



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

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

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

SECTION I. BACKGROUND INFORMATION	
A.	Permittee Name: City of West Palm Beach
B.	Permit Name: Palm Beach County MS4
C.	Permit Number: FLS000018-004
D.	Annual Report Year: <input type="checkbox"/> Year 1 <input type="checkbox"/> Year 2 <input checked="" type="checkbox"/> Year 3 <input type="checkbox"/> Year 4 <input type="checkbox"/> Year 5 <input type="checkbox"/> Other, specify Year:
E.	Reporting Time Period (month/year): 10 / 2018 through 09 / 2019
F.	Name of the Responsible Authority: Poonam Kalkat
	Title: : Director of Public Utilities
	Mailing Address: P.O Box 3368
	City: West Palm Beach Zip Code: 33402 County: Palm Beach
	Telephone Number: 561-822-2200 Fax Number: 561-822-2193
	E-mail Address: pkalkat@wpb.org
G.	Name of the Designated Stormwater Management Program Contact (if different from Section I.F above): Stephon Harris
	Title: Utilities Operations & Maintenance Superintendent
	Department: Public Utilities
	Mailing Address: P.O Box 3368
	City: West Palm Beach Zip Code: 33402 County: Palm Beach
	Telephone Number: 561.822.2168 Fax Number: 561-822-2193
	E-mail Address: harrisS@wpb.org

SECTION II. MS4 MAJOR OUTFALL INVENTORY (Not Applicable in Year 1)	
A.	Number of outfalls ADDED to the outfall inventory in the current reporting year (insert "0" if none): 0 (Does this number include non-major outfalls? <input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Not Applicable)
B.	Number of outfalls REMOVED from the outfall inventory in the current reporting year (insert "0" if none): 0 (Does this number include non-major outfalls? <input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Not Applicable)
C.	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. PART V.B. ASSESSMENT PROGRAM

A.	<p>Provide a brief statement as to the status of water quality monitoring plan implementation. Status may include sampling frequency changes, monitoring location changes, or sampling waiver conditions. <u>DEP Note:</u> <i>If permittee participates in a collaborative monitoring plan, permittee may refer to a joint response as defined by the interlocal agreement.</i></p> <p>Name and date of the approved plan: Current approved plan for the Group Monitoring Plan is September 8, 2016 Status: <i>The Group Monitoring Report is included in the Cycle 4, Year 3 Joint Annual Report. The individual Assessment Plan has been approved by FDEP on July 25, 2018</i></p>
B.	<p>Provide a brief discussion of the monitoring and loading results to date, which includes a summary of the water quality monitoring data and / or stormwater pollutant loading changes from the reporting year. <u>DEP Note:</u> <i>Results must be specific to the permittee's SWMP.</i></p> <p><i>Please refer to the attached City Annual Assessment Report.</i></p>
C.	<p>Attach a monitoring data summary as required by the permit. An analysis of the data discussing changes in water quality and/or stormwater pollutant loading from previous reporting years. <u>DEP Note:</u> <i>Analysis must be specific to the permittee's SWMP.</i></p> <p><i>See response for Section III B, above</i></p>

SECTION IV. FISCAL ANALYSIS

A.	<p>Total expenditures for the NPDES stormwater management program for the current reporting year: \$12,369,687</p>
B.	<p>Total budget for the NPDES stormwater management program for the subsequent reporting year: \$14,333,080</p>
C.	<p>Did the current reporting year resources decrease from the previous year? Y <input type="checkbox"/> / N <input checked="" type="checkbox"/></p> <p>If program resources decreased, provide a discussion of the impacts on the implementation of the SWMP.</p> <p>N/A</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	Required Attachments	Permit Citation	Attachment Number/Title
<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.	Part III.A	
<input type="checkbox"/>	<input checked="" type="checkbox"/>	An explanation of why the minimum inspection frequency in Table II.A.1.a. was not met, if applicable.	Part II.A.1	
<input type="checkbox"/>	<input checked="" type="checkbox"/>	A list of the flood control projects that did not include stormwater treatment and an explanation for each of why it did not (if applicable).	Part III.A.4	
<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.	Part V.B.3	city's assessment summary
<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.	Part III.A.1	
<input type="checkbox"/>	<input checked="" type="checkbox"/>	YEAR 2: A summary review of codes and regulations to reduce the stormwater impact from development.	Part III.A.2	
<input checked="" type="checkbox"/>	<input 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.	Part V.A	Refer to city's assessment summary
<input type="checkbox"/>	<input checked="" type="checkbox"/>	YEAR 3: Summary of TMDL Monitoring Results (if applicable).	Part VIII.B.2	
<input type="checkbox"/>	<input checked="" type="checkbox"/>	YEAR 3: Bacteria Pollution Control Plan (if applicable).	Part VIII.B.3	
<input type="checkbox"/>	<input checked="" type="checkbox"/>	YEAR 4: A follow-up report on plan implementation of changes to codes and regulations to reduce the stormwater impact from development.	Part III.A.2	
<input type="checkbox"/>	<input checked="" type="checkbox"/>	YEAR 4: A report on any amendments to the applicable legal authority (if applicable).	Part III.A.7.a	
<input type="checkbox"/>	<input checked="" type="checkbox"/>	YEAR 4: Permit re-application information in accordance with Rule 62-624.420(2), F.A.C. <ul style="list-style-type: none"> • The monitoring plan (with revisions, if applicable). • If the total annual pollutant loadings have not decreased over the past two permit cycles, revisions to the SWMP, as appropriate. 	Part V.B.3 Part V.A.3	
<input type="checkbox"/>	<input checked="" type="checkbox"/>	YEAR 4: TMDL Supplemental SWMP (if applicable).	Part VIII.B.3	

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

SECTION VI. CERTIFICATION STATEMENT AND SIGNATURE

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

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

Name of Responsible Authority (type or print): Poonam Kalkat

Title: Public Utilities Director

Signature:  Date: 03 / 02 / 20 20

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	
Part III.A.1	Structural Controls and Stormwater Collection Systems Operation								
STOPPED HERE	Report the current known inventory and the number of inspection and maintenance activities conducted for each applicable type of structure included in Table II.A.1.a, and the percentage of the total inventory of each type of structure inspected and maintained								
	<i>Note: Delete structures that are not in your MS4's inventory. The permittee may choose its own unit of measurement for each structural control to be consistent with the unit of measurement in the documentation. Unit options include: miles, linear feet, acres, etc.</i>								
	Type of Structure	Number of Structures	Number of Inspections	Percent Inspected	Number of Maintenance	Percent Maintained			
	Dry retention systems	3	3	100	5	100	Hiperweb /workorders	Wpb stormwater / total maintenance	Grant St Complex Andrews Rd
	Exfiltration trench / French drains (lf)	7325	1	100	1	100	Hiperweb /workorders	Wpb stormwater	
	Grass treatment swales (miles)	1	1	100	1	100	Hiperweb /workorder	Wpb stormwater	
	Dry detention systems	3	3	100	3	100	Hiperweb /workorder	Wpb stormwater	
	Wet detention systems	4	4	100	4	100	Hiperweb /workorder	Wpb stormwater	
	Alum Injection systems	1	144	100	24	100	Hiperweb /workorders	WTP staff	
	Pollution control boxes	13	13	100	13	100	Hiperweb /workorders	Wpb stormwater	
	Pump stations	7	148	100	43	100	Hiperweb /workorders	WTP staff	
	Major outfalls	47	47	100	47	100	Hiperweb /workorders	Wpb stormwater	
	Weirs or other control structures	3	3	100	3	100	Control structure inspection sheet /	Wpb stormwater	
	pipes / culverts (miles)	160	40	30	40	26	Hiperweb /workorders	Wpb stormwater	
	Canals	7	7	100	7	100	Hiperweb /workorders	Wpb stormwater	Sequoia, Carver, Stubb, Ware, Golf, Gaines & C-17
Inlets / catch basins / grates	5681	5681	100	26	100	Hiperweb	Wpb stormwater		
Ditches / conveyance swales (miles)	5	5	100	5	100	Hiperweb /workorders	Wpb stormwater		
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			□						

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	a description of the actions that will be taken to ensure that they will be met.				

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Permit Citation/ SWMP Element	Permit Requirement/Quantifiable SWMP Activity	Number of Activities Performed	Documentation / Record	Entity Performing the Activity	Comments
Part III.A.1 Summary	Provide an evaluation of the Stormwater Management Program according to Part VI.B.2 of the permit.				
	Strengths: Inspections help identify any areas that may be developing a problem with sedimentation or failure of the structure. Maintenance of the system has allowed for the reduction of pollutant loading into the waterways.				
	Limitations: None				
	SWMP revisions implemented to address limitations: None				
Part III.A.2	Areas of New Development and Significant Redevelopment				
	Report the number of significant development projects, including new and redevelopment, reviewed and approved by the permittee for post-development stormwater considerations.				
	Number of significant development projects reviewed	31	PPRC reviews	SSE-Engineering Services.	
	Number of significant development projects approved	31	PPRC reviews	SSE-Engineering Services	
	Provide in the Year 2 Annual Report the summary report of the review activity. Provide in the Year 4 Annual Report the follow-up report on plan implementation.				
Year 2 ONLY: Attach the summary report of the review activity	<input type="checkbox"/>				
Year 4 ONLY: Attach the follow-up report on plan implementation	<input type="checkbox"/>				
Part III.A.2 Summary	Provide an evaluation of the Stormwater Management Program according to Part VI.B.2 of the permit.				
	Strengths: Advises developers of the need to design their stormwater management system to meet SFWMD ERP requirements and obtain SFWMD ERP permit				
	Limitations: none				
	SWMP revisions implemented to address limitations: none				
Part III.A.3	Roadways				
	Report on the litter control program, including the frequency of litter collection, an estimate of the total number of road miles cleaned or amount of area covered by the activities, and an estimate of the quantity of litter collected.				
	<i>Note: If the permittee does not contract activities, delete CONTRACTOR activities.</i>				
	PERMITTEE Litter Control: Frequency of litter collection	weekly	Daily Work Sheets	Parks maintenance	
	PERMITTEE Litter Control: Estimated amount of area maintained (acres)	500	Daily Work Sheets	Parks maintenance	Plus 41 miles of right-of-ways
	PERMITTEE Litter Control: Estimated amount of litter collected (tons)	1677	Daily Work Sheets	Parks maintenance	
CONTRACTOR Litter Control: Frequency of litter	3 times weekly	contract	Michael Johns Inc.	contractor	

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Permit Citation/ SWMP Element	Permit Requirement/Quantifiable SWMP Activity	Number of Activities Performed	Documentation / Record	Entity Performing the Activity	Comments
	collection CONTRACTOR Litter Control: Estimated amount of area maintained (ACRES)	8	contract	Michael Johns Inc	City property (PARKS)
	CONTRACTOR Litter Control: Estimated amount of litter collected (pounds)	1250	worksheets	Michael Johns Inc	
OPTIONAL: If an Adopt-A-Road or similar program is implemented, report the total number of road miles cleaned and an estimate of the quantity of litter collected. If you do not participate in an Adopt-A-Road program, report "0".					
	Trash Pick-up Events: Total miles cleaned	1	Special events	Sanitation- public works	
	Trash Pick-up Events: Estimated amount of litter collected (cy)	90	Debris special project	Sanitation- public works	
	Adopt-A-Road: Total miles cleaned	0	N/A		
	Adopt-A-Road: Estimated amount of litter collected (cy)	0	N/A		
Report on the street sweeping program, including the frequency of the sweeping, total miles swept, an estimate of the quantity of sweepings collected, and the total nitrogen and total phosphorus loadings that were removed by the collection of sweepings. If no street sweeping program is implemented, provide the explanation of why not in column F.					
	Frequency of street sweeping	weekly	MS4 Load Reduction Tool Spread sheet	Public Works Sweeper division	
	Total miles swept	33,776	MS4 Load Reduction Tool Spread sheet	Public Works Sweeper division	
	Estimated quantity of sweeping material collected (pounds)	3,423,920	MS4 Load Reduction Tool Spread sheet	Public Works Sweeper division	
	Total phosphorous loadings removed (pounds)	1,236	MS4 Load Reduction Tool Spread sheet	Public Works Sweeper division	
	Total nitrogen loadings removed (pounds)	1,928	MS4 Load Reduction Tool Spread sheet	Public Works Sweeper division	
Report the equipment yards and maintenances shops that support road maintenance activities, and the number of inspections conducted for each facility.					
	Name of Facility	Number of Inspections			
	CWPB Municipal Complex Fleet Management Area	12	Documentation on file at Fleet Management office	ECO Advisors	Inspections performed monthly

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Permit Citation/ SWMP Element	Permit Requirement/Quantifiable SWMP Activity	Number of Activities Performed	Documentation / Record	Entity Performing the Activity	Comments
Part III.A.3 Summary	Provide an evaluation of the Stormwater Management Program according to Part VI.B.2 of the permit.				
	Strengths: Education and enforcement of illicit discharges and Street sweeping helps with the reduction of pollutants going into the storm drain, canals and lakes				
	Limitations: Contractors are educated to know what BMPS they need. Maintenance of Street Sweeper trucks are costly. Cars parked on the side of the road and dumpsters leaking make it hard to clean all roadways.				
	SWMP revisions implemented to address limitations:				
Part III.A.4	Flood Control Projects				
	Report the total number of flood control projects that were constructed by the permittee during the reporting period and the number of those projects that did NOT include stormwater treatment. The permittee shall provide a list of the projects where stormwater treatment was not included with an explanation for each of why it was not.				
	Report on any stormwater retrofit planning activities and the associated implementation of retrofitting projects to reduce stormwater pollutant loads from existing drainage systems that do not have treatment BMPs.				
	Flood control projects completed during the reporting period	3	1.3336 N.Flagler Dr. 2. Gregory pl Green streets 3. Grant street	T Ward/E.S. D	
	Flood control projects completed that did <u>not</u> include stormwater treatment	0	0	0	All three projects included SW treatment
	Stormwater retrofit projects planned/under construction	4	Planned: 1. Currie Park W.Q.& LID 2. Datura St. Green Streets 3. Clematis St. phase 3 Construction: 1. Clematis St. phase 2	T Ward/E.S. D	
	Stormwater retrofit projects completed	2	1. Clematis St. phase 1 2. Gregory Rd. Green Streets	T Ward/E.S. D	
If there were projects that did not include stormwater treatment, provide as an attachment a list of the projects and an explanation for each of why it did not.	<input type="checkbox"/>				
Part III.A.4 Summary	Provide an evaluation of the Stormwater Management Program according to Part VI.B.2 of the permit.				
	Strengths: Annual reminder that all drainage projects should include stormwater quality treatment where feasible.				

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Permit Citation/ SWMP Element	Permit Requirement/Quantifiable SWMP Activity	Number of Activities Performed	Documentation / Record	Entity Performing the Activity	Comments
	Limitations: limited resources (vacant land, funding) and right-of-ways crowded with other utilities to implement stormwater treatment BMPs SWMP revisions implemented to address limitations: None				
Part III.A.5	Municipal Waste Treatment, Storage, and Disposal Facilities Not Covered by an NPDES Stormwater Permit				
	Report the applicable facilities and the number of the inspections conducted for each facility.				
	<p align="center">Name of Facility</p>	<p align="center">Number of Inspections</p>			
	<p align="center">City of West Palm Beach Complex</p>	<p align="center">26</p>	<p align="center">Hiperweb</p>	<p align="center">Storm water</p>	
	Provide an evaluation of the Stormwater Management Program according to Part VI.B.2 of the permit.				
Part III.A.5 Summary	Strengths: Waste TSD facility helps control any potential pollution of storm water				
	Limitations: None				
	SWMP revisions implemented to address limitations: none				
Part III.A.6	Pesticides, Herbicides, and Fertilizer Application				
	Report the number of permittee personnel applicators and contracted commercial applicators of pesticides and herbicides who are FDACS certified / licensed.				
	Report the number of permittee personnel who have been trained through the Green Industry BMP Program and the number of contracted commercial applicators of fertilizer who are FDACS certified / licensed.				
	<p align="center">PERSONNEL: FDACS public applicators of pesticides/herbicides</p>	<p align="center">14</p>	<p align="center">State certification Fla dept of Agriculture & Consumer Services</p>	<p align="center">Parks Maintenance(3) Watershed division(11)</p>	
	<p align="center">CONTRACTORS: FDACS commercial applicators of pesticides/ herbicides</p>	<p align="center">4</p>	<p align="center">Fla dept of Agriculture & Consumer Services</p>	<p align="center">Gulfstream Termite & Environmental</p>	<p align="center">Watershed (0)</p>
	<p align="center">PERSONNEL: Green Industry BMP Program training completed</p>	<p align="center">0</p>	<p align="center">0</p>		
	<p align="center">CONTRACTORS: FDACS certified / licensed applicators of fertilizer</p>	<p align="center">0</p>			
	Provide a copy of the adopted ordinance with the Year 2 Annual Report. If this provision is not applicable because the permittee is not within the watershed of a nutrient-impaired water body, indicate that in Column F.				
	<p>Year 2 ONLY: Attach copy of adopted Florida-friendly ordinance</p>	<p align="center"><input type="checkbox"/></p>			<p align="center">N/A</p>
	Report on the public education and outreach activities that are performed or sponsored by the permittee within the permittee's jurisdiction to encourage citizens to reduce their use of pesticides, herbicides and fertilizers including the type and number of activities conducted, the type and number of materials distributed, and the number of Web site visits (if applicable).				

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Part III.A.6 Summary	Provide an evaluation of the Stormwater Management Program according to Part VI.B.3 of the permit.				
	Strengths: staff trained and certified applicators of pesticide and herbicide from FDAC. Private contractor also FDAC certified				
	Limitations: none				
	SWMP revisions implemented to address limitations: none				
Part III.A.7.a	Illicit Discharges and Improper Disposal — Inspections, Ordinances, and Enforcement Measures				
	Report amendments in Year 4.				
	Year 4 ONLY: Attach a report on amendments to applicable legal authority	<input type="checkbox"/>			N/A
Part III.A.7.c	Illicit Discharges and Improper Disposal — Investigation of Suspected Illicit Discharges and/or Improper Disposal				
	Report on the proactive inspection program, including the number of inspections conducted by the permittee, the number of illicit activities found, and the number and type of enforcement actions taken.				
	Proactive inspections for suspected illicit discharges	856	Inspection sheets and Community plus	Code/ Stormwater Drainage	
	Illicit discharges found during a proactive inspection	21	Inspection sheets And/or Community plus	Code/ Stormwater Drainage	Corrective action taken
	NOV/WL/citation/fines issued for illicit discharges found during proactive inspection	9	Inspection sheets and Community plus	Code/ Stormwater Drainage	
	Report on the reactive investigation program as it relates to responding to reports of suspected illicit discharges, including the number of reports received, the number of investigations conducted, the number of illicit activities found, and the number and type of enforcement actions taken.				
	Reports of suspected illicit discharges received	496	Inspection sheets And/or Community plus	Stormwater Drainage	
	Reactive investigations of reports of suspected illicit discharges etc.	496	Inspection sheets and Community plus	Code/ Stormwater Drainage	Some had nothing to do with our MS4 and some were not illicit discharges
	Illicit discharges etc. found during reactive investigation	29	Inspection sheets and Community plus	Stormwater Drainage	
NOV/WL/citation/fines issued for illicit discharges etc. found during reactive investigation	29	Inspection sheets and Community plus	Stormwater Drainage		
Report the type of training activities, and the number of permittee personnel and contractors trained (both in-house and outside training) within the reporting year.					

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	Personnel trained	37	Sign in sheet dvd	Code/ Stormwater Drainage	
	Contractors trained	0		0	
Part III.A.7.d	Illicit Discharges and Improper Disposal — Spill Prevention and Response				
	Report on the spill prevention and response activities, including the number of spills addressed.				
	Hazardous and non-hazardous material spills responded to	136	Firehouse	WPB Fire Dept.	
	Report the type of training activities, and the number of permittee personnel and contractors trained (both in-house and outside training) within the reporting year.				
	Personnel trained	219	Target solutions training tracker	WPB Fire Dept.	All personnel are required to have annual training
	Contractors trained	0		Regional Hazmat teams have a list of approved hazardous material clean-up companies	No contractors used
Part III.A.7.e	Illicit Discharges and Improper Disposal — Public Reporting				
	The public outreach and education plan is carried out as a joint effort by the Palm Beach County Co-permittees. Please see the Palm Beach County Joint Annual Report for the public education and outreach information.				

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Part III.A.7.f	Illicit Discharges and Improper Disposal — Oils, Toxics, and Household Hazardous Waste Control																																							
	<p>Report on the public education and outreach activities that are performed or sponsored by the permittee within the permittee's jurisdiction to encourage the proper use and disposal of oils, toxics, and household hazardous waste, including the type and number of activities conducted, the type and number of materials distributed, the amount of waste collected / recycled / properly disposed, and the number of Web site visits (if applicable).</p> <p>The public outreach and education plan is carried out as a joint effort by the Palm Beach County Co-permittees. Please see the Palm Beach County Joint Annual Report for the public education and outreach information.</p>																																							
Part III.A.7.g	Illicit Discharges and Improper Disposal — Limitation of Sanitary Sewer Seepage																																							
	<p>Report on the type and number of activities undertaken to reduce or eliminate SSOs and inflow/ infiltration, the number of SSOs or inflow / infiltration incidents found and the number resolved, and the name of the owner of the sanitary sewer system within the permittee's jurisdiction. Report only the SSOs and inflow / infiltration incidents into the MS4.</p> <table border="1" data-bbox="220 727 2020 1049"> <thead> <tr> <th data-bbox="220 727 865 755">Owner of the sanitary sewer system</th> <th colspan="4" data-bbox="865 727 2020 755">City of West Palm Beach</th> </tr> </thead> <tbody> <tr> <td data-bbox="220 755 865 782">Activity to reduce/eliminate SSOs and I&I: (Repair)</td> <td data-bbox="865 755 1056 782">2,472</td> <td data-bbox="1056 755 1459 782">PO/reacquisition log</td> <td data-bbox="1459 755 1654 782">Lanzo</td> <td data-bbox="1654 755 2020 782"></td> </tr> <tr> <td data-bbox="220 782 865 812"></td> <td data-bbox="865 782 1056 812"></td> <td data-bbox="1056 782 1459 812"></td> <td data-bbox="1459 782 1654 812"></td> <td data-bbox="1654 782 2020 812"></td> </tr> <tr> <td data-bbox="220 812 865 839">SSO incidents discovered</td> <td data-bbox="865 812 1056 839">4</td> <td data-bbox="1056 812 1459 839">SSO logbook</td> <td data-bbox="1459 812 1654 839">Sanitary Collection</td> <td data-bbox="1654 812 2020 839"></td> </tr> <tr> <td data-bbox="220 839 865 867">SSO incidents resolved</td> <td data-bbox="865 839 1056 867">4</td> <td data-bbox="1056 839 1459 867">SSO logbook</td> <td data-bbox="1459 839 1654 867">Sanitary Collection</td> <td data-bbox="1654 839 2020 867"></td> </tr> <tr> <td data-bbox="220 867 865 894">Inflow / infiltration incidents discovered</td> <td data-bbox="865 867 1056 894">1</td> <td data-bbox="1056 867 1459 894">Inflow incidents Spreadsheets/ SSO Logbook</td> <td data-bbox="1459 867 1654 894">Sanitary Collection</td> <td data-bbox="1654 867 2020 894"></td> </tr> <tr> <td data-bbox="220 894 865 922">Inflow / infiltration incidents resolved</td> <td data-bbox="865 894 1056 922">1</td> <td data-bbox="1056 894 1459 922">Inflow incidents spreadsheets/ SSO Logbook</td> <td data-bbox="1459 894 1654 922">Sanitary Collection</td> <td data-bbox="1654 894 2020 922"></td> </tr> </tbody> </table>					Owner of the sanitary sewer system	City of West Palm Beach				Activity to reduce/eliminate SSOs and I&I: (Repair)	2,472	PO/reacquisition log	Lanzo							SSO incidents discovered	4	SSO logbook	Sanitary Collection		SSO incidents resolved	4	SSO logbook	Sanitary Collection		Inflow / infiltration incidents discovered	1	Inflow incidents Spreadsheets/ SSO Logbook	Sanitary Collection		Inflow / infiltration incidents resolved	1	Inflow incidents spreadsheets/ SSO Logbook	Sanitary Collection	
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Part III.A.7 Summary	<p>For activities required by Part III.A.7: Provide an evaluation of the Stormwater Management Program according to Part VI.B.2 of the permit.</p> <p>Strengths:</p> <p>Limitations: None</p> <p>SWMP Revisions implemented to address limitations: none</p>																																							
Part III.A.8.a	Industrial and High-Risk Runoff — Identification of Priorities and Procedures for Inspections																																							
	<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.</p> <p>Report on the high-risk facilities inspection program, including the number of inspections conducted and the number and type of enforcement actions taken.</p>																																							

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
	Type of Facility	Number of Facilities	Number of Inspections	Enforcement Actions			
	Operating municipal landfills	170					
	Hazardous waste treatment, storage, disposal and recovery (HWTSDR) facilities	171	0	0			Scheduled for year 4 or 5
	EPCRA Title III, Section 313 facilities (TRI)	2	0	0			Scheduled for year 4 or 5
	Facilities determined as high risk by the permittee	0	0	0			
Part III.A.8.b	Industrial and High-Risk Runoff — Monitoring for High Risk Industries						
	Report the number of high risk facilities sampled.						
	High risk facilities sampled	0					
Part III.A.8 Summary	Provide an evaluation of the Stormwater Management Program according to Part VI.B.2 of the permit.						
	Strengths: None of the 173 are high risk facilities						
	Limitations: None						
	SWMP revisions implemented to address limitations: None						
Part III.A.9.a	Construction Site Runoff — Site Planning and Non-Structural and Structural Best Management Practices						
	Report the number of permittee and private pre-construction site plans reviewed for stormwater, erosion, and sedimentation controls, and the number approved.						
	PERMITTEE SITES: Construction site plans reviewed	8		Engineering permit	Engineering Service dept		
	PERMITTEE SITES: Construction site plans approved	6		Engineering permit	Engineering Service dept		
	PRIVATE SITES: Construction site plans reviewed	39		Engineering permit	Engineering Service dept		
	PRIVATE SITES: Construction site plans approved	39		Engineering permit	Engineering Service dept		
	Report the number of development permit applicants notified of the ERP and CGP, and the number of applicants who confirmed ERP and CGP coverage.						
	Notified of ERP stormwater permit requirements	39		Engineering permit application	Engineering Service dept		
	Confirmed ERP coverage	12		SFWMD/FDEP website	Engineering Service dept		

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
	Notified of CGP stormwater permit requirements	39	Engineering permit application	Engineering Service dept	
	Confirmed CGP coverage	9	FDEP website	Engineering Service dept	
Part III.A.9.b	Construction Site Runoff — Inspection and Enforcement				
	Report on the inspection program for privately-operated and permittee-operated construction sites, including the number of active construction sites during the reporting year, the number of inspections of active construction sites, the percentage of active construction sites inspected, and the number and type of enforcement actions / referrals taken.				
	PERMITTEE SITES: Active construction sites	9	Daily Reports	Engineering Service dept Construction coord.	
	PERMITTEE SITES: Pre-, During, and Post inspections of active construction sites for E&S and waste control BMPs	648	Daily Reports	Engineering Service dept Construction coord.	
	PERMITTEE SITES: Percentage of active construction sites inspected	100	N/A	N/A	
	PRIVATE SITES: Active construction sites	28	Daily Reports	Engineering Service dept Construction coord.	
	PRIVATE SITES: Pre-, During, and Post inspections of active construction sites for E&S and waste control BMPs	1116	Daily Reports	Engineering Service dept Construction coord.	
	PRIVATE SITES: Percentage of active construction sites inspected	47	N/A	N/A	
	Enforcement Action	0	N/A	N/A	
Part III.A.9.c	Construction Site Runoff — Site Operator Training				
	Report the type of training activities, the number of inspectors, site plan reviewers and site operators trained (both in-house and outside training).				
		DEP Certification	Annual Training		
	Permittee construction site inspectors	6	3	certificates	FDEP
	Permittee construction site plan reviewers		1	certificates	FDEP
	Permittee construction site operators		0		

SECTION VII. STORMWATER MANAGEMENT PROGRAM (SWMP) SUMMARY TABLE					
A.	B.	C.	D.	E.	F.
Permit Citation/ SWMP Element	Permit Requirement/Quantifiable SWMP Activity	Number of Activities Performed	Documentation / Record	Entity Performing the Activity	Comments
Part III.A.9 Summary	Provide an evaluation of the Stormwater Management Program according to Part VI.B.2 of the permit.				
	Strengths: Training, dvds, and education . We are trying to make employees and contractors more aware of sediment and other pollutants that can be controlled through proper preparation and use of BMPs				
	Limitations: NONE				
	SWMP revisions implemented to address limitations:				

SECTION VIII. CHANGES TO THE STORMWATER MANAGEMENT PROGRAM (SWMP) ACTIVITIES (Not Applicable in Year 4)		
A.	Permit Citation/ SWMP Element	Proposed Changes to the Stormwater Management Program Activities Established as Specific Requirements Under Part III.A of the Permit (Including the Rationale for the Change) — REQUIRES DEP APPROVAL PRIOR TO CHANGE IF PROPOSING TO REPLACE OR DELETE AN ACTIVITY.
	N/A	
	N/A	
	N/A	
B.	Permit Citation/ SWMP Element	Changes to the Stormwater Management Program Activities NOT Established as Specific Requirements Under Part III.A of the Permit (Including the Rationale for the Change)
	N/A	
	N/A	
	N/A	

SECTION IX. TMDL Status Report

<p>YEAR 1 Provide a table summarizing the status of the TMDL process. Include a list of prioritized TMDLs and their monitoring and implementation schedule; and include the Identification number of the outfall prioritized for TMDL monitoring.</p>									
A.	WBID Number	Segment/ Waterbody/ Basin	Pollutant of Concern	TMDL DEP / EPA	Percent Reduction (WLA)	Priority Rank	Priority Outfall	Monitoring Summary / BPCP Due Date	Supplemental SWMP Due Date
	N/A			<input type="checkbox"/> / <input type="checkbox"/>		1		(Year 3 AR)	(Year 4 AR; N/A) if BPCP)
	N/A			<input type="checkbox"/> / <input type="checkbox"/>					
	N/A			<input type="checkbox"/> / <input type="checkbox"/>					
<p>YEAR 3 and annually thereafter, provide a summary of the estimated load reductions that have occurred for the pollutant(s) of concern being discharged from the MS4 to the TMDL water body during the reporting period and cumulatively since the date the Supplemental SWMP was implemented.</p> <p>Year 3: Submit a Monitoring data summary or BPCP (if applicable).</p> <p>Year 4: Submit a Supplemental SWMP (if applicable).</p>									
B.	WBID Number	Pollutant of Concern	Monitoring Summary / BPCP Submitted	Supplemental SWMP Submitted	Projected load reductions OR Actual load reductions to date				
	N/A		(Year 3 AR)	(Year 4 AR; N/A if BPCP)					
	N/A								
	N/A								
<p>C. Provide a brief statement as to the status of TMDL implementation according to Part VIII.B of the permit (e.g. status of monitoring to validate WLA):</p> <p>No discharge to a TMDL WBID at time of permit</p>									



WEST PALM BEACH

MS4 Assessment Program to Satisfy Part V. – Monitoring Requirements

Submitted by City of West Palm Beach – MS4 Permit No. FLS000018-004

March 25, 2020

Introduction

Part V of the Municipal Separate Storm Sewer System (MS4) permit for Palm Beach County and co-permittees (FLS000018-004) calls for the creation of an assessment program to determine the overall effectiveness of the Stormwater Management Program (SWMP). This Assessment Program shall include the three following components:

- Water Quality Monitoring Plan,
- Pollutant Loading Estimate Plan, and
- Evaluation and Response Plan

The intent of the program is to identify where local sources of urban stormwater are adversely affecting surface water resources so that decisions can be made to mitigate these effects accordingly. The City of West Palm Beach has gone to great lengths to protect the potable water supply conveyed via M-Canal from Grassy Waters Preserve (Water Catchment Area) to Lake Mangonia and Clear Lake where the City's water treatment plant is located. These measures include diverting most of the stormwater within the City away from these waterbodies and ultimately to Lake Worth Lagoon via the C-17 and C-51 canals or directly through 48 direct outfalls to the Lake Worth Lagoon. The City has identified four receiving waterbodies to monitor the effects from stormwater contributions from its MS4: Lake Worth Lagoon (divided into two segments, north and central), Grassy Waters Preserve, Lake Mangonia, and Clear Lake (Figure 1).

This report satisfies Part V, Assessment Program (3.) *Reporting of Assessment Results* and includes:

- The status of the Assessment Program
- Summary of results
- Analysis of changes from previous monitoring years

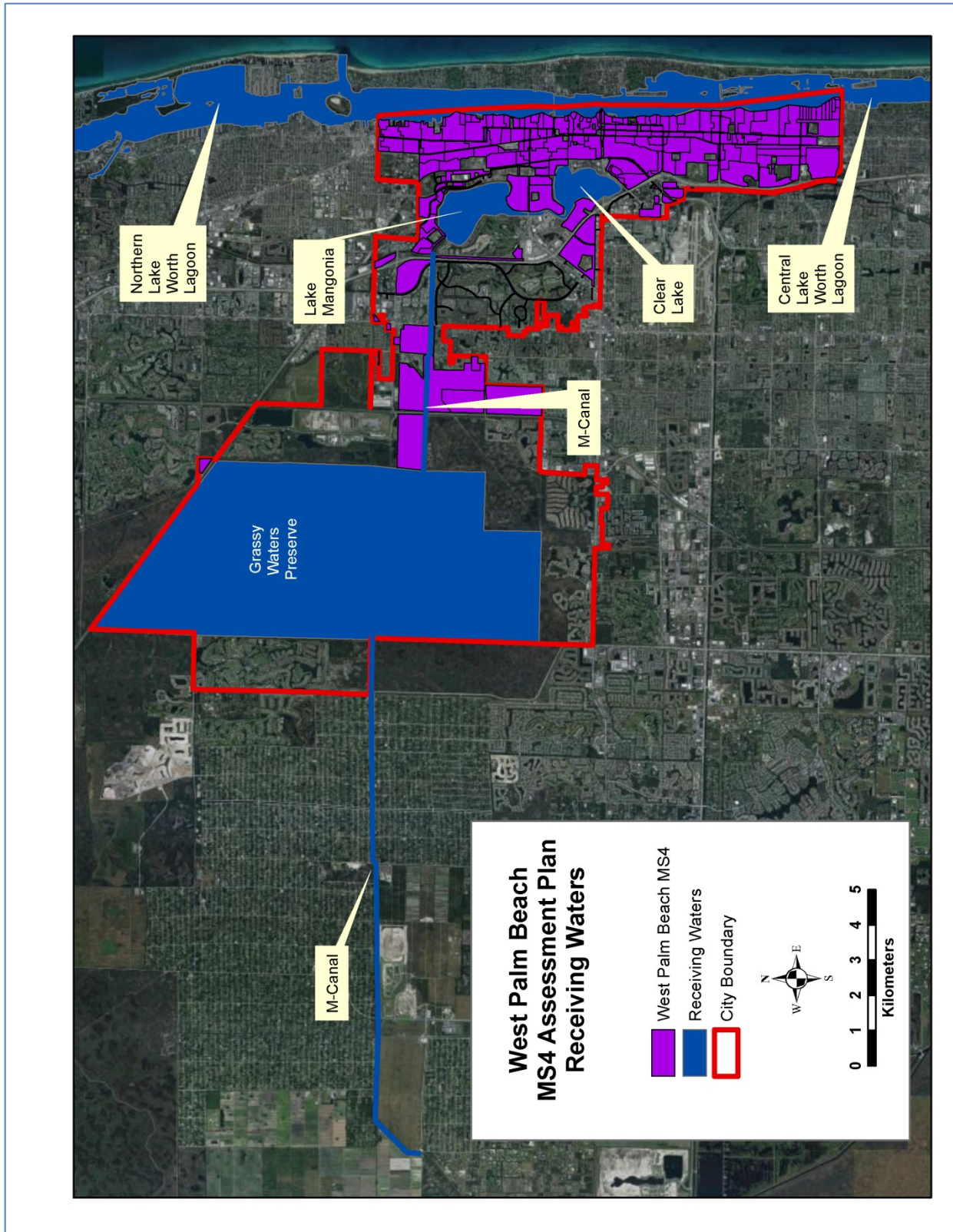


Figure 1. Receiving Waterbodies for City of West Palm Beach.

Status of the Monitoring Program

The City of West Palm Beach’s MS4 Assessment Plan was submitted to the Florida Department of Environmental Protection (FDEP) for approval as part of the Year 1 annual report in March of 2018 and was approved on July 25, 2018. This report covers Year 3 of the Cycle 4 MS4 permit representing the period between October 2018 and September 2019.

The City of West Palm Beach maintains a water quality database within the City’s laboratory information management system, also known as a LIMS system, which the data was exported from for these analyses. The Palm Beach County data for Lake Worth Lagoon were extracted from the FDEP IWR RUN 58 and Watershed Information Network (WIN) databases, and the South Florida Water Management District’s DBHYDRO database. All of the data has undergone thorough inspection and quality assured. Ultimately all of the data will be uploaded and incorporated into the appropriate State Database.

The following sections describe the monitoring programs by receiving waterbodies.

Receiving Waters

Lake Worth Lagoon

Lake Worth Lagoon is currently monitored by Palm Beach County Environmental Resources Management (PBCERM) via an Inter-local agreement between the Palm Beach County MS4 Co-Permittees and the Northern Palm Beach County Improvement District. The City, along with other entities discharges stormwater to both the North and Central Estuarine Nutrient Regions of Lake Worth Lagoon. FDEP refers to these waterbodies as WBIDs 3226E1 and 3226F1 respectively. Both of these segments were listed as impaired for nutrients (chlorophyll-a) and copper during the last Group 3 Cycle 3 assessment in 2016. The impairment isn’t likely due to a single discharge location as the Lagoon integrates pollutants from numerous sources.

The monitoring locations for Lake Worth Lagoon are listed in Table 1 and shown in Figure 2.

Table 1. Monitoring Locations						
Waterbody	Station	MAP_ID	Latitude	Longitude	Agen	Frequency
North Lake	21FLSFWMLWL-1	LWL-1	26.68690	-80.044161	PBCERM	Monthly
North Lake	21FLPBCH11	11	26.8313	-80.0602	PBCERM	Monthly
North Lake	21FLPBCH13	13	26.8085	-80.0561	PBCERM	Monthly
North Lake	21FLSFWMLWL-4	LWL-4	26.8004	-80.0443	PBCERM	Monthly
Central Lake	21FLSFWMLWL-8	LWL-8	26.6754	-80.0469	PBCERM	Monthly
Central Lake	21FLPBCH18C	18C	26.6407	-80.0400	PBCERM	Monthly
Central Lake	21FLPBCH18D	18D	26.6293	-80.0457	PBCERM	Monthly
Central Lake	21FLSFWMLWL-11	LWL-11	26.6155	-80.0458	PBCERM	Monthly
Central Lake	21FLSFWMLWL-13	LWL-13	26.5839	-80.0443	PBCERM	Monthly



Figure 2. Sampling Locations in the Lake Worth Lagoon

For this analysis, data from PBCERM were extracted from FDEP IWR Run 58 database and the SFWMD DBHYDRO database. Through another arrangement, data for stations LWL-1, LWL-4, LWL-8, LWL-11, and LWL-13 are reported by the SFWMD under the “21FLSFWM” organization code while stations 18C, 18D 11 and 13 are reported by PBCERM under the “21FLPBCH” organization code. All data were compiled into a single dataset for analysis.

Grassy Water Preserve

Grassy Waters was purchased and protected as the primary potable water supply source for the City of West Palm Beach and other municipalities who receive water from the City. Monitoring within Grassy Waters by the City is ongoing to ensure its integrity as one of the last, least impacted parcels of the original Everglades. Recently, developments along the perimeter have been allowed to discharge treated excess stormwater into the preserve. These discharges are monitored as required by the Environmental Resource Permits, 50-03926-P (Baywinds) and 50-02120-S-06 (Ibis).

The City’s monitoring locations within Grassy Waters are shown in Table 3 and Figure 3.

Table 3. City of West Palm Beach’s Grassy Waters Monitoring Locations					
Waterbody	Station ID	Latitude	Longitude	Agency	Frequency
Grassy Waters	GW1	26.0891	-80.1693	CWPB	Monthly
Grassy Waters	GW3	26.7683	-80.1770	CWPB	Monthly
Grassy Waters	GW5	26.7239	-80.1812	CWPB	Monthly
Grassy Waters	GW7	26.7690	-80.1501	CWPB	Monthly

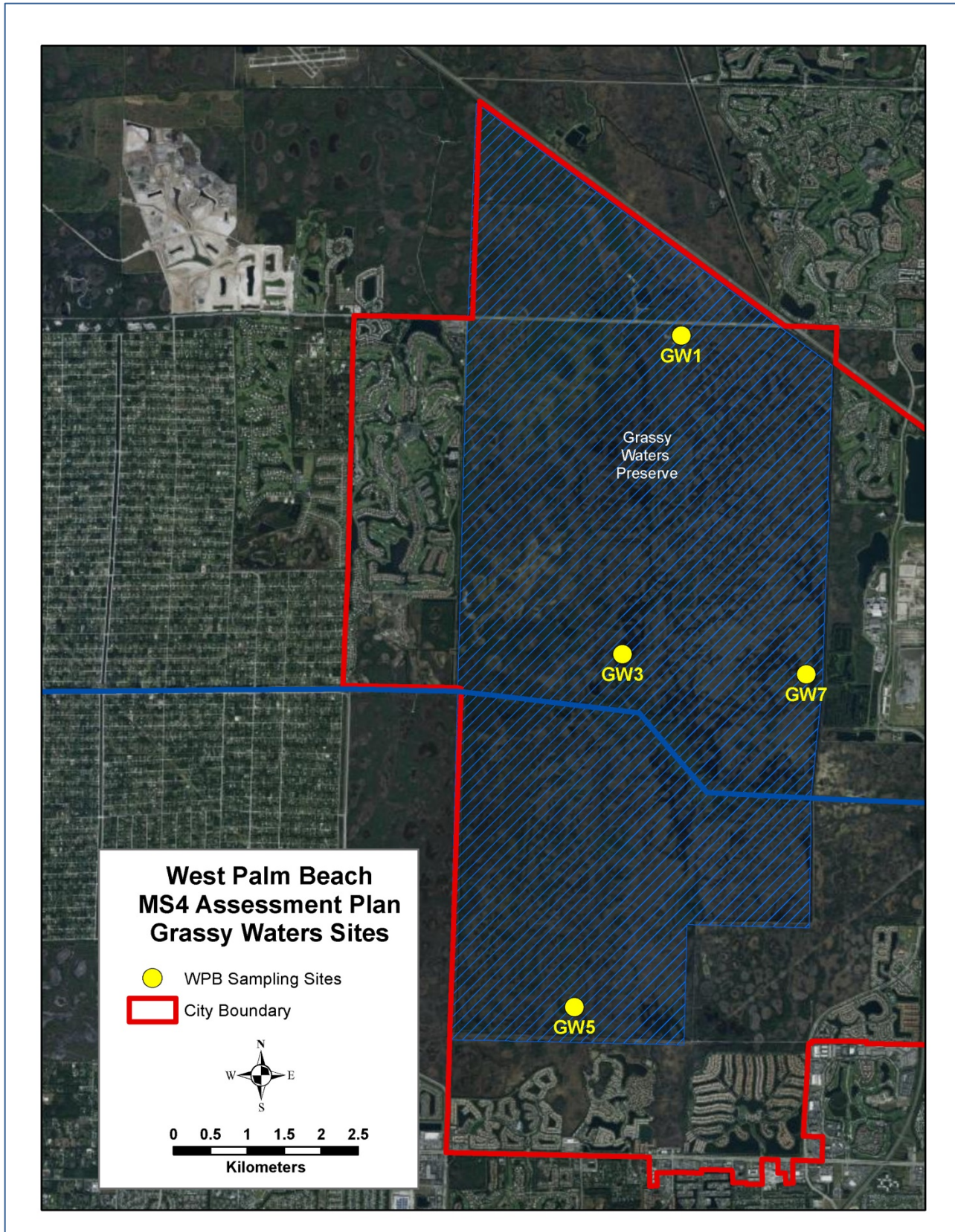


Figure 3. Sampling Locations in Grassy Waters Preserve

Clear Lake and Lake Mangonia

Clear Lake, along with the adjacent Lake Mangonia, are the two storage lakes for the potable water supply with the East Lobe of Clear Lake as the withdrawal point for the City’s water treatment plant. There are no direct stormwater inputs to either of the lakes within the City’s limits but indirect stormwater may be contributed by the L-8 canal (pumped into M-Canal at Control 2), M-Canal, C-17 Canal, Grassy Waters (as previously mentioned) and the Renaissance Stormwater Project. The C-17 Canal receives stormwater from various areas and the City looks to use it to augment the water supply when necessary. The Renaissance Stormwater Project is an alum-injection stormwater treatment facility for a portion of downtown West Palm Beach whose waters could be used supplement Clear Lake and is monitored as part of its Environmental Resource Permit, 50-04000-P. Lake Mangonia has been listed as impaired for fecal coliform as part of Cycle 3 of FDEP’s Assessment Program. Monitoring of the source waters along the system will ensure the integrity of the water supply while enduring the waters meet surface water quality standards. These data will be supplemented with the most recent Impaired Waters Rule database to provide data necessary to assess the status and trends with regards to Clear Lake and Lake Mangonia.

Table 5. Monitoring Locations						
Waterbody	Station	Map ID	Latitude	Longitude	Agency	Frequency
L-8 Tieback	Control_II	Control 2 (upstream)	26.7554	-80.3457	CWPB	Monthly
M-Canal	M-Canal	M-Canal	26.7660	-80.2254	CWPB	Monthly
M-Canal	Control_IV	Control 4	26.7510	-80.1192	CWPB	Monthly
C-17 Canal	C17_CANAL_A	C17_CANAL_A	26.7356	-80.0902	CWPB	Monthly
C-17 Canal	C17_CANAL_B	C17_CANAL_B	26.7657	-80.0911	CWPB	Monthly
Lake Mangonia	Lake Mangonia Middle	Lake Mangonia	26.7399	-80.0756	CWPB	Monthly
Clear Lake	Clear Lake Middle	Clear Lake Middle	26.7142	-80.0703	CWPB	Monthly

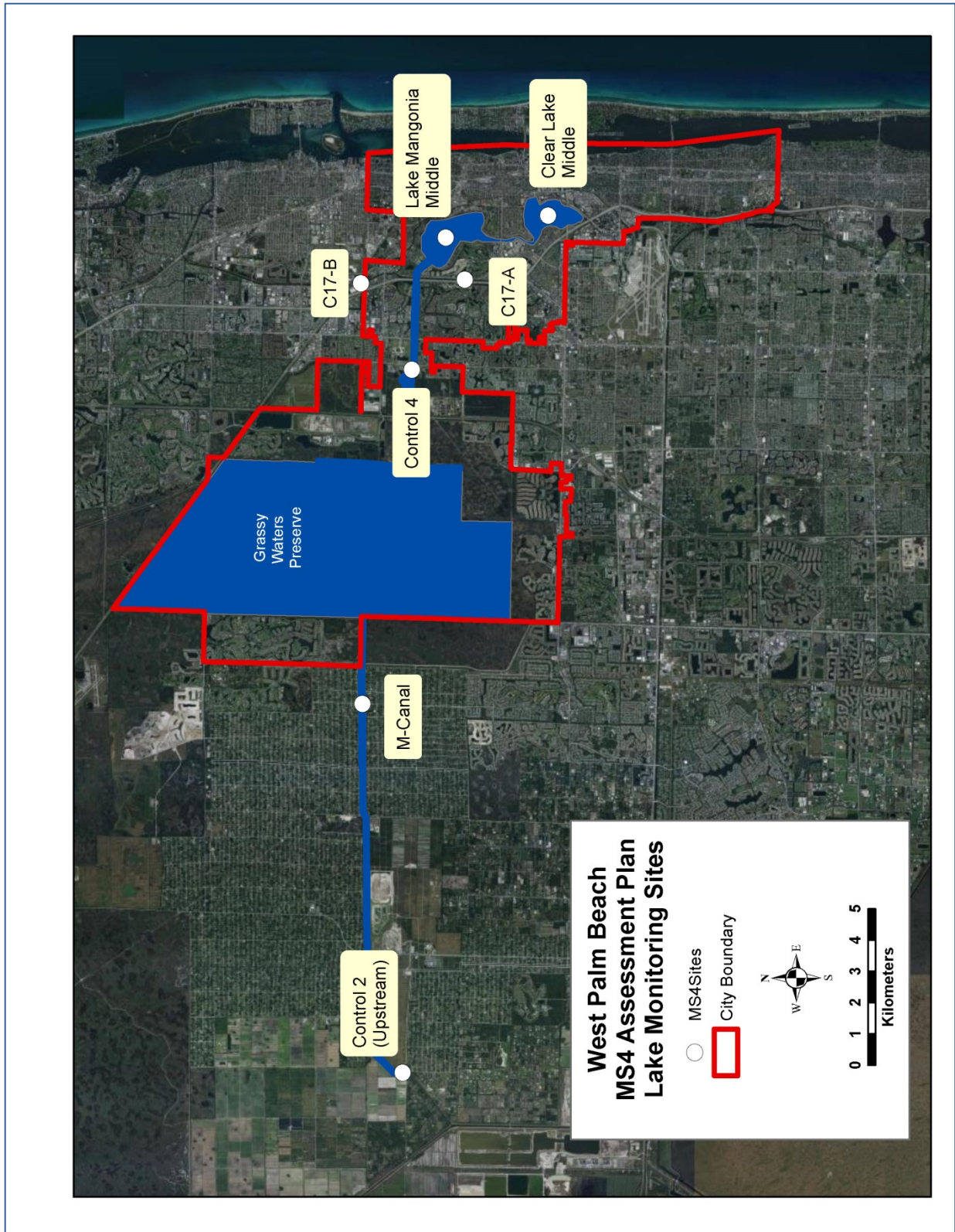


Figure 4. Sampling Locations for Clear Lake and Lake Mangonia

Data Summaries and Time-series Plots

Data summaries and time series plots for each site can be found in Appendix A.

Trend Analysis

The following parameters were selected for this analysis based on the requirements of the permit:

- Biochemical Oxygen Demand (mg/L)
- Total Copper (mg/L)
- Total Nitrogen (as N) (mg/L)
- Total Phosphorus (mg/L)
- Total Suspended Solids (TSS) (mg/L)
- Total Zinc (mg/L)

Trend analyses were performed on monthly mean data using the Season Kendall Tau method for the parameters for which sufficient data were available (Table 6). The entire period of record was included and represents the City specific baseline for which future assessments will be compared. Trends that are identified as “shallow” are defined as statistically significant trends with a rate of change less than 5% of the median value per year, and those identified as “steep” are defined as statistically significant trends with a rate of change greater than or equal to 5% of the median value per year. Thus, “shallow trends” represent water quality conditions that are changing (either increasing or decreasing) at a lesser rate of change than the rate of change for “steep trends.” These are relative terms, and the precise rates of change are presented for each station in the statistical detail appendices. The terms “steep” and “shallow” do not imply either ecological significance or the lack of ecological significance.

Table 6. – Summary table of the Seasonal Kendal-Tau analysis.

Station	Parameter	Minimum Year	Maximum Year	Count	P-value	Slope	Trend Direction	Magnitude
21FLPBCH11	Chlorophyll a	2001	2019	147	0.124	0.048	No Trend	
21FLPBCH11	Dissolved Oxygen	1975	2019	217	0.001	0.018	Increasing	Shallow
21FLPBCH11	Dissolved Oxygen	1975	2019	214	0.008	0.410	Increasing	Shallow
21FLPBCH11	Total Nitrogen	1975	2019	195	0.000	-0.022	Decreasing	Shallow
21FLPBCH11	Total NO3 + NO2	1980	2019	90	1.000	0.000	No Trend	
21FLPBCH11	Total Phosphorus	1975	2019	191	0.201	-0.001	No Trend	
21FLPBCH11	Total TKN	1975	2019	192	0.000	-0.020	Decreasing	Shallow
21FLPBCH13	Chlorophyll a	2001	2019	144	0.216	0.071	No Trend	
21FLPBCH13	Dissolved Oxygen	1975	2019	217	0.030	0.023	Increasing	Shallow
21FLPBCH13	Dissolved Oxygen	1975	2019	216	0.009	0.471	Increasing	Shallow
21FLPBCH13	Total Nitrogen	1975	2019	201	0.000	-0.021	Decreasing	Shallow
21FLPBCH13	Total NO3 + NO2	1980	2019	93	1.000	0.000	No Trend	
21FLPBCH13	Total Phosphorus	1975	2019	189	0.000	-0.001	Decreasing	Shallow
21FLPBCH13	Total TKN	1975	2019	195	0.000	-0.020	Decreasing	Shallow
21FLPBCH18C	Chlorophyll a	2004	2019	138	0.441	0.048	No Trend	
21FLPBCH18C	Dissolved Oxygen	2004	2019	145	0.381	0.025	No Trend	
21FLPBCH18C	Dissolved Oxygen	2004	2019	143	0.052	0.564	No Trend	
21FLPBCH18C	Total Nitrogen	2004	2019	132	0.000	-0.048	Decreasing	Steep
21FLPBCH18C	Total NO3 + NO2	2004	2019	64	0.022	-0.005	Decreasing	Steep
21FLPBCH18C	Total Phosphorus	2004	2019	136	1.000	0.000	No Trend	
21FLPBCH18C	Total TKN	2004	2019	133	0.000	-0.037	Decreasing	Steep
21FLPBCH18D	Chlorophyll a	2005	2019	124	0.002	0.254	Increasing	Shallow
21FLPBCH18D	Dissolved Oxygen	2005	2019	132	0.584	-0.024	No Trend	
21FLPBCH18D	Dissolved Oxygen	2005	2019	130	0.435	0.305	No Trend	
21FLPBCH18D	Total Nitrogen	2005	2019	125	0.000	-0.054	Decreasing	Steep
21FLPBCH18D	Total NO3 + NO2	2005	2019	61	0.160	-0.003	No Trend	
21FLPBCH18D	Total Phosphorus	2005	2019	120	0.025	0.002	Increasing	Shallow

21FLPBCH18D	Total TKN	2005	2019	126	0.000	-0.037	Decreasing	Steep
CONTROL II	Dissolved Oxygen	2011	2018	92	0.055	0.086	No Trend	
CONTROL IV	Dissolved Oxygen	2011	2019	102	0.000	0.221	Increasing	Shallow
GW1	Chlorophyll a	2012	2018	74	0.004	0.200	Increasing	Steep
GW1	Dissolved Oxygen	2011	2018	88	0.401	0.057	No Trend	
GW1	Total Nitrogen	2011	2018	87	0.001	-0.047	Decreasing	Shallow
GW1	Total NO3 + NO2	2012	2018	60	1.000	0.000	No Trend	
GW1	Total Phosphorus	2011	2018	84	0.004	0.001	Increasing	Steep
GW1	Total Suspended Solids	2011	2018	88	1.000	0.000	No Trend	
GW1	Total TKN	2011	2018	87	0.001	-0.047	Decreasing	Steep
GW3	Chlorophyll a	2012	2018	67	0.035	0.460	Increasing	Steep
GW3	Dissolved Oxygen	2011	2018	87	0.731	0.163	No Trend	
GW3	Total Nitrogen	2011	2018	87	0.089	0.031	No Trend	
GW3	Total Phosphorus	2011	2018	85	0.000	0.006	Increasing	Steep
GW3	Total Suspended Solids	2011	2018	86	0.000	0.333	Increasing	Steep
GW3	Total TKN	2011	2018	87	0.181	0.015	No Trend	
GW5	Chlorophyll a	2012	2018	67	0.304	0.100	No Trend	
GW5	Dissolved Oxygen	2011	2018	87	0.019	0.228	Increasing	Steep
GW5	Total Nitrogen	2011	2018	87	0.839	0.003	No Trend	
GW5	Total Phosphorus	2011	2018	85	0.000	0.003	Increasing	Steep
GW5	Total Suspended Solids	2011	2018	87	1.000	0.000	No Trend	
GW5	Total TKN	2011	2018	87	0.776	0.003	No Trend	
GW7	Chlorophyll a	2012	2018	67	0.057	0.200	No Trend	
GW7	Dissolved Oxygen	2011	2018	86	0.740	0.031	No Trend	
GW7	Total Nitrogen	2011	2018	85	0.084	0.025	No Trend	
GW7	Total NO3 + NO2	2012	2018	60	1.000	0.000	No Trend	
GW7	Total Phosphorus	2011	2018	84	0.000	0.002	Increasing	Steep
GW7	Total Suspended Solids	2011	2018	85	1.000	0.000	No Trend	
GW7	Total TKN	2011	2018	85	0.177	0.016	No Trend	

As shown in the table, most of the parameters are showing decreasing or no trends in nutrients. Stations 21FLPBCH11, 21FLPBCH13, 21FLPBCH18C, and 21FLPBCH18D all have seen decreasing trends in total nitrogen concentrations. Increasing trends can be seen in phosphorus concentrations in the Grassy Water Preserve. Increasing trends in nitrogen and phosphorus concentrations can also be seen at stations 21FLSFWMLWL-8 and 21FLSFWMLWL-11. 21FLSFWMLWL-11 also has an increasing trend in chlorophyll *a*. Both of these stations are located in the Central Lake Worth Lagoon Estuarine Region and receive loading from several co-permittees. Increasing trends can also be seen in DO though unlike the other parameters, increasing DO is beneficial to aquatic life. Detailed output from the trend analysis can be found in Appendix B.

These trends will be updated as part of each annual report with the purpose of identifying areas in need of further review.

Pollutant Loading Estimate Plan

The City recently deployed the Spatially Integrated Model for Pollutant Loading Estimates (SIMPLE) during the development of its Stormwater Master Plan. The model was originally developed for Sarasota County for compliance with MS4 permit. The current City version of the model is set to provide pollutant load estimates for the following parameters: biochemical oxygen demand, copper, total nitrogen, total phosphorus, total suspended solids, and zinc.

The SIMPLE model extent is shown in Figure 5 and includes all of the City's incorporated area and not limited to the MS4 boundary. The stormwater catchments mimic those used in the City's flood model. The catchments are combined into three Basin Groups. As the City's drinking water supply, the contributing drainage area to Clear Lake was designed to be kept separated from the City's stormwater system though in recent year's stormwater discharges were permitted to Grassy Water Preserve. The Direct discharge to Lake Worth Lagoon basin group includes those areas draining directly to the lagoon through City outfalls. The Indirect discharge to Lake Worth Lagoon group includes those areas drained via control structures on the C-17 and C-51 canals.

The initial loading effort was completed in November of 2017. The landuse coverage utilized represented the conditions in 2015-2016. Land use event mean concentrations (EMCs) were taken from the Palm Beach County National Pollutant Discharge Elimination System (NPDES) Cycle 3 – Year 3 Joint Annual Report (Mock•Roos, 2013). Stormwater best management practices (BMPs) were identified using a combination of SFWMD permit reviews, Palm Beach County Property Appraiser GIS information, and 2015 aerial photography. Removal efficiencies were based on *Pollutant Removal Efficiencies for Typical Stormwater Management Systems in Florida* (Harper 2008) and *Performance Efficiency of Dry Detention and Underdrain* (Harper 2015). Rainfall was estimated at 61 inches based on the *Draft Florida Stormwater Quality Applicant's Handbook (FSQAH)*(FDEP,2010). This initial model will set the 2016 baseline for future assessments.

To represent the current conditions, the landuse and BMP layers were updated to represent the conditions through 2019. The single biggest change was the development of the baseball spring training facility with the appropriate BMPs. The City has also implemented other structural BMPs to decrease loads.

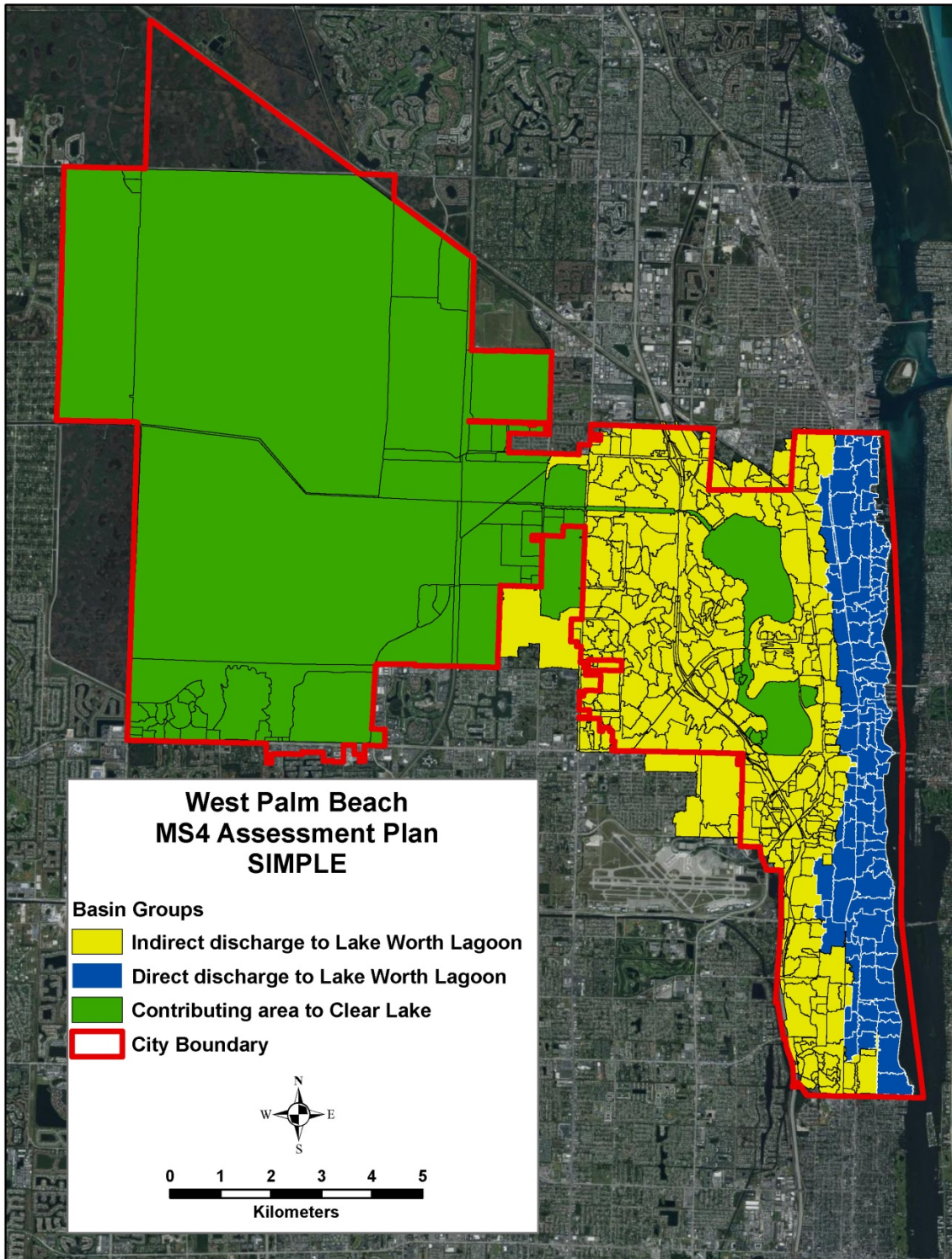


Figure 5. The extent of the City of West Palm Beach’s SIMPLE pollutant loading model.

Table 7 compares the results between the 2016 and 2019 model scenarios. Negative differences denote decreases in model estimates between 2016 and 2019. Decreases can be seen in all parameters in both the Direct and Indirect discharge watersheds to Lake Worth Lagoon. The decreases can be attributed to the implementation of new stormwater BMPs. Increases in estimated loading of BOD and zinc to Clear Lake are also seen. The Clear Lake Watershed experienced the most landuse changes, particularly the ballpark.

Table 7. Comparison between the 2016 and 2019 scenarios.							
Receiving Water Watershed	Year	TN (lbs/year)	TP (lbs/year)	BOD (lbs/year)	TSS (lbs/year)	CU (lbs/year)	ZN (lbs/year)
Clear Lake	2019	150,592	16,414	442,425	1,195,643	622	3,105
Clear Lake	2016	155,560	16,973	432,534	1,236,239	631	2,883
Difference		-4,968	-559	9,891	-40,596	-9	222
Direct Discharge to Lake Worth Lagoon	2019	67,669	10,533	313,865	1,655,872	240	2,852
Direct Discharge to Lake Worth Lagoon	2016	68,363	10,684	317,671	1,718,596	244	2,911
Difference		-694	-151	-3,806	-62,724	-4	-59
Indirect Discharge to Lake Worth Lagoon	2019	168,366	19,971	637,055	2,726,745	537	5,067
Indirect Discharge to Lake Worth Lagoon	2016	168,495	19,993	639,410	2,740,580	538	5,095
Difference		-129	-22	-2,355	-13,835	-1	-28

The data can also be expressed in terms of unit area loads, or pounds per acre per year. This expression of the results takes into account the area drained and allows for the direct comparisons between watersheds and years regardless of landuse and BMPs. Table 8 shows the results between the 2016 and 2019 scenarios.

Table 8. Comparison of unit areas loads between the 2016 and 2019 scenarios.							
Receiving Water Watershed	Year	TN (lbs/acre/year)	TP (lbs/acre/year)	BOD (lbs/acre/year)	TSS (lbs/acre/year)	CU (lbs/acre/year)	ZN (lbs/acre/year)
Clear Lake	2016	3.28	0.36	9.12	26.06	0.01	0.06
Clear Lake	2019	3.17	0.35	9.33	25.20	0.01	0.07
Direct Discharge to Lake Worth Lagoon	2016	10.26	1.60	47.66	257.85	0.04	0.44
Direct Discharge to Lake Worth Lagoon	2019	10.15	1.58	47.09	248.44	0.04	0.43
Indirect Discharge to Lake Worth Lagoon	2016	8.34	0.99	31.66	135.70	0.03	0.25
Indirect Discharge to Lake Worth Lagoon	2019	8.34	0.99	31.54	135.01	0.03	0.25

As can be seen, in each of the watersheds, the unit area loads either held the line or decreased. The only exceptions were BOD and zinc in the Clear Lake watershed.

Evaluation and Response Plan

Based on the analyses above, the City of West Palm Beach is effectively implementing its Stormwater Management Plan (SWMP). Of the stations where there is an adequate number of samples, nutrients either exhibit decreasing or no trends. Dissolved oxygen is exhibiting increasing or no trends. The increasing trend in phosphorus in Grassy Waters is being addressed through cooperation between the City and dischargers to Grassy Waters.

Loading estimates have decreased over the period of record as well. Loads to Lake Worth Lagoon from either direct or indirect drainage areas have decreased for all parameters. Nutrient Loads in the Clear Lake watershed have also decreased. The only parameters with an increase were BOD and zinc. These increases will be further explored to determine where further reductions are available to accompany the changes in landuse.

On top of the load reductions exhibited above, the City further reduced loadings through the implementation of the SWMP. These load reduction credits not only include the educational components covered in the Year 3 Joint Annual Report but also through other activities such as the street sweeping program. During Year 3, the City's street sweeping program removed an additional 3,423,920 pounds of material that further reduced the TN load by an additional 1,928 lbs and TP by an additional 1,236 lbs.

Through the implementation of the SWMP and the Stormwater Master Plan, it is reasonable to expect the city to continue to reduce loads from their jurisdiction.

References

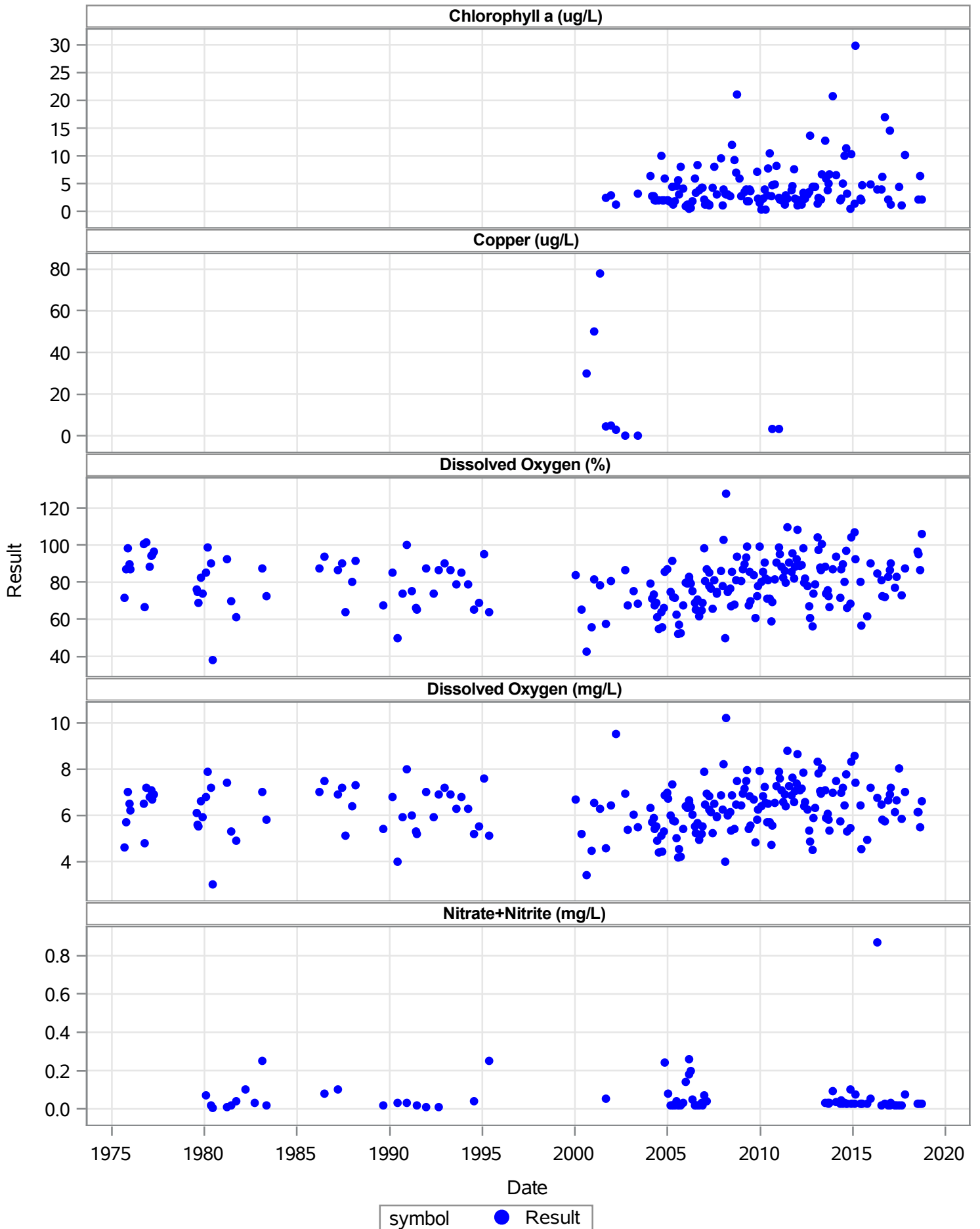
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- Harper, HH, December 2015. *Performance Efficiency of Dry Detention and Underdrain*. (Prepared for FDEP). Conference Presentation, Florida Stormwater Association.
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- Mock•Roos, 2013. *National Pollutant Discharge and Elimination System (NPDES) Municipal Separate Storm Sewer System (MS4) Joint Annual Report (2012-2013)*. Prepared for Palm Beach County Improvement District.

Appendix A

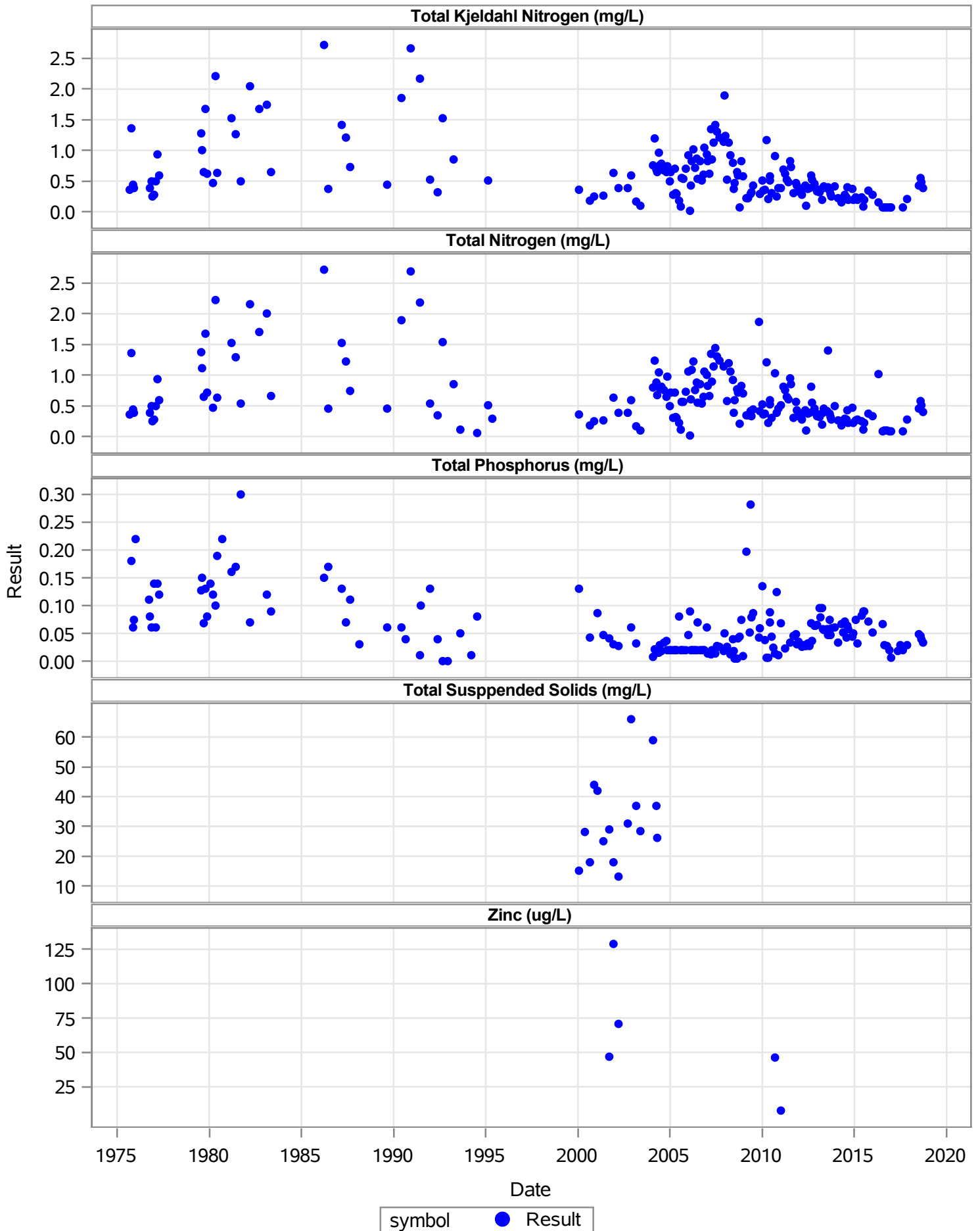
21FLPBCH11

Analyte	Start Date	End Date	Minimum Value	Maximum Value	Mean	Median	Number of obs
Chlorophyll a (ug/L)	15SEP75	20SEP18	0.25	29.9	4.462	3.06	141
Copper (ug/L)	15SEP75	20SEP18	0.039	78	17.715	3.845	10
Dissolved Oxygen (mg/L)	15SEP75	20SEP18	3	10.22	6.326	6.4	213
Dissolved Oxygen (%)	15SEP75	20SEP18	37.9747	127.8	79.783	80.5	210
Nitrate+Nitrite (mg/L)	15SEP75	20SEP18	0.006	0.87	0.06	0.025	81
Total Kjeldahl Nitrogen (mg/L)	15SEP75	20SEP18	0.02	2.72	0.616	0.477	185
Total Nitrogen (mg/L)	15SEP75	20SEP18	0.02	2.72	0.657	0.506	187
Total Phosphorus (mg/L)	15SEP75	20SEP18	0	0.3	0.059	0.044	187
Total Suspended Solids (mg/L)	15SEP75	20SEP18	13	66	32.275	28.7	16
Zinc (ug/L)	15SEP75	20SEP18	7.6	129	60.14	46.8	5

21FLPBCH11



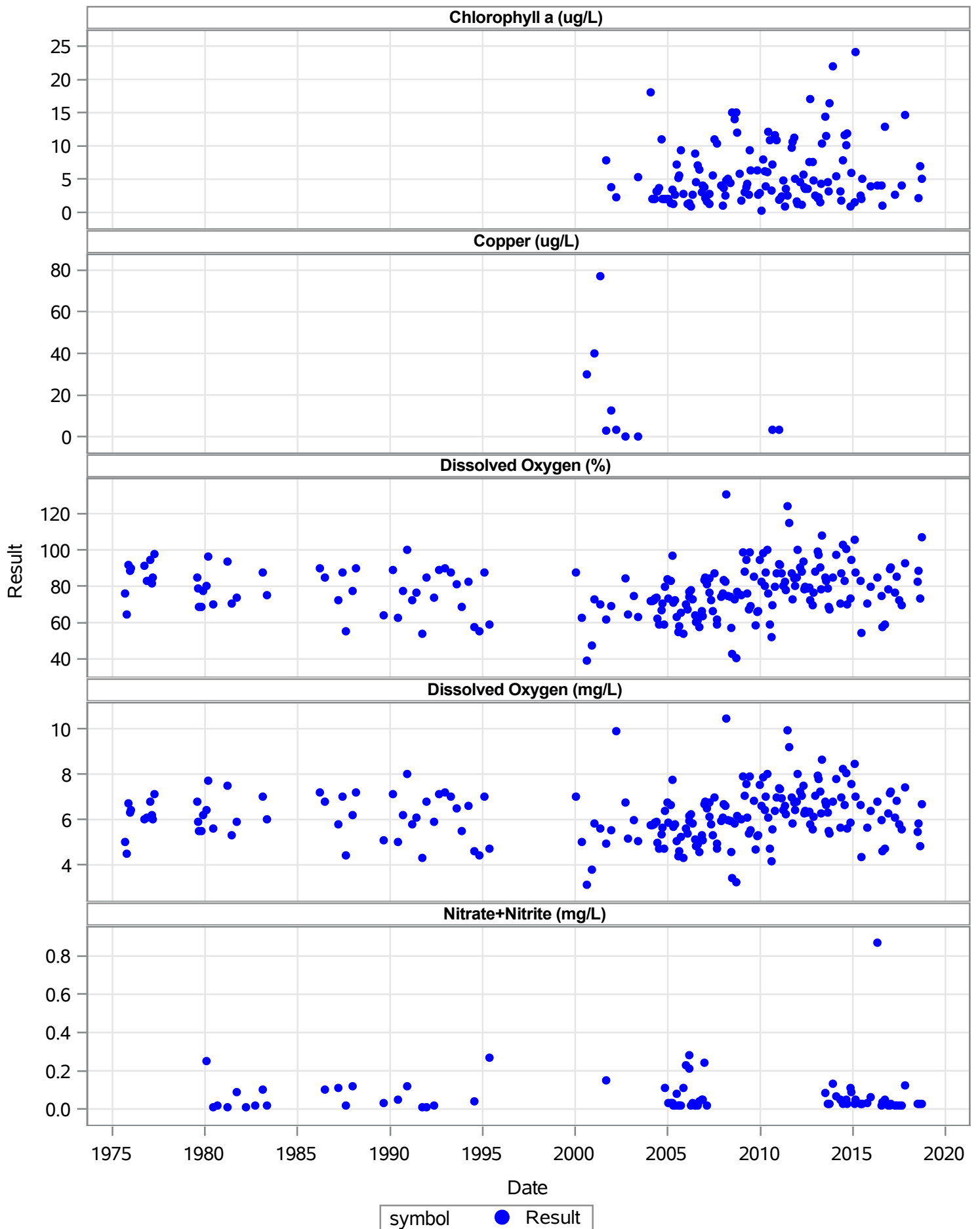
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21FLPBCH13

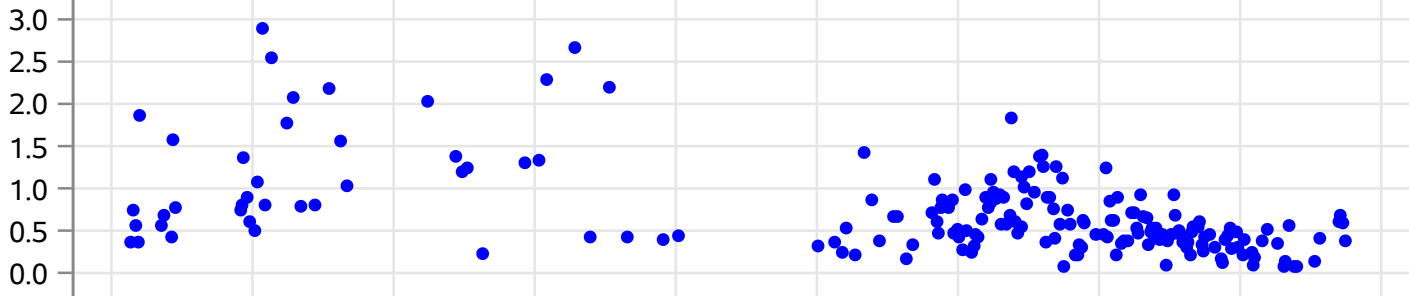
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Chlorophyll a (ug/L)	15SEP75	20SEP18	0.25	24.1	5.594	4	138
Copper (ug/L)	15SEP75	20SEP18	0.013	77	17.247	3.4	10
Dissolved Oxygen (mg/L)	15SEP75	20SEP18	3.12	10.45	6.184	6.12	211
Dissolved Oxygen (%)	15SEP75	20SEP18	39	130.6	77.949	77.65	210
Nitrate+Nitrite (mg/L)	15SEP75	20SEP18	0.01	0.87	0.068	0.03	83
Total Kjeldahl Nitrogen (mg/L)	15SEP75	20SEP18	0.07	2.89	0.701	0.557	188
Total Nitrogen (mg/L)	15SEP75	20SEP18	0.08	2.89	0.748	0.59	193
Total Phosphorus (mg/L)	15SEP75	20SEP18	0	0.6	0.07	0.048	183
Total Suspended Solids (mg/L)	15SEP75	20SEP18	4	56	28.25	26.5	16
Zinc (ug/L)	15SEP75	20SEP18	0.01	121	46.159	39.1	7

21FLPBCH13

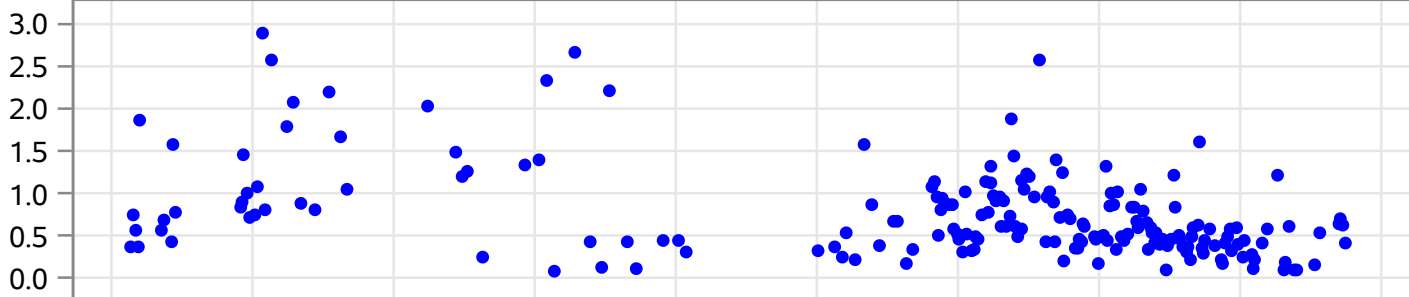


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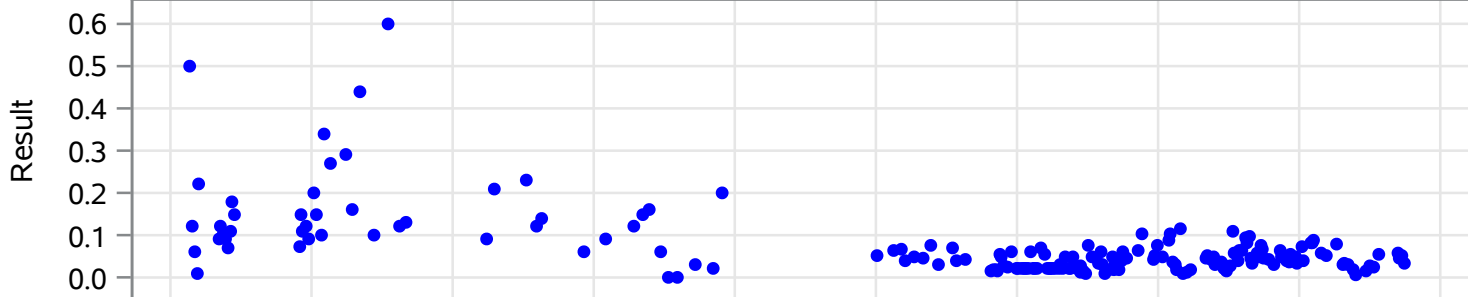
Total Kjeldahl Nitrogen (mg/L)



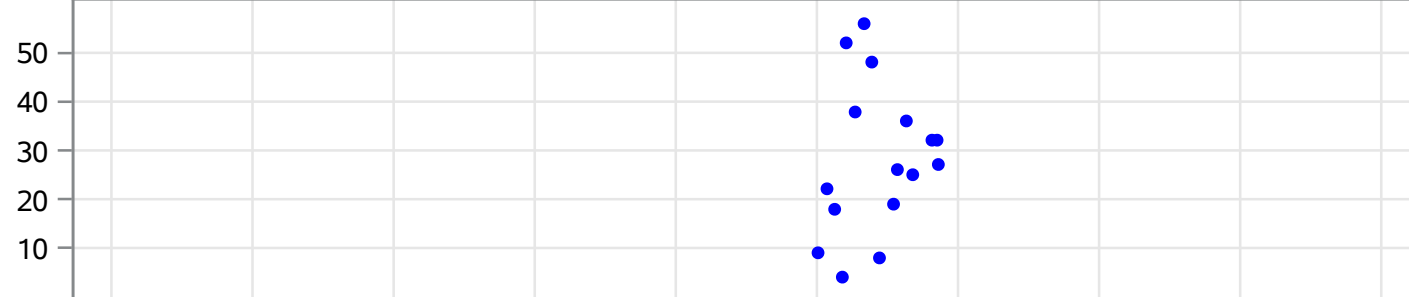
Total Nitrogen (mg/L)



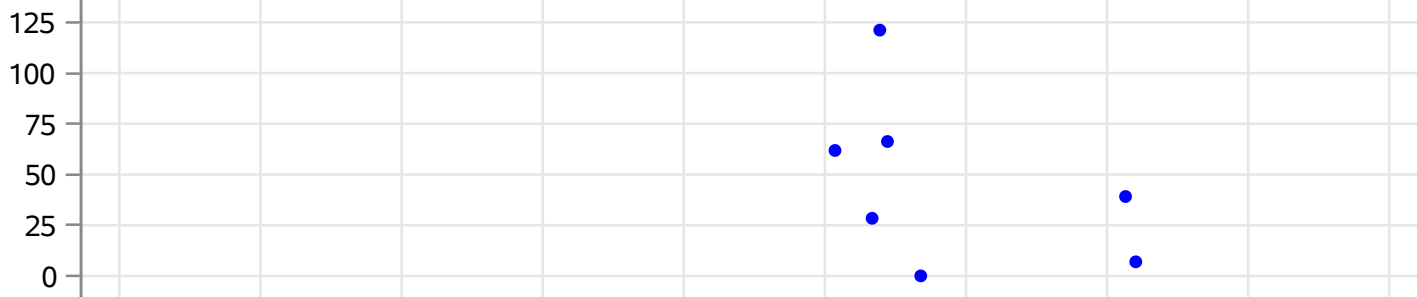
Total Phosphorus (mg/L)



Total Suspended Solids (mg/L)



Zinc (ug/L)



1975 1980 1985 1990 1995 2000 2005 2010 2015 2020

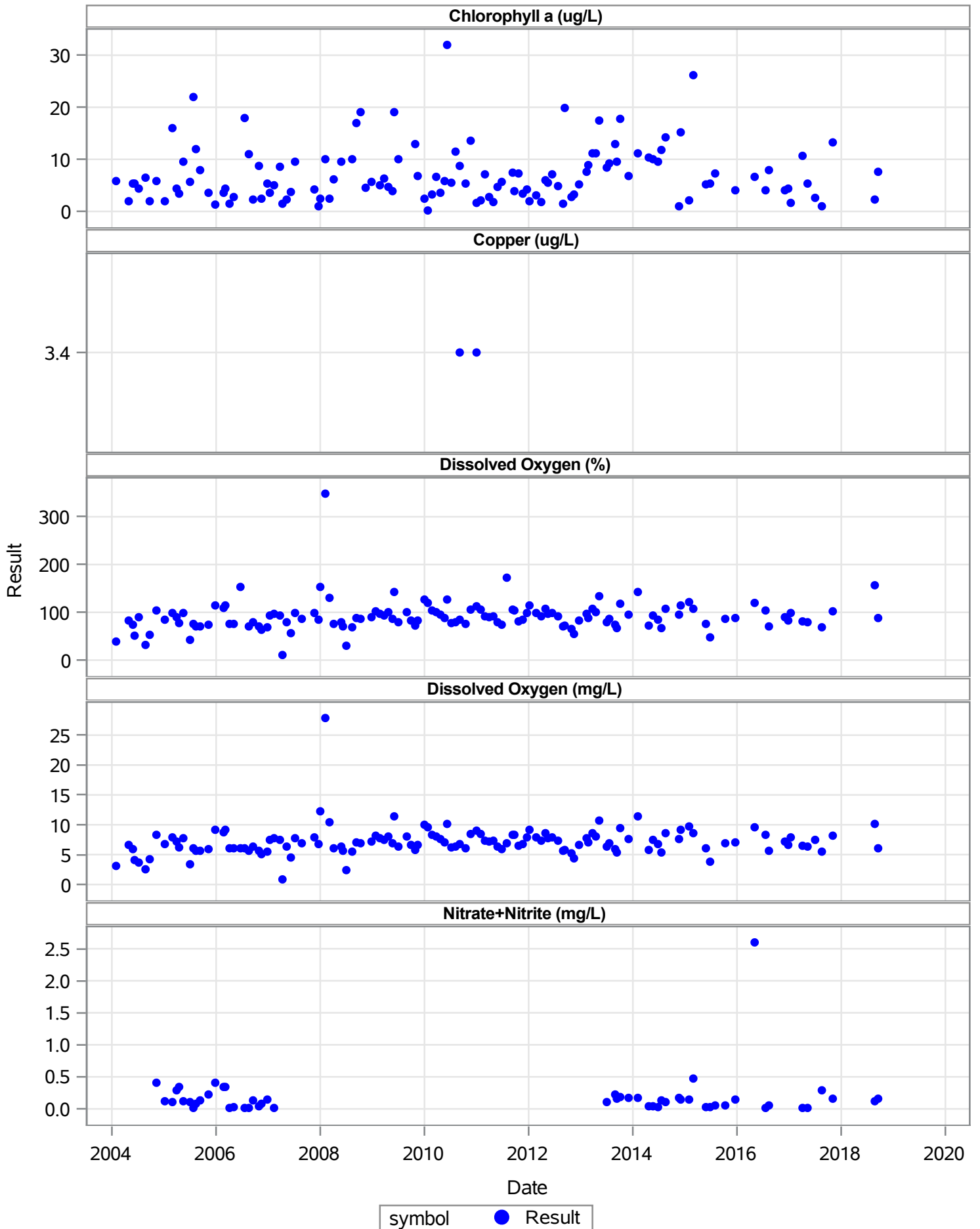
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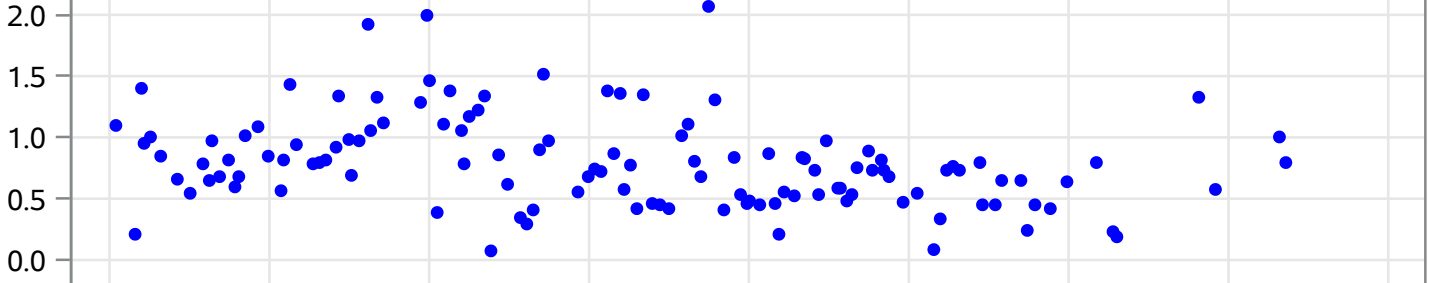
Analyte	Start Date	End Date	Minumum Value	Maximum Value	Mean	Median	Number of obs
Chlorophyll a (ug/L)	30JAN04	19SEP18	0.25	32	7.068	5.53	130
Copper (ug/L)	30JAN04	19SEP18	3.4	3.4	3.4	3.4	2
Dissolved Oxygen (mg/L)	30JAN04	19SEP18	0.84	27.88	7.179	6.97	137
Dissolved Oxygen (%)	30JAN04	19SEP18	10.5	348.5	91.661	88.3	135
Nitrate+Nitrite (mg/L)	30JAN04	19SEP18	0.0083	2.6	0.184	0.12	52
Total Kjeldahl Nitrogen (mg/L)	30JAN04	19SEP18	0.076	2.07	0.797	0.76	123
Total Nitrogen (mg/L)	30JAN04	19SEP18	0.132	2.323	0.917	0.885	120
Total Phosphorus (mg/L)	30JAN04	19SEP18	0.0055	0.378	0.079	0.072	128
Total Suspended Solids (mg/L)	30JAN04	19SEP18	42	42	42	42	2
Zinc (ug/L)	30JAN04	19SEP18	6.7	45.4	26.05	26.05	2

21FLPBCH18C

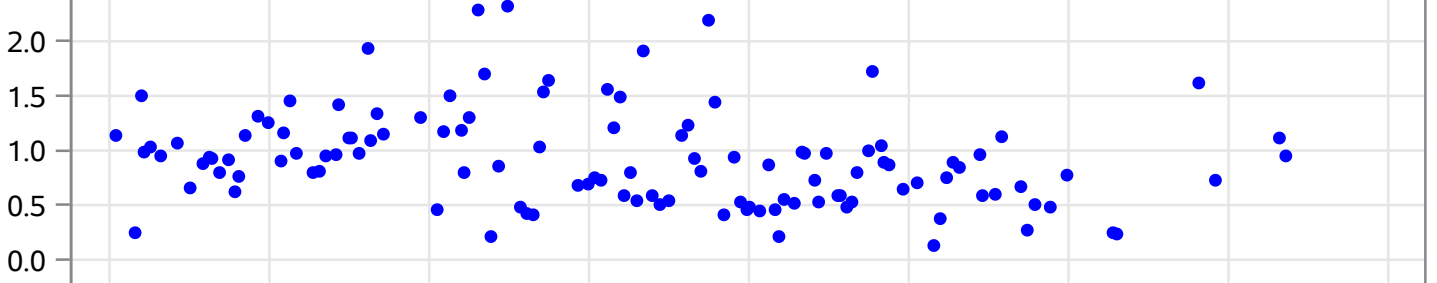


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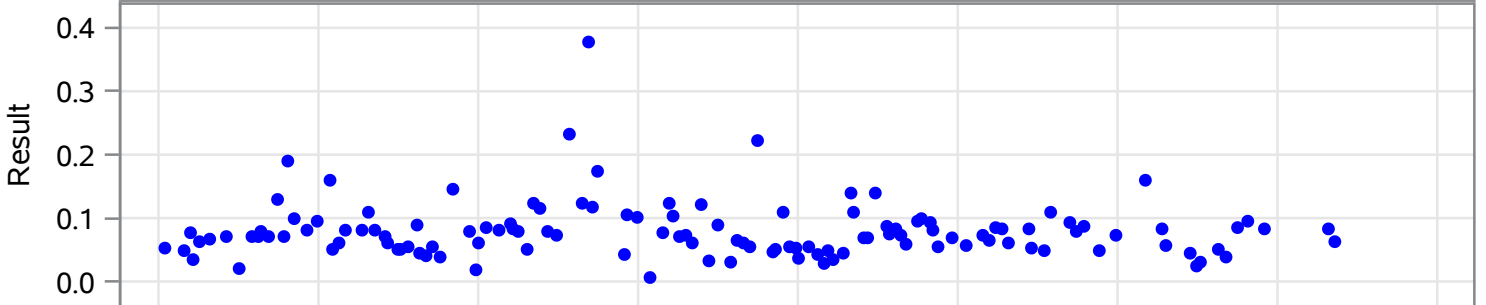
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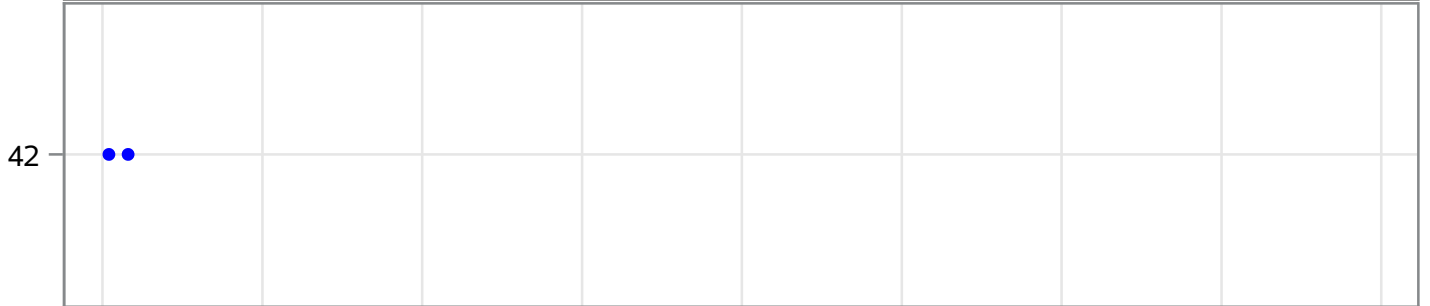
Total Nitrogen (mg/L)



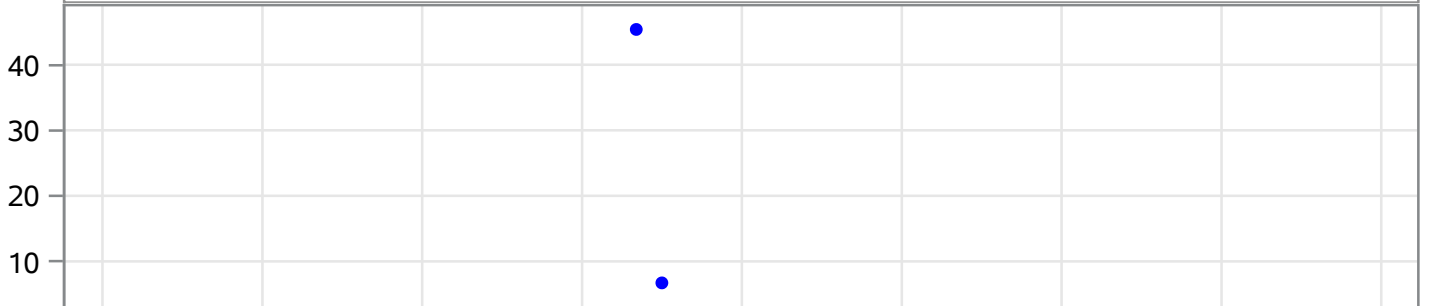
Total Phosphorus (mg/L)



Total Suspended Solids (mg/L)



Zinc (ug/L)



2004 2006 2008 2010 2012 2014 2016 2018 2020

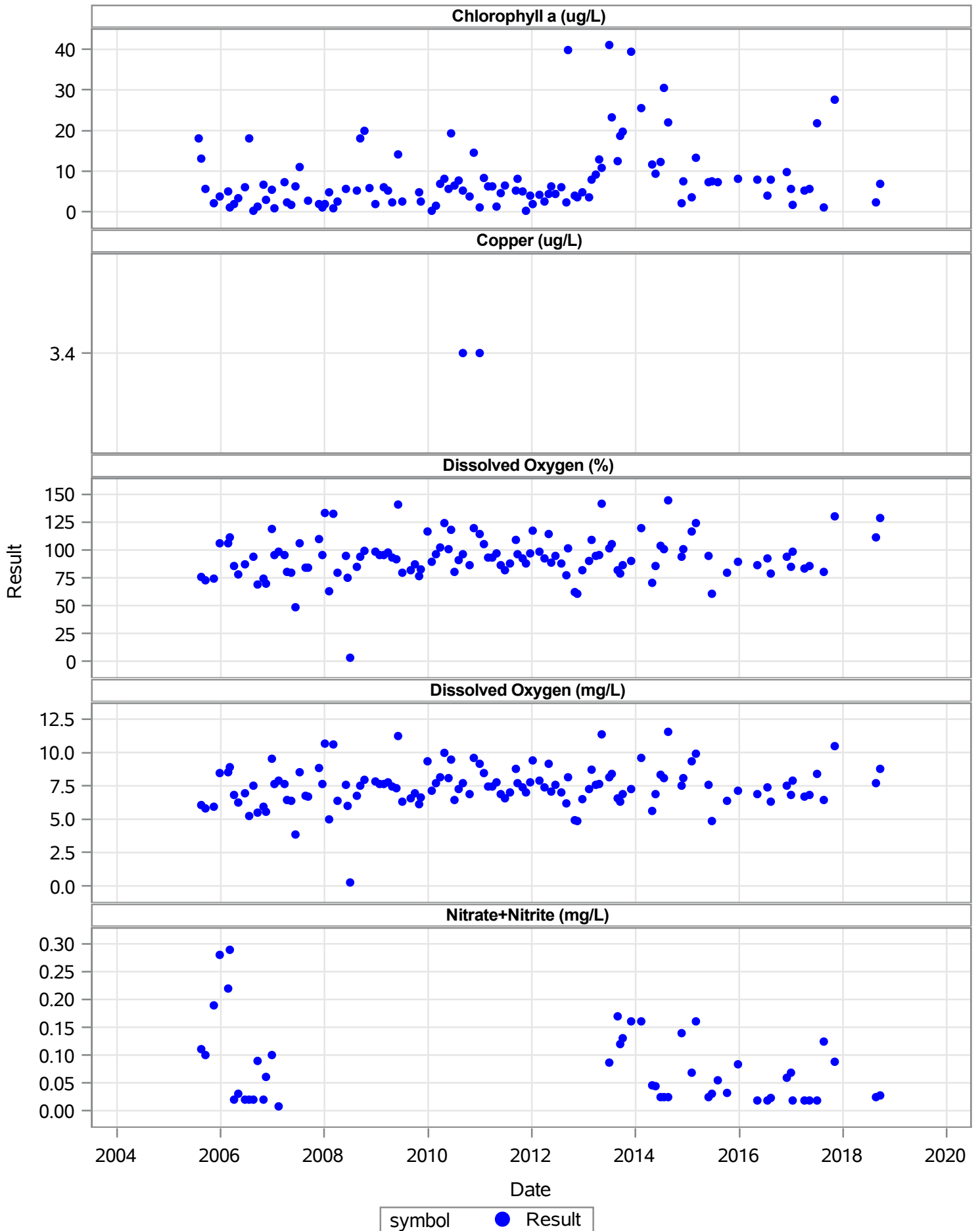
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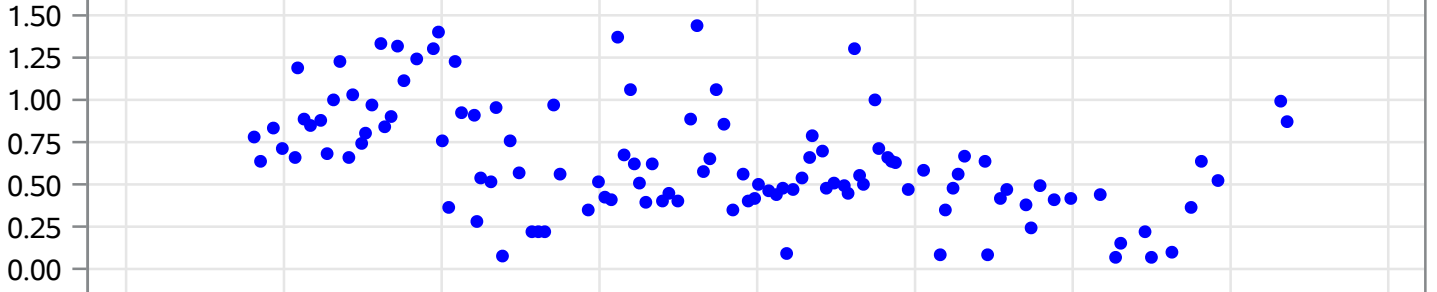
Analyte	Start Date	End Date	Minimum Value	Maximum Value	Mean	Median	Number of obs
Chlorophyll a (ug/L)	28JUL05	19SEP18	0.25	41.1	8.063	5.7	115
Copper (ug/L)	28JUL05	19SEP18	3.4	3.4	3.4	3.4	2
Dissolved Oxygen (mg/L)	28JUL05	19SEP18	0.25	11.55	7.459	7.48	123
Dissolved Oxygen (%)	28JUL05	19SEP18	3.1	144.4	93.662	93.5	121
Nitrate+Nitrite (mg/L)	28JUL05	19SEP18	0.0083	0.29	0.077	0.051	48
Total Kjeldahl Nitrogen (mg/L)	28JUL05	19SEP18	0.07	1.44	0.641	0.575	115
Total Nitrogen (mg/L)	28JUL05	19SEP18	0.086	2.073	0.739	0.668	113
Total Phosphorus (mg/L)	28JUL05	19SEP18	0.005	0.19	0.06	0.06	111
Zinc (ug/L)	28JUL05	19SEP18	6.7	40.6	23.65	23.65	2

21FLPBCH18D

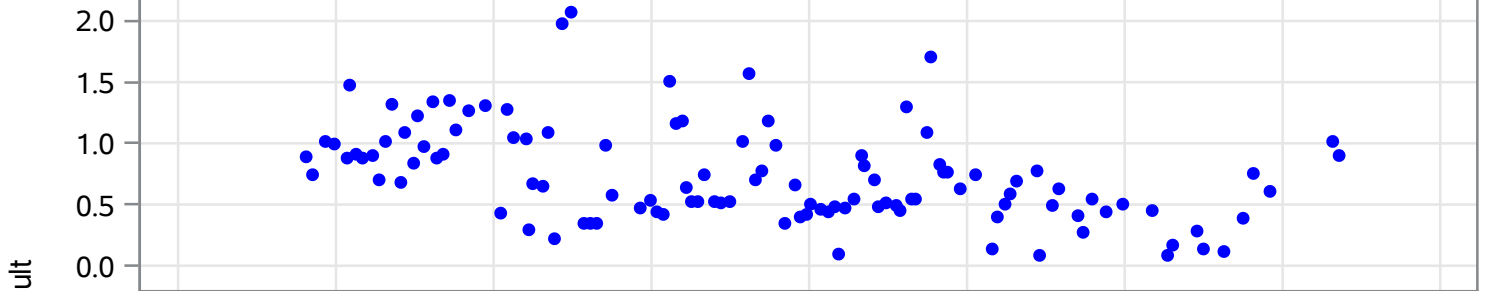


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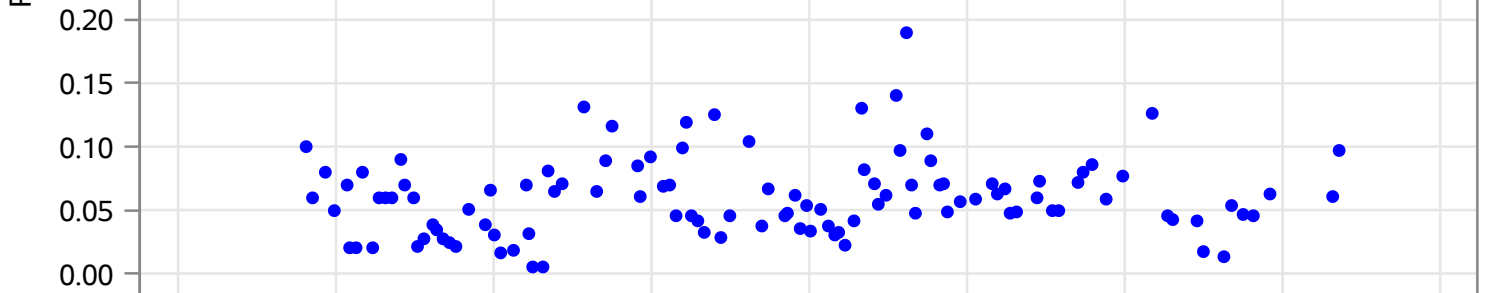
Total Kjeldahl Nitrogen (mg/L)



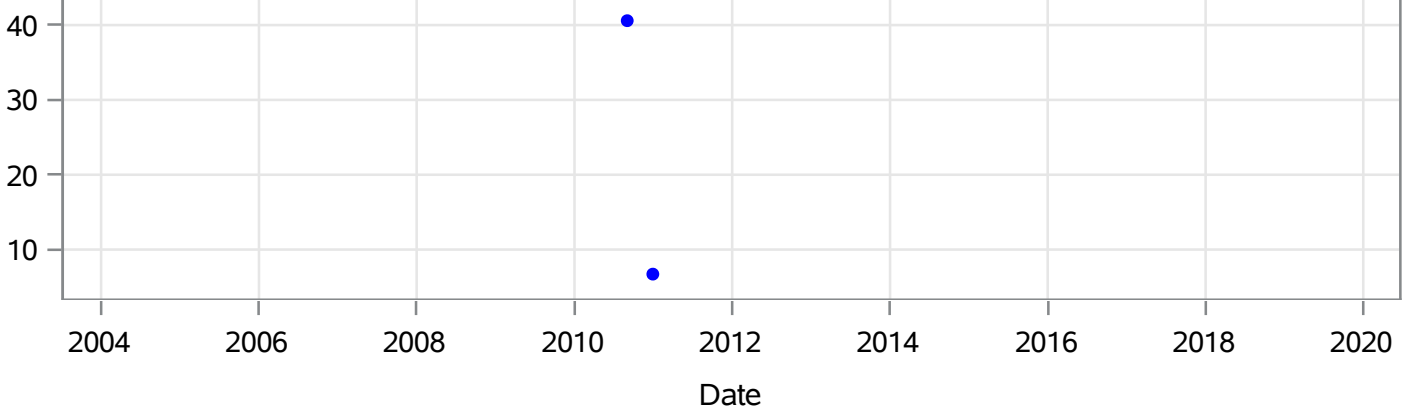
Total Nitrogen (mg/L)



Total Phosphorus (mg/L)



Zinc (ug/L)

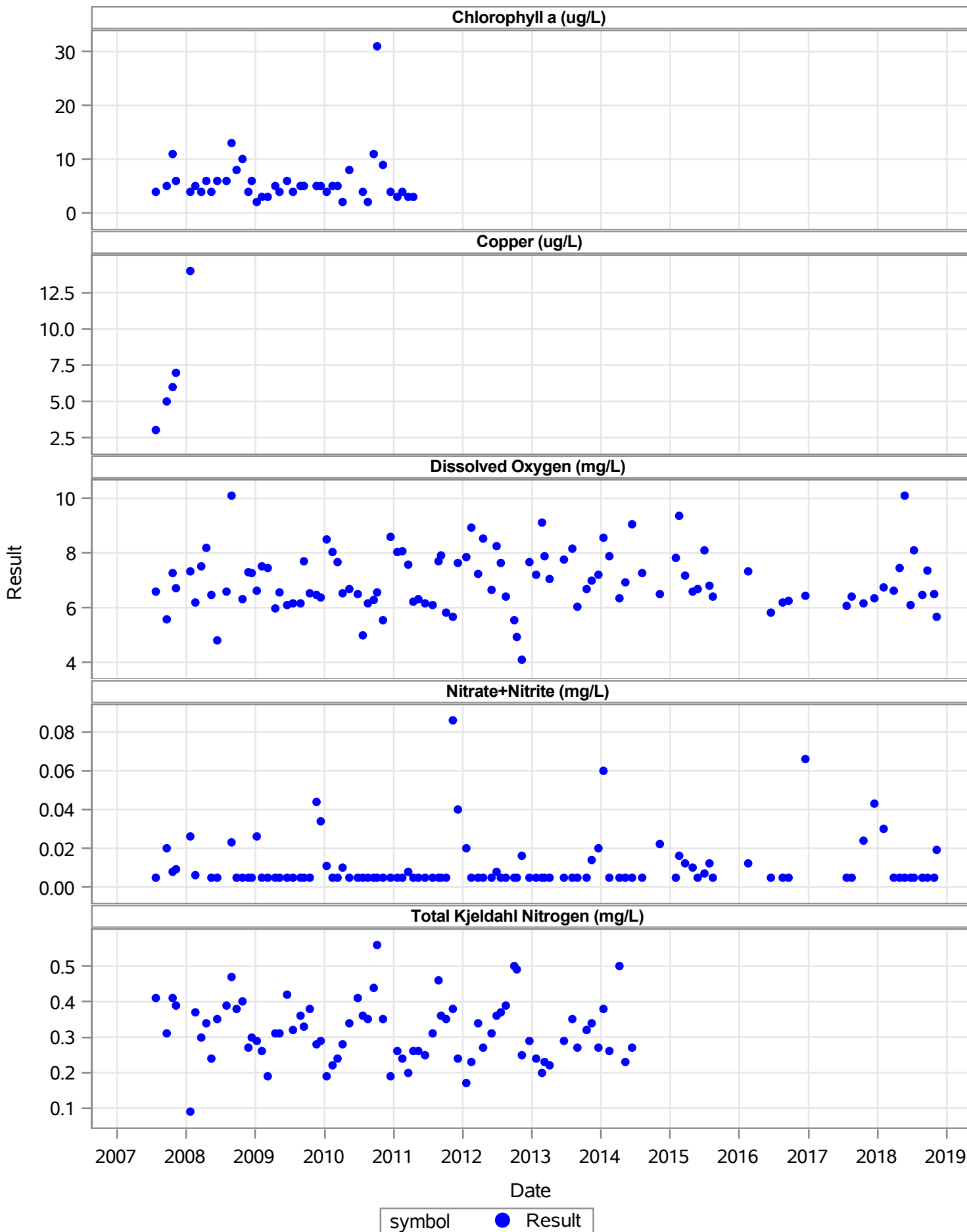


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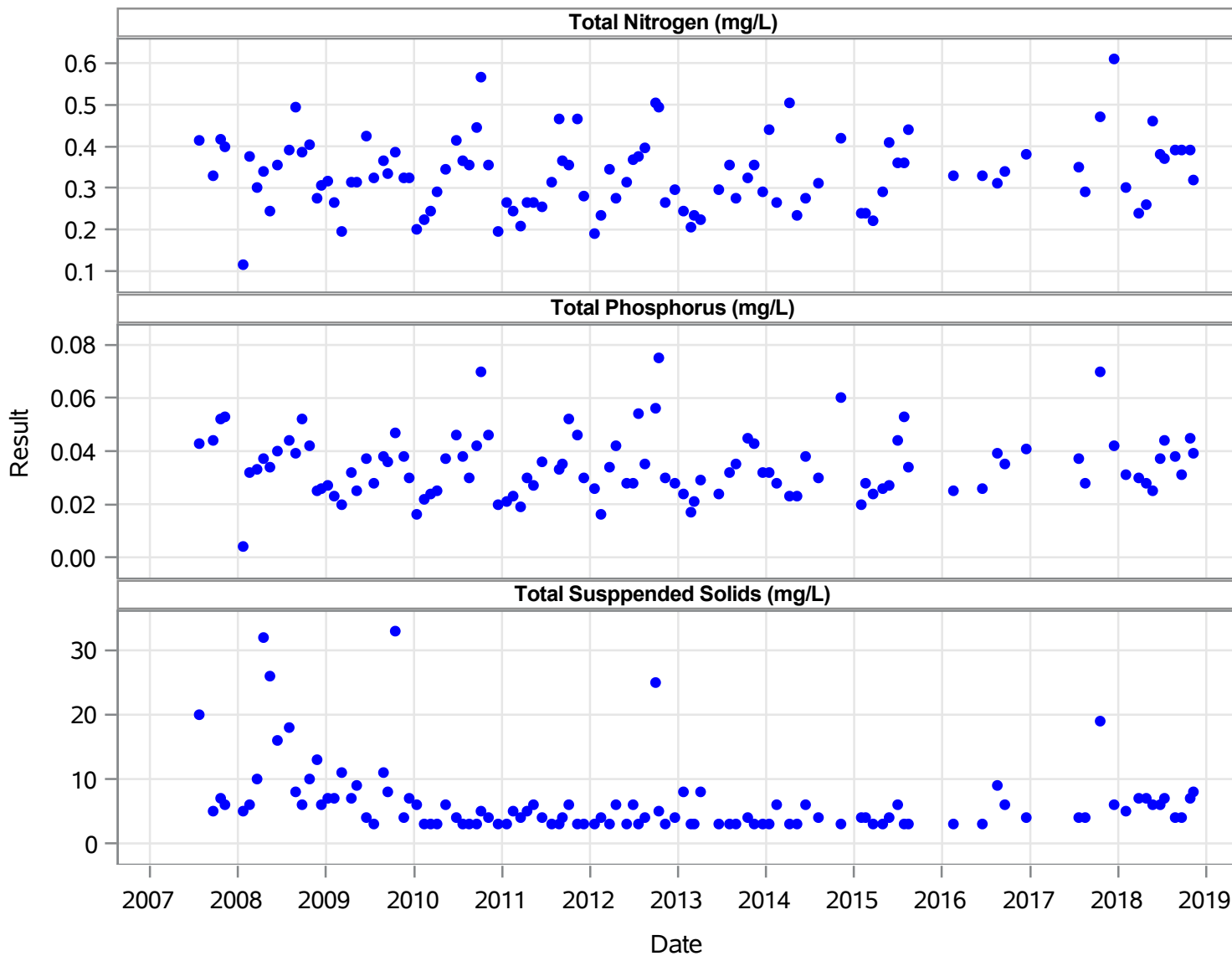
21FLSFWMLWL-1

Analyte	Start Date	End Date	Minimum Value	Maximum Value	Mean	Median	Number of obs
Chlorophyll a (ug/L)	24JUL07	08NOV18	2	31	5.881	5	42
Copper (ug/L)	24JUL07	08NOV18	3	14	7	6	5
Dissolved Oxygen (mg/L)	24JUL07	08NOV18	4.11	10.1	6.976	6.68	107
Nitrate+Nitrite (mg/L)	24JUL07	08NOV18	0.005	0.086	0.011	0.005	105
Total Kjeldahl Nitrogen (mg/L)	24JUL07	08NOV18	0.09	0.56	0.316	0.31	79
Total Nitrogen (mg/L)	24JUL07	08NOV18	0.116	0.61	0.333	0.328	108
Total Phosphorus (mg/L)	24JUL07	08NOV18	0.004	0.075	0.034	0.032	107
Total Suspended Solids (mg/L)	24JUL07	08NOV18	3	33	6.361	4	108

21FLSFWMLWL-1



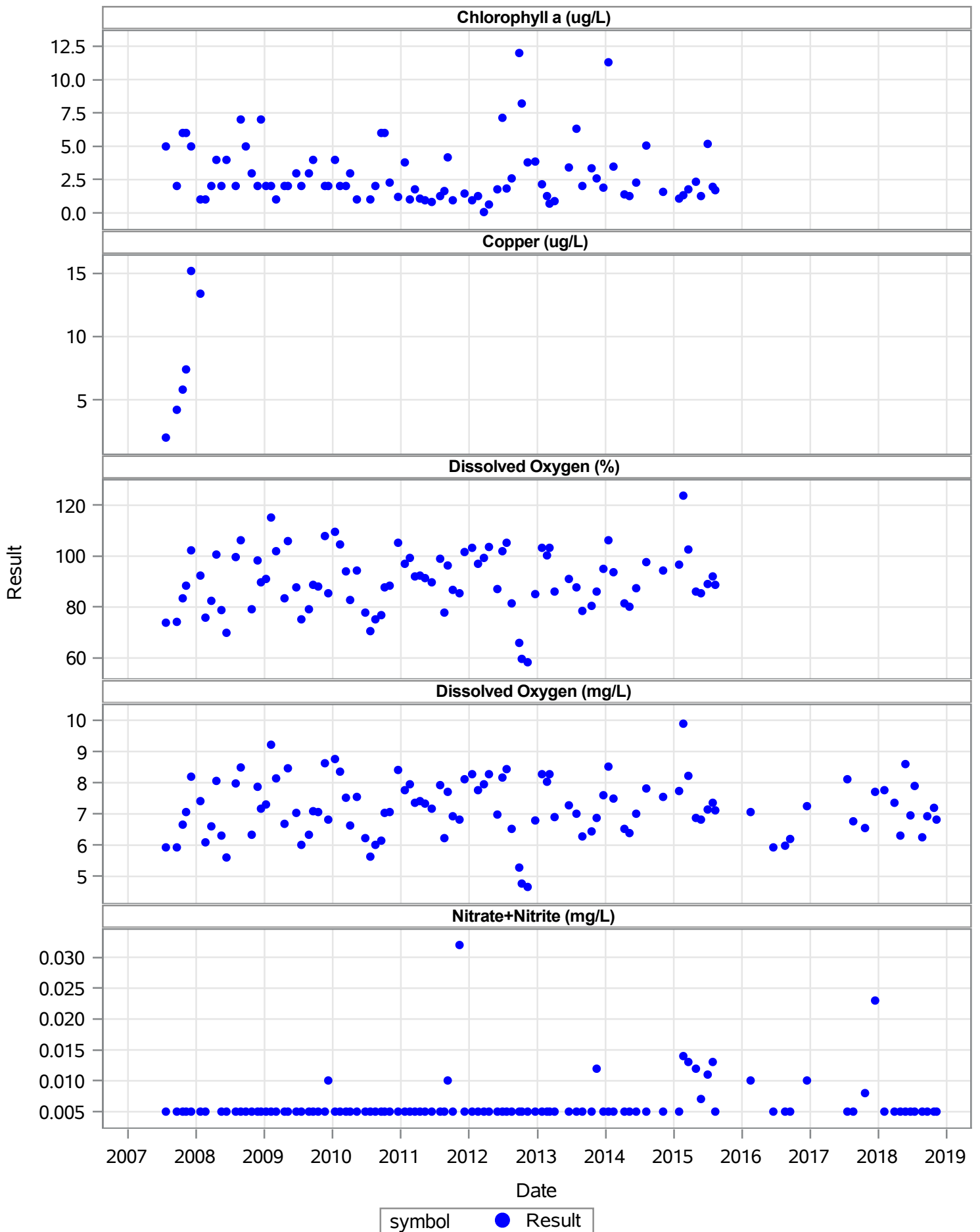
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21FLSFWMLWL-4

Analyte	Start Date	End Date	Minumum Value	Maximum Value	Mean	Median	Number of obs
Chlorophyll a (ug/L)	24JUL07	08NOV18	0.053	12	2.875	2	87
Copper (ug/L)	24JUL07	08NOV18	2	15.2	8	6.6	6
Dissolved Oxygen (mg/L)	24JUL07	08NOV18	4.66	9.9	7.197	7.12	108
Dissolved Oxygen (%)	24JUL07	08NOV18	58.3	123.8	90.411	89.8	89
Nitrate+Nitrite (mg/L)	24JUL07	08NOV18	0.005	0.032	0.006	0.005	107
Total Kjeldahl Nitrogen (mg/L)	24JUL07	08NOV18	0.13	0.57	0.24	0.23	80
Total Nitrogen (mg/L)	24JUL07	08NOV18	0.112	0.576	0.254	0.235	109
Total Phosphorus (mg/L)	24JUL07	08NOV18	0.011	0.044	0.02	0.019	104
Total Susppended Solids (mg/L)	24JUL07	08NOV18	3	48	8.853	6	109

21FLSFWMLWL-4



21FLSFWMLWL-4

Total Kjeldahl Nitrogen (mg/L)

0.5
0.4
0.3
0.2
0.1

Total Nitrogen (mg/L)

0.6
0.5
0.4
0.3
0.2
0.1

Total Phosphorus (mg/L)

0.04
0.03
0.02
0.01

Total Suspended Solids (mg/L)

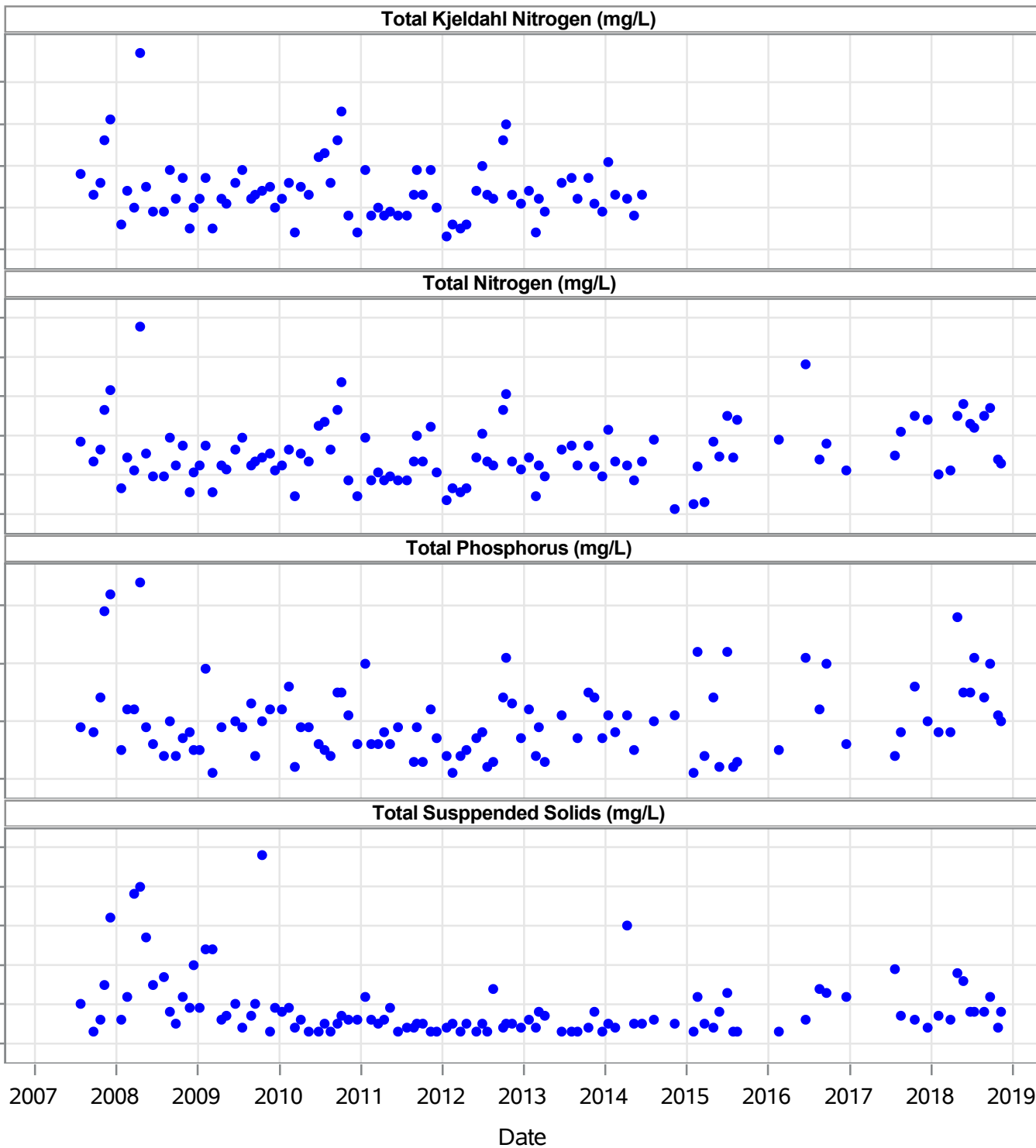
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Result

2007 2008 2009 2010 2011 2012 2013 2014 2015 2016 2017 2018 2019

Date

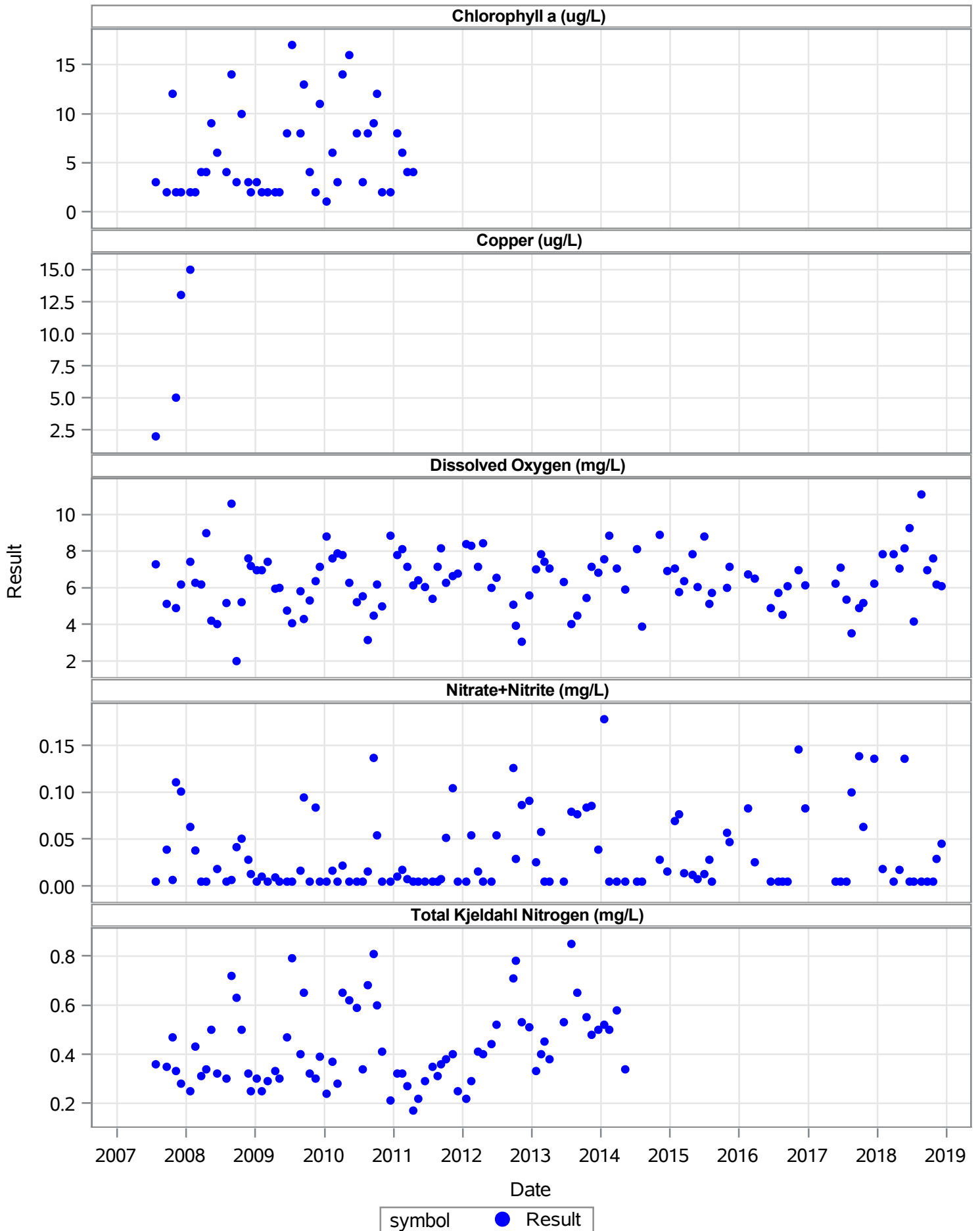
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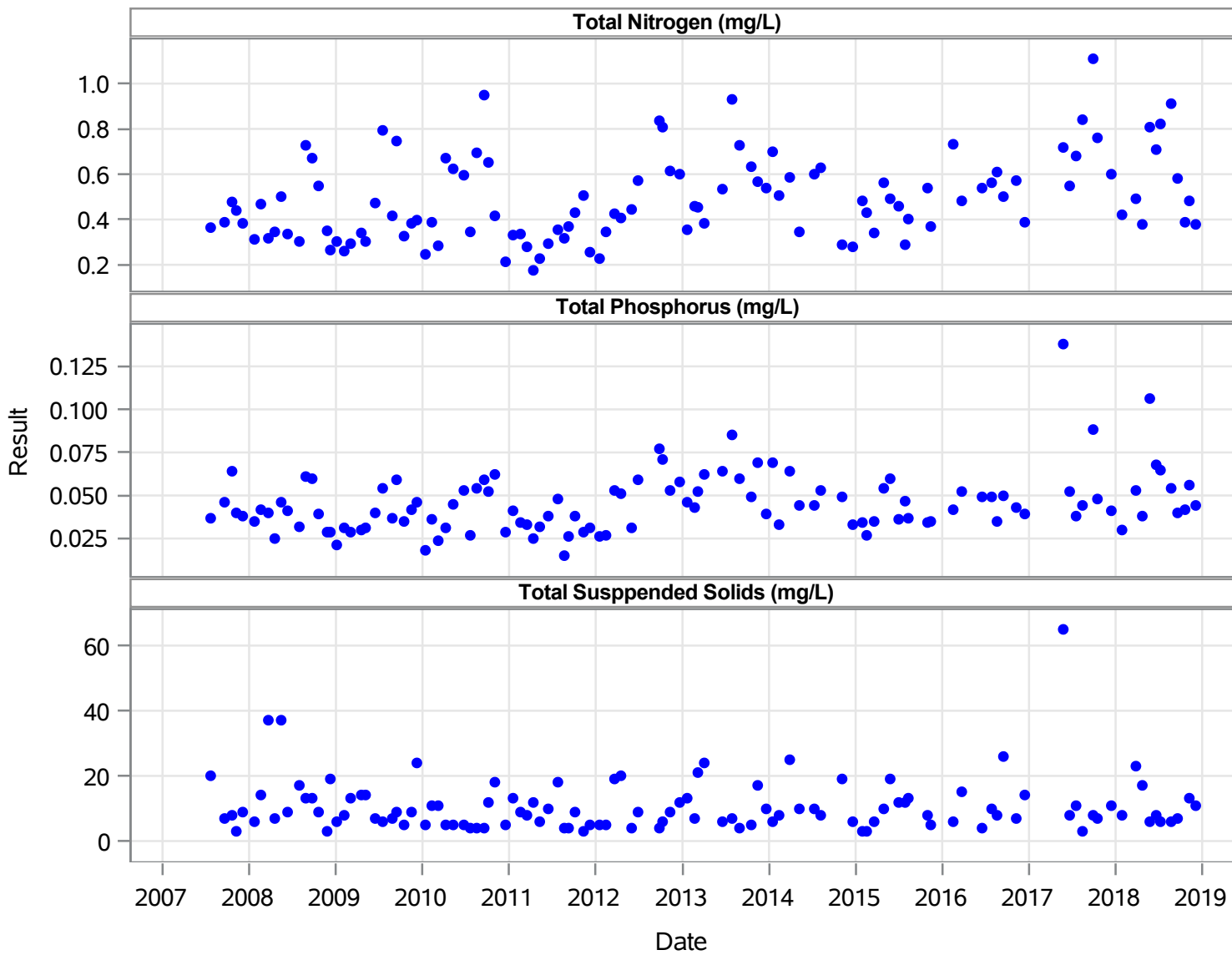
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Analyte	Start Date	End Date	Minumum Value	Maximum Value	Mean	Median	Number of obs
Chlorophyll a (ug/L)	24JUL07	04DEC18	1	17	5.867	4	45
Copper (ug/L)	24JUL07	04DEC18	2	15	8.75	9	4
Dissolved Oxygen (mg/L)	24JUL07	04DEC18	1.99	11.1	6.423	6.33	116
Nitrate+Nitrite (mg/L)	24JUL07	04DEC18	0.005	0.178	0.033	0.013	116
Total Kjeldahl Nitrogen (mg/L)	24JUL07	04DEC18	0.17	0.85	0.425	0.38	77
Total Nitrogen (mg/L)	24JUL07	04DEC18	0.175	1.11	0.49	0.458	117
Total Phosphorus (mg/L)	24JUL07	04DEC18	0.015	0.138	0.045	0.042	117
Total Suspended Solids (mg/L)	24JUL07	04DEC18	3	65	10.698	8	116

21FLSFWMLWL-11



21FLSFWMLWL-11

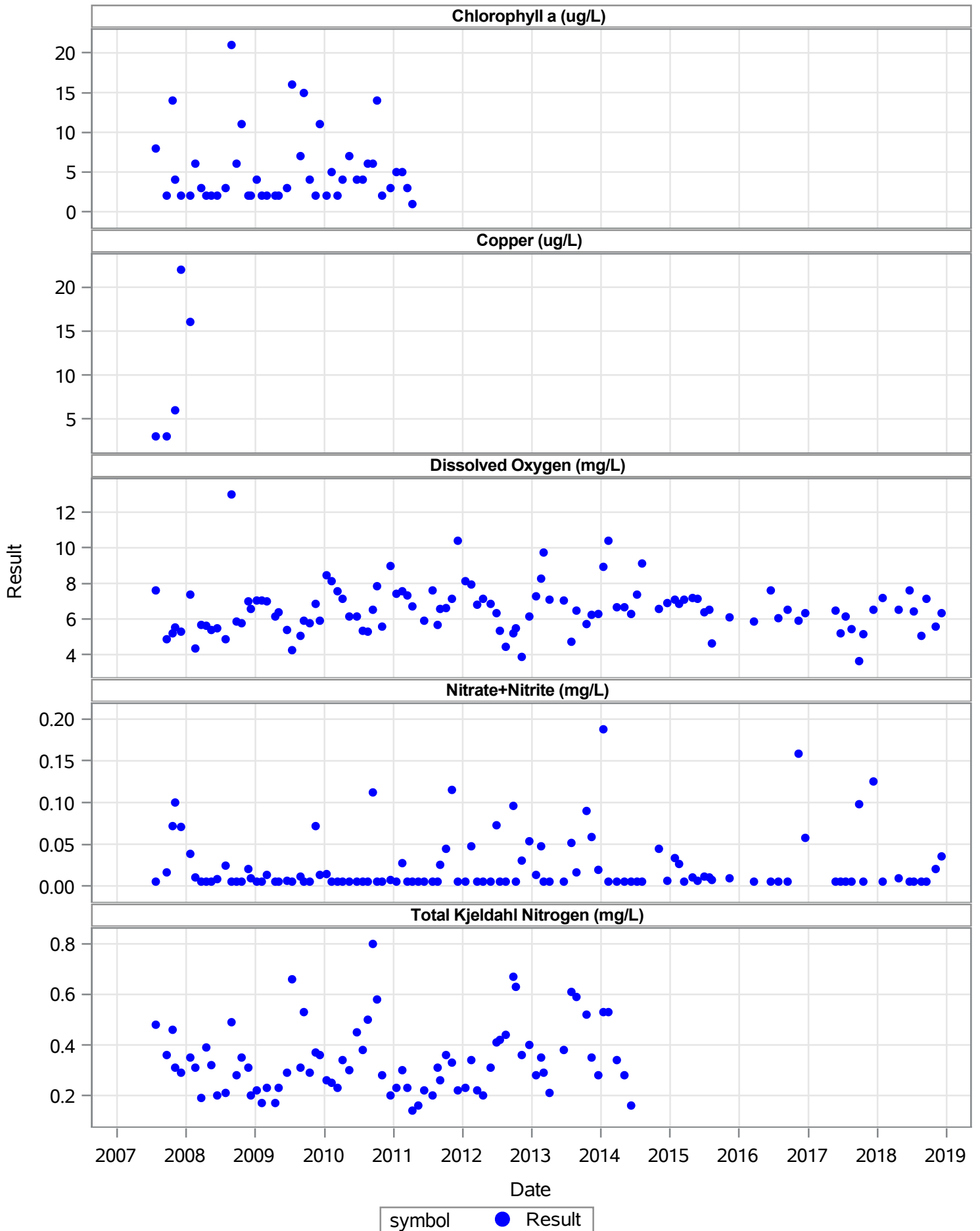


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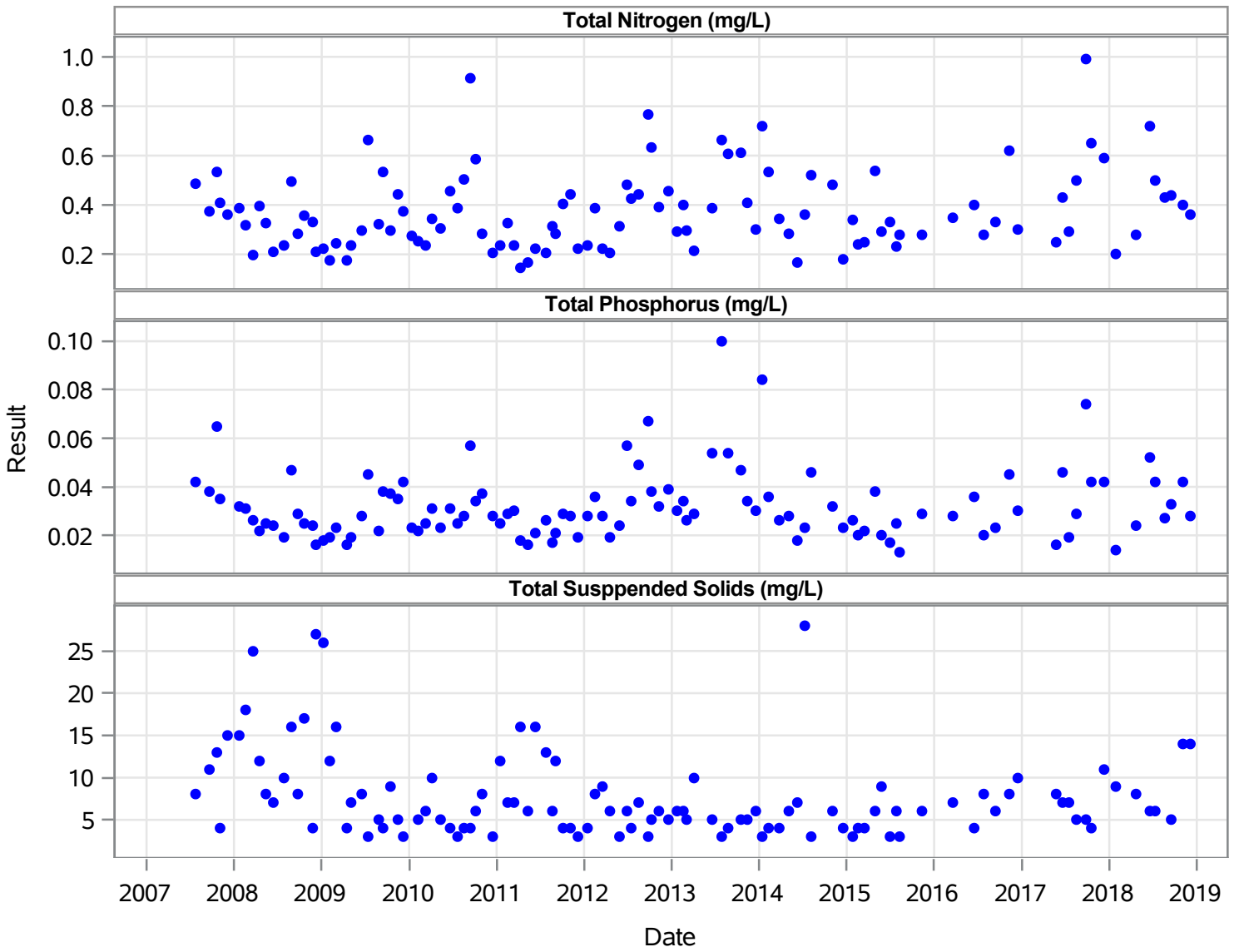
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Analyte	Start Date	End Date	Minimum Value	Maximum Value	Mean	Median	Number of obs
Chlorophyll a (ug/L)	25JUL07	03DEC18	1	21	5.222	4	45
Copper (ug/L)	25JUL07	03DEC18	3	22	10	6	5
Dissolved Oxygen (mg/L)	25JUL07	03DEC18	3.63	13	6.538	6.47	113
Nitrate+Nitrite (mg/L)	25JUL07	03DEC18	0.005	0.188	0.023	0.005	114
Total Kjeldahl Nitrogen (mg/L)	25JUL07	03DEC18	0.14	0.8	0.34	0.31	80
Total Nitrogen (mg/L)	25JUL07	03DEC18	0.145	0.99	0.374	0.335	114
Total Phosphorus (mg/L)	25JUL07	03DEC18	0.013	0.1	0.032	0.028	113
Total Suspended Solids (mg/L)	25JUL07	03DEC18	3	28	7.732	6	112

21FLSFWMLWL-13



21FLSFWMLWL-13

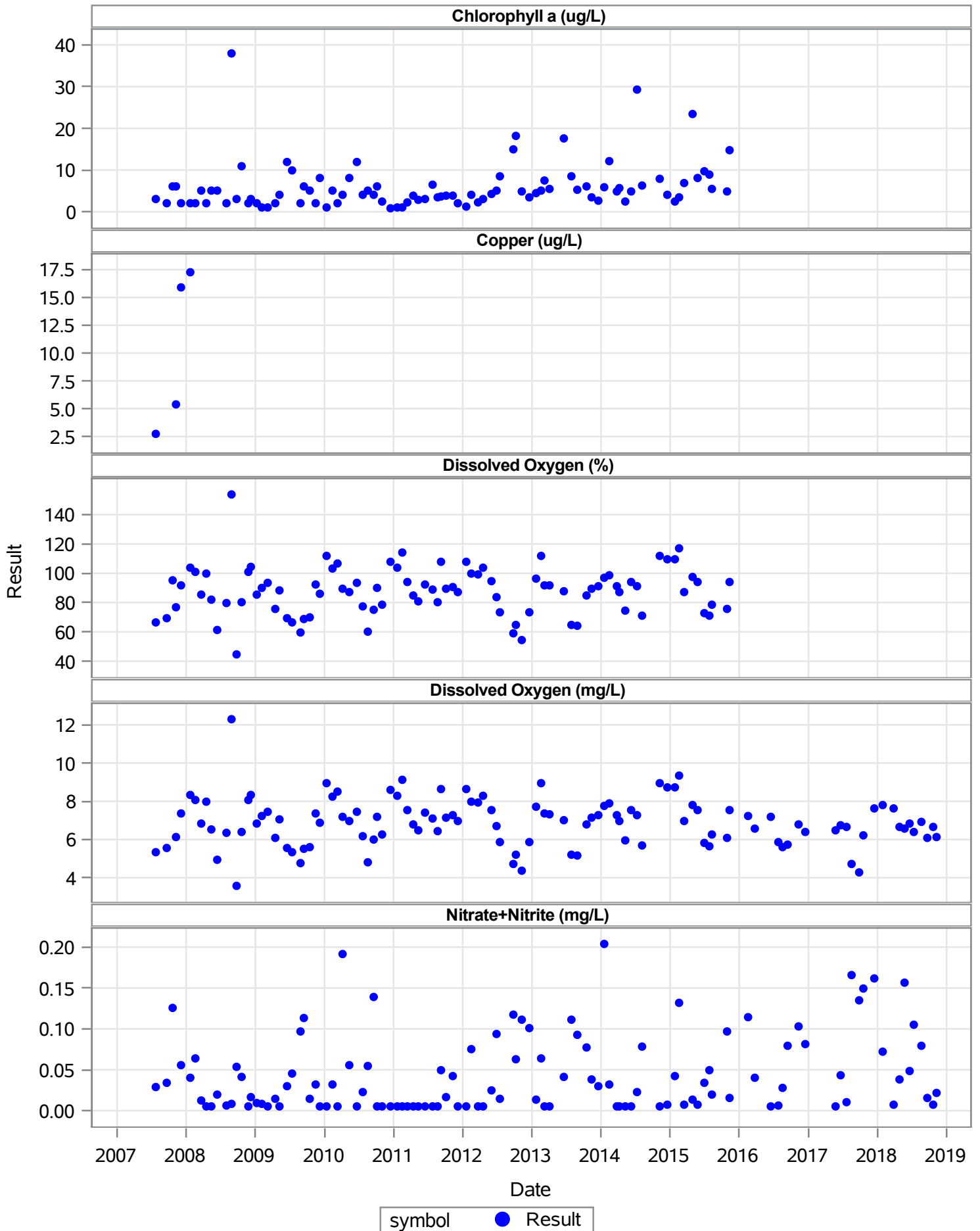


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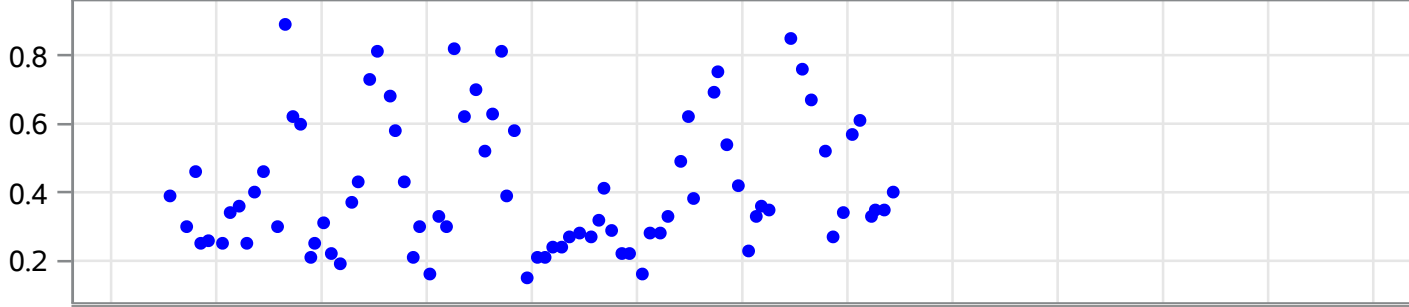
Analyte	Start Date	End Date	Minumum Value	Maximum Value	Mean	Median	Number of obs
Chlorophyll a (ug/L)	24JUL07	07NOV18	0.9	38	5.878	4.305	94
Copper (ug/L)	24JUL07	07NOV18	2.7	17.3	10.325	10.65	4
Dissolved Oxygen (mg/L)	24JUL07	07NOV18	3.57	12.3	6.896	6.945	118
Dissolved Oxygen (%)	24JUL07	07NOV18	44.6	153.8	87.718	89.35	94
Nitrate+Nitrite (mg/L)	24JUL07	07NOV18	0.005	0.204	0.044	0.024	118
Total Kjeldahl Nitrogen (mg/L)	24JUL07	07NOV18	0.15	0.89	0.416	0.35	80
Total Nitrogen (mg/L)	24JUL07	07NOV18	0.155	1.35	0.504	0.43	119
Total Phosphorus (mg/L)	24JUL07	07NOV18	0.014	0.113	0.048	0.044	118
Total Susppended Solids (mg/L)	24JUL07	07NOV18	3	37	10.568	8	118

21FLSFWMLWL-8

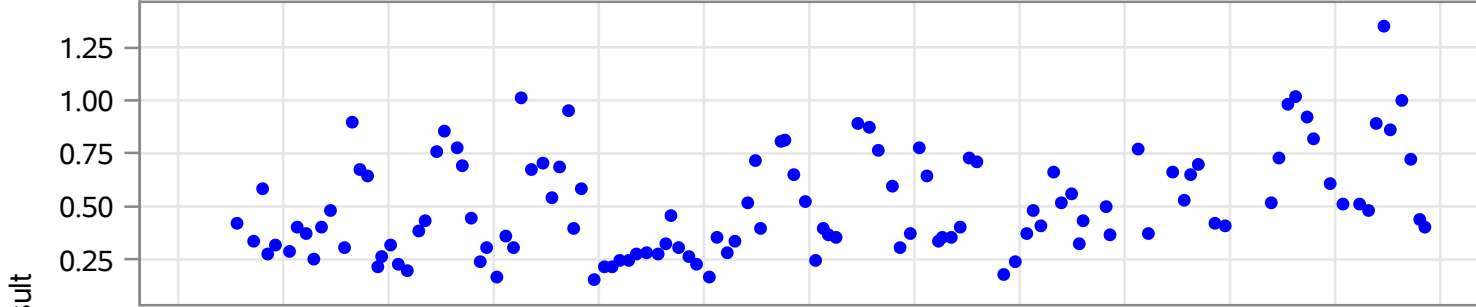


21FLSFWMLWL-8

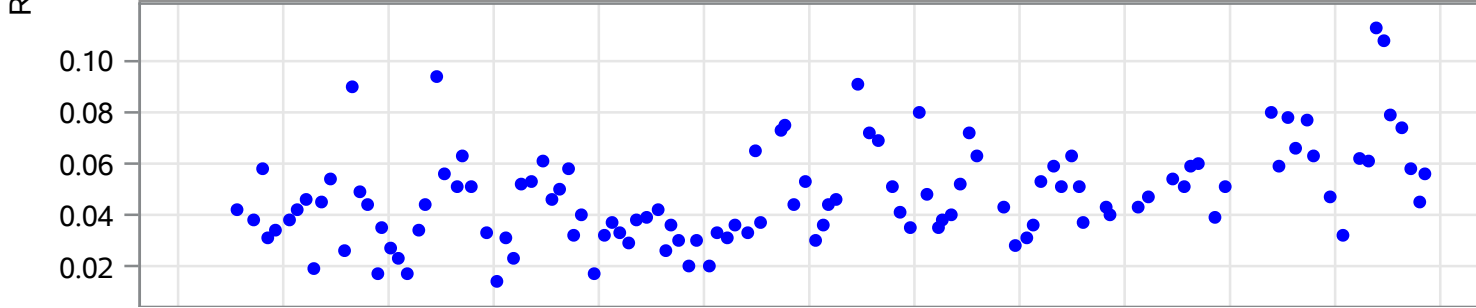
Total Kjeldahl Nitrogen (mg/L)



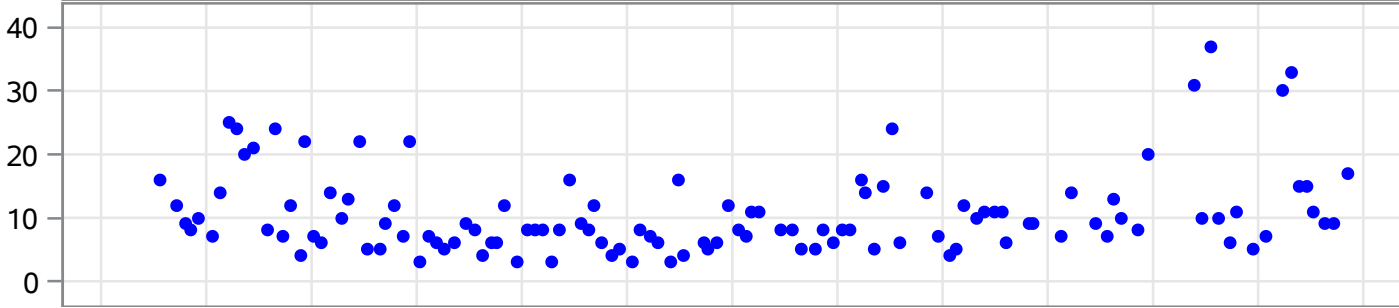
Total Nitrogen (mg/L)



Total Phosphorus (mg/L)



Total Suspended Solids (mg/L)



2007 2008 2009 2010 2011 2012 2013 2014 2015 2016 2017 2018 2019

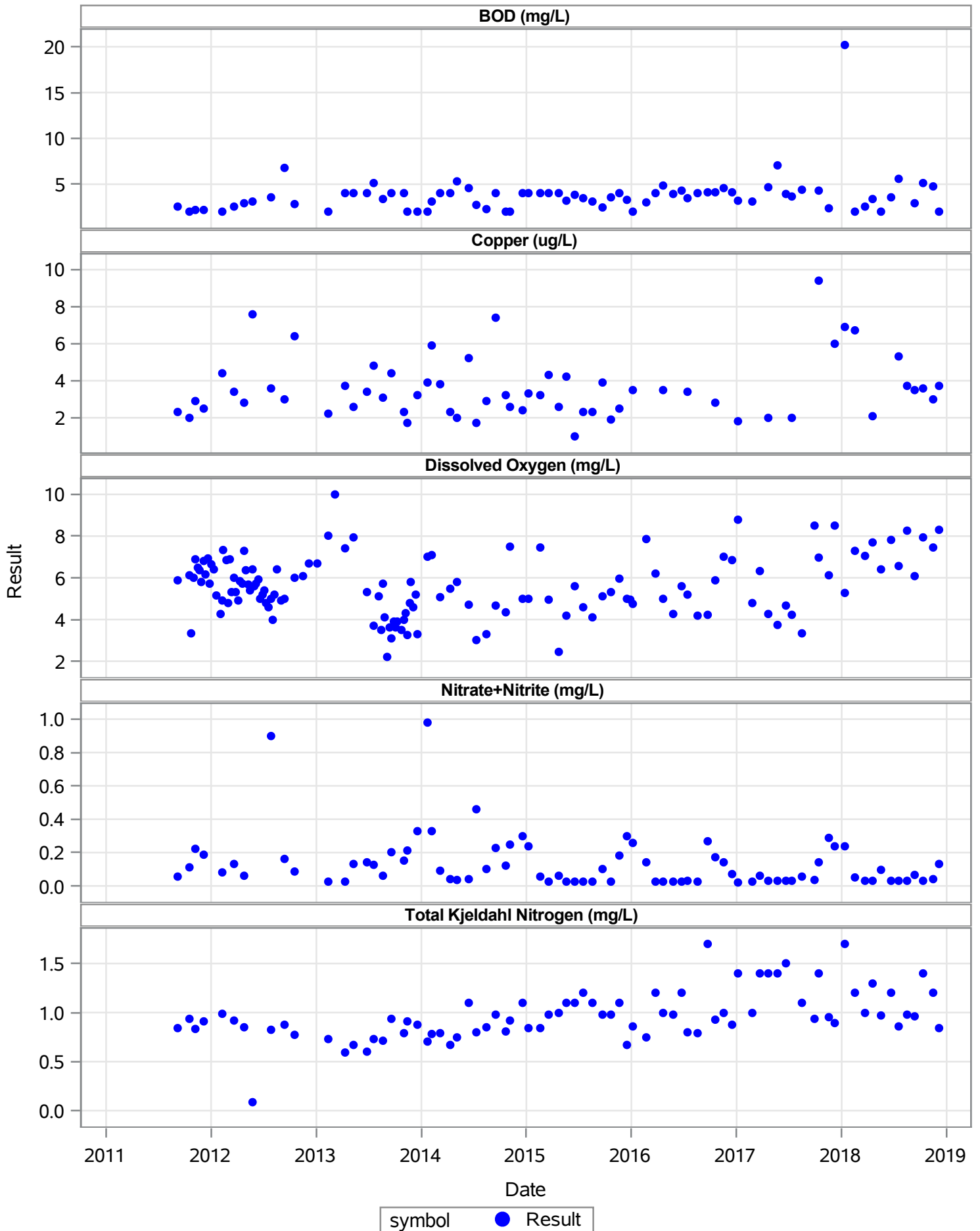
Date

symbol ● Result

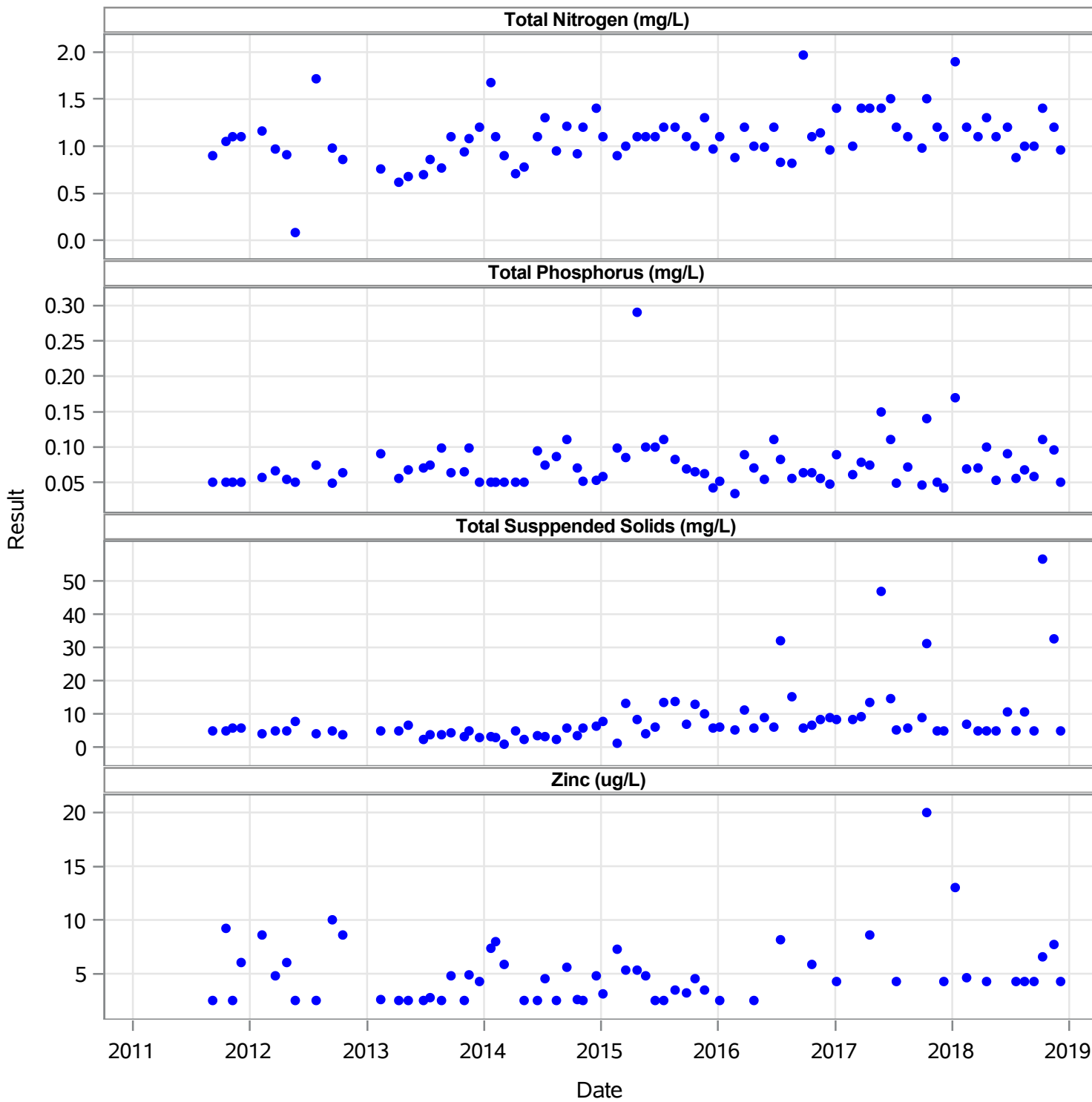
C17_CANAL_A

Analyte	Start Date	End Date	Minumum Value	Maximum Value	Mean	Median	Number of obs
BOD (mg/L)	07SEP11	06DEC18	2	20.2	3.738	3.6	77
Copper (ug/L)	07SEP11	06DEC18	0.99	9.4	3.548	3.2	62
Dissolved Oxygen (mg/L)	07SEP11	06DEC18	2.2	9.98	5.58	5.43	136
Nitrate+Nitrite (mg/L)	07SEP11	06DEC18	0.02	0.98	0.131	0.071	80
Total Kjeldahl Nitrogen (mg/L)	07SEP11	06DEC18	0.086	1.7	0.97	0.94	80
Total Nitrogen (mg/L)	07SEP11	06DEC18	0.086	1.97	1.092	1.1	81
Total Phosphorus (mg/L)	07SEP11	06DEC18	0.034	0.29	0.074	0.065	81
Total Suspended Solids (mg/L)	07SEP11	06DEC18	1	56.6	8.406	5.6	80
Zinc (ug/L)	07SEP11	06DEC18	2.5	20	4.974	4.3	61

C17_CANAL_A



C17_CANAL_A

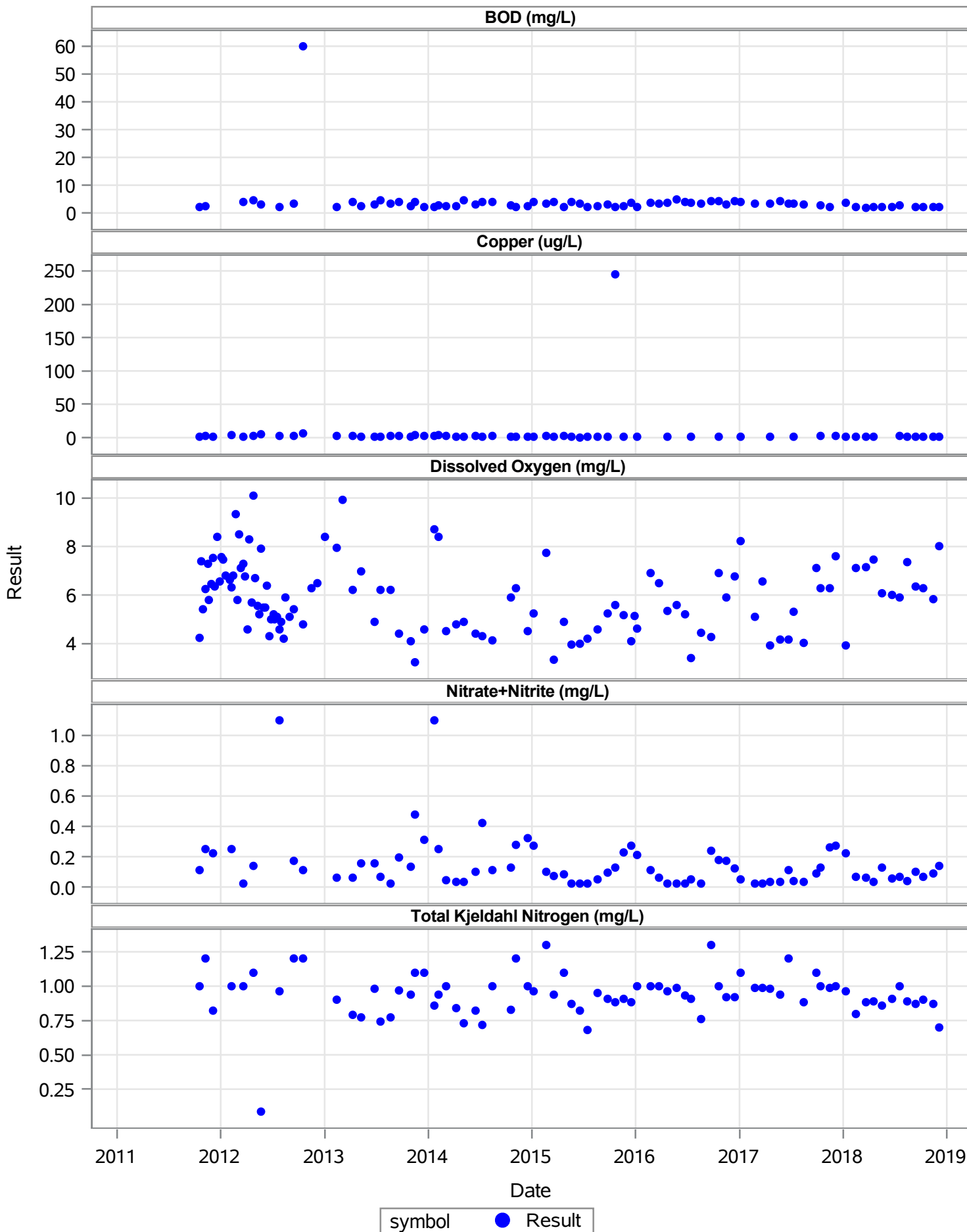


symbol ● Result

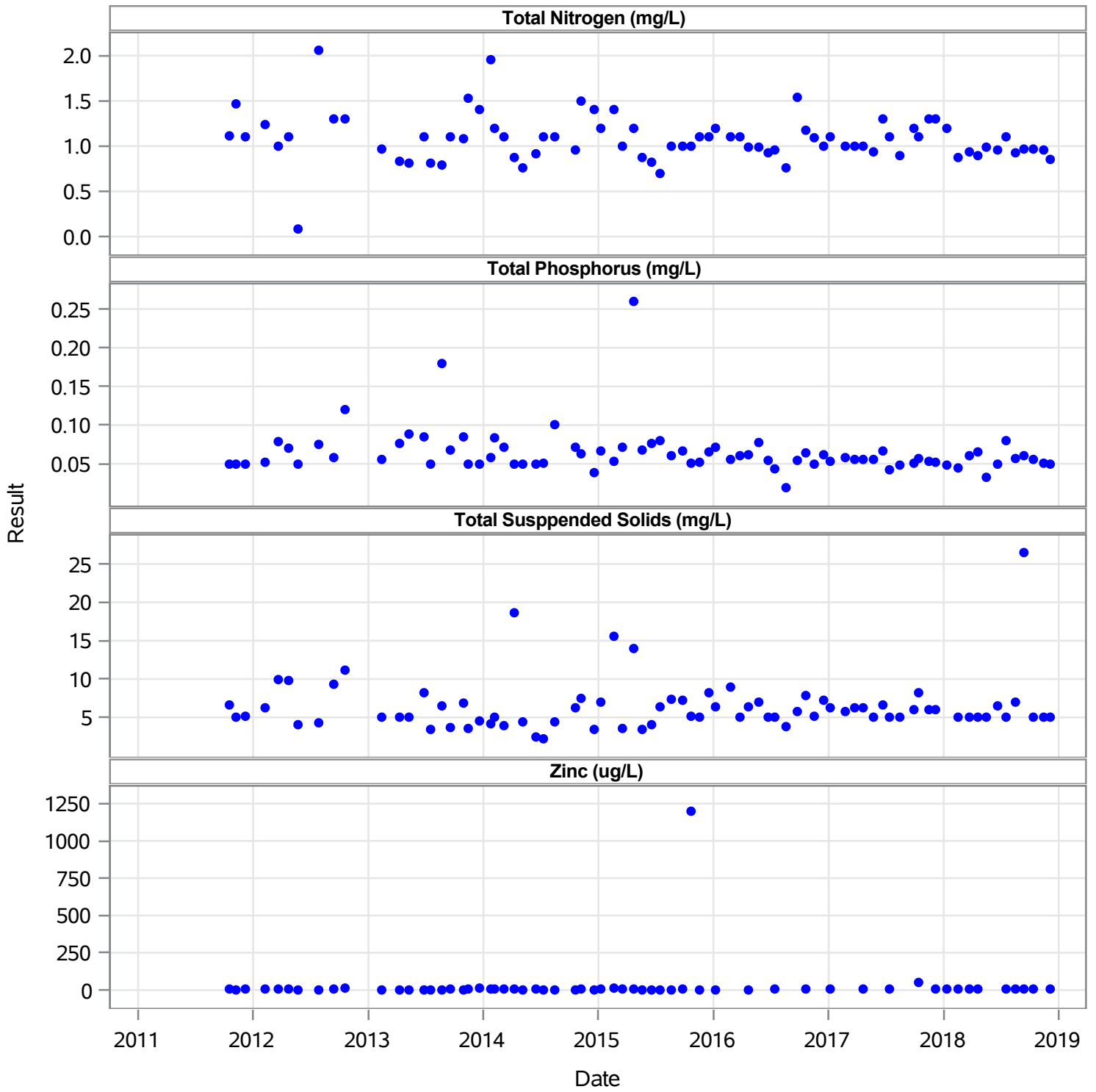
C17_CANAL_B

Analyte	Start Date	End Date	Minumum Value	Maximum Value	Mean	Median	Number of obs
BOD (mg/L)	18OCT11	06DEC18	1.8	60	3.868	3.2	73
Copper (ug/L)	18OCT11	06DEC18	0.5	245	6.057	1.9	61
Dissolved Oxygen (mg/L)	18OCT11	06DEC18	3.23	10.1	5.926	5.855	120
Nitrate+Nitrite (mg/L)	18OCT11	06DEC18	0.022	1.1	0.149	0.101	78
Total Kjeldahl Nitrogen (mg/L)	18OCT11	06DEC18	0.086	1.3	0.938	0.94	78
Total Nitrogen (mg/L)	18OCT11	06DEC18	0.086	2.06	1.078	1.08	79
Total Phosphorus (mg/L)	18OCT11	06DEC18	0.019	0.26	0.064	0.057	79
Total Suspended Solids (mg/L)	18OCT11	06DEC18	2.2	26.5	6.392	5.2	78
Zinc (ug/L)	18OCT11	06DEC18	2.5	1200	25.692	4.3	60

C17_CANAL_B



C17_CANAL_B

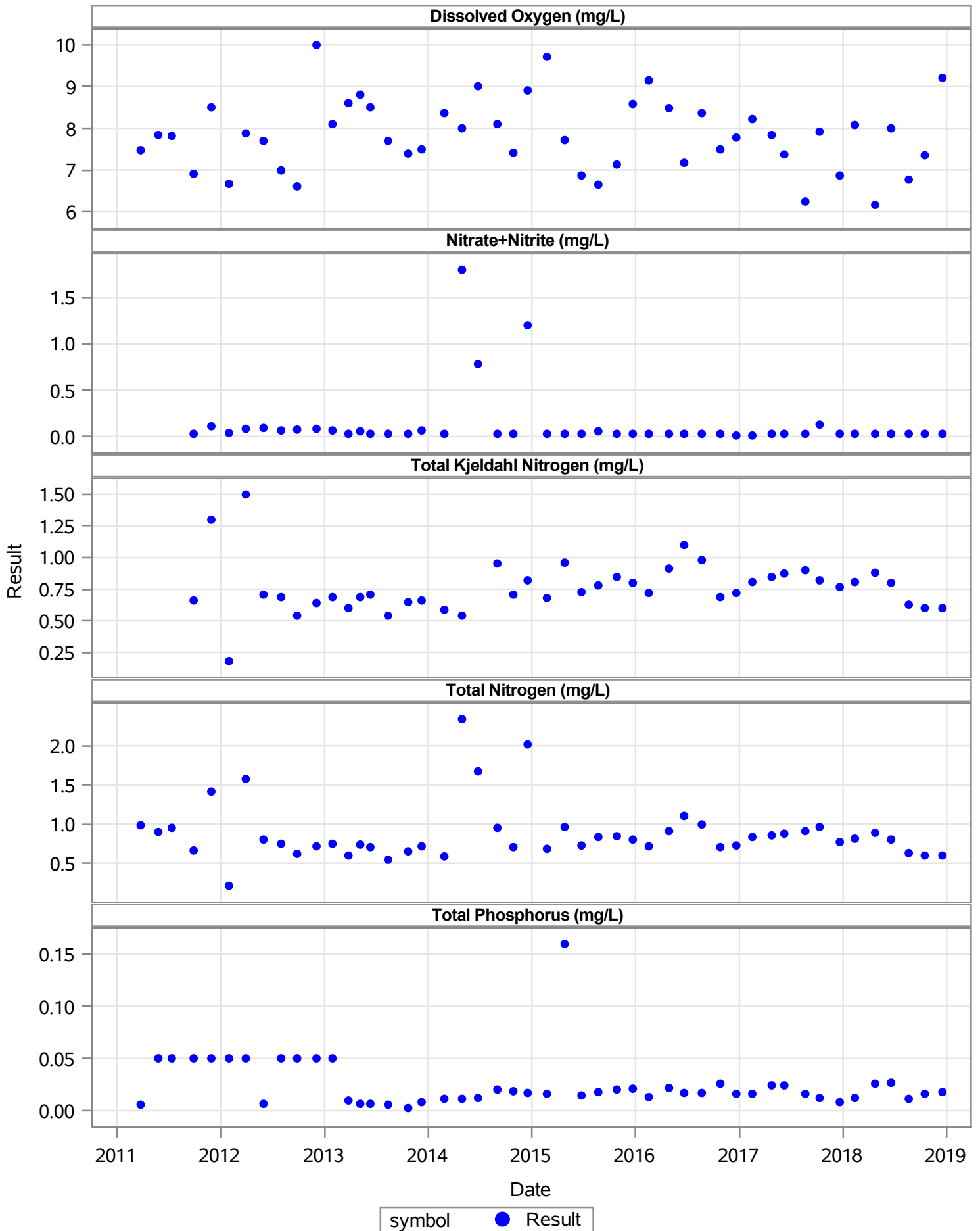


symbol ● Result

CLEAR_LAKE_MIDDLE

Analyte	Start Date	End Date	Minimum Value	Maximum Value	Mean	Median	Number of obs
Dissolved Oxygen (mg/L)	24MAR11	18DEC18	6.17	10	7.833	7.825	48
Nitrate+Nitrite (mg/L)	24MAR11	18DEC18	0.011	1.8	0.12	0.025	45
Total Kjeldahl Nitrogen (mg/L)	24MAR11	18DEC18	0.18	1.5	0.764	0.72	44
Total Nitrogen (mg/L)	24MAR11	18DEC18	0.21	2.34	0.878	0.8	48
Total Phosphorus (mg/L)	24MAR11	18DEC18	0.0028	0.16	0.025	0.017	48

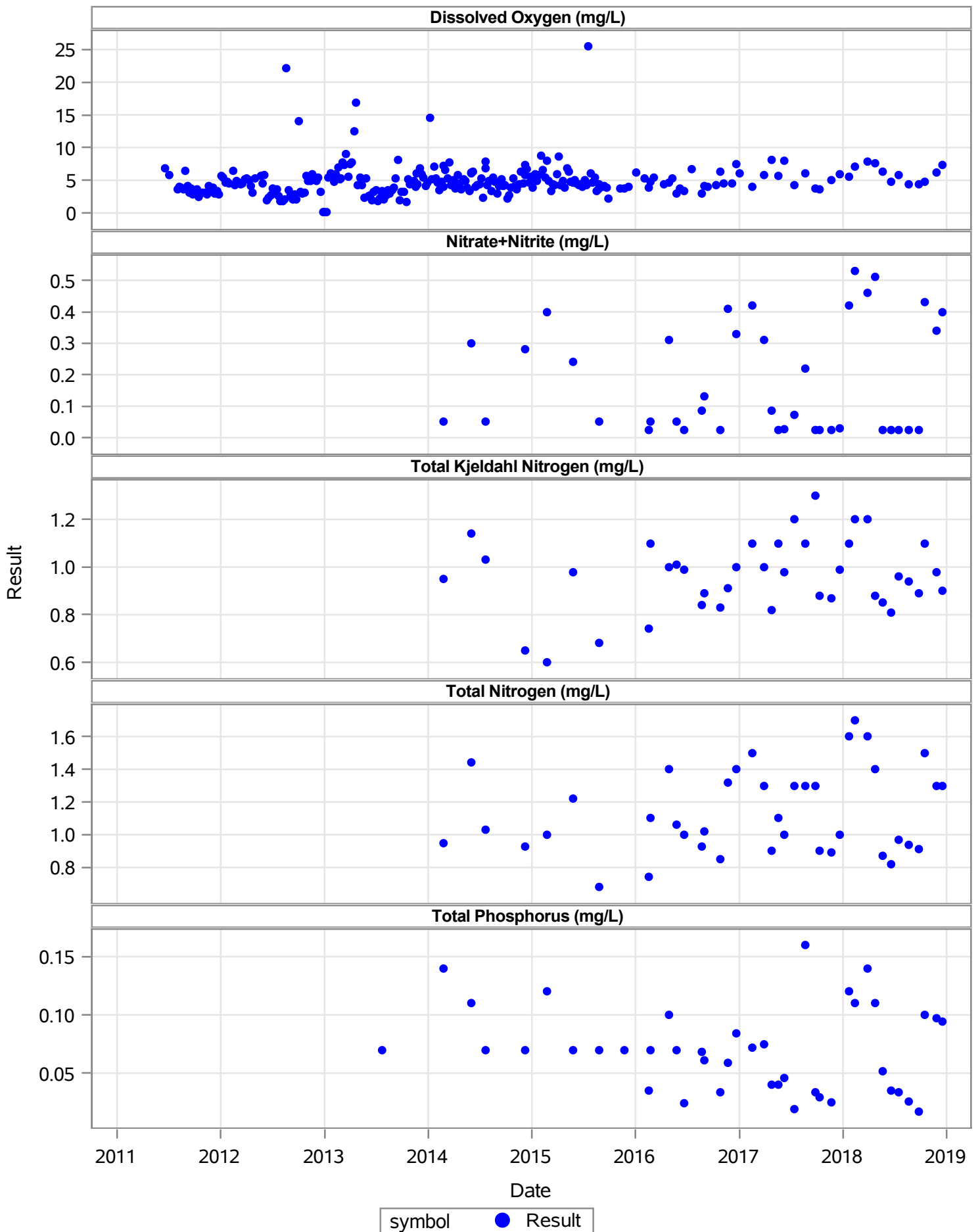
CLEAR_LAKE_MIDDLE



CONTROL_IV

Analyte	Start Date	End Date	Minumum Value	Maximum Value	Mean	Median	Number of obs
Dissolved Oxygen (mg/L)	16MAY11	18DEC18	0.2	25.5	4.881	4.525	272
Nitrate+Nitrite (mg/L)	16MAY11	18DEC18	0.025	0.53	0.182	0.08	40
Total Kjeldahl Nitrogen (mg/L)	16MAY11	18DEC18	0.6	1.3	0.962	0.98	40
Total Nitrogen (mg/L)	16MAY11	18DEC18	0.68	1.7	1.137	1.045	40
Total Phosphorus (mg/L)	16MAY11	18DEC18	0.017	0.16	0.07	0.07	41

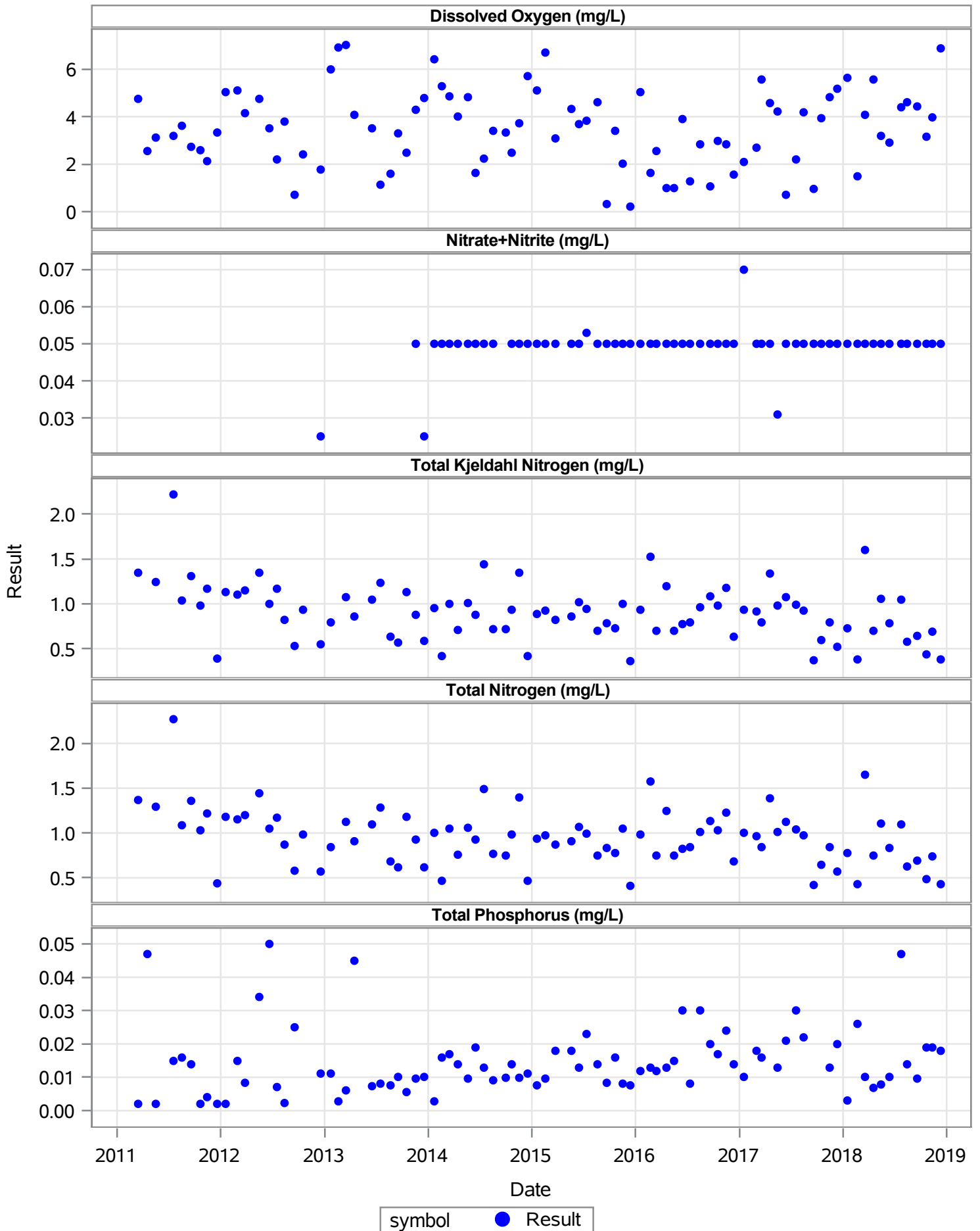
CONTROL_IV



GW_1

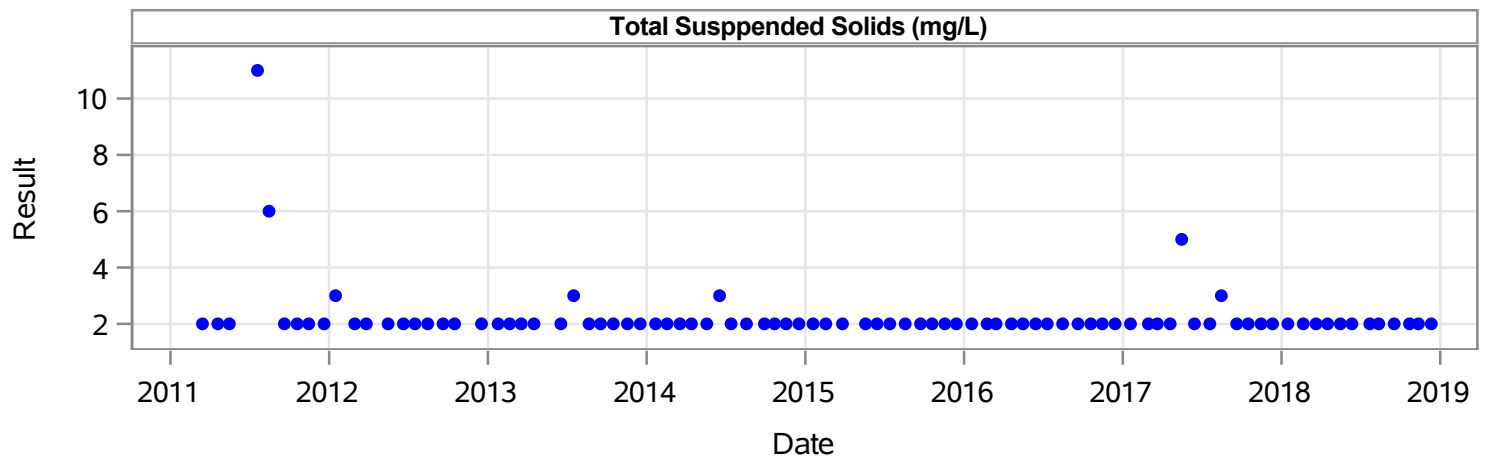
Analyte	Start Date	End Date	Minumum Value	Maximum Value	Mean	Median	Number of obs
Dissolved Oxygen (mg/L)	15MAR11	12DEC18	0.2	7.02	3.493	3.5	89
Nitrate+Nitrite (mg/L)	15MAR11	12DEC18	0.025	0.07	0.049	0.05	61
Total Kjeldahl Nitrogen (mg/L)	15MAR11	12DEC18	0.36	2.22	0.902	0.92	87
Total Nitrogen (mg/L)	15MAR11	12DEC18	0.41	2.27	0.951	0.97	87
Total Phosphorus (mg/L)	15MAR11	12DEC18	0.002	0.05	0.014	0.013	85
Total Suspended Solids (mg/L)	15MAR11	12DEC18	2	11	2.225	2	89

GW_1



GW_1

Total Suspended Solids (mg/L)

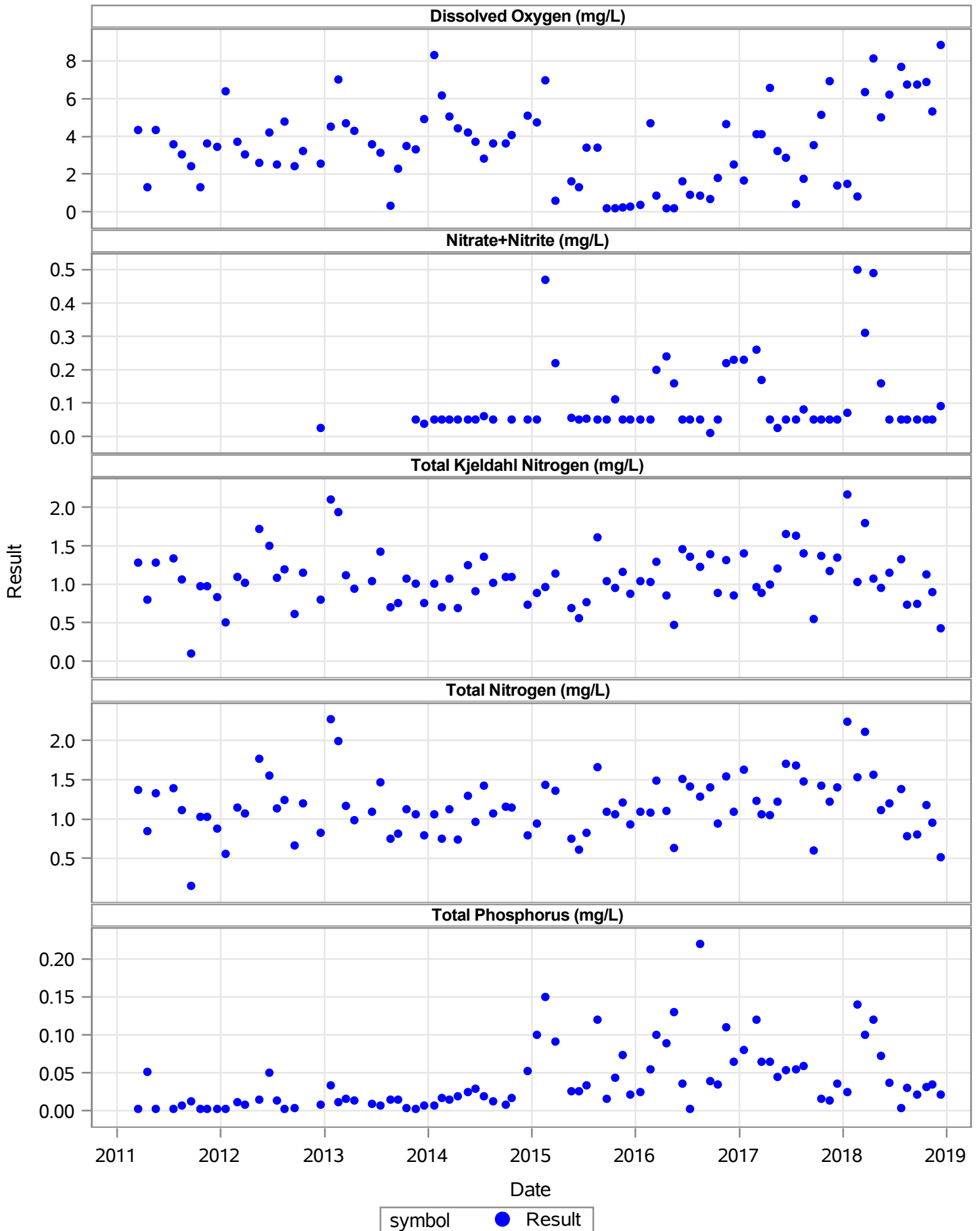


symbol ● Result

GW_3

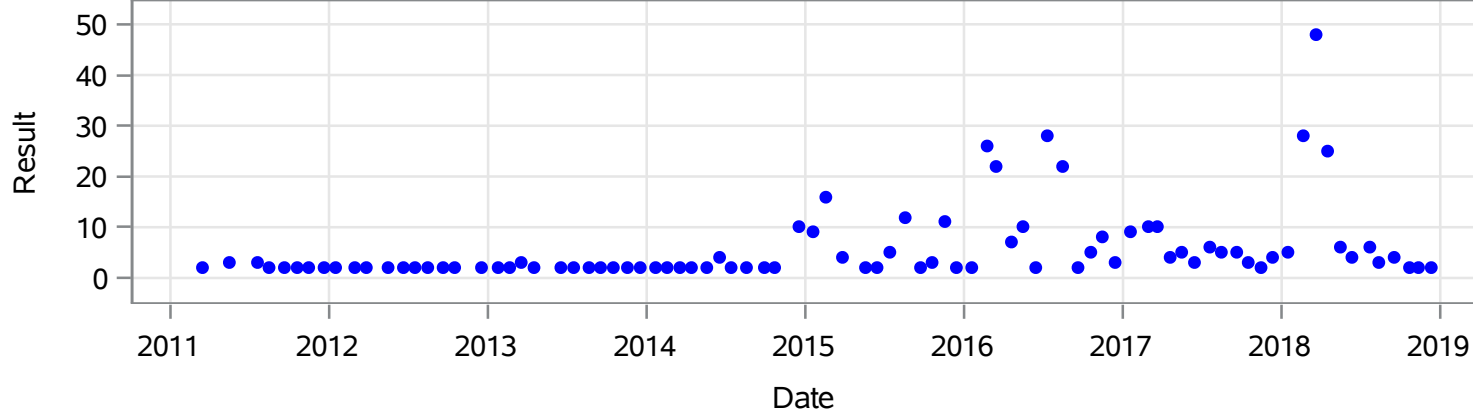
Analyte	Start Date	End Date	Minumum Value	Maximum Value	Mean	Median	Number of obs
Dissolved Oxygen (mg/L)	15MAR11	12DEC18	0.2	8.85	3.515	3.52	88
Nitrate+Nitrite (mg/L)	15MAR11	12DEC18	0.01	0.5	0.104	0.05	60
Total Kjeldahl Nitrogen (mg/L)	15MAR11	12DEC18	0.1	2.17	1.08	1.04	88
Total Nitrogen (mg/L)	15MAR11	12DEC18	0.15	2.27	1.168	1.12	88
Total Phosphorus (mg/L)	15MAR11	12DEC18	0.002	0.22	0.039	0.025	86
Total Suspended Solids (mg/L)	15MAR11	12DEC18	2	48	5.736	2	87

GW_3



GW_3

Total Suspended Solids (mg/L)

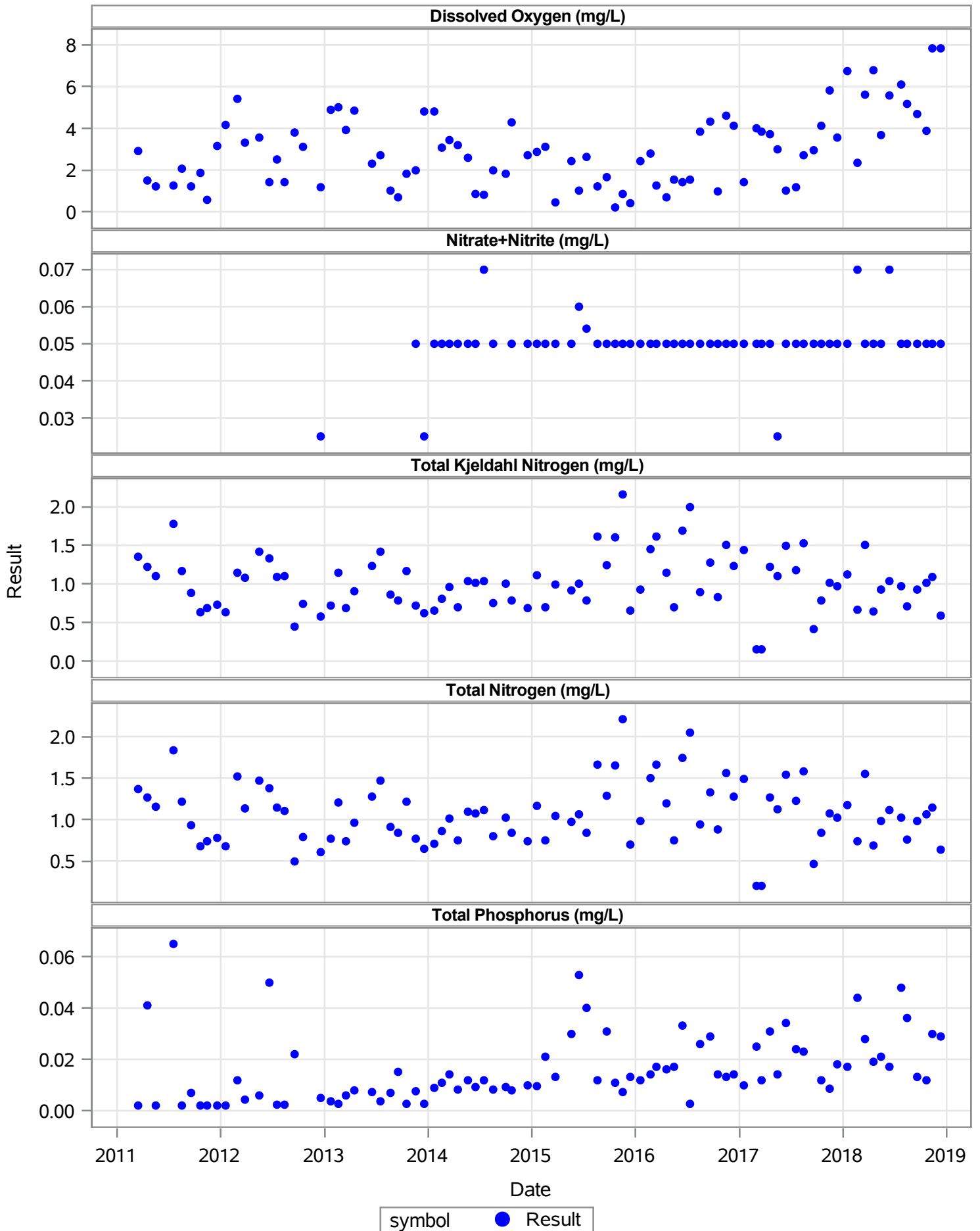


symbol ● Result

GW_5

Analyte	Start Date	End Date	Minumum Value	Maximum Value	Mean	Median	Number of obs
Dissolved Oxygen (mg/L)	15MAR11	12DEC18	0.2	7.85	2.944	2.745	88
Nitrate+Nitrite (mg/L)	15MAR11	12DEC18	0.025	0.07	0.05	0.05	60
Total Kjeldahl Nitrogen (mg/L)	15MAR11	12DEC18	0.15	2.16	1.018	1	88
Total Nitrogen (mg/L)	15MAR11	12DEC18	0.2	2.21	1.07	1.05	88
Total Phosphorus (mg/L)	15MAR11	12DEC18	0.002	0.065	0.016	0.012	86
Total Suspended Solids (mg/L)	15MAR11	12DEC18	2	18	2.659	2	88

GW_5



GW_5

Total Suspended Solids (mg/L)

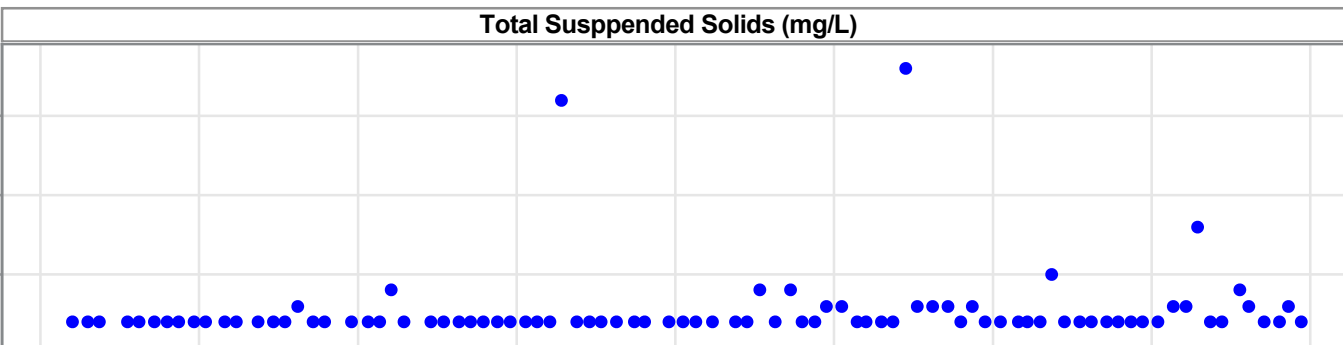
Result

15
10
5

2011 2012 2013 2014 2015 2016 2017 2018 2019

Date

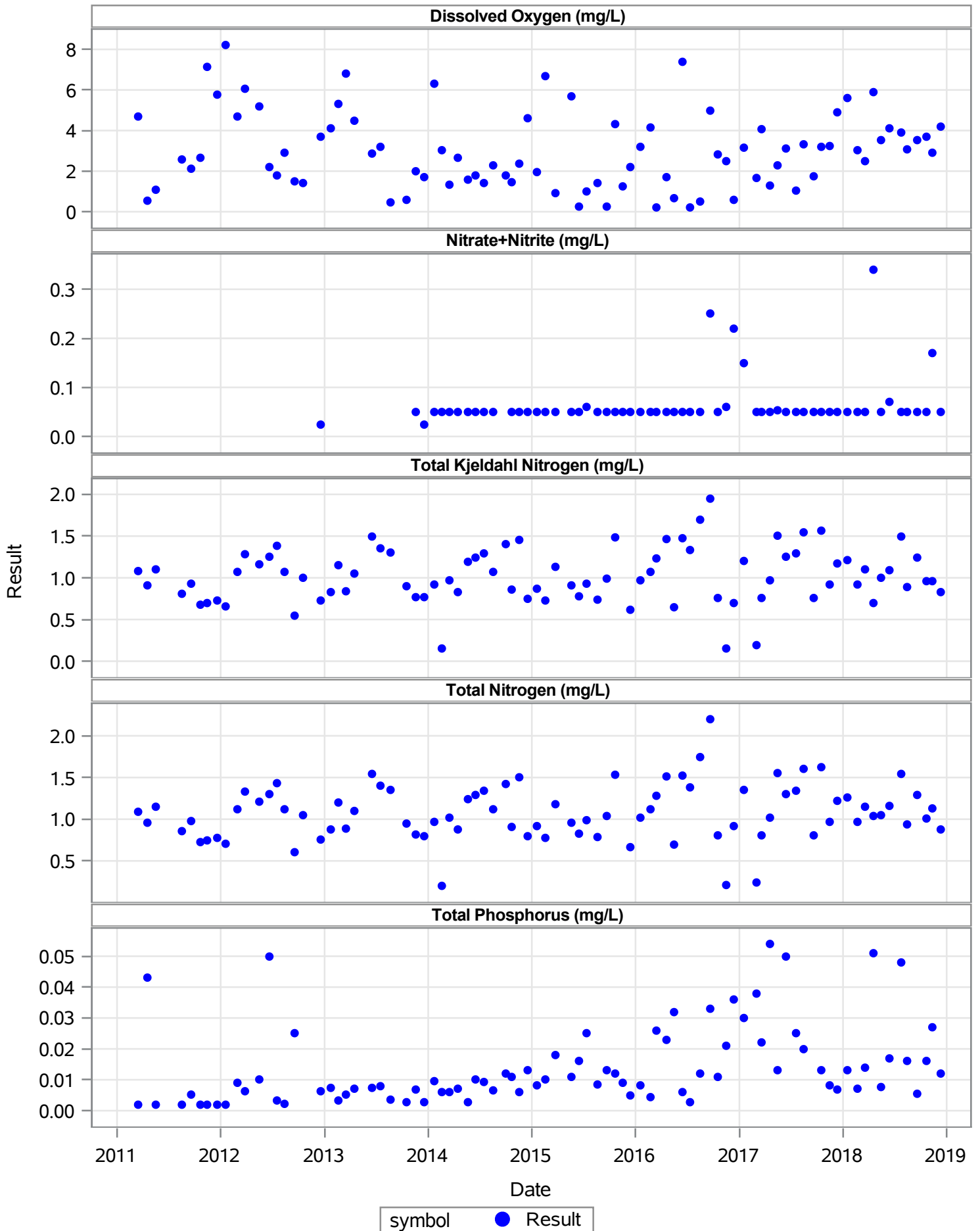
symbol ● Result



GW_7

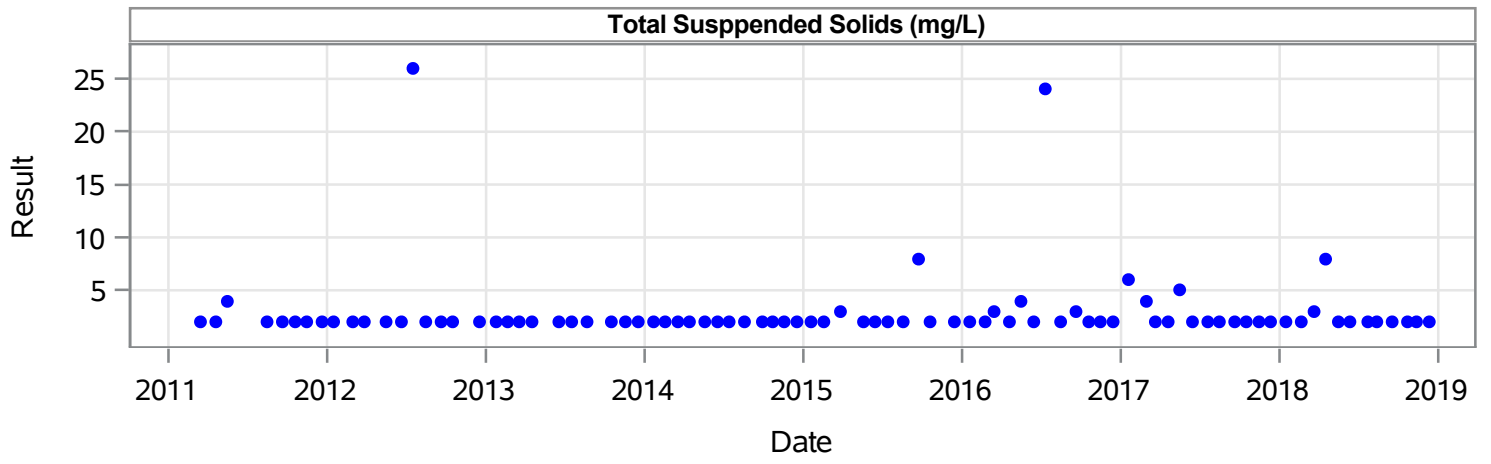
Analyte	Start Date	End Date	Minumum Value	Maximum Value	Mean	Median	Number of obs
Dissolved Oxygen (mg/L)	15MAR11	12DEC18	0.2	8.22	2.99	2.81	87
Nitrate+Nitrite (mg/L)	15MAR11	12DEC18	0.025	0.34	0.064	0.05	61
Total Kjeldahl Nitrogen (mg/L)	15MAR11	12DEC18	0.15	1.95	1.021	0.98	86
Total Nitrogen (mg/L)	15MAR11	12DEC18	0.2	2.2	1.08	1.045	86
Total Phosphorus (mg/L)	15MAR11	12DEC18	0.002	0.054	0.014	0.009	85
Total Suspended Solids (mg/L)	15MAR11	12DEC18	2	26	2.872	2	86

GW_7



GW_7

Total Suspended Solids (mg/L)

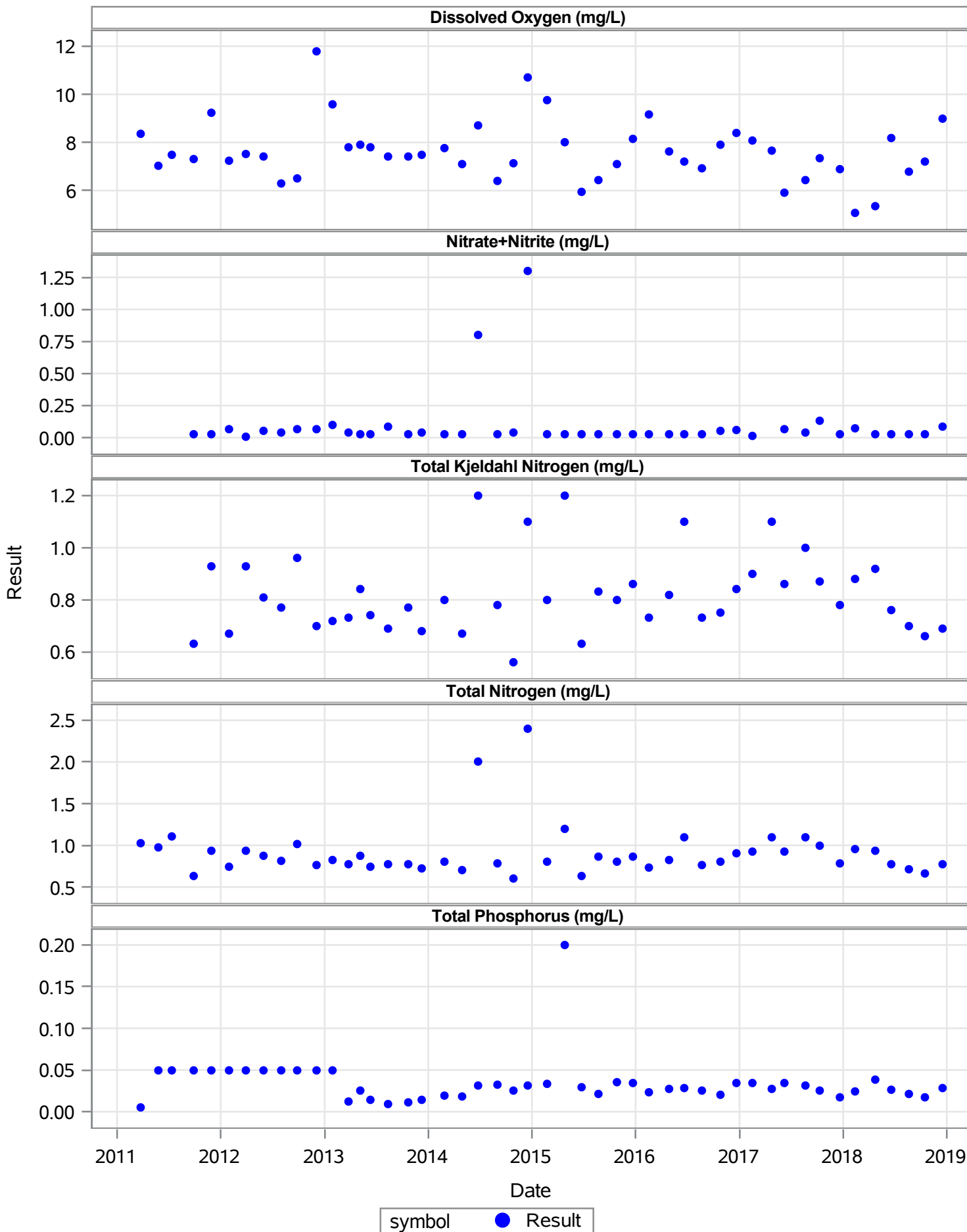


symbol ● Result

LAKE_MANGONIA_MIDDLE

Analyte	Start Date	End Date	Minumum Value	Maximum Value	Mean	Median	Number of obs
Dissolved Oxygen (mg/L)	24MAR11	19DEC18	5.07	11.8	7.624	7.445	48
Nitrate+Nitrite (mg/L)	24MAR11	19DEC18	0.01	1.3	0.086	0.026	44
Total Kjeldahl Nitrogen (mg/L)	24MAR11	19DEC18	0.56	1.2	0.82	0.8	45
Total Nitrogen (mg/L)	24MAR11	19DEC18	0.6	2.4	0.905	0.815	48
Total Phosphorus (mg/L)	24MAR11	19DEC18	0.0055	0.2	0.034	0.029	48

LAKE_MANGONIA_MIDDLE

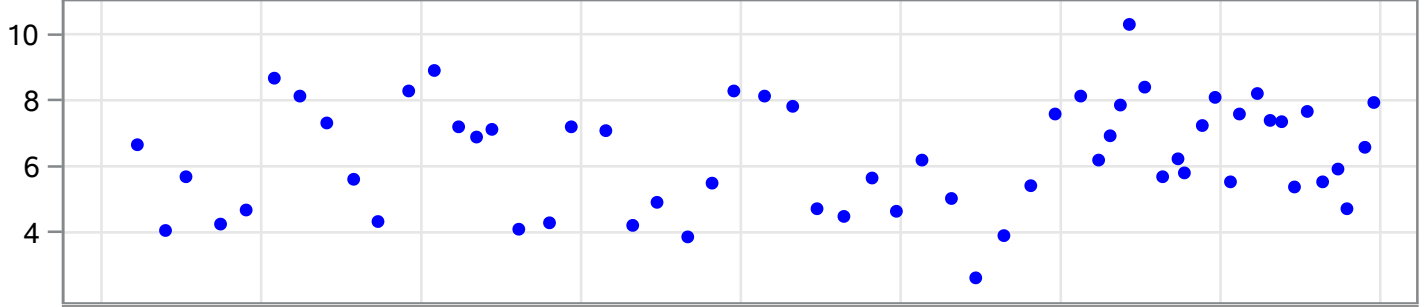


M_CANAL

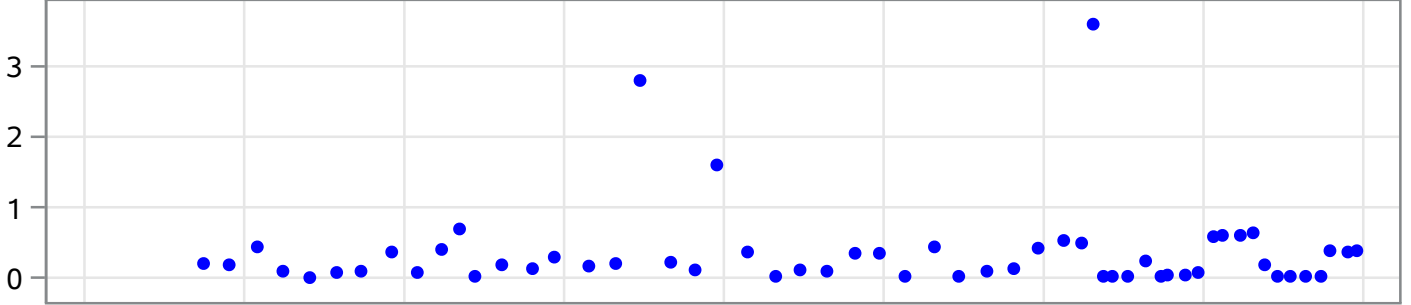
Analyte	Start Date	End Date	Minimum Value	Maximum Value	Mean	Median	Number of obs
Dissolved Oxygen (mg/L)	24MAR11	18DEC18	2.62	10.3	6.338	6.22	59
Nitrate+Nitrite (mg/L)	24MAR11	18DEC18	0.01	3.6	0.352	0.19	56
Total Kjeldahl Nitrogen (mg/L)	24MAR11	18DEC18	0.3	3	1.16	1.05	56
Total Nitrogen (mg/L)	24MAR11	18DEC18	0.66	2.9	1.338	1.2	56
Total Phosphorus (mg/L)	24MAR11	18DEC18	0.018	0.6	0.118	0.093	59

M_CANAL

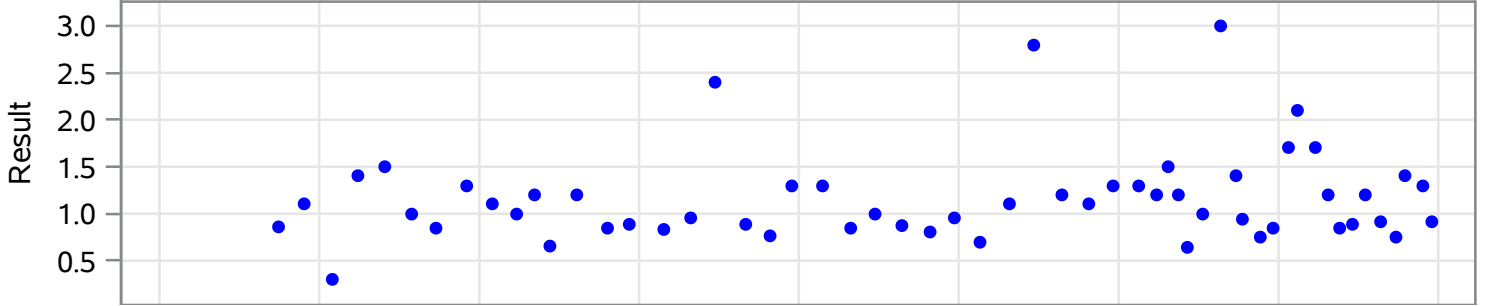
Dissolved Oxygen (mg/L)



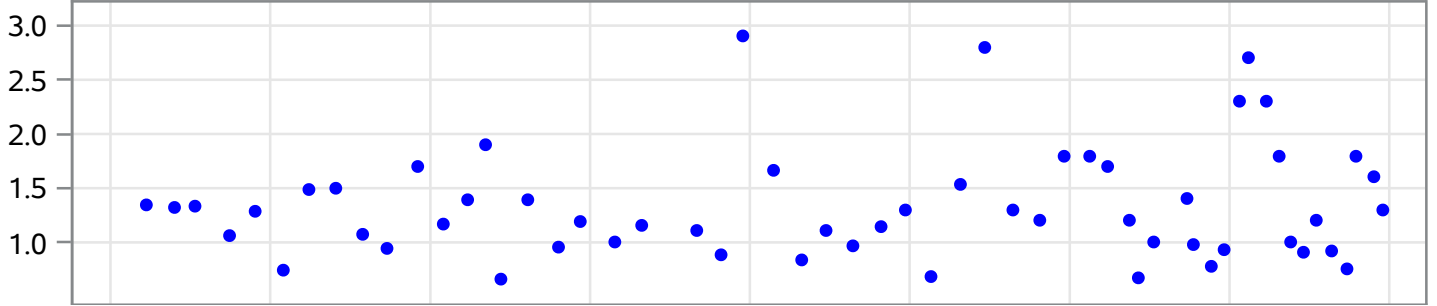
Nitrate+Nitrite (mg/L)



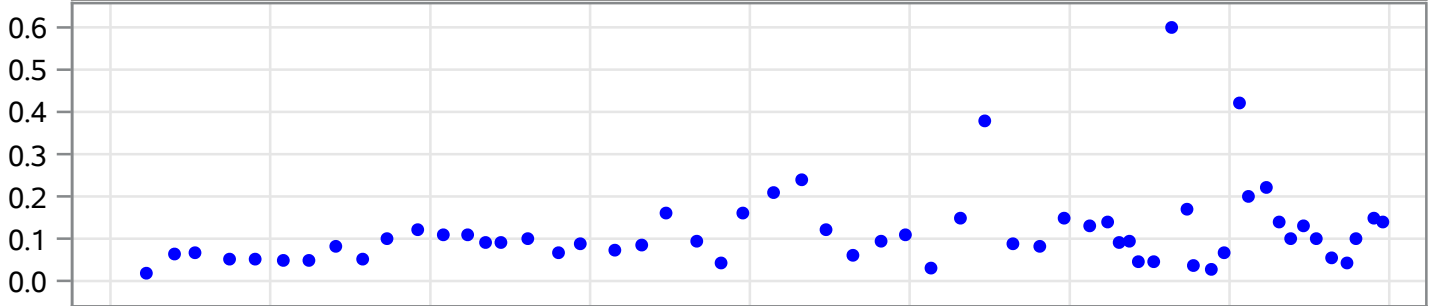
Total Kjeldahl Nitrogen (mg/L)



Total Nitrogen (mg/L)



Total Phosphorus (mg/L)



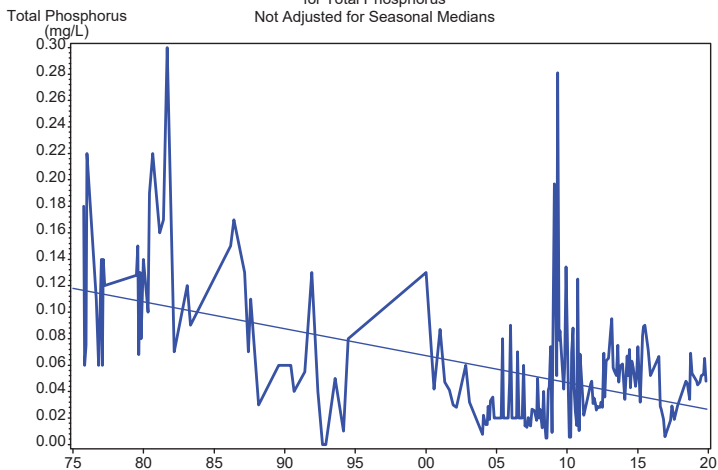
2011 2012 2013 2014 2015 2016 2017 2018 2019

Date

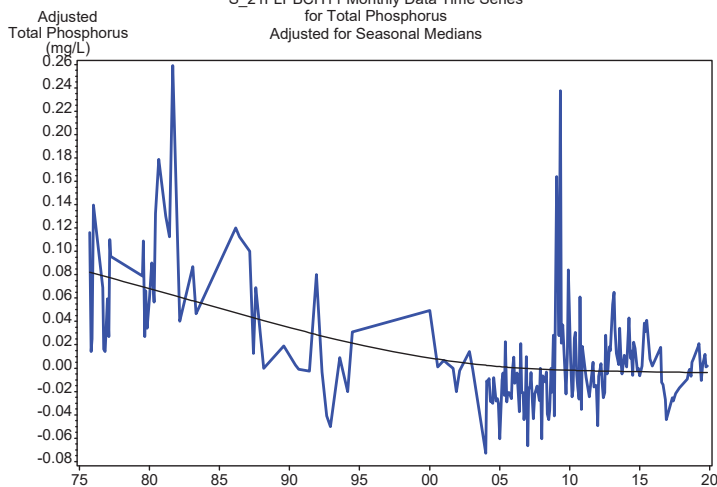
symbol ● Result

Appendix B

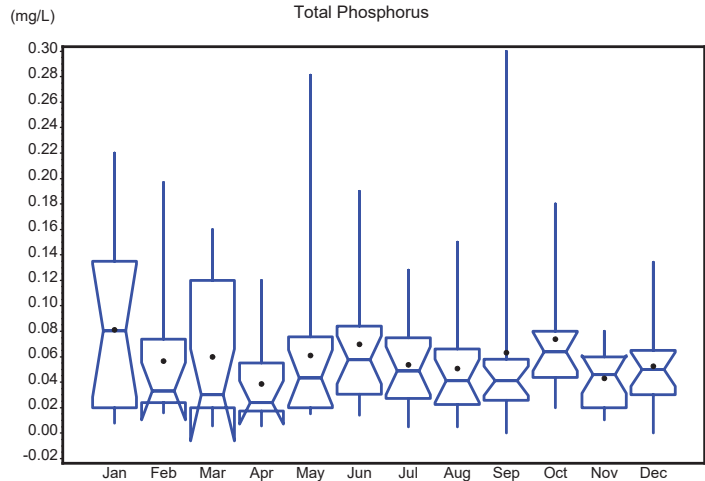
S_21FLPBCH11 Trends
S_21FLPBCH11 Monthly Data Time Series
for Total Phosphorus
Not Adjusted for Seasonal Medians



S_21FLPBCH11 Trends
S_21FLPBCH11 Monthly Data Time Series
for Total Phosphorus
Adjusted for Seasonal Medians



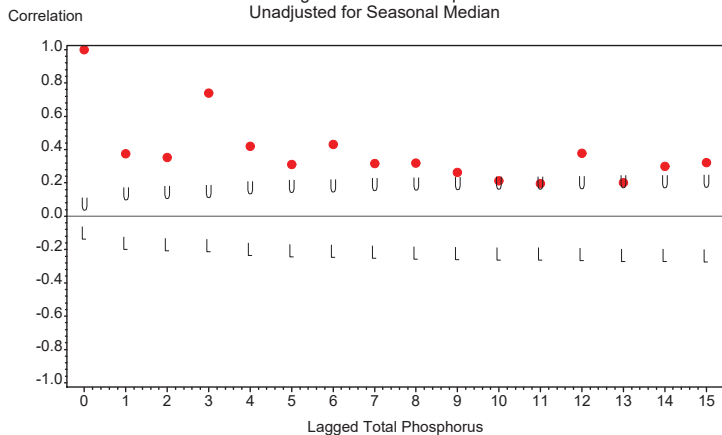
S_21FLPBCH11 Trends Appendix
Seasonal Univariate Statistics
Total Phosphorus



S_21FLPBCH11 Trends Appendix
Autocorrelation Statistics for Total Phosphorus
Unadjusted for Seasonal Medians

Lagged Total Phosphorus	Correlation	Standard Error	Upper Limit	Lower Limit
0	1.000	0.043	0.086	-0.086
1	0.376	0.075	0.149	-0.149
2	0.351	0.078	0.156	-0.156
3	0.740	0.081	0.162	-0.162
4	0.420	0.093	0.185	-0.185
5	0.311	0.096	0.192	-0.192
6	0.432	0.098	0.196	-0.196
7	0.316	0.101	0.203	-0.203
8	0.319	0.103	0.206	-0.206
9	0.264	0.105	0.210	-0.210
10	0.212	0.106	0.212	-0.212
11	0.195	0.107	0.214	-0.214
12	0.378	0.108	0.215	-0.215
13	0.202	0.110	0.220	-0.220
14	0.298	0.111	0.221	-0.221
15	0.322	0.112	0.224	-0.224

S_21FLPBCH11 Trends Appendix
Correlogram for Total Phosphorus
Unadjusted for Seasonal Median



U=Upper 95% Confidence Limit L=Lower 95% Confidence Limit
Zero Reference Line Shown

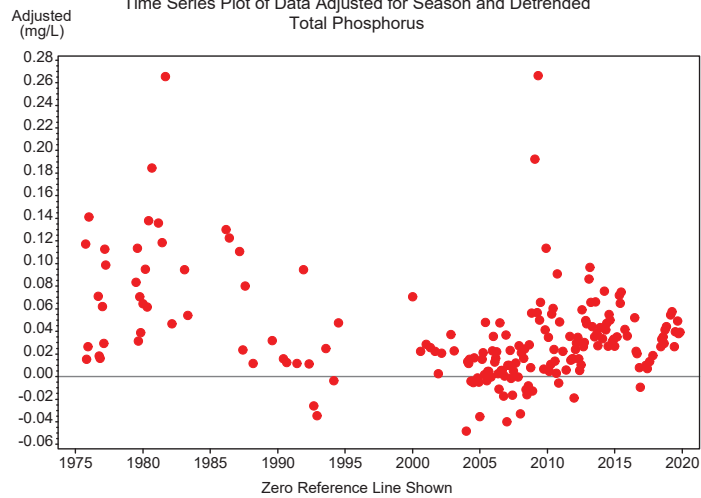
S_21FLPBCH11 Trends Appendix
Seasonal Kendall Tau Trend Test Statistics
Total Phosphorus
Unadjusted for Seasonal Medians

Tau Statistic	P-Value Without Serial Correlation	P-Value With Serial Correlation	Slope Statistic
-0.139	0.011	0.198	-.001

S_21FLPBCH11 Trends Appendix
 Seasonal Kendall Tau Trend Test Statistics
 Total Phosphorus
 Adjusted for Seasonal Medians

Tau Statistic	P-Value Without Serial Correlation	P-Value With Serial Correlation	Slope Statistic
-0.13810	0.010923	0.20063	-0.00809028

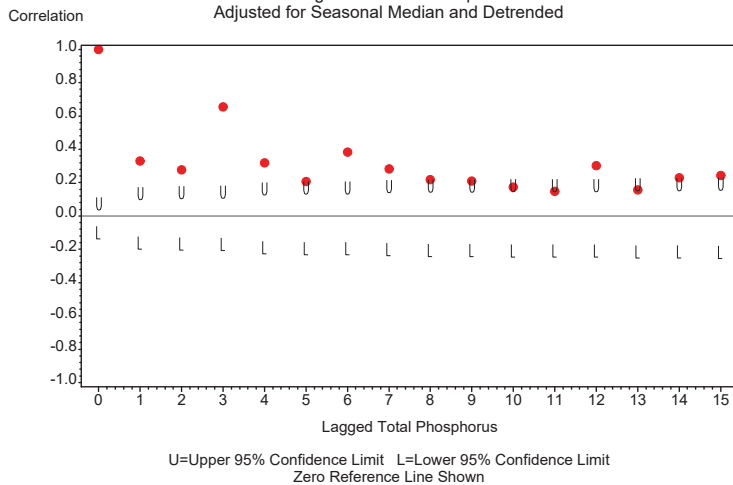
S_21FLPBCH11 Trends Appendix
 Time Series Plot of Data Adjusted for Season and Detrended
 Total Phosphorus



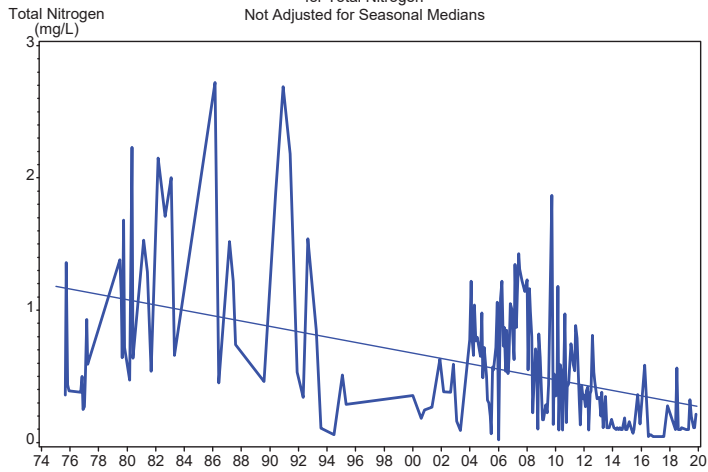
S_21FLPBCH11 Trends Appendix
 Autocorrelation Statistics for Total Phosphorus
 Adjusted for Seasonal Median and Detrended

Lagged Total Phosphorus	Correlation	Standard Error	Upper Limit	Lower Limit
0	1.000	0.043	0.086	-0.086
1	0.330	0.075	0.149	-0.149
2	0.278	0.077	0.154	-0.154
3	0.656	0.079	0.158	-0.158
4	0.318	0.089	0.177	-0.177
5	0.208	0.091	0.181	-0.181
6	0.382	0.092	0.183	-0.183
7	0.283	0.094	0.189	-0.189
8	0.217	0.096	0.192	-0.192
9	0.209	0.097	0.194	-0.194
10	0.173	0.098	0.195	-0.195
11	0.147	0.098	0.197	-0.197
12	0.303	0.099	0.197	-0.197
13	0.157	0.100	0.201	-0.201
14	0.230	0.101	0.202	-0.202
15	0.242	0.102	0.204	-0.204

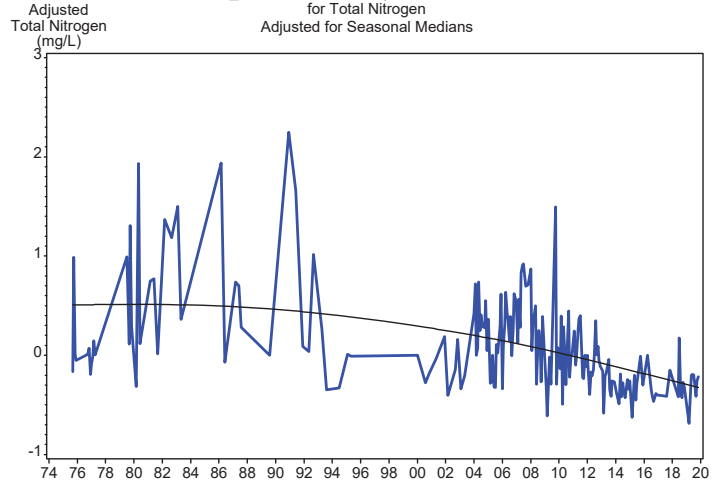
S_21FLPBCH11 Trends Appendix
 Correlogram for Total Phosphorus
 Adjusted for Seasonal Median and Detrended



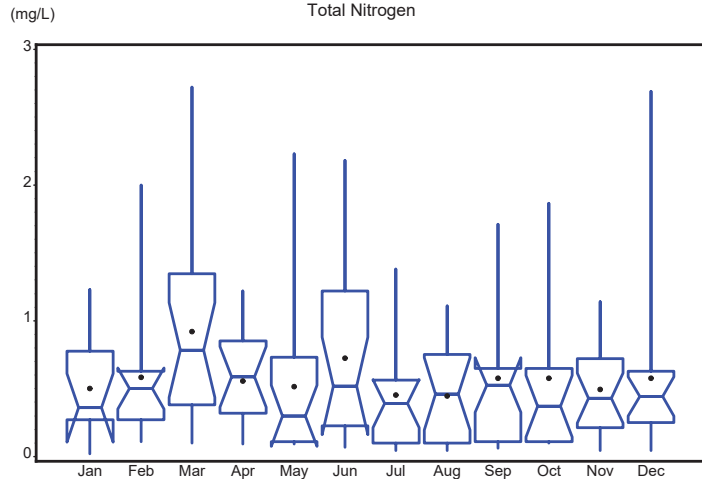
S_21FLPBCH11 Trends
S_21FLPBCH11 Monthly Data Time Series
for Total Nitrogen
Not Adjusted for Seasonal Medians



S_21FLPBCH11 Trends
S_21FLPBCH11 Monthly Data Time Series
for Total Nitrogen
Adjusted for Seasonal Medians



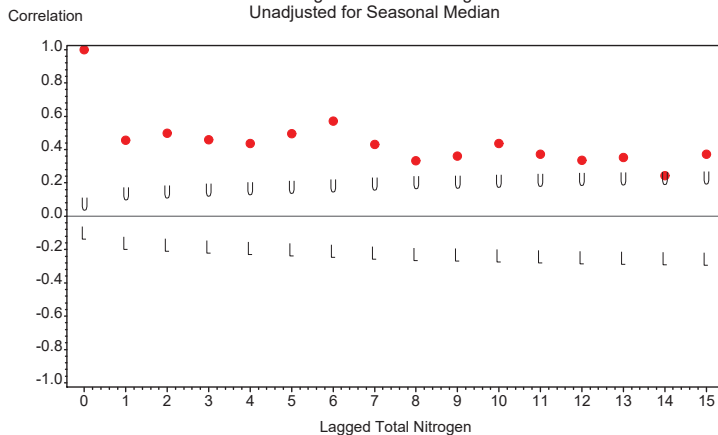
S_21FLPBCH11 Trends Appendix
Seasonal Univariate Statistics
Total Nitrogen



S_21FLPBCH11 Trends Appendix
Autocorrelation Statistics for Total Nitrogen
Unadjusted for Seasonal Medians

Lagged Total Nitrogen	Correlation	Standard Error	Upper Limit	Lower Limit
0	1.000	0.043	0.086	-0.086
1	0.457	0.075	0.149	-0.149
2	0.498	0.080	0.159	-0.159
3	0.460	0.085	0.170	-0.170
4	0.437	0.090	0.179	-0.179
5	0.494	0.093	0.187	-0.187
6	0.570	0.098	0.196	-0.196
7	0.432	0.104	0.208	-0.208
8	0.333	0.107	0.215	-0.215
9	0.362	0.109	0.219	-0.219
10	0.436	0.111	0.223	-0.223
11	0.373	0.115	0.229	-0.229
12	0.335	0.117	0.234	-0.234
13	0.353	0.119	0.237	-0.237
14	0.243	0.121	0.241	-0.241
15	0.371	0.121	0.243	-0.243

S_21FLPBCH11 Trends Appendix
Correlogram for Total Nitrogen
Unadjusted for Seasonal Median



U=Upper 95% Confidence Limit L=Lower 95% Confidence Limit
Zero Reference Line Shown

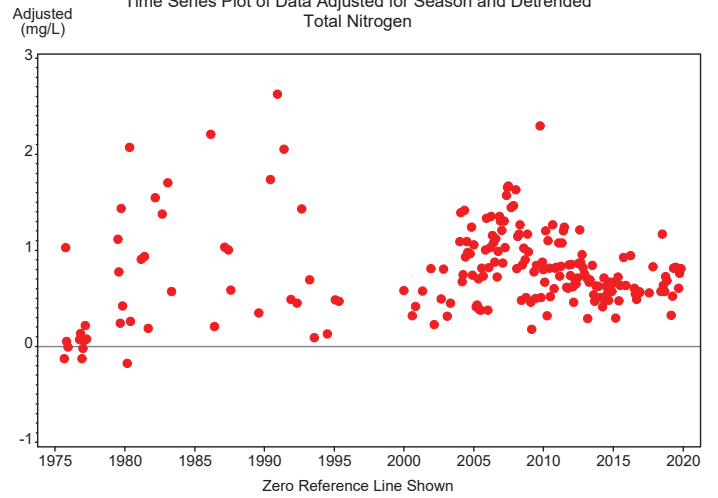
S_21FLPBCH11 Trends Appendix
Seasonal Kendall Tau Trend Test Statistics
Total Nitrogen
Unadjusted for Seasonal Medians

Tau Statistic	P-Value Without Serial Correlation	P-Value With Serial Correlation	Slope Statistic
-0.398	0	0	-0.022

S_21FLPBCH11 Trends Appendix
 Seasonal Kendall Tau Trend Test Statistics
 Total Nitrogen
 Adjusted for Seasonal Medians

Tau Statistic	P-Value Without Serial Correlation	P-Value With Serial Correlation	Slope Statistic
-0.39752	0	.000221206	-0.022338

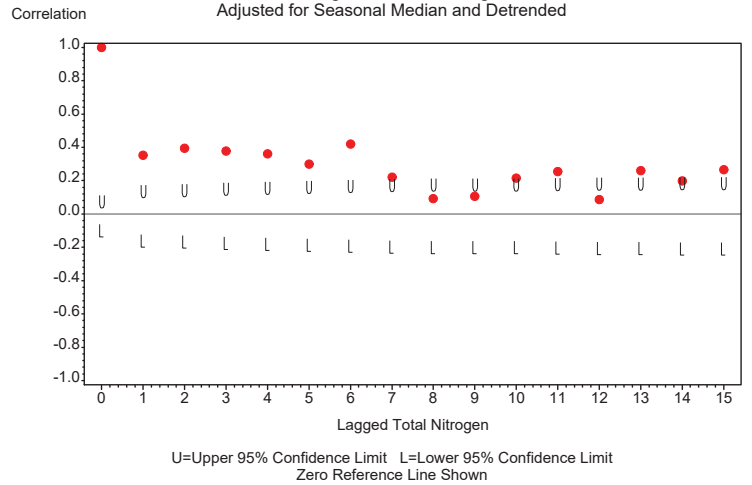
S_21FLPBCH11 Trends Appendix
 Time Series Plot of Data Adjusted for Season and Detrended
 Total Nitrogen



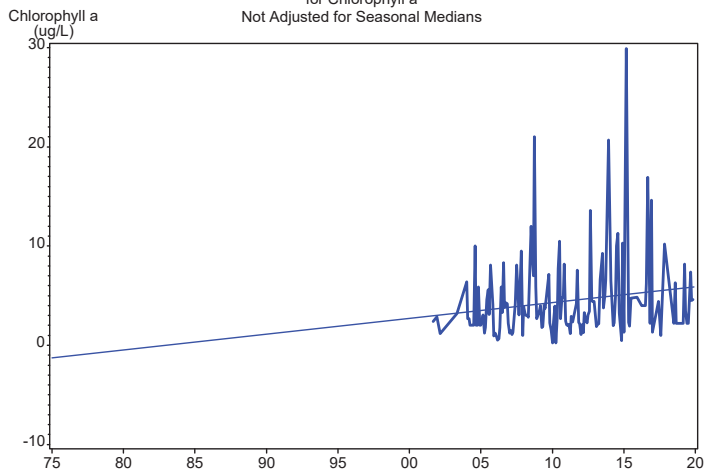
S_21FLPBCH11 Trends Appendix
 Autocorrelation Statistics for Total Nitrogen
 Adjusted for Seasonal Median and Detrended

Lagged Total Nitrogen	Correlation	Standard Error	Upper Limit	Lower Limit
0	1.000	0.043	0.086	-0.086
1	0.351	0.075	0.149	-0.149
2	0.394	0.078	0.155	-0.155
3	0.377	0.081	0.162	-0.162
4	0.360	0.084	0.169	-0.169
5	0.299	0.087	0.174	-0.174
6	0.420	0.089	0.178	-0.178
7	0.220	0.093	0.185	-0.185
8	0.091	0.094	0.187	-0.187
9	0.105	0.094	0.187	-0.187
10	0.216	0.094	0.188	-0.188
11	0.253	0.095	0.190	-0.190
12	0.085	0.096	0.192	-0.192
13	0.260	0.096	0.193	-0.193
14	0.199	0.098	0.195	-0.195
15	0.266	0.098	0.197	-0.197

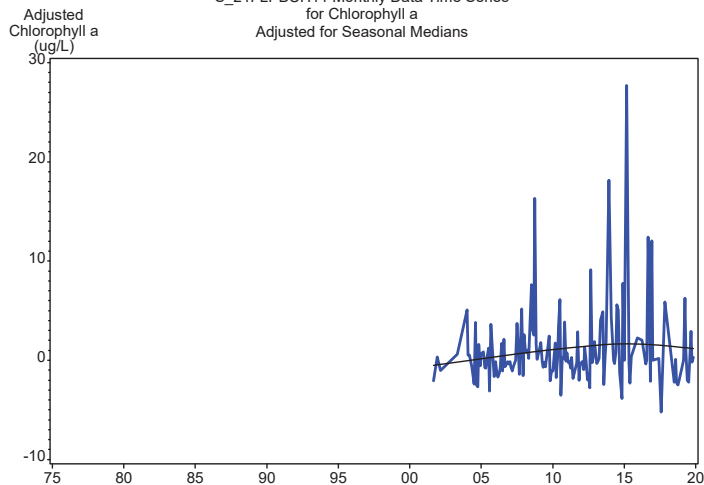
S_21FLPBCH11 Trends Appendix
 Correlogram for Total Nitrogen
 Adjusted for Seasonal Median and Detrended



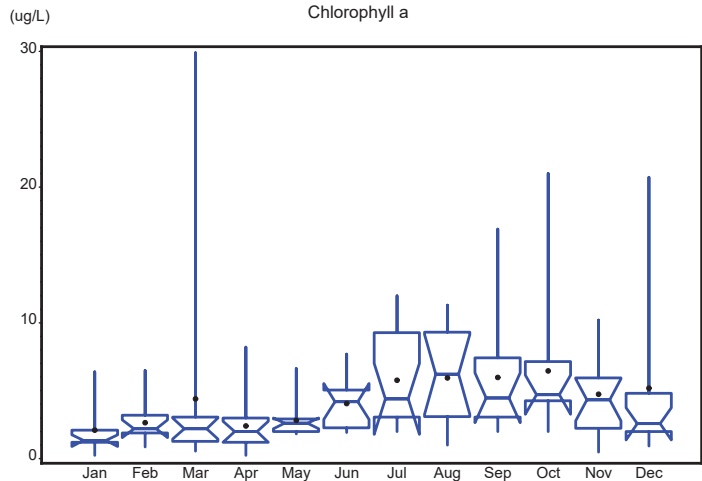
S_21FLPBCH11 Trends
S_21FLPBCH11 Monthly Data Time Series
for Chlorophyll a
Not Adjusted for Seasonal Medians



S_21FLPBCH11 Trends
S_21FLPBCH11 Monthly Data Time Series
for Chlorophyll a
Adjusted for Seasonal Medians



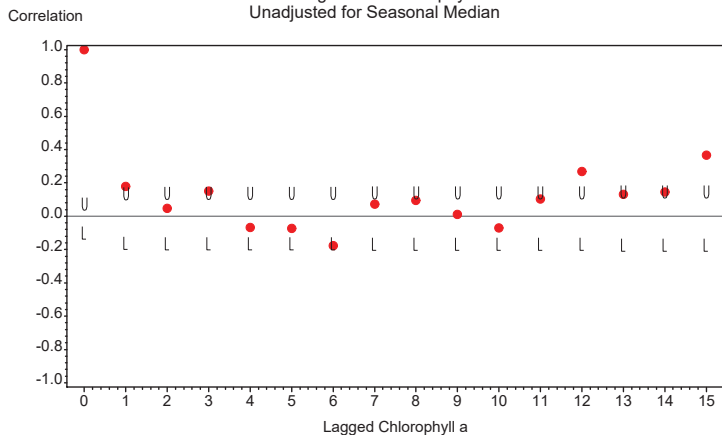
S_21FLPBCH11 Trends Appendix
Seasonal Univariate Statistics
Chlorophyll a



S_21FLPBCH11 Trends Appendix
Autocorrelation Statistics for Chlorophyll a
Unadjusted for Seasonal Medians

Lagged Chlorophyll a	Correlation	Standard Error	Upper Limit	Lower Limit
0	1.000	0.043	0.086	-0.086
1	0.179	0.075	0.149	-0.149
2	0.046	0.075	0.151	-0.151
3	0.151	0.075	0.151	-0.151
4	-0.068	0.076	0.152	-0.152
5	-0.072	0.076	0.152	-0.152
6	-0.176	0.076	0.152	-0.152
7	0.072	0.077	0.154	-0.154
8	0.095	0.077	0.154	-0.154
9	0.012	0.077	0.155	-0.155
10	-0.070	0.077	0.155	-0.155
11	0.104	0.077	0.155	-0.155
12	0.267	0.078	0.155	-0.155
13	0.130	0.079	0.159	-0.159
14	0.144	0.080	0.159	-0.159
15	0.367	0.080	0.160	-0.160

S_21FLPBCH11 Trends Appendix
Correlogram for Chlorophyll a
Unadjusted for Seasonal Median



U=Upper 95% Confidence Limit L=Lower 95% Confidence Limit
Zero Reference Line Shown

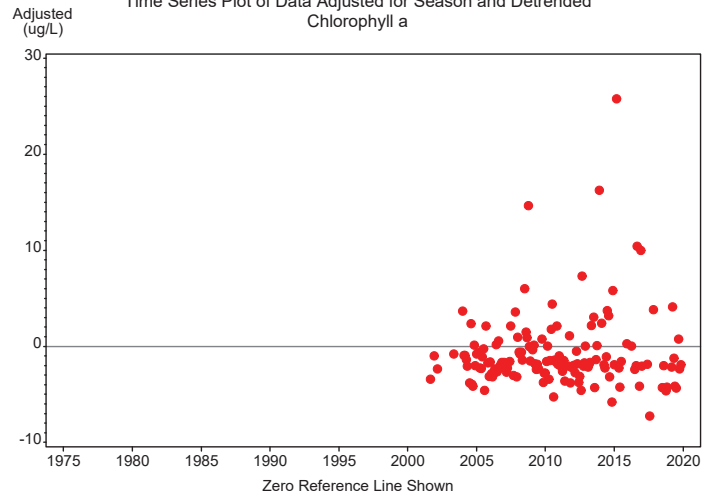
S_21FLPBCH11 Trends Appendix
Seasonal Kendall Tau Trend Test Statistics
Chlorophyll a
Unadjusted for Seasonal Medians

Tau Statistic	P-Value Without Serial Correlation	P-Value With Serial Correlation	Slope Statistic
0.098	0.124	0.222	0.048

S_21FLPBCH11 Trends Appendix
 Seasonal Kendall Tau Trend Test Statistics
 Chlorophyll a
 Adjusted for Seasonal Medians

Tau Statistic	P-Value Without Serial Correlation	P-Value With Serial Correlation	Slope Statistic
0.098458	0.12399	0.22196	0.0475

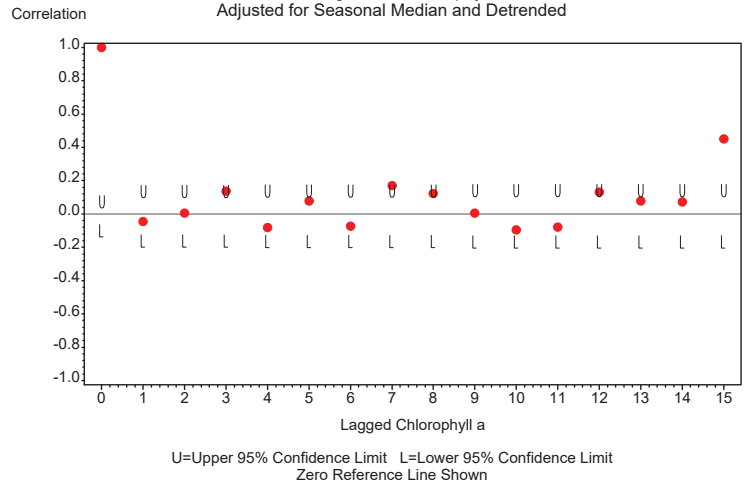
S_21FLPBCH11 Trends Appendix
 Time Series Plot of Data Adjusted for Season and Detrended
 Chlorophyll a



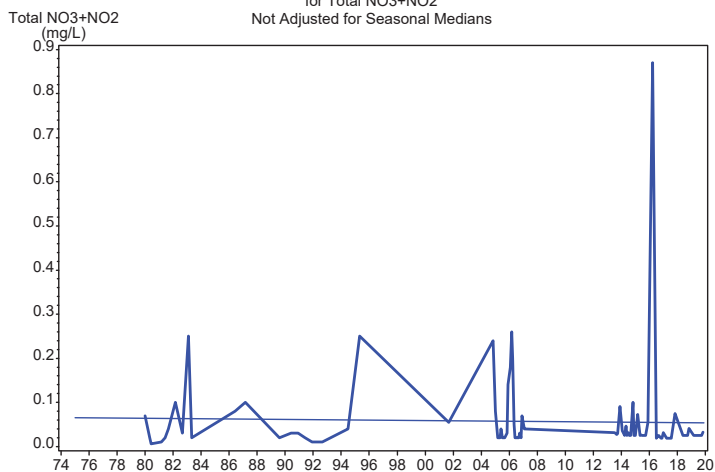
S_21FLPBCH11 Trends Appendix
 Autocorrelation Statistics for Chlorophyll a
 Adjusted for Seasonal Median and Detrended

Lagged Chlorophyll a	Correlation	Standard Error	Upper Limit	Lower Limit
0	1.000	0.043	0.086	-0.086
1	-0.044	0.075	0.149	-0.149
2	0.006	0.075	0.149	-0.149
3	0.137	0.075	0.149	-0.149
4	-0.081	0.075	0.150	-0.150
5	0.079	0.075	0.150	-0.150
6	-0.073	0.075	0.151	-0.151
7	0.170	0.075	0.151	-0.151
8	0.123	0.076	0.152	-0.152
9	0.005	0.077	0.153	-0.153
10	-0.096	0.077	0.153	-0.153
11	-0.079	0.077	0.154	-0.154
12	0.130	0.077	0.154	-0.154
13	0.078	0.077	0.155	-0.155
14	0.071	0.077	0.155	-0.155
15	0.450	0.078	0.155	-0.155

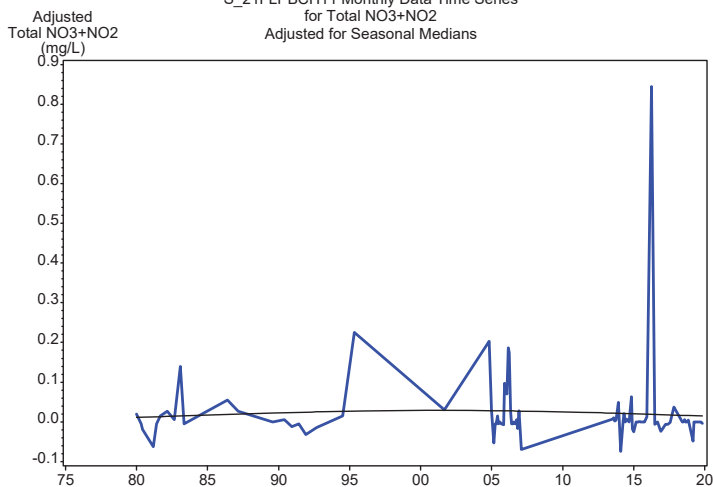
S_21FLPBCH11 Trends Appendix
 Correlogram for Chlorophyll a
 Adjusted for Seasonal Median and Detrended



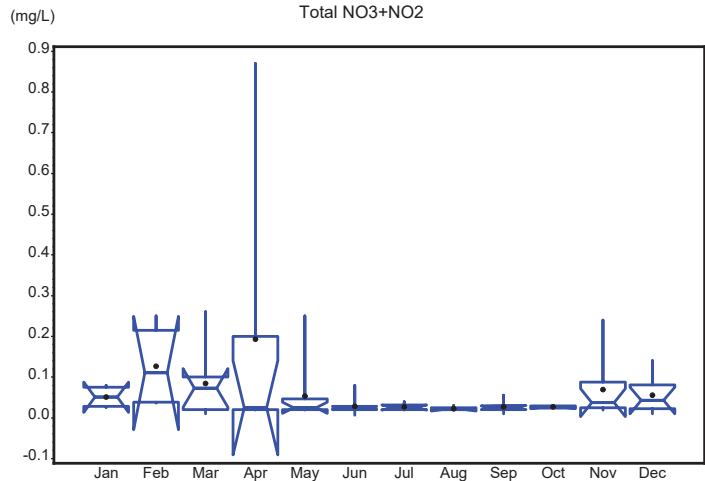
S_21FLPBCH11 Trends
S_21FLPBCH11 Monthly Data Time Series
for Total NO3+NO2
Not Adjusted for Seasonal Medians



S_21FLPBCH11 Trends
S_21FLPBCH11 Monthly Data Time Series
for Total NO3+NO2
Adjusted for Seasonal Medians



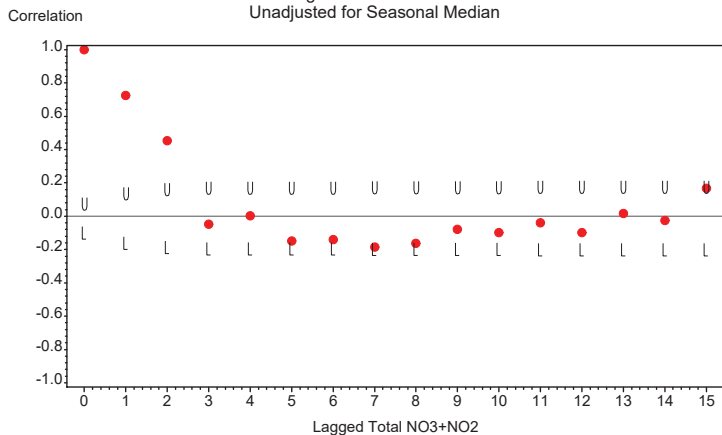
S_21FLPBCH11 Trends Appendix
Seasonal Univariate Statistics
Total NO3+NO2



S_21FLPBCH11 Trends Appendix
Autocorrelation Statistics for Total NO3+NO2
Unadjusted for Seasonal Medians

Lagged Total NO3+NO2	Correlation	Standard Error	Upper Limit	Lower Limit
0	1.000	0.043	0.086	-0.086
1	0.725	0.075	0.149	-0.149
2	0.452	0.087	0.173	-0.173
3	-0.048	0.091	0.182	-0.182
4	0.001	0.091	0.182	-0.182
5	-0.148	0.091	0.182	-0.182
6	-0.140	0.091	0.183	-0.183
7	-0.186	0.092	0.184	-0.184
8	-0.163	0.092	0.185	-0.185
9	-0.078	0.093	0.186	-0.186
10	-0.098	0.093	0.186	-0.186
11	-0.041	0.093	0.187	-0.187
12	-0.098	0.093	0.187	-0.187
13	0.017	0.094	0.187	-0.187
14	-0.025	0.094	0.187	-0.187
15	0.168	0.094	0.187	-0.187

S_21FLPBCH11 Trends Appendix
Correlogram for Total NO3+NO2
Unadjusted for Seasonal Median



U=Upper 95% Confidence Limit L=Lower 95% Confidence Limit
Zero Reference Line Shown

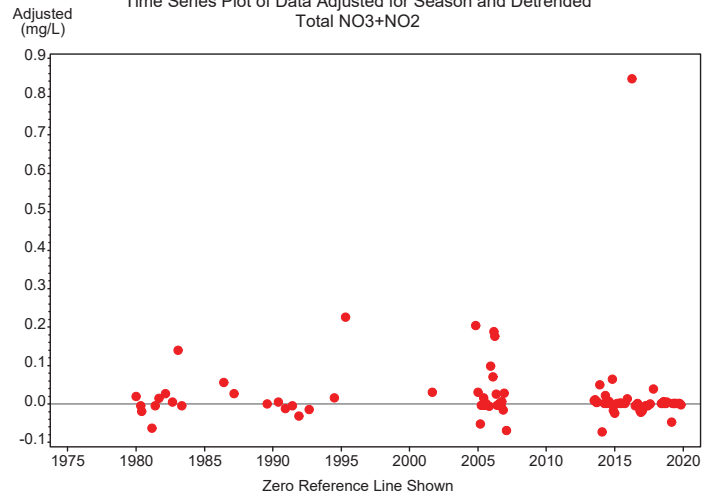
S_21FLPBCH11 Trends Appendix
Seasonal Kendall Tau Trend Test Statistics
Total NO3+NO2
Unadjusted for Seasonal Medians

Tau Statistic	P-Value Without Serial Correlation	P-Value With Serial Correlation	Slope Statistic
-0.107	0.231	0.282	0

S_21FLPBCH11 Trends Appendix
 Seasonal Kendall Tau Trend Test Statistics
 Total NO3+NO2
 Adjusted for Seasonal Medians

Tau Statistic	P-Value Without Serial Correlation	P-Value With Serial Correlation	Slope Statistic
-0.10671	0.23098	0.28206	-0.00028595

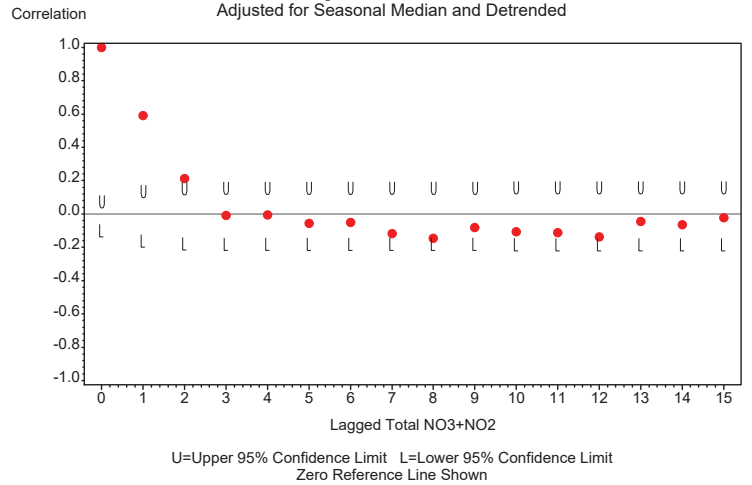
S_21FLPBCH11 Trends Appendix
 Time Series Plot of Data Adjusted for Season and Detrended
 Total NO3+NO2



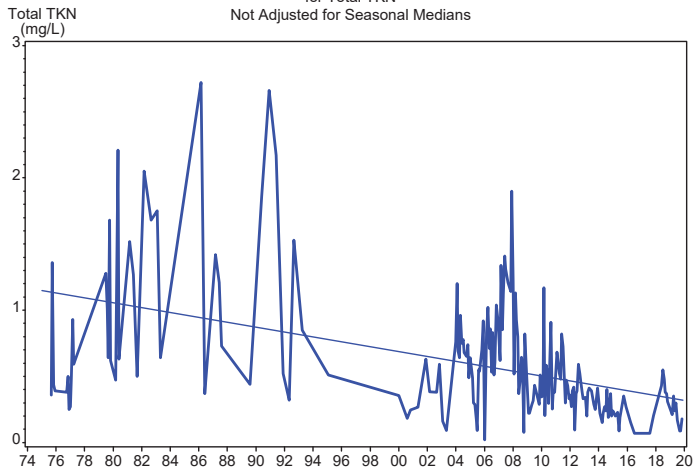
S_21FLPBCH11 Trends Appendix
 Autocorrelation Statistics for Total NO3+NO2
 Adjusted for Seasonal Median and Detrended

Lagged Total NO3+NO2	Correlation	Standard Error	Upper Limit	Lower Limit
0	1.000	0.043	0.086	-0.086
1	0.589	0.075	0.149	-0.149
2	0.211	0.083	0.165	-0.165
3	-0.010	0.084	0.167	-0.167
4	-0.007	0.084	0.167	-0.167
5	-0.056	0.084	0.167	-0.167
6	-0.052	0.084	0.168	-0.168
7	-0.119	0.084	0.168	-0.168
8	-0.145	0.084	0.168	-0.168
9	-0.081	0.085	0.169	-0.169
10	-0.106	0.085	0.170	-0.170
11	-0.113	0.085	0.170	-0.170
12	-0.138	0.085	0.171	-0.171
13	-0.044	0.086	0.171	-0.171
14	-0.064	0.086	0.171	-0.171
15	-0.024	0.086	0.172	-0.172

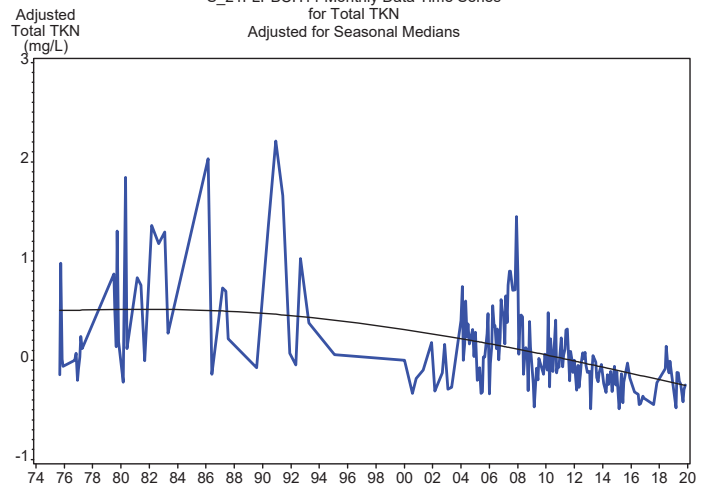
S_21FLPBCH11 Trends Appendix
 Correlogram for Total NO3+NO2
 Adjusted for Seasonal Median and Detrended



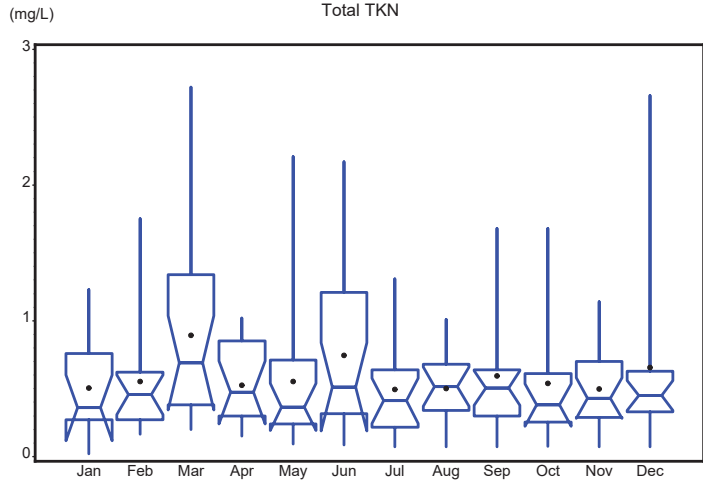
S_21FLPBCH11 Trends
S_21FLPBCH11 Monthly Data Time Series
for Total TKN
Not Adjusted for Seasonal Medians



S_21FLPBCH11 Trends
S_21FLPBCH11 Monthly Data Time Series
for Total TKN
Adjusted for Seasonal Medians



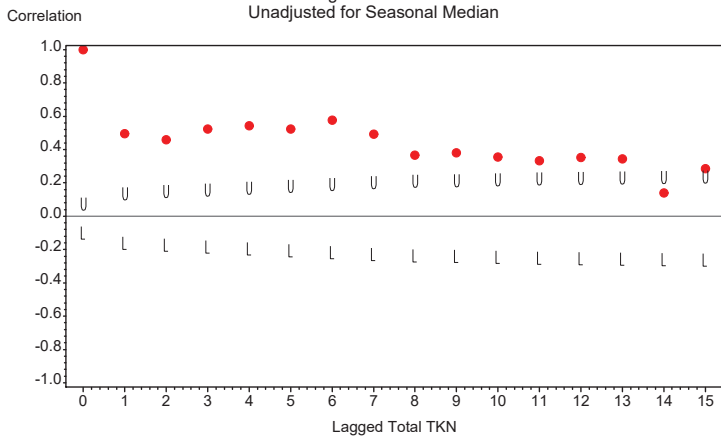
S_21FLPBCH11 Trends Appendix
Seasonal Univariate Statistics
Total TKN



S_21FLPBCH11 Trends Appendix
Autocorrelation Statistics for Total TKN
Unadjusted for Seasonal Medians

Lagged Total TKN	Correlation	Standard Error	Upper Limit	Lower Limit
0	1.000	0.043	0.086	-0.086
1	0.495	0.075	0.149	-0.149
2	0.460	0.080	0.161	-0.161
3	0.522	0.085	0.170	-0.170
4	0.544	0.091	0.182	-0.182
5	0.524	0.097	0.193	-0.193
6	0.577	0.102	0.204	-0.204
7	0.492	0.108	0.215	-0.215
8	0.366	0.112	0.224	-0.224
9	0.381	0.114	0.228	-0.228
10	0.354	0.116	0.233	-0.233
11	0.332	0.118	0.237	-0.237
12	0.352	0.120	0.240	-0.240
13	0.345	0.122	0.244	-0.244
14	0.139	0.124	0.247	-0.247
15	0.286	0.124	0.248	-0.248

S_21FLPBCH11 Trends Appendix
Correlogram for Total TKN
Unadjusted for Seasonal Median



U=Upper 95% Confidence Limit L=Lower 95% Confidence Limit
Zero Reference Line Shown

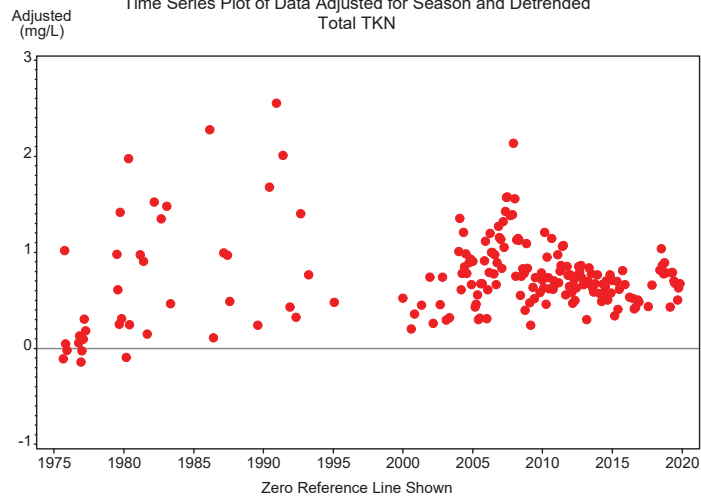
S_21FLPBCH11 Trends Appendix
Seasonal Kendall Tau Trend Test Statistics
Total TKN
Unadjusted for Seasonal Medians

Tau Statistic	P-Value Without Serial Correlation	P-Value With Serial Correlation	Slope Statistic
-0.393	0	0	-0.02

S_21FLPBCH11 Trends Appendix
 Seasonal Kendall Tau Trend Test Statistics
 Total TKN
 Adjusted for Seasonal Medians

Tau Statistic	P-Value Without Serial Correlation	P-Value With Serial Correlation	Slope Statistic
-0.39315	0	.000484775	-0.020139

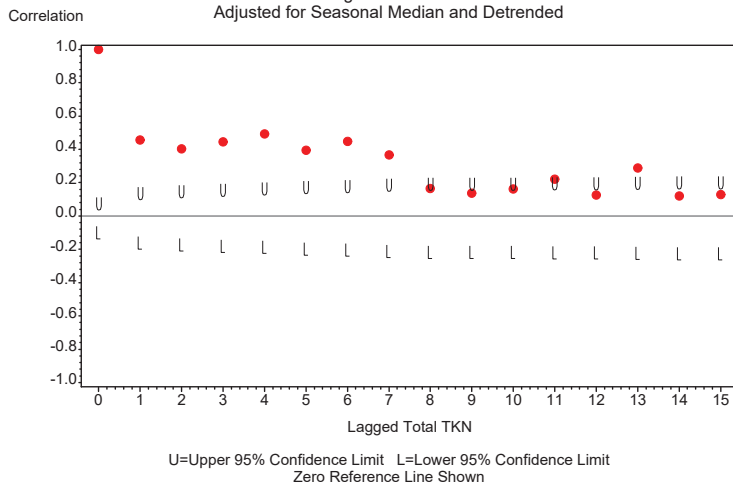
S_21FLPBCH11 Trends Appendix
 Time Series Plot of Data Adjusted for Season and Detrended
 Total TKN



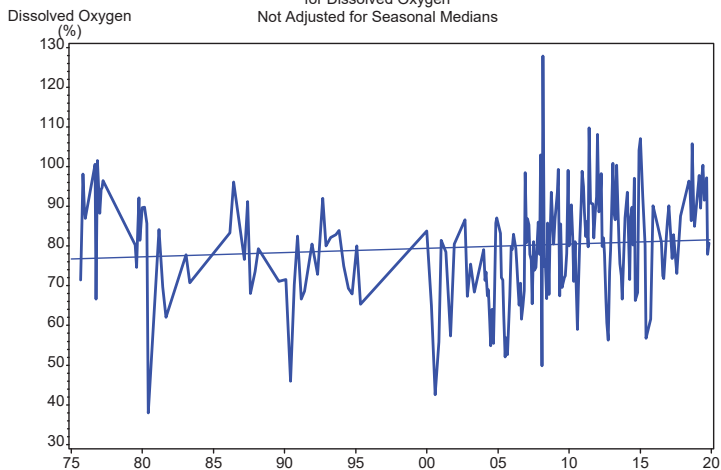
S_21FLPBCH11 Trends Appendix
 Autocorrelation Statistics for Total TKN
 Adjusted for Seasonal Median and Detrended

Lagged Total TKN	Correlation	Standard Error	Upper Limit	Lower Limit
0	1.000	0.043	0.086	-0.086
1	0.457	0.075	0.149	-0.149
2	0.403	0.080	0.159	-0.159
3	0.446	0.083	0.167	-0.167
4	0.493	0.088	0.175	-0.175
5	0.394	0.093	0.185	-0.185
6	0.447	0.096	0.191	-0.191
7	0.365	0.099	0.199	-0.199
8	0.166	0.102	0.204	-0.204
9	0.137	0.102	0.205	-0.205
10	0.161	0.103	0.205	-0.205
11	0.220	0.103	0.206	-0.206
12	0.125	0.104	0.208	-0.208
13	0.289	0.104	0.209	-0.209
14	0.121	0.106	0.212	-0.212
15	0.129	0.106	0.212	-0.212

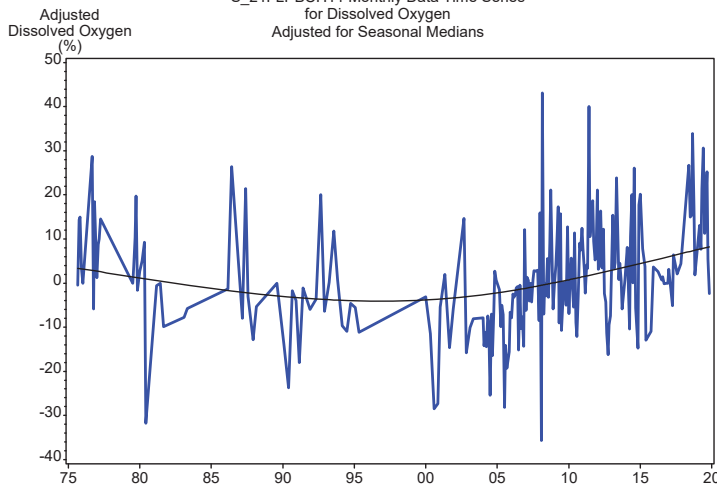
S_21FLPBCH11 Trends Appendix
 Correlogram for Total TKN
 Adjusted for Seasonal Median and Detrended



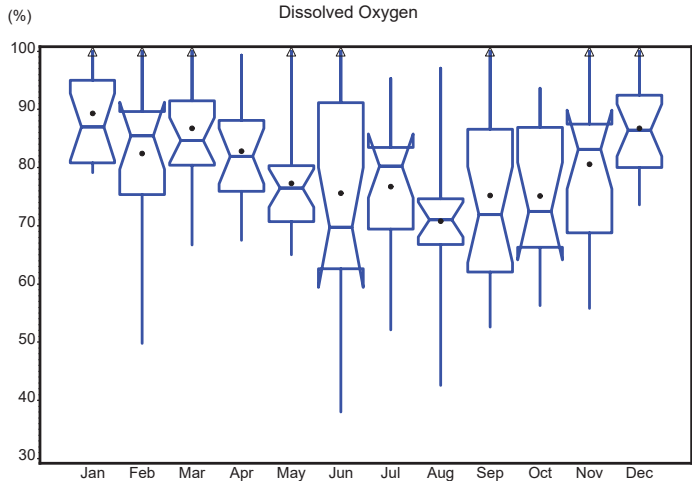
S_21FLPBCH11 Trends
S_21FLPBCH11 Monthly Data Time Series
for Dissolved Oxygen
Not Adjusted for Seasonal Medians



S_21FLPBCH11 Trends
S_21FLPBCH11 Monthly Data Time Series
for Dissolved Oxygen
Adjusted for Seasonal Medians



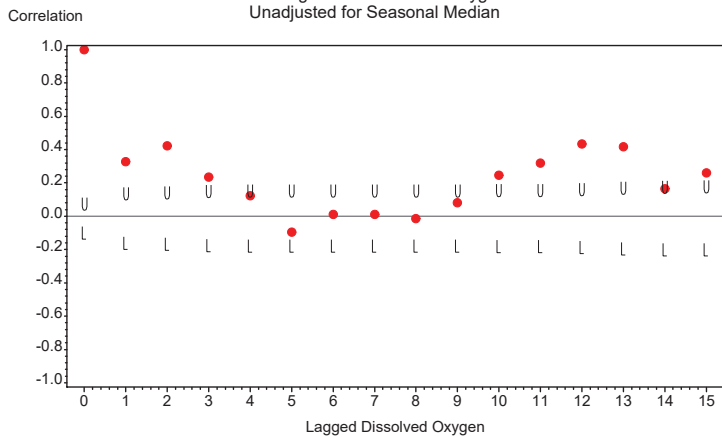
S_21FLPBCH11 Trends Appendix
Seasonal Univariate Statistics
Dissolved Oxygen



S_21FLPBCH11 Trends Appendix
Autocorrelation Statistics for Dissolved Oxygen
Unadjusted for Seasonal Medians

Lagged Dissolved Oxygen	Correlation	Standard Error	Upper Limit	Lower Limit
0	1.000	0.043	0.086	-0.086
1	0.328	0.075	0.149	-0.149
2	0.422	0.077	0.154	-0.154
3	0.234	0.081	0.163	-0.163
4	0.123	0.083	0.165	-0.165
5	-0.095	0.083	0.166	-0.166
6	0.011	0.083	0.166	-0.166
7	0.012	0.083	0.166	-0.166
8	-0.015	0.083	0.166	-0.166
9	0.082	0.083	0.166	-0.166
10	0.245	0.083	0.167	-0.167
11	0.319	0.085	0.169	-0.169
12	0.433	0.087	0.174	-0.174
13	0.416	0.091	0.181	-0.181
14	0.166	0.094	0.188	-0.188
15	0.261	0.095	0.189	-0.189

S_21FLPBCH11 Trends Appendix
Correlogram for Dissolved Oxygen
Unadjusted for Seasonal Median



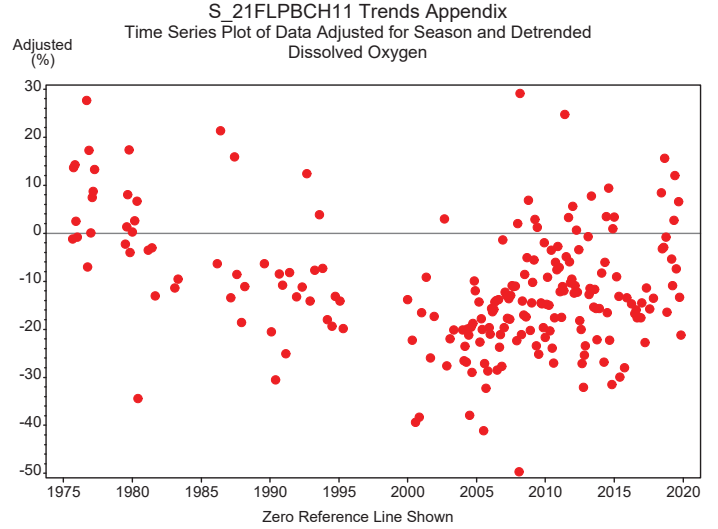
U=Upper 95% Confidence Limit L=Lower 95% Confidence Limit
Zero Reference Line Shown

S_21FLPBCH11 Trends Appendix
Seasonal Kendall Tau Trend Test Statistics
Dissolved Oxygen
Unadjusted for Seasonal Medians

Tau Statistic	P-Value Without Serial Correlation	P-Value With Serial Correlation	Slope Statistic
0.229	0	.008	0.41

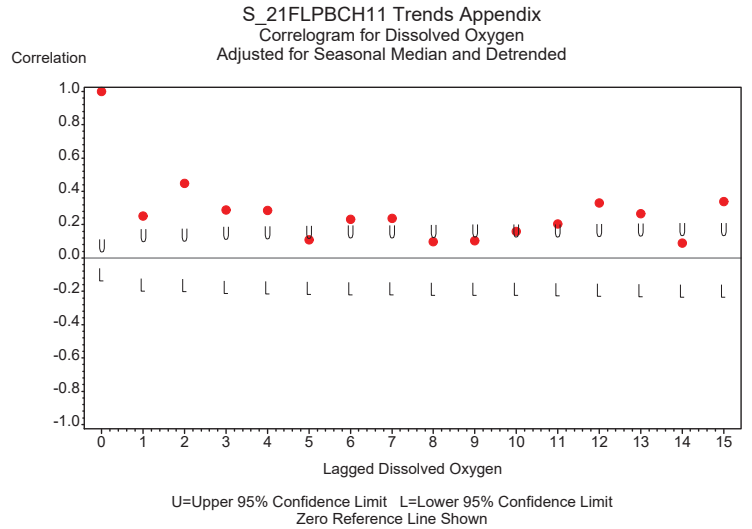
S_21FLPBCH11 Trends Appendix
 Seasonal Kendall Tau Trend Test Statistics
 Dissolved Oxygen
 Adjusted for Seasonal Medians

Tau Statistic	P-Value Without Serial Correlation	P-Value With Serial Correlation	Slope Statistic
0.22943	.000005722	.00830114	0.41

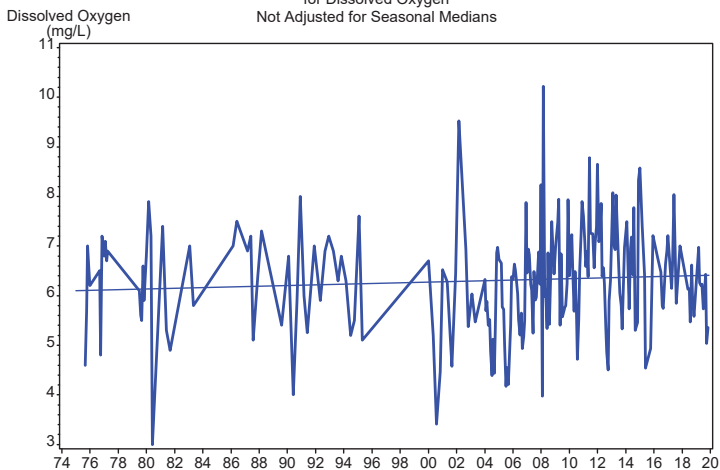


S_21FLPBCH11 Trends Appendix
 Autocorrelation Statistics for Dissolved Oxygen
 Adjusted for Seasonal Median and Detrended

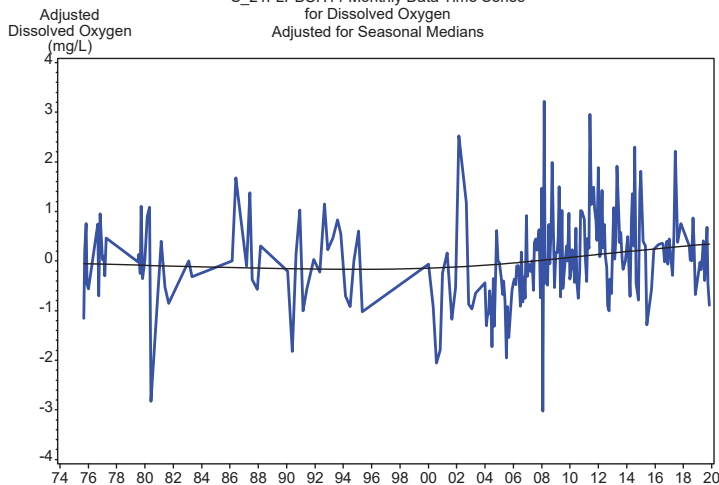
Lagged Dissolved Oxygen	Correlation	Standard Error	Upper Limit	Lower Limit
0	1.000	0.043	0.086	-0.086
1	0.252	0.075	0.149	-0.149
2	0.447	0.076	0.152	-0.152
3	0.288	0.081	0.162	-0.162
4	0.286	0.083	0.165	-0.165
5	0.110	0.085	0.169	-0.169
6	0.232	0.085	0.170	-0.170
7	0.238	0.086	0.172	-0.172
8	0.097	0.087	0.174	-0.174
9	0.104	0.087	0.175	-0.175
10	0.160	0.088	0.175	-0.175
11	0.205	0.088	0.176	-0.176
12	0.329	0.089	0.178	-0.178
13	0.265	0.091	0.182	-0.182
14	0.089	0.093	0.185	-0.185
15	0.337	0.093	0.186	-0.186



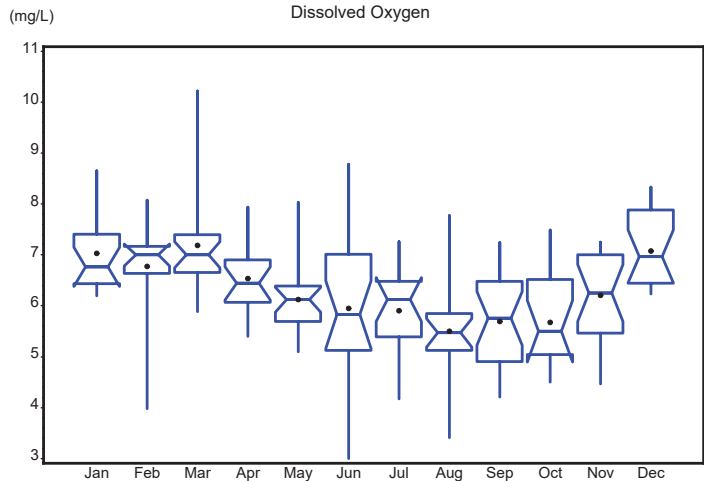
S_21FLPBCH11 Trends
S_21FLPBCH11 Monthly Data Time Series
for Dissolved Oxygen
Not Adjusted for Seasonal Medians



S_21FLPBCH11 Trends
S_21FLPBCH11 Monthly Data Time Series
for Dissolved Oxygen
Adjusted for Seasonal Medians



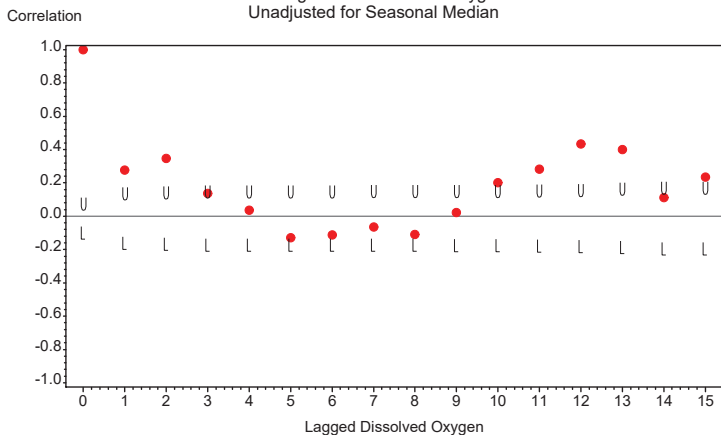
S_21FLPBCH11 Trends Appendix
Seasonal Univariate Statistics
Dissolved Oxygen



S_21FLPBCH11 Trends Appendix
Autocorrelation Statistics for Dissolved Oxygen
Unadjusted for Seasonal Medians

Lagged Dissolved Oxygen	Correlation	Standard Error	Upper Limit	Lower Limit
0	1.000	0.043	0.086	-0.086
1	0.278	0.075	0.149	-0.149
2	0.348	0.076	0.153	-0.153
3	0.138	0.079	0.159	-0.159
4	0.035	0.080	0.160	-0.160
5	-0.128	0.080	0.160	-0.160
6	-0.113	0.080	0.160	-0.160
7	-0.066	0.080	0.161	-0.161
8	-0.111	0.081	0.161	-0.161
9	0.023	0.081	0.162	-0.162
10	0.202	0.081	0.162	-0.162
11	0.281	0.082	0.164	-0.164
12	0.433	0.084	0.167	-0.167
13	0.401	0.088	0.175	-0.175
14	0.112	0.091	0.182	-0.182
15	0.236	0.091	0.182	-0.182

S_21FLPBCH11 Trends Appendix
Correlogram for Dissolved Oxygen
Unadjusted for Seasonal Median



U=Upper 95% Confidence Limit L=Lower 95% Confidence Limit
Zero Reference Line Shown

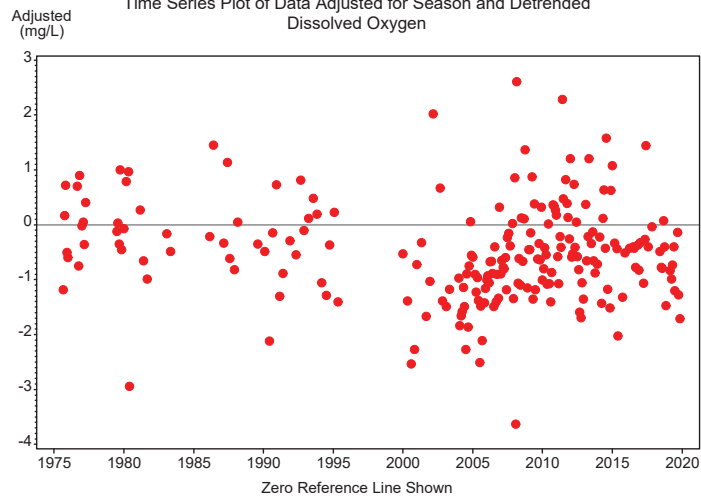
S_21FLPBCH11 Trends Appendix
Seasonal Kendall Tau Trend Test Statistics
Dissolved Oxygen
Unadjusted for Seasonal Medians

Tau Statistic	P-Value Without Serial Correlation	P-Value With Serial Correlation	Slope Statistic
0.163	.001	0.04	0.018

S_21FLPBCH11 Trends Appendix
 Seasonal Kendall Tau Trend Test Statistics
 Dissolved Oxygen
 Adjusted for Seasonal Medians

Tau Statistic	P-Value Without Serial Correlation	P-Value With Serial Correlation	Slope Statistic
0.16252	.00119019	0.040392	0.017857

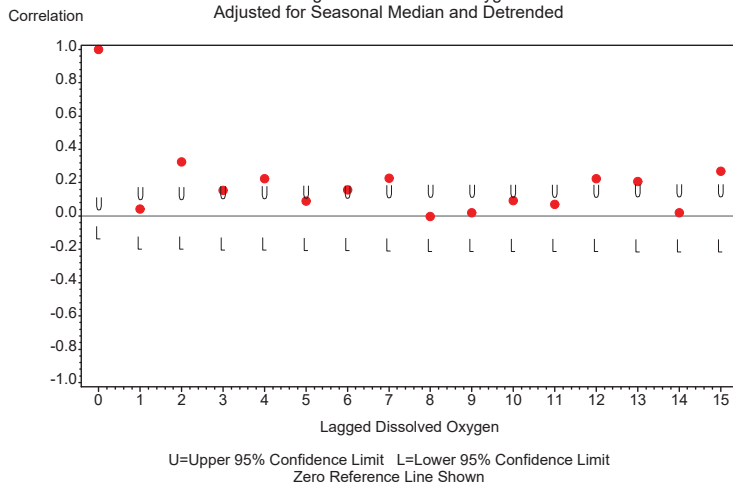
S_21FLPBCH11 Trends Appendix
 Time Series Plot of Data Adjusted for Season and Detrended
 Dissolved Oxygen



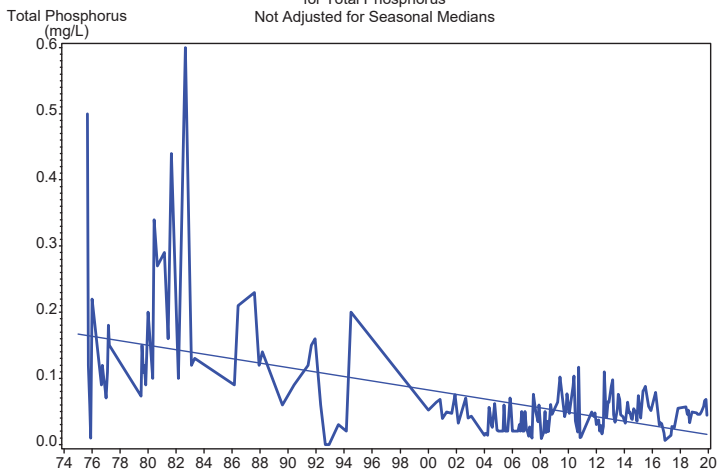
S_21FLPBCH11 Trends Appendix
 Autocorrelation Statistics for Dissolved Oxygen
 Adjusted for Seasonal Median and Detrended

Lagged Dissolved Oxygen	Correlation	Standard Error	Upper Limit	Lower Limit
0	1.000	0.043	0.086	-0.086
1	0.041	0.075	0.149	-0.149
2	0.323	0.075	0.149	-0.149
3	0.153	0.077	0.154	-0.154
4	0.223	0.078	0.155	-0.155
5	0.089	0.079	0.158	-0.158
6	0.156	0.079	0.158	-0.158
7	0.227	0.080	0.159	-0.159
8	-0.003	0.081	0.162	-0.162
9	0.020	0.081	0.162	-0.162
10	0.093	0.081	0.162	-0.162
11	0.070	0.081	0.162	-0.162
12	0.223	0.081	0.162	-0.162
13	0.208	0.082	0.165	-0.165
14	0.018	0.083	0.166	-0.166
15	0.267	0.083	0.166	-0.166

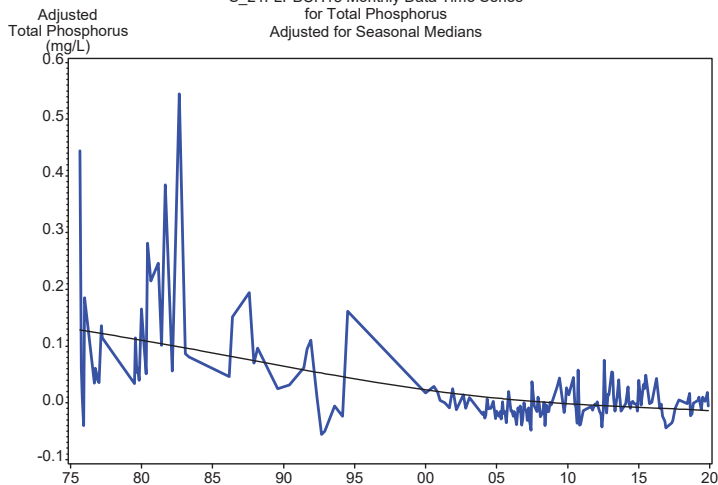
S_21FLPBCH11 Trends Appendix
 Correlogram for Dissolved Oxygen
 Adjusted for Seasonal Median and Detrended



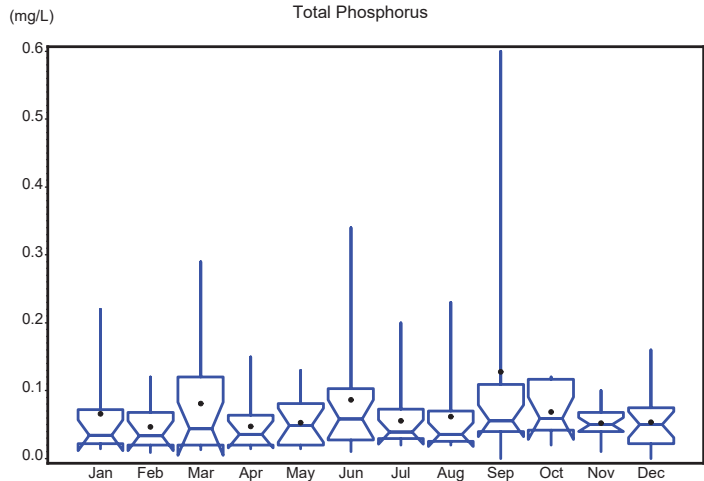
S_21FLPBCH13 Trends
S_21FLPBCH13 Monthly Data Time Series
for Total Phosphorus
Not Adjusted for Seasonal Medians



S_21FLPBCH13 Trends
S_21FLPBCH13 Monthly Data Time Series
for Total Phosphorus
Adjusted for Seasonal Medians



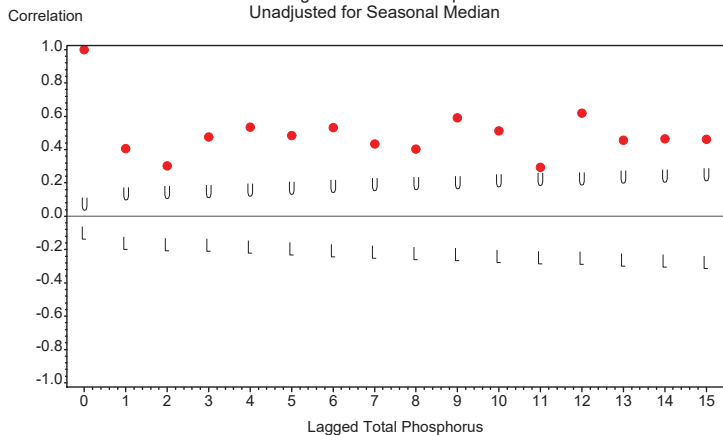
S_21FLPBCH13 Trends Appendix
Seasonal Univariate Statistics
Total Phosphorus



S_21FLPBCH13 Trends Appendix
Autocorrelation Statistics for Total Phosphorus
Unadjusted for Seasonal Medians

Lagged Total Phosphorus	Correlation	Standard Error	Upper Limit	Lower Limit
0	1.000	0.043	0.086	-0.086
1	0.406	0.075	0.149	-0.149
2	0.302	0.079	0.157	-0.157
3	0.475	0.081	0.161	-0.161
4	0.533	0.086	0.171	-0.171
5	0.485	0.092	0.183	-0.183
6	0.532	0.096	0.192	-0.192
7	0.433	0.102	0.203	-0.203
8	0.402	0.105	0.210	-0.210
9	0.589	0.108	0.215	-0.215
10	0.512	0.114	0.227	-0.227
11	0.294	0.118	0.235	-0.235
12	0.618	0.119	0.238	-0.238
13	0.456	0.125	0.250	-0.250
14	0.463	0.128	0.256	-0.256
15	0.461	0.131	0.262	-0.262

S_21FLPBCH13 Trends Appendix
Correlogram for Total Phosphorus
Unadjusted for Seasonal Median



U=Upper 95% Confidence Limit L=Lower 95% Confidence Limit
Zero Reference Line Shown

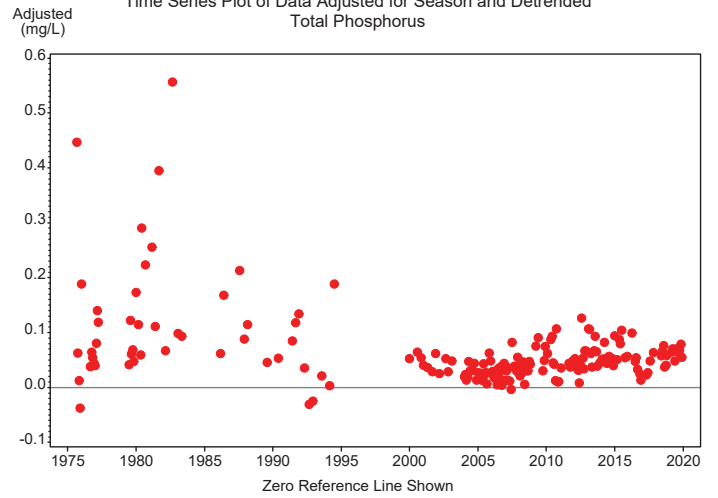
S_21FLPBCH13 Trends Appendix
Seasonal Kendall Tau Trend Test Statistics
Total Phosphorus
Unadjusted for Seasonal Medians

Tau Statistic	P-Value Without Serial Correlation	P-Value With Serial Correlation	Slope Statistic
-0.233	0	0.013	-.001

S_21FLPBCH13 Trends Appendix
 Seasonal Kendall Tau Trend Test Statistics
 Total Phosphorus
 Adjusted for Seasonal Medians

Tau Statistic	P-Value Without Serial Correlation	P-Value With Serial Correlation	Slope Statistic
-0.23359	.000019371	0.013028	-.00133333

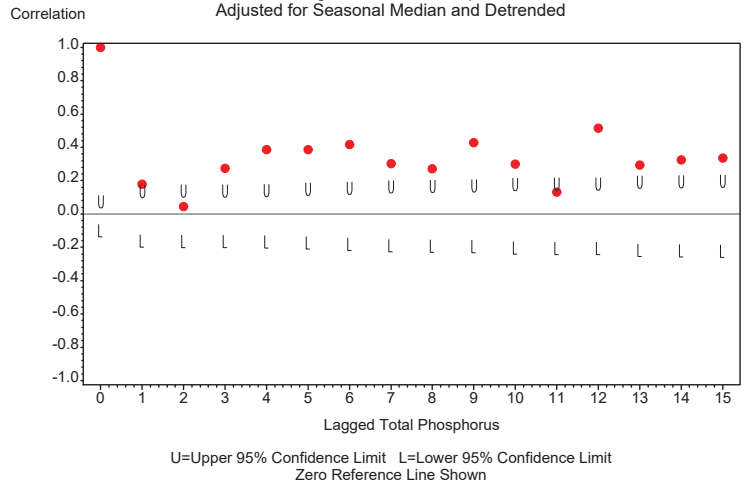
S_21FLPBCH13 Trends Appendix
 Time Series Plot of Data Adjusted for Season and Detrended
 Total Phosphorus



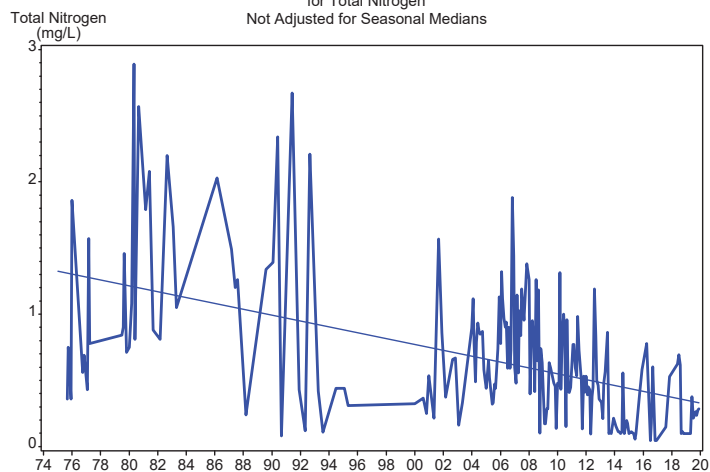
S_21FLPBCH13 Trends Appendix
 Autocorrelation Statistics for Total Phosphorus
 Adjusted for Seasonal Median and Detrended

Lagged Total Phosphorus	Correlation	Standard Error	Upper Limit	Lower Limit
0	1.000	0.043	0.086	-0.086
1	0.180	0.075	0.149	-0.149
2	0.045	0.075	0.151	-0.151
3	0.275	0.075	0.151	-0.151
4	0.385	0.077	0.154	-0.154
5	0.386	0.081	0.161	-0.161
6	0.418	0.084	0.168	-0.168
7	0.303	0.088	0.176	-0.176
8	0.272	0.090	0.179	-0.179
9	0.428	0.091	0.182	-0.182
10	0.298	0.095	0.190	-0.190
11	0.132	0.097	0.193	-0.193
12	0.515	0.097	0.194	-0.194
13	0.293	0.102	0.204	-0.204
14	0.323	0.103	0.207	-0.207
15	0.335	0.105	0.211	-0.211

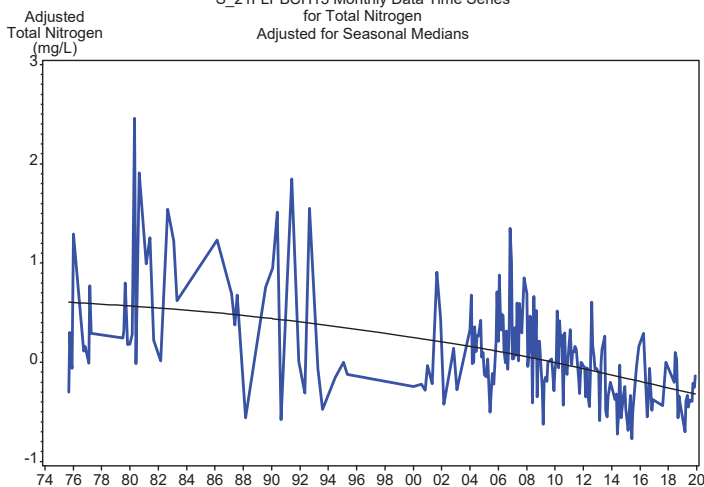
S_21FLPBCH13 Trends Appendix
 Correlogram for Total Phosphorus
 Adjusted for Seasonal Median and Detrended



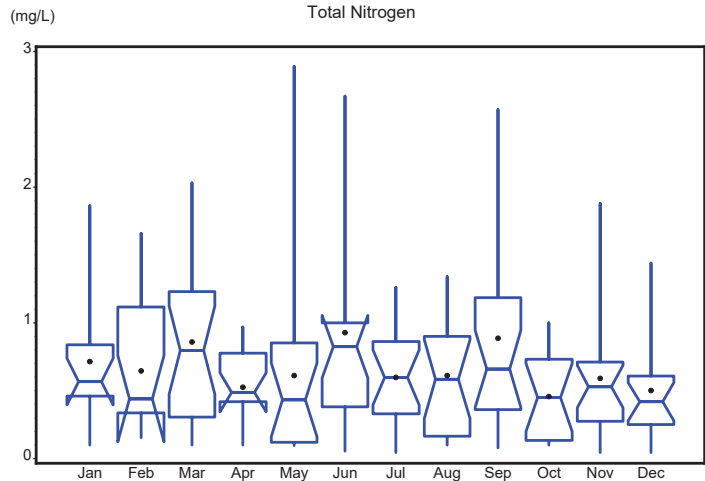
S_21FLPBCH13 Trends
S_21FLPBCH13 Monthly Data Time Series
for Total Nitrogen
Not Adjusted for Seasonal Medians



S_21FLPBCH13 Trends
S_21FLPBCH13 Monthly Data Time Series
for Total Nitrogen
Adjusted for Seasonal Medians



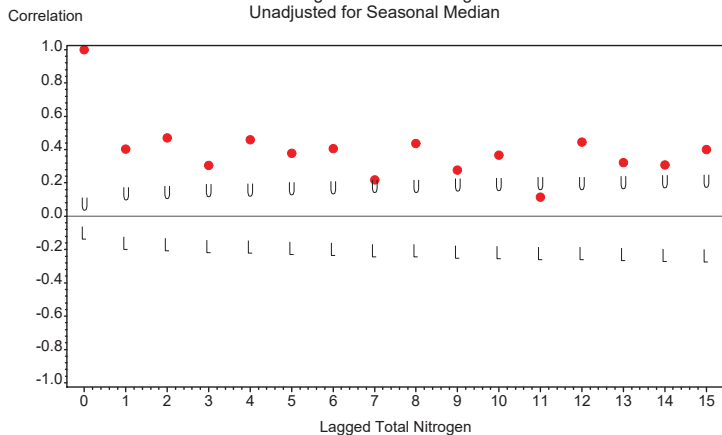
S_21FLPBCH13 Trends Appendix
Seasonal Univariate Statistics
Total Nitrogen



S_21FLPBCH13 Trends Appendix
Autocorrelation Statistics for Total Nitrogen
Unadjusted for Seasonal Medians

Lagged Total Nitrogen	Correlation	Standard Error	Upper Limit	Lower Limit
0	1.000	0.043	0.086	-0.086
1	0.403	0.075	0.149	-0.149
2	0.470	0.078	0.157	-0.157
3	0.305	0.084	0.167	-0.167
4	0.459	0.086	0.171	-0.171
5	0.377	0.090	0.180	-0.180
6	0.405	0.093	0.186	-0.186
7	0.219	0.096	0.192	-0.192
8	0.436	0.097	0.194	-0.194
9	0.278	0.101	0.201	-0.201
10	0.367	0.102	0.204	-0.204
11	0.115	0.104	0.209	-0.209
12	0.444	0.105	0.209	-0.209
13	0.322	0.108	0.216	-0.216
14	0.308	0.110	0.220	-0.220
15	0.399	0.111	0.223	-0.223

S_21FLPBCH13 Trends Appendix
Correlogram for Total Nitrogen
Unadjusted for Seasonal Median



U=Upper 95% Confidence Limit L=Lower 95% Confidence Limit
Zero Reference Line Shown

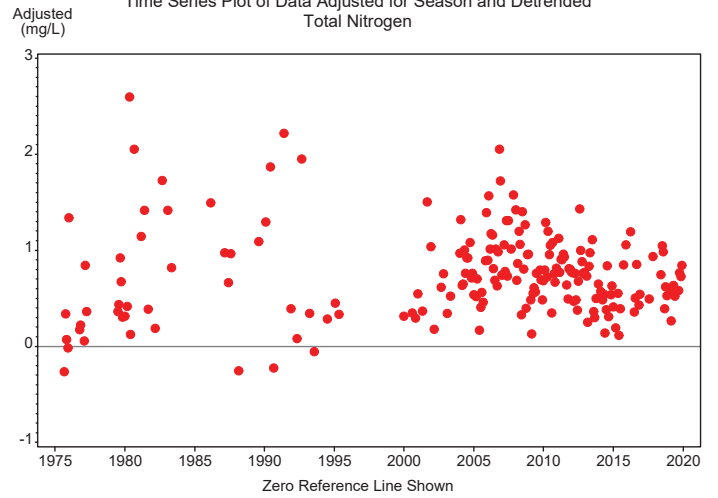
S_21FLPBCH13 Trends Appendix
Seasonal Kendall Tau Trend Test Statistics
Total Nitrogen
Unadjusted for Seasonal Medians

Tau Statistic	P-Value Without Serial Correlation	P-Value With Serial Correlation	Slope Statistic
-0.381	0	0	-0.021

S_21FLPBCH13 Trends Appendix
 Seasonal Kendall Tau Trend Test Statistics
 Total Nitrogen
 Adjusted for Seasonal Medians

Tau Statistic	P-Value Without Serial Correlation	P-Value With Serial Correlation	Slope Statistic
-0.38086	0	.000135119	-0.021375

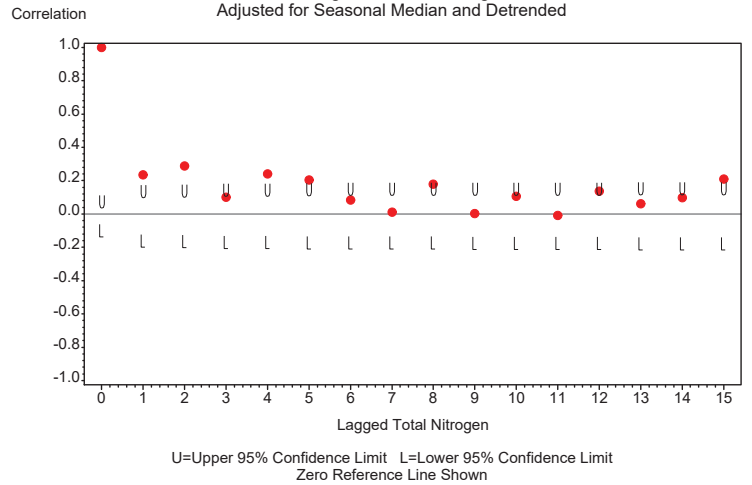
S_21FLPBCH13 Trends Appendix
 Time Series Plot of Data Adjusted for Season and Detrended
 Total Nitrogen



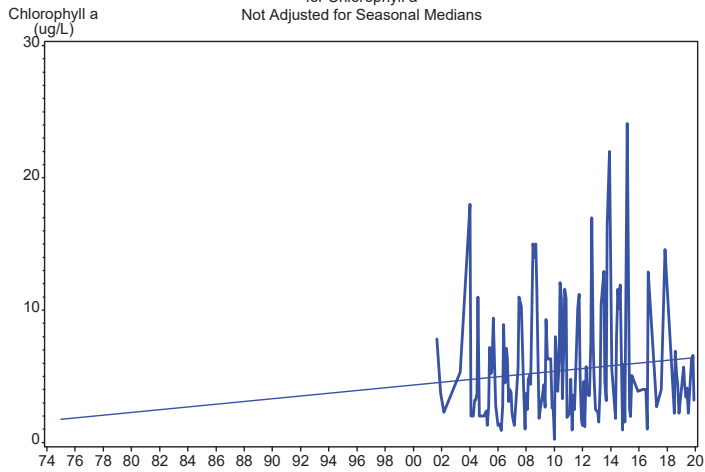
S_21FLPBCH13 Trends Appendix
 Autocorrelation Statistics for Total Nitrogen
 Adjusted for Seasonal Median and Detrended

Lagged Total Nitrogen	Correlation	Standard Error	Upper Limit	Lower Limit
0	1.000	0.043	0.086	-0.086
1	0.235	0.075	0.149	-0.149
2	0.289	0.076	0.152	-0.152
3	0.099	0.078	0.156	-0.156
4	0.241	0.078	0.156	-0.156
5	0.205	0.080	0.159	-0.159
6	0.083	0.080	0.161	-0.161
7	0.011	0.081	0.161	-0.161
8	0.180	0.081	0.161	-0.161
9	0.001	0.081	0.163	-0.163
10	0.107	0.081	0.163	-0.163
11	-0.010	0.082	0.163	-0.163
12	0.137	0.082	0.163	-0.163
13	0.062	0.082	0.164	-0.164
14	0.097	0.082	0.164	-0.164
15	0.209	0.082	0.165	-0.165

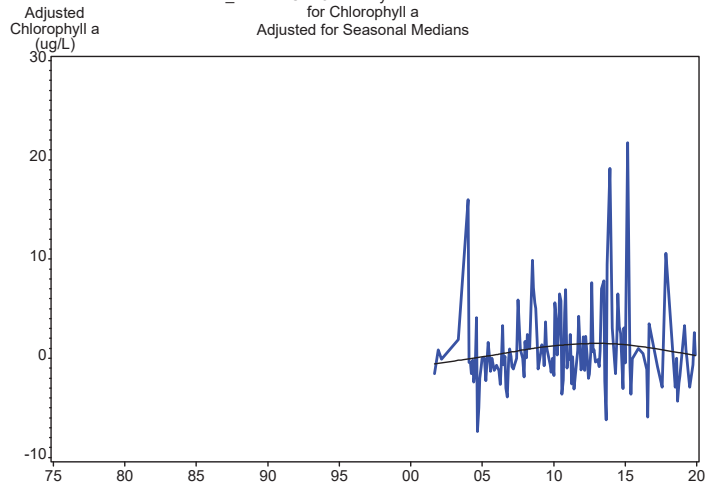
S_21FLPBCH13 Trends Appendix
 Correlogram for Total Nitrogen
 Adjusted for Seasonal Median and Detrended



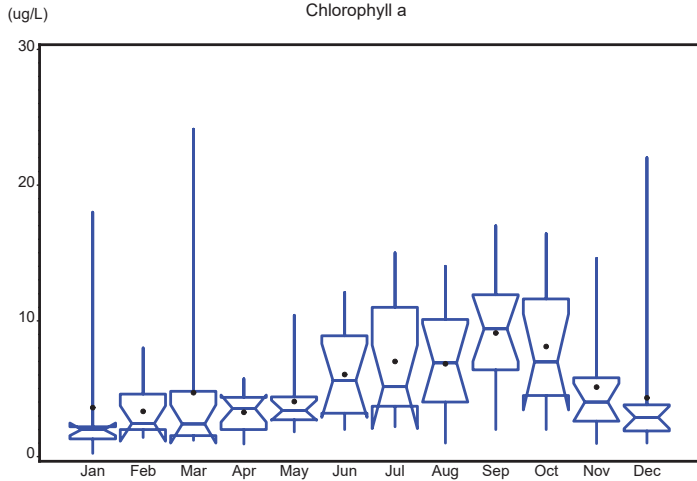
S_21FLPBCH13 Trends
S_21FLPBCH13 Monthly Data Time Series
for Chlorophyll a
Not Adjusted for Seasonal Medians



S_21FLPBCH13 Trends
S_21FLPBCH13 Monthly Data Time Series
for Chlorophyll a
Adjusted for Seasonal Medians



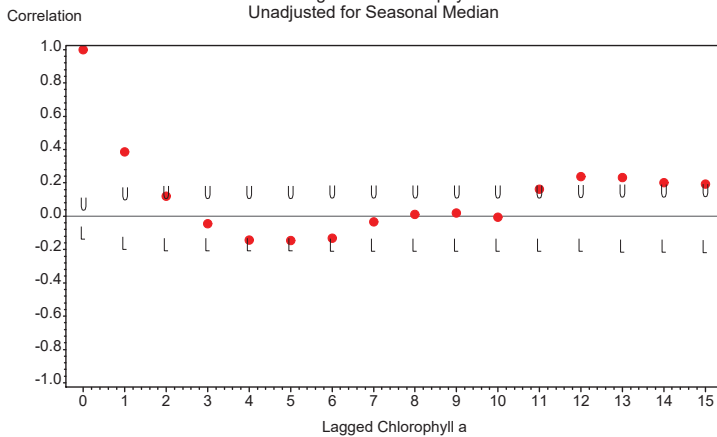
S_21FLPBCH13 Trends Appendix
Seasonal Univariate Statistics
Chlorophyll a



S_21FLPBCH13 Trends Appendix
Autocorrelation Statistics for Chlorophyll a
Unadjusted for Seasonal Medians

Lagged Chlorophyll a	Correlation	Standard Error	Upper Limit	Lower Limit
0	1.000	0.043	0.086	-0.086
1	0.385	0.075	0.149	-0.149
2	0.119	0.078	0.156	-0.156
3	-0.046	0.078	0.157	-0.157
4	-0.144	0.079	0.157	-0.157
5	-0.146	0.079	0.158	-0.158
6	-0.133	0.080	0.159	-0.159
7	-0.034	0.080	0.160	-0.160
8	0.011	0.080	0.160	-0.160
9	0.020	0.080	0.160	-0.160
10	-0.006	0.080	0.160	-0.160
11	0.163	0.080	0.160	-0.160
12	0.237	0.081	0.161	-0.161
13	0.232	0.082	0.164	-0.164
14	0.200	0.083	0.166	-0.166
15	0.192	0.084	0.168	-0.168

S_21FLPBCH13 Trends Appendix
Correlogram for Chlorophyll a
Unadjusted for Seasonal Median



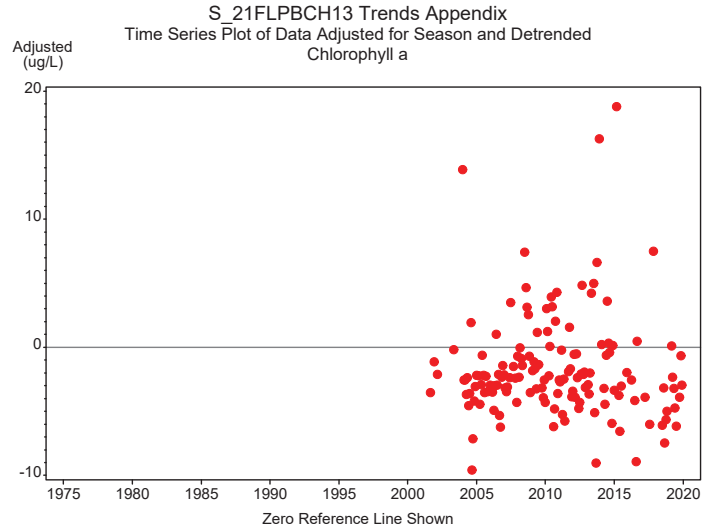
U=Upper 95% Confidence Limit L=Lower 95% Confidence Limit
Zero Reference Line Shown

S_21FLPBCH13 Trends Appendix
Seasonal Kendall Tau Trend Test Statistics
Chlorophyll a
Unadjusted for Seasonal Medians

Tau Statistic	P-Value Without Serial Correlation	P-Value With Serial Correlation	Slope Statistic
0.08	0.216	0.356	0.071

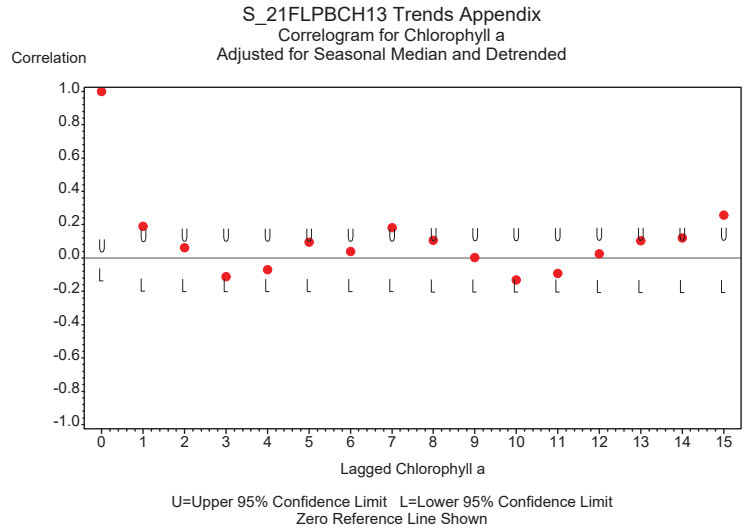
S_21FLPBCH13 Trends Appendix
 Seasonal Kendall Tau Trend Test Statistics
 Chlorophyll a
 Adjusted for Seasonal Medians

Tau Statistic	P-Value Without Serial Correlation	P-Value With Serial Correlation	Slope Statistic
0.080446	0.21616	0.35606	0.071042

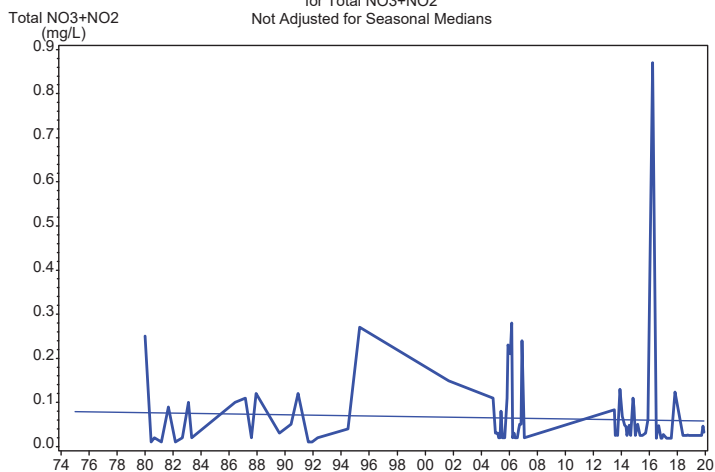


S_21FLPBCH13 Trends Appendix
 Autocorrelation Statistics for Chlorophyll a
 Adjusted for Seasonal Median and Detrended

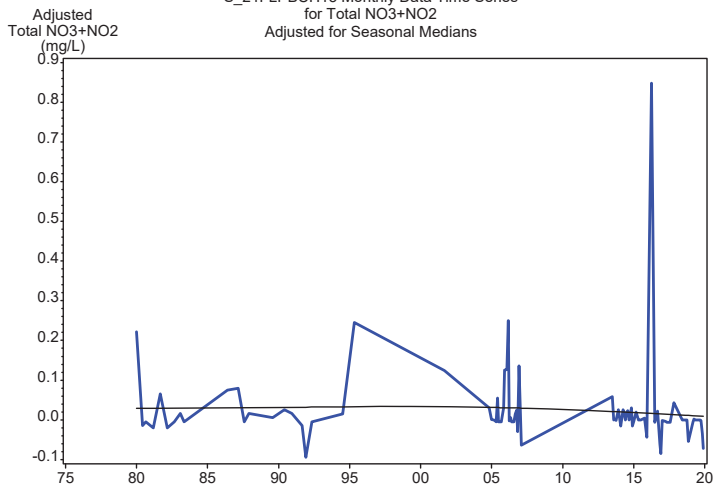
Lagged Chlorophyll a	Correlation	Standard Error	Upper Limit	Lower Limit
0	1.000	0.043	0.086	-0.086
1	0.191	0.075	0.149	-0.149
2	0.061	0.075	0.151	-0.151
3	-0.113	0.076	0.151	-0.151
4	-0.071	0.076	0.152	-0.152
5	0.096	0.076	0.152	-0.152
6	0.038	0.076	0.152	-0.152
7	0.182	0.076	0.152	-0.152
8	0.105	0.077	0.154	-0.154
9	0.003	0.077	0.155	-0.155
10	-0.131	0.077	0.155	-0.155
11	-0.093	0.078	0.155	-0.155
12	0.025	0.078	0.156	-0.156
13	0.104	0.078	0.156	-0.156
14	0.121	0.078	0.156	-0.156
15	0.258	0.079	0.157	-0.157



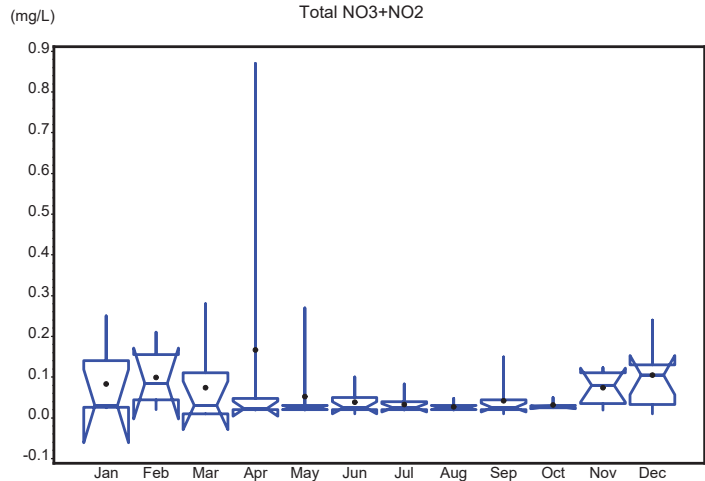
S_21FLPBCH13 Trends
S_21FLPBCH13 Monthly Data Time Series
for Total NO3+NO2
Not Adjusted for Seasonal Medians



S_21FLPBCH13 Trends
S_21FLPBCH13 Monthly Data Time Series
for Total NO3+NO2
Adjusted for Seasonal Medians



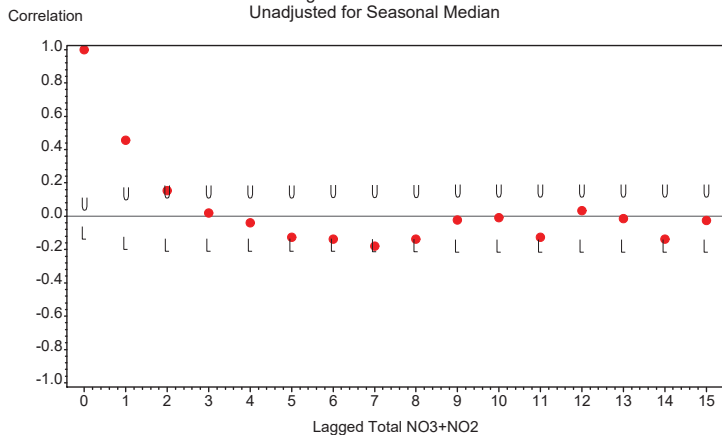
S_21FLPBCH13 Trends Appendix
Seasonal Univariate Statistics
Total NO3+NO2



S_21FLPBCH13 Trends Appendix
Autocorrelation Statistics for Total NO3+NO2
Unadjusted for Seasonal Medians

Lagged Total NO3+NO2	Correlation	Standard Error	Upper Limit	Lower Limit
0	1.000	0.043	0.086	-0.086
1	0.455	0.075	0.149	-0.149
2	0.153	0.080	0.159	-0.159
3	0.019	0.080	0.160	-0.160
4	-0.040	0.080	0.160	-0.160
5	-0.127	0.080	0.160	-0.160
6	-0.139	0.080	0.161	-0.161
7	-0.181	0.081	0.162	-0.162
8	-0.139	0.082	0.163	-0.163
9	-0.022	0.082	0.164	-0.164
10	-0.010	0.082	0.164	-0.164
11	-0.127	0.082	0.164	-0.164
12	0.032	0.082	0.165	-0.165
13	-0.014	0.083	0.165	-0.165
14	-0.138	0.083	0.165	-0.165
15	-0.025	0.083	0.166	-0.166

S_21FLPBCH13 Trends Appendix
Correlogram for Total NO3+NO2
Unadjusted for Seasonal Median



U=Upper 95% Confidence Limit L=Lower 95% Confidence Limit
Zero Reference Line Shown

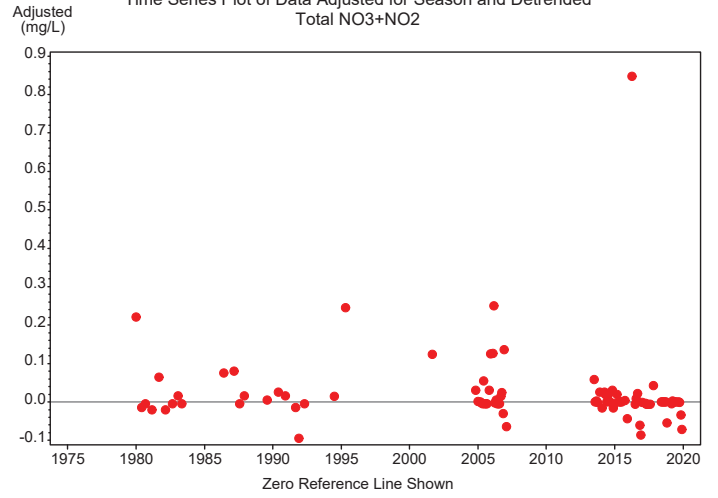
S_21FLPBCH13 Trends Appendix
Seasonal Kendall Tau Trend Test Statistics
Total NO3+NO2
Unadjusted for Seasonal Medians

Tau Statistic	P-Value Without Serial Correlation	P-Value With Serial Correlation	Slope Statistic
-0.071	0.417	0.453	0

S_21FLPBCH13 Trends Appendix
 Seasonal Kendall Tau Trend Test Statistics
 Total NO3+NO2
 Adjusted for Seasonal Medians

Tau Statistic	P-Value Without Serial Correlation	P-Value With Serial Correlation	Slope Statistic
-0.071429	0.41663	0.45274	0

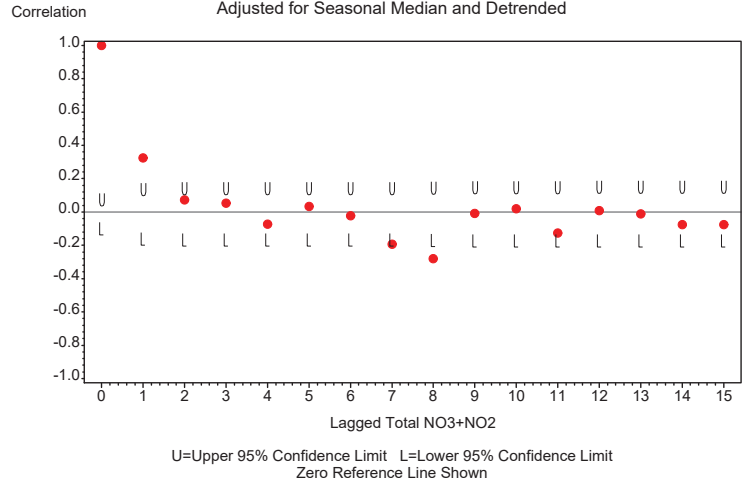
S_21FLPBCH13 Trends Appendix
 Time Series Plot of Data Adjusted for Season and Detrended
 Total NO3+NO2



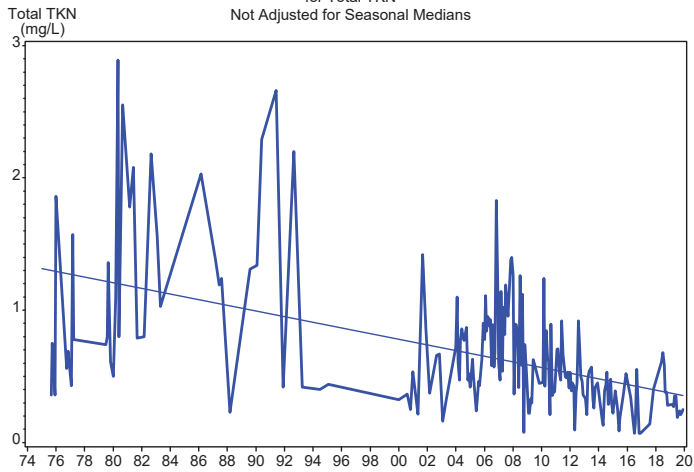
S_21FLPBCH13 Trends Appendix
 Autocorrelation Statistics for Total NO3+NO2
 Adjusted for Seasonal Median and Detrended

Lagged Total NO3+NO2	Correlation	Standard Error	Upper Limit	Lower Limit
0	1.000	0.043	0.086	-0.086
1	0.324	0.075	0.149	-0.149
2	0.071	0.077	0.154	-0.154
3	0.054	0.077	0.154	-0.154
4	-0.074	0.077	0.155	-0.155
5	0.032	0.077	0.155	-0.155
6	-0.022	0.077	0.155	-0.155
7	-0.195	0.077	0.155	-0.155
8	-0.281	0.078	0.157	-0.157
9	-0.008	0.080	0.160	-0.160
10	0.019	0.080	0.160	-0.160
11	-0.126	0.080	0.160	-0.160
12	0.008	0.081	0.161	-0.161
13	-0.012	0.081	0.161	-0.161
14	-0.075	0.081	0.161	-0.161
15	-0.075	0.081	0.161	-0.161

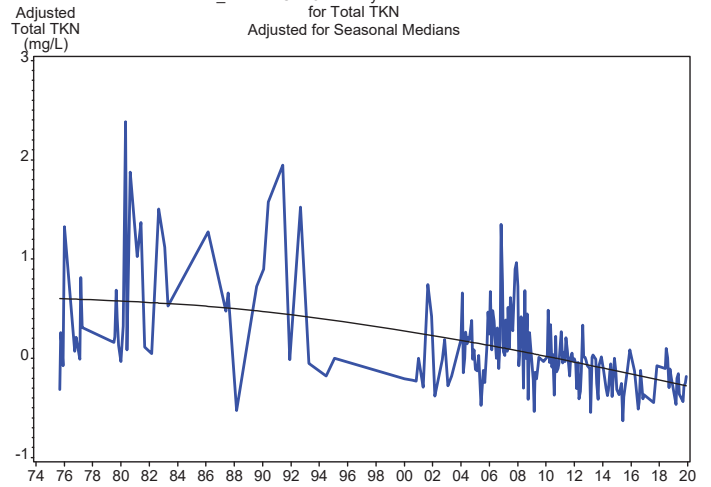
S_21FLPBCH13 Trends Appendix
 Correlogram for Total NO3+NO2
 Adjusted for Seasonal Median and Detrended



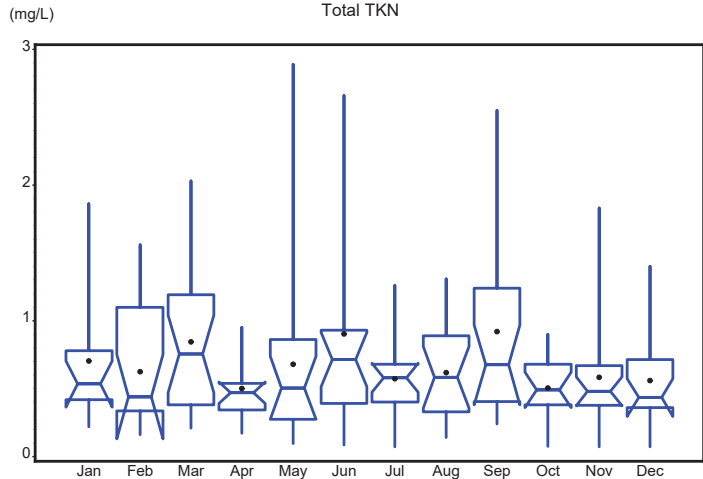
S_21FLPBCH13 Trends
S_21FLPBCH13 Monthly Data Time Series
for Total TKN
Not Adjusted for Seasonal Medians



S_21FLPBCH13 Trends
S_21FLPBCH13 Monthly Data Time Series
for Total TKN
Adjusted for Seasonal Medians



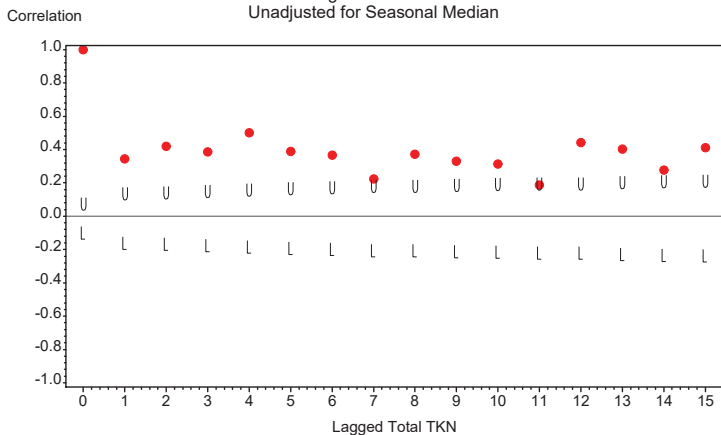
S_21FLPBCH13 Trends Appendix
Seasonal Univariate Statistics
Total TKN



S_21FLPBCH13 Trends Appendix
Autocorrelation Statistics for Total TKN
Unadjusted for Seasonal Medians

Lagged Total TKN	Correlation	Standard Error	Upper Limit	Lower Limit
0	1.000	0.043	0.086	-0.086
1	0.345	0.075	0.149	-0.149
2	0.420	0.077	0.155	-0.155
3	0.387	0.082	0.163	-0.163
4	0.500	0.085	0.170	-0.170
5	0.389	0.090	0.180	-0.180
6	0.367	0.093	0.186	-0.186
7	0.223	0.096	0.192	-0.192
8	0.373	0.097	0.194	-0.194
9	0.330	0.099	0.199	-0.199
10	0.314	0.101	0.203	-0.203
11	0.186	0.103	0.206	-0.206
12	0.443	0.104	0.208	-0.208
13	0.404	0.107	0.215	-0.215
14	0.278	0.110	0.220	-0.220
15	0.410	0.111	0.223	-0.223

S_21FLPBCH13 Trends Appendix
Correlogram for Total TKN
Unadjusted for Seasonal Median



U=Upper 95% Confidence Limit L=Lower 95% Confidence Limit
Zero Reference Line Shown

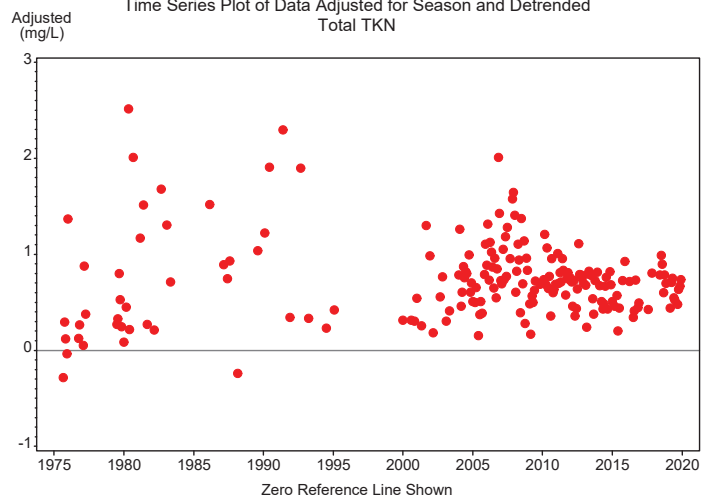
S_21FLPBCH13 Trends Appendix
Seasonal Kendall Tau Trend Test Statistics
Total TKN
Unadjusted for Seasonal Medians

Tau Statistic	P-Value Without Serial Correlation	P-Value With Serial Correlation	Slope Statistic
-0.399	0	0	-0.02

S_21FLPBCH13 Trends Appendix
 Seasonal Kendall Tau Trend Test Statistics
 Total TKN
 Adjusted for Seasonal Medians

Tau Statistic	P-Value Without Serial Correlation	P-Value With Serial Correlation	Slope Statistic
-0.39922	0	.000100621	-0.02

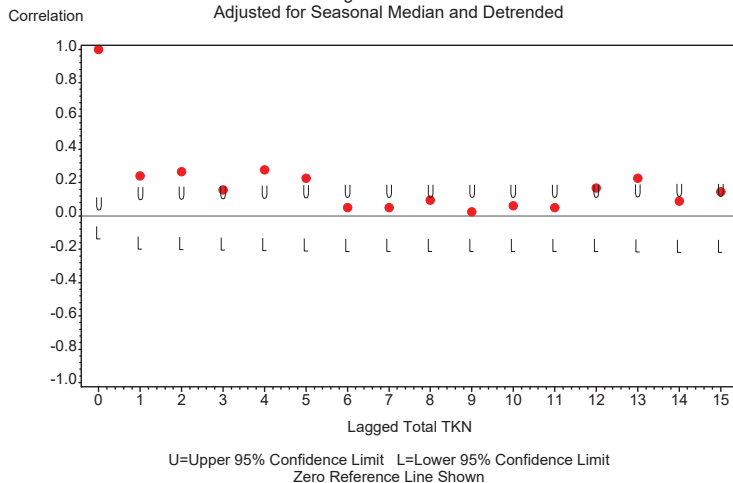
S_21FLPBCH13 Trends Appendix
 Time Series Plot of Data Adjusted for Season and Detrended
 Total TKN



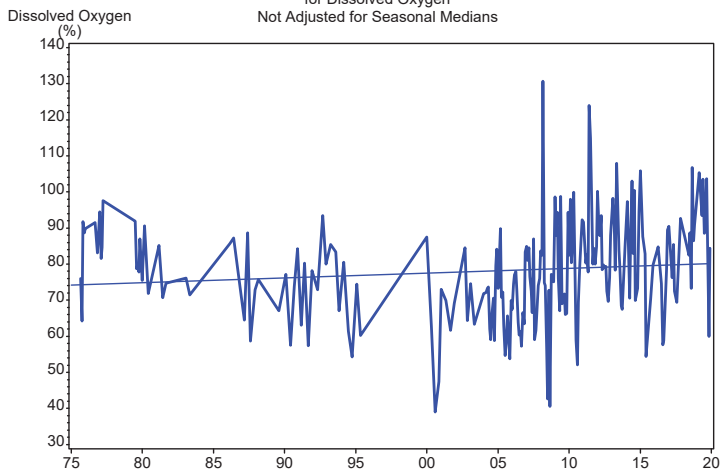
S_21FLPBCH13 Trends Appendix
 Autocorrelation Statistics for Total TKN
 Adjusted for Seasonal Median and Detrended

Lagged Total TKN	Correlation	Standard Error	Upper Limit	Lower Limit
0	1.000	0.043	0.086	-0.086
1	0.240	0.075	0.149	-0.149
2	0.265	0.076	0.152	-0.152
3	0.156	0.078	0.155	-0.155
4	0.277	0.078	0.156	-0.156
5	0.226	0.080	0.160	-0.160
6	0.049	0.081	0.162	-0.162
7	0.050	0.081	0.162	-0.162
8	0.095	0.081	0.163	-0.163
9	0.024	0.082	0.163	-0.163
10	0.061	0.082	0.163	-0.163
11	0.050	0.082	0.163	-0.163
12	0.168	0.082	0.163	-0.163
13	0.227	0.082	0.165	-0.165
14	0.089	0.083	0.167	-0.167
15	0.146	0.084	0.167	-0.167

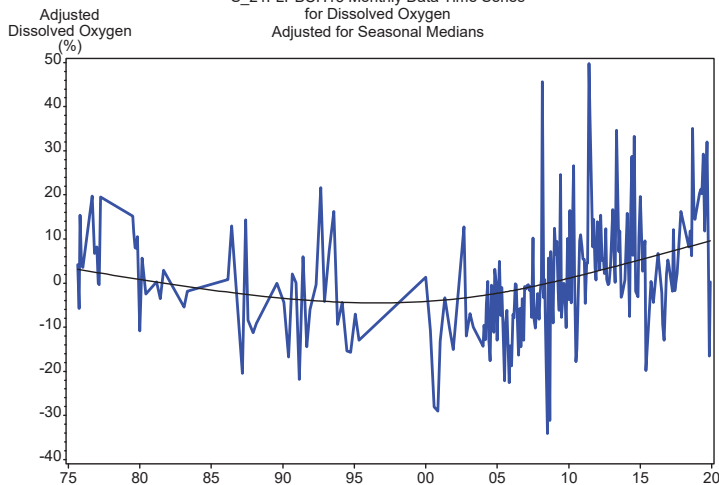
S_21FLPBCH13 Trends Appendix
 Correlogram for Total TKN
 Adjusted for Seasonal Median and Detrended



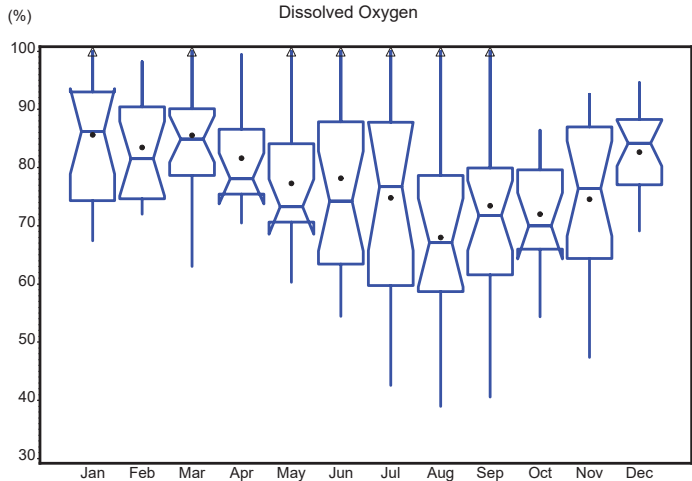
S_21FLPBCH13 Trends
S_21FLPBCH13 Monthly Data Time Series
for Dissolved Oxygen
Not Adjusted for Seasonal Medians



S_21FLPBCH13 Trends
S_21FLPBCH13 Monthly Data Time Series
for Dissolved Oxygen
Adjusted for Seasonal Medians



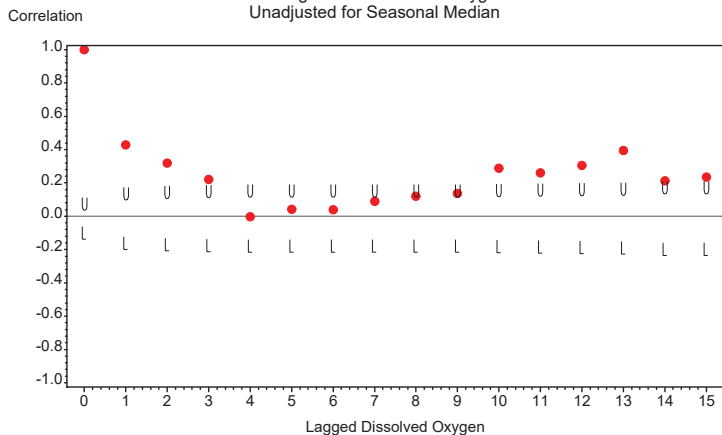
S_21FLPBCH13 Trends Appendix
Seasonal Univariate Statistics
Dissolved Oxygen



S_21FLPBCH13 Trends Appendix
Autocorrelation Statistics for Dissolved Oxygen
Unadjusted for Seasonal Medians

Lagged Dissolved Oxygen	Correlation	Standard Error	Upper Limit	Lower Limit
0	1.000	0.043	0.086	-0.086
1	0.429	0.075	0.149	-0.149
2	0.320	0.079	0.158	-0.158
3	0.222	0.081	0.163	-0.163
4	-0.002	0.082	0.165	-0.165
5	0.042	0.082	0.165	-0.165
6	0.040	0.082	0.165	-0.165
7	0.089	0.083	0.165	-0.165
8	0.120	0.083	0.165	-0.165
9	0.136	0.083	0.166	-0.166
10	0.289	0.083	0.167	-0.167
11	0.260	0.085	0.171	-0.171
12	0.306	0.087	0.173	-0.173
13	0.394	0.089	0.177	-0.177
14	0.211	0.092	0.184	-0.184
15	0.236	0.093	0.186	-0.186

S_21FLPBCH13 Trends Appendix
Correlogram for Dissolved Oxygen
Unadjusted for Seasonal Median



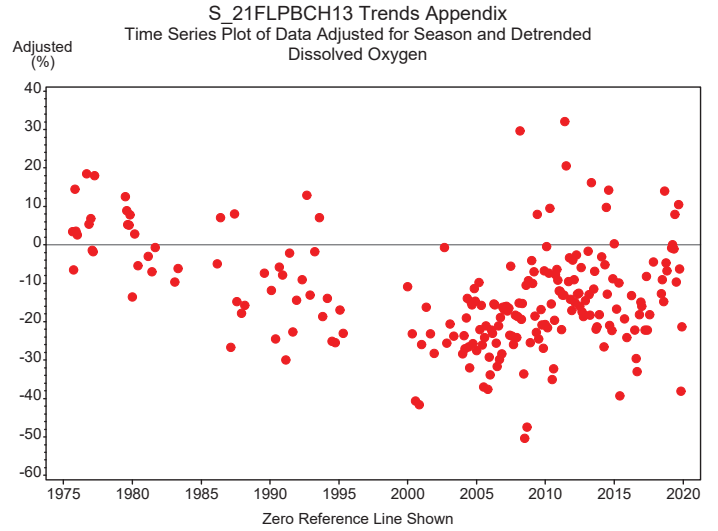
U=Upper 95% Confidence Limit L=Lower 95% Confidence Limit
Zero Reference Line Shown

S_21FLPBCH13 Trends Appendix
Seasonal Kendall Tau Trend Test Statistics
Dissolved Oxygen
Unadjusted for Seasonal Medians

Tau Statistic	P-Value Without Serial Correlation	P-Value With Serial Correlation	Slope Statistic
0.232	0	.009	0.471

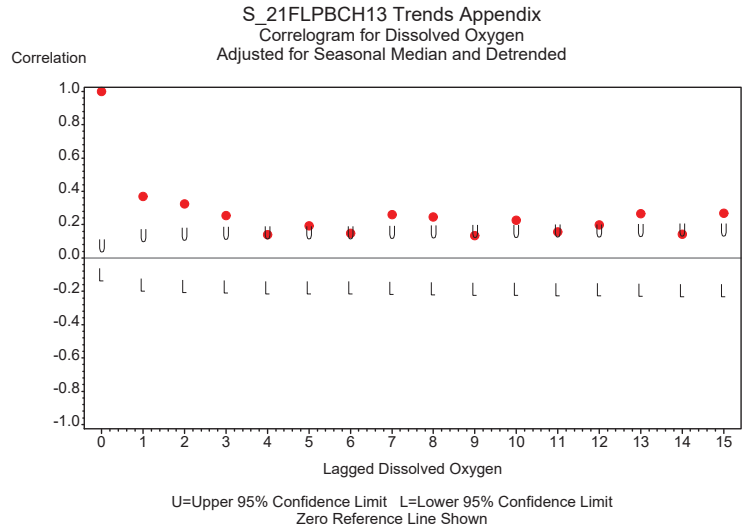
S_21FLPBCH13 Trends Appendix
 Seasonal Kendall Tau Trend Test Statistics
 Dissolved Oxygen
 Adjusted for Seasonal Medians

Tau Statistic	P-Value Without Serial Correlation	P-Value With Serial Correlation	Slope Statistic
0.23188	.000004053	.00926018	0.47103

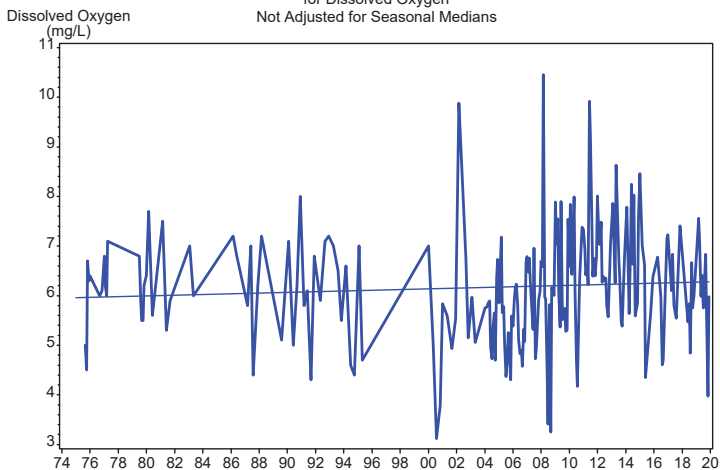


S_21FLPBCH13 Trends Appendix
 Autocorrelation Statistics for Dissolved Oxygen
 Adjusted for Seasonal Median and Detrended

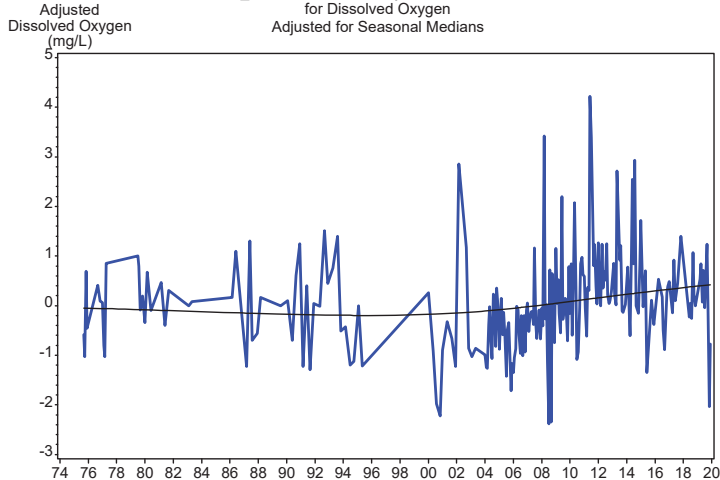
Lagged Dissolved Oxygen	Correlation	Standard Error	Upper Limit	Lower Limit
0	1.000	0.043	0.086	-0.086
1	0.370	0.075	0.149	-0.149
2	0.324	0.078	0.156	-0.156
3	0.254	0.080	0.161	-0.161
4	0.139	0.082	0.164	-0.164
5	0.193	0.082	0.164	-0.164
6	0.147	0.083	0.166	-0.166
7	0.260	0.084	0.167	-0.167
8	0.245	0.085	0.170	-0.170
9	0.135	0.086	0.173	-0.173
10	0.226	0.087	0.173	-0.173
11	0.155	0.088	0.176	-0.176
12	0.199	0.088	0.177	-0.177
13	0.266	0.089	0.178	-0.178
14	0.143	0.091	0.181	-0.181
15	0.267	0.091	0.182	-0.182



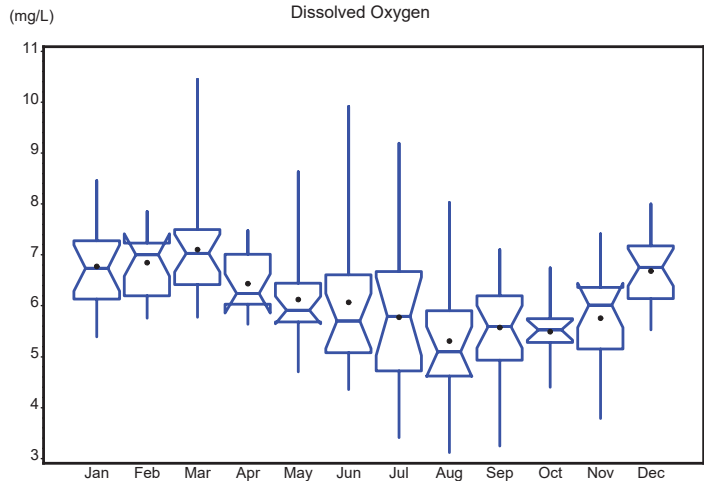
S_21FLPBCH13 Trends
S_21FLPBCH13 Monthly Data Time Series
for Dissolved Oxygen
Not Adjusted for Seasonal Medians



S_21FLPBCH13 Trends
S_21FLPBCH13 Monthly Data Time Series
for Dissolved Oxygen
Adjusted for Seasonal Medians



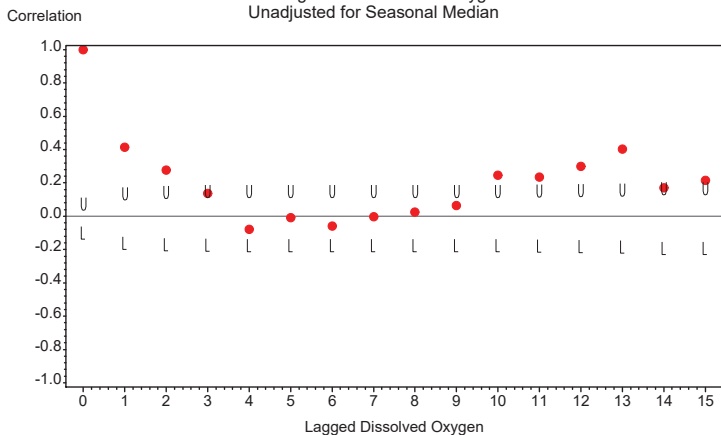
S_21FLPBCH13 Trends Appendix
Seasonal Univariate Statistics
Dissolved Oxygen



S_21FLPBCH13 Trends Appendix
Autocorrelation Statistics for Dissolved Oxygen
Unadjusted for Seasonal Medians

Lagged Dissolved Oxygen	Correlation	Standard Error	Upper Limit	Lower Limit
0	1.000	0.043	0.086	-0.086
1	0.414	0.075	0.149	-0.149
2	0.276	0.079	0.157	-0.157
3	0.136	0.080	0.161	-0.161
4	-0.080	0.081	0.162	-0.162
5	-0.009	0.081	0.162	-0.162
6	-0.059	0.081	0.162	-0.162
7	-0.002	0.081	0.162	-0.162
8	0.026	0.081	0.162	-0.162
9	0.063	0.081	0.162	-0.162
10	0.245	0.081	0.162	-0.162
11	0.236	0.083	0.165	-0.165
12	0.298	0.084	0.168	-0.168
13	0.404	0.086	0.171	-0.171
14	0.171	0.089	0.178	-0.178
15	0.214	0.090	0.180	-0.180

S_21FLPBCH13 Trends Appendix
Correlogram for Dissolved Oxygen
Unadjusted for Seasonal Median



U=Upper 95% Confidence Limit L=Lower 95% Confidence Limit
Zero Reference Line Shown

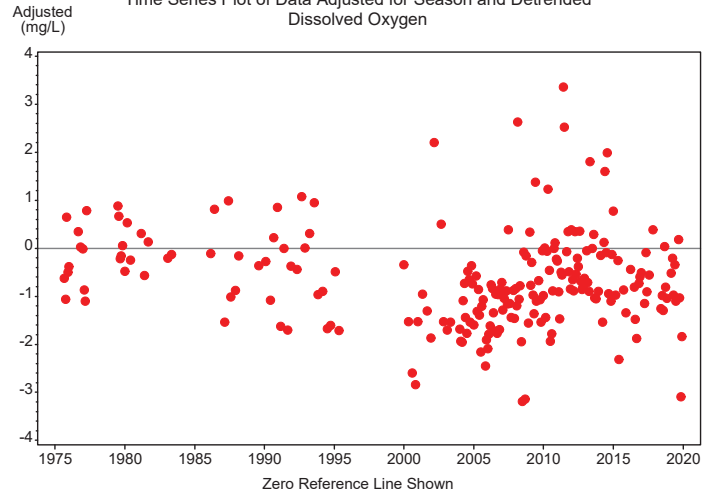
S_21FLPBCH13 Trends Appendix
Seasonal Kendall Tau Trend Test Statistics
Dissolved Oxygen
Unadjusted for Seasonal Medians

Tau Statistic	P-Value Without Serial Correlation	P-Value With Serial Correlation	Slope Statistic
0.178	0	0.03	0.023

S_21FLPBCH13 Trends Appendix
 Seasonal Kendall Tau Trend Test Statistics
 Dissolved Oxygen
 Adjusted for Seasonal Medians

Tau Statistic	P-Value Without Serial Correlation	P-Value With Serial Correlation	Slope Statistic
0.17774	.000398755	0.029861	0.023218

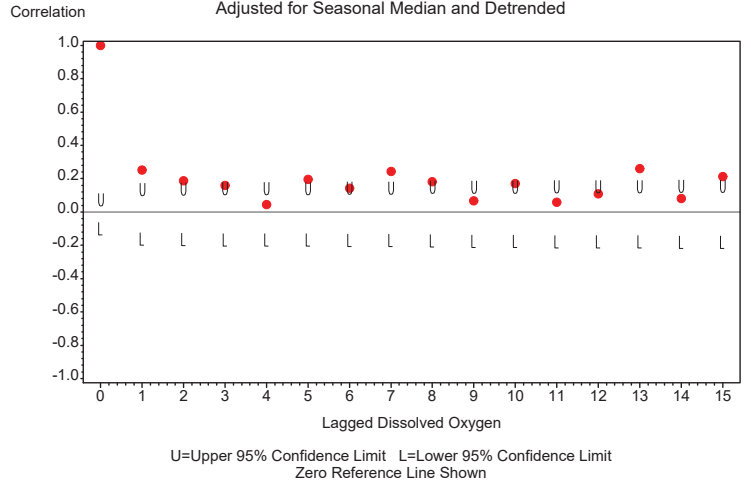
S_21FLPBCH13 Trends Appendix
 Time Series Plot of Data Adjusted for Season and Detrended
 Dissolved Oxygen



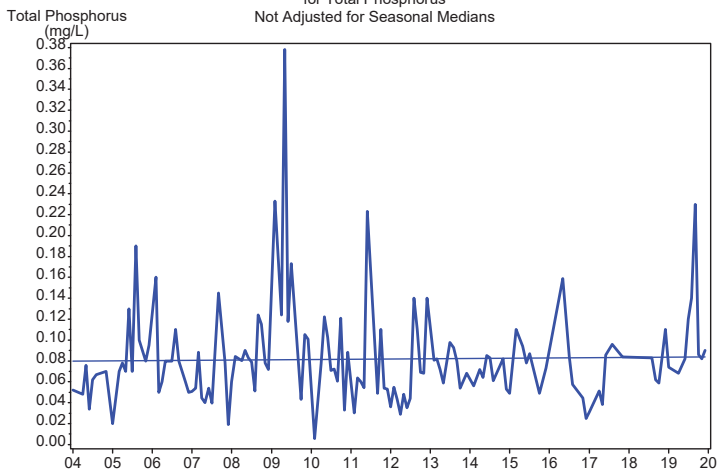
S_21FLPBCH13 Trends Appendix
 Autocorrelation Statistics for Dissolved Oxygen
 Adjusted for Seasonal Median and Detrended

Lagged Dissolved Oxygen	Correlation	Standard Error	Upper Limit	Lower Limit
0	1.000	0.043	0.086	-0.086
1	0.252	0.075	0.149	-0.149
2	0.186	0.076	0.152	-0.152
3	0.158	0.077	0.154	-0.154
4	0.045	0.078	0.155	-0.155
5	0.196	0.078	0.155	-0.155
6	0.141	0.078	0.157	-0.157
7	0.243	0.079	0.158	-0.158
8	0.181	0.080	0.161	-0.161
9	0.066	0.081	0.162	-0.162
10	0.171	0.081	0.162	-0.162
11	0.058	0.082	0.164	-0.164
12	0.108	0.082	0.164	-0.164
13	0.260	0.082	0.164	-0.164
14	0.082	0.084	0.167	-0.167
15	0.211	0.084	0.168	-0.168

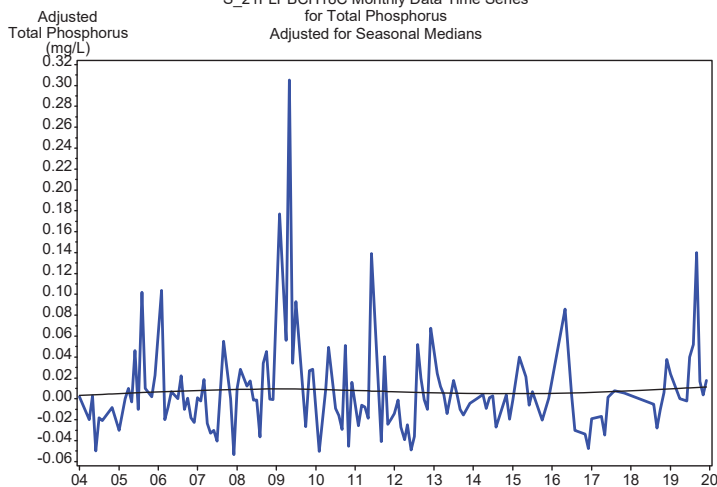
S_21FLPBCH13 Trends Appendix
 Correlogram for Dissolved Oxygen
 Adjusted for Seasonal Median and Detrended



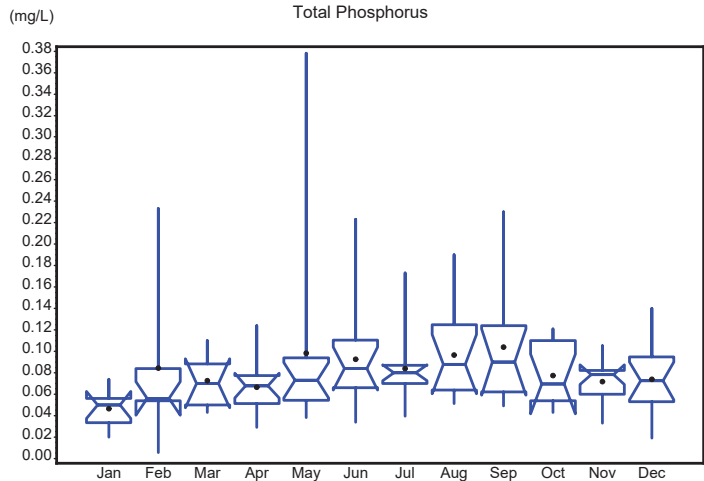
S_21FLPBCH18C Trends
S_21FLPBCH18C Monthly Data Time Series
for Total Phosphorus
Not Adjusted for Seasonal Medians



S_21FLPBCH18C Trends
S_21FLPBCH18C Monthly Data Time Series
for Total Phosphorus
Adjusted for Seasonal Medians



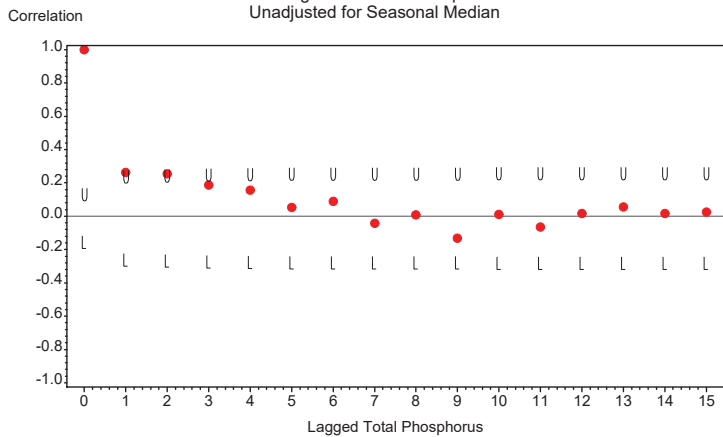
S_21FLPBCH18C Trends Appendix
Seasonal Univariate Statistics
Total Phosphorus



S_21FLPBCH18C Trends Appendix
Autocorrelation Statistics for Total Phosphorus
Unadjusted for Seasonal Medians

Lagged Total Phosphorus	Correlation	Standard Error	Upper Limit	Lower Limit
0	1.000	0.072	0.144	-0.144
1	0.264	0.125	0.250	-0.250
2	0.255	0.128	0.256	-0.256
3	0.188	0.130	0.261	-0.261
4	0.155	0.132	0.264	-0.264
5	0.052	0.133	0.266	-0.266
6	0.089	0.133	0.266	-0.266
7	-0.043	0.133	0.267	-0.267
8	0.007	0.133	0.267	-0.267
9	-0.133	0.133	0.267	-0.267
10	0.010	0.134	0.268	-0.268
11	-0.066	0.134	0.268	-0.268
12	0.016	0.134	0.268	-0.268
13	0.055	0.134	0.268	-0.268
14	0.015	0.134	0.269	-0.269
15	0.026	0.134	0.269	-0.269

S_21FLPBCH18C Trends Appendix
Correlogram for Total Phosphorus
Unadjusted for Seasonal Median



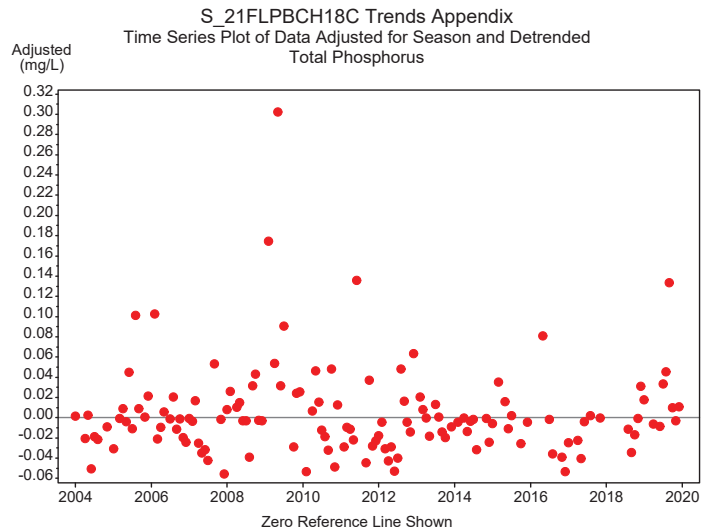
U=Upper 95% Confidence Limit L=Lower 95% Confidence Limit
Zero Reference Line Shown

S_21FLPBCH18C Trends Appendix
Seasonal Kendall Tau Trend Test Statistics
Total Phosphorus
Unadjusted for Seasonal Medians

Tau Statistic	P-Value Without Serial Correlation	P-Value With Serial Correlation	Slope Statistic
0.067	0.328	0.48	0

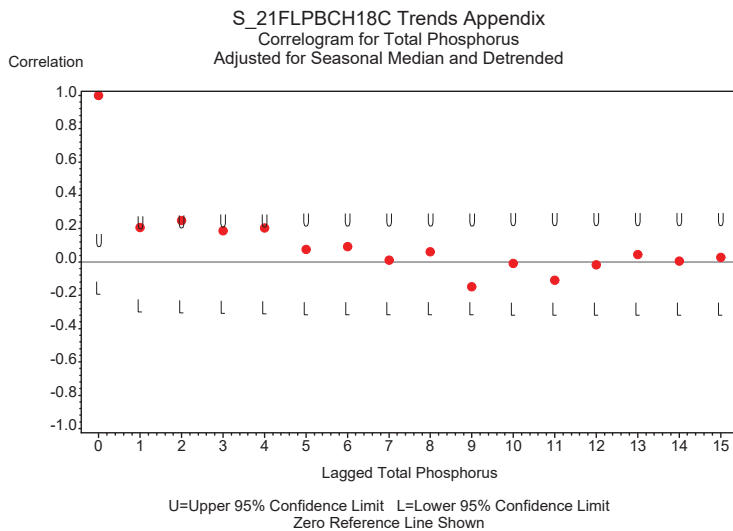
S_21FLPBCH18C Trends Appendix
 Seasonal Kendall Tau Trend Test Statistics
 Total Phosphorus
 Adjusted for Seasonal Medians

Tau Statistic	P-Value Without Serial Correlation	P-Value With Serial Correlation	Slope Statistic
0.065217	0.33810	0.49002	.0004

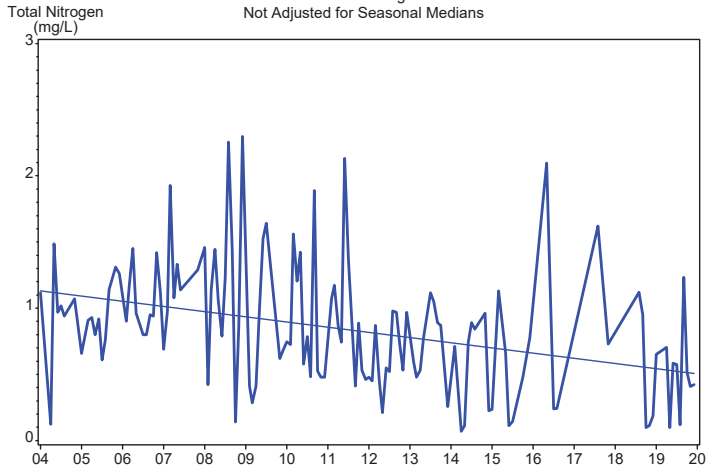


S_21FLPBCH18C Trends Appendix
 Autocorrelation Statistics for Total Phosphorus
 Adjusted for Seasonal Median and Detrended

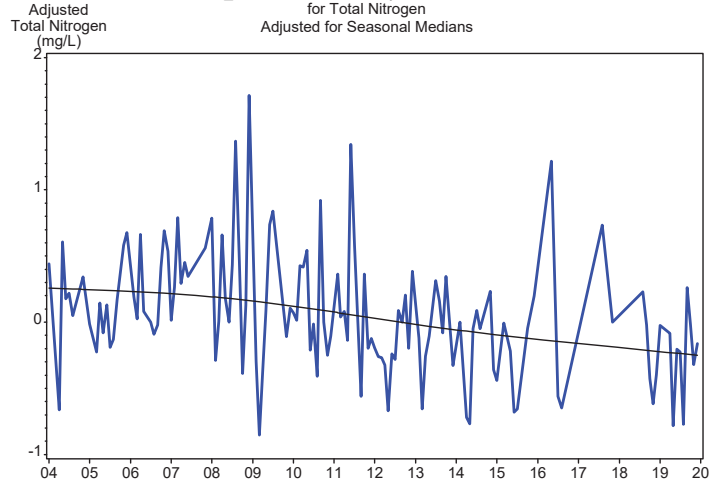
Lagged Total Phosphorus	Correlation	Standard Error	Upper Limit	Lower Limit
0	1.000	0.072	0.144	-0.144
1	0.208	0.125	0.250	-0.250
2	0.249	0.127	0.254	-0.254
3	0.186	0.129	0.259	-0.259
4	0.204	0.131	0.261	-0.261
5	0.074	0.132	0.265	-0.265
6	0.093	0.133	0.265	-0.265
7	0.012	0.133	0.266	-0.266
8	0.061	0.133	0.266	-0.266
9	-0.148	0.133	0.266	-0.266
10	-0.010	0.134	0.268	-0.268
11	-0.109	0.134	0.268	-0.268
12	-0.018	0.134	0.269	-0.269
13	0.043	0.134	0.269	-0.269
14	0.006	0.134	0.269	-0.269
15	0.027	0.134	0.269	-0.269



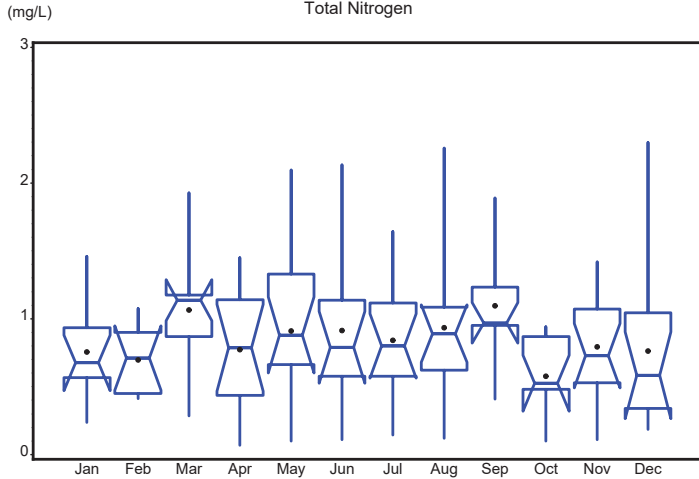
S_21FLPBCH18C Trends
S_21FLPBCH18C Monthly Data Time Series
for Total Nitrogen
Not Adjusted for Seasonal Medians



S_21FLPBCH18C Trends
S_21FLPBCH18C Monthly Data Time Series
for Total Nitrogen
Adjusted for Seasonal Medians



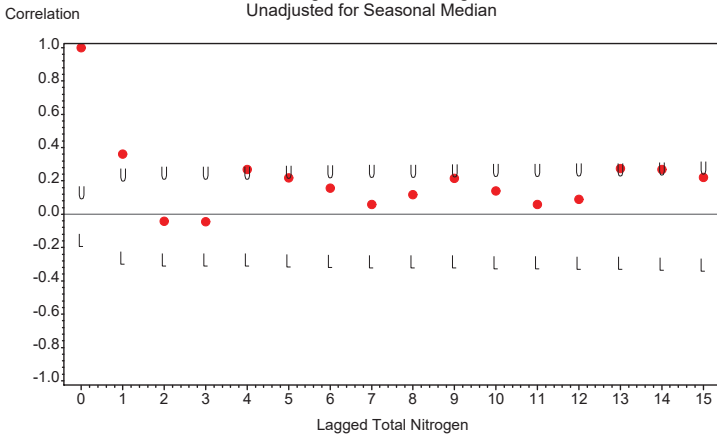
S_21FLPBCH18C Trends Appendix
Seasonal Univariate Statistics
Total Nitrogen



S_21FLPBCH18C Trends Appendix
Autocorrelation Statistics for Total Nitrogen
Unadjusted for Seasonal Medians

Lagged Total Nitrogen	Correlation	Standard Error	Upper Limit	Lower Limit
0	1.000	0.072	0.144	-0.144
1	0.361	0.125	0.250	-0.250
2	-0.043	0.130	0.261	-0.261
3	-0.044	0.130	0.261	-0.261
4	0.267	0.130	0.261	-0.261
5	0.217	0.133	0.267	-0.267
6	0.155	0.135	0.270	-0.270
7	0.059	0.136	0.272	-0.272
8	0.116	0.136	0.272	-0.272
9	0.214	0.137	0.273	-0.273
10	0.139	0.138	0.277	-0.277
11	0.057	0.139	0.278	-0.278
12	0.090	0.139	0.279	-0.279
13	0.273	0.140	0.279	-0.279
14	0.269	0.142	0.285	-0.285
15	0.220	0.145	0.290	-0.290

S_21FLPBCH18C Trends Appendix
Correlogram for Total Nitrogen
Unadjusted for Seasonal Median



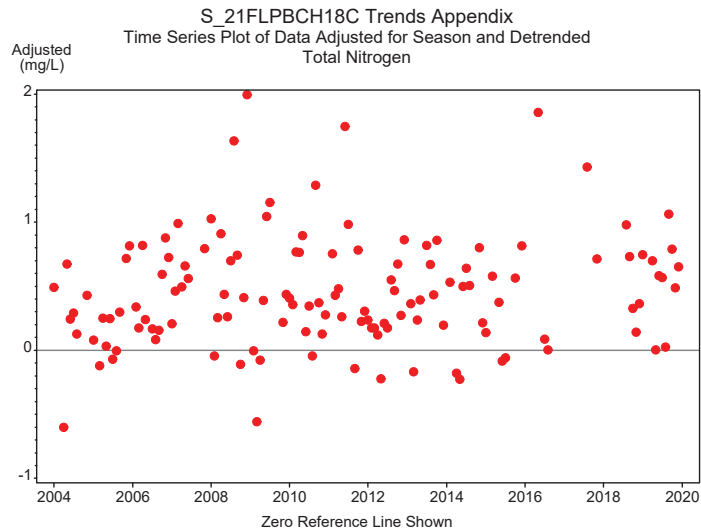
U=Upper 95% Confidence Limit L=Lower 95% Confidence Limit
Zero Reference Line Shown

S_21FLPBCH18C Trends Appendix
Seasonal Kendall Tau Trend Test Statistics
Total Nitrogen
Unadjusted for Seasonal Medians

Tau Statistic	P-Value Without Serial Correlation	P-Value With Serial Correlation	Slope Statistic
-0.325	0	.002	-0.048

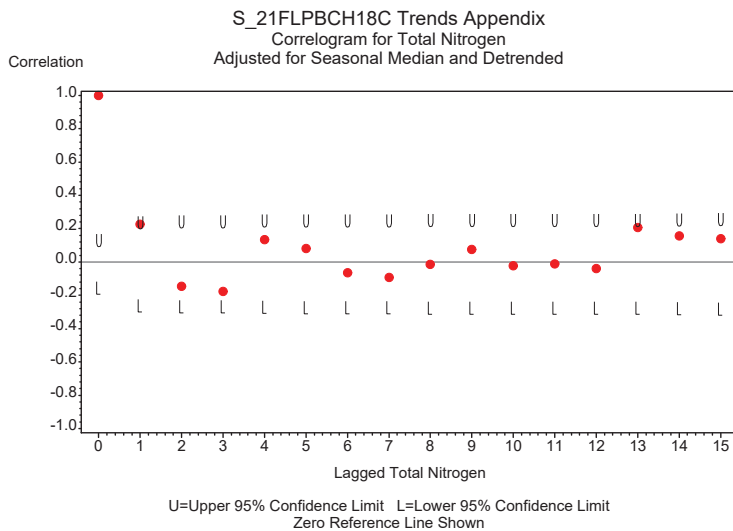
S_21FLPBCH18C Trends Appendix
 Seasonal Kendall Tau Trend Test Statistics
 Total Nitrogen
 Adjusted for Seasonal Medians

Tau Statistic	P-Value Without Serial Correlation	P-Value With Serial Correlation	Slope Statistic
-0.32452	.000002015	.00219734	-0.048

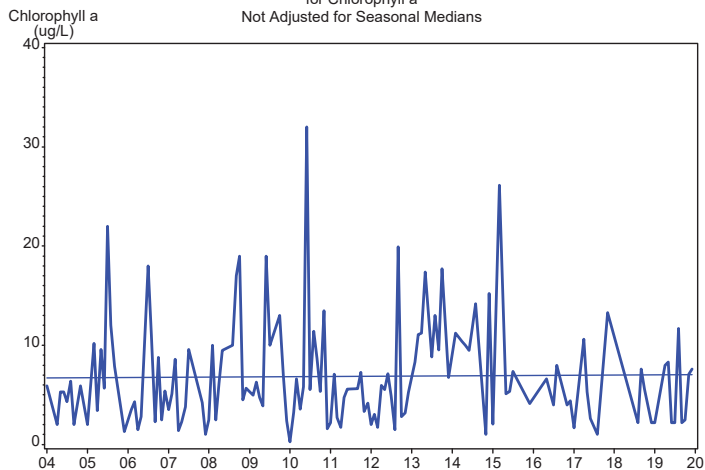


S_21FLPBCH18C Trends Appendix
 Autocorrelation Statistics for Total Nitrogen
 Adjusted for Seasonal Median and Detrended

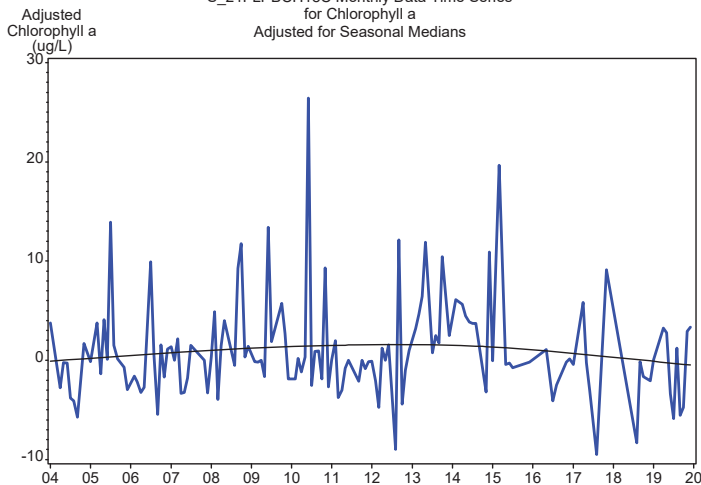
Lagged Total Nitrogen	Correlation	Standard Error	Upper Limit	Lower Limit
0	1.000	0.072	0.144	-0.144
1	0.227	0.125	0.250	-0.250
2	-0.147	0.127	0.254	-0.254
3	-0.178	0.128	0.256	-0.256
4	0.134	0.129	0.259	-0.259
5	0.080	0.130	0.260	-0.260
6	-0.066	0.130	0.261	-0.261
7	-0.093	0.130	0.261	-0.261
8	-0.014	0.131	0.262	-0.262
9	0.076	0.131	0.262	-0.262
10	-0.023	0.131	0.262	-0.262
11	-0.013	0.131	0.262	-0.262
12	-0.039	0.131	0.262	-0.262
13	0.208	0.131	0.262	-0.262
14	0.157	0.133	0.266	-0.266
15	0.140	0.134	0.268	-0.268



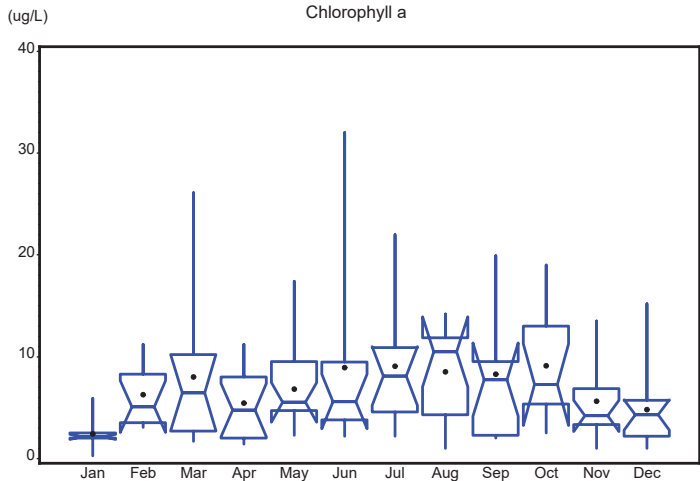
S_21FLPBCH18C Trends
S_21FLPBCH18C Monthly Data Time Series
for Chlorophyll a
Not Adjusted for Seasonal Medians



S_21FLPBCH18C Trends
S_21FLPBCH18C Monthly Data Time Series
for Chlorophyll a
Adjusted for Seasonal Medians



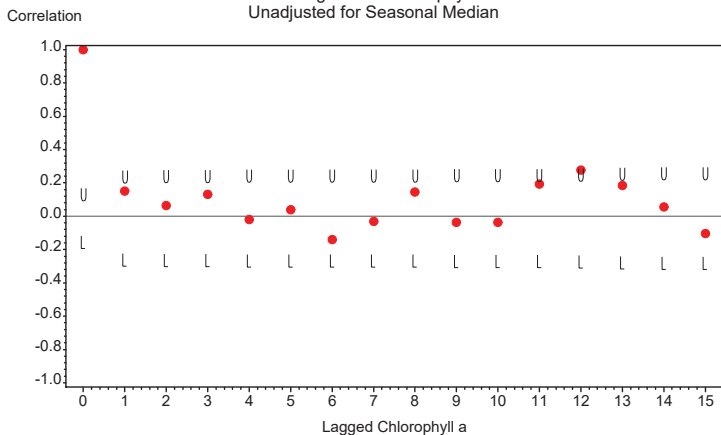
S_21FLPBCH18C Trends Appendix
Seasonal Univariate Statistics
Chlorophyll a



S_21FLPBCH18C Trends Appendix
Autocorrelation Statistics for Chlorophyll a
Unadjusted for Seasonal Medians

Lagged Chlorophyll a	Correlation	Standard Error	Upper Limit	Lower Limit
0	1.000	0.072	0.144	-0.144
1	0.151	0.125	0.250	-0.250
2	0.065	0.126	0.252	-0.252
3	0.131	0.126	0.252	-0.252
4	-0.019	0.127	0.254	-0.254
5	0.038	0.127	0.254	-0.254
6	-0.140	0.127	0.254	-0.254
7	-0.030	0.128	0.255	-0.255
8	0.145	0.128	0.255	-0.255
9	-0.037	0.129	0.257	-0.257
10	-0.036	0.129	0.257	-0.257
11	0.193	0.129	0.257	-0.257
12	0.276	0.130	0.260	-0.260
13	0.185	0.133	0.266	-0.266
14	0.056	0.135	0.269	-0.269
15	-0.104	0.135	0.269	-0.269

S_21FLPBCH18C Trends Appendix
Correlogram for Chlorophyll a
Unadjusted for Seasonal Median



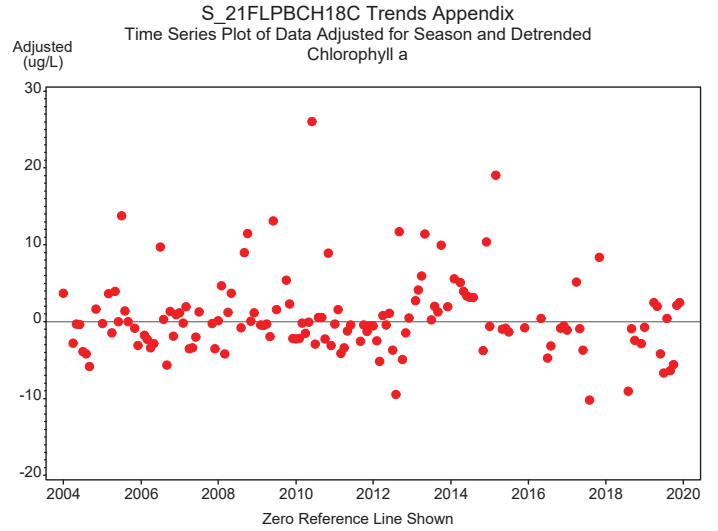
U=Upper 95% Confidence Limit L=Lower 95% Confidence Limit
Zero Reference Line Shown

S_21FLPBCH18C Trends Appendix
Seasonal Kendall Tau Trend Test Statistics
Chlorophyll a
Unadjusted for Seasonal Medians

Tau Statistic	P-Value Without Serial Correlation	P-Value With Serial Correlation	Slope Statistic
0.052	0.441	0.585	0.048

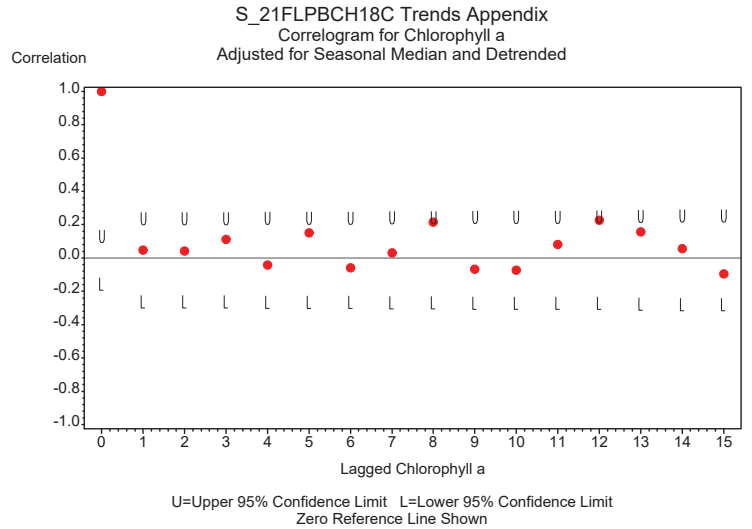
S_21FLPBCH18C Trends Appendix
 Seasonal Kendall Tau Trend Test Statistics
 Chlorophyll a
 Adjusted for Seasonal Medians

Tau Statistic	P-Value Without Serial Correlation	P-Value With Serial Correlation	Slope Statistic
0.052279	0.44057	0.58468	0.048

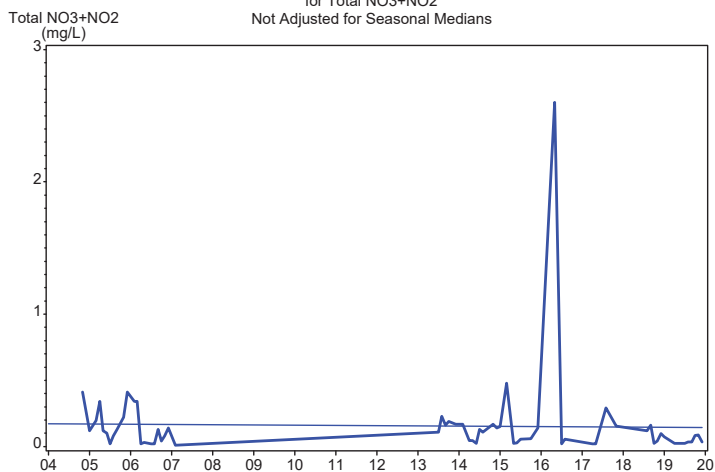


S_21FLPBCH18C Trends Appendix
 Autocorrelation Statistics for Chlorophyll a
 Adjusted for Seasonal Median and Detrended

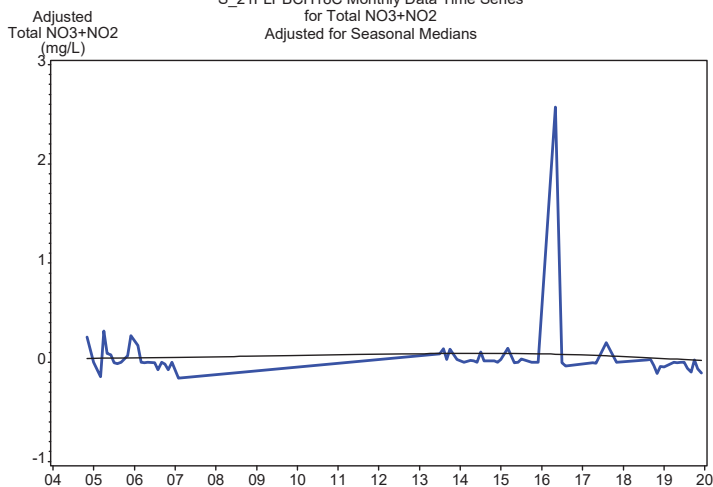
Lagged Chlorophyll a	Correlation	Standard Error	Upper Limit	Lower Limit
0	1.000	0.072	0.144	-0.144
1	0.048	0.125	0.250	-0.250
2	0.041	0.125	0.250	-0.250
3	0.112	0.125	0.250	-0.250
4	-0.043	0.126	0.251	-0.251
5	0.150	0.126	0.252	-0.252
6	-0.060	0.127	0.253	-0.253
7	0.029	0.127	0.254	-0.254
8	0.214	0.127	0.254	-0.254
9	-0.069	0.129	0.257	-0.257
10	-0.072	0.129	0.258	-0.258
11	0.082	0.129	0.258	-0.258
12	0.227	0.129	0.259	-0.259
13	0.156	0.131	0.263	-0.263
14	0.055	0.132	0.265	-0.265
15	-0.096	0.133	0.265	-0.265



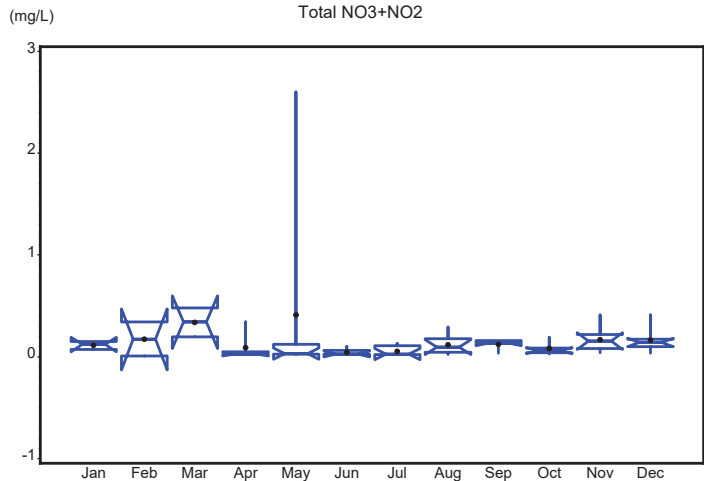
S_21FLPBCH18C Trends
S_21FLPBCH18C Monthly Data Time Series
for Total NO3+NO2
Not Adjusted for Seasonal Medians



S_21FLPBCH18C Trends
S_21FLPBCH18C Monthly Data Time Series
for Total NO3+NO2
Adjusted for Seasonal Medians



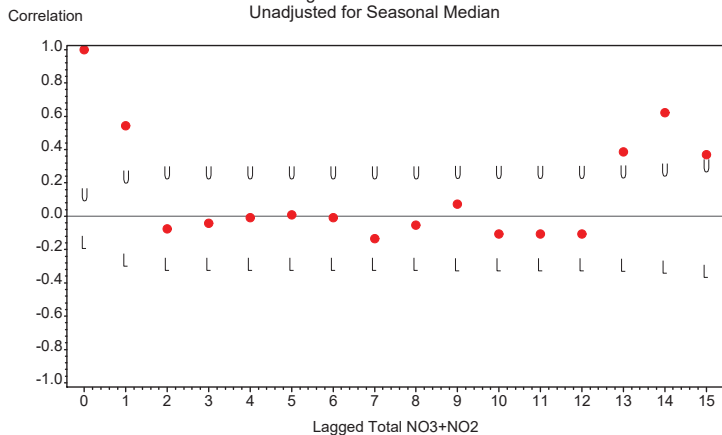
S_21FLPBCH18C Trends Appendix
Seasonal Univariate Statistics
Total NO3+NO2



S_21FLPBCH18C Trends Appendix
Autocorrelation Statistics for Total NO3+NO2
Unadjusted for Seasonal Medians

Lagged Total NO3+NO2	Correlation	Standard Error	Upper Limit	Lower Limit
0	1.000	0.072	0.144	-0.144
1	0.543	0.125	0.250	-0.250
2	-0.077	0.137	0.274	-0.274
3	-0.043	0.137	0.274	-0.274
4	-0.010	0.137	0.274	-0.274
5	0.007	0.137	0.274	-0.274
6	-0.009	0.137	0.274	-0.274
7	-0.135	0.137	0.274	-0.274
8	-0.053	0.138	0.275	-0.275
9	0.071	0.138	0.276	-0.276
10	-0.106	0.138	0.276	-0.276
11	-0.108	0.138	0.277	-0.277
12	-0.106	0.139	0.278	-0.278
13	0.386	0.139	0.279	-0.279
14	0.621	0.145	0.290	-0.290
15	0.369	0.158	0.316	-0.316

S_21FLPBCH18C Trends Appendix
Correlogram for Total NO3+NO2
Unadjusted for Seasonal Median



U=Upper 95% Confidence Limit L=Lower 95% Confidence Limit
Zero Reference Line Shown

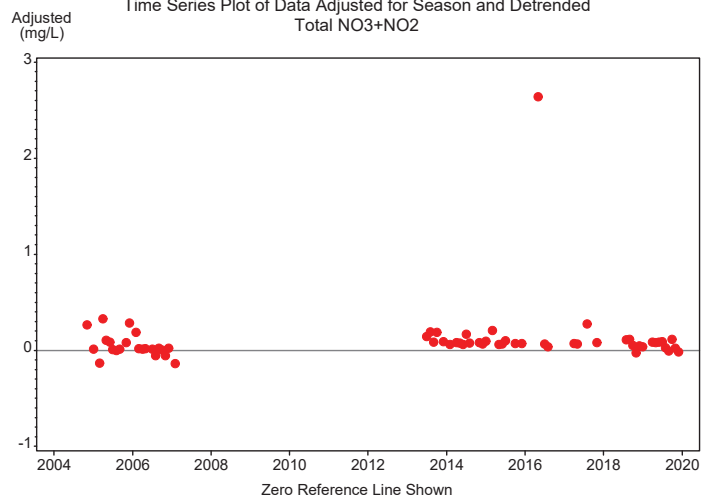
S_21FLPBCH18C Trends Appendix
Seasonal Kendall Tau Trend Test Statistics
Total NO3+NO2
Unadjusted for Seasonal Medians

Tau Statistic	P-Value Without Serial Correlation	P-Value With Serial Correlation	Slope Statistic
-0.261	0.022	0.11	-.005

S_21FLPBCH18C Trends Appendix
 Seasonal Kendall Tau Trend Test Statistics
 Total NO3+NO2
 Adjusted for Seasonal Medians

Tau Statistic	P-Value Without Serial Correlation	P-Value With Serial Correlation	Slope Statistic
-0.26115	0.021709	0.11036	-.00533333

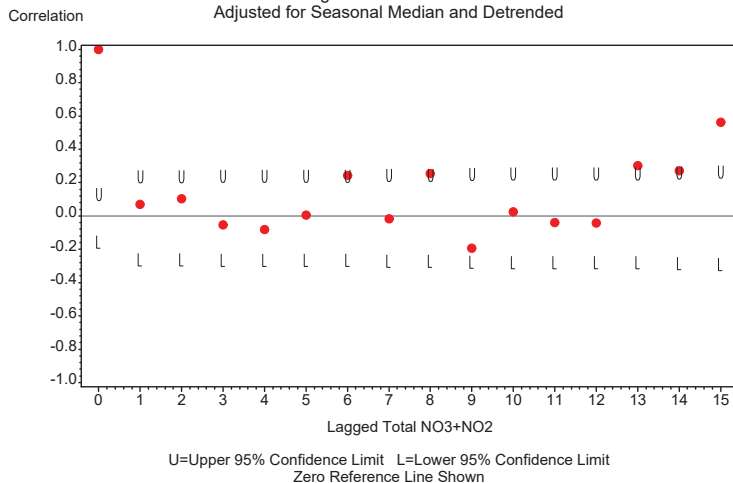
S_21FLPBCH18C Trends Appendix
 Time Series Plot of Data Adjusted for Season and Detrended
 Total NO3+NO2



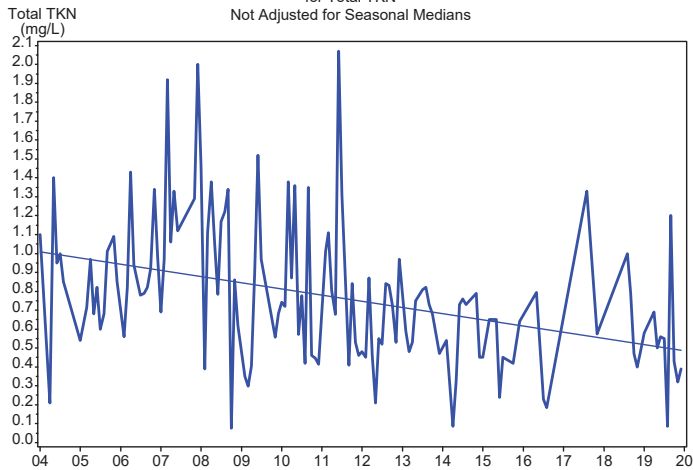
S_21FLPBCH18C Trends Appendix
 Autocorrelation Statistics for Total NO3+NO2
 Adjusted for Seasonal Median and Detrended

Lagged Total NO3+NO2	Correlation	Standard Error	Upper Limit	Lower Limit
0	1.000	0.072	0.144	-0.144
1	0.070	0.125	0.250	-0.250
2	0.102	0.125	0.250	-0.250
3	-0.054	0.126	0.251	-0.251
4	-0.081	0.126	0.252	-0.252
5	0.004	0.126	0.252	-0.252
6	0.243	0.126	0.252	-0.252
7	-0.017	0.128	0.257	-0.257
8	0.253	0.128	0.257	-0.257
9	-0.195	0.131	0.262	-0.262
10	0.025	0.133	0.265	-0.265
11	-0.041	0.133	0.265	-0.265
12	-0.042	0.133	0.265	-0.265
13	0.303	0.133	0.265	-0.265
14	0.272	0.136	0.272	-0.272
15	0.561	0.139	0.278	-0.278

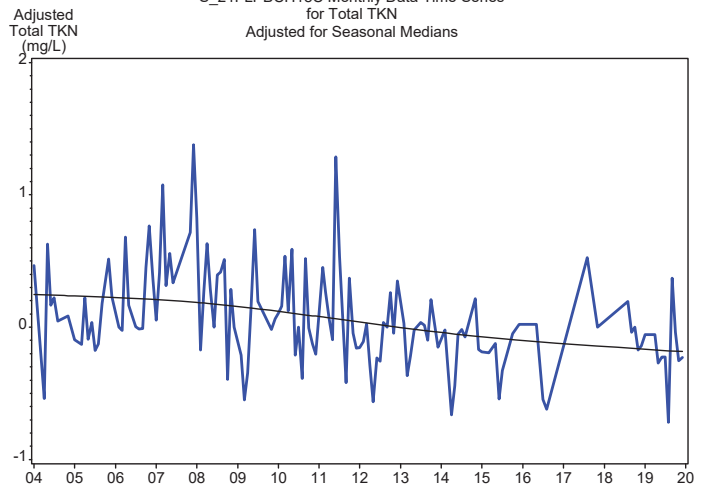
S_21FLPBCH18C Trends Appendix
 Correlogram for Total NO3+NO2
 Adjusted for Seasonal Median and Detrended



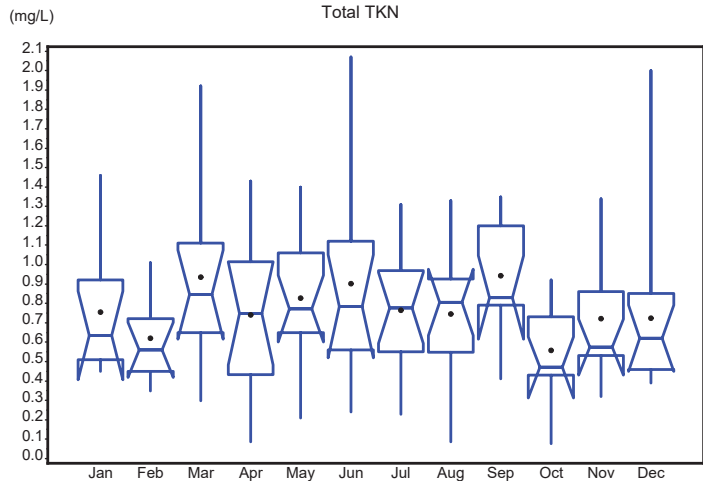
S_21FLPBCH18C Trends
S_21FLPBCH18C Monthly Data Time Series
for Total TKN
Not Adjusted for Seasonal Medians



S_21FLPBCH18C Trends
S_21FLPBCH18C Monthly Data Time Series
for Total TKN
Adjusted for Seasonal Medians



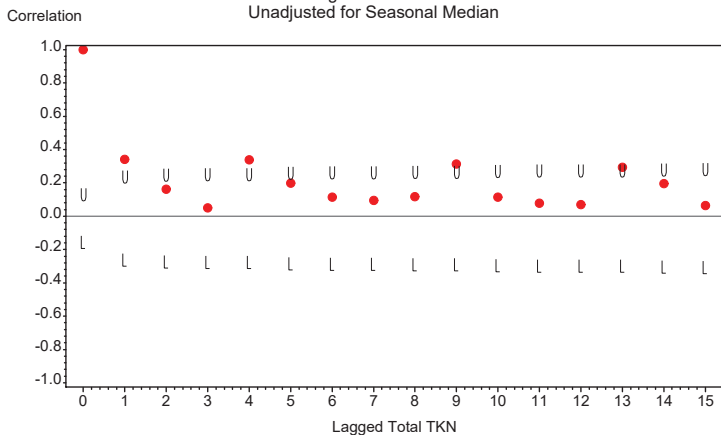
S_21FLPBCH18C Trends Appendix
Seasonal Univariate Statistics
Total TKN



S_21FLPBCH18C Trends Appendix
Autocorrelation Statistics for Total TKN
Unadjusted for Seasonal Medians

Lagged Total TKN	Correlation	Standard Error	Upper Limit	Lower Limit
0	1.000	0.072	0.144	-0.144
1	0.342	0.125	0.250	-0.250
2	0.163	0.130	0.260	-0.260
3	0.050	0.131	0.262	-0.262
4	0.339	0.131	0.262	-0.262
5	0.198	0.135	0.271	-0.271
6	0.113	0.137	0.274	-0.274
7	0.096	0.137	0.275	-0.275
8	0.117	0.138	0.276	-0.276
9	0.314	0.138	0.277	-0.277
10	0.115	0.142	0.284	-0.284
11	0.077	0.142	0.285	-0.285
12	0.070	0.143	0.285	-0.285
13	0.293	0.143	0.286	-0.286
14	0.195	0.146	0.292	-0.292
15	0.064	0.147	0.295	-0.295

S_21FLPBCH18C Trends Appendix
Correlogram for Total TKN
Unadjusted for Seasonal Median



U=Upper 95% Confidence Limit L=Lower 95% Confidence Limit
Zero Reference Line Shown

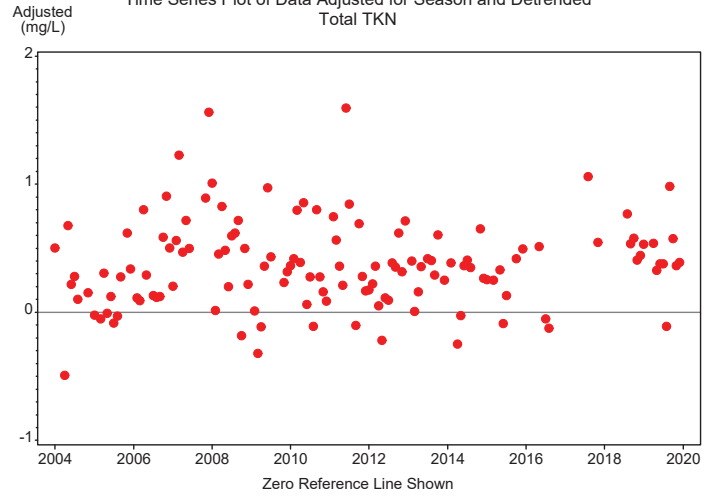
S_21FLPBCH18C Trends Appendix
Seasonal Kendall Tau Trend Test Statistics
Total TKN
Unadjusted for Seasonal Medians

Tau Statistic	P-Value Without Serial Correlation	P-Value With Serial Correlation	Slope Statistic
-0.339	0	.003	-0.037

S_21FLPBCH18C Trends Appendix
 Seasonal Kendall Tau Trend Test Statistics
 Total TKN
 Adjusted for Seasonal Medians

Tau Statistic	P-Value Without Serial Correlation	P-Value With Serial Correlation	Slope Statistic
-0.33911	.000000615	.00271934	-0.036667

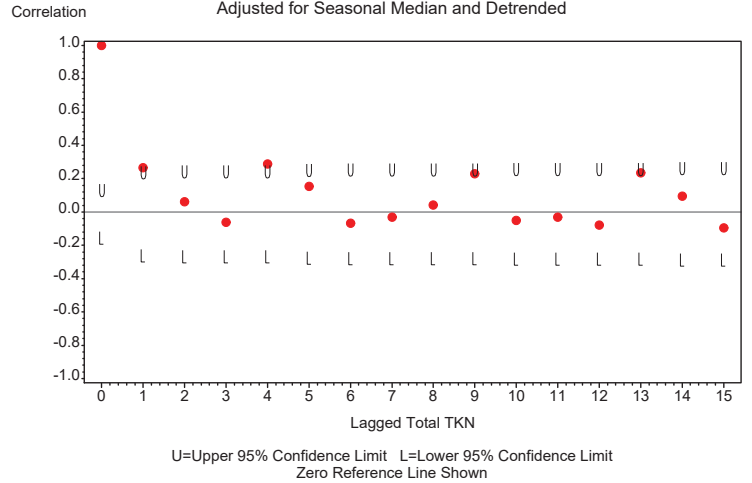
S_21FLPBCH18C Trends Appendix
 Time Series Plot of Data Adjusted for Season and Detrended
 Total TKN



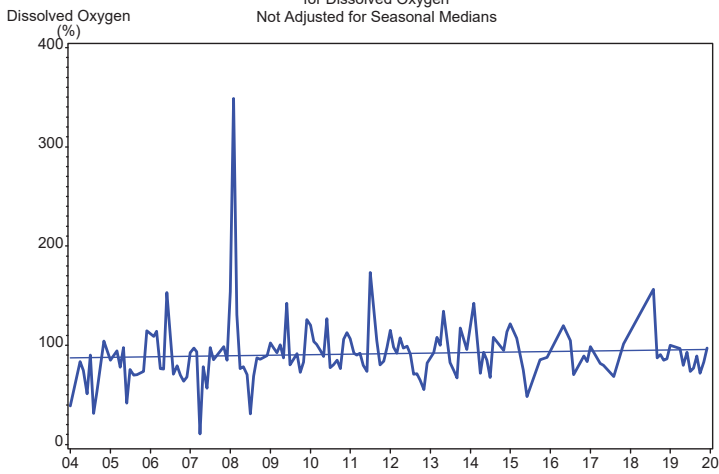
S_21FLPBCH18C Trends Appendix
 Autocorrelation Statistics for Total TKN
 Adjusted for Seasonal Median and Detrended

Lagged Total TKN	Correlation	Standard Error	Upper Limit	Lower Limit
0	1.000	0.072	0.144	-0.144
1	0.266	0.125	0.250	-0.250
2	0.060	0.128	0.256	-0.256
3	-0.061	0.128	0.256	-0.256
4	0.289	0.128	0.256	-0.256
5	0.153	0.132	0.263	-0.263
6	-0.068	0.132	0.265	-0.265
7	-0.030	0.133	0.265	-0.265
8	0.041	0.133	0.265	-0.265
9	0.229	0.133	0.266	-0.266
10	-0.051	0.135	0.270	-0.270
11	-0.031	0.135	0.270	-0.270
12	-0.079	0.135	0.270	-0.270
13	0.236	0.135	0.270	-0.270
14	0.094	0.137	0.275	-0.275
15	-0.095	0.138	0.275	-0.275

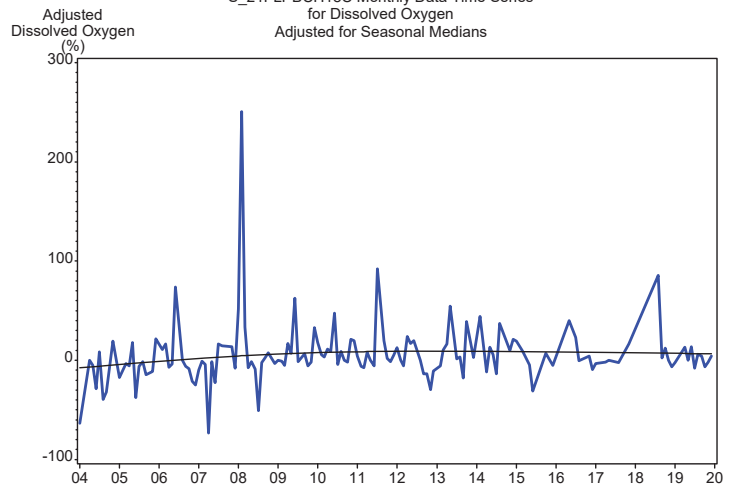
S_21FLPBCH18C Trends Appendix
 Correlogram for Total TKN
 Adjusted for Seasonal Median and Detrended



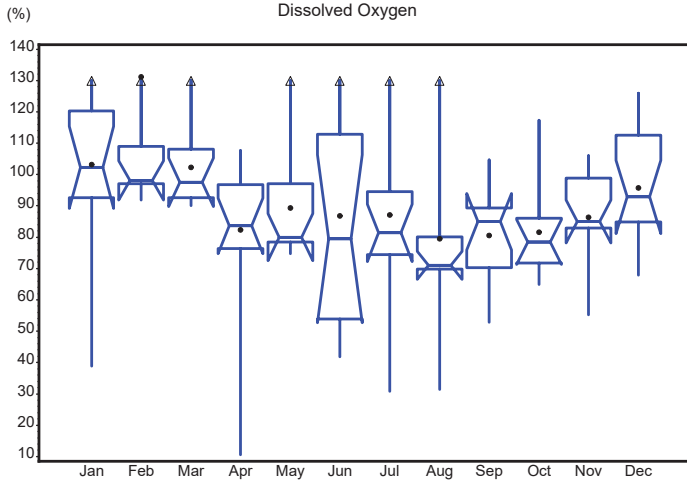
S_21FLPBCH18C Trends
S_21FLPBCH18C Monthly Data Time Series
for Dissolved Oxygen
Not Adjusted for Seasonal Medians



S_21FLPBCH18C Trends
S_21FLPBCH18C Monthly Data Time Series
for Dissolved Oxygen
Adjusted for Seasonal Medians



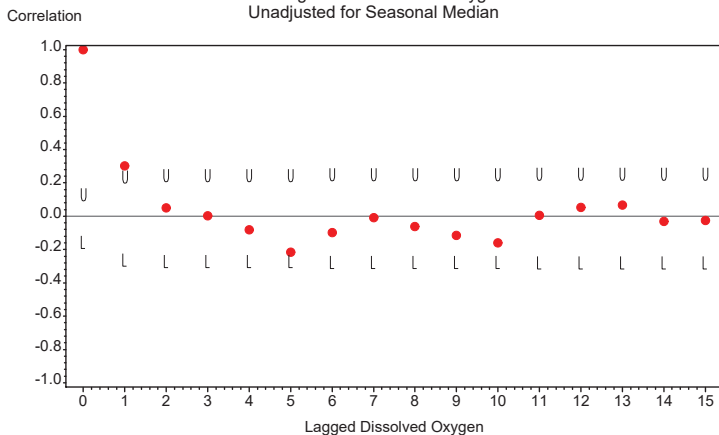
S_21FLPBCH18C Trends Appendix
Seasonal Univariate Statistics
Dissolved Oxygen



S_21FLPBCH18C Trends Appendix
Autocorrelation Statistics for Dissolved Oxygen
Unadjusted for Seasonal Medians

Lagged Dissolved Oxygen	Correlation	Standard Error	Upper Limit	Lower Limit
0	1.000	0.072	0.144	-0.144
1	0.303	0.125	0.250	-0.250
2	0.051	0.129	0.258	-0.258
3	0.002	0.129	0.258	-0.258
4	-0.082	0.129	0.258	-0.258
5	-0.216	0.129	0.258	-0.258
6	-0.099	0.131	0.262	-0.262
7	-0.010	0.131	0.263	-0.263
8	-0.063	0.131	0.263	-0.263
9	-0.114	0.132	0.263	-0.263
10	-0.160	0.132	0.264	-0.264
11	0.005	0.133	0.266	-0.266
12	0.054	0.133	0.266	-0.266
13	0.068	0.133	0.266	-0.266
14	-0.030	0.133	0.267	-0.267
15	-0.026	0.133	0.267	-0.267

S_21FLPBCH18C Trends Appendix
Correlogram for Dissolved Oxygen
Unadjusted for Seasonal Median



U=Upper 95% Confidence Limit L=Lower 95% Confidence Limit
Zero Reference Line Shown

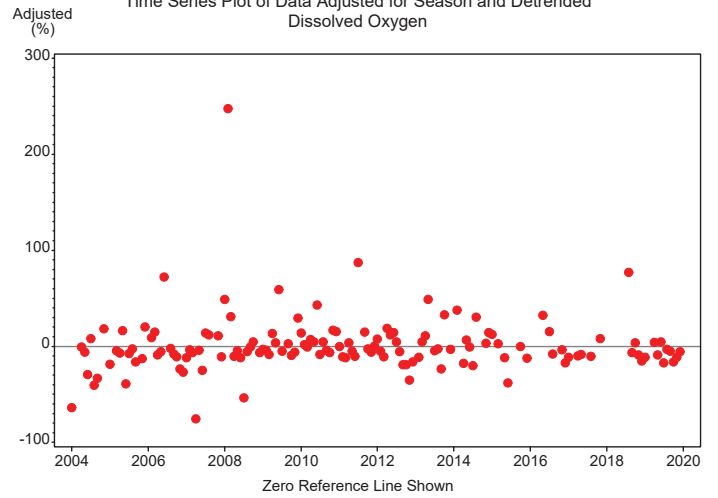
S_21FLPBCH18C Trends Appendix
Seasonal Kendall Tau Trend Test Statistics
Dissolved Oxygen
Unadjusted for Seasonal Medians

Tau Statistic	P-Value Without Serial Correlation	P-Value With Serial Correlation	Slope Statistic
0.127	0.052	0.068	0.564

S_21FLPBCH18C Trends Appendix
 Seasonal Kendall Tau Trend Test Statistics
 Dissolved Oxygen
 Adjusted for Seasonal Medians

Tau Statistic	P-Value Without Serial Correlation	P-Value With Serial Correlation	Slope Statistic
0.12657	0.051729	0.068241	0.56389

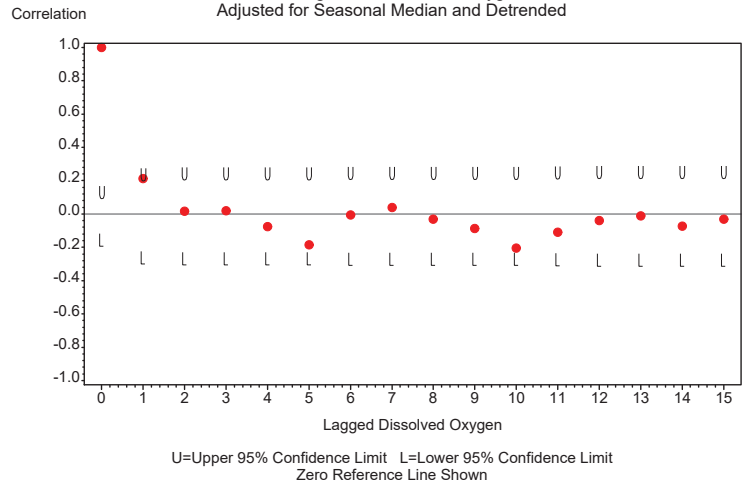
S_21FLPBCH18C Trends Appendix
 Time Series Plot of Data Adjusted for Season and Detrended
 Dissolved Oxygen



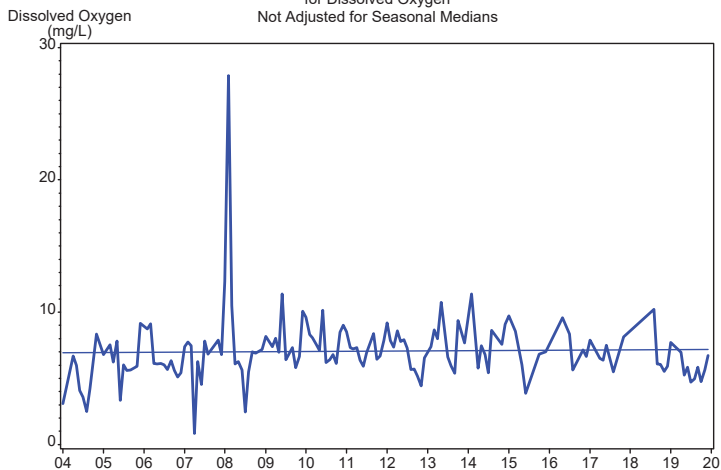
S_21FLPBCH18C Trends Appendix
 Autocorrelation Statistics for Dissolved Oxygen
 Adjusted for Seasonal Median and Detrended

Lagged Dissolved Oxygen	Correlation	Standard Error	Upper Limit	Lower Limit
0	1.000	0.072	0.144	-0.144
1	0.213	0.125	0.250	-0.250
2	0.016	0.127	0.254	-0.254
3	0.018	0.127	0.254	-0.254
4	-0.075	0.127	0.254	-0.254
5	-0.184	0.127	0.254	-0.254
6	-0.005	0.129	0.257	-0.257
7	0.039	0.129	0.257	-0.257
8	-0.031	0.129	0.257	-0.257
9	-0.086	0.129	0.257	-0.257
10	-0.206	0.129	0.258	-0.258
11	-0.109	0.131	0.261	-0.261
12	-0.041	0.131	0.262	-0.262
13	-0.013	0.131	0.262	-0.262
14	-0.072	0.131	0.262	-0.262
15	-0.030	0.131	0.263	-0.263

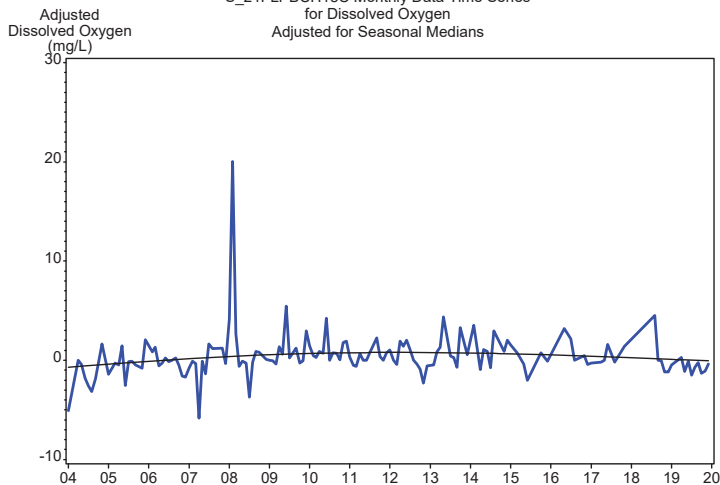
S_21FLPBCH18C Trends Appendix
 Correlogram for Dissolved Oxygen
 Adjusted for Seasonal Median and Detrended



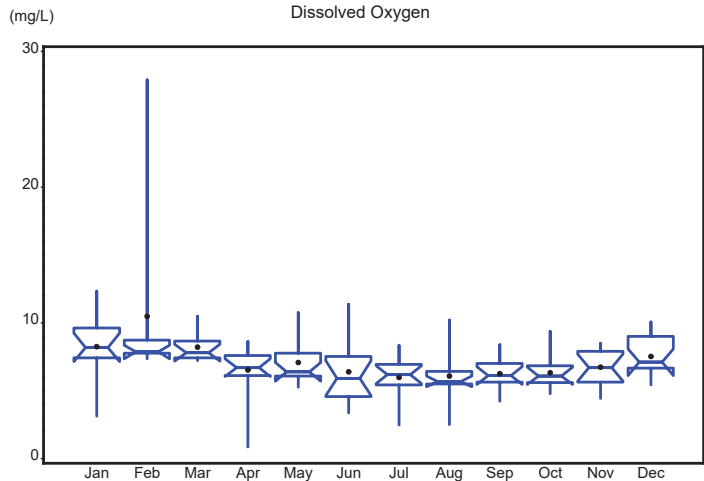
S_21FLPBCH18C Trends
S_21FLPBCH18C Monthly Data Time Series
for Dissolved Oxygen
Not Adjusted for Seasonal Medians



S_21FLPBCH18C Trends
S_21FLPBCH18C Monthly Data Time Series
for Dissolved Oxygen
Adjusted for Seasonal Medians



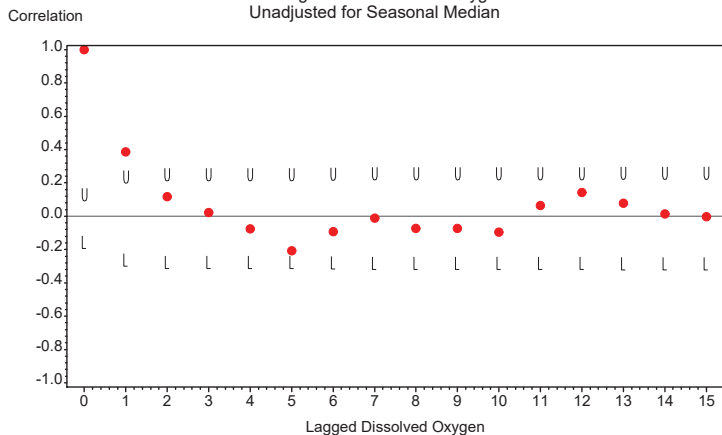
S_21FLPBCH18C Trends Appendix
Seasonal Univariate Statistics
Dissolved Oxygen



S_21FLPBCH18C Trends Appendix
Autocorrelation Statistics for Dissolved Oxygen
Unadjusted for Seasonal Medians

Lagged Dissolved Oxygen	Correlation	Standard Error	Upper Limit	Lower Limit
0	1.000	0.072	0.144	-0.144
1	0.386	0.125	0.250	-0.250
2	0.118	0.131	0.262	-0.262
3	0.023	0.132	0.263	-0.263
4	-0.075	0.132	0.263	-0.263
5	-0.207	0.132	0.264	-0.264
6	-0.092	0.134	0.267	-0.267
7	-0.011	0.134	0.268	-0.268
8	-0.073	0.134	0.268	-0.268
9	-0.074	0.134	0.268	-0.268
10	-0.095	0.134	0.269	-0.269
11	0.064	0.135	0.269	-0.269
12	0.141	0.135	0.270	-0.270
13	0.078	0.136	0.271	-0.271
14	0.013	0.136	0.272	-0.272
15	-0.004	0.136	0.272	-0.272

S_21FLPBCH18C Trends Appendix
Correlogram for Dissolved Oxygen
Unadjusted for Seasonal Median



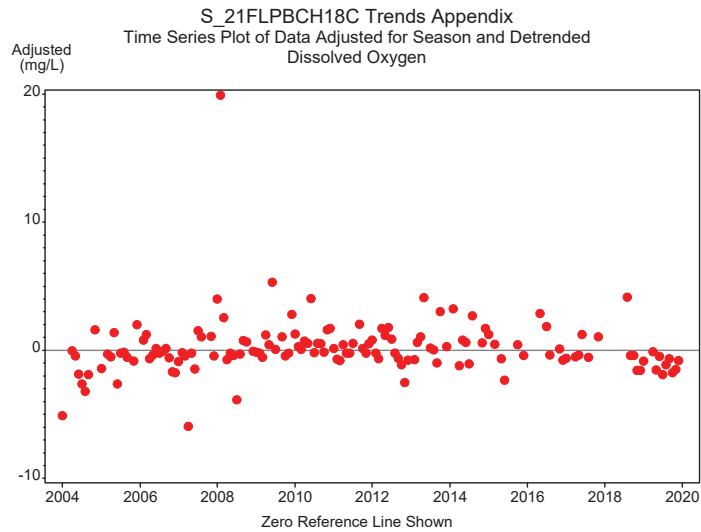
U=Upper 95% Confidence Limit L=Lower 95% Confidence Limit
Zero Reference Line Shown

S_21FLPBCH18C Trends Appendix
Seasonal Kendall Tau Trend Test Statistics
Dissolved Oxygen
Unadjusted for Seasonal Medians

Tau Statistic	P-Value Without Serial Correlation	P-Value With Serial Correlation	Slope Statistic
0.057	0.381	0.527	0.025

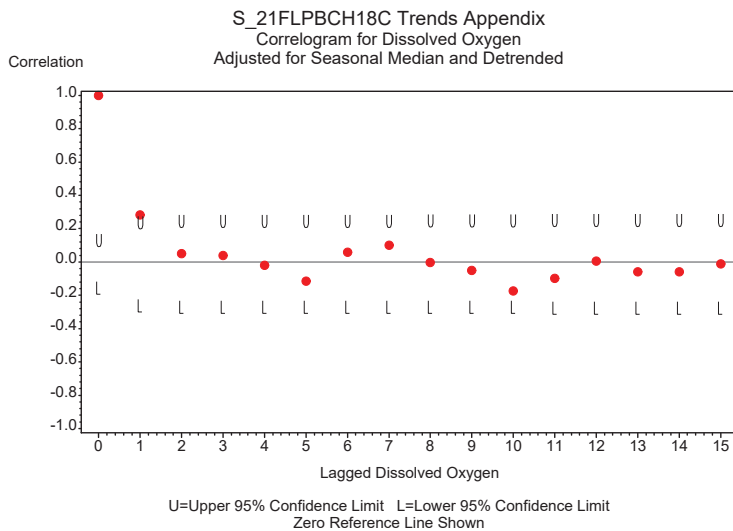
S_21FLPBCH18C Trends Appendix
 Seasonal Kendall Tau Trend Test Statistics
 Dissolved Oxygen
 Adjusted for Seasonal Medians

Tau Statistic	P-Value Without Serial Correlation	P-Value With Serial Correlation	Slope Statistic
0.057178	0.38076	0.52666	0.025

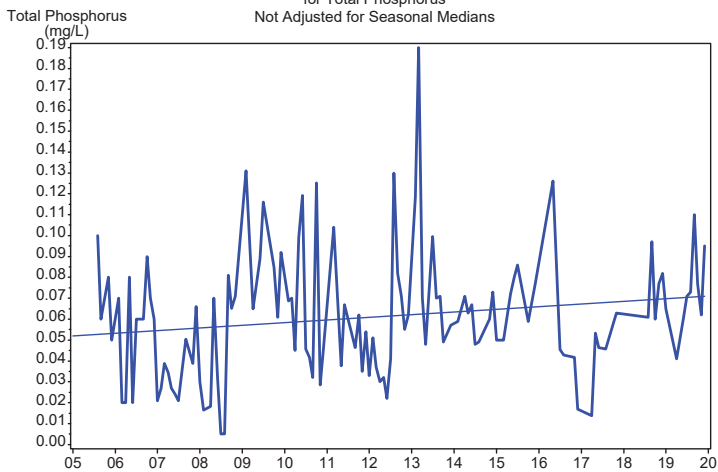


S_21FLPBCH18C Trends Appendix
 Autocorrelation Statistics for Dissolved Oxygen
 Adjusted for Seasonal Median and Detrended

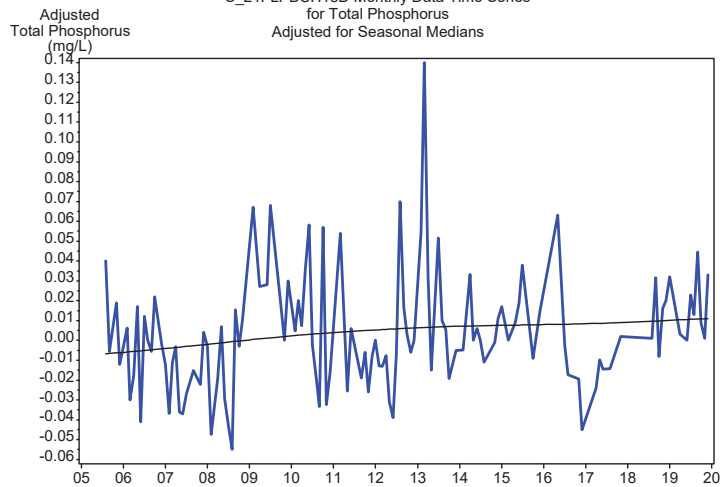
Lagged Dissolved Oxygen	Correlation	Standard Error	Upper Limit	Lower Limit
0	1.000	0.072	0.144	-0.144
1	0.283	0.125	0.250	-0.250
2	0.050	0.128	0.257	-0.257
3	0.038	0.128	0.257	-0.257
4	-0.020	0.128	0.257	-0.257
5	-0.116	0.128	0.257	-0.257
6	0.057	0.129	0.258	-0.258
7	0.099	0.129	0.258	-0.258
8	-0.002	0.130	0.259	-0.259
9	-0.050	0.130	0.259	-0.259
10	-0.174	0.130	0.259	-0.259
11	-0.098	0.131	0.262	-0.262
12	0.006	0.131	0.262	-0.262
13	-0.059	0.131	0.262	-0.262
14	-0.058	0.131	0.263	-0.263
15	-0.013	0.131	0.263	-0.263



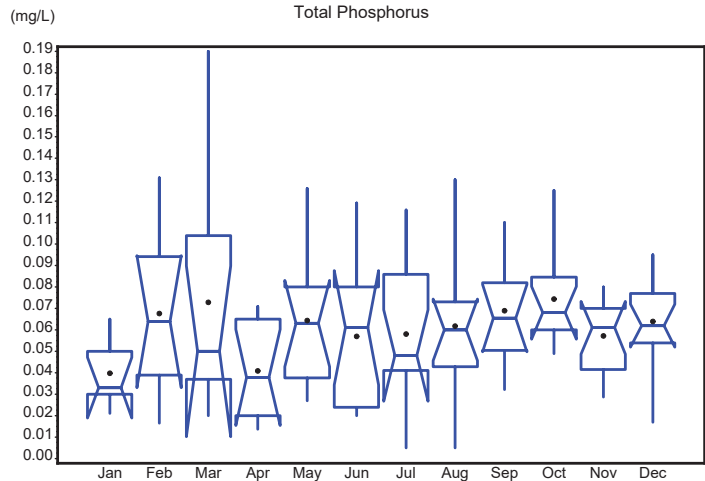
S_21FLPBCH18D Trends
S_21FLPBCH18D Monthly Data Time Series
for Total Phosphorus
Not Adjusted for Seasonal Medians



S_21FLPBCH18D Trends
S_21FLPBCH18D Monthly Data Time Series
for Total Phosphorus
Adjusted for Seasonal Medians



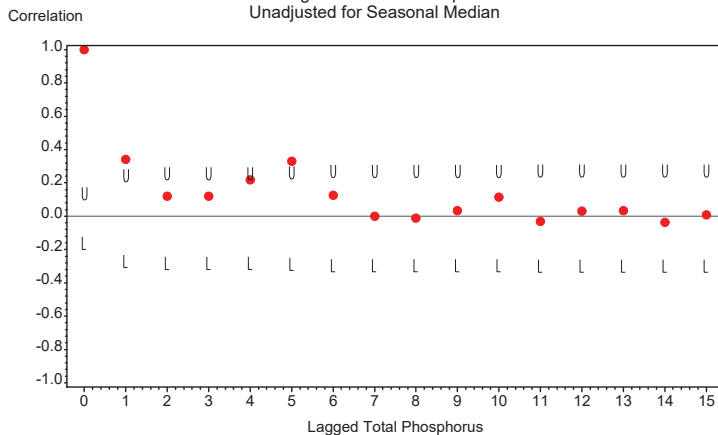
S_21FLPBCH18D Trends Appendix
Seasonal Univariate Statistics
Total Phosphorus



S_21FLPBCH18D Trends Appendix
Autocorrelation Statistics for Total Phosphorus
Unadjusted for Seasonal Medians

Lagged Total Phosphorus	Correlation	Standard Error	Upper Limit	Lower Limit
0	1.000	0.075	0.149	-0.149
1	0.340	0.129	0.258	-0.258
2	0.121	0.134	0.268	-0.268
3	0.121	0.135	0.269	-0.269
4	0.218	0.135	0.270	-0.270
5	0.331	0.137	0.274	-0.274
6	0.126	0.141	0.283	-0.283
7	0.000	0.142	0.284	-0.284
8	-0.012	0.142	0.284	-0.284
9	0.032	0.142	0.284	-0.284
10	0.114	0.142	0.284	-0.284
11	-0.030	0.143	0.285	-0.285
12	0.030	0.143	0.285	-0.285
13	0.034	0.143	0.285	-0.285
14	-0.036	0.143	0.286	-0.286
15	0.008	0.143	0.286	-0.286

S_21FLPBCH18D Trends Appendix
Correlogram for Total Phosphorus
Unadjusted for Seasonal Median



U=Upper 95% Confidence Limit L=Lower 95% Confidence Limit
Zero Reference Line Shown

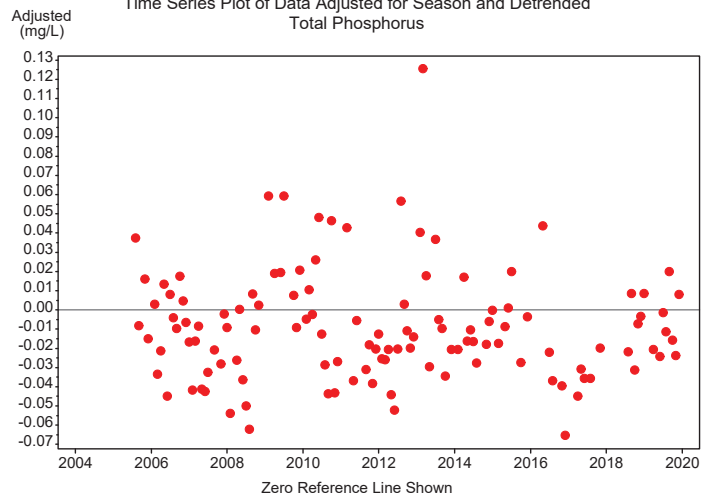
S_21FLPBCH18D Trends Appendix
Seasonal Kendall Tau Trend Test Statistics
Total Phosphorus
Unadjusted for Seasonal Medians

Tau Statistic	P-Value Without Serial Correlation	P-Value With Serial Correlation	Slope Statistic
0.163	0.025	0.118	.002

S_21FLPBCH18D Trends Appendix
 Seasonal Kendall Tau Trend Test Statistics
 Total Phosphorus
 Adjusted for Seasonal Medians

Tau Statistic	P-Value Without Serial Correlation	P-Value With Serial Correlation	Slope Statistic
0.16316	0.025472	0.11811	.00157143

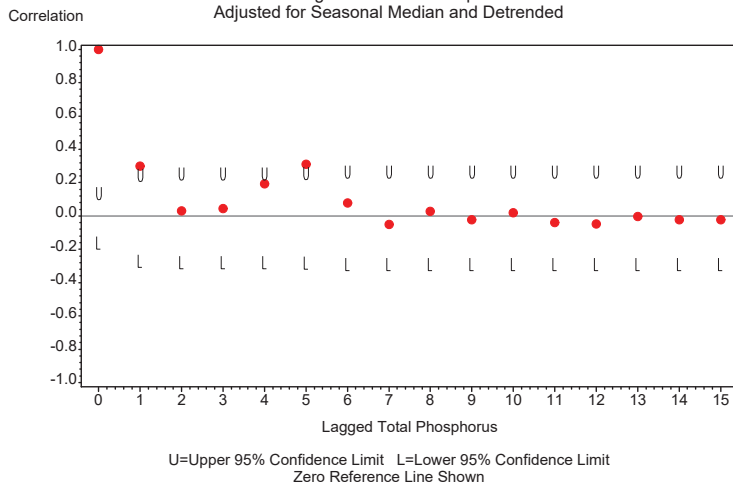
S_21FLPBCH18D Trends Appendix
 Time Series Plot of Data Adjusted for Season and Detrended
 Total Phosphorus



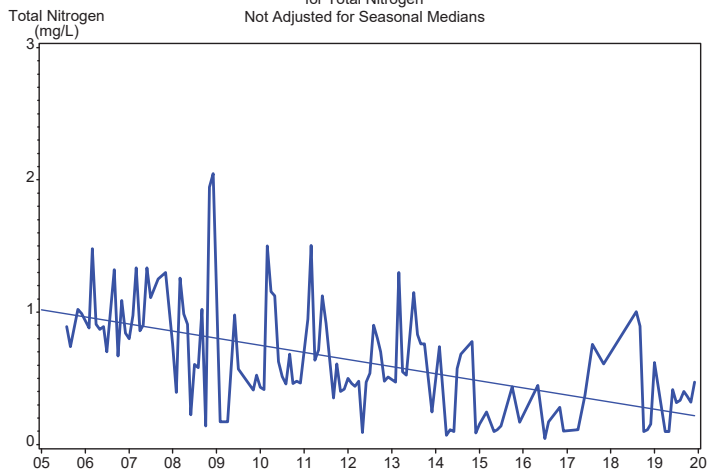
S_21FLPBCH18D Trends Appendix
 Autocorrelation Statistics for Total Phosphorus
 Adjusted for Seasonal Median and Detrended

Lagged Total Phosphorus	Correlation	Standard Error	Upper Limit	Lower Limit
0	1.000	0.075	0.149	-0.149
1	0.298	0.129	0.258	-0.258
2	-0.030	0.133	0.266	-0.266
3	0.043	0.133	0.266	-0.266
4	0.193	0.133	0.266	-0.266
5	0.311	0.135	0.269	-0.269
6	0.077	0.138	0.277	-0.277
7	-0.051	0.139	0.277	-0.277
8	0.028	0.139	0.278	-0.278
9	-0.024	0.139	0.278	-0.278
10	0.018	0.139	0.278	-0.278
11	-0.041	0.139	0.278	-0.278
12	-0.049	0.139	0.278	-0.278
13	-0.004	0.139	0.278	-0.278
14	-0.022	0.139	0.278	-0.278
15	-0.023	0.139	0.278	-0.278

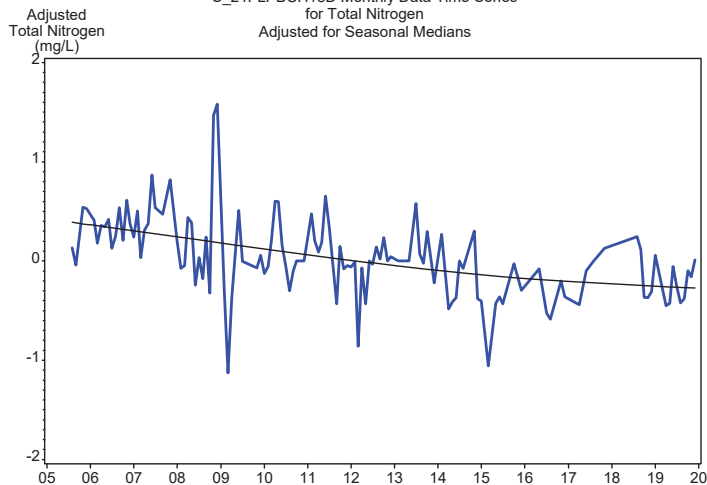
S_21FLPBCH18D Trends Appendix
 Correlogram for Total Phosphorus
 Adjusted for Seasonal Median and Detrended



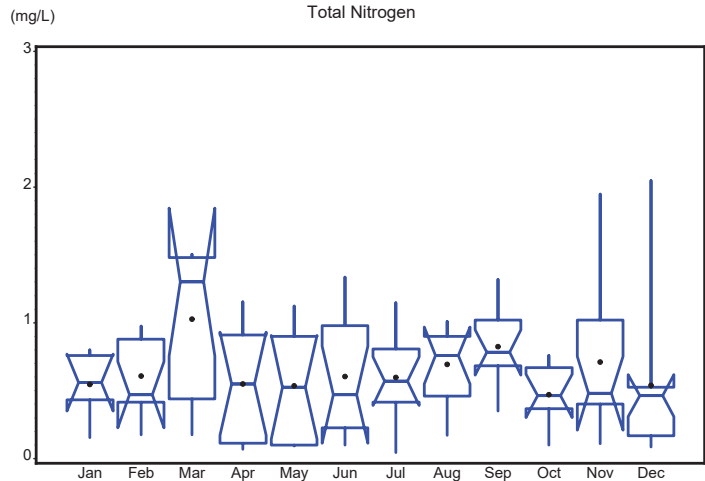
S_21FLPBCH18D Trends
S_21FLPBCH18D Monthly Data Time Series
for Total Nitrogen
Not Adjusted for Seasonal Medians



S_21FLPBCH18D Trends
S_21FLPBCH18D Monthly Data Time Series
for Total Nitrogen
Adjusted for Seasonal Medians



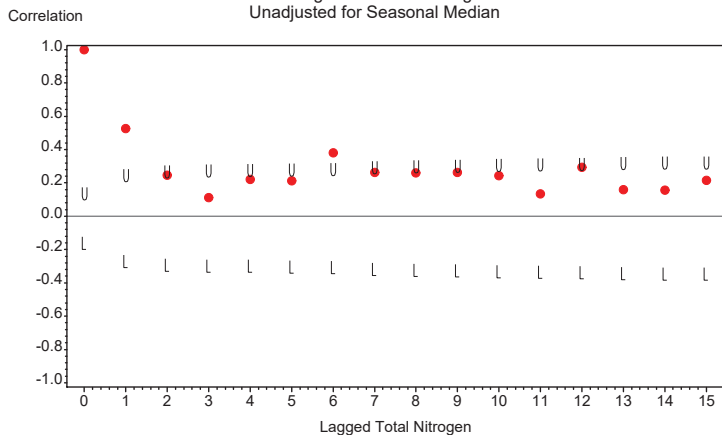
S_21FLPBCH18D Trends Appendix
Seasonal Univariate Statistics
Total Nitrogen



S_21FLPBCH18D Trends Appendix
Autocorrelation Statistics for Total Nitrogen
Unadjusted for Seasonal Medians

Lagged Total Nitrogen	Correlation	Standard Error	Upper Limit	Lower Limit
0	1.000	0.075	0.149	-0.149
1	0.525	0.129	0.258	-0.258
2	0.247	0.140	0.281	-0.281
3	0.111	0.143	0.286	-0.286
4	0.221	0.143	0.287	-0.287
5	0.212	0.145	0.290	-0.290
6	0.381	0.147	0.294	-0.294
7	0.262	0.152	0.305	-0.305
8	0.260	0.155	0.310	-0.310
9	0.264	0.157	0.314	-0.314
10	0.244	0.160	0.319	-0.319
11	0.134	0.162	0.323	-0.323
12	0.294	0.162	0.325	-0.325
13	0.160	0.165	0.331	-0.331
14	0.156	0.166	0.332	-0.332
15	0.216	0.167	0.334	-0.334

S_21FLPBCH18D Trends Appendix
Correlogram for Total Nitrogen
Unadjusted for Seasonal Median



U=Upper 95% Confidence Limit L=Lower 95% Confidence Limit
Zero Reference Line Shown

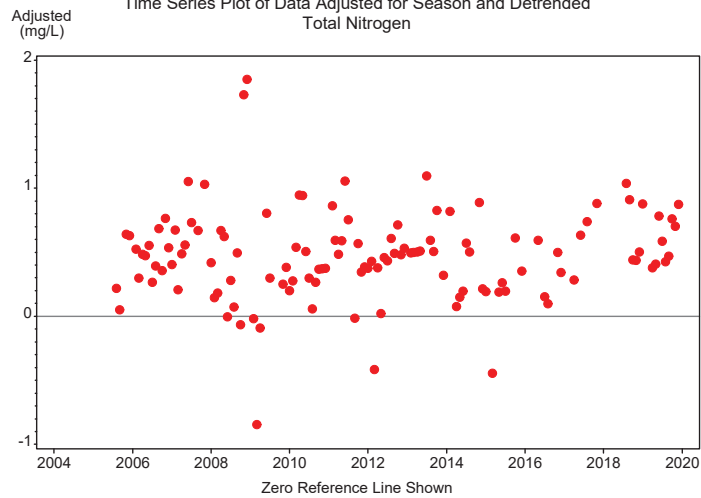
S_21FLPBCH18D Trends Appendix
Seasonal Kendall Tau Trend Test Statistics
Total Nitrogen
Unadjusted for Seasonal Medians

Tau Statistic	P-Value Without Serial Correlation	P-Value With Serial Correlation	Slope Statistic
-0.395	0	.002	-0.054

S_21FLPBCH18D Trends Appendix
 Seasonal Kendall Tau Trend Test Statistics
 Total Nitrogen
 Adjusted for Seasonal Medians

Tau Statistic	P-Value Without Serial Correlation	P-Value With Serial Correlation	Slope Statistic
-0.39672	2.1571E-8	.00223729	-0.0544

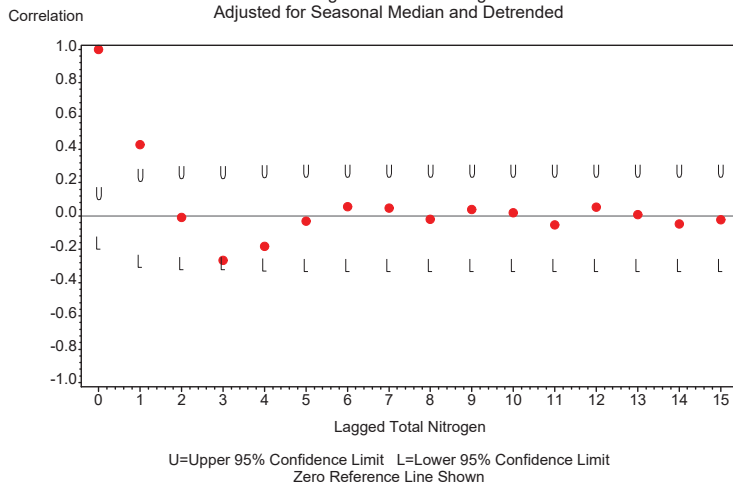
S_21FLPBCH18D Trends Appendix
 Time Series Plot of Data Adjusted for Season and Detrended
 Total Nitrogen



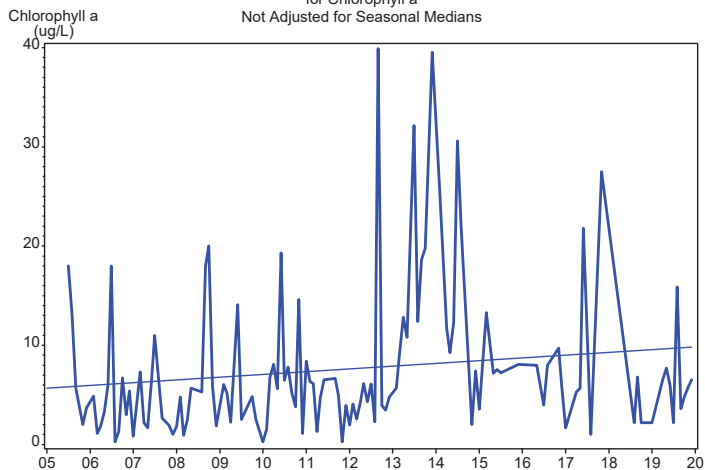
S_21FLPBCH18D Trends Appendix
 Autocorrelation Statistics for Total Nitrogen
 Adjusted for Seasonal Median and Detrended

Lagged Total Nitrogen	Correlation	Standard Error	Upper Limit	Lower Limit
0	1.000	0.075	0.149	-0.149
1	0.427	0.129	0.258	-0.258
2	-0.009	0.137	0.273	-0.273
3	-0.266	0.137	0.273	-0.273
4	-0.183	0.140	0.279	-0.279
5	-0.032	0.141	0.282	-0.282
6	0.055	0.141	0.282	-0.282
7	0.048	0.141	0.282	-0.282
8	-0.019	0.141	0.282	-0.282
9	0.039	0.141	0.282	-0.282
10	0.020	0.141	0.282	-0.282
11	-0.055	0.141	0.282	-0.282
12	0.054	0.141	0.283	-0.283
13	0.007	0.141	0.283	-0.283
14	-0.047	0.141	0.283	-0.283
15	-0.022	0.142	0.283	-0.283

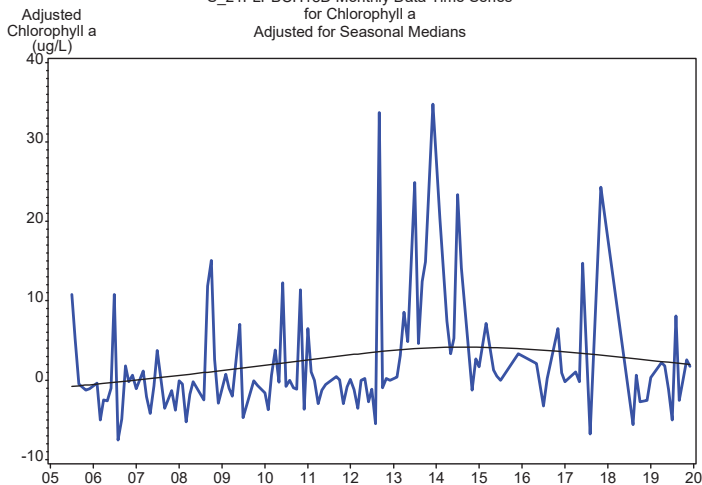
S_21FLPBCH18D Trends Appendix
 Correlogram for Total Nitrogen
 Adjusted for Seasonal Median and Detrended



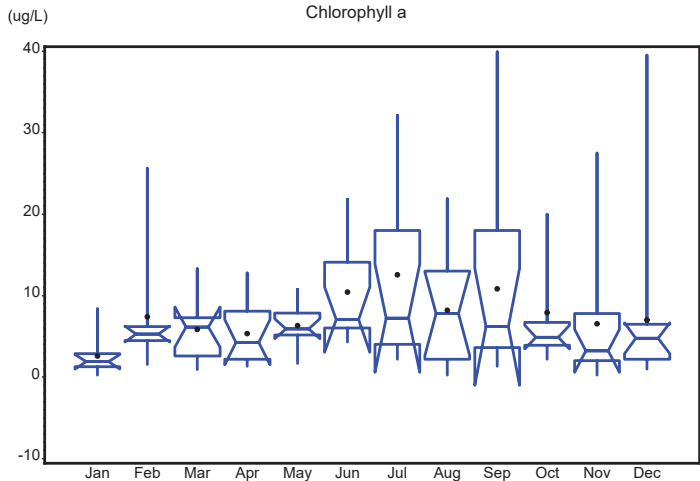
S_21FLPBCH18D Trends
S_21FLPBCH18D Monthly Data Time Series
for Chlorophyll a
Not Adjusted for Seasonal Medians



S_21FLPBCH18D Trends
S_21FLPBCH18D Monthly Data Time Series
for Chlorophyll a
Adjusted for Seasonal Medians



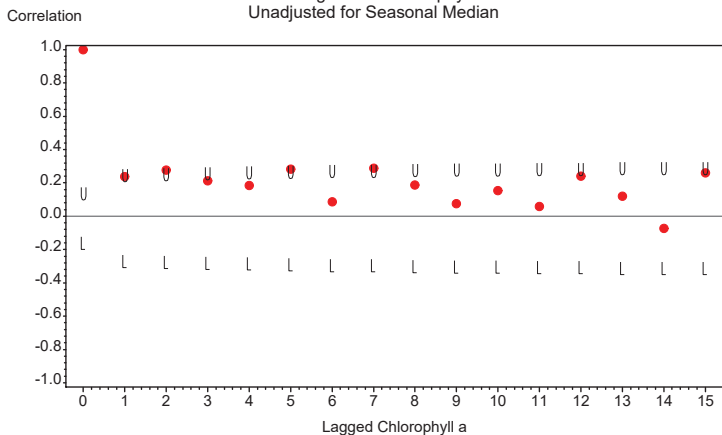
S_21FLPBCH18D Trends Appendix
Seasonal Univariate Statistics
Chlorophyll a



S_21FLPBCH18D Trends Appendix
Autocorrelation Statistics for Chlorophyll a
Unadjusted for Seasonal Medians

Lagged Chlorophyll a	Correlation	Standard Error	Upper Limit	Lower Limit
0	1.000	0.075	0.149	-0.149
1	0.237	0.129	0.258	-0.258
2	0.277	0.131	0.263	-0.263
3	0.211	0.135	0.269	-0.269
4	0.184	0.137	0.273	-0.273
5	0.283	0.138	0.276	-0.276
6	0.086	0.141	0.282	-0.282
7	0.289	0.141	0.283	-0.283
8	0.186	0.145	0.289	-0.289
9	0.074	0.146	0.292	-0.292
10	0.154	0.146	0.292	-0.292
11	0.058	0.147	0.294	-0.294
12	0.240	0.147	0.294	-0.294
13	0.121	0.149	0.299	-0.299
14	-0.073	0.150	0.300	-0.300
15	0.260	0.150	0.300	-0.300

S_21FLPBCH18D Trends Appendix
Correlogram for Chlorophyll a
Unadjusted for Seasonal Median



U=Upper 95% Confidence Limit L=Lower 95% Confidence Limit
Zero Reference Line Shown

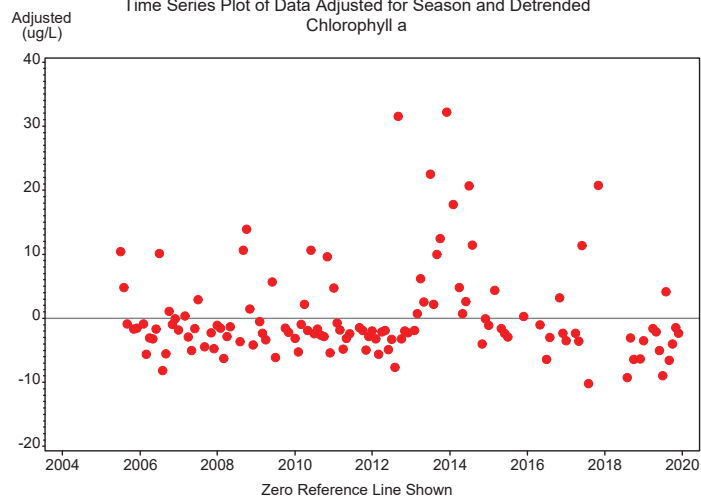
S_21FLPBCH18D Trends Appendix
Seasonal Kendall Tau Trend Test Statistics
Chlorophyll a
Unadjusted for Seasonal Medians

Tau Statistic	P-Value Without Serial Correlation	P-Value With Serial Correlation	Slope Statistic
0.224	.002	0.051	0.254

S_21FLPBCH18D Trends Appendix
 Seasonal Kendall Tau Trend Test Statistics
 Chlorophyll a
 Adjusted for Seasonal Medians

Tau Statistic	P-Value Without Serial Correlation	P-Value With Serial Correlation	Slope Statistic
0.22428	.00161099	0.050841	0.25375

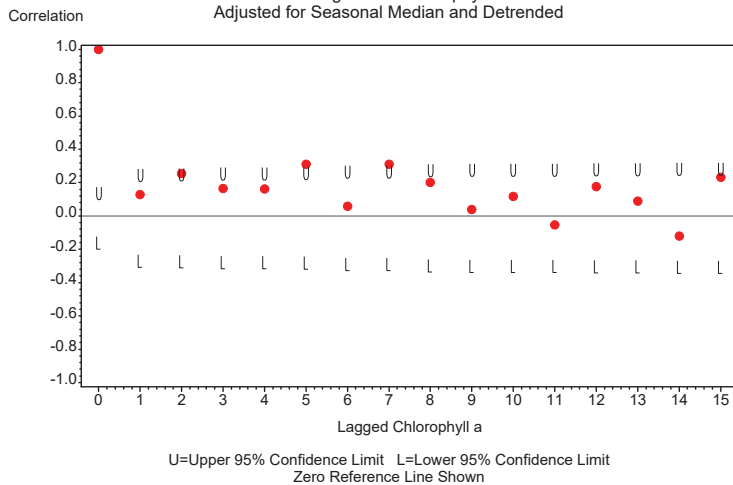
S_21FLPBCH18D Trends Appendix
 Time Series Plot of Data Adjusted for Season and Detrended
 Chlorophyll a



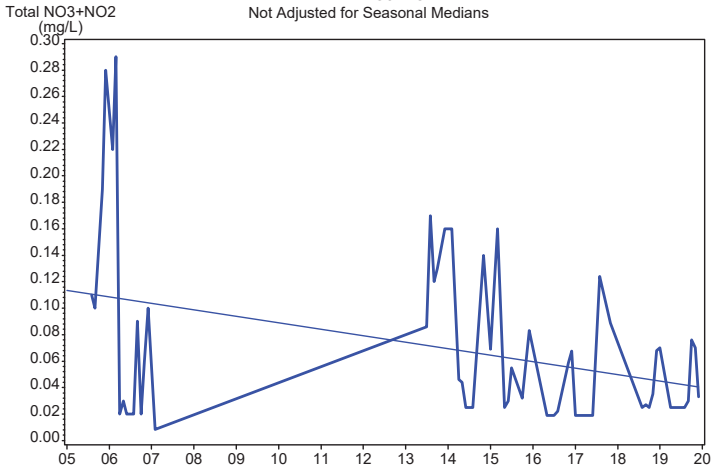
S_21FLPBCH18D Trends Appendix
 Autocorrelation Statistics for Chlorophyll a
 Adjusted for Seasonal Median and Detrended

Lagged Chlorophyll a	Correlation	Standard Error	Upper Limit	Lower Limit
0	1.000	0.075	0.149	-0.149
1	0.129	0.129	0.258	-0.258
2	0.255	0.130	0.260	-0.260
3	0.166	0.133	0.265	-0.265
4	0.162	0.134	0.267	-0.267
5	0.309	0.135	0.270	-0.270
6	0.059	0.139	0.277	-0.277
7	0.309	0.139	0.278	-0.278
8	0.200	0.143	0.285	-0.285
9	0.039	0.144	0.288	-0.288
10	0.117	0.144	0.288	-0.288
11	-0.054	0.145	0.289	-0.289
12	0.177	0.145	0.290	-0.290
13	0.088	0.146	0.292	-0.292
14	-0.122	0.146	0.293	-0.293
15	0.231	0.147	0.294	-0.294

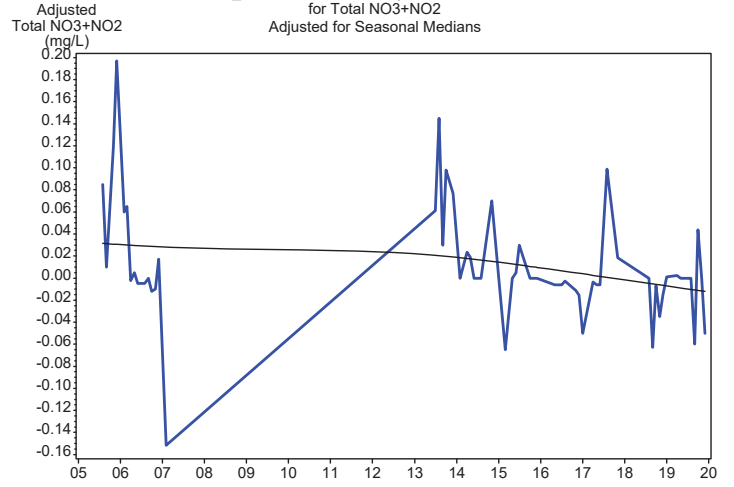
S_21FLPBCH18D Trends Appendix
 Correlogram for Chlorophyll a
 Adjusted for Seasonal Median and Detrended



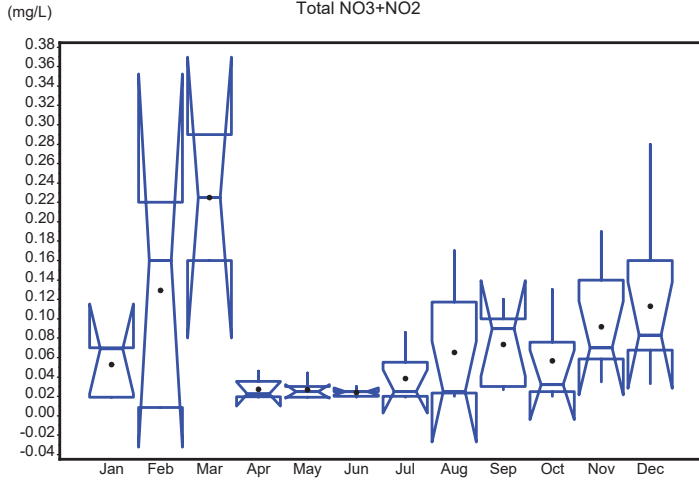
S_21FLPBCH18D Trends
S_21FLPBCH18D Monthly Data Time Series
for Total NO3+NO2
Not Adjusted for Seasonal Medians



S_21FLPBCH18D Trends
S_21FLPBCH18D Monthly Data Time Series
for Total NO3+NO2
Adjusted for Seasonal Medians



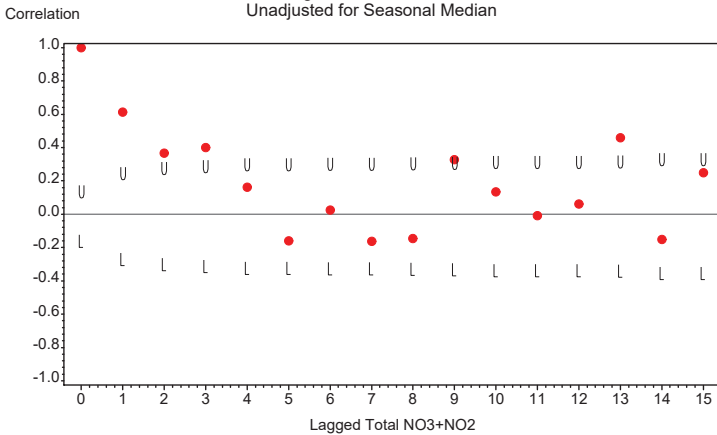
S_21FLPBCH18D Trends Appendix
Seasonal Univariate Statistics
Total NO3+NO2



S_21FLPBCH18D Trends Appendix
Autocorrelation Statistics for Total NO3+NO2
Unadjusted for Seasonal Medians

Lagged Total NO3+NO2	Correlation	Standard Error	Upper Limit	Lower Limit
0	1.000	0.075	0.149	-0.149
1	0.613	0.129	0.258	-0.258
2	0.365	0.144	0.289	-0.289
3	0.401	0.149	0.299	-0.299
4	0.163	0.155	0.311	-0.311
5	-0.161	0.156	0.312	-0.312
6	0.026	0.157	0.314	-0.314
7	-0.164	0.157	0.314	-0.314
8	-0.146	0.158	0.316	-0.316
9	0.327	0.159	0.318	-0.318
10	0.133	0.163	0.325	-0.325
11	-0.010	0.163	0.326	-0.326
12	0.062	0.163	0.326	-0.326
13	0.458	0.163	0.327	-0.327
14	-0.151	0.170	0.341	-0.341
15	0.249	0.171	0.342	-0.342

S_21FLPBCH18D Trends Appendix
Correlogram for Total NO3+NO2
Unadjusted for Seasonal Median



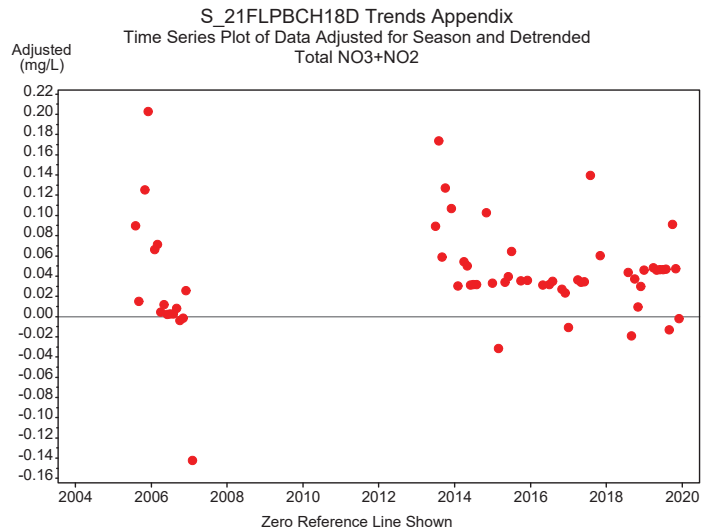
U=Upper 95% Confidence Limit L=Lower 95% Confidence Limit
Zero Reference Line Shown

S_21FLPBCH18D Trends Appendix
Seasonal Kendall Tau Trend Test Statistics
Total NO3+NO2
Unadjusted for Seasonal Medians

Tau Statistic	P-Value Without Serial Correlation	P-Value With Serial Correlation	Slope Statistic
-0.273	0.021	0.16	-.003

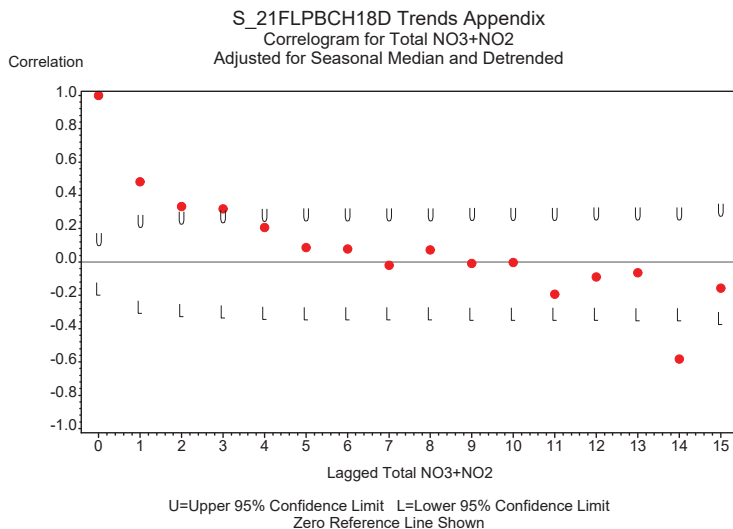
S_21FLPBCH18D Trends Appendix
 Seasonal Kendall Tau Trend Test Statistics
 Total NO3+NO2
 Adjusted for Seasonal Medians

Tau Statistic	P-Value Without Serial Correlation	P-Value With Serial Correlation	Slope Statistic
-0.27273	0.020509	0.16007	-.003

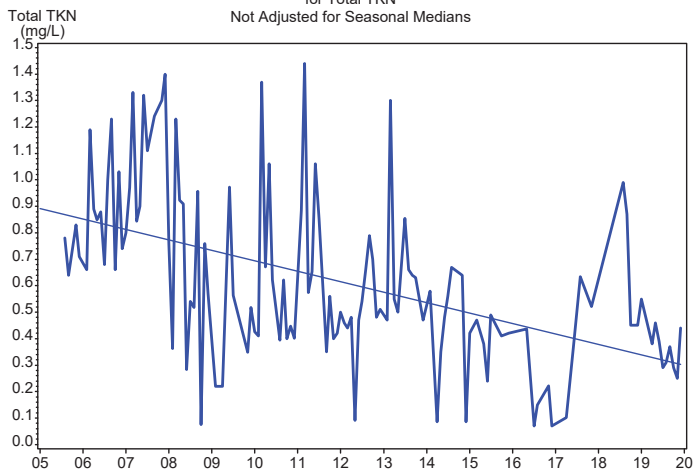


S_21FLPBCH18D Trends Appendix
 Autocorrelation Statistics for Total NO3+NO2
 Adjusted for Seasonal Median and Detrended

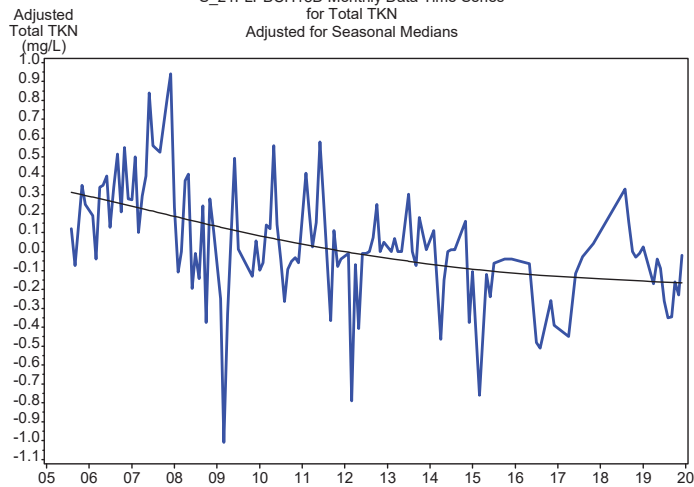
Lagged Total NO3+NO2	Correlation	Standard Error	Upper Limit	Lower Limit
0	1.000	0.075	0.149	-0.149
1	0.480	0.129	0.258	-0.258
2	0.333	0.139	0.277	-0.277
3	0.319	0.143	0.286	-0.286
4	0.208	0.147	0.294	-0.294
5	0.085	0.149	0.297	-0.297
6	0.078	0.149	0.298	-0.298
7	-0.021	0.149	0.298	-0.298
8	0.072	0.149	0.298	-0.298
9	-0.008	0.149	0.299	-0.299
10	-0.003	0.149	0.299	-0.299
11	-0.194	0.149	0.299	-0.299
12	-0.091	0.151	0.301	-0.301
13	-0.064	0.151	0.302	-0.302
14	-0.583	0.151	0.302	-0.302
15	-0.158	0.163	0.326	-0.326



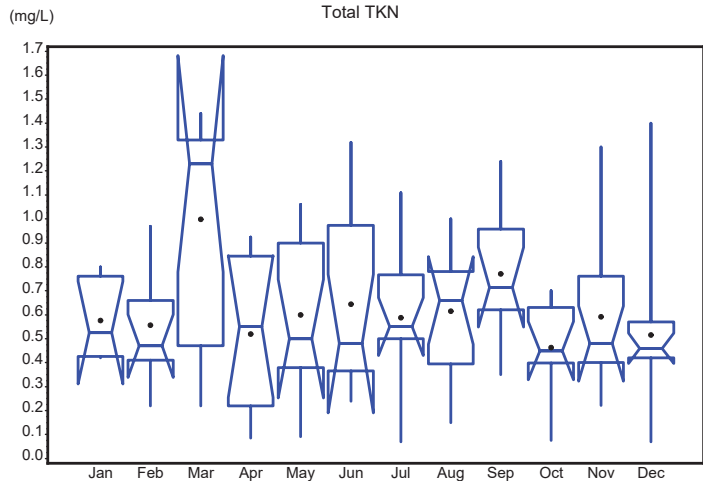
S_21FLPBCH18D Trends
S_21FLPBCH18D Monthly Data Time Series
for Total TKN
Not Adjusted for Seasonal Medians



S_21FLPBCH18D Trends
S_21FLPBCH18D Monthly Data Time Series
for Total TKN
Adjusted for Seasonal Medians



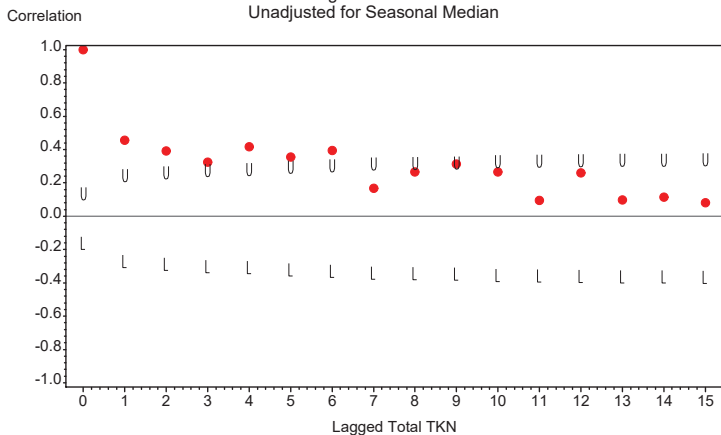
S_21FLPBCH18D Trends Appendix
Seasonal Univariate Statistics
Total TKN



S_21FLPBCH18D Trends Appendix
Autocorrelation Statistics for Total TKN
Unadjusted for Seasonal Medians

Lagged Total TKN	Correlation	Standard Error	Upper Limit	Lower Limit
0	1.000	0.075	0.149	-0.149
1	0.455	0.129	0.258	-0.258
2	0.391	0.138	0.275	-0.275
3	0.323	0.144	0.288	-0.288
4	0.417	0.148	0.295	-0.295
5	0.355	0.154	0.308	-0.308
6	0.394	0.159	0.317	-0.317
7	0.167	0.164	0.328	-0.328
8	0.266	0.165	0.330	-0.330
9	0.313	0.167	0.334	-0.334
10	0.265	0.170	0.341	-0.341
11	0.095	0.173	0.345	-0.345
12	0.259	0.173	0.346	-0.346
13	0.098	0.175	0.350	-0.350
14	0.113	0.175	0.351	-0.351
15	0.082	0.176	0.352	-0.352

S_21FLPBCH18D Trends Appendix
Correlogram for Total TKN
Unadjusted for Seasonal Median



U=Upper 95% Confidence Limit L=Lower 95% Confidence Limit
Zero Reference Line Shown

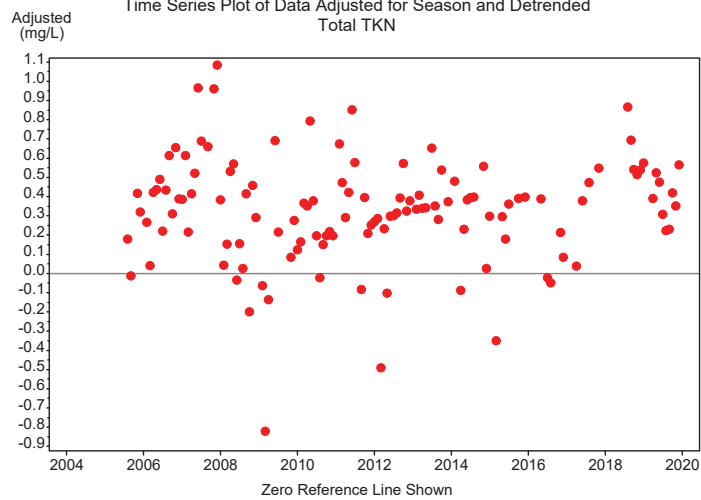
S_21FLPBCH18D Trends Appendix
Seasonal Kendall Tau Trend Test Statistics
Total TKN
Unadjusted for Seasonal Medians

Tau Statistic	P-Value Without Serial Correlation	P-Value With Serial Correlation	Slope Statistic
-0.366	0	.009	-0.037

S_21FLPBCH18D Trends Appendix
 Seasonal Kendall Tau Trend Test Statistics
 Total TKN
 Adjusted for Seasonal Medians

Tau Statistic	P-Value Without Serial Correlation	P-Value With Serial Correlation	Slope Statistic
-0.36597	.000000207	.00870284	-0.036714

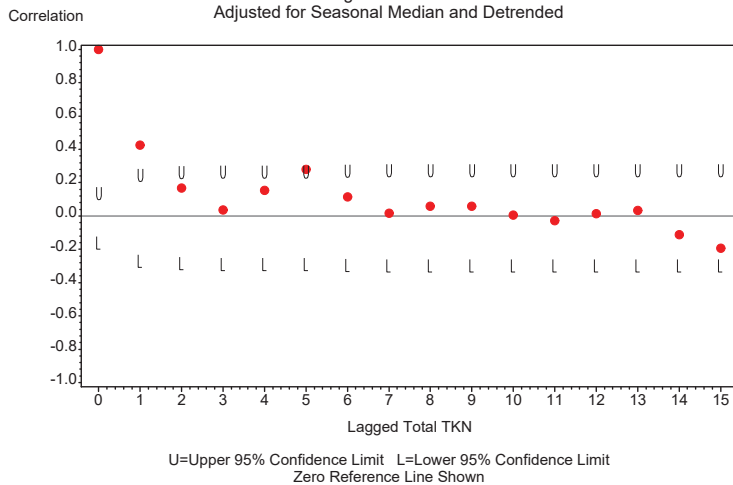
S_21FLPBCH18D Trends Appendix
 Time Series Plot of Data Adjusted for Season and Detrended
 Total TKN



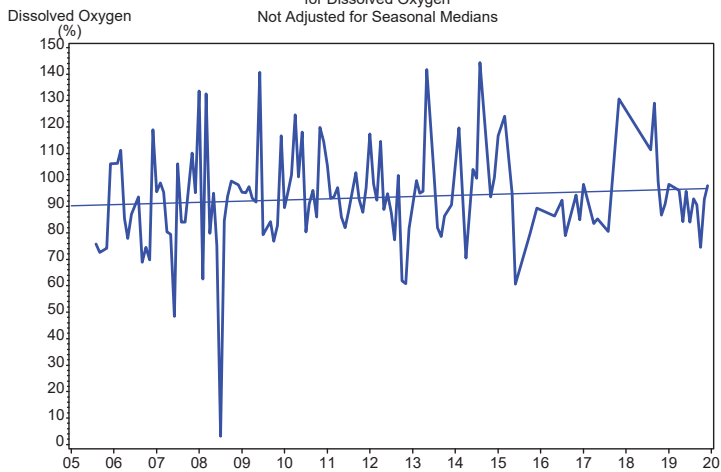
S_21FLPBCH18D Trends Appendix
 Autocorrelation Statistics for Total TKN
 Adjusted for Seasonal Median and Detrended

Lagged Total TKN	Correlation	Standard Error	Upper Limit	Lower Limit
0	1.000	0.075	0.149	-0.149
1	0.425	0.129	0.258	-0.258
2	0.167	0.137	0.273	-0.273
3	0.035	0.138	0.276	-0.276
4	0.154	0.138	0.276	-0.276
5	0.280	0.139	0.278	-0.278
6	0.114	0.142	0.284	-0.284
7	0.015	0.142	0.285	-0.285
8	0.059	0.142	0.285	-0.285
9	0.057	0.143	0.285	-0.285
10	0.005	0.143	0.285	-0.285
11	-0.029	0.143	0.285	-0.285
12	0.013	0.143	0.285	-0.285
13	0.032	0.143	0.285	-0.285
14	-0.113	0.143	0.285	-0.285
15	-0.193	0.143	0.286	-0.286

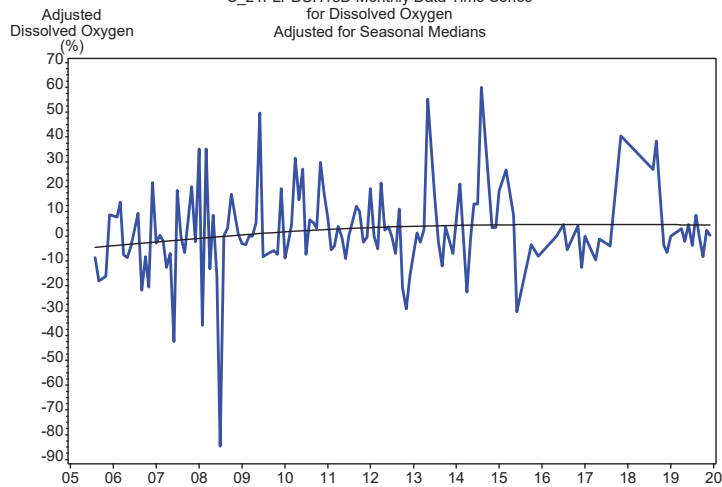
S_21FLPBCH18D Trends Appendix
 Correlogram for Total TKN
 Adjusted for Seasonal Median and Detrended



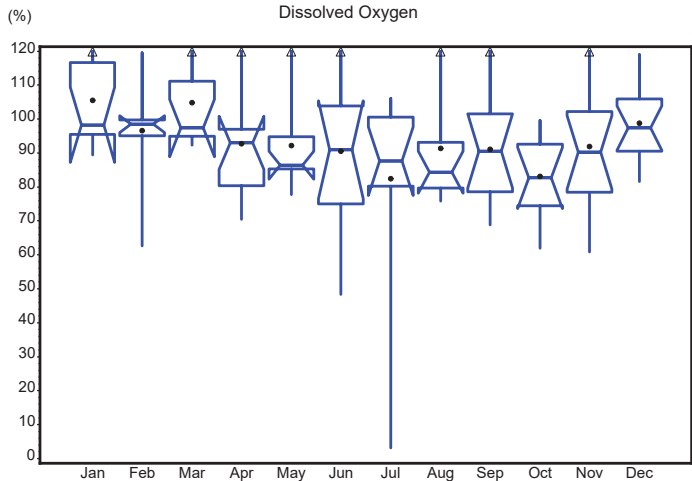
S_21FLPBCH18D Trends
S_21FLPBCH18D Monthly Data Time Series
for Dissolved Oxygen
Not Adjusted for Seasonal Medians



S_21FLPBCH18D Trends
S_21FLPBCH18D Monthly Data Time Series
for Dissolved Oxygen
Adjusted for Seasonal Medians



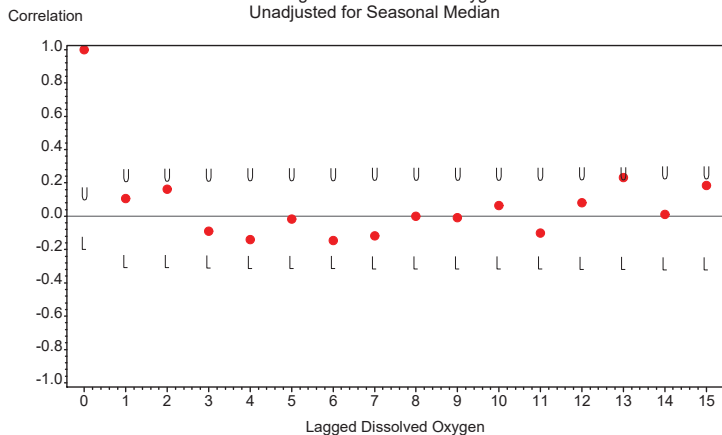
S_21FLPBCH18D Trends Appendix
Seasonal Univariate Statistics
Dissolved Oxygen



S_21FLPBCH18D Trends Appendix
Autocorrelation Statistics for Dissolved Oxygen
Unadjusted for Seasonal Medians

Lagged Dissolved Oxygen	Correlation	Standard Error	Upper Limit	Lower Limit
0	1.000	0.075	0.149	-0.149
1	0.105	0.129	0.258	-0.258
2	0.161	0.130	0.259	-0.259
3	-0.091	0.131	0.261	-0.261
4	-0.141	0.131	0.262	-0.262
5	-0.016	0.132	0.264	-0.264
6	-0.147	0.132	0.264	-0.264
7	-0.119	0.133	0.266	-0.266
8	-0.001	0.133	0.267	-0.267
9	-0.009	0.133	0.267	-0.267
10	0.065	0.133	0.267	-0.267
11	-0.101	0.134	0.267	-0.267
12	0.082	0.134	0.268	-0.268
13	0.231	0.134	0.269	-0.269
14	0.012	0.136	0.273	-0.273
15	0.184	0.136	0.273	-0.273

S_21FLPBCH18D Trends Appendix
Correlogram for Dissolved Oxygen
Unadjusted for Seasonal Median



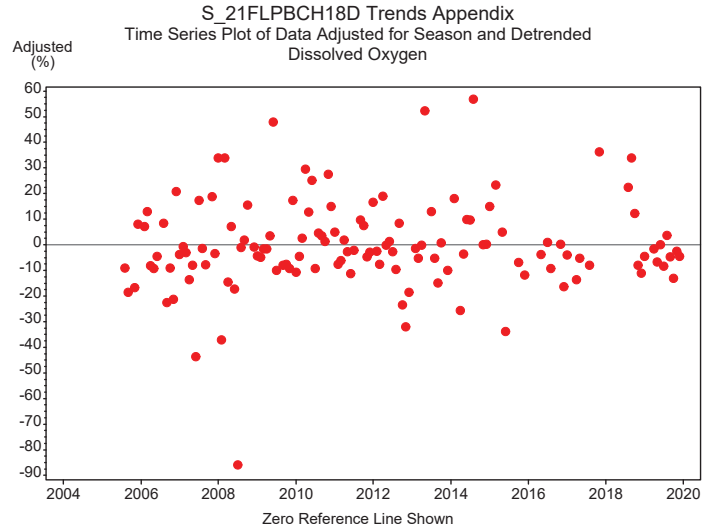
U=Upper 95% Confidence Limit L=Lower 95% Confidence Limit
Zero Reference Line Shown

S_21FLPBCH18D Trends Appendix
Seasonal Kendall Tau Trend Test Statistics
Dissolved Oxygen
Unadjusted for Seasonal Medians

Tau Statistic	P-Value Without Serial Correlation	P-Value With Serial Correlation	Slope Statistic
0.055	0.435	0.393	0.305

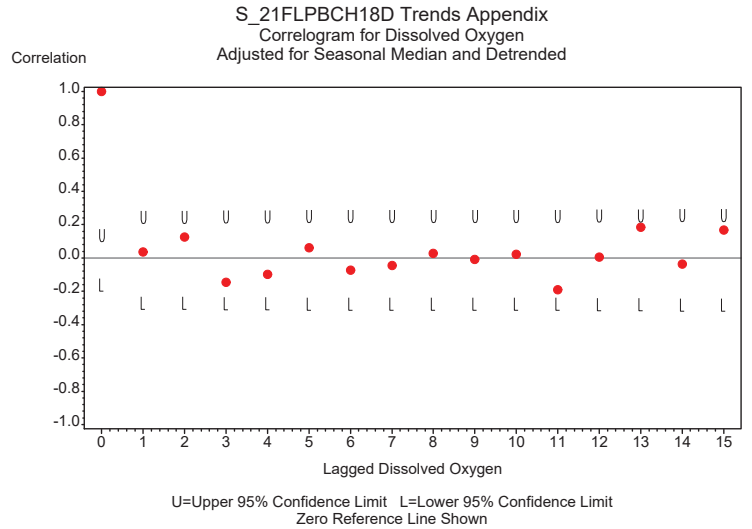
S_21FLPBCH18D Trends Appendix
 Seasonal Kendall Tau Trend Test Statistics
 Dissolved Oxygen
 Adjusted for Seasonal Medians

Tau Statistic	P-Value Without Serial Correlation	P-Value With Serial Correlation	Slope Statistic
0.055046	0.43461	0.39344	0.305

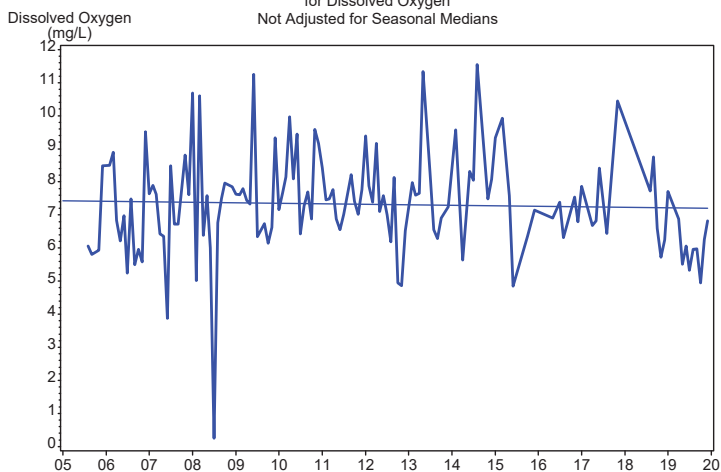


S_21FLPBCH18D Trends Appendix
 Autocorrelation Statistics for Dissolved Oxygen
 Adjusted for Seasonal Median and Detrended

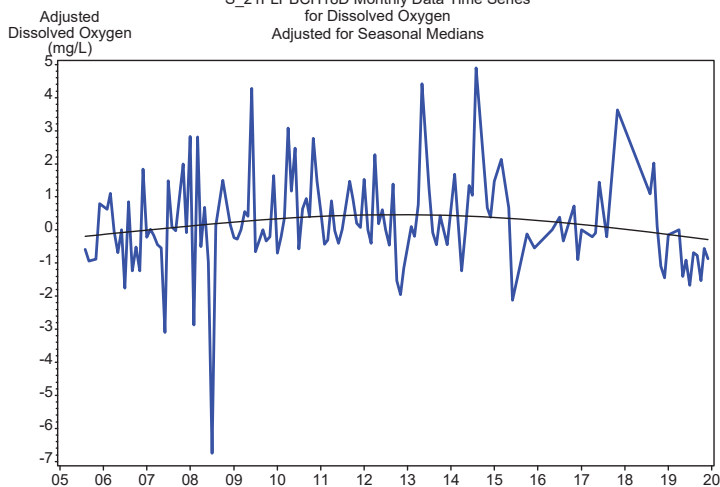
Lagged Dissolved Oxygen	Correlation	Standard Error	Upper Limit	Lower Limit
0	1.000	0.075	0.149	-0.149
1	0.035	0.129	0.258	-0.258
2	0.125	0.129	0.258	-0.258
3	-0.146	0.130	0.260	-0.260
4	-0.099	0.131	0.261	-0.261
5	0.061	0.131	0.262	-0.262
6	-0.072	0.131	0.263	-0.263
7	-0.044	0.132	0.263	-0.263
8	0.028	0.132	0.263	-0.263
9	-0.010	0.132	0.263	-0.263
10	0.021	0.132	0.263	-0.263
11	-0.191	0.132	0.263	-0.263
12	0.005	0.133	0.266	-0.266
13	0.184	0.133	0.266	-0.266
14	-0.036	0.135	0.269	-0.269
15	0.167	0.135	0.269	-0.269



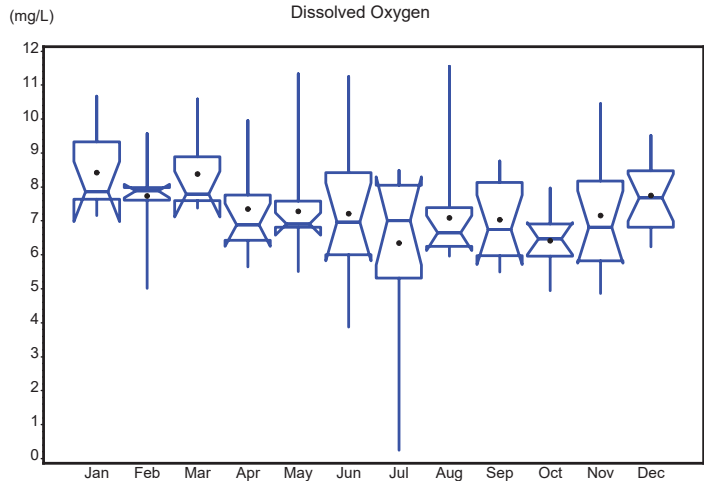
S_21FLPBCH18D Trends
S_21FLPBCH18D Monthly Data Time Series
for Dissolved Oxygen
Not Adjusted for Seasonal Medians



S_21FLPBCH18D Trends
S_21FLPBCH18D Monthly Data Time Series
for Dissolved Oxygen
Adjusted for Seasonal Medians



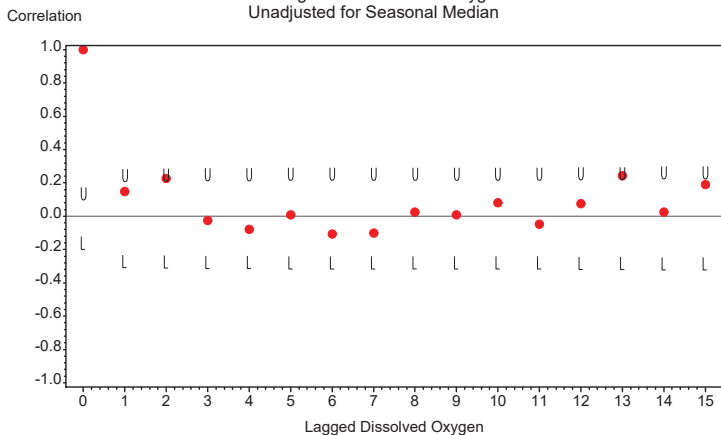
S_21FLPBCH18D Trends Appendix
Seasonal Univariate Statistics
Dissolved Oxygen



S_21FLPBCH18D Trends Appendix
Autocorrelation Statistics for Dissolved Oxygen
Unadjusted for Seasonal Medians

Lagged Dissolved Oxygen	Correlation	Standard Error	Upper Limit	Lower Limit
0	1.000	0.075	0.149	-0.149
1	0.149	0.129	0.258	-0.258
2	0.226	0.130	0.260	-0.260
3	-0.026	0.132	0.264	-0.264
4	-0.079	0.132	0.264	-0.264
5	0.009	0.133	0.265	-0.265
6	-0.107	0.133	0.265	-0.265
7	-0.100	0.133	0.266	-0.266
8	0.026	0.133	0.267	-0.267
9	0.007	0.133	0.267	-0.267
10	0.082	0.133	0.267	-0.267
11	-0.048	0.134	0.267	-0.267
12	0.076	0.134	0.268	-0.268
13	0.243	0.134	0.268	-0.268
14	0.024	0.136	0.273	-0.273
15	0.191	0.137	0.273	-0.273

S_21FLPBCH18D Trends Appendix
Correlogram for Dissolved Oxygen
Unadjusted for Seasonal Median



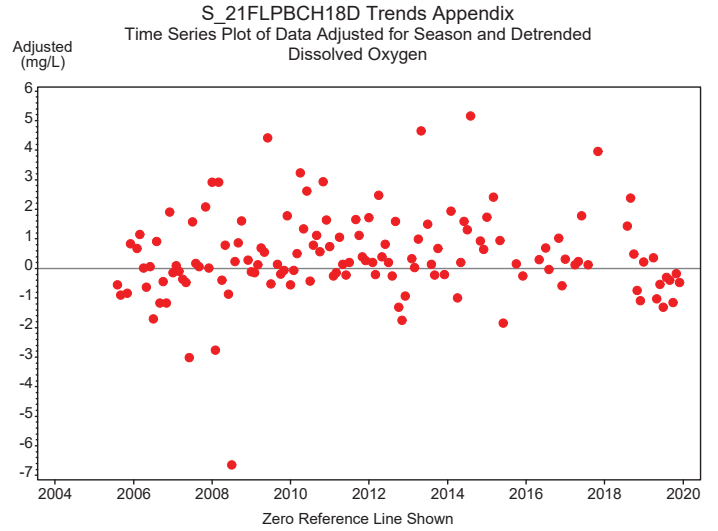
U=Upper 95% Confidence Limit L=Lower 95% Confidence Limit
Zero Reference Line Shown

S_21FLPBCH18D Trends Appendix
Seasonal Kendall Tau Trend Test Statistics
Dissolved Oxygen
Unadjusted for Seasonal Medians

Tau Statistic	P-Value Without Serial Correlation	P-Value With Serial Correlation	Slope Statistic
-0.039	0.584	0.649	-0.024

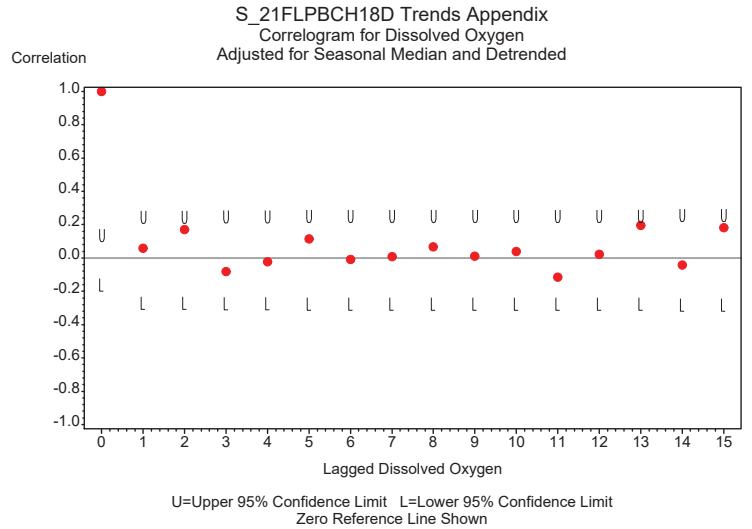
S_21FLPBCH18D Trends Appendix
 Seasonal Kendall Tau Trend Test Statistics
 Dissolved Oxygen
 Adjusted for Seasonal Medians

Tau Statistic	P-Value Without Serial Correlation	P-Value With Serial Correlation	Slope Statistic
-0.038576	0.58436	0.64880	-0.024167

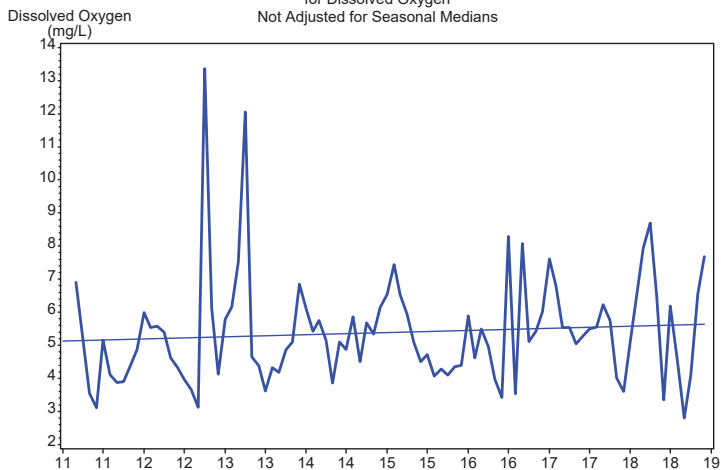


S_21FLPBCH18D Trends Appendix
 Autocorrelation Statistics for Dissolved Oxygen
 Adjusted for Seasonal Median and Detrended

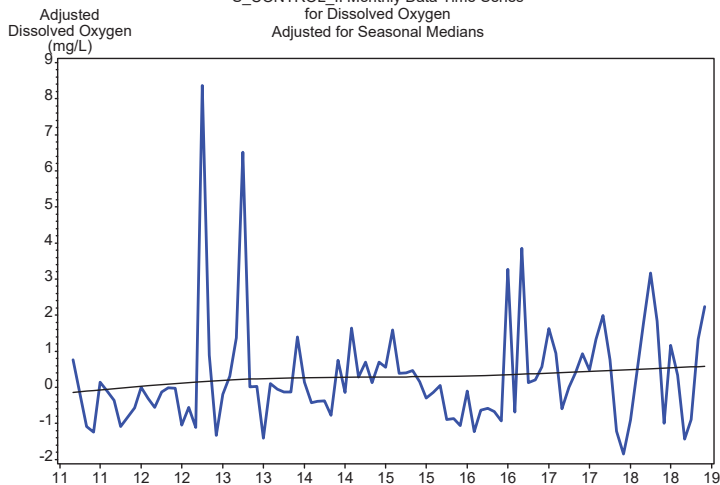
Lagged Dissolved Oxygen	Correlation	Standard Error	Upper Limit	Lower Limit
0	1.000	0.075	0.149	-0.149
1	0.059	0.129	0.258	-0.258
2	0.169	0.129	0.258	-0.258
3	-0.081	0.130	0.261	-0.261
4	-0.023	0.131	0.261	-0.261
5	0.115	0.131	0.262	-0.262
6	-0.010	0.131	0.263	-0.263
7	0.008	0.131	0.263	-0.263
8	0.066	0.131	0.263	-0.263
9	0.012	0.132	0.263	-0.263
10	0.038	0.132	0.263	-0.263
11	-0.115	0.132	0.263	-0.263
12	0.021	0.132	0.264	-0.264
13	0.196	0.132	0.264	-0.264
14	-0.042	0.134	0.268	-0.268
15	0.181	0.134	0.268	-0.268



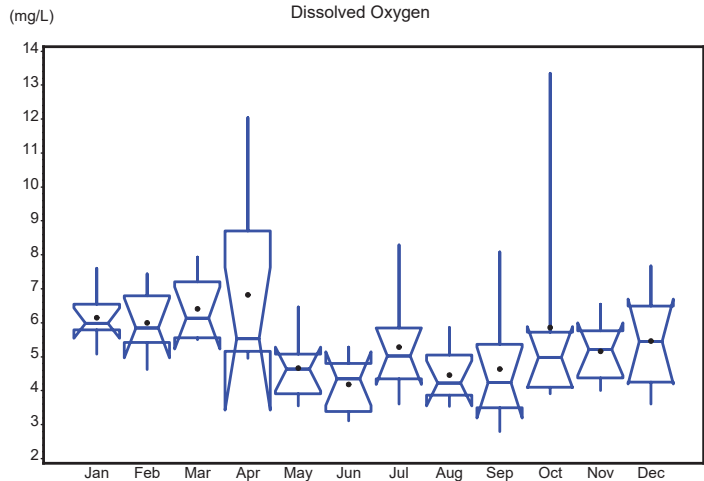
S_CONTROL_II Trends
S_CONTROL_II Monthly Data Time Series
for Dissolved Oxygen
Not Adjusted for Seasonal Medians



S_CONTROL_II Trends
S_CONTROL_II Monthly Data Time Series
for Dissolved Oxygen
Adjusted for Seasonal Medians



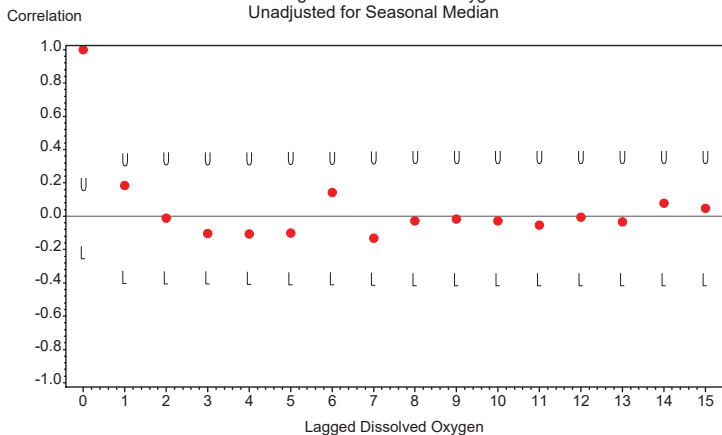
S_CONTROL_II Trends Appendix
Seasonal Univariate Statistics
Dissolved Oxygen



S_CONTROL_II Trends Appendix
Autocorrelation Statistics for Dissolved Oxygen
Unadjusted for Seasonal Medians

Lagged Dissolved Oxygen	Correlation	Standard Error	Upper Limit	Lower Limit
0	1.000	0.102	0.204	-0.204
1	0.183	0.177	0.354	-0.354
2	-0.012	0.179	0.357	-0.357
3	-0.104	0.179	0.357	-0.357
4	-0.106	0.179	0.359	-0.359
5	-0.101	0.180	0.360	-0.360
6	0.143	0.181	0.361	-0.361
7	-0.131	0.182	0.364	-0.364
8	-0.029	0.183	0.366	-0.366
9	-0.017	0.183	0.366	-0.366
10	-0.029	0.183	0.366	-0.366
11	-0.053	0.183	0.366	-0.366
12	-0.007	0.183	0.366	-0.366
13	-0.033	0.183	0.366	-0.366
14	0.078	0.183	0.366	-0.366
15	0.046	0.183	0.367	-0.367

S_CONTROL_II Trends Appendix
Correlogram for Dissolved Oxygen
Unadjusted for Seasonal Median



U=Upper 95% Confidence Limit L=Lower 95% Confidence Limit
Zero Reference Line Shown

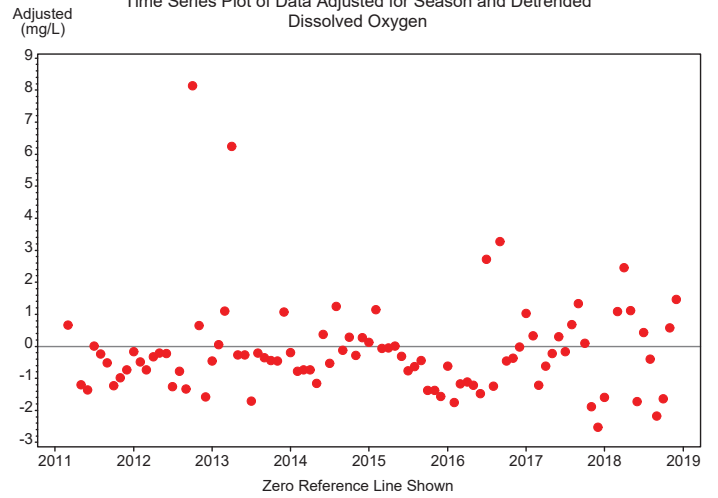
S_CONTROL_II Trends Appendix
Seasonal Kendall Tau Trend Test Statistics
Dissolved Oxygen
Unadjusted for Seasonal Medians

Tau Statistic	P-Value Without Serial Correlation	P-Value With Serial Correlation	Slope Statistic
0.168	0.055	0.064	0.086

S_CONTROL_II Trends Appendix
 Seasonal Kendall Tau Trend Test Statistics
 Dissolved Oxygen
 Adjusted for Seasonal Medians

Tau Statistic	P-Value Without Serial Correlation	P-Value With Serial Correlation	Slope Statistic
0.16829	0.054589	0.063968	0.086

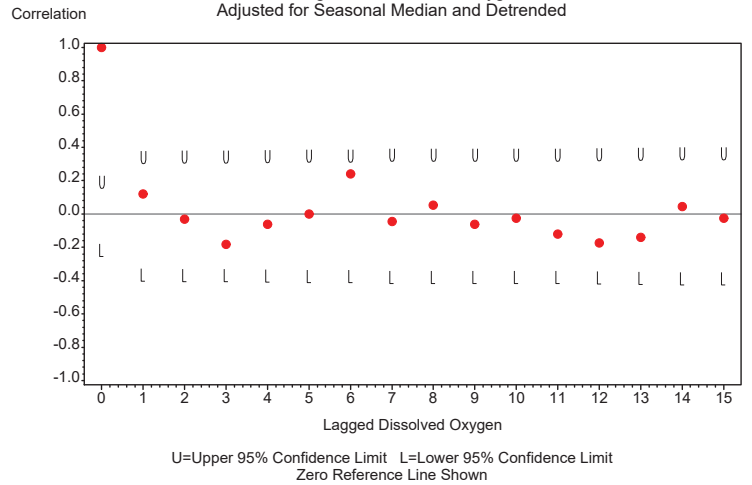
S_CONTROL_II Trends Appendix
 Time Series Plot of Data Adjusted for Season and Detrended
 Dissolved Oxygen



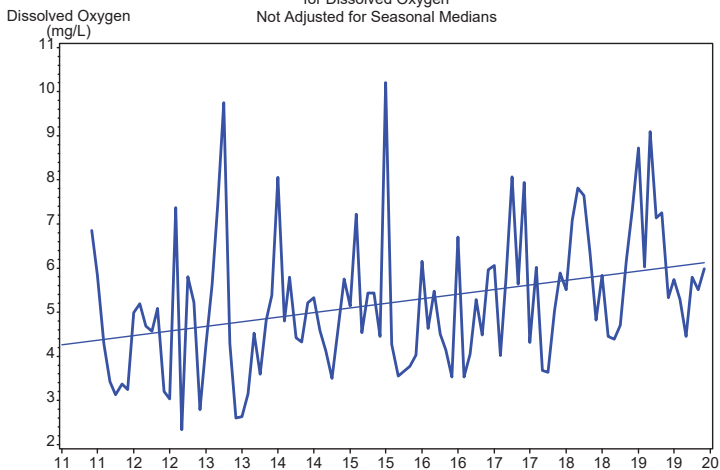
S_CONTROL_II Trends Appendix
 Autocorrelation Statistics for Dissolved Oxygen
 Adjusted for Seasonal Median and Detrended

Lagged Dissolved Oxygen	Correlation	Standard Error	Upper Limit	Lower Limit
0	1.000	0.102	0.204	-0.204
1	0.119	0.177	0.354	-0.354
2	-0.030	0.178	0.355	-0.355
3	-0.183	0.178	0.355	-0.355
4	-0.063	0.180	0.359	-0.359
5	0.000	0.180	0.360	-0.360
6	0.240	0.180	0.360	-0.360
7	-0.045	0.183	0.366	-0.366
8	0.054	0.183	0.367	-0.367
9	-0.061	0.183	0.367	-0.367
10	-0.025	0.184	0.367	-0.367
11	-0.120	0.184	0.367	-0.367
12	-0.173	0.185	0.369	-0.369
13	-0.140	0.186	0.372	-0.372
14	0.045	0.187	0.375	-0.375
15	-0.027	0.187	0.375	-0.375

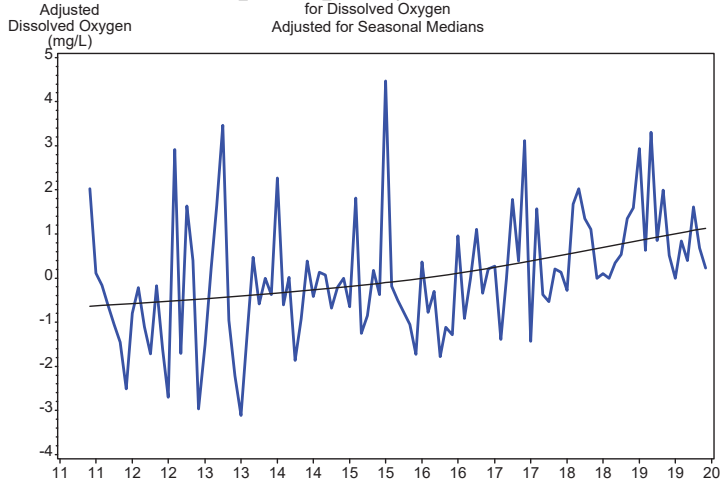
S_CONTROL_II Trends Appendix
 Correlogram for Dissolved Oxygen
 Adjusted for Seasonal Median and Detrended



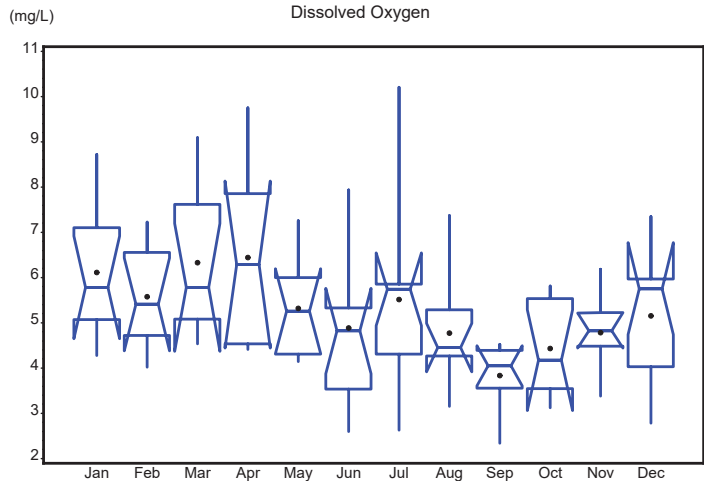
S_CONTROL_IV Trends
S_CONTROL_IV Monthly Data Time Series
for Dissolved Oxygen
Not Adjusted for Seasonal Medians



S_CONTROL_IV Trends
S_CONTROL_IV Monthly Data Time Series
for Dissolved Oxygen
Adjusted for Seasonal Medians



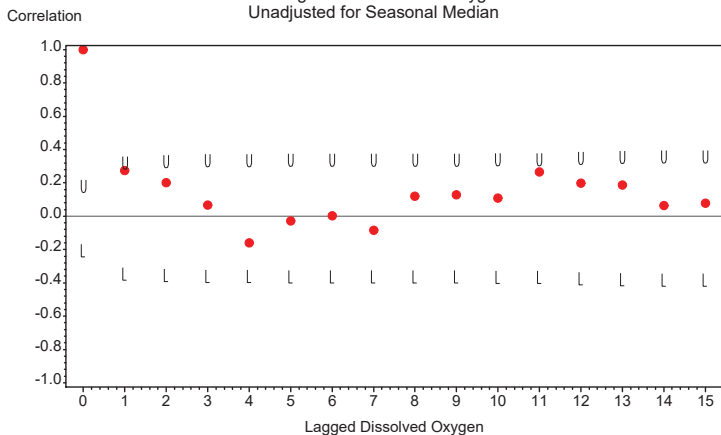
S_CONTROL_IV Trends Appendix
Seasonal Univariate Statistics
Dissolved Oxygen



S_CONTROL_IV Trends Appendix
Autocorrelation Statistics for Dissolved Oxygen
Unadjusted for Seasonal Medians

Lagged Dissolved Oxygen	Correlation	Standard Error	Upper Limit	Lower Limit
0	1.000	0.096	0.192	-0.192
1	0.273	0.167	0.333	-0.333
2	0.200	0.171	0.342	-0.342
3	0.066	0.173	0.346	-0.346
4	-0.159	0.173	0.346	-0.346
5	-0.029	0.175	0.349	-0.349
6	0.002	0.175	0.349	-0.349
7	-0.085	0.175	0.349	-0.349
8	0.120	0.175	0.350	-0.350
9	0.128	0.176	0.351	-0.351
10	0.109	0.177	0.353	-0.353
11	0.265	0.177	0.354	-0.354
12	0.198	0.181	0.362	-0.362
13	0.187	0.183	0.366	-0.366
14	0.065	0.185	0.369	-0.369
15	0.078	0.185	0.370	-0.370

S_CONTROL_IV Trends Appendix
Correlogram for Dissolved Oxygen
Unadjusted for Seasonal Median



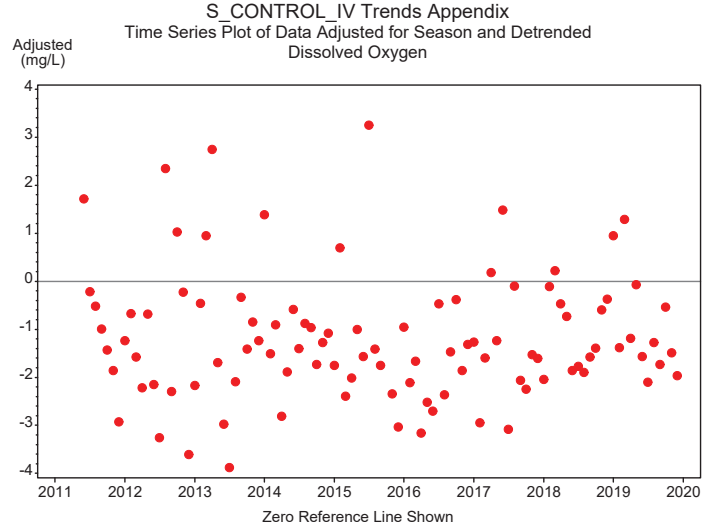
U=Upper 95% Confidence Limit L=Lower 95% Confidence Limit
Zero Reference Line Shown

S_CONTROL_IV Trends Appendix
Seasonal Kendall Tau Trend Test Statistics
Dissolved Oxygen
Unadjusted for Seasonal Medians

Tau Statistic	P-Value Without Serial Correlation	P-Value With Serial Correlation	Slope Statistic
0.323	0	0.016	0.221

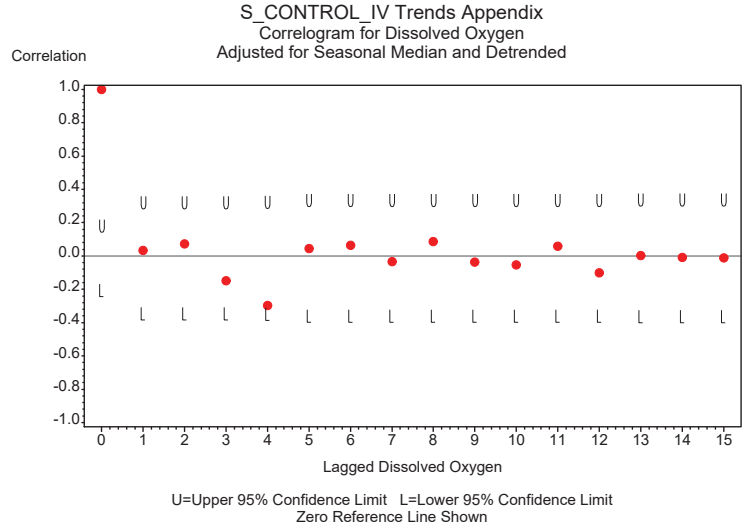
S_CONTROL_IV Trends Appendix
 Seasonal Kendall Tau Trend Test Statistics
 Dissolved Oxygen
 Adjusted for Seasonal Medians

Tau Statistic	P-Value Without Serial Correlation	P-Value With Serial Correlation	Slope Statistic
0.32292	.000062704	0.016424	0.22075

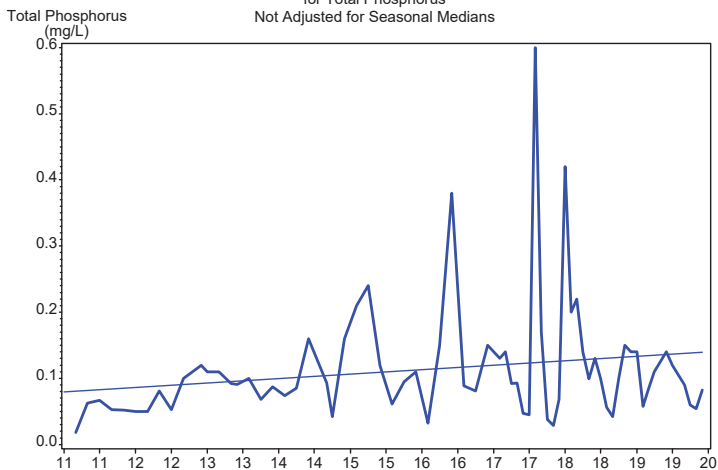


S_CONTROL_IV Trends Appendix
 Autocorrelation Statistics for Dissolved Oxygen
 Adjusted for Seasonal Median and Detrended

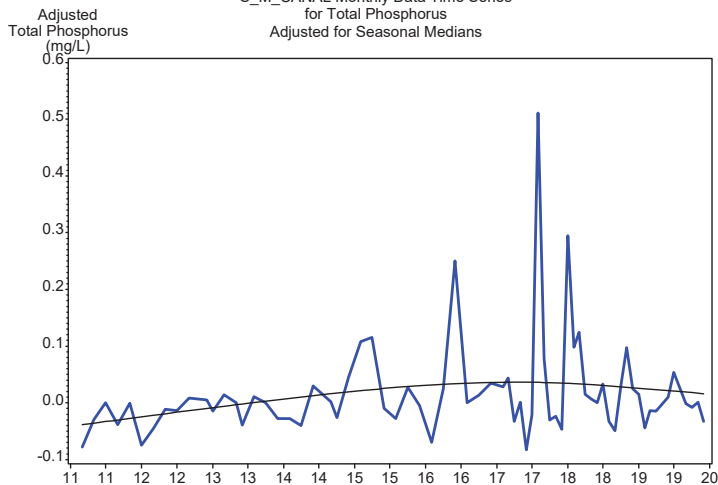
Lagged Dissolved Oxygen	Correlation	Standard Error	Upper Limit	Lower Limit
0	1.000	0.096	0.192	-0.192
1	0.033	0.167	0.333	-0.333
2	0.072	0.167	0.333	-0.333
3	-0.150	0.167	0.334	-0.334
4	-0.297	0.168	0.337	-0.337
5	0.043	0.173	0.346	-0.346
6	0.065	0.173	0.346	-0.346
7	-0.034	0.173	0.347	-0.347
8	0.085	0.173	0.347	-0.347
9	-0.038	0.174	0.348	-0.348
10	-0.053	0.174	0.348	-0.348
11	0.058	0.174	0.348	-0.348
12	-0.101	0.174	0.348	-0.348
13	0.002	0.175	0.350	-0.350
14	-0.008	0.175	0.350	-0.350
15	-0.011	0.175	0.350	-0.350



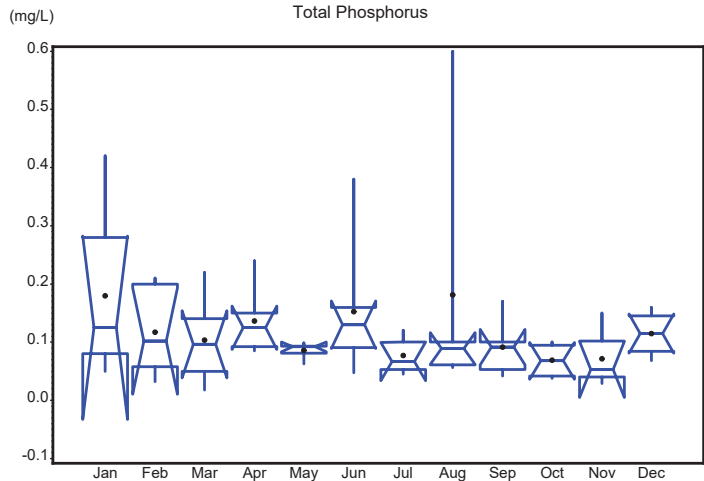
S_M_CANAL Trends
S_M_CANAL Monthly Data Time Series
for Total Phosphorus
Not Adjusted for Seasonal Medians



S_M_CANAL Trends
S_M_CANAL Monthly Data Time Series
for Total Phosphorus
Adjusted for Seasonal Medians



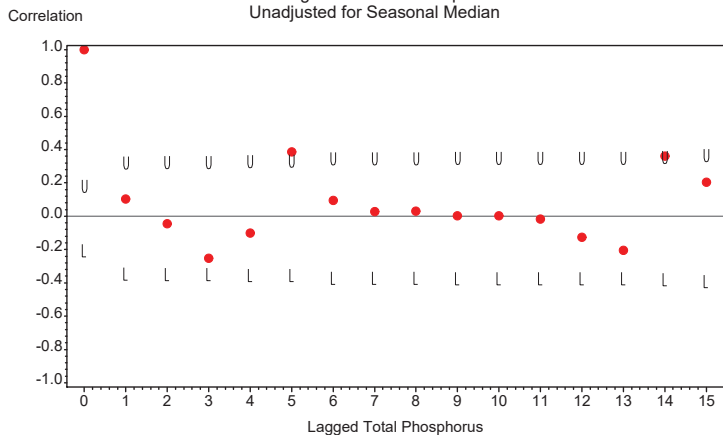
S_M_CANAL Trends Appendix
Seasonal Univariate Statistics
Total Phosphorus



S_M_CANAL Trends Appendix
Autocorrelation Statistics for Total Phosphorus
Unadjusted for Seasonal Medians

Lagged Total Phosphorus	Correlation	Standard Error	Upper Limit	Lower Limit
0	1.000	0.096	0.192	-0.192
1	0.104	0.167	0.333	-0.333
2	-0.044	0.167	0.335	-0.335
3	-0.252	0.167	0.335	-0.335
4	-0.101	0.171	0.342	-0.342
5	0.385	0.171	0.343	-0.343
6	0.095	0.179	0.358	-0.358
7	0.027	0.180	0.359	-0.359
8	0.031	0.180	0.359	-0.359
9	0.001	0.180	0.360	-0.360
10	0.002	0.180	0.360	-0.360
11	-0.016	0.180	0.360	-0.360
12	-0.127	0.180	0.360	-0.360
13	-0.206	0.181	0.361	-0.361
14	0.360	0.183	0.366	-0.366
15	0.204	0.189	0.378	-0.378

S_M_CANAL Trends Appendix
Correlogram for Total Phosphorus
Unadjusted for Seasonal Median



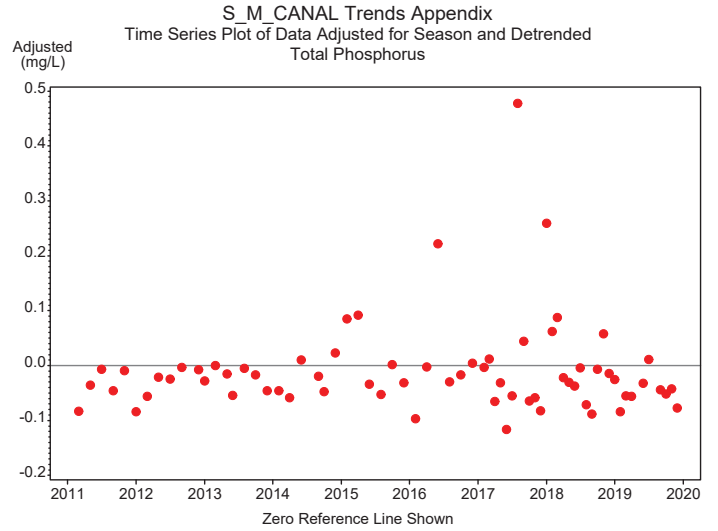
U=Upper 95% Confidence Limit L=Lower 95% Confidence Limit
Zero Reference Line Shown

S_M_CANAL Trends Appendix
Seasonal Kendall Tau Trend Test Statistics
Total Phosphorus
Unadjusted for Seasonal Medians

Tau Statistic	P-Value Without Serial Correlation	P-Value With Serial Correlation	Slope Statistic
0.128	0.251	0.316	.004

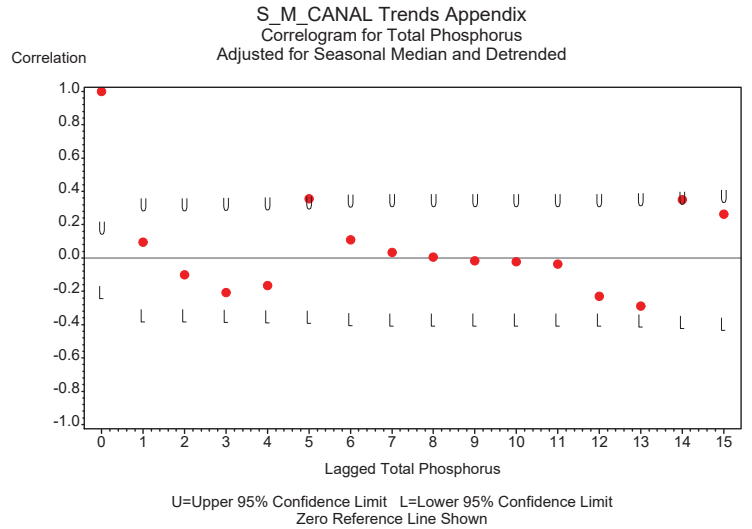
S_M_CANAL Trends Appendix
 Seasonal Kendall Tau Trend Test Statistics
 Total Phosphorus
 Adjusted for Seasonal Medians

Tau Statistic	P-Value Without Serial Correlation	P-Value With Serial Correlation	Slope Statistic
0.12791	0.251	0.31566	.00445238

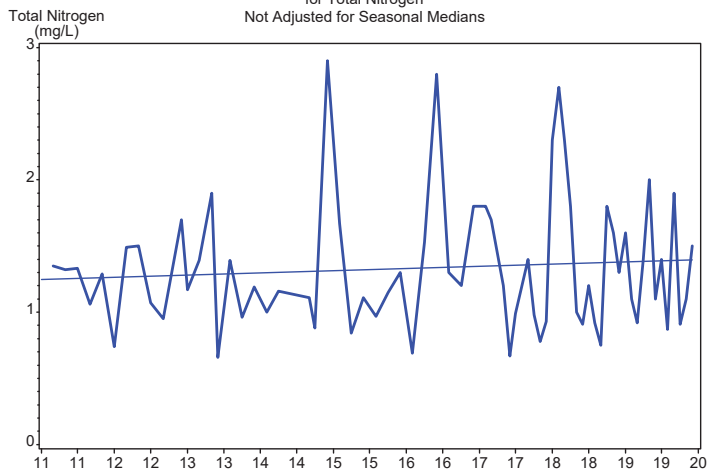


S_M_CANAL Trends Appendix
 Autocorrelation Statistics for Total Phosphorus
 Adjusted for Seasonal Median and Detrended

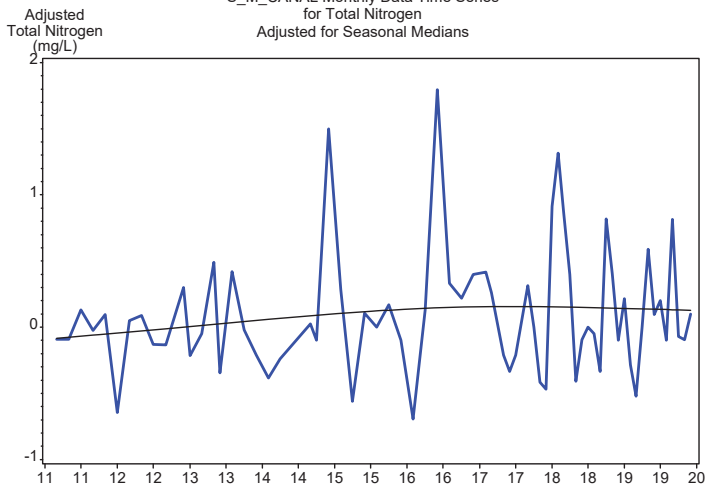
Lagged Total Phosphorus	Correlation	Standard Error	Upper Limit	Lower Limit
0	1.000	0.096	0.192	-0.192
1	0.095	0.167	0.333	-0.333
2	-0.101	0.167	0.334	-0.334
3	-0.208	0.168	0.335	-0.335
4	-0.167	0.170	0.340	-0.340
5	0.354	0.172	0.343	-0.343
6	0.110	0.178	0.356	-0.356
7	0.033	0.179	0.358	-0.358
8	0.005	0.179	0.358	-0.358
9	-0.018	0.179	0.358	-0.358
10	-0.023	0.179	0.358	-0.358
11	-0.038	0.179	0.358	-0.358
12	-0.229	0.179	0.358	-0.358
13	-0.289	0.182	0.363	-0.363
14	0.349	0.186	0.372	-0.372
15	0.264	0.192	0.384	-0.384



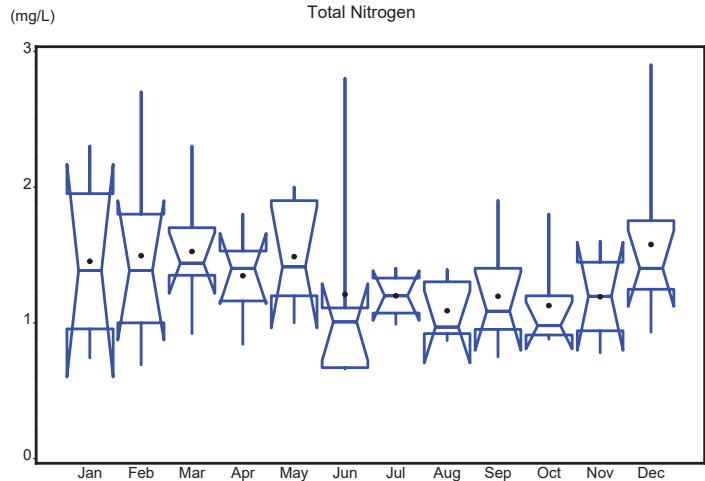
S_M_CANAL Trends
S_M_CANAL Monthly Data Time Series
for Total Nitrogen
Not Adjusted for Seasonal Medians



S_M_CANAL Trends
S_M_CANAL Monthly Data Time Series
for Total Nitrogen
Adjusted for Seasonal Medians



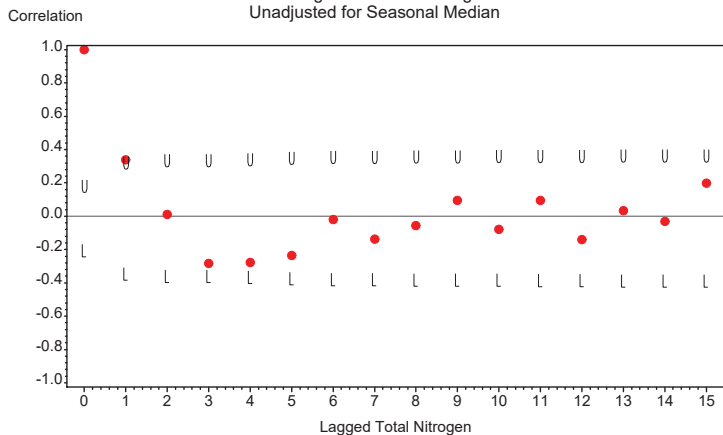
S_M_CANAL Trends Appendix
Seasonal Univariate Statistics
Total Nitrogen



S_M_CANAL Trends Appendix
Autocorrelation Statistics for Total Nitrogen
Unadjusted for Seasonal Medians

Lagged Total Nitrogen	Correlation	Standard Error	Upper Limit	Lower Limit
0	1.000	0.096	0.192	-0.192
1	0.337	0.167	0.333	-0.333
2	0.012	0.173	0.346	-0.346
3	-0.284	0.173	0.346	-0.346
4	-0.278	0.177	0.354	-0.354
5	-0.237	0.181	0.362	-0.362
6	-0.019	0.184	0.368	-0.368
7	-0.138	0.184	0.368	-0.368
8	-0.057	0.185	0.370	-0.370
9	0.095	0.185	0.370	-0.370
10	-0.080	0.186	0.371	-0.371
11	0.095	0.186	0.372	-0.372
12	-0.140	0.186	0.373	-0.373
13	0.032	0.187	0.375	-0.375
14	-0.032	0.187	0.375	-0.375
15	0.197	0.187	0.375	-0.375

S_M_CANAL Trends Appendix
Correlogram for Total Nitrogen
Unadjusted for Seasonal Median



U=Upper 95% Confidence Limit L=Lower 95% Confidence Limit
Zero Reference Line Shown

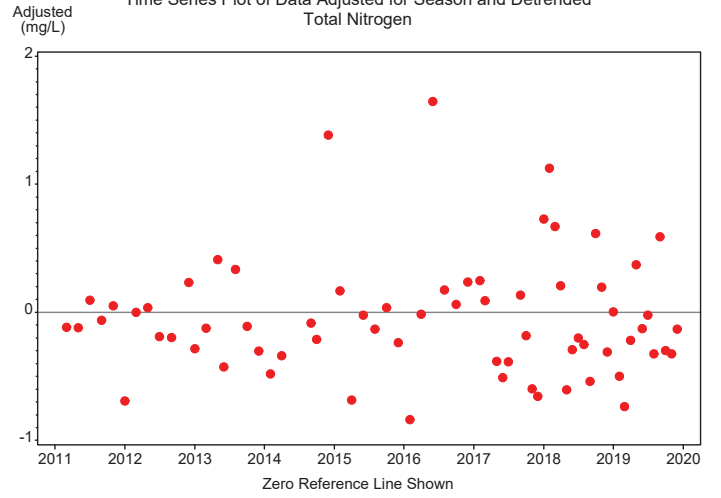
S_M_CANAL Trends Appendix
Seasonal Kendall Tau Trend Test Statistics
Total Nitrogen
Unadjusted for Seasonal Medians

Tau Statistic	P-Value Without Serial Correlation	P-Value With Serial Correlation	Slope Statistic
0.127	0.262	0.164	0.024

S_M_CANAL Trends Appendix
 Seasonal Kendall Tau Trend Test Statistics
 Total Nitrogen
 Adjusted for Seasonal Medians

Tau Statistic	P-Value Without Serial Correlation	P-Value With Serial Correlation	Slope Statistic
0.12651	0.26181	0.16450	0.0235

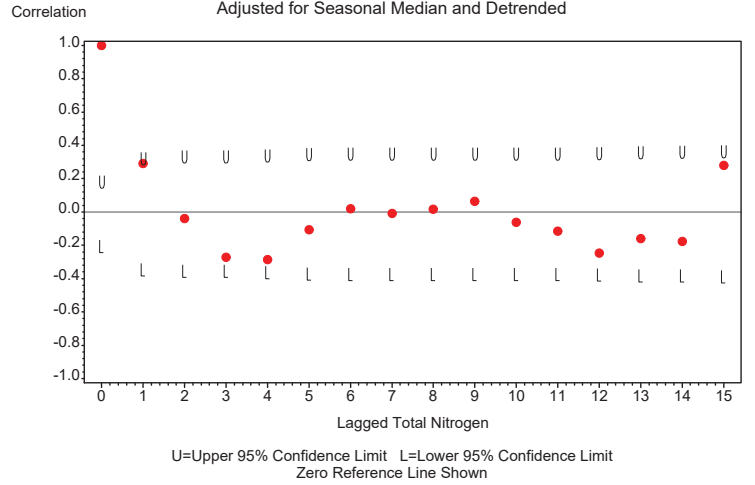
S_M_CANAL Trends Appendix
 Time Series Plot of Data Adjusted for Season and Detrended
 Total Nitrogen



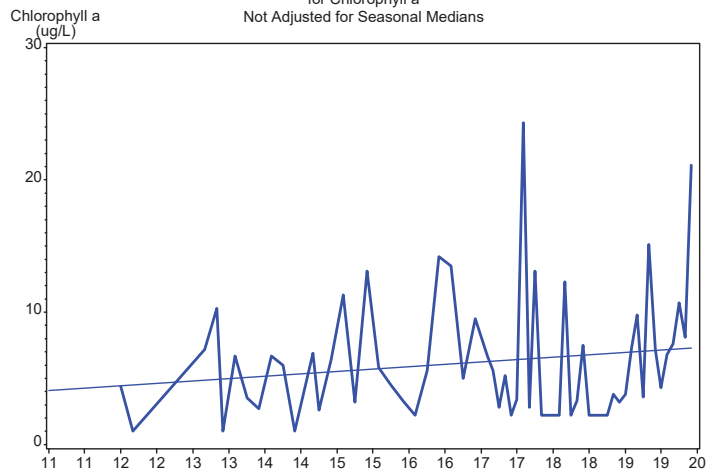
S_M_CANAL Trends Appendix
 Autocorrelation Statistics for Total Nitrogen
 Adjusted for Seasonal Median and Detrended

Lagged Total Nitrogen	Correlation	Standard Error	Upper Limit	Lower Limit
0	1.000	0.096	0.192	-0.192
1	0.292	0.167	0.333	-0.333
2	-0.041	0.171	0.343	-0.343
3	-0.271	0.171	0.343	-0.343
4	-0.285	0.175	0.351	-0.351
5	-0.108	0.180	0.359	-0.359
6	0.019	0.180	0.360	-0.360
7	-0.010	0.180	0.360	-0.360
8	0.017	0.180	0.360	-0.360
9	0.063	0.180	0.361	-0.361
10	-0.061	0.180	0.361	-0.361
11	-0.116	0.181	0.361	-0.361
12	-0.247	0.181	0.363	-0.363
13	-0.161	0.184	0.369	-0.369
14	-0.177	0.186	0.371	-0.371
15	0.280	0.187	0.375	-0.375

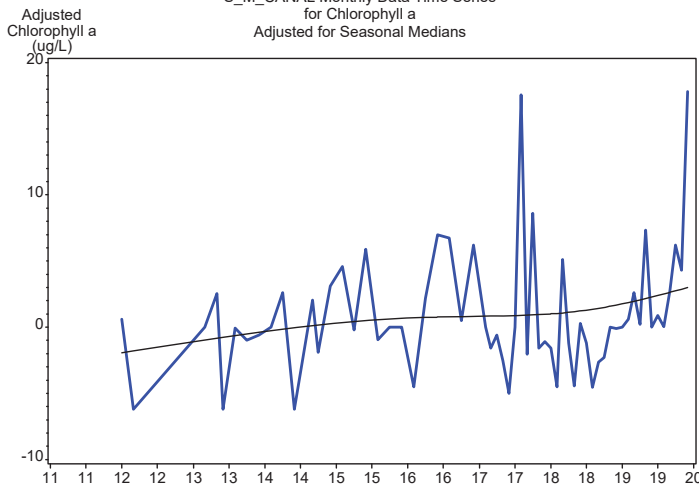
S_M_CANAL Trends Appendix
 Correlogram for Total Nitrogen
 Adjusted for Seasonal Median and Detrended



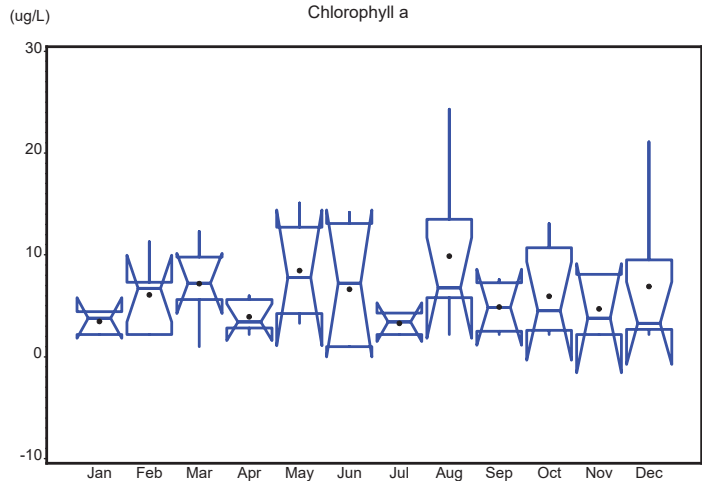
S_M_CANAL Trends
S_M_CANAL Monthly Data Time Series
for Chlorophyll a
Not Adjusted for Seasonal Medians



S_M_CANAL Trends
S_M_CANAL Monthly Data Time Series
for Chlorophyll a
Adjusted for Seasonal Medians



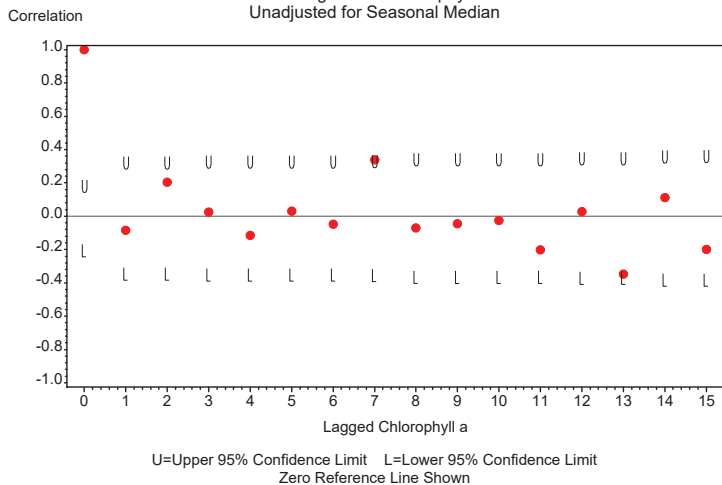
S_M_CANAL Trends Appendix
Seasonal Univariate Statistics
Chlorophyll a



S_M_CANAL Trends Appendix
Autocorrelation Statistics for Chlorophyll a
Unadjusted for Seasonal Medians

Lagged Chlorophyll a	Correlation	Standard Error	Upper Limit	Lower Limit
0	1.000	0.096	0.192	-0.192
1	-0.084	0.167	0.333	-0.333
2	0.204	0.167	0.334	-0.334
3	0.024	0.169	0.339	-0.339
4	-0.114	0.169	0.339	-0.339
5	0.030	0.170	0.340	-0.340
6	-0.047	0.170	0.340	-0.340
7	0.338	0.170	0.341	-0.341
8	-0.071	0.176	0.353	-0.353
9	-0.044	0.177	0.353	-0.353
10	-0.026	0.177	0.353	-0.353
11	-0.202	0.177	0.354	-0.354
12	0.028	0.179	0.358	-0.358
13	-0.347	0.179	0.358	-0.358
14	0.111	0.185	0.370	-0.370
15	-0.200	0.186	0.371	-0.371

S_M_CANAL Trends Appendix
Correlogram for Chlorophyll a
Unadjusted for Seasonal Median

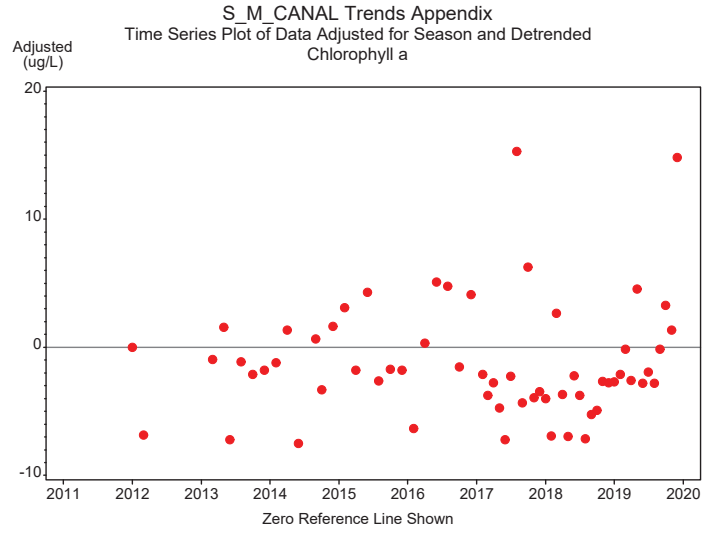


S_M_CANAL Trends Appendix
Seasonal Kendall Tau Trend Test Statistics
Chlorophyll a
Unadjusted for Seasonal Medians

Tau Statistic	P-Value Without Serial Correlation	P-Value With Serial Correlation	Slope Statistic
0.144	0.239	0.471	0.3

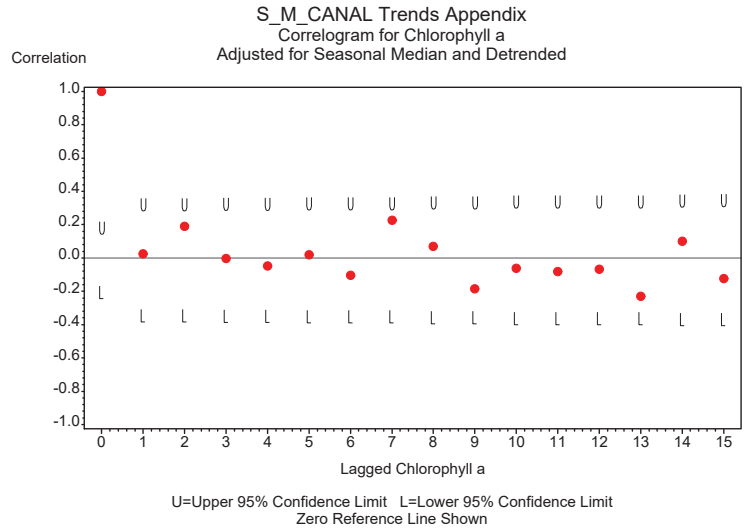
S_M_CANAL Trends Appendix
 Seasonal Kendall Tau Trend Test Statistics
 Chlorophyll a
 Adjusted for Seasonal Medians

Tau Statistic	P-Value Without Serial Correlation	P-Value With Serial Correlation	Slope Statistic
0.14389	0.23867	0.47141	0.3

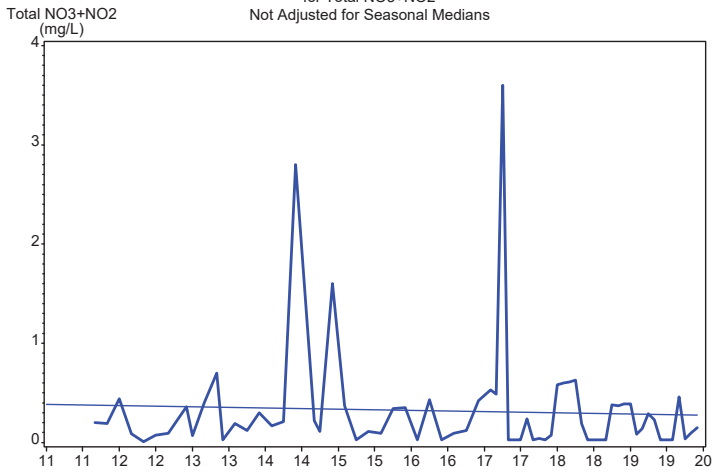


S_M_CANAL Trends Appendix
 Autocorrelation Statistics for Chlorophyll a
 Adjusted for Seasonal Median and Detrended

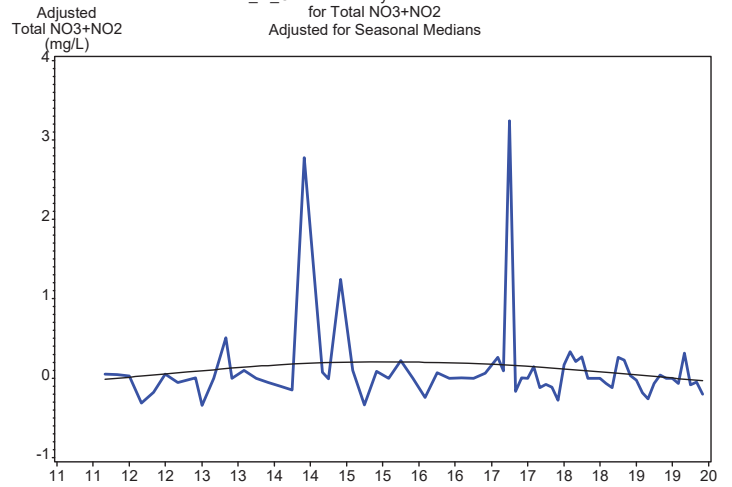
Lagged Chlorophyll a	Correlation	Standard Error	Upper Limit	Lower Limit
0	1.000	0.096	0.192	-0.192
1	0.024	0.167	0.333	-0.333
2	-0.190	0.167	0.333	-0.333
3	-0.004	0.169	0.337	-0.337
4	-0.049	0.169	0.337	-0.337
5	0.018	0.169	0.338	-0.338
6	-0.103	0.169	0.338	-0.338
7	0.225	0.169	0.339	-0.339
8	0.069	0.172	0.344	-0.344
9	-0.185	0.172	0.345	-0.345
10	-0.062	0.174	0.349	-0.349
11	-0.081	0.174	0.349	-0.349
12	-0.067	0.175	0.350	-0.350
13	-0.231	0.175	0.350	-0.350
14	0.101	0.178	0.356	-0.356
15	-0.125	0.178	0.357	-0.357



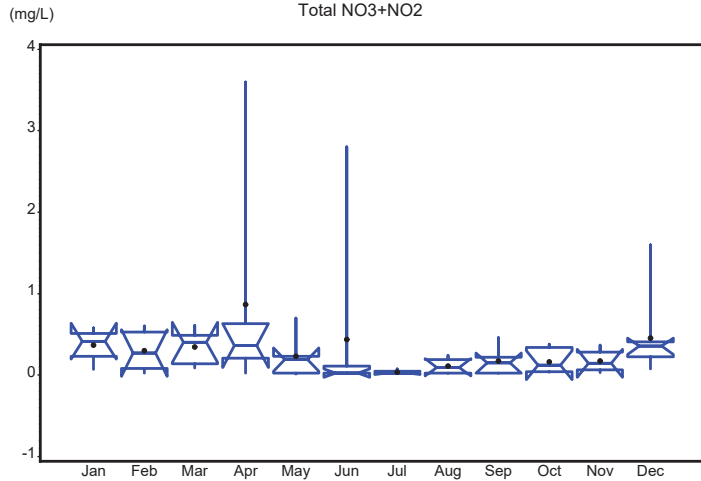
S_M_CANAL Trends
S_M_CANAL Monthly Data Time Series
for Total NO3+NO2
Not Adjusted for Seasonal Medians



S_M_CANAL Trends
S_M_CANAL Monthly Data Time Series
for Total NO3+NO2
Adjusted for Seasonal Medians



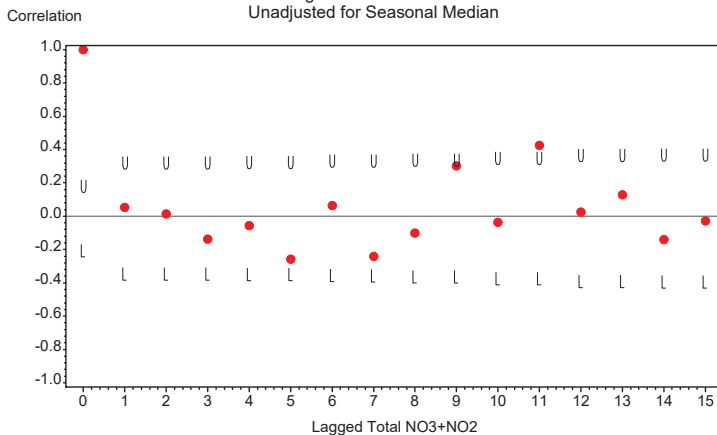
S_M_CANAL Trends Appendix
Seasonal Univariate Statistics
Total NO3+NO2



S_M_CANAL Trends Appendix
Autocorrelation Statistics for Total NO3+NO2
Unadjusted for Seasonal Medians

Lagged Total NO3+NO2	Correlation	Standard Error	Upper Limit	Lower Limit
0	1.000	0.096	0.192	-0.192
1	0.053	0.167	0.333	-0.333
2	0.014	0.167	0.334	-0.334
3	-0.139	0.167	0.334	-0.334
4	-0.056	0.168	0.336	-0.336
5	-0.257	0.168	0.336	-0.336
6	0.064	0.172	0.343	-0.343
7	-0.241	0.172	0.344	-0.344
8	-0.100	0.175	0.350	-0.350
9	0.303	0.176	0.351	-0.351
10	-0.038	0.180	0.361	-0.361
11	0.425	0.180	0.361	-0.361
12	0.025	0.189	0.379	-0.379
13	0.128	0.189	0.379	-0.379
14	-0.140	0.190	0.380	-0.380
15	-0.029	0.191	0.382	-0.382

S_M_CANAL Trends Appendix
Correlogram for Total NO3+NO2
Unadjusted for Seasonal Median



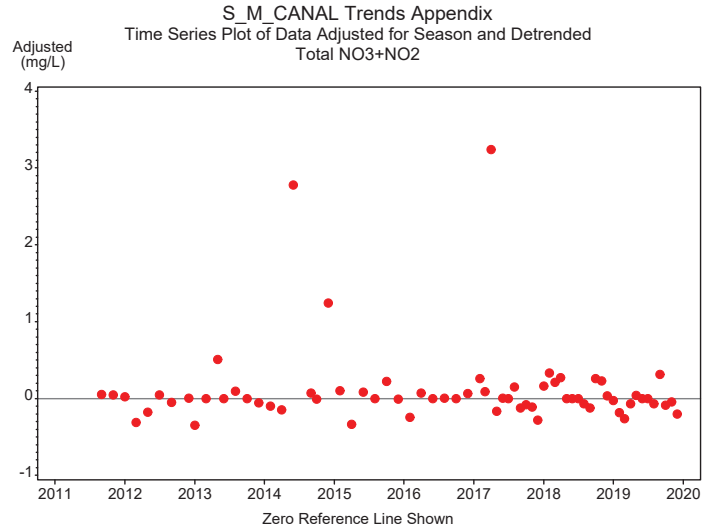
U=Upper 95% Confidence Limit L=Lower 95% Confidence Limit
Zero Reference Line Shown

S_M_CANAL Trends Appendix
Seasonal Kendall Tau Trend Test Statistics
Total NO3+NO2
Unadjusted for Seasonal Medians

Tau Statistic	P-Value Without Serial Correlation	P-Value With Serial Correlation	Slope Statistic
-0.06	0.61	0.601	0

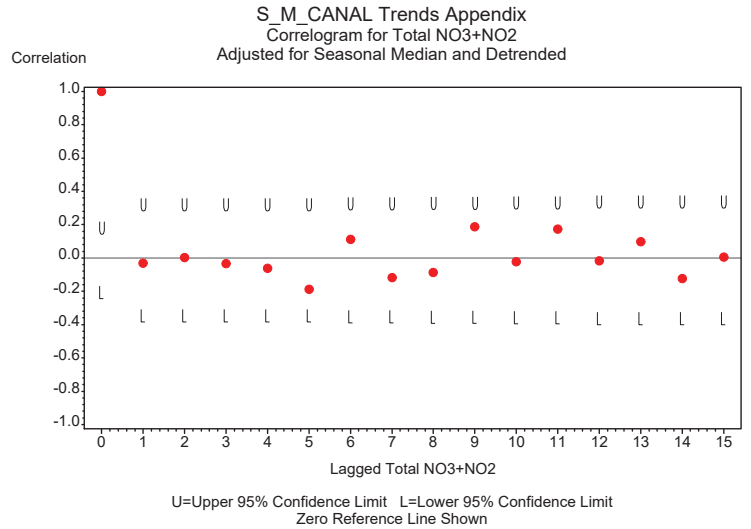
S_M_CANAL Trends Appendix
 Seasonal Kendall Tau Trend Test Statistics
 Total NO3+NO2
 Adjusted for Seasonal Medians

Tau Statistic	P-Value Without Serial Correlation	P-Value With Serial Correlation	Slope Statistic
-0.059524	0.61000	0.60130	0

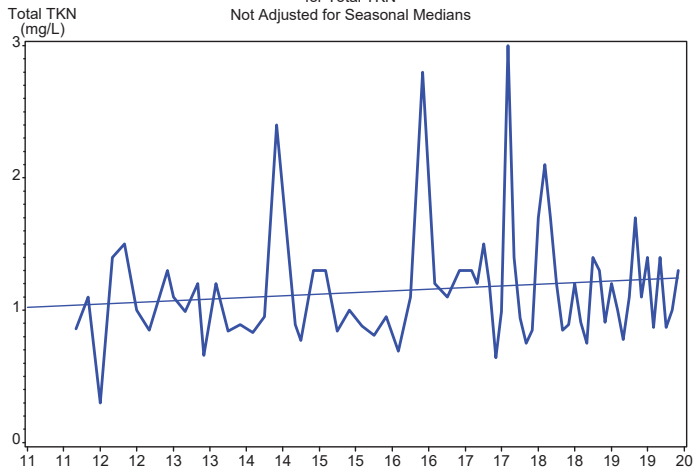


S_M_CANAL Trends Appendix
 Autocorrelation Statistics for Total NO3+NO2
 Adjusted for Seasonal Median and Detrended

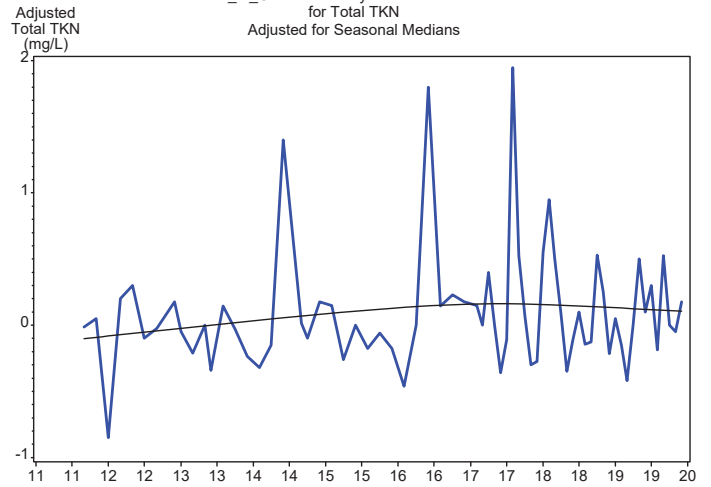
Lagged Total NO3+NO2	Correlation	Standard Error	Upper Limit	Lower Limit
0	1.000	0.096	0.192	-0.192
1	-0.032	0.167	0.333	-0.333
2	0.001	0.167	0.333	-0.333
3	-0.034	0.167	0.333	-0.333
4	-0.061	0.167	0.334	-0.334
5	-0.188	0.167	0.334	-0.334
6	0.111	0.169	0.338	-0.338
7	-0.117	0.170	0.339	-0.339
8	-0.087	0.170	0.341	-0.341
9	0.187	0.171	0.342	-0.342
10	-0.023	0.173	0.345	-0.345
11	0.172	0.173	0.345	-0.345
12	-0.017	0.174	0.349	-0.349
13	0.097	0.174	0.349	-0.349
14	-0.125	0.175	0.350	-0.350
15	0.005	0.176	0.351	-0.351



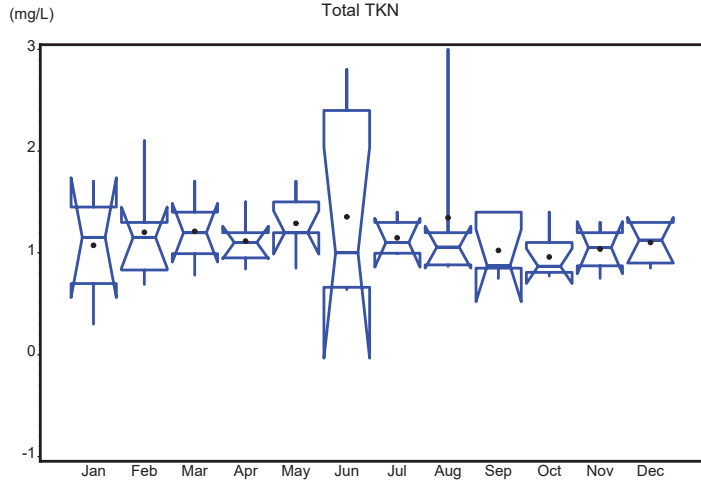
S_M_CANAL Trends
S_M_CANAL Monthly Data Time Series
for Total TKN
Not Adjusted for Seasonal Medians



S_M_CANAL Trends
S_M_CANAL Monthly Data Time Series
for Total TKN
Adjusted for Seasonal Medians



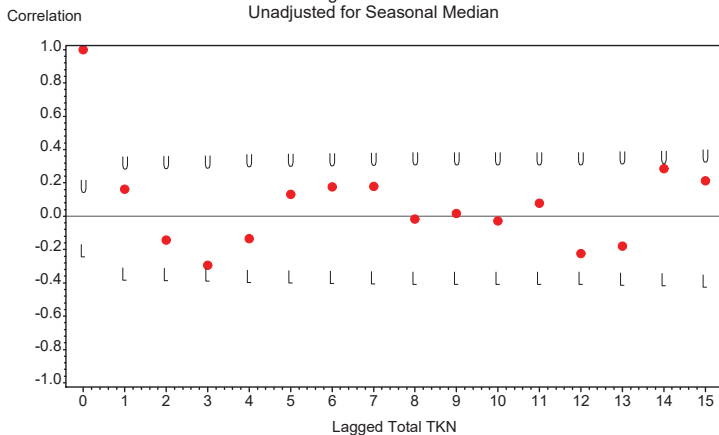
S_M_CANAL Trends Appendix
Seasonal Univariate Statistics
Total TKN



S_M_CANAL Trends Appendix
Autocorrelation Statistics for Total TKN
Unadjusted for Seasonal Medians

Lagged Total TKN	Correlation	Standard Error	Upper Limit	Lower Limit
0	1.000	0.096	0.192	-0.192
1	0.162	0.167	0.333	-0.333
2	-0.143	0.168	0.336	-0.336
3	-0.294	0.169	0.338	-0.338
4	-0.135	0.174	0.348	-0.348
5	0.132	0.175	0.350	-0.350
6	0.175	0.176	0.352	-0.352
7	0.179	0.177	0.355	-0.355
8	-0.016	0.179	0.358	-0.358
9	0.017	0.179	0.358	-0.358
10	-0.029	0.179	0.358	-0.358
11	0.078	0.179	0.358	-0.358
12	-0.224	0.179	0.359	-0.359
13	-0.179	0.182	0.364	-0.364
14	0.286	0.184	0.367	-0.367
15	0.211	0.188	0.375	-0.375

S_M_CANAL Trends Appendix
Correlogram for Total TKN
Unadjusted for Seasonal Median



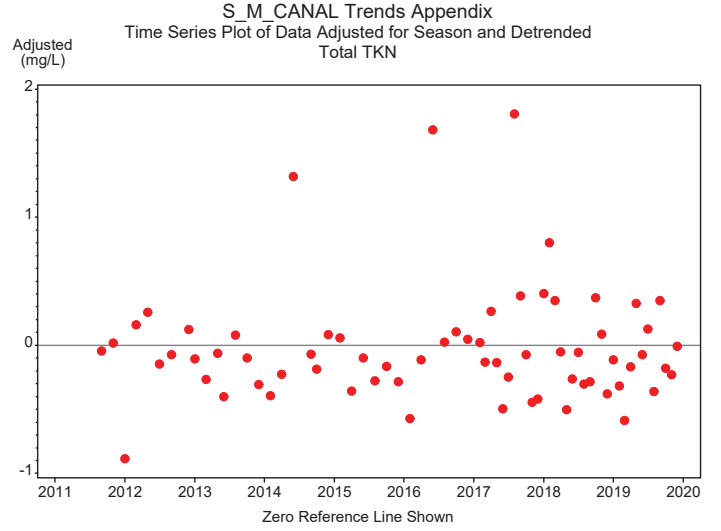
U=Upper 95% Confidence Limit L=Lower 95% Confidence Limit
Zero Reference Line Shown

S_M_CANAL Trends Appendix
Seasonal Kendall Tau Trend Test Statistics
Total TKN
Unadjusted for Seasonal Medians

Tau Statistic	P-Value Without Serial Correlation	P-Value With Serial Correlation	Slope Statistic
0.137	0.214	0.147	0.018

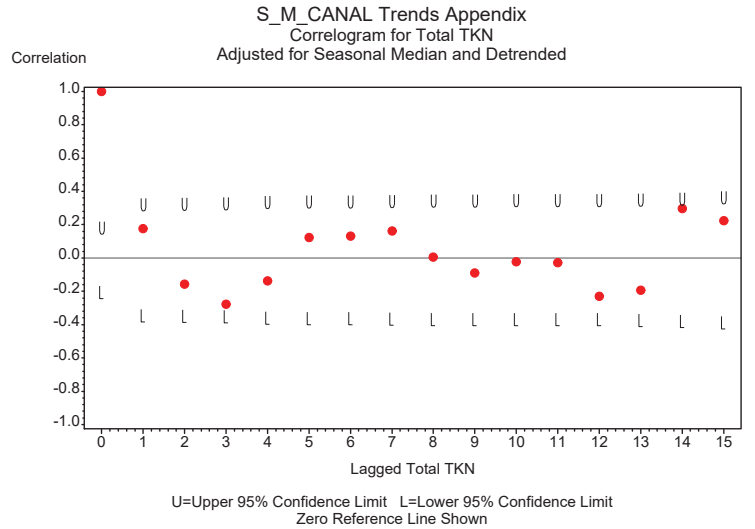
S_M_CANAL Trends Appendix
 Seasonal Kendall Tau Trend Test Statistics
 Total TKN
 Adjusted for Seasonal Medians

Tau Statistic	P-Value Without Serial Correlation	P-Value With Serial Correlation	Slope Statistic
0.13691	0.21368	0.14659	0.018333

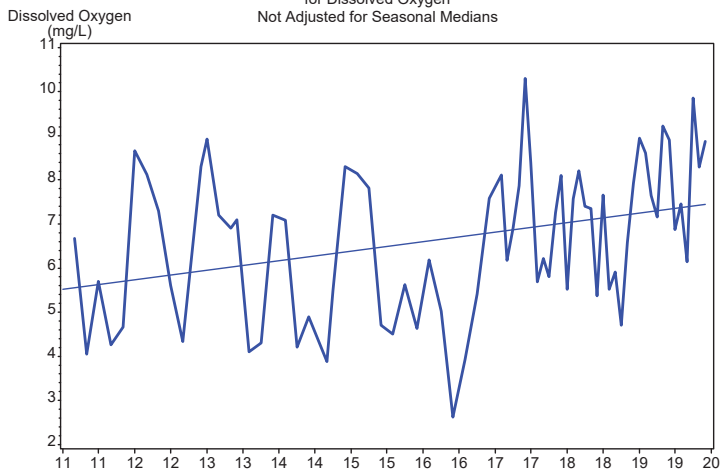


S_M_CANAL Trends Appendix
 Autocorrelation Statistics for Total TKN
 Adjusted for Seasonal Median and Detrended

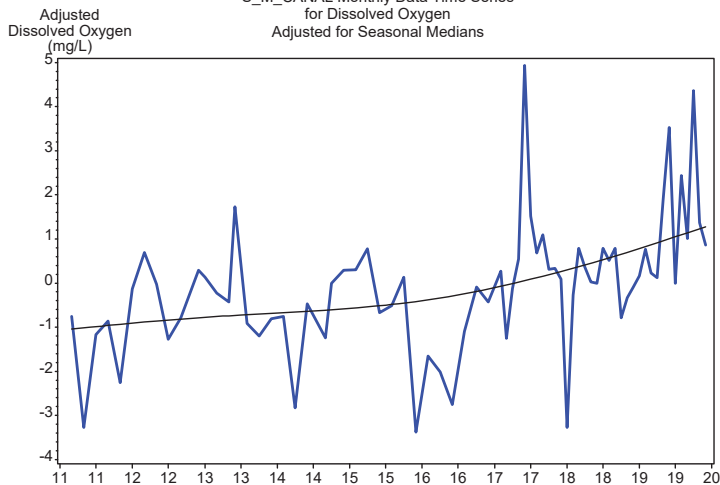
Lagged Total TKN	Correlation	Standard Error	Upper Limit	Lower Limit
0	1.000	0.096	0.192	-0.192
1	0.177	0.167	0.333	-0.333
2	-0.156	0.168	0.337	-0.337
3	-0.277	0.170	0.339	-0.339
4	-0.137	0.174	0.348	-0.348
5	0.124	0.175	0.350	-0.350
6	0.132	0.176	0.351	-0.351
7	0.162	0.177	0.353	-0.353
8	0.004	0.178	0.356	-0.356
9	-0.090	0.178	0.356	-0.356
10	-0.022	0.178	0.357	-0.357
11	-0.028	0.178	0.357	-0.357
12	-0.229	0.178	0.357	-0.357
13	-0.194	0.181	0.362	-0.362
14	0.297	0.183	0.366	-0.366
15	0.223	0.187	0.375	-0.375



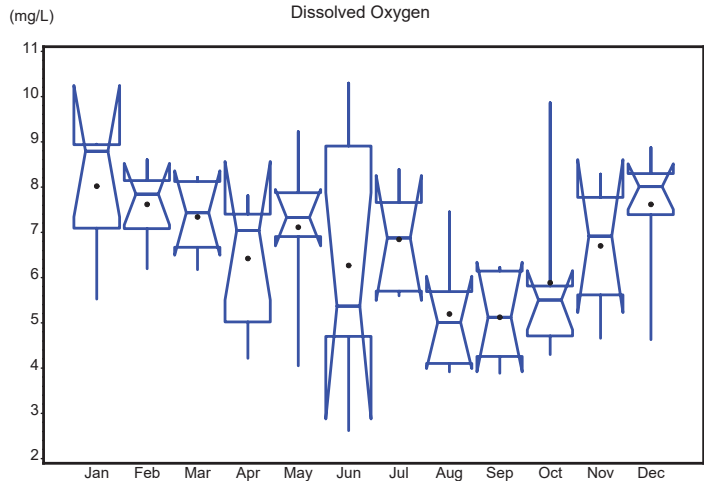
S_M_CANAL Trends
S_M_CANAL Monthly Data Time Series
for Dissolved Oxygen
Not Adjusted for Seasonal Medians



S_M_CANAL Trends
S_M_CANAL Monthly Data Time Series
for Dissolved Oxygen
Adjusted for Seasonal Medians



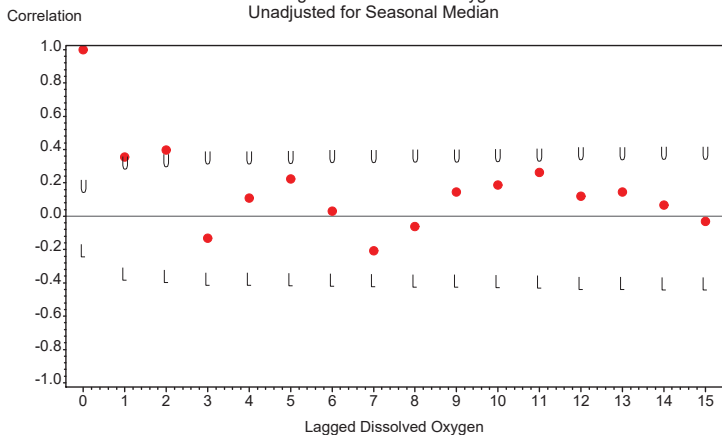
S_M_CANAL Trends Appendix
Seasonal Univariate Statistics
Dissolved Oxygen



S_M_CANAL Trends Appendix
Autocorrelation Statistics for Dissolved Oxygen
Unadjusted for Seasonal Medians

Lagged Dissolved Oxygen	Correlation	Standard Error	Upper Limit	Lower Limit
0	1.000	0.096	0.192	-0.192
1	0.356	0.167	0.333	-0.333
2	0.396	0.174	0.347	-0.347
3	-0.132	0.182	0.363	-0.363
4	0.108	0.183	0.365	-0.365
5	0.224	0.183	0.366	-0.366
6	0.031	0.186	0.371	-0.371
7	-0.209	0.186	0.372	-0.372
8	-0.061	0.188	0.376	-0.376
9	0.145	0.188	0.376	-0.376
10	0.188	0.189	0.378	-0.378
11	0.262	0.191	0.382	-0.382
12	0.121	0.194	0.388	-0.388
13	0.146	0.195	0.390	-0.390
14	0.067	0.196	0.392	-0.392
15	-0.032	0.196	0.392	-0.392

S_M_CANAL Trends Appendix
Correlogram for Dissolved Oxygen
Unadjusted for Seasonal Median



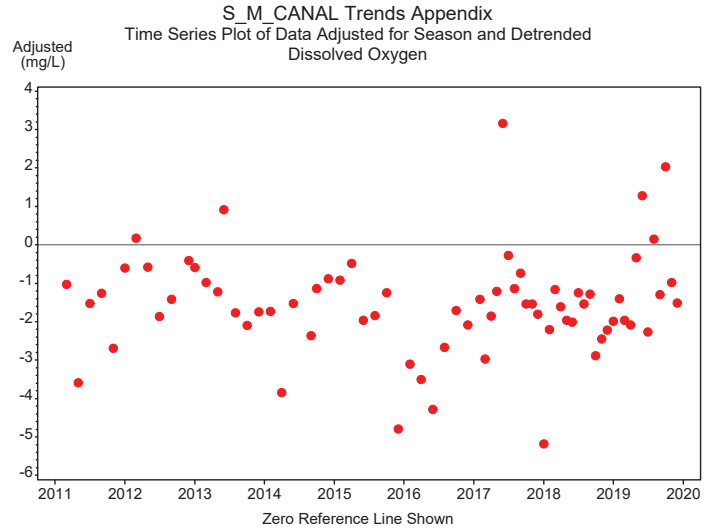
U=Upper 95% Confidence Limit L=Lower 95% Confidence Limit
Zero Reference Line Shown

S_M_CANAL Trends Appendix
Seasonal Kendall Tau Trend Test Statistics
Dissolved Oxygen
Unadjusted for Seasonal Medians

Tau Statistic	P-Value Without Serial Correlation	P-Value With Serial Correlation	Slope Statistic
0.357	.001	0.079	0.239

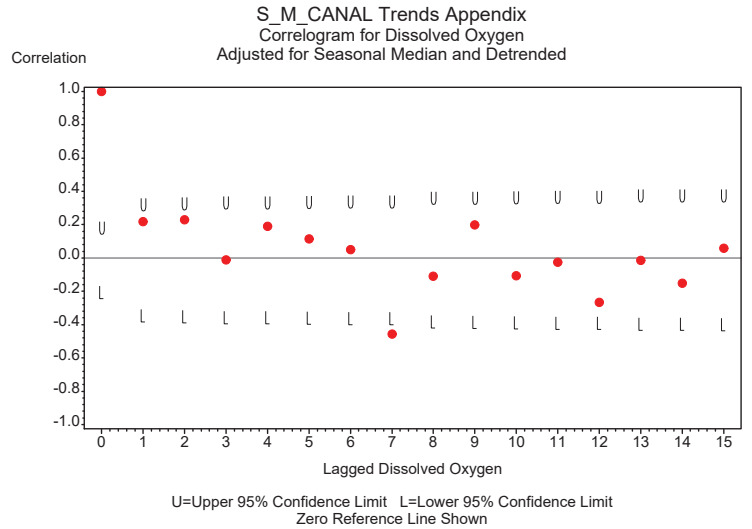
S_M_CANAL Trends Appendix
 Seasonal Kendall Tau Trend Test Statistics
 Dissolved Oxygen
 Adjusted for Seasonal Medians

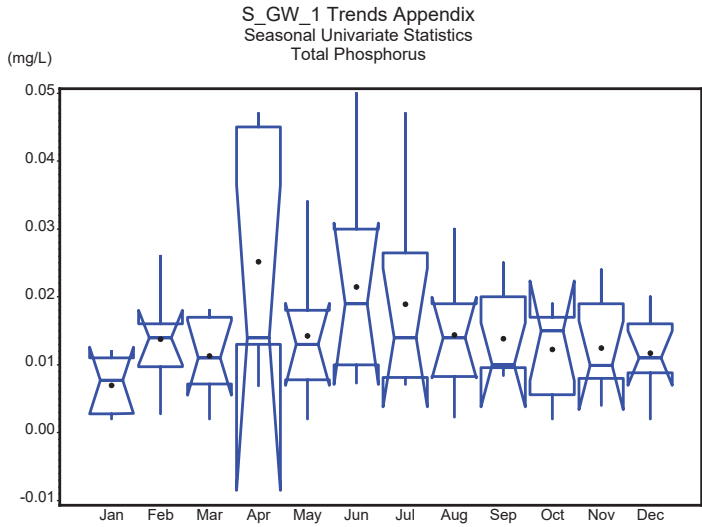
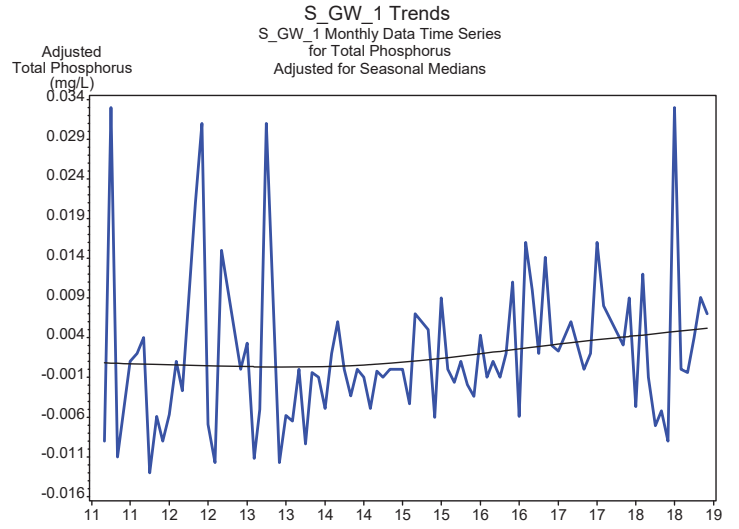
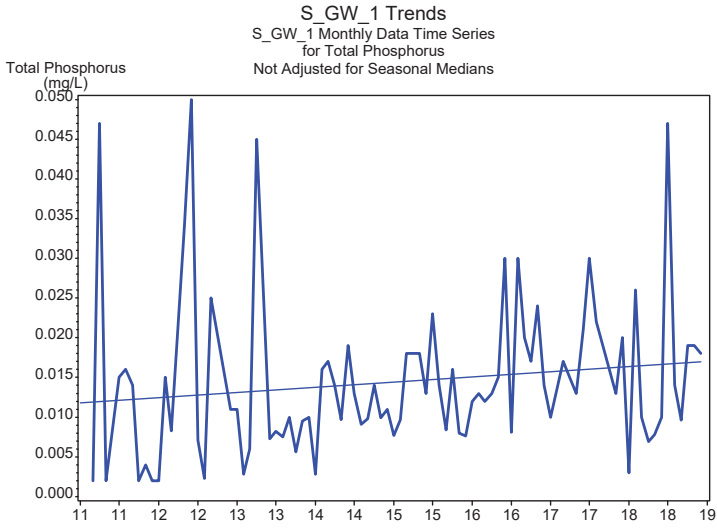
Tau Statistic	P-Value Without Serial Correlation	P-Value With Serial Correlation	Slope Statistic
0.35714	.000706077	0.079463	0.23911



S_M_CANAL Trends Appendix
 Autocorrelation Statistics for Dissolved Oxygen
 Adjusted for Seasonal Median and Detrended

Lagged Dissolved Oxygen	Correlation	Standard Error	Upper Limit	Lower Limit
0	1.000	0.096	0.192	-0.192
1	0.218	0.167	0.333	-0.333
2	0.229	0.169	0.339	-0.339
3	-0.013	0.172	0.344	-0.344
4	0.191	0.172	0.344	-0.344
5	0.114	0.174	0.348	-0.348
6	0.050	0.175	0.350	-0.350
7	-0.458	0.175	0.350	-0.350
8	-0.111	0.186	0.371	-0.371
9	0.197	0.186	0.373	-0.373
10	-0.108	0.188	0.376	-0.376
11	-0.025	0.189	0.378	-0.378
12	-0.267	0.189	0.378	-0.378
13	-0.014	0.192	0.385	-0.385
14	-0.151	0.192	0.385	-0.385
15	0.058	0.193	0.387	-0.387

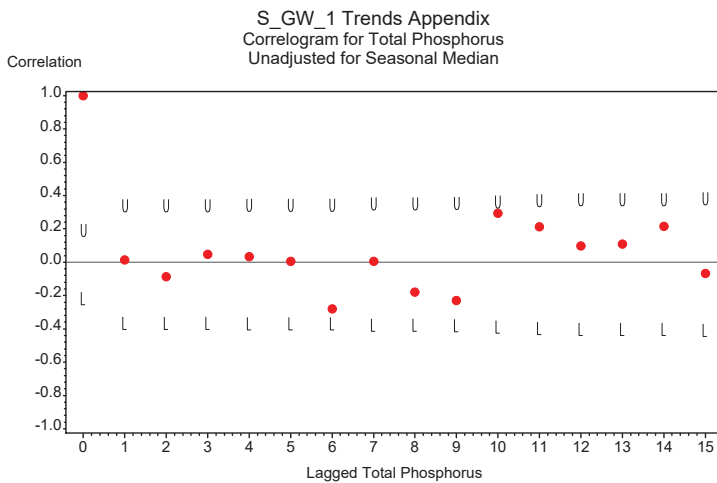




S_GW_1 Trends Appendix

Autocorrelation Statistics for Total Phosphorus
Unadjusted for Seasonal Medians

Lagged Total Phosphorus	Correlation	Standard Error	Upper Limit	Lower Limit
0	1.000	0.102	0.204	-0.204
1	0.014	0.177	0.354	-0.354
2	-0.088	0.177	0.354	-0.354
3	0.047	0.177	0.354	-0.354
4	0.033	0.177	0.355	-0.355
5	0.005	0.177	0.355	-0.355
6	-0.280	0.177	0.355	-0.355
7	0.006	0.182	0.364	-0.364
8	-0.180	0.182	0.364	-0.364
9	-0.231	0.184	0.368	-0.368
10	0.293	0.187	0.374	-0.374
11	0.213	0.192	0.383	-0.383
12	0.098	0.194	0.388	-0.388
13	0.110	0.195	0.389	-0.389
14	0.215	0.195	0.390	-0.390
15	-0.068	0.198	0.395	-0.395



U=Upper 95% Confidence Limit L=Lower 95% Confidence Limit
Zero Reference Line Shown

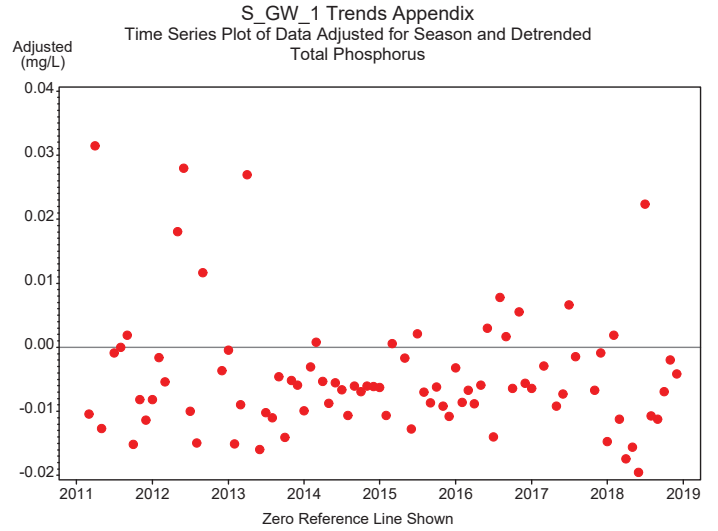
S_GW_1 Trends Appendix

Seasonal Kendall Tau Trend Test Statistics
Total Phosphorus
Unadjusted for Seasonal Medians

Tau Statistic	P-Value Without Serial Correlation	P-Value With Serial Correlation	Slope Statistic
0.265	.004	0.045	.001

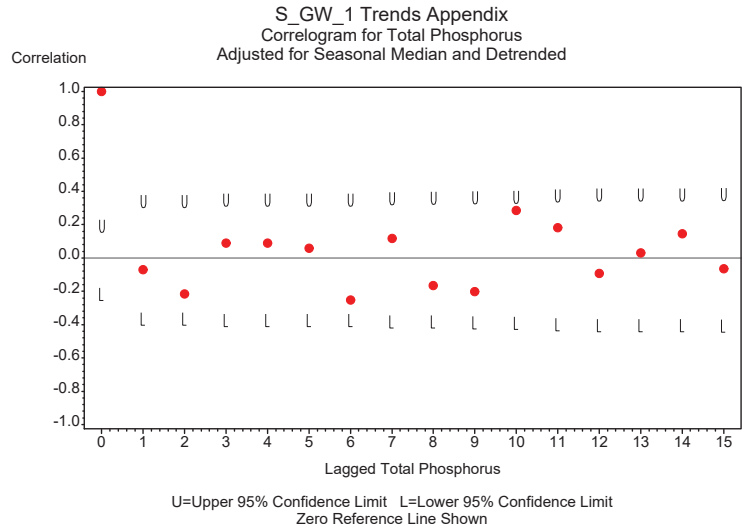
S_GW_1 Trends Appendix
 Seasonal Kendall Tau Trend Test Statistics
 Total Phosphorus
 Adjusted for Seasonal Medians

Tau Statistic	P-Value Without Serial Correlation	P-Value With Serial Correlation	Slope Statistic
0.26459	.00416219	0.045284	.00125

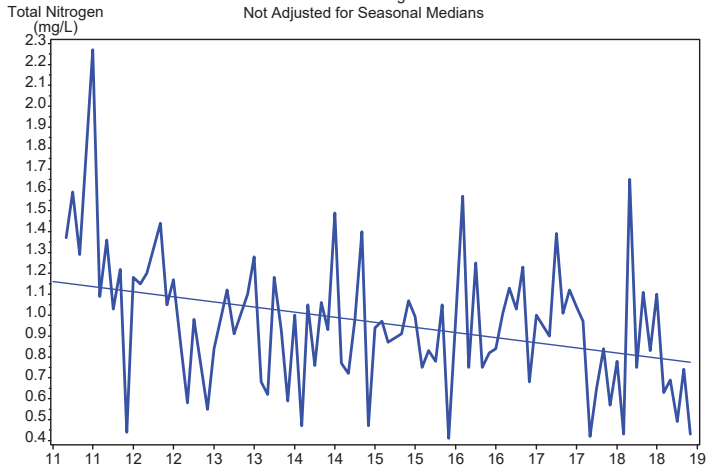


S_GW_1 Trends Appendix
 Autocorrelation Statistics for Total Phosphorus
 Adjusted for Seasonal Median and Detrended

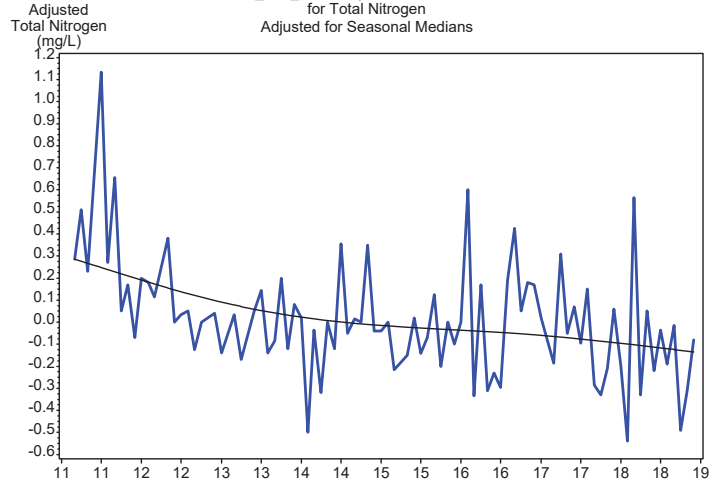
Lagged Total Phosphorus	Correlation	Standard Error	Upper Limit	Lower Limit
0	1.000	0.102	0.204	-0.204
1	-0.070	0.177	0.354	-0.354
2	-0.217	0.177	0.354	-0.354
3	0.090	0.180	0.360	-0.360
4	0.089	0.180	0.361	-0.361
5	0.057	0.181	0.361	-0.361
6	-0.252	0.181	0.362	-0.362
7	0.116	0.185	0.369	-0.369
8	-0.166	0.185	0.371	-0.371
9	-0.202	0.187	0.374	-0.374
10	0.286	0.189	0.378	-0.378
11	0.182	0.194	0.387	-0.387
12	-0.093	0.195	0.391	-0.391
13	0.031	0.196	0.392	-0.392
14	0.145	0.196	0.392	-0.392
15	-0.065	0.197	0.394	-0.394



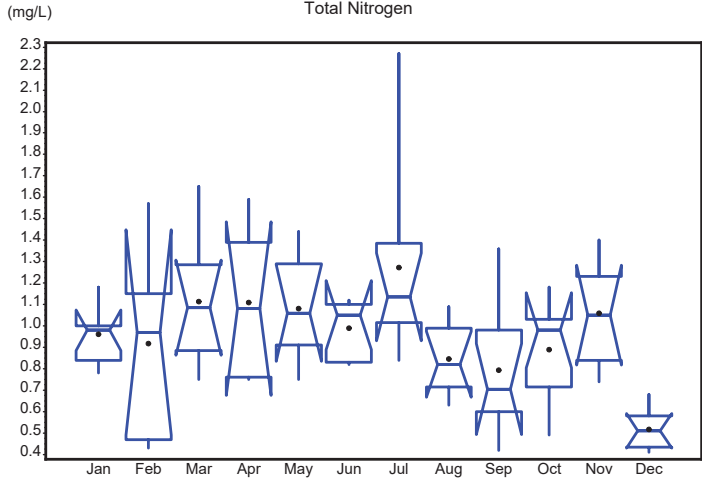
S_GW_1 Trends
S_GW_1 Monthly Data Time Series
for Total Nitrogen
Not Adjusted for Seasonal Medians



S_GW_1 Trends
S_GW_1 Monthly Data Time Series
for Total Nitrogen
Adjusted for Seasonal Medians



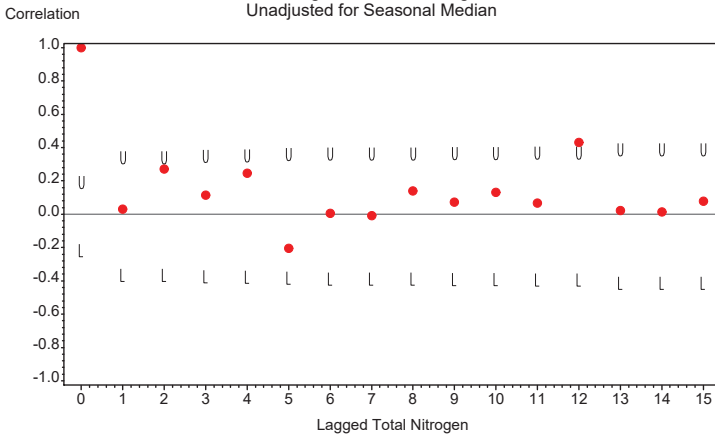
S_GW_1 Trends Appendix
Seasonal Univariate Statistics
Total Nitrogen



S_GW_1 Trends Appendix
Autocorrelation Statistics for Total Nitrogen
Unadjusted for Seasonal Medians

Lagged Total Nitrogen	Correlation	Standard Error	Upper Limit	Lower Limit
0	1.000	0.102	0.204	-0.204
1	0.031	0.177	0.354	-0.354
2	0.272	0.177	0.354	-0.354
3	0.115	0.181	0.362	-0.362
4	0.246	0.182	0.364	-0.364
5	-0.205	0.185	0.371	-0.371
6	0.005	0.188	0.375	-0.375
7	-0.010	0.188	0.375	-0.375
8	0.140	0.188	0.375	-0.375
9	0.072	0.189	0.378	-0.378
10	0.132	0.189	0.378	-0.378
11	0.067	0.190	0.380	-0.380
12	0.431	0.190	0.381	-0.381
13	0.021	0.200	0.400	-0.400
14	0.014	0.200	0.400	-0.400
15	0.079	0.200	0.400	-0.400

S_GW_1 Trends Appendix
Correlogram for Total Nitrogen
Unadjusted for Seasonal Median



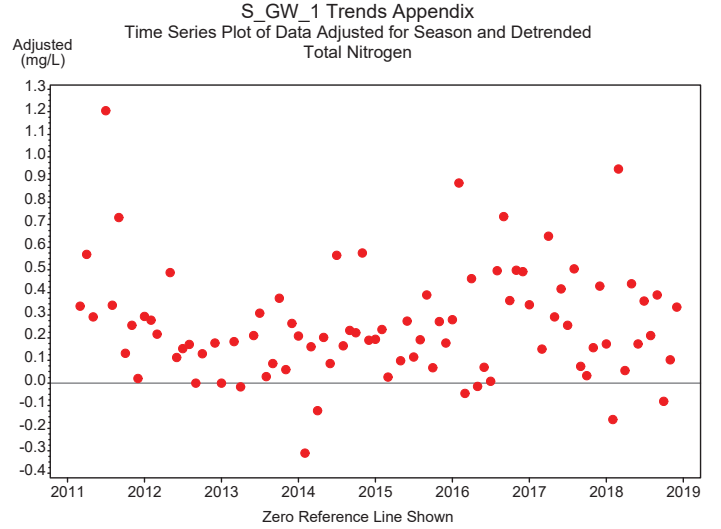
U=Upper 95% Confidence Limit L=Lower 95% Confidence Limit
Zero Reference Line Shown

S_GW_1 Trends Appendix
Seasonal Kendall Tau Trend Test Statistics
Total Nitrogen
Unadjusted for Seasonal Medians

Tau Statistic	P-Value Without Serial Correlation	P-Value With Serial Correlation	Slope Statistic
-0.289	.001	0.036	-0.047

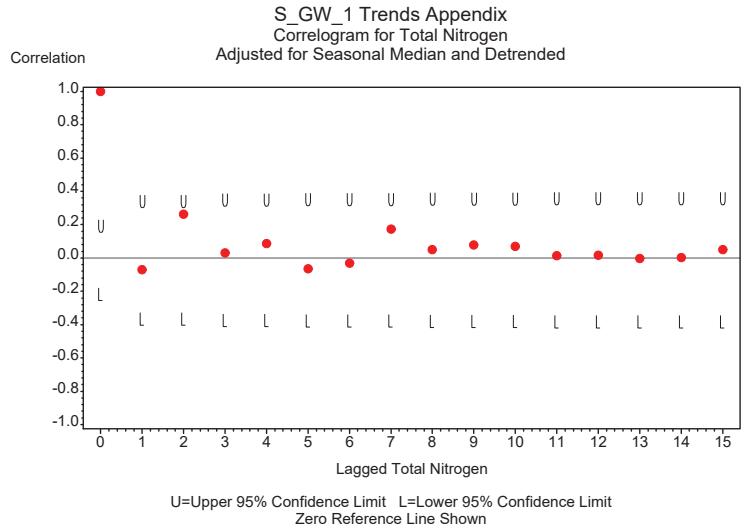
S_GW_1 Trends Appendix
 Seasonal Kendall Tau Trend Test Statistics
 Total Nitrogen
 Adjusted for Seasonal Medians

Tau Statistic	P-Value Without Serial Correlation	P-Value With Serial Correlation	Slope Statistic
-0.28881	.00139768	0.035869	-0.046667

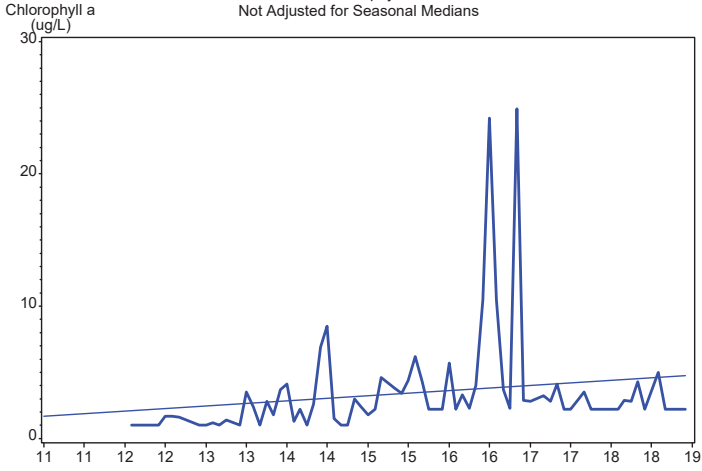


S_GW_1 Trends Appendix
 Autocorrelation Statistics for Total Nitrogen
 Adjusted for Seasonal Median and Detrended

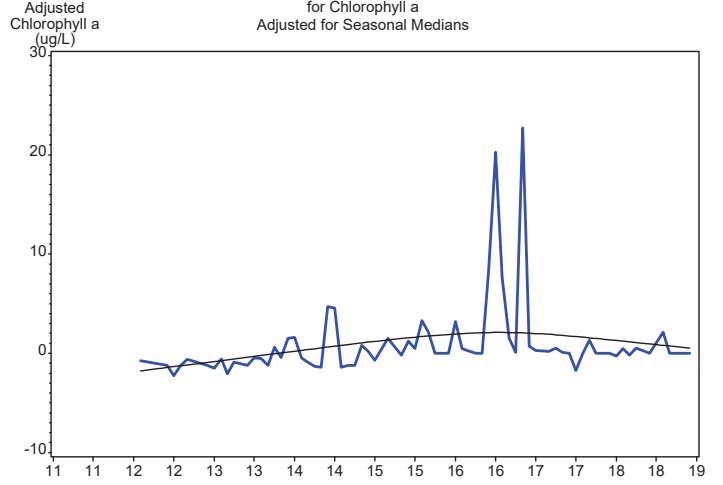
Lagged Total Nitrogen	Correlation	Standard Error	Upper Limit	Lower Limit
0	1.000	0.102	0.204	-0.204
1	-0.070	0.177	0.354	-0.354
2	0.264	0.177	0.354	-0.354
3	0.030	0.181	0.362	-0.362
4	0.085	0.181	0.362	-0.362
5	-0.065	0.182	0.363	-0.363
6	-0.030	0.182	0.364	-0.364
7	0.172	0.182	0.364	-0.364
8	0.049	0.184	0.367	-0.367
9	0.078	0.184	0.367	-0.367
10	0.069	0.184	0.368	-0.368
11	0.013	0.184	0.369	-0.369
12	0.017	0.184	0.369	-0.369
13	-0.004	0.184	0.369	-0.369
14	0.001	0.184	0.369	-0.369
15	0.049	0.184	0.369	-0.369



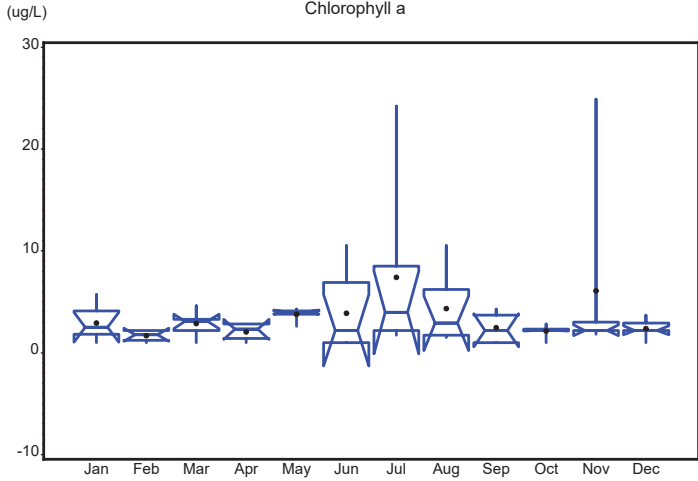
S_GW_1 Trends
S_GW_1 Monthly Data Time Series
for Chlorophyll a
Not Adjusted for Seasonal Medians



S_GW_1 Trends
S_GW_1 Monthly Data Time Series
for Chlorophyll a
Adjusted for Seasonal Medians



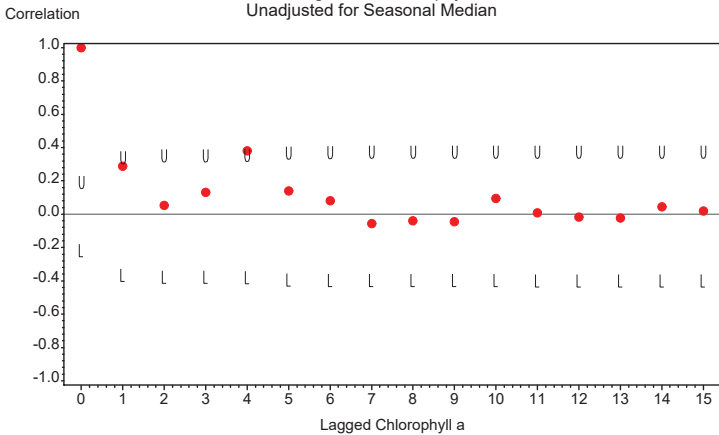
S_GW_1 Trends Appendix
Seasonal Univariate Statistics
Chlorophyll a



S_GW_1 Trends Appendix
Autocorrelation Statistics for Chlorophyll a
Unadjusted for Seasonal Medians

Lagged Chlorophyll a	Correlation	Standard Error	Upper Limit	Lower Limit
0	1.000	0.102	0.204	-0.204
1	0.289	0.177	0.354	-0.354
2	0.052	0.182	0.363	-0.363
3	0.132	0.182	0.364	-0.364
4	0.380	0.183	0.366	-0.366
5	0.140	0.191	0.382	-0.382
6	0.081	0.192	0.384	-0.384
7	-0.056	0.192	0.385	-0.385
8	-0.041	0.192	0.385	-0.385
9	-0.045	0.193	0.385	-0.385
10	0.095	0.193	0.385	-0.385
11	0.007	0.193	0.386	-0.386
12	-0.017	0.193	0.386	-0.386
13	-0.022	0.193	0.386	-0.386
14	0.044	0.193	0.386	-0.386
15	0.020	0.193	0.387	-0.387

S_GW_1 Trends Appendix
Correlogram for Chlorophyll a
Unadjusted for Seasonal Median



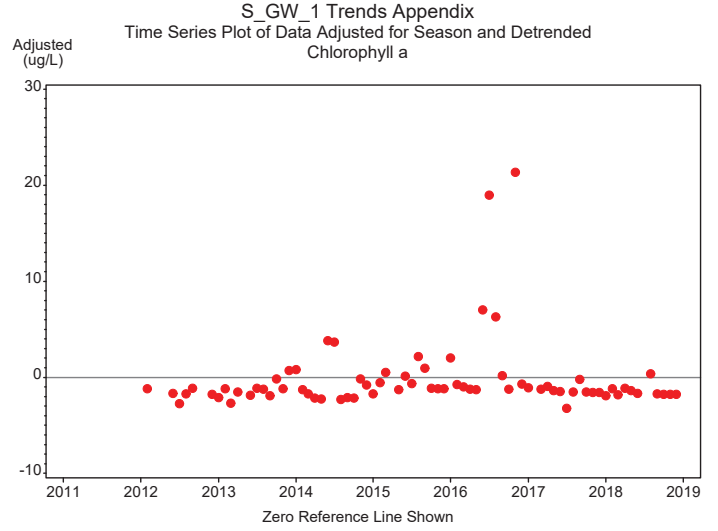
U=Upper 95% Confidence Limit L=Lower 95% Confidence Limit
Zero Reference Line Shown

S_GW_1 Trends Appendix
Seasonal Kendall Tau Trend Test Statistics
Chlorophyll a
Unadjusted for Seasonal Medians

Tau Statistic	P-Value Without Serial Correlation	P-Value With Serial Correlation	Slope Statistic
0.289	.004	0.135	0.2

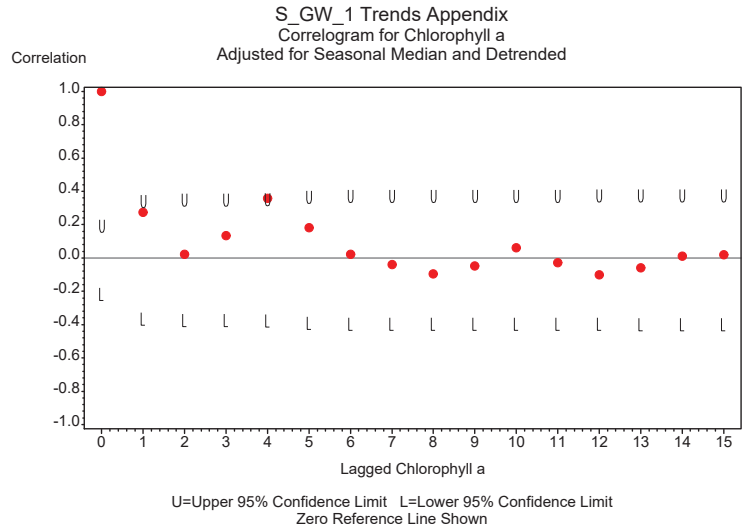
S_GW_1 Trends Appendix
 Seasonal Kendall Tau Trend Test Statistics
 Chlorophyll a
 Adjusted for Seasonal Medians

Tau Statistic	P-Value Without Serial Correlation	P-Value With Serial Correlation	Slope Statistic
0.28866	.00384319	0.13461	0.2

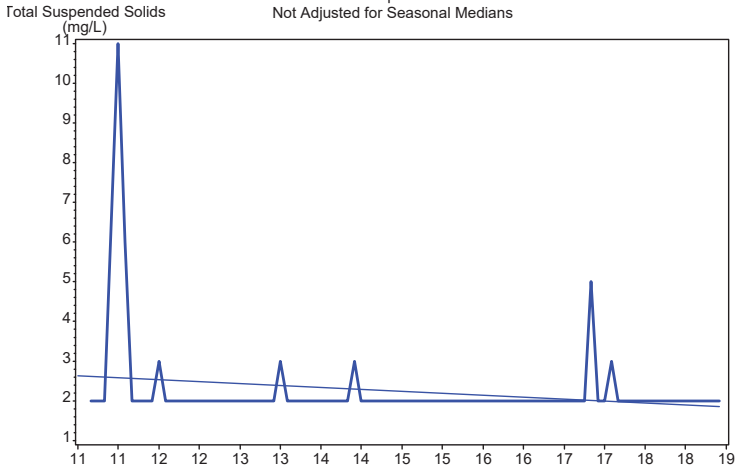


S_GW_1 Trends Appendix
 Autocorrelation Statistics for Chlorophyll a
 Adjusted for Seasonal Median and Detrended

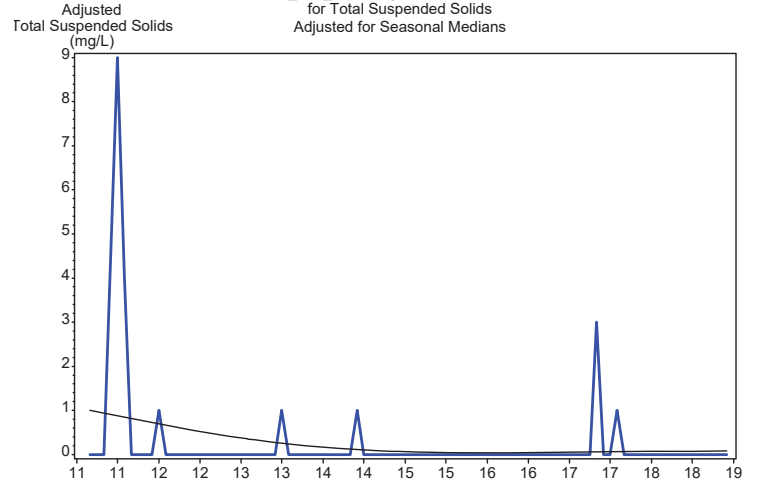
Lagged Chlorophyll a	Correlation	Standard Error	Upper Limit	Lower Limit
0	1.000	0.102	0.204	-0.204
1	0.275	0.177	0.354	-0.354
2	0.021	0.181	0.362	-0.362
3	0.135	0.181	0.362	-0.362
4	0.359	0.182	0.365	-0.365
5	0.181	0.189	0.379	-0.379
6	0.022	0.191	0.383	-0.383
7	-0.039	0.191	0.383	-0.383
8	-0.095	0.191	0.383	-0.383
9	-0.049	0.192	0.384	-0.384
10	0.062	0.192	0.384	-0.384
11	-0.028	0.192	0.384	-0.384
12	-0.100	0.192	0.385	-0.385
13	-0.060	0.193	0.386	-0.386
14	0.012	0.193	0.386	-0.386
15	0.018	0.193	0.386	-0.386



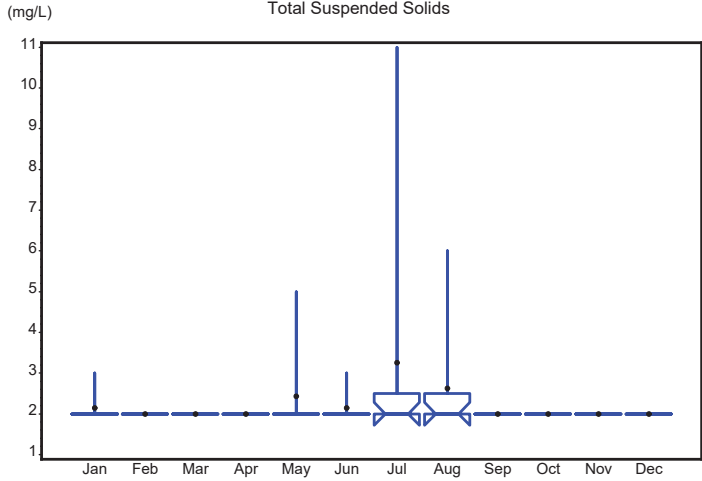
S_GW_1 Trends
S_GW_1 Monthly Data Time Series
for Total Suspended Solids
Not Adjusted for Seasonal Medians



S_GW_1 Trends
S_GW_1 Monthly Data Time Series
for Total Suspended Solids
Adjusted for Seasonal Medians



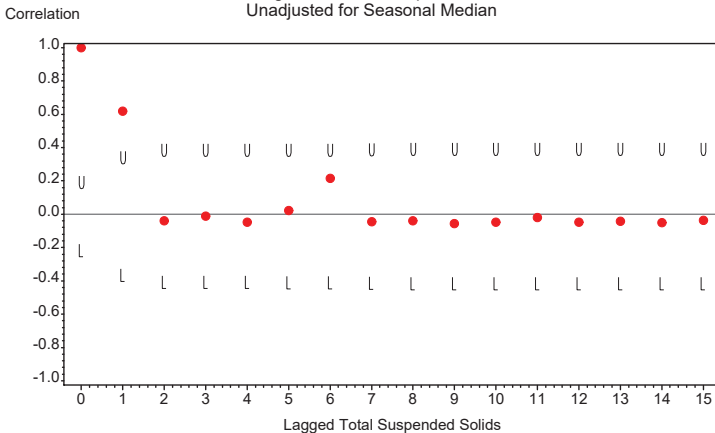
S_GW_1 Trends Appendix
Seasonal Univariate Statistics
Total Suspended Solids



S_GW_1 Trends Appendix
Autocorrelation Statistics for Total Suspended Solids
Unadjusted for Seasonal Medians

Lagged Total Suspended Solids	Correlation	Standard Error	Upper Limit	Lower Limit
0	1.000	0.102	0.204	-0.204
1	0.619	0.177	0.354	-0.354
2	-0.039	0.198	0.396	-0.396
3	-0.011	0.198	0.396	-0.396
4	-0.048	0.198	0.396	-0.396
5	0.022	0.198	0.397	-0.397
6	0.214	0.198	0.397	-0.397
7	-0.045	0.201	0.401	-0.401
8	-0.040	0.201	0.402	-0.402
9	-0.057	0.201	0.402	-0.402
10	-0.048	0.201	0.402	-0.402
11	-0.019	0.201	0.402	-0.402
12	-0.049	0.201	0.402	-0.402
13	-0.042	0.201	0.403	-0.403
14	-0.050	0.201	0.403	-0.403
15	-0.037	0.202	0.403	-0.403

S_GW_1 Trends Appendix
Correlogram for Total Suspended Solids
Unadjusted for Seasonal Median



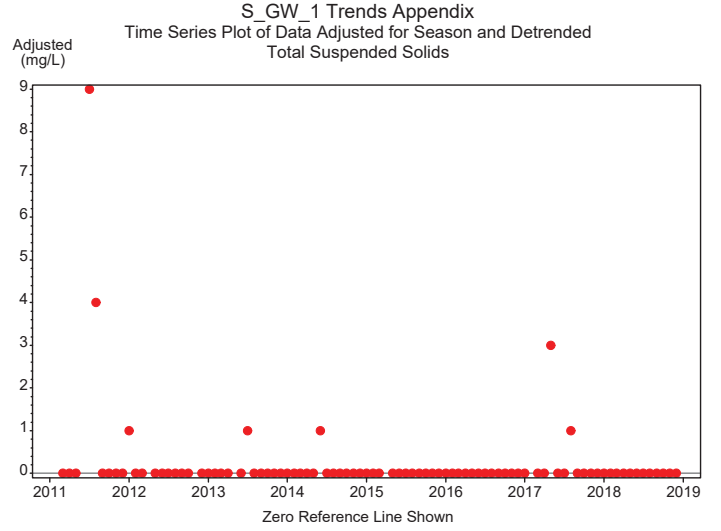
U=Upper 95% Confidence Limit L=Lower 95% Confidence Limit
Zero Reference Line Shown

S_GW_1 Trends Appendix
Seasonal Kendall Tau Trend Test Statistics
Total Suspended Solids
Unadjusted for Seasonal Medians

Tau Statistic	P-Value Without Serial Correlation	P-Value With Serial Correlation	Slope Statistic
-0.064	0.124	0.148	0

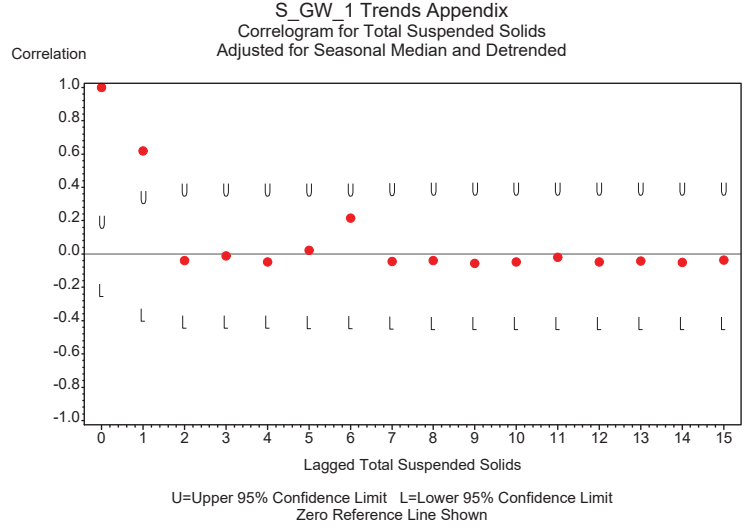
S_GW_1 Trends Appendix
 Seasonal Kendall Tau Trend Test Statistics
 Total Suspended Solids
 Adjusted for Seasonal Medians

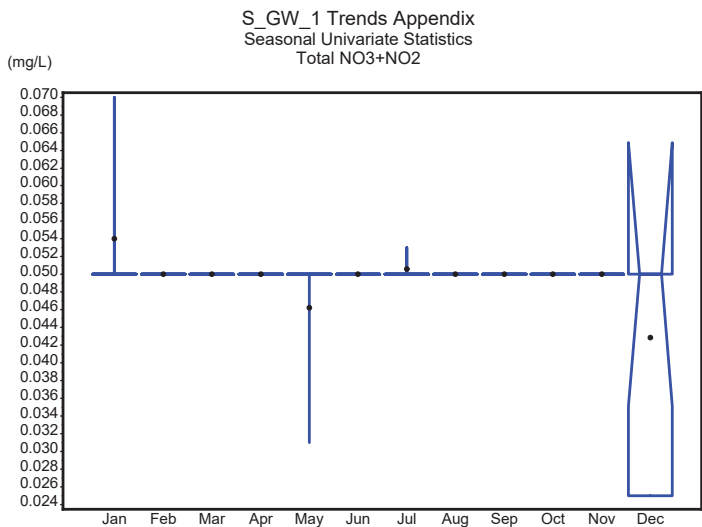
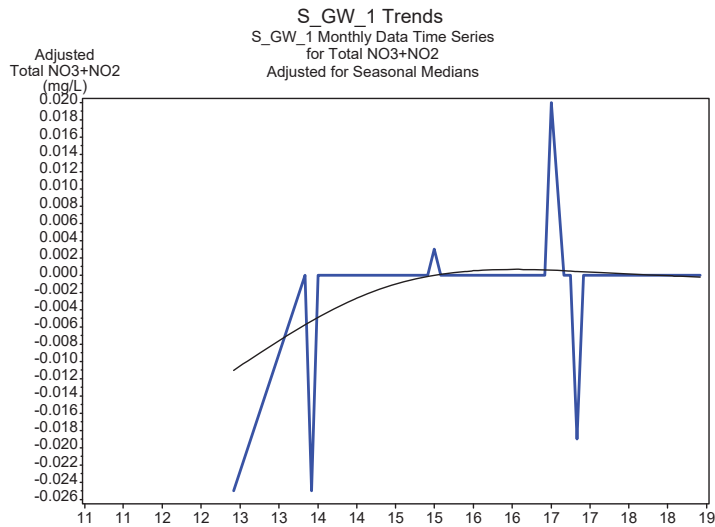
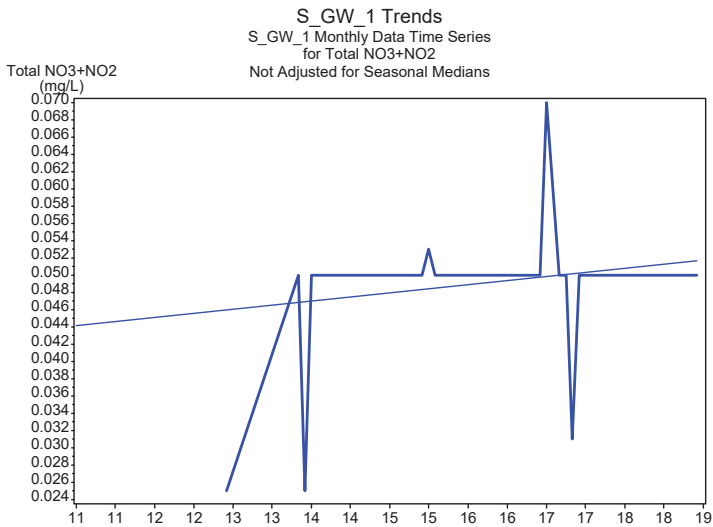
Tau Statistic	P-Value Without Serial Correlation	P-Value With Serial Correlation	Slope Statistic
-0.063830	0.12378	0.14786	0



S_GW_1 Trends Appendix
 Autocorrelation Statistics for Total Suspended Solids
 Adjusted for Seasonal Median and Detrended

Lagged Total Suspended Solids	Correlation	Standard Error	Upper Limit	Lower Limit
0	1.000	0.102	0.204	-0.204
1	0.619	0.177	0.354	-0.354
2	-0.039	0.198	0.396	-0.396
3	-0.011	0.198	0.396	-0.396
4	-0.048	0.198	0.396	-0.396
5	0.022	0.198	0.397	-0.397
6	0.214	0.198	0.397	-0.397
7	-0.045	0.201	0.401	-0.401
8	-0.040	0.201	0.402	-0.402
9	-0.057	0.201	0.402	-0.402
10	-0.048	0.201	0.402	-0.402
11	-0.019	0.201	0.402	-0.402
12	-0.049	0.201	0.402	-0.402
13	-0.042	0.201	0.403	-0.403
14	-0.050	0.201	0.403	-0.403
15	-0.037	0.202	0.403	-0.403

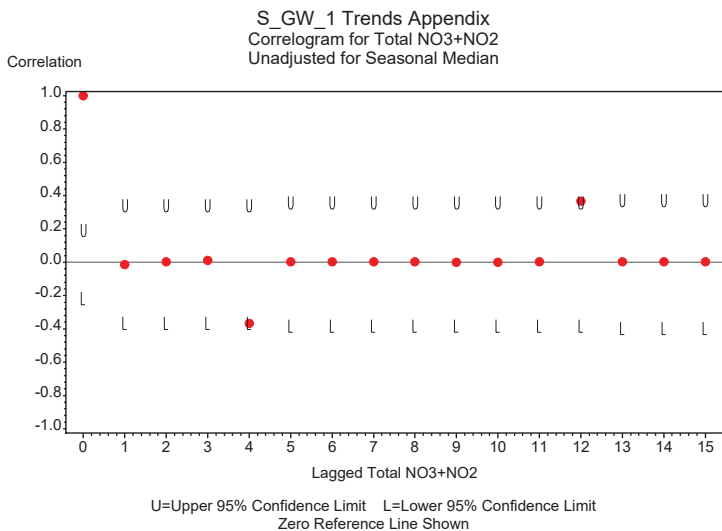




S_GW_1 Trends Appendix

Autocorrelation Statistics for Total NO3+NO2
Unadjusted for Seasonal Medians

Lagged Total NO3+NO2	Correlation	Standard Error	Upper Limit	Lower Limit
0	1.000	0.102	0.204	-0.204
1	-0.014	0.177	0.354	-0.354
2	0.002	0.177	0.354	-0.354
3	0.011	0.177	0.354	-0.354
4	-0.366	0.177	0.354	-0.354
5	0.002	0.185	0.369	-0.369
6	0.002	0.185	0.369	-0.369
7	0.002	0.185	0.369	-0.369
8	0.002	0.185	0.369	-0.369
9	0.000	0.185	0.369	-0.369
10	0.000	0.185	0.369	-0.369
11	0.003	0.185	0.369	-0.369
12	0.365	0.185	0.369	-0.369
13	0.003	0.192	0.384	-0.384
14	0.003	0.192	0.384	-0.384
15	0.003	0.192	0.384	-0.384



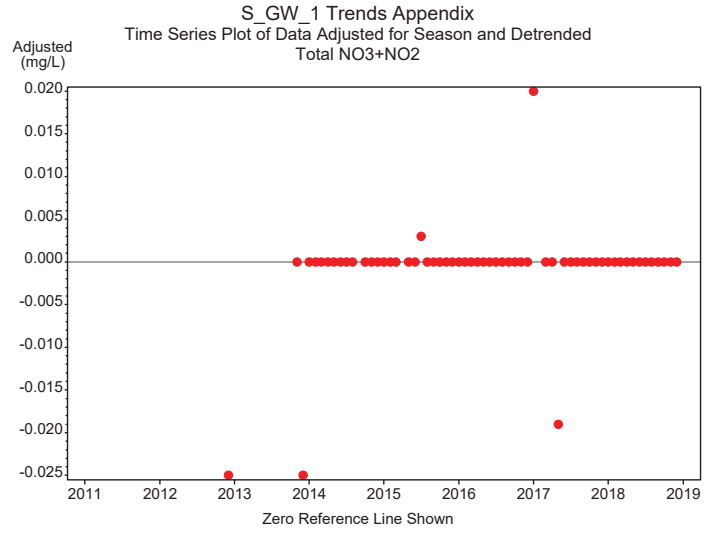
S_GW_1 Trends Appendix

Seasonal Kendall Tau Trend Test Statistics
Total NO3+NO2
Unadjusted for Seasonal Medians

Tau Statistic	P-Value Without Serial Correlation	P-Value With Serial Correlation	Slope Statistic
0.065	0.325	0.234	0

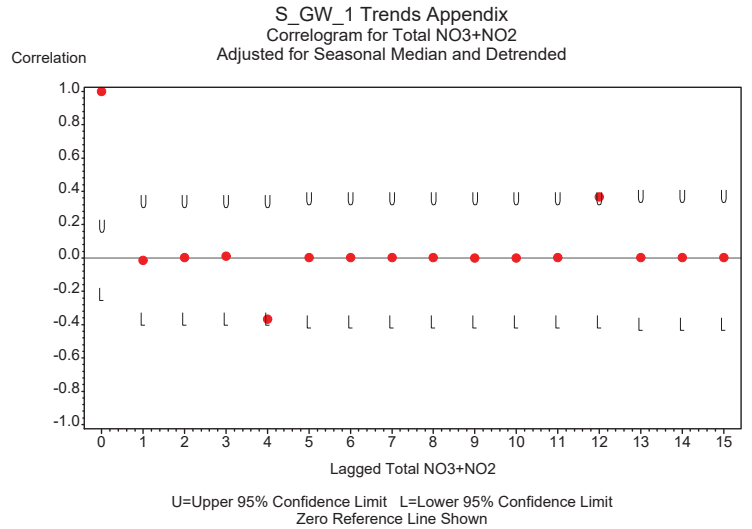
S_GW_1 Trends Appendix
 Seasonal Kendall Tau Trend Test Statistics
 Total NO3+NO2
 Adjusted for Seasonal Medians

Tau Statistic	P-Value Without Serial Correlation	P-Value With Serial Correlation	Slope Statistic
0.064516	0.32540	0.23448	0

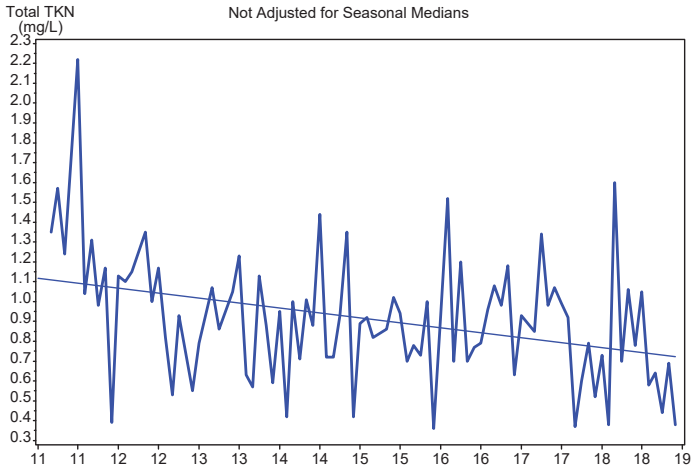


S_GW_1 Trends Appendix
 Autocorrelation Statistics for Total NO3+NO2
 Adjusted for Seasonal Median and Detrended

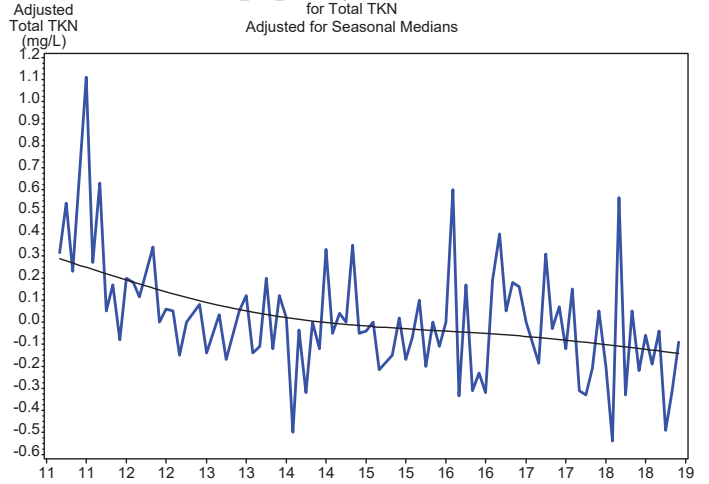
Lagged Total NO3+NO2	Correlation	Standard Error	Upper Limit	Lower Limit
0	1.000	0.102	0.204	-0.204
1	-0.014	0.177	0.354	-0.354
2	0.002	0.177	0.354	-0.354
3	0.011	0.177	0.354	-0.354
4	-0.366	0.177	0.354	-0.354
5	0.002	0.185	0.369	-0.369
6	0.002	0.185	0.369	-0.369
7	0.002	0.185	0.369	-0.369
8	0.002	0.185	0.369	-0.369
9	0.000	0.185	0.369	-0.369
10	0.000	0.185	0.369	-0.369
11	0.003	0.185	0.369	-0.369
12	0.365	0.185	0.369	-0.369
13	0.003	0.192	0.384	-0.384
14	0.003	0.192	0.384	-0.384
15	0.003	0.192	0.384	-0.384



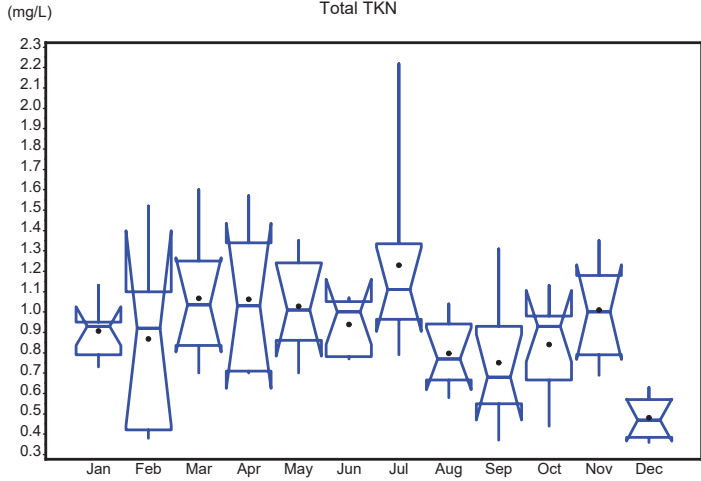
S_GW_1 Trends
S_GW_1 Monthly Data Time Series
for Total TKN
Not Adjusted for Seasonal Medians



S_GW_1 Trends
S_GW_1 Monthly Data Time Series
for Total TKN
Adjusted for Seasonal Medians



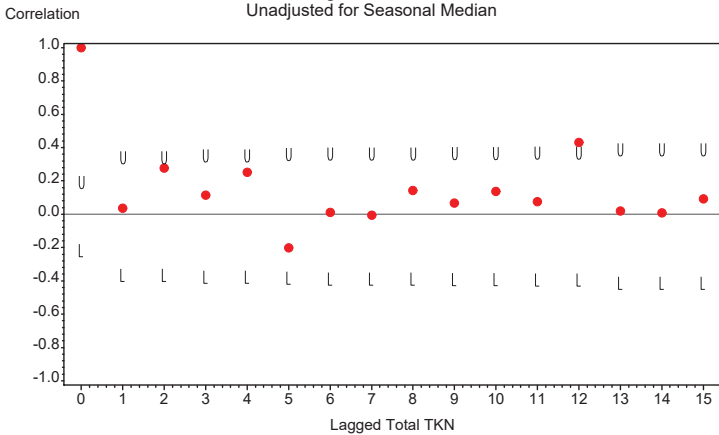
S_GW_1 Trends Appendix
Seasonal Univariate Statistics
Total TKN



S_GW_1 Trends Appendix
Autocorrelation Statistics for Total TKN
Unadjusted for Seasonal Medians

Lagged Total TKN	Correlation	Standard Error	Upper Limit	Lower Limit
0	1.000	0.102	0.204	-0.204
1	0.037	0.177	0.354	-0.354
2	0.278	0.177	0.354	-0.354
3	0.114	0.181	0.363	-0.363
4	0.251	0.182	0.364	-0.364
5	-0.201	0.186	0.371	-0.371
6	0.010	0.188	0.376	-0.376
7	-0.005	0.188	0.376	-0.376
8	0.141	0.188	0.376	-0.376
9	0.067	0.189	0.378	-0.378
10	0.137	0.189	0.379	-0.379
11	0.076	0.190	0.381	-0.381
12	0.432	0.191	0.381	-0.381
13	0.020	0.201	0.401	-0.401
14	0.009	0.201	0.401	-0.401
15	0.091	0.201	0.401	-0.401

S_GW_1 Trends Appendix
Correlogram for Total TKN
Unadjusted for Seasonal Median



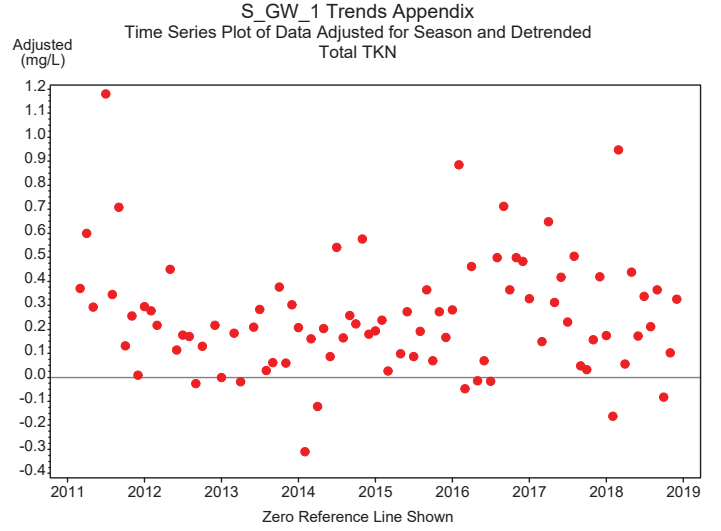
U=Upper 95% Confidence Limit L=Lower 95% Confidence Limit
Zero Reference Line Shown

S_GW_1 Trends Appendix
Seasonal Kendall Tau Trend Test Statistics
Total TKN
Unadjusted for Seasonal Medians

Tau Statistic	P-Value Without Serial Correlation	P-Value With Serial Correlation	Slope Statistic
-0.303	.001	0.031	-0.047

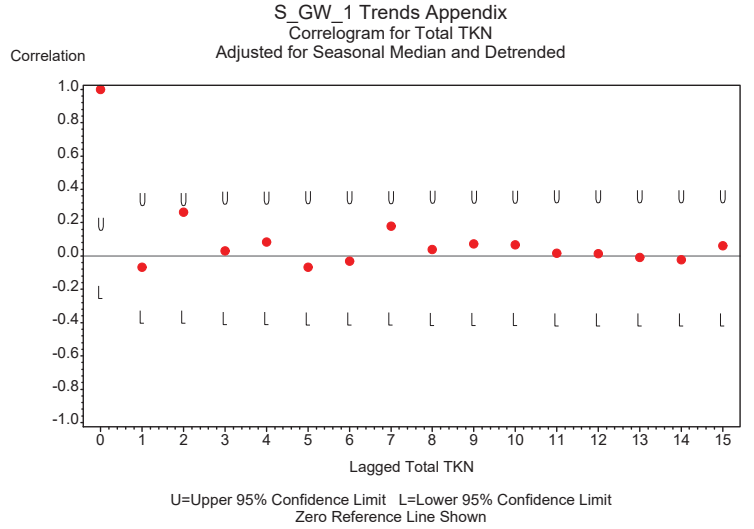
S_GW_1 Trends Appendix
 Seasonal Kendall Tau Trend Test Statistics
 Total TKN
 Adjusted for Seasonal Medians

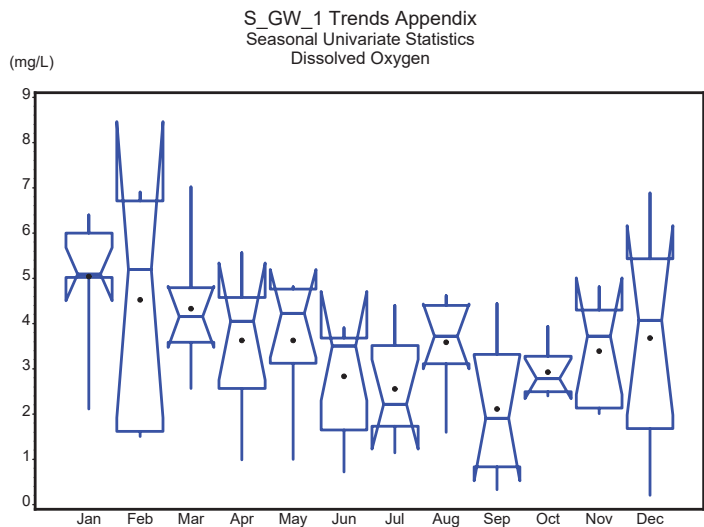
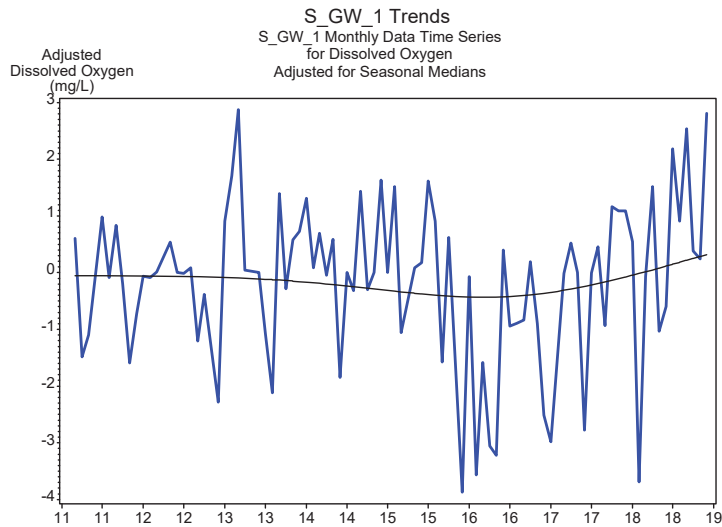
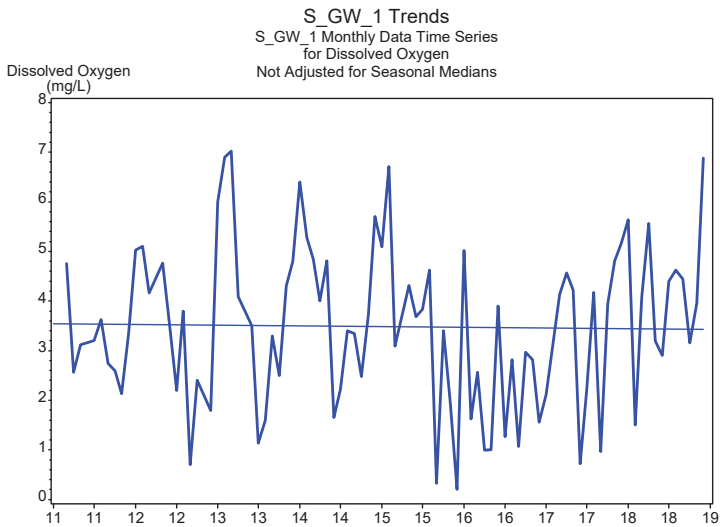
Tau Statistic	P-Value Without Serial Correlation	P-Value With Serial Correlation	Slope Statistic
-0.30325	.000788308	0.030591	-0.046667



S_GW_1 Trends Appendix
 Autocorrelation Statistics for Total TKN
 Adjusted for Seasonal Median and Detrended

Lagged Total TKN	Correlation	Standard Error	Upper Limit	Lower Limit
0	1.000	0.102	0.204	-0.204
1	-0.068	0.177	0.354	-0.354
2	0.263	0.177	0.354	-0.354
3	0.030	0.181	0.362	-0.362
4	0.083	0.181	0.362	-0.362
5	-0.067	0.182	0.363	-0.363
6	-0.031	0.182	0.364	-0.364
7	0.178	0.182	0.364	-0.364
8	0.040	0.184	0.367	-0.367
9	0.073	0.184	0.367	-0.367
10	0.066	0.184	0.368	-0.368
11	0.015	0.184	0.369	-0.369
12	0.014	0.184	0.369	-0.369
13	-0.008	0.184	0.369	-0.369
14	-0.023	0.184	0.369	-0.369
15	0.060	0.184	0.369	-0.369

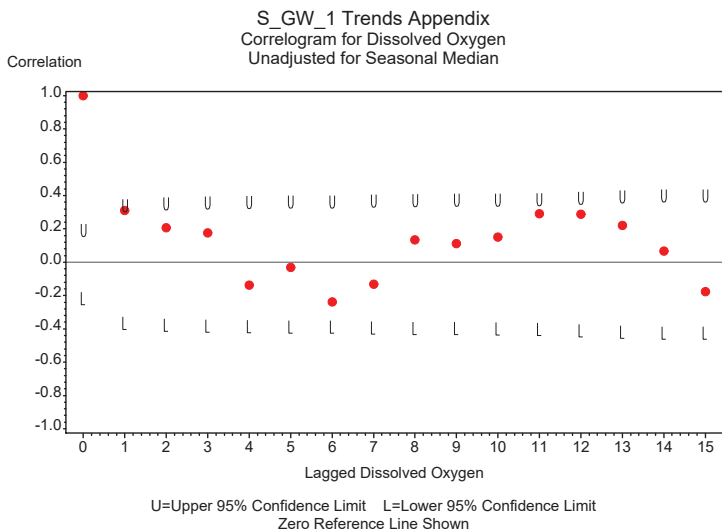




S_GW_1 Trends Appendix

Autocorrelation Statistics for Dissolved Oxygen
Unadjusted for Seasonal Medians

Lagged Dissolved Oxygen	Correlation	Standard Error	Upper Limit	Lower Limit
0	1.000	0.102	0.204	-0.204
1	0.311	0.177	0.354	-0.354
2	0.207	0.182	0.365	-0.365
3	0.176	0.185	0.370	-0.370
4	-0.137	0.187	0.373	-0.373
5	-0.030	0.188	0.375	-0.375
6	-0.238	0.188	0.375	-0.375
7	-0.131	0.191	0.382	-0.382
8	0.134	0.192	0.383	-0.383
9	0.111	0.193	0.385	-0.385
10	0.150	0.193	0.387	-0.387
11	0.292	0.195	0.389	-0.389
12	0.287	0.199	0.398	-0.398
13	0.221	0.203	0.407	-0.407
14	0.066	0.206	0.412	-0.412
15	-0.177	0.206	0.412	-0.412



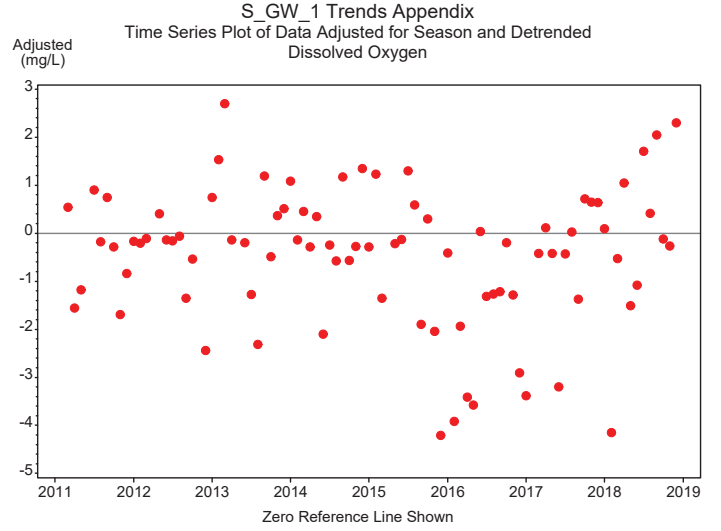
S_GW_1 Trends Appendix

Seasonal Kendall Tau Trend Test Statistics
Dissolved Oxygen
Unadjusted for Seasonal Medians

Tau Statistic	P-Value Without Serial Correlation	P-Value With Serial Correlation	Slope Statistic
0.078	0.401	0.509	0.057

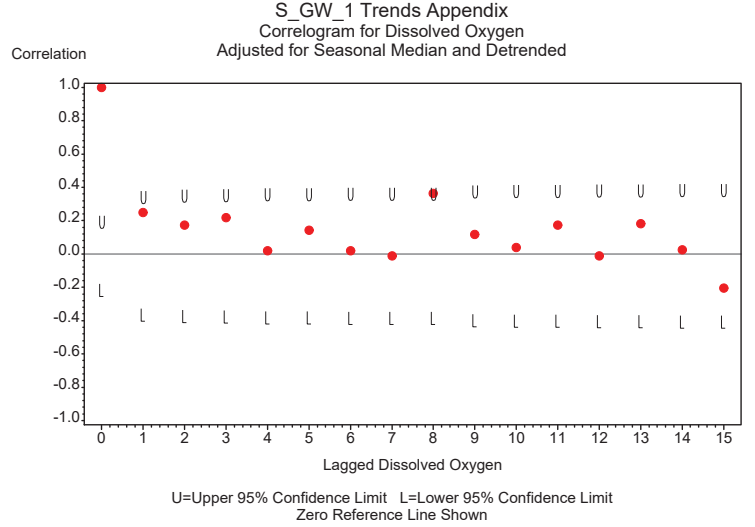
S_GW_1 Trends Appendix
 Seasonal Kendall Tau Trend Test Statistics
 Dissolved Oxygen
 Adjusted for Seasonal Medians

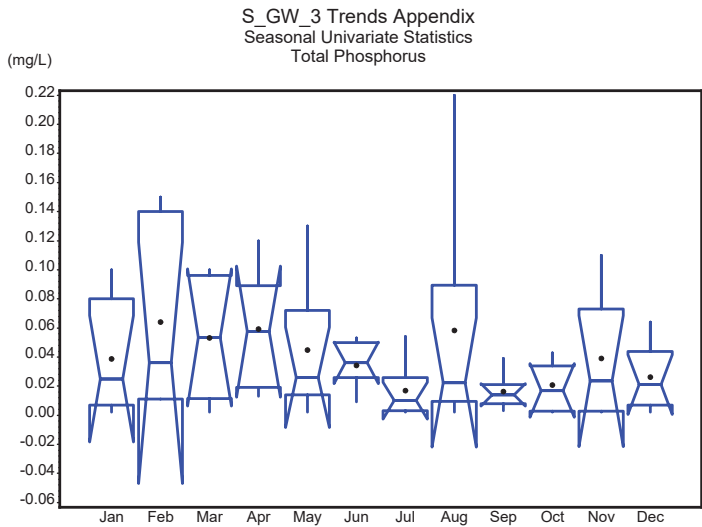
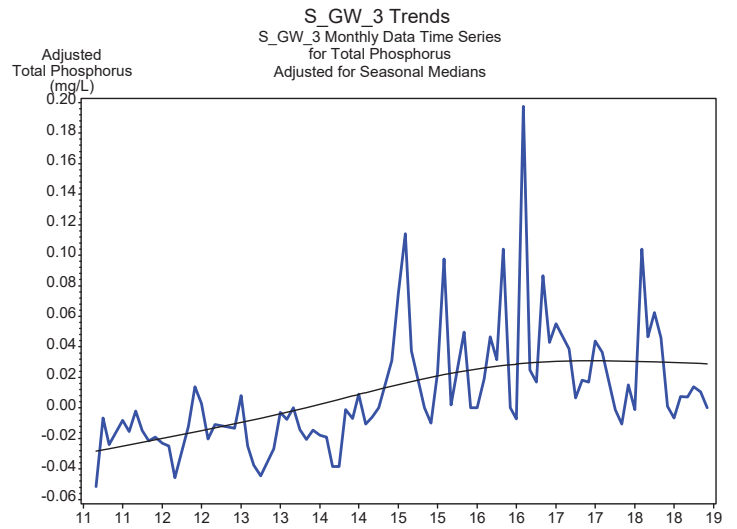
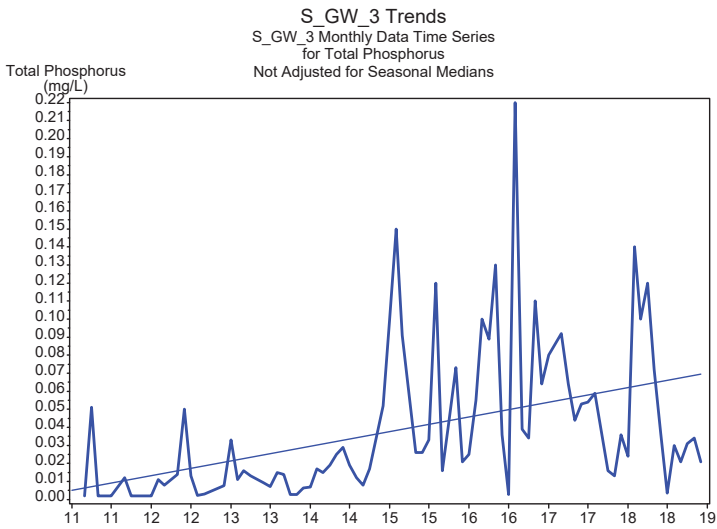
Tau Statistic	P-Value Without Serial Correlation	P-Value With Serial Correlation	Slope Statistic
0.078014	0.40053	0.50903	0.057



S_GW_1 Trends Appendix
 Autocorrelation Statistics for Dissolved Oxygen
 Adjusted for Seasonal Median and Detrended

Lagged Dissolved Oxygen	Correlation	Standard Error	Upper Limit	Lower Limit
0	1.000	0.102	0.204	-0.204
1	0.250	0.177	0.354	-0.354
2	0.172	0.180	0.361	-0.361
3	0.218	0.182	0.364	-0.364
4	0.020	0.185	0.370	-0.370
5	0.141	0.185	0.370	-0.370
6	0.018	0.186	0.372	-0.372
7	-0.012	0.186	0.372	-0.372
8	0.364	0.186	0.372	-0.372
9	0.116	0.193	0.387	-0.387
10	0.040	0.194	0.388	-0.388
11	0.173	0.194	0.388	-0.388
12	-0.013	0.196	0.391	-0.391
13	0.182	0.196	0.391	-0.391
14	0.026	0.197	0.395	-0.395
15	-0.205	0.197	0.395	-0.395

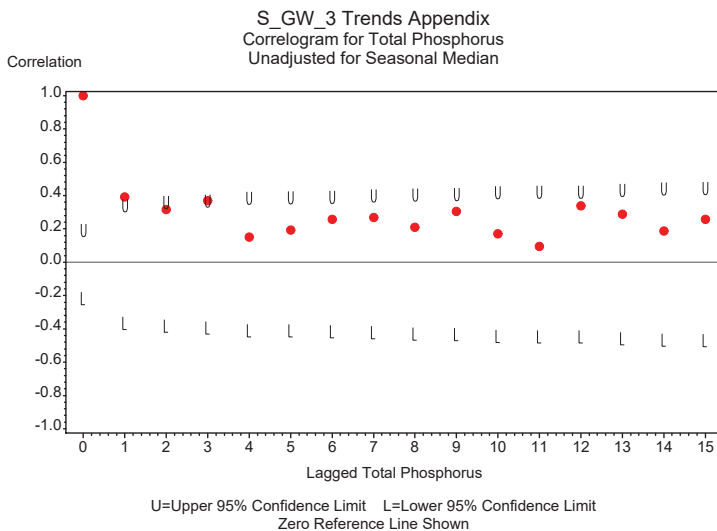




S_GW_3 Trends Appendix

Autocorrelation Statistics for Total Phosphorus
Unadjusted for Seasonal Medians

Lagged Total Phosphorus	Correlation	Standard Error	Upper Limit	Lower Limit
0	1.000	0.102	0.204	-0.204
1	0.391	0.177	0.354	-0.354
2	0.317	0.186	0.371	-0.371
3	0.369	0.191	0.382	-0.382
4	0.150	0.198	0.397	-0.397
5	0.192	0.200	0.399	-0.399
6	0.258	0.201	0.403	-0.403
7	0.268	0.205	0.410	-0.410
8	0.210	0.209	0.417	-0.417
9	0.305	0.211	0.421	-0.421
10	0.171	0.215	0.431	-0.431
11	0.094	0.217	0.433	-0.433
12	0.337	0.217	0.434	-0.434
13	0.288	0.222	0.445	-0.445
14	0.186	0.226	0.453	-0.453
15	0.256	0.228	0.456	-0.456



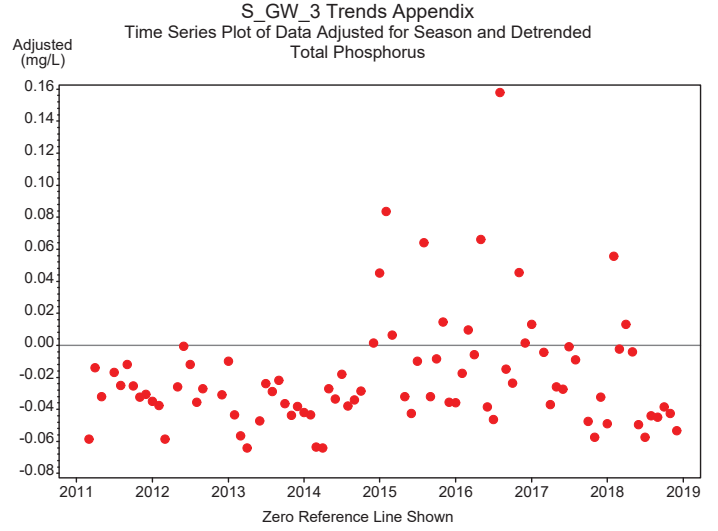
S_GW_3 Trends Appendix

Seasonal Kendall Tau Trend Test Statistics
Total Phosphorus
Unadjusted for Seasonal Medians

Tau Statistic	P-Value Without Serial Correlation	P-Value With Serial Correlation	Slope Statistic
0.515	0	0.013	.006

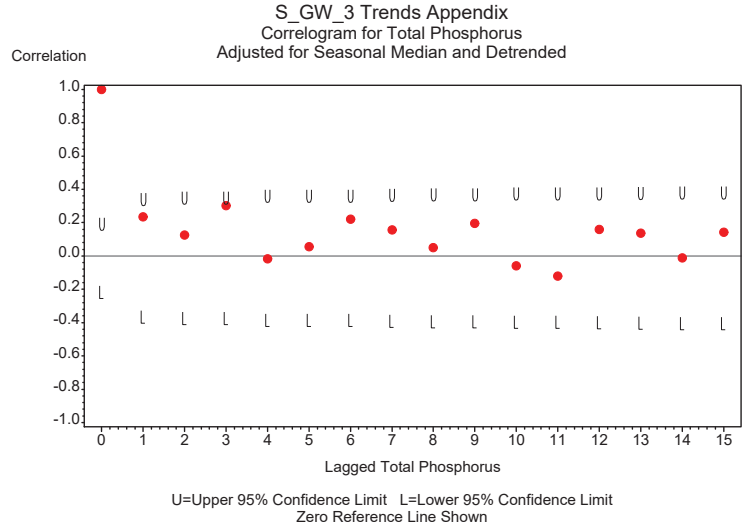
S_GW_3 Trends Appendix
 Seasonal Kendall Tau Trend Test Statistics
 Total Phosphorus
 Adjusted for Seasonal Medians

Tau Statistic	P-Value Without Serial Correlation	P-Value With Serial Correlation	Slope Statistic
0.51145	0	0.013747	.006

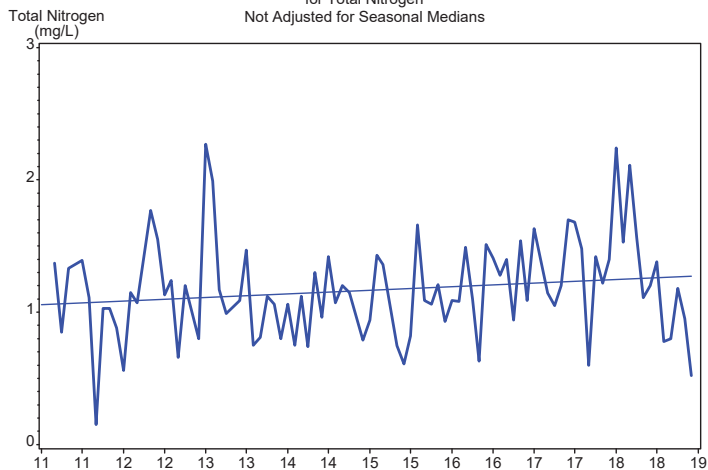


S_GW_3 Trends Appendix
 Autocorrelation Statistics for Total Phosphorus
 Adjusted for Seasonal Median and Detrended

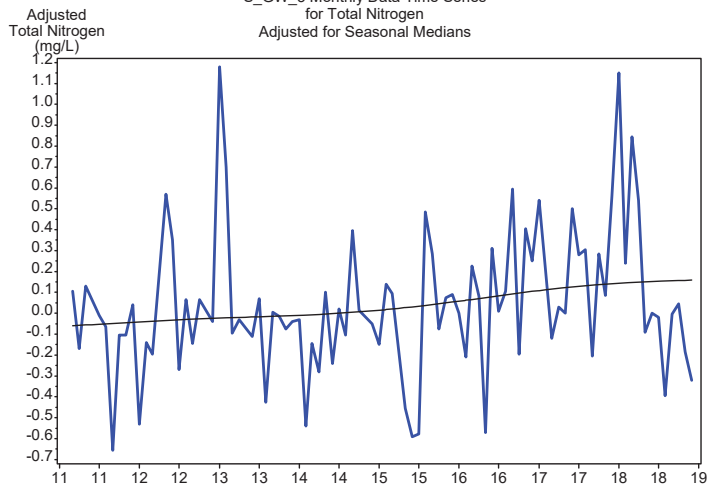
Lagged Total Phosphorus	Correlation	Standard Error	Upper Limit	Lower Limit
0	1.000	0.102	0.204	-0.204
1	0.235	0.177	0.354	-0.354
2	-0.125	0.180	0.360	-0.360
3	0.302	0.181	0.362	-0.362
4	-0.018	0.186	0.372	-0.372
5	0.055	0.186	0.372	-0.372
6	0.220	0.186	0.373	-0.373
7	0.157	0.189	0.378	-0.378
8	0.051	0.190	0.381	-0.381
9	-0.195	0.190	0.381	-0.381
10	-0.058	0.193	0.385	-0.385
11	-0.122	0.193	0.385	-0.385
12	0.159	0.193	0.387	-0.387
13	0.136	0.195	0.390	-0.390
14	-0.013	0.196	0.392	-0.392
15	0.143	0.196	0.392	-0.392



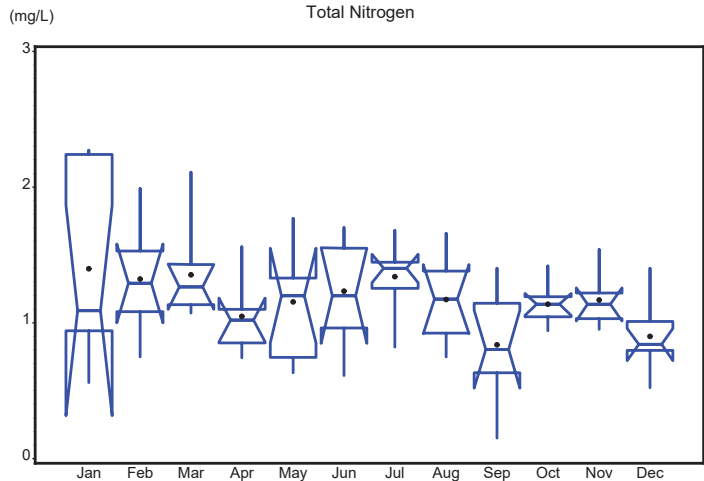
S_GW_3 Trends
S_GW_3 Monthly Data Time Series
for Total Nitrogen
Not Adjusted for Seasonal Medians



S_GW_3 Trends
S_GW_3 Monthly Data Time Series
for Total Nitrogen
Adjusted for Seasonal Medians



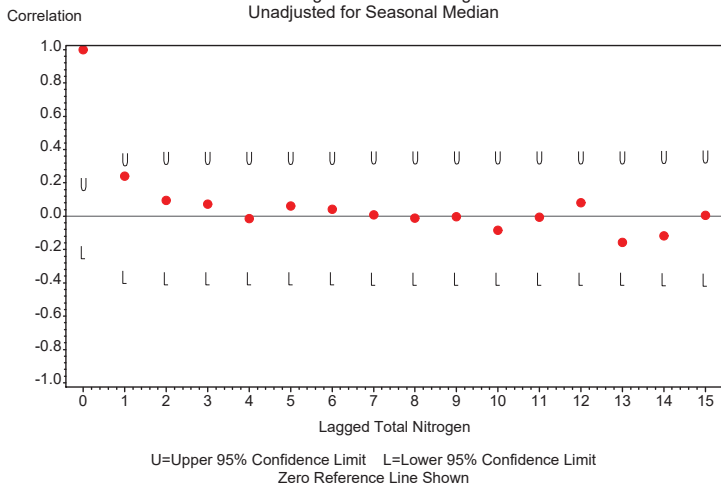
S_GW_3 Trends Appendix
Seasonal Univariate Statistics
Total Nitrogen



S_GW_3 Trends Appendix
Autocorrelation Statistics for Total Nitrogen
Unadjusted for Seasonal Medians

Lagged Total Nitrogen	Correlation	Standard Error	Upper Limit	Lower Limit
0	1.000	0.102	0.204	-0.204
1	0.241	0.177	0.354	-0.354
2	0.095	0.180	0.360	-0.360
3	0.071	0.181	0.361	-0.361
4	-0.014	0.181	0.362	-0.362
5	0.061	0.181	0.362	-0.362
6	0.042	0.181	0.362	-0.362
7	0.009	0.181	0.363	-0.363
8	-0.012	0.181	0.363	-0.363
9	-0.003	0.181	0.363	-0.363
10	-0.084	0.181	0.363	-0.363
11	-0.005	0.182	0.363	-0.363
12	0.081	0.182	0.363	-0.363
13	-0.156	0.182	0.364	-0.364
14	-0.117	0.183	0.367	-0.367
15	0.005	0.184	0.369	-0.369

S_GW_3 Trends Appendix
Correlogram for Total Nitrogen
Unadjusted for Seasonal Median

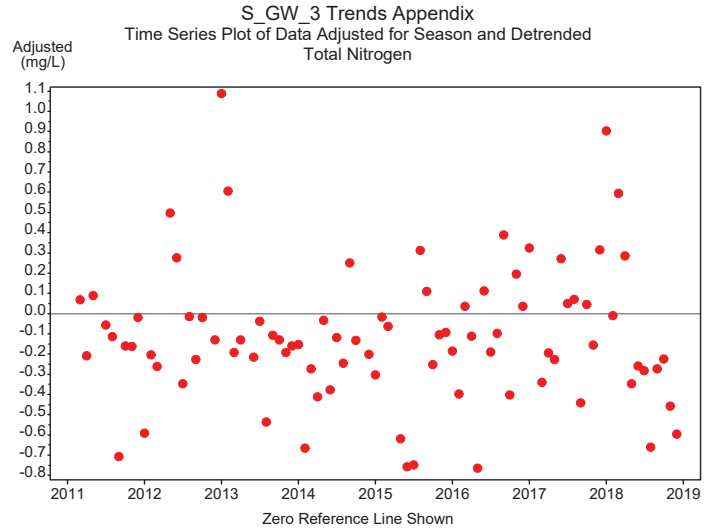


S_GW_3 Trends Appendix
Seasonal Kendall Tau Trend Test Statistics
Total Nitrogen
Unadjusted for Seasonal Medians

Tau Statistic	P-Value Without Serial Correlation	P-Value With Serial Correlation	Slope Statistic
0.156	0.089	0.103	0.031

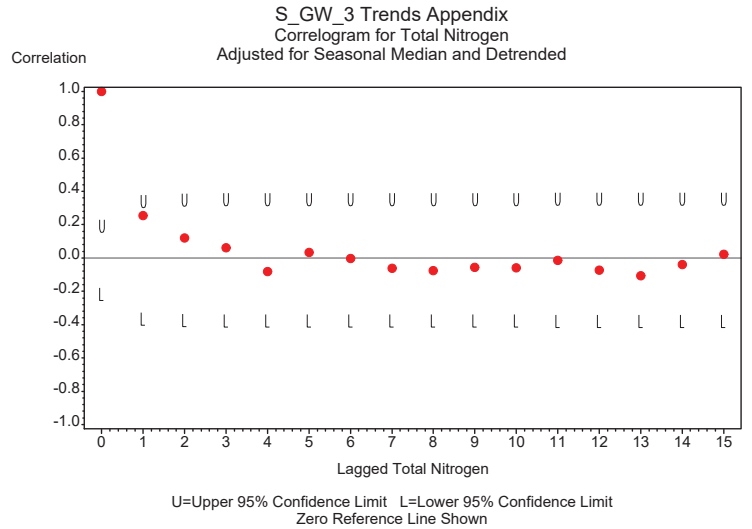
S_GW_3 Trends Appendix
 Seasonal Kendall Tau Trend Test Statistics
 Total Nitrogen
 Adjusted for Seasonal Medians

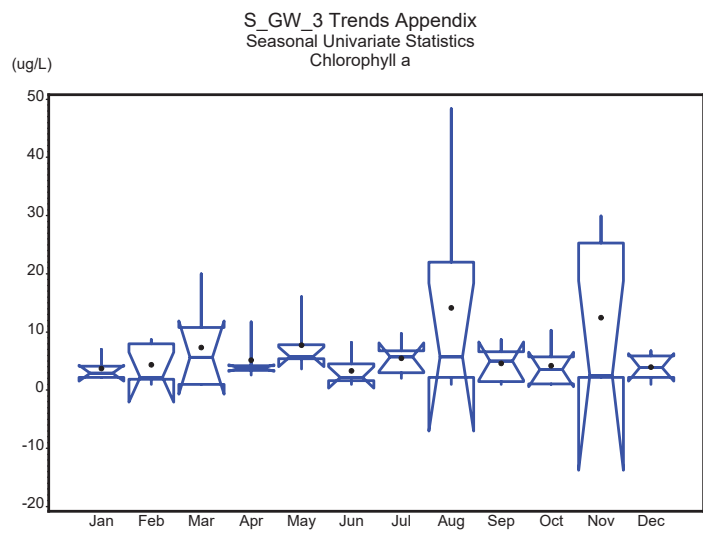
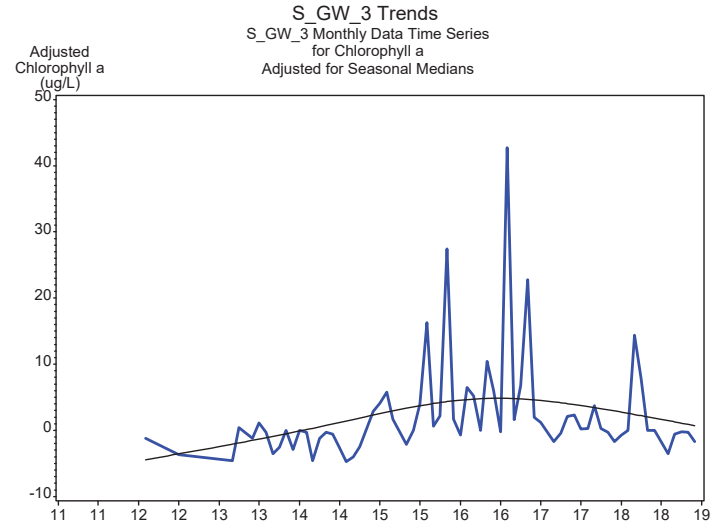
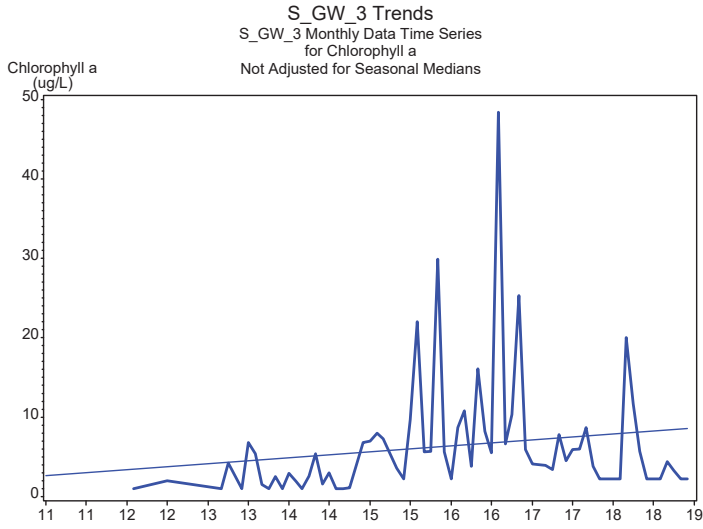
Tau Statistic	P-Value Without Serial Correlation	P-Value With Serial Correlation	Slope Statistic
0.15580	0.088769	0.10303	0.030833



S_GW_3 Trends Appendix
 Autocorrelation Statistics for Total Nitrogen
 Adjusted for Seasonal Median and Detrended

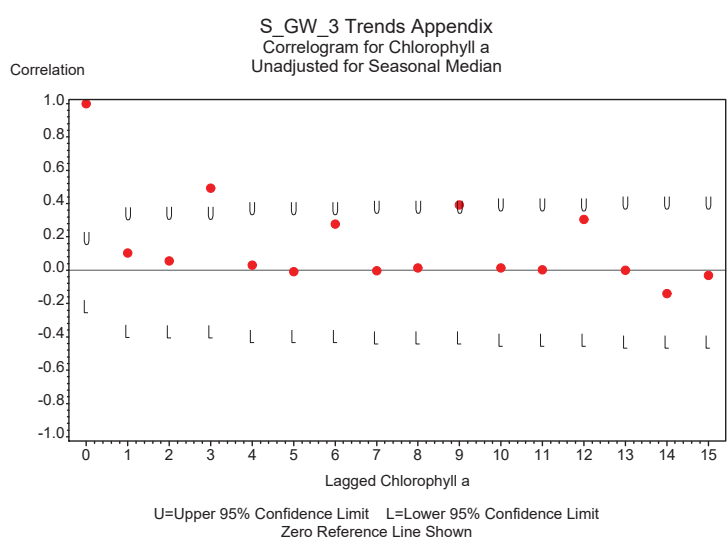
Lagged Total Nitrogen	Correlation	Standard Error	Upper Limit	Lower Limit
0	1.000	0.102	0.204	-0.204
1	0.254	0.177	0.354	-0.354
2	0.119	0.181	0.361	-0.361
3	0.062	0.181	0.363	-0.363
4	-0.081	0.182	0.363	-0.363
5	0.032	0.182	0.364	-0.364
6	-0.004	0.182	0.364	-0.364
7	-0.063	0.182	0.364	-0.364
8	-0.077	0.182	0.364	-0.364
9	-0.056	0.183	0.365	-0.365
10	-0.059	0.183	0.365	-0.365
11	-0.014	0.183	0.366	-0.366
12	-0.072	0.183	0.366	-0.366
13	-0.106	0.183	0.366	-0.366
14	-0.041	0.184	0.368	-0.368
15	0.022	0.184	0.368	-0.368





S_GW_3 Trends Appendix
Autocorrelation Statistics for Chlorophyll a
Unadjusted for Seasonal Medians

Lagged Chlorophyll a	Correlation	Standard Error	Upper Limit	Lower Limit
0	1.000	0.102	0.204	-0.204
1	0.104	0.177	0.354	-0.354
2	0.056	0.177	0.355	-0.355
3	0.493	0.178	0.355	-0.355
4	0.030	0.191	0.383	-0.383
5	-0.010	0.191	0.383	-0.383
6	0.276	0.191	0.383	-0.383
7	-0.002	0.195	0.391	-0.391
8	0.014	0.195	0.391	-0.391
9	0.391	0.196	0.391	-0.391
10	0.013	0.203	0.407	-0.407
11	0.002	0.203	0.407	-0.407
12	0.306	0.203	0.407	-0.407
13	0.000	0.208	0.416	-0.416
14	-0.141	0.208	0.416	-0.416
15	-0.030	0.209	0.418	-0.418

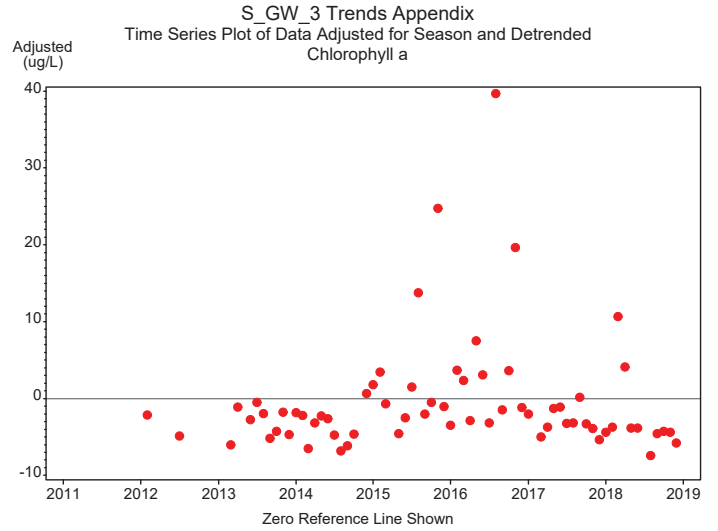


S_GW_3 Trends Appendix
Seasonal Kendall Tau Trend Test Statistics
Chlorophyll a
Unadjusted for Seasonal Medians

Tau Statistic	P-Value Without Serial Correlation	P-Value With Serial Correlation	Slope Statistic
0.232	0.035	0.261	0.46

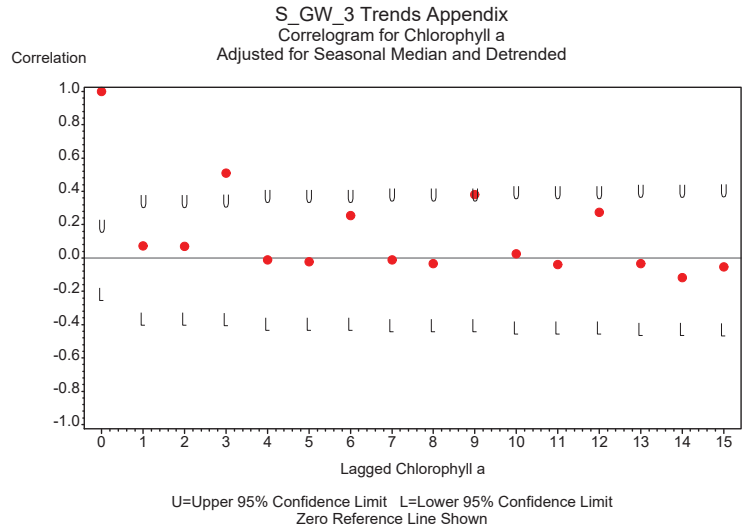
S_GW_3 Trends Appendix
 Seasonal Kendall Tau Trend Test Statistics
 Chlorophyll a
 Adjusted for Seasonal Medians

Tau Statistic	P-Value Without Serial Correlation	P-Value With Serial Correlation	Slope Statistic
0.23226	0.035360	0.26061	0.46

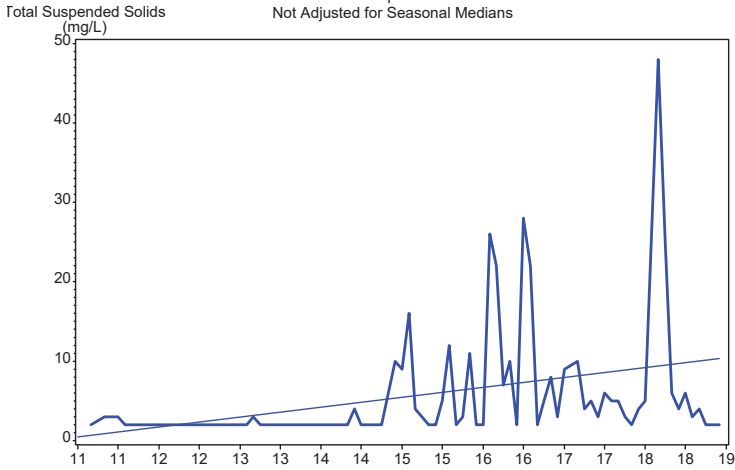


S_GW_3 Trends Appendix
 Autocorrelation Statistics for Chlorophyll a
 Adjusted for Seasonal Median and Detrended

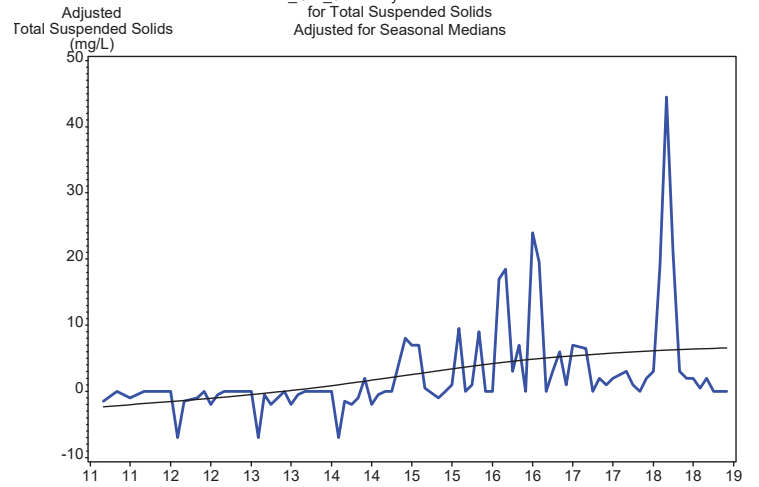
Lagged Chlorophyll a	Correlation	Standard Error	Upper Limit	Lower Limit
0	1.000	0.102	0.204	-0.204
1	0.072	0.177	0.354	-0.354
2	0.069	0.177	0.354	-0.354
3	0.510	0.177	0.355	-0.355
4	-0.012	0.192	0.384	-0.384
5	-0.023	0.192	0.384	-0.384
6	0.253	0.192	0.384	-0.384
7	-0.011	0.196	0.391	-0.391
8	-0.035	0.196	0.391	-0.391
9	0.381	0.196	0.391	-0.391
10	0.026	0.203	0.406	-0.406
11	-0.041	0.203	0.406	-0.406
12	0.273	0.203	0.407	-0.407
13	-0.033	0.207	0.414	-0.414
14	-0.119	0.207	0.414	-0.414
15	-0.053	0.208	0.416	-0.416



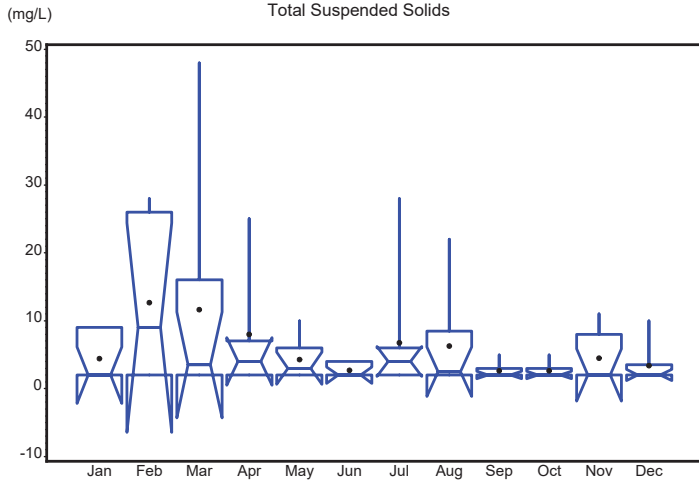
S_GW_3 Trends
S_GW_3 Monthly Data Time Series
for Total Suspended Solids
Not Adjusted for Seasonal Medians



S_GW_3 Trends
S_GW_3 Monthly Data Time Series
for Total Suspended Solids
Adjusted for Seasonal Medians



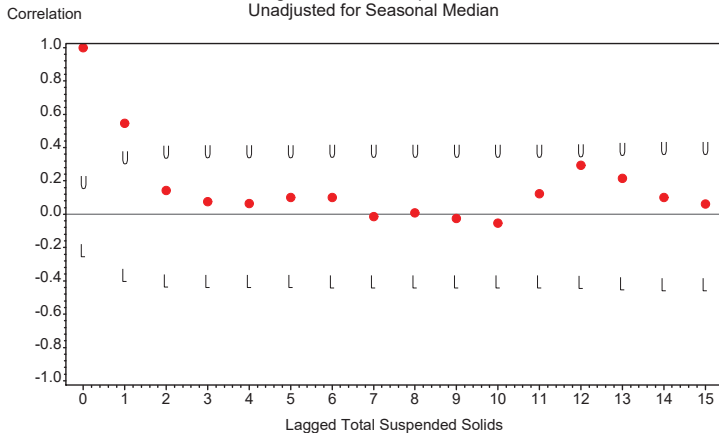
S_GW_3 Trends Appendix
Seasonal Univariate Statistics
Total Suspended Solids



S_GW_3 Trends Appendix
Autocorrelation Statistics for Total Suspended Solids
Unadjusted for Seasonal Medians

Lagged Total Suspended Solids	Correlation	Standard Error	Upper Limit	Lower Limit
0	1.000	0.102	0.204	-0.204
1	0.546	0.177	0.354	-0.354
2	0.142	0.194	0.387	-0.387
3	0.075	0.195	0.389	-0.389
4	0.063	0.195	0.390	-0.390
5	0.100	0.195	0.390	-0.390
6	0.100	0.196	0.391	-0.391
7	-0.015	0.196	0.392	-0.392
8	0.008	0.196	0.392	-0.392
9	-0.025	0.196	0.392	-0.392
10	-0.053	0.196	0.393	-0.393
11	0.124	0.196	0.393	-0.393
12	0.293	0.197	0.394	-0.394
13	0.215	0.202	0.403	-0.403
14	0.100	0.204	0.408	-0.408
15	0.061	0.205	0.409	-0.409

S_GW_3 Trends Appendix
Correlogram for Total Suspended Solids
Unadjusted for Seasonal Median



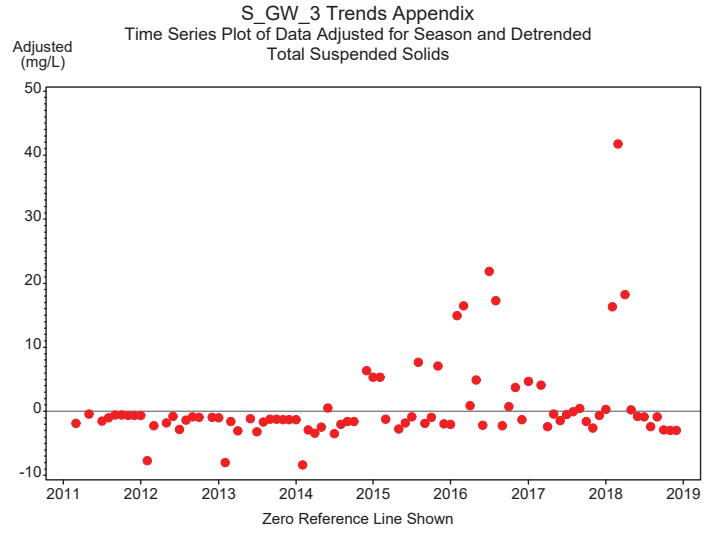
U=Upper 95% Confidence Limit L=Lower 95% Confidence Limit
Zero Reference Line Shown

S_GW_3 Trends Appendix
Seasonal Kendall Tau Trend Test Statistics
Total Suspended Solids
Unadjusted for Seasonal Medians

Tau Statistic	P-Value Without Serial Correlation	P-Value With Serial Correlation	Slope Statistic
0.424	0	0.019	0.333

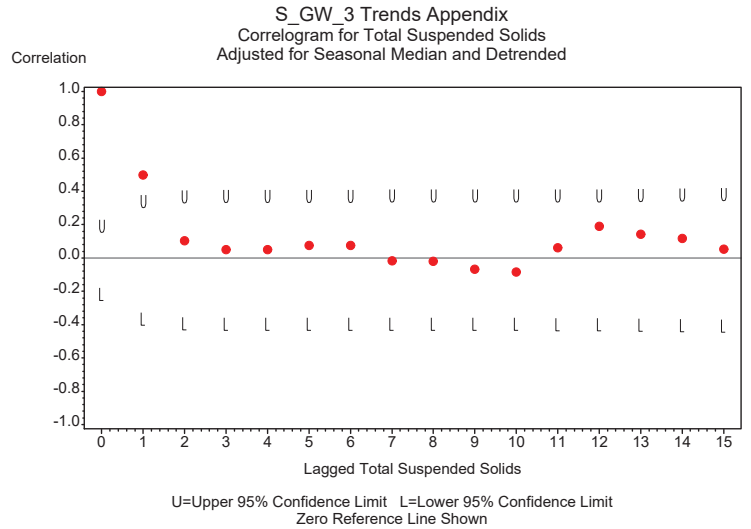
S_GW_3 Trends Appendix
 Seasonal Kendall Tau Trend Test Statistics
 Total Suspended Solids
 Adjusted for Seasonal Medians

Tau Statistic	P-Value Without Serial Correlation	P-Value With Serial Correlation	Slope Statistic
0.42435	.000000238	0.019307	0.33333

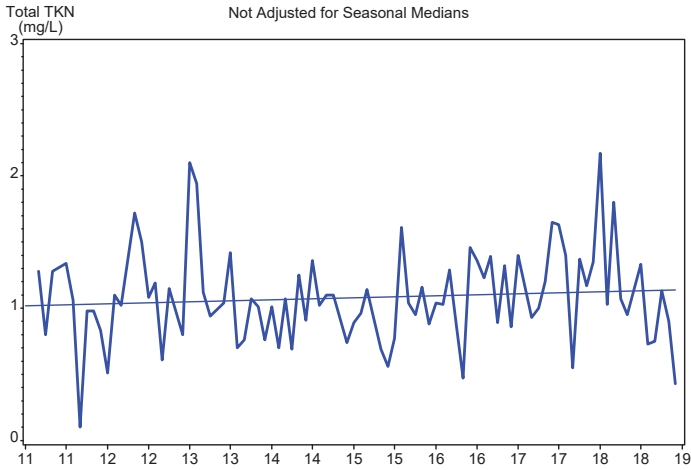


S_GW_3 Trends Appendix
 Autocorrelation Statistics for Total Suspended Solids
 Adjusted for Seasonal Median and Detrended

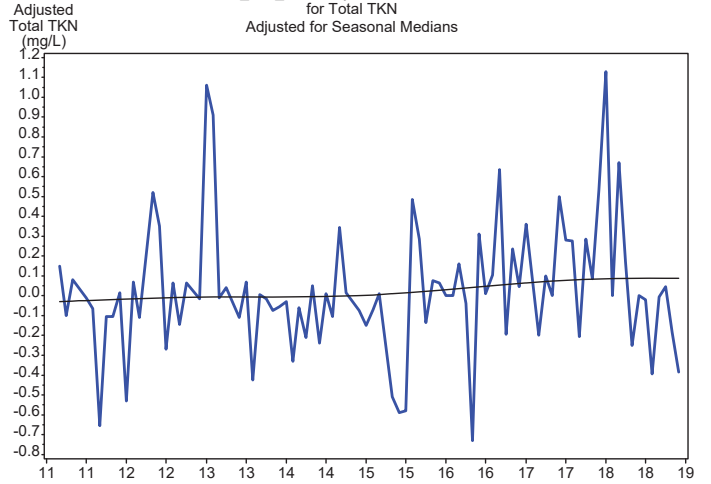
Lagged Total Suspended Solids	Correlation	Standard Error	Upper Limit	Lower Limit
0	1.000	0.102	0.204	-0.204
1	0.499	0.177	0.354	-0.354
2	0.104	0.191	0.382	-0.382
3	0.050	0.191	0.383	-0.383
4	0.051	0.192	0.383	-0.383
5	0.076	0.192	0.383	-0.383
6	0.076	0.192	0.384	-0.384
7	-0.017	0.192	0.385	-0.385
8	-0.020	0.192	0.385	-0.385
9	-0.068	0.192	0.385	-0.385
10	-0.085	0.193	0.385	-0.385
11	0.062	0.193	0.386	-0.386
12	0.191	0.193	0.386	-0.386
13	0.143	0.195	0.390	-0.390
14	0.117	0.196	0.393	-0.393
15	0.052	0.197	0.394	-0.394



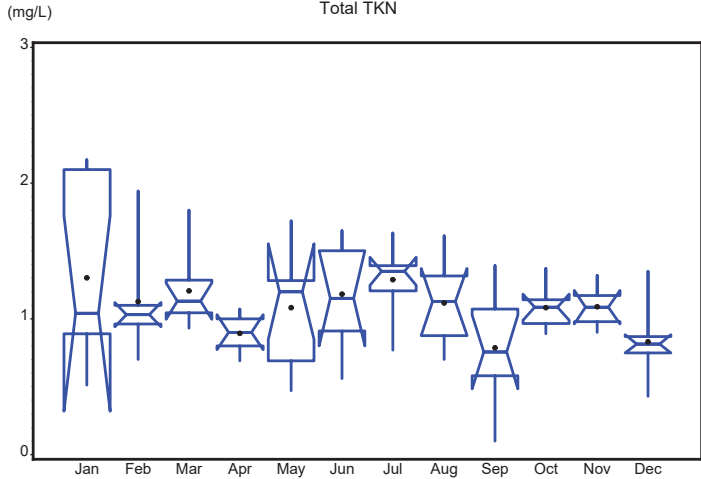
S_GW_3 Trends
S_GW_3 Monthly Data Time Series
for Total TKN
Not Adjusted for Seasonal Medians



S_GW_3 Trends
S_GW_3 Monthly Data Time Series
for Total TKN
Adjusted for Seasonal Medians



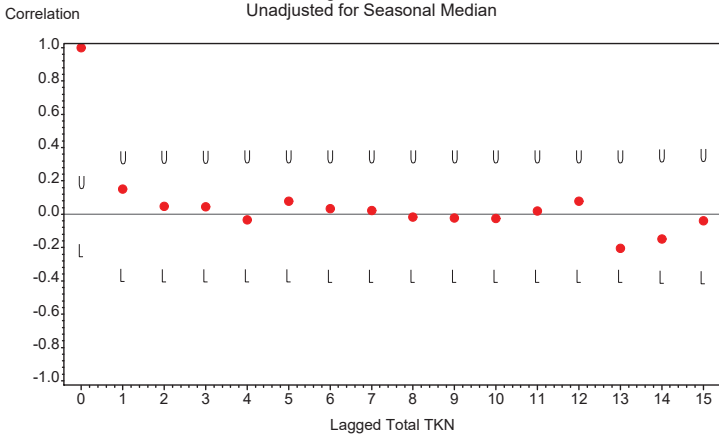
S_GW_3 Trends Appendix
Seasonal Univariate Statistics
Total TKN



S_GW_3 Trends Appendix
Autocorrelation Statistics for Total TKN
Unadjusted for Seasonal Medians

Lagged Total TKN	Correlation	Standard Error	Upper Limit	Lower Limit
0	1.000	0.102	0.204	-0.204
1	0.150	0.177	0.354	-0.354
2	0.046	0.178	0.356	-0.356
3	0.043	0.178	0.356	-0.356
4	-0.034	0.178	0.357	-0.357
5	0.077	0.178	0.357	-0.357
6	0.032	0.179	0.358	-0.358
7	0.023	0.179	0.358	-0.358
8	-0.018	0.179	0.358	-0.358
9	-0.024	0.179	0.358	-0.358
10	-0.026	0.179	0.358	-0.358
11	0.018	0.179	0.358	-0.358
12	0.077	0.179	0.358	-0.358
13	-0.205	0.179	0.359	-0.359
14	-0.148	0.182	0.363	-0.363
15	-0.039	0.183	0.366	-0.366

S_GW_3 Trends Appendix
Correlogram for Total TKN
Unadjusted for Seasonal Median



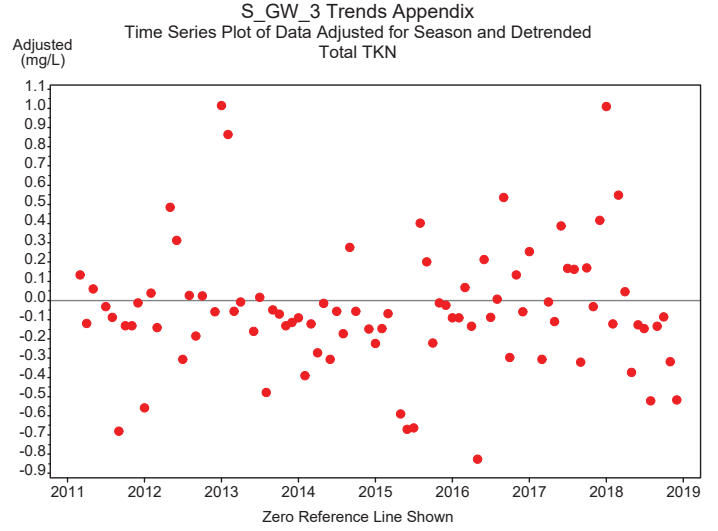
U=Upper 95% Confidence Limit L=Lower 95% Confidence Limit
Zero Reference Line Shown

S_GW_3 Trends Appendix
Seasonal Kendall Tau Trend Test Statistics
Total TKN
Unadjusted for Seasonal Medians

Tau Statistic	P-Value Without Serial Correlation	P-Value With Serial Correlation	Slope Statistic
0.123	0.181	0.17	0.015

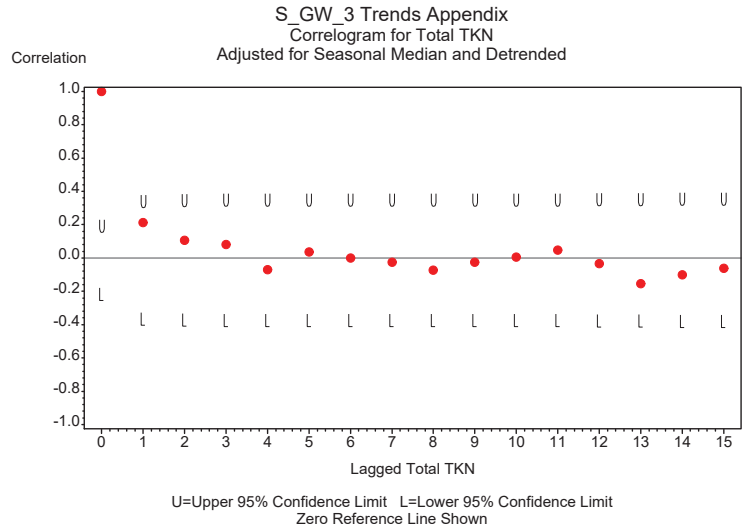
S_GW_3 Trends Appendix
 Seasonal Kendall Tau Trend Test Statistics
 Total TKN
 Adjusted for Seasonal Medians

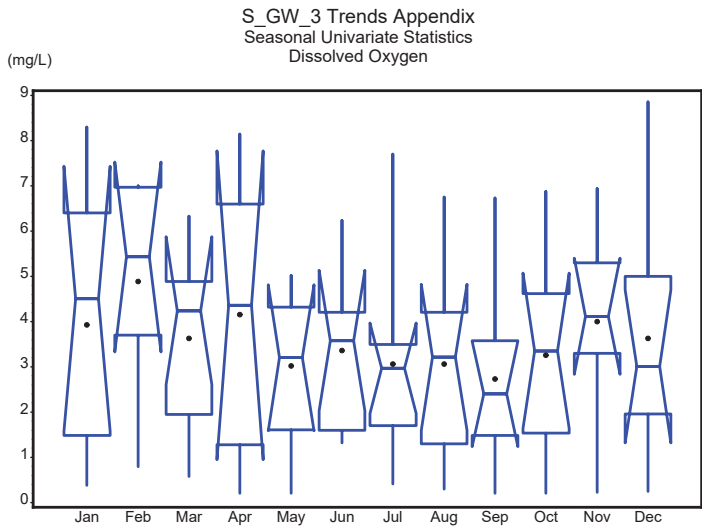
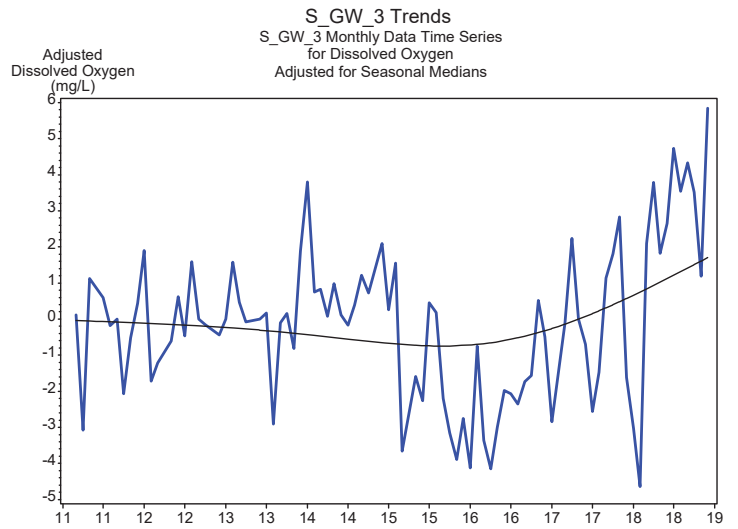
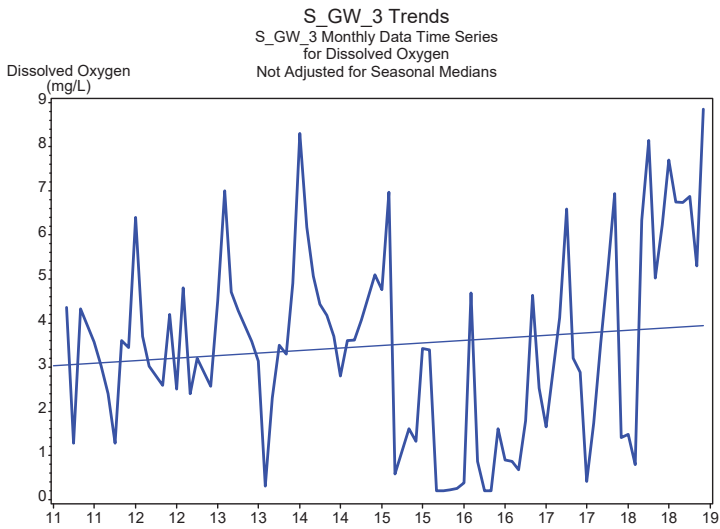
Tau Statistic	P-Value Without Serial Correlation	P-Value With Serial Correlation	Slope Statistic
0.12319	0.18079	0.16987	0.015



S_GW_3 Trends Appendix
 Autocorrelation Statistics for Total TKN
 Adjusted for Seasonal Median and Detrended

Lagged Total TKN	Correlation	Standard Error	Upper Limit	Lower Limit
0	1.000	0.102	0.204	-0.204
1	0.211	0.177	0.354	-0.354
2	0.107	0.179	0.359	-0.359
3	0.082	0.180	0.360	-0.360
4	-0.071	0.180	0.361	-0.361
5	0.035	0.181	0.361	-0.361
6	-0.001	0.181	0.362	-0.362
7	-0.027	0.181	0.362	-0.362
8	-0.074	0.181	0.362	-0.362
9	-0.025	0.181	0.362	-0.362
10	0.004	0.181	0.362	-0.362
11	0.048	0.181	0.362	-0.362
12	-0.035	0.181	0.363	-0.363
13	-0.154	0.181	0.363	-0.363
14	-0.100	0.183	0.366	-0.366
15	-0.063	0.183	0.367	-0.367

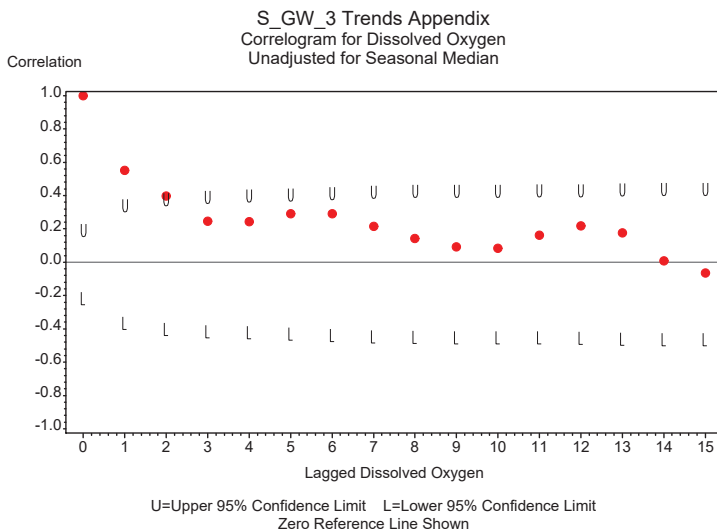




S_GW_3 Trends Appendix

Autocorrelation Statistics for Dissolved Oxygen
Unadjusted for Seasonal Medians

Lagged Dissolved Oxygen	Correlation	Standard Error	Upper Limit	Lower Limit
0	1.000	0.102	0.204	-0.204
1	0.551	0.177	0.354	-0.354
2	0.398	0.194	0.388	-0.388
3	0.245	0.202	0.404	-0.404
4	0.244	0.205	0.410	-0.410
5	0.292	0.208	0.416	-0.416
6	0.290	0.212	0.425	-0.425
7	0.216	0.217	0.433	-0.433
8	0.143	0.219	0.438	-0.438
9	0.093	0.220	0.439	-0.439
10	0.083	0.220	0.440	-0.440
11	0.163	0.220	0.441	-0.441
12	0.219	0.222	0.443	-0.443
13	0.175	0.224	0.448	-0.448
14	0.009	0.225	0.451	-0.451
15	-0.065	0.225	0.451	-0.451



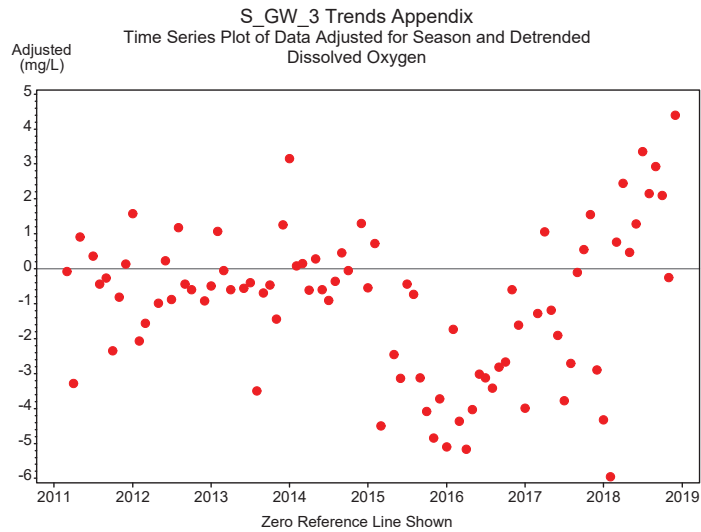
S_GW_3 Trends Appendix

Seasonal Kendall Tau Trend Test Statistics
Dissolved Oxygen
Unadjusted for Seasonal Medians

Tau Statistic	P-Value Without Serial Correlation	P-Value With Serial Correlation	Slope Statistic
0.069	0.466	0.731	0.163

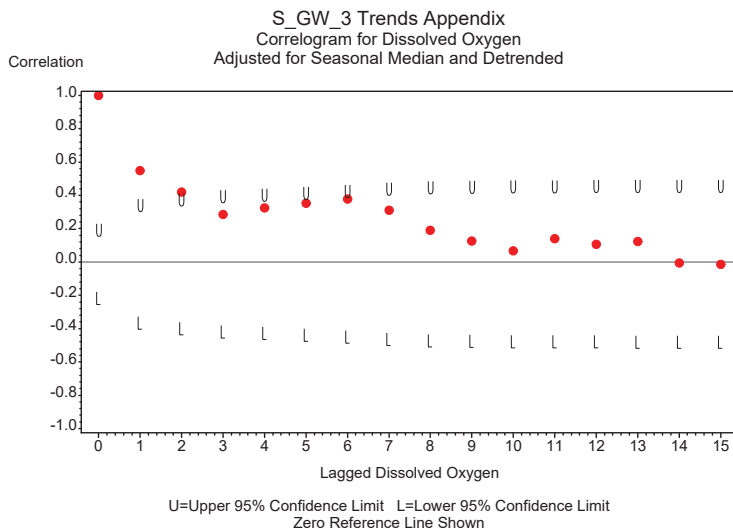
S_GW_3 Trends Appendix
 Seasonal Kendall Tau Trend Test Statistics
 Dissolved Oxygen
 Adjusted for Seasonal Medians

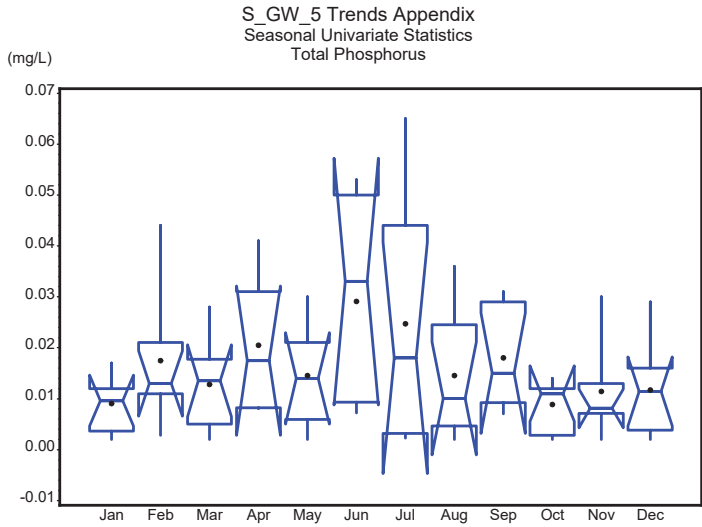
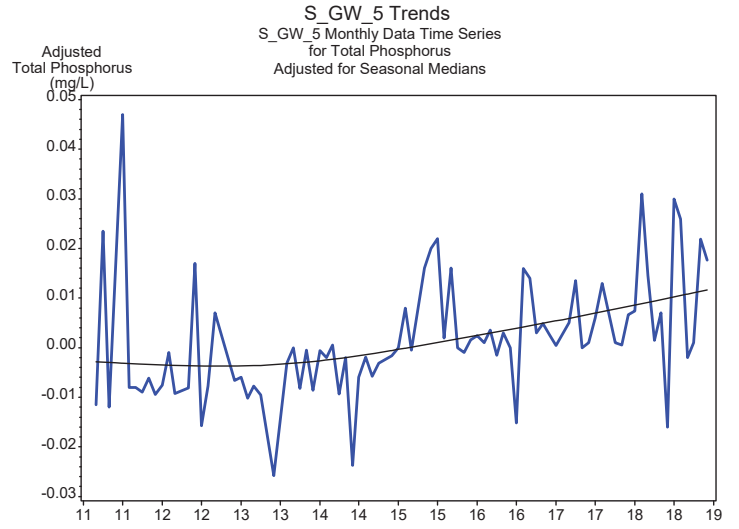
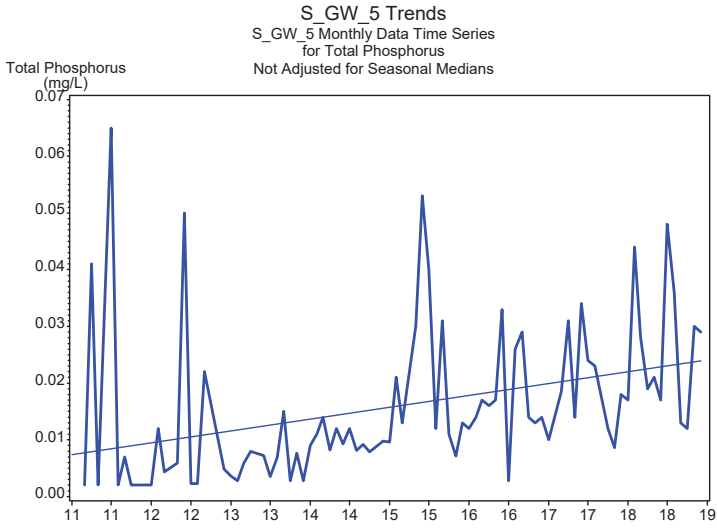
Tau Statistic	P-Value Without Serial Correlation	P-Value With Serial Correlation	Slope Statistic
0.068841	0.46576	0.73077	0.1625



S_GW_3 Trends Appendix
 Autocorrelation Statistics for Dissolved Oxygen
 Adjusted for Seasonal Median and Detrended

Lagged Dissolved Oxygen	Correlation	Standard Error	Upper Limit	Lower Limit
0	1.000	0.102	0.204	-0.204
1	0.549	0.177	0.354	-0.354
2	0.419	0.194	0.387	-0.387
3	0.286	0.203	0.406	-0.406
4	0.324	0.207	0.414	-0.414
5	0.353	0.212	0.425	-0.425
6	0.378	0.218	0.437	-0.437
7	0.310	0.225	0.450	-0.450
8	0.189	0.229	0.459	-0.459
9	0.126	0.231	0.462	-0.462
10	0.067	0.232	0.464	-0.464
11	0.139	0.232	0.464	-0.464
12	0.106	0.233	0.466	-0.466
13	0.124	0.233	0.467	-0.467
14	-0.005	0.234	0.468	-0.468
15	-0.015	0.234	0.468	-0.468

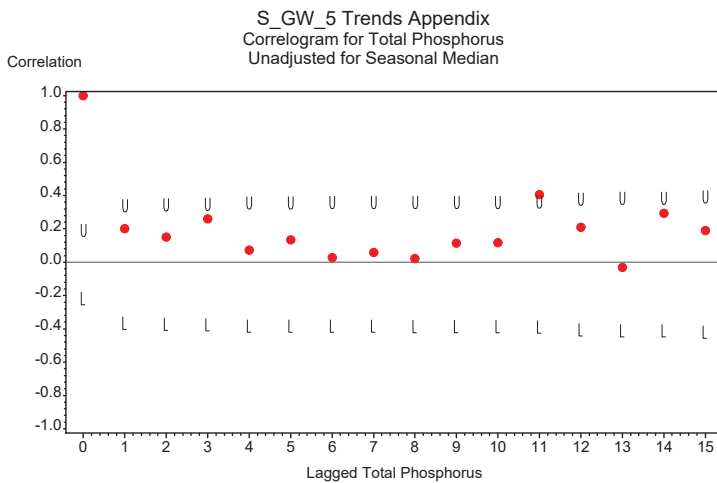




S_GW_5 Trends Appendix

Autocorrelation Statistics for Total Phosphorus
Unadjusted for Seasonal Medians

Lagged Total Phosphorus	Correlation	Standard Error	Upper Limit	Lower Limit
0	1.000	0.102	0.204	-0.204
1	0.202	0.177	0.354	-0.354
2	0.151	0.179	0.358	-0.358
3	0.261	0.180	0.361	-0.361
4	0.073	0.184	0.369	-0.369
5	0.133	0.185	0.369	-0.369
6	0.027	0.186	0.371	-0.371
7	0.057	0.186	0.371	-0.371
8	0.022	0.186	0.372	-0.372
9	0.115	0.186	0.372	-0.372
10	0.117	0.187	0.373	-0.373
11	0.405	0.187	0.375	-0.375
12	0.209	0.196	0.393	-0.393
13	-0.031	0.199	0.397	-0.397
14	0.293	0.199	0.397	-0.397
15	0.189	0.203	0.406	-0.406



S_GW_5 Trends Appendix

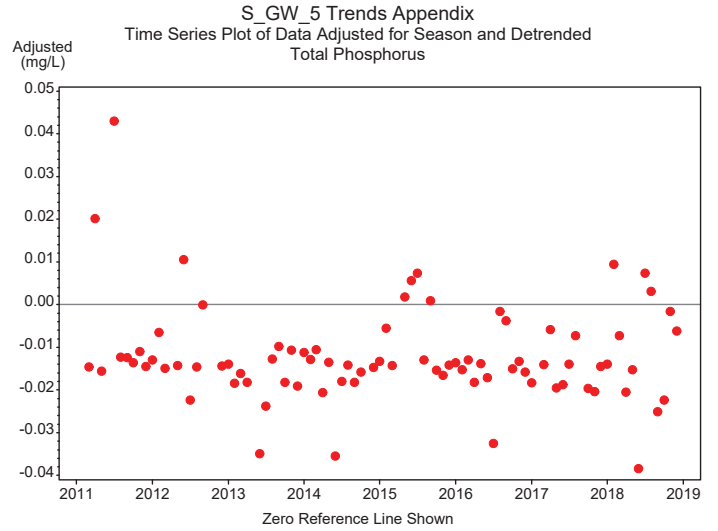
Seasonal Kendall Tau Trend Test Statistics for Total Phosphorus
Unadjusted for Seasonal Medians

Tau Statistic	P-Value Without Serial Correlation	P-Value With Serial Correlation	Slope Statistic
0.603	0	.003	.003

U=Upper 95% Confidence Limit L=Lower 95% Confidence Limit
Zero Reference Line Shown

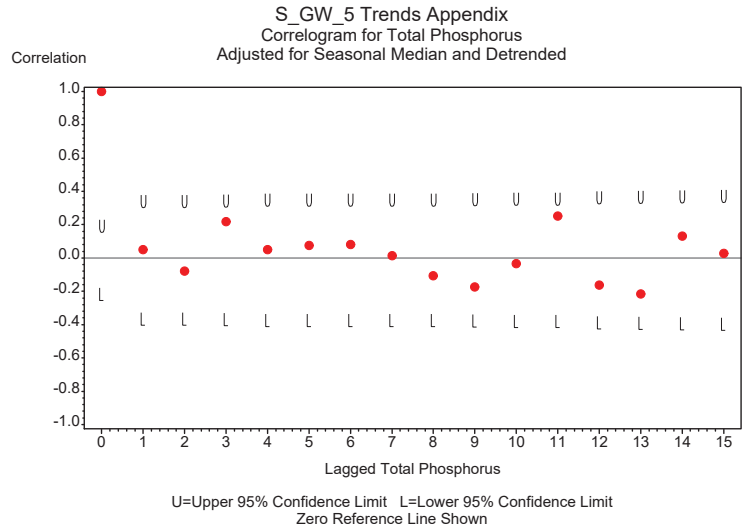
S_GW_5 Trends Appendix
 Seasonal Kendall Tau Trend Test Statistics
 Total Phosphorus
 Adjusted for Seasonal Medians

Tau Statistic	P-Value Without Serial Correlation	P-Value With Serial Correlation	Slope Statistic
0.60687	0	.00351405	.00266667

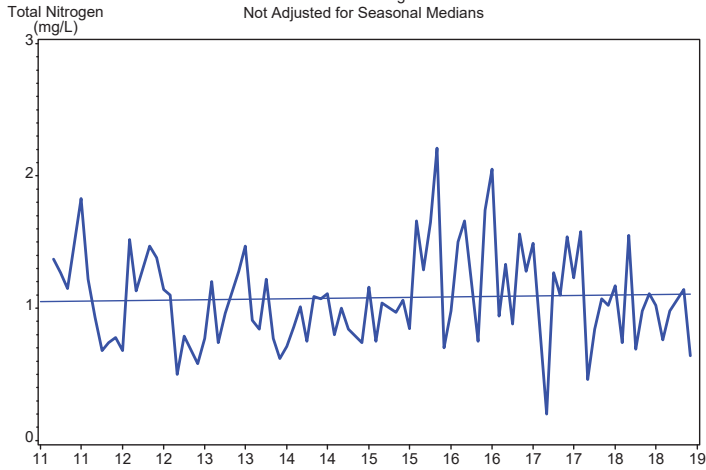


S_GW_5 Trends Appendix
 Autocorrelation Statistics for Total Phosphorus
 Adjusted for Seasonal Median and Detrended

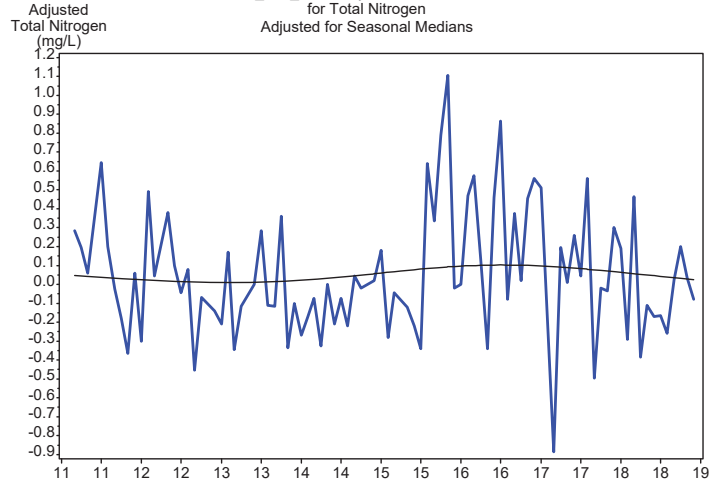
Lagged Total Phosphorus	Correlation	Standard Error	Upper Limit	Lower Limit
0	1.000	0.102	0.204	-0.204
1	0.050	0.177	0.354	-0.354
2	-0.078	0.177	0.354	-0.354
3	0.218	0.177	0.355	-0.355
4	0.049	0.180	0.360	-0.360
5	0.075	0.180	0.360	-0.360
6	0.080	0.181	0.361	-0.361
7	0.014	0.181	0.362	-0.362
8	-0.107	0.181	0.362	-0.362
9	-0.174	0.182	0.363	-0.363
10	-0.034	0.183	0.367	-0.367
11	0.251	0.183	0.367	-0.367
12	-0.162	0.187	0.374	-0.374
13	-0.217	0.188	0.377	-0.377
14	0.131	0.191	0.382	-0.382
15	0.027	0.192	0.384	-0.384



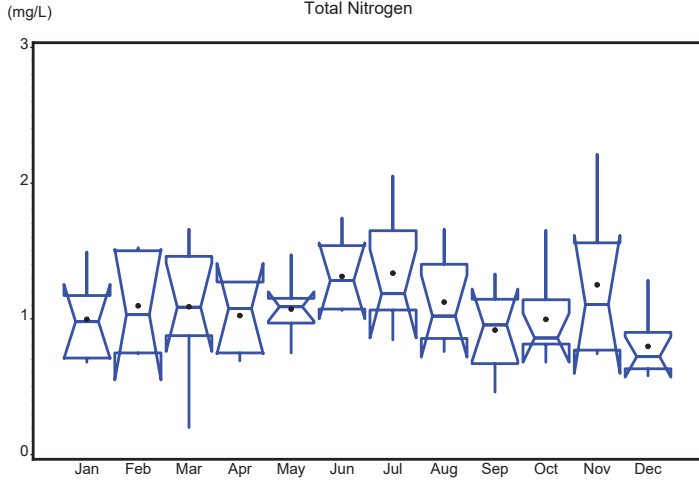
S_GW_5 Trends
S_GW_5 Monthly Data Time Series
for Total Nitrogen
Not Adjusted for Seasonal Medians



S_GW_5 Trends
S_GW_5 Monthly Data Time Series
for Total Nitrogen
Adjusted for Seasonal Medians



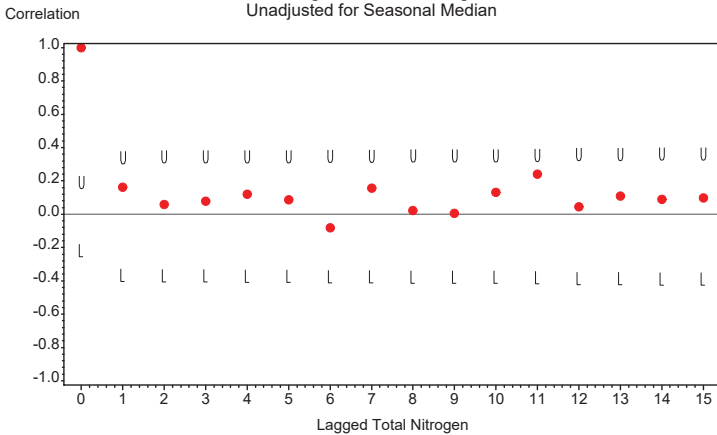
S_GW_5 Trends Appendix
Seasonal Univariate Statistics
Total Nitrogen



S_GW_5 Trends Appendix
Autocorrelation Statistics for Total Nitrogen
Unadjusted for Seasonal Medians

Lagged Total Nitrogen	Correlation	Standard Error	Upper Limit	Lower Limit
0	1.000	0.102	0.204	-0.204
1	0.162	0.177	0.354	-0.354
2	0.059	0.178	0.357	-0.357
3	0.077	0.179	0.357	-0.357
4	0.121	0.179	0.358	-0.358
5	0.085	0.180	0.359	-0.359
6	-0.082	0.180	0.360	-0.360
7	0.155	0.181	0.361	-0.361
8	0.021	0.182	0.364	-0.364
9	0.004	0.182	0.364	-0.364
10	0.131	0.182	0.364	-0.364
11	0.241	0.183	0.366	-0.366
12	0.043	0.186	0.372	-0.372
13	0.108	0.186	0.373	-0.373
14	0.089	0.187	0.374	-0.374
15	0.097	0.187	0.375	-0.375

S_GW_5 Trends Appendix
Correlogram for Total Nitrogen
Unadjusted for Seasonal Median



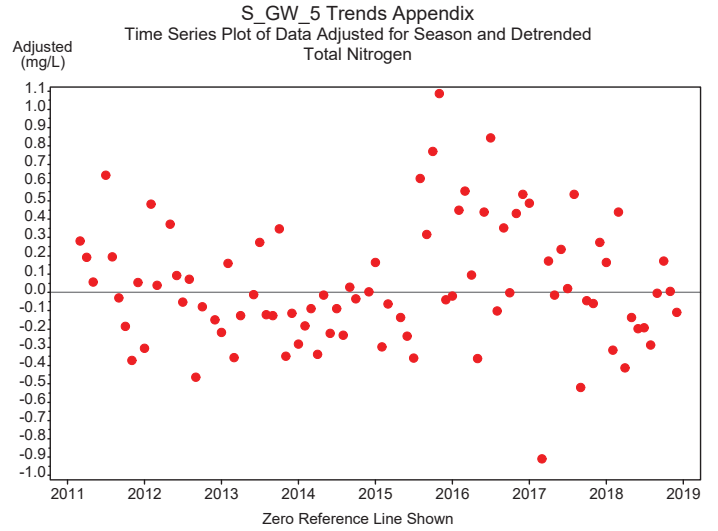
U=Upper 95% Confidence Limit L=Lower 95% Confidence Limit
Zero Reference Line Shown

S_GW_5 Trends Appendix
Seasonal Kendall Tau Trend Test Statistics
Total Nitrogen
Unadjusted for Seasonal Medians

Tau Statistic	P-Value Without Serial Correlation	P-Value With Serial Correlation	Slope Statistic
0.022	0.839	0.868	.003

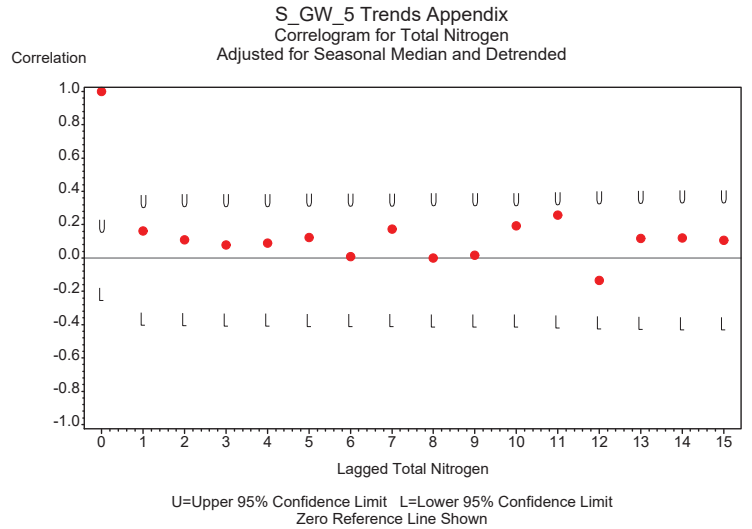
S_GW_5 Trends Appendix
 Seasonal Kendall Tau Trend Test Statistics
 Total Nitrogen
 Adjusted for Seasonal Medians

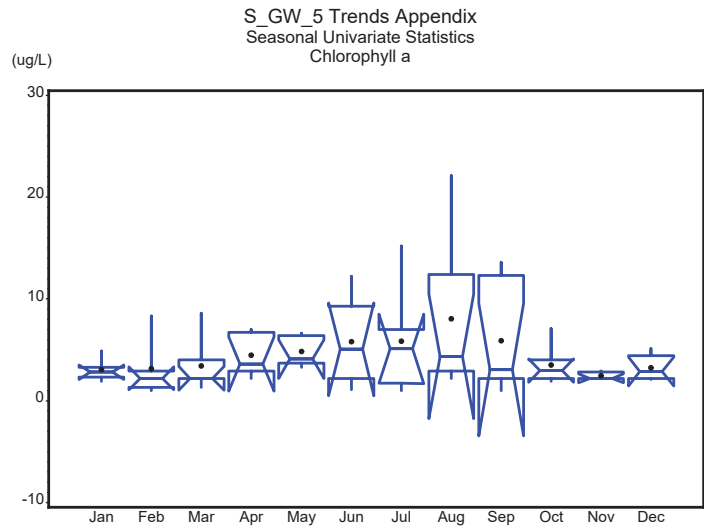
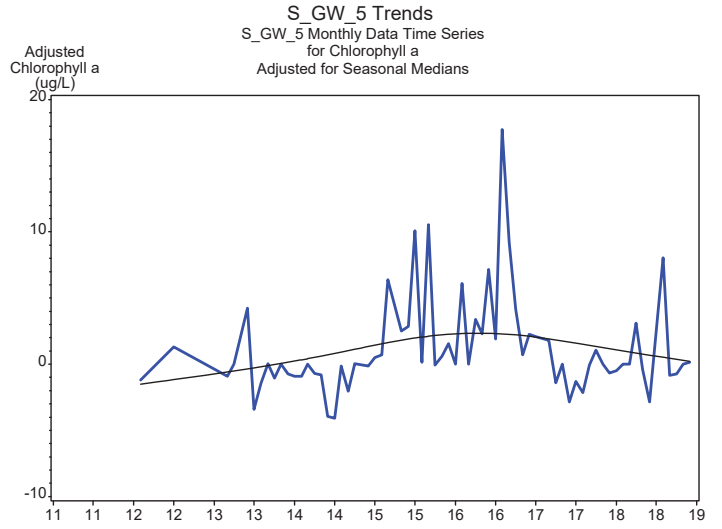
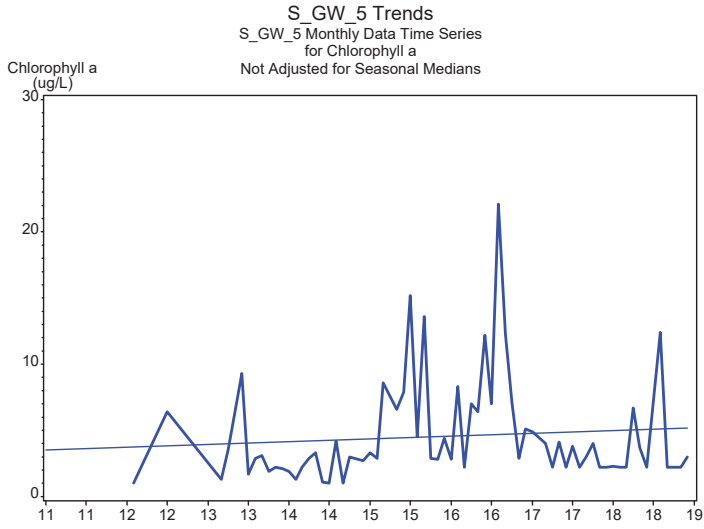
Tau Statistic	P-Value Without Serial Correlation	P-Value With Serial Correlation	Slope Statistic
0.021739	0.83931	0.86783	.00333333



S_GW_5 Trends Appendix
 Autocorrelation Statistics for Total Nitrogen
 Adjusted for Seasonal Median and Detrended

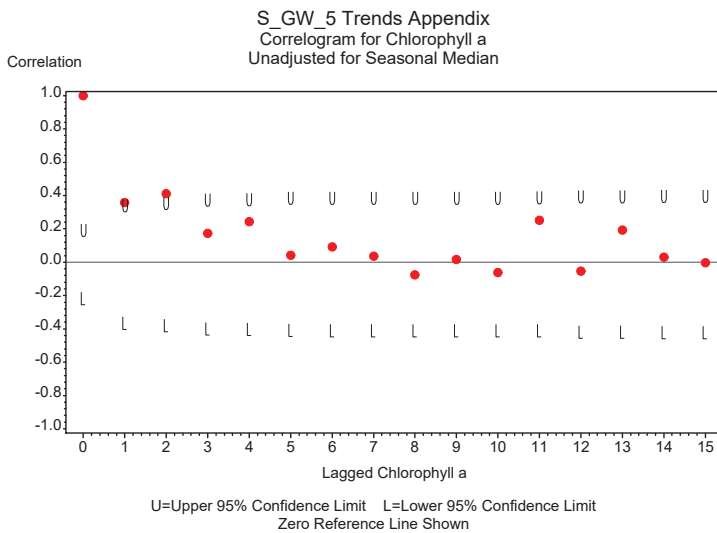
Lagged Total Nitrogen	Correlation	Standard Error	Upper Limit	Lower Limit
0	1.000	0.102	0.204	-0.204
1	0.163	0.177	0.354	-0.354
2	0.109	0.178	0.357	-0.357
3	0.078	0.179	0.358	-0.358
4	0.090	0.179	0.359	-0.359
5	0.122	0.180	0.360	-0.360
6	0.008	0.181	0.361	-0.361
7	0.173	0.181	0.361	-0.361
8	-0.001	0.182	0.365	-0.365
9	0.015	0.182	0.365	-0.365
10	0.194	0.182	0.365	-0.365
11	0.256	0.185	0.369	-0.369
12	-0.136	0.188	0.376	-0.376
13	0.117	0.189	0.378	-0.378
14	0.121	0.190	0.380	-0.380
15	0.106	0.191	0.382	-0.382





S_GW_5 Trends Appendix
Autocorrelation Statistics for Chlorophyll a
Unadjusted for Seasonal Medians

Lagged Chlorophyll a	Correlation	Standard Error	Upper Limit	Lower Limit
0	1.000	0.102	0.204	-0.204
1	0.358	0.177	0.354	-0.354
2	0.411	0.184	0.368	-0.368
3	0.172	0.194	0.387	-0.387
4	0.244	0.195	0.390	-0.390
5	0.041	0.198	0.396	-0.396
6	0.091	0.198	0.397	-0.397
7	0.036	0.199	0.398	-0.398
8	-0.075	0.199	0.398	-0.398
9	0.015	0.199	0.398	-0.398
10	-0.062	0.199	0.398	-0.398
11	0.252	0.199	0.399	-0.399
12	-0.053	0.203	0.405	-0.405
13	0.192	0.203	0.406	-0.406
14	0.031	0.205	0.409	-0.409
15	-0.004	0.205	0.409	-0.409

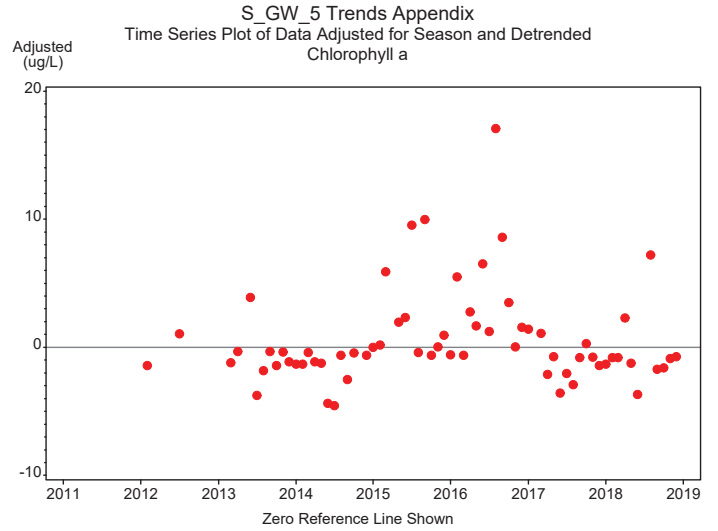


S_GW_5 Trends Appendix
Seasonal Kendall Tau Trend Test Statistics
Chlorophyll a
Unadjusted for Seasonal Medians

Tau Statistic	P-Value Without Serial Correlation	P-Value With Serial Correlation	Slope Statistic
0.116	0.304	0.655	0.1

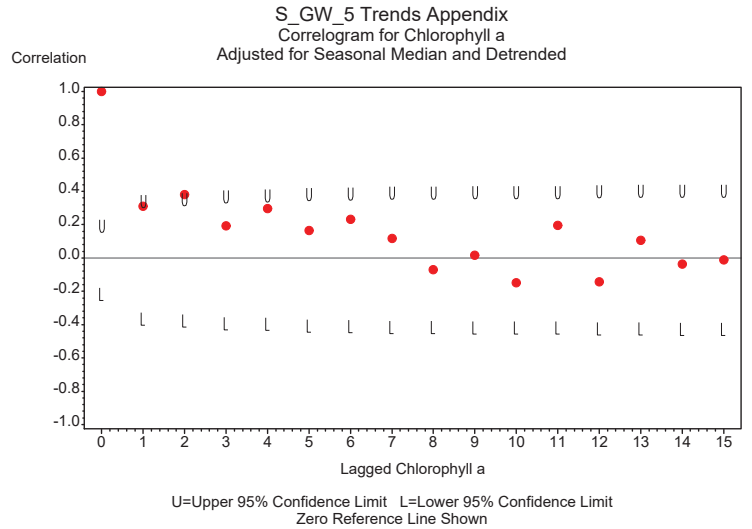
S_GW_5 Trends Appendix
 Seasonal Kendall Tau Trend Test Statistics
 Chlorophyll a
 Adjusted for Seasonal Medians

Tau Statistic	P-Value Without Serial Correlation	P-Value With Serial Correlation	Slope Statistic
0.11613	0.30383	0.65483	0.1

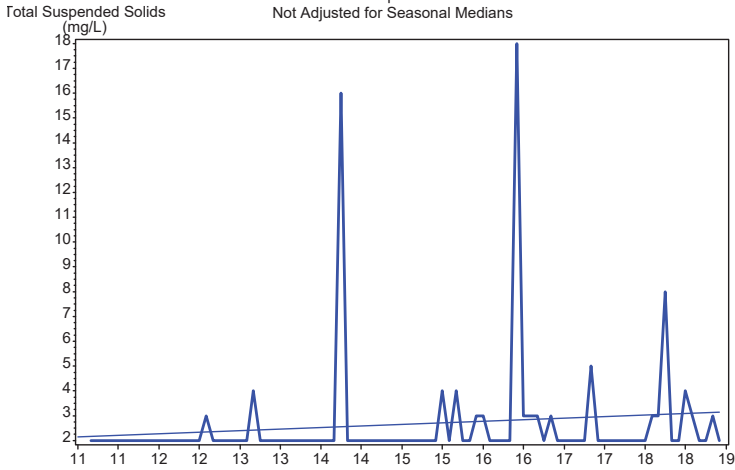


S_GW_5 Trends Appendix
 Autocorrelation Statistics for Chlorophyll a
 Adjusted for Seasonal Median and Detrended

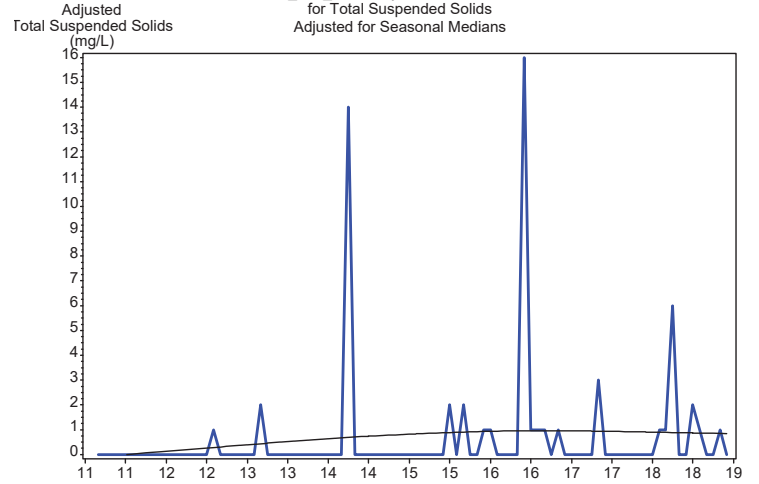
Lagged Chlorophyll a	Correlation	Standard Error	Upper Limit	Lower Limit
0	1.000	0.102	0.204	-0.204
1	0.310	0.177	0.354	-0.354
2	0.380	0.182	0.365	-0.365
3	0.192	0.190	0.381	-0.381
4	0.297	0.192	0.385	-0.385
5	0.165	0.197	0.394	-0.394
6	0.231	0.199	0.397	-0.397
7	0.116	0.201	0.403	-0.403
8	-0.070	0.202	0.404	-0.404
9	0.017	0.202	0.405	-0.405
10	-0.150	0.202	0.405	-0.405
11	0.195	0.203	0.407	-0.407
12	-0.143	0.205	0.411	-0.411
13	0.105	0.206	0.413	-0.413
14	-0.038	0.207	0.414	-0.414
15	-0.012	0.207	0.414	-0.414



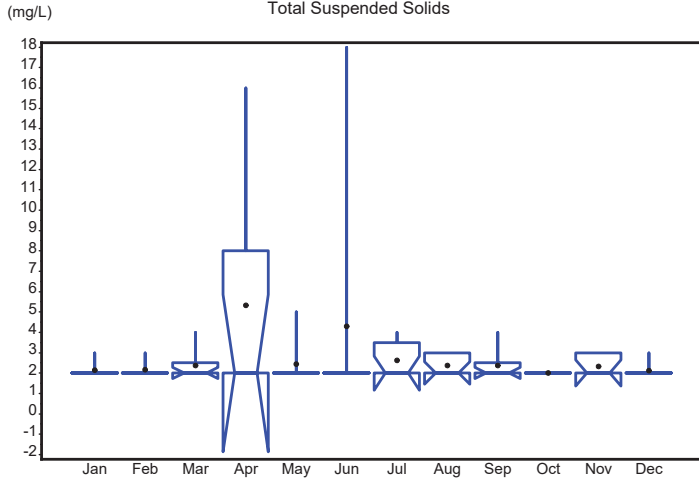
S_GW_5 Trends
S_GW_5 Monthly Data Time Series
for Total Suspended Solids
Not Adjusted for Seasonal Medians



S_GW_5 Trends
S_GW_5 Monthly Data Time Series
for Total Suspended Solids
Adjusted for Seasonal Medians



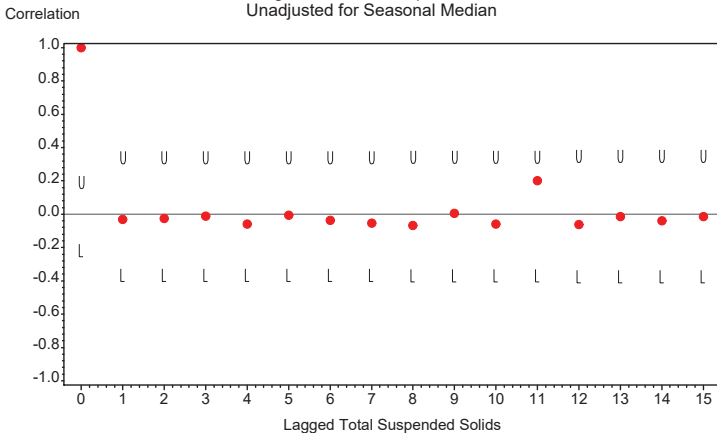
S_GW_5 Trends Appendix
Seasonal Univariate Statistics
Total Suspended Solids



S_GW_5 Trends Appendix
Autocorrelation Statistics for Total Suspended Solids
Unadjusted for Seasonal Medians

Lagged Total Suspended Solids	Correlation	Standard Error	Upper Limit	Lower Limit
0	1.000	0.102	0.204	-0.204
1	-0.030	0.177	0.354	-0.354
2	-0.027	0.177	0.354	-0.354
3	-0.012	0.177	0.354	-0.354
4	-0.058	0.177	0.354	-0.354
5	-0.006	0.177	0.354	-0.354
6	-0.036	0.177	0.354	-0.354
7	-0.053	0.177	0.354	-0.354
8	-0.067	0.177	0.355	-0.355
9	0.006	0.178	0.355	-0.355
10	-0.059	0.178	0.355	-0.355
11	0.200	0.178	0.356	-0.356
12	-0.063	0.180	0.360	-0.360
13	-0.014	0.180	0.361	-0.361
14	-0.040	0.180	0.361	-0.361
15	-0.015	0.180	0.361	-0.361

S_GW_5 Trends Appendix
Correlogram for Total Suspended Solids
Unadjusted for Seasonal Median



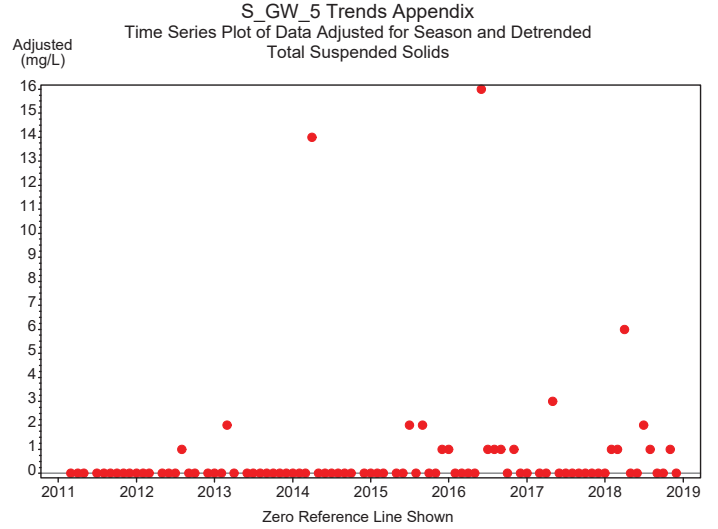
U=Upper 95% Confidence Limit L=Lower 95% Confidence Limit
Zero Reference Line Shown

S_GW_5 Trends Appendix
Seasonal Kendall Tau Trend Test Statistics
Total Suspended Solids
Unadjusted for Seasonal Medians

Tau Statistic	P-Value Without Serial Correlation	P-Value With Serial Correlation	Slope Statistic
0.163	.009	0.078	0

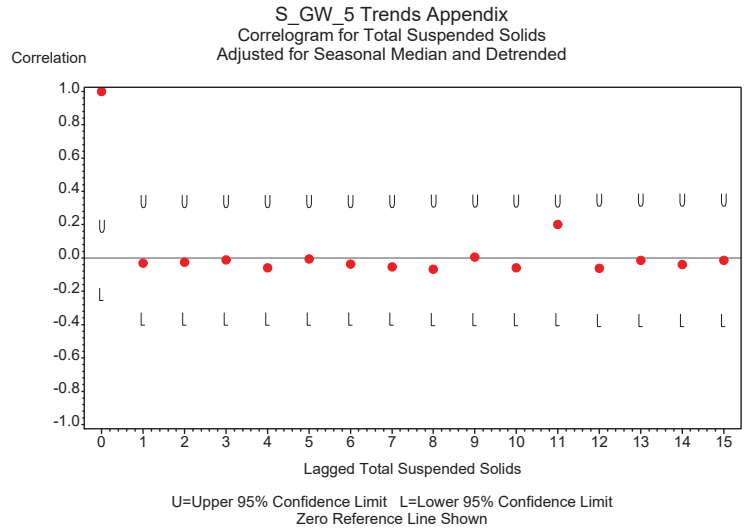
S_GW_5 Trends Appendix
 Seasonal Kendall Tau Trend Test Statistics
 Total Suspended Solids
 Adjusted for Seasonal Medians

Tau Statistic	P-Value Without Serial Correlation	P-Value With Serial Correlation	Slope Statistic
0.16304	.00923312	0.078090	0

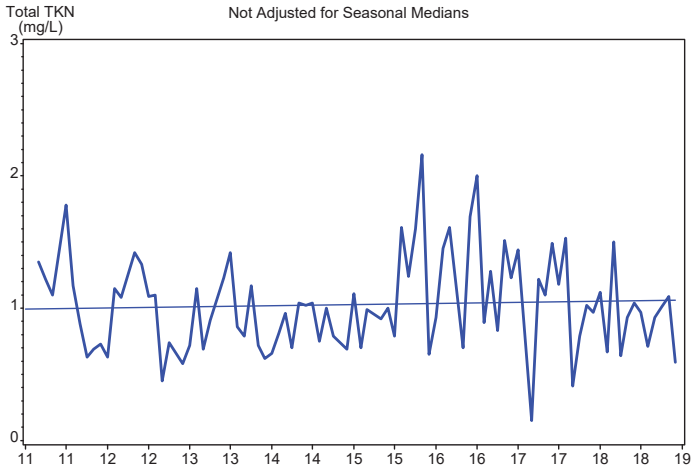


S_GW_5 Trends Appendix
 Autocorrelation Statistics for Total Suspended Solids
 Adjusted for Seasonal Median and Detrended

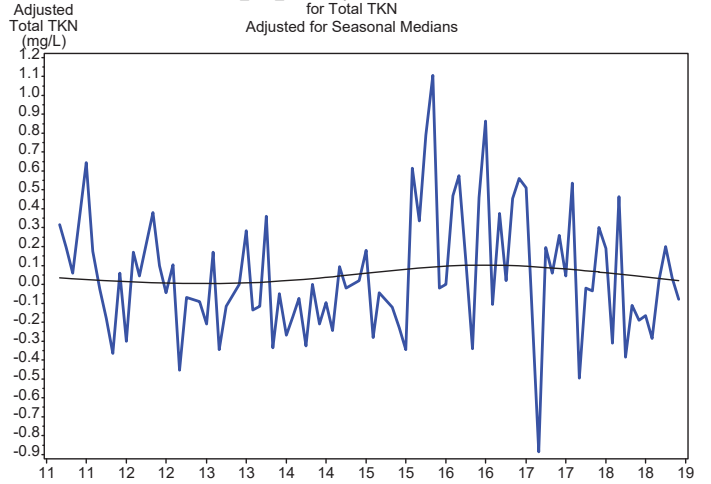
Lagged Total Suspended Solids	Correlation	Standard Error	Upper Limit	Lower Limit
0	1.000	0.102	0.204	-0.204
1	-0.030	0.177	0.354	-0.354
2	-0.027	0.177	0.354	-0.354
3	-0.012	0.177	0.354	-0.354
4	-0.058	0.177	0.354	-0.354
5	-0.006	0.177	0.354	-0.354
6	-0.036	0.177	0.354	-0.354
7	-0.053	0.177	0.354	-0.354
8	-0.067	0.177	0.355	-0.355
9	0.006	0.178	0.355	-0.355
10	-0.059	0.178	0.355	-0.355
11	0.200	0.178	0.356	-0.356
12	-0.063	0.180	0.360	-0.360
13	-0.014	0.180	0.361	-0.361
14	-0.040	0.180	0.361	-0.361
15	-0.015	0.180	0.361	-0.361



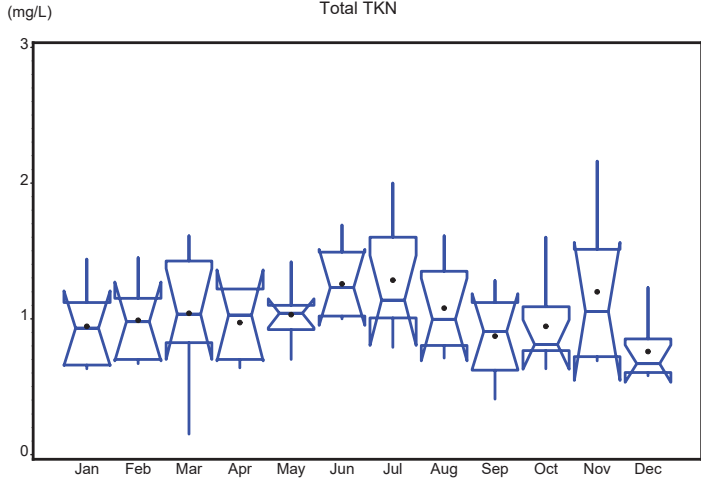
S_GW_5 Trends
S_GW_5 Monthly Data Time Series
for Total TKN
Not Adjusted for Seasonal Medians



S_GW_5 Trends
S_GW_5 Monthly Data Time Series
for Total TKN
Adjusted for Seasonal Medians



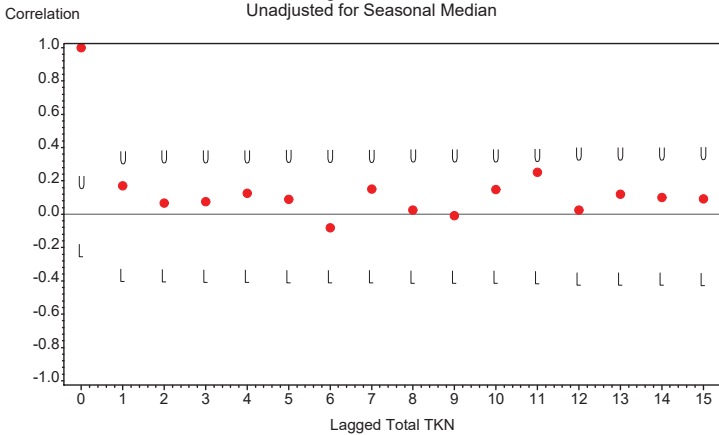
S_GW_5 Trends Appendix
Seasonal Univariate Statistics
Total TKN



S_GW_5 Trends Appendix
Autocorrelation Statistics for Total TKN
Unadjusted for Seasonal Medians

Lagged Total TKN	Correlation	Standard Error	Upper Limit	Lower Limit
0	1.000	0.102	0.204	-0.204
1	0.171	0.177	0.354	-0.354
2	0.067	0.178	0.357	-0.357
3	0.074	0.179	0.358	-0.358
4	0.125	0.179	0.358	-0.358
5	0.089	0.180	0.360	-0.360
6	-0.081	0.180	0.361	-0.361
7	0.151	0.181	0.362	-0.362
8	0.024	0.182	0.364	-0.364
9	-0.009	0.182	0.364	-0.364
10	0.148	0.182	0.364	-0.364
11	0.251	0.183	0.367	-0.367
12	0.025	0.187	0.374	-0.374
13	0.120	0.187	0.374	-0.374
14	0.100	0.188	0.376	-0.376
15	0.092	0.188	0.377	-0.377

S_GW_5 Trends Appendix
Correlogram for Total TKN
Unadjusted for Seasonal Median



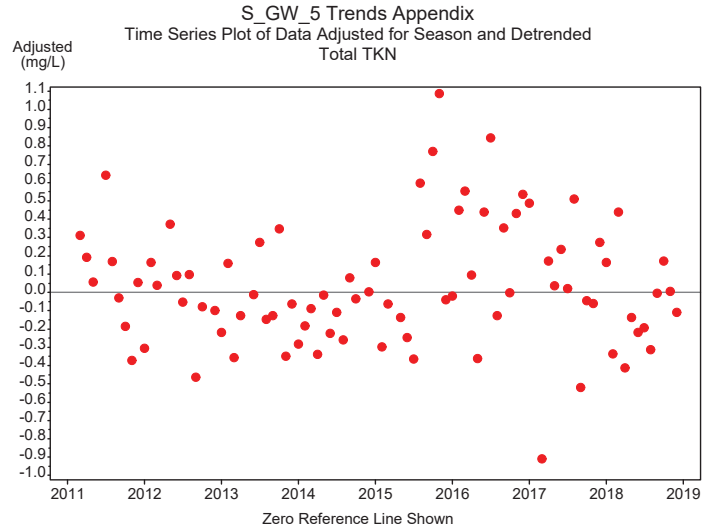
U=Upper 95% Confidence Limit L=Lower 95% Confidence Limit
Zero Reference Line Shown

S_GW_5 Trends Appendix
Seasonal Kendall Tau Trend Test Statistics
Total TKN
Unadjusted for Seasonal Medians

Tau Statistic	P-Value Without Serial Correlation	P-Value With Serial Correlation	Slope Statistic
0.029	0.776	0.823	.003

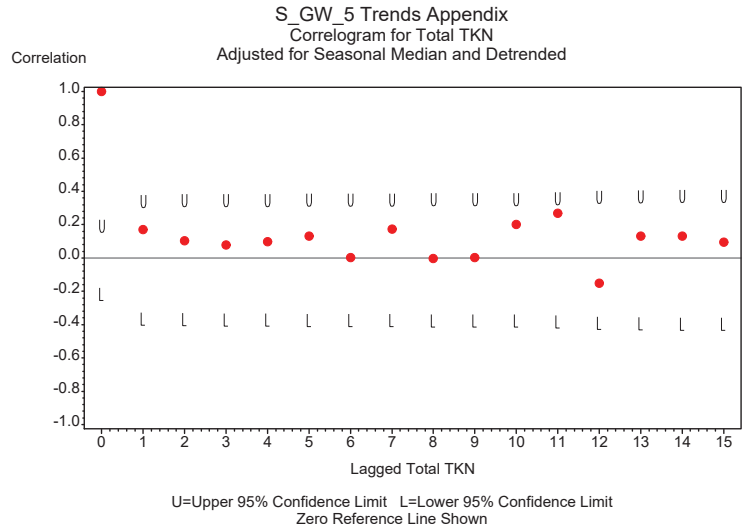
S_GW_5 Trends Appendix
 Seasonal Kendall Tau Trend Test Statistics
 Total TKN
 Adjusted for Seasonal Medians

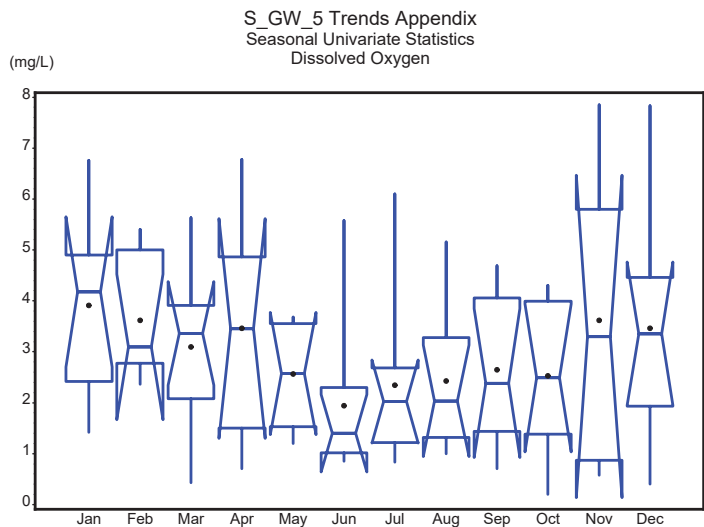
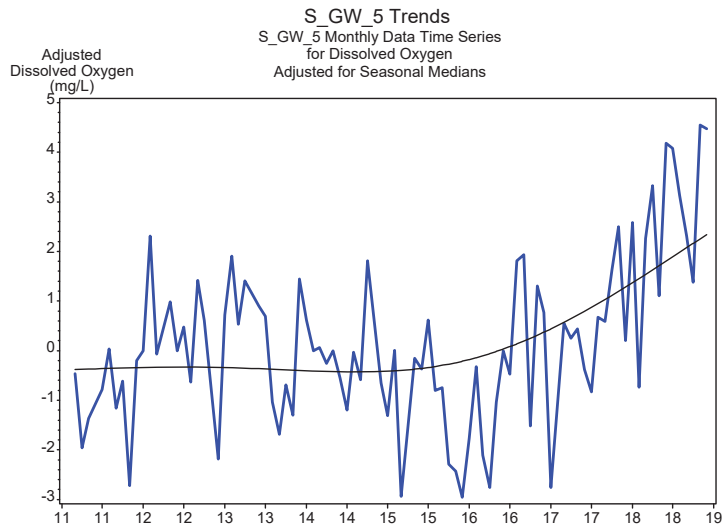
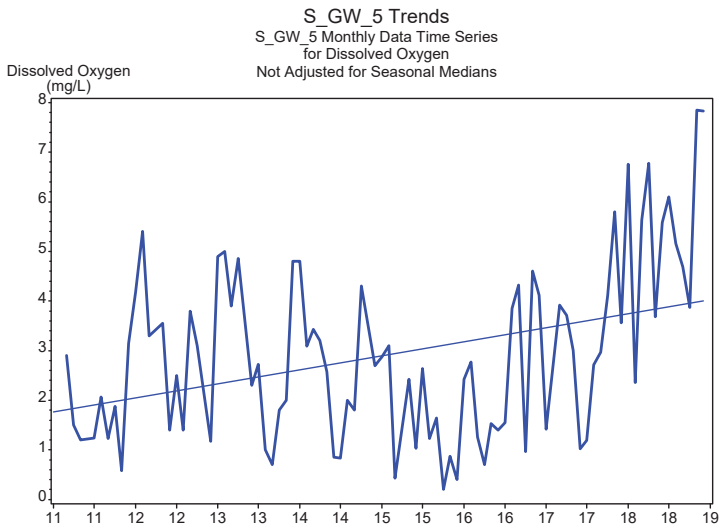
Tau Statistic	P-Value Without Serial Correlation	P-Value With Serial Correlation	Slope Statistic
0.028986	0.77614	0.82324	.00333333



S_GW_5 Trends Appendix
 Autocorrelation Statistics for Total TKN
 Adjusted for Seasonal Median and Detrended

Lagged Total TKN	Correlation	Standard Error	Upper Limit	Lower Limit
0	1.000	0.102	0.204	-0.204
1	0.171	0.177	0.354	-0.354
2	0.104	0.178	0.357	-0.357
3	0.078	0.179	0.358	-0.358
4	0.097	0.179	0.359	-0.359
5	0.131	0.180	0.360	-0.360
6	0.002	0.181	0.362	-0.362
7	0.174	0.181	0.362	-0.362
8	-0.002	0.183	0.365	-0.365
9	0.003	0.183	0.365	-0.365
10	0.202	0.183	0.365	-0.365
11	0.269	0.185	0.370	-0.370
12	-0.152	0.189	0.378	-0.378
13	0.131	0.190	0.381	-0.381
14	0.132	0.191	0.383	-0.383
15	0.096	0.192	0.384	-0.384

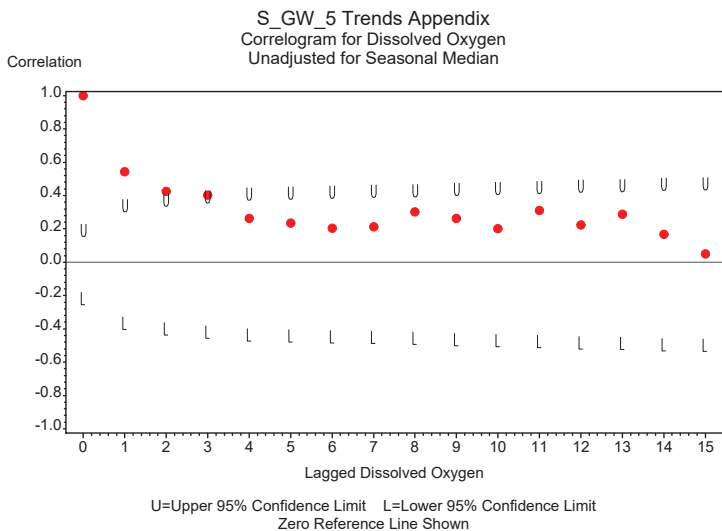




S_GW_5 Trends Appendix

Autocorrelation Statistics for Dissolved Oxygen
Unadjusted for Seasonal Medians

Lagged Dissolved Oxygen	Correlation	Standard Error	Upper Limit	Lower Limit
0	1.000	0.102	0.204	-0.204
1	0.543	0.177	0.354	-0.354
2	0.424	0.193	0.387	-0.387
3	0.402	0.203	0.406	-0.406
4	0.262	0.211	0.422	-0.422
5	0.236	0.214	0.429	-0.429
6	0.205	0.217	0.434	-0.434
7	0.213	0.219	0.438	-0.438
8	0.303	0.221	0.442	-0.442
9	0.264	0.225	0.451	-0.451
10	0.202	0.229	0.457	-0.457
11	0.310	0.231	0.461	-0.461
12	0.224	0.235	0.470	-0.470
13	0.289	0.237	0.474	-0.474
14	0.167	0.241	0.481	-0.481
15	0.050	0.242	0.484	-0.484



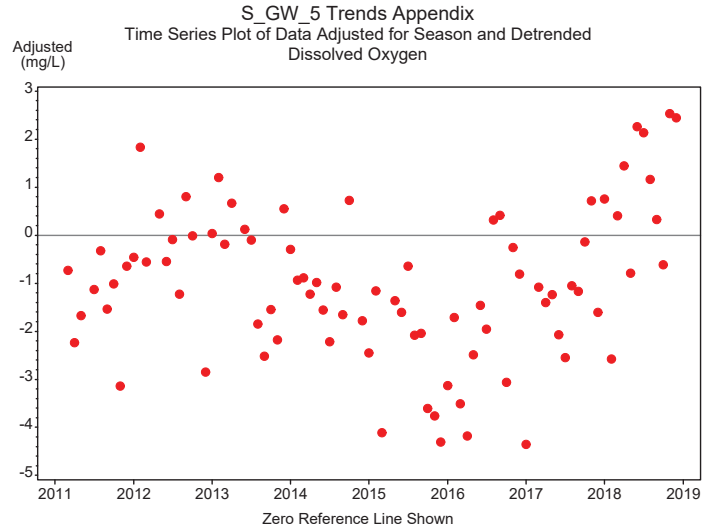
S_GW_5 Trends Appendix

Seasonal Kendall Tau Trend Test Statistics
Dissolved Oxygen
Unadjusted for Seasonal Medians

Tau Statistic	P-Value Without Serial Correlation	P-Value With Serial Correlation	Slope Statistic
0.214	0.019	0.223	0.228

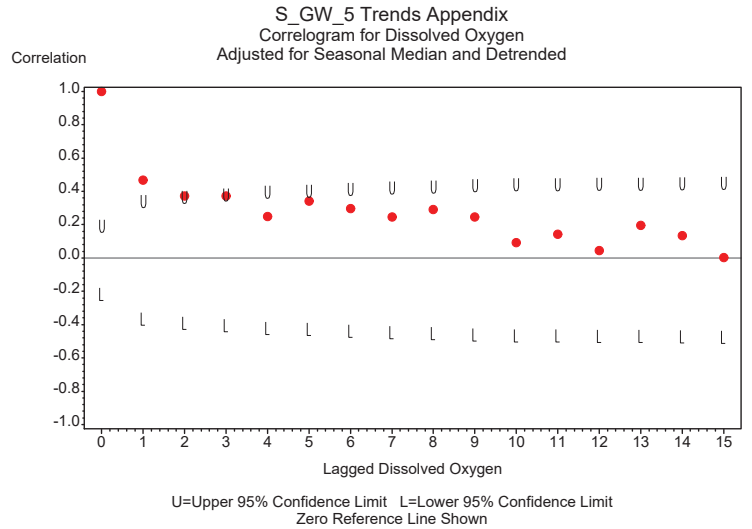
S_GW_5 Trends Appendix
 Seasonal Kendall Tau Trend Test Statistics
 Dissolved Oxygen
 Adjusted for Seasonal Medians

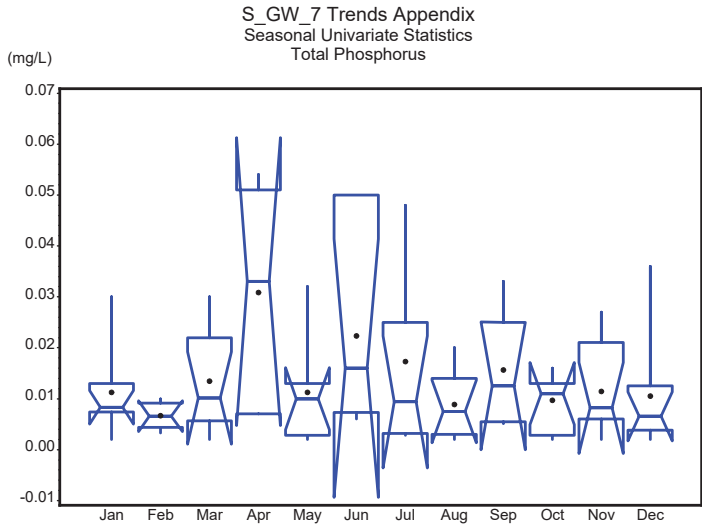
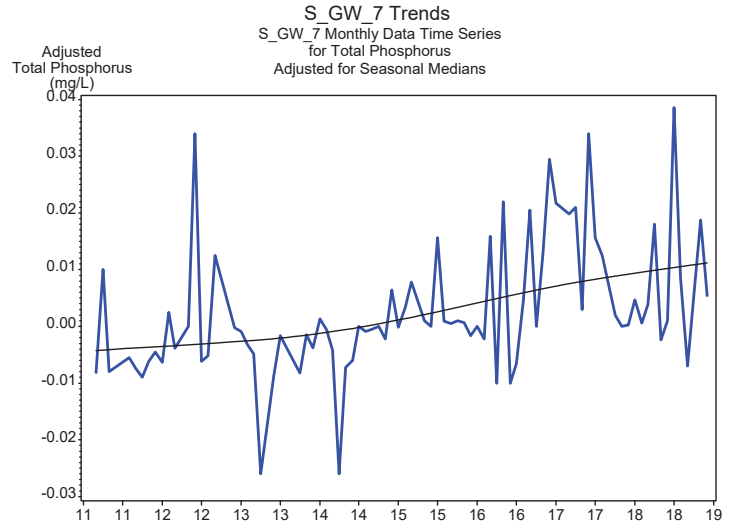
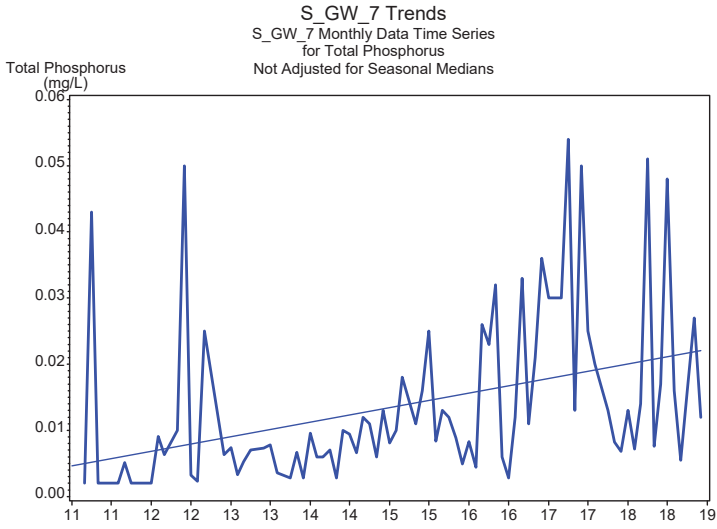
Tau Statistic	P-Value Without Serial Correlation	P-Value With Serial Correlation	Slope Statistic
0.21377	0.018759	0.22289	0.22833



S_GW_5 Trends Appendix
 Autocorrelation Statistics for Dissolved Oxygen
 Adjusted for Seasonal Median and Detrended

Lagged Dissolved Oxygen	Correlation	Standard Error	Upper Limit	Lower Limit
0	1.000	0.102	0.204	-0.204
1	0.468	0.177	0.354	-0.354
2	0.373	0.189	0.378	-0.378
3	0.373	0.197	0.393	-0.393
4	0.250	0.204	0.408	-0.408
5	0.340	0.207	0.414	-0.414
6	0.297	0.213	0.426	-0.426
7	0.247	0.217	0.434	-0.434
8	0.291	0.220	0.440	-0.440
9	0.246	0.224	0.448	-0.448
10	0.092	0.227	0.454	-0.454
11	0.142	0.227	0.454	-0.454
12	0.043	0.228	0.456	-0.456
13	0.196	0.228	0.456	-0.456
14	0.135	0.230	0.460	-0.460
15	0.002	0.231	0.462	-0.462

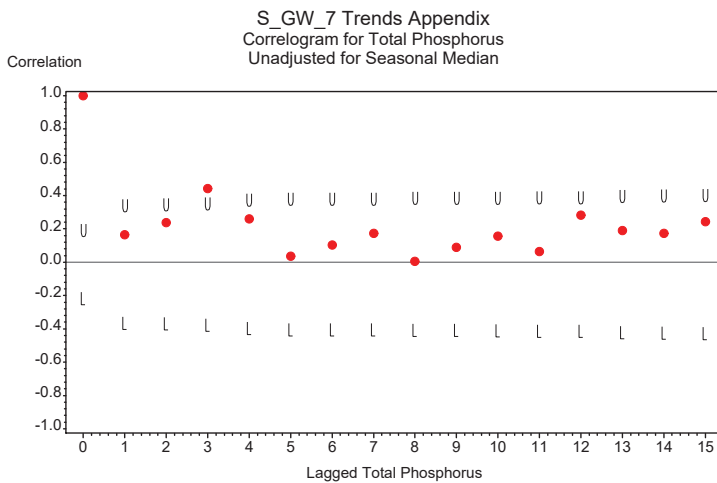




S_GW_7 Trends Appendix

Autocorrelation Statistics for Total Phosphorus
Unadjusted for Seasonal Medians

Lagged Total Phosphorus	Correlation	Standard Error	Upper Limit	Lower Limit
0	1.000	0.102	0.204	-0.204
1	0.164	0.177	0.354	-0.354
2	0.237	0.178	0.357	-0.357
3	0.441	0.182	0.363	-0.363
4	0.260	0.192	0.385	-0.385
5	0.036	0.196	0.392	-0.392
6	0.102	0.196	0.392	-0.392
7	0.172	0.197	0.393	-0.393
8	0.005	0.198	0.396	-0.396
9	0.090	0.198	0.396	-0.396
10	0.155	0.199	0.397	-0.397
11	0.063	0.200	0.400	-0.400
12	0.281	0.200	0.400	-0.400
13	0.189	0.204	0.408	-0.408
14	0.172	0.206	0.412	-0.412
15	0.242	0.207	0.415	-0.415



S_GW_7 Trends Appendix

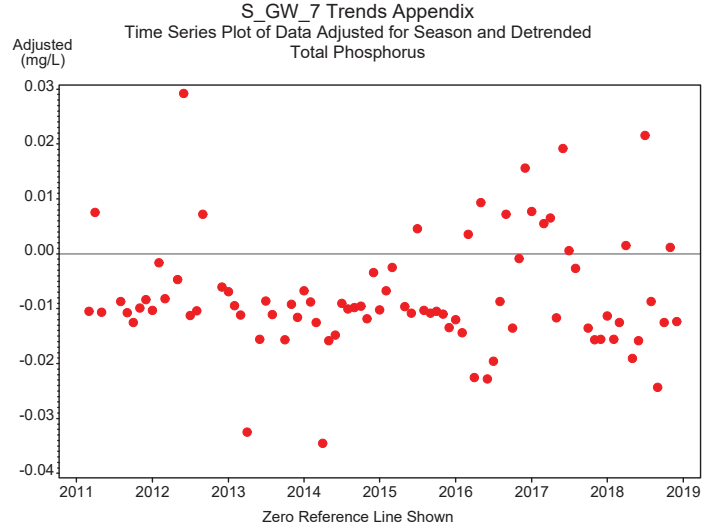
Seasonal Kendall Tau Trend Test Statistics
Total Phosphorus
Unadjusted for Seasonal Medians

Tau Statistic	P-Value Without Serial Correlation	P-Value With Serial Correlation	Slope Statistic
0.545	0	.006	.002

U=Upper 95% Confidence Limit L=Lower 95% Confidence Limit
Zero Reference Line Shown

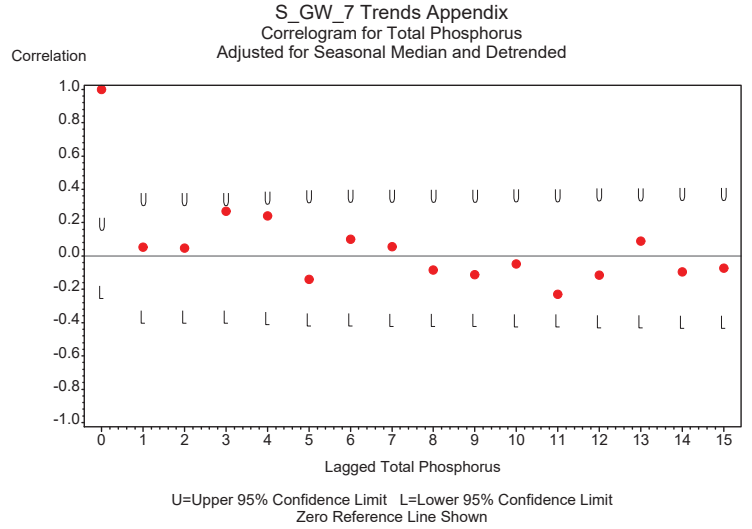
S_GW_7 Trends Appendix
 Seasonal Kendall Tau Trend Test Statistics
 Total Phosphorus
 Adjusted for Seasonal Medians

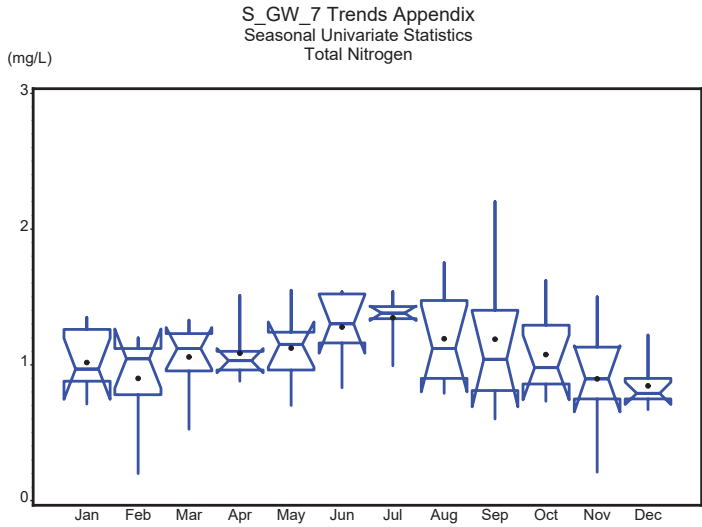
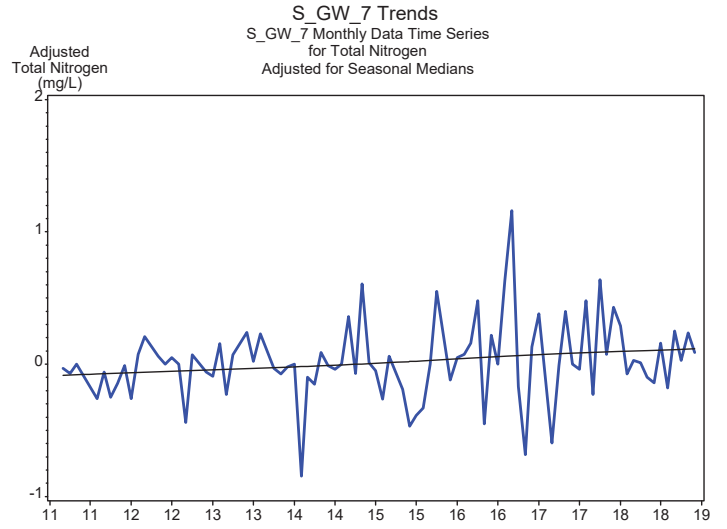
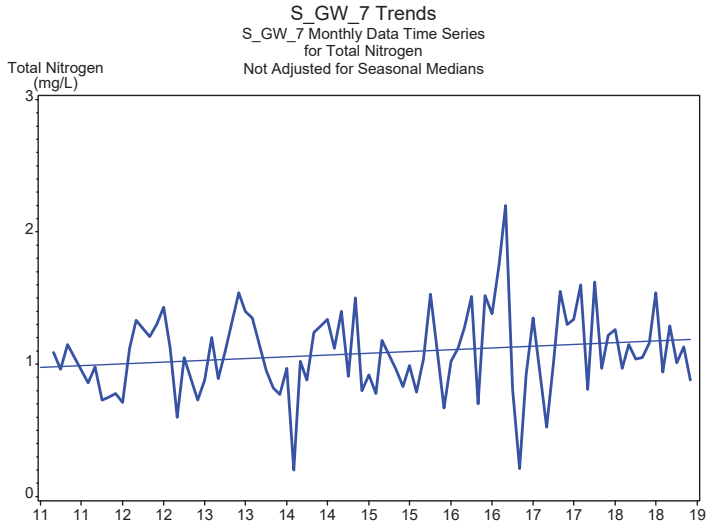
Tau Statistic	P-Value Without Serial Correlation	P-Value With Serial Correlation	Slope Statistic
0.53726	0	.00606799	.002



S_GW_7 Trends Appendix
 Autocorrelation Statistics for Total Phosphorus
 Adjusted for Seasonal Median and Detrended

Lagged Total Phosphorus	Correlation	Standard Error	Upper Limit	Lower Limit
0	1.000	0.102	0.204	-0.204
1	0.053	0.177	0.354	-0.354
2	0.047	0.177	0.354	-0.354
3	0.267	0.177	0.354	-0.354
4	0.240	0.181	0.362	-0.362
5	-0.141	0.184	0.369	-0.369
6	0.101	0.186	0.371	-0.371
7	0.055	0.186	0.372	-0.372
8	-0.084	0.186	0.373	-0.373
9	-0.112	0.187	0.373	-0.373
10	-0.047	0.187	0.375	-0.375
11	-0.229	0.188	0.375	-0.375
12	-0.114	0.190	0.381	-0.381
13	0.090	0.191	0.382	-0.382
14	-0.096	0.192	0.383	-0.383
15	-0.074	0.192	0.384	-0.384

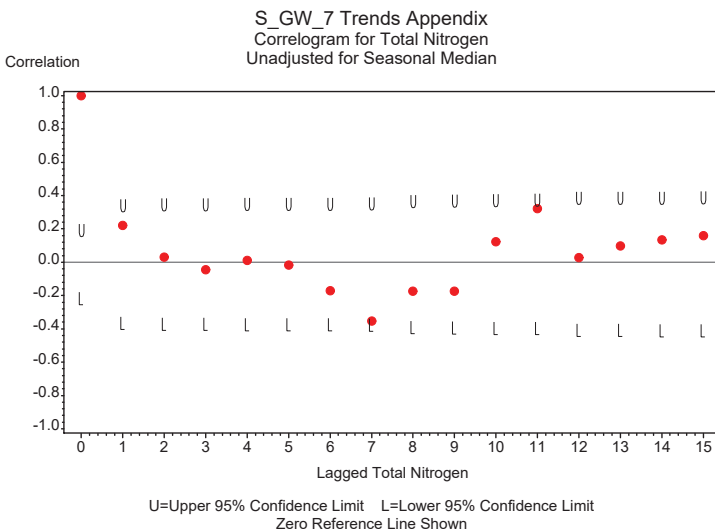




S_GW_7 Trends Appendix

Autocorrelation Statistics for Total Nitrogen
Unadjusted for Seasonal Medians

Lagged Total Nitrogen	Correlation	Standard Error	Upper Limit	Lower Limit
0	1.000	0.102	0.204	-0.204
1	0.220	0.177	0.354	-0.354
2	0.031	0.180	0.359	-0.359
3	-0.044	0.180	0.359	-0.359
4	0.011	0.180	0.360	-0.360
5	-0.018	0.180	0.360	-0.360
6	-0.170	0.180	0.360	-0.360
7	-0.354	0.181	0.363	-0.363
8	-0.175	0.189	0.377	-0.377
9	-0.174	0.190	0.380	-0.380
10	0.122	0.192	0.384	-0.384
11	0.321	0.193	0.385	-0.385
12	0.028	0.198	0.396	-0.396
13	0.098	0.198	0.396	-0.396
14	0.134	0.199	0.397	-0.397
15	0.159	0.200	0.399	-0.399



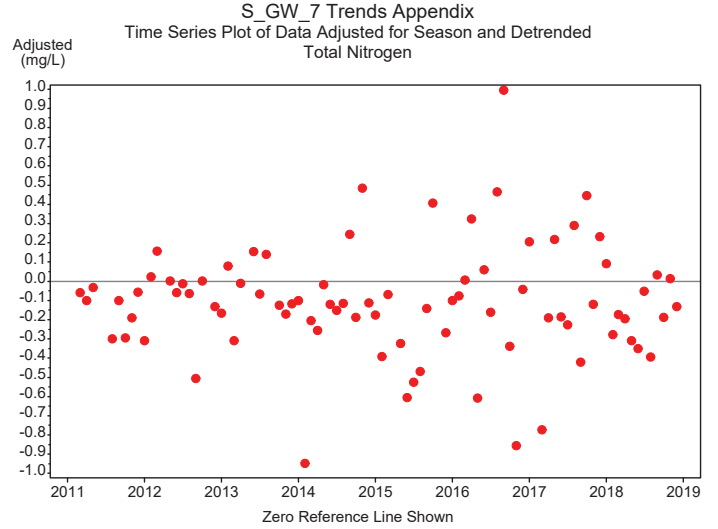
S_GW_7 Trends Appendix

Seasonal Kendall Tau Trend Test Statistics
Total Nitrogen
Unadjusted for Seasonal Medians

Tau Statistic	P-Value Without Serial Correlation	P-Value With Serial Correlation	Slope Statistic
0.16	0.084	0.152	0.025

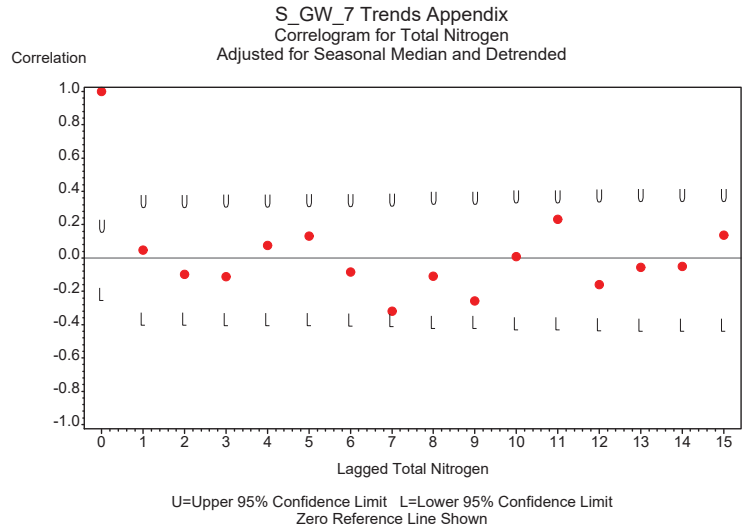
S_GW_7 Trends Appendix
 Seasonal Kendall Tau Trend Test Statistics
 Total Nitrogen
 Adjusted for Seasonal Medians

Tau Statistic	P-Value Without Serial Correlation	P-Value With Serial Correlation	Slope Statistic
0.16031	0.084274	0.15204	0.025

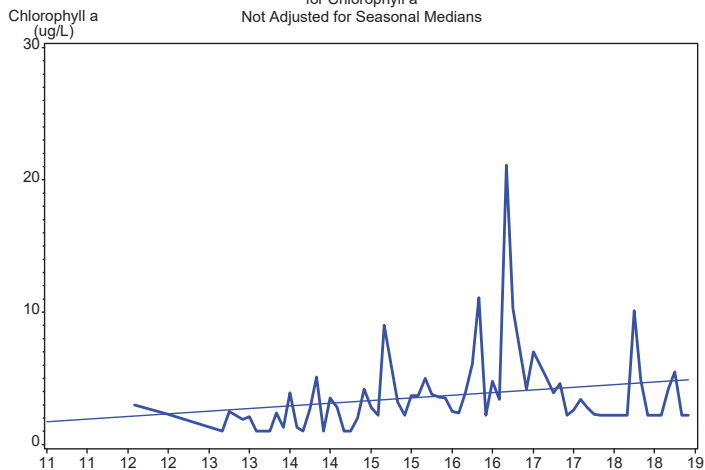


S_GW_7 Trends Appendix
 Autocorrelation Statistics for Total Nitrogen
 Adjusted for Seasonal Median and Detrended

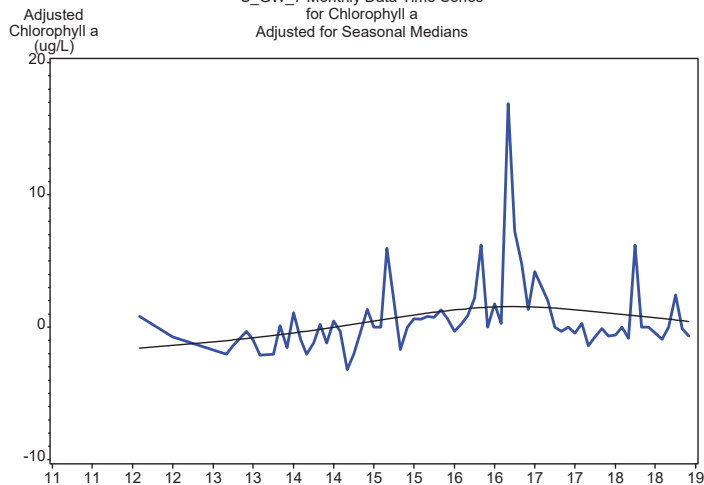
Lagged Total Nitrogen	Correlation	Standard Error	Upper Limit	Lower Limit
0	1.000	0.102	0.204	-0.204
1	0.047	0.177	0.354	-0.354
2	-0.099	0.177	0.354	-0.354
3	-0.113	0.177	0.355	-0.355
4	0.076	0.178	0.356	-0.356
5	0.130	0.179	0.357	-0.357
6	-0.084	0.180	0.359	-0.359
7	-0.320	0.180	0.360	-0.360
8	-0.110	0.186	0.372	-0.372
9	-0.258	0.186	0.373	-0.373
10	0.009	0.190	0.380	-0.380
11	0.233	0.190	0.380	-0.380
12	-0.159	0.193	0.386	-0.386
13	-0.057	0.194	0.389	-0.389
14	-0.050	0.195	0.389	-0.389
15	0.136	0.195	0.390	-0.390



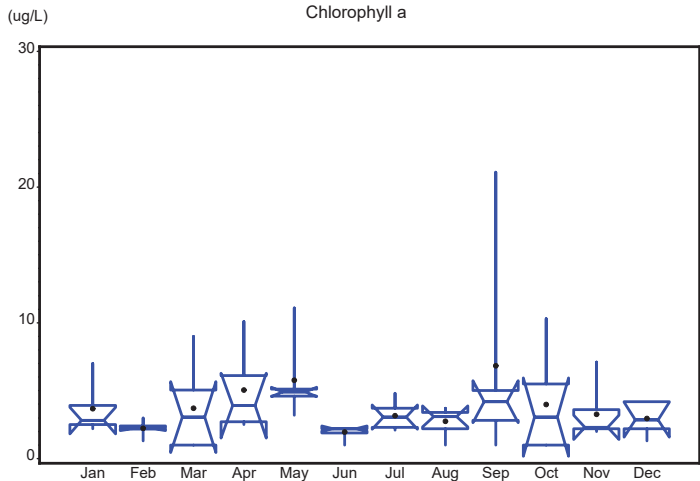
S_GW_7 Trends
S_GW_7 Monthly Data Time Series
for Chlorophyll a
Not Adjusted for Seasonal Medians



S_GW_7 Trends
S_GW_7 Monthly Data Time Series
for Chlorophyll a
Adjusted for Seasonal Medians



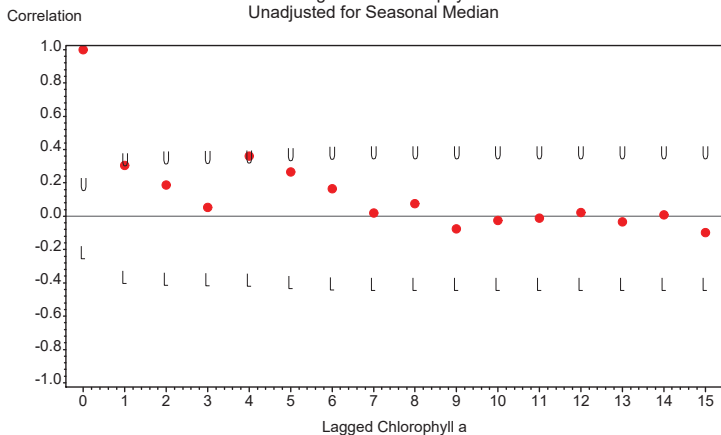
S_GW_7 Trends Appendix
Seasonal Univariate Statistics
Chlorophyll a



S_GW_7 Trends Appendix
Autocorrelation Statistics for Chlorophyll a
Unadjusted for Seasonal Medians

Lagged Chlorophyll a	Correlation	Standard Error	Upper Limit	Lower Limit
0	1.000	0.102	0.204	-0.204
1	0.306	0.177	0.354	-0.354
2	0.186	0.182	0.364	-0.364
3	0.054	0.184	0.368	-0.368
4	0.360	0.184	0.369	-0.369
5	0.266	0.192	0.383	-0.383
6	0.166	0.195	0.391	-0.391
7	0.018	0.197	0.394	-0.394
8	0.074	0.197	0.394	-0.394
9	-0.077	0.197	0.394	-0.394
10	-0.027	0.197	0.395	-0.395
11	-0.012	0.197	0.395	-0.395
12	0.022	0.197	0.395	-0.395
13	-0.034	0.197	0.395	-0.395
14	0.009	0.198	0.395	-0.395
15	-0.098	0.198	0.395	-0.395

S_GW_7 Trends Appendix
Correlogram for Chlorophyll a
Unadjusted for Seasonal Median



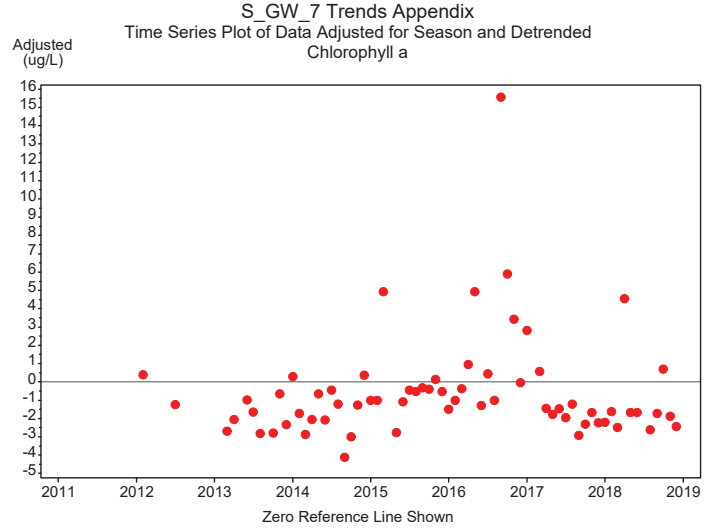
U=Upper 95% Confidence Limit L=Lower 95% Confidence Limit
Zero Reference Line Shown

S_GW_7 Trends Appendix
Seasonal Kendall Tau Trend Test Statistics
Chlorophyll a
Unadjusted for Seasonal Medians

Tau Statistic	P-Value Without Serial Correlation	P-Value With Serial Correlation	Slope Statistic
0.206	0.057	0.34	0.2

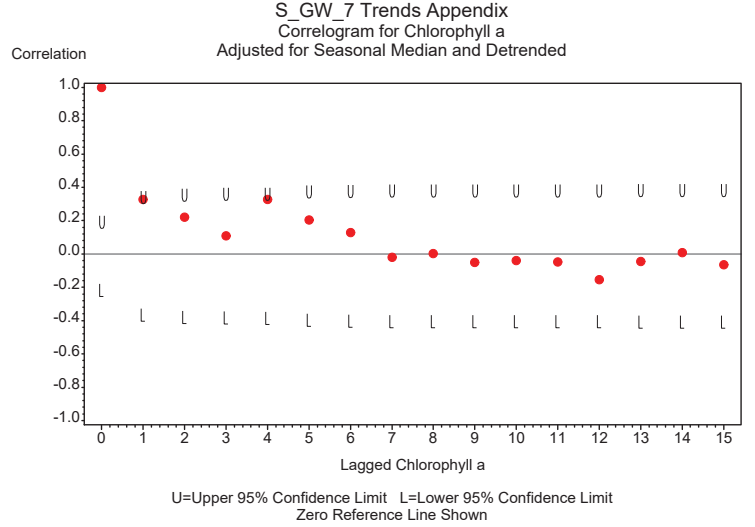
S_GW_7 Trends Appendix
 Seasonal Kendall Tau Trend Test Statistics
 Chlorophyll a
 Adjusted for Seasonal Medians

Tau Statistic	P-Value Without Serial Correlation	P-Value With Serial Correlation	Slope Statistic
0.20645	0.057337	0.34041	0.2

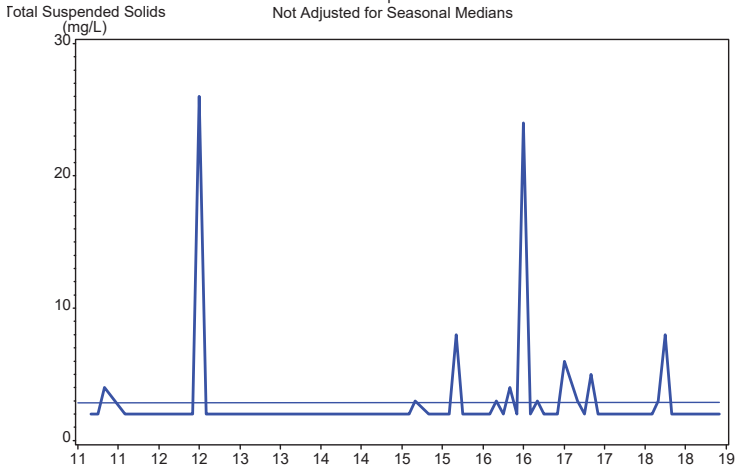


S_GW_7 Trends Appendix
 Autocorrelation Statistics for Chlorophyll a
 Adjusted for Seasonal Median and Detrended

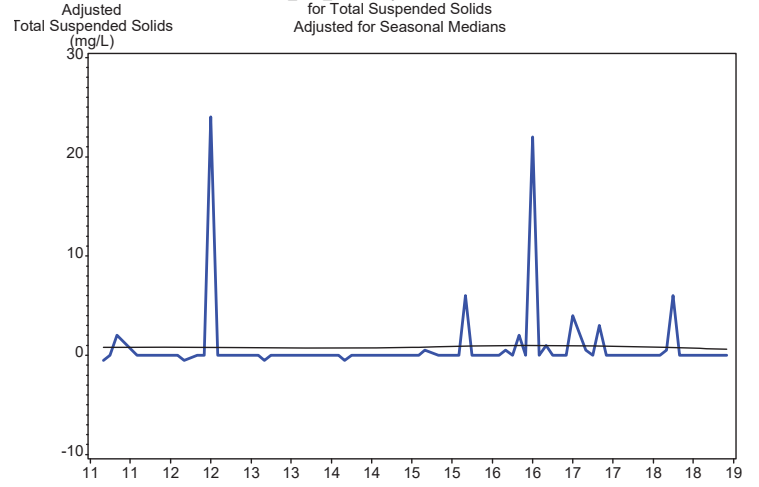
Lagged Chlorophyll a	Correlation	Standard Error	Upper Limit	Lower Limit
0	1.000	0.102	0.204	-0.204
1	0.326	0.177	0.354	-0.354
2	0.221	0.183	0.366	-0.366
3	0.110	0.186	0.371	-0.371
4	0.328	0.186	0.373	-0.373
5	0.203	0.192	0.385	-0.385
6	0.129	0.195	0.389	-0.389
7	-0.020	0.195	0.391	-0.391
8	0.002	0.195	0.391	-0.391
9	-0.052	0.195	0.391	-0.391
10	-0.039	0.196	0.391	-0.391
11	-0.048	0.196	0.391	-0.391
12	-0.154	0.196	0.392	-0.392
13	-0.046	0.197	0.394	-0.394
14	0.009	0.197	0.394	-0.394
15	-0.066	0.197	0.394	-0.394



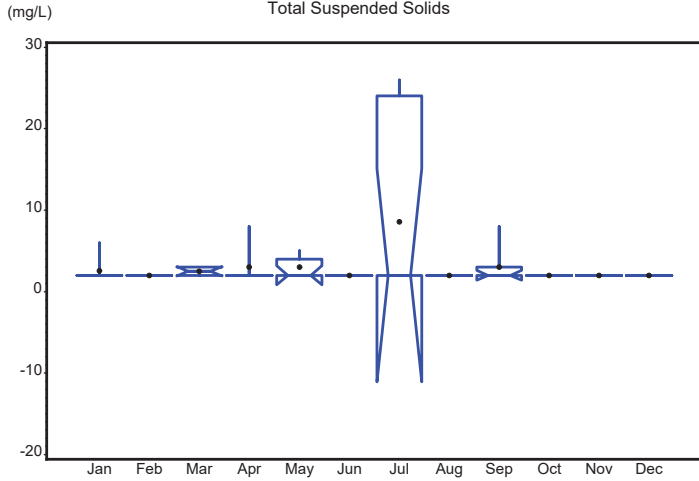
S_GW_7 Trends
S_GW_7 Monthly Data Time Series
for Total Suspended Solids
Not Adjusted for Seasonal Medians



S_GW_7 Trends
S_GW_7 Monthly Data Time Series
for Total Suspended Solids
Adjusted for Seasonal Medians



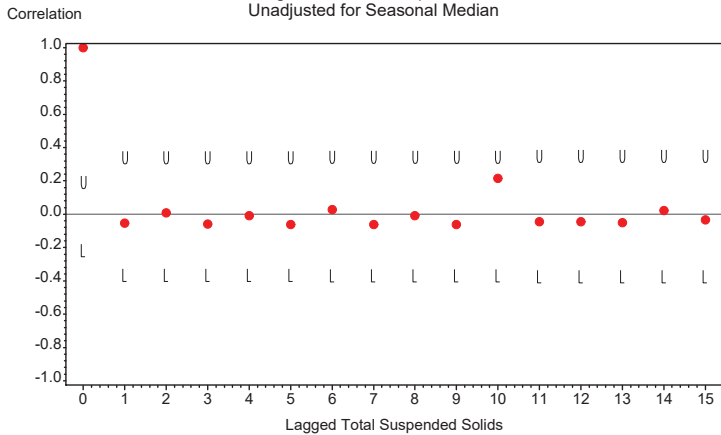
S_GW_7 Trends Appendix
Seasonal Univariate Statistics
Total Suspended Solids



S_GW_7 Trends Appendix
Autocorrelation Statistics for Total Suspended Solids
Unadjusted for Seasonal Medians

Lagged Total Suspended Solids	Correlation	Standard Error	Upper Limit	Lower Limit
0	1.000	0.102	0.204	-0.204
1	-0.053	0.177	0.354	-0.354
2	0.008	0.177	0.354	-0.354
3	-0.059	0.177	0.354	-0.354
4	-0.010	0.177	0.354	-0.354
5	-0.061	0.177	0.354	-0.354
6	0.028	0.177	0.355	-0.355
7	-0.061	0.177	0.355	-0.355
8	-0.008	0.178	0.355	-0.355
9	-0.063	0.178	0.355	-0.355
10	0.215	0.178	0.356	-0.356
11	-0.046	0.181	0.361	-0.361
12	-0.044	0.181	0.361	-0.361
13	-0.052	0.181	0.362	-0.362
14	0.021	0.181	0.362	-0.362
15	-0.033	0.181	0.362	-0.362

S_GW_7 Trends Appendix
Correlogram for Total Suspended Solids
Unadjusted for Seasonal Median



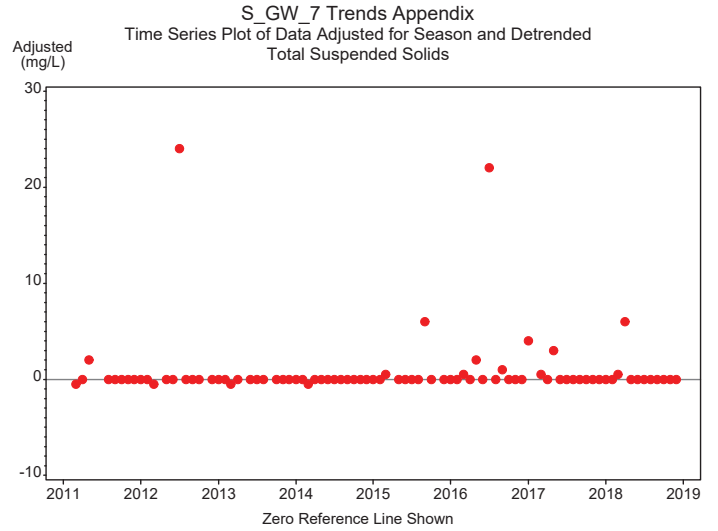
U=Upper 95% Confidence Limit L=Lower 95% Confidence Limit
Zero Reference Line Shown

S_GW_7 Trends Appendix
Seasonal Kendall Tau Trend Test Statistics
Total Suspended Solids
Unadjusted for Seasonal Medians

Tau Statistic	P-Value Without Serial Correlation	P-Value With Serial Correlation	Slope Statistic
0.088	0.087	0.135	0

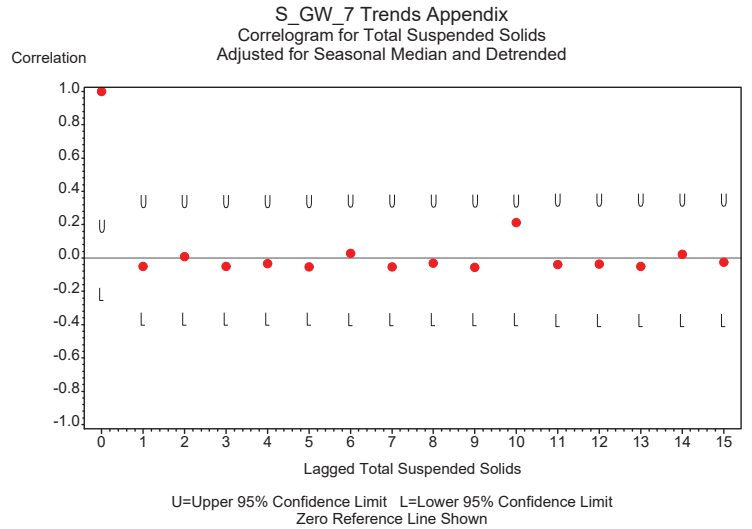
S_GW_7 Trends Appendix
 Seasonal Kendall Tau Trend Test Statistics
 Total Suspended Solids
 Adjusted for Seasonal Medians

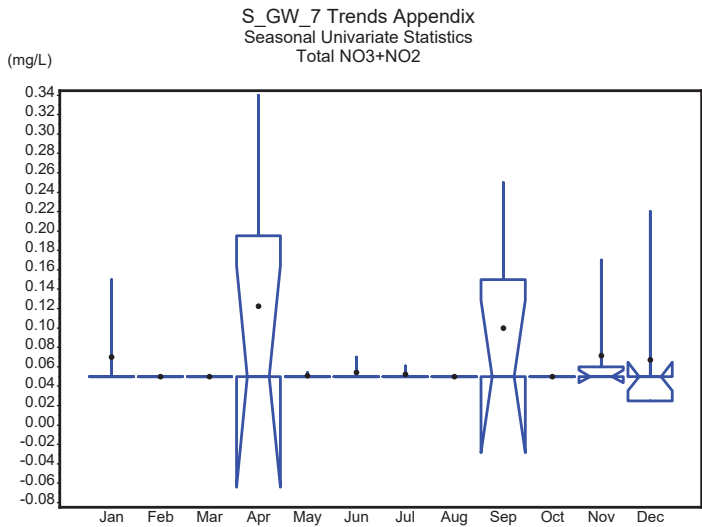
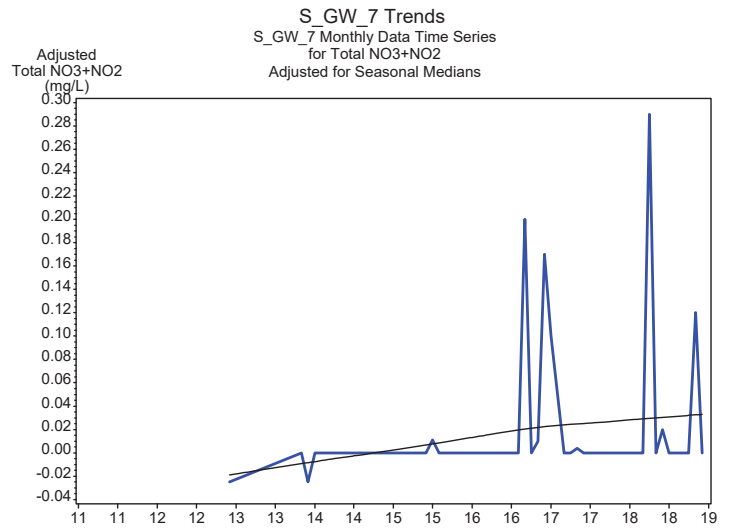
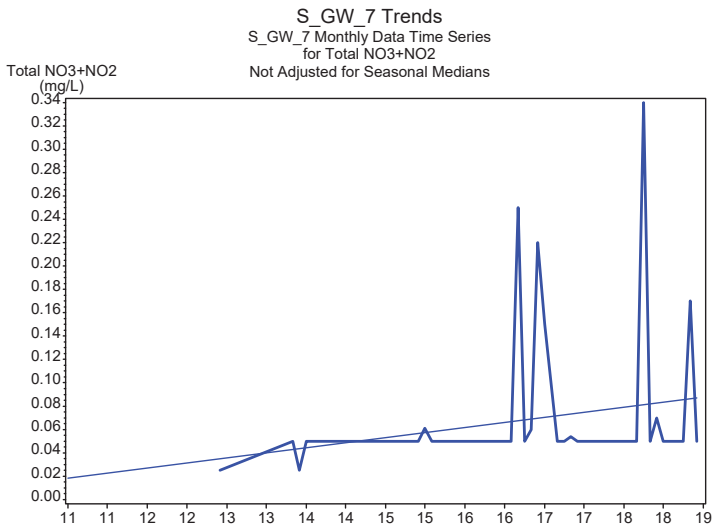
Tau Statistic	P-Value Without Serial Correlation	P-Value With Serial Correlation	Slope Statistic
0.087786	0.087405	0.13472	0



S_GW_7 Trends Appendix
 Autocorrelation Statistics for Total Suspended Solids
 Adjusted for Seasonal Median and Detrended

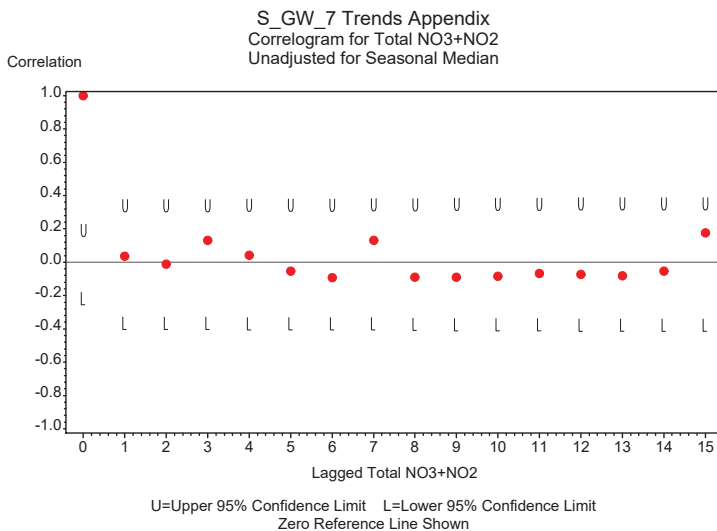
Lagged Total Suspended Solids	Correlation	Standard Error	Upper Limit	Lower Limit
0	1.000	0.102	0.204	-0.204
1	-0.051	0.177	0.354	-0.354
2	0.009	0.177	0.354	-0.354
3	-0.051	0.177	0.354	-0.354
4	-0.033	0.177	0.354	-0.354
5	-0.054	0.177	0.354	-0.354
6	0.028	0.177	0.355	-0.355
7	-0.053	0.177	0.355	-0.355
8	-0.030	0.178	0.355	-0.355
9	-0.056	0.178	0.355	-0.355
10	0.213	0.178	0.356	-0.356
11	-0.041	0.180	0.361	-0.361
12	-0.038	0.181	0.361	-0.361
13	-0.050	0.181	0.361	-0.361
14	0.022	0.181	0.361	-0.361
15	-0.026	0.181	0.362	-0.362





S_GW_7 Trends Appendix
Autocorrelation Statistics for Total NO3+NO2
Unadjusted for Seasonal Medians

Lagged Total NO3+NO2	Correlation	Standard Error	Upper Limit	Lower Limit
0	1.000	0.102	0.204	-0.204
1	0.035	0.177	0.354	-0.354
2	-0.011	0.177	0.354	-0.354
3	0.132	0.177	0.354	-0.354
4	0.042	0.178	0.356	-0.356
5	-0.054	0.178	0.356	-0.356
6	-0.092	0.178	0.356	-0.356
7	0.132	0.179	0.357	-0.357
8	-0.089	0.180	0.359	-0.359
9	-0.090	0.180	0.360	-0.360
10	-0.085	0.181	0.361	-0.361
11	-0.069	0.181	0.362	-0.362
12	-0.073	0.181	0.363	-0.363
13	-0.082	0.182	0.363	-0.363
14	-0.053	0.182	0.364	-0.364
15	0.177	0.182	0.364	-0.364

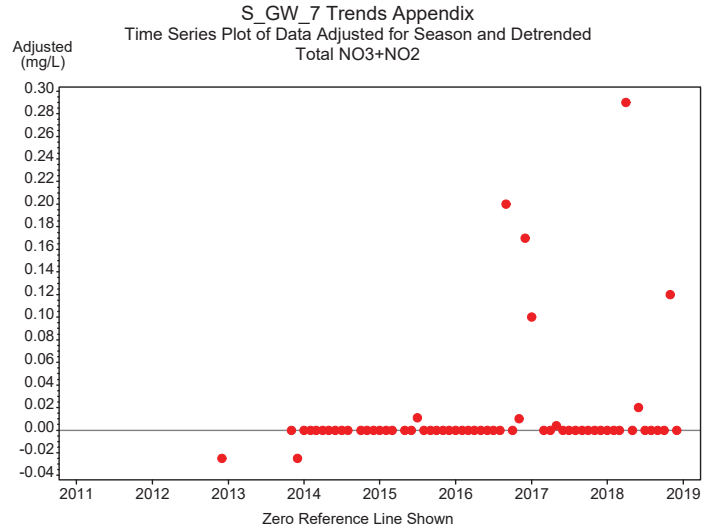


S_GW_7 Trends Appendix
Seasonal Kendall Tau Trend Test Statistics
Total NO3+NO2
Unadjusted for Seasonal Medians

Tau Statistic	P-Value Without Serial Correlation	P-Value With Serial Correlation	Slope Statistic
0.202	0.014	0.015	0

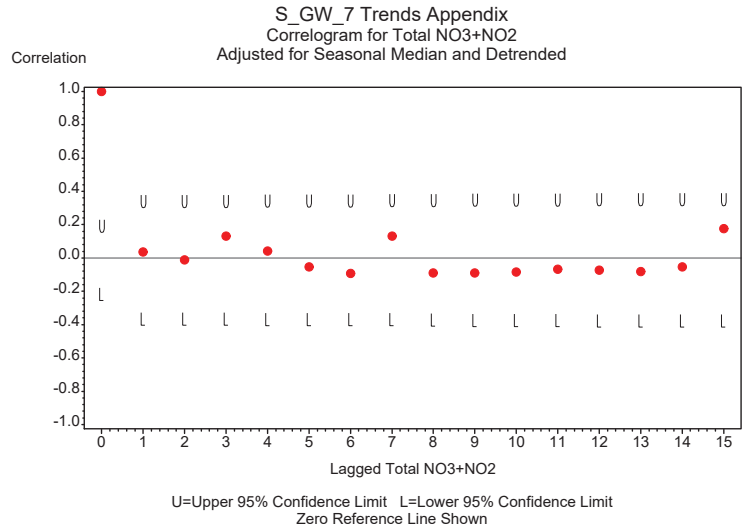
S_GW_7 Trends Appendix
 Seasonal Kendall Tau Trend Test Statistics
 Total NO3+NO2
 Adjusted for Seasonal Medians

Tau Statistic	P-Value Without Serial Correlation	P-Value With Serial Correlation	Slope Statistic
0.20161	0.014475	0.015161	0

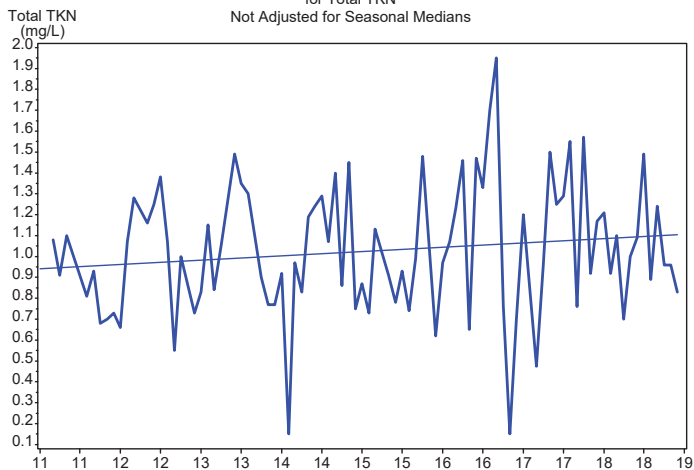


S_GW_7 Trends Appendix
 Autocorrelation Statistics for Total NO3+NO2
 Adjusted for Seasonal Median and Detrended

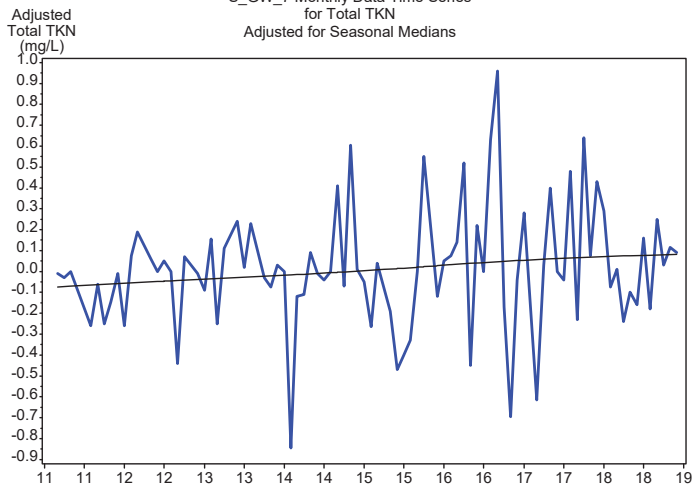
Lagged Total NO3+NO2	Correlation	Standard Error	Upper Limit	Lower Limit
0	1.000	0.102	0.204	-0.204
1	0.035	0.177	0.354	-0.354
2	-0.011	0.177	0.354	-0.354
3	0.132	0.177	0.354	-0.354
4	0.042	0.178	0.356	-0.356
5	-0.054	0.178	0.356	-0.356
6	-0.092	0.178	0.356	-0.356
7	0.132	0.179	0.357	-0.357
8	-0.089	0.180	0.359	-0.359
9	-0.090	0.180	0.360	-0.360
10	-0.085	0.181	0.361	-0.361
11	-0.069	0.181	0.362	-0.362
12	-0.073	0.181	0.363	-0.363
13	-0.082	0.182	0.363	-0.363
14	-0.053	0.182	0.364	-0.364
15	0.177	0.182	0.364	-0.364



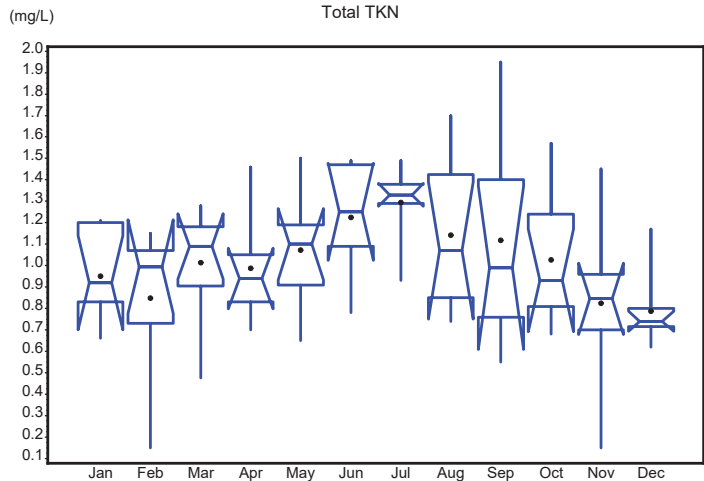
S_GW_7 Trends
S_GW_7 Monthly Data Time Series
for Total TKN
Not Adjusted for Seasonal Medians



S_GW_7 Trends
S_GW_7 Monthly Data Time Series
for Total TKN
Adjusted for Seasonal Medians



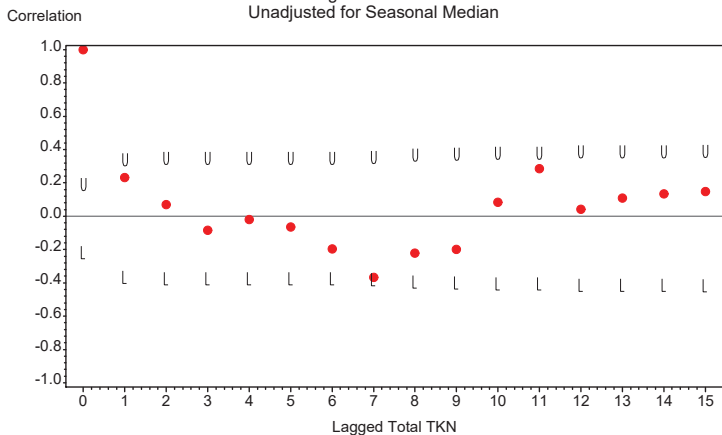
S_GW_7 Trends Appendix
Seasonal Univariate Statistics
Total TKN



S_GW_7 Trends Appendix
Autocorrelation Statistics for Total TKN
Unadjusted for Seasonal Medians

Lagged Total TKN	Correlation	Standard Error	Upper Limit	Lower Limit
0	1.000	0.102	0.204	-0.204
1	0.231	0.177	0.354	-0.354
2	0.069	0.180	0.360	-0.360
3	-0.085	0.180	0.360	-0.360
4	-0.020	0.181	0.361	-0.361
5	-0.064	0.181	0.361	-0.361
6	-0.196	0.181	0.362	-0.362
7	-0.366	0.183	0.366	-0.366
8	-0.222	0.191	0.381	-0.381
9	-0.198	0.193	0.386	-0.386
10	0.084	0.195	0.391	-0.391
11	0.285	0.196	0.391	-0.391
12	0.041	0.200	0.400	-0.400
13	0.110	0.200	0.400	-0.400
14	0.133	0.201	0.401	-0.401
15	0.147	0.202	0.403	-0.403

S_GW_7 Trends Appendix
Correlogram for Total TKN
Unadjusted for Seasonal Median



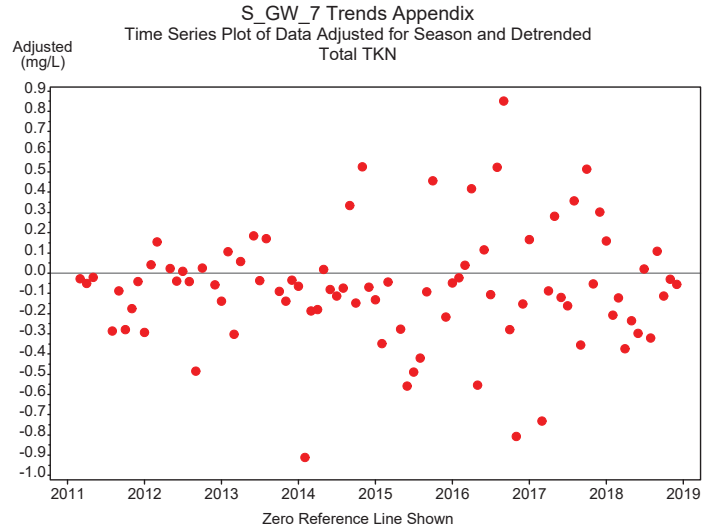
U=Upper 95% Confidence Limit L=Lower 95% Confidence Limit
Zero Reference Line Shown

S_GW_7 Trends Appendix
Seasonal Kendall Tau Trend Test Statistics
Total TKN
Unadjusted for Seasonal Medians

Tau Statistic	P-Value Without Serial Correlation	P-Value With Serial Correlation	Slope Statistic
0.126	0.177	0.231	0.016

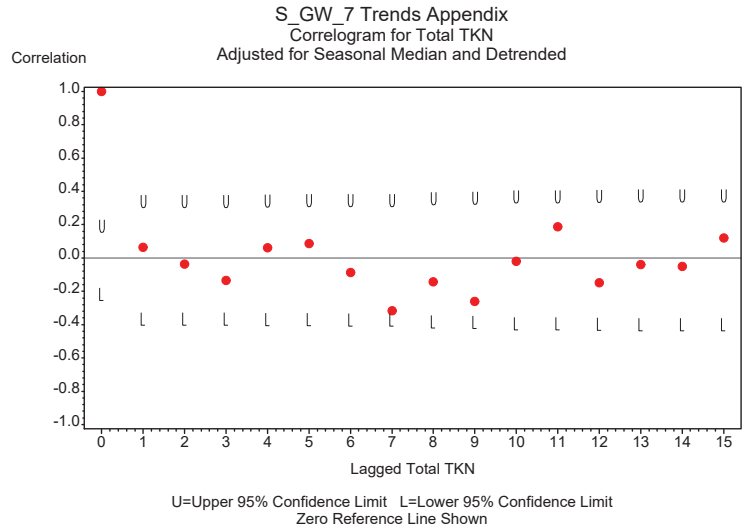
S_GW_7 Trends Appendix
 Seasonal Kendall Tau Trend Test Statistics
 Total TKN
 Adjusted for Seasonal Medians

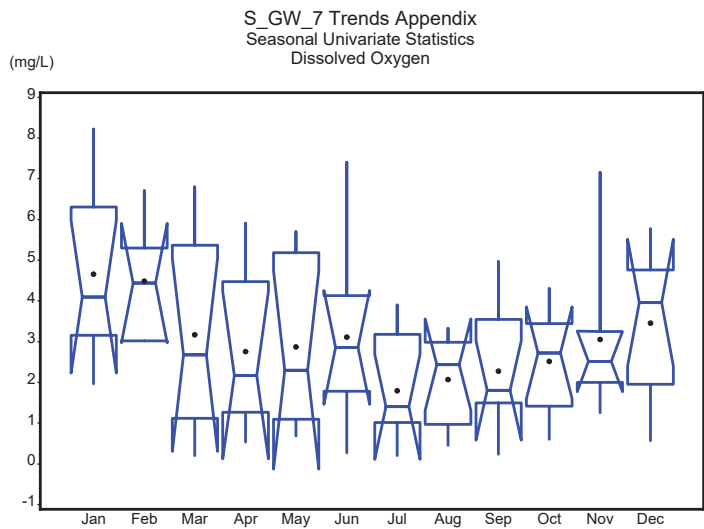
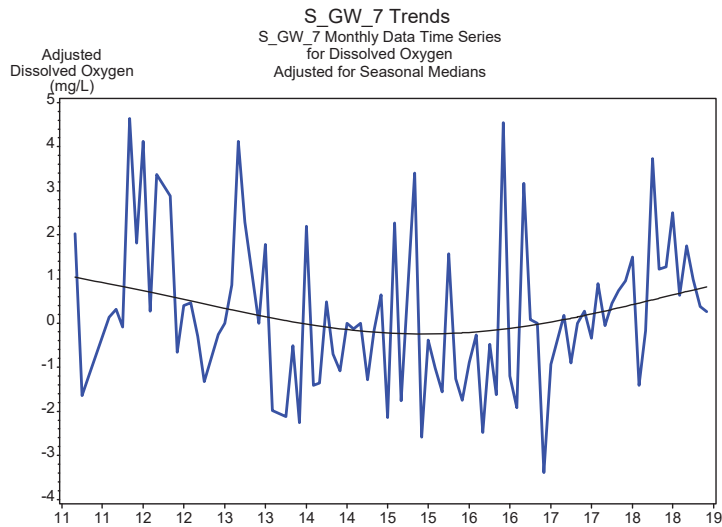
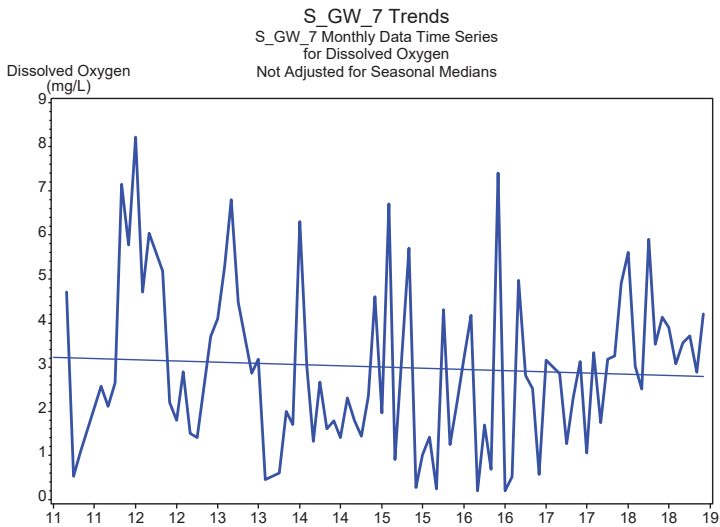
Tau Statistic	P-Value Without Serial Correlation	P-Value With Serial Correlation	Slope Statistic
0.12595	0.17745	0.23098	0.016333



S_GW_7 Trends Appendix
 Autocorrelation Statistics for Total TKN
 Adjusted for Seasonal Median and Detrended

Lagged Total TKN	Correlation	Standard Error	Upper Limit	Lower Limit
0	1.000	0.102	0.204	-0.204
1	0.063	0.177	0.354	-0.354
2	-0.038	0.177	0.354	-0.354
3	-0.134	0.177	0.354	-0.354
4	0.061	0.178	0.356	-0.356
5	0.086	0.178	0.357	-0.357
6	-0.087	0.179	0.358	-0.358
7	-0.317	0.179	0.359	-0.359
8	-0.142	0.185	0.370	-0.370
9	-0.260	0.186	0.372	-0.372
10	-0.019	0.190	0.380	-0.380
11	0.187	0.190	0.380	-0.380
12	-0.149	0.192	0.384	-0.384
13	-0.041	0.193	0.386	-0.386
14	-0.052	0.193	0.386	-0.386
15	0.121	0.193	0.386	-0.386

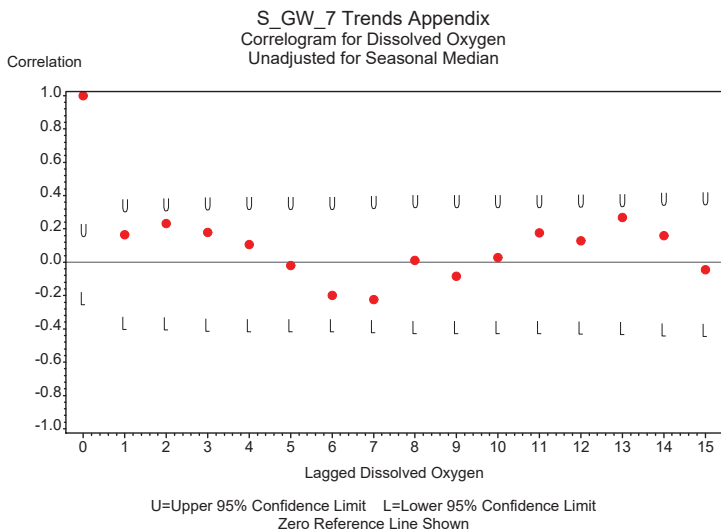




S_GW_7 Trends Appendix

Autocorrelation Statistics for Dissolved Oxygen
Unadjusted for Seasonal Medians

Lagged Dissolved Oxygen	Correlation	Standard Error	Upper Limit	Lower Limit
0	1.000	0.102	0.204	-0.204
1	0.165	0.177	0.354	-0.354
2	0.232	0.178	0.357	-0.357
3	0.178	0.181	0.363	-0.363
4	0.107	0.183	0.367	-0.367
5	-0.020	0.184	0.368	-0.368
6	-0.199	0.184	0.368	-0.368
7	-0.225	0.186	0.372	-0.372
8	0.010	0.189	0.378	-0.378
9	-0.084	0.189	0.378	-0.378
10	0.027	0.189	0.379	-0.379
11	0.177	0.189	0.379	-0.379
12	0.128	0.191	0.382	-0.382
13	0.267	0.192	0.384	-0.384
14	0.160	0.196	0.392	-0.392
15	-0.044	0.197	0.394	-0.394



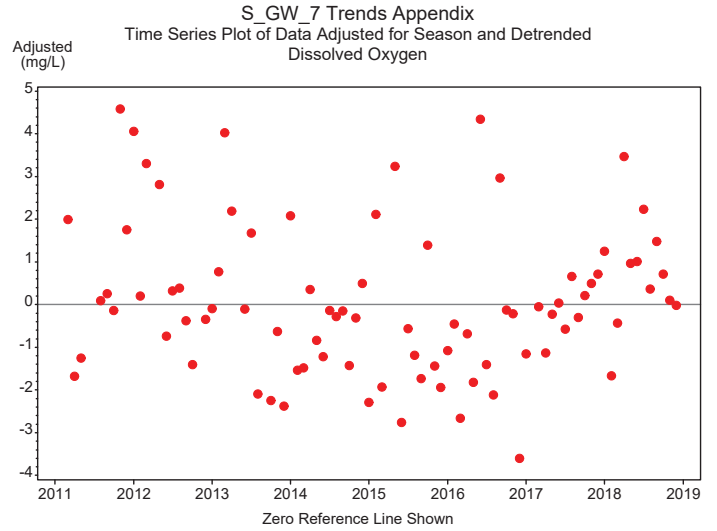
S_GW_7 Trends Appendix

Seasonal Kendall Tau Trend Test Statistics
Dissolved Oxygen
Unadjusted for Seasonal Medians

Tau Statistic	P-Value Without Serial Correlation	P-Value With Serial Correlation	Slope Statistic
0.034	0.74	0.789	0.031

S_GW_7 Trends Appendix
 Seasonal Kendall Tau Trend Test Statistics
 Dissolved Oxygen
 Adjusted for Seasonal Medians

Tau Statistic	P-Value Without Serial Correlation	P-Value With Serial Correlation	Slope Statistic
0.033582	0.74040	0.78854	0.031167



S_GW_7 Trends Appendix
 Autocorrelation Statistics for Dissolved Oxygen
 Adjusted for Seasonal Median and Detrended

Lagged Dissolved Oxygen	Correlation	Standard Error	Upper Limit	Lower Limit
0	1.000	0.102	0.204	-0.204
1	0.019	0.177	0.354	-0.354
2	0.226	0.177	0.354	-0.354
3	0.194	0.180	0.360	-0.360
4	0.154	0.182	0.364	-0.364
5	0.099	0.183	0.367	-0.367
6	-0.040	0.184	0.368	-0.368
7	-0.135	0.184	0.368	-0.368
8	0.139	0.185	0.370	-0.370
9	-0.047	0.186	0.372	-0.372
10	0.063	0.186	0.372	-0.372
11	0.052	0.186	0.373	-0.373
12	-0.027	0.187	0.373	-0.373
13	0.193	0.187	0.373	-0.373
14	0.190	0.189	0.377	-0.377
15	-0.075	0.191	0.381	-0.381

