

Municipal Separate Storm Sewer System
National Pollutant Discharge
Elimination System

Joint Annual Report

Cycle 4- Year 6

October 1, 2021 Thru
September 30, 2022

Submitted by
Northern Palm Beach County
Improvement District
as Lead Permittee

prepared by
MOCK•ROOS



Palm Beach County MS4
Permit No. FLS000018-004

MS4 NPDES



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- | | |
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*(see MS4 website pbco-npdes.org-Annual Reporting
for Cycle 4, Year 6)

Report Certification

Northern Palm Beach County Improvement District (Northern) is the Lead Permittee for the Palm Beach County MS4 Permit. As the lead permittee, Northern entered into interlocal agreements with each of the other 39 permittees for, among other activities, the administration of joint program activities and the compilation of the Joint Annual Report. Northern's governing body (Board of Supervisors) and the Palm Beach County MS4 NPDES Steering Committee has authorized Mock•Roos to coordinate, on their behalf, the joint program activities and preparation and submittal of the Joint Annual Report.

Therefore, per Rule 62-620.305(4), Florida Administrative Code, "I certify under penalty of law that this document and all attachments, if any, (excluding Appendix A - Individual Permittee Annual Reports) were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on 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."



Alan D. Wertepny, P.E.

Vice President Water Resources

Mock, Roos & Associates, Inc.

FL Reg. No. 48

March 31, 2023

Date

Permittee Certifications

Certifications for the individual permittee annual reports are included in each individual annual report form, which are attached to this Joint Report as Appendix A.

1.0 Palm Beach County MS4 Program

1.1 Introduction

The Municipal Separate Storm Sewer System (MS4) National Pollutant Discharge Elimination System (NPDES) is a federal program designed to reduce stormwater pollutant discharges to receiving waters of the United States. In 1987, the United States Environmental Protection Agency (EPA) was required under Section 402 (p) of the Clean Water Act (N40CFR Part 112.26) to establish final regulations governing stormwater discharge permit application requirements. In 1990, the Federal Register indicated that Palm Beach County was to begin compliance with the program. In 1997, the first 5-year permit (No. FLS000018) was issued by EPA to Palm Beach County's permittees.

In 2001, the Florida Department of Environmental Protection (Department) received delegation from EPA for the MS4 Programs. In November 2002, the Cycle 2 MS4 Permit was issued by the Department. The Cycle 3 permit was issued on March 2, 2011, and the Cycle 4 Permit was issued on September 8, 2016.



1.2 Permittees

There are 40 permittees identified in the Palm Beach County group Cycle 4 MS4 permit. **Table 1-1** is a list of the designated MS4 NPDES stormwater management program contacts for each of the permittees.

1.3 Steering Committee

To coordinate the joint activities in Palm Beach County group's MS4 Program, the permittees established an MS4 Steering Committee in 1991. The seven-member Steering Committee is comprised of two representatives of large municipalities, two representatives of small municipalities, one representative from the lead permittee (Northern Palm Beach County Improvement District), one representative of special districts, and one representative from Palm Beach County. A list of the current MS4 Steering Committee and administrative personnel is provided in **Table 1-2**. Minutes of all meetings and descriptions of programs overseen by the Steering Committee may be viewed on the Palm Beach County group's MS4 NPDES website at <http://www.pbco-npdes.org>. Since 2014, there have been 20,268 visitors to the website.

During the reporting period, the Steering Committee met three times. Permittee representation at the meetings averaged ninety-two percent. Major meeting agenda items included the following:

- Cycle 5, Year 5 Annual Reports
- Income and Disbursement Reports
- 2022-2023 Program Budget Estimates
- Sediment & Erosion Control Inspector Training
- Water Quality Monitoring Program
- Public Education Program
- FDEP On-Site Audits (8 Permittees)
- Status of Pine Lake and Lake Osborne Total Maximum Daily Load
- Status of Cycle 5 Permit
- 2021-2022 Biennial Watershed Assessment of Impaired Waters
- MS4 Websites – pbco-npdes.org and StormwaterAndMe.org



1.4 Interlocal Agreements

Northern Palm Beach County Improvement District (Northern) acts as lead permittee for the Palm Beach coalition of permittees. As the lead permittee, Northern re-entered into Interlocal Agreements with each of the other permittees in 2017 for the purposes of identifying duties and responsibilities of the parties and fulfilling the conditions of the Palm Beach County Cycle 4 MS4 permit. Through these Interlocal Agreements, cost sharing for joint activities is provided by each of the permittees.

This joint annual report was reviewed by the permittees and approved by the Steering Committee.

Table 1-1
Permittee Contacts

Appendix No.	Permittee, Address	Name, Title, Telephone
1	Atlantis, City of 260 Orange Tree Drive Atlantis, FL 33462	Steven Mazuk Utilities/Public Works Director (561) 965-1744
2	Belle Glade, City of 110 Dr. Martin Luther King, Jr. Blvd. Belle Glade, FL 33430	Johnny Gooden Asst. Director of Public Works (561) 992-2216
3	Boca Raton, City of 201 West Palmetto Park road Boca Raton, FL 33432	Lauren Burack, P.E. City Engineer (561) 416-3430
4	Boynton Beach, City of 124 East Woolbright Road Boynton Beach, FL 33435	Angela A. Prymas, P.E. Stormwater Supervisor (561) 742-6241
5	Cloud Lake, Town of 100 Lang Road Cloud Lake, FL 33406-3222	Dorothy Gravelin Town Clerk (561) 686-2815
6	Delray Beach, City of 434 S. Swinton Avenue Delray Beach, FL 32444-2698	Elsa Gonzales-Soto Project Manager (561) 243-7000, Ext. 7220
7	FDOT – District Four 3400 West Commercial Boulevard Ft. Lauderdale, FL 33309-3421	Ivette Leiva NPDES Coordinator (954) 777-4221
8	FDOT- Turnpike Enterprise P.O. Box 9828 Ft. Lauderdale, FL 33310-9828	Allison (Crow) Fetigan NPDES Coordinator (954) 934-1213
9	Glen Ridge, Town of 1501 Glen road West Palm Beach, FL 33406	John J. Deal Town Manager (561) 697-8868
10	Green Acres, City of 5750 Melaleuca Greenacres, FL 33463	Kara Ferris Planning & Engineering Director (561) 642-2040
11	Gulf Stream, Town of 100 Sea Road Gulf Stream, FL 33483-7427	Greg Dunham Town Manager (561) 276-5116
12	Haverhill, Town of 4585 Charlotte Street Haverhill, FL 33417-5911	Todd McLeod, P.E. Town Engineer (561) 689-9500
13	Highland Beach, Town of 3614 South Ocean Blvd. Highland Beach, FL 33487	Pat Roman Public Works Director (561) 243-2084

Appendix No.	Permittee, Address	Name, Title, Telephone
14	Hypoluxo, Town of 7580 S. Federal Highway Hypoluxo, FL 33462	Leonard G. Rubin, P.A. Town Attorney (561) 686-8700
15	Indian Trail Improvement District 13476 61 st Street North West Palm Beach, FL 33412-1915	Greg Shafer Director of Stormwater (561) 793-0874
16	Juno Beach, Town of 340 Ocean Drive Juno Beach, FL 33408	Steven Hallock Director of Public Works (561) 626-1122
17	Jupiter, Town of 210 Military Trail Jupiter, FL 33458	David J. Rotar Utility Services Manager (561) 748-2270
18	Jupiter Inlet Colony, Town of 1 Colony Road Jupiter Inlet Colony, FL 33469	Kevin Lucas Town Administrator (561) 746-3787
19	Lake Clarke Shores, Town of 1701 Barbados Road West Palm Beach, FL 33406	Damon Gammons Utilities Superintendent (561) 642-7870
20	Lake Park, Town of 650 Old Dixie Highway Lake Park, FL 33403	John Wylie Storm Water Infrastructure Manager (561) 881-3345
21	Lake Worth Beach, City of 7 North Dixie Highway Lake Worth, FL 33461	Judy Love Water Sewer Storm Field Manager (561) 586-1719
22	Lantana, Town of 500 Greynolds Circle Lantana, FL 33462	Jerry Darr Assistant Utilities Director (561) 540-5758
23	Manalapan, Town of 600 S. Ocean Blvd. Manalapan, FL 33462-3398	Linda Stumpf Town Manager (561) 585-9477
24	Mangonia Park, Town of 1755 East Tiffany Drive Mangonia Park, FL 33407	Kenneth Metcalf Town Manager (561) 848-1235
25	Northern Palm Beach County Improvement District 359 Hiatt Drive Palm Beach Gardens, FL 33418	Jared Kneiss Program Administrator (561) 624-7830
26	North Palm Beach, Village of 501 U.S. Highway No. 1 North Palm Beach, FL 33408	Kenneth Hern Streets and Stormwater Manager (561) 691-3443

Appendix No.	Permittee, Address	Name, Title, Telephone
27	Ocean Ridge, Town of 6450 N. Ocean Blvd. Ocean Ridge, FL 33435	Michael Kuhn, P.E. Project Engineer (561) 655-1151
28	Palm Beach, Town of 260 S. County Road Palm Beach, FL 33480	H. Paul Brazil, P.E. Public Works Director (561) 838-5440
29	Palm Beach County 2300 North Jog Road, 4 th Floor West Palm Beach, FL 33411	Bonnie Finneran Environmental Director (561) 233-2400
30	Palm Beach Gardens, City of 10500 North Military Trail Palm Beach Gardens, FL 33410	Todd Engle, P.E. City Engineer (561) 804-7012
31	Palm Beach Shores, Town of 247 Edwards Lane Palm Beach Shores, FL 33404	Alan Welch Public Services Director (561) 844-3457
32	Palm Springs, Village of 226 Cypress Lane Palm Springs, FL 33461	Ivana J. Zapata Stormwater Program Coordinator (754) 333-9645
33	Riviera Beach, City of 2391 Avenue L Riviera Beach, FL 33404	Sedrick Clarke Stormwater Coordinator (561) 814-6492
34	Royal Palm Beach, Village of 10996 Okeechobee Blvd. Royal Palm Beach, FL 33411	Paul L. Webster, P.E. Director of Public Works (561) 790-5122
35	South Bay, City of 335 S.W. Second Avenue South Bay, FL 33493	Edgar Kerr Director of Public Works (561) 996-6751
36	South Indian River WCD 15600 Jupiter Farms Road Jupiter, FL 33478	Michael Dillon Manager of Operations (561) 747-0550
37	South Palm Beach, Town of 3577 S. Ocean Blvd. South Palm Beach, FL 33480	Robert Kellogg Town Manager (561) 588-8889
38	Tequesta, Village of 345 Tequesta Drive Tequesta, FL 33469	Marjorie Craig Utility Director (561) 768-0459
39	Wellington, Village of 12300 Forest Hill Boulevard Wellington, FL 33414	Jonathan Reinsvold Village Engineer (561) 791-4052
40	West Palm Beach, City of P. O. Box 3368 West Palm Beach, FL 33402	Leighton Walker Director of Public Utilities (561) 494-1073

Table 1-2
Palm Beach County MS4 Steering Committee

Laurent Van Cott, P.E. Steering Committee Chair For Town of Mangonia Park Southern Design Group, Inc. Phone (561) 758-5285	Karen Brandon, P.E. Steering Committee Member For South Indian River Water Control District AECOM Phone (561) 684-3375
Jay Foy, P.E. Steering Committee Vice-Chair For City of Atlantis Stormwater J. Engineering, Inc. Phone (561) 242-0028	Bonnie Finneran Steering Committee Member Palm Beach County Phone (561) 233-2400
Elsa Gonzales-Soto Steering Committee Secretary City of Delray Beach Phone (561) 243-7000	Lauren Burack, P.E. Steering Committee Member City of Boca Raton Phone (561) 416-3430
Jared Kneiss Steering Committee Member Northern Palm Beach County Improvement District Phone (561) 624-7830	

Administration – Northern palm Beach County Improvement District as Lead Permittee

Alan Wertepny, P.E. Mock, Roos & Associates, Inc. Program Manager Phone (561) 683-3113, x-231	Betsy S. Burden, Esq. Caldwell Pacetti Edwards Schoech & Viator LLP Legal Counsel Phone (561) 655-0620
Anne Capelli Mock, Roos & Associates, Inc. Program Coordinator Phone (561) 683-3113, x-287	Laura Ham, CPA Northern Palm Beach County Improvement District Budget Manager Phone (561) 624-7830
Brian Einkauf Mock, Roos & Associates, Inc. Webmaster Phone (561) 683-3113, x-250	Tabbatha Marcus Mock, Roos & Associates, Inc. Project Coordinator Phone (561) 683-3113, x-264

2.0 Training Program

The Palm Beach County MS4 permit requires that permittees provide training on three topics. Annual follow-up (or “refresher”) training is required for those that have received the initial training. The three topics are:

1. Identification & reporting procedures for a suspected illicit discharge or dumping in the MS4 for all appropriate permittee personnel (including field crews, fleet maintenance staff, and inspectors) and contractors. (Part III.A.7.c)
2. Spill prevention, containment & response procedures (including techniques for mitigating pollution from spills) for all appropriate permittee personnel (including field crews, firefighters, fleet maintenance staff, and inspectors). (Part III.A.7.d)
3. Stormwater management and erosion and sedimentation control BMPs for construction sites for site plan reviewers, site operators, and site inspectors. Construction site inspectors must be certified through the Florida Stormwater, Erosion, and Sedimentation Control Inspector Training programs, or equivalent. (Part III.A.9.c)

The Palm Beach County MS4 permittees carry out a joint refresher training program that is available to all permittee personnel, as well as contractors and private individuals. Typically, this training is in March. Appropriate training videos and/or presentations are used to review the permit requirements and educate/update attendees on programs and/or activities necessary for compliance. Attendance logs are maintained for each training session. In addition, the group maintains a lending library of EXCAL Visual training videos for the permittees to borrow anytime for use at in-house training sessions.

EXCAL Visual videos may not be reproduced, but additional copies may be purchased from the vendor to assist in meeting training requirements (www.excalvisual.com).

Videos currently in the library at www.pbco-npdes.org (group/joint activities) include:



The Palm Beach County group also sponsors an annual Florida Stormwater Erosion and Sedimentation Control Inspector Training course, typically each May. This two-day course with exam allow permittee personnel, as well as contractors to obtain the certificate required for all construction site inspectors.

Both of the Palm Beach County group training sessions for 2021-2022 were conducted by Cheryl Moore (Cheryl L. Moore Consulting, LLC) and included:

1. An in-person and ZOOM presentation including slides covering the three required annual refresher training topics (spill prevention and response, illicit discharge detection and elimination, and sedimentation and erosion controls for construction sites). Participants for the training included representatives from 35 of the 40 Palm Beach County MS4 permittees.
2. Florida Stormwater, Erosion and Sedimentation Control Inspector Training Program (May 18 - 19, 2022). The breakdown of participants included 23 construction site inspectors, seven (7) construction site plan reviewers, five (5) construction site operators, and 10 individuals from the private sector. Staff from 18 permittees were in attendance.

3.0 Public Education Program

The Palm Beach County MS4 permittees have undertaken a jointly funded program to meet the public education requirements of the MS4 permit. In so doing, all permittees participate in conducting the program. The premise of a joint program is that a unified message, repeated throughout the County will have more of an impact than 40 separate messages. The Stormwater and Me (SAM) program, as it is called, kicked off in 2009 and the website has had over 9,517 visitors.



Objective:

The objective of the public education program is to put relevant information in the hands of the residents of and visitors to the Palm Beach County geographic area, so they can make better decisions with respect to pesticides, herbicides, fertilizers, illicit discharges, illegal dumping, and the disposal of household hazardous waste. The intent is that this will result in less of these items ending up in our stormwater systems and, in turn, our water bodies.

Topics:

As prescribed by the MS4 permit, the following topics are covered by the public education program:

- Encourage citizens to reduce their use of pesticides, herbicides, and fertilizers. [Part III.A.6.]
- Promote, publicize, and facilitate public reporting of the presence of illicit discharges and improper disposal of materials into the MS4. [Part III.A.7.e.]
- Encourage the proper use and disposal of used motor vehicles fluids, leftover hazardous household products, and lead acid batteries. [Part III.A.7.f.]



Target Audience:

The target audience of the program is residents (children and adults) of and visitors to Palm Beach County, Florida.

Activities and Materials:

This reporting period, the SAM public outreach program included three 30-second Public Service Announcements (PSAs) dealing with pet waste pickup, keeping grass clippings off the streets, and reducing the usage of pesticides, herbicides and fertilizers. The PSAs were aired on 21 commercial television channels (Animal Planet, BET, Comedy Central, CNBC, CNN, FFLA, FSUA, FXNC, Golf, Hallmark, HLN, LIF, MTV, Nat Geo, Oxygen, TLC, Toon, Trav, TRU, TV1, TWC), broadcast by a local cable television provider (Comcast) from 6 a.m. to midnight during the months of January 2022 through March 2022 to all broadcast zones within Palm Beach County. A total of 8,982 PSAs were aired. In addition, the spots appeared on Comcast's Digital TV streaming service. The PSA program is estimated to have reached 355,370 Comcast households and 33,057 AT&T U-Verse households in Palm Beach County. The PSAs were also aired by local/municipal TV stations throughout the year and many permittees play the videos on their website. Copies of the PSAs can be found on the SAM website: StormwaterAndMe.org. During the 2021-2022 reporting period, the Palm Beach County Extension Service conducted outreach on the Florida Yards and Neighborhoods program and reported that it distributed 17,711



brochures, conducted 51 neighborhood presentations reaching 1,524 participants, conducted 46 workshops reaching 1,422 participants, published 35 articles, distributed three newsletters, and produced seven public displays. UF/IFAS also provided Green Industry BMP training to 145 participants. The County Extension Service has estimated that its outreach program reached about 1.5% of the population in Palm Beach County. Costs for these programs total about \$18,123.

The Solid Waste Authority (SWA) of Palm Beach County continued to carry out a public education/outreach program to educate Palm Beach County residents and visitors about proper disposal of household hazardous waste (HHW). Through the MS4 NPDES Interlocal Agreement between Palm Beach County and Northern Palm Beach County Improvement District, SWA continues its program, in part to fulfill the permit requirement that all permittees educate their residents on proper disposal of HHW. During the 2021-2022 reporting period, SWA reported that it distributed 105,250 brochures, collected/recycled/disposed of 2,130 tons of HHW, conducted 58 neighborhood presentations reaching 1,248 participants, distributed seven newsletters, produced 107 displays, aired 4,000 PSAs, conducted 120 school presentations reaching 4,630 participants, conducted two workshops reaching 12 participants, and conducted 58 special events reaching 182,219 participants. SWA also hosts a public outreach website at http://www.swa.org/site/hhw/haz_waste_home/hazardous_waste_portal.htm.



SWA has estimated that its outreach program reached 80% of the population in Palm Beach County. Costs for these programs total just under \$5 million which included SWA inspections, brochures, flyers, presentation and workshops and HHW operating expenses.

Methods for Distribution:

The television PSAs allow the greatest opportunity for the distribution of information. In addition, the website, brochures, and meetings allow for the presentation of more in-depth information.

Annual Schedule:

The television PSA campaign effort is run during the months of January through March, when residential population in the County is at its highest. School presentations are in sync with the school calendar.

Other outreach activities occur throughout the year.

Documentation:

The Group's Public Education Coordinator, SWA and PBC Extension Services, respectively, maintain record information for all materials distributed.

Responsible Entities:

The program is coordinated by the Palm Beach County MS4 Steering Committee administrative staff. HHW outreach is carried out by the SWA for all permittees under the inter-local agreement with Palm Beach County.



Resources Allocated:

The 2021-2022 allocation for the public education program (not including SWA programs) was \$30,000.

Assessment Method:

The bottom line on the effectiveness of public education is if the receiving waters experience improved water quality. Therefore, the water quality monitoring is offered as a measure of the collective effectiveness of this and other MS4 permit programs.



Stormwater and Me!
Keep pollution out of our waters

[Click Here to Report an Illicit Discharge](#)

Home

What is stormwater runoff?
Stormwater runoff results when rain falls on surfaces that cannot absorb it (like pavement or rooftops, or ground that is already saturated from rain) and flows overland toward stormwater inlets, swales, ditches, canals, lakes, wetlands, or coastal waters.

Why is it a pollution problem?
As stormwater runoff flows over land, it can pick up debris, chemicals, dirt, and other pollutants and carry these unwanted items into nearby waterways. Even if the runoff enters a stormwater system, much of it is discharged untreated into the waterbodies we use for swimming, fishing, and providing drinking water.

What's it got to do with ME?
Most of the unwanted pollutants that end up on our waterbodies come from human activities. We litter. We throw or dump things into storm drains. We fail to pick up after our pets. We over-fertilize and over-water. We blow or sweep leaves and grass clippings into the streets and/or swales. These activities, and many more, result in personal pollution that you can help prevent!!

Home
How Can I Help?
Outreach Materials
Other Stormwater Tips
Links
Contact Us

 WHAT AM I DOING? FOLLOW ME ON TWITTER


Yard waste does not belong in the stormwater system!


Only stormwater belongs in a storm drain!

Visitors to site:
00004367

Public Reporting of Illicit Discharge:

The StormwaterAndMe.org website contains information on stormwater pollution and illicit discharges. Included is a list of contacts for each of the 40 permittees to report an illicit discharge or spill.

4.0 Total Maximum Daily Load (TMDL) Program

4.1 Description

The PBC MS4 permit includes requirements for conducting activities associated with TMDLs that were adopted when the current cycle permit was issued. Activities include the submittal of a schedule for developing an implementation plan to reduce the discharge of pollutants from each TMDL stakeholder permittee's MS4 to the maximum extent practicable. No TMDLs were in place for the Palm Beach County Cycle 1 or Cycle 2 permits. For Cycle 3, there were seven EPA TMDLs that were evaluated and addressed by the applicable MS4s. As of the issuance date of the Cycle4 permit, there were three additional TMDLs for water bodies within Palm Beach County and these included both the Department and EPA issued TMDLs.



4.2 Established and Adopted TMDLs – Cycle 4

TMDLs established by EPA and verified by the Department or adopted by the Department as of the issuance date of the Cycle 4 permit (September 8, 2016), along with the respective potentially affected permittees, are listed in **Table 4-1**.

Table 4-1
Cycle 4 TMDLs in Palm Beach County

Agency	WBID	Segment Name	Basin	Constituent	TMDL	Percent Reduction	Date	MS4 Stakeholder
EPA	3226C	SW Fork Loxahatchee River	St. Lucie/ Loxahatchee	Fecal Coliform	<43 (counts/100 ml)	93	05/16/12	Jupiter, FDOT, PBC, SIRWCD, Turnpike, NPBCID
EPA	3262A	Lake Ida	Lake Worth Lagoon	Nutrients	TN=0.857 mg/l TP=0.062 mg/l	20 45	11/09/12	Delray, Boynton, FDOT, PBC
FDEP	3364A	E-1 Canal	Lake Worth Lagoon	Fecal Coliform	<400 (counts/100 ml)	94 0	08/31/11	FDOT, PBC

During Year 1 of this permit cycle the eight permittees identified as TMDL stakeholders submitted Prioritization Plans which were approved by the Department. The schedules for implementation activities are identified in **Table 4-2**.

Table 4-2
Cycle 4 Prioritized TMDLs

MS4 Stakeholder	WBID-Waterbody-TMDL	Monitoring Summary Due	BPCP Due	Supplemental SWMP Due
Boynton Beach	3262A- Lake IDA – Nutrients (EPA)	03/31/20	N/A	03/31/21
Delray Beach	3262A- Lake IDA – Nutrients (EPA)	03/31/20	N/A	03/31/21
FDOT District 4	3264A – E-1 Canal – Bacteria	03/31/20	03/31/20	N/A
	Loxahatchee River Pollutant Reduction Plan (3226C)	N/A	N/A	N/A
FDOT Turnpike Enterprise	3226C – SW Loxahatchee River – Pollutant Reduction Plan	N/A	03/31/20	N/A
Jupiter	Loxahatchee River Pollutant Reduction Plan (3226C)	N/A	N/A	N/A
NPBCID	Loxahatchee River Pollutant Reduction Plan (3226C)	03/31/21	03/31/21	N/A
Palm Beach County	3264A – E-1 Canal Bacteria	N/A	03/31/20	N/A
	Loxahatchee River Pollutant Reduction Plan (3226C)	N/A	N/A	N/A
SIRWCD	Loxahatchee River Pollutant Reduction Plan (3226C)	N/A	N/A	N/A

4.3 TMDL Activities

During Year 5, of the Cycle 4 Permit, there were no additional TMDL activities to be addressed by the Palm Beach County MS4s. Progress and programs to address TMDLs for the Loxahatchee River, E-1 Canal (Hillsboro Watershed) and Lake Ida were addressed in previous individual annual reports (Florida Department of Transportation District IV, Florida Turnpike Enterprise, Town of Jupiter, Palm Beach County, Northern Palm Beach County Improvement District, South Indian River Water Control District, Village of Tequesta, Boynton Beach, Delray Beach and Palm Beach County) and summarized in previous Joint annual reports.

4.4 Upcoming Permit Cycle TMDLs

Beginning in 2019 and continuing through 2021, FDEP Division of Environmental Assessment and Restoration (DEAR) carried out activities for the development of a nutrient TMDL report to address the identified water quality impairments in Pine Lake and Lake Osborne. Draft TMDL reports were released, several public workshops were held, and coordination with the Palm Beach County MS4 stakeholders was done. Seven Palm Beach County permittees/stakeholders provided comments and participated in

the workshops and coordination. Primarily items of discussion and resolution included refining the delineation of the contributing watershed area for the impaired waterbodies, accessing all readily available water quality data to improve the water quality model calibration, reviewing/revising model input assumptions, and identifying additional stakeholders (MS4s, NPDES Industrial Permittees and non-MS4 owners).

Both Pine Lake and Lake Osborne were reassessed by DEAR as part of its 2020-2022 Biennial Water Quality Watershed Assessment Program. As a result of this assessment, Pine Lake was confirmed to be impaired for nutrients, however, Lake Osborne is no longer identified as impaired. Lake Osborne was placed on the “Delist List” and no TMDL will be developed at this time. (If water quality deteriorates, future Biennial Assessments could place the waterbody back on the Study or Verified Impaired lists.) The Department moved forward with a nutrient TMDL for Pine Lake, published in September 2021. Two MS4 permittees are stakeholders: the City of West Palm Beach and Palm Beach County.

4.5 FDEP TMDL Two-Year Workplan

Although no action is required by the MS4 permit for TMDLs in the development stage, this information is still tracked by the MS4 group. FDEP has an updated procedure for prioritizing the development of TMDLs (“Prioritization 2.0”), which was presented at the 2022 Florida Stormwater Association Winter Conference. The procedures are being used to develop a TMDL workplan on a biennial basis, presumably to follow the biennial water quality assessments which result in updated verified impaired waterbodies. FDEP points out that waters labeled a priority by this exercise, are those that are favorable for site-specific TMDL development, and indicates that other impaired waterbodies may be addressed via reasonable assurance plans or water quality restoration plans (4b and 4e plans, respectively). FDEP’s current two-year workplan has not been finalized, but the draft was presented in recent workshops/webinars. The “Nutrients Priority List” which constitutes the two-year workplan, does not include any WBIDs in Palm Beach County. FDEP also identified what is called the “Nutrients Draft List” containing nutrient-impaired WBIDs that are on the development horizon, but not within the next two years. On this current list is Lake Worth Lagoon WBID 3226F1, impaired for phosphorus. The lack of a coincident chlorophyll-a impairment prevented FDEP from including this on its Priority list. In addition, FDEP is anticipating that the Lake Worth Lagoon Management Plan will proceed as a sort of alternate restoration plan. Finally, FDEP identifies a “Draft List – Bacteria.” FDEP has explained that this list contains all the bacteria-impaired waters that could become TMDLs once they have worked through their pilot bacteria TMDL elsewhere in the state.

5.0 Water Quality Monitoring Program

5.1 Description

To provide water quality monitoring data to permittees, and to assist them with their required program assessments, the group made the decision to continue the +20-year joint ambient water quality monitoring program. The monitoring program includes the following components:

- ambient water quality sampling
- water quality data analyses
- trend analyses
- annual pollutant loading estimates in Year 3 of each permit cycle
- program modifications as needed



The Palm Beach County MS4 NPDES water quality monitoring program now includes 44 ambient water quality monitoring sites which were selected after coordination among the South Florida Water Management District (SFWMD), Palm Beach County Environmental Resource Management (ERM), the Loxahatchee River District (LRD), Broward County (BC), and City of West Palm Beach (CWPB).

5.2 Monitoring Sites

Table 5-1 identifies each monitoring site location and provides the site designation, watershed name, the entity conducting the sampling, and the site location northing and easting coordinates. Note that site designations are unique within an individual agency but may be duplicated across agencies. Data for these sites are assigned a unique agency code and station identification in the State's database (dBHydro or WIN/STORET).

Figure 5-1 (two pages) depicts the water quality monitoring site locations and shows the boundaries of the associated watersheds. Sites monitored by ERM are shown as circles, those monitored by the LRD are shown as squares, those monitored by SFWMD are shown as triangles, those monitored by BC are shown as stars and those monitored by CWPB are shown as suns. White symbols signify marine or tidal sites and yellow symbols designate freshwater sites.

The LRD monitors four marine sites and three freshwater sites. ERM monitors 10 marine sites and 15 freshwater sites. The SFWMD monitors five freshwater sites, BC monitors one freshwater and two

marine water sites and four CWPB freshwater sites were selected. All of Palm Beach County ERM, BC, LRD and WPB sampling results are in WIN/STORET and SFWMD data is in dBHydro.

The 25 sites monitored by ERM are sampled and initially analyzed in-situ by ERM staff using a multi-parameter water quality monitoring instrument. Water samples are collected, preserved, and stored according to the Department Standard Operating Procedures. Quality assurance/quality control measures include pre-cleaned equipment blanks, field cleaned equipment blanks, field spikes, and the collection of duplicate samples.

Further analysis of samples of ERM's 10 Lake Worth Lagoon marine sites is handled by SFWMD. Analysis of the remaining 15 ERM sites is conducted by an independent laboratory under contract with ERM. The water quality parameters and frequency being monitored by ERM, LRD, SFWMD, BC, and CWPB are listed in



Table 5-2. For this reporting period some monitoring events were missed. The Lake Worth Lagoon monitoring routinely experiences missed monitoring events due to the monitoring protocol that requires tidal sites to be sampled “immediately at or prior to slack low tide.” This allows only +/- 2 times per month when low tide is between 11:00 a.m. and 2:30 p.m., which may occur on weekends. The time on either side of this time frame is necessary for initial calibration, equipment decontamination, mobilization, travel, boat launch, boat recovery, travel, continuing calibration verification, and paper/tablet documentation work. Monitoring protocol prohibits monitoring during rain. Boating safety requirements prohibit monitoring during lightning events and winds exceeding 20 knots. Mechanical problems such as trailer lights malfunction, and engine problems also result in missed monitoring events.

Table 5-3 (8 pages) provides a list of the parameters and the Florida Surface Water Quality Standards (WQ Standards) as promulgated in Florida Administrative Code (F.A.C.) 62-302.530, 62-302.532, and 62-302.530 (47)(b).

The water quality sampling program in Palm Beach County is a cooperative effort designed to incorporate desirable elements of existing monitoring programs being administered by various agencies throughout the County. Attempts to coordinate sampling frequencies, parameters, and methodologies are ongoing, but not all sampling programs produce results that are compatible for a combined analysis. Data for a given parameter, location, and event may be unavailable due to the specific goals of that agency's monitoring program or procedural variations, including event frequency, sample depth, methodology, and instrumentation.

5.3 Water Quality Monitoring Results and Exceedances

Standards

State water quality standards have become increasingly complicated in recent years, with differing types of water bodies having different established criteria, such as chlorophyll-a (corrected for pheophytin). Therefore, **Table 5-3** has been prepared to provide a quick reference for determining exceedances in the water bodies being monitored in Palm Beach County. Furthermore, in Class I and Class III freshwater systems, the numeric limits for heavy metals are based on a logarithmic function of the water's total hardness measured at the time of the sampling. Thus, the last page of **Table 5-3** provides the relationship of hardness to the calculated limit for cadmium, copper, lead, and zinc.

Monitoring Results

The results of the monitoring conducted from October 2021 through September 2022 are provided in **Table 5-4** (44 pages). Analysis result values that were below the limits of detection ("BDL" or "non-detect") have been replaced in **Table 5-4** whenever possible with $\frac{1}{2}$ of the respective minimum detection limit (MDL) value for more reasonable calculated statistics. MDLs were provided by Palm Beach County ERM for results that were reported as BDL within the data set. MDLs are determined by instrumentation and method of analysis. These substitutions in **Table 5-4** have been highlighted in blue. MDL values greater than the WQ Standard value were not counted as exceedances.

Exceedances of the WQ Standards are highlighted in yellow in **Table 5-4**.

For samples where a total hardness was not measured, an exceedance limit for metals could not be calculated, and therefore, no exceedance could be identified.

For those results which require an annual geometric mean (to compare to the standard), the annual geometric mean was calculated for the reporting period (October – September).

Table 5-5 provides a summary of the number of exceedances at each site. Each cell where there was an exceedance provides the number of exceedances and the total number of samples taken at that site during the reporting period. For example, at Site 31E within the C-15 watershed, one dissolved oxygen samples out of five taken were in exceedance of the WQ Standard.

Another brief summary of exceedances is provided below:

Parameter	Exceedance Location(s)
DO	C-15, C-18, Loxahatchee River, Hillsboro, L-8, S-2-6-7
E. coli	Loxahatchee River
Turbidity	L-8, WPBWS
pH	C-17, Loxahatchee River, WPBWS
Chl-a	Loxahatchee River
Specific Conductivity	C51, L-8, S-2-6-7
Copper	ICWW-S, LWL-N

Comments

The criterion for fecal coliform in the NW and SW Forks of the Loxahatchee River (a natural Class II water body) is extremely low (< 43 cfu/100 ml) compared to all other water body classifications (< 400 cfu/ 100 ml). Potential sources of bacteria are being investigated by the Town of Jupiter and the Loxahatchee River District.

Exceedances of the turbidity in the L-8 and WPBWS Canals are very likely linked to discharges from Lake Okeechobee.

Exceedances for Specific Conductivity may be attributed to operational water supply releases from Lake Okeechobee and the L-8 Flow Equalization Basin.

Tabular Summaries

A statistical summary of each monitoring site, grouped by watershed, is presented in **Table 5-6** (25 pages). The table includes approximately 22 water quality parameters (21 measured parameters plus calculated TN) and all sampling events for each site's period of record. The periods of record range from four years to 23 years. The "Samples" value is the total number of times samples were taken at a Site (may differ from the number of times a particular parameter was sampled). The "Count" is the number of times a particular parameter was sampled.

Table 5-7 re-lists the geometric mean values for TN, TP, and Chl-a, at each site for the period of record. Historically, based on Chl-a, TN and/or TP, exceedances of the nutrient criteria have occurred in the Loxahatchee River, the Lake Worth Lagoon (North and Central), and Intracoastal Waterway South. This

table highlights the individual monitoring sites where exceedances of water quality standards have occurred.

5.4 Short Terms Trends

To provide the Palm Beach County MS4 permittees with site specific, as well as basin-wide, water quality trend (last ten years) information, historical data charts were developed using a “traffic light” symbology – red for exceedance of the water quality criteria, green for no exceedance, and yellow where there is no numeric standard). Since nutrient impairment is a major concern in Palm Beach County water bodies, Chl-a, TP, and TN were selected for this summary. FDEP has established a state-wide Chl-a numeric standard for all water bodies. However, for TP and TN, there is no numeric criteria for the South Florida Region Canals, resulting in 20 of the 44 monitoring sites without numeric criteria.

Tables 5-8 through 5-10 provide the historic period (2011-2020) of annual geometric mean exceedance for each site for these three nutrient-based water quality parameters. The annual geometric mean calculation for each site is based on a calendar year, while the basin annual geometric mean is calculated using all the sample sites and data within the basin watershed.

The total nitrogen numeric standards (basin averaging of sites) are being met in all 14 watersheds. Individual sites not meeting standards include Site 13 in the Lake Worth Lagoon North and Sites LWL-8, 18C and 18D in the Lake Worth Lagoon Central.

The total phosphorus numeric standards (basin averaging of sites) are being met for 13 of the 14 watersheds. Only Lake Worth Lagoon Central is not meeting the standard. Individual sites not meeting the standards include Site 22 (C-16 - Lake Osborne), Sites 11 and 13 (Lake Worth Lagoon North) and Sites LWL-8, 18C, 18D and LWL- 11 (Lake Worth Lagoon Central), and site LWL-18 in Intercoastal Waterway South.

The Chl-a criterion (basin averaging of sites) is not being met in four watersheds: the C-15, Loxahatchee River (marine/tidal areas of the North, Northwest, and Southwest Forks), and the watersheds of the Lake Worth Lagoon (North and Central) and ICWW-S. Individual sites not meeting the criteria include Sites 31E and 31C (C-15); Sites 22 and 27B (C-16); Sites 51, 62 and 72 (Loxahatchee River); Sites 11, 13, LW-1 and LW-4 (LWL-N); Sites 8, 18C, 18D, LWL-8 and LWL-11 (LWL-C); and Site LWL-18 (ICWW-S).

5.5 Long Term Trends

Surface water quality values can have variability driven by seasonal fluctuation, flow variation, changes in watershed, precipitation variation, and other independent variables. Statistical analysis can be used to determine if changes in water quality are part of this variability or if the changes represent a significant

water quality trend. The Mann-Kendall Test has been accepted by many governmental agencies as a robust method to evaluate water quality data statistically for trends over time. In this report, the Mann-Kendall Test (M-K) is used to identify surface water quality trends in the nutrient data for each water quality monitoring site. The M-K works well with data that has seasonal variations, violates assumptions of normality required for other regressions, and is resistant to outliers. The M-K can detect monotonic trends that do not double back on themselves. The analysis provides a Kendell Tau that is resistant to power-transforms. This is to say the Kendell Tau for a raw data set, or the same data set transformed would result in the same value. The M-K Test uses a ranked method of analysis. The M-K results contain a Kendell Tau value that is a measurement of the monotonic relationship between X and Y, in this analysis time and concentration. Kendell Tau is a ranked-based correlation measure, therefore, the scale it is evaluated on differs from non-ranked-based correlation measures such as R. Tau will have lower values than other correlation measures such as R. A strong correlationsimilar to $R = 0.9$, would be equivalent to $\text{Tau} = 0.7$. Kendell Tau can be calculated by the following Formula:

$$\tau = \frac{S}{\frac{n(n-1)}{2}}$$

In the formula above, the Kendell (S) value is calculated by subtracting the number of “discordant pairs” M, or the pairs that have y (concentration) decreasing as x (time) increases (this is called “M”), from the number of “concordant pairs” where y increases with x (these are called “P”). Kendell S can be written in the form $S = P - M$. It should be noted that due to the possible number of comparisons available to compare P and M if all comparisons are increasing Tau would equal one and if all comparisons are decreasing Tau would equal -1.

Sen’s Slope (also called Theil slope) estimator “ $\hat{b}_1$ ” is closely related to Kendall's S and Tau. Sen’s Slope can be calculated by the following formula for x and y values:

$$\hat{b}_1 = \text{median} \frac{(Y_j - Y_i)}{(X_j - X_i)} \quad \text{for all } i < j \text{ and } i=1,2,\dots,(n-1) \quad j=2,3,\dots,n.$$

Thus, Kendell Tau, Kendell S, and Sen’s Slope all indicate the direction of the trend. To determine if a trend is significant a p-value must be tested against the null hypothesis “ H_0 ” that $\text{Tau} = 0$. For small sample sized or data pairs, these values can be pulled from a table of p-values based on Kendell S, Kendell Tau, and the number of data pairs “n”. When the n is greater than 10 it is more appropriate that the p-value be approximated by a normal distribution Z_s test statistic.

$$\sigma_s = \sqrt{\left(\frac{n}{18}\right) * (n - 1) * (2n + 5)} \quad , \quad Z_s = \begin{pmatrix} \frac{S - 1/\sigma_s}{0} & \begin{matrix} \text{if } S > 0 \\ \text{if } S = 0 \end{matrix} \\ \frac{S + 1/\sigma_s}{0} & \text{if } S < 0 \end{pmatrix}$$

S was defined previously as the Kendell S value. Z_{crit} is the value of $\alpha/2$, where α is the selected significance level. The H_0 is rejected when $|Z_s| > Z_{crit}$. M-K analysis can be used to see the slope and direction of a trend regardless of significances. Though it may be useful to see this trend as a potential indicator of the direction of data. It must be emphasized that rejection of the H_0 means there is not enough evidence available to conclude that there is a trend or no trend. An alternative statement of this would be there is not enough evidence to say that the trend is any different than the null hypothesis. For additional information on Kendell Tau, the USGS “Statistical Methods in Water Resources” By D.R. Helsel and R.M. Hirsch, provides examples and narrative on the topic.

Table 5-11 (14 pages) summarizes the results and identifies the trend for TN, TP and Chl-a for the historical period of record. (Graphs of the plotted data are available on the group website: [ADD LINK](#)) Note that while the trends may be statistically significant, they may not be ecologically significant. Out of the 44 sites, 29 showed statistically significant decreasing trends for TN concentration; 10 showed a significant decreasing trend for TP, four showed a statistically significant increasing trend for TP; and 14 showed a statistically significant decreasing trend for Chl-a. **Figures 5-2, 5-3 and 5-4** graphically depict the statistical trend direction, for TN, TP and Chlorophyll-a.

5.6 Pollutant Loading Analyses

The Cycle 4 permit requires each permittee to provide estimates of the average annual pollutant loading for six water quality parameters for each major outfall or major watershed into which they discharge. Each permittee is required to compare the current cycle pollutant loading estimates with the previous cycle pollutant loading estimates. Palm Beach County permittees have elected to provide the pollutant loading estimates on a watershed basis. For consistency, this permit requirement is one of the activities performed by the Group. During Year 3 of the Cycle 4 permit, permittees provided the needed input data and were given the opportunity to review the pollutant loading model inputs and results. Thirteen (13) major watersheds were included in the analysis. The Lake Worth Lagoon (North and Central) and the northern portion of the Intracoastal Waterway South (ICWWS) were combined as one watershed and identified as the Lake Worth Lagoon (LWL). The Cycle 4/Year 3 (2018) MS4 annual pollutant load estimates were lower than the Cycle3/Year 3 (2013) estimates for all six water quality parameters, in all 13 watersheds. Information on this analysis was provided in the Year 3, Cycle 4 Joint Annual Report.

5.7 Program Modifications

Generally, the water quality monitoring data and assessments (annual exceedances, historical statistical data, more recent data, trends) show an improvement in the water quality of the receiving water bodies for the Palm Beach County MS4s. Consequently, the stormwater management programs implemented by the permittees, as required by the MS4 permit, appear to be effective. No water quality monitoring program modifications are proposed with this year's report.

Table 5-1
Water Quality Monitoring Site Locations

Watershed	Surface Water Classification	Site Designation	Agency	Marine/ Freshwater	Northing	Easting
C-15	III (Fresh)	31E	ERM	Freshwater	760549.91	916736.89
		31C	ERM	Freshwater	760879.83	943443.02
		31B	ERM	Freshwater	802772.09	964368.10
C-16	III (Fresh)	22	ERM	Freshwater	828280.34	957602.68
		24	ERM	Freshwater	820399.97	957270.70
		27B	ERM	Freshwater	802276.58	916052.08
		27A	ERM	Freshwater	802545.25	942880.04
		28	ERM	Freshwater	760234.13	959303.11
C-17	III (Fresh)	12A	ERM	Freshwater	882520.57	953672.56
		C17S44	SFWMD	Freshwater	903830.19	955552.70
C-18	I (Fresh)	16	ERM	Freshwater	923477.26	902076.42
		15	ERM	Freshwater	901986.07	931378.31
		92	LRD	Freshwater	924685.07	937805.48
		81	LRD	Freshwater	946081.68	935811.57
C-51	III (Fresh)	38B	ERM	Freshwater	854963.27	867962.99
		37B	ERM	Freshwater	853637.29	916592.84
		C51S155	SFWMD	Freshwater	841132.85	964349.43
Lox	III (Fresh)	69	LRD	Freshwater	947071.77	924822.40
	II (Marine)	51	LRD	Marine	954939.97	948224.55
		62	LRD	Marine	938898.36	961525.58
		72	LRD	Marine	946223.78	954573.37
ICWW-N	III (Marine)	30	LRD	Freshwater	961625.76	961625.76
LWL-N	III (Marine)	LWL-1	ERM	Marine	913398.12	964095.22
		11	ERM	Marine	908969.28	962655.71
		13	ERM	Marine	900706.79	964049.58
		LWL-4	ERM	Marine	898346.67	970040.36
LWL-C	III (Marine)	LWL-8	ERM	Marine	856238.64	968284.93
		18C	ERM	Marine	839740.15	969747.03
		18D	ERM	Marine	835593.23	967942.19
		LWL-11	ERM	Marine	830580.53	967926.64
ICWW-S	III (Marine)	LWL-13	ERM	Marine	819086.28	968516.09
		LWL-18	ERM	Marine	798402.11	965585.04
Hillsboro	III (Marine)	1	BC	Marine	724863.71	953909.23
		2	BC	Marine	725864.04	940799.29
	III (Fresh)	3	BC	Freshwater	725348.47	917217.65
		S39	SFWMD	Freshwater	734632.99	888668.58
L-8	III (Fresh)	Culv10	SFWMD	Freshwater	938859.59	778727.09
S-2-6-7	III (Fresh)	S-2	SFWMD	Freshwater	860426.94	748850.27
		39	ERM	Freshwater	855232.20	764581.68
		43	ERM	Freshwater	847294.87	750036.29
WPBWS	I (Fresh)	M-Canal	CWPB	Freshwater	884890.58	908925.59
		Control 4	CWPB	Freshwater	879672.31	943612.31
		Lake Mangonia	CWPB	Freshwater	875721.42	957872.24
		Clear Lake	CWPB	Freshwater	866387.08	959660.53

Table 5-2 Parameter Collection Schedule

Parameter	ERM		SFWMD	LRD	BC
	Freshwater	Marine			
Alkalinity*	--	--	--	M	
Arsenic	BM	Q	--	--	
Cadmium	BM	Q	--	--	
Chlorophyll-a (corrected)	BM	M	--	M	Q
Copper	BM	Q	--	--	
Dissolved Oxygen	BM	M	M	M	Q
Fecal Coliform	--	--	--	M	
Lead	BM	Q	--	--	
Nitrogen, Ammonia	BM	M	M	M	Q
Nitrogen, Nitrate-Nitrite	BM	M	M	M	Q
Nitrogen, Total Kjeldahl	BM	M	M	M	Q
Nitrogen, Total	BM	M	M	M	Q
pH	BM	M	M	M	Q
Phosphorus, Orthophosphate	BM	M	M	M	
Phosphorus, Total	BM	M	M	M	
Salinity†	--	M	--	M	Q
Specific Conductivity	BM	M	M	M	Q
Temperature	BM	M	M	M	Q
Total Hardness (as CaCO ₃)*	BM	--	--	--	
Total Suspended Solids*	BM	M	M	M	
Turbidity	BM	M	M	M	Q
Zinc*	BM	Q	--	--	

- Notes: 1. Not all parameters are collected for every site.
2. LRD - Loxahatchee River District Sites 62, 69, and 72, are sampled monthly. Sites 30, 51, 81, and 92 bi-monthly.
3. ERM – Palm Beach County Environmental Resource Management
4. SFWMD – South Florida Water Management District
5. BC – Broward County

BM (Bi-Monthly)

M (Monthly)

Q (Quarterly)

-- (Not Sampled)

Table 5-3**Numeric Surface Water Quality Standards by Waterbody**

(Page 1 of 7)

Applicable Class I - Freshwater South Florida Region Water Quality Criteria		
Site(s): C-18 (16, 15, 92, 81)		
Parameter	Units	Criteria
Arsenic	mg/L	≤ 0.01
Cadmium	mg/L	$\leq [e^{(0.7409 [\ln H] - 4.719)}] 10^{-3}$
Chlorophyll-a (corrected)	ug/L	≤ 20 AGM
Copper	mg/L	$\leq [e^{(0.8545 [\ln H] - 1.702)}] 10^{-3}$
Dissolved Oxygen	% Saturation	> 38
Lead	mg/L	$\leq [e^{(1.273 (\ln H) - 4.705)}] 10^{-3}$
Nitrogen, Total	mg/L	≤ 1.54 AGM
pH	None	6.0 to 8.5
Phosphorus, Total	mg/L	≤ 0.12 mg/l AGM
Specific Conductivity	umho/cm	≤ 1275
Turbidity	NTU	≤ 29
Zinc	mg/L	$\leq [e^{(0.8473 [\ln H] + 0.884)}] 10^{-3}$

Applicable Class III - Freshwater Lakes Water Quality Criteria		
Site(s): C-16 (22 and 24 in Lake Osborne)		
Parameter	Units	Criteria
Arsenic	mg/L	≤ 0.05
Cadmium	mg/L	$\leq [e^{(0.7409 [\ln H] - 4.719)}] 10^{-3}$
Chlorophyll-a (corrected)	ug/L	≤ 20 AGM
Copper	mg/L	$\leq [e^{(0.8545 [\ln H] - 1.702)}] 10^{-3}$
Dissolved Oxygen	% Saturation	> 38
Lead	mg/L	$\leq [e^{(1.273 (\ln H) - 4.705)}] 10^{-3}$
Nitrogen, Total	mg/L	1.27 to 2.23 AGM
pH	None	6.0 to 8.5
Phosphorus, Total	mg/L	0.05 to 0.16 AGM
Specific Conductivity	umho/cm	≤ 1275
Turbidity	NTU	≤ 29
Zinc	mg/L	$\leq [e^{(0.8473 [\ln H] + 0.884)}] 10^{-3}$

Notes:

- (1) InH means the natural logarithm of total hardness expressed as milligrams/L of CaCO_3 .
- (2) For Freshwater Lakes the Total Nitrogen and Total Phosphorus Minimum Value applies if Chlorophyll-a is > 20 ug/l, Maximum Value also applies if Chlorophyll-a is ≤ 20 ug/l.
- (3) AMG - Annual Geometric Mean
- (4) Per Palm Beach County Chain-of-Lakes December 2015 Water Quality Report, Lake Osborne Color > 40 Platinum Colbat Units

Table 5-3

Numeric Surface Water Quality Standards by Waterbody
(Page 2 of 7)

Applicable Class III- Freshwater South Florida Region Water Quality Criteria		
Site(s):	C-15 (31E, 31C, 31B), C-16 (27B, 27A, 28), C-17 (12A, C17S44) C-51 (38B, 37B, C51S155), Lox (69), Hillsboro (3, S39) L-8 (Culv10), S-2-6-7 (S-2, 39, 43)	
Parameter	Units	Criteria
Arsenic	mg/L	≤ 0.05
Cadmium	mg/L	$\leq [e^{(0.7409 [\ln H] - 4.719)}] 10^{-3}$
Chlorophyll-a (corrected)	ug/L	≤ 20 AGM
Copper	mg/L	$\leq [e^{(0.8545 [\ln H] - 1.702)}] 10^{-3}$
Dissolved Oxygen	% Saturation	> 38
Lead	mg/L	$\leq [e^{(1.273 [\ln H] - 4.705)}] 10^{-3}$
Nitrogen, Total	mg/L	Narrative
pH	None	6.0 to 8.5
Phosphorus, Total	mg/L	Narrative
Specific Conductivity	umho/cm	≤ 1275
Turbidity	NTU	≤ 29
Zinc	mg/L	$\leq [e^{(0.8473 [\ln H] + 0.884)}] 10^{-3}$

Applicable Class II - Marine North Fork Water Quality Criteria		
Site(s):	Loxahatchee River (51)	
Parameter	Units	Criteria
Arsenic	mg/L	≤ 0.05
Cadmium	mg/L	≤ 0.0088
Chlorophyll-a (corrected)	ug/L	≤ 4.0 AGM
Copper	mg/L	≤ 0.0037
Dissolved Oxygen	% Saturation	> 42
Fecal	cfu/100 ml	≤ 43
Lead	mg/L	≤ 0.0085
Nitrogen, Total	mg/L	0.80 AGM
pH	None	6.5 to 8.5
Phosphorus, Total	mg/L	0.030 AGM
Specific Conductivity	umho/cm	None
Turbidity	NTU	≤ 29
Zinc	mg/L	≤ 0.086

Notes:

- (1) InH means the natural logarithm of total hardness expressed as milligrams/L of CaCO_3 .
- (2) For Freshwater Lakes the Total Nitrogen and Total Phosphorus Minimum Value applies if Chlorophyll-a is > 20 ug/l, Maximum Value also applies if Chlorophyll-a is ≤ 20 ug/l.
- (3) AMG - Annual Geometric Mean
- (4) Per Palm Beach County Chain-of-Lakes December 2015 Water Quality Report, Lake Osborne Color > 40 Platinum Colbat Units

Table 5-3

Numeric Surface Water Quality Standards by Waterbody
(Page 3 of 7)

Applicable Class II - Marine Northwest Fork Water Quality Criteria		
Site(s): Loxahatchee River (62)		
Parameter	Units	Criteria
Arsenic	mg/L	≤ 0.05
Cadmium	mg/L	≤ 0.0088
Chlorophyll-a (corrected)	ug/L	≤ 5.5 AGM
Copper	mg/L	≤ 0.0037
Dissolved Oxygen	% Saturation	> 42
Fecal	cfu/100 ml	≤ 43
Lead	mg/L	≤ 0.0085
Nitrogen, Total	mg/L	< 1.26 AGM
pH	None	6.5 to 8.5
Phosphorus, Total	mg/L	< 0.075 AGM
Specific Conductivity	umho/cm	None
Turbidity	NTU	≤ 29
Zinc	mg/L	≤ 0.086

Applicable Class II - Marine Southwest Fork Water Quality Criteria		
Site(s): Loxahatchee River (72)		
Parameter	Units	Criteria
Arsenic	mg/L	≤ 0.05
Cadmium	mg/L	≤ 0.0088
Chlorophyll-a (corrected)	ug/L	≤ 5.5 AGM
Copper	mg/L	≤ 0.0037
Dissolved Oxygen	% Saturation	> 42
Fecal	cfu/100 ml	≤ 43
Lead	mg/L	≤ 0.0085
Nitrogen, Total	mg/L	≤ 1.26 AGM
pH	None	6.5 to 8.5
Phosphorus, Total	mg/L	≤ 0.075 AGM
Specific Conductivity	umho/cm	None
Turbidity	NTU	≤ 29
Zinc	mg/L	≤ 0.086

Notes:

(1) AGM - Annual Geometric Mean

Table 5-3

Numeric Surface Water Quality Standards by Waterbody
(Page 4 of 7)

Applicable Class III - Marine Water Quality Criteria		
Sites: Hillsboro (1 and 2)		
Parameter	Units	Criteria
Arsenic	mg/L	≤ 0.05
Cadmium	mg/L	≤ 0.0088
Chlorophyll-a (corrected)	ug/L	≤ 11 AGM
Copper	mg/L	≤ 0.0037
Dissolved Oxygen	% Saturation	> 42
Lead	mg/L	≤ 0.0085
Nitrogen, Total	mg/L	Narrative
pH	None	6.5 to 8.5
Phosphorus, Total	mg/L	Narrative
Specific Conductivity	umho/cm	None
Turbidity	NTU	≤ 29
Zinc	mg/L	≤ 0.086

Applicable Class III - Marine Water Quality Criteria		
Site(s): ICWW-N (30)		
Parameter	Units	Criteria
Arsenic	mg/L	≤ 0.05
Cadmium	mg/L	≤ 0.0088
Chlorophyll-a (corrected)	ug/L	≤ 4.7 AGM
Copper	mg/L	<0.0037
Dissolved Oxygen	% Saturation	> 42
Enterococci Bacteria	cfu/100mL	≤ 130 Count TPTV
Lead	mg/L	≤ 0.0085
Nitrogen, Total	mg/L	≤ 0.66 AGM
pH	None	6.5 to 8.5
Phosphorus, Total	mg/L	≤ 0.035 AGM
Specific Conductivity	umho/cm	None
Turbidity	NTU	≤ 29
Zinc	mg/L	≤ 0.086

Notes:

- (1) AGM - Annual Geometric Mean
- (2) TPTV - Ten Percent Threshold Value shall not be exceeded in more than 10% of the measurement
- (3) Narrative - Shall not cause an imbalance in flora and fauna

Table 5-3

Numeric Surface Water Quality Standards by Waterbody
(Page 5 of 7)

Applicable Class III - Marine Water Quality Criteria		
Site(s): Lake Worth Lagoon North (LWL-1, 11, 13, LWL-4)		
Parameter	Units	Criteria
Arsenic	mg/L	≤ 0.05
Cadmium	mg/L	≤ 0.0088
Chlorophyll-a (corrected)	ug/L	≤ 2.9 AGM
Copper	mg/L	≤ 0.0037
Dissolved Oxygen	% Saturation	> 42
Lead	mg/L	≤ 0.0085
Nitrogen, Total	mg/L	≤ 0.54 AGM
pH	None	6.5 to 8.5
Phosphorus, Total	mg/L	≤ 0.044 AGM
Specific Conductivity	umho/cm	None
Turbidity	NTU	≤ 29
Zinc	mg/L	≤ 0.086

Applicable Class III - Marine Water Quality Criteria		
Site(s): Lake Worth Lagoon Central (LWL-8, 18C, 18D, LWL-11)		
Parameter	Units	Criteria
Arsenic	mg/L	≤ 0.05
Cadmium	mg/L	≤ 0.0088
Chlorophyll-a (corrected)	ug/L	≤ 10.2 TPTV
Copper	mg/L	≤ 0.0037
Dissolved Oxygen	% Saturation	> 42
Lead	mg/L	≤ 0.0085
Nitrogen, Total	mg/L	≤ 0.66 AGM
pH	None	6.5 to 8.5
Phosphorus, Total	mg/L	≤ 0.049 AGM
Specific Conductivity	umho/cm	None
Turbidity	NTU	≤ 29
Zinc	mg/L	≤ 0.086

Notes:

(1) AGM - Annual Geometric Mean

(2) TPTV - Ten Percent Threshold Value shall not be exceeded in more than 10% of the measurement

Table 5-3

Numeric Surface Water Quality Standards by Waterbody
(Page 6 of 7)

Applicable Class III - Marine Water Quality Criteria		
Site(s): ICWW-S (LWL-13 and LWL-18)		
Parameter	Units	Criteria
Arsenic	mg/L	≤ 0.05
Cadmium	mg/L	≤ 0.0088
Chlorophyll-a (corrected)	ug/L	≤ 5.7 AGM
Copper	mg/L	≤ 0.0037
Dissolved Oxygen	% Saturation	> 42
Lead	mg/L	≤ 0.0085
Nitrogen, Total	mg/L	≤ 0.59 AGM
pH	None	6.5 to 8.5
Phosphorus, Total	mg/L	≤ 0.050 AGM
Specific Conductivity	umho/cm	None
Turbidity	NTU	≤ 29
Zinc	mg/L	≤ 0.086

Applicable Class I - Freshwater Canal South Florida Region Water Quality Criteria		
Site(s): City of West Palm Beach Water Supply Canals (M-Canal, Control 4)		
Parameter	Units	Criteria
Arsenic	mg/L	≤ 0.01
Cadmium	mg/L	$\leq [e^{(0.7409 [\ln H] - 4.719)}] 10^{-3}$
Chlorophyll-a (corrected)	ug/L	≤ 20 AGM
Copper	mg/L	$\leq [e^{(0.8545 [\ln H] - 1.702)}] 10^{-3}$
Dissolved Oxygen	% Saturation	> 38
Lead	mg/L	$\leq [e^{(1.273 [\ln H] - 4.705)}] 10^{-3}$
Nitrogen, Total	mg/L	Narrative
pH	None	6.0 to 8.5
Phosphorus, Total	mg/L	Narrative
Specific Conductivity	umho/cm	≤ 1275
Turbidity	NTU	≤ 29
Zinc	mg/L	$\leq [e^{(0.8473 [\ln H] + 0.884)}] 10^{-3}$

Notes:

- (1) AGM - Annual Geometric Mean
- (2) Narrative - Shall not cause an imbalance in flora and fauna

Table 5-3

Numeric Surface Water Quality Standards by Waterbody
(Page 7 of 7)

Applicable Class I - Freshwater Lakes Water Quality Criteria		
Site(s): City of West Palm Beach Water Supply Canals (Lake Mangonia and Clear Lake)		
Parameter	Units	Criteria
Arsenic	mg/L	≤ 0.01
Cadmium	mg/L	$\leq [e^{(0.7409 [\ln H] - 4.719)}] 10^{-3}$
Chlorophyll-a (corrected)	ug/L	≤ 20 AGM
Copper	mg/L	$\leq [e^{(0.8545 [\ln H] - 1.702)}] 10^{-3}$
Dissolved Oxygen	% Saturation	> 38
Lead	mg/L	$\leq [e^{(1.273 [\ln H] - 4.705)}] 10^{-3}$
Nitrogen, Total	mg/L	1.05 to 1.91 AGM
pH	None	6.0 to 8.5
Phosphorus, Total	mg/L	0.03 to 0.09 AGM
Specific Conductivity	umho/cm	≤ 1275
Turbidity	NTU	≤ 29
Zinc	mg/L	$\leq [e^{(0.8473 [\ln H] + 0.884)}] 10^{-3}$

Notes:

(1) AGM - Annual Geometric Mean

(2) For Freshwater Lakes the Total Nitrogen and Total Phosphorus Minimum Value applies if Chlorophyll-a is >20 ug/l, Maximum Value applies if Chlorophyll-a is ≤ 20 ug/l.

Table 5-4
Monitoring Data
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C-15 Watershed Monitoring Events

SITE 31E	SAMPLE DATE	11/30/21	1/21/22	3/23/22	5/19/22	7/19/22								Geometric Mean	Numeric Surface Water Quality Standard Criteria
PARAMETER	UNITS														
Alkalinity	mg/L														
Arsenic	mg/L	0.0017	0.0017	0.0017	0.0017	0.0017									≤ 0.05
Cadmium	mg/L	0.0002	0.0002	0.0002	0.0002	0.0002									See Table 5-3, page 2
Chlorophyll-a (corrected)	ug/L	25.25	5.70	4.60	32.10	44.10							15.6		≤ 20 AGM
Copper	mg/L	0.0013	0.0013	0.0013	0.0013	0.0046									See Table 5-3, page 2
Dissolved Oxygen	% Saturation	37.3	69.1	55.7	91.2	74.5									> 38
E. Coli	cfu/100mL														≤ 400 cfu/100ml TPTV
Lead	mg/L	0.0023	0.0023	0.0023	0.0023	0.0023									See Table 5-3, page 2
Nitrogen, Ammonia	mg/L	0.072	0.067	0.041	0.018	0.018									
Nitrogen, nitrate + nitrite	mg/L	0.170	0.038	0.061	0.0075	0.039									
Nitrogen, Total	mg/L	1.10	1.03	1.06	1.31	1.54							1.19		Narrative
Nitrogen, Total Kjeldahl	mg/L	0.93	0.99	1	1.3	1.5									
pH	None	7.30	7.55	7.50	7.77	7.54									6.0 to 8.5
Phosphorus, orthophosphate	mg/L	0.5400	0.200	0.190	0.17	0.074									
Phosphorus, Total	mg/L	0.6000	0.2600	0.2400	0.26	0.2200							0.293		Narrative
Salinity	ppth														
Specific Conductivity	umho/cm	534	619	667	570	446.8									≤ 1275
Temperature	deg C	21.2	20.6	25.8	29.9	30.3									
Total Hardness	mg/L	216	269	250	199	157									
Total Suspended Solids	mg/L	0.5	3.1	1.6	7.4	12.2									
Turbidity	NTU	1.7	0.5	1.2	6.4	6.2									≤ 29
Zinc	mg/L	0.0055	0.0055	0.0055	0.0055	0.0055									See Table 5-3, page 2

• Metal exceedences are based on hardness

• Highlighted in "blue" are substituted values that were below the limits of detection. The value shown is the method detection limit provided with the data.

• Highlighted in "yellow" are sample values that exceed either the State Water Quality Standards for a specific parameter or Florida's Impaired Waters Rule criteria for chlorophyll-a.

•AGM - Annual Geometric Mean

• TPTV - Ten Percent Threshold Value

• Narrative - Shall not cause an imbalance in flora and fauna

Table 5-4
Monitoring Data
Reporting Period October 2021 - September 2022
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C-15 Watershed Monitoring Events

SITE 31C	SAMPLE DATE	11/30/21	1/21/22	3/23/22	5/19/22	7/19/22								Geometric Mean	Numeric Surface Water Quality Standard Criteria
PARAMETER	UNITS														
Alkalinity	mg/L														
Arsenic	mg/L	0.0017	0.0017	0.0017	0.0017	0.0017									≤ 0.05
Cadmium	mg/L	0.0002	0.0002	0.0002	0.0002	0.0002									See Table 5-3, page 2
Chlorophyll-a (corrected)	ug/L	25.25	13.40	6.60	10.9	17.80							13.4		≤ 20 AGM
Copper	mg/L	0.0013	0.0013	0.0013	0.0013	0.0036									See Table 5-3, page 2
Dissolved Oxygen	% Saturation	77.4	72.4	78.6	153.9	95.4									> 38
E. Coli	cfu/100mL														≤ 400 cfu/100ml TPTV
Lead	mg/L	0.0023	0.0023	0.0023	0.0023	0.0023									See Table 5-3, page 2
Nitrogen, Ammonia	mg/L	0.100	0.018	0.098	0.018	0.018									
Nitrogen, nitrate + nitrite	mg/L	0.280	0.210	0.056	0.0075	0.032									
Nitrogen, Total	mg/L	1.16	1.18	0.88	0.82	1.13							1.02		Narrative
Nitrogen, Total Kjeldahl	mg/L	0.88	0.97	0.82	0.81	1.1									
pH	None	7.18	7.21	7.37	7.70	7.42									6.0 to 8.5
Phosphorus, orthophosphate	mg/L	0.1100	0.061	0.053	0.013	0.053									
Phosphorus, Total	mg/L	0.1700	0.1400	0.1000	0.069	0.1400							0.118		Narrative
Salinity	ppth														
Specific Conductivity	umho/cm	511	518	529	471	491.8									≤ 1275
Temperature	deg C	24.1	22.9	26.5	31.8	30.8									
Total Hardness	mg/L	202	216	198	172	174									
Total Suspended Solids	mg/L	3.6	4.3	3.4	4.4	6.3									
Turbidity	NTU	1.8	0.3	1.6	2.4	3.3									≤ 29
Zinc	mg/L	0.0055	0.0055	0.0055	0.0055	0.0055									See Table 5-3, page 2

• Metal exceedences are based on hardness

• Highlighted in "blue" are substituted values that were below the limits of detection. The value shown is the method detection limit provided with the data.

• Highlighted in "yellow" are sample values that exceed either the State Water Quality Standards for a specific parameter or Florida's Impaired Waters Rule criteria for chlorophyll-a.

•AGM - Annual Geometric Mean

• TPTV - Ten Percent Threshold Value

Narrative - Shall not cause an imbalance in flora and fauna

Table 5-4
Monitoring Data
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C-15 Watershed Monitoring Events

SITE 31B	SAMPLE DATE	11/30/21	1/21/22	3/23/22	5/19/22	7/19/22								Geometric Mean	Numeric Surface Water Quality Standard Criteria
PARAMETER	UNITS														
Alkalinity	mg/L														
Arsenic	mg/L	0.0017	0.0041	0.0017	0.0017	0.0017									≤ 0.05
Cadmium	mg/L	0.0002	0.0002	0.0002	0.0002	0.0002									See Table 5-3, page 2
Chlorophyll-a (corrected)	ug/L	25.25	3.10	2.10	9.10	8.40							6.6		≤ 20 AGM
Copper	mg/L	0.0013	0.0013	0.0013	0.0027	0.0013									See Table 5-3, page 2
Dissolved Oxygen	% Saturation	68.8	91.9	90.7	127.9	77.3									> 38
E. Coli	cfu/100mL														≤ 400 cfu/100ml TPTV
Lead	mg/L	0.0023	0.0023	0.0023	0.0023	0.0023									See Table 5-3, page 2
Nitrogen, Ammonia	mg/L	0.041	0.018	0.018	0.018	0.038									
Nitrogen, nitrate + nitrite	mg/L	0.280	0.190	0.008	0.0075	0.049									
Nitrogen, Total	mg/L	1.13	0.76	0.66	0.82	1.05							0.86		Narrative
Nitrogen, Total Kjeldahl	mg/L	0.85	0.57	0.65	0.81	1									
pH	None	7.53	7.78	8.05	8.48	7.51									6.0 to 8.5
Phosphorus, orthophosphate	mg/L	0.0860	0.064	0.053	0.0019	0.034									
Phosphorus, Total	mg/L	0.1500	0.0920	0.0830	0.027	0.1000							0.079		Narrative
Salinity	ppth														
Specific Conductivity	umho/cm	471.9	452.7	494.4	441.2	499.4									≤ 1275
Temperature	deg C	22.0	21.0	25.3	29.3	31.2									
Total Hardness	mg/L	183	178	191	159	172									
Total Suspended Solids	mg/L	3.9	1.3	0.6	2.7	4.9									
Turbidity	NTU	1.9	1.1	1.1	2.8	2.1									≤ 29
Zinc	mg/L	0.0055	0.0055	0.0055	0.0055	0.0055									See Table 5-3, page 2

- Metal exceedences are based on hardness
- Highlighted in "blue" are substituted values that were below the limits of detection. The value shown is the method detection limit provided with the data.
- Highlighted in "yellow" are sample values that exceed either the State Water Quality Standards for a specific parameter or Florida's Impaired Waters Rule criteria for chlorophyll-a.
- AGM - Annual Geometric Mean
- TPTV - Ten Percent Threshold Value
- Narrative - Shall not cause an imbalance in flora and fauna

Table 5-4 **Monitoring Data** **Reporting Period October 2021 - September 2022**

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C-16 Watershed Monitoring Events

SITE 22	SAMPLE DATE	11/29/21	1/18/22	3/22/22	5/16/22	7/18/22								Geometric Mean	Numeric Surface Water Quality Standard Criteria
PARAMETER	UNITS														
Alkalinity	mg/L														
Arsenic	mg/L	0.0017	0.0017	0.0017	0.0017	0.0017									≤ 0.05
Cadmium	mg/L	0.0002	0.0002	0.0002	0.0002	0.0002									See Table 5-3, page 1
Chlorophyll-a (corrected)	ug/L	25.3	4.7	1.3	12.4	7.8							6.8		≤ 20 AGM
Copper	mg/L	0.0013	0.0013	0.0013	0.0013	0.0013									See Table 5-3, page 8
Dissolved Oxygen	% Saturation	100.1	110.0	94.4	109.4	65.7									> 38
E. Coli	cfu/100mL														≤ 400 cfu/100ml TPTV
Lead	mg/L	0.0023	0.0023	0.0023	0.0023	0.0023									See Table 5-3, page 1
Nitrogen, Ammonia	mg/L	0.040	0.018	0.048	0.018	0.090									
Nitrogen, nitrate + nitrite	mg/L	0.290	0.130	0.017	0.021	0.059									
Nitrogen, Total	mg/L	0.87	0.72	0.59	1.12	0.78							0.80		≤ 2.23 AGM
Nitrogen, Total Kjeldahl	mg/L	0.58	0.59	0.57	1.1	0.72									
pH	None	7.79	8.03	8.00	8.20	7.74									6.0 to 8.5
Phosphorus, orthophosphate	mg/L	0.0290	0.022	0.034	0.016	0.014									
Phosphorus, Total	mg/L	0.4800	0.0570	0.0650	0.078	0.0520							0.094		≤ 0.16 AGM
Salinity	ppth														
Specific Conductivity	umho/cm	426	473.1	470.2	924	481.6									≤ 1275
Temperature	deg C														
Total Hardness	mg/L														
Total Suspended Solids	mg/L														
Turbidity	NTU	1.1	1.3	1.5	2.5	1.6									≤ 29
Zinc	mg/L	0.0055	0.0055	0.0055	0.0055	0.0055									See Table 5-3, page 1

- Metal exceedences are based on hardness
- Highlighted in "blue" are substituted values that were below the limits of detection. The value shown is the method detection limit provided with the data.
- Highlighted in "yellow" are sample values that exceed either the State Water Quality Standards for a specific parameter or Florida's Impaired Waters Rule criteria for chlorophyll-a.
- AGM - Annual Geometric Mean
- TPTV - Ten Percent Threshold Value
- Narrative - Shall not cause an imbalance in flora and fauna

Table 5-4 **Monitoring Data** **Reporting Period October 2021 - September 2022**

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C-16 Watershed Monitoring Events

SITE 24	SAMPLE DATE	11/29/21	1/18/22	3/22/22	5/16/22	7/18/22								Geometric Mean	Numeric Surface Water Quality Standard Criteria
PARAMETER	UNITS														
Alkalinity	mg/L														
Arsenic	mg/L	0.0017	0.0017	0.0017	0.0017	0.0017									≤ 0.05
Cadmium	mg/L	0.0002	0.0002	0.0002	0.0002	0.0002									See Table 5-3, page 1
Chlorophyll-a (corrected)	ug/L	25.3	10.0	7.7	10.5	16.7							12.8		≤ 20 AGM
Copper	mg/L	0.0013	0.0013	0.0013	0.0013	0.0013									See Table 5-3, page 1
Dissolved Oxygen	% Saturation	113.0	119.4	113.6	131.7	98.5									> 38
E. Coli	cfu/100mL														≤ 400 cfu/100ml TPTV
Lead	mg/L	0.0023	0.0023	0.0023	0.0023	0.0023									See Table 5-3, page 1
Nitrogen, Ammonia	mg/L	0.018	0.018	0.018	0.018	0.018									
Nitrogen, nitrate + nitrite	mg/L	0.008	0.008	0.008	0.0075	0.008									
Nitrogen, Total	mg/L	0.05	0.11	0.11	0.11	0.11							0.09		≤ 2.23 AGM
Nitrogen, Total Kjeldahl	mg/L	0.043	0.1	0.1	0.1	0.1									
pH	None	8.09	8.32	8.32	8.38	8.04									6.0 to 8.5
Phosphorus, orthophosphate	mg/L	0.0019	0.002	0.002	0.0019	0.002									
Phosphorus, Total	mg/L	0.0014	0.0030	0.0014	0.0014	0.0014							0.002		≤ 0.16 AGM
Salinity	ppth														
Specific Conductivity	umho/cm	425.6	463.3	460.6	686	465									≤ 1275
Temperature	deg C														
Total Hardness	mg/L														
Total Suspended Solids	mg/L														
Turbidity	NTU	2.2	1.9	3.6	3	2.4									≤ 29
Zinc	mg/L	0.0055	0.0055	0.0055	0.0055	0.0055									See Table 5-3, page 1

- Metal exceedences are based on hardness
- Highlighted in "blue" are substituted values that were below the limits of detection. The value shown is the method detection limit provided with the data.
- Highlighted in "yellow" are sample values that exceed either the State Water Quality Standards for a specific parameter or Florida's Impaired Waters Rule criteria for chlorophyll-a.
- AGM - Annual Geometric Mean
- TPTV - Ten Percent Threshold Value
- Narrative - Shall not cause an imbalance in flora and fauna

Table 5-4 **Monitoring Data** **Reporting Period October 2021 - September 2022**

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C-16 Watershed Monitoring Events

SITE 27B	SAMPLE DATE	11/30/21	3/23/22	5/19/22										Geometric Mean	Numeric Surface Water Quality Standard Criteria
PARAMETER	UNITS														
Alkalinity	mg/L														
Arsenic	mg/L	0.0017	0.0017	0.0017											≤ 0.05
Cadmium	mg/L	0.0002	0.0002	0.0002											See Table 5-3, page 1
Chlorophyll-a (corrected)	ug/L	25.3	3.3	37.4									14.6		≤ 20 AGM
Copper	mg/L	0.0036	0.0013	0.0041											See Table 5-3, page 1
Dissolved Oxygen	% Saturation	87.0	59.8	52.7											> 38
E. Coli	cfu/100mL														≤ 400 cfu/100ml TPTV
Lead	mg/L	0.0023	0.0023	0.0023											See Table 5-3, page 1
Nitrogen, Ammonia	mg/L	0.018	0.018	0.018											
Nitrogen, nitrate + nitrite	mg/L	0.110	0.008	0.008											
Nitrogen, Total	mg/L	0.92	1.21	1.61									1.21		Narrative
Nitrogen, Total Kjeldahl	mg/L	0.81	1.2	1.6											
pH	None	7.59	7.54	7.60											6.0 to 8.5
Phosphorus, orthophosphate	mg/L	0.1100	0.006	0.100											
Phosphorus, Total	mg/L	0.1600	0.0420	0.2300									0.116		Narrative
Salinity	ppth														
Specific Conductivity	umho/cm	550	678	679											≤ 1275
Temperature	deg C	22.7	25.2	29.0											
Total Hardness	mg/L	241	186	211											
Total Suspended Solids	mg/L	3.5	7.9	16.2											
Turbidity	NTU	2.2	2.1	4.2											≤ 29
Zinc	mg/L	0.0055	0.0055	0.0055											See Table 5-3, page 1

- Metal exceedences are based on hardness
- Highlighted in "blue" are substituted values that were below the limits of detection. The value shown is the method detection limit provided with the data.
- Highlighted in "yellow" are sample values that exceed either the State Water Quality Standards for a specific parameter or Florida's Impaired Waters Rule criteria for chlorophyll-a.
- AGM - Annual Geometric Mean
- TPTV - Ten Percent Threshold Value
- Narrative - Shall not cause an imbalance in flora and fauna

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C-16 Watershed Monitoring Events

SITE 27A	SAMPLE DATE	11/30/21	1/21/22	3/23/22	5/19/22	7/19/22								Geometric Mean	Numeric Surface Water Quality Standard Criteria
PARAMETER	UNITS														
Alkalinity	mg/L														
Arsenic	mg/L	0.0017	0.0050	0.0017	0.0017	0.0017									≤ 0.05
Cadmium	mg/L	0.0002	0.0002	0.0002	0.0002	0.0002									See Table 5-3, page 1
Chlorophyll-a (corrected)	ug/L	25.3	1.1	1.7	6.6	21.4							5.8		≤ 20 AGM
Copper	mg/L	0.0036	0.0034	0.0013	0.0013	0.0033									See Table 5-3, page 1
Dissolved Oxygen	% Saturation	96.6	95.7	86.8	118.0	117.3									> 38
E. Coli	cfu/100mL														≤ 400 cfu/100ml TPTV
Lead	mg/L	0.0023	0.0023	0.0023	0.0023	0.0023									See Table 5-3, page 1
Nitrogen, Ammonia	mg/L	0.018	0.018	0.018	0.018	0.018									
Nitrogen, nitrate + nitrite	mg/L	0.046	0.008	0.008	0.0075	0.008									
Nitrogen, Total	mg/L	0.68	0.55	0.98	0.91	1.11							0.82		Narrative
Nitrogen, Total Kjeldahl	mg/L	0.63	0.54	0.97	0.9	1.1									
pH	None	7.93	7.91	7.92	8.21	7.93									6.0 to 8.5
Phosphorus, orthophosphate	mg/L	0.0640	0.022	0.021	0.0019	0.210									
Phosphorus, Total	mg/L	0.0890	0.0480	0.0430	0.031	0.3200							0.071		Narrative
Salinity	ppth														
Specific Conductivity	umho/cm	602	378.4	489.6	692	529									≤ 1275
Temperature	deg C	21.9	20.4	25.1	29.5	30.5									
Total Hardness	mg/L	166	152	176	200	196									
Total Suspended Solids	mg/L	0.5	0.5	0.5	0.5	6.2									
Turbidity	NTU	0.8	0.6	0.9	1	2.5									≤ 29
Zinc	mg/L	0.0055	0.0055	0.0055	0.0055	0.0055									See Table 5-3, page 1

• Metal exceedences are based on hardness

• Highlighted in "blue" are substituted values that were below the limits of detection. The value shown is the method detection limit provided with the data.

• Highlighted in "yellow" are sample values that exceed either the State Water Quality Standards for a specific parameter or Florida's Impaired Waters Rule criteria for chlorophyll-a.

• AGM - Annual Geometric Mean

• TPTV - Ten Percent Threshold Value

• Narrative - Shall not cause an imbalance in flora and fauna

Table 5-4 **Monitoring Data** **Reporting Period October 2021 - September 2022**

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C-16 Watershed Monitoring Events

SITE 28	SAMPLE DATE	11/30/21	1/21/22	3/23/22	5/19/22	7/19/22								Geometric Mean	Numeric Surface Water Quality Standard Criteria
PARAMETER	UNITS														
Alkalinity	mg/L														
Arsenic	mg/L	0.0017	0.0017	0.0017	0.0017	0.0017									≤ 0.05
Cadmium	mg/L	0.0002	0.0002	0.0002	0.0002	0.0002									See Table 5-3, page 1
Chlorophyll-a (corrected)	ug/L	25.3	7.6	10.0	8.2	13.3							11.6		≤ 20 AGM
Copper	mg/L	0.0013	0.0013	0.0013	0.0013	0.0013									See Table 5-3, page 1
Dissolved Oxygen	% Saturation	104.7	103.6	94.4	113.7	89.9									> 38
E. Coli	cfu/100mL														≤ 400 cfu/100ml TPTV
Lead	mg/L	0.0023	0.0023	0.0023	0.0023	0.0023									See Table 5-3, page 1
Nitrogen, Ammonia	mg/L	0.018	0.018	0.018	0.018	0.018									
Nitrogen, nitrate + nitrite	mg/L	0.008	0.008	0.008	0.0075	0.008									
Nitrogen, Total	mg/L	0.05	0.11	0.11	0.11	0.11							0.09		Narrative
Nitrogen, Total Kjeldahl	mg/L	0.043	0.1	0.1	0.1	0.1									
pH	None	7.92	7.96	8.06	8.21	7.83									6.0 to 8.5
Phosphorus, orthophosphate	mg/L	0.0019	0.002	0.002	0.0019	0.002									
Phosphorus, Total	mg/L	0.0014	0.0032	0.0014	0.0014	0.0014							0.002		Narrative
Salinity	ppth														
Specific Conductivity	umho/cm	446.7	448.3	460.8	513	462.2									≤ 1275
Temperature	deg C														
Total Hardness	mg/L														
Total Suspended Solids	mg/L														
Turbidity	NTU	1.9	0.4	2.0	3.1	0.1									≤ 29
Zinc	mg/L	0.0055	0.0055	0.0055	0.0055	0.0055									See Table 5-3, page 1

- Metal exceedences are based on hardness
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- Highlighted in "yellow" are sample values that exceed either the State Water Quality Standards for a specific parameter or Florida's Impaired Waters Rule criteria for chlorophyll-a.
- AGM - Annual Geometric Mean
- TPTV - Ten Percent Threshold Value
- Narrative - Shall not cause an imbalance in flora and fauna

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C-17 Watershed Monitoring Events

SITE 12A	SAMPLE DATE	11/29/21	1/18/22	3/22/22	5/16/22	7/18/22								Geometric Mean	Numeric Surface Water Quality Standard Criteria
PARAMETER	UNITS														
Alkalinity	mg/L														
Arsenic	mg/L	0.0017	0.0017	0.0017	0.0017	0.0017									≤ 0.05
Cadmium	mg/L	0.0017	0.0017	0.0017	0.0017	0.0017									See Table 5-3, page 2
Chlorophyll-a (corrected)	ug/L	25.3	7.8	6.8	13.2	14.2							12.0		≤ 20 AGM
Copper	mg/L	0.0013	0.0013	0.0013	0.0013	0.0013									See Table 5-3, page 2
Dissolved Oxygen	% Saturation	74.9	83.1	92.2	93.2	109.2									> 38
E. Coli	cfu/100mL														≤ 400 cfu/100ml TPTV
Lead	mg/L	0.0023	0.0023	0.0023	0.0023	0.0023									See Table 5-3, page 2
Nitrogen, Ammonia	mg/L	0.120	0.087	0.018	0.018	0.018									
Nitrogen, nitrate + nitrite	mg/L	0.220	0.110	0.024	0.0075	0.008									
Nitrogen, Total	mg/L	1.02	0.90	0.77	0.83	0.79							0.86		Narrative
Nitrogen, Total Kjeldahl	mg/L	0.8	0.79	0.75	0.82	0.78									
pH	None	7.52	7.72	7.78	7.58	7.79									6.0 to 8.5
Phosphorus, orthophosphate	mg/L	0.0055	0.006	0.002	0.0051	0.009									
Phosphorus, Total	mg/L	0.0400	0.0530	0.0500	0.088	0.0660							0.057		Narrative
Salinity	ppth														
Specific Conductivity	umho/cm	416.4	443.5	462.5	494.8	432.7									≤ 1275
Temperature	deg C	21.0	19.1	25.5	28.7	31.2									
Total Hardness	mg/L	158	173	180	163	145									
Total Suspended Solids	mg/L	3.4	3.3	2.7	5	4.7									
Turbidity	NTU	2.7	2.1	2.3	2.5	2.0									≤ 29
Zinc	mg/L	0.0055	0.0055	0.0055	0.0055	0.0055							0.0055		See Table 5-3, page 2

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- Highlighted in "yellow" are sample values that exceed either the State Water Quality Standards for a specific parameter or Florida's Impaired Waters Rule criteria for chlorophyll-a.
- AGM - Annual Geometric Mean
- TPTV - Ten Percent Threshold Value
- Narrative - Shall not cause an imbalance in flora and fauna

Table 5-4 **Monitoring Data** **Reporting Period October 2021 - September 2022**

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C-17 Watershed Monitoring Events

SITE C17S44	SAMPLE DATE	10/21/21	11/18/21	1/20/22	2/17/22	3/17/22	4/21/22	5/26/22	6/9/22	7/7/22	8/18/22	9/27/22		Geometric Mean	Numeric Surface Water Quality Standard Criteria
PARAMETER	UNITS														
Alkalinity	mg/L														
Arsenic	mg/L														≤ 0.05
Cadmium	mg/L														See Table 5-3, page 2
Chlorophyll-a (corrected)	ug/L														≤ 20 AGM
Copper	mg/L														See Table 5-3, page 2
Dissolved Oxygen	% Saturation	52.6	46.4	77.9	80.9	78.1	70.4	94.6	62.1	58.7	36.8	51.3			> 38
E. Coli	cfu/100mL														≤ 400 cfu/100ml TPTV
Lead	mg/L														See Table 5-3, page 2
Nitrogen, Ammonia	mg/L	0.079	0.003	0.003	0.003	0.010	0.008	0.025	0.027	0.024	0.003	0.003			
Nitrogen, nitrate + nitrite	mg/L	0.863	0.028	0.028	0.0275	0.752	0.673	0.714	0.738	0.702	0.0275	0.028			
Nitrogen, Total	mg/L	0.78	0.03	0.03	0.03	0.74	0.67	0.69	0.71	0.68	0.03	0.03		0.16	Narrative
Nitrogen, Total Kjeldahl	mg/L														
pH	None	7.40	7.40	7.40	7.70	7.80	7.60	7.70	7.40	6.80	7.40	7.30			6.0 to 8.5
Phosphorus, orthophosphate	mg/L	0.0170	0.001	0.001	0.001	0.008	0.004	0.005	0.016	0.023	0.001	0.001			
Phosphorus, Total	mg/L	0.0460	0.0010	0.0010	0.001	0.0370	0.032	0.0240	0.055	0.0490	0.001	0.0010		0.007	Narrative
Salinity	ppth														
Specific Conductivity	umho/cm	437	438	466	465	451	424	415	404	449	419	426			≤ 1275
Temperature	deg C	25.8	22.9	19.2	20.8	24.2	25.0	28.3	28.9	31.1	30.8	28.4			
Total Hardness	mg/L														
Total Suspended Solids	mg/L	1.5	1.5	1.5	1.5	1.5	1.5	2.0	1.5	1.5	1.5	1.5			
Turbidity	NTU	1.0	0.1	0.1	0.05	1.5	1	0.5	1.3	0.8	0.05	0.1			≤ 29
Zinc	mg/L														See Table 5-3, page 2

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- TPTV - Ten Percent Threshold Value
- AGM - Annual Geometric Mean
- Narrative - Shall not cause an imbalance in flora and fauna

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C-18 Watershed Monitoring Events

SITE 16	SAMPLE DATE	11/29/21	1/18/22	3/22/22	5/16/22	7/18/22								Geometric Mean	Numeric Surface Water Quality Standard Criteria
PARAMETER	UNITS														
Alkalinity	mg/L														
Arsenic	mg/L	0.0017	0.0017	0.0017	0.0017	0.0017									≤ 0.01
Cadmium	mg/L	0.0002	0.0002	0.0002	0.0002	0.0002									See Table 5-3, page 1
Chlorophyll-a (corrected)	ug/L	25.3	0.5	0.5	1.4	5.6							2.2		≤ 20 AGM
Copper	mg/L	0.0013	0.0013	0.0013	0.0013	0.0013									See Table 5-3, page 1
Dissolved Oxygen	% Saturation	57.4	61.4	77.0	104.1	63.4									> 38
E. Coli	cfu/100mL														≤ 400 cfu/100ml TPTV
Lead	mg/L	0.0023	0.0023	0.0023	0.0023	0.0023									See Table 5-3, page 1
Nitrogen, Ammonia	mg/L	0.055	0.097	0.062	0.018	0.018									
Nitrogen, nitrate + nitrite	mg/L	0.008	0.049	0.038	0.044	0.035									
Nitrogen, Total	mg/L	0.80	0.88	0.80	0.60	0.80							0.77		≤ 1.54 AGM
Nitrogen, Total Kjeldahl	mg/L	0.79	0.83	0.76	0.56	0.76									
pH	None	6.93	7.32	7.68	7.94	7.67									6.0 to 8.5
Phosphorus, orthophosphate	mg/L	0.0041	0.002	0.002	0.0045	0.002									
Phosphorus, Total	mg/L	0.0190	0.0210	0.0240	0.037	0.0430							0.027		≤ 0.12 mg/l AGM
Salinity	ppth														
Specific Conductivity	umho/cm	183.3	374.6	551	825	690									≤ 1275
Temperature	deg C	20.3	18.0	24.7	28.0	28.7									
Total Hardness	mg/L	65.3	148	191	273	225									
Total Suspended Solids	mg/L	1.8	1.1	0.5	2.6	6.8									
Turbidity	NTU	1.6	1.3	2.2	2.5	4.9									≤ 29
Zinc	mg/L	0.0055	0.0055	0.0055	0.0055	0.0055									See Table 5-3, page 1

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- AGM - Annual Geometric Mean
- TPTV - Ten Percent Threshold Value
- Narrative - Shall not cause an imbalance in flora and fauna

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Monitoring Data
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C-18 Watershed Monitoring Events

SITE 15	SAMPLE DATE	11/29/21	1/18/22	3/22/22	5/16/22	7/18/22								Geometric Mean	Numeric Surface Water Quality Standard Criteria
PARAMETER	UNITS														
Alkalinity	mg/L														
Arsenic	mg/L	0.0017	0.0017	0.0017	0.0017	0.0017									≤ 0.01
Cadmium	mg/L	0.0002	0.0002	0.0002	0.0002	0.0002									See Table 5-3, page 1
Chlorophyll-a (corrected)	ug/L	25.3	1.2	1.5	4.2	2.3							3.4		≤ 20 AGM
Copper	mg/L	0.0013	0.0013	0.0013	0.0013	0.0013									See Table 5-3, page 1
Dissolved Oxygen	% Saturation	50.1	61.8	20.9	28.5	10.9									> 38
E. Coli	cfu/100mL														≤ 400 cfu/100ml TPTV
Lead	mg/L	0.0023	0.0023	0.0023	0.0023	0.0023									See Table 5-3, page 1
Nitrogen, Ammonia	mg/L	0.018	0.018	0.040	0.067	0.063									
Nitrogen, nitrate + nitrite	mg/L	0.008	0.008	0.008	0.0075	0.020									
Nitrogen, Total	mg/L	0.54	0.56	0.67	0.88	0.82							0.68		≤ 1.54 AGM
Nitrogen, Total Kjeldahl	mg/L	0.53	0.55	0.66	0.87	0.8									
pH	None	7.18	7.44	7.14	7.10	7.21									6.0 to 8.5
Phosphorus, orthophosphate	mg/L	0.0019	0.002	0.004	0.0019	0.002									
Phosphorus, Total	mg/L	0.0240	0.0140	0.0140	0.031	0.0170							0.019		≤ 0.12 mg/l AGM
Salinity	ppth														
Specific Conductivity	umho/cm	289.6	392.8	374.7	320.8	437.8									≤ 1275
Temperature	deg C	18.7	18.2	23.7	27.0	28.1									
Total Hardness	mg/L	107	153	145	106	159									
Total Suspended Solids	mg/L	0.5	0.5	0.5	1.2	0.5									
Turbidity	NTU	0.4	1.1	0.8	2.4	0.9									≤ 29
Zinc	mg/L	0.0055	0.0055	0.0055	0.0055	0.0055									See Table 5-3, page 1

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- Highlighted in "yellow" are sample values that exceed either the State Water Quality Standards for a specific parameter or Florida's Impaired Waters Rule criteria for chlorophyll-a.
- AGM - Annual Geometric Mean
- TPTV - Ten Percent Threshold Value
- Narrative - Shall not cause an imbalance in flora and fauna

Table 5-4
Monitoring Data
Reporting Period October 2021 - September 2022
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C-18 Watershed Monitoring Events

SITE 92	SAMPLE DATE	11/8/21	2/15/22	5/17/22	8/9/22									Geometric Mean	Numeric Surface Water Quality Standard Criteria
PARAMETER	UNITS														
Alkalinity	mg/L	141	201	176	160										
Arsenic	mg/L														≤ 0.01
Cadmium	mg/L														See Table 5-3, page 1
Chlorophyll-a (corrected)	ug/L	5.5	5.7	3.8	8.1								5.6		≤ 20 AGM
Copper	mg/L														See Table 5-3, page 1
Dissolved Oxygen	% Saturation	64.0	62.1	75.3	63.3										> 38
E. Coli	cfu/100mL	41	10	20	74										≤ 400 cfu/100ml TPTV
Lead	mg/L														See Table 5-3, page 1
Nitrogen, Ammonia	mg/L	0.090		0.040	1.040										
Nitrogen, nitrate + nitrite	mg/L	0.061	0.079	0.007	0.011										
Nitrogen, Total	mg/L	1.10	0.80	0.80	0.90								0.89		≤ 1.54 AGM
Nitrogen, Total Kjeldahl	mg/L	1	0.7	0.8	0.9										
pH	None	7.31	7.34	7.44	7.17										6.0 to 8.5
Phosphorus, orthophosphate	mg/L	0.0210	0.033	0.004	0.012										
Phosphorus, Total	mg/L	0.0260	0.0260	0.0210	0.027								0.025		≤ 0.12 mg/l AGM
Salinity	ppth	0.2	0.3	0.4	0.3										
Specific Conductivity	umho/cm	459	639	759	563										≤ 1275
Temperature	deg C	23.1	19.9	27.9	31.8										
Total Hardness	mg/L														
Total Suspended Solids	mg/L	1.5	1.8	1.3	2.1										
Turbidity	NTU	1.7	2.4	1.6	2.2										≤ 29
Zinc	mg/L														See Table 5-3, page 1

- Metal exceedences are based on hardness
- Highlighted in "blue" are substituted values that were below the limits of detection. The value shown is the method detection limit provided with the data.
- Highlighted in "yellow" are sample values that exceed either the State Water Quality Standards for a specific parameter or Florida's Impaired Waters Rule criteria for chlorophyll-a.
- AGM - Annual Geometric Mean
- TPTV - Ten Percent Threshold Value
- Narrative - Shall not cause an imbalance in flora and fauna

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Monitoring Data
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C-18 Watershed Monitoring Events

Site 81	SAMPLE DATE	3/14/22	6/14/22	9/14/22										Geometric Mean	Numeric Surface Water Quality Standard Criteria
PARAMETER	UNITS														
Alkalinity	mg/L	162	143	135											
Arsenic	mg/L														≤ 0.01
Cadmium	mg/L														See Table 5-3, page 1
Chlorophyll-a (corrected)	ug/L	2.4	5.3	6.0									4.2		≤ 20 AGM
Copper	mg/L														See Table 5-3, page 1
Dissolved Oxygen	% Saturation	79.6	106.8	87.3											> 38
E. Coli	cfu/100mL	1515	175	211											≤ 400 cfu/100ml TPTV
Lead	mg/L														See Table 5-3, page 1
Nitrogen, Ammonia	mg/L		0.040	0.040											
Nitrogen, nitrate + nitrite	mg/L	0.032	0.004	0.015											
Nitrogen, Total	mg/L	0.90	0.90	1.00									0.93		≤ 1.54 AGM
Nitrogen, Total Kjeldahl	mg/L	0.9	0.9	1											
pH	None	7.84	7.79	7.57											6.0 to 8.5
Phosphorus, orthophosphate	mg/L	0.0100	0.006	0.008											
Phosphorus, Total	mg/L	0.0150	0.0180	0.0210									0.018		≤ 0.12 mg/l AGM
Salinity	ppth	0.2	0.3	0.2											
Specific Conductivity	umho/cm	471	608	499											≤ 1275
Temperature	deg C	24.1	31.2	31.7											
Total Hardness	mg/L														
Total Suspended Solids	mg/L	1.0	1.3	2.2											
Turbidity	NTU	1.1	1.2	1.6											≤ 29
Zinc	mg/L														See Table 5-3, page 1

- Metal exceedences are based on hardness
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- AGM - Annual Geometric Mean
- TPTV - Ten Percent Threshold Value
- Narrative - Shall not cause an imbalance in flora and fauna

Table 5-4 **Monitoring Data** **Reporting Period October 2021 - September 2022**

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C-51 Watershed Monitoring Events

SITE 38B	SAMPLE DATE	11/29/21	1/20/22	3/24/22	5/17/22	7/20/22								Geometric Mean	Numeric Surface Water Quality Standard Criteria
PARAMETER	UNITS														
Alkalinity	mg/L														
Arsenic	mg/L	0.0017	0.0017	0.0017	0.0017	0.0017									≤ 0.05
Cadmium	mg/L	0.0002	0.0002	0.0002	0.0002	0.0002									See Table 5-3, page 2
Chlorophyll-a (corrected)	ug/L	25.3	10.7	7.7	16.3	11.9							13.2		≤ 20 AGM
Copper	mg/L	0.0013	0.0013	0.0013	0.0013	0.0013									See Table 5-3, page 2
Dissolved Oxygen	% Saturation	73.6	110.4	92.8	84.6	135.5									> 38
E. Coli	cfu/100mL														≤ 400 cfu/100ml TPTV
Lead	mg/L	0.0023	0.0023	0.0023	0.0023	0.0023									See Table 5-3, page 2
Nitrogen, Ammonia	mg/L	0.043	0.018	0.018	0.018	0.018									
Nitrogen, nitrate + nitrite	mg/L	0.094	0.086	0.120	0.27	0.036									
Nitrogen, Total	mg/L	0.92	1.29	2.02	1.57	1.14							1.3		Narrative
Nitrogen, Total Kjeldahl	mg/L	0.83	1.2	1.9	1.3	1.1									
pH	None	7.60	8.10	8.41	7.77	8.10									6.0 to 8.5
Phosphorus, orthophosphate	mg/L	0.0019	0.016	0.006	0.054	0.002									
Phosphorus, Total	mg/L	0.0360	0.0700	0.0700	0.13	0.0460							0.064		Narrative
Salinity	ppth														
Specific Conductivity	umho/cm	738	1471	1549	700	1207									≤ 1275
Temperature	deg C	21.5	20.4	25.0	28.0	32.8									
Total Hardness	mg/L	256	373	433	189	326									
Total Suspended Solids	mg/L	5.2	7.2	18.9	11.7	7.7									
Turbidity	NTU	4.3	4.6	10.0	9	3.0									≤ 29
Zinc	mg/L	0.0055	0.0055	0.0055	0.0055	0.0055									

• Metal exceedences are based on hardness

• Highlighted in "blue" are substituted values that were below the limits of detection. The value shown is the method detection limit provided with the data.

• Highlighted in "yellow" are sample values that exceed either the State Water Quality Standards for a specific parameter or Florida's Impaired Waters Rule criteria for chlorophyll-a.

• AGM - Annual Geometric Mean

• TPTV - Ten Percent Threshold Value

• Narrative - Shall not cause an imbalance in flora and fauna

Table 5-4 **Monitoring Data** **Reporting Period October 2021 - September 2022**

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C-51 Watershed Monitoring Events

SITE 37B	SAMPLE DATE	11/30/21	1/20/22	3/24/22	5/17/22	7/20/22								Geometric Mean	Numeric Surface Water Quality Standard Criteria
PARAMETER	UNITS														
Alkalinity	mg/L														
Arsenic	mg/L	0.0017	0.0017	0.0017	0.0017	0.0017									≤ 0.05
Cadmium	mg/L	0.0002	0.0002	0.0002	0.0002	0.0002									See Table 5-3, page 2
Chlorophyll-a (corrected)	ug/L	25.3	2.0	5.7	11.2	5.2							7.0		≤ 20 AGM
Copper	mg/L	0.0013	0.0013	0.0013	0.0013	0.0013									See Table 5-3, page 2
Dissolved Oxygen	% Saturation		86.0	92.5	113.9	112.7									> 38
E. Coli	cfu/100mL														≤ 400 cfu/100ml TPTV
Lead	mg/L	0.0023	0.0023	0.0023	0.0023	0.0023									See Table 5-3, page 2
Nitrogen, Ammonia	mg/L	0.054	0.018	0.018	0.018	0.018									
Nitrogen, nitrate + nitrite	mg/L	0.170	0.008	0.220	0.0075	0.008									
Nitrogen, Total	mg/L	0.74	0.11	0.32	0.11	0.11							0.2		Narrative
Nitrogen, Total Kjeldahl	mg/L	0.57	0.1	0.1	0.1	0.1									
pH	None		7.70	7.89	8.04	7.69									6.0 to 8.5
Phosphorus, orthophosphate	mg/L	0.0019	0.002	0.002	0.0019	0.002									
Phosphorus, Total	mg/L	0.0250	0.0047	0.0014	0.0014	0.0014							0.003		Narrative
Salinity	ppth														
Specific Conductivity	umho/cm		661	645	661	466.6									≤ 1275
Temperature	deg C		20.9	26.5	29.1	31.6									
Total Hardness	mg/L	239	163	0.255	0.255	0.255									
Total Suspended Solids	mg/L	0.5	0.5	2.5	5.9	2.5									
Turbidity	NTU	1.4	0.4	1.9	4.9	1.4									≤ 29
Zinc	mg/L	0.0055	0.0055	0.0055	0.0055	0.0055									See Table 5-3, page 2

• Metal exceedences are based on hardness

• Highlighted in "blue" are substituted values that were below the limits of detection. The value shown is the method detection limit provided with the data.

• Highlighted in "yellow" are sample values that exceed either the State Water Quality Standards for a specific parameter or Florida's Impaired Waters Rule criteria for chlorophyll-a.

• AGM - Annual Geometric Mean

• TPTV - Ten Percent Threshold Value

• Narrative - Shall not cause an imbalance in flora and fauna

Table 5-4 **Monitoring Data** **Reporting Period October 2021 - September 2022**

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C-51 Watershed Monitoring Events

SITE C51S155	SAMPLE DATE	10/12/21	11/9/21	1/4/22	2/1/22	3/1/22	4/12/22	5/10/22	6/7/22	7/5/22	8/2/22	9/13/22		Geometric Mean	Numeric Surface Water Quality Standard Criteria
PARAMETER	UNITS														
Alkalinity	mg/L														
Arsenic	mg/L														≤ 0.05
Cadmium	mg/L														See Table 5-3, page 2
Chlorophyll-a (corrected)	ug/L	9.1	7.7	0.0	14.3	7.3	0.008	15.2	37	10.8	6.72	23.5		3.3	≤ 20 AGM
Copper	mg/L	0.001		0.001			0.001			0.001				0.0010	See Table 5-3, page 2
Dissolved Oxygen	% Saturation														> 38
E. Coli	cfu/100mL														≤ 400 cfu/100ml TPTV
Lead	mg/L														See Table 5-3, page 2
Nitrogen, Ammonia	mg/L	0.095	0.109	0.003	0.025	0.007	0.003	0.007	0.029	0.055	0.003	0.003			
Nitrogen, nitrate + nitrite	mg/L	0.943	1.149	0.764	0.626	0.628	0.7855	1.197	0.784	0.808	0.7425	0.822			
Nitrogen, Total	mg/L	0.85	1.04	0.76	0.60	0.62	0.78	1.19	0.76	0.75	0.74	0.82		0.8	Narrative
Nitrogen, Total Kjeldahl	mg/L														
pH	None	7.20	7.40		7.80	8.00	7.80	8.00	7.50	7.40	7.60	7.80			6.0 to 8.5
Phosphorus, orthophosphate	mg/L	0.0210	0.018	0.001	0.001	0.001	0.001	0.018	0.004	0.017	0.003	0.001			
Phosphorus, Total	mg/L	0.0600	0.0470	0.0400	0.033	0.0460	0.069	0.0800	0.074	0.0500	0.05	0.0550		0.053	Narrative
Salinity	ppth														
Specific Conductivity	umho/cm	383	422		515	508	474	1028	467	514	496	477			≤ 1275
Temperature	deg C	27.1	23.2		18.1	24.2	23.8	26.5	28.6	29.6	30.0	30.9			
Total Hardness	mg/L	0.5		0.5			0.5			0.5					
Total Suspended Solids	mg/L	1.5	1.5	1.5	1.5	2.0	1.5	1.5	5	1.5	2	5.0			
Turbidity	NTU	2.2	1.8	0.1	1.6	2.0	0.05	1.8	2.8	1.7	2.2	2.6			≤ 29
Zinc	mg/L														See Table 5-3, page 2

- Metal exceedences are based on hardness
- Highlighted in "blue" are substituted values that were below the limits of detection. The value shown is the method detection limit provided with the data.
- Highlighted in "yellow" are sample values that exceed either the State Water Quality Standards for a specific parameter or Florida's Impaired Waters Rule criteria for chlorophyll-a.
- AGM - Annual Geometric Mean
- TPTV - Ten Percent Threshold Value
- Narrative - Shall not cause an imbalance in flora and fauna

Table 5-4
Monitoring Data
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Loxahatchee River Watershed Monitoring Events

SITE 69 (Lox)	SAMPLE DATE	10/11/21	11/8/21	1/18/22	2/15/22	3/14/22	4/13/22	5/17/22	6/14/22	7/19/22	8/9/22	9/14/22		Geometric Mean	Numeric Surface Water Quality Standard Criteria
PARAMETER	UNITS														
Alkalinity	mg/L	132	172	211	188	173	201	191	152	174	191	168			
Arsenic	mg/L														≤ 0.05
Cadmium	mg/L														See Table 5-3, page 2
Chlorophyll-a (corrected)	ug/L	2.4	1.9	27.8	2.3	1.3	2.3	1.2	5.6	3.1	1.8	2.0		2.7	≤ 20 AGM
Copper	mg/L														See Table 5-3, page 2
Dissolved Oxygen	% Saturation	42.2	48.0	55.0	61.9	58.0	65.8	54.6	47.1	41.0	54.8	39.4			> 38
E. Coli	cfu/100mL	96	62	75	20	52	20	41	10	122	74	148		0%	≤ 400 cfu/100ml TPTV
Lead	mg/L														See Table 5-3, page 2
Nitrogen, Ammonia	mg/L	0.070	0.080	0.050			0.040	0.080	0.050	0.080	0.080	0.160			
Nitrogen, nitrate + nitrite	mg/L	0.075	0.140	0.141	0.063	0.057	0.028	0.036	0.063	0.052	0.068	0.098			
Nitrogen, Total	mg/L	0.60	0.90	0.80	0.70	1.00	0.60	0.70	1.00	1.10	0.90	1.10		0.8	≤ 1.54 AGM
Nitrogen, Total Kjeldahl	mg/L	0.5	0.8	0.7	0.6	0.9	0.6	0.7	0.9	1	0.8	1			
pH	None	6.89	7.24	7.57	7.65	7.52	7.74	7.67	7.15	6.90	7.24	7.21			6.0 to 8.5
Phosphorus, orthophosphate	mg/L	0.0100	0.030	0.031	0.033	0.149	0.021	0.017	0.013	0.017	0.03	0.019			
Phosphorus, Total	mg/L	0.0380	0.0290	0.0330	0.021	0.0240	0.026	0.0270	0.041	0.0340	0.037	0.0330		0.031	≤ 0.12 mg/l AGM
Salinity	ppth	0.2	0.3	0.4	0.3	0.3	0.3	0.4	0.3	0.3	0.3	0.3			
Specific Conductivity	umho/cm	369	566	752	597	562	674	812	561	626	671	605			≤ 1275
Temperature	deg C	27.5	22.5	18.2	19.6	22.9	25.0	27.5	30.2	29.4	30.8	29.7			
Total Hardness	mg/L														
Total Suspended Solids	mg/L	1.8	0.8	2.4	0.8	0.9	1.1	0.7	1.3	0.7	1.2	1.4			
Turbidity	NTU	1.8	1.3	2.2	1.3	1.2	1.4	1.1	1.7	1.2	1.2				≤ 29
Zinc	mg/L														See Table 5-3, page 2

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- AGM - Annual Geometric Mean

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Monitoring Data
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Loxahatchee River Watershed Monitoring Events

SITE 51 (Lox)	SAMPLE DATE	10/12/21	11/9/21	1/19/22	2/23/22	3/30/22	4/14/22	5/19/22	7/20/22					Geometric Mean	Numeric Surface Water Quality Standard Criteria
PARAMETER	UNITS														
Alkalinity	mg/L	133		129			133		126						
Arsenic	mg/L														≤ 0.05
Cadmium	mg/L														≤ 0.0088
Chlorophyll-a (corrected)	ug/L	5.9		2.0			2.4		8.9					4.0	≤ 4 AGM
Copper	mg/L														≤ 0.0037
Dissolved Oxygen	% Saturation	77.7	95.6	92.7	100.7	98.6	95.9	90.1	101.7						> 42
E. Coli	cfu/100mL	226		10			10		20						≤ 43 cfu/100ml
Lead	mg/L														See Table 5-3, page 2
Nitrogen, Ammonia	mg/L	0.030		0.040			0.040		0.040						
Nitrogen, nitrate + nitrite	mg/L	0.024		0.013			0.004		0.004						
Nitrogen, Total	mg/L	0.20		0.30			0.20		0.70					0.30	≤ .8 AGM
Nitrogen, Total Kjeldahl	mg/L	0.2		0.3			0.2		0.7						
pH	None	7.95	7.83	7.81	7.73	7.93	7.78	7.83	7.77						6.0 to 8.5
Phosphorus, orthophosphate	mg/L	0.0110		0.020			0.018		0.005						
Phosphorus, Total	mg/L	0.0520		0.0130			0.019		0.032					0.025	≤ .03 AGM
Salinity	ppth	30.6	35.1	32.5	33	34.4	32.8	35.7	26.6						
Specific Conductivity	umho/cm	46904	53073	49543	50314	52253	50244.1	54194.4	41776						None
Temperature	deg C	27.7	22.4	20.3	24.4	25.2	27.8	28.6	31.8						
Total Hardness	mg/L														
Total Suspended Solids	mg/L	3.7		6.1			6		5.7						
Turbidity	NTU	2.8		3.0			3.8		4.3						≤ 29
Zinc	mg/L														See Table 5-3, page 2

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- Highlighted in "yellow" are sample values that exceed either the State Water Quality Standards for a specific parameter or Florida's Impaired Waters Rule criteria for chlorophyll-a.
- AGM - Annual Geometric Mean

Table 5-4
Monitoring Data
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Loxahatchee River Watershed Monitoring Events (Marine)

SITE 62 (Lox)	SAMPLE DATE	10/11/21	11/8/21	1/18/22	2/15/22	3/14/22	4/13/22	5/17/22	6/14/22	7/19/22	8/9/22	9/14/22		Geometric Mean	Numeric Surface Water Quality Standard Criteria
PARAMETER	UNITS														
Alkalinity	mg/L	140	142	144	146	176	157	142	114	171	164	101			
Arsenic	mg/L														≤ 0.05
Cadmium	mg/L														≤ 0.0088
Chlorophyll-a (corrected)	ug/L	3.6	2.9	1.9	2.4	1.8	4	4.3	89.8	3.6	4.2	2.0		4.0	≤ 5.5 AGM
Copper	mg/L														<0.0037
Dissolved Oxygen	% Saturation	58.1	80.1	73.3	80.3	85.1	76.4	66.2	83.2	53.4	70.1	48.5			> 42
E. Coli	cfu/100mL	327	85	119	121	189	30	63	359	109	146	74			≤ 43 cfu/100ml
Enterococci	cfu/100mL														≤ 130 cfu/100ml TPTV
Lead	mg/L														≤ 0.0085
Nitrogen, Ammonia	mg/L	0.030	0.040	0.040			0.040	0.040	0.040	0.060	0.040	0.050			
Nitrogen, nitrate + nitrite	mg/L	0.094	0.054	0.071	0.077	0.004	0.007	0.011	0.01	0.061	0.008	0.033			
Nitrogen, Total	mg/L	0.50	0.60	0.50	0.50	0.70	0.20	0.40	1.30	0.90	0.70	0.60		0.57	≤ 1.26 AGM
Nitrogen, Total Kjeldahl	mg/L	0.4	0.5	0.4	0.4	0.7	0.2	0.4	1.3	0.8	0.7	0.6			
pH	None	7.52	7.68	7.88	7.72	7.69	7.55	7.32	7.45	7.37	31.30	7.49			6.5 to 8.5
Phosphorus, orthophosphate	mg/L	0.0310	0.035	0.041	0.051	0.023	0.022	0.018	0.019	0.050	0.037	0.036			
Phosphorus, Total	mg/L	0.0490	0.0320	0.0320	0.031	0.0440	0.043	0.0550	0.08	0.0600	0.051	0.0450		0.046	≤ 0.075 AGM
Salinity	ppth	9.6	27	11.2	14.3	21.2	15.5	22.3	1.9	7.4	16.4	19.2			
Specific Conductivity	umho/cm	16487	36836	18740	23627	33777	25551.8	35482.8	3652	12943	26995	31092			None
Temperature	deg C	27.0	22.7	19.0	24.2	25.7	27.5	28.8	30.8	29.6	7.5	30.1			
Total Hardness	mg/L														
Total Suspended Solids	mg/L	3.2	8.2	2.7	3.6	4.2	4.4	11.5	4.7	3.3	3.3	3.8			
Turbidity	NTU	3.1	2.2	2.0	2	2.2	2.6	3.3	3.3	2.7	2.7				≤ 29
Zinc	mg/L														≤ 0.086

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- AGM - Annual Geometric Mean

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Monitoring Data
Reporting Period October 2021 - September 2022
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Loxahatchee River Watershed Monitoring Events (Marine)

SITE 72	SAMPLE DATE	10/12/21	11/8/21	1/19/22	2/15/22	3/14/22	4/14/22	5/17/22	6/14/22	7/20/22	8/9/22	9/14/22		Geometric Mean	Numeric Surface Water Quality Standard Criteria
PARAMETER	UNITS														
Alkalinity	mg/L	140	135	141	137	143	148	134	129	142	141	132			
Arsenic	mg/L														≤ 0.05
Cadmium	mg/L														≤ 0.0088
Chlorophyll-a (corrected)	ug/L	35.0	2.9	3.2	4.9	12.4	14	8.0	11.1	9.3	12.9	9.4		8.9	≤ 5.5 AGM
Copper	mg/L														<0.0037
Dissolved Oxygen	% Saturation	62.1	88.3	76.0	89.0	87.7	86.4	91.6	84.1	72.7	77.9	66.9			> 42
E. Coli	cfu/100mL	1017	63	211	75	110	397	52	295	459	187	74			≤ 43 cfu/100ml
Enterococci	cfu/100mL														≤ 130 cfu/100ml TPTV
Lead	mg/L														≤ 0.0085
Nitrogen, Ammonia	mg/L	0.110	0.030	0.130			0.150	0.050	0.040	0.040	0.130	0.180			
Nitrogen, nitrate + nitrite	mg/L	0.037	0.027	0.050	0.028	0.005	0.056	0.015	0.005	0.020	0.024	0.023			
Nitrogen, Total	mg/L	0.30	0.30	0.60	0.70	0.60	0.70	0.20	0.60	0.80	1.00	0.20		0.48	≤ 1.26 AGM
Nitrogen, Total Kjeldahl	mg/L	0.3	0.3	0.5	0.7	0.6	0.6	0.2	0.6	0.8	1	0.2			
pH	None	7.58	7.85	7.84	7.74	7.82	7.78	7.80	7.75	7.72	30.70	7.74			6.5 to 8.5
Phosphorus, orthophosphate	mg/L	0.0170	0.025	0.049	0.039	0.020	0.029	0.003	0.005	0.008	0.015	0.008			
Phosphorus, Total	mg/L	0.0660	0.0220	0.0340	0.025	0.0300	0.03	0.0190	0.026	0.0420	0.037	0.0290		0.031	≤ 0.075 AGM
Salinity	ppth	18	31.9	27.2	31	29.1	26.1	35.1	27.7	30.9	27	32			
Specific Conductivity	umho/cm	29134	48705	42239	47595	44884	46305	53346	43271	47749	42223	49160			None
Temperature	deg C	27.4	22.5	20.2	20.9	21.8	26.1	27.5	30.0	31.6	7.7	30.1			
Total Hardness	mg/L														
Total Suspended Solids	mg/L	8.1	4.0	8.0	6.5	21.6	3.6	11.0	3.2	4.2	14.2	7.4			
Turbidity	NTU	3.4	3.0	2.4	4.1	7.4	2.5	3.2	2.5	3.4	5				≤ 29
Zinc	mg/L														≤ 0.086

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- AGM - Annual Geometric Mean
- Narrative - Shall not cause an imbalance in flora and fauna

Table 5-4
Monitoring Data
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ICWW-N Watershed Monitoring Events

SITE 30 (Lox)	SAMPLE DATE	10/12/21	11/9/21	1/19/22	2/23/22	3/30/22	4/12/22	5/19/22	7/20/22					Geometric Mean	Numeric Surface Water Quality Standard Criteria
PARAMETER	UNITS														
Alkalinity	mg/L	126		130			127		133						
Arsenic	mg/L														≤ 0.05
Cadmium	mg/L														≤ 0.0088
Chlorophyll-a (corrected)	ug/L	5.6		2.3			2.2		5					3.5	≤ 4.7 AGM
Copper	mg/L														<0.0037
Dissolved Oxygen	% Saturation	73.3	92.3	83.2	86.0	86.1	83.7	86.9	87.7						> 42
Enterococci	cfu/100mL	262		20					20						≤ 130 cfu/100ml TPTV
Lead	mg/L														≤ 0.0085
Nitrogen, Ammonia	mg/L	0.030		0.040			0.040		0.040						
Nitrogen, nitrate + nitrite	mg/L	0.037		0.035			0.004		0.004						
Nitrogen, Total	mg/L	0.20		0.30			0.20		0.50					0.28	≤ 0.66 AGM
Nitrogen, Total Kjeldahl	mg/L	0.2		0.3			0.2		0.5						
pH	None	7.67	7.67	7.68	7.56	7.70	7.60	7.77	7.77						6.5 to 8.5
Phosphorus, orthophosphate	mg/L	0.0150		0.023			0.017		0.007						
Phosphorus, Total	mg/L	0.0280		0.0170			0.027		0.024					0.024	≤ 0.035 AGM
Salinity	ppth	30.1	36.3	32.2	34.8	33.7	33.2	36.4	32.9						
Specific Conductivity	umho/cm	46231	54753	49157	52722	51306	50645.2	55083.1	50447						None
Temperature	deg C	26.8	22.2	20.0	23.7	25.0	27.4	29.0	31.0						
Total Hardness	mg/L														
Total Suspended Solids	mg/L	4.9		5.7			11.3		6						
Turbidity	NTU	2.8		3.1			3.9		2.6						≤ 29
Zinc	mg/L														≤ 0.086

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 • Highlighted in "yellow" are sample values that exceed either the State Water Quality Standards for a specific parameter or Florida's Impaired Waters Rule criteria for chlorophyll-a.

• TPTV - Ten Percent Threshold Value

• AGM - Annual Geometric Mean

• Narrative - Shall not cause an imbalance in flora and fauna

Table 5-4
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Lake Worth Lagoon North Watershed Monitoring Events (Marine)

SITE LWL-1	SAMPLE DATE	4/28/22	7/14/22											Geometric Mean	Numeric Surface Water Quality Standard Criteria
PARAMETER	UNITS														
Alkalinity	mg/L														
Arsenic	mg/L	0.0058	0.0170											0.0099	≤ 0.05
Cadmium	mg/L	0.0016	0.0003											0.0007	≤ 0.0088
Chlorophyll-a (corrected)	ug/L														≤ 2.9 AGM
Copper	mg/L	0.0026	0.0130												≤ 0.0037
Dissolved Oxygen	% Saturation														> 42
Enterococci	cfu/100mL														≤ 130 cfu/100ml TPTV
Lead	mg/L	0.0230	0.0046												≤ 0.0085
Nitrogen, Ammonia	mg/L														
Nitrogen, nitrate + nitrite	mg/L														
Nitrogen, Total	mg/L														≤ 0.54 AGM
Nitrogen, Total Kjeldahl	mg/L														
pH	None														6.5 to 8.5
Phosphorus, orthophosphate	mg/L														
Phosphorus, Total	mg/L														≤ 0.044 AGM
Salinity	ppth														
Specific Conductivity	umho/cm														None
Temperature	deg C														
Total Hardness	mg/L														
Total Suspended Solids	mg/L														
Turbidity	NTU														≤ 29
Zinc	mg/L	0.0110	0.0110											0.0110	≤ 0.086

- Highlighted in "blue" are substituted values that were below the limits of detection. The value shown is the method detection limit provided with the data.
- Highlighted in "yellow" are sample values that exceed either the State Water Quality Standards for a specific parameter or Florida's Impaired Waters Rule criteria for chlorophyll-a.
- AGM - Annual Geometric Mean
- TPTV - Ten Percent Threshold Value
- Narrative - Shall not cause an imbalance in flora and fauna

Table 5-4 **Monitoring Data** **Reporting Period October 2022 - September 2023**

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Lake Worth Lagoon North Watershed Monitoring Events (Marine)

SITE 11	SAMPLE DATE	11/18/21	1/13/22	2/3/22	3/29/22	4/28/22	5/25/22	6/9/22	7/14/22	8/11/22	9/22/22			Geometric Mean	Numeric Surface Water Quality Standard Criteria
PARAMETER	UNITS														
Alkalinity	mg/L										133				
Arsenic	mg/L	0.0190		0.0017	0.0034		0.0085	0.0017	0.0017	0.0017					≤ 0.05
Cadmium	mg/L	0.0002		0.0002	0.0002		0.0008	0.0002	0.0002	0.0002					≤ 0.0088
Chlorophyll-a (corrected)	ug/L	1.8	1.9	1.5	2.4	2.6	0.5	5.8	0.5	1.9	8.9		1.948		≤ 2.9 AGM
Copper	mg/L	0.0013		0.0013	0.0013		0.0013	0.0034	0.0065	0.0027					≤ 0.0037
Dissolved Oxygen	% Saturation	89.1	87.2	100.2	95.6	95.1	95.1	93.8	102.3	99.3	72.0				> 42
Enterococci	cfu/100mL														≤ 130 cfu/100ml TPTV
Lead	mg/L	0.0023		0.0023	0.0046		0.0115	0.0023	0.0023	0.0011					≤ 0.0085
Nitrogen, Ammonia	mg/L	0.018	0.037	0.018	0.018	0.018	0.018	0.018	0.018	0.018	0.082				
Nitrogen, nitrate + nitrite	mg/L	0.041	0.057	0.008	0.0075	0.008	0.026	0.008	0.0075	0.008	0.034				
Nitrogen, Total	mg/L	0.39	0.38	0.11	0.27	0.26	0.32	0.11	0.29	0.42	0.64		0.28		≤ 0.54 AGM
Nitrogen, Total Kjeldahl	mg/L	0.35	0.32	0.1	0.26	0.25	0.29	0.1	0.28	0.41	0.61				
pH	None	7.82	7.76	7.92	7.92	7.89	7.84	7.84	7.87	7.96	7.89				6.5 to 8.5
Phosphorus, orthophosphate	mg/L	0.0120	0.014	0.002	0.0049	0.006	0.0062	0.002	0.0054	0.004	0.0082				
Phosphorus, Total	mg/L	0.0180	0.0240	0.0014	0.016	0.0029	0.018	0.0210	0.015	0.0190	0.046		0.013		≤ 0.044 AGM
Salinity	ppth	30.76	30.86	32.47		33.91	34.27	24.51	33.03	35.27	27.79				
Specific Conductivity	umho/cm	47259	47366	49539	51359	51661	52243	38695	50668	53681	40524				None
Temperature	deg C	23.7	22.3	19.9	24.9	26.8	29.3	28.8	31.6	31.2	30.3				
Total Hardness	mg/L														
Total Suspended Solids	mg/L														
Turbidity	NTU	0.9	1.1	0.8	1.4	0.1	1.3	1.2	1	1.2	0.1				≤ 29
Zinc	mg/L	0.0055		0.0055	0.0055		0.0055	0.0055	0.0055	0.0055					≤ 0.086

- Highlighted in "blue" are substituted values that were below the limits of detection. The value shown is the method detection limit provided with the data.
- Highlighted in "yellow" are sample values that exceed either the State Water Quality Standards for a specific parameter or Florida's Impaired Waters Rule criteria for chlorophyll-a.
- AGM - Annual Geometric Mean
- Narrative - Shall not cause an imbalance in flora and fauna

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Lake Worth Lagoon North Watershed Monitoring Events (Marine)

SITE 13	SAMPLE DATE	11/18/21	1/13/22	2/3/22	3/29/22	4/28/22	5/25/22	6/9/22	7/14/22	8/11/22	9/22/22			Geometric Mean	Numeric Surface Water Quality Standard Criteria
PARAMETER	UNITS														
Alkalinity	mg/L										132				
Arsenic	mg/L	0.0017		0.0017	0.0034		0.0017	0.0017	0.0017	0.0017					≤ 0.05
Cadmium	mg/L	0.0002		0.0002	0.0002		0.0008	0.0002	0.0002	0.0002					≤ 0.0088
Chlorophyll-a (corrected)	ug/L	1.9	2.2	1.2	2.9	3.3	1.3	4.1	3.3	1.8	2.9			2.3	≤ 2.9 AGM
Copper	mg/L	0.0013		0.0130	0.0013		0.0013	0.0013	0.0013	0.0013					≤ 0.0037
Dissolved Oxygen	% Saturation	90.5	94.1	100.8	96.6	92.9	92.3	74.0	102.5	101.2	87.5				> 42
Enterococci	cfu/100mL														≤ 130 cfu/100ml TPTV
Lead	mg/L	0.0023		0.0023	0.0046		0.0115	0.0023	0.0023	0.0011					≤ 0.0085
Nitrogen, Ammonia	mg/L	0.018	0.018	0.018	0.018	0.018	0.018	0.018	0.018	0.018	0.078				
Nitrogen, nitrate + nitrite	mg/L	0.008	0.008	0.008	0.0075	0.008	0.0075	0.008	0.0075	0.008	0.03				
Nitrogen, Total	mg/L	0.05	0.11	0.38	0.31	0.11	0.32	0.11	0.38	0.11	0.45			0.18	≤ 0.54 AGM
Nitrogen, Total Kjeldahl	mg/L	0.043	0.1	0.37	0.3	0.1	0.31	0.1	0.37	0.1	0.42				
pH	None	7.82	7.84	7.97	7.93	7.84	7.80	7.78	7.85	7.94	7.04				6.5 to 8.5
Phosphorus, orthophosphate	mg/L	0.0019	0.002	0.007	0.0078	0.002	0.0082	0.002	0.0019	0.002	0.0066				
Phosphorus, Total	mg/L	0.0014	0.0014	0.0160	0.02	0.0014	0.023	0.0014	0.0036	0.0014	0.021			0.004	≤ 0.044 AGM
Salinity	ppth	31.5	32.21	32.07	28.6	31.92	33.58	24.51	31.02	34.45	27.73				
Specific Conductivity	umho/cm	48279	49217	48993	43921	48966	51322	38698	47830	52595	43292				None
Temperature	deg C	23.8	22.3	20.4	25.5	27.3	29.5	28.8	31.8	31.5	30.2				
Total Hardness	mg/L														
Total Suspended Solids	mg/L														
Turbidity	NTU	1.7	0.9	1.0	1.8	0.4	1.5	0.1	1.3	0.1	0.1				≤ 29
Zinc	mg/L	0.0055		0.0055	0.0055		0.0055	0.0055	0.0055	0.0055					≤ 0.086

- Highlighted in "blue" are substituted values that were below the limits of detection. The value shown is the method detection limit provided with the data.
- Highlighted in "yellow" are sample values that exceed either the State Water Quality Standards for a specific parameter or Florida's Impaired Waters Rule criteria for chlorophyll-a.
- AGM - Annual Geometric Mean
- Narrative - Shall not cause an imbalance in flora and fauna

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Lake Worth Lagoon North Watershed Monitoring Events (Marine)

SITE LWL-4	SAMPLE DATE	4/28/22	7/14/22											Geometric Mean	Numeric Surface Water Quality Standard Criteria
PARAMETER	UNITS														
Alkalinity	mg/L														
Arsenic	mg/L	0.0034	0.0034											0.0034	≤ 0.05
Cadmium	mg/L	0.0016	0.0003											0.0007	≤ 0.0088
Chlorophyll-a (corrected)	ug/L														≤ 2.9 AGM
Copper	mg/L	0.0026	0.0026											0.0026	≤ 0.0037
Dissolved Oxygen	% Saturation														> 42
Enterococci	cfu/100mL														≤ 130 cfu/100ml TPTV
Lead	mg/L	0.0230	0.0046											0.0103	≤ 0.0085
Nitrogen, Ammonia	mg/L														
Nitrogen, nitrate + nitrite	mg/L														
Nitrogen, Total	mg/L														≤ 0.54 AGM
Nitrogen, Total Kjeldahl	mg/L														
pH	None														6.5 to 8.5
Phosphorus, orthophosphate	mg/L														
Phosphorus, Total	mg/L														≤ 0.044 AGM
Salinity	ppth														
Specific Conductivity	umho/cm														None
Temperature	deg C														
Total Hardness	mg/L														
Total Suspended Solids	mg/L														
Turbidity	NTU														≤ 29
Zinc	mg/L	0.0110	0.0110											0.0110	≤ 0.086

- Highlighted in "blue" are substituted values that were below the limits of detection. The value shown is the method detection limit provided with the data.
- Highlighted in "yellow" are sample values that exceed either the State Water Quality Standards for a specific parameter or Florida's Impaired Waters Rule criteria for chlorophyll-a.
- AGM - Annual Geometric Mean
- TPTV - Ten Percent Threshold Value
- Narrative - Shall not cause an imbalance in flora and fauna

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Lake Worth Lagoon Central Watershed Monitoring Events (Marine)

SITE LWL-8	SAMPLE DATE	7/13/22												AGM or %>TPTV	Numeric Surface Water Quality Standard Criteria
PARAMETER	UNITS														
Alkalinity	mg/L														
Arsenic	mg/L	0.0034													≤ 0.05
Cadmium	mg/L	0.0003													≤ 0.0088
Chlorophyll-a (corrected)	ug/L														≤ 10.2 TPTV
Copper	mg/L	0.0026													≤ 0.0037
Dissolved Oxygen	% Saturation														> 42
Enterococci	cfu/100mL														≤ 130 cfu/100ml TPTV
Lead	mg/L	0.0046													≤ 0.0085
Nitrogen, Ammonia	mg/L														
Nitrogen, nitrate + nitrite	mg/L														
Nitrogen, Total	mg/L														≤ 0.66 AGM
Nitrogen, Total Kjeldahl	mg/L														
pH	None														6.5 to 8.5
Phosphorus, orthophosphate	mg/L														
Phosphorus, Total	mg/L														≤ 0.049 AGM
Salinity	ppth														
Specific Conductivity	umho/cm														None
Temperature	deg C														
Total Hardness	mg/L														
Total Suspended Solids	mg/L														
Turbidity	NTU														≤ 29
Zinc	mg/L	0.0110													≤ 0.086

- Highlighted in "blue" are substituted values that were below the limits of detection. The value shown is the method detection limit provided with the data.
- Highlighted in "yellow" are sample values that exceed either the State Water Quality Standards for a specific parameter or Florida's Impaired Waters Rule criteria for chlorophyll-a.
- TPTV - Ten Percent Threshold Value
- AGM - Annual Geometric Mean • Narrative - Shall not cause an imbalance in flora and fauna

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Lake Worth Lagoon Central Watershed Monitoring Events (Marine)

SITE 18C	SAMPLE DATE	10/13/21	11/17/21	1/12/22	2/3/22	3/29/22	4/27/22	5/25/22	6/8/22	7/13/22	8/10/22			AGM or %>TPTV	Numeric Surface Water Quality Standard Criteria
PARAMETER	UNITS														
Alkalinity	mg/L														
Arsenic	mg/L	0.0017	0.0017		0.0017	0.0034		0.0017	0.0017	0.0017	0.0017				≤ 0.05
Cadmium	mg/L	0.0002	0.0002		0.0002	0.0002		0.0008	0.0002	0.0002	0.0002				≤ 0.0088
Chlorophyll-a (corrected)	ug/L	4.0	1.9	1.8	1.5	3.4	4.3	2.0	15.9	3.3	4.3			10%	≤ 10.2 TPTV
Copper	mg/L	0.0013	0.0013		0.013	0.0013		0.0013	0.0013	0.0013	0.0013				≤ 0.0037
Dissolved Oxygen	% Saturation	79.0	94.2	92.7	99.1	105.3	94.6	101.2	86.4	78.4	82.5				> 42
Enterococci	cfu/100mL														≤ 130 cfu/100ml TPTV
Lead	mg/L	0.0023	0.0023		0.0023	0.0046		0.0115	0.0023	0.0023	0.0023				≤ 0.0085
Nitrogen, Ammonia	mg/L	0.018	0.018	0.018	0.018	0.018	0.018	0.018	0.018	0.018	0.018				
Nitrogen, nitrate + nitrite	mg/L	0.008	0.008	0.008	0.0075	0.008	0.0075	0.008	0.0075	0.008	0.0075				
Nitrogen, Total	mg/L	0.05	0.05	0.11	0.39	0.44	0.52	0.42	0.11	0.11	0.11			0.162	≤ 0.66 AGM
Nitrogen, Total Kjeldahl	mg/L	0.043	0.043	0.1	0.38	0.43	0.51	0.41	0.1	0.1	0.1				
pH	None	7.60	7.72	7.74	7.90	7.74	7.76	7.82	7.82	7.86	7.73				6.5 to 8.5
Phosphorus, orthophosphate	mg/L	0.0019	0.002	0.002	0.009	0.009	0.0019	0.002	0.0019	0.002	0.0019				
Phosphorus, Total	mg/L	0.0014	0.0014	0.0014	0.033	0.0520	0.0014	0.0440	0.0014	0.0014	0.0014			0.004	≤ 0.049 AGM
Salinity	ppth	21.46	27.24	30.8	32.75	35.26	35.32	32.99	16.22	32.34	35.15				
Specific Conductivity	umho/cm	34278	43374	47263	49923	53200	53548	50505	26606	49738	53528				None
Temperature	deg C														
Total Hardness	mg/L														
Total Suspended Solids	mg/L														
Turbidity	NTU	33.0	10.0	17.0	5.1	12.0	11	10.0	8.2	7.0	0.1				≤ 29
Zinc	mg/L	0.0055	0.0055		0.0055	0.0055		0.0055	0.0055	0.0055	0.0055				≤ 0.086

- Highlighted in "blue" are substituted values that were below the limits of detection. The value shown is the method detection limit provided with the data.
- Highlighted in "yellow" are sample values that exceed either the State Water Quality Standards for a specific parameter or Florida's Impaired Waters Rule criteria for chlorophyll-a.
- TPTV - Ten Percent Threshold Value
- AGM - Annual Geometric Mean

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Lake Worth Lagoon Central Watershed Monitoring Events (Marine)

SITE 18D	SAMPLE DATE	10/13/21	11/17/21	1/12/22	2/3/22	3/29/22	4/27/22	5/25/22	6/8/22	7/13/22	8/10/22			AGM or %>TPTV	Numeric Surface Water Quality Standard Criteria
PARAMETER	UNITS														
Alkalinity	mg/L														
Arsenic	mg/L	0.0017	0.0085		0.0017	0.0017		0.0017	0.0017	0.0085	0.0017				≤ 0.05
Cadmium	mg/L	0.0002	0.0008		0.0002	0.0002		0.0002	0.0002	0.0002	0.0002				≤ 0.0088
Chlorophyll-a (corrected)	ug/L	7.7	1.7	2.3	1.1	3.0	2.6	2.7	15	2.1	3.8			10%	≤ 10.2 TPTV
Copper	mg/L	0.0013	0.0065		0.0013	0.0013		0.0013	0.0013	0.0013	0.0013				≤ 0.0037
Dissolved Oxygen	% Saturation	74.0	97.4	96.0	102.7	99.8	94.1	104.2	118.4	102.0	90.8				> 42
Enterococci	cfu/100mL														≤ 130 cfu/100ml TPTV
Lead	mg/L	0.0023	0.0115		0.0023	0.0023		0.0023	0.0023	0.0023	0.0023				≤ 0.0085
Nitrogen, Ammonia	mg/L	0.018	0.018	0.018	0.018	0.018	0.018	0.018	0.018	0.018	0.018				
Nitrogen, nitrate + nitrite	mg/L	0.023	0.049	0.068	0.0075	0.008	0.029	0.008	0.0075	0.008	0.0075				
Nitrogen, Total	mg/L														≤ 0.66 AGM
Nitrogen, Total Kjeldahl	mg/L	0.45	0.34	0.38	0.34	0.1	0.67	0.1	0.52	0.26	0.34				
pH	None	7.70	7.80	7.71	7.85	7.81	7.74	7.87	8.10	7.89	7.72				6.5 to 8.5
Phosphorus, orthophosphate	mg/L	0.0047	0.011	0.020	0.0086	0.002	0.0098	0.002	0.0019	0.011	0.0066				
Phosphorus, Total	mg/L	0.0430	0.0280	0.0470	0.021	0.0014	0.038	0.0014	0.042	0.0250	0.032			0.018	≤ 0.049 AGM
Salinity	ppth	25.74	27.1	30.6	32.3	35.43	35.34	32.96	15.74	32.28	35.04				
Specific Conductivity	umho/cm	40409	42174	46995	49312	53689	53558	50479	25868	49656	53349				None
Temperature	deg C														
Total Hardness	mg/L														
Total Suspended Solids	mg/L														
Turbidity	NTU	7.4	5.0	6.7	2.6	8.4	5.8	7.7	5.3	1.5	3.1				≤ 29
Zinc	mg/L	0.0055	0.0275		0.0055	0.0055		0.0055	0.0055	0.0055	0.0055				≤ 0.086

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- Highlighted in "yellow" are sample values that exceed either the State Water Quality Standards for a specific parameter or Florida's Impaired Waters Rule criteria for chlorophyll-a.
- TPTV - Ten Percent Threshold Value
- AGM - Annual Geometric Mean
- Narrative - Shall not cause an imbalance in flora and fauna

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Lake Worth Lagoon Central Watershed Monitoring Events (Marine)

SITE LWL-11	SAMPLE DATE	4/27/22	7/13/22											AGM or %>TPTV	Numeric Surface Water Quality Standard Criteria
PARAMETER	UNITS														
Alkalinity	mg/L														
Arsenic	mg/L	0.0034	0.0170												≤ 0.05
Cadmium	mg/L	0.0016	0.0003												≤ 0.0088
Chlorophyll-a (corrected)	ug/L														≤ 10.2 TPTV
Copper	mg/L	0.0026	0.0026												≤ 0.0037
Dissolved Oxygen	% Saturation														> 42
Enterococci	cfu/100mL														≤ 130 cfu/100ml TPTV
Lead	mg/L	0.0046	0.0046												≤ 0.0085
Nitrogen, Ammonia	mg/L														
Nitrogen, nitrate + nitrite	mg/L														
Nitrogen, Total	mg/L														≤ 0.66 AGM
Nitrogen, Total Kjeldahl	mg/L														
pH	None														6.5 to 8.5
Phosphorus, orthophosphate	mg/L														
Phosphorus, Total	mg/L														≤ 0.049 AGM
Salinity	ppth														
Specific Conductivity	umho/cm														None
Temperature	deg C														
Total Hardness	mg/L														
Total Suspended Solids	mg/L														
Turbidity	NTU														≤ 29
Zinc	mg/L	0.0110	0.0110												≤ 0.086

- Highlighted in "blue" are substituted values that were below the limits of detection. The value shown is the method detection limit provided with the data.
- Highlighted in "yellow" are sample values that exceed either the State Water Quality Standards for a specific parameter or Florida's Impaired Waters Rule criteria for chlorophyll-a.
- AGM - Annual Geometric Mean

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ICWW-S Watershed Monitoring Events (Marine)

SITE LWL-13	SAMPLE DATE	4/26/22	7/12/22											AGM	Numeric Surface Water Quality Standard Criteria
PARAMETER	UNITS														
Alkalinity	mg/L														
Arsenic	mg/L	0.0034	0.0034												≤ 0.05
Cadmium	mg/L	0.0016	0.0003												≤ 0.0088
Chlorophyll-a (corrected)	ug/L														≤ 5.7 AGM
Copper	mg/L	0.0026	0.0026										0.0026		≤ 0.0037
Dissolved Oxygen	% Saturation														> 42
Enterococci	cfu/100mL														≤ 130 cfu/100ml TPTV
Lead	mg/L	0.0230	0.0046												≤ 0.0085
Nitrogen, Ammonia	mg/L														
Nitrogen, nitrate + nitrite	mg/L														
Nitrogen, Total	mg/L														≤ 0.59 AGM
Nitrogen, Total Kjeldahl	mg/L														
pH	None														6.5 to 8.5
Phosphorus, orthophosphate	mg/L														
Phosphorus, Total	mg/L														≤ 0.050 AGM
Salinity	ppth														
Specific Conductivity	umho/cm														None
Temperature	deg C														
Total Hardness	mg/L														
Total Suspended Solids	mg/L														
Turbidity	NTU														≤ 29
Zinc	mg/L	0.0110	0.0110												≤ 0.086

• Highlighted in "blue" are substituted values that were below the limits of detection. The value shown is the method detection limit provided with the data.

• Highlighted in "yellow" are sample values that exceed either the State Water Quality Standards for a specific parameter or Florida's Impaired Waters Rule criteria for chlorophyll-a.

• AGM - Annual Geometric Mean

• TPTV - Ten Percent Threshold Value

• Narrative - Shall not cause an imbalance in flora and fauna

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ICWW-S Watershed Monitoring Events (Marine)

SITE LWL-18	SAMPLE DATE	4/26/22	7/12/22											Geometric Mean	Numeric Surface Water Quality Standard Criteria
PARAMETER	UNITS														
Alkalinity	mg/L														
Arsenic	mg/L	0.0034	0.0170											0.0076	≤ 0.05
Cadmium	mg/L	0.0016	0.0003											0.0007	≤ 0.0088
Chlorophyll-a (corrected)	ug/L														≤ 5.7 AGM
Copper	mg/L	0.0130	0.0130												≤ 0.0037
Dissolved Oxygen	% Saturation														> 42
Enterococci	cfu/100mL														≤ 130 cfu/100ml TPTV
Lead	mg/L	0.0046	0.0046												≤ 0.0085
Nitrogen, Ammonia	mg/L														
Nitrogen, nitrate + nitrite	mg/L														
Nitrogen, Total	mg/L														≤ 0.59 AGM
Nitrogen, Total Kjeldahl	mg/L														
pH	None														6.5 to 8.5
Phosphorus, orthophosphate	mg/L														
Phosphorus, Total	mg/L														≤ 0.050 AGM
Salinity	ppth														
Specific Conductivity	umho/cm														None
Temperature	deg C														
Total Hardness	mg/L														
Total Suspended Solids	mg/L														
Turbidity	NTU														≤ 29
Zinc	mg/L	0.0110	0.0550											0.0246	≤ 0.086

- Highlighted in "blue" are substituted values that were below the limits of detection. The value shown is the method detection limit provided with the data.
- Highlighted in "yellow" are sample values that exceed either the State Water Quality Standards for a specific parameter or Florida's Impaired Waters Rule criteria for chlorophyll-a.
- AGM - Annual Geometric Mean
- TPTV - Ten Percent Threshold Value
- Narrative - Shall not cause an imbalance in flora and fauna

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Hillsboro Watershed Monitoring Events

SITE 1	SAMPLE DATE	11/9/21	3/16/22											Geometric Mean	Numeric Surface Water Quality Standard Criteria
PARAMETER	UNITS														
Alkalinity	mg/L														
Arsenic	mg/L														≤ 0.05
Cadmium	mg/L														≤ 0.0088
Chlorophyll-a (corrected)	ug/L	4.2	3.4										3.7		≤ 11 AGM
Copper	mg/L														≤ 0.0037
Dissolved Oxygen	% Saturation	34.6	44.1												> 42
Enterococci	cfu/100mL														≤ 130 cfu/100ml TPTV
Lead	mg/L														≤ 0.0085
Nitrogen, Ammonia	mg/L														
Nitrogen, nitrate + nitrite	mg/L														
Nitrogen, Total	mg/L	0.93	0.40										0.6		Narrative
Nitrogen, Total Kjeldahl	mg/L														
pH	None														6.5 to 8.5
Phosphorus, orthophosphate	mg/L														
Phosphorus, Total	mg/L	0.1280	0.1610										0.144		Narrative
Salinity	ppth	12	22.6												
Specific Conductivity	umho/cm	19800	35800												None
Temperature	deg C														
Total Hardness	mg/L														
Total Suspended Solids	mg/L														
Turbidity	NTU	1.2	1.5												≤ 29
Zinc	mg/L														≤ 0.086

- Highlighted in "blue" are substituted values that were below the limits of detection. The value shown is the method detection limit provided with the data.
- Highlighted in "yellow" are sample values that exceed either the State Water Quality Standards for a specific parameter or Florida's Impaired Waters Rule criteria for chlorophyll-a.
- AGM - Annual Geometric Mean
- Narrative - Shall not cause an imbalance in flora and fauna

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Hillsboro Watershed Monitoring Events

SITE 2	SAMPLE DATE	11/16/21	3/23/22											Geometric Mean	Numeric Surface Water Quality Standard Criteria
PARAMETER	UNITS														
Alkalinity	mg/L														
Arsenic	mg/L														≤ 0.05
Cadmium	mg/L														≤ 0.0088
Chlorophyll-a (corrected)	ug/L	7.5	6.2										6.8		≤ 11 AGM
Copper	mg/L														≤ 0.0037
Dissolved Oxygen	% Saturation	34.8	53.1										43.0		> 42
Enterococci	cfu/100mL														≤ 130 cfu/100ml TPTV
Lead	mg/L														≤ 0.0085
Nitrogen, Ammonia	mg/L														
Nitrogen, nitrate + nitrite	mg/L														
Nitrogen, Total	mg/L	1.12	0.92										1.0		Narrative
Nitrogen, Total Kjeldahl	mg/L														
pH	None														6.5 to 8.5
Phosphorus, orthophosphate	mg/L														
Phosphorus, Total	mg/L	0.1420	0.0830										0.109		Narrative
Salinity	ppth	0.29	0.36										0.32		
Specific Conductivity	umho/cm	591	742										662		None
Temperature	deg C														
Total Hardness	mg/L														
Total Suspended Solids	mg/L														
Turbidity	NTU	0.9	1.1										1.0		≤ 29
Zinc	mg/L														≤ 0.086

• Highlighted in "blue" are substituted values that were below the limits of detection. The value shown is the method detection limit provided with the data.

• Highlighted in "yellow" are sample values that exceed either the State Water Quality Standards for a specific parameter or Florida's Impaired Waters Rule criteria for chlorophyll-a.

• AGM - Annual Geometric Mean

• Narrative - Shall not cause an imbalance in flora and fauna

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Hillsboro Watershed Monitoring Events

SITE 3	SAMPLE DATE	11/16/21	3/23/22											Geometric Mean	Numeric Surface Water Quality Standard Criteria
PARAMETER	UNITS														
Alkalinity	mg/L														
Arsenic	mg/L														≤ 0.05
Cadmium	mg/L														See Table 5-3, page 2
Chlorophyll-a (corrected)	ug/L	10.4	3.3										5.9		≤ 20 AGM
Copper	mg/L														See Table 5-3, page 2
Dissolved Oxygen	% Saturation	17.0	38.8												> 38
E. Coli	cfu/100mL														≤ 400 cfu/100ml TPTV
Lead	mg/L														See Table 5-3, page 2
Nitrogen, Ammonia	mg/L														
Nitrogen, nitrate + nitrite	mg/L														
Nitrogen, Total	mg/L	1.36	1.16										1.3		Narrative
Nitrogen, Total Kjeldahl	mg/L														
pH	None														6.0 to 8.5
Phosphorus, orthophosphate	mg/L														
Phosphorus, Total	mg/L	0.1850	0.0700										0.114		Narrative
Salinity	ppth	0.35	0.4												
Specific Conductivity	umho/cm	0	819												≤ 1275
Temperature	deg C														
Total Hardness	mg/L														
Total Suspended Solids	mg/L														
Turbidity	NTU	0.9	0.8												≤ 29
Zinc	mg/L														See Table 5-3, page 2

- Highlighted in "blue" are substituted values that were below the limits of detection. The value shown is the method detection limit provided with the data.
- Highlighted in "yellow" are sample values that exceed either the State Water Quality Standards for a specific parameter or Florida's Impaired Waters Rule criteria for chlorophyll-a.
- AGM - Annual Geometric Mean
- Narrative - Shall not cause an imbalance in flora and fauna

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Hillsboro Watershed Monitoring Events

SITE S39	SAMPLE DATE	10/4/21	11/2/21	1/11/22	2/8/22	3/8/22	4/19/22	5/3/22	6/14/22	7/12/22	8/9/22	9/6/22		Geometric Mean	Numeric Surface Water Quality Standard Criteria
PARAMETER	UNITS														
Alkalinity	mg/L						98	93	154						
Arsenic	mg/L														≤ 0.05
Cadmium	mg/L														See Table 5-3, page 2
Chlorophyll-a (corrected)	ug/L														≤ 20 AGM
Copper	mg/L														See Table 5-3, page 2
Dissolved Oxygen	% Saturation	77.9	88.6	87.6	95.5	74.8	84.6	80.5	52.2	60.3	80.1	70.7			> 38
E. Coli	cfu/100mL														≤ 400 cfu/100ml TPTV
Lead	mg/L														See Table 5-3, page 2
Nitrogen, Ammonia	mg/L						0.013	0.012	0.009						
Nitrogen, nitrate + nitrite	mg/L	0.008	0.008	0.003	0.0025	0.008	0.01	0.014	0.024	0.006	0.008	0.008			
Nitrogen, Total	mg/L	1.26	1.32	1.13	1.10	0.97	1.02	1.04	1.28	1.15	1.03	0.90		1.1	Narrative
Nitrogen, Total Kjeldahl	mg/L														
pH	None	7.80	7.90	7.90	7.90	8.20	7.80	6.40	7.60	7.60	7.80	7.60			6.0 to 8.5
Phosphorus, orthophosphate	mg/L	0.0010	0.001	0.001	0.001	0.001	0.001	0.001	0.003	0.001	0.001	0.001			
Phosphorus, Total	mg/L	0.0110	0.0110	0.0090	0.009	0.0130	0.012	0.0130	0.024	0.0150	0.01	0.0120		0.012	Narrative
Salinity	ppth														
Specific Conductivity	umho/cm	808	876	810	744	444	467	442	681	713	651	478			≤ 1275
Temperature	deg C	28.1	25.6	22.8	22.2	23.7	27.8	26.8	30.8	31.1	31.1	32.2			
Total Hardness	mg/L						111.8	111.3	189.4						
Total Suspended Solids	mg/L						1.5	1.5	1.5						
Turbidity	NTU	0.4					0.8	0.7	0.8						≤ 29
Zinc	mg/L														See Table 5-3, page 2

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- AGM - Annual Geometric Mean
- TPTV - Ten Percent Threshold Value
- Narrative - Shall not cause an imbalance in flora and fauna

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L-8 Watershed Monitoring Events

Culv10	SAMPLE DATE	10/18/21	11/1/21	1/24/22	2/21/22	3/21/22	4/18/22	5/31/22	6/27/22	7/25/22	8/22/22	9/19/22		Geometric Mean	Numeric Surface Water Quality Standard Criteria
PARAMETER	UNITS														
Alkalinity	mg/L	51	262	125	112	109	108	106	110	106	112	140			
Arsenic	mg/L														≤ 0.05
Cadmium	mg/L														See Table 5-3, page 2
Chlorophyll-a (corrected)	ug/L														≤ 20 AGM
Copper	mg/L														See Table 5-3, page 2
Dissolved Oxygen	% Saturation	21.1	27.3	93.7	98.0	99.6	79.9	77.2	77.5	58.2	49.4	37.7			> 38
E. Coli	cfu/100mL														≤ 400 cfu/100ml TPTV
Lead	mg/L														See Table 5-3, page 2
Nitrogen, Ammonia	mg/L	0.089	0.517	0.008	0.014	0.010	0.038	0.036	0.046	0.096	0.130	0.232			
Nitrogen, nitrate + nitrite	mg/L	0.022	0.359	0.315	0.319	0.330	0.263	0.135	0.129	0.107	0.084	0.319			
Nitrogen, Total	mg/L	1.44	3.06	0.89	1.52	1.80	1.44	1.60	1.44	1.40	1.78	1.67		1.6	Narrative
Nitrogen, Total Kjeldahl	mg/L														
pH	None	7.20	7.30	8.10	7.80	8.10	8.00	8.10	8.30	7.70	7.70	7.40			6.0 to 8.5
Phosphorus, orthophosphate	mg/L	0.0100	0.052	0.070	0.065	0.069	0.106	0.055	0.047	0.061	0.054	0.036			
Phosphorus, Total	mg/L	0.0500	0.1150	0.3380	0.182	0.2040	0.169	0.1770	0.147	0.1360	0.156	0.1040		0.147	Narrative
Salinity	ppth														
Specific Conductivity	umho/cm	183	1466	392	392	406	412	404	442	439	455	548			≤ 1275
Temperature	deg C	26.7	23.9	15.0	20.8	24.5	24.4	27.6	30.2	29.0	30.1	29.3			
Total Hardness	mg/L	65.6				131.2		146.3		137.1					
Total Suspended Solids	mg/L	4.0	8.0	112.0	33	54.0	27	47.0	35	19.0	38	10.0			
Turbidity	NTU	3.1	20.9	134.0	68.4	61.3	38.2	48.9	33.1	18.2	29.2	10.2			≤ 29
Zinc	mg/L														See Table 5-3, page 2

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- AGM - Annual Geometric Mean
- TPTV - Ten Percent Threshold Value
- Narrative - Shall not cause an imbalance in flora and fauna

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Monitoring Data
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S-2-6-7 Watershed Monitoring Events

SITE S2	SAMPLE DATE	10/18/21	11/15/21	1/10/22	2/7/22	3/7/22	4/4/22	5/31/22	6/27/22	7/25/22	8/22/22	9/29/22		Geometric Mean	Numeric Surface Water Quality Standard Criteria
PARAMETER	UNITS														
Alkalinity	mg/L	108	276	109	115	111	115	172	297	369	125	0.5			
Arsenic	mg/L														≤ 0.05
Cadmium	mg/L														See Table 5-3, page 2
Chlorophyll-a (corrected)	ug/L														≤ 20 AGM
Copper	mg/L														See Table 5-3, page 2
Dissolved Oxygen	% Saturation	56.9	67.8	83.5	92.7	82.7	66.6	63.0	115.4	66.1	69.8	76.5			> 38
E. Coli	cfu/100mL														≤ 400 cfu/100ml TPTV
Lead	mg/L														See Table 5-3, page 2
Nitrogen, Ammonia	mg/L	0.076	0.185	0.066	0.049	0.047	0.088	0.102	0.052	0.227	0.056	0.003			
Nitrogen, nitrate + nitrite	mg/L	0.041	0.369	0.024	0.096	0.058	0.346	0.517	0.632	0.459	0.042	0.003			
Nitrogen, Total	mg/L	1.16	2.59	1.12	1.14	1.17	1.48	1.80	3.50	3.15	1.86	0.03		1.2	Narrative
Nitrogen, Total Kjeldahl	mg/L														
pH	None	7.60	7.80	7.90	8.20	7.90	7.80	7.90	8.10	7.80	7.60	7.30			6.0 to 8.5
Phosphorus, orthophosphate	mg/L	0.0170	0.060	0.020	0.018	0.019	0.083	0.060	0.097	0.136	0.004	0.001			
Phosphorus, Total	mg/L	0.0630	0.0890	0.0730	0.065	0.0820	0.134	0.1050	0.206	0.2000	0.129	0.0010		0.069	Narrative
Salinity	ppth														
Specific Conductivity	umho/cm	404	1188	412	440	423	435	633	1269	1418	480	479			≤ 1275
Temperature	deg C	28.1	22.1	21.8	18.8	23.4	24.8	28.4	32.1	31.1	31.2	25.3			
Total Hardness	mg/L	137.5				138.6		154.8		465					
Total Suspended Solids	mg/L	6.0	1.5	9.0	5	13.0	10	3.0	6	2.0	15	1.5			
Turbidity	NTU	4.6	5.5	8.1	7	13.2	12	6.3	4.4	3.7	11.4	0.1			≤ 29
Zinc	mg/L														See Table 5-3, page 2

• Metal exceedences are based on hardness

Highlighted in "blue" are substituted values that were below the limits of detection. The value shown is the method detection limit provided with the data.

Highlighted in "yellow" are sample values that exceed either the State Water Quality Standards for a specific parameter or Florida's Impaired Waters Rule criteria for chlorophyll-a.

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S-2-6-7 Watershed Monitoring Events

SITE 39	SAMPLE DATE	11/29/21	1/20/22	3/24/22	5/17/22	7/20/22								Geometric Mean	Numeric Surface Water Quality Standard Criteria
PARAMETER	UNITS														
Alkalinity	mg/L														
Arsenic	mg/L	0.0048	0.0017	0.0017	0.0017	0.0063									≤ 0.05
Cadmium	mg/L	0.0002	0.0002	0.0002	0.0002	0.0002									See Table 5-3, page 2
Chlorophyll-a (corrected)	ug/L	25.3	0.5	5.9	1.9	13.4							4.5		≤ 20 AGM
Copper	mg/L	0.0013	0.0013	0.0013	0.0013	0.0013									See Table 5-3, page 2
Dissolved Oxygen	% Saturation	70.5	78.0	78.4	56.5	34.4									> 38
E. Coli	cfu/100mL														≤ 400 cfu/100ml TPTV
Lead	mg/L	0.0023	0.0023	0.0023	0.0023	0.0023									See Table 5-3, page 2
Nitrogen, Ammonia	mg/L	0.057	0.045	0.057	0.120	0.490									
Nitrogen, nitrate + nitrite	mg/L	1.100	0.150	0.140	0.095	0.420									
Nitrogen, Total	mg/L														Narrative
Nitrogen, Total Kjeldahl	mg/L	2	0.86	0.9	1	2.2									
pH	None	8.02	7.92	7.75	7.72	7.48									6.0 to 8.5
Phosphorus, orthophosphate	mg/L	0.1100	0.039	0.042	0.052	0.075									
Phosphorus, Total	mg/L	0.1200	0.0710	0.0880	0.09	0.1300							0.097		Narrative
Salinity	ppth														
Specific Conductivity	umho/cm	1834	484.9	427.6	468.3	1985									≤ 1275
Temperature	deg C	20.9	18.6	25.0	28.4	30.5									
Total Hardness	mg/L	535	163	154	154	529									
Total Suspended Solids	mg/L	3.2	3.9	11.4	7.9	5.7									
Turbidity	NTU	2.6	0.5	11.0	5.9	2.7									≤ 29
Zinc	mg/L	0.0055	0.0055	0.0055	0.0055	0.0055									See Table 5-3, page 2

• Metal exceedences are based on hardness

Highlighted in "blue" are substituted values that were below the limits of detection. The value shown is the method detection limit provided with the data.

AGM - Annual Geometric Mean

• TPTV - Ten Percent Threshold Value

• Narrative - Shall not cause an imbalance in flora and fauna

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Monitoring Data
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S-2-6-7 Watershed Monitoring Events

SITE 43	SAMPLE DATE	11/29/21	1/20/22	3/24/22	5/17/22	7/20/22								Geometric Mean	Numeric Surface Water Quality Standard Criteria
PARAMETER	UNITS														
Alkalinity	mg/L														
Arsenic	mg/L	0.0071	0.0017	0.0017	0.0017	0.0040									≤ 0.05
Cadmium	mg/L	0.0002	0.0002	0.0002	0.0002	0.0002									See Table 5-3, page 2
Chlorophyll-a (corrected)	ug/L	25.3	2.7	9.3	25.7	16.7							12.2		≤ 20 AGM
Copper	mg/L	0.0013	0.0013	0.0013	0.0013	0.0013									See Table 5-3, page 2
Dissolved Oxygen	% Saturation	59.4	71.5	81.7	132.7	47.8									> 38
E. Coli	cfu/100mL														≤ 400 cfu/100ml TPTV
Lead	mg/L	0.0023	0.0023	0.0023	0.0023	0.0023									See Table 5-3, page 2
Nitrogen, Ammonia	mg/L	0.280	0.078	0.065	0.018	0.065									
Nitrogen, nitrate + nitrite	mg/L	0.770	0.130	0.130	0.92	0.510									
Nitrogen, Total	mg/L														Narrative
Nitrogen, Total Kjeldahl	mg/L	2.1	0.94	1.1	1.9	2									
pH	None	7.85	7.64	7.91	8.07	7.67									6.0 to 8.5
Phosphorus, orthophosphate	mg/L	0.1000	0.047	0.032	0.024	0.083									
Phosphorus, Total	mg/L	0.1100	0.0800	0.0980	0.13	0.1300							0.108		Narrative
Salinity	ppth														
Specific Conductivity	umho/cm	2184	456.1	440.8	653	1505									≤ 1275
Temperature	deg C	21.3	18.0	24.7	29.1	30.6									
Total Hardness	mg/L	543	163	157	245	487									
Total Suspended Solids	mg/L	3.4	9.9	19.8	5.8	3.1									
Turbidity	NTU	2.7	9.2	17.0	4.4	1.9									≤ 29
Zinc	mg/L	0.0055	0.0055	0.0055	0.0055	0.0055									See Table 5-3, page 2

• Metal exceedences are based on hardness

Highlighted in "blue" are substituted values that were below the limits of detection. The value shown is the method detection limit provided with the data.

Highlighted in "yellow" are sample values that exceed either the State Water Quality Standards for a specific parameter or Florida's Impaired Waters Rule criteria for chlorophyll-a.

• TPTV - Ten Percent Threshold Value

• Narrative - Shall not cause an imbalance in flora and fauna

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Monitoring Data
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WPBWS Watershed Monitoring Events

M Canal	SAMPLE DATE	10/25/22	11/21/22	1/11/22	2/8/22	3/23/22	4/5/22	5/10/22	6/7/22	7/20/22	8/22/22	9/13/22		Geometric Mean	
PARAMETER	UNITS														
Alkalinity	mg/L														
Arsenic	mg/L														≤ 0.01
Cadmium	mg/L														See Table 5-3, page 6
Chlorophyll-a (corrected)	ug/L	5.6		3.2	13.3	3.4	6.1	4.8	17.9	48.7	8	13.9		8.6	≤ 20 AGM
Copper	mg/L														See Table 5-3, page 6
Dissolved Oxygen	% Saturation														> 38
E. Coli	cfu/100mL														≤ 400 cfu/100ml TPTV
Lead	mg/L														See Table 5-3, page 6
Nitrogen, Ammonia	mg/L														
Nitrogen, nitrate + nitrite	mg/L	0.015		0.22	0.24	0.190	0.31	0.015	0.015	0.03	0.02	0.084			
Nitrogen, Total	mg/L	0.83		1.2	1.3	0.98	1.3	0.91	1.00	1.9	1.1	1.2		1.1	Narrative
Nitrogen, Total Kjeldahl	mg/L	0.83		1.02	1.1	0.79	0.99	0.9	1	1.9	1.1	1.1			
pH	None	8.1	8.7	7.6	8.3	8	8.5	8.4		7.5	7.6	7.8			6.0 to 8.5
Phosphorus, orthophosphate	mg/L	0.017		0.022	0.025	0.045	0.044	0.021	0.019	0.012	0.027	0.021			
Phosphorus, Total	mg/L	0.07		0.07		0.09		0.068	0.096	0.22		0.098		0.093	Narrative
Salinity	ppth														
Specific Conductivity	umho/cm	374	332	362	378	414	434	414	496	955	511	538			≤ 1275
Temperature	deg C	28.8	23.5	22.5	23.9	26.9	28.2	28.8	29.4	30.4	30.2	30.7			
Total Hardness	mg/L														
Total Suspended Solids	mg/L														
Turbidity	NTU	9.6	36	13	15	16	25	11	13	12	16	14			≤ 29
Zinc	mg/L														See Table 5-3, page 6

- Metal exceedences are based on hardness
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- Highlighted in "yellow" are sample values that exceed either the State Water Quality Standards for a specific parameter or Florida's Impaired Waters Rule criteria for chlorophyll-a.
- AGM - Annual Geometric Mean

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Monitoring Data
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WPBWS Watershed Monitoring Events

Control 4	SAMPLE DATE	10/25/22	11/21/22	1/11/22	2/8/22	3/23/22	4/5/22	5/10/22	6/7/22	7/20/22	8/9/22	9/13/22		Geometric Mean	
PARAMETER	UNITS														
Alkalinity	mg/L														
Arsenic	mg/L														≤ 0.01
Cadmium	mg/L														See Table 5-3, page 6
Chlorophyll-a (corrected)	ug/L	4.5		3.4	3.4	2.9	1.8	1.9	4.5	7.70	2.10	3.2		3.2	≤ 20 AGM
Copper	mg/L														See Table 5-3, page 6
Dissolved Oxygen	% Saturation														> 38
E. Coli	cfu/100mL														≤ 400 cfu/100ml TPTV
Lead	mg/L														See Table 5-3, page 6
Nitrogen, Ammonia	mg/L														
Nitrogen, nitrate + nitrite	mg/L	0.015		0.12	0.11	0.084	0.12	0.015	0.015	0.02	0.02	0.18			
Nitrogen, Total	mg/L	0.76		1.1	0.96	0.82	0.89	1.1	0.77	0.82	1	1.1		0.9	Narrative
Nitrogen, Total Kjeldahl	mg/L	0.76		0.935	0.85	0.74	0.78	1.1	0.76	0.8	1	0.95			
pH	None	7.2	7.2	7.4	7.6	7.9	7.6	7.4	7.90	7.3	7.4	7.6			6.0 to 8.5
Phosphorus, orthophosphate	mg/L	0.0066		0.0096	0.011	0.019	0.022	0.0038	0.012	0.01	0.01	0.024			
Phosphorus, Total	mg/L	0.032		0.037		0.0440		0.0240	0.035	0.046		0.06		0.038	Narrative
Salinity	ppth														
Specific Conductivity	umho/cm	308	268	305	354	401	390	321	510	497	446	463			≤ 1275
Temperature	deg C	24.2	22.5	21.6	22.7	26.5	26.3	28.3	30.4	30.4	30.6	30.2			
Total Hardness	mg/L														
Total Suspended Solids	mg/L														
Turbidity	NTU	1.7	1.9	4.4	4.1	6.2	6.8	2	3.9	4.4	2.1	4			≤ 29
Zinc	mg/L														See Table 5-3, page 6

- Metal exceedences are based on hardness
- Highlighted in "blue" are substituted values that were below the limits of detection. The value shown is the method detection limit provided with the data.
- Highlighted in "yellow" are sample values that exceed either the State Water Quality Standards for a specific parameter or Florida's Impaired Waters Rule criteria for chlorophyll-a.
- AGM - Annual Geometric Mean
- TPTV - Ten Percent Threshold Value
- Narrative - Shall not cause an imbalance in flora and fauna

Table 5-4
Monitoring Data
Reporting Period October 2021 - September 2022
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WPBWS Watershed Monitoring Events

Lake Mangonia	SAMPLE DATE	10/25/22	11/17/22	1/11/22	2/8/22	3/23/22	4/5/22	5/10/22	6/7/22	7/20/22	8/9/22	9/13/22		Geometric Mean	
PARAMETER	UNITS														
Alkalinity	mg/L														
Arsenic	mg/L														≤ 0.01
Cadmium	mg/L														$\leq [e^{(0.7409 [\ln H] - 4.719)}] 10^{-3}$
Chlorophyll-a (corrected)	ug/L	8.70		3.90	4.80	5.20	4.20	5.0	4.5	4.8	5.5	12.1		5.5	≤ 20 AGM
Copper	mg/L														$\leq [e^{(0.8545 [\ln H] - 1.702)}] 10^{-3}$
Dissolved Oxygen	% Saturation														> 38
E. Coli	cfu/100mL														≤ 400 cfu/100ml TPTV
Lead	mg/L														$\leq [e^{(1.273 [\ln H] - 4.705)}] 10^{-3}$
Nitrogen, Ammonia	mg/L														
Nitrogen, nitrate + nitrite	mg/L	0.02		0.02	0.24	0.02	0.02	0.021	0.015	0.015	0.015	0.015			
Nitrogen, Total	mg/L	0.86		0.92	1.30	0.72	0.72	0.85	0.75	0.77	0.88	0.94		0.86	≤ 1.05 to 1.91 AGM
Nitrogen, Total Kjeldahl	mg/L	0.86		0.92	1.10	0.72	0.72	0.83	0.75	0.76	0.88	0.94			
pH	None	8.2	8.5	7.9	8.2	8.4	8.4	8.10	8.40	8.10	7.70	8.40			6.0 to 8.5
Phosphorus, orthophosphate	mg/L	0.004		0.004	0.037	0.004	0.004	0.004	0.0038	0.004	0.0038	0.004			
Phosphorus, Total	mg/L	0.022		0.025		0.026		0.0250	0.02	0.0230		0.0240		0.023	≤ 0.03 to 0.09 AGM
Salinity	ppth														
Specific Conductivity	umho/cm	501.00	649.00	1226.00	498.00	355.00	362.00	697	380	586	598	862			≤ 1275
Temperature	deg C	24.50	24.40	21.60	21.40	25.00	25.50	25.5	28.1	30.4	30.1	31.2			
Total Hardness	mg/L														
Total Suspended Solids	mg/L														
Turbidity	NTU	4.20	5.80	2.20	2.50	3.60	2.40	3.2	2.2	2.8	4	4.1			≤ 29
Zinc	mg/L														$\leq [e^{(0.8473 [\ln H] + 0.884)}] 10^{-3}$

- Metal exceedences are based on hardness
- Highlighted in "blue" are substituted values that were below the limits of detection. The value shown is the method detection limit provided with the data.
- Highlighted in "yellow" are sample values that exceed either the State Water Quality Standards for a specific parameter or Florida's Impaired Waters Rule criteria for chlorophyll-a.
- AGM - Annual Geometric Mean
- TPTV - Ten Percent Threshold Value
- For Freshwater Lakes the Total Nitrogen and Total Phosphorus Minimum Values applies if Chlorophyll-a is >20 ug/l, Maximum Values applies if Chlorophyll-a is ≤ 20 ug/l.

Table 5-4
Monitoring Data
Reporting Period October 2021 - September 2022
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WPBWS Watershed Monitoring Events

Clear Lake	SAMPLE DATE	10/25/22	11/17/22	1/13/22	2/8/22	3/23/22	4/5/22	5/10/22	6/7/22	7/20/22	8/9/22	9/13/22		Geometric Mean	
PARAMETER	UNITS														
Alkalinity	mg/L														
Arsenic	mg/L														≤ 0.01
Cadmium	mg/L														$\leq [e^{(0.7409 [\ln H] - 4.719)}] 10^{-3}$
Chlorophyll-a (corrected)	ug/L	7.20		4.20	5.00	9.80	7.40	5.3	4.5	8.9	10.5	9.6		6.9	≤ 20 AGM
Copper	mg/L														$\leq [e^{(0.8545 [\ln H] - 1.702)}] 10^{-3}$
Dissolved Oxygen	% Saturation														> 38
E. Coli	cfu/100mL														≤ 400 cfu/100ml TPTV
Lead	mg/L														$\leq [e^{(1.273 [\ln H] - 4.705)}] 10^{-3}$
Nitrogen, Ammonia	mg/L														
Nitrogen, nitrate + nitrite	mg/L	0.01		0.01	0.01	0.01	0.01	0.016	0.0075	0.008	0.0075	0.008			
Nitrogen, Total	mg/L	0.91		0.67	0.77	0.77	0.81	0.79	0.73	0.88	0.89	0.97		0.81	1.05 to 1.91 AGM
Nitrogen, Total Kjeldahl	mg/L	0.91		0.67	0.77	0.77	0.80	0.77	0.73	0.86	0.89	0.96			
pH	None	8.6	8.5	8.2	8.4	8.6	8.6	8.3	8.40	8.60	8.60	8.50			6.0 to 8.5
Phosphorus, orthophosphate	mg/L	0.004		0.002	0.002	0.002	0.002	0.002	0.0019	0.002	0.0039	0.002			
Phosphorus, Total	mg/L	0.017		0.019		0.019		0.0200	0.016	0.0150		0.0160		0.017	0.03 to 0.09 AGM
Salinity	ppth														
Specific Conductivity	umho/cm	537.00	558.00	488.00	472.00	344.00	349.00	640	361	378	399	454			≤ 1275
Temperature	deg C	24.90	24.80	22.10	22.20	25.00	25.90	25.8	29.0	30.6	30.6	32.2			
Total Hardness	mg/L														
Total Suspended Solids	mg/L														
Turbidity	NTU	4.20	4.00	3.00	1.80	4.10	3.50	3.3	2	3.3	4.5	3.5			≤ 29
Zinc	mg/L														$\leq [e^{(0.8473 [\ln H] + 0.884)}] 10^{-3}$

- Metal exceedences are based on hardness
- Highlighted in "blue" are substituted values that were below the limits of detection. The value shown is the method detection limit provided with the data.
- Highlighted in "yellow" are sample values that exceed either the State Water Quality Standards for a specific parameter or Florida's Impaired Waters Rule criteria for chlorophyll-a.
- AGM - Annual Geometric Mean
- TPTV - Ten Percent Threshold Value
- For Freshwater Lakes the Total Nitrogen and Total Phosphorus Minimum Values applies if Chlorophyll-a is >20 ug/l, Maximum Values applies if Chlorophyll-a is ≤ 20 ug/l.

Table 5-5
Summary of Exceedences per Site by Parameter
October 1, 2021 - September 30, 2022

Watershed	Site	Dissolved Oxygen	Turbidity	E. coli	pH	Specific Conductivity	Chlor-a*	Copper
							(AGM or %TPTV)	
C-15	31E	1/5						
	31C							
	31B							
C-16	22							
	24							
	27B							
	27A							
	28							
C-17	12A							
	C17S44							
C-18	16							
	15	3/5						
	92							
	81							
C-51	38B					2/5		
	37B							
	C51S155							
Lox	69							
	51				1/4			
	62				10/11			
	72				11/11		8.9	
ICWW-N	30							
LWL-N	LWL-1							2/2
	11							
	13							
	LWL-4							2/2
LWL-C	LWL-8							
	18C							
	18D							
	LWL-11							
ICWW-S	LWL-13							
	LWL-18							2/2
Hillsboro	1	1/2						
	2	1/2						
	3	1/2						
	S39							
L-8	Culv10a	3/11	7/11			1/11		
S-2-6-7	S-2					1/11		
	39	1/5				2/5		
	43					2/5		
WPBWS	M Canal		1/11		1/10			
	Control 4							
	Lake Mangonia							
	Clear Lake				5/11			

- AGM - Annual Geometric Mean
- Narrative - Shall not cause an imbalance in flora and fauna
- TPTV- Ten Percent Threshold Value

Table 5-6 Monitoring Data Summary C-15 Watershed

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SITE 31E		Date Range: 03/24/99 - 07/19/22 Samples: 121					
		Count	Geometric Mean	Median	Max	Min	Standard Deviation
Alkalinity	mg/L	26	165	164	210	123	22
Arsenic	mg/L	104	0.0026	0.0025	0.0098	0.0005	0.0014
Cadmium	mg/L	118	0.0004	0.0003	0.0050	0.0001	0.0015
Chlorophyll-a (corrected)	ug/L	109	16.3	21.3	120.0	0.5	22.0
Copper	mg/L	117	0.0041	0.0043	0.0200	0.0010	0.0034
Dissolved Oxygen	% Saturation	47	54.0	65.0	127.8	7.7	25.7
E. Coli	cfu/100mL	0	None	None	None	None	None
Lead	mg/L	107	0.0021	0.0023	0.0050	0.0005	0.0012
Nitrogen, Ammonia	mg/L	114	0.052	0.051	0.820	0.003	0.124
Nitrogen, nitrate + nitrite	mg/L	108	0.042	0.037	0.785	0.001	0.160
Nitrogen, Total	mg/L	107	1.43	1.38	3.87	0.39	0.61
Nitrogen, Total Kjeldahl	mg/L	112	1.36	1.30	3.84	0.37	0.61
pH	None	117	7.6	7.6	8.9	6.3	0.4
Phosphorus, orthophosphate	mg/L	113	0.134	0.140	1.330	0.003	0.204
Phosphorus, Total	mg/L	110	0.246	0.240	1.490	0.020	0.237
Salinity	ppth	0	None	None	None	None	None
Specific Conductivity	umho/cm	119	549	554	833	227	104
Temperature	deg C	119	25.6	26.4	32.0	16.7	3.8
Total Hardness	mg/L	114	199	203	390	99	36
Total Suspended Solids	mg/L	116	5.3	6.1	18.0	0.5	3.6
Turbidity	NTU	117	3.8	4.3	15.9	0.2	2.7
Zinc	mg/L	118	0.0056	0.0055	0.0140	0.0018	0.0026

SITE 31C		Date Range: 01/28/99 - 07/19/22 Samples: 122					
		Count	Geometric Mean	Median	Max	Min	Standard Deviation
Alkalinity	mg/L	23	151	152	188	123	16
Arsenic	mg/L	102	0.0029	0.0025	2.2350	0.0005	0.2210
Cadmium	mg/L	119	0.0004	0.0003	0.0050	0.0001	0.0015
Chlorophyll-a (corrected)	ug/L	107	13.4	16.3	93.0	0.1	17.0
Copper	mg/L	119	0.0034	0.0039	0.0295	0.0003	0.0039
Dissolved Oxygen	% Saturation	47	74.8	74.1	153.9	33.1	29.8
E. Coli	cfu/100mL	0	None	None	None	None	None
Lead	mg/L	107	0.0021	0.0023	0.0070	0.0005	0.0013
Nitrogen, Ammonia	mg/L	116	0.046	0.041	0.456	0.001	0.076
Nitrogen, nitrate + nitrite	mg/L	108	0.062	0.063	1.300	0.006	0.165
Nitrogen, Total	mg/L	109	1.16	1.10	3.09	0.62	0.52
Nitrogen, Total Kjeldahl	mg/L	119	1.05	1.00	3.07	0.11	0.49
pH	None	119	7.5	7.5	8.5	6.3	0.4
Phosphorus, orthophosphate	mg/L	116	0.048	0.058	0.440	0.003	0.069
Phosphorus, Total	mg/L	112	0.125	0.120	0.560	0.020	0.083
Salinity	ppth	0	None	None	None	None	None
Specific Conductivity	umho/cm	121	527	506	11188	391	973
Temperature	deg C	119	26.2	26.9	32.4	19.2	3.2
Total Hardness	mg/L	116	182	186	260	16	23
Total Suspended Solids	mg/L	111	3.9	4.0	15.7	1.0	3.0
Turbidity	NTU	117	2.3	2.4	13.3	0.1	1.9
Zinc	mg/L	119	0.0057	0.0055	0.1030	0.0016	0.0095

Table 5-6 Monitoring Data Summary C-15 Watershed

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SITE 31B		Date Range: 06/15/00 - 07/19/22 Samples: 156					
		Count	Geometric Mean	Median	Max	Min	Standard Deviation
Alkalinity	mg/L	91	149	152	207	32	19
Arsenic	mg/L	67	0.0026	0.0025	0.0070	0.0005	0.0011
Cadmium	mg/L	79	0.0004	0.0003	0.0050	0.0001	0.0015
Chlorophyll-a (corrected)	ug/L	73	9.4	12.9	52.0	0.5	12.6
Copper	mg/L	79	0.0035	0.0035	0.0200	0.0013	0.0033
Dissolved Oxygen	% Saturation	44	94.6	100.1	141.5	50.7	23.2
E. Coli	cfu/100mL	0	None	None	None	None	None
Lead	mg/L	79	0.0022	0.0023	0.0260	0.0003	0.0029
Nitrogen, Ammonia	mg/L	145	0.020	0.018	0.305	0.003	0.051
Nitrogen, nitrate + nitrite	mg/L	150	0.021	0.017	0.470	0.001	0.099
Nitrogen, Total	mg/L	150	0.97	0.98	4.23	0.06	0.38
Nitrogen, Total Kjeldahl	mg/L	154	0.91	0.91	4.18	0.04	0.35
pH	None	153	7.8	7.8	9.1	6.7	0.4
Phosphorus, orthophosphate	mg/L	150	0.048	0.066	0.344	0.001	0.067
Phosphorus, Total	mg/L	138	0.103	0.102	0.702	0.003	0.085
Salinity	ppth	0	None	None	None	None	None
Specific Conductivity	umho/cm	156	491	494	787	392	49
Temperature	deg C	156	25.3	26.5	32.5	15.0	4.0
Total Hardness	mg/L	84	178	178	230	138	17
Total Suspended Solids	mg/L	152	2.9	2.5	43.7	0.6	4.1
Turbidity	NTU	156	2.3	2.5	17.8	0.1	2.1
Zinc	mg/L	79	0.0059	0.0055	0.0492	0.0027	0.0052

Table 5-6 Monitoring Data Summary

C-16 Watershed

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SITE 22		Date Range: 01/29/04 - 07/18/22 Samples: 97					
		Count	Geometric Mean	Median	Max	Min	Standard Deviation
Alkalinity	mg/L	25	142	141	185	110	16
Arsenic	mg/L	94	0.0026	0.0025	0.0300	0.0005	0.0030
Cadmium	mg/L	94	0.0003	0.0003	0.0026	0.0002	0.0005
Chlorophyll-a (corrected)	ug/L	94	10.1	14.7	62.7	0.5	13.3
Copper	mg/L	94	0.0025	0.0025	0.0180	0.0010	0.0035
Dissolved Oxygen	% Saturation	39	81.2	102.1	149.5	9.4	35.0
E. Coli	cfu/100mL	0	None	None	None	None	None
Lead	mg/L	82	0.0018	0.0023	0.0050	0.0005	0.0008
Nitrogen, Ammonia	mg/L	89	0.026	0.030	1.010	0.002	0.107
Nitrogen, nitrate + nitrite	mg/L	89	0.046	0.030	1.990	0.003	0.246
Nitrogen, Total	mg/L	89	0.99	0.98	3.07	0.53	0.36
Nitrogen, Total Kjeldahl	mg/L	95	0.87	0.87	2.19	0.27	0.26
pH	None	90	8.0	8.1	8.9	6.5	0.4
Phosphorus, orthophosphate	mg/L	90	0.012	0.016	0.086	0.001	0.019
Phosphorus, Total	mg/L	95	0.057	0.061	0.840	0.003	0.099
Salinity	ppth	0	None	None	None	None	None
Specific Conductivity	umho/cm	93	495	486	1008	7	139
Temperature	deg C	90	25.8	26.2	36.3	17.1	4.2
Total Hardness	mg/L	88	178	179	239	139	23
Total Suspended Solids	mg/L	89	4.0	4.3	33.8	1.0	3.9
Turbidity	NTU	94	2.4	2.7	6.6	0.1	1.3
Zinc	mg/L	94	0.0053	0.0050	0.0600	0.0013	0.0079

SITE 24		Date Range: 01/25/99 - 07/18/22 Samples: 112					
		Count	Geometric Mean	Median	Max	Min	Standard Deviation
Alkalinity	mg/L	19	113	150	177	3	38
Arsenic	mg/L	89	0.0027	0.0025	0.0071	0.0005	0.0012
CFdmium	mg/L	104	0.0004	0.0003	0.0050	0.0002	0.0015
Chlorophyll-a (corrected)	ug/L	100	10.8	13.8	49.0	0.5	11.0
Copper	mg/L	104	0.0027	0.0026	0.0113	0.0007	0.0029
Dissolved Oxygen	% Saturation	39	106.4	107.3	145.6	72.3	20.7
E. Coli	cfu/100mL	0	None	None	None	None	None
Lead	mg/L	97	0.0022	0.0023	0.0050	0.0007	0.0012
Nitrogen, Ammonia	mg/L	102	0.024	0.025	0.105	0.007	0.022
Nitrogen, nitrate + nitrite	mg/L	102	0.032	0.025	0.940	0.001	0.139
Nitrogen, Total	mg/L	102	0.61	0.92	2.67	0.05	0.53
Nitrogen, Total Kjeldahl	mg/L	103	0.54	0.85	2.61	0.04	0.50
pH	None	106	8.0	8.0	8.8	7.1	0.4
Phosphorus, orthophosphate	mg/L	105	0.008	0.009	0.230	0.001	0.030
Phosphorus, Total	mg/L	106	0.032	0.055	0.323	0.001	0.050
Salinity	ppth	0	None	None	None	None	None
Specific Conductivity	umho/cm	110	510	475	4220	348	372
Temperature	deg C	104	25.2	26.3	33.1	2.8	4.7
Total Hardness	mg/L	96	175	177	233	111	25
Total Suspended Solids	mg/L	101	4.4	5.0	16.5	1.0	3.2
Turbidity	NTU	109	3.1	3.2	11.4	0.4	1.9
Zinc	mg/L	104	0.0057	0.0055	0.0360	0.0013	0.0050

Table 5-6 Monitoring Data Summary

C-16 Watershed

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SITE 27B		Date Range: 01/28/99 - 05/19/22 Samples: 100					
		Count	Geometric Mean	Median	Max	Min	Standard Deviation
Alkalinity	mg/L	22	178	178	222	121	28
Arsenic	mg/L	81	0.0027	0.0025	0.0120	0.0005	0.0016
Cadmium	mg/L	98	0.0004	0.0003	0.0050	0.0001	0.0017
Chlorophyll-a (corrected)	ug/L	86	11.9	15.1	76.4	0.5	15.8
Copper	mg/L	98	0.0039	0.0041	0.0975	0.0007	0.0100
Dissolved Oxygen	% Saturation	33	55.8	67.3	139.7	12.1	33.7
E. Coli	cfu/100mL	0	None	None	None	None	None
Lead	mg/L	92	0.0022	0.0023	0.0067	0.0005	0.0013
Nitrogen, Ammonia	mg/L	94	0.048	0.044	0.740	0.007	0.102
Nitrogen, nitrate + nitrite	mg/L	91	0.065	0.050	0.785	0.006	0.164
Nitrogen, Total	mg/L	90	1.38	1.43	3.42	0.06	0.50
Nitrogen, Total Kjeldahl	mg/L	96	1.25	1.30	3.37	0.04	0.49
pH	None	97	7.6	7.6	8.7	6.7	0.4
Phosphorus, orthophosphate	mg/L	93	0.063	0.070	0.680	0.001	0.153
Phosphorus, Total	mg/L	96	0.155	0.158	0.770	0.004	0.173
Salinity	ppth	0	None	None	None	None	None
Specific Conductivity	umho/cm	99	568	565	10481	8	1006
Temperature	deg C	99	25.4	26.6	32.4	16.5	3.8
Total Hardness	mg/L	97	201	205	308	113	37
Total Suspended Solids	mg/L	96	5.4	5.7	20.0	1.0	3.9
Turbidity	NTU	98	3.7	3.9	14.9	0.3	2.7
Zinc	mg/L	97	0.0060	0.0055	0.0350	0.0016	0.0050

SITE 27A		Date Range: 01/28/99 - 07/19/22 Samples: 115					
		Count	Geometric Mean	Median	Max	Min	Standard Deviation
Alkalinity	mg/L	25	152	150	191	128	15
Arsenic	mg/L	96	0.0027	0.0025	0.0078	0.0005	0.0013
Cadmium	mg/L	113	0.0004	0.0003	0.0050	0.0001	0.0016
Chlorophyll-a (corrected)	ug/L	99	10.1	13.8	66.0	0.5	14.5
Copper	mg/L	113	0.0039	0.0043	0.0200	0.0013	0.0031
Dissolved Oxygen	% Saturation	0	None	None	None	None	None
E. Coli	cfu/100mL	0	None	None	None	None	None
Lead	mg/L	107	0.0022	0.0023	0.0150	0.0005	0.0019
Nitrogen, Ammonia	mg/L	110	0.034	None	2.060	0.002	0.199
Nitrogen, nitrate + nitrite	mg/L	106	0.041	0.035	0.750	0.006	0.123
Nitrogen, Total	mg/L	106	1.03	None	4.32	0.02	0.56
Nitrogen, Total Kjeldahl	mg/L	111	1.00	1.01	3.96	0.04	0.51
pH	None	111	7.9	7.9	9.0	6.5	0.4
Phosphorus, orthophosphate	mg/L	103	0.031	0.038	0.440	0.001	0.091
Phosphorus, Total	mg/L	109	0.101	0.102	1.580	0.001	0.189
Salinity	ppth	1	7.9200	7.9200	7.9200	7.9200	None
Specific Conductivity	umho/cm	113	518	512	939	219	114
Temperature	deg C	111	25.6	26.3	32.6	18.5	3.9
Total Hardness	mg/L	112	181	180	258	117	25
Total Suspended Solids	mg/L	104	3.4	4.0	38.0	0.5	4.5
Turbidity	NTU	112	2.5	2.9	71.5	0.1	7.1
Zinc	mg/L	111	0.0057	0.0055	0.0690	0.0013	0.0080

Table 5-6 Monitoring Data Summary

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SITE 28		Date Range: 01/28/99 - 07/19/22 Samples: 154					
		Count	Geometric Mean	Median	Max	Min	Standard Deviation
Alkalinity	mg/L	90	147	147	210	119	15
Arsenic	mg/L	60	0.0024	0.0025	0.0071	0.0003	0.0013
Cadmium	mg/L	77	0.0005	0.0003	0.0050	0.0002	0.0018
Chlorophyll-a (corrected)	ug/L	66	7.6	9.4	50.0	0.5	9.9
Copper	mg/L	77	0.0028	0.0028	0.0200	0.0007	0.0035
Dissolved Oxygen	% Saturation	38	78.0	94.8	147.0	12.1	30.1
E. Coli	cfu/100mL	0	None	None	None	None	None
Lead	mg/L	77	0.0023	0.0023	0.0261	0.0003	0.0030
Nitrogen, Ammonia	mg/L	147	0.025	0.027	2.760	0.001	0.228
Nitrogen, nitrate + nitrite	mg/L	149	0.033	0.035	13.000	0.001	1.065
Nitrogen, Total	mg/L	148	0.78	0.96	13.71	0.05	1.20
Nitrogen, Total Kjeldahl	mg/L	152	0.69	0.86	5.81	0.04	0.54
pH	None	151	7.7	7.8	8.6	6.2	0.4
Phosphorus, orthophosphate	mg/L	151	0.017	0.025	0.250	0.001	0.050
Phosphorus, Total	mg/L	140	0.051	0.061	0.877	0.001	0.094
Salinity	ppth	0	None	None	None	None	None
Specific Conductivity	umho/cm	154	454	475	946	5	120
Temperature	deg C	149	25.3	26.0	56.8	13.1	4.8
Total Hardness	mg/L	78	177	176	308	120	27
Total Suspended Solids	mg/L	144	3.1	2.8	24.9	1.0	3.2
Turbidity	NTU	154	2.3	2.4	13.0	0.1	2.0
Zinc	mg/L	77	0.0060	0.0055	0.1180	0.0024	0.0129

Table 5-6 Monitoring Data Summary C-17 Watershed

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SITE 12A		Date Range: 01/19/99 - 07/18/22 Samples: 119					
		Count	Geometric Mean	Median	Max	Min	Standard Deviation
Alkalinity	mg/L	29	147	148	186	87	20
Arsenic	mg/L	100	0.0027	0.0025	0.0071	0.0005	0.0014
Cadmium	mg/L	117	0.0005	0.0003	0.0050	0.0001	0.0015
Chlorophyll-a (corrected)	ug/L	105	10.8	14.2	74.8	0.5	11.3
Copper	mg/L	117	0.0030	0.0027	0.0500	0.0010	0.0053
Dissolved Oxygen	% Saturation	41	73.1	77.2	109.2	27.9	18.5
E. Coli	CKu/100mL	0	None	None	None	None	None
Lead	mg/L	111	0.0020	0.0023	0.0076	0.0004	0.0014
Nitrogen, Ammonia	mg/L	113	0.061	0.053	2.260	0.008	0.237
Nitrogen, nitrate + nitrite	mg/L	109	0.069	0.078	1.590	0.006	0.172
Nitrogen, Total	mg/L	111	1.20	1.12	9.08	0.03	2.10
Nitrogen, Total Kjeldahl	mg/L	116	0.95	1.00	3.10	0.04	0.42
pH	None	114	7.6	7.7	9.4	6.2	0.5
Phosphorus, orthophosphate	mg/L	107	0.007	0.008	0.058	0.001	0.012
Phosphorus, Total	mg/L	113	0.051	0.065	0.340	0.001	0.039
Salinity	ppth	0	None	None	None	None	None
Specific Conductivity	umho/cm	117	451	463	831	231	69
Temperature	deg C	117	25.3	25.8	31.7	16.3	3.8
Total Hardness	mg/L	111	145	170	216	0	32
Total Suspended Solids	mg/L	114	4.3	4.7	15.5	1.0	2.9
Turbidity	NTU	115	3.4	3.8	50.0	0.3	4.5
Zinc	mg/L	117	0.0064	0.0055	0.0614	0.0013	0.0075

SITE C17S44		Date Range: 01/19/99 - 09/27/22 Samples: 204					
		Count	Geometric Mean	Median	Max	Min	Standard Deviation
Alkalinity	mg/L	78	158	163	192	112	19
Arsenic	mg/L	14	0.0017	0.0019	0.0049	0.0005	0.0011
Cadmium	mg/L	31	0.0014	0.0008	0.0050	0.0002	0.0022
Chlorophyll-a (corrected)	ug/L	23	9.2	9.1	40.0	1.7	9.7
Copper	mg/L	31	0.0042	0.0050	0.0500	0.0007	0.0089
Dissolved Oxygen	% Saturation	54	67.9	70.1	109.0	36.8	18.2
E. Coli	cfu/100mL	0	None	None	None	None	None
Lead	mg/L	31	0.0021	0.0019	0.0250	0.0003	0.0045
Nitrogen, Ammonia	mg/L	200	0.030	0.034	1.500	0.003	0.117
Nitrogen, nitrate + nitrite	mg/L	201	0.035	0.040	0.863	0.001	0.143
Nitrogen, Total	mg/L	198	0.78	0.88	1.51	0.02	0.25
Nitrogen, Total Kjeldahl	mg/L	117	0.87	0.87	1.33	0.20	0.16
pH	None	202	7.7	7.7	8.3	6.6	0.3
Phosphorus, orthophosphate	mg/L	200	0.007	0.007	0.095	0.001	0.016
Phosphorus, Total	mg/L	193	0.038	0.046	0.126	0.001	0.022
Salinity	ppth	0	None	None	None	None	None
Specific Conductivity	umho/cm	204	455	461	728	300	48
Temperature	deg C	204	25.6	26.3	90.0	15.7	5.9
Total Hardness	mg/L	40	174	185	233	90	30
Total Suspended Solids	mg/L	200	2.6	2.0	26.0	0.1	3.2
Turbidity	NTU	203	2.0	2.2	18.1	0.1	1.7
Zinc	mg/L	31	0.0080	0.0100	0.0954	0.0032	0.0161

Table 5-6 Monitoring Data Summary C-18 Watershed

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SITE 16		Date Range: 01/19/99 - 07/18/22 Samples: 122					
		Count	Geometric Mean	Median	Max	Min	Standard Deviation
Alkalinity	mg/L	30	120	139	216	31	51
Arsenic	mg/L	103	0.0022	0.0025	0.0073	0.0005	0.0012
Cadmium	mg/L	120	0.0004	0.0003	0.0050	0.0001	0.0015
Chlorophyll-a (corrected)	ug/L	106	3.5	3.5	43.0	0.5	6.9
Copper	mg/L	118	0.0019	0.0013	0.0100	0.0003	0.0030
Dissolved Oxygen	% Saturation	46	52.5	51.5	147.1	22.8	27.5
E. Coli	cfu/100mL	0	None	None	None	None	None
Lead	mg/L	118	0.0022	0.0023	0.0125	0.0005	0.0016
Nitrogen, Ammonia	mg/L	114	0.041	0.040	0.498	0.008	0.072
Nitrogen, nitrate + nitrite	mg/L	113	0.034	0.035	1.210	0.006	0.143
Nitrogen, Total	mg/L	113	0.94	0.95	2.35	0.06	0.39
Nitrogen, Total Kjeldahl	mg/L	120	0.89	0.90	2.30	0.04	0.38
pH	None	111	7.4	7.4	9.7	6.0	0.5
Phosphorus, orthophosphate	mg/L	114	0.006	0.005	0.560	0.001	0.053
Phosphorus, Total	mg/L	115	0.032	0.032	1.500	0.001	0.142
Salinity	ppth	0	None	None	None	None	None
Specific Conductivity	umho/cm	102	356	392	980	105	166
Temperature	deg C	114	24.6	25.4	33.4	15.8	3.9
Total Hardness	mg/L	110	134	150	734	30	82
Total Suspended Solids	mg/L	116	2.4	2.4	29.7	0.5	3.7
Turbidity	NTU	118	1.8	1.7	10.2	0.4	1.4
Zinc	mg/L	119	0.0060	0.0055	0.0500	0.0012	0.0101

SITE 15		Date Range: 01/19/99 - 07/18/22 Samples: 119					
		Count	Geometric Mean	Median	Max	Min	Standard Deviation
Alkalinity	mg/L	26	110	99	244	41	65
Arsenic	mg/L	100	0.0023	0.0025	0.0071	0.0005	0.0013
Cadmium	mg/L	117	0.0004	0.0003	0.0050	0.0001	0.0016
Chlorophyll-a (corrected)	ug/L	104	2.1	2.1	25.3	0.1	3.9
Copper	mg/L	116	0.0023	0.0013	49.5000	0.0003	6.2590
Dissolved Oxygen	% Saturation	43	32.8	35.6	62.8	8.2	14.3
E. Coli	cfu/100mL	0	None	None	None	None	None
Lead	mg/L	117	0.0021	0.0023	0.0060	0.0005	0.0012
Nitrogen, Ammonia	mg/L	114	0.040	0.040	8.167	0.007	0.762
Nitrogen, nitrate + nitrite	mg/L	110	0.022	0.020	0.480	0.006	0.077
Nitrogen, Total	mg/L	102	0.84	0.82	4.51	0.01	0.51
Nitrogen, Total Kjeldahl	mg/L	110	0.83	0.79	4.50	0.29	0.48
pH	None	108	7.3	7.3	9.4	2.8	0.6
Phosphorus, orthophosphate	mg/L	110	0.004	0.003	0.071	0.001	0.012
Phosphorus, Total	mg/L	111	0.019	0.017	1.500	0.001	0.243
Salinity	ppth	0	None	None	None	None	None
Specific Conductivity	umho/cm	111	310	326	632	91	120
Temperature	deg C	111	23.6	24.0	30.9	15.8	4.0
Total Hardness	mg/L	103	106	106	260	33	51
Total Suspended Solids	mg/L	113	1.7	1.8	15.0	0.5	1.9
Turbidity	NTU	115	0.8	0.7	18.3	0.1	1.7
Zinc	mg/L	117	0.0054	0.0055	0.0300	0.0012	0.0038

Table 5-6 Monitoring Data Summary C-18 Watershed

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SITE 92		Date Range: 01/19/99 - 08/09/22 Samples: 177					
		Count	Geometric Mean	Median	Max	Min	Standard Deviation
Alkalinity	mg/L	121	143	141	278	61	51
Arsenic	mg/L	16	0.0011	0.0009	0.0024	0.0005	0.0007
Cadmium	mg/L	33	0.0013	0.0008	0.0050	0.0002	0.0022
Chlorophyll-a (corrected)	ug/L	56	4.0	4.0	15.3	1.0	2.8
Copper	mg/L	33	0.0033	0.0027	0.0100	0.0003	0.0042
Dissolved Oxygen	% Saturation	26	53.7	63.3	85.2	5.7	18.7
E. Coli	cfu/100mL	8	28	31	74	10	26
Lead	mg/L	0	None	None	None	None	None
Nitrogen, Ammonia	mg/L	171	0.033	0.038	1.500	0.003	0.158
Nitrogen, nitrate + nitrite	mg/L	172	0.023	0.032	0.520	0.001	0.062
Nitrogen, Total	mg/L	175	0.82	0.90	1.65	0.00	0.21
Nitrogen, Total Kjeldahl	mg/L	150	0.86	0.87	1.40	0.22	0.16
pH	None	175	7.4	7.5	8.2	6.2	0.3
Phosphorus, orthophosphate	mg/L	176	0.004	0.004	0.500	0.001	0.040
Phosphorus, Total	mg/L	164	0.024	0.024	23.000	0.002	1.794
Salinity	ppth	33	0.2590	0.2000	0.5000	0.1000	0.0959
Specific Conductivity	umho/cm	177	427	421	1038	148	175
Temperature	deg C	175	26.3	26.5	3001.0	15.8	224.9
Total Hardness	mg/L	40	158	172	298	60	61
Total Suspended Solids	mg/L	166	1.3	1.5	153.0	0.0	11.8
Turbidity	NTU	176	1.7	1.6	8.6	0.4	1.2
Zinc	mg/L	33	0.0075	0.0100	0.1580	0.0027	0.0270

SITE 81		Date Range: 01/19/99 - 09/14/22 Samples: 174					
		Count	Geometric Mean	Median	Max	Min	Standard Deviation
Alkalinity	mg/L	117	133	138	247	59	44
Arsenic	mg/L	16	0.0012	0.0011	0.0024	0.0005	0.0007
Cadmium	mg/L	33	0.0013	0.0008	0.0050	0.0002	0.0022
Chlorophyll-a (corrected)	ug/L	52	4.7	5.0	15.8	1.0	4.2
Copper	mg/L	33	0.0033	0.0033	0.0100	0.0003	0.0042
Dissolved Oxygen	% Saturation	24	77.5	79.6	109.1	25.0	18.4
E. Coli	cfu/100mL	6	382	211	1515	175	683
Lead	mg/L	33	0.0020	0.0013	0.0236	0.0003	0.0042
Nitrogen, Ammonia	mg/L	165	0.027	None	0.140	0.003	0.029
Nitrogen, nitrate + nitrite	mg/L	171	0.017	0.021	0.244	0.002	0.038
Nitrogen, Total	mg/L	172	0.78	None	1.32	0.00	0.19
Nitrogen, Total Kjeldahl	mg/L	150	0.82	0.82	1.30	0.26	0.15
pH	None	160	7.6	7.7	8.3	6.5	0.4
Phosphorus, orthophosphate	mg/L	170	0.004	0.003	0.082	0.001	0.012
Phosphorus, Total	mg/L	160	0.021	0.021	0.210	0.002	0.021
Salinity	ppth	25	0.2065	0.2000	1.0000	0.1000	0.1728
Specific Conductivity	umho/cm	170	408	417	1588	151	214
Temperature	deg C	171	25.4	26.2	33.2	15.8	4.0
Total Hardness	mg/L	42	156	173	311	60	60
Total Suspended Solids	mg/L	151	1.6	1.5	6.0	0.3	1.0
Turbidity	NTU	174	1.4	1.4	8.7	0.3	0.9
Zinc	mg/L	33	0.0070	0.0080	0.0429	0.0018	0.0075

• Sites C18G92 and C18S46 were substituted by Sites 81 and 92 for the September 2015- October 2016 permit cycle

Table 5-6 Monitoring Data Summary

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SITE 38B		Date Range: 01/21/99 - 07/20/22 Samples: 118					
		Count	Geometric Mean	Median	Max	Min	Standard Deviation
Alkalinity	mg/L	28	138	135	291	62	55
Arsenic	mg/L	98	0.0026	0.0025	0.0160	0.0005	0.0022
Cadmium	mg/L	115	0.0004	0.0003	0.0050	0.0001	0.0015
Chlorophyll-a (corrected)	ug/L	104	6.1	7.0	70.7	0.5	12.2
Copper	mg/L	113	0.0023	0.0018	0.0100	0.0005	0.0029
Dissolved Oxygen	% Saturation	35	77.0	86.3	141.0	31.6	28.8
E. Coli	cfu/100mL	0	None	None	None	None	None
Lead	mg/L	115	0.0021	0.0023	0.0152	0.0003	0.0017
Nitrogen, Ammonia	mg/L	114	0.060	0.051	0.950	0.008	0.179
Nitrogen, nitrate + nitrite	mg/L	108	0.156	0.201	1.400	0.006	0.244
Nitrogen, Total	mg/L	104	1.48	1.55	4.05	0.06	0.77
Nitrogen, Total Kjeldahl	mg/L	116	1.28	1.31	4.00	0.04	0.76
pH	None	109	7.7	7.7	14.0	6.6	0.7
Phosphorus, orthophosphate	mg/L	110	0.031	0.046	0.540	0.002	0.064
Phosphorus, Total	mg/L	106	0.092	0.100	0.891	0.003	0.126
Salinity	ppth	0	None	None	None	None	None
Specific Conductivity	umho/cm	108	732	761	1837	2	415
Temperature	deg C	111	24.9	25.3	33.4	16.7	4.1
Total Hardness	mg/L	110	218	219	522	59	91
Total Suspended Solids	mg/L	112	9.5	9.9	60.0	1.0	11.1
Turbidity	NTU	114	9.8	10.1	69.9	0.6	13.6
Zinc	mg/L	113	0.0062	0.0055	0.0894	0.0013	0.0105

SITE 37B		Date Range: 01/21/99 - 07/20/22 Samples: 115					
		Count	Geometric Mean	Median	Max	Min	Standard Deviation
Alkalinity	mg/L	30	159	167	238	103	36
Arsenic	mg/L	96	0.0024	0.0025	0.0071	0.0002	0.0012
Cadmium	mg/L	112	0.0004	0.0003	0.0050	0.0001	0.0015
Chlorophyll-a (corrected)	ug/L	100	4.0	4.3	25.3	0.4	4.8
Copper	mg/L	112	0.0023	0.0018	0.0100	0.0005	0.0028
Dissolved Oxygen	% Saturation	32	72.7	77.4	118.5	31.0	21.8
E. Coli	cfu/100mL	0	None	None	None	None	None
Lead	mg/L	112	0.0021	0.0023	0.0155	0.0005	0.0017
Nitrogen, Ammonia	mg/L	114	0.053	0.057	0.332	0.008	0.062
Nitrogen, nitrate + nitrite	mg/L	103	0.117	0.160	1.320	0.008	0.210
Nitrogen, Total	mg/L	104	0.77	1.08	6.89	0.05	0.88
Nitrogen, Total Kjeldahl	mg/L	113	0.67	0.91	6.70	0.04	0.80
pH	None	104	7.5	7.6	9.6	2.8	0.6
Phosphorus, orthophosphate	mg/L	109	0.018	0.025	0.193	0.001	0.036
Phosphorus, Total	mg/L	102	0.043	0.066	1.540	0.001	0.171
Salinity	ppth	0	None	None	None	None	None
Specific Conductivity	umho/cm	106	664	680	1198	163	175
Temperature	deg C	106	25.3	26.1	32.2	16.8	3.8
Total Hardness	mg/L	108	167	220	305	0	58
Total Suspended Solids	mg/L	110	4.4	4.9	43.3	0.5	7.4
Turbidity	NTU	111	4.4	4.4	87.0	0.1	12.7
Zinc	mg/L	111	0.0060	0.0055	0.1100	0.0013	0.0119

Table 5-6 Monitoring Data Summary

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SITE C51S155		Date Range: 01/21/99 - 09/13/22 Samples: 212					
		Count	Geometric Mean	Median	Max	Min	Standard Deviation
Alkalinity	mg/L	86	161	163	216	100	24
Arsenic	mg/L	14	0.0014	0.0016	0.0029	0.0005	0.0008
Cadmium	mg/L	30	0.0015	0.0008	0.0050	0.0002	0.0022
Chlorophyll-a (corrected)	ug/L	63	1.9	6.4	45.0	0.0	9.3
Copper	mg/L	38	0.0035	0.0031	0.0230	0.0010	0.0048
Dissolved Oxygen	% Saturation	42	69.3	73.6	111.6	30.2	19.1
E. Coli	cfu/100mL	0	None	None	None	None	None
Lead	mg/L	30	0.0022	0.0039	0.0152	0.0005	0.0030
Nitrogen, Ammonia	mg/L	206	0.043	0.055	0.520	0.003	0.066
Nitrogen, nitrate + nitrite	mg/L	204	0.110	0.195	20.900	0.003	1.466
Nitrogen, Total	mg/L	206	1.06	1.10	21.79	0.03	1.50
Nitrogen, Total Kjeldahl	mg/L	127	0.96	0.94	3.87	0.41	0.37
pH	None	207	7.6	7.6	9.8	6.2	0.4
Phosphorus, orthophosphate	mg/L	209	0.019	0.026	0.279	0.001	0.039
Phosphorus, Total	mg/L	199	0.064	0.066	0.200	0.003	0.031
Salinity	ppth	1	0.3300	0.3300	0.3300	0.3300	None
Specific Conductivity	umho/cm	209	578	587	1681	6	181
Temperature	ECg C	209	25.4	26.2	56.3	15.3	4.4
Total Hardness	mg/L	60	27	181	337	1	103
Total SuspenECd Solids	mg/L	197	3.5	4.0	47.0	1.0	5.6
Turbidity	NTU	211	4.1	3.8	59.4	0.1	7.8
Zinc	mg/L	30	0.0079	0.0100	0.0310	0.0032	0.0056

Table 5-6 Monitoring Data Summary

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SITE 69		Date Range: 11/20/03 - 09/14/22 Samples: 190					
		Count	Geometric Mean	Median	Max	Min	Standard Deviation
Alkalinity	mg/L	180	153	153	245	74	36
Arsenic	mg/L	0	None	None	None	None	None
Cadmium	mg/L	0	None	None	None	None	None
Chlorophyll-a (corrected)	ug/L	178	2.9	2.9	27.8	0.1	3.9
Copper	mg/L	0	None	None	None	None	None
Dissolved Oxygen	% Saturation	97	46.4	48.7	69.6	12.0	12.2
E. Coli	cfu/100mL	19	46	52	148	10	38
Lead	mg/L	0	None	None	None	None	None
Nitrogen, Ammonia	mg/L	173	0.082	0.080	0.471	0.025	0.058
Nitrogen, nitrate + nitrite	mg/L	180	0.061	0.059	0.262	0.007	0.046
Nitrogen, Total	mg/L	180	0.97	0.94	38.00	0.52	2.77
Nitrogen, Total Kjeldahl	mg/L	163	0.86	0.90	2.52	0.50	0.27
pH	None	186	7.3	7.3	8.1	6.3	0.3
Phosphorus, orthophosphate	mg/L	180	0.012	0.013	0.433	0.001	0.035
Phosphorus, Total	mg/L	180	0.037	0.034	0.246	0.003	0.029
Salinity	ppth	152	0.2905	0.3000	11.4000	0.1000	1.4773
Specific Conductivity	umho/cm	150	584	506	19200	218	2543
Temperature	deg C	181	25.0	25.2	31.3	17.0	3.7
Total Hardness	mg/L	0	None	None	None	None	None
Total Suspended Solids	mg/L	180	1.9	1.9	21.8	0.5	2.2
Turbidity	NTU	89	3.2	3.2	7.2	1.5	1.1
Zinc	mg/L	8	0.0080	0.0100	0.0100	0.0050	0.0024

SITE 51		Date Range: 05/11/00 - 07/20/22 Samples: 118					
		Count	Geometric Mean	Median	Max	Min	Standard Deviation
Alkalinity	mg/L	81	119	123	163	62	16
Arsenic	mg/L	0	None	None	None	None	None
Cadmium	mg/L	8	0.0033	0.0050	0.0440	0.0008	0.0146
Chlorophyll-a (corrected)	ug/L	79	4.0	4.0	62.0	0.5	7.4
Copper	mg/L	7	0.0088	0.0050	0.0700	0.0014	0.0296
Dissolved Oxygen	% Saturation	27	83.2	86.8	98.5	41.3	13.2
E. Coli	cfu/100mL	0	None	None	None	None	None
Enterococci	cfu/100mL	0	None	None	None	None	None
Lead	mg/L	7	0.0034	0.0050	0.0340	0.0011	0.0119
Nitrogen, Ammonia	mg/L	57	0.031	0.030	0.140	0.002	0.028
Nitrogen, nitrate + nitrite	mg/L	89	0.008	0.006	0.068	0.002	0.016
Nitrogen, Total	mg/L	86	0.35	0.30	2.29	0.10	0.45
Nitrogen, Total Kjeldahl	mg/L	78	0.35	0.30	2.23	0.10	0.46
pH	None	90	7.8	7.9	8.4	6.7	0.3
Phosphorus, orthophosphate	mg/L	86	0.006	0.006	0.177	0.001	0.020
Phosphorus, Total	mg/L	89	0.025	0.025	0.222	0.006	0.025
Salinity	ppth	71	23.9211	31.1000	37.5000	0.6000	9.2724
Specific Conductivity	umho/cm	72	37460	47750	56271	1118	13459
Temperature	deg C	88	24.7	25.2	31.1	15.9	3.8
Total Hardness	mg/L	0	None	None	None	None	None
Total Suspended Solids	mg/L	89	5.5	5.3	43.5	0.8	6.4
Turbidity	NTU	89	3.2	3.2	7.2	1.5	1.1
Zinc	mg/L	8	0.0080	0.0100	0.0100	0.0050	0.0024

Table 5-6 Monitoring Data Summary

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SITE 62		Date Range: 05/31/00 - 09/14/22 Samples: 191					
		Count	Geometric Mean	Median	Max	Min	Standard Deviation
Alkalinity	mg/L	183	133	139	226	64	27
Arsenic	mg/L	0	None	None	None	None	None
Cadmium	mg/L	8	0.0027	0.0050	0.0080	0.0008	0.0027
Chlorophyll-a (corrected)	ug/L	174	5.2	5.5	89.8	0.5	8.4
Copper	mg/L	7	0.0071	0.0100	0.0500	0.0017	0.0184
Dissolved Oxygen	% Saturation	87	68.3	70.9	93.9	37.3	13.0
E. Coli	cfu/100mL	12	126	120	359	30	107
Enterococci	cfu/100mL	0	None	None	None	None	None
Lead	mg/L	7	0.0030	0.0050	0.0130	0.0011	0.0042
Nitrogen, Ammonia	mg/L	178	0.052	0.050	0.650	0.010	0.073
Nitrogen, nitrate + nitrite	mg/L	191	0.032	0.046	0.182	0.002	0.039
Nitrogen, Total	mg/L	191	0.75	0.74	3.93	0.20	0.53
Nitrogen, Total Kjeldahl	mg/L	180	0.69	0.70	3.93	0.20	0.54
pH	None	191	7.7	7.6	73.8	7.0	5.1
Phosphorus, orthophosphate	mg/L	189	0.022	0.026	0.121	0.002	0.016
Phosphorus, Total	mg/L	179	0.046	0.046	0.480	0.006	0.039
Salinity	ppth	176	7.2328	11.2000	35.7000	0.1000	9.5374
Specific Conductivity	umho/cm	161	13089	20318	53860	250	14788
Temperature	deg C	186	25.0	25.7	32.8	7.5	4.0
Total Hardness	mg/L	0	None	None	None	None	None
Total Suspended Solids	mg/L	179	4.2	4.0	23.2	1.0	2.9
Turbidity	NTU	190	2.9	2.8	22.0	1.2	1.9
Zinc	mg/L	8	0.0124	0.0100	0.0480	0.0050	0.0185

SITE 72		Date Range: 05/11/00 - 09/14/22 Samples: 198					
		Count	Geometric Mean	Median	Max	Min	Standard Deviation
Alkalinity	mg/L	189	124	129	178	28	20
Arsenic	mg/L	0	None	None	None	None	None
Cadmium	mg/L	8	0.0035	0.0050	0.0720	0.0008	0.0244
Chlorophyll-a (corrected)	ug/L	192	8.3	9.3	97.9	0.5	11.0
Copper	mg/L	7	0.0076	0.0100	0.0600	0.0010	0.0246
Dissolved Oxygen	% Saturation	99	78.6	82.6	130.9	27.2	16.1
E. Coli	cfu/100mL	11	174	187	1017	52	285
Enterococci	cfu/100mL	7	41	52	132	10	39
Lead	mg/L	7	0.0044	0.0050	0.0640	0.0011	0.0229
Nitrogen, Ammonia	mg/L	184	0.089	0.100	3.000	0.015	0.230
Nitrogen, nitrate + nitrite	mg/L	197	0.020	0.026	0.172	0.000	0.027
Nitrogen, Total	mg/L	196	0.60	0.62	2.88	0.10	0.36
Nitrogen, Total Kjeldahl	mg/L	179	0.57	0.60	2.85	0.10	0.36
pH	None	198	7.8	7.8	30.7	6.8	1.6
Phosphorus, orthophosphate	mg/L	195	0.009	0.010	0.100	0.001	0.013
Phosphorus, Total	mg/L	197	0.036	0.035	0.640	0.006	0.045
Salinity	ppth	177	19.2594	27.9100	37.9800	0.0400	9.8443
Specific Conductivity	umho/cm	162	29838	43343	63745	500	15182
Temperature	deg C	193	25.7	27.0	32.5	7.7	3.8
Total Hardness	mg/L	0	None	None	None	None	None
Total Suspended Solids	mg/L	196	5.0	4.8	31.8	0.5	4.8
Turbidity	NTU	196	3.0	3.1	8.7	0.3	1.3
Zinc	mg/L	8	0.0164	0.0100	0.2780	0.0050	0.0941

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SITE 30		Date Range: 05/10/00 - 07/20/22 Samples: 119					
		Count	Geometric Mean	Median	Max	Min	Standard Deviation
Alkalinity	mg/L	97	123	125	140	79	9
Arsenic	mg/L	6	0.0035	0.0042	0.0047	0.0021	0.0011
Cadmium	mg/L	8	0.0027	0.0050	0.0080	0.0008	0.0027
Chlorophyll-a (corrected)	ug/L	94	4.0	4.4	36.3	0.5	4.1
Copper	mg/L	7	0.0116	0.0100	0.0900	0.0017	0.0319
Dissolved Oxygen	% Saturation	55	80.1	84.1	92.9	15.6	11.3
Enterococci	cfu/100mL	3	47	20	262	20	140
Lead	mg/L	7	0.0040	0.0050	0.1020	0.0011	0.0375
Nitrogen, Ammonia	mg/L	63	0.048	0.040	0.300	0.010	0.086
Nitrogen, nitrate + nitrite	mg/L	105	0.011	0.010	0.146	0.003	0.026
Nitrogen, Total	mg/L	104	0.29	0.30	2.04	0.02	0.39
Nitrogen, Total Kjeldahl	mg/L	94	0.33	0.30	2.02	0.10	0.37
pH	None	118	7.7	7.8	8.3	7.1	0.2
Phosphorus, orthophosphate	mg/L	97	0.006	0.006	0.100	0.001	0.012
Phosphorus, Total	mg/L	105	0.026	0.024	0.130	0.010	0.016
Salinity	ppth	95	30.2912	32.2000	37.9000	15.6000	5.2710
Specific Conductivity	umho/cm	106	38670	49043	56789	281	11448
Temperature	deg C	116	25.7	26.2	32.3	17.7	3.6
Total Hardness	mg/L	0	None	None	None	None	None
Total Suspended Solids	mg/L	105	5.6	5.6	18.5	2.0	3.3
Turbidity	NTU	105	2.9	2.9	7.6	1.1	1.2
Zinc	mg/L	8	0.0182	0.0100	0.1210	0.0016	0.0470

Table 5-6 Monitoring Data Summary

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SITE LWL-1		Date Range: 01/26/99 - 07/14/22 Samples: 158					
		Count	Geometric Mean	Median	Max	Min	Standard Deviation
Alkalinity	mg/L	0	None	None	None	None	None
Arsenic	mg/L	13	0.0044	0.0036	0.0170	0.0023	0.0041
Cadmium	mg/L	13	0.0006	0.0006	0.0025	0.0002	0.0010
Chlorophyll-a (corrected)	ug/L	128	4.8	5.0	19.7	0.0	3.4
Copper	mg/L	37	0.0029	0.0029	0.0130	0.0013	0.0019
Dissolved Oxygen	mg/L	33	99.7	100.3	119.0	80.7	8.2
Enterococci	cfu/100mL	0	None	None	None	None	None
Lead	mg/L	13	0.0039	0.0025	0.0246	0.0013	0.0081
Nitrogen, Ammonia	mg/L	144	0.009	0.010	0.260	0.001	0.029
Nitrogen, nitrate + nitrite	mg/L	126	0.005	0.003	0.120	0.003	0.020
Nitrogen, Total	mg/L	123	0.34	0.35	0.96	0.00	0.17
Nitrogen, Total Kjeldahl	mg/L	96	0.36	0.35	0.92	0.09	0.17
pH	None	151	7.9	7.9	8.9	7.2	0.2
Phosphorus, orthophosphate	mg/L	139	0.007	0.008	0.104	0.001	0.012
Phosphorus, Total	mg/L	137	0.031	0.032	0.120	0.002	0.017
Salinity	ppth	115	30.5922	31.4000	36.1000	21.1000	3.1255
Specific Conductivity	umho/cm	154	45900	47812	67154	4184	6391
Temperature	deg C	154	26.1	26.8	32.8	14.6	4.4
Total Hardness	mg/L	0	None	None	None	None	None
Total Suspended Solids	mg/L	121	4.3	5.0	33.0	1.5	5.5
Turbidity	NTU	152	1.6	1.9	6.0	0.1	0.8
Zinc	mg/L	12	0.0053	0.0053	0.0110	0.0034	0.0026

SITE 11		Date Range: 01/26/99 - 09/22/22 Samples: 189					
		Count	Geometric Mean	Median	Max	Min	Standard Deviation
Alkalinity	mg/L	2	131	132	133	130	2
Arsenic	mg/L	37	0.0081	0.0036	2.5000	0.0017	0.6899
Cadmium	mg/L	50	0.0007	0.0003	0.2500	0.0001	0.0596
Chlorophyll-a (corrected)	ug/L	170	2.7	2.6	29.9	0.1	4.3
Copper	mg/L	48	0.0054	0.0035	6.2500	0.0013	1.0405
Dissolved Oxygen	mg/L	52	93.6	94.7	111.0	72.0	8.0
Enterococci	cfu/100mL	0	None	None	None	None	None
Lead	mg/L	48	0.0054	0.0026	2.5000	0.0002	0.6096
Nitrogen, Ammonia	mg/L	180	0.034	0.030	0.250	0.007	0.042
Nitrogen, nitrate + nitrite	mg/L	160	0.039	0.031	1.200	0.007	0.157
Nitrogen, Total	mg/L	160	0.37	0.39	1.87	0.04	0.32
Nitrogen, Total Kjeldahl	mg/L	180	0.32	0.35	1.86	0.04	0.29
pH	None	178	7.8	7.9	8.7	6.6	0.3
Phosphorus, orthophosphate	mg/L	175	0.013	0.023	0.650	0.001	0.053
Phosphorus, Total	mg/L	178	0.032	0.038	1.110	0.001	0.090
Salinity	ppth	153	30.6528	31.8300	35.9700	9.5400	4.0213
Specific Conductivity	umho/cm	180	43907	48772	54441	425	8312
Temperature	deg C	168	25.9	26.5	32.4	16.5	3.8
Total Hardness	mg/L	5	5433	5570	6120	4680	555
Total Suspended Solids	mg/L	18	15.6	21.5	59.0	1.0	16.0
Turbidity	NTU	184	1.6	1.8	12.4	0.1	1.4
Zinc	mg/L	45	0.0134	0.0055	5.0000	0.0034	1.2579

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SITE 13		Date Range: 05/11/00 - 09/22/22 Samples: 183					
		Count	Geometric Mean	Median	Max	Min	Standard Deviation
Alkalinity	mg/L	2	136	136	140	132	6
Arsenic	mg/L	39	0.0063	0.0036	2.5000	0.0017	0.6735
Cadmium	mg/L	46	0.0005	0.0002	0.2500	0.0001	0.0622
Chlorophyll-a (corrected)	ug/L	169	3.4	3.7	24.1	0.1	4.3
Copper	mg/L	44	0.0045	0.0026	12.9000	0.0013	2.0929
Dissolved Oxygen	mg/L	52	92.0	92.9	112.3	59.9	10.4
Enterococci	cfu/100mL	0	None	None	None	None	None
Lead	mg/L	45	0.0046	0.0026	2.5000	0.0002	0.6297
Nitrogen, Ammonia	mg/L	178	0.040	0.035	13.000	0.007	0.972
Nitrogen, nitrate + nitrite	mg/L	164	0.041	0.036	1.517	0.003	0.203
Nitrogen, Total	mg/L	167	0.41	0.45	2.14	0.05	0.37
Nitrogen, Total Kjeldahl	mg/L	180	0.36	0.42	1.83	0.04	0.32
pH	None	173	7.8	7.8	8.4	6.4	0.2
Phosphorus, orthophosphate	mg/L	172	0.014	0.022	0.650	0.001	0.055
Phosphorus, Total	mg/L	173	0.031	0.040	1.400	0.001	0.121
Salinity	ppth	154	25.8667	30.5250	38.3000	0.6300	7.3020
Specific Conductivity	umho/cm	172	38686	47304	59740	531	11333
Temperature	deg C	172	26.1	26.8	32.8	16.0	3.8
Total Hardness	mg/L	6	976	4940	5840	0	2122
Total Suspended Solids	mg/L	15	20.4	28.8	56.0	2.5	16.8
Turbidity	NTU	176	1.8	2.1	13.0	0.1	1.4
Zinc	mg/L	40	0.0126	0.0055	5.0000	0.0034	1.3307

SITE LWL-4		Date Range: 04/05/04 - 07/14/22 Samples: 156					
		Count	Geometric Mean	Median	Max	Min	Standard Deviation
Alkalinity	mg/L	0	None	None	None	None	None
Arsenic	mg/L	13	0.0038	0.0036	0.0090	0.0023	0.0024
Cadmium	mg/L	13	0.0004	0.0003	0.0017	0.0002	0.0005
Chlorophyll-a (corrected)	ug/L	130	2.4	2.1	14.7	0.1	2.6
Copper	mg/L	36	0.0019	0.0018	0.0036	0.0009	0.0007
Dissolved Oxygen	mg/L	35	101.0	100.4	132.3	72.5	9.8
Enterococci	cfu/100mL	0	None	None	None	None	None
Lead	mg/L	13	0.0035	0.0025	0.0230	0.0005	0.0068
Nitrogen, Ammonia	mg/L	146	0.008	0.008	0.390	0.003	0.033
Nitrogen, nitrate + nitrite	mg/L	135	0.004	0.004	0.050	0.003	0.007
Nitrogen, Total	mg/L	134	0.27	0.26	0.74	0.00	0.14
Nitrogen, Total Kjeldahl	mg/L	94	0.29	0.27	0.73	0.13	0.15
pH	None	150	8.0	8.0	9.0	7.5	0.2
Phosphorus, orthophosphate	mg/L	136	0.003	0.003	0.183	0.001	0.016
Phosphorus, Total	mg/L	134	0.022	0.021	0.064	0.010	0.010
Salinity	ppth	118	32.6977	33.3000	36.6000	24.7000	2.6946
Specific Conductivity	umho/cm	153	48882	50540	68870	4594	5845
Temperature	deg C	153	25.6	26.6	32.2	15.2	4.2
Total Hardness	mg/L	0	None	None	None	None	None
Total Suspended Solids	mg/L	123	6.4	6.0	52.0	1.5	7.2
Turbidity	NTU	152	2.3	2.4	10.3	0.4	1.7
Zinc	mg/L	12	0.0060	0.0055	0.0197	0.0034	0.0048

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SITE LWL-8		Date Range: 01/26/99 - 07/13/22 Samples: 190					
		Count	Geometric Mean	Median	Max	Min	Standard Deviation
Alkalinity	mg/L	4	120	124	141	95	19
Arsenic	mg/L	11	0.0039	0.0036	0.0098	0.0023	0.0024
Cadmium	mg/L	23	0.0011	0.0008	0.0060	0.0002	0.0023
Chlorophyll-a (corrected)	ug/L	154	5.7	5.4	41.2	0.5	7.0
Copper	mg/L	43	0.0027	0.0017	0.0500	0.0012	0.0104
Dissolved Oxygen	mg/L	55	94.9	96.6	135.8	61.2	10.9
Enterococci	cfu/100mL	0	None	None	None	None	None
Lead	mg/L	22	0.0040	0.0036	0.0530	0.0011	0.0108
Nitrogen, Ammonia	mg/L	176	0.023	0.024	3.046	0.001	0.242
Nitrogen, nitrate + nitrite	mg/L	168	0.023	0.030	0.430	0.003	0.058
Nitrogen, Total	mg/L	157	0.49	0.48	1.67	0.02	0.30
Nitrogen, Total Kjeldahl	mg/L	102	0.45	0.47	1.50	0.13	0.31
pH	None	185	7.8	7.9	10.6	1.9	0.5
Phosphorus, orthophosphate	mg/L	170	0.014	0.014	0.130	0.001	0.016
Phosphorus, Total	mg/L	168	0.047	0.045	0.270	0.012	0.030
Salinity	ppth	137	25.7886	28.9000	36.4000	9.3200	6.9016
Specific Conductivity	umho/cm	189	38462	43270	63187	2762	10832
Temperature	deg C	188	25.7	26.7	34.1	12.1	4.4
Total Hardness	mg/L	0	None	None	None	None	None
Total Suspended Solids	mg/L	156	9.1	9.0	82.0	1.0	11.1
Turbidity	NTU	188	4.9	5.4	14.7	1.2	2.6
Zinc	mg/L	23	0.0082	0.0100	0.1200	0.0034	0.0242

SITE 18C		Date Range: 01/30/04 - 08/10/22 Samples: 167					
		Count	Geometric Mean	Median	Max	Min	Standard Deviation
Alkalinity	mg/L	1	140	140	140	140	None
Arsenic	mg/L	40	0.0061	0.0036	2.5000	0.0017	0.6656
Cadmium	mg/L	39	0.0004	0.0002	0.2500	0.0001	0.0674
Chlorophyll-a (corrected)	ug/L	156	4.7	5.4	32.0	0.1	5.5
Copper	mg/L	39	0.0034	0.0013	4.8000	0.0013	0.8943
Dissolved Oxygen	mg/L	50	90.6	92.9	156.6	62.4	14.6
Enterococci	cfu/100mL	0	None	None	None	None	None
Lead	mg/L	39	0.0052	0.0023	2.5000	0.0009	0.6738
Nitrogen, Ammonia	mg/L	153	0.043	0.039	0.310	0.009	0.053
Nitrogen, nitrate + nitrite	mg/L	152	0.065	0.080	1.677	0.006	0.248
Nitrogen, Total	mg/L	138	0.65	0.78	20.80	0.03	1.79
Nitrogen, Total Kjeldahl	mg/L	155	0.51	0.57	20.70	0.04	1.68
pH	None	149	7.8	7.8	9.4	7.1	0.2
Phosphorus, orthophosphate	mg/L	155	0.020	0.034	0.156	0.001	0.024
Phosphorus, Total	mg/L	150	0.049	0.070	1.280	0.001	0.114
Salinity	ppth	121	23.4266	29.3800	3388.0000	4.7400	305.8811
Specific Conductivity	umho/cm	138	34352	45343	55098	537	14222
Temperature	deg C	138	26.7	27.9	33.9	14.1	4.4
Total Hardness	mg/L	5	5171	5320	5800	4590	491
Total Suspended Solids	mg/L	5	35.5	39.8	42.0	20.2	9.3
Turbidity	NTU	160	8.9	11.0	222.0	0.1	21.3
Zinc	mg/L	35	0.0117	0.0055	5.0000	0.0034	1.4180

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SITE 18D		Date Range: 07/28/05 - 08/10/22 Samples: 153					
		Count	Geometric Mean	Median	Max	Min	Standard Deviation
Alkalinity	mg/L	0	None	None	None	None	None
Arsenic	mg/L	39	0.0068	0.0036	2.5000	0.0017	0.6733
Cadmium	mg/L	39	0.0004	0.0002	0.2500	0.0001	0.0674
Chlorophyll-a (corrected)	ug/L	143	4.5	5.2	41.1	0.1	7.9
Copper	mg/L	39	0.0034	0.0017	3.0000	0.0013	0.5459
Dissolved Oxygen	mg/L	51	97.3	98.8	132.8	74.0	12.3
Enterococci	CRu/100mL	0	None	None	None	None	None
Lead	mg/L	39	0.0052	0.0024	2.5000	0.0002	0.6738
Nitrogen, Ammonia	mg/L	147	0.039	0.035	0.400	0.007	0.057
Nitrogen, nitrate + nitrite	mg/L	133	0.051	0.060	1.477	0.006	0.222
Nitrogen, Total	mg/L	115	0.53	0.55	3.87	0.03	0.48
Nitrogen, Total Kjeldahl	mg/L	143	0.44	0.48	3.86	0.04	0.40
pH	mg/L	123	7.9	7.9	9.3	7.3	0.2
Phosphorus, orthophosphate	mg/L	142	0.015	0.025	0.500	0.000	0.048
Phosphorus, Total	mg/L	145	0.054	0.060	1.620	0.001	0.158
Salinity	mg/L	114	26.8532	30.6650	352.2000	8.3300	31.3061
SpeCRfic Conductivity	mg/L	121	40014	46500	54782	3311	11264
Temperature	mg/L	126	26.9	27.4	263.7	16.6	21.5
Total Hardness	mg/L	5	5380	5440	5960	4340	648
Total Suspended Solids	mg/L	3	48.0	35.5	126.0	24.8	55.6
Turbidity	mg/L	149	5.0	6.4	72.2	0.1	6.8
Zinc	mg/L	36	0.0153	0.0055	6.7000	0.0034	1.9436

SITE LWL-11		Date Range: 01/26/99 - 07/13/22 Samples: 169					
		Count	Geometric Mean	Median	Max	Min	Standard Deviation
Alkalinity	mg/L	0	None	None	None	None	None
Arsenic	mg/L	12	0.0043	0.0036	0.0173	0.0023	0.0055
Cadmium	mg/L	12	0.0004	0.0003	0.0018	0.0002	0.0006
Chlorophyll-a (corrected)	ug/L	135	5.5	6.1	59.2	0.0	7.1
Copper	mg/L	35	0.0019	0.0017	0.0160	0.0008	0.0032
Dissolved Oxygen	mg/L	37	81.3	93.7	123.8	43.2	22.7
Enterococci	cfu/100mL	0	None	None	None	None	None
Lead	mg/L	12	0.0036	0.0025	0.0198	0.0023	0.0054
Nitrogen, Ammonia	mg/L	153	0.016	0.012	0.410	0.001	0.047
Nitrogen, nitrate + nitrite	mg/L	147	0.013	0.014	0.194	0.003	0.046
Nitrogen, Total	mg/L	141	0.45	0.48	1.54	0.00	0.27
Nitrogen, Total Kjeldahl	mg/L	92	0.47	0.49	1.40	0.05	0.27
pH	None	165	7.9	8.0	10.7	1.8	0.6
Phosphorus, orthophosphate	mg/L	151	0.009	0.010	0.086	0.001	0.013
Phosphorus, Total	mg/L	147	0.043	0.044	0.180	0.002	0.023
Salinity	ppth	125	27.5583	29.8000	36.4000	11.3000	6.0432
Specific Conductivity	umho/cm	167	41035	45300	65170	3117	9826
Temperature	deg C	167	26.0	26.8	233.0	13.0	16.6
Total Hardness	mg/L	0	None	None	None	None	None
Total Suspended Solids	mg/L	133	9.0	8.0	65.0	1.0	8.1
Turbidity	NTU	167	4.4	4.8	29.5	0.1	3.5

Table 5-6 Monitoring Data Summary

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SITE LWL-13		Date Range: 04/05/04 - 07/12/22 Samples: 162					
		Count	Geometric Mean	Median	Max	Min	Standard Deviation
Alkalinity	mg/L	0	None	None	None	None	None
Arsenic	mg/L	13	0.0038	0.0036	0.0095	0.0023	0.0024
Cadmium	mg/L	13	0.0004	0.0003	0.0016	0.0002	0.0004
Chlorophyll-a (corrected)	ug/L	136	4.9	4.2	39.5	1.6	5.6
Copper	mg/L	37	0.0018	0.0017	0.0050	0.0009	0.0008
Dissolved Oxygen	mg/L	34	81.7	93.0	134.7	52.3	21.2
Enterococci	cfu/100mL	0	None	None	None	None	None
Lead	mg/L	13	0.0037	0.0025	0.0230	0.0005	0.0078
Nitrogen, Ammonia	mg/L	154	0.013	0.011	0.500	0.002	0.055
Nitrogen, nitrate + nitrite	mg/L	143	0.010	0.005	0.200	0.003	0.044
Nitrogen, Total	mg/L	135	0.38	0.38	1.72	0.00	0.28
Nitrogen, Total Kjeldahl	mg/L	95	0.39	0.35	1.40	0.16	0.26
pH	None	157	8.0	8.0	9.2	7.0	0.2
Phosphorus, orthophosphate	mg/L	149	0.006	0.007	0.067	0.001	0.012
Phosphorus, Total	mg/L	141	0.033	0.031	0.170	0.013	0.021
Salinity	ppth	121	29.1912	31.6000	37.2000	14.4000	5.5883
Specific Conductivity	umho/cm	159	44287	48233	385822	3532	28475
Temperature	deg C	159	25.7	26.7	33.3	11.7	4.2
Total Hardness	mg/L	0	None	None	None	None	None
Total Suspended Solids	mg/L	126	6.3	6.0	28.0	1.0	5.1
Turbidity	NTU	149	2.8	2.8	12.0	0.7	1.8
Zinc	mg/L	12	0.0053	0.0053	0.0110	0.0034	0.0026

SITE LWL-18		Date Range: 05/11/00 - 07/12/22 Samples: 168					
		Count	Geometric Mean	Median	Max	Min	Standard Deviation
Alkalinity	mg/L	0	None	None	None	None	None
Arsenic	mg/L	13	0.0044	0.0034	0.0170	0.0023	0.0041
Cadmium	mg/L	21	0.0016	0.0008	0.0050	0.0002	0.0020
Chlorophyll-a (corrected)	ug/L	137	8.2	5.2	58.1	0.0	8.3
Copper	mg/L	43	0.0054	0.0033	0.0500	0.0013	0.0077
Dissolved Oxygen	mg/L	39	80.1	83.0	131.9	0.0	25.6
Enterococci	cfu/100mL	0	None	None	None	None	None
Lead	mg/L	20	0.0053	0.0025	0.0250	0.0008	0.0061
Nitrogen, Ammonia	mg/L	157	0.034	0.019	0.410	0.003	0.045
Nitrogen, nitrate + nitrite	mg/L	149	0.033	0.018	0.210	-0.005	0.041
Nitrogen, Total	mg/L	140	0.49	0.43	1.51	0.00	0.26
Nitrogen, Total Kjeldahl	mg/L	106	0.86	0.44	39.00	0.07	3.75
pH	None	162	7.9	7.9	9.1	6.5	0.3
Phosphorus, orthophosphate	mg/L	155	0.022	0.015	0.160	0.001	0.024
Phosphorus, Total	mg/L	149	0.051	0.043	0.230	0.001	0.032
Salinity	ppth	120	28.5714	30.3000	36.7000	9.3700	6.1275
Specific Conductivity	umho/cm	164	43431	45994	64472	3790	9607
Temperature	deg C	163	26.8	27.0	33.6	16.3	4.0
Total Hardness	mg/L	0	None	None	None	None	None
Total Suspended Solids	mg/L	133	10.4	8.0	56.0	1.0	8.2
Turbidity	NTU	154	4.0	3.6	17.0	0.7	2.1
Zinc	mg/L	20	0.0187	0.0099	0.1160	0.0019	0.0268

Table 5-6 Monitoring Data Summary

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SITE 1		Date Range: 02/22/06 - 03/16/22 Samples: 62					
		Count	Geometric Mean	Median	Max	Min	Standard Deviation
Alkalinity	mg/L	0	None	None	None	None	None
Arsenic	mg/L	0	None	None	None	None	None
Cadmium	mg/L	0	None	None	None	None	None
Chlorophyll-a (corrected)	ug/L	51	5.4	5.9	27.1	1.2	4.3
Copper	mg/L	0	None	None	None	None	None
Dissolved Oxygen	mg/L	16	61.3	65.2	83.9	34.6	15.5
Enterococci	cfu/100mL	0	None	None	None	None	None
Lead	mg/L	0	None	None	None	None	None
Nitrogen, Ammonia	mg/L	9	0.068	0.071	0.143	0.036	0.033
Nitrogen, nitrate + nitrite	mg/L	11	0.042	0.057	0.488	0.001	0.136
Nitrogen, Total	mg/L	48	0.75	0.77	1.75	0.25	0.37
Nitrogen, Total Kjeldahl	mg/L	11	0.82	1.02	1.65	0.28	0.46
pH	None	10	7.5	7.6	7.7	7.4	0.1
Phosphorus, orthophosphate	mg/L	3	0.058	0.059	0.061	0.054	0.004
Phosphorus, Total	mg/L	44	0.103	0.105	0.542	0.045	0.073
Salinity	ppth	59	11.2260	18.0000	33.7000	0.1810	9.1880
Specific Conductivity	umho/cm	57	19307	28600	49200	659	14067
Temperature	deg C	13	26.9	28.4	31.6	20.1	3.7
Total Hardness	mg/L	0	None	None	None	None	None
Total Suspended Solids	mg/L	0	None	None	None	None	None
Turbidity	NTU	22	1.8	1.7	4.4	1.0	0.9
Zinc	mg/L	0	None	None	None	None	None

SITE 2		Date Range: 02/22/06 - 03/23/22 Samples: 62					
		Count	Geometric Mean	Median	Max	Min	Standard Deviation
Alkalinity	mg/L	0	None	None	None	None	None
Arsenic	mg/L	0	None	None	None	None	None
Cadmium	mg/L	0	None	None	None	None	None
Chlorophyll-a (corrected)	ug/L	57	6.5	6.5	37.2	0.8	8.1
Copper	mg/L	0	None	None	None	None	None
Dissolved Oxygen	mg/L	16	65.6	77.0	95.8	34.8	21.1
Enterococci	cfu/100mL	0	None	None	None	None	None
Lead	mg/L	0	None	None	None	None	None
Nitrogen, Ammonia	mg/L	9	0.044	0.051	0.102	0.004	0.029
Nitrogen, nitrate + nitrite	mg/L	11	0.053	0.042	0.315	0.004	0.096
Nitrogen, Total	mg/L	49	1.20	1.22	1.68	0.67	0.22
Nitrogen, Total Kjeldahl	mg/L	11	1.09	1.07	1.53	0.59	0.29
pH	None	10	7.6	7.6	7.9	7.3	0.2
Phosphorus, orthophosphate	mg/L	3	0.082	0.105	0.110	0.047	0.035
Phosphorus, Total	mg/L	42	0.085	0.095	0.270	0.025	0.050
Salinity	ppth	32	0.3234	0.3100	3.2500	0.2100	0.5226
Specific Conductivity	umho/cm	58	592	631	806	66	115
Temperature	deg C	13	26.7	27.8	31.7	20.6	3.6
Total Hardness	mg/L	0	None	None	None	None	None
Total Suspended Solids	mg/L	0	None	None	None	None	None
Turbidity	NTU	21	1.1	1.1	3.1	0.5	0.6
Zinc	mg/L	0	None	None	None	None	None

Table 5-6 Monitoring Data Summary

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SITE 3		Date Range: 02/22/06 - 03/23/22 Samples: 63					
		Count	Geometric Mean	Median	Max	Min	Standard Deviation
Alkalinity	mg/L	0	None	None	None	None	None
Arsenic	mg/L	0	None	None	None	None	None
Cadmium	mg/L	0	None	None	None	None	None
Chlorophyll-a (corrected)	ug/L	56	6.9	8.7	33.2	0.8	8.0
Copper	mg/L	0	None	None	None	None	None
Dissolved Oxygen	mg/L	16	45.9	50.3	91.0	17.0	22.0
E. Coli	cfu/100mL	0	None	None	None	None	None
Lead	mg/L	0	None	None	None	None	None
Nitrogen, Ammonia	mg/L	9	0.083	0.102	0.282	0.012	0.085
Nitrogen, nitrate + nitrite	mg/L	11	0.049	0.078	0.156	0.004	0.060
Nitrogen, Total	mg/L	47	1.38	1.37	1.79	1.04	0.18
Nitrogen, Total Kjeldahl	mg/L	11	1.29	1.26	1.67	0.97	0.25
pH	None	10	7.5	7.5	7.8	7.3	0.2
Phosphorus, orthophosphate	mg/L	3	0.072	0.098	0.128	0.030	0.050
Phosphorus, Total	mg/L	42	0.093	0.100	0.257	0.019	0.053
Salinity	ppth	34	0.3237	0.3150	2.0000	0.2100	0.2940
Specific Conductivity	umho/cm	58	642	666	834	413	103
Temperature	deg C	13	26.8	28.6	31.6	20.4	3.4
Total Hardness	mg/L	0	None	None	None	None	None
Total Suspended Solids	mg/L	0	None	None	None	None	None
Turbidity	NTU	21	1.1	1.0	4.2	0.5	0.9
Zinc	mg/L	0	None	None	None	None	None

SITE S39		Date Range: 01/03/00 - 09/06/22 Samples: 268					
		Count	Geometric Mean	Median	Max	Min	Standard Deviation
Alkalinity	mg/L	229	75	120	347	1	60
Arsenic	mg/L	2	2.9626	3.1535	4.2340	2.0730	1.5281
Cadmium	mg/L	2	0.1500	0.1500	0.1500	0.1500	0.0000
Chlorophyll-a (corrected)	ug/L	0	None	None	None	None	None
Copper	mg/L	0	None	None	None	None	None
Dissolved Oxygen	mg/L	55	73.5	77.8	95.5	29.2	13.8
E. Coli	cfu/100mL	0	None	None	None	None	None
Lead	mg/L	2	0.4000	0.4000	0.4000	0.4000	0.0000
Nitrogen, Ammonia	mg/L	234	0.015	0.017	0.167	0.003	0.020
Nitrogen, nitrate + nitrite	mg/L	266	0.010	0.009	0.875	0.002	0.081
Nitrogen, Total	mg/L	56	0.33	1.06	1.62	0.01	0.57
Nitrogen, Total Kjeldahl	mg/L	224	1.14	1.32	2.71	0.03	0.44
pH	None	267	7.7	7.7	8.5	6.4	0.3
Phosphorus, orthophosphate	mg/L	0	None	None	None	None	None
Phosphorus, Total	mg/L	267	0.017	0.017	0.169	0.001	0.018
Salinity	ppth	0	None	None	None	None	None
Specific Conductivity	umho/cm	0	None	None	None	None	None
Temperature	deg C	267	25.4	26.5	31.5	13.7	4.0
Total Hardness	mg/L	165	102	141	354	0	63
Total Suspended Solids	mg/L	117	1.9	1.5	11.0	0.5	1.6
Turbidity	NTU	250	1.1	1.1	11.3	0.1	1.5
Zinc	mg/L	2	2.0000	2.0000	2.0000	2.0000	0.0000

Table 5-6 Monitoring Data Summary

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SITE Culv10a		Date Range: 01/10/00 - 09/19/22 Samples: 262					
		Count	Geometric Mean	Median	Max	Min	Standard Deviation
Alkalinity	mg/L	260	116	114	375	1	51
Arsenic	mg/L	0	None	None	None	None	None
Cadmium	mg/L	0	None	None	None	None	None
Chlorophyll-a (corrected)	ug/L	12	2.3	3.1	10.3	0.5	3.5
Copper	mg/L	5	2.3733	3.0270	4.5710	0.6000	1.4254
Dissolved Oxygen	mg/L	252	9.3	7.7	99.8	0.5	27.6
E. Coli	cfu/100mL	0	None	None	None	None	None
Lead	mg/L	5	0.8600	0.4000	4.7300	0.4000	1.8752
Nitrogen, Ammonia	mg/L	260	0.041	0.035	3.074	0.005	0.303
Nitrogen, nitrate + nitrite	mg/L	260	0.196	0.291	6.557	0.002	0.475
Nitrogen, Total	mg/L	53	1.97	1.76	4.95	0.89	0.80
Nitrogen, Total Kjeldahl	mg/L	209	1.52	1.48	4.78	0.03	0.70
pH	None	259	7.8	7.9	9.2	6.4	0.4
Phosphorus, orthophosphate	mg/L	260	0.048	0.054	0.177	0.002	0.025
Phosphorus, Total	mg/L	260	0.145	0.148	0.669	0.002	0.096
Salinity	ppth	3	0.1598	0.1600	0.1700	0.1500	0.0100
Specific Conductivity	umho/cm	259	504	459	3390	83	361
Temperature	deg C	259	24.2	25.9	31.7	9.0	4.6
Total Hardness	mg/L	87	157	144	774	46	99
Total Suspended Solids	mg/L	260	24.5	25.6	360.0	0.5	53.6
Turbidity	NTU	260	27.6	28.9	284.0	0.1	46.9
Zinc	mg/L	5	3.1486	2.0000	8.2950	2.0000	2.7690

Table 5-6 Monitoring Data Summary

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SITE S-2		Date Range: 01/25/99 - 09/29/22 Samples: 281					
		Count	Geometric Mean	Median	Max	Min	Standard Deviation
Alkalinity	mg/L	54	149	123	425	1	106
Arsenic	mg/L	13	0.0027	0.0040	0.0076	0.0008	0.0023
Cadmium	mg/L	12	0.0002	0.0002	0.0005	0.0002	0.0001
Chlorophyll-a (corrected)	ug/L	7	2.6	3.1	52.1	0.5	18.8
Copper	mg/L	13	0.0012	0.0012	0.0030	0.0006	0.0010
Dissolved Oxygen	% Saturation	43	66.1	76.5	115.4	2.2	20.7
E. Coli	cfu/100mL	0	None	None	None	None	None
Lead	mg/L	13	0.0004	0.0004	0.0004	0.0004	0.0000
Nitrogen, Ammonia	mg/L	275	0.102	0.102	2.057	0.003	0.373
Nitrogen, nitrate + nitrite	mg/L	275	0.178	0.227	2.726	0.002	0.493
Nitrogen, Total	mg/L	52	1.71	1.48	5.54	0.03	1.15
Nitrogen, Total Kjeldahl	mg/L	218	1.62	1.60	12.81	0.03	1.65
pH	None	273	7.7	7.7	8.7	6.8	0.3
Phosphorus, orthophosphate	mg/L	275	0.034	0.044	0.232	0.001	0.048
Phosphorus, Total	mg/L	276	0.092	0.105	1.653	0.001	0.148
Salinity	ppth	2	0.7200	0.7500	0.9600	0.5400	0.2970
Specific Conductivity	umho/cm	273	728	624	2079	145	427
Temperature	deg C	273	24.8	25.6	33.1	13.0	4.3
Total Hardness	mg/L	19	200	145	552	125	139
Total Suspended Solids	mg/L	275	6.5	6.0	131.2	0.5	12.7
Turbidity	NTU	275	6.1	6.6	70.4	0.1	10.1
Zinc	mg/L	13	0.0022	0.0020	0.0066	0.0020	0.0013

SITE 39		Date Range: 04/18/17 - 07/20/22 Samples: 30					
		Count	Geometric Mean	Median	Max	Min	Standard Deviation
Alkalinity	mg/L	1	151	151	151	151	None
Arsenic	mg/L	28	0.0055	0.0036	2.2350	0.0007	0.5852
Cadmium	mg/L	28	0.0003	0.0002	0.1950	0.0001	0.0511
Chlorophyll-a (corrected)	ug/L	29	3.6	4.6	25.3	0.5	5.6
Copper	mg/L	28	0.0022	0.0013	0.9750	0.0003	0.2553
Dissolved Oxygen	% Saturation	30	50.4	68.1	84.6	2.2	23.7
E. Coli	cfu/100mL	0	None	None	None	None	None
Lead	mg/L	28	0.0039	0.0023	2.1000	0.0007	0.5501
Nitrogen, Ammonia	mg/L	30	0.091	0.066	2.600	0.018	0.540
Nitrogen, nitrate + nitrite	mg/L	27	0.171	0.200	1.400	0.017	0.326
Nitrogen, Total	mg/L	22	1.30	1.51	4.82	0.06	1.17
Nitrogen, Total Kjeldahl	mg/L	30	0.86	1.10	4.80	0.03	1.04
pH	None	28	7.8	7.8	9.2	7.3	0.4
Phosphorus, orthophosphate	mg/L	29	0.054	0.074	0.340	0.002	0.072
Phosphorus, Total	mg/L	30	0.084	0.110	0.450	0.003	0.091
Salinity	ppth	0	None	None	None	None	None
Specific Conductivity	umho/cm	30	662	498	2640	374	565
Temperature	deg C	30	24.9	25.4	34.1	17.3	4.6
Total Hardness	mg/L	27	232	192	781	129	166
Total Suspended Solids	mg/L	28	6.6	5.5	43.6	2.5	10.9
Turbidity	NTU	30	6.5	5.9	45.0	0.5	11.1
Zinc	mg/L	28	0.0059	0.0055	0.0202	0.0015	0.0033

Table 5-6 Monitoring Data Summary

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SITE 43		Date Range: 04/18/17 - 07/20/22 Samples: 30					
		Count	Geometric Mean	Median	Max	Min	Standard Deviation
Alkalinity	mg/L	0	None	None	None	None	None
Arsenic	mg/L	28	0.0044	0.0036	2.2350	0.0007	0.4217
Cadmium	mg/L	28	0.0002	0.0002	0.1950	0.0001	0.0368
Chlorophyll-a (corrected)	ug/L	29	6.1	7.7	61.2	0.5	12.0
Copper	mg/L	28	0.0017	0.0013	0.9750	0.0003	0.1840
Dissolved Oxygen	% Saturation	30	61.9	70.0	160.0	19.0	28.9
E. Coli	cfu/100mL	0	None	None	None	None	None
Lead	mg/L	28	0.0039	0.0023	2.1000	0.0007	0.5501
Nitrogen, Ammonia	mg/L	30	0.083	0.065	1.700	0.018	0.420
Nitrogen, nitrate + nitrite	mg/L	30	0.197	0.243	1.400	0.013	0.340
Nitrogen, Total	mg/L	25	1.67	1.46	4.10	0.75	1.00
Nitrogen, Total Kjeldahl	mg/L	30	1.44	1.25	3.60	0.73	0.75
pH	None	28	7.9	7.9	9.1	7.1	0.4
Phosphorus, orthophosphate	mg/L	29	0.049	0.047	0.200	0.003	0.054
Phosphorus, Total	mg/L	30	0.114	0.110	0.250	0.036	0.053
Salinity	ppth	0	None	None	None	None	None
Specific Conductivity	umho/cm	30	634	505	2272	395	519
Temperature	ECg C	30	24.9	25.1	32.6	17.6	4.5
Total Hardness	mg/L	27	234	190	630	138	146
Total SuspenECd Solids	mg/L	28	5.1	5.3	35.3	0.8	7.1
Turbidity	NTU	30	7.2	7.1	35.0	0.5	9.3
Zinc	mg/L	28	0.0058	0.0055	0.0200	0.0015	0.0036

Table 5-6 Monitoring Data Summary

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SITE M Canal		Date Range: 03/15/11 - 11/21/22 Samples: 101					
		Count	Geometric Mean	Median	Max	Min	Standard Deviation
Alkalinity	mg/L	0	None	None	None	None	None
Arsenic	mg/L	0	None	None	None	None	None
Cadmium	mg/L	0	None	None	None	None	None
Chlorophyll-a (corrected)	ug/L	58	3.5	4.4	24.3	0.5	4.8
Copper	mg/L	0	None	None	None	None	None
Dissolved Oxygen	mg/L	5	96.6	96.6	118.5	78.0	14.7
E. Coli	cfu/100mL	0	None	None	None	None	None
Lead	mg/L	0	None	None	None	None	None
Nitrogen, Ammonia	mg/L	0	None	None	None	None	None
Nitrogen, nitrate + nitrite	mg/L	65	0.115	0.170	3.600	0.005	0.582
Nitrogen, Total	mg/L	68	1.32	1.25	5.20	0.66	0.84
Nitrogen, Total Kjeldahl	mg/L	64	1.09	1.10	3.00	0.30	0.47
pH	None	69	7.8	7.8	8.6	6.8	0.3
Phosphorus, orthophosphate	mg/L	0	None	None	None	None	None
Phosphorus, Total	mg/L	66	0.092	0.093	0.600	0.018	0.094
Salinity	ppth	0	None	None	None	None	None
Specific Conductivity	umho/cm	0	None	None	None	None	None
Temperature	deg C	69	26.7	27.6	33.2	18.4	3.8
Total Hardness	mg/L	0	None	None	None	None	None
Total Suspended Solids	mg/L	0	None	None	None	None	None
Turbidity	NTU	69	13.5	12.0	152.0	2.5	26.8
Zinc	mg/L	0	None	None	None	None	None

SITE Control 4		Date Range: 04/15/11 - 11/21/22 Samples: 132					
		Count	Geometric Mean	Median	Max	Min	Standard Deviation
Alkalinity	mg/L	0	None	None	None	None	None
Arsenic	mg/L	0	None	None	None	None	None
Cadmium	mg/L	0	None	None	None	None	None
Chlorophyll-a (corrected)	ug/L	66	2.3	1.9	18.7	0.5	4.1
Copper	mg/L	0	None	None	None	None	None
Dissolved Oxygen	mg/L	120	9.6	5.6	106.1	0.1	32.7
E. Coli	cfu/100mL	0	None	None	None	None	None
Lead	mg/L	0	None	None	None	None	None
Nitrogen, Ammonia	mg/L	0	None	None	None	None	None
Nitrogen, nitrate + nitrite	mg/L	76	0.056	0.036	0.530	0.013	0.155
Nitrogen, Total	mg/L	76	1.02	1.00	1.90	0.04	0.31
Nitrogen, Total Kjeldahl	mg/L	66	0.89	0.95	1.70	0.04	0.21
pH	None	132	7.5	7.5	8.7	6.2	0.4
Phosphorus, orthophosphate	mg/L	52	0.014	0.012	0.082	0.002	0.022
Phosphorus, Total	mg/L	70	0.053	0.049	0.160	0.017	0.035
Salinity	ppth	0	None	None	None	None	None
Specific Conductivity	umho/cm	87	377	392	1697	0	251
Temperature	deg C	132	25.9	26.5	34.1	18.3	3.5
Total Hardness	mg/L	67	141	142	252	76	40
Total Suspended Solids	mg/L	0	None	None	None	None	None
Turbidity	NTU	130	5.4	5.0	48.4	0.9	8.8
Zinc	mg/L	0	None	None	None	None	None

Table 5-6 Monitoring Data Summary

WPBWS Watershed

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SITE Lake Mangonia		Date Range: 03/15/11 - 11/17/22 Samples: 75					
		Count	Geometric Mean	Median	Max	Min	Standard Deviation
Alkalinity	mg/L	0	None	None	None	None	None
Arsenic	mg/L	0	None	None	None	None	None
Cadmium	mg/L	0	None	None	None	None	None
Chlorophyll-a (corrected)	ug/L	64	4.0	5.1	34.6	0.5	6.7
Copper	mg/L	0	None	None	None	None	None
Dissolved Oxygen	mg/L	64	12.5	7.7	112.0	5.1	37.0
E. Coli	cfu/100mL	0	None	None	None	None	None
Lead	mg/L	0	None	None	None	None	None
Nitrogen, Ammonia	mg/L	0	None	None	None	None	None
Nitrogen, nitrate + nitrite	mg/L	71	0.024	0.017	1.300	0.005	0.179
Nitrogen, Total	mg/L	74	0.85	0.80	2.40	0.60	0.27
Nitrogen, Total Kjeldahl	mg/L	66	0.81	0.80	1.20	0.56	0.14
pH	None	75	8.2	8.2	8.7	7.2	0.3
Phosphorus, orthophosphate	mg/L	34	0.006	0.004	0.180	0.002	0.031
Phosphorus, Total	mg/L	65	0.025	0.025	0.200	0.003	0.023
Salinity	ppth	0	None	None	None	None	None
Specific Conductivity	umho/cm	75	489	468	1226	274	174
Temperature	deg C	75	26.0	25.8	31.8	19.3	3.4
Total Hardness	mg/L	0	None	None	None	None	None
Total Suspended Solids	mg/L	0	None	None	None	None	None
Turbidity	NTU	75	2.8	2.7	8.9	0.6	1.6
Zinc	mg/L	0	None	None	None	None	None

SITE Clear Lake		Date Range: 03/15/11 - 11/17/22 Samples: 75					
		Count	Geometric Mean	Median	Max	Min	Standard Deviation
Alkalinity	mg/L	0	None	None	None	None	None
Arsenic	mg/L	0	None	None	None	None	None
Cadmium	mg/L	0	None	None	None	None	None
Chlorophyll-a (corrected)	ug/L	11	1.9	1.4	8.8	0.5	3.4
Copper	mg/L	0	None	None	None	None	None
Dissolved Oxygen	mg/L	21	7.9	7.8	10.0	6.6	0.8
E. Coli	cfu/100mL	0	None	None	None	None	None
Lead	mg/L	0	None	None	None	None	None
Nitrogen, Ammonia	mg/L	0	None	None	None	None	None
Nitrogen, nitrate + nitrite	mg/L	18	0.053	0.061	1.800	0.013	0.439
Nitrogen, Total	mg/L	21	0.80	0.74	2.30	0.21	0.47
Nitrogen, Total Kjeldahl	mg/L	18	0.66	0.66	1.50	0.18	0.29
pH	None	21	8.3	8.3	8.7	7.9	0.2
Phosphorus, orthophosphate	mg/L	0	None	None	None	None	None
Phosphorus, Total	mg/L	21	0.012	0.012	0.025	0.001	0.009
Salinity	ppth	0	None	None	None	None	None
Specific Conductivity	umho/cm	21	495	496	850	304	152
Temperature	deg C	21	25.9	27.3	30.8	21.0	3.4
Total Hardness	mg/L	0	None	None	None	None	None
Total Suspended Solids	mg/L	0	None	None	None	None	None
Turbidity	NTU	21	1.3	1.3	2.5	0.6	0.5
Zinc	mg/L	0	None	None	None	None	None

TABLE 5-7
Summary of Geometric Mean Values for TN, TP, Chl-a
January 1999 - September 2022

Watershed	Site	Total Nitrogen mg/L	Total Phosphorus mg/L	Chlorophyll-a ug/L
C-15	31E	1.44	0.24	16.31
	31C	1.17	0.13	13.40
	31B	0.98	0.10	9.66
C-16	22	1.00	0.06	10.35
	24	0.67	0.04	10.68
	27B	1.39	0.16	11.85
	27A	1.04	0.10	10.36
	28	0.84	0.06	7.35
C-17	12A	1.22	0.05	10.74
	C17S44	0.85	0.04	9.16
C-18	16	0.96	0.03	3.68
	15	0.86	0.02	1.96
	92	0.82	0.02	3.73
	81	0.77	0.02	4.78
C-51	38B	1.49	0.09	5.90
	37B	0.83	0.05	3.90
	C51S155	1.08	0.06	1.74
Lox	69	0.98	0.04	2.93
	51	0.01	0.01	4.00
	62	0.03	0.02	5.26
	72	0.02	0.01	8.31
ICWW-N	30	0.29	0.03	4.01
LWL-N	LWL-1	0.34	0.03	4.75
	11	0.38	0.03	2.80
	13	0.43	0.04	3.50
	LWL-4	0.27	0.02	2.39
LWL-C	LWL-8	0.49	0.05	5.67
	18C	0.65	0.06	4.85
	18D	0.53	0.06	4.59
	LWL-11	0.45	0.04	5.51
ICWW-S	LWL-13	0.38	0.03	4.88
	LWL-18	0.41	0.04	5.72
Hillsboro	1	0.76	0.10	5.47
	2	1.21	0.08	6.53
	3	1.39	0.09	6.99
	S39	0.15	0.02	
L-8	Culv10a	1.97	0.14	1.53
S-2-6-7	S-2		0.09	2.65
	39	1.30	0.08	3.42
	43	1.67	0.11	5.32
WPBWS	M Canal	1.32	0.09	3.37
	Control 4	1.04	0.05	2.17
	Lake Mangonia	0.84	0.02	3.73
	Clear Lake	0.80	0.02	2.62

- C-15, a Class III Freshwater has a minimum level of chlorophyll-a (corrected) AGM of 20 µg/L
- Northern Lake Worth Lagoon has a minimum level of chlorophyll-a (corrected) AGM of 2.9 µg/L
- Northern Lake Worth Lagoon has a minimum level of Total Nitrogen AGM of .54 mg/L
- Northern Lake Worth Lagoon has a minimum level of Total Phosphorus AGM of .044 mg/L
- Central Lake Worth Lagoon has a minimum level of Total Nitrogen AGM of .66 mg/L
- Central Lake Worth Lagoon has a minimum level of Total Phosphorus AGM of .049 mg/L

Table 5-8
Total Nitrogen
(Annual Geometric Mean)

- Meeting criteria
- Not meeting criteria
- No numeric criteria

	C-15				C-16						C-17		
	31E	31C	31B	Basin	22	24	27B	27A	28	Basin	12A	C17S44	Basin
2013	●	●	●	●	●	●	●	●	●	●	●	●	●
2014	●	●	●	●	●	●	●	●	●	●	●	●	●
2015	●	●	●	●	●	●	●	●	●	●	●	●	●
2016	●	●	●	●	●	●	●	●	●	●	●	●	●
2017	●	●	●	●	●	●	●	●	●	●	●	●	●
2018	●	●	●	●	●	●	●	●	●	●	●	●	●
2019	●	●	●	●	●	●	●	●	●	●	●	●	●
2020	●	●	●	●	●	●	●	●	●	●	●	●	●
2021	●	●	●	●	●	●	●	●	●	●	●	●	●
2022	●	●	●	●	●	●	●	●	●	●	●	●	●
FDEP Criteria	No Criteria	No Criteria	No Criteria	No Criteria	Varies	Varies	No Criteria	No Criteria	No Criteria	No Criteria	No Criteria	No Criteria	No Criteria

	Values Used (mg/l)												
2013	1.20	1.00	0.97	1.05	0.80	0.76	1.18	0.92	1.01	0.92	0.92	0.89	0.91
2014	1.30	0.84	0.76	0.94	0.82	0.72	1.14	0.86	0.74	0.85	0.93	0.39	0.60
2015	1.21	0.76	0.88	0.93	0.91	0.83	1.31	0.80	1.46	1.03	1.07	0.77	0.91
2016	1.61	1.09	1.02	1.21	0.96	0.85	1.33	1.22	0.82	1.02	0.98	0.88	0.93
2017	1.19	1.09	1.07	1.12	0.84	1.05	1.43	1.22	0.57	0.97	1.03	0.69	0.84
2018	1.19	1.00	0.92	1.03	1.13	0.90	1.29	0.39	0.80	0.84	0.39	0.86	0.58
2019	1.33	0.99	0.56	0.90	0.92	0.09	1.34	0.51	0.31	0.44	0.98	0.78	0.88
2020	1.07	0.96	0.89	0.97	0.93	0.15	0.84	0.62	0.14	0.40	0.68	0.78	0.73
2021	1.07	0.94	0.95	0.99	0.92	0.15	1.01	1.00	0.06	0.38	0.38	0.74	0.53
2022	1.19	1.02	0.86	1.02	0.80	0.09	1.21	0.82	0.09	0.37	0.86	0.16	0.36

Varies for sites 22 and 24 $TN \leq 1.27$ AGM when Chlorophyll-a >20 mg/l
 $TN \leq 2.23$ AGM when Chlorophyll-a ≤ 20 mg/l

Table 5-8
Total Nitrogen (Annual Geometric Mean)
 (Page 2 of 4)

- Meeting criteria
- Not meeting criteria
- No numeric criteria

	C-18					C-51				Lox	Lox			
	16	15	92	81	Basin	38B	37B	C51S155	Basin	69	51	62	72	Basin
2013	●	●	●	●	●	●	●	●	●	●	●	●	●	●
2014	●	●	●	●	●	●	●	●	●	●	●	●	●	●
2015	●	●	●	●	●	●	●	●	●	●	●	●	●	●
2016	●		●	●	●	●	●	●	●	●	●	●	●	●
2017	●		●	●	●	●	●	●	●	●	●	●	●	●
2018	●	●	●	●	●	●	●	●	●	●	●	●	●	●
2019	●	●	●	●	●	●	●	●	●	●	●	●	●	●
2020	●	●	●	●	●	●	●	●	●	●	●	●	●	●
2021	●	●	●	●	●	●	●	●	●	●	●	●	●	●
2022	●	●	●	●	●	●	●	●	●	●	●	●	●	●
FDEP Criteria	<=1.54	<=1.54	<=1.54	<=1.54	<=1.54	No Criteria	No Criteria	No Criteria	No Criteria	<=1.54	<=0.8	<=1.26	<=1.26	No Criteria

	Values Used (mg/l)													
2013	0.87	0.64	0.88	0.82	0.79	1.15	1.26	1.96	1.42	0.81	0.15	0.62	0.41	0.33
2014	0.66	0.66	0.23	0.25	0.39	1.39	1.16	0.73	1.06	0.91	0.35	0.79	0.57	0.54
2015	0.77	0.76	0.80	0.74	0.77	1.19	1.09	0.97	1.08	0.85	0.20	0.58	0.52	0.39
2016	0.94		0.97	0.91	0.94	1.37	1.02	1.14	1.17	0.91	0.25	0.72	0.70	0.50
2017	0.88		0.87	0.97	0.91	1.14	0.80	0.79	0.90	1.01	0.22	0.57	0.69	0.44
2018	1.08	0.27	1.13	0.83	0.72	2.22	1.65	1.34	1.70	0.95	0.52	0.71	0.79	0.66
2019	0.96	0.74	0.84	0.87	0.85	0.48	0.14	0.96	0.40	0.87	0.27	0.69	0.58	0.47
2020	0.62	0.70	0.81	0.87	0.74	1.75	0.17	0.88	0.64	0.84	0.43	0.69	0.63	0.57
2021	0.95	0.76	1.00	0.86	0.89	1.03	0.09	0.68	0.40	0.94	0.30	0.54	0.56	0.45
2022	0.77	0.68	0.89	0.93	0.81	1.34	0.20	0.80	0.59	0.84	0.30	0.57	0.48	

Table 5-8
Total Nitrogen (Annual Geometric Mean)
 (Page 3 of 4)

- Meeting criteria
- Not meeting criteria
- No numeric criteria

	ICWW-N	LWL-N					LWL-C					ICWW-S		
	30	LWL-1	11	13	LWL-4	Basin	LWL-8	18C	18D	LWL-11	Basin	LWL-13	LWL-18	Basin
2013	●	●	●	●	●	●	●	●	●	●	●	●	●	●
2014	●	●	●	●	●	●	●	●	●	●	●	●	●	●
2015	●	●	●	●	●	●	●	●	●	●	●	●	●	●
2016	●	●	●	●	●	●	●	●	●	●	●	●	●	●
2017	●	●	●	●	●	●	●	●	●	●	●	●	●	●
2018	●	●	●	●	●	●	●	●	●	●	●	●	●	●
2019	●	●	●	●	●	●	●	●	●	●	●	●	●	●
2020	●	●	●	●	●	●	●	●	●	●	●	●	●	●
2021	●	●	●	●	●	●	●	●	●	●	●	●	●	●
2022	●	●	●	●	●	●	●	●	●	●	●	●	●	●
FDEP Criteria	<=0.66	<=0.54	<=0.54	<=0.54	<=0.54	<=0.54	<=0.66	<=0.66	<=0.66	<=0.66	<=0.66	<=0.59	<=0.59	<=0.59

	Values Used (mg/l)													
2013	0.15	0.28	0.53	0.59	0.23	0.38	0.54	0.93	0.90	0.48	0.68	0.41	0.44	0.42
2014	0.24	0.19	0.25	0.33	0.14	0.22	0.32	0.65	0.52	0.16	0.37	0.14	0.15	0.14
2015	0.20	0.32	0.22	0.25	0.21	0.25	0.39	0.62	0.30	0.39	0.41	0.30	0.46	0.37
2016	0.25	0.33	0.23	0.37	0.31	0.31	0.55	0.45	0.30	0.53	0.45	0.32	0.46	0.39
2017	0.25	0.34	0.13	0.14	0.25	0.20	0.67	0.21	0.15	0.66	0.35	0.99	0.56	0.74
2018	0.37	0.41	0.20	0.40	0.31	0.32	0.74		0.70	0.47	0.62	0.44	0.27	0.34
2019	0.28	0.33	0.29	0.31	0.24	0.29	0.42	0.43	0.42	0.43	0.42	0.34	0.36	0.35
2020	0.36	0.31	0.18	0.22	0.25	0.23	0.35	0.48	0.37	0.38	0.39	0.33	0.34	0.34
2021	0.25	0.27	0.22	0.16	0.18	0.20	0.33	0.11	0.35	0.33	0.26	0.35	0.39	0.37
2022	0.28		0.28	0.18		0.23		0.16			0.16			

Table 5-8
Total Nitrogen (Annual Geometric Mean)
 (Page 4 of 4)

- Meeting criteria
- Not meeting criteria
- No numeric criteria

	Hillsboro					L-8	S-2-6-7				WPBWS				
	1	2	3	S39	Basin	Culv10A	S-2	39	43	Basin	M Canal	Control 4	Lake Mangonia	Clear Lake	Basin
2013	●	●	●		●						●		●	●	●
2014											●	●	●	●	●
2015											●	●	●	●	●
2016	●	●	●		●						●	●	●	●	●
2017	●	●	●		●			●	●	●	●	●	●	●	●
2018	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
2019	●	●	●		●	●	●	●	●	●	●	●	●	●	●
2020	●	●	●		●		●	●	●	●	●	●	●	●	●
2021	●	●	●		●		●	●	●	●	●	●	●	●	●
2022	●	●	●		●		●	●	●	●	●	●	●	●	●
FDEP Criteria	No Criteria	No Criteria	No Criteria	No Criteria	No Criteria	No Criteria	No Criteria	No Criteria	No Criteria	No Criteria	No Criteria	No Criteria	1.05 to 1.91	1.05 to 1.91	1.05 to 1.91

	Values Used (mg/l)														
2013	0.67	1.30	1.38		1.06						1.30		0.79	0.67	0.88
2014											1.40	1.12	0.89	1.00	1.09
2015											1.25	0.94	0.95	0.91	1.00
2016	1.19	1.25	1.42		1.28						1.34	1.11	0.84	0.89	1.03
2017	0.59	1.38	1.38		1.04			4.23	5.22	4.70	1.61	1.19	0.95	0.82	1.11
2018	1.41	1.47	1.52	0.03	0.56	2.23	1.77	1.62	1.57	1.65	1.24	1.08	0.85	0.80	0.98
2019	0.60	1.13	1.45		0.99	2.21	1.79	2.00	1.93	1.90	1.38	1.12	0.80	0.75	0.98
2020	0.68	1.02	1.22	0.33	0.73	1.78	2.15	0.49	1.79	1.23	1.20	1.10	0.74	0.71	0.91
2021	0.61	1.02	1.17	1.16	0.96	2.29	1.84	1.62	1.49	1.64	1.30	0.70	0.75	0.70	0.83
2022	0.61	1.02	1.26	1.10	0.96	1.58	1.18			1.18	1.14	0.92	0.86	0.81	0.93

Varies for Lake Magnonia and Clear Lake TN ≤ 1.27 AGM when Chlorophyll-a >20 mg/l
 TN ≤ 2.23 AGM when Chlorophyll-a ≤20 mg/l

Table 5-9
Total Phosphorus (Annual Geometric Mean)
 (Page 1 of 4)

- Meeting criteria
- Not meeting criteria
- No numeric criteria

	C-15				C-16						C-17		
	31E	31C	31B	Basin	22	24	27B	27A	28	Basin	12A	C17S44	Basin
2013	●	●	●	●	●	●	●	●	●	●	●	●	●
2014	●	●	●	●	●	●	●	●	●	●	●	●	●
2015	●	●	●	●	●	●	●	●	●	●	●	●	●
2016	●	●	●	●	●	●	●	●	●	●	●	●	●
2017	●	●	●	●	●	●	●	●	●	●	●	●	●
2018	●	●	●	●	●	●	●	●	●	●	●	●	●
2019	●	●	●	●	●	●	●	●	●	●	●	●	●
2020	●	●	●	●	●	●	●	●	●	●	●	●	●
2021	●	●	●	●	●	●	●	●	●	●	●	●	●
2022	●	●	●	●	●	●	●	●	●	●	●	●	●
FDEP Criteria	No Criteria	No Criteria	No Criteria	No Criteria	Varies	Varies	No Criteria	No Criteria	No Criteria	No Criteria	No Criteria	No Criteria	No Criteria

	Values Used (mg/l)												
2013	0.25	0.15	0.09	0.15	0.06	0.07	0.07	0.10	0.06	0.07	0.06	0.05	0.05
2014	0.28	0.12	0.10	0.15	0.12	0.06	0.18	0.11	0.07	0.10	0.05	0.04	0.05
2015	0.16	0.07	0.05	0.08	0.05	0.07	0.16	0.05	0.05	0.07	0.04	0.04	0.04
2016	0.30	0.16	0.13	0.19	0.06	0.05	0.33	0.14	0.14	0.11	0.06	0.04	0.05
2017	0.18	0.12	0.02	0.08	0.01	0.02	0.11	0.07	0.03	0.03	0.05	0.03	0.04
2018	0.16	0.12		0.13	0.07	0.06	0.14	0.03	0.08	0.07	0.06	0.05	0.06
2019	0.32	0.13	0.07	0.15	0.07	0.00	0.17	0.03	0.02		0.07	0.05	
2020	0.25	0.12	0.10	0.14	0.06	0.01	0.11	0.07	0.01	0.03	0.05	0.05	0.05
2021	0.19	0.14	0.11	0.14	0.07	0.01	0.11	0.10	0.00	0.02	0.03	0.04	0.03
2022	0.29	0.12	0.08	0.14	0.09	0.00	0.12	0.07	0.00	0.02	0.06	0.01	0.02

Varies for sites 22 and 24 TP ≤ 0.050 AGM when Chlorophyll-a >20 mg/l
 TP ≤ 0.16 AGM when Chlorophyll-a ≤20 mg/l

Table 5-9
Total Phosphorus (Annual Geometric Mean)
 (Page 2 of 4)

- Meeting criteria
- Not meeting criteria
- No numeric criteria

	C-18					C-51				Lox	Lox			
	16	15	92	81	Basin	38B	37B	C51S155	Basin	69	51	62	72	Basin
2013	●	●	●	●	●	●	●	●	●	●	●	●	●	●
2014	●	●	●	●	●	●	●	●	●	●	●	●	●	●
2015	●	●	●	●	●	●	●	●	●	●	●	●	●	●
2016	●	●	●	●	●	●	●	●	●	●	●	●	●	●
2017	●	●	●	●	●	●	●	●	●	●	●	●	●	●
2018	●	●	●	●	●	●	●	●	●	●	●	●	●	●
2019	●	●	●	●	●	●	●	●	●	●	●	●	●	●
2020	●	●	●	●	●	●	●	●	●	●	●	●	●	●
2021	●	●	●	●	●	●	●	●	●	●	●	●	●	●
2022	●	●	●	●	●	●	●	●	●	●	●	●	●	●
FDEP Criteria	<=0.12	<=0.12	<=0.12	<=0.12	<=0.12	No Criteria	No Criteria	No Criteria	No Criteria	<=0.12	<=0.03	<=0.075	<=0.075	<=0.1

	Values Used (mg/l)													
2013	0.03	0.00	0.02	0.02	0.02	0.09	0.08	0.06	0.08	0.03	0.03	0.06	0.04	0.04
2014	0.01	0.01	0.04	0.02	0.02	0.11	0.14	0.06	0.10	0.04	0.03	0.06	0.04	0.04
2015	0.02	0.01	0.02	0.02	0.02	0.11	0.08	0.08	0.09	0.03	0.02	0.05	0.04	0.03
2016	0.02	0.01	0.03	0.03	0.02	0.08	0.09	0.06	0.08	0.03	0.02	0.05	0.05	0.04
2017	0.03	0.15	0.04	0.02	0.04	0.18	0.05	0.06	0.08	0.04	0.02	0.04	0.03	0.03
2018	0.02	0.01	0.06	0.03	0.02	0.16	0.11	0.09	0.11	0.06	0.03		0.04	0.03
2019	0.03	0.01	0.03	0.02		0.04	0.01	0.07		0.03	0.02	0.05	0.04	0.03
2020	0.03	0.01	0.03	0.02	0.02	0.08	0.01	0.05	0.04	0.03	0.02	0.04	0.04	0.03
2021	0.04	0.02	0.03	0.02	0.02	0.06	0.00	0.06	0.03	0.03	0.02	0.04	0.03	0.03
2022	0.03	0.02	0.02	0.02	0.02	0.06	0.00	0.05	0.02	0.03	0.03	0.05	0.03	0.03

Table 5-9
Total Phosphorus (Annual Geometric Mean)
 (Page 3 of 4)

- Meeting criteria
- Not meeting criteria
- No numeric criteria

	ICWW-N	LWL-N					LWL-C					ICWW-S		
	30	LWL-1	11	13	LWL-4	Basin	LWL-8	18C	18D	LWL-11	Basin	LWL-13	LWL-18	Basin
2013	●	●	●	●	●	●	●	●	●	●	●	●	●	●
2014	●	●	●	●	●	●	●	●	●	●	●	●	●	●
2015	●	●	●	●	●	●	●	●	●	●	●	●	●	●
2016	●	●	●	●	●	●	●	●	●	●	●	●	●	●
2017	●	●	●	●	●	●	●	●	●	●	●	●	●	●
2018	●	●	●	●	●	●	●	●	●	●	●	●	●	●
2019	●	●	●	●	●	●	●	●	●	●	●	●	●	●
2020	●	●	●	●	●	●	●	●	●	●	●	●	●	●
2021	●	●	●	●	●	●	●	●	●	●	●	●	●	●
2022	●	●	●	●	●	●	●	●	●	●	●	●	●	●
FDEP Criteria	<=0.035	<=0.044	<=0.044	<=0.044	<=0.044	<=0.044	<=0.049	<=0.049	<=0.049	<=0.049	<=0.049	<=0.05	<=0.05	<=0.05

	Values Used (mg/l)													
2013	0.02	0.03	0.07	0.06	0.02	0.04	0.05	0.08	0.08	0.06	0.07	0.04	0.05	0.04
2014	0.02	0.03	0.06	0.04	0.02	0.03	0.05	0.07	0.06	0.05	0.06	0.03	0.04	0.04
2015	0.02	0.03	0.06	0.06	0.02	0.04	0.04	0.08	0.07	0.04	0.05	0.02	0.05	0.03
2016	0.02	0.03	0.04	0.04	0.02	0.03	0.05	0.08	0.06	0.04	0.06	0.03	0.05	0.04
2017	0.02	0.03	0.01	0.01	0.02	0.01	0.06	0.05	0.02	0.06	0.04	0.07	0.07	0.07
2018	0.03	0.04	0.03	0.04	0.02	0.03	0.07	0.07	0.06	0.03	0.06	0.03	0.03	0.03
2019	0.02	0.03	0.05	0.05	0.02	0.03	0.04	0.09	0.06	0.04	0.06	0.03	0.05	0.04
2020	0.03	0.04	0.04	0.03	0.02	0.03	0.04	0.08	0.06	0.03	0.05	0.03	0.04	0.03
2021	0.03	0.03	0.02	0.01	0.02	0.01	0.04	0.01	0.04	0.03	0.03	0.03	0.03	0.03
2022	0.02		0.01	0.00		0.01		0.00	0.02		0.01			

Table 5-9
Total Phosphorus (Annual Geometric Mean)
 (Page 4 of 4)

- Meeting criteria
- Not meeting criteria
- No numeric criteria

	Hillsboro					L-8	S-2-6-7				WPBWS				
	1	2	3	S39	Basin	Culv10a	S-2	39	43	Basin	M Canal	Control 4	Lake Mangonia	Clear Lake	Basin
2013	●	●	●	●	●	●					●	●	●	●	●
2014	●	●	●	●	●	●					●	●	●	●	●
2015				●	●	●					●	●	●	●	●
2016	●	●	●	●	●	●					●	●	●	●	●
2017	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
2018	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
2019	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
2020	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
2021	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
2022	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
FDEP Criteria	No Criteria	No Criteria	No Criteria	No Criteria	No Criteria	No Criteria	No Criteria	No Criteria	No Criteria	No Criteria	No Criteria	No Criteria	0.03 to 0.09	0.03 to 0.10	0.03 to 0.11

	Values Used (mg/l)														
2013	0.08	0.08	0.07	0.02	0.05	0.14					0.10	0.07	0.02	0.01	0.03
2014	0.11	0.10	0.07	0.01	0.06	0.16					0.09	0.08	0.02	0.01	0.03
2015				0.01	0.01	0.15					0.12	0.06	0.04	0.02	0.05
2016	0.18	0.10	0.13	0.01	0.08	0.15					0.11	0.04	0.03	0.02	0.04
2017	0.11	0.05	0.06	0.01	0.04	0.19	0.11	0.12	0.09	0.11	0.12	0.05	0.03	0.02	0.04
2018	0.07	0.06	0.06	0.02	0.04	0.17	0.13	0.13	0.13	0.13	0.10	0.06	0.02	0.01	0.03
2019	0.13	0.10	0.10	0.01	0.07	0.16	0.10	0.11	0.10	0.10	0.11	0.07	0.02	0.02	0.04
2020				0.01	0.01	0.17	0.13	0.02	0.13	0.07	0.08	0.05	0.03	0.02	0.04
2021	0.13	0.07	0.09	0.02	0.06	0.16	0.13	0.12	0.12	0.12	0.10	0.05	0.03	0.02	0.04
2022	0.14	0.11	0.11	0.01	0.07	0.15	0.07	0.10	0.11	0.09	0.09	0.04	0.02	0.02	0.03

Varies for sites Lake and Clear Lake TP ≤ 0.03 AGM when Chlorophyll-a >20 mg/l
 TP ≤ 0.09 AGM when Chlorophyll-a ≤20 mg/l

Table 5-10
Chlorophyll-A (Annual Geometric Mean)

(Page 1 of 4)

- Meeting criteria
- Not meeting criteria
- No numeric criteria

	C-15				C-16						C-17		
	31E	31C	31B	Basin	22	24	27B	27A	28	Basin	12A	C17S44	Basin
2013	●	●		●	●	●	●	●		●			●
2014	●	●	●	●	●	●	●	●	●	●	●		●
2015	●	●	●	●	●	●	●	●	●	●			●
2016	●	●	●	●	●	●	●	●	●	●			●
2017	●	●	●	●	●	●	●	●	●	●			●
2018	●	●	●	●	●	●	●	●	●	●			●
2019	●	●	●	●	●	●	●	●	●	●			●
2020	●	●	●	●	●	●	●	●	●	●			●
2021	●	●	●	●	●	●	●	●	●	●			●
2022	●	●	●	●	●	●	●	●	●	●			●
FDEP Criteria	<=20	<=20	<=20	<=20	<=20	<=20	<=20	<=20	<=20	<=20	<=20	<=20	<=20

	Values Used (ug/l)												
2013	43.87	24.19		32.57	28.64	15.83	7.38	17.32		15.51	12.50		12.50
2014	39.23	28.66	27.53	31.39	22.70	17.75	35.79	18.36	15.53	21.03	20.44		20.44
2015	16.28	9.10	18.72	14.05	9.86	13.62	26.83	8.03	8.27	11.91	12.94		12.94
2016	9.72	8.42	17.18	11.20	12.73	20.70	7.45	8.11	5.56	9.76	11.78		11.78
2017	16.15	15.39	19.16	16.82	18.04	6.14	9.60	8.04	4.57	8.29	8.10		8.10
2018	14.58	9.63	16.84	13.32	9.52	4.58	3.39	10.83	20.68	8.02	5.98		5.98
2019	8.11	13.38	8.39	9.69	11.97	5.77	11.96	3.86	5.83	7.14	7.61		7.61
2020	17.54	12.22	11.39	13.47	21.37	19.80	18.01	10.93	13.99	16.34	14.67		14.67
2021	0.80	1.93	0.61	0.98	0.67	1.42	1.07	0.55	1.27	0.93	1.08		1.08
2022	15.64	13.41	6.60	11.15	6.84	12.78	14.61	5.82	11.59	9.70	12.02		12.02

Table 5-10
Chlorophyll-A (Annual Geometric Mean)

(Page 2 of 4)

- Meeting criteria
- Not meeting criteria
- No numeric criteria

	C-18					C-51				Lox	Lox				ICWW-N
	16	15	92	81	Basin	38B	37B	C51S155	Basin	69	51	62	72	Basin	30
2013	●	●			●	●	●		●	●	●	●	●	●	●
2014	●	●			●	●	●	●	●	●	●	●	●	●	●
2015	●	●			●	●	●		●	●	●	●	●	●	●
2016	●	●	●	●	●	●	●		●	●	●	●	●	●	●
2017	●	●	●	●	●	●	●		●	●	●	●	●	●	●
2018	●	●	●	●	●	●	●		●	●	●	●	●	●	●
2019	●	●	●	●	●	●	●		●	●	●	●	●	●	●
2020	●	●	●	●	●	●	●		●	●	●	●	●	●	●
2021	●	●	●	●	●	●	●		●	●	●	●	●	●	●
2022	●	●	●	●	●	●	●		●	●	●	●	●	●	●
FDEP Criteria	<=20	<=20	<=20	<=20	<=20	<=20	<=20	<=20	<=20	<=20	<=4	<=5.5	<=5.5	<=4.9	<=4.7

	Values Used (ug/l)														
2013	5.65	2.09			3.44	5.16	4.36		4.75	2.36	4.28	6.10	8.66	5.30	
2014	2.14	2.14			2.14	4.07	2.79	0.03	0.66	3.00	4.49	5.50	11.23	5.82	
2015	2.54	1.26			1.79	5.64	2.06		3.41	1.92	4.07	5.94	10.83	5.70	
2016	5.63	2.34	6.51	8.05	5.13	10.17	3.93		6.32	2.47	2.95	4.76	7.07	4.33	
2017	4.80	2.02	3.44	6.71	3.87	3.16	3.98		3.55	2.09	2.29	5.33	7.71	4.29	
2018	2.57	2.58	3.09	5.52	3.26	4.22	4.99		4.59	3.30	5.96	4.83	4.90	4.63	
2019	2.71	2.02	5.04	7.80	3.83	3.90	2.35		3.03	3.70	3.72	5.91	9.45	5.92	3.75
2020	6.83	1.12	3.35	6.76	3.63	19.55	8.26	0.72	4.88	3.75	5.17	3.79	8.30	5.46	4.51
2021	0.86	0.55	5.00	3.17	1.65	0.91	0.61	5.24	1.42	1.91	3.03	4.57	6.63	4.51	4.30
2022	2.18	3.38	5.57	4.24	3.63	13.22	7.00	3.26	6.71	2.74	3.98	3.98	8.90	5.21	3.45

Table 5-10
Chlorophyll-A (Annual Geometric Mean)
 (Page 3 of 4)

- Meeting criteria
- Not meeting criteria
- No numeric criteria

	LWL-N					LWL-C					ICWW-S		
	LWL-1	11	13	LWL-4	Basin	LWL-8	18C	18D	LWL-11	Basin	LWL-13	LWL-18	Basin
2013		●	●		●		●	●		●			
2014		●	●		●		●	●		●			
2015	●	●	●	●	●	●	●	●	●	●	●	●	●
2016		●	●		●		●	●		●			
2017		●	●		●	●	●	●	●	●	●	●	●
2018		●	●	●	●	●	●	●	●	●	●	●	●
2019		●	●		●	●	●	●	●	●	●	●	●
2020		●	●		●	●	●	●	●	●	●	●	●
2021		●	●		●	●	●	●	●	●	●	●	●
2022		●	●		●		●	●		●	●	●	●
FDEP Criteria	<=2.9	<=2.9	<=2.9	<=2.9	<=2.9	<=10.2	<=10.2	<=10.2	<=10.2	<=10.2	<=5.7	<=5.7	<=5.7

	Values Used (ug/l)											
2013		3.90	4.55		4.22		4/12	5/12		9/12		
2014		5.23	7.51		6.26		6/9	8/9		14/18		
2015	5.10	3.28	3.41	1.81	3.19	1/10	2/7	1/7	2/10	6/44	4.08	5.11
2016		7.06	3.82		5.19		1/5	1/5		2/5		
2017		2.81	3.92		3.32	1/7	1/6	1/6	2/7	5/26	5.4	7.9
2018	6.92	3.12	4.26	5.79	4.81	9/10	5/6	5/6	9/10	28/32	11.11	5.73
2019	4.37	1.73	2.94	1.81	2.52	2/9	1/9	1/9	1/9	5/36	4.60	7.72
2020	2.40	2.17	2.79	2.47	2.45	3/10	0/10	0/10	1/11	4/42	4.59	4.94
2021	4.44	0.58	0.71	1.71	1.33	2/11	0/6	0/8	1/11	3/36	3.85	4.40
2022		1.95	2.31		2.12		0/10	1/10		1/20		

Note: Chlorophyll-a criteria for LWL-C shall not be exceeded in more than 10 percent of the measurements

Table 5-10
Chlorophyll-A (Annual Geometric Mean)
 (Page 4 of 4)

- Meeting criteria
- Not meeting criteria
- No numeric criteria

	Hillsboro					L-8	S-2-6-7				WPBWS				
	1	2	3	S39	Basin	Culv10a	S-2	39	43	Basin	M Canal	Control 4	Lake Mangonia	Clear Lake	Basin
2013	●	●	●		●						●		●	●	●
2014	●	●	●		●						●		●	●	●
2015	●	●	●		●						●		●	●	●
2016	●	●	●		●						●	●	●	●	●
2017	●	●	●		●			●	●	●	●	●	●	●	●
2018	●	●	●		●	●		●	●	●	●	●	●	●	●
2019	●	●	●		●			●	●	●	●	●	●	●	●
2020								●	●	●	●	●	●	●	●
2021	●	●	●		●			●	●	●	●	●	●	●	●
2022	●	●	●		●			●	●	●	●	●	●	●	●
FDEP Criteria	<=11	<=11	<=20	<=20	<=15.5	<=20	<=20	<=20	<=20	<=20	<=20	<=20	<=20	<=20	<=20

	Values Used (ug/l)														
2013	7.00	5.27	4.58		5.52						3.97		1.48	0.82	1.69
2014	6.85	4.62	7.26		6.13						3.31		10.84	3.98	5.23
2015	4.33	4.61	3.61		4.16						5.33		7.78	3.69	5.35
2016	3.55	2.76	3.10		3.12						4.54	3.39	9.04	8.40	5.85
2017	3.13	2.22	0.85		1.81			4.23	5.22	4.70	4.49	5.45	6.61	4.63	5.23
2018	6.14	4.34	5.17		5.16	2.23		7.17	8.20	7.67	2.13	1.90	3.37	3.17	2.56
2019	7.56	9.13	12.05		9.41			4.03	8.16	5.73	4.70	2.80	3.69	3.05	3.49
2020								4.10	7.97	5.72	3.73	2.36	2.38	1.89	2.51
2021	3.95	4.20	6.63		4.79			0.98	1.40	1.17	2	0.60	0.70	0.80	0.91
2022	3.74	6.80	5.86		5.30			4.52	12.22	7.43	8.63	3.22	5.51	6.87	5.69

Table 5-11 Water Quality Trends C-15 Watershed

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Total Nitrogen

Site	Date Range	Tau	Slope ¹	Selected P-Value ²	Statistical Trend Interpretation ³
31C	1999 - 2022	-0.337473	-0.000089	0.000000	Significant Decreasing Trend
31E	1999 - 2022	-0.371999	-0.000101	0.000000	Significant Decreasing Trend
31B	2000 - 2022	-0.223944	-0.000036	0.000049	Significant Decreasing Trend

Total Phosphorus

Site	Date Range	Tau	Slope ¹	Selected P-Value ²	Statistical Trend Interpretation ³
31C	1999 - 2022	-0.065944	-0.000002	0.308143	Decreasing Trend
31E	1999 - 2022	-0.043235	-0.000005	0.506674	Decreasing Trend
31B	2000 - 2022	-0.165898	-0.000006	0.004011	Significant Decreasing Trend

Total Chlorophyll-a (corrected)

Site	Date Range	Tau	Slope ¹	Selected P-Value ²	Statistical Trend Interpretation ³
31C	1999 - 2022	-0.188870	-0.001777	0.004037	Significant Decreasing Trend
31E	1999 - 2022	-0.153873	-0.001629	0.018041	Significant Decreasing Trend
31B	2000 - 2022	-0.207794	-0.001720	0.009689	Significant Decreasing Trend

¹ Even if the p-value is determined to be statistically significant, the result may not be ecologically significant. For example, if a trend is statistically significantly declining (negative trend) and the concentration is low in the water, then it may not be realistic to assume that an improvement in water quality by reductions in TN or TP may positively impact the ecological system in a measurable way. A negative slope is an indication of a decreasing trend, while a positive slope is an indication of an increasing trend.

² Results contain serial correlation (as per autocorrelation analysis results) used the p-value adjusted for serial correlation.

³ If the p-value is less than 0.05, then a decreasing trend may suggest an improvement in water quality, and an increasing trend may suggest a decline in water quality.

Table 5-11 Water Quality Trends

C-16 Watershed

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Total Nitrogen

Site	Date Range	Tau	Slope ¹	Selected P-Value ²	Statistical Trend Interpretation ³
22	2004 - 2022	-0.254601	-0.000051	0.000421	Significant Decreasing Trend
24	1999 - 2022	-0.429423	-0.000118	0.000000	Significant Decreasing Trend
27B	1999 - 2022	-0.262967	-0.000072	0.000249	Significant Decreasing Trend
27A	1999 - 2022	-0.398957	-0.000093	0.000000	Significant Decreasing Trend
28	1999 - 2022	-0.327160	-0.000090	0.000000	Significant Decreasing Trend

Total Phosphorus

Site	Date Range	Tau	Slope ¹	Selected P-Value ²	Statistical Trend Interpretation ³
22	2004 - 2022	0.062276	0.000001	0.374782	Increasing Trend
24	1999 - 2022	-0.301978	-0.000007	0.000006	Significant Decreasing Trend
27B	1999 - 2022	-0.073243	-0.000005	0.293249	Decreasing Trend
27A	1999 - 2022	-0.257258	-0.000013	0.000077	Significant Decreasing Trend
28	1999 - 2022	-0.286489	-0.000009	0.000001	Significant Decreasing Trend

Total Chlorophyll-a (corrected)

Site	Date Range	Tau	Slope ¹	Selected P-Value ²	Statistical Trend Interpretation ³
22	2004 - 2022	0.028418	0.000244	0.687838	Increasing Trend
24	1999 - 2022	-0.031746	-0.000224	0.642215	Decreasing Trend
27B	1999 - 2022	-0.068786	-0.000555	0.351049	Decreasing Trend
27A	1999 - 2022	-0.271695	-0.002011	0.000071	Significant Decreasing Trend
28	1999 - 2022	0.051869	0.000212	0.542623	Increasing Trend

¹ Even if the p-value is determined to be statistically significant, the result may not be ecologically significant. For example, if a trend is statistically significantly declining (negative trend) and the concentration is low in the water, then it may not be realistic to assume that an improvement in water quality by reductions in TN or TP may positively impact the ecological system in a measurable way. A negative slope is an indication of a decreasing trend, while a positive slope is an indication of an increasing trend.

² Results contain serial correlation (as per autocorrelation analysis results) used the p-value adjusted for serial correlation.

³ If the p-value is less than 0.05, then a decreasing trend may suggest an improvement in water quality, and an increasing trend may suggest a decline in water quality.

Table 5-11 Water Quality Trends

C-17 Watershed

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Total Nitrogen

Site	Date Range	Tau	Slope ¹	Selected P-Value ²	Statistical Trend Interpretation ³
12A	1999 - 2022	-0.331147	-0.000078	0.000000	Significant Decreasing Trend
C17S44	1999 - 2022	-0.435691	-0.000053	0.000000	Significant Decreasing Trend

Total Phosphorus

Site	Date Range	Tau	Slope ¹	Selected P-Value ²	Statistical Trend Interpretation ³
12A	1999 - 2022	-0.064702	-0.000001	0.313566	Decreasing Trend
C17S44	1999 - 2022	-0.070858	-0.0000009	0.146605	Decreasing Trend

Total Chlorophyll-a (corrected)

Site	Date Range	Tau	Slope ¹	Selected P-Value ²	Statistical Trend Interpretation ³
12A	1999 - 2022	-0.139552	-0.000917	0.035565	Significant Decreasing Trend
C17S44	1999 - 2022	-0.019921	-0.000200	0.915730	Decreasing Trend

¹ Even if the p-value is determined to be statistically significant, the result may not be ecologically significant. For example, if a trend is statistically significantly declining (negative trend) and the concentration is low in the water, then it may not be realistic to assume that an improvement in water quality by reductions in TN or TP may positively impact the ecological system in a measurable way. A negative slope is an indication of a decreasing trend, while a positive slope is an indication of an increasing trend.

² Results contain serial correlation (as per autocorrelation analysis results) used the p-value adjusted for serial correlation.

³ If the p-value is less than 0.05, then a decreasing trend may suggest an improvement in water quality, and an increasing trend may suggest a decline in water quality.

Table 5-11 Water Quality Trends
C-18 Watershed
 (Page 4 of 14)

Total Nitrogen

Site	Date Range	Tau	Slope ¹	Selected P-Value ²	Statistical Trend Interpretation ³
16	1999 - 2022	-0.166113	-0.000033	0.009241	Significant Decreasing Trend
15	1999 - 2022	-0.315800	-0.000054	0.000003	Significant Decreasing Trend
92	1999 - 2022	-0.053871	-0.000007	0.291147	Decreasing Trend
81	1999 - 2022	-0.012948	-0.000001	0.802357	Decreasing Trend

Total Phosphorus

Site	Date Range	Tau	Slope ¹	Selected P-Value ²	Statistical Trend Interpretation ³
16	1999 - 2022	-0.122987	-0.000002	0.053063	Decreasing Trend
15	1999 - 2022	-0.163672	-0.000001	0.011592	Significant Decreasing Trend
92	1999 - 2022	0.171407	0.000001	0.001311	Significant Increasing Trend
81	1999 - 2022	-0.037087	0.000000	0.494038	Decreasing Trend

Total Chlorophyll-a (corrected)

Site	Date Range	Tau	Slope ¹	Selected P-Value ²	Statistical Trend Interpretation ³
16	1999 - 2022	-0.080225	-0.000129	0.226328	Decreasing Trend
15	1999 - 2022	-0.211499	-0.000181	0.001572	Significant Decreasing Trend
92	1999 - 2022	0.198239	0.000245	0.032687	Significant Increasing Trend
81	1999 - 2022	0.116402	0.000179	0.227216	Increasing Trend

¹ Even if the p-value is determined to be statistically significant, the result may not be ecologically significant. For example, if a trend is statistically significantly declining (negative trend) and the concentration is low in the water, then it may not be realistic to assume that an improvement in water quality by reductions in TN or TP may positively impact the ecological system in a measurable way. A negative slope is an indication of a decreasing trend, while a positive slope is an indication of an increasing

² Results contain serial correlation (as per autocorrelation analysis results) used the p-value adjusted for serial correlation.

³ If the p-value is less than 0.05, then a decreasing trend may suggest an improvement in water quality, and an increasing trend may suggest a decline in water quality.

Table 5-11 Water Quality Trends
C-51 Watershed
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Total Nitrogen

Site	Date Range	Tau	Slope ¹	Selected P-Value ²	Statistical Trend Interpretation ³
38B	1999 - 2022	-0.251963	-0.000094	0.000155	Significant Decreasing Trend
37B	1999 - 2022	-0.411161	-0.000149	0.000000	Significant Decreasing Trend
C51S155	1999 - 2022	-0.283974	-0.000063	0.000000	Significant Decreasing Trend

Total Phosphorus

Site	Date Range	Tau	Slope ¹	Selected P-Value ²	Statistical Trend Interpretation ³
38B	1999 - 2022	-0.002177	0.000000	0.976024	Decreasing Trend
37B	1999 - 2022	-0.205263	-0.000006	0.002408	Significant Decreasing Trend
C51S155	1999 - 2022	-0.034837	-0.000001	0.467696	Decreasing Trend

Total Chlorophyll-a (corrected)

Site	Date Range	Tau	Slope ¹	Selected P-Value ²	Statistical Trend Interpretation ³
38B	1999 - 2022	-0.002058	0.000000	0.977590	Decreasing Trend
37B	1999 - 2022	-0.046578	-0.000105	0.495194	Decreasing Trend
C51S155	1999 - 2022	0.083313	0.000306	0.339447	Increasing Trend

¹ Even if the p-value is determined to be statistically significant, the result may not be ecologically significant. For example, if a trend is statistically significantly declining (negative trend) and the concentration is low in the water, then it may not be realistic to assume that an improvement in water quality by reductions in TN or TP may positively impact the ecological system in a measurable way. A negative slope is an indication of a decreasing trend, while a positive slope is an indication of an increasing trend.

² Results contain serial correlation (as per autocorrelation analysis results) used the p-value adjusted for serial correlation.

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Table 5-11 Water Quality Trends

Loxahatchee Watershed

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Total Nitrogen

Site	Date Range	Tau	Slope ¹	Selected P-Value ²	Statistical Trend Interpretation ³
69	2003 - 2022	-0.203870	-0.000039	0.000053	Significant Decreasing Trend
51	2000 - 2022	-0.223030	-0.000038	0.001165	Significant Decreasing Trend
62	2000 - 2022	-0.254592	-0.000069	0.000000	Significant Decreasing Trend
72	2000 - 2022	-0.101770	-0.000024	0.034854	Significant Decreasing Trend

Total Phosphorus

Site	Date Range	Tau	Slope ¹	Selected P-Value ²	Statistical Trend Interpretation ³
69	2003 - 2022	-0.054888	-0.000001	0.279318	Decreasing Trend
51	2000 - 2022	-0.062383	0.000000	0.356256	Decreasing Trend
62	2000 - 2022	0.043022	0.000001	0.396793	Increasing Trend
72	2000 - 2022	-0.085791	-0.0000007	0.077148	Decreasing Trend

Total Chlorophyll-a (corrected)

Site	Date Range	Tau	Slope ¹	Selected P-Value ²	Statistical Trend Interpretation ³
69	2003 - 2022	-0.094214	-0.000172	0.063952	Decreasing Trend
51	2000 - 2022	-0.076553	-0.000136	0.278050	Decreasing Trend
62	2000 - 2022	-0.107401	-0.000274	0.036109	Significant Decreasing Trend
72	2000 - 2022	-0.060288	-0.000272	0.215734	Decreasing Trend

¹ Even if the p-value is determined to be statistically significant, the result may not be ecologically significant. For example, if a trend is statistically significantly declining (negative trend) and the concentration is low in the water, then it may not be realistic to assume that an improvement in water quality by reductions in TN or TP may positively impact the ecological system in a measurable way. A negative slope is an indication of a decreasing trend, while a positive slope is an indication of an increasing trend.

² Results contain serial correlation (as per autocorrelation analysis results) used the p-value adjusted for serial correlation.

³ If the p-value is less than 0.05, then a decreasing trend may suggest an improvement in water quality, and an increasing trend may suggest a decline in water quality.

Table 5-11 Water Quality Trends ICWW-N Watershed

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Total Nitrogen

Site	Date Range	Tau	Slope ¹	Selected P-Value ²	Statistical Trend Interpretation ³
30	2000 - 2022	-0.218034	-0.000051	0.001280	Significant Decreasing Trend

Total Phosphorus

Site	Date Range	Tau	Slope ¹	Selected P-Value ²	Statistical Trend Interpretation ³
30	2000 - 2022	-0.077226	0.000000	0.251088	Decreasing Trend

Total Chlorophyll-a (corrected)

Site	Date Range	Tau	Slope ¹	Selected P-Value ²	Statistical Trend Interpretation ³
30	2000 - 2022	-0.114710	-0.000236	0.104374	Decreasing Trend

¹ Even if the p-value is determined to be statistically significant, the result may not be ecologically significant. For example, if a trend is statistically significantly declining (negative trend) and the concentration is low in the water, then it may not be realistic to assume that an improvement in water quality by reductions in TN or TP may positively impact the ecological system in a measurable way. A negative slope is an indication of a decreasing trend, while a positive slope is an indication of an increasing trend.

² Results contain serial correlation (as per autocorrelation analysis results) used the p-value adjusted for serial correlation.

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Table 5-11 Water Quality Trends
Lake Worth Lagoon North Watershed
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Total Nitrogen

Site	Date Range	Tau	Slope ¹	Selected P-Value ²	Statistical Trend Interpretation ³
LWL-1	1999 - 2022	-0.387183	-0.000072	0.000000	Significant Decreasing Trend
11	1999 - 2022	-0.391123	-0.000069	0.000000	Significant Decreasing Trend
13	2000 - 2022	-0.447030	-0.000083	0.000000	Significant Decreasing Trend
LWL-4	2004 - 2022	-0.376073	-0.000062	0.000000	Significant Decreasing Trend

Total Phosphorus

Site	Date Range	Tau	Slope ¹	Selected P-Value ²	Statistical Trend Interpretation ³
LWL-1	1999 - 2022	-0.047050	-0.000121	0.459423	Decreasing Trend
11	1999 - 2022	0.021658	0.000048	0.691496	Increasing Trend
13	2000 - 2022	0.034303	0.000116	0.528954	Increasing Trend
LWL-4	2004 - 2022	0.045064	0.000082	0.473604	Increasing Trend

Total Chlorophyll-a (corrected)

Site	Date Range	Tau	Slope ¹	Selected P-Value ²	Statistical Trend Interpretation ³
LWL-1	1999 - 2022	-0.158121	-0.000286	0.008598	Significant Decreasing Trend
11	1999 - 2022	-0.109834	-0.000165	0.034427	Significant Decreasing Trend
13	2000 - 2022	-0.087487	-0.000154	0.093060	Decreasing Trend
LWL-4	2004 - 2022	-0.130389	-0.000129	0.029606	Significant Decreasing Trend

¹ Even if the p-value is determined to be statistically significant, the result may not be ecologically significant. For example, if a trend is statistically significantly declining (negative trend) and the concentration is low in the water, then it may not be realistic to assume that an improvement in water quality by reductions in TN or TP may positively impact the ecological system in a measurable way. A negative slope is an indication of a decreasing trend, while a positive slope is an indication of an increasing trend.

² Results contain serial correlation (as per autocorrelation analysis results) used the p-value adjusted for serial correlation.

³ If the p-value is less than 0.05, then a decreasing trend may suggest an improvement in water quality, and an increasing trend may suggest a decline in water quality.

Table 5-11 Water Quality Trends
Lake Worth Lagoon Center Watershed
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Total Nitrogen

Site	Date Range	Tau	Slope ¹	Selected P-Value ²	Statistical Trend Interpretation ³
LWL-8	1999 - 2022	-0.153595	-0.000027	0.004363	Significant Decreasing Trend
18C	2004 - 2022	-0.407478	-0.000129	0.000000	Significant Decreasing Trend
18D	2005 - 2022	-0.366608	-0.000105	0.000000	Significant Decreasing Trend
LWL-11	1999 - 2022	-0.232832	-0.000047	0.000043	Significant Decreasing Trend

Total Phosphorus

Site	Date Range	Tau	Slope ¹	Selected P-Value ²	Statistical Trend Interpretation ³
LWL-8	1999 - 2022	-0.077116	-0.0000011	0.141297	Decreasing Trend
18C	2004 - 2022	-0.153094	-0.000005	0.005695	Significant Decreasing Trend
18D	2005 - 2022	-0.114174	-0.000003	0.042576	Significant Decreasing Trend
LWL-11	1999 - 2022	-0.157475	-0.000002	0.005034	Significant Decreasing Trend

Total Chlorophyll-a (corrected)

Site	Date Range	Tau	Slope ¹	Selected P-Value ²	Statistical Trend Interpretation ³
LWL-8	1999 - 2022	0.152949	0.000367	0.005144	Significant Increasing Trend
18C	2004 - 2022	-0.095238	-0.000278	0.078517	Decreasing Trend
18D	2005 - 2022	-0.068826	-0.000218	0.224402	Decreasing Trend
LWL-11	1999 - 2022	-0.002333	0.000000	0.969641	Decreasing Trend

¹ Even if the p-value is determined to be statistically significant, the result may not be ecologically significant. For example, if a trend is statistically significantly declining (negative trend) and the concentration is low in the water, then it may not be realistic to assume that an improvement in water quality by reductions in TN or TP may positively impact the ecological system in a measurable way. A negative slope is an indication of a decreasing trend, while a positive slope is an indication of an increasing trend.

² Results contain serial correlation (as per autocorrelation analysis results) used the p-value adjusted for serial correlation.

³ If the p-value is less than 0.05, then a decreasing trend may suggest an improvement in water quality, and an increasing trend may suggest a decline in water quality.

Table 5-11 Water Quality Trends
ICWW-S Watershed
 (Page 10 of 14)

Total Nitrogen

Site	Date Range	Tau	Slope ¹	Selected P-Value ²	Statistical Trend Interpretation ³
LWL-13	2004 - 2022	-0.247386	-0.000036	0.000021	Significant Decreasing Trend
LWL-18	2000 - 2022	-0.226062	-0.000036	0.000076	Significant Decreasing Trend

Total Phosphorus

Site	Date Range	Tau	Slope ¹	Selected P-Value ²	Statistical Trend Interpretation ³
LWL-13	2004 - 2022	-0.243340	-0.000002	0.000023	Significant Decreasing Trend
LWL-18	2000 - 2022	-0.067128	-0.000001	0.228164	Decreasing Trend

Total Chlorophyll-a (corrected)

Site	Date Range	Tau	Slope ¹	Selected P-Value ²	Statistical Trend Interpretation ³
LWL-13	2004 - 2022	-0.090069	-0.000153	0.122648	Decreasing Trend
LWL-18	2000 - 2022	0.084502	0.000187	0.145016	Increasing Trend

¹ Even if the p-value is determined to be statistically significant, the result may not be ecologically significant. For example, if a trend is statistically significantly declining (negative trend) and the concentration is low in the water, then it may not be realistic to assume that an improvement in water quality by reductions in TN or TP may positively impact the ecological system in a measurable way. A negative slope is an indication of a decreasing trend, while a positive slope is an indication of an increasing trend.

² Results contain serial correlation (as per autocorrelation analysis results) used the p-value adjusted for serial correlation.

³ If the p-value is less than 0.05, then a decreasing trend may suggest an improvement in water quality, and an increasing trend may suggest a decline in water quality.

Table 5-11 Water Quality Trends
Hillsboro Watershed
 (Page 11 of 14)

Total Nitrogen

Site	Date Range	Tau	Slope ¹	Selected P-Value ²	Statistical Trend Interpretation ³
1	2006 - 2022	-0.153437	-0.000039	0.126313	Decreasing Trend
2	2006 - 2022	-0.249148	-0.000038	0.012099	Significant Decreasing Trend
3	2006 - 2022	-0.278683	-0.000042	0.006087	Significant Decreasing Trend
S39	2000 - 2022	0.079929	0.000021	0.393999	Increasing Trend

Total Phosphorus

Site	Date Range	Tau	Slope ¹	Selected P-Value ²	Statistical Trend Interpretation ³
1	2006 - 2022	0.116774	0.000003	0.270052	Increasing Trend
2	2006 - 2022	-0.087413	-0.000003	0.422409	Decreasing Trend
3	2006 - 2022	-0.033760	-0.000001	0.761486	Decreasing Trend
S39	2000 - 2022	-0.380613	-0.000002	0.000000	Significant Decreasing Trend

Total Chlorophyll-a (corrected)

Site	Date Range	Tau	Slope ¹	Selected P-Value ²	Statistical Trend Interpretation ³
1	2006 - 2022	-0.137363	-0.000370	0.157550	Decreasing Trend
2	2006 - 2022	-0.293952	-0.001499	0.001274	Significant Decreasing Trend
3	2006 - 2022	-0.227420	-0.001414	0.013637	Significant Decreasing Trend
S39	No Data	No Data	No Data	No Data	

¹ Even if the p-value is determined to be statistically significant, the result may not be ecologically significant. For example, if a trend is statistically significantly declining (negative trend) and the concentration is low in the water, then it may not be realistic to assume that an improvement in water quality by reductions in TN or TP may positively impact the ecological system in a measurable way. A negative slope is an indication of a decreasing trend, while a positive slope is an indication of an increasing trend.

² Results contain serial correlation (as per autocorrelation analysis results) used the p-value adjusted for serial correlation.

³ If the p-value is less than 0.05, then a decreasing trend may suggest an improvement in water quality, and an increasing trend may suggest a decline in water quality.

Table 5-11 Water Quality Trends
L-8 Watershed
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Total Nitrogen

Site	Date Range	Tau	Slope ¹	Selected P-Value ²	Statistical Trend Interpretation ³
Culv10a	2000 - 2022	-0.177051	-0.000149	0.063313	Decreasing Trend

Total Phosphorus

Site	Date Range	Tau	Slope ¹	Selected P-Value ²	Statistical Trend Interpretation ³
Culv10a	2000 - 2022	0.015266	0.0000008	0.714851	Increasing Trend

Total Chlorophyll-a (corrected)

Site	Date Range	Tau	Slope ¹	Selected P-Value ²	Statistical Trend Interpretation ³
Culv10a	2000 - 2022	0.496780	0.001145	0.035240	Significant Increasing Trend

¹ Even if the p-value is determined to be statistically significant, the result may not be ecologically significant. For example, if a trend is statistically significantly declining (negative trend) and the concentration is low in the water, then it may not be realistic to assume that an improvement in water quality by reductions in TN or TP may positively impact the ecological system in a measurable way. A negative slope is an indication of a decreasing trend, while a positive slope is an indication of an increasing trend.

² Results contain serial correlation (as per autocorrelation analysis results) used the p-value adjusted for serial correlation.

³ If the p-value is less than 0.05, then a decreasing trend may suggest an improvement in water quality, and an increasing trend may suggest a decline in water quality.

Table 5-11 Water Quality Trends

S-2-6-7 Watershed

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Total Nitrogen

Site	Date Range	Tau	Slope ¹	Selected P-Value ²	Statistical Trend Interpretation ³
S-2	1999 - 2021	-0.058957	-0.000091	0.543369	Decreasing Trend
39	2017 - 2022	0.030435	0.000064	0.865543	Increasing Trend
43	2017 - 2022	0.016695	0.000029	0.925550	Increasing Trend

Total Phosphorus

Site	Date Range	Tau	Slope ¹	Selected P-Value ²	Statistical Trend Interpretation ³
S-2	1999 - 2021	0.055320	0.000002	0.172204	Increasing Trend
39	2017 - 2022	-0.042012	-0.000007	0.760936	Decreasing Trend
43	2017 - 2022	0.062795	0.000007	0.642178	Increasing Trend

Total Chlorophyll-a (corrected)

Site	Date Range	Tau	Slope ¹	Selected P-Value ²	Statistical Trend Interpretation ³
S-2	1999 - 2021	0.000000	0.000000	1.000000	Increasing Trend
39	2017 - 2022	-0.158813	-0.001442	0.236806	Decreasing Trend
43	2017 - 2022	0.046856	0.001163	0.735586	Increasing Trend

¹ Even if the p-value is determined to be statistically significant, the result may not be ecologically significant. For example, if a trend is statistically significantly declining (negative trend) and the concentration is low in the water, then it may not be realistic to assume that an improvement in water quality by reductions in TN or TP may positively impact the ecological system in a measurable way. A negative slope is an indication of a decreasing trend, while a positive slope is an indication of an increasing trend.

² Results contain serial correlation (as per autocorrelation analysis results) used the p-value adjusted for serial correlation.

³ If the p-value is less than 0.05, then a decreasing trend may suggest an improvement in water quality, and an increasing trend may suggest a decline in water quality.

Table 5-11 Water Quality Trends WPBWS Watershed

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Total Nitrogen

Site	Date Range	Tau	Slope ¹	Selected P-Value ²	Statistical Trend Interpretation ³
M Canal	2011 - 2022	-0.027119	-0.000007	0.698926	Decreasing Trend
Control 4	2011 - 2022	-0.181067	-0.000078	0.022988	Significant Decreasing Trend
Lake Mangonia	2011 - 2022	-0.099689	-0.000013	0.215705	Decreasing Trend
Clear Lake	2011 - 2022	-0.035856	-0.000007	0.657314	Decreasing Trend

Total Phosphorus

Site	Date Range	Tau	Slope ¹	Selected P-Value ²	Statistical Trend Interpretation ³
M Canal	2011 - 2022	0.082965	0.000005	0.260116	Increasing Trend
Control 4	2011 - 2022	-0.124485	-0.000006	0.132988	Decreasing Trend
Lake Mangonia	2011 - 2022	0.159250	0.000001	0.070637	Increasing Trend
Clear Lake	2011 - 2022	0.018339	0.000000	0.837768	Increasing Trend

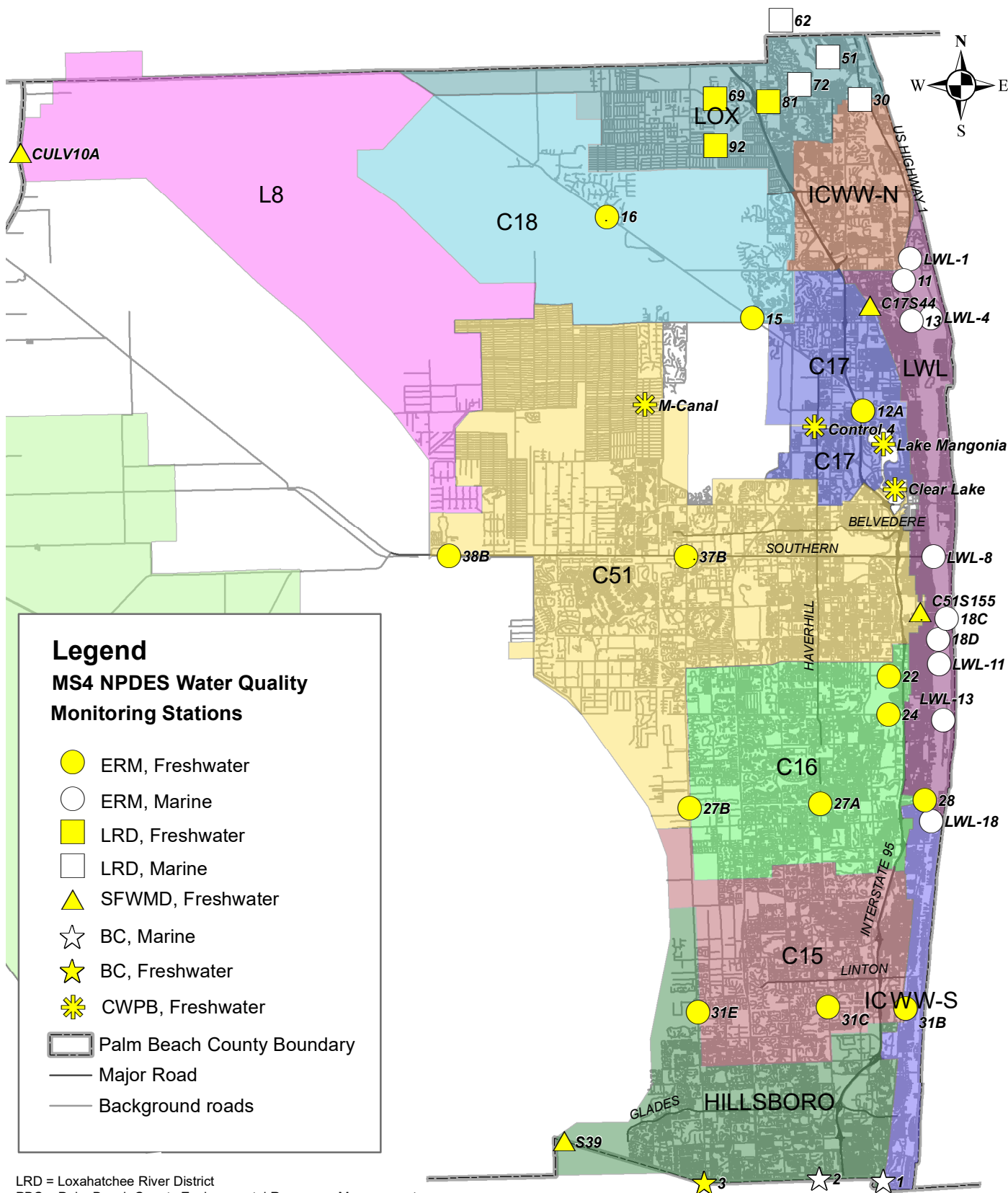
Total Chlorophyll-a (corrected)

Site	Date Range	Tau	Slope ¹	Selected P-Value ²	Statistical Trend Interpretation ³
M Canal	2011 - 2022	0.040151	0.000126	0.589208	Increasing Trend
Control 4	2011 - 2022	-0.164725	-0.000600	0.055933	Decreasing Trend
Lake Mangonia	2011 - 2022	-0.169031	-0.001006	0.051727	Decreasing Trend
Clear Lake	2011 - 2022	0.037515	0.000000	0.671187	Increasing Trend

¹ Even if the p-value is determined to be statistically significant, the result may not be ecologically significant. For example, if a trend is statistically significantly declining (negative trend) and the concentration is low in the water, then it may not be realistic to assume that an improvement in water quality by reductions in TN or TP may positively impact the ecological system in a measurable way. A negative slope is an indication of a decreasing trend, while a positive slope is an indication of an increasing trend.

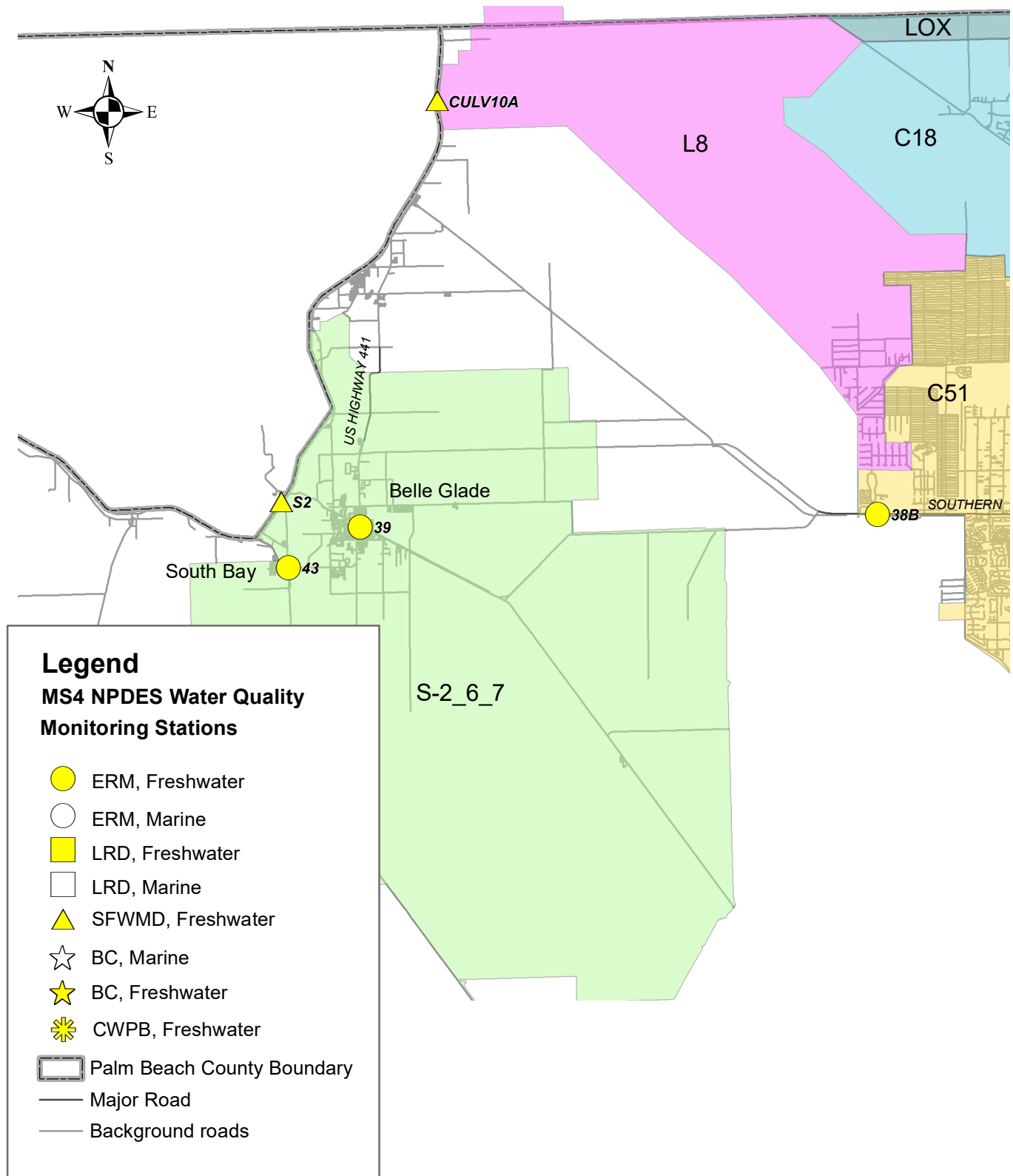
² Results contain serial correlation (as per autocorrelation analysis results) used the p-value adjusted for serial correlation.

³ If the p-value is less than 0.05, then a decreasing trend may suggest an improvement in water quality, and an increasing trend may suggest a decline in water quality.



Palm Beach County (Eastern Area) Watershed Boundaries and Water Quality Monitoring Stations

Figure 5-1



Palm Beach County (Western Area) Watershed Boundaries and Water Quality Monitoring Stations

Figure 5-1

Figure 5-2 Total Phosphorous Trend

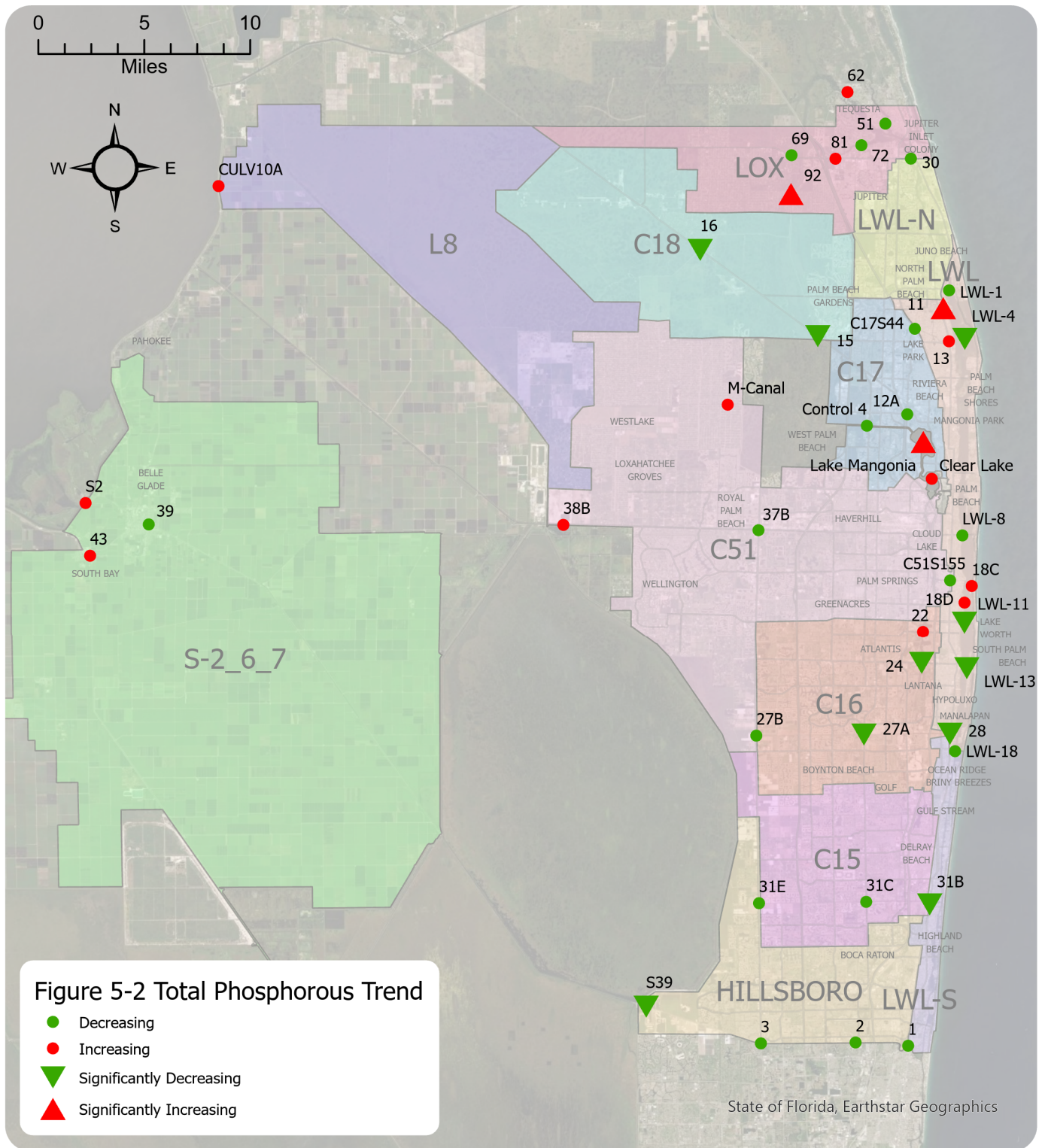


Figure 5-3 Total Nitrogen Trend

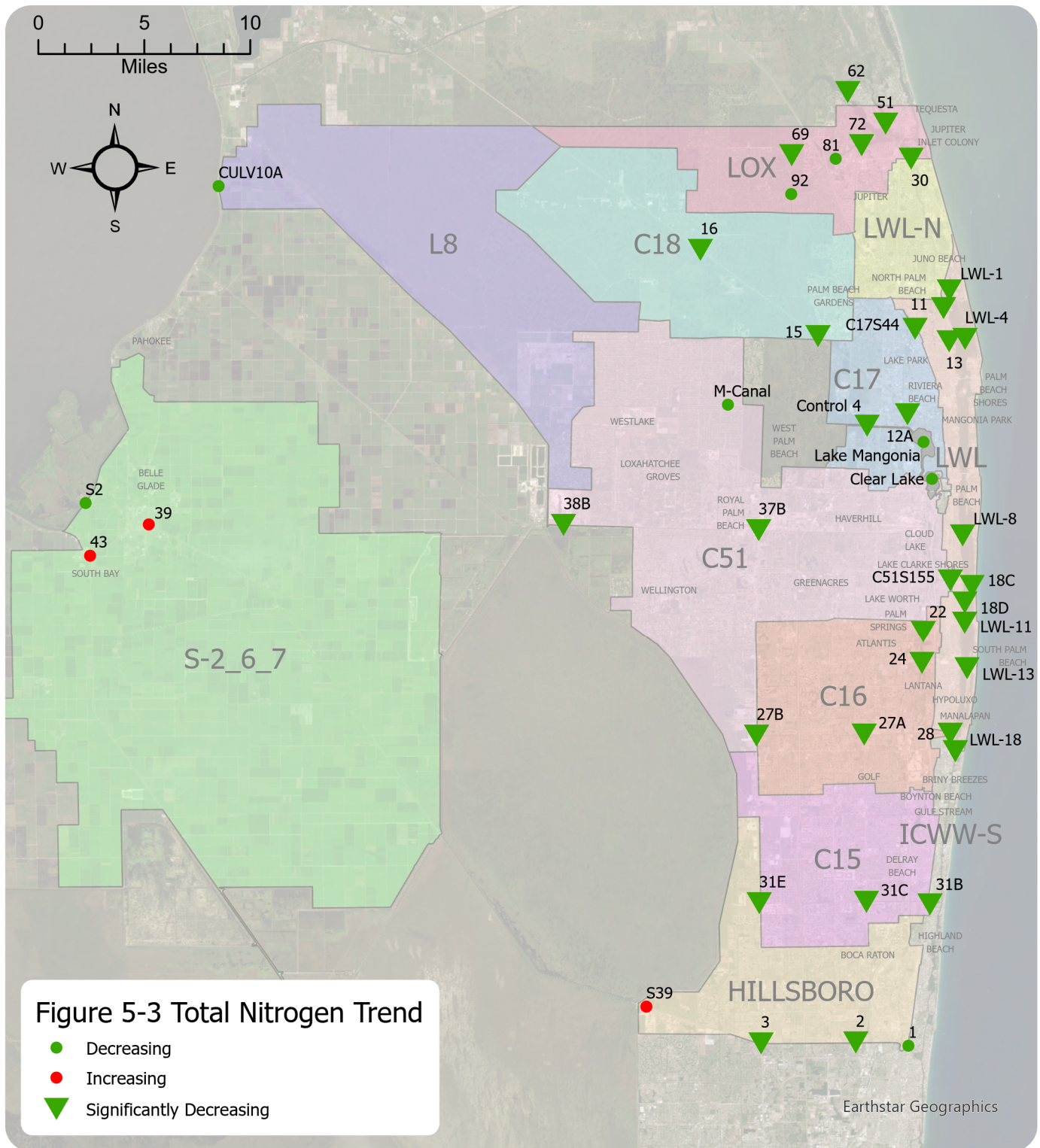


Figure 5-4 Chlorophyll-a (corrected) Trend

