005	U 0.005	U 0.005	0.0585	0.0505	0.1245	0.0155	U 0.005	0.125	0.005	0.025	0.012	0.017	0.027	0.027	0.016	0.035
Total Kjeldahl Nitrogen as N (mg/L)	0.93	0.73	0.985	0.745	0.95	0.835	0.775	1.160	1.235	1.19	1.02	0.79	1.24	0.73	0.95	0.93	0.88	0.87	0.93	0.87	0.90
Total Nitrogen as N (mg/L)	0.94	0.73	0.99	0.75	0.96	0.84	0.78	1.18	1.26	1.26	1.04	0.80	1.26	0.73	0.96	0.94	0.90	0.90	0.94	0.88	0.92
Ortho Phosphorus as P (mg/L)	0.026	0.0165 I	0.0255	0.0235	0.020	0.0405	0.039	0.073	0.075	0.0865	0.0425	0.0145 I	0.087	0.015	0.040	0.034	0.041	0.035	0.041	0.028	0.048
Total Phosphorus as P (mg/L)	0.06 I	U 0.050 I	U 0.05	0.075 I	U 0.05	0.075 I	0.10 I	0.13 I	0.11 I	0.135 I	0.12 I	U 0.05	0.14	0.05	0.08	0.08	0.09	0.08	0.09	0.08	0.10
Total Suspended Solids (mg/L)	4 I	U2	3.5 I	U 2 I	4 I	3 I	3 I	5 I	3.5 I	U 2	5 I	2 I	5	2	3	3	3	3	3	3	4
Turbidity (NTU)	3.65	2.75	2.8	2	3.4	2.4	2.15	3.4	3.25	2.95	4.7	2.15	4.7	2.0	3.0	2.9	2.5	3.0	3.0	2.7	3.1
Color Apparent (PCU)	100	65	100	65	60	45	55	170	200	240	130	75	240	45	109	94	76	88	94	69	87
Color pH SU	7.795	7.875	7.84	7.91	8.23	7.905	8.045	7.77	7.71	7.59	7.895	8.035	8.23	7.59	7.88	7.88	7.82	7.63	7.88	7.83	7.84
Chlorophyll a - Pheo Corrected (ug/L)	16.12	10.745	28.965	6.445	11.10	9.79	11.29	38.79	29.84	9.54	29.88	12.22	38.79	6.45	17.89	15.26	10.05	10.19	15.26	10.72	14.16
Specific Conductance (mmhos)/cm	0.8715	0.9375	0.7865	0.9395	1.01	0.8855	0.8575	0.7165	0.533	0.477	0.773	0.863	1.010	0.477	0.804	0.787	0.834	0.772	0.834	0.874	0.907
Salinity - Lab (PSU)	0.4 I	0.4 I	0.3 I	0.4 I	0.4 I	0.4 I	0.4 I	0.3 I	U0.2	U0.2	0.3 I	0.4 I	0.4	0.2	0.3	0.3	0.4	0.4	0.4	0.4	0.4
Overall Depth (meters)																					
Depth of Measurement (meters)																					
Field Salinity (PSU)																					
Field Specific Conductance (mmhos)/cm																					
Field Temperature (°C)																					
Field pH (SU)																					
Field Dissolved Oxygen (mg/L)																					
Percent Saturation of D.O. (%)																					
Secchi Depth (meters)																					
	Blank Cell = No data																				
	U = Less than Method Detection Limit																				
	S = Secchi Depth greater than the bottom channel. For average and graphing purposes, the total depth is used instead.																				
	I = Value is between the MDL and Practical Quantitation Limit (PQL)																				

### Hydrobiological Data - Site 3 Myk Creek Downstream WTP

Date	1/7/15	2/4/15	3/4/15	4/2/15	5/6/15	6/11/15	7/9/15	8/6/15	9/10/15	10/8/15	11/5/15	12/3/15	2015 Max	2015 Min	2015 Arith Mean	2015 Geom Mean	2014 Geom Mean	2013 Geom Mean	Max of last 3 year Geom Mean	All Years Geom Mean	All Years Arith Mean	
Nitrate, Nitrite as N (mg/L)																						
Ammonia as N (mg/L)																						
Total Kjeldahl Nitrogen as N (mg/L)																						
Total Nitrogen as N (mg/L)																						
Ortho Phosphorus as P (mg/L)																						
Total Phosphorus as P (mg/L)																						
Total Suspended Solids (mg/L)																						
Turbidity (NTU)																						
Color Apparent (PCU)																						
Color pH SU																						
Chlorophyll a - Pheo Corrected (ug/L)																						
Specific Conductance (mmhos/cm)																						
Salinity - Lab (PSU)																						
Overall Depth (meters)	1.0	1.0	1.1	1.0	1.1	1.8	1.6	1.6	1.1	1.3	1.6	1.0	1.8	1.0	1.3	1.2	1.3	1.3	1.3	1.4	1.5	
Depth of Measurement (meters)	0.8	0.8	0.9	0.8	0.9	1.0	1.0	1.0	0.9	1.0	1.0	0.8	1.0	0.8	0.9	0.9	0.9	1.0	1.0	1.0	1.0	
Field Salinity (PSU)	2.5	2.9	0.3	0.5	10.4	0.7	6.8	0.28	U 0.2	U 0.2	0.3	0.9	10.4	0.2	2.2	0.9	1.4	1.6	1.6	2.1	6.7	
Field Specific Conductance (mmhos/cm)	4.48	5.27	0.66	0.86	17.61	1.26	11.91	0.56	0.24	0.35	0.63	1.52	17.61	0.24	3.78	1.53	2.50	2.61	2.61	3.75	11.15	
Field Temperature (°C)	22.4	18.7	23.2	21.7	26.6	27.9	31.3	28.74	29.1	26.4	26.5	23.6	31.3	18.7	25.5	25.3	24.4	25.1	25.3	24.9	25.3	
Field pH (SU)	7.5	7.6	7.4	7.6	7.3	7.6	7.3	7.09	6.9	7.2	7.3	6.2 JL	7.6	6.2	7.2	7.2	7.3	7.2	7.3	7.2	7.3	
Field Dissolved Oxygen (mg/L)	4.8	6.9	7.2	6.9	3.5	6.0	4.1	5.55	5.8	6.4	5.7	5.8	7.20	3.50	5.72	5.61	4.79	4.79	5.61	4.45	4.79	
Percent Saturation of D.O. (%)	56	75	84	79	46	77	58	72	75	80	71	69	84	46	70	69	59	61	69	56	59	
Secchi Depth (meters)	S 1.0	S 1.0	S 1.1	S 1.0	S 1.1	1.35	1.20		0.48	0.62	0.85	0.85	1.35	0.48	0.96	0.92	1.00	0.82	1.00	0.93	0.98	
	Blank Cell = No data																					
	U = Less than Method Detection Limit																					
	S = Secchi Depth greater than the bottom channel. For average and graphing purposes, the total depth is used instead.																					
	I = Value is between the MDL and Practical Quantitation Limit (PQL)																					

### Hydrobiological Data - Site 4 Myk Creek Tidal

Date	1/7/15	2/4/15	3/4/15	4/2/15	5/6/15	6/11/15	7/9/15	8/6/15	9/10/15	10/8/15	11/5/15	12/3/15	2015 Max	2015 Min	2015 Arith Mean	2015 Geom Mean	2014 Geom Mean	2013 Geom Mean	Max of last 3 year Geom Mean	All Years Geom Mean	All Years Arith Mean
Nitrate, Nitrite as N (mg/L)	0.071	0.024	0.034	0.02	U 0.005	0.030	U 0.005	0.0525	0.029	0.072	0.114	0.051	0.114	0.005	0.042	0.030	0.045	0.020	0.045	0.022	0.044
Ammonia as N (mg/L)	0.049	0.021	0.018 I	0.012 I	0.010 I	0.027	U 0.005	0.0975	0.069	0.084	0.042	0.031	0.098	0.005	0.039	0.028	0.032	0.049	0.049	0.033	0.049
Total Kjeldahl Nitrogen as N (mg/L)	0.91	0.77	0.96	0.77	0.98	0.87	0.78	1.315	1.53	1.23	1.05	0.84	1.53	0.77	1.00	0.98	1.00	1.00	1.00	0.97	1.00
Total Nitrogen as N (mg/L)	0.98	0.79	0.99	0.79	0.99	0.90	0.79	1.37	1.56	1.30	1.16	0.89	1.56	0.79	1.04	1.02	1.08	1.04	1.08	1.01	1.04
Ortho Phosphorus as P (mg/L)	0.108	0.099	0.130	0.112	0.172	0.121	0.208	0.144	0.210	0.151	0.162	0.086	0.210	0.086	0.142	0.137	0.143	0.137	0.143	0.143	0.155
Total Phosphorus as P (mg/L)	0.15 I	0.15 I	0.15 I	0.16 I	0.24	0.18 I	0.29	0.19 I	0.26	0.19 I	0.19 I	0.09 I	0.29	0.09	0.19	0.18	0.20	0.20	0.20	0.20	0.22
Total Suspended Solids (mg/L)	5 I	3 I	5 I	4 I	4 I	4 I	3 I	4 I	6 I	3 I	3 I	3 I	6	3	4	4	5	7	7	5	5
Turbidity (NTU)	5.8	5.1	6.1	4.6	3.8	4.6	2.7	3.75	4.4	3.6	4.7	3.8	6.1	2.7	4.4	4.3	5.2	5.7	5.7	4.4	4.7
Color Apparent (PCU)	110	80	120	85	70	55	65	260	340	320	150	95	340	55	146	120	113	123	123	108	128
Color pH SU	7.81	7.68	7.79	7.73	7.60	7.72	7.74	7.56	7.19	7.50	7.58	7.77	7.81	7.19	7.64	7.64	7.67	7.45	7.67	7.63	7.63
Chlorophyll a - Pheo Corrected (ug/L)	12.69	14.68	18.02	11.00	17.14	10.90	16.48	16.57	4.23	4.94	6.28	11.52	18.02	4.23	12.04	10.91	12.01	11.74	12.01	11.14	13.07
Specific Conductance (mmhos/cm)	3.16	4.060	0.929	1.260	14.10	1.43	4.95	0.6415	0.329	0.419	0.762	2.26	14.100	0.329	2.858	1.572	1.793	2.595	2.595	2.779	7.582
Salinity - Lab (PSU)	1.6	2.1	0.4 I	0.6 I	8.1	0.7 I	2.6	0.3 I	U0.20	U0.2	0.3 I	1.1	8.1	0.2	1.5	0.8	0.9	1.4	1.4	1.5	4.4
Overall Depth (meters)	1.0	0.8	0.9	0.9	1.3	1.4	1.4	1.6	1.4	1.7	1.7	1.6	1.7	0.8	1.3	1.3	1.3	1.1	1.3	1.3	1.3
Depth of Measurement (meters)	0.8	0.6	0.7	0.7	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	0.6	0.9	0.9	0.9	0.9	0.9	0.9	0.9
Field Salinity (PSU)	2.5	4.7	0.4	1.2	10.3	2.4	6.7	0.33	U 0.2	0.2	0.4	3.0	10.3	0.2	2.7	1.3	1.4	1.8	1.8	2.4	6.9
Field Specific Conductance (mmhos/cm)	4.55	8.44	0.77	2.18	17.44	4.32	11.74	0.65	0.27	0.41	0.74	5.39	17.44	0.27	4.74	2.24	2.70	2.98	2.98	4.31	11.52
Field Temperature (°C)	22.4	19.7	22.7	23.1	26.2	28.1	31.2	28.71	28.9	26.2	27.0	25	31.2	19.7	25.8	25.6	24.4	25.1	25.6	24.9	25.3
Field pH (SU)	7.5	7.4	7.5	7.6	7.3	7.4	7.4	7.1	6.9	7.2	7.3	6.0 J,L	7.6	6.0	7.2	7.2	7.3	7.2	7.3	7.3	7.3
Field Dissolved Oxygen (mg/L)	5.80	5.8	6.50	6.10	3.90	4.30	5.20	5.00	5.50	5.50	5.50	4.30	6.50	3.90	5.28	5.23	5.00	4.77	5.23	4.54	4.77
Percent Saturation of D.O. (%)	68	65	75	72	51	55	72	64.9	72	69	69	53	75	51	65	65	62	60	65	57	59
Secchi Depth (meters)	S1.0	S0.8	S0.9	S0.9	S1.3	1.15	1.00	0.65	0.53	0.67	0.85	0.95	1.30	0.53	0.89	0.87	0.98	0.81	0.98	0.88	0.92
	Blank Cell = No data																				
	U = Less than Method Detection Limit																				
	S = Secchi Depth greater than the bottom channel. For average and graphing purposes, the total depth is used instead.																				
	I = Value is between the MDL and Practical Quantitation Limit (PQL)																				



### Hydrobiological Data - Site 5 Myk Creek Tidal

Date	1/7/15	2/4/15	3/4/15	4/2/15	5/6/15	6/11/15	7/9/15	8/6/15	9/10/15	10/8/15	11/5/15	12/3/15	2015 Max	2015 Min	2015 Arith Mean	2015 Geom Mean	2014 Geom Mean	2013 Geom Mean	Max of last 3 year Geom Mean	All Years Geom Mean	All Years Arith Mean	
Nitrate, Nitrite as N (mg/L)																						
Ammonia as N (mg/L)																						
Total Kjeldahl Nitrogen as N (mg/L)																						
Total Nitrogen as N (mg/L)																						
Ortho Phosphorus as P (mg/L)																						
Total Phosphorus as P (mg/L)																						
Total Suspended Solids (mg/L)																						
Turbidity (NTU)																						
Color Apparent (PCU)																						
Color pH SU																						
Chlorophyll a - Pheo Corrected (ug/L)																						
Specific Conductance (mmhos/cm)																						
Salinity - Lab (PSU)																						
Overall Depth (meters)	1.6	1.6	1.7	1.6	1.8	2.1	2.2	2.2	2.1	2.4	2.3	2	2.4	1.6	2.0	1.9	1.8	1.8	1.9	1.8	1.8	
Depth of Measurement (meters)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	
Field Salinity (PSU)	4.3	4.7	0.4	3.2	10.4	5.8	6.6	0.32	U 0.2	0.2	0.4	2.4	10.4	0.2	3.2	1.5	1.6	1.9	1.9	2.8	7.4	
Field Specific Conductance (mmhos/cm)	7.8	8.5	0.78	5.7	17.62	10.30	11.5	0.63	0.28	0.4	0.73	4.46	17.62	0.28	5.73	2.69	2.94	3.22	3.22	5.01	12.37	
Field Temperature (°C)	23.1	19.0	22.6	24.8	25.7	29.4	30.3	28.99	28.9	26.1	27.1	25.1	30.3	19.0	25.9	25.7	24.4	24.9	25.7	24.8	25.2	
Field pH (SU)	7.4	7.5	7.5	7.5	7.6	7.2	7.5	7.17	6.9	7.2	7.4	6.2 JL	7.6	6.2	7.3	7.2	7.4	7.3	7.4	7.3	7.3	
Field Dissolved Oxygen (mg/L)	4.9	7	6.2	6.2	5.9	3.5	5.4	5.97	5.4	5.1	5.6	6.2	7.00	3.50	5.61	5.54	5.34	5.43	5.54	5.20	5.32	
Percent Saturation of D.O. (%)	58	78	72	76	76	47	74	77.8	71	63	70	77	78	47	70	69	66	69	69	66	67	
Secchi Depth (meters)	0.8	0.88	0.95	1.15	1.65	1.40	1.45	0.55	0.57	0.67	0.75	0.95	1.65	0.55	0.98	0.92	1.01	0.90	1.01	0.95	1.01	
	Blank Cell = No data																					
	U = Less than Method Detection Limit																					
	S = Secchi Depth greater than the bottom channel. For average and graphing purposes, the total depth is used instead.																					
	I = Value is between the MDL and Practical Quantitation Limit (PQL)																					

### Hydrobiological Data - Site 6 Myk Creek Tidal

Date	1/7/15	2/4/15	3/4/15	4/2/15	5/6/15	6/11/15	7/9/15	8/6/15	9/10/15	10/8/15	11/5/15	12/3/15	2015 Max	2015 Min	2015 Arith Mean	2015 Geom Mean	2014 Geom Mean	2013 Geom Mean	Max of last 3 year Geom Mean	All Years Geom Mean	All Years Arith Mean
Nitrate, Nitrite as N (mg/L)	0.057	0.010 I	0.031	U 0.005	U 0.005	0.012 I	U 0.005	0.055	0.031	0.069	0.037	0.0485	0.069	0.005	0.030	0.021	0.022	0.019	0.022	0.017	0.037
Ammonia as N (mg/L)	0.055	0.0135	U 0.005	0.0085 I	0.005 I	0.015 I	U 0.005	0.043	0.0695	0.081	U 0.005	0.010 I	0.081	0.005	0.026	0.015	0.022	0.036	0.036	0.022	0.037
Total Kjeldahl Nitrogen as N (mg/L)	0.98	0.915	1.11	0.755	0.97	0.92	0.755	1.44	1.48	1.19	1.06	0.88	1.48	0.76	1.04	1.02	1.03	0.96	1.03	0.98	1.01
Total Nitrogen as N (mg/L)	1.04	0.93	1.14	0.76	0.98	0.93	0.76	1.50	1.51	1.26	1.10	0.93	1.51	0.76	1.07	1.04	1.09	0.99	1.09	1.02	1.05
Ortho Phosphorus as P (mg/L)	0.116	0.1075	0.139	0.132	0.163	0.155	0.2375	0.144	0.204	0.153	0.106	0.105	0.238	0.105	0.147	0.142	0.135	0.125	0.142	0.139	0.151
Total Phosphorus as P (mg/L)	0.16 I	0.18 I	0.18 I	0.19 I	0.23	0.21	0.33	0.21	0.23	0.20	0.17 I	0.135 I	0.33	0.14	0.20	0.20	0.20	0.17	0.20	0.20	0.22
Total Suspended Solids (mg/L)	3 I	3 I	6 I	4.5 I	4 I	4 I	3 I	4 I	3.5 I	2 I	5 I	4 I	6	2	4	4	5	5	5	4	5
Turbidity (NTU)	3.4	4.3	5.6	4.05	3.5	4.0	3.0	4.6	3.8	3.2	4.6	3.8	5.6	3.0	4.0	3.9	4.7	4.1	4.7	3.8	4.0
Color Apparent (PCU)	110	85	120	110	75	60	72.5	280	340	280	150	130	340	60	151	129	112	122	129	110	131
Color pH SU	7.76	7.75	7.78	7.95	7.75	7.64	7.75	7.63	7.145	7.46	7.70	7.855	7.95	7.15	7.68	7.68	7.72	7.54	7.72	7.69	7.70
Chlorophyll a - Pheo Corrected (ug/L)	16.81	29.485	30.80	20.945	20.77	26.59	12.62	41.15	4.315	4.83	24.93	19.645	41.15	4.32	21.07	17.69	14.72	11.31	17.69	12.93	15.35
Specific Conductance (mmhos/cm)	5.75	5.89	0.899	2.6	15	4.60	7.89	0.63	0.2965	0.414	0.710	3.44	15.000	0.297	4.010	2.118	1.359	2.842	2.842	3.672	9.226
Salinity - Lab (PSU)	3.1	3.2	0.4 I	1.3	8.7	2.4	4.3	0.2 I	U 0.2	U 0.2	0.3 I	1.8	8.7	0.2	2.2	1.1	0.9	1.6	1.6	1.9	5.3
Overall Depth (meters)	2.2	2.1	2.2	2.2	2.5	2.8	3.0	3.0	2.5	2.8	2.8	2.7	3.0	2.1	2.6	2.5	2.6	2.5	2.6	2.6	2.6
Depth of Measurement (meters)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Field Salinity (PSU)	3.2	3.3	0.5	1.9	9.6	6.7	6.2	0.32	U 0.2	U 0.2	0.4	2.3	9.6	0.2	2.9	1.4	1.7	2.1	2.1	2.7	7.1
Field Specific Conductance (mmhos/cm)	5.86	6.00	0.86	3.49	16.36	11.65	10.86	0.62	0.28	0.39	0.69	4.12	16.36	0.28	5.10	2.43	3.22	3.45	3.45	4.78	11.83
Field Temperature (°C)	21.90	18.00	22.80	24.20	25.40	28.90	29.40	29.40	29.0	26.3	27.3	25.0	29.4	18.0	25.6	25.4	24.5	24.8	25.4	24.5	25.0
Field pH (SU)	7.6	7.7	7.5	7.7	7.6	7.3	7.5	7.12	6.9	7.2	7.5	6.3 JL	7.7	6.3	7.3	7.3	7.4	7.3	7.4	7.4	7.4
Field Dissolved Oxygen (mg/L)	6.1	8.3	6.3	7.4	6.3	3.8	5.5	4.94	5.2	5.6	6.3	6.6	8.30	3.80	6.03	5.92	5.56	5.67	5.92	5.56	5.68
Percent Saturation of D.O. (%)	71	90	73	89	82	52	74	64.8	67	69	80	81	90	52	74	74	69	72	74	70	71
Secchi Depth (meters)	0.90	1.15	1.05	1.25	1.45	1.3	1.15	0.6	0.57	0.67	0.85	0.95	1.45	0.57	0.99	0.95	1.02	0.86	1.02	0.94	1.01
	Blank Cell = No data																				
	U = Less than Method Detection Limit																				
	S = Secchi Depth greater than the bottom channel. For average and graphing purposes, the total depth is used instead.																				
	I = Value is between the MDL and Practical Quantitation Limit (PQL)																				

### Hydrobiological Data - Site 7 Myk Creek Tidal

Date	1/7/15	2/4/15	3/4/15	4/2/15	5/6/15	6/11/15	7/9/15	8/6/15	9/10/15	10/8/15	11/5/15	12/3/15	2015 Max	2015 Min	2015 Arith Mean	2015 Geom Mean	2014 Geom Mean	2013 Geom Mean	Max of last 3 year Geom Mean	All Years Geom Mean	All Years Arith Mean
Nitrate, Nitrite as N (mg/L)	0.0555	0.006 I	0.0095	U 0.005	U 0.005	U 0.005	0.014 I	0.034	0.032	0.0635	0.0685	0.032	0.069	0.005	0.028	0.018	0.017	0.017	0.018	0.015	0.032
Ammonia as N (mg/L)	0.0505	0.014 I	U 0.005	0.016 I	U 0.0065 I	U 0.005	0.015 I	0.110	0.068	0.075	0.0425	0.015 I	0.110	0.005	0.035	0.022	0.019	0.032	0.032	0.020	0.034
Total Kjeldahl Nitrogen as N (mg/L)	0.965	0.79	1.08	0.83	0.97	0.955	0.84	1.42	1.48	1.245	1.10	0.92	1.48	0.79	1.05	1.03	1.04	0.95	1.04	0.98	1.01
Total Nitrogen as N (mg/L)	1.02	0.80	1.09	0.84	0.97	0.96	0.85	1.45	1.51	1.31	1.17	0.95	1.51	0.80	1.08	1.05	1.09	0.97	1.09	1.01	1.04
Ortho Phosphorus as P (mg/L)	0.1225	0.122	0.125	0.143	0.17	0.191	0.186	0.383	0.205	0.149	0.192	0.146	0.383	0.122	0.178	0.169	0.137	0.121	0.169	0.148	0.163
Total Phosphorus as P (mg/L)	0.16 I	0.18 I	0.15 I	0.21	0.24	0.25	0.28	0.42	0.23	0.185 I	0.265	0.17 I	0.42	0.15	0.23	0.22	0.20	0.17	0.22	0.21	0.23
Total Suspended Solids (mg/L)	3.5 I	2 I	5.5 I	5 I	5 I	6 I	7 I	2 I	4 I	2 I	3 I	4 I	7	2	4	4	5	6	6	5	6
Turbidity (NTU)	3.4	3.7	5.2	4.0	2.75	3.9	3.6	2	3.9	3.25	2.55	3	5.2	2.0	3.4	3.3	4.4	4.2	4.4	3.6	3.9
Color Apparent (PCU)	100	90	115	100	67.5	70	75	320	340	320	190	140	340	68	161	134	112	118	134	112	132
Color pH SU	7.79	7.78	7.80	7.91	7.74	7.685	7.68	7.26	7.21	7.425	7.52	7.76	7.91	7.21	7.63	7.63	7.73	7.54	7.73	7.67	7.68
Chlorophyll a - Pheo Corrected (ug/L)	12.35	12.75	32.98	12.94	16.385	34.67	15.96	17.7	4.3	5.825	8.64	16.47	34.67	4.30	15.91	13.55	15.62	10.57	15.62	12.34	14.56
Specific Conductance (mmhos/cm)	7.085	6.88	1.275	4.35	17.55	11.00	12.7	0.601	0.292	0.423	1.37	5.29	17.550	0.292	5.735	2.902	1.910	3.488	3.488	4.704	10.797
Salinity - Lab (PSU)	3.85	3.7	0.6 I	2.3	10.3	6.2	7.2	0.2 I	U 0.20	U 0.20	0.6 I	2.8	10.3	0.2	3.2	1.5	1.4	2.0	2.0	2.6	6.4
Overall Depth (meters)	3.1	3.3	3.0	2.3	3.3	3.5	3.7	3.6	3.3	3.8	3.5	3.7	3.8	2.3	3.3	3.3	3.2	3.1	3.3	3.1	3.2
Depth of Measurement (meters)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Field Salinity (PSU)	4.0	4.4	0.7	3.5	11.4	8.6	7.6	0.3	U 0.20	0.2	0.7	3.8	11.4	0.2	3.8	1.8	2.3	2.3	2.3	3.3	7.8
Field Specific Conductance (mmhos/cm)	7.07	7.92	1.33	6.24	19.19	14.85	13.17	0.59	0.28	0.40	1.34	6.84	19.19	0.28	6.60	3.18	4.21	3.85	4.21	5.86	13.03
Field Temperature (°C)	21.7	18.1	23	24.6	25.1	28.3	29.7	29.26	29.0	26.0	27.7	25.3	29.7	18.1	25.6	25.4	24.6	24.8	25.4	24.6	25.0
Field pH (SU)	7.6	7.6	7.6	7.6	7.5	7.4	7.4	6.79	6.9	7.2	7.2	6.1 JL	7.6	6.1	7.2	7.2	7.4	7.4	7.4	7.4	7.4
Field Dissolved Oxygen (mg/L)	6.4	7.8	7	6.7	5.7	5.2	4.8	3.21	4.9	4.8	4.5	5.9	7.80	3.21	5.58	5.44	5.20	5.68	5.68	5.51	5.65
Percent Saturation of D.O. (%)	75	84	81	82	74	70	66	42.0	63	59	57	73	84	42	69	68	65	72	72	70	71
Secchi Depth (meters)	1.25	1.3	0.95	1.35	1.65	1.10	1.05	0.55	0.53	0.65	0.85	0.95	1.65	0.53	1.02	0.96	0.99	0.94	0.99	0.94	1.01
	Blank Cell = No data																				
	U = Less than Method Detection Limit																				
	S = Secchi Depth greater than the bottom channel. For average and graphing purposes, the total depth is used instead.																				
	I = Value is between the MDL and Practical Quantitation Limit (PQL)																				

### Hydrobiological Data - Site 8 Myk Creek Tidal

Date	1/7/15	2/4/15	3/4/15	4/2/15	5/6/15	6/11/15	7/9/15	8/6/15	9/10/15	10/8/15	11/5/15	12/3/15	2015 Max	2015 Min	2015 Arith Mean	2015 Geom Mean	2014 Geom Mean	2013 Geom Mean	Max of last 3 year Geom Mean	All Years Geom Mean	All Years Arith Mean	
Nitrate, Nitrite as N (mg/L)																						
Ammonia as N (mg/L)																						
Total Kjeldahl Nitrogen as N (mg/L)																						
Total Nitrogen as N (mg/L)																						
Ortho Phosphorus as P (mg/L)																						
Total Phosphorus as P (mg/L)																						
Total Suspended Solids (mg/L)																						
Turbidity (NTU)																						
Color Apparent (PCU)																						
Color pH SU																						
Chlorophyll a - Pheo Corrected (ug/L)																						
Specific Conductance (mmhos/cm)																						
Salinity - Lab (PSU)																						
Overall Depth (meters)	4.2	4.1	4.9	4.9	5.0	5.4	5.4	5.5	5.4	5.1	4.5	5.4	5.5	4.1	5.0	5.0	4.1	5.1	5.1	4.6	4.6	
Depth of Measurement (meters)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	
Field Salinity (PSU)	5.1	3.4	1.4	4.1	11.8	9.4	9.1	0.33	U 0.2	0.2	0.9	4.5	11.8	0.2	4.2	2.0	3.1	3.0	3.1	4.2	8.6	
Field Specific Conductance (mmhos/cm)	9.0	6.09	2.51	7.19	19.82	16.15	15.64	0.64	0.37	0.45	1.69	8.08	19.82	0.37	7.30	3.73	5.72	5.31	5.72	7.32	14.25	
Field Temperature (°C)	22.0	17.8	23.8	24.5	24.8	28.3	29.6	29.46	28.3	26.0	27.7	25.3	29.6	17.8	25.6	25.4	24.4	24.5	25.4	24.5	24.9	
Field pH (SU)	7.5	7.5	7.3	7.5	7.6	7.4	7.4	6.72	6.7	7	7.1	6.1 JL	7.6	6.1	7.2	7.1	7.3	7.4	7.4	7.3	7.3	
Field Dissolved Oxygen (mg/L)	6.5	7.8	6.1	6.6	6.1	5	4.7	2.42	3.2	3.8	4.4	6.1	7.80	2.42	5.23	4.98	4.81	5.44	5.44	5.30	5.50	
Percent Saturation of D.O. (%)	77	84	72	81	78	67	65	31.8	41	47	57	76	84	32	65	62	60	69	69	67	69	
Secchi Depth (meters)	1.00	1.25	1.05	1.35	1.65	1.30	1.10	0.45	0.55	0.65	0.85	0.95	1.65	0.45	1.01	0.95	1.10	0.89	1.10	0.93	0.99	
	Blank Cell = No data																					
	U = Less than Method Detection Limit																					
	S = Secchi Depth greater than the bottom channel. For average and graphing purposes, the total depth is used instead.																					
	I = Value is between the MDL and Practical Quantitation Limit (PQL)																					

### Hydrobiological Data - Site 9 Myakka River Upstream

Date	1/7/15	2/4/15	3/4/15	4/2/15	5/6/15	6/11/15	7/9/15	8/6/15	9/10/15	10/8/15	11/5/15	12/3/15	2015 Max	2015 Min	2015 Arith Mean	2015 Geom Mean	2014 Geom Mean	2013 Geom Mean	Max of last 3 year Geom Mean	All Years Geom Mean	All Years Arith Mean
Nitrate, Nitrite as N (mg/L)																					
Ammonia as N (mg/L)																					
Total Kjeldahl Nitrogen as N (mg/L)																					
Total Nitrogen as N (mg/L)																					
Ortho Phosphorus as P (mg/L)																					
Total Phosphorus as P (mg/L)																					
Total Suspended Solids (mg/L)																					
Turbidity (NTU)																					
Color Apparent (PCU)																					
Color pH SU																					
Chlorophyll a - Pheo Corrected (ug/L)																					
Specific Conductance (mmhos/cm)																					
Salinity - Lab (PSU)																					
Overall Depth (meters)	3.3	2.9	2.7	3.3	3.7	3.4	3.4	4.0	3.3	3.9	3.2	3.8	4.0	2.7	3.4	3.4	3.4	3.1	3.4	3.2	3.2
Depth of Measurement (meters)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Field Salinity (PSU)	4.7	2.6	1.00	3.7	12.3	9.4	8.7	0.3	U 0.2	0.2	0.8	4.8	12.3	0.2	4.1	1.9	3.0	2.9	3.0	3.8	8.3
Field Specific Conductance (mmhos/cm)	8.32	4.71	1.93	6.75	20.66	16.10	14.98	0.59	0.16	0.40	1.53	8.52	20.66	0.16	7.05	3.22	5.14	5.15	5.15	6.68	13.78
Field Temperature (°C)	21.8	17.8	23.9	24.5	24.7	28.3	29.7	29.71	28.2	26	27.7	25.3	29.7	17.8	25.6	25.4	24.4	24.5	25.4	24.5	24.9
Field pH (SU)	7.5	7.5	7.3	7.4	7.6	7.4	7.4	6.72	6.7	7	7.1	6.1 J.L	7.6	6.1	7.1	7.1	7.3	7.4	7.4	7.3	7.3
Field Dissolved Oxygen (mg/L)	6.50	7.80	5.90	6.20	5.90	5.10	4.70	4.39	3.20	3.90	4.30	6.10	7.80	3.20	5.33	5.18	4.79	5.28	5.28	5.29	5.51
Percent Saturation of D.O. (%)	76	84	71	77	77	69	64	58.0	41	48	55	77	84	41	66	65	60	67	67	67	69
Secchi Depth (meters)	1.1	1.4	0.65	1.25	1.75	1.35	1.25	0.45	0.63	0.67	0.85	1.05	1.75	0.45	1.03	0.96	1.06	0.91	1.06	0.92	0.98
	Blank Cell = No data																				
	U = Less than Method Detection Limit																				
	S = Secchi Depth greater than the bottom channel. For average and graphing purposes, the total depth is used instead.																				
	I = Value is between the MDL and Practical Quantitation Limit (PQL)																				

### Hydrobiological Data - Site 10 Myakka River Downstream

Date	1/7/15	2/4/15	3/4/15	4/2/15	5/6/15	6/11/15	7/9/15	8/6/15	9/10/15	10/8/15	11/5/15	12/3/15	2015 Max	2015 Min	2015 Arith Mean	2015 Geom Mean	2014 Geom Mean	2013 Geom Mean	Max of last 3 year Geom Mean	All Years Geom Mean	All Years Arith Mean
Nitrate, Nitrite as N (mg/L)																					
Ammonia as N (mg/L)																					
Total Kjeldahl Nitrogen as N (mg/L)																					
Total Nitrogen as N (mg/L)																					
Ortho Phosphorus as P (mg/L)																					
Total Phosphorus as P (mg/L)																					
Total Suspended Solids (mg/L)																					
Turbidity (NTU)																					
Color Apparent (PCU)																					
Color pH SU																					
Chlorophyll a - Pheo Corrected (ug/L)																					
Specific Conductance (mmhos/cm)																					
Salinity - Lab (PSU)																					
Overall Depth (meters)	2.1	1.8	1.9	1.9	2.2	2.4	2.5	2.6	2.1	2.3	2.4	2.5	2.6	1.8	2.2	2.2	2.1	2.2	2.2	2.0	2.1
Depth of Measurement (meters)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Field Salinity (PSU)	6.6	4.9	2.0	5.4	13.4	10.4	10.5	0.34	U 0.2	0.3	1.3	6.9	13.4	0.2	5.2	2.6	4.2	3.2	4.2	4.9	9.6
Field Specific Conductance (mmhos/cm)	11.6	8.66	3.66	9.56	22.28	17.73	17.86	0.66	0.34	0.65	2.35	11.98	22.28	0.34	8.94	4.65	7.27	5.73	7.27	8.58	15.91
Field Temperature (°C)	22.2	18.0	24.1	24.6	24.3	28.2	29.2	29.55	28.3	26.2	27.7	25.2	29.6	18.0	25.6	25.4	24.4	24.6	25.4	24.5	24.9
Field pH (SU)	7.5	7.5	7.3	7.5	7.6	7.3	7.4	6.72	6.7	7.0	7.10	7.0	7.6	6.7	7.2	7.2	7.3	7.4	7.4	7.4	7.4
Field Dissolved Oxygen (mg/L)	6.5	7.8	5.8	6.5	6.1	4.9	4.8	3.72	3.3	3.8	4.7	6.4	7.80	3.30	5.36	5.19	4.77	5.53	5.53	5.39	5.59
Percent Saturation of D.O. (%)	77	85	70	81	79	66	66	49	42	47	60	81	85	42	67	65	60	70	70	69	71
Secchi Depth (meters)	0.95	0.88	1.05	1.15	1.65	1.40	1.20	0.45	0.55	0.75	0.75	1.15	1.65	0.45	0.99	0.94	1.17	0.91	1.17	0.94	1.01
	Blank Cell = No data																				
	U = Less than Method Detection Limit																				
	S = Secchi Depth greater than the bottom channel. For average and graphing purposes, the total depth is used instead.																				
	I = Value is between the MDL and Practical Quantitation Limit (PQL)																				

## Hydrobiological Data Year 2015 Geometric Mean

	Site 1	Site 2	Avg of Fresh Water Sites	Site 3	Site 4	Site 5	Site 6	Site 7	Site 8	Site 9	Site 10	Avg of Tidal Water Sites
	Myk Creek at Appomattox	Cocoplum at Sumter		Myk Creek Down-stream of WTP	Myk Creek Tidal	Myk Creek Tidal	Myk Creek Tidal	Myk Creek Tidal	Myk Creek Tidal	Myk Creek Tidal	Myakka River Upstream	
Fresh Water or Tidal Water	Fresh	Fresh	Fresh	Tidal	Tidal	Tidal	Tidal	Tidal	Tidal	Tidal	Tidal	Tidal
Nitrate, Nitrite as N (mg/L)	0.074	0.009	<b>0.042</b>		0.030		0.021	0.018				<b>0.023</b>
Ammonia as N (mg/L)	0.053	0.012	<b>0.032</b>		0.028		0.015	0.022				<b>0.022</b>
Total Kjeldahl Nitrogen as N (mg/L)	0.96	0.93	<b>0.95</b>		0.98		1.02	1.03				<b>1.01</b>
Total Nitrogen as N (mg/L)	1.05	0.94	<b>1.00</b>		1.02		1.04	1.05				<b>1.04</b>
Ortho Phosphorus as P (mg/L)	0.21	0.03	<b>0.12</b>		0.14		0.14	0.17				<b>0.15</b>
Total Phosphorus as P (mg/L)	0.26	0.08	<b>0.17</b>		0.18		0.20	0.22				<b>0.20</b>
Total Suspended Solids (mg/L)	3	3	<b>3</b>		4		4	4				<b>4</b>
Turbidity (NTU)	4.5	2.9	<b>3.7</b>		4.3		3.9	3.3				<b>3.9</b>
Color Apparent (PCU)	139	94	<b>117</b>		120		129	134				<b>128</b>
Color pH SU	7.52	7.88	<b>7.70</b>		7.64		7.68	7.63				<b>7.65</b>
Chlorophyll a - Pheo Corrected (ug/L)	2.04	15.26	<b>8.65</b>		10.91		17.69	13.55				<b>14.05</b>
Specific Conductance (mmhos)/cm	0.60	0.79	<b>0.69</b>		1.57		2.12	2.90				<b>2.20</b>
Salinity - Lab (PSU)	0.3	0.3	<b>0.3</b>		0.8		1.1	1.5				<b>1.1</b>
Overall Depth (meters)				1.2	1.3	1.9	2.5	3.3	5.0	3.4	2.2	<b>2.6</b>
Depth of Measurement (meters)				0.9	0.9	1.0	1.0	1.0	1.0	1.0	1.0	<b>1.0</b>
Field Salinity (PSU)				0.9	1.3	1.5	1.4	1.8	2.0	1.9	2.6	<b>1.7</b>
Field Specific Conductance (mmhos)/cm				1.53	2.24	2.69	2.43	3.18	3.73	3.22	4.65	<b>2.96</b>
Field Temperature (°C)				25.3	25.6	25.7	25.4	25.4	25.4	25.4	25.4	<b>25.4</b>
Field pH (SU)				7.2	7.2	7.2	7.3	7.2	7.1	7.1	7.2	<b>7.2</b>
Field Dissolved Oxygen (mg/L)				5.6	5.2	5.5	5.9	5.4	5.0	5.2	5.2	<b>5.4</b>
Percent Saturation of D.O. (%)				69	65	69	74	68	62	65	65	<b>67</b>
Secchi Depth (meters)				0.92	0.87	0.92	0.95	0.96	0.95	0.96	0.94	<b>0.93</b>

## Hydrobiological Data Year 2014 Geometric Mean

	Site 1	Site 2	Avg of Fresh Water Sites	Site 3	Site 4	Site 5	Site 6	Site 7	Site 8	Site 9	Site 10	Avg of Tidal Water Sites
	Myk Creek at Appomattox	Cocoplum at Sumter		Myk Creek Down-stream of WTP	Myk Creek Tidal	Myk Creek Tidal	Myk Creek Tidal	Myk Creek Tidal	Myk Creek Tidal	Myk Creek Tidal	Myakka River Upstream	
Fresh Water or Tidal Water	Fresh	Fresh	Fresh	Tidal	Tidal	Tidal	Tidal	Tidal	Tidal	Tidal	Tidal	Tidal
Nitrate, Nitrite as N (mg/L)	0.084	0.011	<b>0.047</b>		0.045		0.022	0.017				<b>0.028</b>
Ammonia as N (mg/L)	0.056	0.017	<b>0.037</b>		0.032		0.022	0.019				<b>0.025</b>
Total Kjeldahl Nitrogen as N (mg/L)	0.98	0.88	<b>0.93</b>		1.00		1.03	1.04				<b>1.02</b>
Total Nitrogen as N (mg/L)	1.11	0.90	<b>1.00</b>		1.08		1.09	1.09				<b>1.09</b>
Ortho Phosphorus as P (mg/L)	0.19	0.04	<b>0.11</b>		0.14		0.14	0.14				<b>0.14</b>
Total Phosphorus as P (mg/L)	0.24	0.09	<b>0.16</b>		0.20		0.20	0.20				<b>0.20</b>
Total Suspended Solids (mg/L)	3	3	<b>3</b>		5		5	5				<b>5</b>
Turbidity (NTU)	5.9	2.5	<b>4.2</b>		5.2		4.7	4.4				<b>4.8</b>
Color Apparent (PCU)	134	76	<b>105</b>		113		112	112				<b>112</b>
Color pH SU	7.44	7.82	<b>7.63</b>		7.67		7.72	7.73				<b>7.71</b>
Chlorophyll a - Pheo Corrected (ug/L)	2.22	10.05	<b>6.13</b>		12.01		14.72	15.62				<b>14.12</b>
Specific Conductance (mmhos)/cm	0.66	0.83	<b>0.75</b>		1.79		1.36	1.91				<b>1.69</b>
Salinity - Lab (PSU)	0.3	0.4	<b>0.3</b>		0.9		0.9	1.4				<b>1.1</b>
Overall Depth (meters)				1.3	1.3	1.8	2.6	3.2	4.1	3.4	2.1	<b>2.5</b>
Depth of Measurement (meters)				0.9	0.9	1.0	1.0	1.0	1.0	1.0	1.0	<b>1.0</b>
Field Salinity (PSU)				1.4	1.4	1.6	1.7	2.3	3.1	3.0	4.2	<b>2.3</b>
Field Specific Conductance (mmhos)/cm				2.50	2.70	2.94	3.22	4.21	5.72	5.14	7.27	<b>4.21</b>
Field Temperature (°C)				24.4	24.4	24.4	24.5	24.6	24.4	24.4	24.4	<b>24.5</b>
Field pH (SU)				7.3	7.3	7.4	7.4	7.4	7.3	7.3	7.3	<b>7.3</b>
Field Dissolved Oxygen (mg/L)				4.8	5.0	5.3	5.6	5.2	4.8	4.8	4.8	<b>5.0</b>
Percent Saturation of D.O. (%)				59	62	66	69	65	60	60	60	<b>62</b>
Secchi Depth (meters)				1.00	0.98	1.01	1.02	0.99	1.10	1.06	1.17	<b>1.04</b>



# Hydrobiological Data

## Comparison of Geom Means

For Fresh Water Sites ( Average of # 1 Myk Creek at Appomattox and #2 Cocoplum at Sumter)

Date	Previous Year Geom Mean Year 2014	Current Year Geom Mean Year 2015	Difference in Geom Mean
Nitrate, Nitrite as N (mg/L)	0.047	0.042	-0.006
Ammonia as N (mg/L)	0.037	0.032	-0.004
Total Kjeldahl Nitrogen as N (mg/L)	0.93	0.95	0.02
Total Nitrogen as N (mg/L)	1.00	1.00	-0.01
Ortho Phosphorus as P (mg/L)	0.11	0.12	0.01
Total Phosphorus as P (mg/L)	0.16	0.17	0.01
Total Suspended Solids (mg/L)	3	3	0
Turbidity (NTU)	4.2	3.7	-0.5
Color Apparent (PCU)	105	117	12
Color pH SU	7.63	7.70	0.07
Chlorophyll a - Pheo Corrected (ug/L)	6.13	8.65	2.52
Specific Conductance (mmhos)/cm	0.75	0.69	-0.05
Salinity - Lab (PSU)	0.3	0.3	0.0
Overall Depth (meters)			
Depth of Measurement (meters)			
Field Salinity (PSU)			
Field Specific Conductance (mmhos)/cm			
Field Temperature (°C)			
Field pH (SU)			
Field Dissolved Oxygen (mg/L)			
Percent Saturation of D.O. (%)			
Secchi Depth (meters)			

# Hydrobiological Data

## Comparison of Geom Means

For Tidal Water Sites (Average of Sites # 3, 4, 5, 6, 7, 8, 9, 10)

Date	Previous Year Geom Mean Year 2014	Current Year Geom Mean Year 2015	Difference in Geom Mean
Nitrate, Nitrite as N (mg/L)	0.028	0.023	-0.005
Ammonia as N (mg/L)	0.025	0.022	-0.003
Total Kjeldahl Nitrogen as N (mg/L)	1.02	1.01	-0.01
Total Nitrogen as N (mg/L)	1.09	1.04	-0.05
Ortho Phosphorus as P (mg/L)	0.14	0.15	0.01
Total Phosphorus as P (mg/L)	0.20	0.20	0.00
Total Suspended Solids (mg/L)	5	4	-1
Turbidity (NTU)	4.8	3.9	-0.9
Color Apparent (PCU)	112	128	15
Color pH SU	7.71	7.65	-0.06
Chlorophyll a - Pheo Corrected (ug/L)	14.12	14.05	-0.07
Specific Conductance (mmhos)/cm	1.69	2.20	0.51
Salinity - Lab (PSU)	1.1	1.1	0.1
Overall Depth (meters)	2.5	2.6	0.1
Depth of Measurement (meters)	1	1	0
Field Salinity (PSU)	2.34	1.66	-0.67
Field Specific Conductance (mmhos)/cm	4.21	2.96	-1.26
Field Temperature (°C)	24.5	25.4	1.0
Field pH (SU)	7.3	7.2	-0.1
Field Dissolved Oxygen (mg/L)	5.0	5.4	0.4
Percent Saturation of D.O. (%)	62.5	67.2	4.7
Secchi Depth (meters)	1.04	0.93	-0.11

**Hydrobiological Data  
Geom Mean All Available Data  
April 2006 to Dec 2015**

	Site 1	Site 2	Avg of Fresh Water Sites	Site 3	Site 4	Site 5	Site 6	Site 7	Site 8	Site 9	Site 10	Avg of Tidal Water Sites
	Myk Creek at Appomattox	Cocoplum at Sumter		Myk Creek Down-stream of WTP	Myk Creek Tidal	Myk Creek Tidal	Myk Creek Tidal	Myk Creek Tidal	Myk Creek Tidal	Myk Creek Tidal	Myakka River Upstream	
Fresh Water or Tidal Water	Fresh	Fresh	Fresh	Fresh	Fresh	Tidal	Tidal	Tidal	Tidal	Tidal	Tidal	Tidal
Nitrate, Nitrite as N (mg/L)	0.051	0.009	<b>0.030</b>		0.022		0.017	0.015				<b>0.018</b>
Ammonia as N (mg/L)	0.049	0.016	<b>0.033</b>		0.033		0.022	0.020				<b>0.025</b>
Total Kjeldahl Nitrogen as N (mg/L)	0.95	0.87	<b>0.91</b>		0.97		0.98	0.98				<b>0.98</b>
Total Nitrogen as N (mg/L)	1.03	0.88	<b>0.96</b>		1.01		1.02	1.01				<b>1.01</b>
Ortho Phosphorus as P (mg/L)	0.18	0.03	<b>0.10</b>		0.14		0.14	0.15				<b>0.14</b>
Total Phosphorus as P (mg/L)	0.23	0.08	<b>0.15</b>		0.20		0.20	0.21				<b>0.20</b>
Total Suspended Solids (mg/L)	3	3	<b>3</b>		5		4	5				<b>5</b>
Turbidity (NTU)	4.3	2.7	<b>3.5</b>		4.4		3.8	3.6				<b>3.9</b>
Color Apparent (PCU)	118	69	<b>94</b>		108		110	112				<b>110</b>
Color pH SU	7.42	7.83	<b>7.63</b>		7.63		7.69	7.67				<b>7.67</b>
Chlorophyll a - Pheo Corrected (ug/L)	2.81	10.72	<b>6.76</b>		11.14		12.93	12.34				<b>12.14</b>
Specific Conductance (mmhos/cm)	0.7	0.9	<b>0.8</b>		2.8		3.7	4.7				<b>3.7</b>
Salinity - Lab (PSU)	0.3	0.4	<b>0.3</b>		1.5		1.9	2.6				<b>2.0</b>
Overall Depth (meters)				1.4	1.3	1.8	2.6	3.1	4.6	3.2	2.0	<b>2.5</b>
Depth of Measurement (meters)				1	1	1	1	1	1	1	1	<b>1</b>
Field Salinity (PSU)				2.1	2.4	2.8	2.7	3.3	4.2	3.8	4.9	<b>3.3</b>
Field Specific Conductance (mmhos/cm)				3.75	4.31	5.01	4.78	5.86	7.32	6.68	8.58	<b>5.79</b>
Field Temperature (°C)				24.9	24.9	24.8	24.5	24.6	24.5	24.5	24.5	<b>24.7</b>
Field pH (SU)				7.2	7.3	7.3	7.4	7.4	7.3	7.3	7.4	<b>7.3</b>
Field Dissolved Oxygen (mg/L)				4.5	4.5	5.2	5.6	5.5	5.3	5.3	5.4	<b>5.2</b>
Percent Saturation of D.O. (%)				56	57	66	70	70	67	67	69	<b>65</b>
Secchi Depth (meters)				0.93	0.88	0.95	0.94	0.94	0.93	0.92	0.94	<b>0.93</b>

**Hydrobiological Data  
Max of Past 3 Years  
Geometric Mean**

Year	Site 1 Myakkahatchee Creek at Appomatox Blvd				Site 2 Cocoplum at Sumter Blvd			
	2015	2014	2013	Max of Last 3 Year	2015	2014	2013	Max of Last 3 Year
Nitrate, Nitrite as N (mg/L)	0.074	0.084	0.039	0.084	0.009	0.011	0.016	0.016
Ammonia as N (mg/L)	0.053	0.056	0.053	0.056	0.012	0.017	0.027	0.027
Total Kjeldahl Nitrogen as N (mg/L)	0.96	0.98	0.93	0.98	0.93	0.88	0.87	0.93
Total Nitrogen as N (mg/L) *	1.05	1.11	0.99	1.11	0.94	0.90	0.90	0.94
Ortho Phosphorus as P (mg/L)	0.21	0.19	0.17	0.21	0.03	0.04	0.04	0.04
Total Phosphorus as P (mg/L)*	0.26	0.24	0.20	0.26	0.08	0.09	0.08	0.09
Total Suspended Solids (mg/L)	3	3	5	5	3	3	3	3
Turbidity (NTU)	4.5	5.9	5.3	5.9	2.9	2.5	3.0	3.0
Color Apparent (PCU)	139	134	124	139	94	76	88	94
Color pH SU	7.52	7.44	7.16	7.52	7.88	7.82	7.63	7.88
Chlorophyll a - Pheo Corrected (ug/L)	2.04	2.22	3.67	3.67	15.26	10.05	10.19	15.26
Specific Conductance (mmhos)/cm	0.6	0.7	0.6	0.7	0.8	0.8	0.8	0.8
Salinity - Lab (PSU)	0.3	0.3	0.3	0.3	0.3	0.4	0.4	0.4

\* EPA 12/9/10 Final Stream NNC standards for West Central Region based on annual geom. mean not exceeded more than once in a three-year period

TN = 1.65 mg/L  
TP = 0.49 mg/L

## Hydrobiological Data Year 2015 Arithmetic Mean

	Site 1	Site 2	Avg of Fresh Water Sites	Site 3	Site 4	Site 5	Site 6	Site 7	Site 8	Site 9	Site 10	Avg of Tidal Water Sites
	Myk Creek at Appomattox	Cocoplum at Sumter		Myk Creek Down-stream of WTP	Myk Creek Tidal	Myk Creek Tidal	Myk Creek Tidal	Myk Creek Tidal	Myk Creek Tidal	Myk Creek Tidal	Myakka River Upstream	
Fresh Water or Tidal Water	Fresh	Fresh	Fresh	Tidal	Tidal	Tidal	Tidal	Tidal	Tidal	Tidal	Tidal	Tidal
Nitrate, Nitrite as N (mg/L)	0.085	0.015	<b>0.050</b>		0.042		0.030	0.028				<b>0.033</b>
Ammonia as N (mg/L)	0.057	0.025	<b>0.041</b>		0.039		0.026	0.035				<b>0.033</b>
Total Kjeldahl Nitrogen as N (mg/L)	1.00	0.95	<b>0.97</b>		1.00		1.04	1.05				<b>1.03</b>
Total Nitrogen as N (mg/L)	1.08	0.96	<b>1.02</b>		1.04		1.07	1.08				<b>1.06</b>
Ortho Phosphorus as P (mg/L)	0.21	0.04	<b>0.13</b>		0.14		0.15	0.18				<b>0.16</b>
Total Phosphorus as P (mg/L)	0.26	0.08	<b>0.17</b>		0.19		0.20	0.23				<b>0.21</b>
Total Suspended Solids (mg/L)	4	3	<b>3</b>		4		4	4				<b>4</b>
Turbidity (NTU)	4.7	3.0	<b>3.8</b>		4.4		4.0	3.4				<b>3.9</b>
Color Apparent (PCU)	165	109	<b>137</b>		146		151	161				<b>153</b>
Color pH SU	7.52	7.88	<b>7.70</b>		7.64		7.68	7.63				<b>7.65</b>
Chlorophyll a - Pheo Corrected (ug/L)	2.31	17.89	<b>10.10</b>		12.04		21.07	15.91				<b>16.34</b>
Specific Conductance (mmhos)/cm	0.65	0.80	<b>0.73</b>		2.86		4.01	5.73				<b>4.20</b>
Salinity - Lab (PSU)	0.3	0.3	<b>0.3</b>		1.5		2.2	3.2				<b>2.3</b>
Overall Depth (meters)				1.3	1.3	2.0	2.6	3.3	5.0	3.4	2.2	<b>2.6</b>
Depth of Measurement (meters)				0.9	0.9	1.0	1.0	1.0	1.0	1.0	1.0	<b>1.0</b>
Field Salinity (PSU)				2.2	2.7	3.2	2.9	3.8	4.2	4.1	5.2	<b>3.5</b>
Field Specific Conductance (mmhos)/cm				3.78	4.74	5.73	5.10	6.60	7.30	7.05	8.94	<b>6.16</b>
Field Temperature (°C)				25.5	25.8	25.9	25.6	25.6	25.6	25.6	25.6	<b>25.7</b>
Field pH (SU)				7.2	7.2	7.3	7.3	7.2	7.2	7.1	7.2	<b>7.2</b>
Field Dissolved Oxygen (mg/L)				5.7	5.3	5.6	6.0	5.6	5.2	5.3	5.4	<b>5.5</b>
Percent Saturation of D.O. (%)				70	65	70	74	69	65	66	67	<b>68</b>
Secchi Depth (meters)				0.96	0.89	0.98	0.99	1.02	1.01	1.03	0.99	<b>0.98</b>

## Hydrobiological Data - Site 1 Total Ammonia Nitrogen

### Comparison with Regulatory Limit

Date	1/7/15	2/4/15	3/4/15	4/2/15	5/6/15	6/11/15	7/9/15	8/6/15	9/10/15	10/8/15	11/5/15	12/3/15	2015 Max	2015 Min	2015 Arith Mean	2015 Geom Mean	2014 Geom Mean	2013 Geom Mean	Max of last 3 year Geom Mean	All Years Geom Mean	All Years Arith Mean
Ammonia as N (mg/L)	0.049	0.034	0.046	0.035	0.036	0.07	0.033	0.111	0.083	0.088	0.057	0.043	0.111	0.033	0.057	0.053	0.056	0.053	0.056	0.049	0.057
Color pH SU	7.58	7.50	7.55	7.42	7.42	7.68	7.71	7.58	7.21	7.37	7.58	7.60	7.71	7.21	7.52	7.52	7.44	7.16	7.52	7.42	7.42
Site 3 Temperature	22.40	18.70	23.20	21.70	26.60	27.90	31.30	28.74	29.10	26.40	26.50	23.60	31.30	18.70	25.51	25.26	24.45	25.10	25.26	24.89	25.27
Total Ammonia Nitrogen (TAN) limit (using Site 3 Temp.) *	1.109	1.515	1.084	1.334	0.973	0.702	0.545	0.737	0.952	1.023	0.851	1.007	1.515	0.545	0.986	0.952	1.059	1.170	1.170	1.019	1.061
Exceedence of Limit	< Limit	< Limit	< Limit	< Limit	< Limit	< Limit	< Limit	< Limit	< Limit	< Limit	< Limit	< Limit	< Limit	< Limit	< Limit	< Limit	< Limit	< Limit	< Limit	< Limit	< Limit
*FAC 62.302.530 Effective 2/17/16																					

## Hydrobiological Data - Site 2 Total Ammonia Nitrogen

### Comparison with Regulatory Limit

Date	1/7/15	2/4/15	3/4/15	4/2/15	5/6/15	6/11/15	7/9/15	8/6/15	9/10/15	10/8/15	11/5/15	12/3/15	2015 Max	2015 Min	2015 Arith Mean	2015 Geom Mean	2014 Geom Mean	2013 Geom Mean	Max of last 3 year Geom Mean	All Years Geom Mean	All Years Arith Mean
Ammonia as N (mg/L)	0.0075	0.0095	0.005	0.005	0.005	0.005	0.005	0.0585	0.0505	0.1245	0.0155	0.005	0.125	0.005	0.025	0.012	0.017	0.027	0.027	0.016	0.035
Color pH SU	7.80	7.88	7.84	7.91	8.23	7.91	8.05	7.77	7.71	7.59	7.90	8.04	8.23	7.59	7.88	7.88	7.82	7.63	7.88	7.832	7.84
Site 3 Temperature	22.40	18.70	23.20	21.70	26.60	27.90	31.30	28.74	29.10	26.40	26.50	23.60	31.30	18.70	25.51	25.26	24.45	25.10	25.26	24.89	25.27
Total Ammonia Nitrogen (TAN) limit (using Site 3 Temp.) *	0.876	1.004	0.786	0.790	0.357	0.533	0.351	0.600	0.628	0.849	0.591	0.585	1.004	0.351	0.663	0.632	0.703	0.753	0.753	0.672	0.716
Exceedence of Limit	< Limit	< Limit	< Limit	< Limit	< Limit	< Limit	< Limit	< Limit	< Limit	< Limit	< Limit	< Limit	< Limit	< Limit	< Limit	< Limit	< Limit	< Limit	< Limit	< Limit	< Limit
*FAC 62.302.530 Effective 2/17/16																					

## Surface Water Regulatory Standards

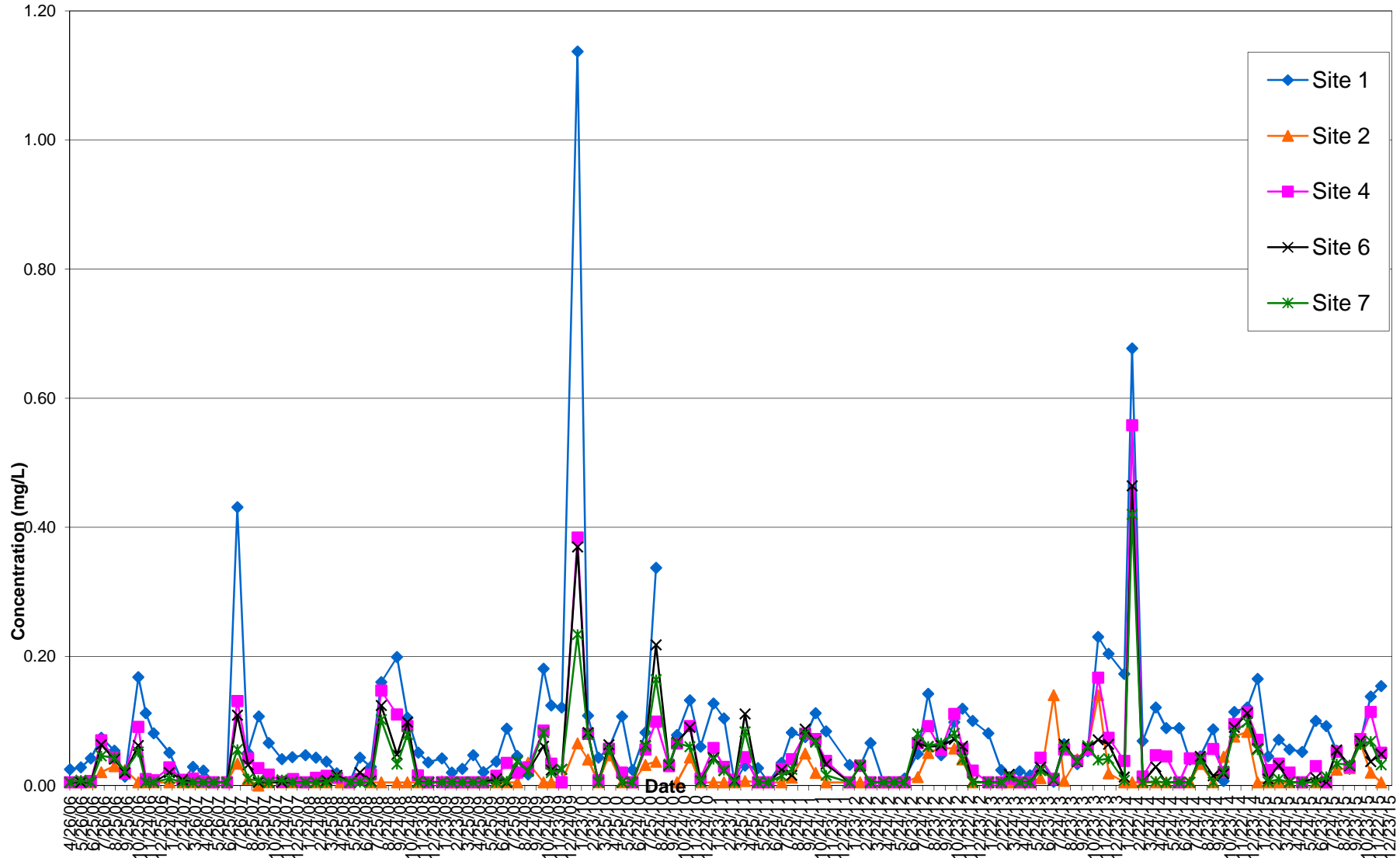
Parameter	Class I Potable Surface Water Supply FAC 62-302.530 Effective 2/17/16	Class III Fresh Surface Waters FAC 62-302.530 Effective 8/1/13	Numeric Nutrient Criteria (NNC) for Freshwater Streams West Central FAC 62-302.531 Effective 2/17/16	Numeric Nutrient Criteria (NNC) for Estuarine for Tidal Myakka River FAC 62-302.532 Effective 2/17/16
Nitrate as N (mg/L)	≤ 10 mg/L or <NNC			
<b>Total Ammonia Nitrogen (TAN) limit (mg/L) *</b>	The 30-day average TAN value shall not exceed the average of the values calculated from the following equation, with no single value exceeding 2.5 times the value from the equation:  $30 - \text{day Average} = 0.8876 \times \left( \frac{0.0278}{1 + 10^{7.688 - \text{pH}}} + \frac{1.1994}{1 + 10^{\text{pH} - 7.688}} \right) \times (2.126 \times 10^{0.028 \times (20 - \text{MAX}(T,7))})$ T and pH are defined as the paired temperature (°C) and pH associated with the TAN sample. For purposes of total ammonia nitrogen criterion calculations, pH is subject to the range of 6.5 to 9.0. The pH shall be set at 6.5 if measured pH is < 6.5 and set at 9.0 if the measured pH is > 9.0.			
Total Nitrogen as N (mg/L)			1.65 mg/L Annual Geom Mean	1.02 mg/L Annual Mean
Total Phosphorus as P (mg/L)			0.49 mg/L Annual Geom Mean	0.31 mg/L Annual Mean
Turbidity (NTU)	≤ 29 NTU above background conditions			
Chlorophyll a - Pheo Corrected (ug/L)				11.7 mg/L Annual Mean
Specific Conductance (mmhos)/cm	Shall not be increased more that 50% above background or to 1.275 mmhos/cm whichever is greater			
Field pH (SU)	Shall not vary more than one unit above or below natural background provided that the pH is not lowered to less than 6 units or raised above 8.5 units. If natural background is less than 6 units, the pH shall not vary below natural background or vary more than one unit above natural background. If natural background is higher than 8.5 units, the pH shall not vary above natural background or vary more than one unit below background.	Shall not vary more than one unit above or below natural background of predominantly fresh waters and coastal waters as defined in paragraph 62-302.520(3)(b), F.A.C. or more than two-tenths unit above or below natural background of open waters as defined in paragraph 62-302.520(3)(f), F.A.C., provided that the pH is not lowered to less than 6 units in predominantly fresh waters, or less than 6.5 units in predominantly marine waters, or raised above 8.5 units. If natural background is less than 6 units, in predominantly fresh waters or 6.5 units in predominantly marine waters, the pH shall not vary below natural background or vary more than one unit above natural background of predominantly fresh waters and coastal waters, or more than two-tenths unit above natural background of open waters. If natural background is higher than 8.5 units, the pH shall not vary above natural background or vary more than one unit below natural background of predominantly fresh waters and coastal waters, or more than two-tenths unit below natural background of open waters.		
Percent D.O. Saturation (%)	FAC 62-302.533 Effective 2-17-16 for Peninsula bioregion - No more than 10% of daily average % DO Saturation shall be below 38% Saturation in fresh waters, 42% Saturation in marine waters			
* Standard is proposed to be deleted in FDEP June 4, 2015 revision. New standard proposed for Total Ammonia Nitrogen based on relationship with Temperature and pH				



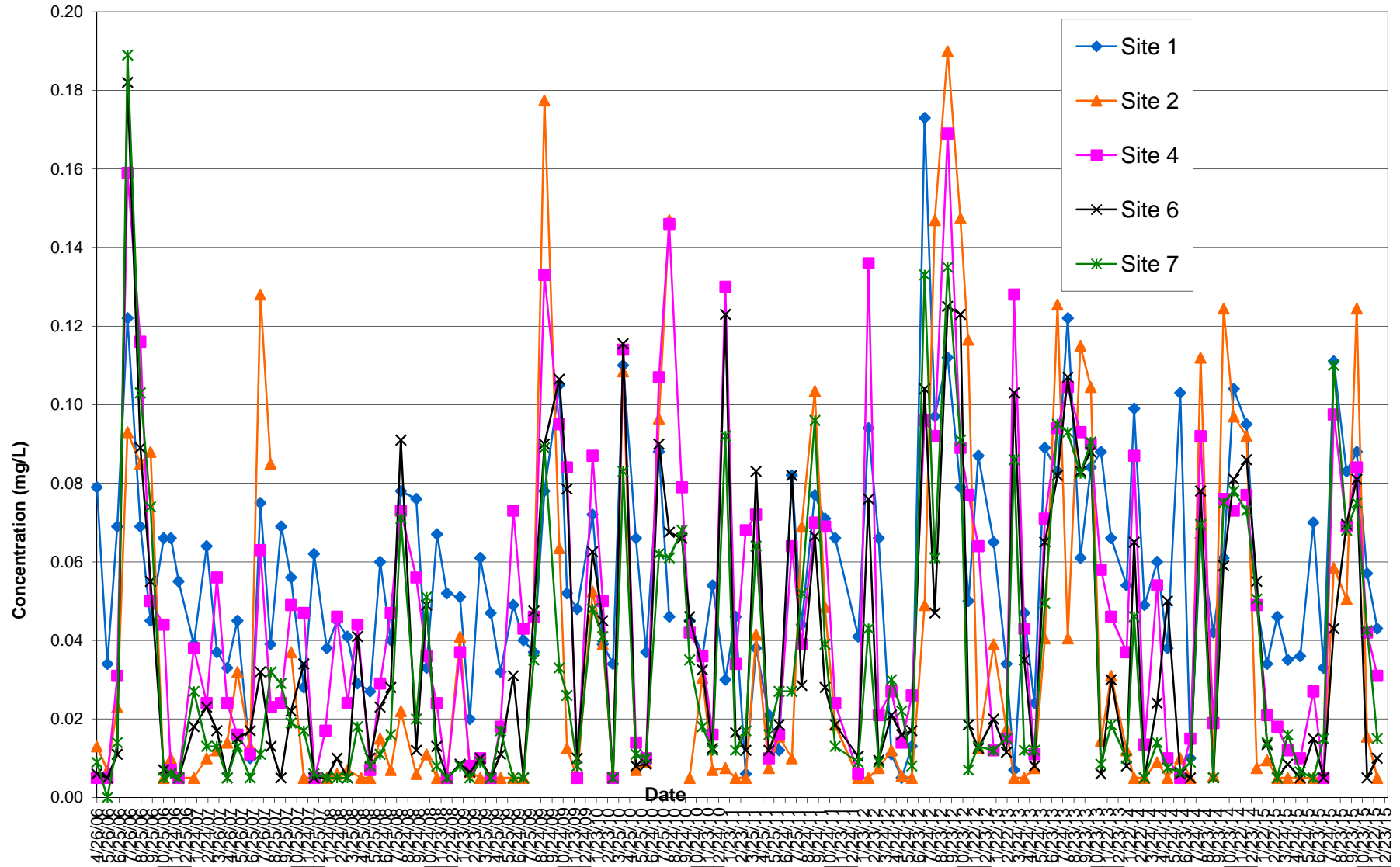
# APPENDIX B

## WATER QUALITY GRAPHS

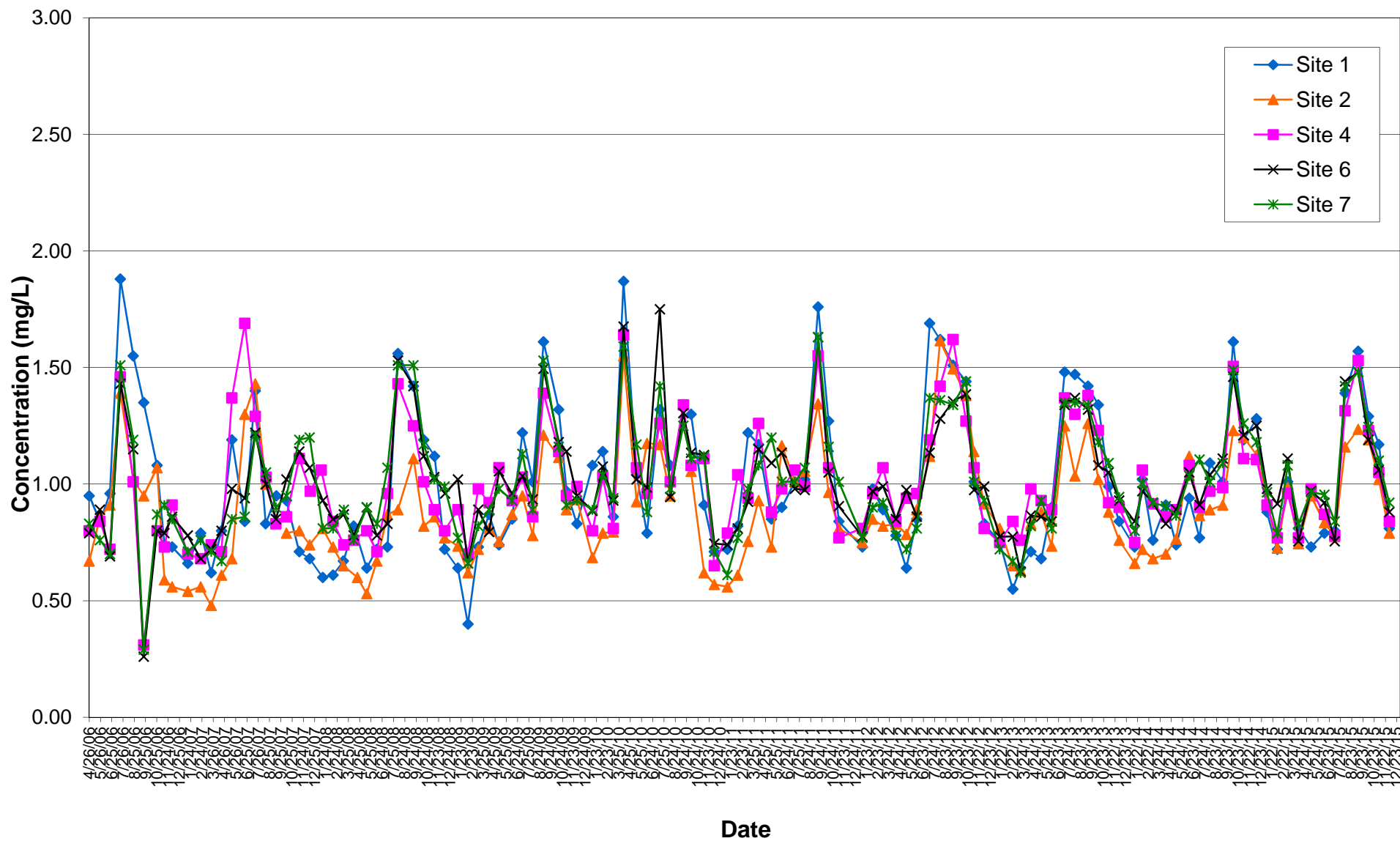
# Nitrate, Nitrite as N



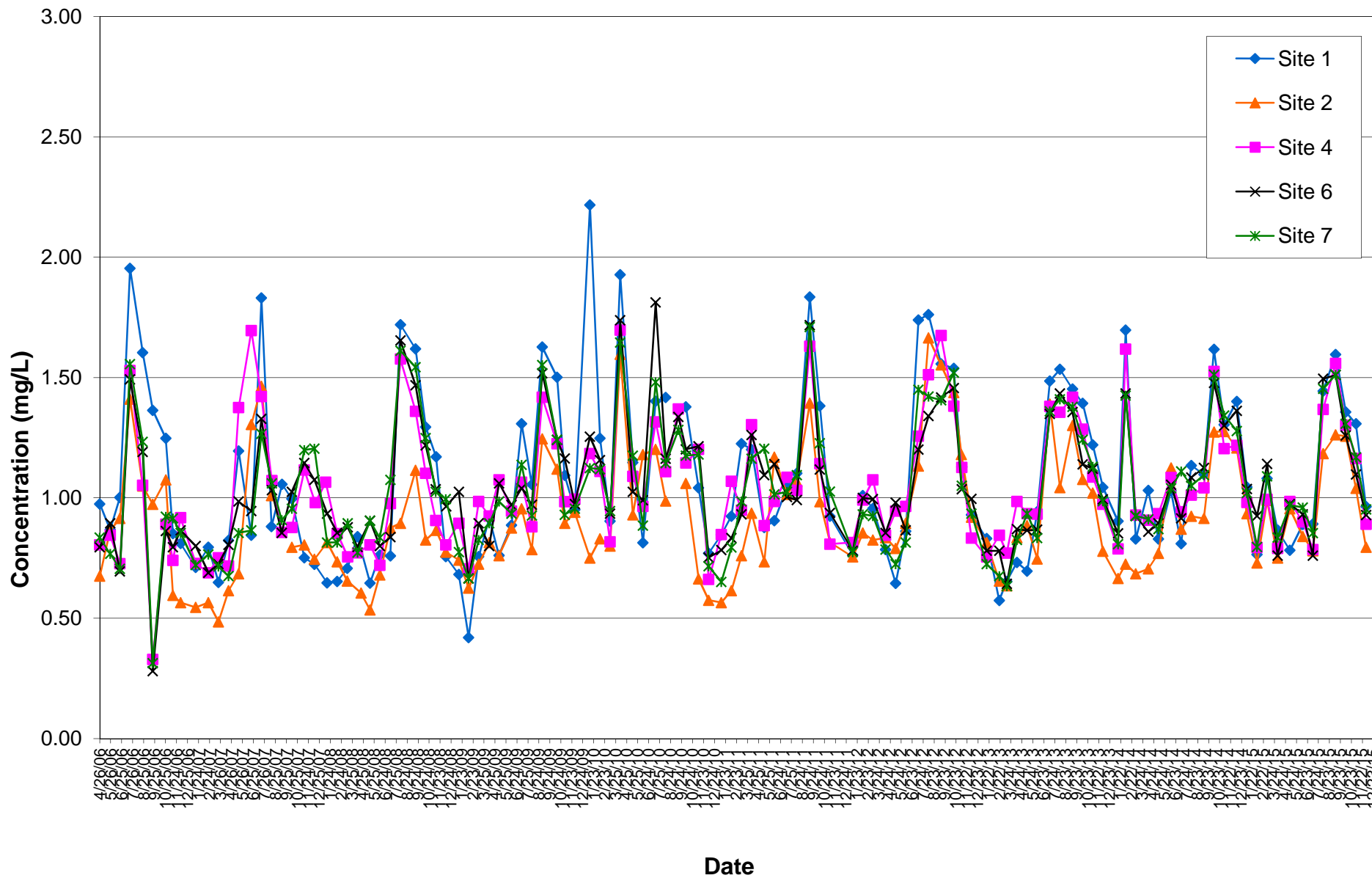
# Ammonia as N



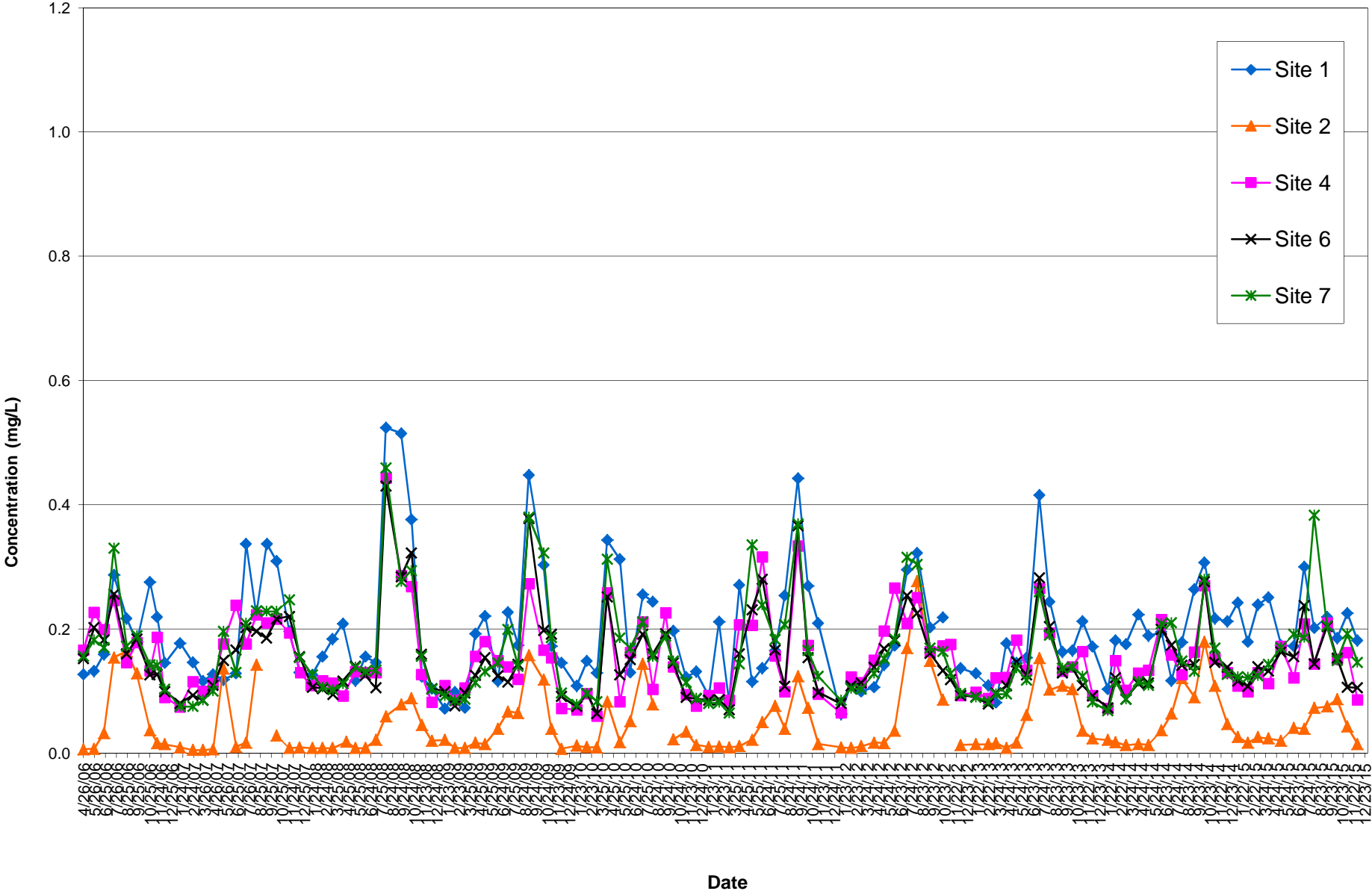
# Total Kjeldahl Nitrogen as N



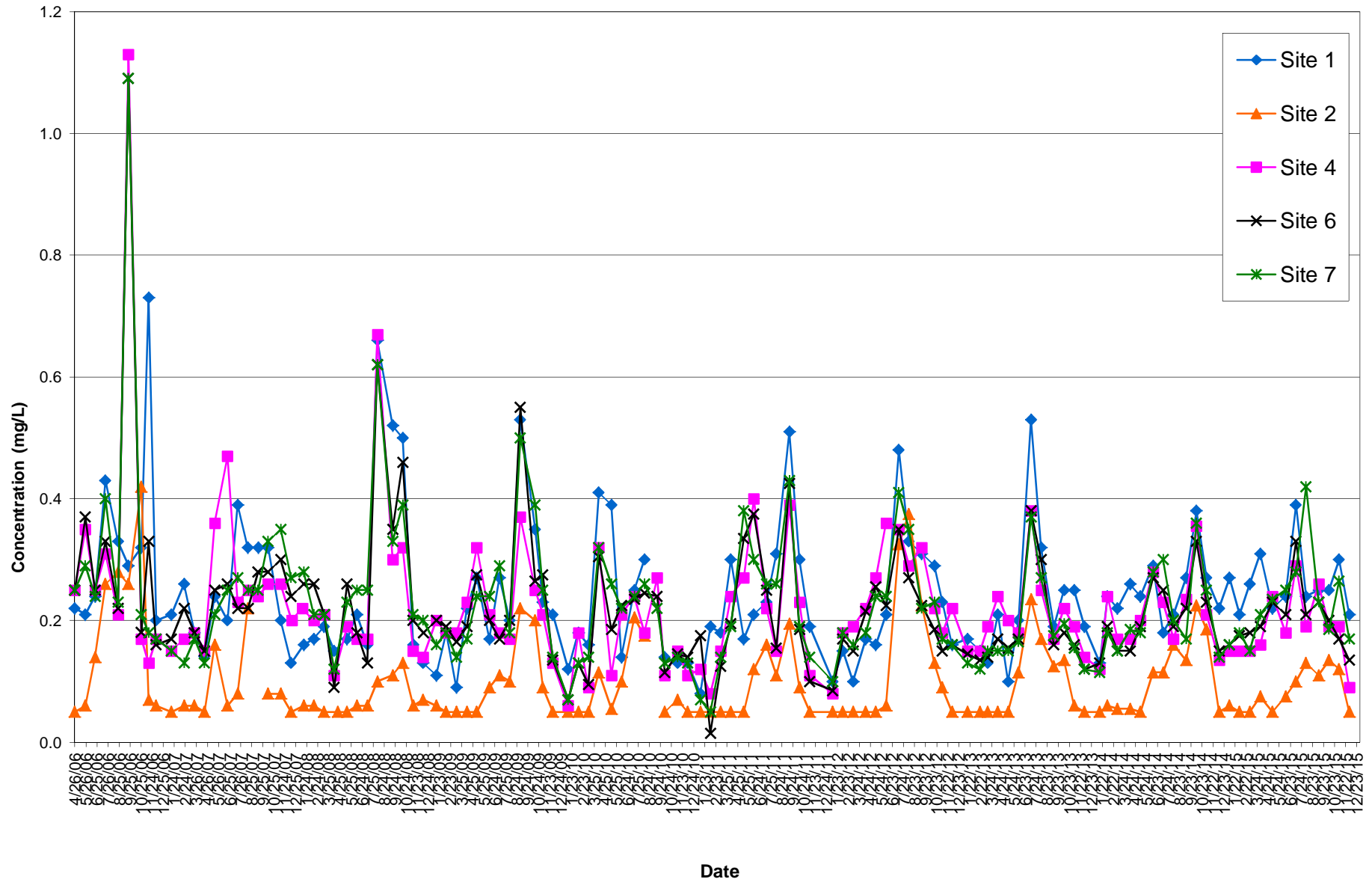
# Total Nitrogen as N



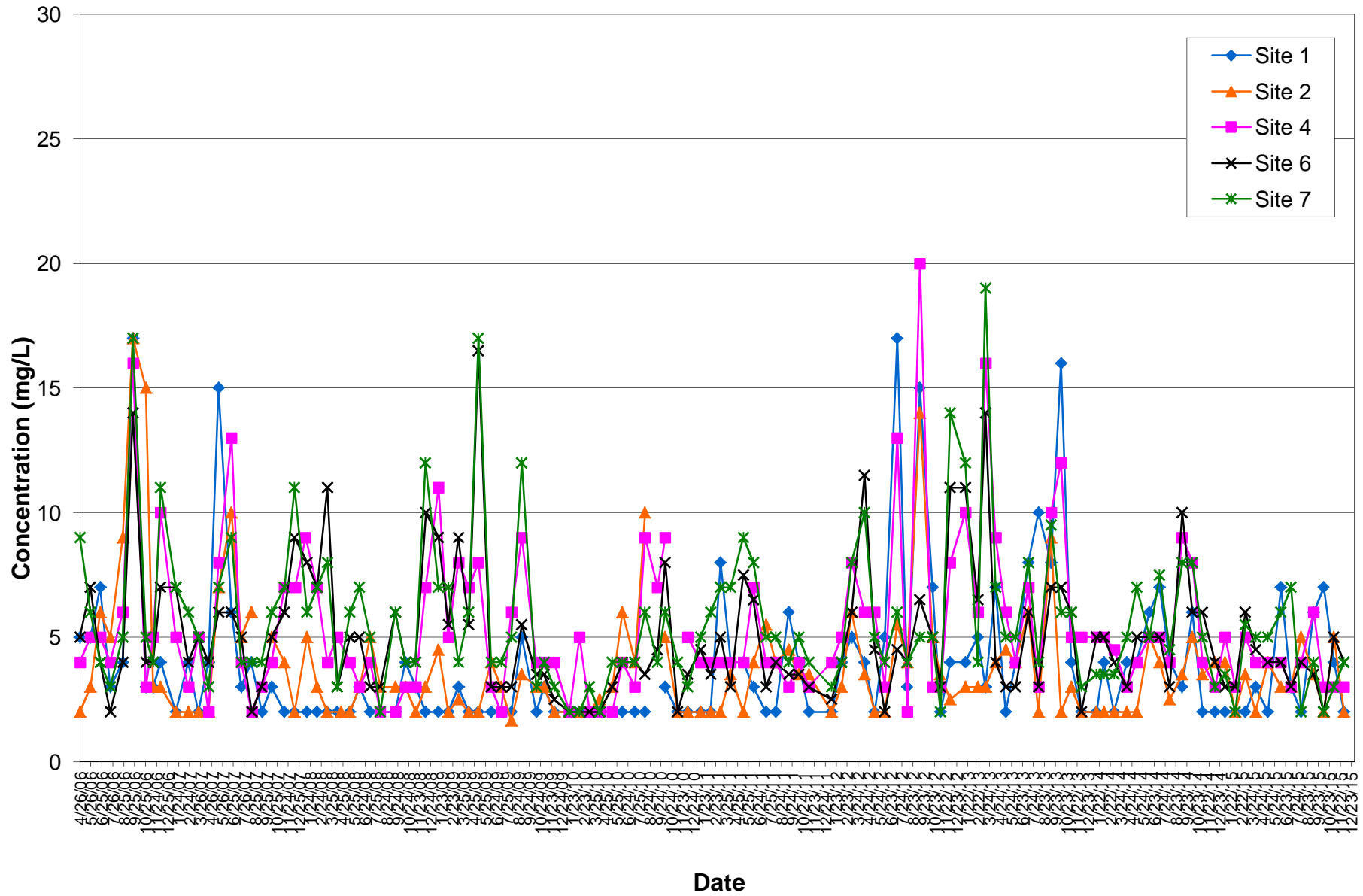
# Ortho Phosphorus as P



# Total Phosphorus as P

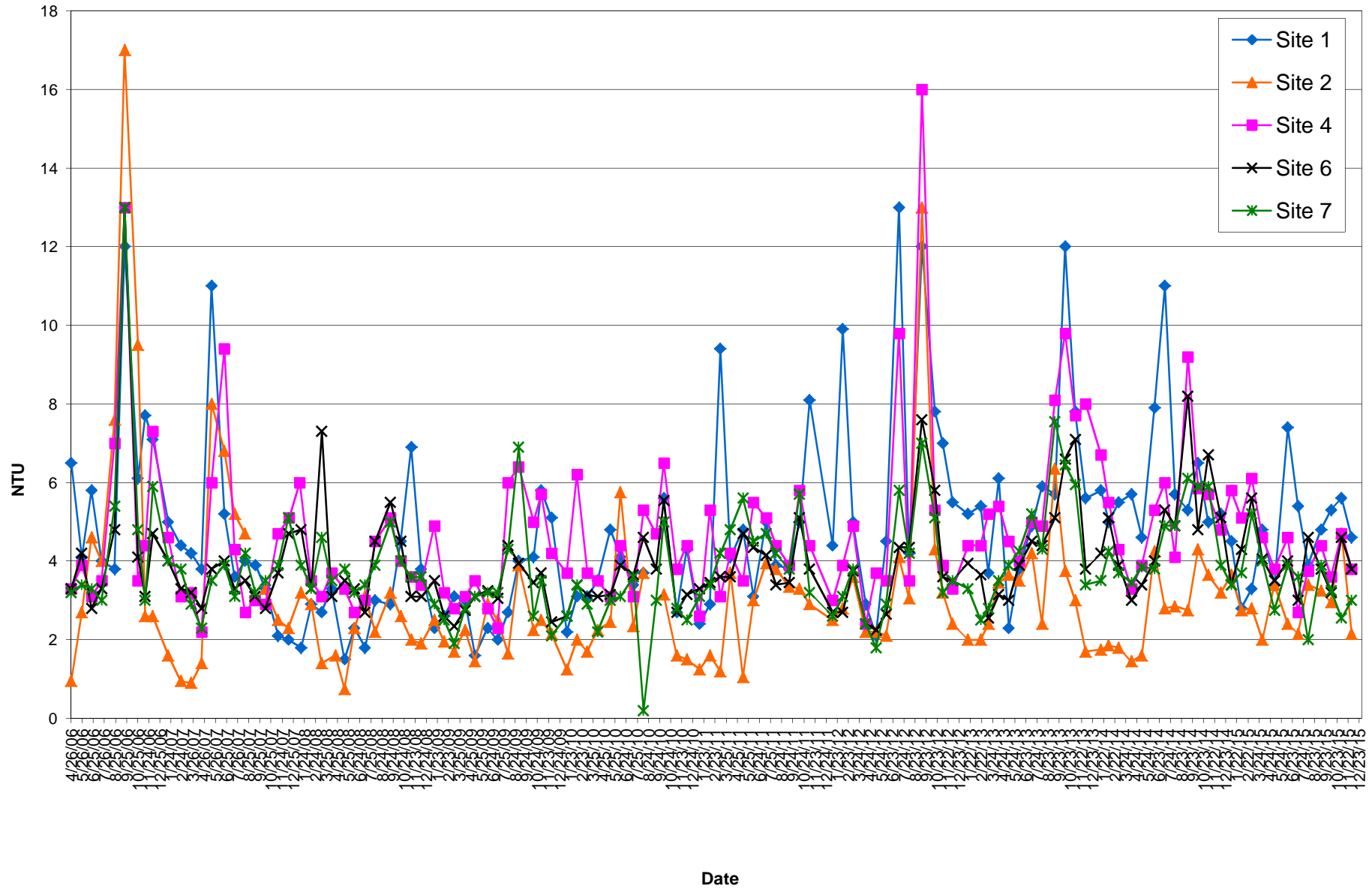


# Total Suspended Solids

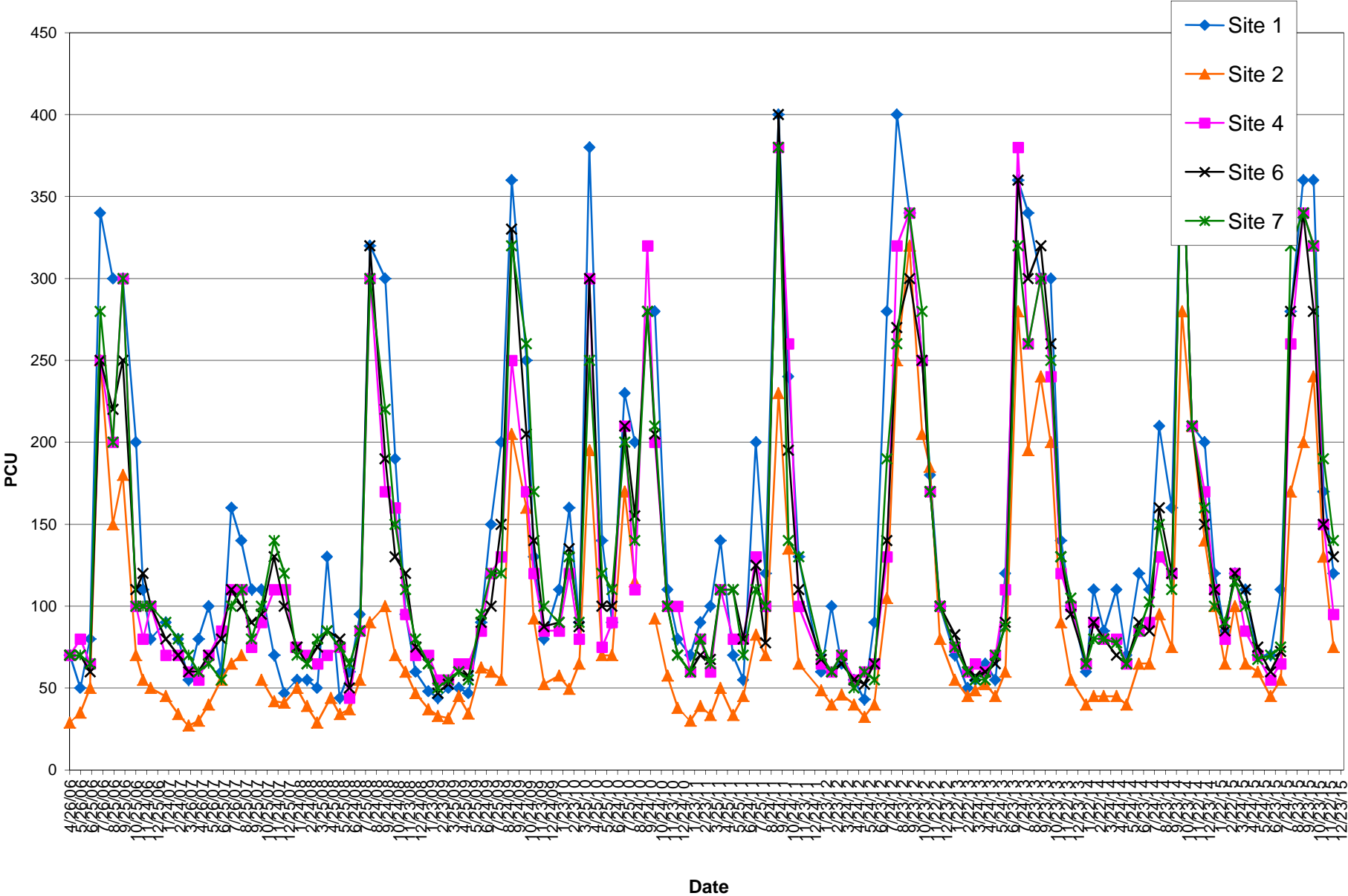




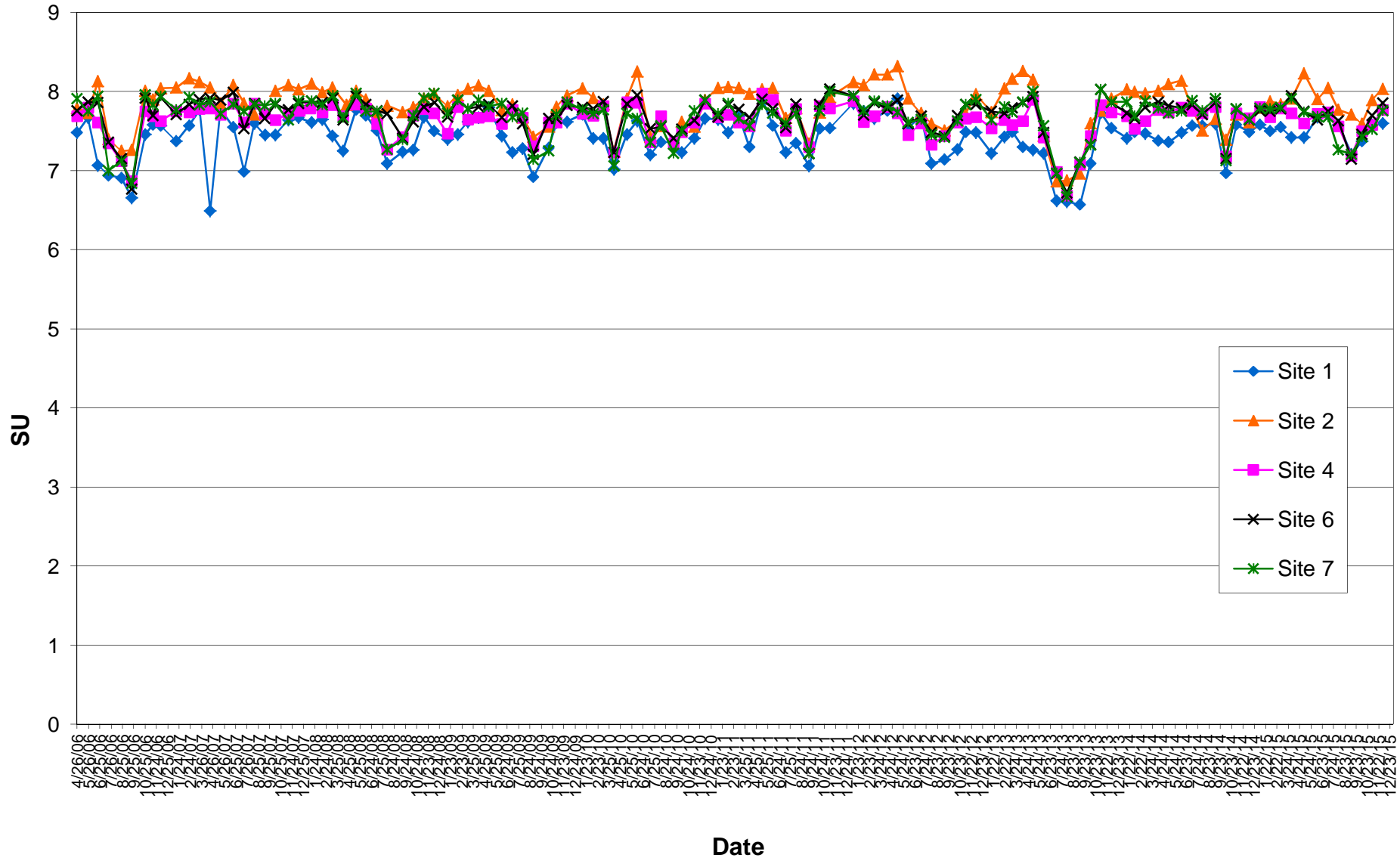
# Turbidity



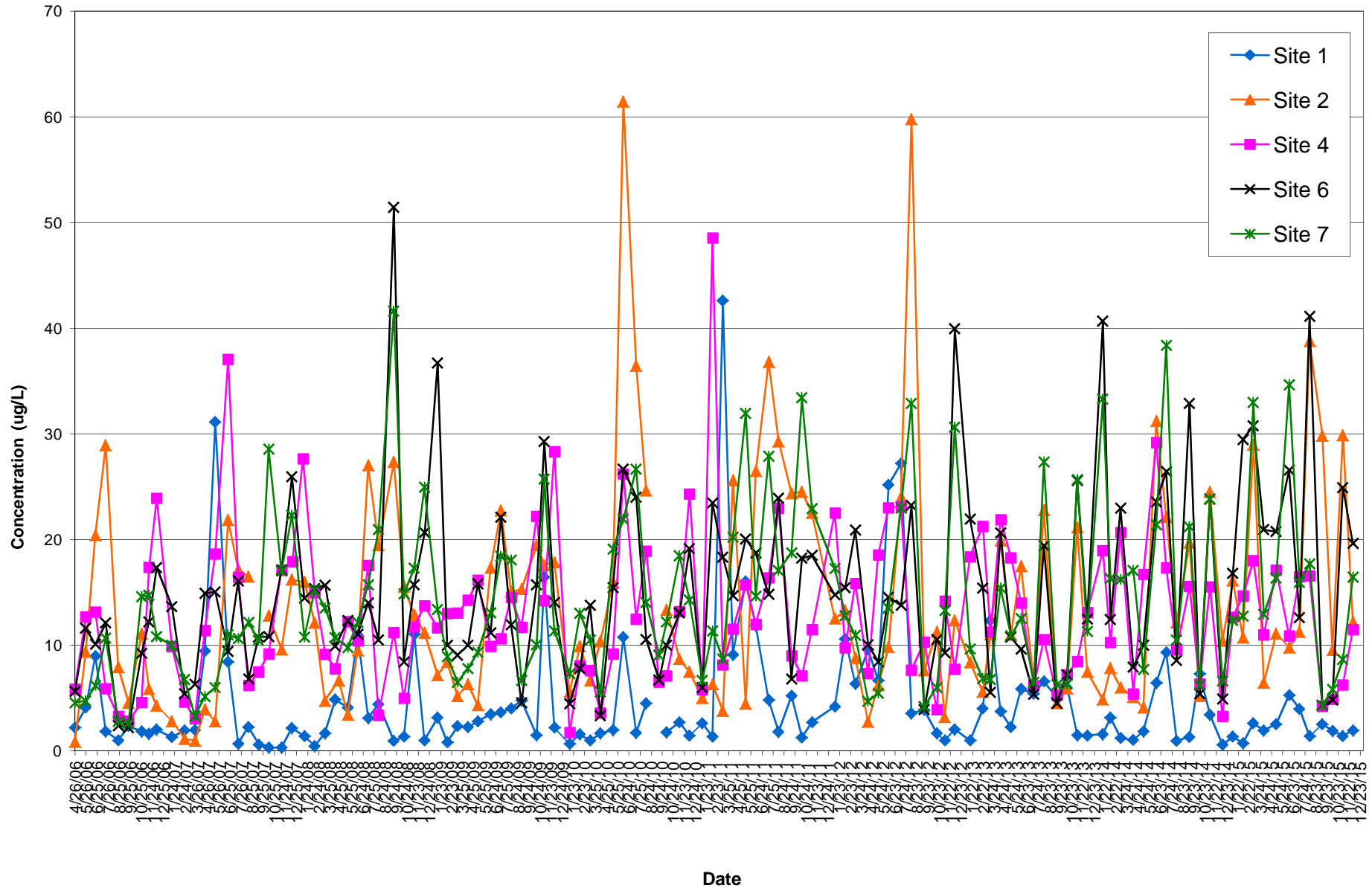
# Color Apparent



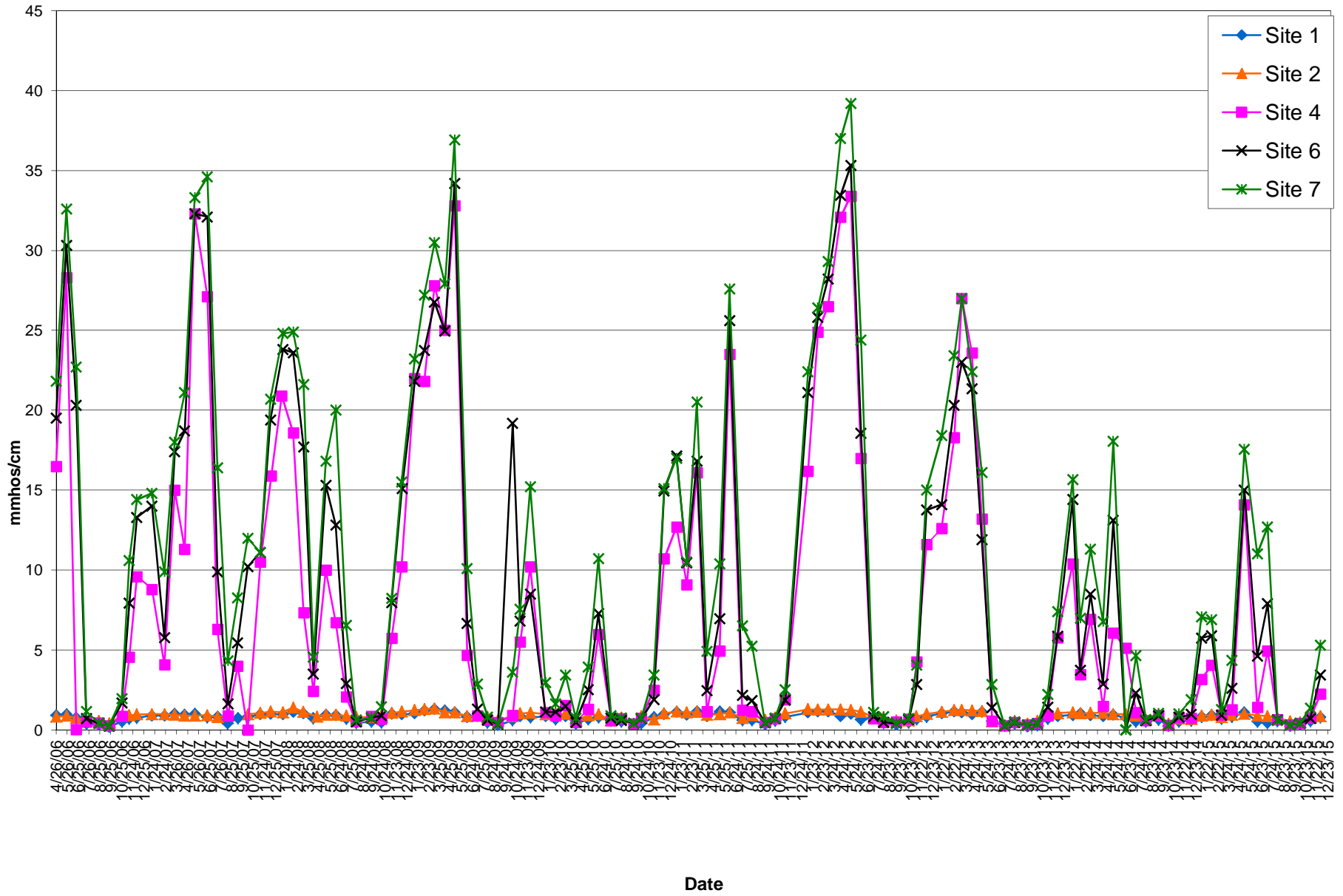
# Color pH



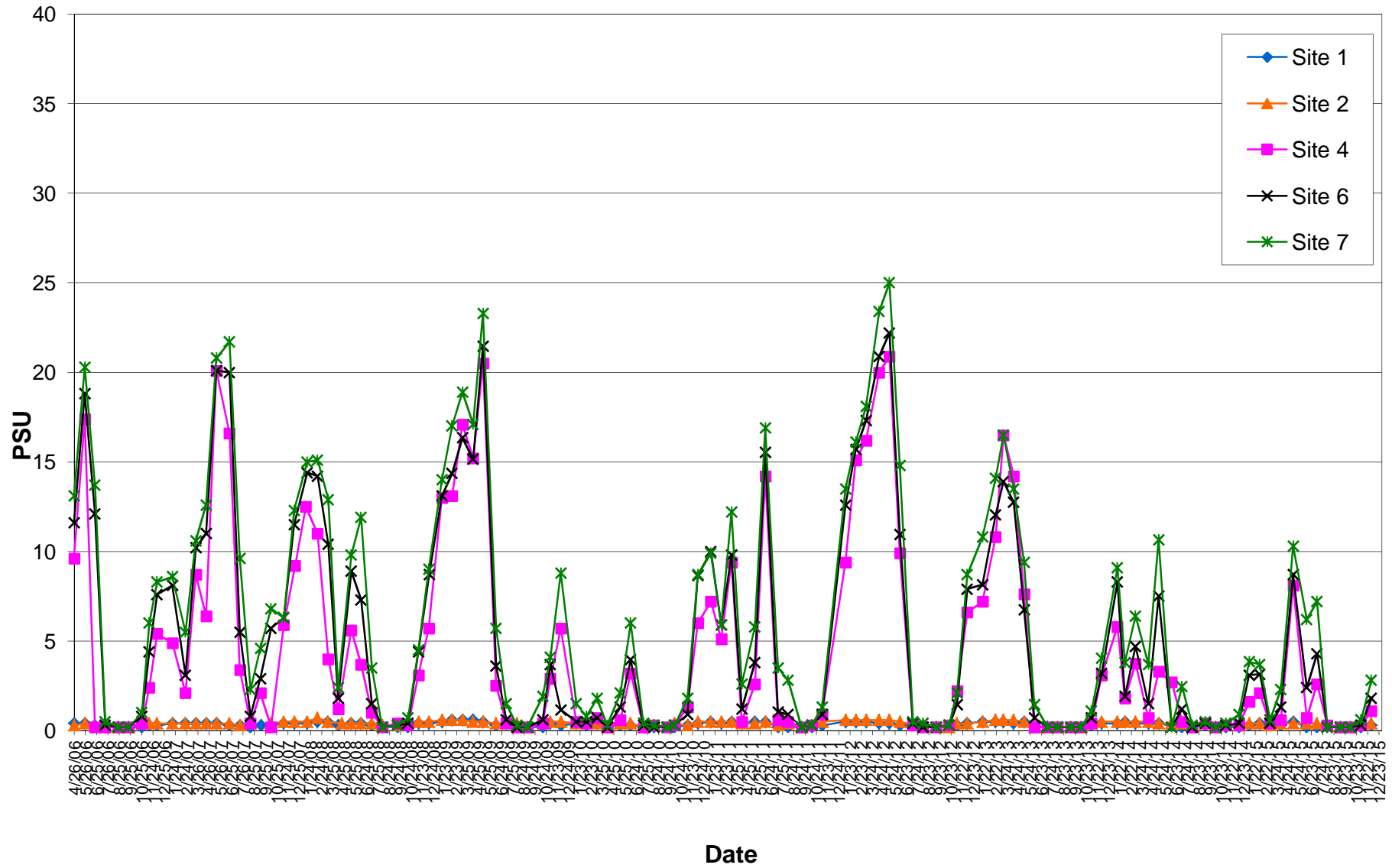
# Chlorophyll a - Pheo Corrected



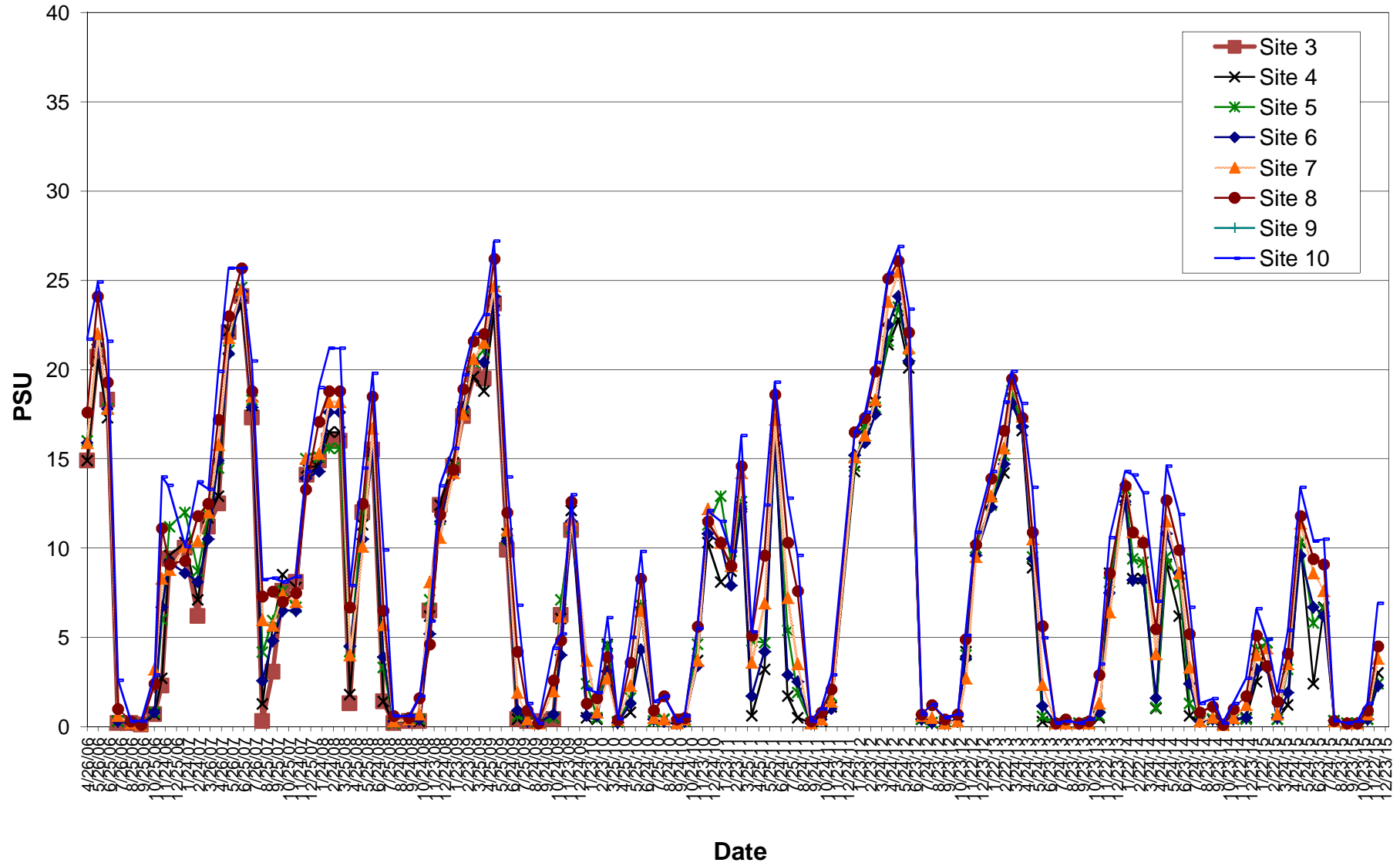
# Specific Conductance



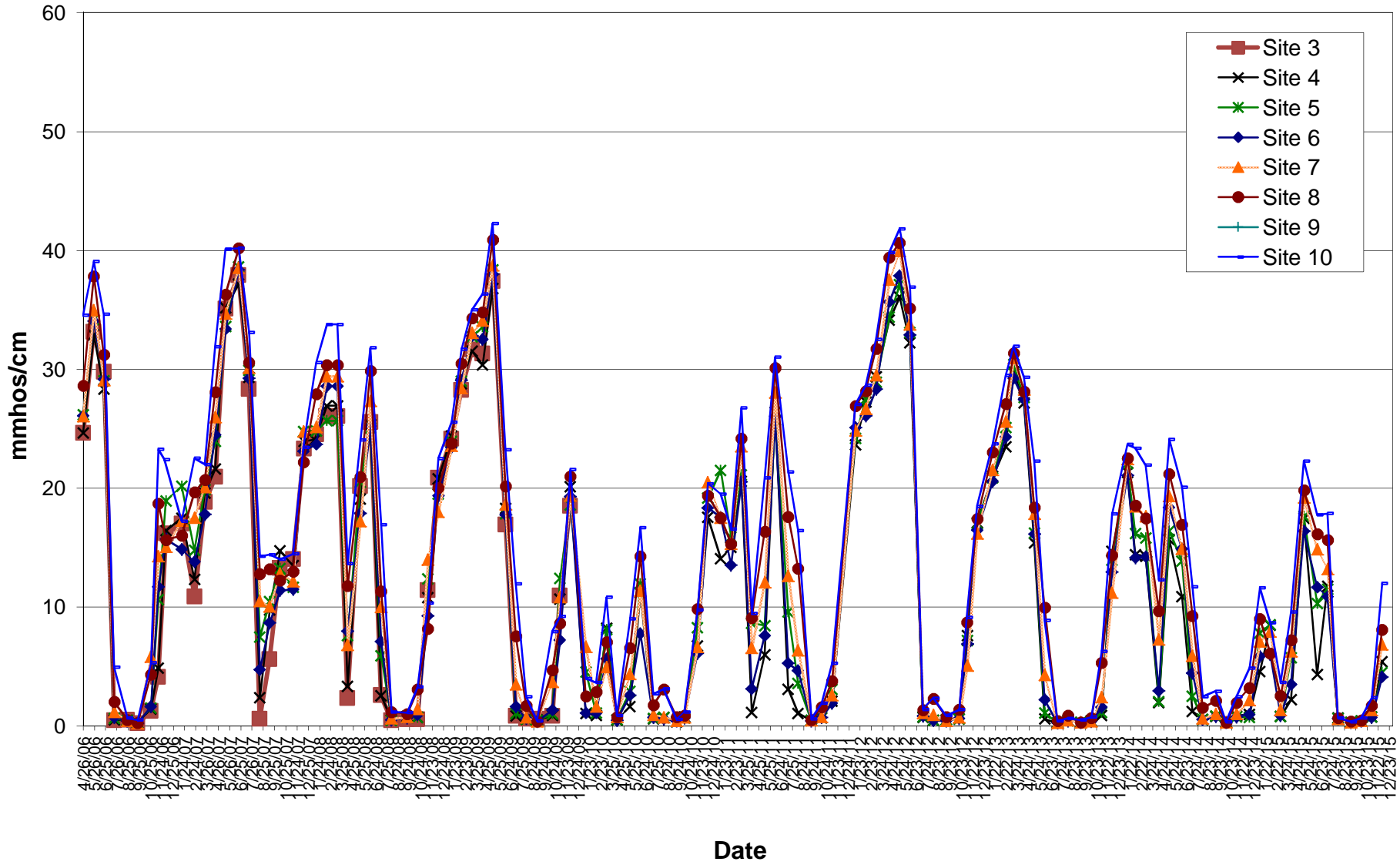
# Salinity - Lab



# Field Salinity

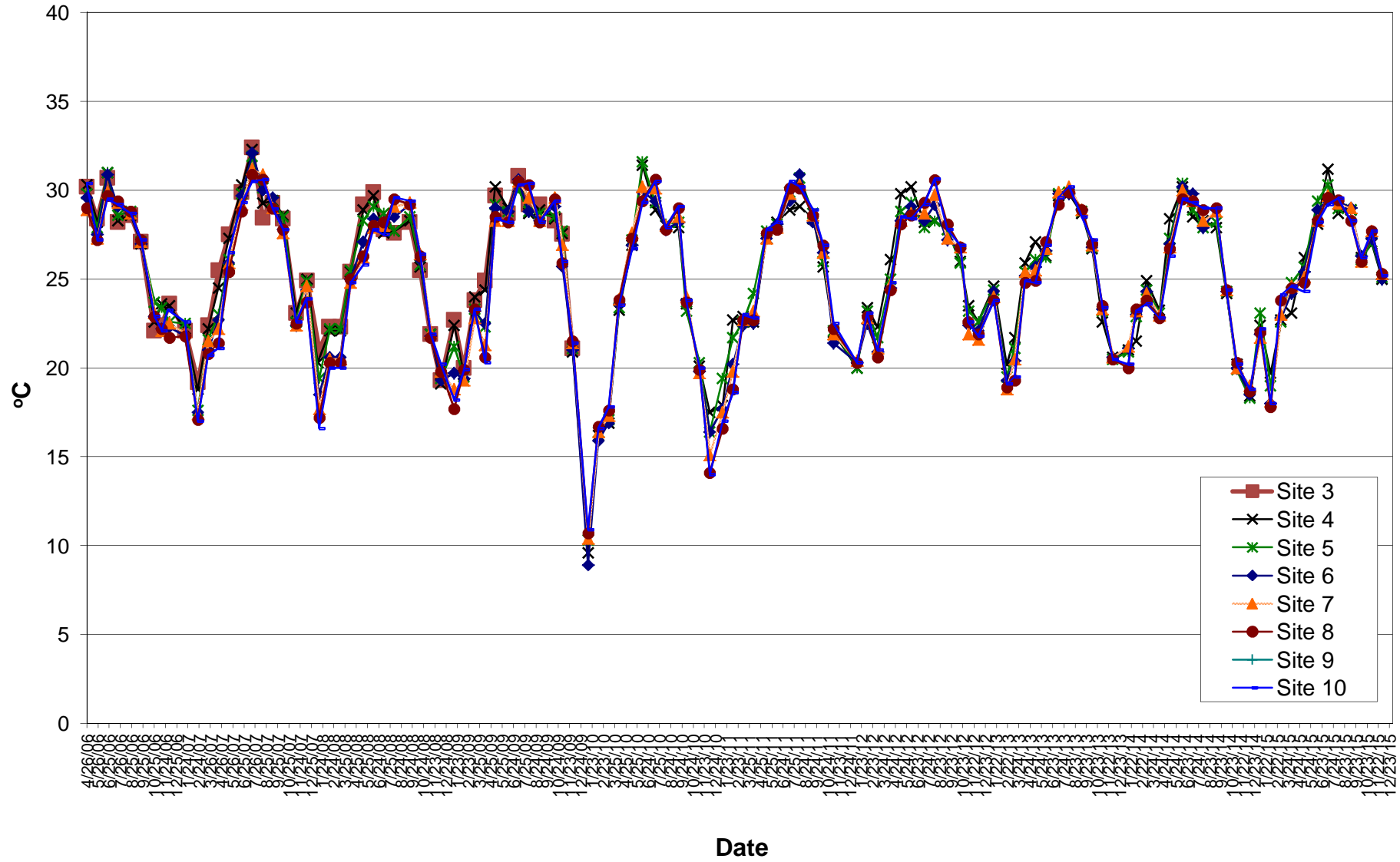


# Field Specific Conductance

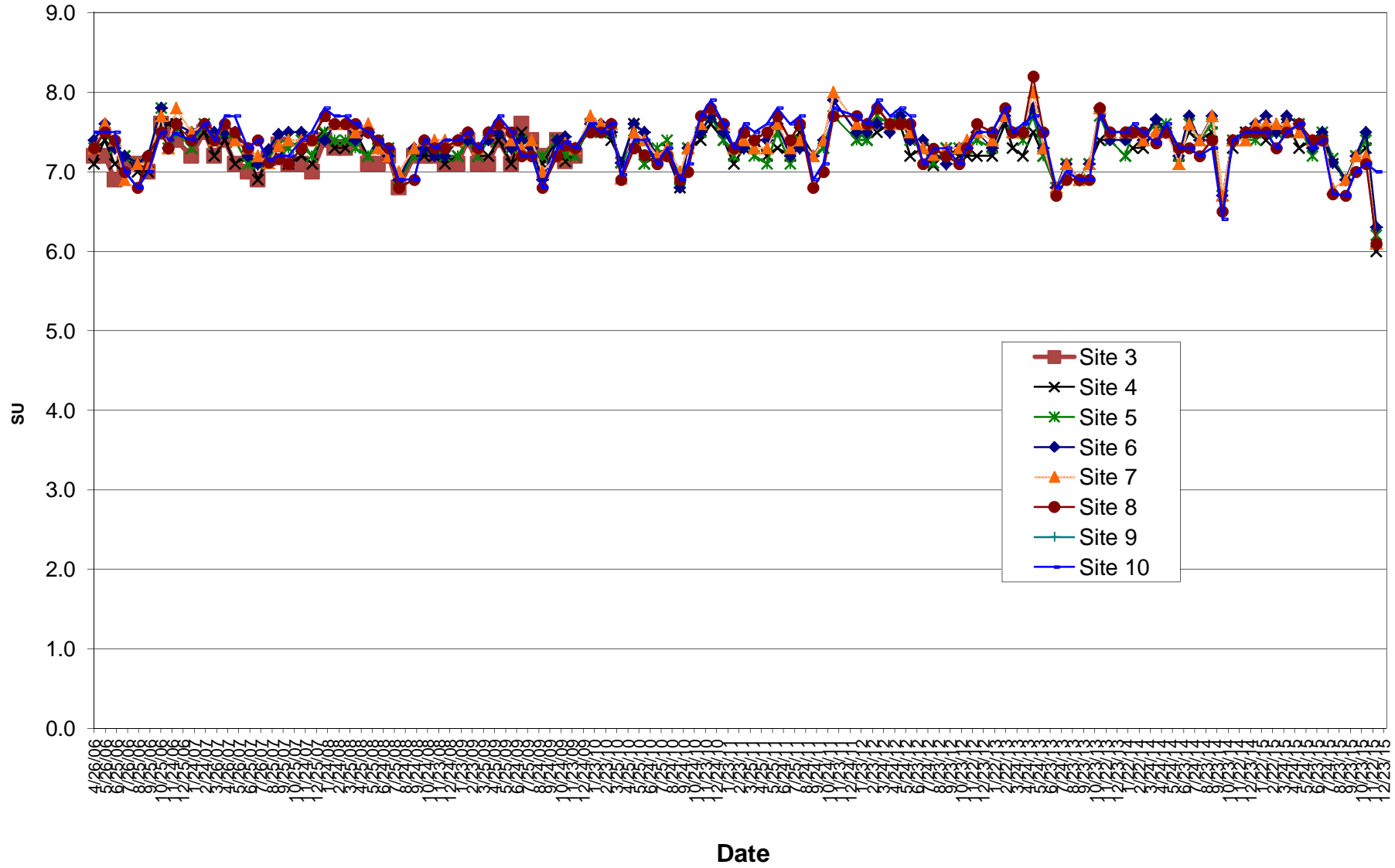




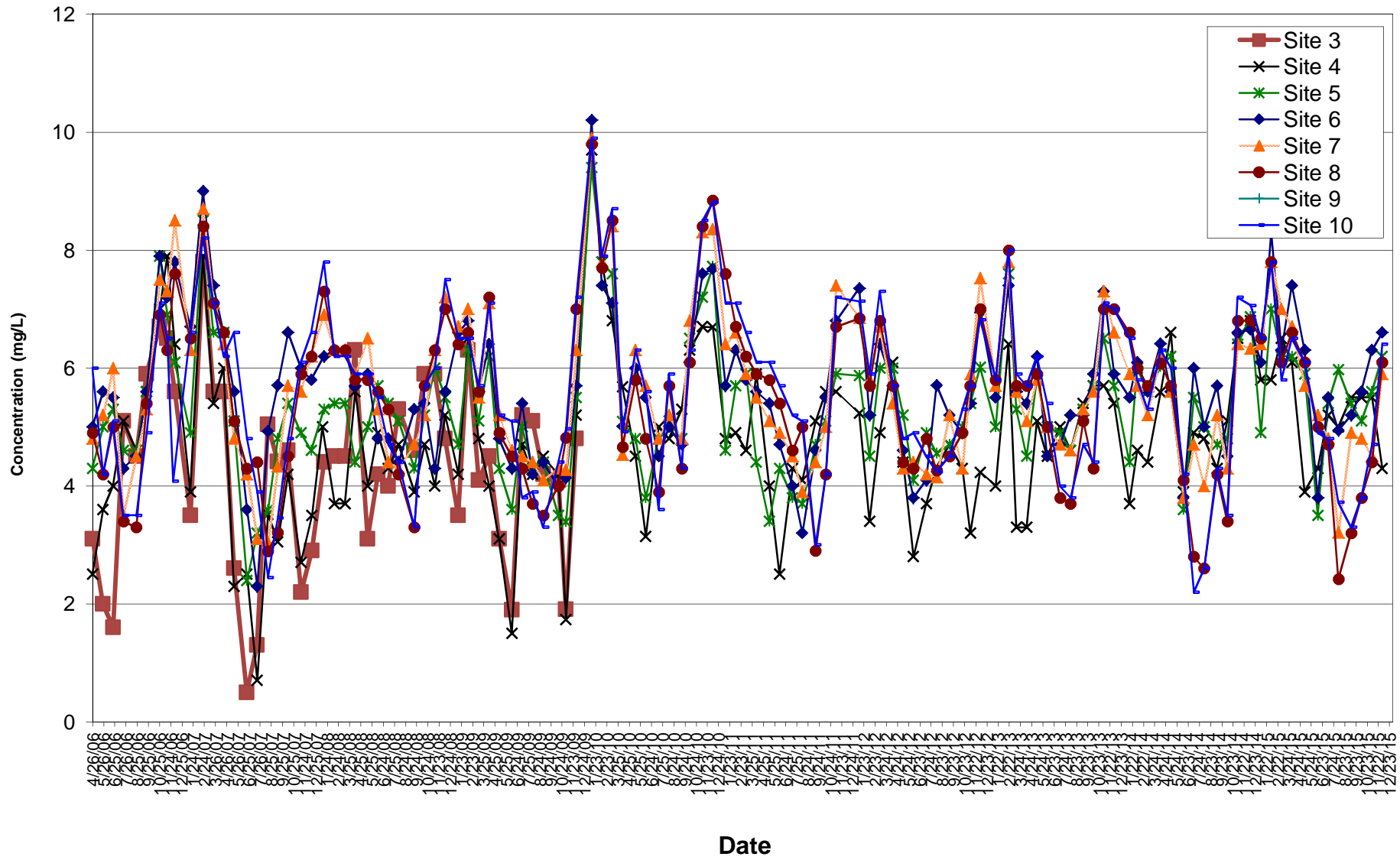
# Field Temperature



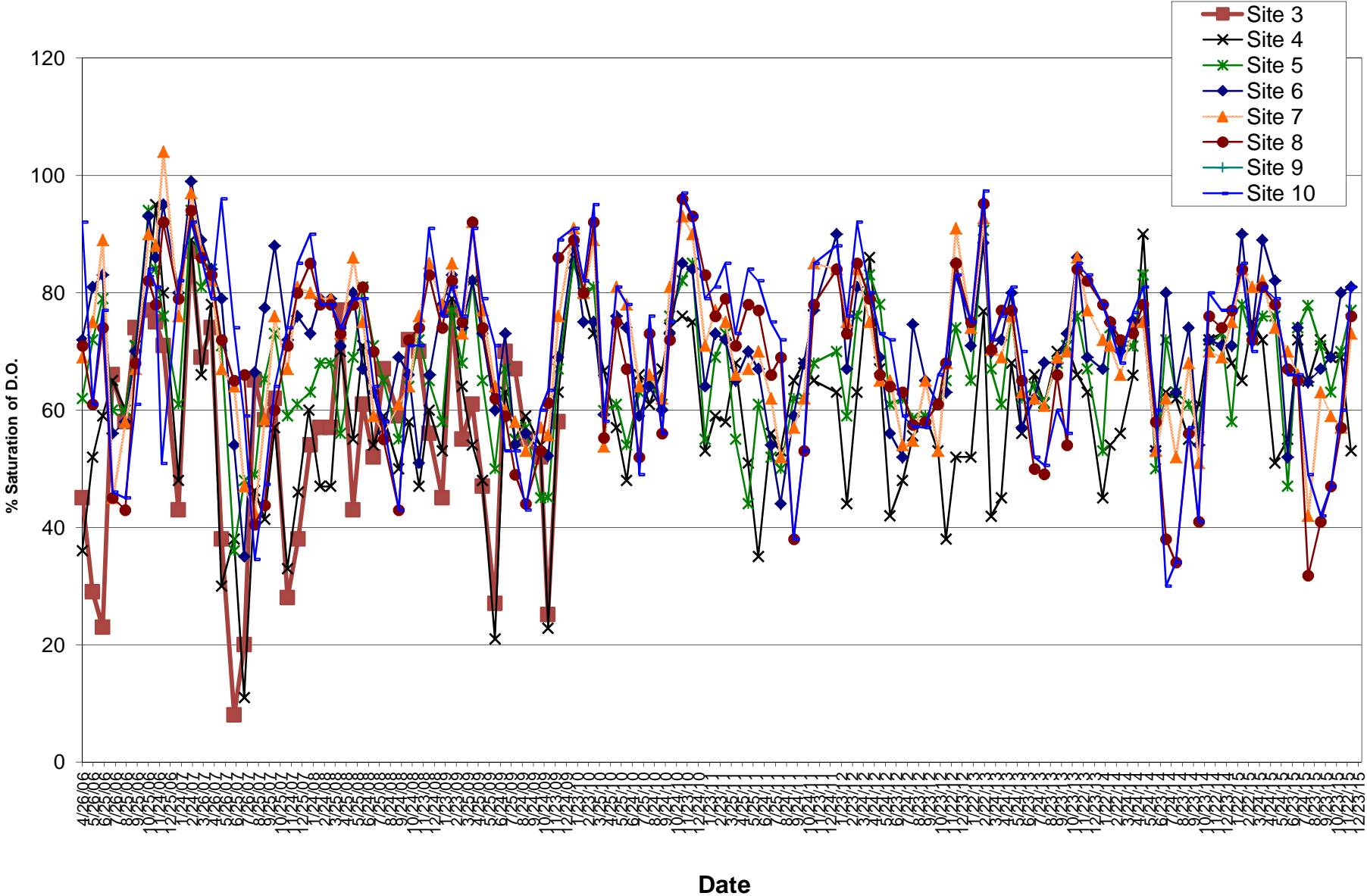
# Field pH



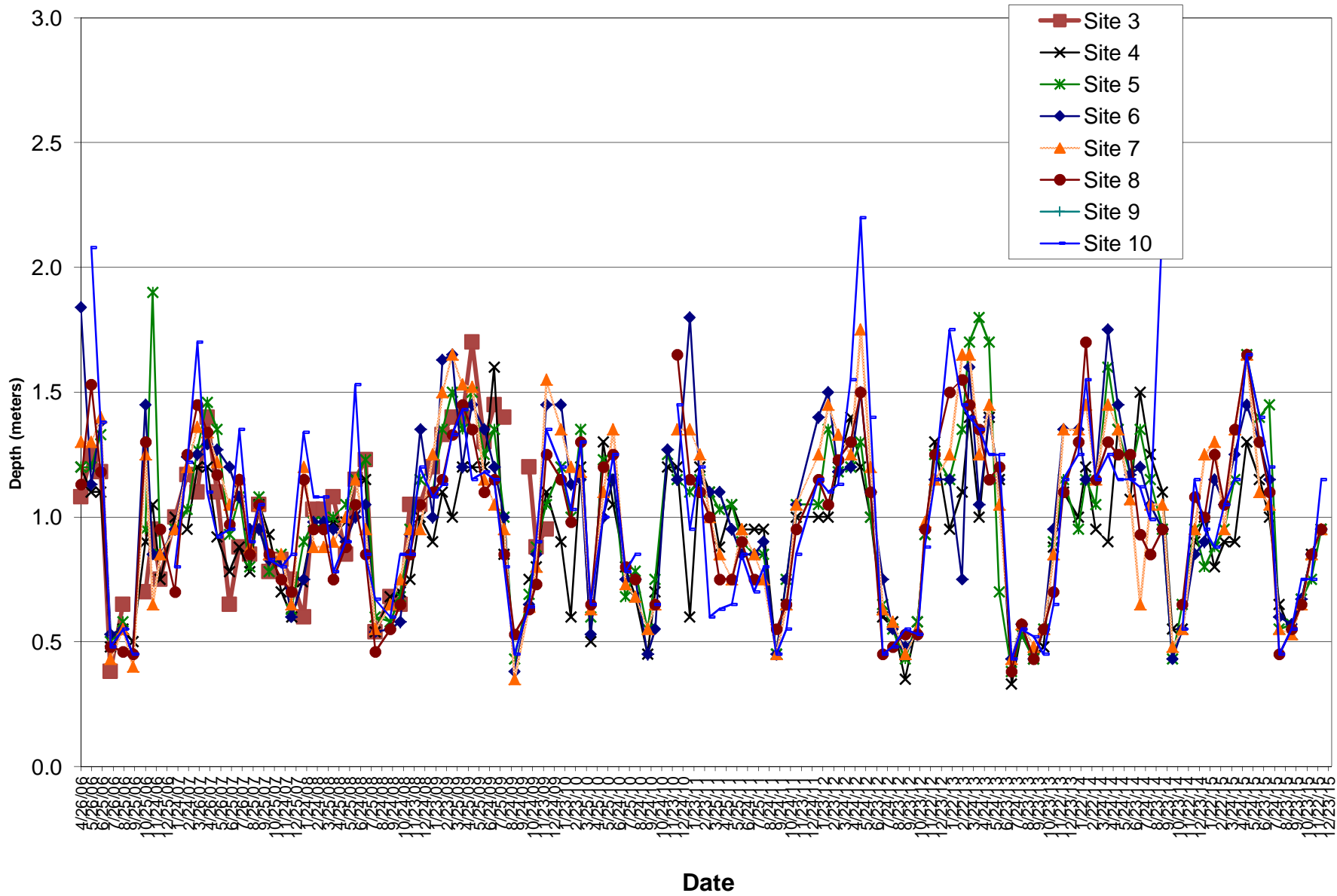
# Field Dissolved Oxygen



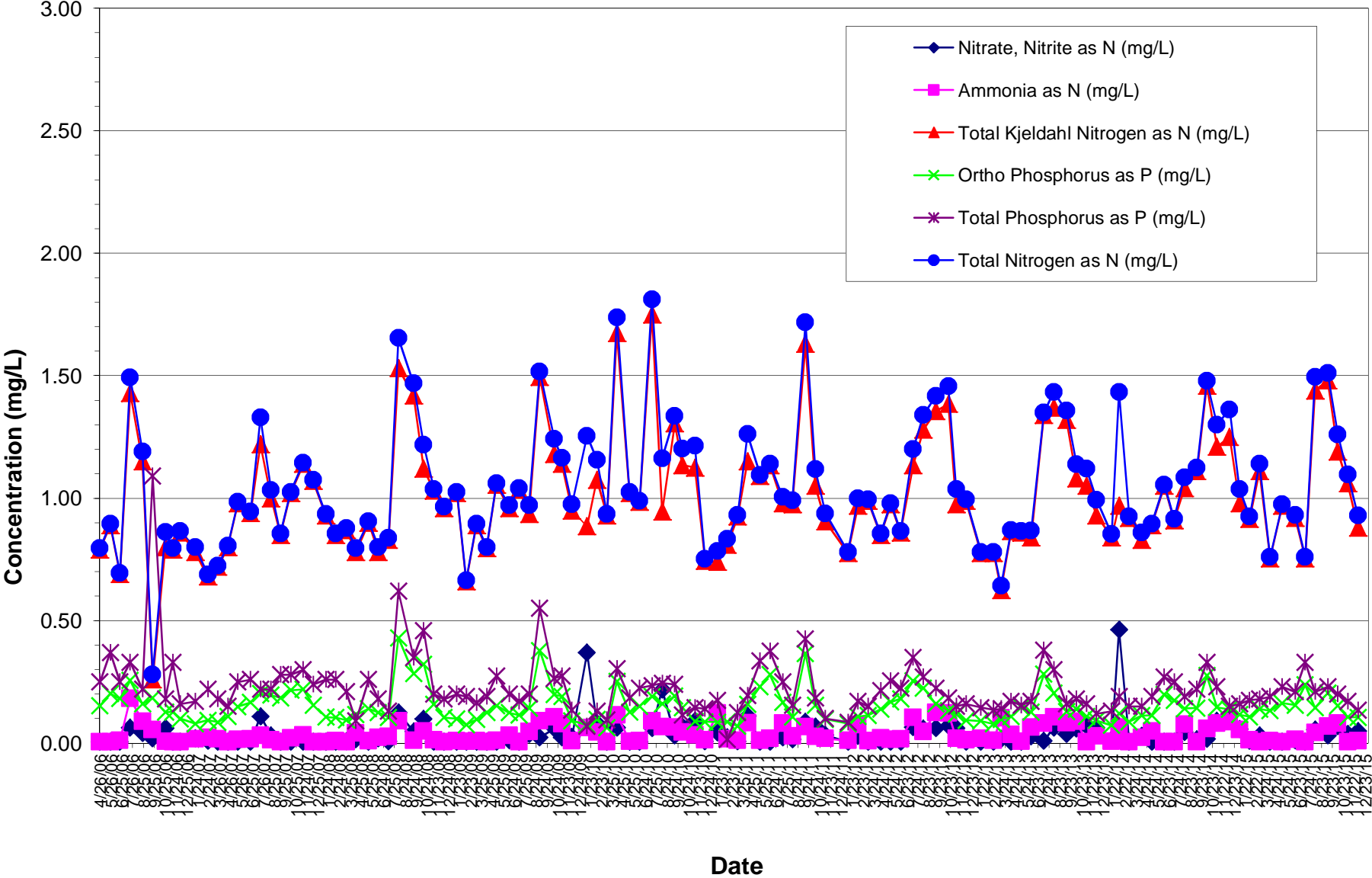
# Percent Saturation of D.O.



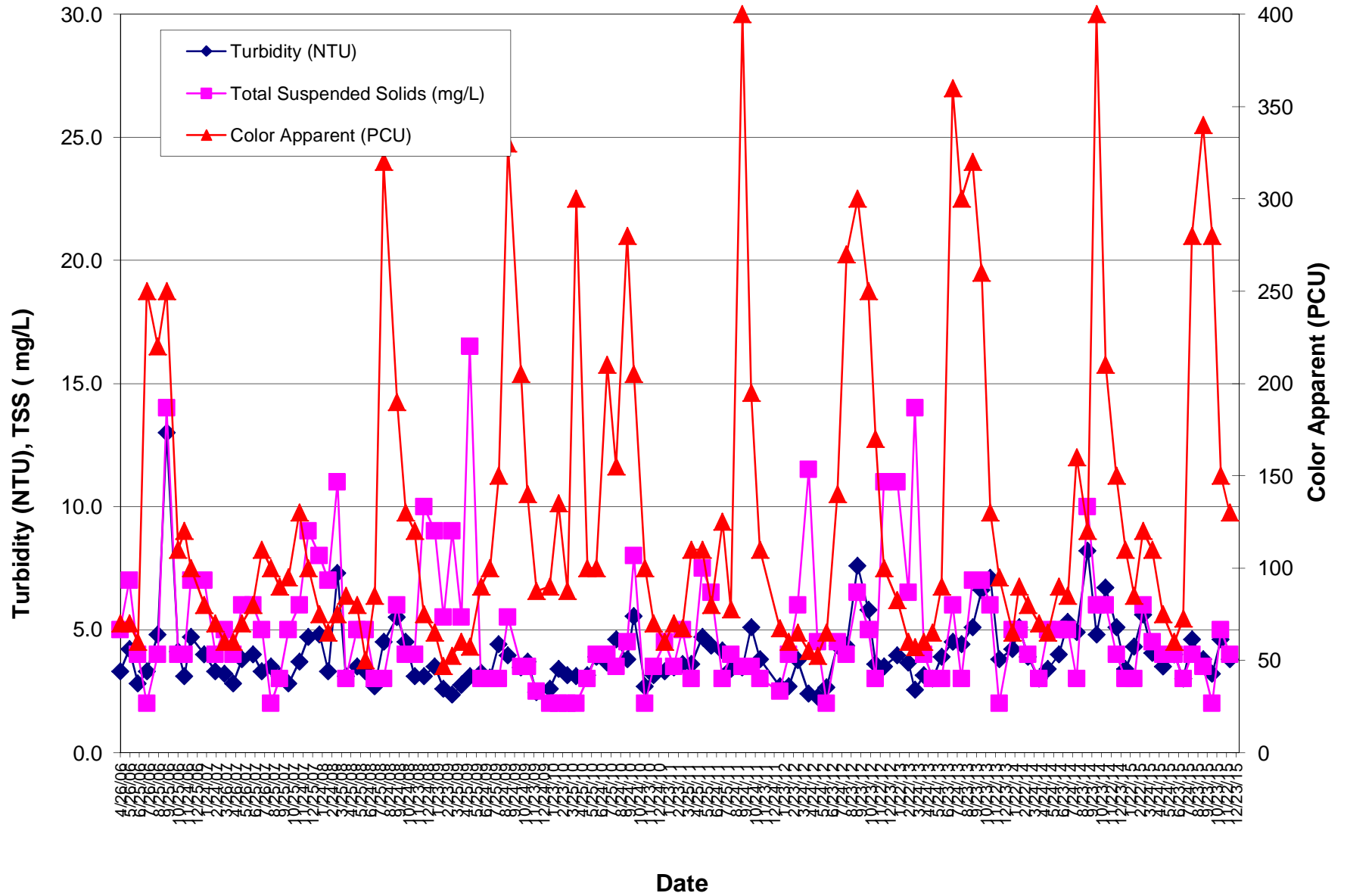
# Secchi Depth



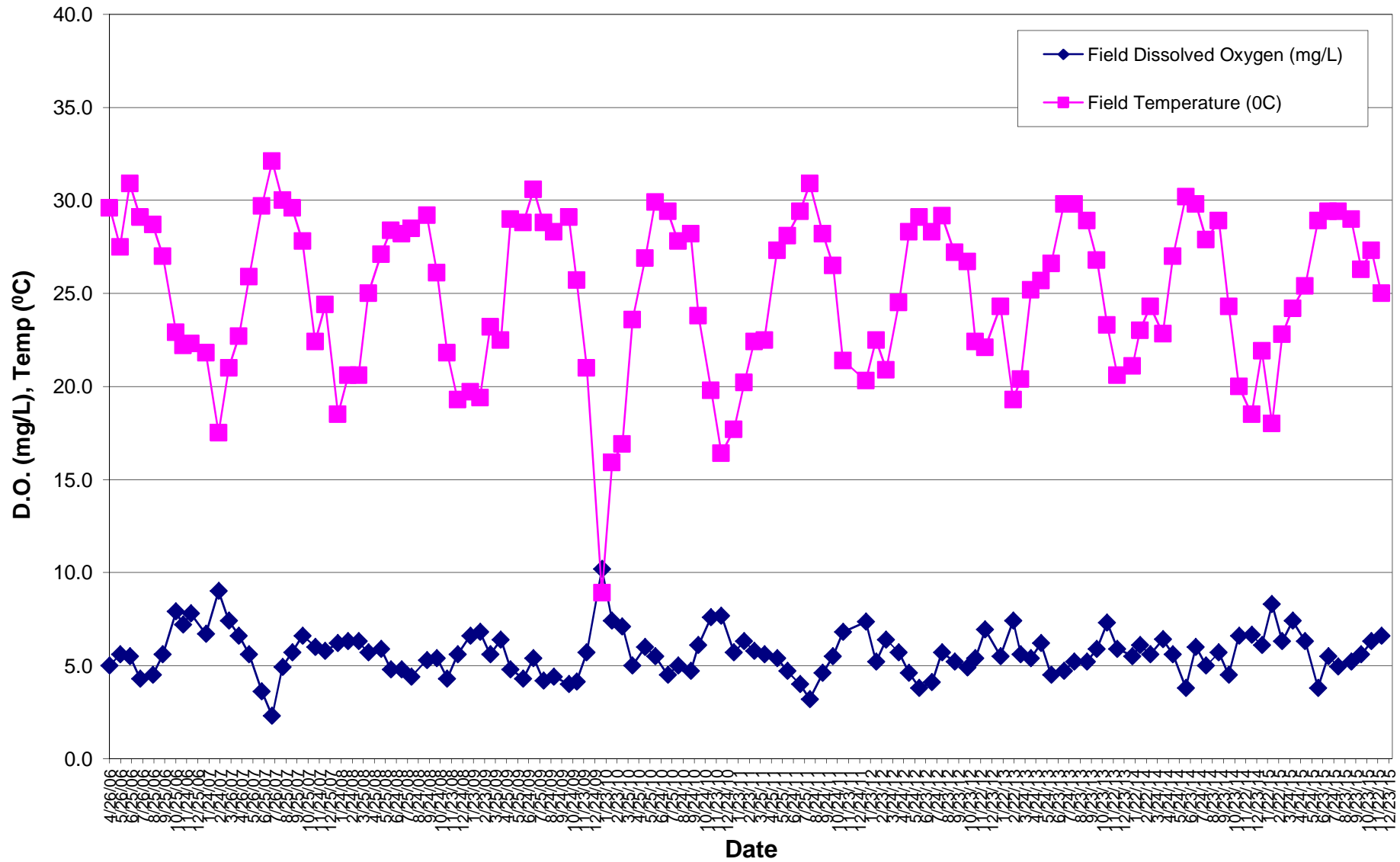
### Site 6 Nutrients



### Site 6 Turbidity, TSS, Color

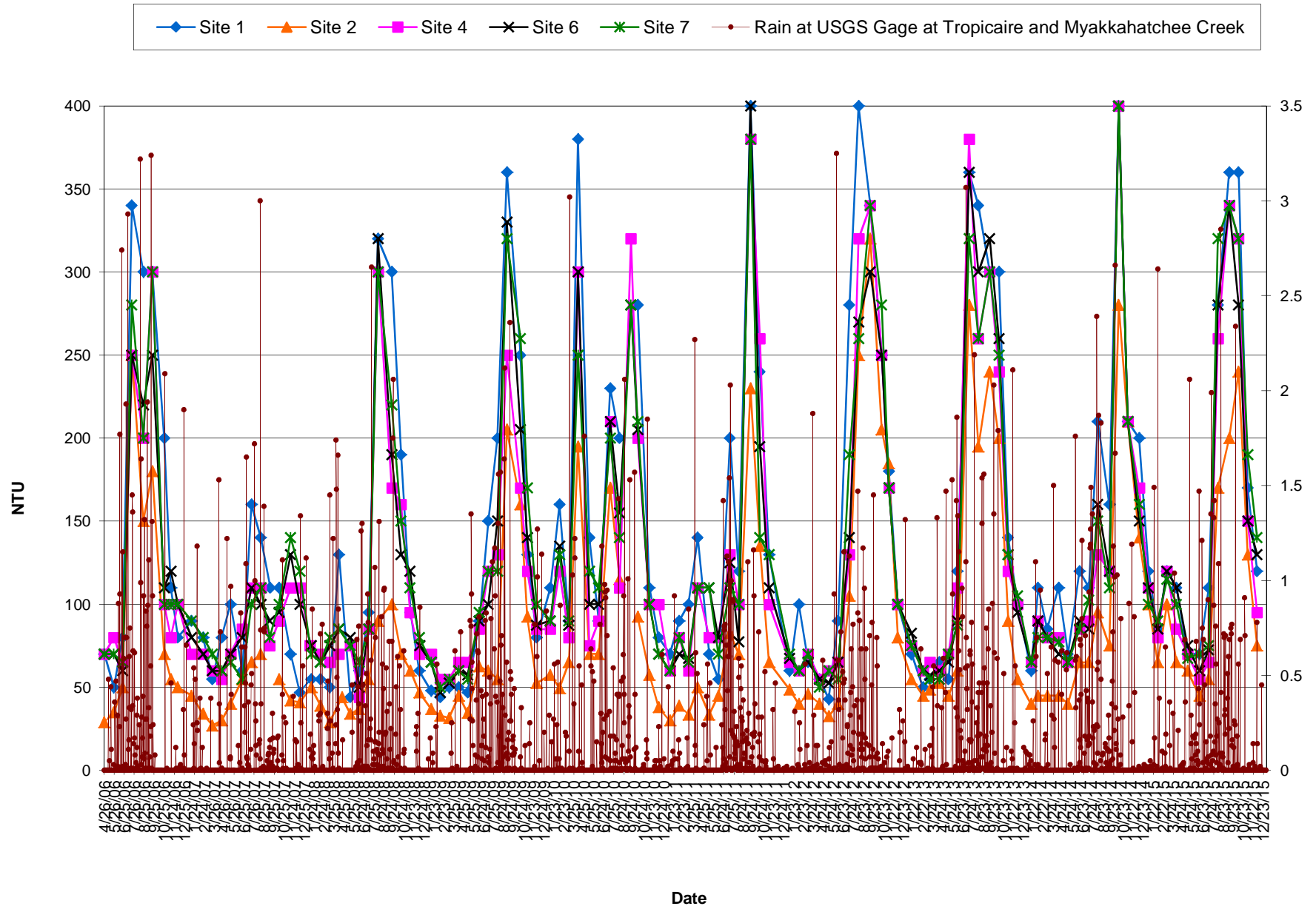


### Site 6 Field D.O., Field Temp.

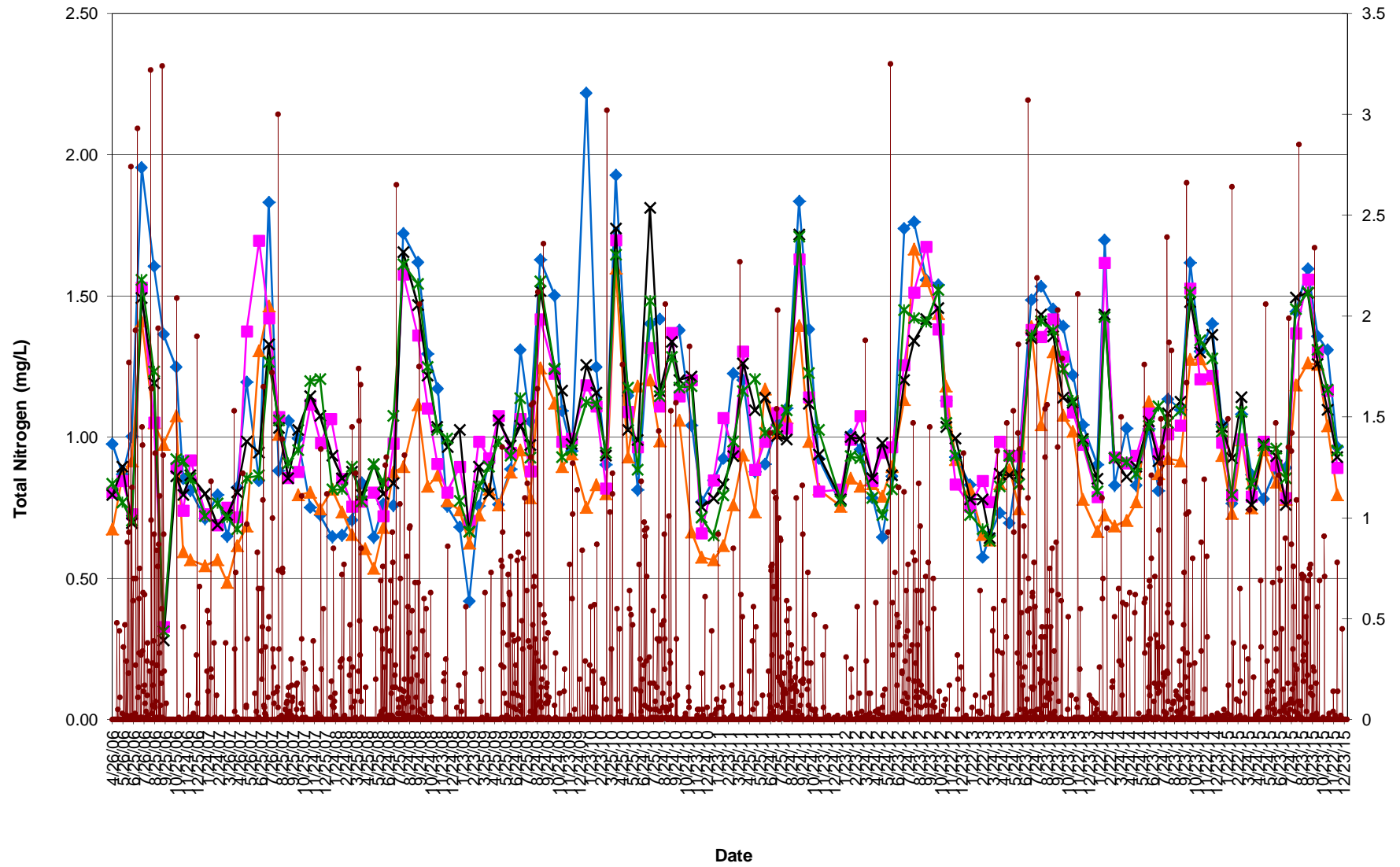
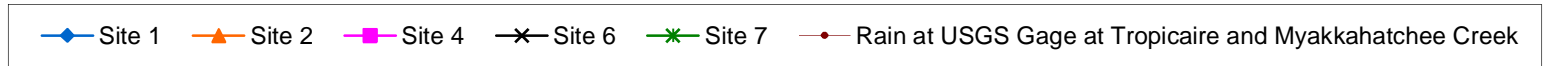




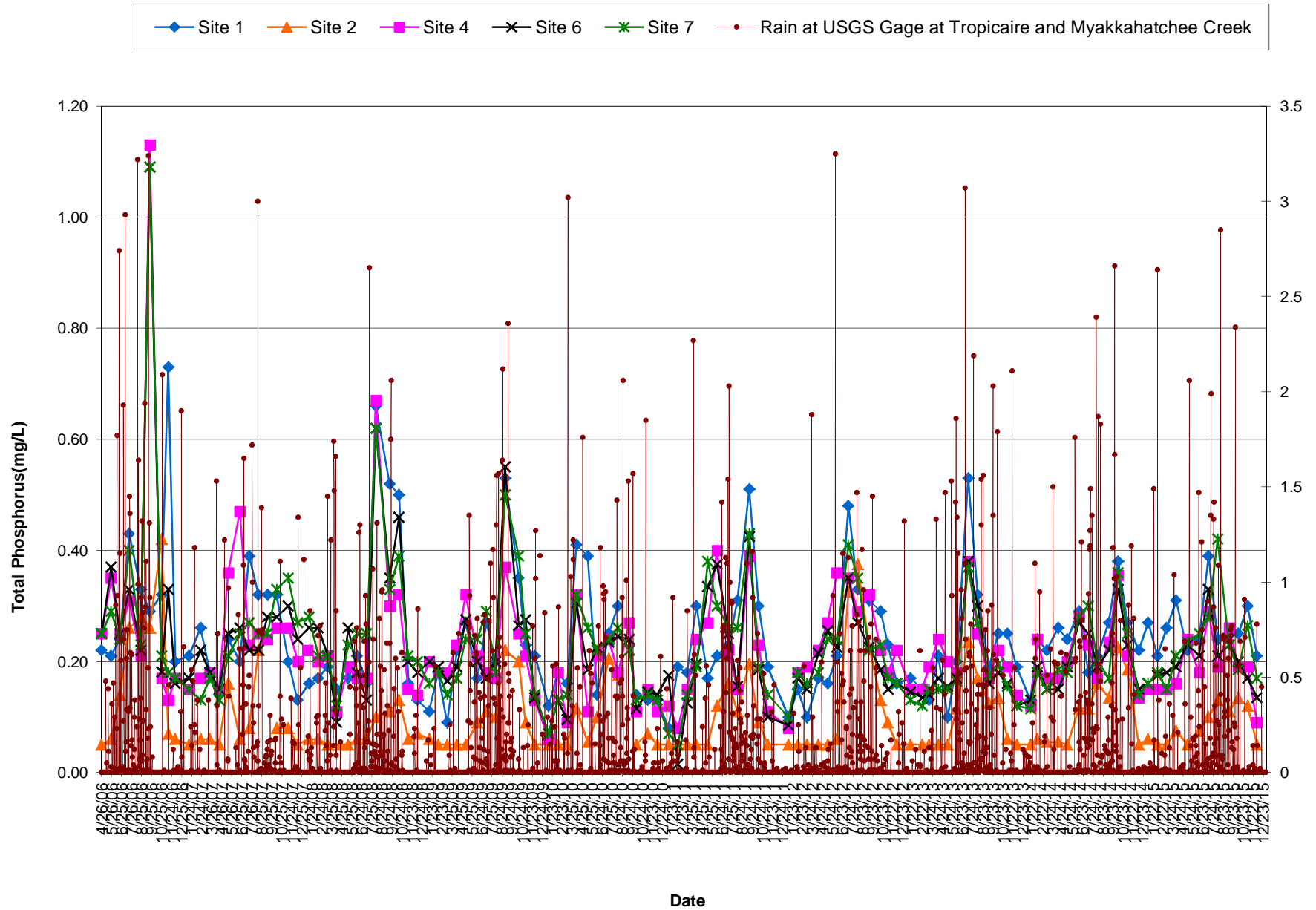
# Color and rain



# TN and rain



### TP and rain



# APPENDIX C

## FLOOD CONTROL PROJECTS SUMMARY

## APPENDIX C

### FLOOD CONTROL PROJECTS SUMMARY

Over the last several years the City has pursued a very aggressive stormwater program. Following is a description of the work accomplished.

#### 1. CITY OF NORTH PORT BIG SLOUGH WATERSHED STUDY AND FLOOD MAP UPDATES

##### Project Description

The City of North Port is located in southeast Sarasota County in the southern portion of the Big Slough Watershed, which covers approximately 195 square miles, in southwest Florida. The headwaters of the Big Slough Watershed initiate in the Mosaic (a phosphate mining company) land holdings in Desoto County. Flows from the watershed are mostly conveyed by the Big Slough Canal which extends in a southwesterly direction from Desoto County through unincorporated portions of Manatee and Sarasota Counties before traversing through the City of North Port. The portion of the Big Slough Canal that traverses through the City is also known as the Myakkahatchee Creek. The Myakkahatchee Creek discharges to the lower Myakka River just above the Myakka River's mouth at Charlotte Harbor which then connects to the Gulf of Mexico.

The Big Slough Watershed Study which was initiated in 2003 has been completed on September 2014 by consultant Ardaman and Associates under a cooperative funding agreement (K883) between the Southwest Florida Water Management District (SWFWMD) and the City of North Port. The two major goals of this project were to revise the 1981 Federal Emergency Management Agency (FEMA) flood maps and develop flood reduction projects. The hydraulic model has been created and calibrated with actual storms experienced in 2003 and 2004. The calibrated model has been used to produce draft 100-year flood maps using a hybrid of the 2004 and 2007 LiDAR data.

##### FEMA Flood Insurance Rate Map (FIRM) Update

Federal Emergency Management Agency (FEMA) released the first version of the draft Flood Insurance Rate Maps (FIRMs) and Flood Insurance Rate Study (FIS) for public comment on December 15, 2014. FEMA, in coordination with the City of North Port, Sarasota County and Southwest Florida Water Management District (SWFWMD), hosted a Public Open House on January 22, 2015. A second and third Public Open House was hosted by the City of North Port, Sarasota County and SWFWMD on March 12, 2015, and June 23, 2016. Mailers were sent inviting property owners that have insurable structures touching the flood hazard area (SFHA), to the second and third Public Open Houses.

The 90-day public appeal and comments period began on January 30, 2015, and ended on April 30, 2015. The City and public provided comments to FEMA and the draft FIRMs and FIS were revised several times.

The FEMA letter of final determination (LFD) received dated May 4, 2016, required the City to adopt to adopt the updated FIRMs within six months of the LFD date. This is a condition of the continued eligibility in the National Flood Insurance Program (NFIP). The end of this six month period correspond to the updated FIRM's effective date of November 4, 2016.

A summary of the impact of the updated FIRMs is given in below based on the SFHA database received from FEMA's consultant on May 10, 2016.

Impacted Parcels and Structures Analysis

Parcel Status	No. of Affected Parcels (as of 5/10/16)	No. of Affected Parcels with Insurable Structures* (as of 5/10/16)	No. of Parcels with Insurable Structures* touching the SFHA (Using 5/6/16 Sarasota County GIS Structures Layer)
<u>Parcels Added</u> Parcels not in the existing FIRM floodplain, but any portion(s) of the parcel are touching the May 10, 2016 Preliminary FIRM SFHA	14385	5533	274
<u>Parcels Removed</u> Parcels that are in the existing FIRM SFHA and will be removed from the May 10, 2016 Preliminary FIRM SFHA	1814	473	0
Parcels that are in the existing FIRM SFHA and are still in the May 10, 2016 Preliminary FIRM SFHA	2631	703	209

\* An insurable structure is a structure with at least two load-bearing walls and a roof. It must be affixed to land, and at least 51% of its value must be above ground. This definition includes almost all residential and commercial structures, as well as ancillary buildings such as garages and barns. Storage facilities such as silos and grain storage buildings are also covered. The rules do not cover structures such as gazebos, pavilions, pole barns, and storage tanks, as these buildings do not have at least two load-bearing walls and a roof. If they did not have roofs, then they would not qualify as insurable structures. Otherwise, flood insurance is required. The issue is not habitability.

## 2. WATER CONTROL STRUCTURE (WCS) No. 115 REPLACEMENT

### Project Description

The City has a continual water control structure (WCS) rehabilitation/replacement program. WCS No. 115 is located on the Snover canal just west of Chamberlain Boulevard in the City of North Port. The structure is equipped with four gates which are operated in the closed position in order to allow storage of water similar to a reservoir. In anticipation of pending rain storm events and as the water level rises, the gates are opened as needed to reduce flooding. The gates can also be opened in order to release water in a westerly direction through two other downstream structures WCS Nos. 114 and 113, to discharge water into the Myakkahatchee Creek. The water in the creek serves as a raw water supply for the City's Water Treatment Plant. Thus the proper functioning of these gates and structure are critical to the City's ability to control water levels, minimize adverse impacts from a storm event and supplement the City's potable water supply. This structure was constructed in the early 1960's. Over time, extensive corrosion has developed in the sheet metal weir piling, supports, gates and catwalk.

A consultant has been retained for the design, underwater survey and geotechnical services, permitting, bidding assistance and limited construction engineering services associated with the rehabilitation or replacement of WCS No. 115. All gates will be replaced with stainless automated remote controlled stainless steel gates and camera and lighting.

### Budget and Schedule for Completion

The engineering cost by consultant AIM Engineering and Surveying Inc. is \$99,936.

The design began in 2015 and is expected to be completed in November 2016, with construction anticipated in FY 2017.

## 3. CITY OF NORTH PORT FLOOD REDUCTION STUDY

### Project Description

During past intense summer rains, the city experienced severe street flooding in the area near the Myakkahatchee Creek just north and south of I-75 as well as in the Jockey Club area from the Myakkahatchee Creek west to Pan American Blvd. between

Appomattox Drive and Kappa Place. This project will include the retention of a consultant to perform a survey the study areas, determine and evaluate feasible solutions for stormwater conveyance to eliminate flooding for various storm events, provide cost benefit analysis on effective flood reduction projects, and prepare predesign criteria, refined cost estimates and drawings for future detailed design and permitting. In a cooperative grant funding, SWFWMD will contribute \$125,000 of the \$250,000 estimated for the study to relieve localized flooding. The City has also budgeted an additional \$50,000 to look at methods to reduce City-wide flooding.

#### Budget and Schedule for Completion

The study is estimated at \$300,000 and SWFWMD will cooperatively fund \$125,000. The Contract with SWFMWD is approved in early 2016 and a consultant will be selected later in 2016. Study is anticipated to be completed in late 2017.

# APPENDIX D

## Review of Codes and Regulations



## APPENDIX D

### REVIEW OF CODES AND REGULATIONS TO REDUCE THE STORMWATER IMPACT FROM NEW DEVELOPMENT / REDEVELOPMENT

The City of North Port is unique in that the majority of the stormwater runoff in the City is captured in an interconnected system of retention ditches, wet canals and Myakkahatchee creek, which serves not only as a stormwater conveyance system, but is also the main potable water supply for the City's Water Treatment Plant, thus the need for greater water quality treatment and protection.

The City of North is not built-out and has large amounts of undeveloped property particularly in the North Port Estates area and areas east of Toledo Blade, the northeast annexed quadrant area north of Snover Waterway and east of Toledo Blade, and the annexed West Villages Improvement District area. There is minimal redevelopment occurring in North Port. All new major development and redevelopment projects, both private developments and City projects, must be reviewed by the City's Stormwater Manager through the City's Site Development Review (SDR) process, for sufficiency in water quality treatment and attenuation and for floodplain impacts and required floodplain compensation.

#### ULDC Chapter 18 Stormwater Regulations

The City has strict water quality treatment requirements in the Unified Land Development Code (ULDC). For example, in the design of dry retention stormwater ponds, the City's regulation requires 100% more treatment volume than Southwest Florida Water Management District (SWFWMD). The ULDC requires the low impact development methods such as use of pervious pavements to be evaluated for all new developments, as the pervious nature will assist in the recharge of groundwater and reduce runoff volume. The City has an aggressive public outreach program to minimize the developmental impact of surface water quality and quantity on the watershed and natural resources. All these regulatory requirements and public outreach efforts will help minimize the effects of new developments on the watershed and the City's natural resources.

The City of North Port has one of the lowest per-capita water use rates in the region. This can be attributed to an extensive conservation program which includes a tiered rate structure, reuse water program, irrigation enforcement, and a comprehensive public education and outreach program that promotes water conservation, protection of City and regional resources, and encourages public participation in flood control efforts. The City's water conservation efforts and other sustainable development activities earned North Port the Florida Green Building Coalition's "Gold" level local government certification in 2011.

The ULDC Chapter 18 Stormwater Regulations was adopted by City Commission in 2010 and is available on Municode.com. The regulations are aimed at reducing the stormwater impact of new developments and redevelopments on stormwater quality and adverse flooding and encourage the use of Low Impact Development (LID) designs to the maximum extent practicable. The regulation meets and exceeds in some instance, the criteria set by SWFWMD. The following table summarizes the areas where the City has additional requirements:

SWFMWD Requirements	City of North Port Proposed Requirements	Comments
<b>Water Quality Treatment Volume</b>		
For on-line (dry ponds) off-line systems and effluent filtration and exfiltration systems,	The City requires a treatment volume correspond to 1-inch of runoff over the project	The City's stormwater runoff serves as the major source of the City's potable raw water

SWFWMD requires a treatment volume correspond to 0.5-inch of runoff over the project area.	area, regardless of the treatment type. Thus, the City requires twice the amount of treatment volume for dry retention effluent filtration and exfiltration systems, when compared with SWFMWD requirements.	supply. Thus the historically higher level of water quality treatment is reasonable.
<b>Littoral Zone Plants</b>		
SWFWMD does not specify planting of the littoral zone. Any green plant including the prevalent invasive cattails are acceptable	Littoral zone shall be planted with non-invasive aquatic species, with a guaranteed survival rate of at least 85%.	If a littoral zone is not planted, invariably, cattails will take over. This is an invasive plant and is not aesthetically pleasing to most people.
<b>Fountains or Aeration Device</b>		
None Required	Wet detention ponds shall have a fountain or waterfall type of water feature to improve water quality treatment and provide an aesthetic appeal. The aeration device shall have a timer to ensure compliance with State and City water preservation requirements.	Fountain or waterfall type of water feature will provide the benefit of aeration to wet pond which are often stagnant and low in dissolved oxygen in the hot dry months. This anoxic water in the wet pond when flushed by rainfall into downstream water bodies can cause extremely low dissolved oxygen levels which can lead to fish kills.
<b>Stormwater Quantity Level Of Service And Design Criteria for Hydraulic Gradeline analysis</b>		
No specific guidance provided by SWFMWD	Specific guidelines provided for acceptable levels of flooding for existing and new streets and developments for specified storm events.	These guidelines are similar to Sarasota County guidelines and are designed to protect the public, but with flexibility for City to review exceedances on a case by case basis for any adverse effects.
<b>Low Impact Development (LID)</b>		
No Low Impact Development (LID) requirements exist in the current SWFWMD rules. The proposed Statewide Stormwater treatment rule have LID requirements	The design engineer must demonstrate in the stormwater design that LID practices are incorporated to the maximum extent practicable. Examples of LID design practices are to minimize impervious areas, and encourage the use of pervious pavement, green roofs, rain cisterns, reuse of stormwater for irrigation, direct runoff to bioretention/biotreatment	In order to protect the limited, valuable natural resources within the City, developments must proceed in a sustainable manner. Sustainable measures such as construction to Florida Green Building Standards, LEED Certification and use of Low Impact Development (LID) designs are encouraged.

	vegetated swale areas prior to discharge stormwater pond, Florida Friendly native landscaping, and other surface water quality improvement controls and devices.	
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**ULDC Chapter 17 Stormwater Regulations**

In 1990, in order to limit property damage and to protect the safety of the City’s residents, the City of North Port adopted its initial Flood Damage Prevention Regulations as ULDC Chapter 17 Flood Damage Prevention Regulations. While this has served the city during the ensuing years, through multiple flood events, the City’s regulations have not been updated during this time to reflect best management practices or to tie into updates to the Florida Building Code. The lack of updated flood damage regulations may also serve to increase insurance rates for City property owners if the city’s flood rating (as provided by the National Flood Insurance Program’s Community Rating System (CRS)) is lowered as a result of not having updated flood mitigation standards.

As part of efforts to enhance public safety and to protect public and private property within the State, in 2012 the Florida Department of Emergency Management (DEM) began to work with municipalities throughout Florida to update local floodplain management regulations in order to meet both federal (National Flood Insurance Program) regulations and the standards set forth in the most recent version of the Florida Building Code. Over the course of the last several years, City staff (including representatives from Public Works, Neighborhood Development Services (Building and Planning) and the City Attorney) has worked closely with both DEM staff and their consultants to revise City’s regulations to meet these standards. The revised ULDC Chapter 17 Flood Damage Prevention Regulations was adopted by City Commission on May 10, 2016 and will soon be available on Municode.com.

# APPENDIX E

GottFried Creek  
Walk the WBID #2049  
Final Report  
Oct 2015

# Summary of Results

*FINAL*

## Walk the WBID Exercise for Gottfried Creek (WBID 2049)

October 2015



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## Purpose and Contents

This report summarizes the results of the Walk the WBID exercise for the Gottfried Creek watershed, located in southern Sarasota County and northern Charlotte County, completed on February 28, 2012 and subsequent follow up actions. This field reconnaissance and source elimination effort was carried out to gain a better understanding of conditions within the watershed, including the hydrology of the creek and its contributing ditches and branches, flood-prone areas, the locations of sewer and stormwater infrastructure, and potential sources that are contributing fecal coliform (FC) bacteria to the creek.

Basin Management Action Plans (BMAP) to address sources may be appropriate for some watersheds; however, they are both time and resource intensive. The Walk the WBID exercise is a low-cost, effective alternative to begin addressing fecal coliform pollution in Gottfried Creek so that it meets state water quality standards. This common-sense first step allows stakeholders to identify the location of suspected sources, establish a sampling plan to fill in knowledge gaps, carry out easy-to-implement management actions for the creek using existing programs and ongoing activities, and follow up on those actions to assess the degree of success and the additional effort needed. The exercise allows stakeholders to identify uncertainties and future options for more effective adaptive management. It also contributes to improved communication between and within agencies, and provides opportunities to increase public awareness.

The lead entity for the Walk the WBID exercise was Sarasota County; other participants were the Florida Department of Environmental Protection (FDEP), Englewood Water District (EWD), Charlotte County, the City of North Port (CONP), the Florida Department of Health, Sarasota County (DOH-Sarasota), the Florida Department of Transportation (FDOT), the Florida Department of Agriculture and Consumer Services (FDACS), Thomas Ranch, the Lemon Bay League, the Coastal Wildlife Club, the Charlotte Harbor Aquatic Preserve (CHAP), and other stakeholders.

This report includes the following information:

1. *Identification of the WBID;*
2. *Results of any preliminary investigation or issues identified;*
3. *List of entities and staff participating in the field efforts or other operations;*
4. *Sources and potential sources observed;*
5. *Immediate next steps and follow-up actions taken;*
6. *Follow-up actions still needed;*
7. *Sources eliminated or investigated;*
8. *Water quality results from samples taken in the field;*
9. *Monitoring sites identified or proposed; and*
10. *Any other pertinent information.*

## Background

### ***Description of the Gottfried Creek Watershed***

Gottfried Creek is located in the southern portion of Sarasota County and extends into the northern portion of Charlotte County, within the Charlotte Harbor Basin (Figure 1). Gottfried Creek discharges into Lemon Bay, which was designated an Outstanding Florida Water (OFW) in 1987 and is classified as a Class II waterbody with shellfish propagation or harvesting as its designated use. Gottfried Creek (WBID 2049) is a Class III waterbody, with a designated use of recreation, propagation, and maintenance of a healthy, well-balanced population of fish and wildlife. Although the creek flows into Lemon Bay in Charlotte County, over 90% of the drainage area is in Sarasota County. The topography of the Gottfried Creek WBID 2049 watershed encompasses 7,229 acres. The dominant land use categories are urban land (urban and built-up; low-, medium-, and high-density residential) and rangeland, which accounts for about 52 percent of the total WBID area. Urban and built-up land use occupies about 1,690 acres or about 23 percent of the total WBID area. Of the 1,690 acres of urban lands, residential land use occupies about 1,156 acres. Rangeland land use occupies about 2,088 acres or about 29 percent of the total WBID area. The physiography of the Gottfried Creek watershed reflects its location within the Southwestern Florida Flatwoods or Southern Coastal Plains Eco region. Elevations in the watershed range from around 0-10 feet above sea level (FDEP, 2010). The predominant soil type is shelly sand and clay (FDEP, 2008). A major human population center exists in the southern portion of the watershed, which is the unincorporated town of Englewood.

*Figure 1. Aerial map showing the boundary of the Gottfried Creek watershed and major hydrologic features in the area.*



### *Fecal Coliform Impairment of Gottfried Creek*

Gottfried Creek (WBID 2049 ) was verified impaired for fecal coliform bacteria in March 2010, based on the state’s Impaired Surface Waters Rule (IWR) (see box at right), and Total Maximum Daily Loads (TMDLs) were adopted for both fecal and total coliform in June 2006. However, the TMDL is now only applicable to fecal coliform, since total coliform is no longer a water quality standard regulated by the state.

A TMDL represents the maximum amount of a given pollutant that a waterbody can assimilate and still meet water quality standards, including its applicable water quality criteria and its designated uses. TMDLs are developed for waterbodies that are verified as not meeting their water quality standards. They are a critical step in the watershed restoration process because they provide the targets for measuring progress in subsequent water quality restoration efforts.

The fecal coliform TMDL calls for a 74% percent reduction in in-stream concentrations for Gottfried Creek to meet state water quality standards. Currently, no point sources are permitted to discharge into the creek. Wasteload allocations have been assigned to three municipal separate storm sewer system (MS4) permittees: Sarasota County, the City of North Port, and the Florida Department of Transportation (FDOT), District 1.

#### ***Florida’s Water Quality Standard for Fecal Coliform***

*For determining impairment for fecal coliform bacteria, the IWR states that the most probable number (MPN) or membrane filter (MF) counts per 100 milliliters (mL) of fecal coliform bacteria shall not exceed a monthly average of 200, nor exceed 400 in 10 percent of the samples, nor exceed 800 on any one day. The criteria state that monthly averages shall be expressed as geometric means based on a minimum of 10 samples taken over a 30-day period.*

*However, there were insufficient data (fewer than 10 samples in a given month) available to evaluate the geometric mean criterion for fecal coliform bacteria. Therefore, the criterion selected for the TMDL was not to exceed 400.*

## **Walk the WBID Exercise**

### ***Participants***

All agencies with jurisdictional authority collaborated before, during, and after the event. Team members included representatives from the FDEP, Sarasota County, EWD, Charlotte County, CONP, DOH – Sarasota, FDOT, and FDACS.

### ***Costs***

The only costs to the participants in the Walk the WBID exercise were staff time and potential management actions. Processing the water quality samples associated with this effort was funded by Sarasota County.

Future management actions associated with existing city and county programs will require scheduling, coordination, and follow-up on behalf of the participating agencies. Examples of follow-up activities that may result in additional costs include system maintenance, repair, and investigation; however, it is

important to note that these activities generally correspond with jurisdictional missions and already-established programs.

### ***Initial Steps***

Before going into the field, the stakeholders met and exchanged information through a meeting organized by Sarasota County; these included FDEP staff (moderators), Sarasota County, EWD, Charlotte County, the CONP, DOH-Sarasota, FDOT, FDACS, Thomas Ranch, the Lemon Bay League, the Coastal Wildlife Club, the Charlotte Harbor Aquatic Preserve, and interested citizens.

In preparation for these meetings, each entity provided information about Gottfried Creek to better acquaint themselves with the conditions in the watershed. The information was provided in advance to FDEP, which created multiple copies of large-format maps for use in the maps on the table exercise and the field event. The information that was collected and assimilated included the following:

- *Geographic information system (GIS) data;*
- *Stormwater infrastructure maps showing the locations of inlets and outfalls, ponds, ditches, and underground conveyances;*
- *Stormwater best management practices (BMPs) being implemented;*
- *Maps of private and public sewer infrastructure showing the locations of pump stations and force and gravity mains, as well as the location and number of sanitary sewer overflows (SSOs);*
- *Locations of septic tanks and repair permits issued;*
- *Locations of specialty farms, kennels, and other animal operations;*
- *Water quality sampling information such as sampling stations, frequency, and results;*
- *Hydrology, including wetlands, streams, and ponds; and*
- *Locations of known issues or areas of special concern such as homeless populations, dog parks, landfills, and transfer stations.*

### ***Maps on the Table Session***

With a representative present from each participating agency, team members held the Maps on the Table session to identify areas of concern to visit during the Walk the WBID event, based on field knowledge from staff and a synthesis of the available information. The team members marked areas of concern on their maps and elected field representatives with infrastructure knowledge and access to facilities, and who were familiar with sampling equipment and standard operating procedures (SOPs).

Subsequently, FDEP and Sarasota County carried out a preliminary field reconnaissance to identify areas of focus, determine appropriate routes for the participants, and identify any access issues and safety concerns requiring coordination with local law enforcement.

## **Field Event**

The Walk the WBID team used the large-format maps while conducting the field investigations. A documentation team was designated, with a team member assigned to record global positioning system (GPS) points with the coordinates of potential sources, another person to take pictures, and a primary note taker to record the information. Water quality sampling equipment was used to collect water quality information about potential sources identified in the field.

The team explored the entire waterbody while in the field, referring to the maps to follow the creek above and below ground. Team members looked at Gottfried Creek banks and in the vicinity of the waterbody for potential sources. Canals/ditches that intersected the waterbody were also walked to ensure that the waterbody and its associated branches were all included within the WBID boundary. Care was taken to ensure that only appropriate entity representatives accessed private property, unless the property owner had granted access to the entire team. Potential sources that were investigated included the following:

- *Potential illicit connections (PICs) or discharges;*
- *Public and private sanitary sewer infrastructure (such as manholes and pump stations);*
- *Signs of recent SSOs, or areas with multiple SSOs;*
- *Wastewater infrastructure located close to surface waters and/or stormwater inlets, including pump stations, manholes, and air release valves (ARVs);*
- *Septic tanks located close to surface waters and/or stormwater inlets;*
- *Failing septic tanks (as indicated by ponding and a strong smell of sewage);*
- *Evidence of homeless populations;*
- *MS4 conveyances requiring cleaning;*
- *Accumulated trash and debris on streets and parking lots;*
- *Accumulated trash and debris near to or inside stormwater drains and catch basins;*
- *Clogged or broken stormwater grates;*
- *Stormwater drains undergoing repairs;*
- *Stormwater outfalls discharging from underground conveyances or into ponds;*
- *Sewage smell from stormwater drains, indicating possible cross-connections;*
- *Unusual odors;*
- *Evidence of illegal dumping or discharge of liquids;*
- *Signs of oil and grease;*
- *Excessive sediments and signs of erosion or wash out;*
- *Stagnant water;*

- *Debris in inlets, or inlets located near wastewater infrastructure;*
- *Exposed pipes of unknown origin;*
- *Flood-prone areas;*
- *Pet waste or evidence of high-traffic pet areas;*
- *Presence of horses, cattle, or other ruminants in the water or close to the water;*
- *Evidence of wildlife such as raccoons and waterfowl;*
- *Evidence of chickens or other hobby animals;*
- *Areas with heavy tree cover and vegetated ditches preventing ultraviolet (UV) light penetration.*

Any discharges that were observed were sampled both downstream and upstream. Potential sources or other issues identified while in the field were reported to the proper jurisdiction and cataloged while in the field. A record was kept of major findings, including observations about the waterbody, potential sources, followed-up items and the responsible entity, and any areas that should be added to the monitoring plan or that required additional investigation.

## **Results**

Figures 2 through 52 summarize the water quality issues and potential fecal coliform sources that the team observed during the Walk the WBID exercise on February 28, 2012, as well as the results of the water quality sampling that was carried out on that date.

*Figure 2. Private Lift Station – Provision Eye Center.*



WTW Team inspecting lift station.



*Figure 3. Private Lift Station – Provision Eye Center*



Action Item: Lock needed on pump well.

*Figure 4. Private Lift Station – Provision Eye Center.*



Action Item: Emergency signage needed

Private lift station for Provision Eye Center, located at 473 S. Indiana Avenue needed a lock on the pump well cover and contact information for notification in case of an emergency. All of the lift stations inspected are included in Appendix B.

*Figure 5. Open Stormwater Canal, 201 Selma Avenue – Aerial View.*



Canal collects stormwater runoff from commercial and residential district and flows eastward into Gottfried Creek (blue circle).

*Figure 6. WTW Team inspecting open stormwater canal.*



Canal is well maintained, open to UV light, and flows at low velocity except during significant rainfall events. No action item was necessary.

*Figure 7. Aerial Crossing – Rusted out old raw potable water lines across open stormwater canal.*



Action Item: Check to see if raw water lines been capped.

*Figure 8. FDOT Stormwater Ponds.*



Action Item: Notify FDOT to remove cattails.

The ponds were overgrown with cattails which could impair treatment capacity and efficiency.

*Figure 9. Englewood Lateral Stormwater Canal at Tangerine Woods - Aerial View.*



Englewood Lateral flows through Tangerine Woods, a 368 manufactured home community, from southwest to northeast and joins Gottfried Creek on the Thomas Ranch property.

*Figure 10. Englewood Lateral at Tangerine Woods Boulevard – Upstream.*



The canal is county maintained, open to sunlight, and shallow with low flow. Duckweed is only present periodically, and not considered an ongoing issue for blocking UV treatment.

*Figure 11. Englewood Lateral at Tangerine Woods Boulevard – Downstream.*



Surface periodically covered with duckweed.

*Figure 12. WTW Team Inspecting Englewood Lateral.*



The community, previously serviced by a package plant, was connected to the EWD central sanitary sewer system in 2001. No issues were observed. No action item was necessary.

*Figure 13. Open Pasture – N. Indiana Avenue – Aerial View.*



No cattle present; cattle routinely rotated to other pastures; property bermed; no cow patties observed.  
Action Item: Determine if runoff flows to Gottfried Creek.

*Figure 14. Foxwood Development – Aerial View.*



The stormwater ditch flows from the stormwater pond through a natural area to Gottfried Creek.

*Figure 15. Foxwood Stormwater Pond.*



Ducks and wading birds observed in and around pond.

*Figure 16. Foxwood Stormwater Ditch – View Toward Upstream.*



The stormwater pond overflows into the ditch; irrigation pipes observed (foreground).

*Figure 17. WTW Team Collecting Sample for Fecal Coliform Testing.*



Action Item: Sample ditch because of strong pet waste odor.

*Figure 18. Foxwood Stormwater Ditch – View Toward Downstream.*



Ditch flows to through Foxwood Nature Preserve to Gottfried Creek.



*Figure 19. Foxwood Stormwater Ditch.*



Ditch just upstream of nature preserve.

*Figure 20. Foxwood Stormwater Ditch-Wildlife Tracks.*



Deer or Hog Tracks

*Figure 21. Foxwood Stormwater Ditch-Wildlife Tracks.*



Deer or Hog Tracks

*Figure 22. Foxwood Stormwater Ditch.*



Raccoon Tracks

*Figure 23. Foxwood Nature Preserve Creek – View Downstream.*



Foxwood stormwater ditch merges with creek at this point.

*Figure 24. Foxwood Nature Preserve Creek – Large School of Mullet.*



Creek is tidally influenced.

*Figure 25. Foxwood Nature Preserve Creek.*



Creek is shallow and heavily shaded. This segment flows to Gottfried Creek.

*Figure 26. Foxwood Nature Preserve.*



Evidence of wild hog activity.

*Figure 27. Oak Forest Subdivision, N. Indiana Avenue.*



Proper pet waste management

*Figure 28. Park Forest Development, N. Indiana Avenue– Aerial View.*



Sarasota County conducts monthly water quality sampling at the bridge on Gottfried Creek.

*Figure 29. WTW Team at Park Forest Bridge. Air-Release Valve.*



Action Item: Is ARV manually or automatically operated?

*Figure 30. Gottfried Creek at Park Forest Bridge.*



View Facing Upstream. : Heavily Shaded

*Figure 31. Gottfried Creek at Park Forest Bridge – Mullet in Creek.*



Action Item: Determine tidal stage and salinity during collection of samples.

*Figure 32. Gottfried Creek at Park Forest Bridge.*



View Facing Downstream: Heavily Shaded

*Figure 33. FDOT Stormwater Pond Behind the Elk's Lodge, 401 N. Indiana Avenue.*



Ponds are overgrown with cattails (Figures 34 and 35).  
Action Item: Notify FDOT to remove cattails.

*Figure 34. FDOT Pond DP35-6 Behind the Elks Lodge – Northern Arm.*



Pond Overgrown with Cattails.



*Figure 35. FDOT Pond DO35-6 Behind Elks Lodge – Southern Arm.*



Pond Overgrown with Cattails.

*Figure 36. Horse Pasture on North Pine Street – Aerial View.*



Improper manure disposal could impact Gottfried Creek.  
Action Item: Determine if runoff could flow to the creek.

*Figure 37. Horse Pasture on North Pine Street.*



Overview of Pasture – View to East

*Figure 38. Horse Pasture on North Pine Street.*



Overview of Pasture – View to Southeast

*Figure 39. Horse Pasture on North Pine Street.*



Overview of Pasture – View to East

*Figure 40. Horse Pasture on North Pine Street.*



WTW Team

*Figure 41. E. Riverview Ave. and Liberty St. – Aerial View.*



The ditch, flowing from S. Indiana Avenue to Gottfried Creek is on the Sarasota/Charlotte County line.

*Figure 21. Drainage Ditch South of E. Riverview Ave. and West of Liberty St.*



Action Item: Contact appropriate agency for maintenance.

*Figure 43. Gasparilla Condominium Complex, 131 Jose Gaspar Dr. – Aerial View.*



Complex property is adjacent to Gottfried Creek.

*Figure 44. Gasparilla Condominium – Private Lift Station.*



No Violations Noted.

*Figure 45. Gasparilla Condominium Stormwater Pond.*



WTW Team Inspecting Berm Around Pond.

*Figure 46. Gasparilla Condominium Stormwater Pond.*



Pond Overflows Berm Directly to Creek.

*Figure 47. Gasparilla Condominium Stormwater Pond.*



Alligator Inhabiting Pond

*Figure 48. Gasparilla Condominium Stormwater Pond.*



Flock of White Ibis on Pond Berm  
No issues observed. No Action Item necessary.

*Figure 49. South Oxford Stormwater Ditch.*



Ditch runs parallel to S. Oxford then flows west to Gottfried Creek

*Figure 50. South Oxford Stormwater Ditch.*



Evidence of Hog Activity in Ditch



*Figure 51. North Oxford Stormwater Ditch-Aerial View.*



*Figure 52. North Oxford Stormwater Ditch.*



Action Item: Contact appropriate agency for maintenance.

## Pre-Field Event Inspections

Prior to the Walk the WBID event, pre-field event inspections were carried out of several areas that could not be walked on February 28, 2012 because of access and/or time limitations.

On December 16, 2011, FDEP and Sarasota County staff conducted a shoreline inspection via boat of areas of the creek not accessible by land (**Appendix A- Figures A.1. – A.31.**). The purpose was to identify existing and potential sources of fecal coliform bacteria. Stormwater outfalls and pipes and hoses of unknown origin or purpose were documented and photographed. Two sites appeared to be potential sources of bacteria, and samples were collected for fecal coliform. The bacteria results were 120 CFU/100mL (below the water quality standard of 400 CFU/100mL) and 550 CFU/100mL (slightly above the water quality standard of 400 CFU/100mL). The low results were not an indication of a significant bacteria source. A portion of a canal at the mouth of the creek was not inspected because of time limitations. A shoreline inspection of that canal was conducted on July 2, 2012 (**Appendix A – Figures A.32.-A.57.**). During this inspection, staff spoke to the resident of 300 Bay Heights Rd. regarding the private lift station located on the property. Staff spoke about the importance of properly maintaining the lift station to prevent bacterial contamination of the creek. The resident assured staff that the lift station was properly maintained and a contractor would be called immediately if any problems arose.

During December 2011 and January 2012, Sarasota County staff conducted inspections of all known public and private lift stations (L/S) in the Gottfried Creek Basin. Locations were verified and documented, photos were taken, and obvious violations were noted. Inspection notes and photographs are contained in **Appendix B**. Seven private lift stations were found to lack emergency signage and one private lift station was missing a lock on the lid. Sarasota County Air and Water Quality was contacted on March 12, 2012 and provided the locations of the lift stations, photos, and property ownership. Property owners were notified via letters to install appropriate emergency signage and a lock on the one lift station lid. Follow-up inspections were conducted to confirm compliance. Two public lift stations were found to lack emergency signage. Contact was made with EWD on March 13, 2012 and signs were ordered and installed immediately.

## Additional Post-Field Event Inspections

Subsequent to the original Walk the WBID event, a post-field event inspection was carried out of two areas that were not walked on February 28, 2011.

### Thomas Ranch

On May 10, 2012, representatives from the FDEP, Sarasota County, FDACS, and Thomas Ranch conducted a tour of the ranch (**Figure 53**), a portion of which (about 2088 acres) occupies the upper third of the Gottfried Creek Basin. Thomas ranch, an 11,000 acre working ranch, runs a low-density livestock grazing operation with approximately 800 head of cattle. The remaining acreage is located in the City of North Port where a portion contains residential, commercial, and retail development. There were no immediate plans for further development of the ranch property during the inspection.

The headwaters of Gottfried Creek originate in a wetland system in the northern portion of the ranch and within the City of North Port. The main stem (#38-424) flows in a southerly direction through the ranch and is intersected by two branches. The first branch (east branch #38-463) collects stormwater runoff from South River Road and flows westward until it meets the main stem about 1.4 miles downstream. A broadcast weir structure was constructed downstream of this confluence to control the base flow of the creek (**Figure 59**). The second branch (Englewood Lateral #36-461) originates west of North Indiana Avenue near the downtown district and flows to the northwest then eastward through the Tangerine Woods manufactured home development where it intersects the main stem on the ranch property just downstream of the weir structure. The stormwater conveyance system for that branch consists mainly of roadside ditches/swales and driveway culverts.

The purpose of the tour was to view the expanse of the ranch property, identify areas of any intense wildlife concentrations, view stream characteristics of the main stem and branches, inspect the weir structure, and learn about the cattle operation. The area of the ranch within the watershed boundaries is undeveloped, fenced rangeland with areas of open pasture, scrub, grassland, wetlands, and forests. The main stem of the creek and branches were very narrow and shallow with access almost totally restricted by heavy tree, shrub, and vegetation growth. All were completely dry above the weir structure. The Englewood Lateral and the main stem below the weir structure contained less than 1 foot of water. Information gained from the Maps on the Table exercise about the weir structure was that the water retained by the weir might become so stagnant that it could provide a suitable medium for the growth of bacteria that would be flushed to the creek during a significant rainfall event. As a result of drought conditions, the creek was completely dry upstream of the weir, preventing observation of the water quality or sampling of any water retained upstream of the weir.

While no evidence was found of any sizeable wildlife populations inhabiting the ranch, evidence was found of feral hog activity both on the property and in several areas of the creek (**Figures 56 and 66-69**). No bird colonies were found in the areas of the ranch that were visited.

The Cattle operation included approximately 800 head of cattle that were separated into smaller herds and routinely rotated among different pastures. The thick vegetation along the banks of the creek restricted cattle access to the creek. The creek bed is also dry most of the year, limiting its availability as a water supply. Therefore, fresh water is provided in round troughs dispersed throughout the ranch (**Figures 74 and 75**).

Florida Department of Agriculture and Consumer Services staff made an appointment to meet with ranch staff at a later date to offer details about the FDACS BMP Program for ranch operations that included waste and manure management and to enlist the ranch into the program. Several attempts were made by FDACS staff to meet with ranch staff about the BMP program; however, no meeting was ever scheduled. Subsequently, ranching activities ceased on the property in May 2014 when the ranch was sold to a developer who plans to construct 11,000 homes on the 9,650 acre tract over the next 20 to 25 years (**Appendix E**). Protection of the water quality of Gottfried Creek will be a county priority during development of the property.

*Figure 53. Thomas Ranch Aerial Overview.*



*Figure 54. Mulching and Chipping Operation.*



*Figure 55. Thomas Ranch Rangeland.*



*Figure 56. Thomas Ranch – One of Many Wetlands.*



*Figure 57. Thomas Ranch – Feral Hog Activity.*



*Figure 58. Thomas Ranch -Tree Line along Main Creek.*



*Figure 59. Thomas Ranch- Weir on Main Stem.*



*Figure 60. Thomas Ranch Aerial – Location of Weir.*



*Figure 61. Thomas Ranch-Creek Upstream of Weir.*



*Figure 62. Thomas Ranch-View Farther Upstream of Weir.*





*Figure 63. Thomas Ranch-Creek Downstream of Weir.*



*Figure 64. Englewood Lateral at Confluence with Gottfried Creek-Below Weir.*



*Figure 65. Gottfried Creek Downstream of Confluence with Englewood Lateral.*



*Figure 66. Thomas Ranch-Banks of Creek Heavily Vegetated.*



*Figure 67. Thomas Ranch-Evidence of Feral Hogs Rubbing on Tree.*



*Figure 68. Thomas Ranch-Animal Scat.*



*Figure 69. Thomas Ranch-Evidence of Hogs Rooting in Creek.*



*Figure 70. Thomas Ranch-Evidence of Hogs Rooting in Creek.*



*Figure 71. Thomas Ranch-Gottfried Creek Upstream of Park Forest Bridge.*



*Figure 72. Thomas Ranch-Scrub Land.*



*Figure 73. Thomas Ranch-Small Herd of Cattle.*



*Figure 74. Thomas Ranch-Pole Barn, Corrals, Watering Trough.*



*Figure 75. Thomas Ranch-Round Watering Trough for Livestock.*



*Figure 76. Thomas Ranch-Anita Nash, Beth Alvi, Kathy Meaux, Noel Marton.*  
*Sarasota County Public Utilities - Stormwater*      45



*Figure 77. Thomas Ranch-Eric Anderson – Ranch Manager.*



## Ranchettes/Small Farms



On May 10, 2012, after the tour of Thomas Ranch, representatives from the FDEP, Sarasota County, and FDACS conducted a tour of an area of small ranchettes and horse farms in the southeastern portion of the WBID (Figure 78) on Crestwood Rd. and Morningside Dr. The lots range in size from 5 to 10 acres, and some property owners provide boarding services, horseback riding lessons, trail rides, horsemanship and dressage training, jumping instruction, horse training and sales, or maintain private horse facilities (Figures 79-81 and 84-89). There is also a cat and dog kennel (Figure 82) on Morningside Dr. and an exotic bird breeder (Figure 83) on Crestwood Rd. Stormwater runoff from the properties, which could contain fecal coliform bacteria, flows westward through a large open stormwater canal to Gottfried Creek. The large pond on the north side of Crestwood Rd. collects stormwater runoff from several parcels and discharges to the open stormwater canal previously mentioned. During the survey, no obvious issues were observed. However, it was determined that the community could benefit from a public meeting conducted by FDACS and Sarasota County to provide information about the importance of proper manure management and waste disposal. The workshop was added as a follow-up WTW action item.

Figure 78. Crestwood Rd. and Morningside Dr. Ranchettes – Aerial View.



Ranchette Parcels Are Highlighted in Blue

Figure 79. Morningside Dr. Ranchette.



*Figure 80. Morningside Dr. Barn.*



*Figure 81. Morningside Dr. Barn and Pasture.*



*Figure 82. Critter Cottage Cat and Dog Kennel.*



*Figure 83. Exotic Bird Breeder.*



Figure 84. Saddle Up Equestrian Center.



Figure 85. Branded Heart Stables.



Figure 86. Branded Heart Stables Barn.



Figure 87. Crestwood Stables Entrance.



*Figure 88. Crestwood Stables Barn.*



*Figure 89. Crestwood Stables Training Arena.*



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## **Next Steps and Follow-up Actions**

### ***Intractable Contributions and Natural Conditions***

- Figures 15, 20, 21, 22, 26, 47, 48, 50, 56, 66, 67, and 68 show evidence of wildlife in close proximity to the Gottfried Creek watercourse, including: raccoon prints, waterfowl, feral hogs, and feces.
- Bacterial re-growth is probable in ditches and natural watercourses given the sediments observed. See Figures 18, 20, 21, 22, 25, 64, 66, 69, 70, and 71.
- Natural canopy cover is not a contributor, but does prevent UV rays from reaching the water column. UV rays kill pathogens and fecal coliforms. See Figures 23, 25, 31 and 32.
- Natural tannins from decomposing plant material in the water also shade out UV rays. See Figures 10, 11, 12, 16, 23, 25, and 32.



### **Follow-Up Actions, Results, and Plans for Future Proactive Prevention Actions**

The recommended next steps and follow-up actions in the Gottfried Creek watershed are shown in Table 2.

*Table 1. Next steps and follow-up actions for reducing fecal coliforms in Gottfried Creek.*

No.	Related Figure(s)	Action Item	Entity	Date Initiated/Completed	Outcome
1	2,3	Lift Station Lock & Signage	Sarasota County Air & Water Quality	3-1-2012/9-1-2012	Inspected by staff; letter sent 8-13-2012; follow up inspection 9-15-2012
2	7	Raw Water Lines	EWD	2-28-2012/3-12-2012	Raw water lines had been capped
3	8	Stormwater Ponds	FDOT	2-28-2012/4-1-2012	Cattails removed from ponds; regular maintenance
4	13	15 acre parcel on N. Indiana Ave. Determine cattle rotation schedule	FDOT	2-28-2012	Cattle graze only a few months during the year
5	13	15 acre parcel. Determine direction of stormwater runoff flow and discharge point	Sarasota County	2-28-2012/7-16-2012	Runoff percolates or flows through Arlington Cove in shallow swales; No direct discharge to Gottfried Creek.
6	17	Foxwood stormwater ditch - sample	Sarasota County	2-28-2012	Sample results: 10 CFU/100mL
7	28	Air Release Valve	EWD	2-28-2012/2-28-2012	ARV - manual and not automatic
8	29	Park Forest sample site: Compare fecal coliform data to salinity, turbidity, and TSS	Sarasota County	2-28-2012/9-14-2012	Data compared; See Action Item #8 Section
9	33	Stormwater ponds – Elk’s Lodge		2-28-2012/4-30-2012	FDOT cleaned out ponds
10	36-40	Horse Pasture – N. Pine; Determine if runoff would reach creek	Sarasota County	2-28-2012/4-1-2012	Runoff treated by retention ponds and wetlands
11	41	Unmaintained ditch	Charlotte County	2-28-2012/5-1-2012	Ditch cleaned out.
12	51	Unmaintained ditch – N. Oxford	Sarasota County	2-28-2012/4-15-2012	Ditch cleaned out; regular maintenance schedule established
13	53	Thomas Ranch - BMP Program	FDACS	6-14-2012	FDACS unsuccessful in meeting with Ranch Manager; Ranch sold 5-2014.
14	78-89	Ranchettes – manure management	Sarasota County-FDACS	5-10-2012/1-23-2013	Workshop held
15	A-8	Stormwater Pipe - sample	Sarasota County	Sampled 12-16-2011	Results: 120 CFU/100mL
16	A-9	Stormwater ditch – Deer Creek MHP	Sarasota County	Sampled 12-16-2011	Results: 550 CFU/100mL
17	90-100	Follow up action – volunteer monitoring station bacteria levels	Sarasota County	7/2, 7/16, 7/30, 2012	See Sampling Investigation Section
18		Follow up action – volunteer monitoring station	Sarasota County	10/5/2012	See Sampling Investigation Section
19		Follow-up action – volunteer monitoring station	Sarasota County	4/23/2013	See Sampling Investigation Section
20		Follow-up action – volunteer monitoring station	Sarasota County	6/3/2013	See Sampling Investigation Section
21	N/A	Public Education – Pet Waste	Sarasota County	1-1-2013/5-30-2013	Pet waste brochure designed and distributed; replaced on “as-needed basis.
22	A-60	Private Lift Station @ 300 Bay Hts. Rd.	Charlotte County Sarasota County	2-28-2012/7-2-2012	Staff spoke with resident about proper maintenance of lift station.
23	29	County sampling site @ Park Forest Blvd. – protocol when fish present	Sarasota County	2-28-2012/4-1-2012	Document numbers and location of fish; sample upstream to avoid sampling stirred up sediments.

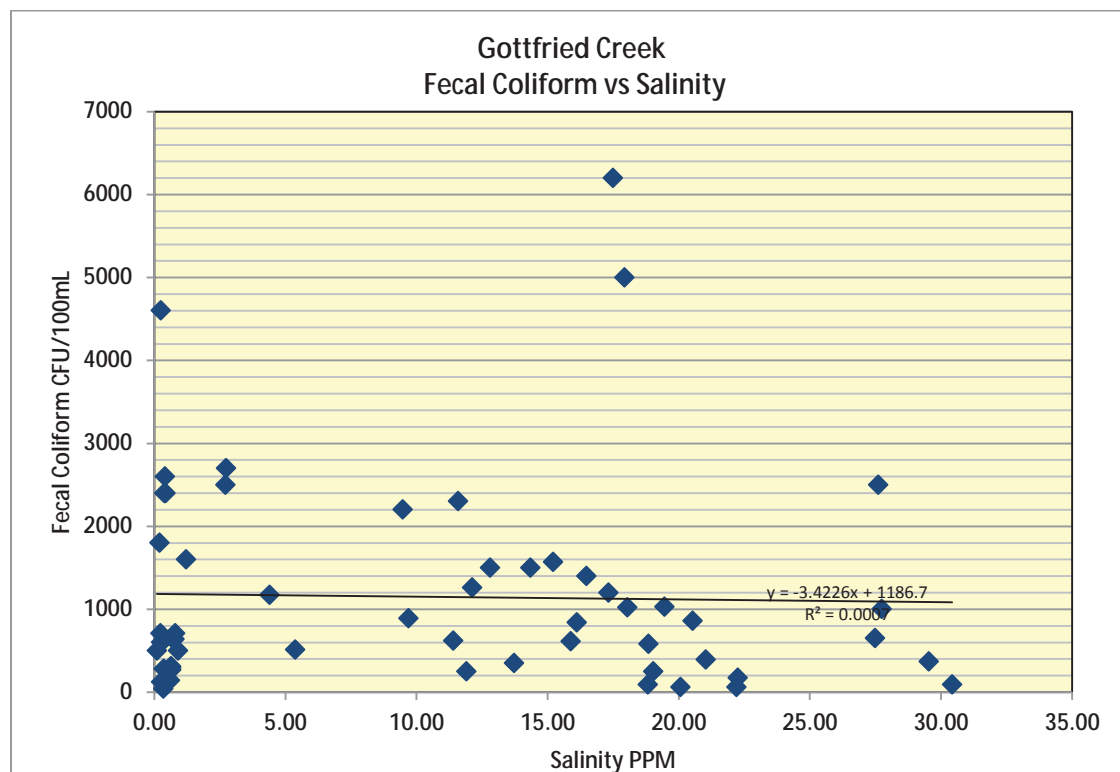
**Action Item 8 – Park Forest Data Comparison**

Sarasota County conducts monthly sampling at station 21FLFTM SARABY0022FTM, which is also one of the stations sampled by the FDEP to establish impairment and adopt the fecal coliform TMDL. During the WTW Field Exercise on February 28, 2012, the site was inspected by the WTW Team. While observing a large school of mullet at the site (Figure 31), the team realized that creek waters were tidally influenced up to and possibly upstream of that point. Since the creek is very narrow and shallow at the site, it was suggested that large schools of fish such as mullet reaching the site during a high tide could potentially stir up sediments causing a spike in fecal coliform values.

The Action Item #8 Task entailed analyzing the data and comparing fecal coliform values to salinity, turbidity, and total suspended solids in order to determine if a correlation existed among the parameters. Fecal coliform was also compared to rainfall.

There is no significant correlation between fecal coliform and salinity (Figure 108). While there are a couple of high fecal coliform values at a higher tide (6200 fecal/17.50 ppt; 5000 fecal/17.94 ppt), there is an inverse relationship between fecal coliforms and salinity most of the time. In addition, fecal coliform bacteria do not survive very long in salt water. The results are an indication that marine life is probably not a factor in causing re-suspension of fecal coliform enriched sediments into the water column.

Figure 90. Fecal Coliform vs. Salinity



There is a closer correlation between fecal coliform and turbidity (Figure 109). Forty percent of the samples displayed a positive relationship, while 60% displayed an inverse relationship.

Figure 91. Fecal Coliform vs. Turbidity

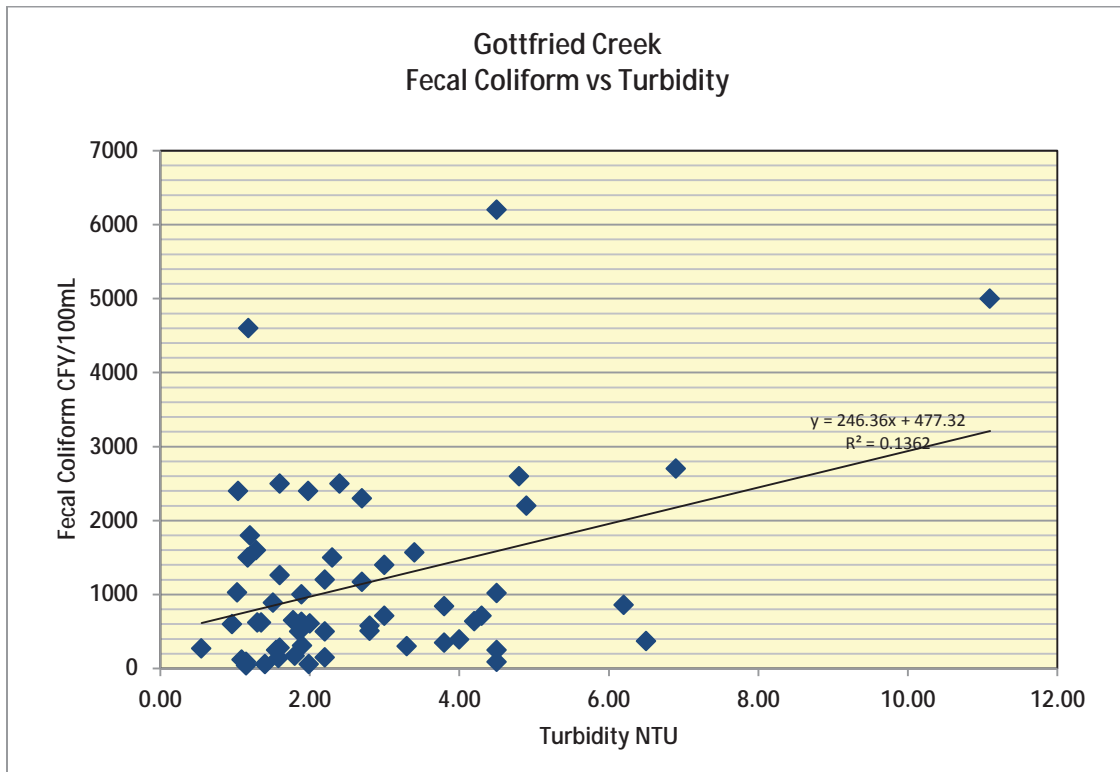
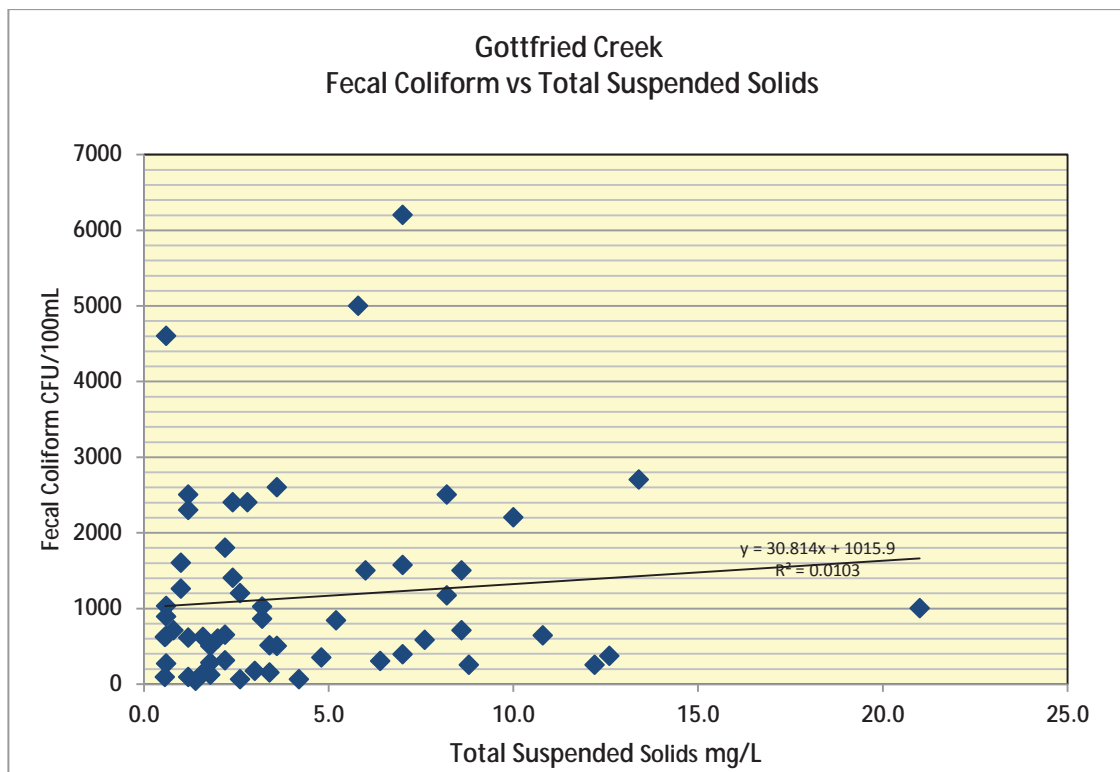
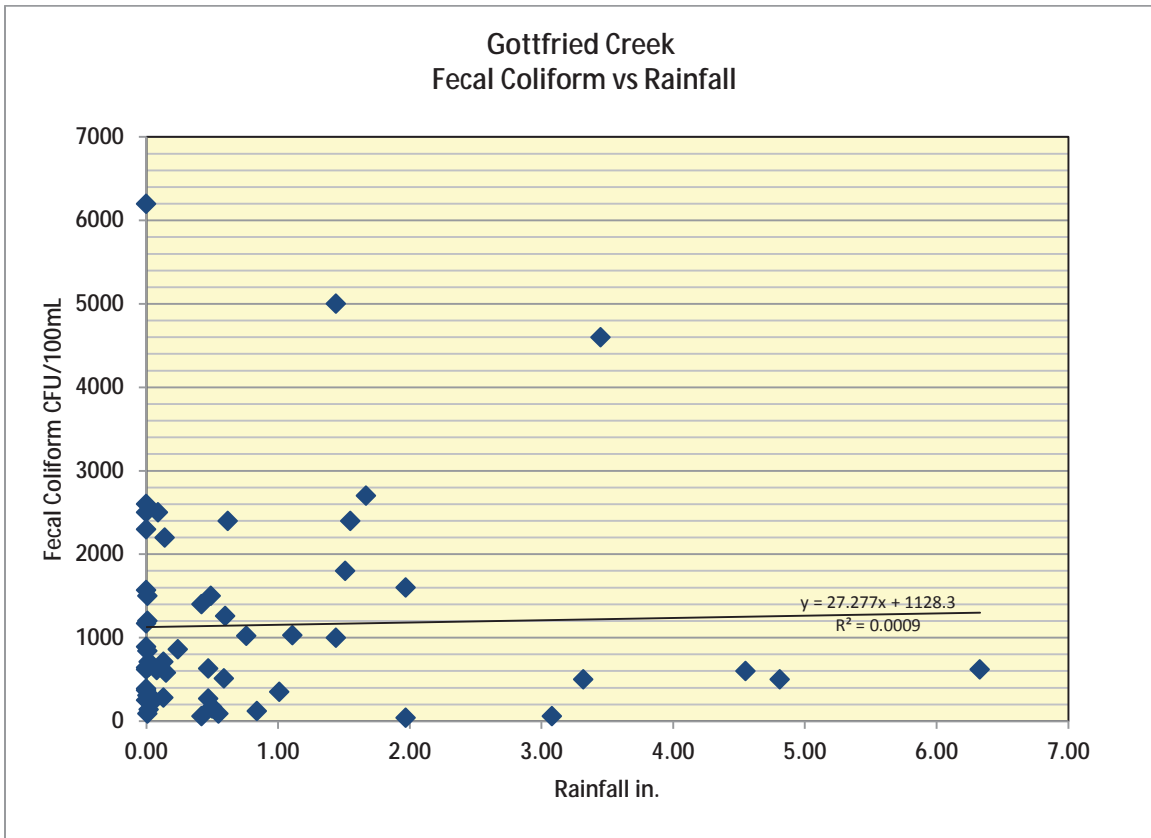


Figure 92. Fecal Coliform vs. Total Suspended Solids



There is also a closer relationship between fecal coliform and TSS (Figure 110). Thirty-five percent of the samples displayed a positive relationship, while 65% displayed an inverse relationship.

Figure 93. Fecal Coliform vs. Rainfall



Fecal coliform values did not correlate well with rainfall (Figure 111). Only 30% of the samples that exceeded 400 CFU were collected after a 7-day antecedent rainfall period where rainfall amounts were  $\geq 1$  inch; 70% of the samples that exceeded 400 CFU were collected after a 7-day antecedent rainfall period where rainfall amounts were  $\leq 1$  inch.

Gottfried Creek is very narrow, shallow, and heavily shaded at the sampling station. While it is tidally influenced, there isn't much flushing that high up in the system. The dense canopy doesn't afford adequate UV light treatment. Fecal coliform values did not correlate well with rainfall or salinity. They did correlate slightly with TSS and turbidity, which is an indication that fecal coliform enriched sediments that are re-suspended into the water column during sampling could be contributing to the higher bacteria levels.

#### Action Item 14 - Ranchette and Small Farm Workshop

As a result of the inspection conducted on May 10, 2012, a workshop was held on January 23, 2013 to provide property owners information about proper waste management and disposal. An invitation/flyer was sent directly to each property owner and posted in the immediate area one-month prior to the

workshop. A second reminder was sent out one week before the workshop. County staff provided an introductory presentation that provided the purpose of the workshop, background TMDL information,

Information about the Gottfried Creek fecal coliform TMDL, and both natural and manmade bacteria sources, etc. Dr. Robert Kluson, UF/IFAS Sarasota County Extension, was the guest speaker and provided an excellent presentation about Best Management Practices for small farms and ranchettes. The following educational literature was also available: Property sketch sheet with instructions for documenting potential bacteria sources; Good Neighbor Guidelines for On-farm and Offsite Application of Livestock Waste; Small Acreage Farm & Ranch BMPs for Protecting Florida’s Water; Good Horse Sense – Protecting Water Resources; and Managing Horse Manure by Composting. Unfortunately, turnout was lower than expected. Consequently, post-workshop letters with the property sketch sheet and all of the brochures were sent out to all property owners inviting them to contact staff with questions or assistance in completing the property sketch sheet. **Appendix C** contains copies of the invitations/flyers, presentations, informational brochures, and follow-up letter to the property owners.



**Action Items 17-20– Volunteer Sampling Site Investigation**

In addition to the preceding post-inspections, Sarasota County was asked to conduct an investigation to determine a possible explanation for consistently elevated fecal coliform values at a FDEP volunteer sampling station (LBGOT-2). The station is located at the volunteer’s residence which is on a corner lot bordered by Gottfried Creek and canal CH38-185 which flows from the west to the creek (Figure 90).

*Figure 94. Volunteer Water Quality Monitoring Station*



On July 2, 2012 Sarasota County staff collected 4 samples during an outgoing tide: GOT-7 downstream of the volunteer station; GOT-8 upstream of the sampling station; GOT-9 in CH38-185 approximately 50 ft. upstream of the Creek; and GOT-10 farthest accessible point upstream in CH38-185 (Figures 91-96).

*Figure 95. Gottfried Creek Sample Sites 7-2-2012*



The sample results were: GOT-7: 60 CFU/100mL; GOT-8: 250 CFU/100mL; GOT-9: 200 CFU/100mL; and GOT-10:300 CFU/100mL. The values did not exceed surface water quality standards on that date. It was determined that further investigation of the surrounding area was needed to try to determine a potential bacteria source.

*Figure 96. Sample Site GOT-7.*



*Figure 97. Sample Site GOT-8.*



*Figure 98. Sample Site GOT-9.*



*Figure 99. Sample Site GOT-10.*



*Figure 100. County Staff Collecting Sample.*



A review of aerial maps showed that stormwater pond DP38-5 located adjacent to and north of canal CH38-185 collected and treated stormwater runoff from the surrounding area that ultimately discharged to the canal near the western end. Also, a stormwater ditch CH38-184, upstream of the pond and canal, flowed from the west to pond CP38-5 during periods of high flow. It bypasses pond DP38-5 during periods of low flow and flows directly into the west end of canal CH38-185. On July 16, 2012 county staff collected samples from stormwater pond P38-5 (GOT-11), ditch CH38-184 (GOT-13) upstream of the pond, and Gottfried Creek (GOT-12) upstream of the volunteer station (Figure 97).

*Figure 101. Gottfried Creek Sample Sites 7-16 and 7-30-2012.*



Figures 98-107 include photos of the sample site location. The water level in the pond (Figure 101) was low and aquatic vegetation, including hydrilla, an exotic invasive aquatic plant, had almost completely overtaken the pond bottom. The surface was covered with duck weed, which is indicative of high nutrient low flow conditions. A number of wading birds that included 2 Great Blue Herons, 1 Little Blue Herons, 2 Glossy Ibis, and 12 (4 adults and 8 juveniles) moorhens inhabited the pond. No alligators or other wildlife were observed. Sample GOT-12 was taken directly from the creek (Figure 107) upstream of the volunteer station. The water level in the ditch (Figure 102) was very low, and there was little flow. The west end of the canal is completely shaded and overgrown with heavy, entangled vegetation that consists mostly of Brazilian Pepper. A resident also reported that the canal was home to a large alligator that could be a contributor by stirring up bacteria laden sediments.

*Figure 102. Stormwater Ditch DP38-184.*



Sample Site GOT-13

*Figure 103. Stormwater Pipe from DP38-184 to Vault.*





*Figure 104. Stormwater Vault*



*Figure 105. Stormwater Pond DP38-5*



*Figure 106. Stormwater Pond DP38-5.*

Sample Site GOT-11. View West to East  
*Figure 107. Stormwater Pond DP38-5*

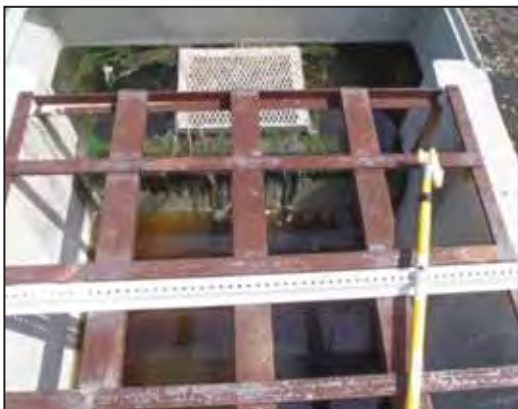


View East to West

Pond Outlet Structure

*Figure 108. Stormwater Pond DP38-5.*

*Figure 109. Outfall to Canal*



Pond outlet structure. Sample Site GOT-17  
*Sarasota County Public Utilities - Stormwater*

Flow from outlet structure to canal

*Figure 110. Ditch Downstream of Pond Outfall*



Sample Site GOT-16

*Figure 111. Gottfried Creek Upstream of Canal*



Sample Site GOT-12

The sample results were: GOT-11: 6000 CFU/100mL; GOT-12: 700 CFU/100mL; and GOT 13: 12000 CFU/100mL. These indicated that the bacteria could be coming from ditch CH38-184 and pond DP38-5. The bacteria values at GOT-12 site upstream of the volunteer station were relatively low.

Since the origin of ditch CH38-184 was unknown, staff surveyed the area and determined that the ditch originated in a stormwater pond (P38-20) located on Dearborn Avenue at Sandy's Island Circle; then flowed north and eastward to pond DP38-5 and CH38-185 (Figure 108). The residential area around the pond had previously been serviced by OSTDs; however, central sewer service became available and most of the residences had connected. Staff put the pond on the schedule to be sampled during the next sampling event, which was on 7/30/2012. Samples were collected from ditch CH38-184 (GOT-13) upstream of pond P38-20 (Figure 98); the canal (GOT-16) downstream of the pond discharge site (Figure 106); and directly from the pond outfall structure FOT-17 (Figures 102-104).

An attempt was made to collect a sample from the pond P38-20; however, heavy vegetation blocked access and staff could not find any residents home that could grant permission to sample from their property.

The sample results were: GOT-13: 2700 CFU/100mL; GOT-16: 2800 CFU/100mL; and GOT-17: 19000 CFU/100mL. These results appeared to indicate that birds and wildlife in the pond could be contributing to the higher fecal coliform values. It also appears that the pond is providing some treatment since the levels in the ditch were 2,800 CFU/100mL. The shoreline on both sides of the ditch from the pond to approximately 525 upstream of Gottfried Creek is so heavily vegetated that very little sunlight can penetrate the canopy to afford adequate UV light treatment of the bacteria. This could be also contributing to the bacteria spikes in the volunteer samples. Approximately 1.41 inches of rain had also fallen in the area since July 2, 2012.

Figure 112. All Sample Sites.



Staff could not return until October to take additional samples. Samples were again collected from GOT-13, GOT-16, and GOT-17. An additional station (GOT-18) was added since staff was able to collect a sample from the stormwater pond P38-20 on Dearborn Avenue (Figure 109). The sample results were: GOT-13: 1700 CFU/100mL; GOT-16: 450 CFU/100mL; GOT-17: 200 CFU/100mL; and GOT-18: 170 CFU/100mL.

The bacteria levels in pond P38-20 were below standards; however, they increased in ditch CH38-134. The levels in pond P38-5 were also below standards which is an indication that runoff is receiving sufficient treatment for bacteria reduction. The levels increased slightly in canal CH38-185.

Figure 113. Pond 38-20; Sample Site GOT-18



In February 2013, FDEP staff advised that the department was considering the use of sucralose as a potential indicator of human fecal bacteria in surface water. Research has shown that sucralose (an artificial sweetener marketed as Splenda®) could be an effective indicator since it is not broken down by the body and, therefore, is released into the sanitary sewer system. It is also not broken down by the wastewater treatment process and could enter surface waters at advanced wastewater treatment effluent discharge sites. It could also enter surface waters via reclaimed irrigation water, SSOs, and failing OSTDs. One study found 47-2900 nanograms per liter (ng/L) of sucralose in domestic wastewater after treatment. FDEP staff collected sucralose samples at station LBGOT-2 during the monthly sampling event on April 19, 2013. The sample results were: LBGOT-2: 0.14 ug/L = 140 ng/L; LBGOT-2 REP: 0.15 ug/L = 150 ng/L; LBGOT-2 Blank: 0.0097 ug/L = 9.7 ng/L. The value of 140 ng/L appeared to indicate a human sewage impact. There had been no recent SSOs, and reclaimed irrigation water was not available in that area. Since there was a trace amount of sucralose in the blank sample these sample results were not considered entirely reliable.

County staff conducted sampling on April 25, 2013 to determine if there were any significant changes in the bacteria levels. The sample results were: GOT-12: 220 CFU/100mL; GOT-13: 230 CFU/100mL; GOT-16: 3700 CFU/100mL; GOT-17: 10(U) CFU/100mL; and GOT-18: 50 CFU/100mL. Only one of the sites (canal CH38-185) exceeded water quality standards. Again, this site is so heavily shaded that very little sunlight can penetrate the canopy to afford adequate UV light treatment of the bacteria.

After discussing the various sample results with FDEP staff, County staff determined that it would be prudent to coordinate efforts and collect replicate samples during the June 3, 2013 volunteer sampling event. County staff also collected sucralose samples to be analyzed by the FDEP Laboratory. During the sampling event, the volunteer advised that the next door neighbor on the canal had not yet connected to central sewer. She also stated that occasionally she could see a blue stream coming down the canal that smelled like detergent. A home upstream could have a washing machine discharging directly into the canal; but no home could be identified without observing the actual discharge. The volunteer monitor was asked to contact the County Air and Water Quality Department during the event so the matter could be investigated. The volunteer bacteria results were: LBGOT2-Creek: 50 CFU/100mL and LBGOT-2 Canal: 26 CFU/100mL. The county replicate results were: GOT-9 - Creek: 110 CFU/100mL and LBGOT2-Canal: 80 CFU/100mL. All results were comparable and well below water quality standards.

County staff also collected samples from previous sampling sites. Those results were: GOT-12: 70 CFU/100mL; GOT-13: 5400 CFU/100mL; GOT-16: 2200 CFU/100mL; GOT-17: 10 CFU/100mL; and GOT-18: 40 CFU/100mL. Again, the results indicate that the bacteria could be entering the canal from the upstream ditch (CH38-184) and growing in the canal (GOT-16).

The results from the sucrolase samples collected by county staff and analyzed by the FDEP were: LBGOT2 Canal: 370 ng/mL; GOT-17: 10 ng/L(U); and GOT-13: 10 ng/L(U). No sucralose was detected in the ditch upstream of the canal or the stormwater pond.. This is an indication that the bacteria in the ditch upstream of the canal and the stormwater pond are most likely from nonhuman sources. The bacteria in the canal could be from a human source. Sample results of all county sampling events are shown in **Table 2**.

**Table 2. Sarasota County Gottfried Creek Fecal Coliform Sampling Results**

Gottfried Creek Sample Results			
Date	Station_ID	Site_Desc	Fecal Col CFU/100mL
July 2, 2012	GOT-7	Gottfried Creek	60
July 2, 2012	GOT-8	Gottfried Creek	200
July 2, 2012	GOT-9	Canal CH38-185	250
July 2, 2012	GOT-10	Canal CH38-185	300
July 16, 2012	GOT-11	Pond P38-5	6000
July 16, 2012	GOT-12	Gottfried Creek	700
July 16, 2012	GOT-13	Ditch CH38-184	12000
July 30, 2012	GOT-13	Ditch CH38-184	2700
July 30, 2012	GOT-16	Canal CH38-185	2800
July 30, 2012	GOT-17	Pond P38-5	19000
October 5, 2012	GOT-13	Ditch CH38-184	1700
October 5, 2012	GOT-16	Canal CH38-185	450
October 5, 2012	GOT-17	Pond P38-5	200
October 5, 2012	GOT-18	Pond P38-20	170
April 25, 2013	GOT-12	Gottfried Creek	220
April 25, 2013	GOT-13	Ditch CH38-184	230
April 25, 2013	GOT-16	Canal CH38-185	3700
April 25, 2013	GOT-17	Pond P38-5	10
April 25, 2013	GOT-18	Pond P38-20	50
June 3, 2013	GOT-9	Gottfried Creek	110
June 3, 2013	GOT-12	Gottfried Creek	70
June 3, 2013	GOT-13	Ditch CH38-184	5400
June 3, 2013	GOT-16	Canal CH38-185	2200
June 3, 2013	GOT-17	Pond P38-5	10
June 3, 2013	GOT-18	Pond P38-20	40

## Investigation Summary

An exact source of the elevated fecal coliform bacteria levels at the bacteria station could not be determined. Below is summary of the results.

- Stormwater pond P38-20 on Dearborn Avenue (farthest point upstream) did not appear to be a source. Most of the residences are on central sewer, and sample results were well below water quality standards.
- Bacteria are entering and being transported downstream by ditch CH38-184, which connects P38-20 with pond P38-5 and canal CH38-185. The sucralose sample collected on June 3rd did not indicate human impact.
- Bacteria levels occasionally spike in pond P38-5 most likely in response to rainfall events. Since 60% of the samples were well below water quality standards, the pond appears to provide highly effective treatment.

- Bacteria levels in Gottfried Creek upstream and downstream of the volunteer site are consistently low, which indicates that the canal may be the source.
- Bacteria levels are consistently elevated in canal CH38-185 (80% of samples). Four potential sources or reasons were identified: 1) The neighbor's septic system. The sucralose sample appeared to indicate a human source. Even though the septic system was not obviously failing, it could be a source through groundwater migration because of its close proximity to the creek. 2) Gray water from an upstream washing machine. Studies have shown that washing machines harbor large numbers of fecal bacteria that are discharged in the rinse water. 3) The heavily shaded west end of the canal may not allow adequate UV light penetration to kill the bacteria, allowing it to re-grow and persist in the sediments. 4) Bacteria laden sediments could be stirred up by the resident alligator, birds, fish, or other wildlife.

Since the investigation, one potential source was eliminated: the volunteer's next door neighbor connected to the sanitary sewer in 2014. The volunteer was also asked to contact county staff immediately when observing any suspected washing machine discharge so the matter can be investigated and samples taken while it is occurring.

### **Action Item 21 - Pet Waste Campaign**

The significant impact of bacteria on of improper pet waste disposal on surface water quality has come to

the forefront in the last ten years. Recent research studies have found that non-human waste (domestic pets, farm animals, and wildlife) constitutes a major source of bacterial pollution in urban watersheds. To protect water quality and public safety, many communities have established

pet waste programs to educate the public about the importance of picking up after pets. Others have enacted Pet Waste Ordinances that mandate proper disposal of pet waste. During the WTW exercise, no serious pet waste disposal issues were observed. The



team even observed a resident carrying a pet waste bag while walking his dog (Figure 27).

Unfortunately, everyone is not as responsible as that pet owner. Since pet waste has been identified as a potential source of fecal coliform impairments in County waterbodies, launching a pet waste campaign in the Gottfried Creek watershed was identified as a WTW action item. A brochure was designed and distributed to appropriate businesses such as the county library, county sports complex, pet stores, animal shelters, veterinarian offices, human society, etc. **Appendix D** contains copies of the brochure and distribution list. Supplies are replenished on an as-needed basis.

### **Presentations**

Sarasota County staff gave the following presentations (**Appendix F**) to inform the public about the WTW process: Stormwater Environmental Utility Advisory Committee, 4-12-2012; CHNEP Technical Advisory Committee, 7-11-2012; Florida Stormwater Association Conference, 12-6-2012; and the County Board of County Commissioners meeting, 6-10-2013.

## **Results**

The Walk the Waterbody event for the Gottfried Creek fecal coliform TMDL was highly successful. It brought all of the stakeholders together to work cooperatively toward the common goal of finding and eliminating and/or minimizing sources of fecal coliform bacteria. Below is a summary of the results:

- No sources were identified during the pre-event shoreline inspection. Two suspected sites were sampled and were not a source.
- No public or private lift stations were malfunctioning or overflowing. Seven private and two public lift stations were lacking emergency signage and a lock was missing from a private lift station pump station lid. All violations were corrected.
- No point sources were found. One stormwater ditch was sampled and no issues were found
- The creek is fenced off preventing access to cattle on the Thomas Ranch.
- No obvious issues were observed during the inspection of an area of ranchettes and small farms. A post-event workshop was held to inform and educate the property owners about proper waste management and disposal.
- The entire basin, except for a small area at the southeast corner, is on central sanitary sewer.
- No SSOs were discovered during the event, and the EWD has reported no major SSOs.
- Pet waste and farm animals such as horses, cattle, chickens, hogs, and goats are probable sources of the bacteria.
- A pet waste brochure specific to Gottfried Creek was prepared and distributed throughout the basin to educate the public about the importance of proper pet waste disposal.
- Natural sources such as birds and wildlife are most likely the major contributors of fecal coliform bacteria to the creek.

## **Future Proactive Prevention Actions**

Future proactive prevention actions by stakeholders are:

### **Ambient Monitoring**

- Sarasota County will continue to collect monthly water quality samples from the creek.
- The monitoring data can be reviewed on the Sarasota Water Atlas site at:  
<http://www.sarasota.wateratlas.usf.edu/>

### **Monitoring Response**

- If ambient monitoring results indicate chronic exceedances over 2000 CFU/100mL, Sarasota County will conduct a sanitary survey within a one-mile radius of the sampling site to identify anthropogenic sources of pollution. The sanitary survey, which uses WTW methods, will include looking for signs of sewage leaks, SSOs, and illicit connections, inspecting private and public lift stations, and collecting samples. Samples will be collected at the site and sites upstream and downstream to determine if the source is persistent and narrow down the potential location of the source. The investigation will continue until the source is identified or the sampling results demonstrate the source is no longer contributing.
- If the monitoring results demonstrate an increasing trend for 4 consecutive quarters, Sarasota County will sample multiple stations in the watershed to identify hot spots. If hot spots are identified, field investigations, including sample collection, will be conducted to determine potential sources.

- If Gottfried Creek remains impaired, the monitoring response plan will be revisited every 5 years and updated as needed. If no updates are needed, Sarasota County will continue implementing plan components that appear to be minimizing or reducing bacteria loading to the creek.
- Sarasota County will continue to respond to citizen concerns about fecal pollution issues in the basin and collect samples as needed.

### Wastewater

- Municipal owners of wastewater collection systems within the watershed will properly maintain wastewater collection systems and report SSOs according to FDEP wastewater and stormwater regulations.
- If a need for a private lift station inspection program is demonstrated through frequent reports of SSOs resulting from poorly maintained lift stations, an annual inspection and compliance program will be developed and implemented by the appropriate agency.
- If a suspected washing machine discharge is reported in the canal at the FDEP volunteer monitoring site LBGOT-2, County staff will conduct an investigation to identify the source residence and provide assistance in eliminating the discharge.

### Stormwater

- Sarasota County, FDOT, and the City of North Port will continue to prioritize their respective stormwater inventory within the watershed for inspection and maintenance, including inspection for illicit discharge and illegal connections, consistent with the Phase I MS4 permit requirements.
- Phase I MS4 permittees within the watershed will require additional erosion and sedimentation controls during site-plan review and inspect construction sites at a higher frequency as a result of prioritizing construction activity within the watershed consistent with permit requirements.
- Phase I MS4 permittees within the watershed will respond to SSOs and exfiltration/infiltration events where wastewater may enter the stormwater system immediately and consistent with requirements of the MS4 and wastewater permits.
- Charlotte County will continue to properly maintain its stormwater and wastewater collection systems.

### Education and Outreach

- Phase I MS4 permittees will enhance public outreach and education efforts within the watershed regarding bacteria pollution prevention and by providing contacts for receiving concerns from the public.
- The pet waste campaign will continue through distribution of the pet waste brochure and by conducting outreach programs. Changes to municipal ordinances within the watershed will be considered where appropriate to minimize bacteria loadings.

### Ongoing Protective Actions

- Changes to municipal ordinances within the watershed will be considered where appropriate to minimize bacteria loadings.
- Sarasota County and the City of North Port will continue to provide oversight of all development in the watershed in the form of development reviews, inspections, zoning compliance, permitting, and environmental regulation compliance.



**Special thanks to the individuals who participated in this event; your dedication is appreciated!**

*Figure 114. WTW Team.*



Front row from left to right: Leilani Farrell (Esciences-FDOT); Kathy Meaux (Sarasota County); Jennifer Thera (FDEP); Joanne Vernon (Charlotte County). Back row from left to right: Anita Nash (FDEP); Edgar Saint Amand (City of North Port); Tim Kirby (Sarasota County); Jay Linden (EWD); Rob Wright (Sarasota County); Hector Mendez (DOH).

**Additional questions on this event should be directed toward:**

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## **List of Acronyms and Abbreviations**

ARV	Air Release Valve
AWTF	Advanced Wastewater Treatment Facility
BMAP	Basin Management Action Plan
BMP	Best Management Practice
CC	Charlotte County
CFU	Colony Forming Unit
CHAP	Charlotte Harbor Aquatic Preserve
CONP	City of North Port
DOH-Sarasota	Florida Department of Health, Sarasota County
EWD	Englewood Water District
F.A.C.	Florida Administrative Code
FC	Fecal Coliform
FDACS	Florida Department of Agricultural and Consumer Services
FDEP	Florida Department of Environmental Protection
FDLE	Florida Department of Law Enforcement
FDOT	Florida Department of Transportation
GIS	Geographic Information System
GPS	Global Positioning System
SC	Sarasota County
SCPW	Sarasota County Public Works
IFAS	University of Florida Institute of Food and Agricultural Sciences
IWR	Impaired Waters Rule
L/S	Lift Station
MF	Membrane Filter
MGD	Million Gallons per Day
MHP	Mobile Home Park
mL	Milliliters
MPN	Most Probable Number
ng/L	Nanograms per Liter
MS4	Municipal Separate Storm Sewer System
OSTDS	Onsite Sewage Treatment and Disposal System
PIC	Potential Illicit Connection
PVC	Polyvinyl Chloride
ROW	Right of Way
SOP	Standard Operating Procedure
SR	State Road
SSO	Sanitary Sewer Overflow
U	Undetected
TMDL	Total Maximum Daily Load
ug/L	Micrograms per Liter
UV	Ultra-Violet
WBID	Waterbody Identification
WTW	Walk the Waterbody
WWTP	Wastewater Treatment Plant