2025

State of the Lake Report

Prepared by: Newman Lake Flood Control Zone District Staff

Newman Lake, Spokane County, WA

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Part 1. Newman Lake Flood Control Zone District Year in Review

A. PURPOSE

Administrative Order Docket No. 9073, issued by the Washington State Department of Ecology on March 16, 2012, required the Newman Lake Flood Control District (NLFCZD) to comply with Chapter 90.48 of the Revised Code of Washington (RCW) - Water Pollution Control, and Chapter 173.201A of the Washington Administrative Code (WAC) - Water Quality Standards for Surface Waters of Washington State. This Order required the NLFCZD to "monitor and report on lake water quality and nutrient source control efforts in the Newman Lake Watershed in conjunction with the operation of the continuous alum microfloc injection system and coverage under the Aquatic Plant and Algae Management General Permit."

The alum injection into the lake is considered the discharge of a pollutant into surface water, which requires a National Pollutant Discharge Elimination System Permit (NPDES). The NLFCZD, hereafter referred to as the District, was authorized to inject (discharge) alum into Newman Lake via an individual NPDES permit and via the Aquatic Plant and Algae Management General Permit – resulting in duplicate coverage. This Administrative Order eliminated the need for a separate individual permit, retaining the coverage under the Aquatic General Permit, and stipulated the requirement to perform specific in-lake water quality monitoring. Furthermore, the permits require the District to prepare an annual "State of the Lake Report," which summarizes the water quality monitoring results.

In 2023, Jacobs Engineering analyzed the lake and recommended solutions to reduce the occurrence of algae blooms. In the analysis, they stated that an injection system was no longer necessary due to the abundance of iron in the sediments. Since the supply lines were clogged, we decided to demolish the alum system while the oxygenation system was being upgraded. As a result, we are not obligated to complete many of the above requirements. As stated in section E of Administrative Order No 9073, "If the Newman Lake alum injection system is not used for an entire calendar year, the minimum sample frequency is once per year. The 2025 State of the Lake Report will be significantly smaller than past years and will summarize the District's activities and the water quality sampling.

B. BACKGROUND

In the 1960s, the District was formed for the purpose of flood control. At the time, the Newman Lake community was primarily an agricultural community and required water for farming/ranching. However, the frequent downstream flooding of fields required extra help to implement controls to reduce this phenomenon. In the mid-1980s, residents requested the assistance of the District to address deteriorating water quality issues. The District requested assistance from the Department of Ecology (DOE) for Phase I and Phase II Lake Restoration Funding. Lake restoration funds were used to apply a single surface aluminum sulfate (alum) treatment to control internal nutrient loading in the whole lake in 1989 and install the hypolimnetic oxygenation system in 1991. Together, the implemented systems worked to reduce nutrient availability within the lake, in turn improving water

quality. These funds also initiated watershed source control efforts. District assessments provided the 25% matching contribution for this grant-funded work. As part of these efforts, a Watershed Plan was prepared, outlining proposed actions to reduce nutrient loading. In addition, in the late '80s – early '90s, a study was performed that identified several failing septic systems; those that could be fixed or modified were repaired. During this time, cattle and horse grazing areas were fenced off from the lake and inlet streams.

In 1995-1996, after the effects of the initial whole lake alum treatment began to dissipate, the District installed a permanent alum injection system at the request of residents. This system is an efficient and cost-effective way of treating the lake with alum. The system was installed solely with District assessment funds at a cost of about $57,000. The District prepared *the Comprehensive Plan of Development for Stormwater Control in the Newman Lake Watershed* in 1997, for $18,500, utilizing Washington State University (WSU) in the overall project planning.

The Comprehensive Plan was integrated into the NLFCZD *Policy and Procedures Manual*, and its implementation was incorporated into the District goals and budget. Funding for most of these efforts comes entirely from District property assessments. In 2023, 802 of the 1764 Newman Lake Flood Control Zone District property owners (many of whom are seasonal residents) paid the District assessment fees.

In past years (1996, 1998, and 2004), Newman Lake was included in DOE's 303(d) list of impaired waterbodies for total phosphorus (TP). This led to the DOE conducting a Total Maximum Daily Limit (TMDL) study to determine the allowable limit of TP in Newman Lake. Once produced, the report set a yearly TP load of 1167 kg/yr, or a 20 ug/L average concentration during summer months. 903 kg TP was allotted to external loading, and 264 kg TP was allotted to internal cycling during the summer months. This was approximately a 39% reduction of the average modeled TP load between 1998 and 2005.

In 2018, the residents of the Newman Lake Flood Control Zone District presented the Board of County Commissioners with a petition to appoint a Board of Appraisers (BOA) to reconsider, revise, and/or reaffirm the classification and relative percentages of the benefit assessment maps for flood control and water quality within the NLFCZD under RCW 86.09. The BOA was tasked to identify every parcel that derives any benefit and "reconsider, revise, and/or reconfirm" the assessments such that the costs are equitably distributed throughout the District, to as many benefited parcels as is allowed by law. Spokane County worked in 2019, and again re-advertised twice in 2020, to recruit a Board of three Appraisers. In the early summer of 2021, the Spokane County BOCC approved hiring three appraisers for this task. The review and public testimony phase was completed in early December, the map revision and classification change phase began in January 2022, and the final recommendations for map revisions were approved by the BOA on July 13th. After 18 total meetings between September 2021 and August 2022, the Board of County Commissioners approved the revisions on September 27th (Resolution 22-0642). The BOA changed the benefit classification definitions and removed all split parcels resulting in 123 parcels receiving a benefit class change, bringing the total number of assessed parcels up from 761 to 803.

As a result of the American Rescue Plan (ARP) signed into law on March 11, 2021, Spokane County has been awarded up to $101 million in funds to facilitate recovery from the impacts of the COVID-19 pandemic. The District applied for funds to overhaul the oxygenation and alum injection systems, replacing the Speece cone with a linear diffuser and removing the alum injection system. The application was approved on July 12, 2022, by the Board of County Commissioners in resolution 2022-0442, awarding the District $2,000,000. In December 2024, the Board of County Commissioners awarded the District another $300,000. The funds have been spent in conjunction with the remaining Capital Budget Grant funds.

The 2025 District budget was $770,787, with $719,415 allotted for water quality (WQ) efforts and $51,372 for flood control (FC). The amount from benefit assessments was $270,164 (WQ) and $50,617 (FC), which was the same as 2024. In 2025, we spent the remaining State Capital Budget funds, with all the remaining $274,000 going towards the ARP project. The remaining grant reimbursements are ARP funds.

Table 1. 2025 Finances

2025 End-of-Year Forecast			
	FC	**WQ**	**Total**
Total Income	$51,301	$1,782,231	$1,833,532
Assessments	*$50,617*	*$270,164*	*$320,781*
Grant Reimbursements	*$ 0*	*$1,508,477*	*$1,508,477*
Total Expenditures	$54,324	$1,708,473	$1,762,797
Net Income	*-$3,023*	*$73,758*	*$70,735*
Reserve Balance	**$93,120**	**$173,758**	**$266,878**

C. COMPREHENSIVE PLAN RECOMMENDATIONS:

The Comprehensive Plan states that long-term goals for watershed management are needed to improve poor water quality conditions exacerbated by untreated stormwater runoff. Sediment deposition in the lake (transported via stream inflow), phosphorus and nutrient loading from internal recycling of lake sediment, untreated septic effluent, and untreated stormwater runoff are the major causes of external phosphorus loading in the lake. In-lake management efforts (i.e., the oxygen aeration and surface alum treatments) are provisional in nature and will not provide a permanent solution. However, to help attain the best water quality possible, it is necessary to continue operating the oxygenation system, as it helps control the internal lake recycling of phosphorus. A watershed-wide comprehensive approach to stormwater management is needed beyond that provided by the Washington Forest Practices and Shoreline Management Regulations.

D. RECENT DISTRICT AND COMMUNITY ACTIVITIES

1) IMPLEMENTATION AND ENFORCEMENT OF LAND USE ORDINANCES

a. Algae Samples / Complaints

- One algae sample was collected in 2025 on October 2nd, at the WDFW boat launch. The results were 0.6 ug/L, which is below the WaDOH Recreational Guidelines of 8 ug/L.

b. Forest Practice Applications (FPAs) and Timber Harvest Proposals:

- FPAs received within the Newman Lake Watershed boundaries are forwarded by the Washington State Department of Natural Resources (DNR) to District staff for review. Copies of proposed FPAs/Timber Harvests are also typically sent to the District Advisory Board (AB) for their information and review.
- One notification was received in 2025. An informational letter was sent advising them on protocols to help protect water quality.

2) COMMUNITY EDUCATION

a. NLFCZD Website and Public Outreach Events / Activities:

- The website for the NLFCZD provides information to District residents. Content includes information such as property assessments, current, proposed, and past budgets, lake water quality updates and resources, watershed monitoring, and milfoil control activities. In addition, the District policy and procedures manual, Advisory Board (AB) meeting schedules and any AB position vacancy/application announcements, and access to AB member contact information are available.
- Activity updates were sent out to the Newman Lake community (approximately 350 email addresses) during 2025. Updates were streamlined to include high-importance events, activities, or work regarding Newman Lake, such as lake level updates, water quality monitoring events, milfoil treatment dates, ARP project, and budget updates.
- The Newman Lake Property Owners Association continued the Annual Community Lake Clean-Up Day on April 26, 2025. District staff attended to share updates regarding District operations, grant funds, and the ARP-funded project.
- A District-led Community Fall Open House was held on September 30th at the Fire Station and via Zoom. The discussion focused on the ARP-funded project but also included budget, lake level management, milfoil, water quality equipment operation, and shoreline erosion.
- The Lands Council and Gonzaga University undergraduate students are actively managing the beaver dam analogs on Thompson Creek. They have both participated in updates to the community and to the Advisory Board.
- In partnership with Spokane Conservation District, members of the Newman Lake Property Owners Association (NLPOA) worked to revive the environmental education/stewardship programs – *Love Newman Lake* and *Lake Care OK'd*. The *Love Newman Lake* program is a high-level education program

to begin engaging and informing the community about the impact of phosphorus on the lake. This is facilitated through the NLPOA website, where residents are encouraged to view an educational presentation on Newman Lake water quality issues and simple actions that individuals can implement. The *Lake Care OK'd* program is a more in-depth incentive program, offering property owners a chance to have their property reviewed by a volunteer for more significant actions/activities they can undertake to help reduce their impact on the water quality of Newman Lake.

3) ONGOING LAKE HEALTH IMPROVEMENT PROJECTS AND GOALS

a. On-Site Wastewater Improvements:

In 2018, a septic feasibility study was completed for Honeymoon Bay. This effort was led by the Spokane Conservation District (SCD), with financial assistance via a grant from the Washington State Department of Ecology (ECY). The study indicated a typical sewer system in Honeymoon Bay was not a financially feasible option. The feasibility study then looked at small-scale enhanced wastewater treatment systems; Two types were identified for the proposed pilot project, both employing membrane bioreactor technology (MBR) for treatment: the Busse system is above ground, housed in a Conex box or similar, and the Biomicrobics unit is below ground and is typically placed inside an existing septic tank.

Ecology took applications in August of 2019 from property owners interested in participating in the forthcoming septic system pilot project. The goal was to retrofit parcels/residences each with one of the proposed units. Two systems were installed in 2020, one of each type. Both systems have had samples collected and monitored since installation and are currently meeting Class B reclaimed water standards.

In 2022, the SCD began soliciting landowners across the Newman Lake community to participate in Phase 2 of the Pilot Program. A grant and loan program had been developed to provide financial assistance for the systems. Unfortunately, between 2022 and 2024, there was little to no movement on this project due to the pilot systems being unpermitted. They had been installed without full approval from the Spokane Regional Health District (SRHD), and before any additional systems could be installed, these needed to get permitted.

In 2024, District staff met with SRHD, ECY, and SCD on numerous occasions to progress the program and get more systems installed. We recognized that a legislative fix was the most likely for success, so drafted a change to the WAC which was sponsored by WA State Senator Leonard Christian of the 4th District. The bill prompted extensive discussion by the Washington Department of Health, ECY, SRHD, and SCD, but did not have the support of various agencies, so we pulled it while in committee. The agencies contended these systems could be permitted under existing regulations.

This year SCD finalized permitting the pilot project systems with SRHD while beginning the next round of system installs. The hope was to install 2 new systems, but it proved more difficult than previously

thought, as the cost of these systems is high. They are hopeful they can get another installed in 2026 and are making a renewed push to generate interest.

b. Aquatic Plant Treatment Plan:

Over the years, District staff have applied for and secured grant funding for treating/managing Eurasian Watermilfoil in Newman Lake. Washington State Department of Ecology (DOE) forewarned the District that no more funding would be available after the last grant cycle concluded in June 2016, and again in 2018. DOE encouraged District staff to continue to educate the community about milfoil control and recommended that shoreline residents of Newman Lake take on increased responsibility for reducing milfoil within shallow, dock, and swimming areas in front of their properties. Despite this, in November 2018, District staff applied for, and received, a Water Quality Aquatic Invasive Plants Management Grant, which expired in 2021. DOE notified District staff that they would not fund Newman Lake aquatic invasive species (AIS) treatment through the Aquatic Invasive Plant program due to the multitude of grants awarded in the past. They stated that the grant program was not intended to be a continuous funding source for AIS treatment. For this reason, the District budget must absorb the continued treatment of AIS until an alternative plan is developed.

In 2025 the District earmarked $35,000 to dedicate towards aquatic invasive plant management, with our efforts directed at Eurasian Watermilfoil. Aquatechnex performed a survey on June 5th and used GPS to mark milfoil and categorized it based on density. All locations where milfoil was discovered were classified as sparse. As a result, only 4 acres were treated in 2025 using ProcellaCOR EC, after 33 acres were done in 2024. A figure illustrating the treatment areas is shown in **Figure A - 1**. The treatments that have occurred in the past few years have been largely successful in reducing the milfoil population. It's unlikely it will ever be fully eradicated, so treatments will continue to keep the spread down.

c. Beaver Dam Analogs in Thompson Creek for Phosphorus Reduction:

The Newman Lake Property Owners Association initiated the project with a local conservation organization, The Lands Council (TLC), and Gonzaga University (GU), to tackle nutrient loading from stormwater and watershed sediment transport brought to the lake via Thompson Creek. Through this partnership, GU Civil Engineering Professor Dr. Sue Niezgoda, P.E., and her student team designed a complex of artificial beaver dams, or Beaver Dam Analogs (BDAs), for stream restoration and nutrient reduction in Thompson Creek. District staff, specifically Colleen Little and Dawson Matthews, provided support as needed during the first few years of the project.

In the fall of 2021, The Lands Council constructed the BDAs with the help of students and community members. The project was funded through a Water Quality 319 Grant and includes a robust monitoring protocol that will quantify water and sediment storage and phosphorus concentrations in Thompson Creek. In tandem with Gonzaga University, the Lands Council adaptively managed the BDAs through each year. This involved sealing the starter dams with vegetation, cutting grass from the floodplain, and adding posts & weave materials where needed.

Since their installation and through 2024, Gonzaga University students have measured the total phosphorus (TP) levels upstream, mid-reach, and downstream of the BDAs each month. In addition, TLC performs annual riparian restoration efforts by planting trees along the stream. Since the BDAs have been installed, there have been **over 2,000 native** trees and shrubs planted, with more expected in 2026. A big thank you to TLC and their volunteers for this massive effort to restore Thompson Creek.

So far, the BDAs have widened the channels upstream of the structures and are increasing the pond size. Scouring has occurred at multiple dams, prompting additional adaptive management to occur to remedy the scouring and encourage ponding. Those efforts improved the structure's performance, but there was still flow bypassing the dams, so additional maintenance occurred in 2025. There have not been significant TP reductions since installation however these findings are not surprising due to the scouring and early stages of the project.

In 2025, TLC undertook Phase II of the project, installing five new complexes that contained 16 new and 9 modified structures. These structures consisted of BDAs and post-assisted log structures (PALs). TLC plans to undertake another large planting event in the spring of 2026 to bolster the site with native trees and shrubs. Phase III is being discussed, which would involve BDAs north of Muzzy Rd, but there is no determined timeline.

Many thanks to Kat Hall (TLC), Dr. Sue Niezgoda (Gonzaga University), Brian Walker (USFWS), and the Newman Lake Property Owner's Association. For more information, the Spokesman Review's article here: https://www.spokesman.com/stories/2021/nov/11/in-hopes-of-healing-newman-lake-gonzaga-students-l/

4) OXYGENATION AERATION

a. Newman Lake Water Quality Improvement Project

As previously discussed, the District was awarded two grants to be used to replace the oxygenation and alum injection systems at Newman Lake valued at $2,000,000 and $300,000. At the end of 2022, using these funds, District staff determined to pursue a lake analysis to assess if replacing the systems with a similar concept would achieve the ultimate goal of algae reduction through phosphorus mitigation. The intention is to ensure that these funds are spent with the utmost care and provide the District with the greatest opportunity for effective water quality improvement.

The study concluded in 2023, and the results can be found on the NLFCZD website. One of the most significant findings was that Newman Lake does not need a hypolimnetic alum injection system, because there is enough iron and manganese in the sediment that, when oxygenated, can bind with available phosphorus and sequester into the sediment. Under oxic conditions, the internal loading of nutrients will not occur. Thus, Jacobs Engineering has recommended the installation of a line diffuser oxygenation system only.

With the assistance of Jacobs, County staff and the Advisory Board spent the spring of 2024 working to select the specific onshore configuration of equipment that will power the diffuser. Jacobs initially provided 4 options, with a significant range of oxygen delivered (1,678 – 2,836 kg/d) and price ($1.64M – $2.16M). We decided to go out to bid with the two lowest, alternative 1 & 2, since the lowest alternative still provided enough oxygen to meet the hypolimnetic oxygen demand of 1,541 kg/d. Halme Construction (Halme) was awarded the contract and began demolition of the Speece cone in the fall.

Halme spent the winter building the onshore components of the project, so Mobley Engineering could install the line diffuser in April. During start-up and testing in early April, it was discovered that the system was not functioning properly. The system was designed with two independent trains composed of an air compressor, air dryer, air tank, and AirSep (oxygen generator) before going into the lake. One configuration is an AS-N (AirSep) and a 75 HP compressor, and the other is an AS-L and a 50 HP compressor. The testing showed that neither configuration could work on their own, but combining both compressors for the smaller AS-L would work. Eventually, the 75 HP was adjusted such that it could support the AS-L on its own. This provided approximately 40%, or 760 kg O_2/day, of what the system was designed for, which is about half of the lake's hypolimnetic oxygen demand.

After thorough investigation and analysis of the system performance during the spring and summer, it was determined that there were multiple issues. First, the air compressors were both undersized for their respective AirSep's. Second, the ambient air temperature was too low, which was causing diminished oxygen purity. The system is expected to provide 90-95% purity, and if the output falls below that range, the system is not functioning properly. From April through July, the purity was consistently below 90%, and ambient air temp was determined to be the cause. If low ambient temperatures persist, the AirSep will sustain permanent damage, making timely repair critical and equally as important as increasing compressed air volume.

County Staff, with the assistance of the Advisory Board, have been working with Jacobs & Halme to resolve these problems since they were discovered. Presently, we have informed Jacobs of their design failure and our expectation that they redesign the system at their expense. The financial liability has yet to be determined, however Jacobs Engineering has been working on a solution in good faith, with hopes of implementing it in 2026.

A timeline of events for the project:

Phase 1 – Lake Analysis

Data Collection: Spring to fall 2023
Public Meeting #1: September 13, 2023
Workshop #1: October 3, 2023
Workshop #2: November 16, 2023
Water Quality Assessment Report: November 30, 2023
Alternative Evaluation: February 2, 2024
Public Meeting #2: March 5, 2024
Implementation Plan: May 16, 2024

Phase 2 – Design

30% Plans: April 24, 2024
60% Plans: May 7, 2024
90% Plans: May 30, 2024
100%: June 17, 2024
Out to bid: June 26, 2024

Bid Opening: July 31, 2024
Contract Signed: September 5, 2024

Phase 3 - Implementation

In-Lake Demolition: November 2024
On Shore Demo: December – January
Equipment Installation: January – March 2025
Line Diffuser Installation: Mid-April 2025
System Troubleshooting: April – September
System Redesign: September – Present

b. Oxygenation Aeration System:

To continue the effort of reducing in-lake nutrient cycling within Newman Lake, the oxygen aerators (AirSEPs) must continue to run as efficiently as possible. The system was checked daily, with gauge readings recorded for quality assurance and equipment management. The following table summarizes the oxygen purity reading for the AirSEP during the 2025 operating season.

Table 2: Oxygen Aerator Purity Range and Monthly Averages

	AS-L
Oxygen Purity High (%)	93.2
Oxygen Purity Low (%)	73.5
June Avg.	82.8
July Avg.	84.8
August Avg.	89.3
September Avg.	91.0

As shown in **Table 2** and described in the previous section, purity issues persisted all summer. This was a result of the ambient air temperature being too low. After the air is compressed, it runs through an air dryer, which cools it down to the dew point so water can drop out, then warms it back up. The warming process is limited by the temperature of the ambient air, so when that air is below a certain

point, it is not warmed enough for the AirSep to achieve preferred performance. A solution is in the works and should be in place by spring 2026.

c. Alum Injection System:

During the 2021 season, the continuous alum injection system was inoperable because all three system lines were plugged with hardened alum. Since repair or replacement was not cost-effective, and a potential replacement plan was in the works, the District did surface treatments between 2021 and 2023. Per recommendations from Jacobs Engineering in Lake Analysis the alum system was demolished since annual alum treatments were deemed unnecessary.

Our approach to apply alum at the surface of the deepest portion of the lake serves only to remove nutrients suspended in the water and provides no effect of capping the sediment as previously thought. It is an effective method to remove nutrients from the water, so another treatment occurred in 2025. The Jacobs study indicated we do not need to do a surface alum treatment every year, but rather only during years of extreme runoff. We performed an application in 2025 because the oxygenation system was not completed on schedule. County staff and the Advisory Board determined that, despite the high cost, it was a worthwhile investment toward improving the water quality.

d. State Capital Budget Grant Funding:

In late January 2019, the District received $415,000 as a State Capital Grant to fund the evaluation, repair, and upgrade of the water quality and flood control systems, aeration, and alum injection systems. The following chronology outlines key events of the State Capital Budget Grant Award for Capital Improvements at Newman Lake.

- Jacobs Phase 1a Report Submitted to Spokane County: March 1, 2021
- Scope of Work negotiations for Phase 2 with Jacobs April – July 2021
- Drafting bid documents: August – November 2021
- Scope of Work (SOW) change request sent to DOC due to high material and design costs: December 2021 & approved June 2022
- Bid documents finalized July 2022
- Rejection of received bid – September 2022
- Contract readiness form updated – April 2024
- Remaining funds expended upgrading oxygenation system – Spring 2025

5) WATER QUALITY MONITORING

a. Lake Sampling:

In 2025 the sampling program was refined to collect essential parameters to understand the lake health, and that can be used to monitor the line diffusers effectiveness. Jacobs Engineering provided us with guidance on determining these parameters, and we intend to continue the practice moving forward. Since there was no alum injection system, there were no NPDES permit requirements as in the past. However, surface alum treatments are covered under the APAM permit, which requires specific parameters be monitored. Despite minimal permit requirements, the District intends to continue the monitoring program to measure the effectiveness of the oxygenation system and continue to build a robust historical dataset. The sampling occurred every 2 weeks at the same locations always sampled. The District budget for Newman Lake monitoring in 2025 was $14,000, the same as 2024. Additional details about the sampling season and results can be found in **Part 2.**

Appendix A **Invasive Aquatic Plants**

Newman Lake Milfoil Treatment Plan 2025

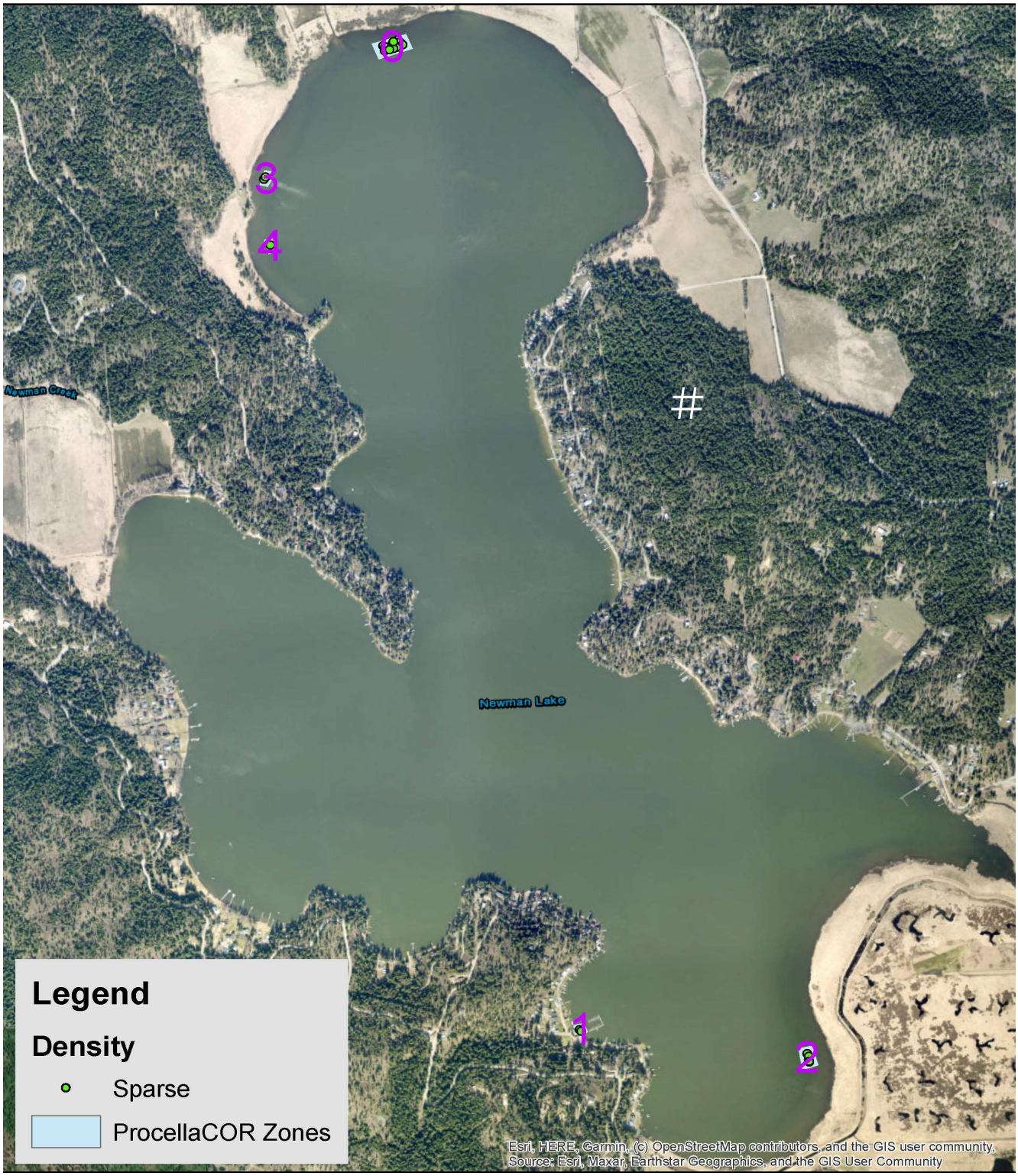


Figure A - 1. Map of Eurasian Watermilfoil 2023 Herbicide Treatment Location

Part 2. Water Quality Monitoring Reporting

A. Introduction

Newman Lake is located in eastern Spokane County, Washington. The Newman Lake Flood Control Zone District (District) is managed by Spokane County staff. An aluminum sulfate (i.e., alum) injection system operated from 1992 to 2020, then surface treatments occurred in 2021-2023 & 2025. The alum, which is considered a pollutant, is authorized for discharge into Newman Lake in accordance with 1) the State's Aquatic Plant and Algae Management General National Pollutant Discharge Elimination System (NPDES) Permit (Permit), WAG994123, that applies to freshwater lakes undergoing aquatic plant and algae management, and 2) the Washington State Department of Ecology (DOE) Administrative Order (Order), No. 9073, specific to the Newman Lake alum injection system. Part of the permit requirements of injection involved the preparation of the State of the Lake report. Since the injection system is permanently offline, the report is no longer mandatory, nor is monitoring. However, the District has decided to continue with these practices.

During the 2025 operating season, Newman Lake water quality monitoring and reporting requirements were performed by County Staff, under advisement from Jacobs Engineering. The previous 30 years of monitoring and reporting were conducted by Washington State University (WSU), led by Dr. Barry C. Moore.

District Staff have produced this annual report, known as the State of the Lake Report, to assess the condition and general trends of Newman Lake. This document includes sampling methods and raw data in the appendices, an analysis of the data collected, and an evaluation of the impacts of the oxygenator and alum injection system on lake water quality and biota.

B. Methods

All monitoring methods are in accordance with Newman Lake's Sampling and Analysis Plan.

1) Sampling Schedule & Parameters

Table 3 provides the in-lake monitoring event schedule. Sampling events with NPDES as a parameter were to fulfill the NPDES requirements from the 2025 alum treatment. The remaining were elective and used to monitor the effectiveness of the oxygenation system.

Table 3. Sampling events and dates

Sampling Event	Sampling Dates	Parameters	Sampling Event	Sampling Dates	Parameters
1	Apr-08	Profile	13	Jul-03	Profile, Labs, NPDES
2	Apr-11	Profile	14	Jul-10	Profile
3	Apr-17	Profile & Labs	15	Jul-17	Profile & Labs
4	Apr-24	Profile	16	Jul-31	Profile & Labs
5	Apr-30	Profile & Labs	17	Aug-08	Profile & Labs
6	May-09	Profile	18	Aug-14	Profile & Labs
7	May-15	Profile, Labs, NPDES	19	Aug-28	Profile & Labs
8	May-29	Profile & NPDES	20	Sep-05	Profile
9	Jun-05	Profile & Labs	21	Sep-10	Profile & Labs
10	Jun-12	Profile	22	Sep-25	Profile
11	Jun-18	Profile & Labs	23	Oct-01	Profile & Labs
12	Jun-30	Profile	24	Oct-15	NPDES

All samples were taken at three lake locations during each monitoring event (North, Mid-Lake, and South Stations). **Figure 1** provides a map of Newman Lake indicating the three sample locations. **Table 5** contains the GPS coordinates for each station. The boat was anchored within a 50-foot radius of the GPS coordinates to best maintain the sample location before obtaining samples and field parameters.

Parameters taken as profiles, listed in **Table 4,** were measured approximately every meter from the surface to the bottom of the lake using a YSI handheld probe. Samples for lab testing were taken at each station at three depths: one at the surface, one about midway to the bottom, and one just above the bottom of the lake (typically one meter above the bottom). Sample depths were determined by using a measuring rope with a weighted end.

To minimize disturbance of the water column during sample collection, the temperature and dissolved oxygen (DO) readings were taken first, followed by the water grab samples. The Secchi depth was taken in the shade without sunglasses.

Table 4. In-Lake Monitoring Parameters, Sample Type, and Frequency

Field Parameters - Profiles	Laboratory Analysis	
	Water Samples	**Alum Related Samples**
• Temperature • Dissolved Oxygen (DO) • pH • Conductivity • Specific Conductance • Total Dissolved Solids	• Total Phosphorus • Chlorophyll-a • Total & Dissolved Iron • Total & Dissolved Mn • Phytoplankton	• Hardness • Total Recoverable Al • Dissolved Al • Dissolved Organic Carbon

a. Field Parameters

Profiles were captured at approximately one-meter intervals from the lake surface to the lake bottom using the YSI ProQuatro Handheld meter with a 10-meter field cable. In addition, a Secchi disk was used to determine water clarity or turbidity. Parameters can be seen in Table 4.

b. Laboratory Analysis

Water grab samples were collected at the middle and bottom depths (one meter above the lake bottom) using a vertical sampler. The surface water sample was taken by dipping the collection containers into the lake. Samples were immediately shipped overnight to IEH Labs in Seattle, WA. Chlorophyll a and phytoplankton samples were analyzed by a local lab, Advanced Eco-Solutions.

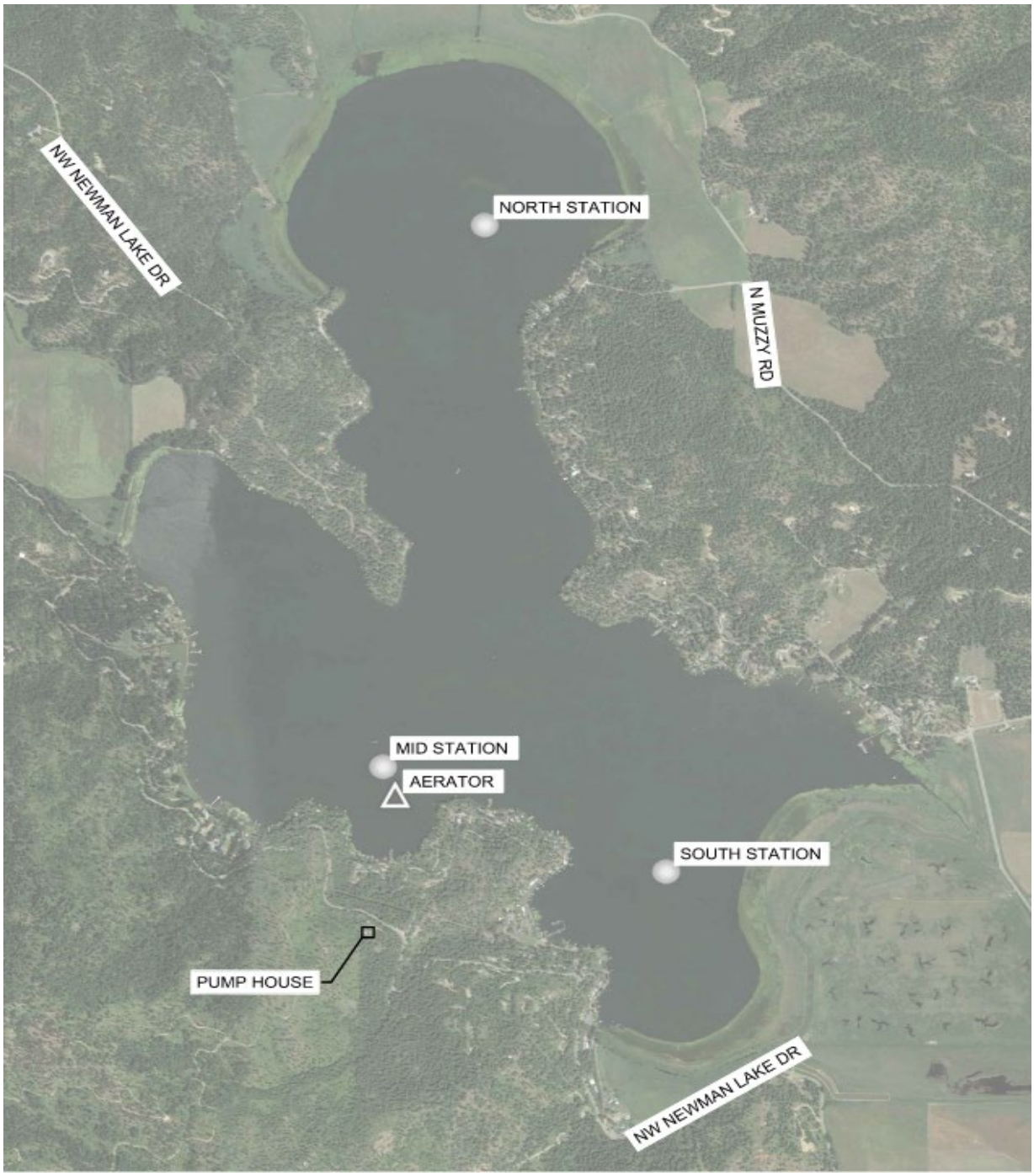


Figure 1. Newman Lake, Spokane County, Washington. North, Mid, and South Lake Station sampling locations. The aerator is located near the Mid-Lake Station.

Table 5. GPS Coordinates of the three sampling locations

South Station	Mid-Lake Station	North Station
47.7665, -117.0920	47.7702, -117.1051	47.7893, -117.1004

2) Sampling Discussion

The results of all sampling events are summarized in **Appendix B**. Field datasheets and corresponding laboratory results are provided in **Appendix C**.

Each lake sampling station, shown in **Figure 1**, has unique factors determining water quality and sampling profiles. The sampling results from each station are used individually by District staff for research and decision-making. Therefore, this report's results and analysis sections are divided into three parts.

- Part 1: North Lake Station
- Part 2: Mid-Lake Station
- Part 3: South Lake Station

It is important to note that the graphs presented for each station show linear trends, however, they should not be interpreted as such since the data only represent snapshots throughout the summer. Likewise, minimum and maximum laboratory results for a given sample date or location may indicate unusually high or low values. Conditions in Newman Lake vary from one day or time to the next; the sampling results simply provide general indications of the Lake's health at that moment in time.

Historical averages referenced in the document represent data collected by WSU, TO Engineers, and District staff. A 20-year average was used for sampling between 2001 and 2025 because numerous years in the range lacked consistent data collection.

In the spring when it was discovered that the line diffuser system did not work as designed, the expectations were that the water quality would suffer. Fortunately, that was not observed, relative to the past 5 years. The hypolimnion went anoxic in early May, and the system operating at 40% capacity could not keep up with the oxygen demand, so the anoxia was persistent until lake turnover. However, that did not occur until mid-September, 2-4 weeks after the mid-station temperature gradient decreased from 5.0 C to 2.4 C, an event that would precipitate a quick turnover. We believe that the line diffuser had a strong impact on turnover timing, as its effect on the weakening of the thermocline, was less than the Speece cone's.

Additionally, the lake was strongly stratified at the start of the year, which persisted through the summer. This prevented the nutrient-rich hypolimnetic waters from coming to the surface until mid to late September, thus staving off an algae bloom until late fall. While the line diffuser did not provide the requisite amount of dissolved oxygen to the lake this year, environmental conditions facilitated a strong thermal stratification, paired with the diffuser's diminished role in weakening the stratification, provided a season with great water quality. The data will be broken down further in subsequent sections.

PART I
Field Parameters

A. Temperature

Temperature profiles in 2025 were consistent throughout the sampling season and followed the same pattern at the South and Mid-Station. These stations were stratified at the start of the season, with an increasing temperature differential that peaked in the summer and slowly dissipated until fall. The North Station oscillated between stratified and mixed, possibly due to interactions with colder Thompson Creek water.

Figure 2 shows the North Station temperature readings at approximately one-meter intervals from the surface to the bottom for all twelve sampling events. The temperature profile was relatively uniform throughout the season, with 2 events having a differential above 3 °C. The average at the surface was 20.6 °C and 18.7 °C at the bottom, which is warmer than the 20-year average of 18.9 °C and 16.0 °C, respectively. The surface ranged from a minimum of 10.5 °C on April 17th to a max of 24.8 °C on July 31st, with the greatest differential of 5.8 °C on June 5th.

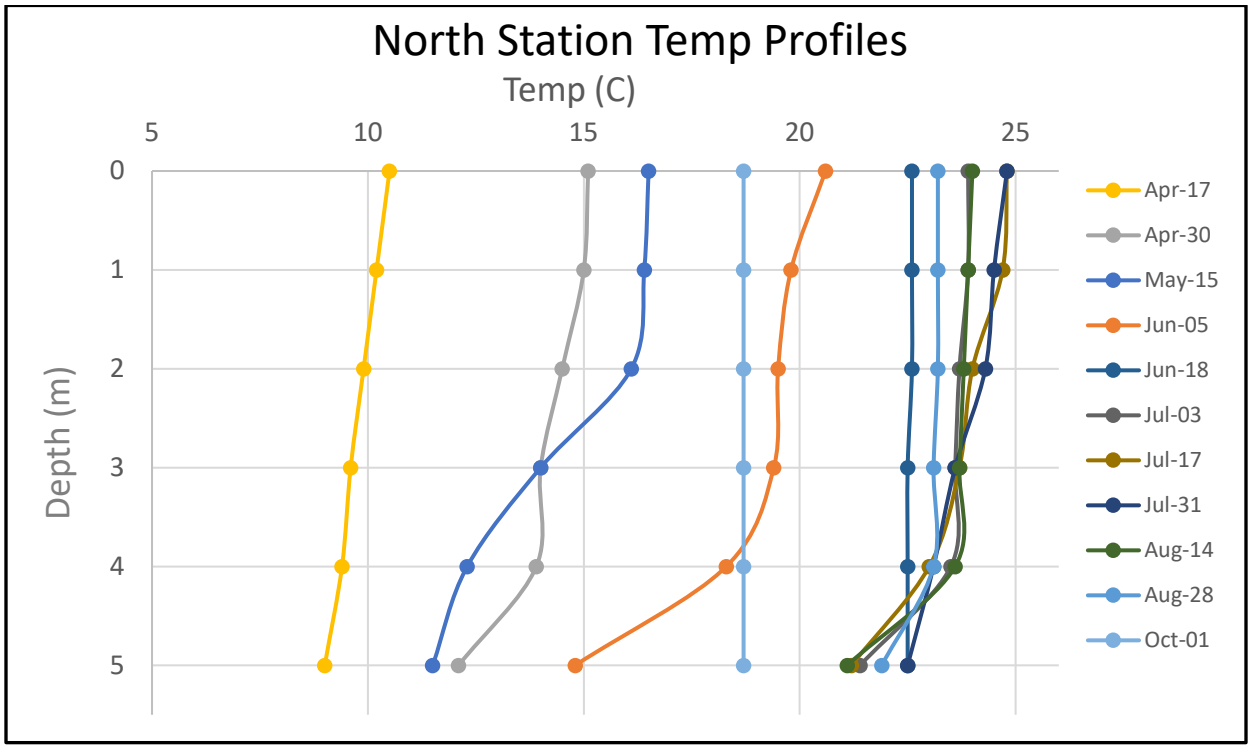


Figure 2. North Station – Temperature readings from all 12 sampling events, ranging from surface to lake bottom in approximately one-meter increments.

Figure 3 shows the Mid-Station temperature readings over the 23 events at this location.
The stratification at this station was stronger and more persistent than in 2024, beginning in mid-April and continuing to the end of August. The greatest differential was 10.5°C on June 12th, with a summertime (June-August) average of 7.7 °C, which is 3.7 °C better than 2024. The 20-year average surface temp was 18.7 °C, and the bottom was 15.1 °C. The 2025 averages were 19.7 °C and 13.9 °C, respectively. The surface ranged from a minimum of 9.5 °C on April 8th to a max of 25.1 °C on July 31st.

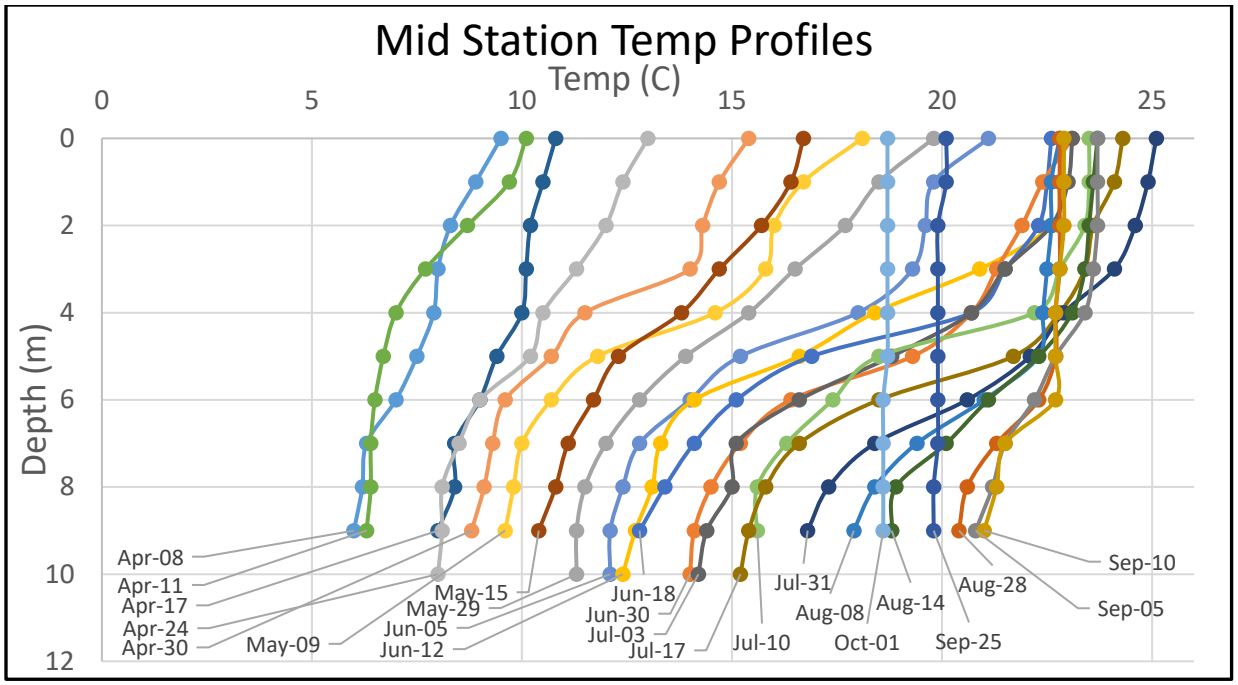


Figure 3. Mid-Station – Temperature readings from all 23 sampling events, ranging from surface to lake bottom in approximately one-meter increments.

Figure 4 depicts the South Station temperature readings over 12 events. This station followed the same trend as Mid-Station, with the temperature differential steadily increasing before a slow, steady drop through fall. The average at the surface was 21.0 °C and 17.4 °C at the bottom, compared to the 20-year average of 19.1 °C and 15.9 °C, respectively. The surface ranged from 12.6 °C to 25.5 °C, with the greatest differential at 7 °C occurring on June 18th.

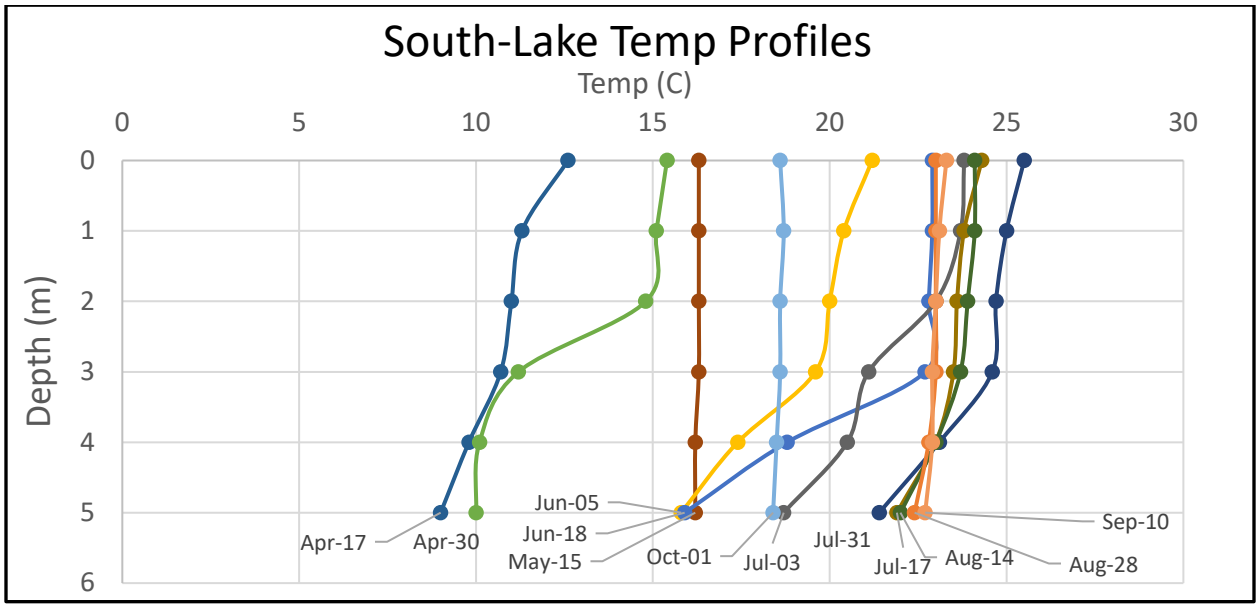


Figure 4. South Station – Temperature readings from all 12 sampling events, ranging from surface to lake bottom in approximately one-meter increments.

B. Dissolved Oxygen (DO)

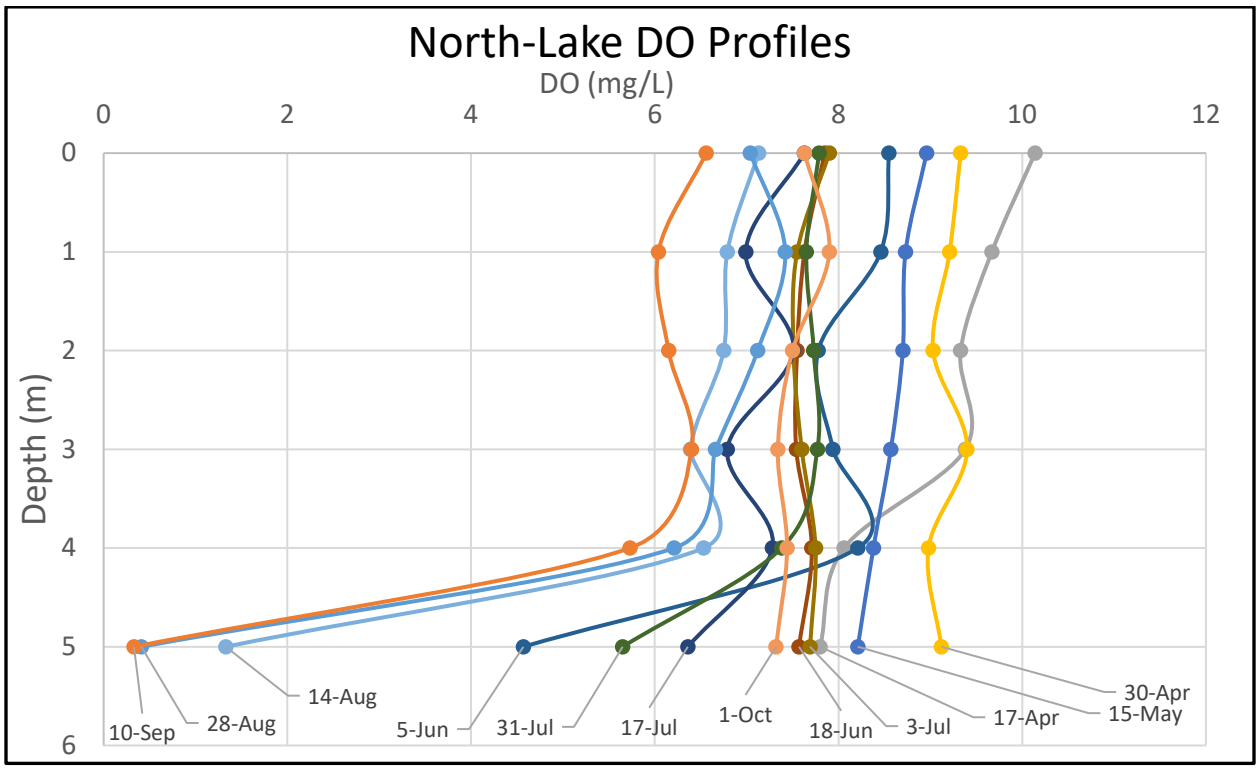


Figure 5. North Station—Dissolved oxygen readings from all twelve sampling events, ranging from surface to lake bottom in approximately one-meter increments.

Figure 5 contains the North Station DO readings at one-meter increments from the lake surface to the lake bottom for all thirteen sampling events. Concentrations were relatively stable during the season, with the bulk of measurements greater than 5 mg/L. Hypoxia (< 2mg/L) was observed only three times, but only at 5 meters depth, with a minimum of 0.33 mg/L on September 10th. The average surface and bottom concentrations were 8.0 mg/L & 5.53 mg/L, which is similar to the 20-year average of 9.0 and 5.7 mg/L, respectively.

The seasonal DO regime can be best viewed in **Figure 6,** which displays 23 profiles from the Mid Station. As mentioned in the previous section, the lake was stratified nearly the entire season, which is seen on this chart. The thermocline, which is a layer of water in the column that acts as a barrier due to the density differences preventing water exchange across the layer, ranged from 4 to 6 meters all season, as seen in **Figure 7**. Hypoxia was first measured on May 9th, and it persisted until September 25th, when the lake was first measured to have mixed. By May 29th, the water column from 7 to 10 meters was nearly completely anoxic (~0 mg/L) until September 25th. The 20-year average at the surface and 9m down is 8.7 and 3.4 mg/L respectively, and in 2025 it was 8.36 and 1.78 mg/L respectively.

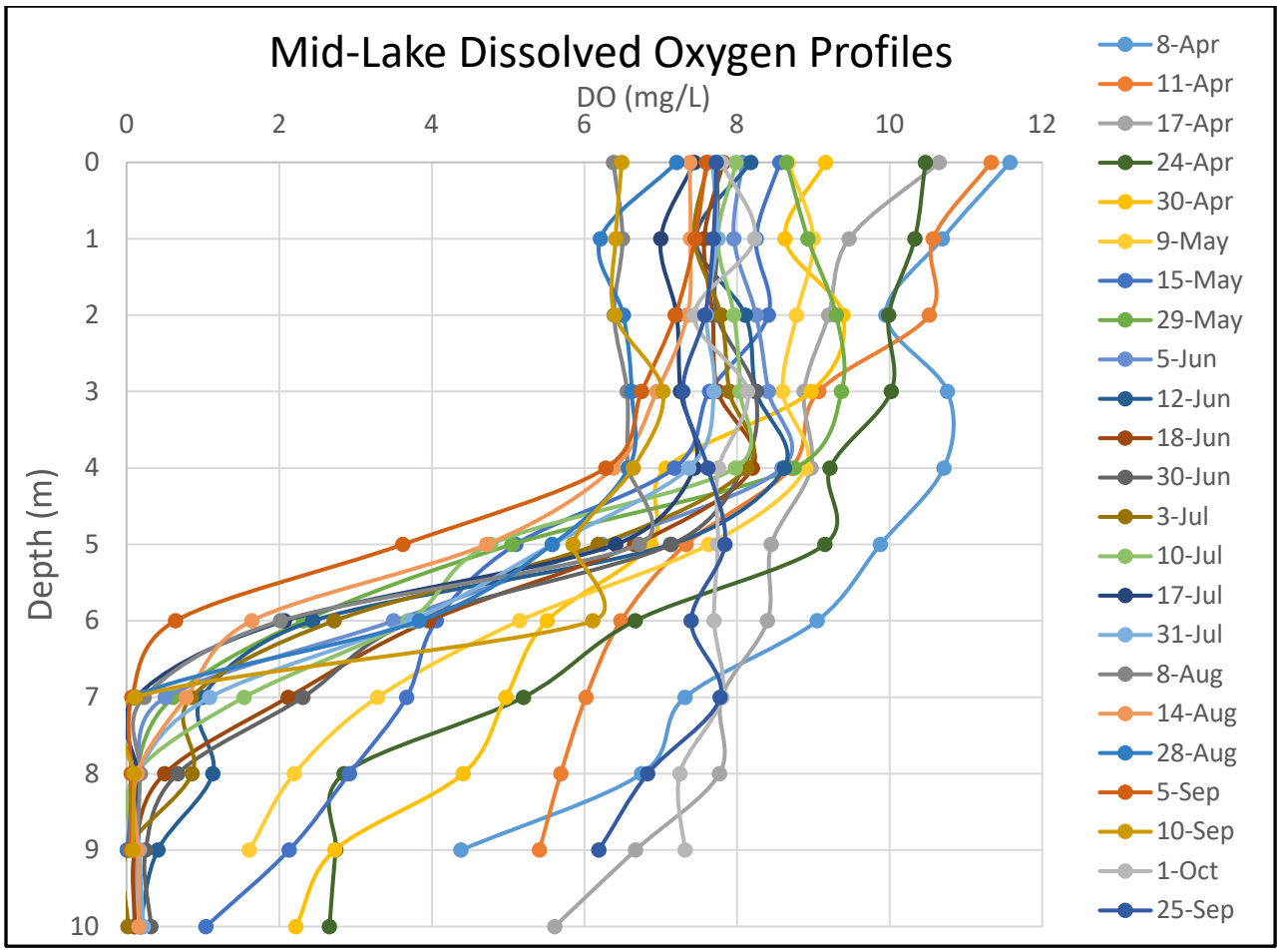


Figure 6 Mid Station—Dissolved oxygen readings from all 23 sampling events, ranging from surface to lake bottom in approximately one-meter increments.

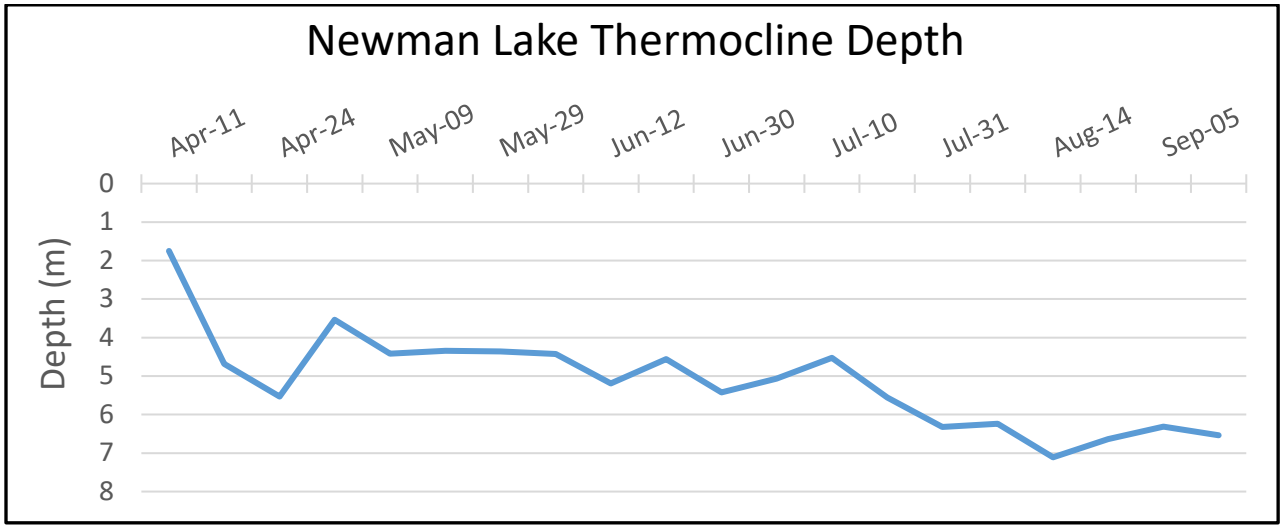


Figure 7. Thermocline depth – based on data collected at Mid-Station.

The South Station had a similar regime to the North Station, with slightly more measurements below 5 mg/L but never hypoxic, and can be seen in **Figure 8.** The average concentration at the surface and bottom (5m) was 8.0 and 5.1 mg/L respectively, which is similar to the 20-year average of 8.9 and 5.8 respectively. The minimum was 3.04 mg/L on August 14th, a full month earlier than the North Station's minimum (0.33 mg/L).

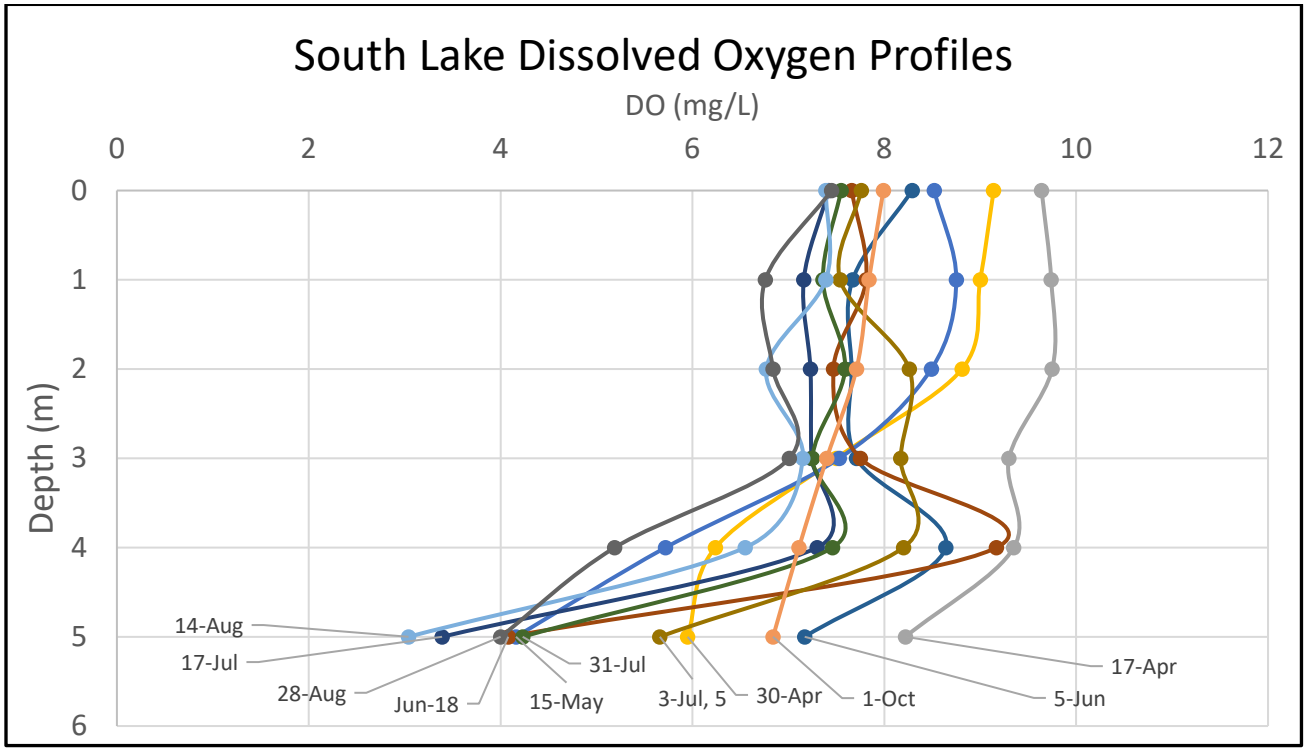


Figure 8. South Station dissolved oxygen readings from all 12 sampling events, ranging from surface to lake bottom in approximately one-meter increments.

C. Secchi

The average secchi depth at the North (**Figure 9**) and Mid (**Figure 10**) station was the same, 2.7 m, while the South (**Figure 11**) station was slightly lower at 2.58 m. All three stations had their best clarity on the June 5th sampling event and slowly declined after, ranging from 3.7 to 4 m. The averages were an improvement from 2024, which had a cumulative average of 2.1m. The 20-year average at the Mid-Lake Station is 2.2 m, so 2025 had above-average water clarity.

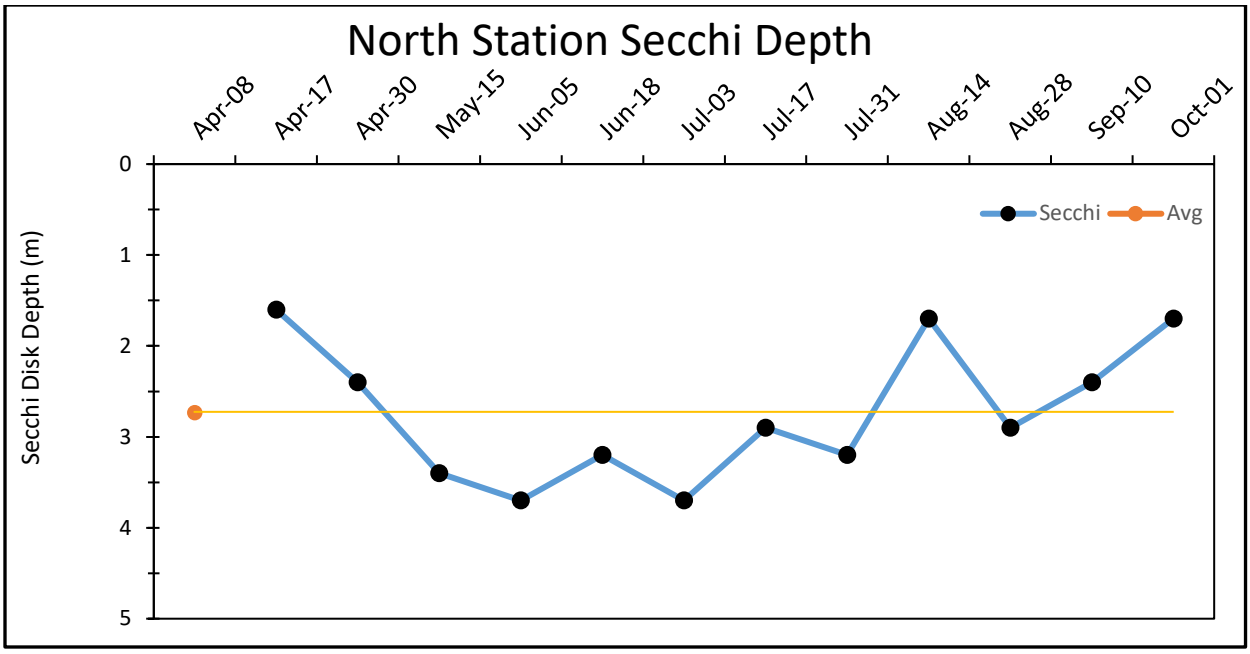


Figure 9. North Station—Secchi depth (meters) from all thirteen sampling events. Average of 2.73m.

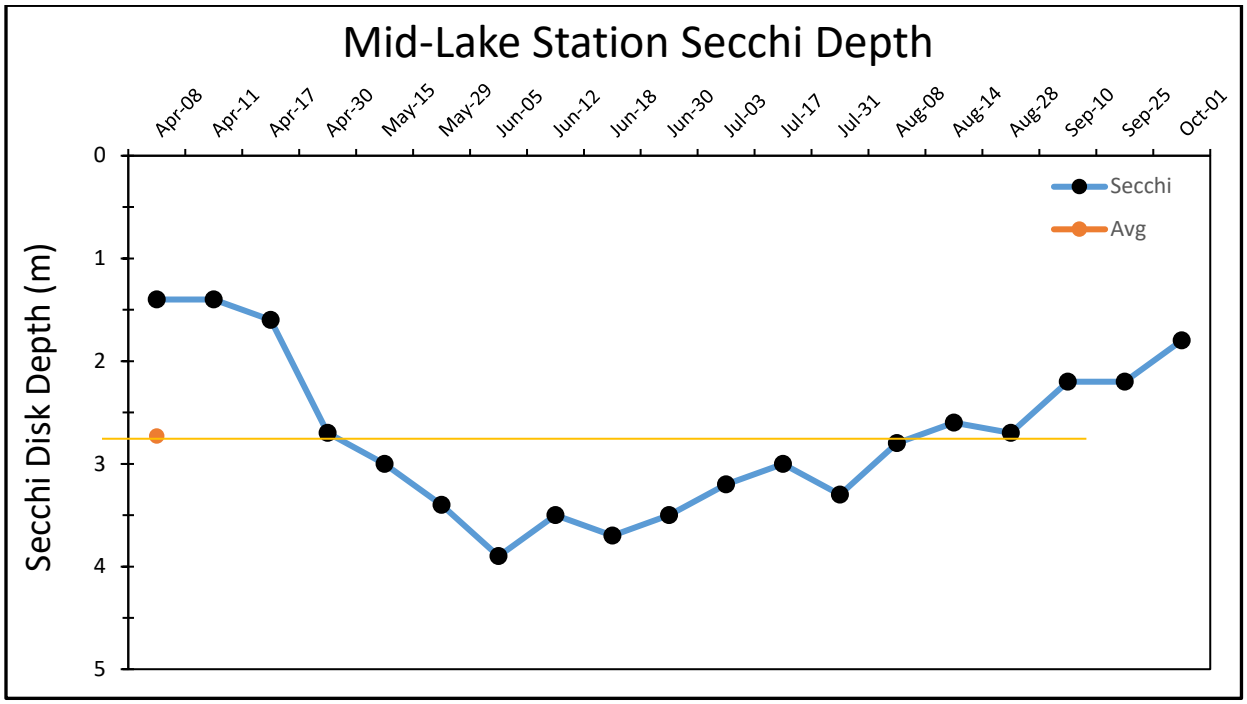


Figure 10. Mid Lake Station – Secchi depth (meters) from 19 sampling events. Average of 2.73m.

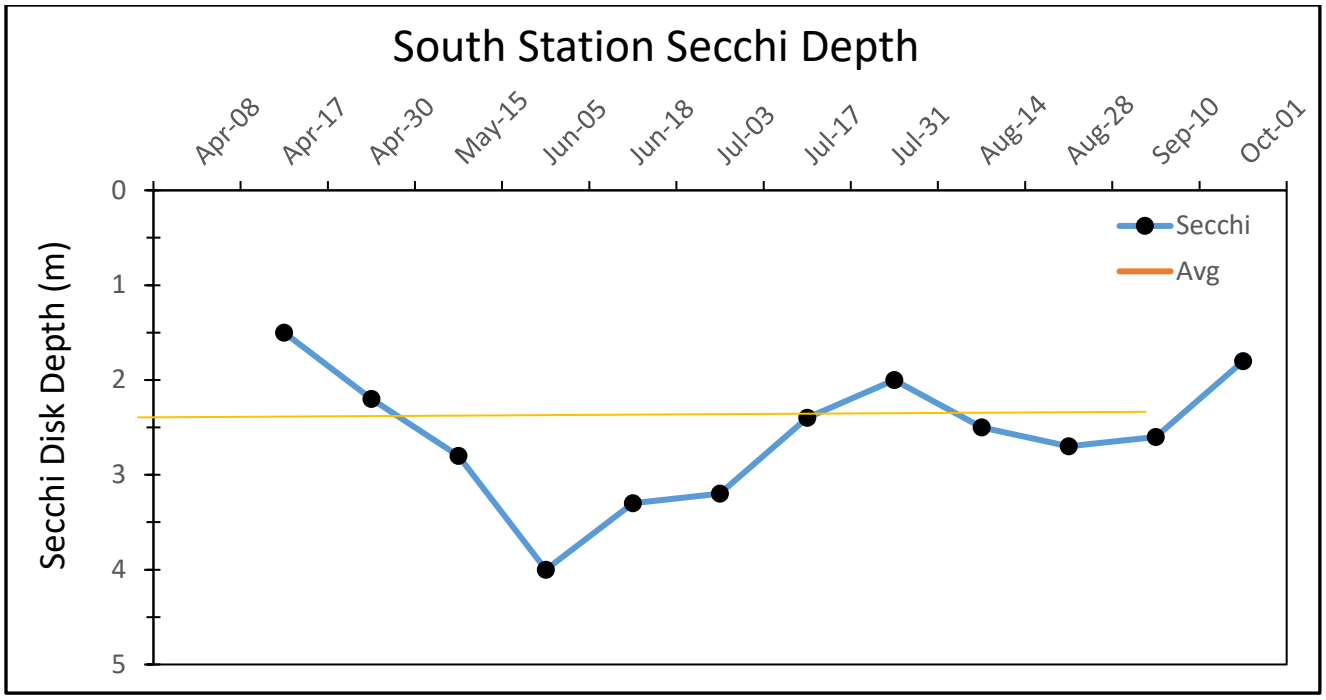


Figure 11. South Station—Secchi depth (meters) from all thirteen sampling events. Average of 2.58.

PART II
Lab Analysis

A. Total Phosphorus

North station total phosphorus (TP) results for each sampling event are shown in **Figure 12** and were sampled at the surface, middle (2.5m), and bottom (5m) of the water column. The summertime (June-Aug) average in the epilimnion (0-3m) was 0.011 mg/L, which meets the conditions of the TMDL of 0.020 mg/L. The max surface and bottom concentrations were 0.022 and 0.036 mg/L and occurred on the September 10th event. Since 2001, the average at each depth is 0.026, 0.026, and 0.030 mg/L respectively. While the 20-year summertime (June-Aug) average is 0.024, 0.026, and 0.032 mg/L respectively. The raw data can be seen in **Appendix B.**

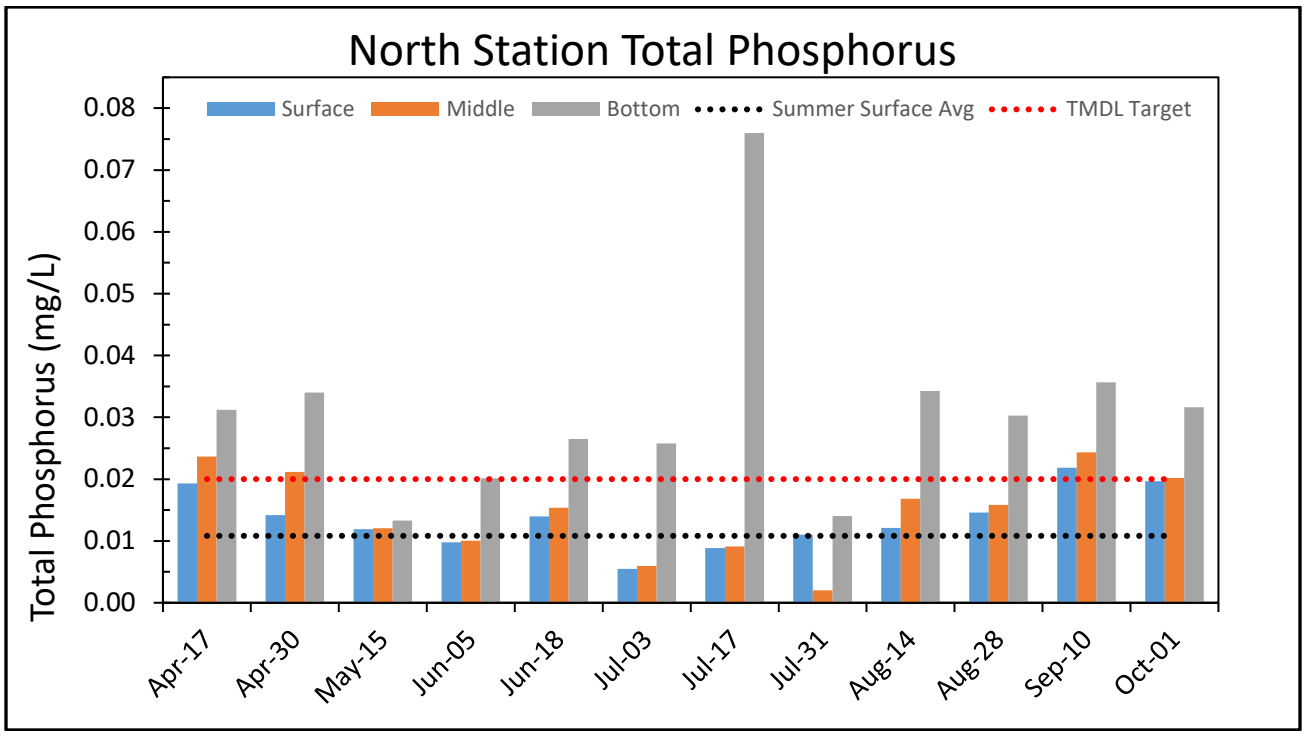


Figure 12. Surface, middle, & bottom of lake total phosphorus results for all sampling events. Summer avg was 0.011 mg/L

Mid Lake TP for each sampling event is displayed in **Figure 13** and samples were taken at the surface, middle (4.5m) and bottom (9m) of the water column. The summer average in the epilimnion (0-3m) was 0.012 mg/L, thus satisfying the TMDL goal of 0.020 mg/L. The peak at both the surface and bottom occurred on September 10th with concentrations of 0.019 and 0.082 respectively. The concentrations were relatively stable all season, with the hypolimnion spiking periodically during the summer. Since 2001 the summer (June-Aug) averages at each depth are 0.021, 0.025, 0.037 mg/L, and in 2025 it was 0.012, 0.018, and 0.037 mg/L.

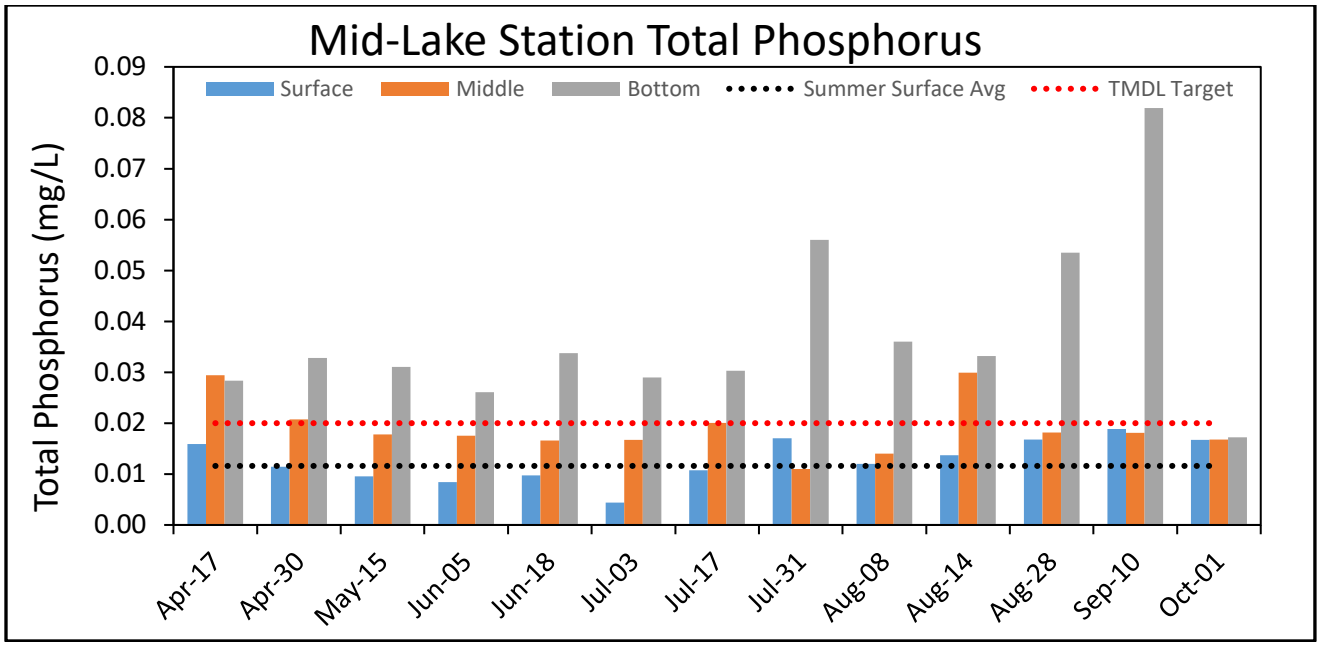


Figure 13. Surface, middle, & bottom of lake total phosphorus results for all sampling events. Summer avg was 0.012 mg/L

South Station total phosphorus (TP) results for each sampling event are shown in **Figure 14** and were sampled at the surface, middle (2.5m), and bottom (5m) of the water column. The summertime average was higher than the other two stations, at 0.014 mg/L, but still under the TMDL goal. The peak concentration at the surface was 0.034 mg/L on July 31st and 0.042 mg/L on May 15th at the bottom. Since 2001, the summer average at each depth is 0.023, 0.024, and 0.035 mg/L. The respective averages were lower in 2025 with concentrations of 0.015, 0.012, and 0.030 mg/L.

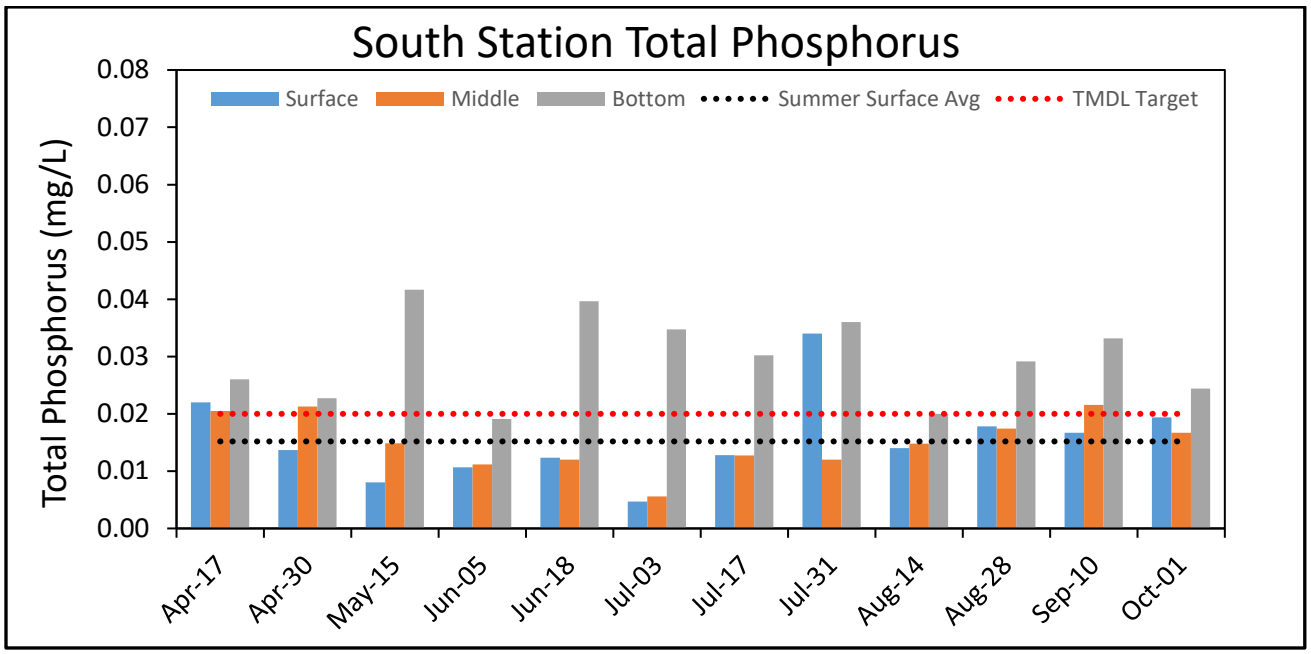


Figure 14. Surface, middle, & bottom of lake total phosphorus results for all sampling events. Summer avg was 0.014 mg/L

B. Chl-a

Chlorophyll a is the parameter used to measure the amount of algae and cyanobacteria in the water. **Figure 15** contains the North Station chlorophyll a results (µg/L) for each sampling event occurring at the surface, middle (2.5m), and bottom (5m) of the water column. The peak in chl-a concentrations trails the TP peak, which is to be expected. The peak concentration occurred on the July 31st event, which is 2 weeks after the peak of TP. The peak at Mid Station (**Figure 16**) was the following sampling event, which was preceded by the two highest TP concentrations of the season thus far. The peak TP concentration at Mid Station did not have a corresponding peak in Chl-a, likely due to the lake mixing shortly after. Unlike the North and Mid-Lake, the bottom chl-a concentration at the South station, **Figure 17,** was elevated relative to the surface and middle for most of the summer, which corresponds to the consistently higher bottom TP relative to the middle and surface.

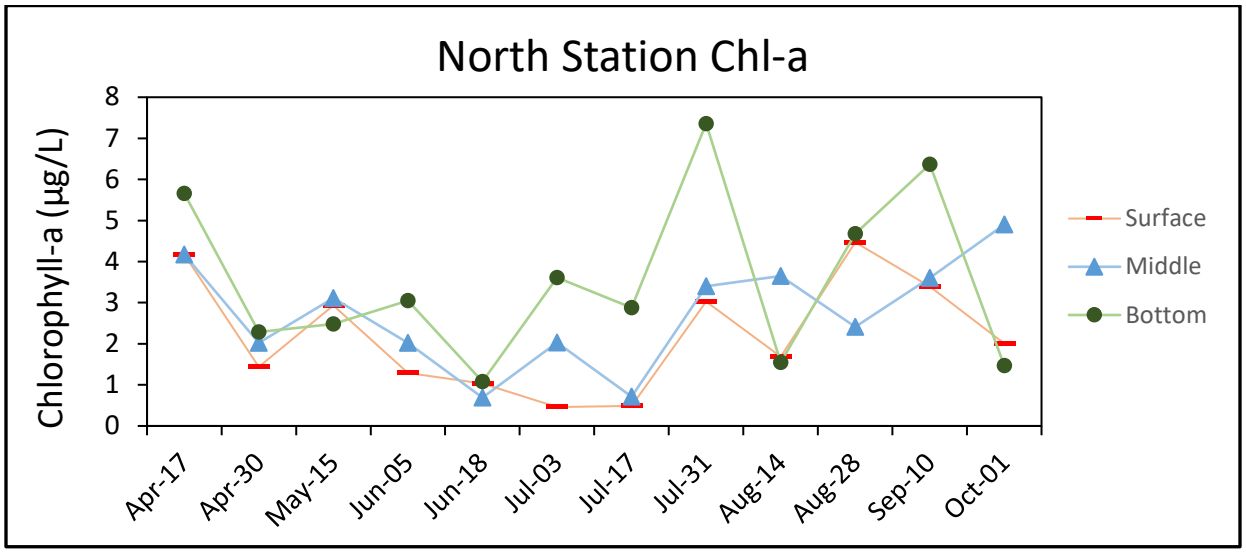


Figure 15. North Station— Chlorophyl-a concentrations at the surface, middle (2.5m), and bottom (5m).

Table 6. Chl-a total concentrations at each sample location over 12 sampling events between April 17th and October 1st.

Location	North			Mid Lake			South		
Depth	Surface	Middle 2.5 m	Bottom 5 m	Surface	Middle 4.5 m	Bottom 9 m	Surface	Middle 2.5 m	Bottom 5 m
Chl-a (ug/L)	26.4	32.7	42.5	19.9	64.3	53.6	25.3	32.3	61.3

The greatest concentrations of chl-a were measured at the bottom in the North and South, and the middle depth at Mid-Lake. Typically, we can expect that light penetrates 2-3 times the secchi depth. The average secchi for the season was 2.7 m, so we expect light to penetrate 5.4 - 8.1 m, which helps explain the abundance of algae 5 m and lower.

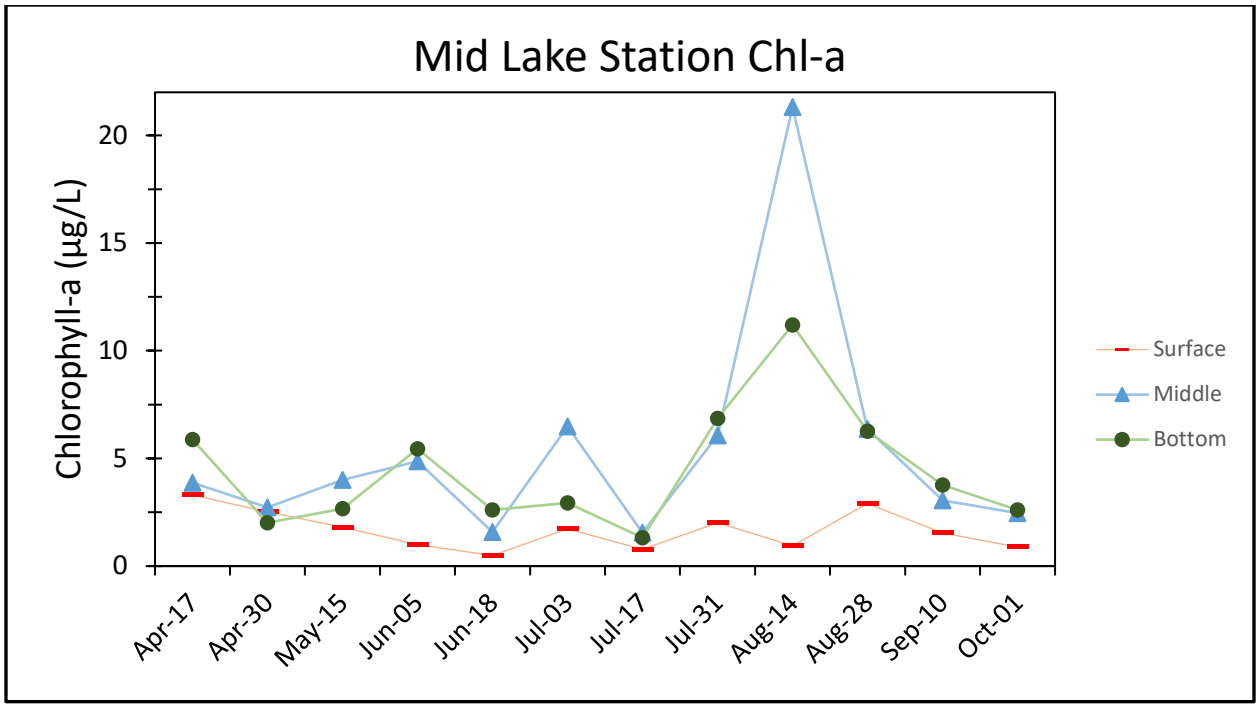


Figure 16. Mid Lake Station – Chlorophyl-a concentrations at the surface, middle (4.5m), and bottom (9m).

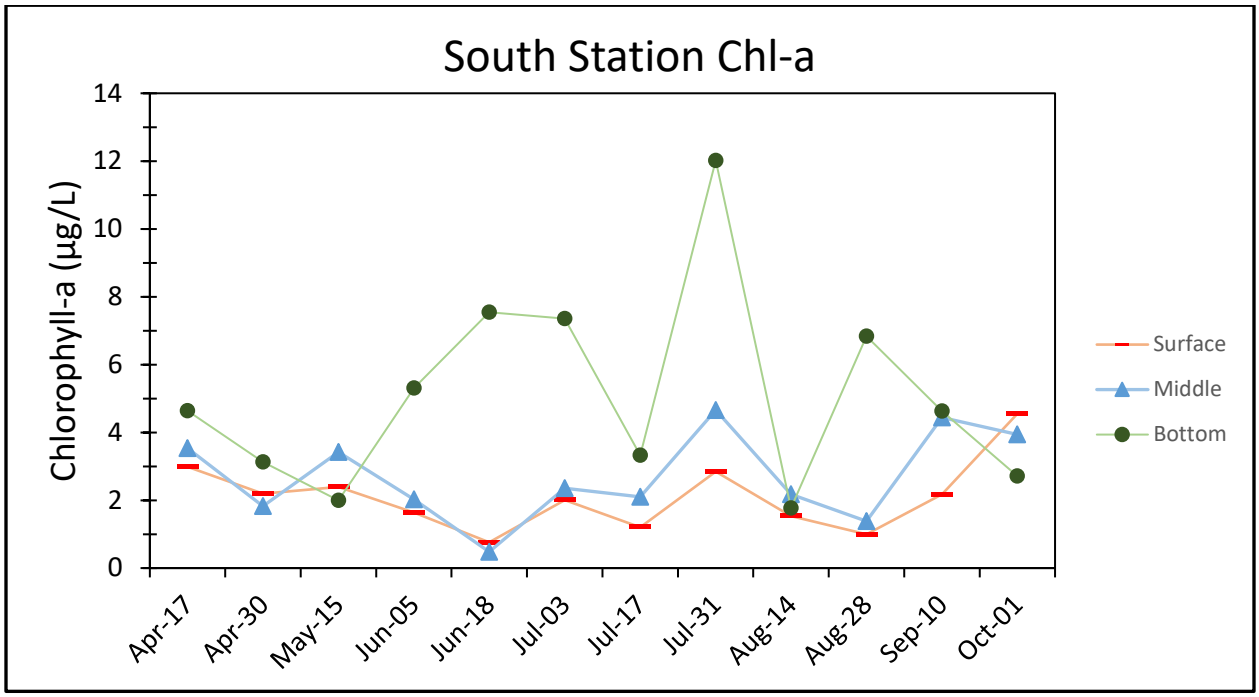


Figure 17. South Station -- Chlorophyl-a concentrations at the surface, middle (2.5m), and bottom (5m).

C. Total Iron

Total iron is a new parameter for regular collection as it is a precursor of TP release. This is due to ferric iron's (Fe^{3+}) ability to bind with TP when the water is oxygenated, thus rendering it biologically

unavailable for algae growth. Naturally occurring bacteria reduce ferric iron to ferrous iron (Fe^{2+}), so when the DO is low, these bacteria gain a significant advantage. A feedback loop is created as more bacteria reduce ferric iron, DO drops further, thus increasing the environment for these bacteria to thrive and reduce more iron. This reduction releases sediment bound TP continually until the water is oxygenated, via injection or lake turnover.

During the summer, each location had elevated total iron concentrations at the bottom depth, with the Mid Station (**Figure 19**) having the highest concentrations. This is expected since that station had anoxic conditions most of the sampling season, and subsequently the highest TP concentrations. The average total iron concentration at Mid-Station was 2.05 mg/L, while at the North and South it was 0.33 & 0.26 mg/L, respectively. The peak concentration at Mid-Station was 3.5 mg/L on August 8th, at the North 0.887 mg/L on July 17th, and the South was 0.492 mg/L on June 18th.

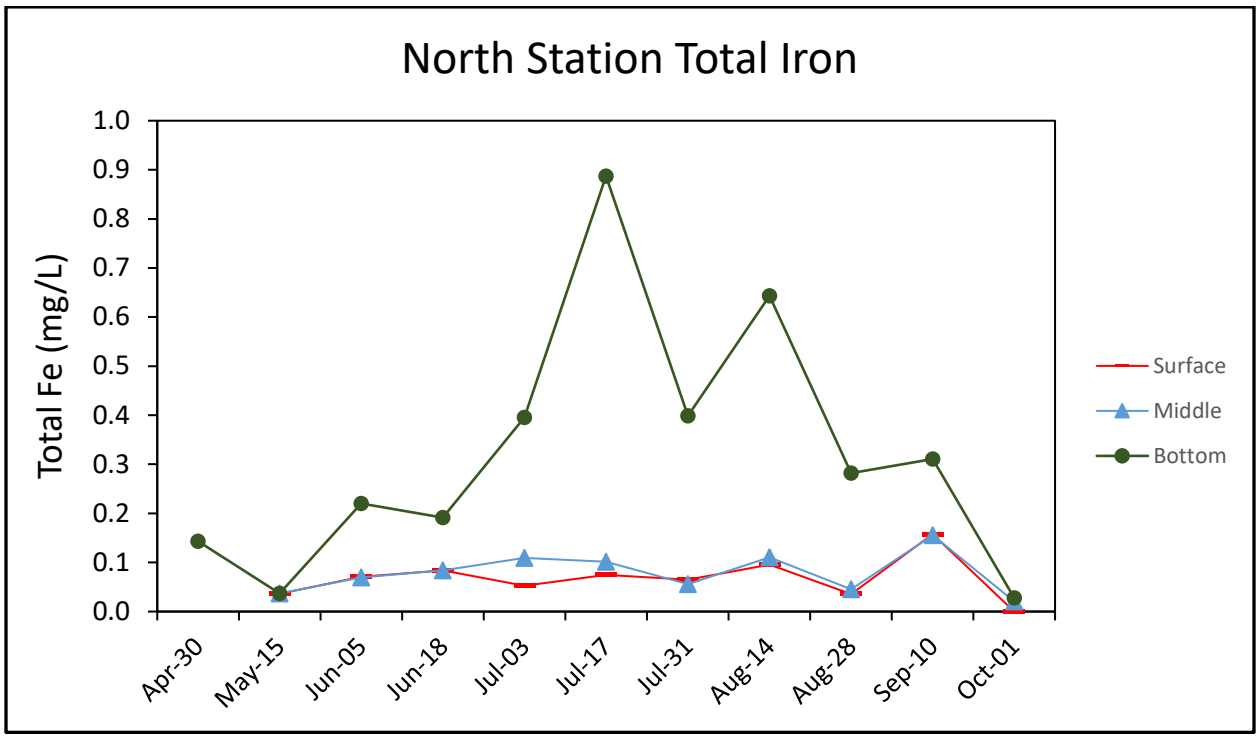


Figure 18. North Station – Total Iron concentrations at the surface, middle (2.5m), and bottom (5m).

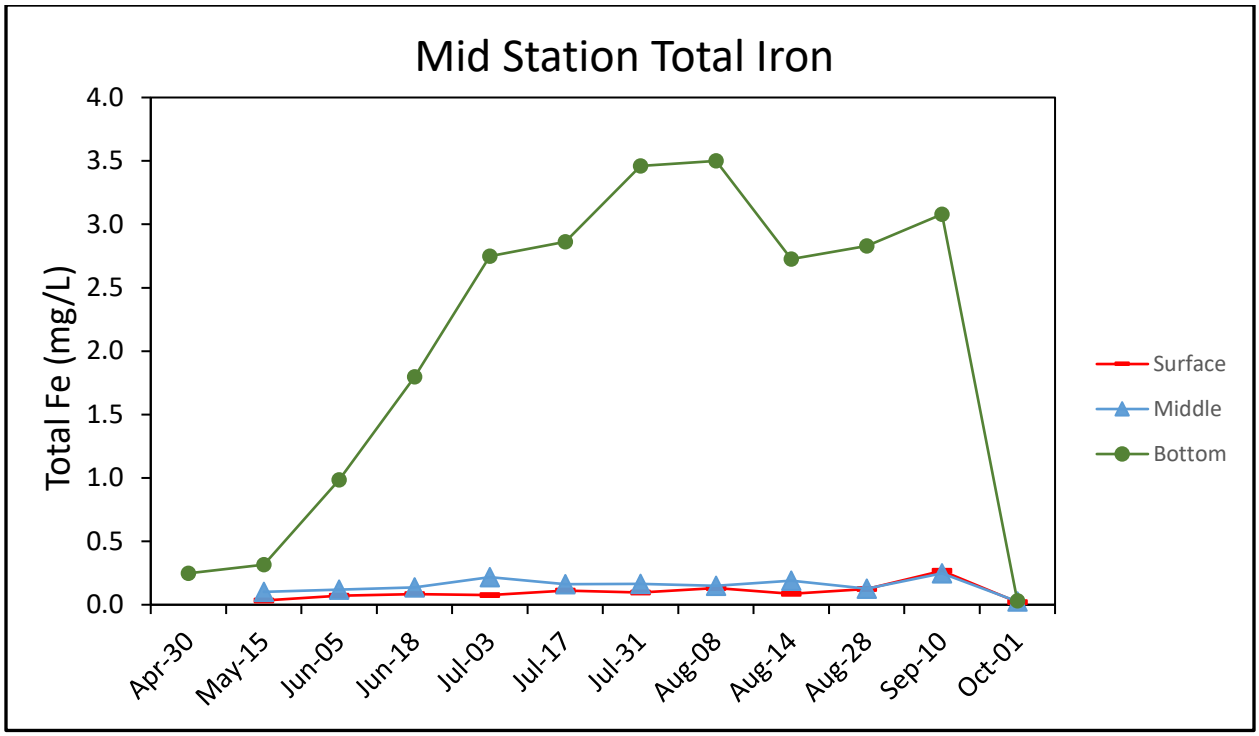


Figure 19. Mid Lake Station – Total iron concentrations at the surface, middle (4.5m), and bottom (9m)

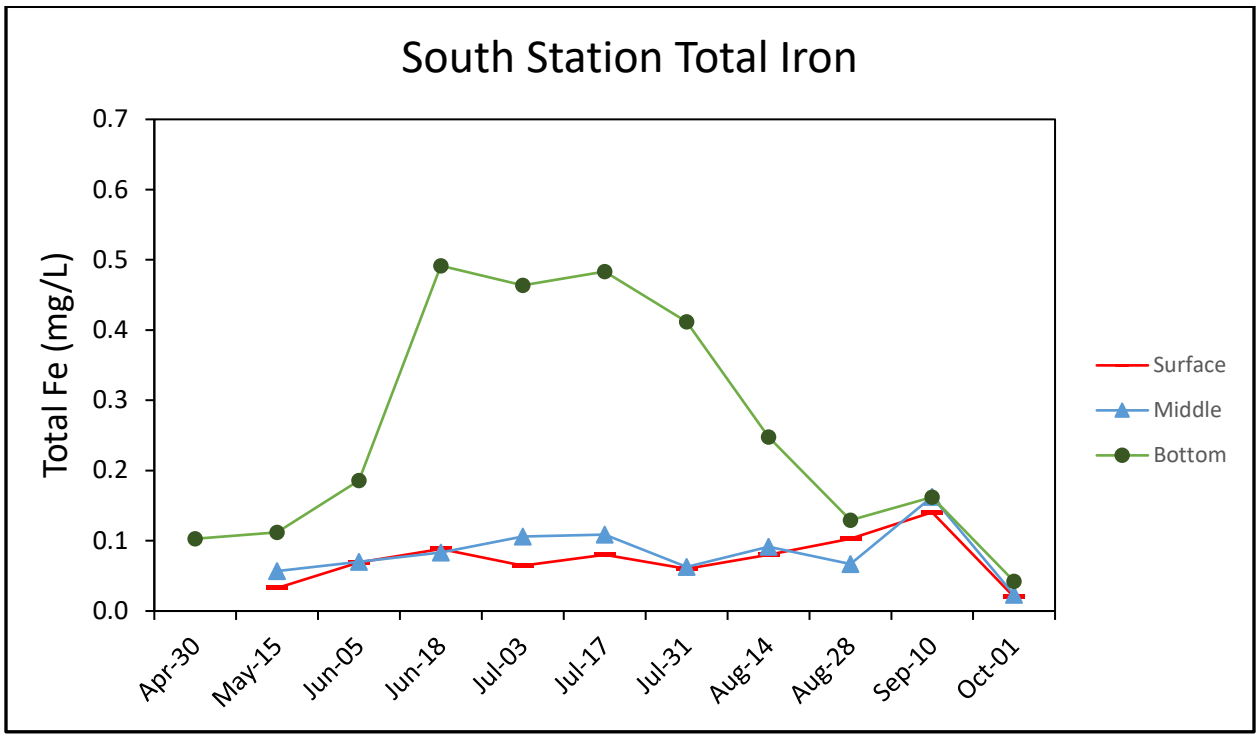


Figure 20. South Station – Total iron concentrations at the surface, middle (2.5m), and bottom (5m)

D. Plankton

In 2025 phytoplankton samples were taken once a month to begin building an understanding of the algal community since there was a robust sampling effort in 2023. The District intends to continue this monthly sampling effort into the future. The class cyanophyte are the blue-green algae that cause harmful algal blooms. They comprised of 60% of the total in 2025 and 65% in 2023. The threshold to qualify as a bloom is defined by the EPA as 20,000 cells/mL, although it is considered low probability for acute health effects (EPA 2019). This threshold was exceeded once, on the July 3rd event, but samples were collected for this analysis in October when visible blooms were present.

Table 7. Phytoplankton samples collected at each location. Samples were taken at each depth and composited to represent total phytoplankton biomass in water column. Units are NCU/mL or cells/mL

Plankton Class and Site	30-Apr	5-Jun	3-Jul	31-Jul	28-Aug	Total
Bacillariophyte	**5,049**	**1,244**	**878**	**4,098**	**2,659**	**13,927**
Mid-Lake Newman	2,073	512	195	463	781	4,025
North Newman	1,268	293	415	2,707	1,073	5,756
South-Newman	1,707	439	268	927	805	4,147
Chlorophyte	**390**	**634**	**488**	**3,220**	**1,829**	**6,561**
Mid-Lake Newman	122	146	122	2,024	659	3,073
North Newman	244	366	122	927	683	2,342
South-Newman	24	122	244	268	488	1,146
Chryso- & Cryptophyte	**23,342**	**19,098**	**11,513**	**9,610**	**8,049**	**71,613**
Mid-Lake Newman	4,244	5,512	5,366	4,829	1,024	20,977
North Newman	4,732	10,439	3,025	1,122	3,293	22,611
South-Newman	14,366	3,146	3,122	3,659	3,732	28,026
Cyanophyte	**21,391**	**14,830**	**47,758**	**30,367**	**22,172**	**136,518**
Mid-Lake Newman	5,049	6,049	24,855	16,196	10,171	62,320
North Newman	7,952	6,317	3,903	10,025	6,122	34,319
South-Newman	8,391	2,464	19,001	4,147	5,878	39,880
Dinophyte	**366**	**561**	**512**	**488**	**366**	**2,293**
Mid-Lake Newman	146	195	220	122	122	805
North Newman	122	146	122	195	98	683
South-Newman	98	220	171	171	146	805
Total	**50,539**	**36,367**	**61,149**	**47,783**	**35,075**	**230,912**

PART III
Analysis and Discussion

A. Trophic State

The trophic state of Newman Lake is determined by the concentrations of TP, chlorophyll a, and the Secchi depth, with consideration to dissolved oxygen concentrations. These parameters were used to categorize the lake's trophic state based on the monitoring efforts from April 17 to October 01, 2025. For each sampling event, data from all stations were averaged for each parameter.

Table 8. Parameters used to identify the trophic state index (TSI) of Newman Lake. Source: https://www.nalms.org/secchidipin/monitoring-methods/trophic-state-equations/

TSI	Chl-a (µg/L)	Secchi Depth (m)	TP (mg/L)	Attributes
< 30	< 0.95	> 8	<0.006	Oligotrophic: Clear water, oxygen throughout the year in the hypolimnion.
30 – 40	0.95 – 2.6	8 – 4	0.006 – 0.012	Hypolimnia of shallower lakes may become anoxic.
40 – 50	2.6 – 7.3	4 – 2	0.012 – 0.024	Mesotrophic: Water moderately clear; increased probability of hypolimnetic anoxia in summer.
50 – 60	7.3 – 20	2 – 1	0.024 – 0.048	Eutrophic: Anoxic hypolimnion, macrophyte problems possible.

Newman Lake typically begins the year in a mesotrophic state and transitions to eutrophic during the summer. However, in 2025 Newman Lake remained in a mesotrophic state for the entire sampling season. A strong thermal stratification paired with a spring alum treatment were large contributing factors to this station being mesotrophic all season.

Table 8. Summary of North Station trophic state indicators and measurements. TP and Chl-a data from each sampling event is the average of the surface and 2.5m deep samples.

Sampling Date	Secchi Depth (m)	Total Phosphorus mg/L (0 - 2.5 m)	Chlorophyll-a µg/L (0 - 2.5 m)	Trophic Status
17-Apr	1.6 - Eutrophic	0.020 - Mesotrophic	3.58 - Mesotrophic	Mesotrophic
30-Apr	2.4 - Mesotrophic	0.016 - Mesotrophic	2.09 - Olig/Meso	Olig/Meso
15-May	3.1 - Mesotrophic	0.011 – Olig/Meso	2.58 - Olig/Meso	Olig/Meso
5-Jun	3.9 - Mesotrophic	0.010 - Olig/Meso	1.50 - Olig/Meso	Olig/Meso
18-Jun	3.4 - Mesotrophic	0.012 - Mesotrophic	0.66 - Oligotrophic	Mesotrophic
3-Jul	3.4 - Mesotrophic	0.005 - Oligotrophic	1.72 - Olig/Meso	Olig/Meso
17-Jul	2.8 - Mesotrophic	0.011 - Olig/Meso	1.01 - Oligotrophic	Olig/Meso
31-Jul	2.8 - Mesotrophic	0.016 - Mesotrophic	2.99 - Mesotrophic	Mesotrophic
14-Aug	2.3 - Mesotrophic	0.014 - Mesotrophic	1.83 - Olig/Meso	Mesotrophic
28-Aug	2.8 - Mesotrophic	0.017 - Mesotrophic	2.51 - Olig/Meso	Mesotrophic
10-Sep	2.0 - Mesotrophic	0.020 - Mesotrophic	2.78 - Mesotrophic	Mesotrophic
1-Oct	1.8 - Eutrophic	0.018 - Mesotrophic	2.86 - Mesotrophic	Mesotrophic

A eutrophic lake is characterized by high productivity due to increased nutrient loading and low dissolved oxygen in portions of the lake. In 2025, the water under the thermocline was nearly anoxic (< 0.5 mg/L) all season but the excess nutrient loading was not present. A strong thermal stratification prevented internally loaded nutrients from reaching the surface until mid-September, and non-point watershed runoff was low, as evidenced by lower-than-average surface TP concentrations.

While the lake experienced an algae bloom in the fall, this was long after lake turnover and sampling had concluded. The transition toward a eutrophic lake would have likely occurred had sampling extended into late October and November. This still would have deviated from a typical Newman Lake season, as the transition to eutrophic generally occurs in August or September.

B. Dissolved Oxygen, Temperature, & Secchi Depth

The lake experienced robust thermal stratification in 2025, which can be best observed by the Mid-Station temperature profile (**Figure 3**). Through the entire sampling season, the North and South Station temperature gradient did not fully capture the thermal regime of the lake, so the Mid-Station will be discussed. The average depth of the thermocline from May 9th to September 10th was 5.4 m, thus deeper than the sampling depth of those stations. Since the thermocline depth (**Figure 7)** was typically greater than 5 m, periods of mixing occurred throughout the summer at these locations, and not at Mid-Station.

The Mid-Station temperature gradient ranged from 0.1 °C to 10.5 °C, with an average of 5.9 °C. The first profile was taken on April 8^{th,} and the temperature gradient was already 3.5 °C and remained above that until August 28th. From the August 28th profile to the September 10th the gradient was above 2 °C, and by the time the next profile was measured on September 25^{th,} the lake flipped. So, for at least 2 weeks, the weakened temperature gradient was maintained, preventing a full lake flip in early September. This delay was likely caused by the line diffuser's reduced impact on water circulation than previously experienced with the Speece cone. The lack of an in-lake pump moving a lot of water likely allowed the weaker stratification to persist longer, thus keeping the nutrient-rich waters at depth for longer.

Unlike in 2024, a strong thermal stratification persisted nearly all season, resulting in diminished dissolved oxygen (DO) below the thermocline, as seen in **Figure 21**. Since the line diffuser could not produce enough oxygen to meet the hypolimnetic oxygen demand, the DO steadily degraded all season until the lake mixed. By mid-April, the hypolimnion was already experiencing hypoxia (2-3 mg/L), and by the end of May, the bottom 4 meters of the water column were anoxic (< 0.5 mg/L). The anoxia in that depth range persisted until the lake flipped. As a result, internal loading of nutrients was occurring, evidenced by total iron concentrations (**Figure 19)** at the bottom being as much as 30 times greater than the surface. Elevated total iron concentrations precede elevated TP concentrations, thus creating the ideal conditions for a later summer algae bloom. Since the lake did not flip until mid-September at the earliest, the nutrient-rich waters were unavailable for algal consumption until then, which facilitated a noticeably better water year than 2024. As seen in **Figure 22**, there is no pattern between the temp difference and DO min in 2024, meaning the lake was intermittently mixing

throughout the summer. This facilitated algae blooms to begin in August and persist through September.

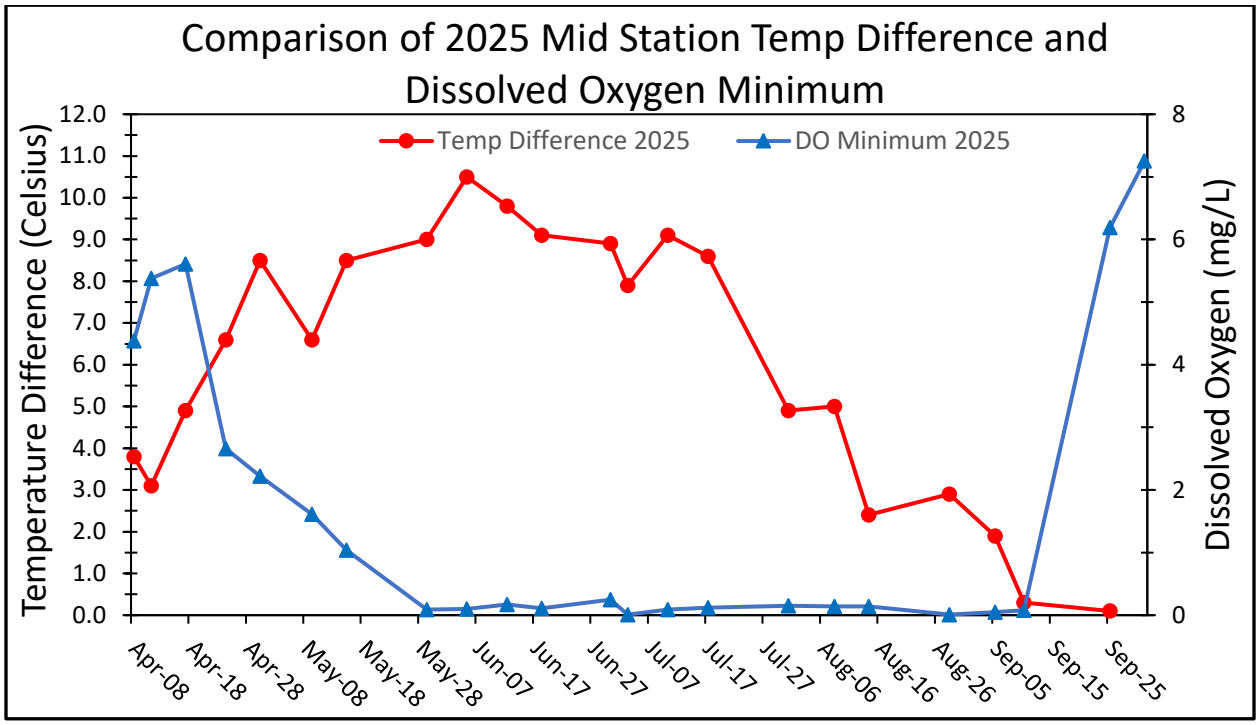


Figure 21. Temperature difference between the surface at bottom compared to the DO minimum.

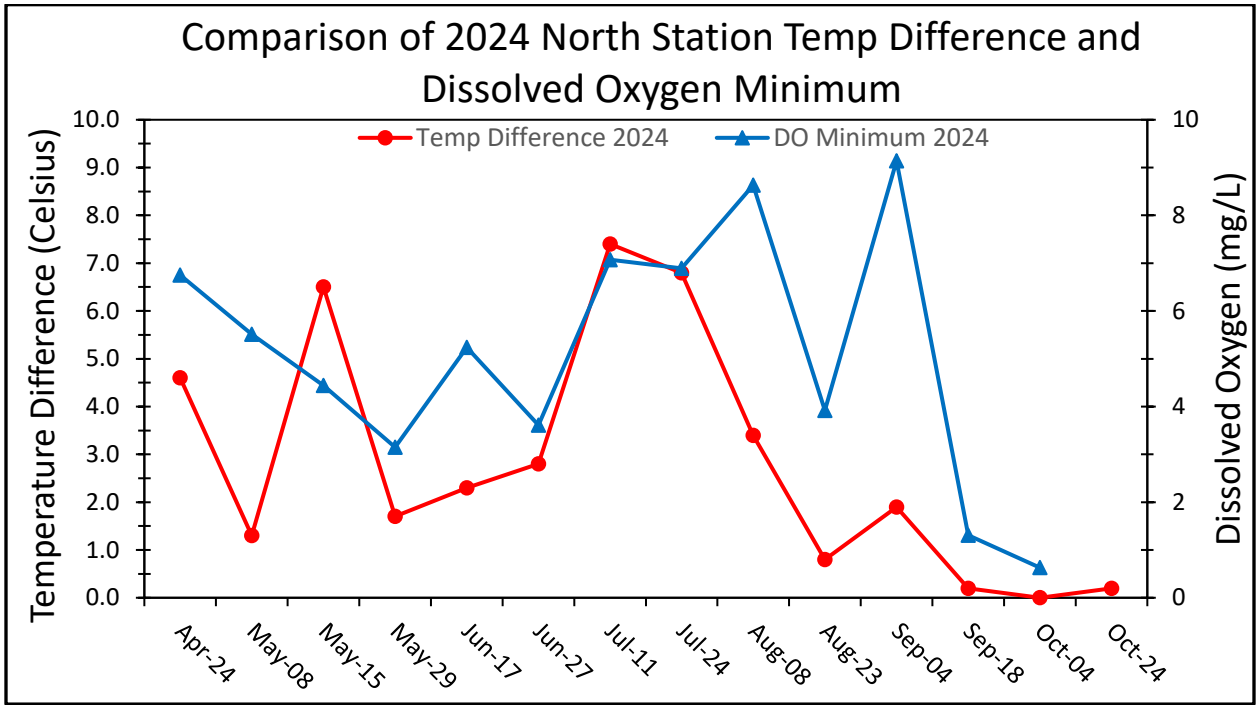


Figure 22. Temperature difference between the surface at bottom compared to the DO minimum.

The 20-year average surface and bottom (9m) temp at Mid-Station are 13.9 °C and 9.3 °C respectively, while it was 19.7 °C and 13.9 °C in 2025. Despite the elevated temperatures and anoxia, water quality was above average due to the strong thermal stratification.

Numerous elements affect the clarity of the water, and the Secchi disk is used to measure it. Various environmental factors, such as snow melt volume, stormwater runoff, stratification, and algae all affect water clarity. If the lake is oscillating between mixed and stratified, like in 2024, there is more sediment suspended in the water column and more nutrients available for algal growth. The opposite occurred in 2025 and paired with a surface alum treatment in May, provided conditions for improved water clarity. The average Secchi depth in 2025 was 2.7 m with a peak of 3.9 m, while in 2024 the average was 2.1 m with a higher peak of 4.1 m. As seen in Figure 21, the Secchi depth has been improving since 2016 with annual variability. The goal with the line diffuser is to maintain an average Secchi depth of 4 m.

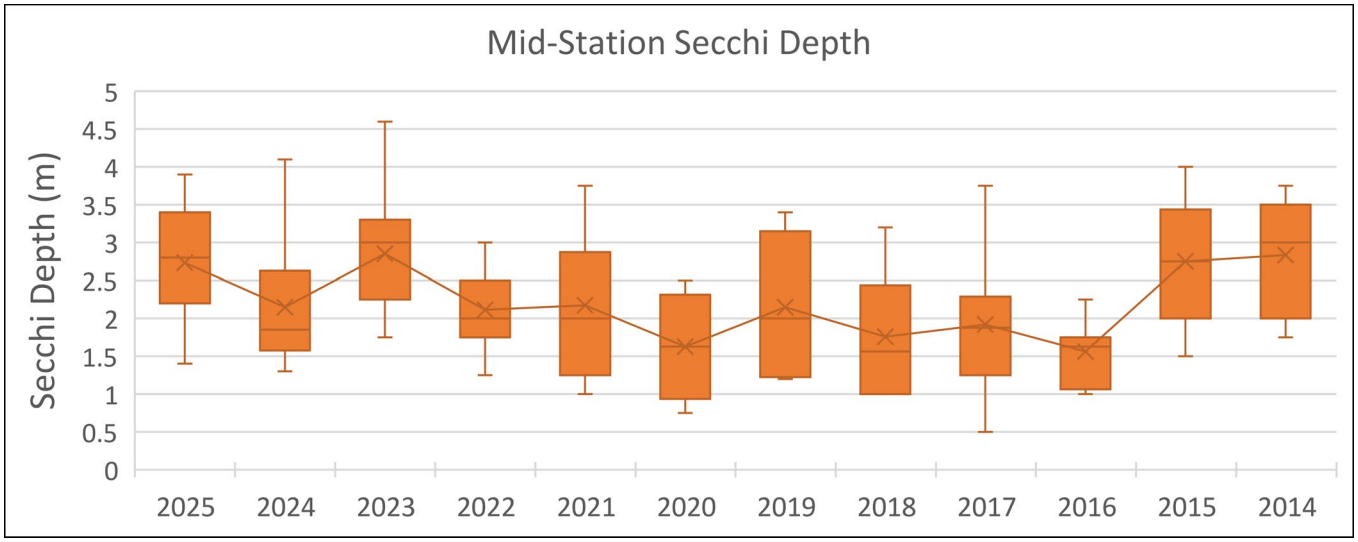


Figure 23. Secchi depth since 2014 at Mid-Station

C. Algal Parameters

The Washington State Department of Ecology (DOE) total maximum daily load (TMDL) for TP in Newman Lake during the summer months (June through August) is an average of 0.02 mg/L in the epilimnion (0-3m deep). This was achieved in 2025 with an overall average of 0.012 mg/L. Despite meeting the TMDL, the lake was anoxic most of the season and thus nutrients were being released into the water. Iron levels were elevated from June to turnover, causing TP to become biologically available, and thus causing chl-a concentrations to spike. The chl-a concentrations were stable at the surface, ranging from 1 – 3 ug/L, but between 4.5 m and 9 m down the concentrations oscillated, ranging from 2 – 21 ug/L. At Mid-Lake the chl-a spike occurred 2 weeks after the then seasonal high in TP at the bottom of the lake. The lake mixed after the September 10th sampling event and a month later there were reports of algae blooms. This is a typical occurrence for the lake, and fortunately, the blooms began when use around the lake had dropped.

WATER QUALITY MONITORING REPORT
APPENDICES

B: Tabulated Sampling Results

C: Field Data Sheets and Laboratory Results

Appendix B **Tabulated Sampling Results**

Table B-1. Laboratory Analysis Results.

	Total P mg/L (Detection Limit 0.0020 mg/L)												
Sample Location	Apr-17	Apr-30	May-15	Jun-05	Jun-18	Jul-03	Jul-17	Jul-31	Aug-08	Aug-14	Aug-28	Sep-10	Oct-01
N-A	0.019	0.014	0.012	0.010	0.014	0.005	0.009	0.011	-	0.012	0.015	0.022	0.020
N-B	0.024	0.021	0.012	0.010	0.015	0.006	0.009	0.002	-	0.017	0.016	0.024	0.020
N-C	0.031	0.034	0.013	0.020	0.027	0.026	0.076	0.014	-	0.034	0.030	0.036	0.032
ML-A	0.016	0.011	0.010	0.008	0.010	0.004	0.011	0.017	0.012	0.014	0.017	0.019	0.017
ML-B	0.029	0.021	0.018	0.018	0.017	0.017	0.020	0.011	0.014	0.030	0.018	0.018	0.017
ML-C	0.028	0.033	0.031	0.026	0.034	0.029	0.030	0.056	0.036	0.033	0.053	0.082	0.017
S-A	0.022	0.014	0.008	0.011	0.012	0.005	0.013	0.034	-	0.014	0.018	0.017	0.019
S-B	0.021	0.021	0.015	0.011	0.012	0.006	0.013	0.012	-	0.015	0.017	0.022	0.017
S-C	0.026	0.023	0.042	0.019	0.040	0.035	0.030	0.036	-	0.020	0.029	0.033	0.024
	Note: Yellow shading indicates an exceedance of Washington State Department of Ecology's Total Maximum Daily Load (TMDL) for summertime TP = 0.02 mg/L in the epilimnion (surface). The overall surface average of 0.012 mg/L is below the TMDL												

	Chlorophyll A (ug/L)											
Sample Location	Apr-17	Apr-30	May-15	Jun-05	Jun-18	Jul-03	Jul-17	Jul-31	Aug-14	Aug-28	Sep-10	Oct-01
N-A	4.17	1.44	2.93	1.29	1.03	0.46	0.49	3.03	1.69	4.47	3.39	2.01
N-B	4.17	2.02	3.11	2.02	0.69	2.03	0.71	3.40	3.65	2.41	3.60	4.90
N-C	5.66	2.29	2.48	3.05	1.08	3.61	2.88	7.36	1.55	4.68	6.37	1.47
ML-A	3.30	2.52	1.80	1.00	0.49	1.73	0.78	2.01	0.95	2.90	1.54	0.88
ML-B	3.87	2.73	4.00	4.86	1.58	6.49	1.55	6.07	21.31	6.36	3.05	2.46
ML-C	5.87	2.02	2.66	5.45	2.61	2.93	1.32	6.85	11.20	6.26	3.77	2.61
S-A	2.99	2.19	2.39	1.64	0.76	2.01	1.20	2.85	1.53	1.00	2.18	4.55
S-B	3.53	1.83	3.42	2.02	0.48	2.35	2.10	4.66	2.18	1.38	4.44	3.94
S-C	4.64	3.13	2.00	5.31	7.54	7.36	3.33	12.02	1.77	6.84	4.63	2.71

	Phaeophyton (ug/L)											
Sample Location	Apr-17	Apr-30	May-15	Jun-05	Jun-18	Jul-03	Jul-17	Jul-31	Aug-14	Aug-28	Sep-10	Oct-01
N-A	1.70	0.24	0.78	0.33	0.18	0.09	0.18	0.41	0.56	1.26	0.54	0.16
N-B	1.35	0.56	0.89	0.47	0.22	0.47	0.21	1.07	0.57	0.55	0.42	0.57
N-C	2.76	0.78	1.02	1.56	0.42	1.43	0.89	5.17	1.22	2.86	3.23	0.33
ML-A	1.13	0.72	0.25	0.49	0.44	0.07	0.15	0.27	0.33	0.54	0.37	0.15
ML-B	1.66	1.05	1.84	1.59	0.34	1.14	0.57	3.09	4.02	1.89	0.74	0.44
ML-C	2.34	1.81	3.45	2.33	0.78	1.94	0.69	4.04	3.34	4.54	4.27	0.52
S-A	1.69	1.28	2.26	0.64	0.47	0.13	0.20	0.52	0.36	0.32	0.60	0.23
S-B	1.72	0.36	1.25	0.39	0.27	0.10	0.73	1.48	0.32	0.29	0.63	0.29
S-C	2.38	1.10	0.28	1.66	2.34	2.86	1.28	4.10	0.69	3.64	1.58	0.40

	Total Fe (mg/L) MDL 0.02											
Sample Location	Apr-30	May-15	Jun-05	Jun-18	Jul-03	Jul-17	Jul-31	Aug-08	Aug-14	Aug-28	Sep-10	Oct-01
N-A		0.036	0.071	0.084	0.052	0.075	0.065		0.096	0.035	0.158	<0.020
N-B		0.037	0.069	0.084	0.109	0.101	0.056		0.111	0.045	0.156	0.021
N-C	0.143	0.037	0.220	0.191	0.395	0.887	0.399		0.643	0.282	0.311	0.028
ML-A		0.035	0.071	0.083	0.075	0.113	0.096	0.131	0.086	0.124	0.267	0.021
ML-B		0.101	0.118	0.136	0.217	0.163	0.165	0.149	0.191	0.127	0.248	0.026
ML-C	0.249	0.315	0.985	1.797	2.749	2.863	3.460	3.500	2.727	2.829	3.080	0.030
S-A		0.033	0.069	0.088	0.065	0.080	0.060		0.080	0.103	0.141	0.020
S-B		0.057	0.070	0.083	0.106	0.109	0.063		0.092	0.067	0.163	0.023
S-C	0.103	0.112	0.186	0.492	0.464	0.483	0.412		0.248	0.129	0.162	0.042

	Dissolved Fe (mg/L) MDL 0.02											
Sample Location	Apr-30	May-15	Jun-05	Jun-18	Jul-03	Jul-17	Jul-31	Aug-08	Aug-14	Aug-28	Sep-10	Oct-01
N-A	-	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020		<0.020	<0.020	<0.020	<0.020
N-B	-	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020		<0.020	<0.020	<0.020	<0.020
N-C	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020		<0.020	<0.020	<0.020	<0.020
ML-A	-	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020
ML-B	-	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020
ML-C	0.0398	<0.020	0.1638	0.1717	0.2567	0.3562	0.05	<0.020	0.0541	0.084	0.036	<0.020
S-A	-	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020		<0.020	<0.020	<0.020	<0.020
S-B	-	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020		<0.020	<0.020	<0.020	<0.020
S-C	<0.020	<0.020	<0.020	0.0396	<0.020	<0.020	<0.020		<0.020	<0.020	<0.020	<0.020

	Total Mn (mg/L) MDL 0.005											
Sample Location	Apr-30	May-15	Jun-05	Jun-18	Jul-03	Jul-17	Jul-31	Aug-08	Aug-14	Aug-28	Sep-10	Oct-01
N-A	-	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005		0.0074	0.005	0.010	<0.005
N-B	-	<0.005	<0.005	<0.005	<0.005	<0.005	0.0050		0.0082	0.005	0.010	<0.005
N-C	0.0150	<0.005	0.0284	0.0102	0.0221	0.0345	0.0340		0.0913	0.035	0.052	<0.005
ML-A	-	<0.005	<0.005	<0.005	<0.005	<0.005	0.006	0.012	0.007	0.015	0.020	<0.005
ML-B	-	0.0187	0.0096	0.0067	0.0225	0.0067	0.0110	0.0150	0.0155	0.013	0.018	<0.005
ML-C	0.0450	0.0700	0.1150	0.1722	0.2770	0.2481	0.2130	0.2250	0.1986	0.231	0.204	<0.005
S-A	-	<0.005	<0.005	<0.005	<0.005	<0.005	0.0060		0.0069	0.007	0.010	<0.005
S-B	-	0.0053	<0.005	<0.005	0.0051	<0.005	0.0060		0.0086	0.008	0.012	<0.005
S-C	0.0070	0.0190	0.0208	0.0535	0.0423	0.0301	0.0520		0.0284	0.025	0.012	<0.005

	Dissolved Mn (mg/L) MDL 0.005											
Sample Location	Apr-17	Apr-30	May-15	Jun-05	Jun-18	Jul-03	Jul-17	Jul-31	Aug-14	Aug-28	Sep-10	Oct-01
N-A	-	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005		<0.005	<0.005	<0.005	<0.005
N-B	-	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005		<0.005	<0.005	<0.005	<0.005
N-C	0.006	<0.005	0.0143	<0.005	<0.005	<0.005	<0.005		<0.005	<0.005	<0.005	<0.005
ML-A	-	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
ML-B	-	0.0131	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
ML-C	0.036	0.0554	0.1068	0.1541	0.0734	0.2449	0.194	<0.005	0.0705	0.143	0.0447	<0.005
S-A	-	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005		<0.005	<0.005	<0.005	<0.005
S-B	-	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005		<0.005	<0.005	<0.005	<0.005
S-C	<0.005	0.01	0.0063	<0.005	<0.005	<0.005	<0.005		<0.005	<0.005	<0.005	<0.005

Table B-2. Temperature profiles in Newman Lake by station. Measurements are in degree-Celsius.

North Station												
Depth (m)	Apr-17	Apr-30	May-15	Jun-05	Jun-18	Jul-03	Jul-17	Jul-31	Aug-14	Aug-28	Sep-10	Oct-01
Surface	10.5	15.1	16.3	20.6	22.6	23.9	24.3	24.8	24.0	23.2	23.0	18.7
1	10.2	15.0	16.3	19.8	22.6	23.9	23.8	24.5	23.9	23.2	23.0	18.7
2	9.9	14.5	16.3	19.5	22.6	23.7	23.6	24.3	23.8	23.2	23.0	18.7
3	9.6	14.0	16.3	19.4	22.5	23.6	23.5	23.6	23.7	23.1	22.9	18.7
4	9.4	13.9	16.2	18.3	22.5	23.5	23.0	23.1	23.6	23.1	22.8	18.7
5	9.0	12.1	16.2	14.8	22.5	21.4	21.9	22.5	21.1	21.9	22.3	18.7

Mid Station												
	Apr-08	Apr-11	Apr-17	Apr-24	Apr-30	May-09	May-15	May-29	Jun-05	Jun-12	Jun-18	Jun-30
Surface	9.5	10.1	10.8	13.0	15.4	18.1	16.7	19.8	21.1	22.9	22.6	23.1
1	8.9	9.7	10.5	12.4	14.7	16.7	16.4	18.5	19.8	22.8	22.5	22.4
2	8.3	8.7	10.2	12.0	14.3	16.0	15.7	17.7	19.6	22.6	22.3	21.9
3	8	7.7	10.1	11.3	14.0	15.8	14.7	16.5	19.3	20.9	21.5	21.3
4	7.9	7	10.0	10.5	11.5	14.6	13.8	15.4	18.0	18.4	20.7	20.7
5	7.5	6.7	9.4	10.2	10.7	11.8	12.3	13.9	15.2	16.6	16.9	19.3
6	7	6.5	9.0	9.0	9.6	10.7	11.7	12.8	14.0	14.1	15.1	16.4
7	6.3	6.4	8.4	8.5	9.3	10.0	11.1	12.0	12.8	13.3	14.1	15.2
8	6.2	6.4	8.4	8.1	9.1	9.8	10.8	11.5	12.4	13.1	13.4	14.5
9	6	6.3	8.0	8.1	8.8	9.6	10.4	11.3	12.1	12.7	12.8	14.1
10	-	6.3	7.7	8.0	8.7	-	10.1	11.3	12.1	12.4	12.8	14.0
	Jul-03	Jul-10	Jul-17	Jul-31	Aug-08	Aug-14	Aug-28	Sep-05	Sep-10	Sep-25	Oct-01	
Surface	23.1	23.5	24.3	25.1	22.8	23.7	22.8	23.7	22.9	20.1	18.7	
1	23.0	23.5	24.1	24.9	22.6	23.6	22.8	23.7	22.9	20.1	18.7	
2	22.6	23.4	23.6	24.6	22.6	23.5	22.8	23.7	22.9	19.9	18.7	
3	21.5	22.8	23.4	24.1	22.5	23.4	22.8	23.6	22.8	19.9	18.7	
4	20.7	22.2	22.8	22.9	22.4	23.1	22.7	23.4	22.7	19.9	18.7	
5	18.8	18.5	21.7	22.1	22.3	22.3	22.7	22.7	22.7	19.9	18.7	
6	16.6	17.4	18.5	20.6	21.0	21.1	22.3	22.2	22.7	19.9	18.6	
7	15.1	16.3	16.6	18.4	19.4	20.1	21.3	21.5	21.5	19.9	18.6	
8	15.0	15.6	15.8	17.3	18.4	18.9	20.6	21.2	21.3	19.8	18.6	
9	14.4	15.6	15.4	16.8	17.9	18.8	20.4	20.8	21.0	19.8	18.6	
10	14.2	-	15.2	16.5	-	18.7	-	-	-	-	-	

South Station												
	Apr-17	Apr-30	May-15	Jun-05	Jun-18	Jul-03	Jul-17	Jul-31	Aug-14	Aug-28	Sep-10	Oct-01
Surface	12.6	15.4	16.5	21.2	22.9	23.8	24.8	25.5	24.1	23.0	23.3	18.6
1	11.3	15.1	16.4	20.4	22.9	23.7	24.7	25.0	24.1	23.0	23.1	18.7
2	11.0	14.8	16.1	20.0	22.8	23.0	24.0	24.7	23.9	23.0	23.0	18.6
3	10.7	11.2	14.0	19.6	22.7	21.1	23.7	24.6	23.7	23.0	22.9	18.6
4	9.8	10.1	12.3	17.4	18.8	20.5	23.0	23.1	23.0	22.8	22.9	18.5
5	9.0	10.0	11.5	15.8	15.9	18.7	21.2	21.4	22.0	22.4	22.7	18.4

Table B-3. Dissolved Oxygen Profiles in Newman Lake by station. Measurements are in mg/L.

North Station												
Depth (m)	Apr-17	Apr-30	May-15	Jun-05	Jun-18	Jul-03	Jul-17	Jul-31	Aug-14	Aug-28	Sep-10	Oct-01
Surface	10.14	9.33	8.96	8.55	7.85	7.90	7.63	7.79	7.13	7.04	6.56	7.63
1	9.67	9.21	8.73	8.46	7.63	7.55	6.99	7.65	6.79	7.42	6.04	7.90
2	9.33	9.03	8.70	7.78	7.55	7.51	7.51	7.73	6.75	7.12	6.15	7.50
3	9.38	9.40	8.57	7.94	7.54	7.60	6.79	7.77	6.39	6.66	6.40	7.34
4	8.06	8.98	8.38	8.21	7.71	7.75	7.28	7.38	6.53	6.21	5.73	7.44
5	7.80	9.12	8.21	4.57	7.57	7.69	6.36	5.65	1.33	0.41	0.33	7.32

South Station												
	Apr-17	Apr-30	May-15	Jun-05	Jun-18	Jul-03	Jul-17	Jul-31	Aug-14	Aug-28	Sep-10	Oct-01
Surface	9.64	9.14	8.52	8.29	7.66	7.76	7.42	7.55	7.39	7.45	7.18	7.99
1	9.74	9.00	8.75	7.67	7.81	7.54	7.16	7.36	7.39	6.76	6.92	7.84
2	9.75	8.81	8.49	7.66	7.47	8.26	7.23	7.59	6.77	6.84	6.40	7.71
3	9.30	7.50	7.53	7.71	7.75	8.17	7.24	7.25	7.15	7.01	6.40	7.40
4	9.35	6.24	5.72	8.64	9.17	8.20	7.30	7.46	6.55	5.19	5.84	7.11
5	8.22	5.95	4.16	7.17	4.08	5.66	3.39	4.23	3.04	4.00	4.31	6.84

Mid-Station												
	Apr-08	Apr-11	Apr-17	Apr-24	Apr-30	May-09	May-15	May-29	Jun-05	Jun-12	Jun-18	Jun-30
Surface	11.58	11.33	10.70	10.50	9.20	8.67	8.56	8.65	8.07	8.18	7.82	7.74
1	10.69	10.57	9.50	10.30	8.60	9.00	8.25	8.93	7.96	7.46	7.57	7.75
2	9.95	10.52	9.20	10.0	9.40	8.78	8.41	9.30	8.25	8.11	7.68	7.74
3	10.76	9.07	8.90	10.0	9.00	8.60	7.64	9.37	8.41	8.25	7.75	8.24
4	10.71	8.71	9.00	9.20	7.10	8.90	7.18	8.75	8.59	8.62	8.2	8.08
5	9.88	7.33	8.50	9.20	6.90	7.63	5.10	5.05	6.23	7.13	6.66	7.14
6	9.05	6.48	8.40	6.70	5.50	5.15	4.06	2.32	3.50	2.44	3.96	3.75
7	7.32	6.02	7.80	5.20	5.00	3.29	3.67	0.61	0.51	0.99	2.12	2.31
8	6.75	5.69	7.80	2.90	4.40	2.20	2.92	0.12	0.14	1.13	0.50	0.67
9	4.38	5.41	6.70	2.70	2.70	1.61	2.13	0.1	0.11	0.41	0.11	0.25
10		5.38	5.60	2.70	2.20		1.04	0.09	0.10	0.17	0.11	0.32
	Jul-03	Jul-10	Jul-17	Jul-31	Aug-08	Aug-14	Aug-28	Sep-05	Sep-10	Sep-25	Oct-01	
Surface	7.62	7.99	7.44	7.68	6.38	7.38	7.21	7.60	6.49	7.73	7.80	
1	7.44	7.75	7.00	7.74	6.50	7.39	6.21	7.45	6.41	7.69	8.23	
2	7.79	7.96	7.21	7.60	6.39	7.35	6.51	7.19	6.40	7.58	7.44	
3	7.90	8.04	7.26	7.70	6.56	6.95	6.62	6.75	7.03	7.29	8.14	
4	8.13	7.98	7.44	7.37	6.57	6.38	6.58	6.28	6.64	7.62	7.76	
5	6.18	4.77	6.41	5.58	6.72	4.72	5.58	3.62	5.85	7.84	7.75	
6	2.72	3.69	2.07	3.73	2.02	1.64	3.84	0.64	6.11	7.40	7.70	
7	0.85	1.54	0.12	1.09	0.23	0.78	0.10	0.07	0.11	7.78	7.80	
8	0.86	0.12	0.14	0.15	0.18	0.14	0.09	0.06	0.10	6.83	7.25	
9	0.01	0.09	0.16	0.17	0.14	0.15	0.01	0.05	0.08	6.19	7.32	
10	0.02		0.19	0.22		0.16						

Table B-4. Percent Saturation Profiles for all stations at Newman Lake, WA

North Station												
Depth (m)	Apr-17	Apr-30	May-15	Jun-05	Jun-18	Jul-03	Jul-17	Jul-31	Aug-14	Aug-28	Sep-10	Oct-01
Surface	90.8	90.6	91.6	95.3	91.1	93.7	91.3	94.1	84.8	82.5	75.9	85.0
1	86.3	91.0	89.3	92.6	87.5	89.5	82.9	91.9	80.4	87.5	70.7	84.4
2	81.9	88.3	89.0	85.1	87.1	87.6	88.5	92.5	80.0	82.6	69.0	77.9
3	82.3	90.3	87.2	86.0	87.6	89.5	80.0	91.7	75.8	85.7	73.8	79.0
4	70.5	89.3	85.2	87.6	88.2	90.1	84.9	86.2	77.3	70.9	68.7	80.1
5	67.4	85.7	84.4	45.2	87.0	84.2	72.7	65.2	15.1	4.8	4.4	77.4

South Station												
	Apr-17	Apr-30	May-15	Jun-05	Jun-18	Jul-03	Jul-17	Jul-31	Aug-14	Aug-28	Sep-10	Oct-01
Surface	90.8	91.1	86.9	93.7	89.5	91.9	89.5	92.2	88.0	87.0	85.8	85.5
1	88.9	88.7	89.8	85.0	91.3	89.0	86.2	89.2	88.4	78.2	80.4	83.7
2	88.1	89.1	86.2	84.1	86.5	94.5	85.8	91.4	80.3	79.0	78.7	81.5
3	83.4	68.3	72.7	84.0	88.5	91.1	85.7	87.1	84.4	81.8	74.2	79.0
4	82.4	54.5	53.5	89.5	98.4	90.7	85.3	87.2	76.3	60.4	68.5	77.1
5	70.9	52.8	38.1	72.1	41.1	60.9	38.2	48.5	34.8	46.2	52.0	72.6

Mid Station												
	Apr-08	Apr-11	Apr-17	Apr-24	Apr-30	May-09	May-15	May-29	Jun-05	Jun-12	Jun-18	Jun-30
Surface	101.4	100.4	95.3	99.4	92.2	91.9	88.8	95.4	90.8	94.7	90.3	90.6
1	92.3	92.9	85.0	96.4	85.7	92.6	84.3	95.0	82.3	86.7	87.1	89.2
2	84.3	90.4	81.4	93.3	91.8	89.1	84.7	97.3	89.3	93.7	89.9	88.7
3	90.8	76.3	79.0	91.4	87.0	86.8	75.4	95.8	91.3	92.7	89.7	93.1
4	90.4	71.6	80.4	82.8	64.9	86.8	69.5	87.0	91.0	91.1	92.3	90.2
5	82.5	59.8	73.9	81.2	61.9	70.6	47.0	48.8	61.0	73.9	68.7	77.1
6	73.5	52.6	72.5	57.4	46.0	46.4	37.3	22.1	34.3	23.3	39.6	37.0
7	59.6	48.9	66.4	44.2	43.3	28.9	33.8	5.8	5.0	9.5	20.3	20.2
8	55.2	46.3	66.1	24.1	38.2	19.3	26.4	1.1	1.3	10.7	4.8	6.3
9	35	43.7	56.7	23.2	23.3	14.0	19.2	0.9	1.0	4.1	1.1	2.5
10		44	46.6	22.2	20.1		9.3	0.8	1.0	1.8	1.0	3.1
	Jul-03	Jul-10	Jul-17	Jul-31	Aug-08	Aug-14	Aug-28	Sep-05	Sep-10	Sep-25	Oct-01	
Surface	89.0	94.3	89.4	93.3	74.5	87.9	83.4	88.5	75.7	86.1	83.3	
1	86.2	91.2	82.6	93.7	75.1	87.2	72.0	87.9	75.3	85.0	88.1	
2	88.9	93.4	84.7	91.5	74.0	86.6	77.2	84.0	74.2	83.3	79.6	
3	89.5	93.4	86.1	92.0	75.7	81.7	76.1	80.0	81.3	80.0	85.9	
4	91.4	91.6	86.8	85.8	75.6	74.5	79.4	72.0	73.0	83.5	83.4	
5	65.0	51.0	73.4	63.9	77.0	54.2	63.4	42.0	67.4	85.9	85.0	
6	28.1	38.0	21.9	41.5	22.4	18.0	43.0	7.4	70.8	81.5	80.1	
7	8.6	16.0	1.2	11.6	2.5	8.7	1.1	0.8	1.5	83.0	83.0	
8	7.8	1.2	1.4	1.6	1.9	1.5	1.0	0.7	1.1	75.1	77.5	
9	0.1	0.9	1.6	1.8	1.4	1.6	0.1	0.5	0.9	67.3	78.3	
10	0.2		1.9	2.2		1.7						

Table B-5. Specific Conductance (uS/cm) profiles for all stations at Newman Lake, WA

North Station												
Depth (m)	Apr-17	Apr-30	May-15	Jun-05	Jun-18	Jul-03	Jul-17	Jul-31	Aug-14	Aug-28	Sep-10	Oct-01
Surface	47.4	51.1	50.6	51.0	52.0	52.5	53.2	53.7	53.3	54.5	56.7	54.0
1	47.2	50.8	50.5	50.6	51.8	52.4	53.1	53.9	53.2	54.5	56.6	54.0
2	47.0	50.7	50.1	50.5	51.8	52.3	53.1	53.4	53.2	54.5	56.5	54.1
3	46.8	50.4	49.9	50.4	51.7	52.2	53.1	53.3	53.2	54.5	56.5	54.1
4	46.8	50.2	49.9	50.1	51.7	52.2	53.3	53.6	53.3	54.5	56.4	54.1
5	47.0	50.4	49.9	53.3	51.8	52.0	54.0	54.2	55.2	56.6	56.2	54.1

South Station												
	Apr-17	Apr-30	May-15	Jun-05	Jun-18	Jul-03	Jul-17	Jul-31	Aug-14	Aug-28	Sep-10	Oct-01
Surface	46.8	51.1	52.8	51.4	51.8	52.3	53.2	53.6	53.6	54.7	56.5	53.9
1	46.9	50.8	52.8	51.2	51.8	52.2	53.1	53.6	53.6	54.6	56.2	53.9
2	47.0	50.6	51.4	51.0	51.7	52.3	53.1	53.6	53.6	54.7	56.2	53.9
3	47.0	51.3	50.1	50.9	51.8	52.0	53.1	53.5	53.6	54.8	56.4	54.0
4	47.2	51.7	50.7	51.1	51.7	52.3	53.2	53.6	53.5	55.2	56.8	54.1
5	47.2	51.5	51.1	52.1	54.8	55.0	55.2	55.4	54.8	55.9	57.5	54.3

Mid Station									
	Apr-08	Apr-11	Apr-17	Apr-30	May-15	Jun-05	Jun-12	Jun-18	Jun-30
Surface	45.4	46.8	47.4	49.9	54.0	50.6	51.4	51.6	52.1
1	45.4	46.5	46.9	49.7	55.1	50.4	51.3	52.0	52.1
2	45.3	46.6	46.6	49.7	56.0	50.2	51.3	51.9	52.1
3	45.7	46.8	46.5	49.6	54.2	50.5	50.7	51.9	52.1
4	45.7	46.7	46.6	50.1	50.7	50.3	51.4	51.7	52.0
5	45.8	46.4	46.7	49.9	52.0	51.8	52.4	53.8	53.0
6	45.8	46.8	46.8	49.8	52.3	52.6	54.7	56.1	55.7
7	45.9	46.9	46.9	49.9	52.3	53.9	55.5	56.9	57.9
8	45.7	46.9	46.8	48.7	52.1	53.5	55.9	57.1	58.4
9	46.9	47.0	46.9	50.1	53.0	55.4	56.3	62.5	60.6
10		47.0	46.8	50.3	54.2	56.5	58.9	61.8	64.9
	Jul-03	Jul-17	Jul-31	Aug-14	Aug-28	Sep-05	Sep-10	Sep-25	Oct-01
Surface	52.1	53.1	53.5	53.5	55.1	54.9	58.2	54.5	54.2
1	52.0	53.0	53.4	53.4	55.1	54.8	58.0	54.5	54.2
2	51.9	52.9	53.4	53.4	54.9	54.8	57.9	54.6	54.2
3	51.9	52.9	53.5	53.5	55.0	54.8	57.5	54.6	54.1
4	52.1	53.3	53.4	53.9	54.9	55.3	57.8	54.6	54.1
5	54.8	54.2	54.1	53.8	55.3	55.1	57.9	54.6	54.1
6	56.8	55.8	56.0	55.6	56.3	54.2	58.5	54.7	54.1
7	57.9	56.6	58.0	56.7	56.2	56.6	62.3	54.7	54.1
8	58.3	63.3	65.2	63.8	62.9	60.6	64.2	54.8	54.1
9	56.1	67.5	69.8	66.3	65.5	65.7	66.2		54.1
10	64.0	71.0	75.4	66.9					

Table B-6. Conductivity profiles at all stations at Newman Lake, WA. Units (uS\cm)

North Station												
Depth (m)	Apr-17	Apr-30	May-15	Jun-05	Jun-18	Jul-03	Jul-17	Jul-31	Aug-14	Aug-28	Sep-10	Oct-01
Surface	34.3	41.5	42.2	46.6	49.6	51.4	52.7	53.6	52.3	52.7	54.5	47.6
1	34.0	41.1	42.1	45.6	49.4	51.3	52.0	53.1	52.1	52.7	54.5	47.6
2	33.6	40.5	41.8	45.2	49.4	51.0	51.7	52.7	51.9	52.6	54.3	47.6
3	33.1	39.9	41.6	45.0	49.3	50.9	51.5	51.9	51.9	52.5	54.2	47.6
4	32.9	39.6	41.5	43.7	49.3	50.7	51.3	51.6	51.9	52.5	54.1	47.6
5	32.6	37.8	41.5	42.8	49.2	48.4	50.9	51.6	51.7	53.2	53.3	47.6

South Station												
	Apr-17	Apr-30	May-15	Jun-05	Jun-18	Jul-03	Jul-17	Jul-31	Aug-14	Aug-28	Sep-10	Oct-01
Surface	35.7	41.7	44.3	47.7	49.8	51.1	52.9	54.2	52.7	52.6	54.6	47.4
1	34.6	41.1	44.2	46.7	49.7	51.0	52.8	53.6	52.7	52.6	54.2	47.4
2	34.4	40.8	42.7	46.1	49.5	49.6	52.0	53.3	52.5	52.6	54.1	47.4
3	34.2	37.7	39.6	45.7	49.3	48.1	51.7	53.2	52.2	52.7	54.2	47.4
4	33.4	36.9	38.3	43.5	45.6	47.8	51.2	51.7	51.6	52.9	54.5	47.4
5	32.7	36.8	37.8	42.9	45.3	48.1	51.2	51.6	51.7	53.1	55.0	47.5

Mid Station									
	Apr-08	Apr-11	Apr-17	Apr-30	May-15	Jun-05	Jun-12	Jun-18	Jun-30
Surface	31.9	33.6	34.6	40.8	45.5	46.8	49.2	49.1	50.2
1	31.4	32.9	33.9	39.9	46.0	45.4	49.2	49.4	49.5
2	30.8	32.1	33.5	39.5	45.8	45.2	48.9	49.2	49.1
3	30.9	31.3	33.3	39.1	43.5	45.0	46.7	48.5	48.4
4	30.9	30.6	33.3	37.0	39.9	43.5	44.9	47.5	47.7
5	30.5	30.3	32.8	36.3	39.5	41.9	44.3	45.5	47.2
6	30.1	30.3	32.5	35.1	39.0	41.5	43.4	45.5	46.9
7	29.5	30.2	32.0	34.9	38.4	41.4	43.1	44.9	47.2
8	29.3	30.2	32.0	34.6	37.9	40.7	43.2	44.4	46.7
9	29.6	30.2	31.7	34.6	38.2	41.8	42.7	48.0	47.6
10		30.2	31.4	34.6	38.8	47.6	44.3	47.3	51.1
	Jul-03	Jul-17	Jul-31	Aug-14	Aug-28	Sep-05	Sep-10	Sep-25	Oct-01
Surface	50.1	52.4	53.5	52.1	52.8	53.5	55.8	49.5	47.7
1	50.1	52.1	53.3	52.0	52.7	53.4	55.7	49.5	47.7
2	49.3	51.6	53.0	51.9	52.6	53.4	55.5	49.3	47.6
3	48.4	51.3	52.2	51.9	52.7	53.4	55.2	49.3	47.5
4	47.7	51.1	51.3	51.9	52.5	53.6	55.3	49.3	47.6
5	48.1	50.7	51.0	51.1	52.8	52.6	55.4	49.3	47.6
6	47.7	49.1	51.5	51.4	53.1	51.3	55.9	49.3	47.5
7	46.9	47.5	50.9	51.4	52.2	52.7	58.1	49.3	47.5
8	47.2	52.1	55.9	56.4	57.5	52.2	59.9	49.4	47.5
9	45.0	55.0	58.9	58.4	59.7	60.4	61.1		47.4
10	50.7	57.5	63.1	58.9					

Table B-7. Total Dissolved Solids (g/L) profiles for all stations at Newman Lake, WA

North Station												
Depth (m)	Apr-17	Apr-30	May-15	Jun-05	Jun-18	Jul-03	Jul-17	Jul-31	Aug-14	Aug-28	Sep-10	Oct-01
Surface	0.0308	0.0332	0.0329	0.0331	0.0338	0.0341	0.0346	0.0349	0.0346	0.0354	0.0368	0.0351
1	0.0307	0.0330	0.0328	0.0329	0.0337	0.0340	0.0345	0.0347	0.0346	0.0354	0.0368	0.0351
2	0.0306	0.0330	0.0326	0.0328	0.0336	0.0340	0.0345	0.0349	0.0346	0.0354	0.0367	0.0352
3	0.0304	0.0328	0.0325	0.0328	0.0336	0.0340	0.0345	0.0350	0.0346	0.0354	0.0367	0.0352
4	0.0304	0.0327	0.0324	0.0326	0.0336	0.0339	0.0347	0.0348	0.0347	0.0354	0.0366	0.0352
5	0.0305	0.0330	0.0324	0.0346	0.0336	0.0339	0.0351	0.0353	0.0358	0.0366	0.0365	0.0352

South Station												
	Apr-17	Apr-30	May-15	Jun-05	Jun-18	Jul-03	Jul-17	Jul-31	Aug-14	Aug-28	Sep-10	Oct-01
Surface	0.0304	0.0332	0.0344	0.0334	0.0337	0.0340	0.0346	0.0348	0.0348	0.0356	0.0367	0.0350
1	0.0304	0.0330	0.0343	0.0333	0.0336	0.0340	0.0345	0.0348	0.0348	0.0355	0.0366	0.0351
2	0.0305	0.0330	0.0334	0.0332	0.0336	0.0340	0.0345	0.0348	0.0348	0.0356	0.0365	0.0350
3	0.0306	0.0333	0.0326	0.0331	0.0336	0.0338	0.0345	0.0348	0.0348	0.0356	0.0367	0.0351
4	0.0307	0.0336	0.0329	0.0332	0.0337	0.0340	0.0346	0.0348	0.0348	0.0359	0.0369	0.0351
5	0.0307	0.0335	0.0332	0.0339	0.0357	0.0356	0.0359	0.0360	0.0356	0.0363	0.0374	0.0353

Mid Station									
	Apr-08	Apr-11	Apr-17	Apr-30	May-15	Jun-05	Jun-12	Jun-18	Jun-30
Surface	0.0295	0.0305	0.0309	0.0329	0.0351	0.0329	0.0334	0.0338	0.0339
1	0.0295	0.0302	0.0305	0.0323	0.0338	0.0328	0.0334	0.0338	0.0339
2	0.0294	0.0303	0.0303	0.0323	0.0362	0.0328	0.0334	0.0337	0.0339
3	0.0298	0.0304	0.0302	0.0322	0.0353	0.0328	0.0330	0.0337	0.0338
4	0.0297	0.0303	0.0303	0.0326	0.0331	0.0327	0.0334	0.0336	0.0338
5	0.0298	0.0302	0.0304	0.0325	0.0338	0.0336	0.0344	0.0350	0.0345
6	0.0298	0.0304	0.0304	0.0324	0.0340	0.0342	0.0356	0.0365	0.0363
7	0.0298	0.0305	0.0305	0.0324	0.0340	0.0350	0.0361	0.0370	0.0377
8	0.0297	0.0305	0.0304	0.0324	0.0338	0.0348	0.0363	0.0371	0.0380
9	0.0302	0.0305	0.0305	0.0326	0.0345	0.0360	0.0360	0.0407	0.0390
10		0.0306	0.0304	0.0327	0.0352	0.0368	0.0376	0.0401	0.0420
	Jul-03	Jul-17	Jul-31	Aug-14	Aug-28	Sep-05	Sep-10	Sep-25	Oct-01
Surface	0.0339	0.0345	0.0348	0.0347	0.0359	0.0357	0.0378	0.0354	0.0352
1	0.0338	0.0345	0.0347	0.0347	0.0358	0.0356	0.0377	0.0355	0.0352
2	0.0337	0.0344	0.0347	0.0347	0.0357	0.0356	0.0376	0.0355	0.0352
3	0.0337	0.0344	0.0347	0.0348	0.0358	0.0357	0.0375	0.0355	0.0352
4	0.0337	0.0341	0.0347	0.0350	0.0357	0.0359	0.0376	0.0355	0.0352
5	0.0355	0.0352	0.0352	0.0350	0.0359	0.0358	0.0377	0.0355	0.0352
6	0.0369	0.0364	0.0364	0.0361	0.0366	0.0352	0.0380	0.0356	0.0352
7	0.0376	0.0368	0.0372	0.0369	0.0365	0.0366	0.0404	0.0356	0.0352
8	0.0379	0.0411	0.0424	0.0414	0.0408	0.0390	0.0418		0.0352
9	0.0364	0.0438	0.0454	0.0431	0.0426	0.0427	0.0430		0.0352
10	0.0414	0.0448	0.0489	0.0435					

Table B-8. pH profiles for all stations at Newman Lake, WA

North Station												
Depth (m)	Apr-17	Apr-30	May-15	Jun-05	Jun-18	Jul-03	Jul-17	Jul-31	Aug-14	Aug-28	Sep-10	Oct-01
Surface	7.18	7.36	7.08	7.39	7.28	7.66	7.77	8.06	7.43	7.41	7.25	7
1	6.99	7.29	7.07	7.44	7.30	7.65	7.80	8.04	7.43	7.39	7.18	6.71
2	6.94	7.27	7.08	7.43	7.38	7.67	7.78	8.03	7.40	7.36	7.17	6.64
3	6.87	7.18	7.10	7.41	7.37	7.67	7.73	7.60	7.39	7.34	7.11	6.58
4	6.80	7.14	7.08	7.11	7.39	7.67	7.26	7.10	7.28	7.31	7.13	6.53
5	6.68	6.96	7.06	6.27	7.39	7.22	6.85	6.63	6.20	6.23	6.34	6.52

South Station												
	Apr-17	Apr-30	May-15	Jun-05	Jun-18	Jul-03	Jul-17	Jul-31	Aug-14	Aug-28	Sep-10	Oct-01
Surface	7.30	7.32	6.97	7.48	7.54	7.73	7.88	8.04	7.51	7.41	7.49	6.70
1	7.15	7.25	6.75	7.44	7.49	7.71	7.88	8.09	7.53	7.38	7.44	6.69
2	7.14	7.21	6.87	7.43	7.49	7.69	7.91	8.02	7.48	7.31	7.42	6.65
3	7.08	6.70	6.62	7.45	7.42	7.39	7.83	7.85	7.41	7.20	7.22	6.64
4	6.93	6.36	6.29	7.10	6.81	7.22	7.42	7.44	7.18	6.80	7.07	6.60
5	6.67	6.24	6.15	6.68	6.27	6.55	6.46	6.50	6.53	6.55	6.84	6.50

Mid-Station									
	Apr-08	Apr-11	Apr-17	Apr-30	May-15	May-29	Jun-05	Jun-18	Jun-30
Surface	6.88	7.36	7.54	7.19	6.68	7.32	7.76	7.58	7.57
1	6.81	7.16	7.22	7.15	6.48	7.29	7.63	7.53	7.57
2	6.70	7.06	7.04	7.08	6.07	7.21	7.54	7.38	7.45
3	6.81	6.78	6.94	7.06	6.23	7.03	7.52	7.37	7.46
4	6.85	6.70	6.96	6.67	6.34	-	7.25	7.26	7.40
5	6.82	6.59	6.90	6.48	6.20	-	6.54	6.63	6.88
6	6.71	6.53	6.83	6.35	6.20	6.25	6.28	6.27	6.24
7	6.51	6.46	6.72	6.30	6.24	6.20	6.19	6.22	6.17
8	6.42	6.44	6.67	6.28	6.22	6.23	6.20	6.21	6.17
9	6.34	6.41	6.59	6.23	6.20	6.28	6.24	6.31	6.25
10		6.37	6.50	6.24	6.18	6.37	6.26	6.33	6.27
	Jul-03	Jul-17	Jul-31	Aug-14	Aug-28	Sep-05	Sep-10	Sep-25	Oct-01
Surface	7.74	7.88	8.01	7.45	7.18	7.44	7.33	6.71	6.63
1	7.70	7.89	8.04	7.43	7.14	7.39	7.24	6.63	6.61
2	7.53	7.76	8.04	7.38	7.13	7.35	7.21	6.61	6.62
3	7.43	7.78	8.21	7.37	7.18	7.33	7.23	6.55	6.62
4	7.24	7.28	7.43	7.10	7.15	7.03	7.18	6.55	6.62
5	6.55	6.91	6.89	6.81	6.90	6.62	7.10	6.52	6.59
6	6.19	6.34	6.53	6.44	6.52	6.29	7.02	6.54	6.50
7	6.13	6.27	6.10	6.33	6.15	6.25	6.32	6.50	6.49
8	6.15	6.32	6.22	6.23	6.18	6.27	6.30	6.44	6.52
9	6.25	6.33	6.23	6.20	6.22	6.35	6.35		6.50
10	6.35	6.34	6.30	6.19					

Appendix C **Field Data Sheets and Laboratory Results**

Newman Lake In-Lake Sampling
Field Testing Results

Data Collection By: Derek Vilar
Sampling Date: 4-8-25
Weather: Cloudy, windy

Sample Key:
Location North (N), Mid-Lake (ML), South (S)
Depth Upper Sample = A, Mid-depth Sample = B, Lowest Sample = C

North Lake	Sampling Location	Time	Depth (m)	Water Temp. (°C)	% Sat	DO (mg/L)	SPC (uS/cm)	Cond (uS/cm)	TDS (g/L)	pH
Total Depth (m)	N-A		surface							
			1							
	N-B		2							
			3							
Secchi Disk (m)	N-C		4							
			5							
Mid-Lake										
Total Depth (m)	ML-A		surface	9.5	101.4	11.58	45.4	31.9	0.0295	6.88
			1	8.9	92.3	10.69	45.4	31.4	.0295	6.81
9.1			2	8.3	84.3	9.95	45.3	30.8	.0294	6.70
	ML-B		3	8.0	90.8	10.76	45.7	30.9	0.0298	6.81
			4	7.9	90.4	10.71	45.7	30.9	0.0297	6.85
Secchi Disk (m)			5	7.5	82.5	9.88	45.8	30.5	0.0298	6.82
			6	7.0	77.5	9.05	45.8	30.1	0.0298	6.71
	ML-C		7	6.3	59.6	7.32	45.9	29.5	0.0298	6.51
			8	6.2	55.2	6.75	45.7	29.3	0.0297	6.42
14			9	6.0	35.0	4.38	46.9	29.6	0.0302	6.34
			10							
South Lake										
Total Depth (m)	S-A		surface							
			1							
	S-B		2							
			3							
Secchi Disk (m)	S-C		4							
			5							

Notes:

Verified coordinate locations for sample locations using State of the Lake 2019 Report coordinates.

Newman Lake In-Lake Sampling
Field Testing Results

Data Collection By: 4-11-25, DV, P. Cloudy
Sampling Date:
Weather:

Sample Key:
Location North (N), Mid-Lake (ML), South (S)
Depth Upper Sample = A, Mid-depth Sample = B, Lowest Sample = C

North Lake	Sampling Location	Time	Depth (m)	Water Temp. (°C)	% Sat	DO (mg/L)	SPC (uS/cm)	Cond (uS/cm)	TDS (g/L)	pH
Total Depth (m)	N-A		surface							
			1							
	N-B		2							
			3							
Secchi Disk (m)	N-C		4							
			5							
Mid-Lake										
Total Depth (m)	ML-A		surface	10.1	100.4	11.33	46.8	33.6	0.0305	7.36
			1	9.7	92.9	10.57	46.5	32.9	0.0302	7.16
32.5'			2	8.7	90.4	10.52	46.6	32.1	0.0303	7.06
	ML-B		3	7.7	76.3	9.07	46.8	31.3	0.0304	6.78
			4	7.0	71.6	8.71	46.7	30.6	0.0303	6.70
Secchi Disk (m)			5	6.7	59.8	7.33	46.4	30.3	0.0302	6.59
			6	6.5	52.6	6.48	46.8	30.3	0.0304	6.53
	ML-C		7	6.4	48.9	6.02	46.9	30.2	0.0305	6.46
			8	6.4	46.3	5.69	46.9	30.2	0.0305	6.44
1.4			9	6.3	43.7	5.41	47.0	30.2	0.0305	6.41
			10	6.3	44.0	5.38	47.0	30.2	0.0306	6.37
South Lake										
Total Depth (m)	S-A		surface							
			1							
	S-B		2							
			3							
Secchi Disk (m)	S-C		4							
			5							

Notes:

Verified coordinate locations for sample locations using State of the Lake 2019 Report coordinates.

Newman Lake In-Lake Sampling
Field Testing Results

Data Collection By: DV
Sampling Date: 4-24
Weather:

Sample Key:
Location North (N), Mid-Lake (ML), South (S)
Depth Upper Sample = A, Mid-depth Sample = B, Lowest Sample = C

North Lake	Sampling Location	Time	Depth (m)	Water Temp. (°C)	% Sat	DO (mg/L)	SPC (uS/cm)	Cond (uS/cm)	TDS (g/L)	pH
Total Depth (m)	N-A		surface							
			1							
	N-B		2							
			3							
Secchi Disk (m)	N-C		4							
			5							
Mid-Lake										
Total Depth (m)	ML-A		surface	13	99.4	10.47				
			1	12.4	96.4	10.33				
34'			2	12.0	93.3	9.99				
	ML-B		3	11.3	91.4	10.02				
			4	10.5	82.8	9.22				
Secchi Disk (m)			5	10.2	81.2	9.15				
			6	9.0	57.4	6.65				
	ML-C		7	8.5	44.2	5.20				
			8	8.1	24.1	2.85				
			9	8.1	23.2	2.74				
			10	8.0	22.2	2.66				
South Lake										
Total Depth (m)	S-A		surface							
			1							
	S-B		2							
			3							
Secchi Disk (m)	S-C		4							
			5							

Notes:

Verified coordinate locations for sample locations using State of the Lake 2019 Report coordinates.

Newman Lake In-Lake Sampling
Field Testing Results

Data Collection By: Derek
Sampling Date: 4-17-25
Weather: Clear, sunny

Sample Key:
Location North (N), Mid-Lake (ML), South (S)
Depth Upper Sample = A, Mid-depth Sample = B, Lowest Sample = C

North Lake	Sampling Location	Time	Depth (m)	Water Temp. (°C)	% Sat	DO (mg/L)	SPC (uS/cm)	Cond (uS/cm)	TDS (g/L)	pH
Total Depth (m)	N-A	1040	surface	10.5	90.8	10.14	47.4	34.3	0.0308	7.18
			1	10.2	86.3	9.67	47.2	34.0	0.0307	6.99
14.5'	N-B	1040	2	9.4	81.9	9.33	47.0	33.6	0.0306	6.94
			3	9.6	82.3	9.38	46.8	33.1	0.0304	6.87
Secchi Disk (m)	N-C	1035	4	9.4	70.5	8.06	46.8	32.9	0.0304	6.80
			5	9.0	67.4	7.80	47.0	32.6	0.0305	6.68
1.6										
Mid-Lake										
Total Depth (m)	ML-A	1005	surface	10.8	95.3	10.65	47.4	34.6	0.0309	7.54
			1	10.5	85.0	9.47	46.9	33.9	0.0305	7.22
32'			2	10.2	81.4	9.2	46.6	33.5	0.0303	7.04
	ML-B	1005	3	10.1	79.0	8.88	46.5	33.3	0.0302	6.94
			4	10.0	80.4	8.97	46.6	33.3	0.0303	6.96
Secchi Disk (m)			5	9.4	73.9	8.45	46.7	32.8	0.0304	6.90
			6	9.0	72.5	8.40	46.8	32.5	0.0304	6.83
1.6	ML-C	1000	7	8.4	66.4	7.80	46.9	32.0	0.0305	6.72
			8	8.4	66.1	7.77	46.8	32.0	0.0304	6.67
			9	8.0	56.7	6.67	46.9	31.7	0.0305	6.59
			10	7.7	46.6	5.61	46.8	31.4	0.0304	6.50
South Lake										
Total Depth (m)	S-A	1120	surface	12.6	90.8	9.64	46.8	35.7	0.0304	7.30
			1	11.3	88.9	9.74	46.9	34.6	0.0304	7.15
19.5	S-B	1120	2	11.0	88.1	9.75	47.0	34.4	0.0305	7.14
			3	10.7	83.4	9.30	47.0	34.2	0.0306	7.08
Secchi Disk (m)	S-C	1115	4	9.8	82.4	9.35	47.2	33.4	0.0307	6.93
			5	9.0	70.9	8.22	47.2	32.7	0.0307	6.67
1.5										

Notes:

Verified coordinate locations for sample locations using State of the Lake 2019 Report coordinates.

Entered 4/29

Newman Lake In-Lake Sampling
Field Testing Results

Data Collection By: Derek Jacob
Sampling Date: 4-30-25
Weather: Sunny

Sample Key:
Location North (N), Mid-Lake (ML), South (S)
Depth Upper Sample = A, Mid-depth Sample = B, Lowest Sample = C

North Lake	Sampling Location	Time	Depth (m)	Water Temp. (°C)	% Sat	DO (mg/L)	SPC (uS/cm)	Cond (uS/cm)	TDS (g/L)	pH
Total Depth (m)	N-A	1140	surface	15.1	90.6	9.33	51.1	41.5	0.0332	7.36
			1	15.0	91.0	9.21	50.8	41.1	0.0330	7.29
19'	N-B	1140	2	14.5	88.3	9.03	50.7	40.5	0.0330	7.27
			3	14.0	90.3	9.40	50.4	39.9	0.0328	7.18
Secchi Disk (m)	N-C	1135	4	13.9	89.3	8.98	50.2	39.6	0.0327	7.14
			5	12.1	85.7	9.12	50.4	37.8	0.0330	6.96
2.4										
Mid-Lake										
Total Depth (m)	ML-A	1050	surface	15.4	92.2	9.16	49.9	40.8	0.0329	7.19
			1	14.7	85.7	8.63	49.7	39.9	0.0323	7.15
34'			2	14.3	91.8	9.39	49.7	39.5	0.0323	7.08
	ML-B	1045	3	14.0	87.0	8.97	49.6	39.1	0.0322	7.06
			4	11.5	64.9	7.07	50.1	37.0	0.0326	6.67
Secchi Disk (m)			5	10.7	61.9	6.87	49.9	36.3	0.0325	6.48
			6	9.6	46.0	5.51	49.8	35.1	0.0324	6.35
2.7	ML-C	1040	7	9.3	43.3	4.97	49.9	34.9	0.0324	6.30
			8	9.1	38.2	4.41	48.7	34.6	0.0324	6.28
			9	8.8	23.3	2.73	50.1	35.1	0.0326	6.23
			10	8.7	20.1	2.22	50.3	34.6	0.0327	6.24
South Lake										
Total Depth (m)	S-A	1115	surface	15.4	91.1	9.14	51.1	41.7	0.0332	7.32
			1	15.1	88.7	9.00	50.8	41.1	0.0330	7.25
19'	S-B	1115	2	14.8	89.1	8.81	50.6	40.8	0.0330	7.21
			3	11.2	68.3	7.50	51.3	37.7	0.0333	6.70
Secchi Disk (m)	S-C	1110	4	10.1	54.5	6.24	51.7	36.9	0.0336	6.36
			5	10.0	52.8	5.95	51.5	36.8	0.0335	6.24
2.2										

Notes:

Verified coordinate locations for sample locations using State of the Lake 2019 Report coordinates.

Newman Lake In-Lake Sampling
Field Testing Results

Data Collection By: PV
Sampling Date: 5-9
Weather: Partly Cloudy, Wind

Sample Key:
Location North (N), Mid-Lake (ML), South (S)
Depth Upper Sample = A, Mid-depth Sample = B, Lowest Sample = C

North Lake	Sampling Location	Time	Depth (m)	Water Temp. (°C)	% Sat	DO (mg/L)	SPC (uS/cm)	Cond (uS/cm)	TDS (g/L)	pH
Total Depth (m)	N-A		surface							
			1							
	N-B		2							
			3							
Secchi Disk (m)	N-C		4							
			5							
Mid-Lake										
Total Depth (m)	ML-A		surface	18.1	91.9	8.67				
			1	16.7	92.6	9.00				
			2	16.0	89.1	8.78				
	ML-B		3	15.8	86.8	8.60				
			4	14.6	86.8	8.90				
Secchi Disk (m)			5	11.8	70.6	7.63				
			6	10.7	46.4	5.15				
	ML-C		7	10.0	28.9	3.29				
			8	9.8	19.5	2.20				
			9	9.6	14.0	1.61				
			~~10~~							
South Lake										
Total Depth (m)	S-A		surface							
			1							
	S-B		2							
			3							
Secchi Disk (m)	S-C		4							
			5							

Notes:

Verified coordinate locations for sample locations using State of the Lake 2019 Report coordinates.

Newman Lake In-Lake Sampling
Field Testing Results

Data Collection By: Jacob Laraway, Nicole Henson
Sampling Date: 5-15-25
Weather: Cloudy

Sample Key:
Location North (N), Mid-Lake (ML), South (S)
Depth Upper Sample = A, Mid-depth Sample = B, Lowest Sample = C

North Lake	Sampling Location	Time	Depth (m)	Water Temp. (°C)	% Sat	DO (mg/L)	SPC (uS/cm)	Cond (uS/cm)	TDS (g/L)	pH
Total Depth (m)	N-A	12:40	surface	16.3	91.6	8.96	50.6	42.2	0.0329	7.08
			1	16.3	89.3	8.73	50.5	42.1	0.0328	7.07
20 ft	N-B	12:35	2	16.3	89.0	8.70	50.1	41.8	0.0326	7.08
			3	16.3	87.2	8.57	49.9	41.6	0.0325	7.10
Secchi Disk (m)	N-C	12:30	4	16.2	85.2	8.38	49.9	41.5	0.0324	7.08
			5	16.2	84.4	8.21	49.9	41.5	0.0324	7.06
3.4										
Mid-Lake										
Total Depth (m)	ML-A	1:55	surface	16.7	88.8	8.56	54.0	45.5	0.0351	6.68
			1	16.4	84.3	8.25	55.1	46	0.0338	6.48
			2	15.7	84.7	8.41	56.0	45.8	0.0362	6.07
34.5ft	ML-B	1:50	3	14.7	75.4	7.64	54.2	43.5	0.0353	6.23
			4	13.8	69.5	7.18	50.7	39.9	0.0331	6.34
Secchi Disk (m)			5	12.3	47.0	5.10	52.0	39.5	0.0338	6.20
			6	11.7	37.3	4.06	52.3	39.0	0.0340	6.20
	ML-C	1:45	7	11.1	33.8	3.67	52.3	38.4	0.0340	6.24
3.0			8	10.8	26.4	2.92	52.1	37.9	0.0338	6.22
			9	10.4	19.2	2.13	53.0	38.2	0.0345	6.20
			10	10.1	9.3	1.04	54.2	38.8	0.0352	6.18
South Lake										
Total Depth (m)	S-A	1:20	surface	16.5	86.9	8.52	52.8	44.3	0.0344	6.97
			1	16.4	89.8	8.75	52.8	44.2	0.0343	6.75
20ft	S-B	1:15	2	16.1	86.2	8.49	51.4	42.7	0.0334	6.87
			3	14.0	72.7	7.53	50.1	39.6	0.0326	6.62
Secchi Disk (m)	S-C	1:10	4	12.3	53.5	5.72	50.7	38.3	0.0329	6.29
			5	11.5	38.1	4.16	51.1	37.8	0.0332	6.15
2.8										

Notes:

Verified coordinate locations for sample locations using State of the Lake 2019 Report coordinates.

Newman Lake In-Lake Sampling
Field Testing Results

Data Collection By: DV
Sampling Date: 5-29-25
Weather: Windy, P. Cloudy

Sample Key:
Location North (N), Mid-Lake (ML), South (S)
Depth Upper Sample = A, Mid-depth Sample = B, Lowest Sample = C

North Lake	Sampling Location	Time	Depth (m)	Water Temp. (°C)	% Sat	DO (mg/L)	SPC (uS/cm)	Cond (uS/cm)	TDS (g/L)	pH
Total Depth (m)	N-A		surface							
			1							
	N-B		2							
			3							
Secchi Disk (m)	N-C		4							
			5							
Mid-Lake										
Total Depth (m)	ML-A		surface	19.8	95.4	8.65				7.32
			1	18.5	95.0	8.93				7.29
33'			2	17.7	97.3	9.30				7.21
	ML-B		3	16.5	95.8	9.37				7.03
			4	15.4	87.0	8.75				
Secchi Disk (m)			5	13.9	48.8	5.05				
			6	12.8	22.1	2.32				6.25
	ML-C		7	12.0	5.8	0.61				6.20
			8	11.5	1.1	0.12				6.23
4.3			9	11.3	0.9	0.10				6.28
			10	11.3	0.8	0.09				6.37
South Lake										
Total Depth (m)	S-A		surface							
			1							
	S-B		2							
			3							
Secchi Disk (m)	S-C		4							
			5							

Notes:

Verified coordinate locations for sample locations using State of the Lake 2019 Report coordinates.

Newman Lake In-Lake Sampling
Field Testing Results

Data Collection By: DV
Sampling Date: 6-5-25
Weather: Sunny

Sample Key:
Location North (N), Mid-Lake (ML), South (S)
Depth Upper Sample = A, Mid-depth Sample = B, Lowest Sample = C

North Lake	Sampling Location	Time	Depth (m)	Water Temp. (°C)	% Sat	DO (mg/L)	SPC (uS/cm)	Cond (uS/cm)	TDS (g/L)	pH
Total Depth (m)	N-A	1210	surface	20.6	95.3	8.55	51.0	46.6	0.0331	7.39
			1	19.8	92.6	8.46	50.6	45.6	0.0329	7.44
19'	N-B	1210	2	19.5	85.1	7.78	50.5	45.2	0.0328	7.43
			3	19.4	86.0	7.94	50.4	45.0	0.0328	7.41
Secchi Disk (m)	N-C	1200	4	18.3	87.6	8.21	50.1	43.7	0.0326	7.11
			5	14.8	45.2	4.57	53.3	42.8	0.0346	6.27
3.7										
Mid-Lake										
Total Depth (m)	ML-A	1120	surface	21.1	90.8	8.07	50.6	46.8	0.0329	7.76
			1	19.8	87.3	7.96	50.4	45.4	0.0328	7.63
33'			2	19.6	89.3	8.25	50.2	45.2	0.0328	7.54
	ML-B	1120	3	19.3	91.3	8.41	50.5	45.0	0.0328	7.52
			4	18.0	91.0	8.59	50.3	43.5	0.0327	7.25
Secchi Disk (m)			5	15.2	61.0	6.23	51.8	41.9	0.0336	6.54
			6	14.0	34.3	3.50	52.6	41.5	0.0342	6.28
3.9	ML-C	1115	7	12.8	5.0	0.51	53.9	41.4	0.0350	6.19
			8	12.4	1.3	0.14	53.5	40.7	0.0348	6.20
			9	12.1	1.0	0.11	55.4	41.8	0.0360	6.24
			10	12.1	1.0	0.10	56.5	42.6	0.0368	6.26
South Lake										
Total Depth (m)	S-A	1250	surface	21.2	93.7	8.29	51.4	47.7	0.0334	7.48
			1	20.4	85.0	7.67	51.2	46.7	0.0333	7.44
19.5'	S-B	1250	2	20.0	84.1	7.66	51.0	46.1	0.0332	7.43
			3	19.6	84.0	7.71	50.9	45.7	0.0331	7.45
Secchi Disk (m)	S-C	1245	4	17.4	~~84~~ 89.5	8.64	51.1	43.5	0.0332	7.10
			5	15.8	72.1	7.17	52.1	42.9	0.0339	6.68
4										

Notes:

Verified coordinate locations for sample locations using State of the Lake 2019 Report coordinates.

Newman Lake In-Lake Sampling
Field Testing Results

Data Collection By: PV
Sampling Date: 6-12-25
Weather: Sunny, windy

Sample Key:
Location North (N), Mid-Lake (ML), South (S)
Depth Upper Sample = A, Mid-depth Sample = B, Lowest Sample = C

North Lake	Sampling Location	Time	Depth (m)	Water Temp. (°C)	% Sat	DO (mg/L)	SPC (uS/cm)	Cond (uS/cm)	TDS (g/L)	pH
Total Depth (m)	N-A		surface							
			1							
	N-B		2							
			3							
Secchi Disk (m)	N-C		4							
			5							
Mid-Lake										
Total Depth (m)	ML-A		surface	22.9	94.7	8.18	51.4	49.2	0.0334	7.68
			1	22.8	86.7	7.46	51.3	49.2	0.0334	7.65
			2	22.6	93.7	8.11	51.3	48.9	0.0334	7.63
	ML-B		3	20.9	92.7	8.25	50.7	46.7	0.0330	7.26
			4	18.4	91.1	8.62	51.4	44.9	0.1334	6.74
Secchi Disk (m)			5	16.6	73.9	7.13	52.4	44.3	0.0344	6.52
			6	14.1	23.3	2.44	54.7	43.4	0.0356	6.23
35	ML-C		7	13.3	9.5	0.99	55.5	43.1	0.0361	6.19
			8	13.1	10.7	1.13	55.9	43.2	0.0363	6.19
			9	12.7	4.1	0.41	56.3	42.7	0.0360	6.16
			10	12.4	1.8	0.17	56.4	44.3	0.0376	6.24
South Lake										
Total Depth (m)	S-A		surface							
			1							
	S-B		2							
			3							
Secchi Disk (m)	S-C		4							
			5							

Notes:

Verified coordinate locations for sample locations using State of the Lake 2019 Report coordinates.

Newman Lake In-Lake Sampling
Field Testing Results

Data Collection By: DV
Sampling Date: 6-18-25
Weather: Sunny, windy

Sample Key:
Location North (N), Mid-Lake (ML), South (S)
Depth Upper Sample = A, Mid-depth Sample = B, Lowest Sample = C

North Lake	Sampling Location	Time	Depth (m)	Water Temp. (°C)	% Sat	DO (mg/L)	SPC (uS/cm)	Cond (uS/cm)	TDS (g/L)	pH
Total Depth (m)	N-A	1305	surface	22.6	91.1	7.85	52.0	49.6	0.0338	7.28
			1	22.6	87.5	7.63	51.8	49.4	0.0337	7.30
	N-B	1305	2	22.6	87.1	7.55	51.8	49.4	0.0336	7.38
			3	22.5	87.6	7.54	51.7	49.3	0.0336	7.37
Secchi Disk (m)	N-C	1300	4	22.5	88.2	7.71	51.7	49.3	0.0336	7.39
			5	22.5	87.0	7.57	51.8	49.2	0.0336	7.39
3.2										
Mid-Lake										
Total Depth (m)	ML-A	1235	surface	22.6	90.3	7.82	51.6	49.1	0.0338	7.58
			1	22.5	87.1	7.57	52.0	49.4	0.0338	7.53
			2	22.3	89.9	7.68	51.9	49.2	0.0337	7.38
	ML-B	1235	3	21.5	89.7	7.75	51.9	48.5	0.0337	7.37
			4	20.7	92.3	8.20	51.7	47.5	0.0336	7.26
Secchi Disk (m)			5	16.9	68.7	6.66	53.8	45.5	0.0350	6.63
			6	15.1	39.6	3.96	56.1	45.5	0.0365	6.27
3.7	ML-C	1230	7	14.1	20.3	2.12	56.9	44.9	0.0370	6.22
			8	13.4	4.8	0.50	57.1	44.4	0.0371	6.21
			9	12.8	~~0.4~~ 1.1	0.11	62.5	48.0	0.0407	6.31
			10	12.8	1.0	0.11	61.8	<17.3	0.0401	6.33
South Lake										
Total Depth (m)	S-A	1350	surface	22.9	89.5	7.66	51.8	49.8	0.0337	7.54
			1	22.9	91.3	7.81	51.8	49.7	0.0336	7.49
	S-B	1350	2	22.8	86.5	7.47	51.7	49.5	0.0336	7.49
			3	22.7	88.5	7.75	51.8	49.3	0.0336	7.42
Secchi Disk (m)	S-C	1345	4	18.8	98.4	9.17	51.7	45.6	0.0337	6.81
			5	15.9	41.1	4.08	54.8	45.3	0.0357	6.24
3.3										

Notes:

Verified coordinate locations for sample locations using State of the Lake 2019 Report coordinates.

Newman Lake In-Lake Sampling
Field Testing Results

Data Collection By: DV
Sampling Date: 6-30
Weather: Sunny, clear

Sample Key:
Location North (N), Mid-Lake (ML), South (S)
Depth Upper Sample = A, Mid-depth Sample = B, Lowest Sample = C

North Lake	Sampling Location	Time	Depth (m)	Water Temp. (°C)	% Sat	DO (mg/L)	SPC (uS/cm)	Cond (uS/cm)	TDS (g/L)	pH
Total Depth (m)	N-A		surface							
			1							
	N-B		2							
			3							
Secchi Disk (m)	N-C		4							
			5							
Mid-Lake										
Total Depth (m)	ML-A		surface	23.1	90.6	7.74	52.1	50.2	0.0339	7.57
			1	22.4	89.2	7.75	52.1	49.5	0.0339	7.57
			2	21.9	88.7	7.74	52.1	49.1	0.0339	7.45
	ML-B		3	21.3	93.1	8.24	52.1	48.4	0.0338	7.46
			4	20.7	90.2	8.08	52.0	47.7	0.0338	7.40
Secchi Disk (m)			5	19.3	77.1	7.14	53.0	47.2	0.0345	6.88
			6	16.4	37.0	3.75	55.7	46.9	0.0363	6.24
3.5	ML-C		7	15.2	20.2	2.31	57.9	47.2	0.0377	6.17
			8	14.5	6.3	0.67	58.4	46.7	0.0380	6.17
			9	14.1	2.5	0.25	60.6	47.6	0.0390	6.25
			10	14.0	3.1	0.32	64.9	51.1	0.0420	6.27
South Lake										
Total Depth (m)	S-A		surface							
			1							
	S-B		2							
			3							
Secchi Disk (m)	S-C		4							
			5							

Notes:

Verified coordinate locations for sample locations using State of the Lake 2019 Report coordinates.

Newman Lake In-Lake Sampling
Field Testing Results

Data Collection By: 7-3-25
Sampling Date: DV, SA
Weather: Sunny, Windy

Sample Key:
Location North (N), Mid-Lake (ML), South (S)
Depth Upper Sample = A, Mid-depth Sample = B, Lowest Sample = C

North Lake	Sampling Location	Time	Depth (m)	Water Temp. (°C)	% Sat	DO (mg/L)	SPC (uS/cm)	Cond (uS/cm)	TDS (g/L)	pH
Total Depth (m)	N-A	1305	surface	23.9	93.7	7.90	52.5	51.4	0.0341	7.66
			1	23.9	89.5	7.55	52.4	51.3	0.0340	7.65
	N-B	1305	2	23.7	87.6	7.51	52.3	51.0	0.0340	7.67
			3	23.6	89.5	7.60	52.2	50.9	0.0340	7.67
Secchi Disk (m)	N-C	1300	4	23.5	90.1	7.75	52.2	50.7	0.0339	7.67
			5	21.4	84.2	7.69	52.0	48.4	0.0339	7.22
3.7										
Mid-Lake										
Total Depth (m)	ML-A	1110	surface	23.1	89.0	7.62	52.1	50.1	0.0339	7.74
			1	23.0	86.2	7.44	52.0	50.1	0.0338	7.70
			2	22.6	88.9	7.79	51.9	49.3	0.0337	7.53
	ML-B	1110	3	21.5	89.5	7.90	51.9	48.4	0.0337	7.43
			4	20.7	91.4	8.13	52.1	47.7	0.0337	7.24
Secchi Disk (m)			5	18.8	65.0	6.18	54.8	48.1	0.0355	6.55
			6	16.6	28.1	2.77	56.8	47.7	0.0369	6.19
3.2	ML-C	1100	7	15.1	8.6	0.85	57.9	46.9	0.0376	6.13
			8	15.0	7.8	0.86	58.3	47.2	0.0379	6.15
			9	14.4	0.1	0.01	56.1	45.0	0.0364	6.25
			10	14.2	0.2	0.02	64.0	50.7	0.0414	6.35
South Lake										
Total Depth (m)	S-A	1335	surface	23.8	91.9	7.76	52.3	51.1	0.0340	7.73
			1	23.7	89.0	7.54	52.2	51.0	0.0340	7.71
	S-B	1335	2	23.0	94.5	8.26	52.3	49.6	0.0340	7.69
			3	21.1	91.1	8.17	52.0	48.1	0.0338	7.39
Secchi Disk (m)	S-C	1330	4	20.5	90.7	8.20	52.3	47.8	0.0340	7.22
			5	18.7	60.9	5.66	55.0	48.1	0.0356	6.55
3.2										

Notes:

Verified coordinate locations for sample locations using State of the Lake 2019 Report coordinates.

Newman Lake In-Lake Sampling
Field Testing Results

Data Collection By: IB DV SA
Sampling Date: 7/10/25
Weather: 77°F, Cloudy

Sample Key:
Location North (N), Mid-Lake (ML), South (S)
Depth Upper Sample = A, Mid-depth Sample = B, Lowest Sample = C

North Lake	Sampling Location	Time	Depth (m)	Water Temp. (°C)	% Sat	DO (mg/L)	SPC (uS/cm)	Cond (uS/cm)	TDS (g/L)	pH
Total Depth (m)	N-A		surface							
			1							
	N-B		2							
			3							
Secchi Disk (m)	N-C		4							
			5							
Mid-Lake										
Total Depth (m)	ML-A	1308	surface	23.5	94.3	7.99				
			1	23.5	91.2	7.75				
			2	23.4	93.4	7.96				
	ML-B	1322	3	22.8	93.4	8.04				
			4	22.2	91.6	7.98				
Secchi Disk (m)			5	19.5	51	4.77				
			6	17.4	38	3.69				
	ML-C	1330	7	16.3	16	1.54				
			8	15.6	1.2	0.12				
			9	15.6	.9	.009				
			10							
South Lake										
Total Depth (m)	S-A		surface							
			1							
	S-B		2							
			3							
Secchi Disk (m)	S-C		4							
			5							

Notes:

Verified coordinate locations for sample locations using State of the Lake 2019 Report coordinates.

Newman Lake In-Lake Sampling
Field Testing Results

Data Collection By: Jacob Laraway, Steven Allworth
Sampling Date: 7-17-25
Weather: Clear to Sunny

Sample Key:
Location North (N), Mid-Lake (ML), South (S)
Depth Upper Sample = A, Mid-depth Sample = B, Lowest Sample = C

North Lake	Sampling Location	Time	Depth (m)	Water Temp. (°C)	% Sat	DO (mg/L)	SPC (uS/cm)	Cond (uS/cm)	TDS (g/L)	pH
Total Depth (m)	N-A	11:25	surface	24.3	91.3	7.63	53.2	52.7	.0346	7.77
			1	23.6	82.9	6.99	53.1	52.0	.0345	7.80
21 ft	N-B	11:20	2	23.6	88.5	7.51	53.1	51.7	.0345	7.78
			3	23.5	80.0	6.79	53.1	51.5	.0345	7.73
Secchi Disk (m)	N-C	11:15	4	23.0	84.9	7.28	53.3	51.3	.0347	7.26
			5	21.9	72.7	6.36	54.0	50.9	.0351	6.85
2.9										
Mid-Lake										
Total Depth (m)	ML-A	10:55	surface	24.3	89.4	7.44	53.1	52.4	.0345	7.88
			1	24.1	82.6	7.00	53.0	52.1	.0345	7.89
			2	23.6	84.7	7.21	52.9	51.6	.0344	7.76
33.5 ft	ML-B	10:50	3	23.4	86.1	7.26	52.9	51.3	.0344	7.78
			4	22.8	86.8	7.44	53.3	51.1	.0346	7.28
Secchi Disk (m)			5	21.7	73.4	6.41	54.2	50.7	.0352	6.91
			6	18.5	21.9	2.07	55.8	49.1	.0364	6.34
3.0	ML-C	10:45	7	16.6	1.2	0.12	56.6	47.5	.0368	6.27
			8	15.8	1.4	0.14	63.3	52.1	.0411	6.32
			9	15.4	1.6	0.16	67.5	55.0	.0436	6.33
			10	15.2	1.9	0.19	71.0	57.5	.0448	6.34
South Lake										
Total Depth (m)	S-A	11:50	surface	24.8	89.5	7.42	53.2	52.9	.0346	7.86
			1	24.7	86.2	7.16	53.1	52.8	.0345	7.88
21 Ft	S-B	11:45	2	24.0	85.8	7.23	53.1	52.0	.0345	7.91
			3	23.7	85.7	7.24	53.1	51.7	.0345	7.83
Secchi Disk (m)	S-C	11:40	4	23.0	85.3	7.30	53.2	51.2	.0346	7.42
			5	21.2	38.2	3.39	55.2	51.2	.0359	6.46
2.4										

Notes:

Verified coordinate locations for sample locations using State of the Lake 2019 Report coordinates.

Newman Lake In-Lake Sampling
Field Testing Results

Data Collection By: Jacob Laraway, Steven Allworth
Sampling Date: 7/31
Weather: Partly cloudy

Sample Key:
Location North (N), Mid-Lake (ML), South (S)
Depth Upper Sample = A, Mid-depth Sample = B, Lowest Sample = C

North Lake	Sampling Location	Time	Depth (m)	Water Temp. (°C)	% Sat	DO (mg/L)	SPC (uS/cm)	Cond (uS/cm)	TDS (g/L)	pH
Total Depth (m)	N-A	10:45	surface	24.8	94.1	7.79	53.7	53.6	0.0349	8.06
			1	24.5	91.9	7.65	53.9	53.1	0.0347	8.04
19 ft	N-B	10:40	2	24.3	92.5	7.73	53.4	52.7	0.0349	8.03
			3	23.6	91.7	7.77	53.3	51.9	0.0350	7.66
Secchi Disk (m)	N-C	10:35	4	23.1	86.2	7.38	53.6	51.6	0.0348	7.10
			5	22.5	65.2	5.65	54.2	51.6	0.0353	6.63
3.2										
Mid-Lake										
Total Depth (m)	ML-A	10:05	surface	25.1	93.3	7.68	53.5	53.5	0.0348	8.01
			1	24.9	93.7	7.74	53.4	53.3	0.0347	8.04
			2	24.6	91.5	7.60	53.4	53.0	0.0347	8.04
32 ft	ML-B	10:00	3	24.1	92.0	7.70	53.5	52.2	0.0347	8.21
			4	22.9	85.8	7.37	53.4	51.3	0.0347	7.43
Secchi Disk (m)			5	22.1	63.9	5.58	54.1	51.0	0.0352	6.89
			6	20.6	41.5	3.73	56.0	51.5	0.0364	6.53
3.3	ML-C	9:55	7	18.4	11.6	1.09	58.0	50.9	0.0377	6.10
			8	17.3	1.6	0.15	65.2	55.6	0.0424	6.22
			9	16.8	1.8	0.17	69.8	58.9	0.0454	6.23
			10	16.5	2.2	0.22	75.4	63.1	0.0489	6.30
South Lake										
Total Depth (m)	S-A	11:10	surface	25.5	92.2	7.55	53.6	54.2	0.0349	8.04
			1	25.0	89.2	7.36	53.6	53.6	0.0348	8.09
14 ft	S-B	11:05	2	24.7	91.4	7.59	53.6	53.3	0.0348	8.02
			3	24.6	87.1	7.25	53.5	53.2	0.0348	7.85
Secchi Disk (m)	S-C	11:00	4	23.1	87.2	7.46	53.6	51.7	0.0348	7.44
			5	21.4	48.5	4.23	55.4	51.6	0.0360	6.50
2.0										

Notes:

Verified coordinate locations for sample locations using State of the Lake 2019 Report coordinates.

Newman Lake In-Lake Sampling
Field Testing Results

Data Collection By: DV
Sampling Date: 8-8-25
Weather: sunny

Sample Key:
Location North (N), Mid-Lake (ML), South (S)
Depth Upper Sample = A, Mid-depth Sample = B, Lowest Sample = C

North Lake	Sampling Location	Time	Depth (m)	Water Temp. (°C)	% Sat	DO (mg/L)	SPC (uS/cm)	Cond (uS/cm)	TDS (g/L)	pH
Total Depth (m)	N-A		surface							
			1							
	N-B		2							
			3							
Secchi Disk (m)	N-C		4							
			5							
Mid-Lake										
Total Depth (m)	ML-A	1130	surface	22.8	74.5	6.38	52.5	50.3		7.22
			1	22.6	75.1	6.50				7.16
			2	22.6	74.0	6.39				7.18
	ML-B	1130	3	22.5	75.7	6.56				7.11
			4	22.4	75.6	6.57				7.11
Secchi Disk (m)			5	22.3	77.0	6.72				7.13
			6	21.0	22.4	2.06				6.25
2.8	ML-C	1130	7	19.4	2.5	0.23				5.98
			8	18.4	1.9	0.18				6.18
			9	17.9	1.4	0.14				
			10							
South Lake										
Total Depth (m)	S-A		surface							
			1							
	S-B		2							
			3							
Secchi Disk (m)	S-C		4							
			5							

Notes:

Verified coordinate locations for sample locations using State of the Lake 2019 Report coordinates.

Newman Lake In-Lake Sampling
Field Testing Results

Data Collection By: JL, SA
Sampling Date: 8/14/25
Weather: Partly cloudy

Sample Key:
Location North (N), Mid-Lake (ML), South (S)
Depth Upper Sample = A, Mid-depth Sample = B, Lowest Sample = C

North Lake	Sampling Location	Time	Depth (m)	Water Temp. (°C)	% Sat	DO (mg/L)	SPC (uS/cm)	Cond (uS/cm)	TDS (g/L)	pH
Total Depth (m)	N-A	11:30	surface	24.0	84.8	7.13	53.3	52.3	0.0346	7.43
			1	23.9	80.4	6.79	53.2	52.1	0.0346	7.43
19 ft	N-B	11:25	2	23.8	80.0	6.75	53.2	51.9	0.0346	7.40
			3	23.7	75.8	6.39	53.2	51.9	0.0346	7.39
Secchi Disk (m)	N-C	11:20	4	23.6	77.3	6.53	53.3	51.9	0.0347	7.28
			5	21.1	15.1	1.33	55.2	51.7	0.0358	6.20
1.7										
Mid-Lake										
Total Depth (m)	ML-A	10:40	surface	23.7	87.9	7.38	53.5	52.1	0.0347	7.45
			1	23.6	87.2	7.39	53.4	52.0	0.0347	7.43
32 ft			2	23.5	86.6	7.35	53.4	51.9	0.0347	7.38
	ML-B	10:35	3	23.4	81.7	6.95	53.5	51.9	0.0348	7.37
			4	23.1	74.5	6.38	53.9	51.9	0.0350	7.10
Secchi Disk (m)			5	22.3	54.2	4.72	53.8	51.1	0.0350	6.81
			6	21.1	18.0	1.64	55.6	51.4	0.0361	6.44
2.6	ML-C	10:30	7	20.1	8.7	0.78	56.7	51.4	0.0369	6.33
			8	18.9	1.5	0.14	63.8	56.4	0.0414	6.23
			9	18.8	1.6	0.15	66.3	58.4	0.0431	6.20
			10	18.7	1.7	0.16	66.9	58.9	0.0435	6.19
South Lake										
Total Depth (m)	S-A	12:05	surface	24.1	88.0	7.39	53.6	52.7	0.0348	7.51
			1	24.1	88.4	7.39	53.6	52.7	0.0348	7.53
19 ft	S-B	12:00	2	23.9	80.3	6.77	53.6	52.5	0.0348	7.48
			3	23.7	84.4	7.15	53.6	52.2	0.0348	7.41
Secchi Disk (m)	S-C	11:55	4	23.0	76.3	6.55	53.5	51.6	0.0348	7.18
			5	22.0	34.8	3.04	54.8	51.7	0.0356	6.53
2.5										

Notes: Mid-Lake -> sulfur smell at 9 meters

Verified coordinate locations for sample locations using State of the Lake 2019 Report coordinates.

Newman Lake In-Lake Sampling
Field Testing Results

Data Collection By: DU, JL
Sampling Date: 8-28-25
Weather: cloudy

Sample Key:
Location North (N), Mid-Lake (ML), South (S)
Depth Upper Sample = A, Mid-depth Sample = B, Lowest Sample = C

North Lake	Sampling Location	Time	Depth (m)	Water Temp. (°C)	% Sat	DO (mg/L)	SPC (uS/cm)	Cond (uS/cm)	TDS (g/L)	pH
Total Depth (m)	N-A	1050	surface	23.2	82.5	7.04	54.5	52.7	0.0354	7.41
			1	23.2	87.5	7.42	54.5	52.7	0.0354	7.39
18.5'	N-B	1050	2	23.2	82.6	7.12	54.5	52.6	0.0354	7.36
			3	23.1	85.7	6.66	54.5	52.5	0.0354	7.34
Secchi Disk (m)	N-C	1045	4	23.1	70.9	6.21	54.5	52.5	0.0354	7.31
			5	21.9	4.8	0.41	56.6	53.2	0.0366	6.23
2.9										
Mid-Lake										
Total Depth (m)	ML-A	1020	surface	22.8	83.4	7.21	55.1	52.8	0.0359	7.18
			1	22.8	72.0	6.21	55.1	52.7	0.0358	7.14
32'			2	22.8	77.2	6.51	54.9	52.6	0.0357	7.13
	ML-B	1015	3	22.8	76.1	6.62	55.0	52.7	0.0358	7.18
			4	22.7	79.4	6.58	54.9	52.5	0.0357	7.15
Secchi Disk (m)			5	22.7	63.4	5.58	55.3	52.8	0.0359	6.90
			6	22.3	43.0	3.84	56.3	53.1	0.0366	6.52
2.7	ML-C	1015	7	21.3	1.1	0.10	56.2	52.2	0.0365	6.15
			8	20.6	1.0	0.09	62.9	57.5	0.0408	6.18
			9	20.4	0.1	0.01	65.5	59.7	0.0426	6.22
			10							
South Lake										
Total Depth (m)	S-A	1125	surface	23.0	87.0	7.45	54.7	52.6	0.0356	7.41
			1	23.0	78.2	6.76	54.6	52.6	0.0355	7.38
19'	S-B	1120	2	23.0	79.0	6.84	54.7	52.6	0.0356	7.31
			3	23.0	81.8	7.01	54.8	52.7	0.0356	7.20
Secchi Disk (m)	S-C	1115	4	22.8	60.4	5.19	55.2	52.9	0.0359	6.80
			5	22.4	46.2	4.00	55.9	53.1	0.0363	6.55
2.7										

Notes:

Verified coordinate locations for sample locations using State of the Lake 2019 Report coordinates.

Newman Lake In-Lake Sampling
Field Testing Results

Data Collection By: DU, BB
Sampling Date: 9-5-25
Weather: Smokey, Windy

Sample Key:
Location North (N), Mid-Lake (ML), South (S)
Depth Upper Sample = A, Mid-depth Sample = B, Lowest Sample = C

North Lake	Sampling Location	Time	Depth (m)	Water Temp. (°C)	% Sat	DO (mg/L)	SPC (uS/cm)	Cond (uS/cm)	TDS (g/L)	pH
Total Depth (m)	N-A		surface							
			1							
	N-B		2							
			3							
Secchi Disk (m)	N-C		4							
			5							
Mid-Lake										
Total Depth (m)	ML-A		surface	23.7	88.5	7.60	54.9	53.5	0.0357	7.44
			1	23.7	87.9	7.45	54.8	53.4	0.0356	7.39
			2	23.7	84.0	7.19	54.8	53.4	0.0356	7.35
	ML-B		3	23.6	80.0	6.75	54.8	53.4	0.0357	7.33
			4	23.4	72.0	6.28	55.3	53.6	0.0359	7.03
Secchi Disk (m)			5	22.7	42.0	3.62	55.1	52.6	0.0358	6.62
			6	22.2	7.4	0.64	54.2	51.3	0.0352	6.29
N/A	ML-C		7	21.5	0.8	0.07	56.6	52.7	0.0366	6.25
			8	21.2	0.7	0.06	60.6	52.2	0.0390	6.27
			9	20.8	0.5	0.05	65.7	60.4	0.0427	6.35
			10							
South Lake										
Total Depth (m)	S-A		surface							
			1							
	S-B		2							
			3							
Secchi Disk (m)	S-C		4							
			5							

Notes: @ 6m over a bubble plume DO is 3.4 mg/L - 3.4 mg/L

Directly in Plume — on fringe

Verified coordinate locations for sample locations using State of the Lake 2019 Report coordinates.

Newman Lake In-Lake Sampling
Field Testing Results

Data Collection By: DL, JL
Sampling Date: 9-10-25
Weather: Sunny

Sample Key:
Location North (N), Mid-Lake (ML), South (S)
Depth Upper Sample = A, Mid-depth Sample = B, Lowest Sample = C

North Lake	Sampling Location	Time	Depth (m)	Water Temp. (°C)	% Sat	DO (mg/L)	SPC (uS/cm)	Cond (uS/cm)	TDS (g/L)	pH
Total Depth (m)	N-A	1015	surface	23.0	75.9	6.56	56.7	54.5	0.0368	7.25
			1	23.0	70.7	6.04	56.6	54.5	0.0368	7.18
18.5'	N-B	1015	2	23.0	69.0	6.15	56.5	54.3	0.0367	7.17
			3	22.9	73.8	6.40	56.5	54.2	0.0367	7.11
Secchi Disk (m)	N-C	1010	4	22.8	68.7	5.73	56.4	54.1	0.0366	7.13
			5	22.3	4.4	0.33	56.2	53.3	0.0365	6.34
2.4										
Mid-Lake										
Total Depth (m)	ML-A	940	surface	22.9	75.7	6.49	58.2	55.8	0.0378	7.33
			1	22.9	75.3	6.41	58.0	55.7	0.0377	7.24
33'			2	22.9	74.2	6.40	57.9	55.5	0.0376	7.21
	ML-B	935	3	22.8	81.3	7.03	57.5	55.2	0.0375	7.23
			4	22.7	73.0	6.64	57.8	55.3	0.0376	7.18
Secchi Disk (m)			5	22.7	67.4	5.85	57.9	55.4	0.0377	7.10
			6	22.7	70.8	6.11	58.5	55.9	0.0380	7.02
	ML-C	935	7	21.5	1.5	0.11	62.3	58.1	0.0404	6.32
2.2			8	21.3	1.1	0.10	64.2	59.9	0.0418	6.30
			9	21.0	0.9	0.08	66.2	61.1	0.0430	6.35
			10							
South Lake										
Total Depth (m)	S-A	1045	surface	23.3	85.8	7.18	56.5	54.6	0.0367	7.49
			1	23.1	80.4	6.92	56.2	54.2	0.0366	7.44
18.5	S-B	1045	2	23.0	78.7	6.40	56.2	54.1	0.0365	7.42
			3	22.9	74.2	6.40	56.4	54.2	0.0367	7.22
Secchi Disk (m)	S-C	1040	4	22.9	68.5	5.84	56.8	54.5	0.0369	7.07
			5	22.7	52.0	4.31	57.5	55.0	0.0374	6.84
2.6										

Notes:

Verified coordinate locations for sample locations using State of the Lake 2019 Report coordinates.

Newman Lake In-Lake Sampling
Field Testing Results

Data Collection By: DV
Sampling Date: 9-25-25
Weather: Sunny

Sample Key:
Location North (N), Mid-Lake (ML), South (S)
Depth Upper Sample = A, Mid-depth Sample = B, Lowest Sample = C

North Lake	Sampling Location	Time	Depth (m)	Water Temp. (°C)	% Sat	DO (mg/L)	SPC (uS/cm)	Cond (uS/cm)	TDS (g/L)	pH
Total Depth (m)	N-A		surface							
			1							
	N-B		2							
			3							
Secchi Disk (m)	N-C		4							
			5							
Mid-Lake										
Total Depth (m)	ML-A		surface	20.1	86.1	7.73	54.5	49.5	0.0354	6.71
			1	20.1	85	7.69	54.5	49.5	0.0355	6.63
			2	19.9	83.3	7.58	54.6	49.3	0.0355	6.61
	ML-B		3	19.9	80.0	7.29	54.6	49.3	0.0355	6.55
			4	19.9	83.5	7.62	54.6	49.3	0.0355	6.55
Secchi Disk (m)			5	19.9	85.9	7.84	54.6	49.3	0.0355	6.52
			6	19.9	81.5	7.40	54.7	49.3	0.0355	6.54
	ML-C		7	19.9	83.0	7.78	54.7	49.3	0.0356	6.50
			8	19.8	75.1	6.83	54.8	49.4	0.0356	6.44
			9	19.8	67.3	6.19				
			10							
South Lake										
Total Depth (m)	S-A		surface							
			1							
	S-B		2							
			3							
Secchi Disk (m)	S-C		4							
			5							

Notes:

Verified coordinate locations for sample locations using State of the Lake 2019 Report coordinates.

Newman Lake In-Lake Sampling
Field Testing Results

Data Collection By: DV, BE
Sampling Date: 10-01
Weather: Cloudy

Sample Key:
Location North (N), Mid-Lake (ML), South (S)
Depth Upper Sample = A, Mid-depth Sample = B, Lowest Sample = C

North Lake	Sampling Location	Time	Depth (m)	Water Temp. (°C)	% Sat	DO (mg/L)	SPC (uS/cm)	Cond (uS/cm)	TDS (g/L)	pH
Total Depth (m)	N-A	1135	surface	18.7	81.5	7.63	54.0	47.6	0.0351	6.78
			1	18.7	84.4	7.90	54.0	47.6	0.0351	6.71
	N-B	1135	2	18.7	77.9	7.50	54.1	47.6	0.0352	6.64
			3	18.7	79.0	7.34	54.1	47.6	0.0352	6.58
Secchi Disk (m)	N-C	1130	4	18.7	80.1	7.44	54.1	47.6	0.0352	6.53
			5	18.7	77.4	7.32	54.1	47.5	0.0352	6.52
1.7										
Mid-Lake										
Total Depth (m)	ML-A	1010	surface	18.7	93.3	7.80	54.2	47.7	0.0352	6.63
			1	18.7	88.1	8.23	54.2	47.7	0.0352	6.61
32'			2	18.7	79.6	7.44	54.2	47.6	0.0352	6.62
	ML-B	1005	3	18.7	85.9	8.14	54.1	47.5	0.0352	6.62
			4	18.7	83.4	7.76	54.1	47.6	0.0352	6.62
Secchi Disk (m)			5	18.7	85.0	7.75	54.1	47.6	0.0352	6.59
			6	18.6	80.1	7.70	54.1	47.5	0.0352	6.50
	ML-C	1000	7	18.6	83.0	7.80	54.1	47.5	0.0352	6.49
1.8			8	18.6	77.5	7.25	54.1	47.5	0.0352	6.52
			9	18.6	78.3	7.32	54.1	47.4	0.0352	6.50
			10							
South Lake										
Total Depth (m)	S-A	1130	surface	18.6	85.5	7.99	53.9	47.4	0.0350	6.70
			1	18.7	83.7	7.84	53.9	47.4	0.0351	6.69
	S-B	1125	2	18.6	81.5	7.71	53.9	47.4	0.0350	6.65
			3	18.6	79.0	7.40	54.0	47.4	0.0351	6.64
Secchi Disk (m)	S-C	1125	4	18.5	77.1	7.11	54.1	47.4	0.0351	6.60
			5	18.4	72.6	6.84	54.3	47.5	0.0353	6.50
1.8										

Notes:

Verified coordinate locations for sample locations using State of the Lake 2019 Report coordinates.

IEH ANALYTICAL LABORATORIES

LABORATORY & CONSULTING SERVICES

3927 AURORA AVENUE NORTH, SEATTLE, WA 98103

PHONE: (206) 632-2715 FAX: (206) 632-2417

CASE FILE NUMBER:	**1756423**		**PAGE 1**
REPORT DATE:	**04/28/25**		
DATE SAMPLED:	**04/17/25**	**DATE RECEIVED:**	**04/18/25**

FINAL REPORT, LABORATORY ANALYSIS OF SELECTED PARAMETERS ON WATER SAMPLES FROM SPOKANE COUNTY PUBLIC WORKS

CASE NARRATIVE

Nine water samples were received by the laboratory in good condition and analyzed according to the chain of custody. No difficulties were encountered in the preparation or analysis of these samples. Sample data follows while QA/QC data is contained on subsequent pages.

SAMPLE DATA

SAMPLE ID	TOTAL-P (mg/L)
Mid-A	0.016
Mid-B	0.029
Mid-C	0.028
N-A	0.019
N-B	0.024
N-C	0.031
S-A	0.022
S-B	0.021
S-C	0.026

IEH ANALYTICAL LABORATORIES

LABORATORY & CONSULTING SERVICES

3927 AURORA AVENUE NORTH, SEATTLE, WA 98103

PHONE: (206) 632-2715 FAX: (206) 632-2417

CASE FILE NUMBER:	**1756423**		**PAGE 2**
REPORT DATE:	**04/28/25**		
DATE SAMPLED:	**04/17/25**	**DATE RECEIVED:**	**04/18/25**

FINAL REPORT, LABORATORY ANALYSIS OF SELECTED PARAMETERS ON WATER SAMPLES FROM SPOKANE COUNTY PUBLIC WORKS

QA/QC DATA

QC PARAMETER	TOTAL-P (mg/L)
METHOD	SM20 4500PF
DATE ANALYZED	04/21/25
DETECTION LIMIT	0.002
DUPLICATE	
SAMPLE ID	S-C
ORIGINAL	0.026
DUPLICATE	0.028
RPD	7.02%
SPIKE SAMPLE	
SAMPLE ID	S-C
ORIGINAL	0.026
SPIKED SAMPLE	0.077
SPIKE ADDED	0.050
% RECOVERY	102.78%
QC CHECK	
FOUND	0.093
TRUE	0.094
% RECOVERY	98.94%
BLANK	<0.002

RPD = RELATIVE PERCENT DIFFERENCE.
NA = NOT APPLICABLE OR NOT AVAILABLE.
NC = NOT CALCULABLE DUE TO ONE OR MORE VALUES BEING BELOW THE DETECTION LIMIT.
OR = RECOVERY NOT CALCULABLE DUE TO SPIKE SAMPLE OUT OF RANGE OR SPIKE TOO LOW RELATIVE TO SAMPLE CONCENTRATION.

SUBMITTED BY:

Damien Gadomski

Damien Gadomski, PhD
Laboratory Manager

IEH ANALYTICAL LABORATORIES

LABORATORY & CONSULTING SERVICES

3927 AURORA AVENUE NORTH, SEATTLE, WA 98103

PHONE: (206) 632-2715 FAX: (206) 632-2417

CASE FILE NUMBER: 1756711 **PAGE 1**

REPORT DATE: 06/23/25

DATE SAMPLED: 04/30/25 **DATE RECEIVED:** 05/01/25

FINAL REPORT, LABORATORY ANALYSIS OF SELECTED PARAMETERS ON WATER SAMPLES FROM SPOKANE COUNTY PUBLIC WORKS

CASE NARRATIVE

Nine water samples were received by the laboratory in good condition and analyzed according to the chain of custody. No difficulties were encountered in the preparation or analysis of these samples. Sample data follows while QA/QC data is contained on subsequent pages.

SAMPLE DATA

SAMPLE ID	TOTAL-P (mg/L)	TOTAL FE (mg/L)	DISS. FE (mg/L)	TOTAL MN (mg/L)	DISS. MN (mg/L)
Mid-A	0.011				
Mid-B	0.021				
Mid-C	0.033	0.249	0.040	0.045	0.036
N-A	0.014				
N-B	0.021				
N-C	0.034	0.143	<0.020	0.015	0.006
S-A	0.014				
S-B	0.021				
S-C	0.023	0.103	<0.020	0.007	<0.005

IEH ANALYTICAL LABORATORIES

LABORATORY & CONSULTING SERVICES

3927 AURORA AVENUE NORTH, SEATTLE, WA 98103

PHONE: (206) 632-2715 FAX: (206) 632-2417

CASE FILE NUMBER: 1756711 **PAGE 2**

REPORT DATE: 06/23/25

DATE SAMPLED: 04/30/25 **DATE RECEIVED:** 05/01/25

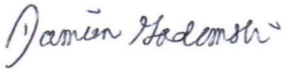
FINAL REPORT, LABORATORY ANALYSIS OF SELECTED PARAMETERS ON WATER SAMPLES FROM SPOKANE COUNTY PUBLIC WORKS

QA/QC DATA

QC PARAMETER	TOTAL-P (mg/L)	TOTAL FE (mg/L)	DISS. FE (mg/L)	TOTAL MN (mg/L)	DISS. MN (mg/L)
METHOD	SM20 4500PF	EPA 200.7	EPA 200.7	EPA 200.7	EPA 200.7
DATE ANALYZED	05/03/25	05/03/25	05/03/25	05/03/25	05/03/25
DETECTION LIMIT	0.002	0.020	0.020	0.005	0.005
DUPLICATE					
SAMPLE ID	S-C	BATCH	S-C	BATCH	S-C
ORIGINAL	0.023	<0.020	<0.020	<0.005	<0.005
DUPLICATE	0.023	<0.020	<0.020	<0.005	<0.005
RPD	0.48%	NC	NC	NC	NC
SPIKE SAMPLE					
SAMPLE ID	S-C	BATCH	S-C	BATCH	S-C
ORIGINAL	0.023	<0.020	<0.020	<0.005	<0.005
SPIKED SAMPLE	0.076	5.11	5.02	0.504	0.502
SPIKE ADDED	0.050	5.00	5.00	0.500	0.500
% RECOVERY	105.88%	102.24%	100.48%	100.80%	100.40%
QC CHECK					
FOUND	0.094	5.18	5.18	0.518	0.518
TRUE	0.094	5.00	5.00	0.500	0.500
% RECOVERY	100.00%	103.68%	103.68%	103.60%	103.60%
BLANK	<0.002	<0.020	<0.020	<0.005	<0.005

RPD = RELATIVE PERCENT DIFFERENCE.
NA = NOT APPLICABLE OR NOT AVAILABLE.
NC = NOT CALCULABLE DUE TO ONE OR MORE VALUES BEING BELOW THE DETECTION LIMIT.
OR = RECOVERY NOT CALCULABLE DUE TO SPIKE SAMPLE OUT OF RANGE OR SPIKE TOO LOW RELATIVE TO SAMPLE CONCENTRATION.

SUBMITTED BY:



Damien Gadomski, PhD
Laboratory Manager

IEH ANALYTICAL LABORATORIES

LABORATORY & CONSULTING SERVICES

3927 AURORA AVENUE NORTH, SEATTLE, WA 98103

PHONE: (206) 632-2715 FAX: (206) 632-2417

CASE FILE NUMBER: 1757200 **PAGE 1**

REPORT DATE: 06/23/25

DATE SAMPLED: 05/15/25 **DATE RECEIVED:** 05/16/25

FINAL REPORT, LABORATORY ANALYSIS OF SELECTED PARAMETERS ON WATER SAMPLES FROM SPOKANE COUNTY PUBLIC WORKS

CASE NARRATIVE

Nine water samples were received by the laboratory in good condition and analyzed according to the chain of custody. No difficulties were encountered in the preparation or analysis of these samples. Sample data follows while QA/QC data is contained on subsequent pages.

SAMPLE DATA

SAMPLE ID	TOTAL-P (mg/L)	TOTAL FE (mg/L)	DISS. FE (mg/L)	TOTAL MN (mg/L)	DISS. MN (mg/L)	TOT. REC. AL (mg/L)	DISS. AL (mg/L)
Mid-A	0.010	0.035	<0.020	<0.005	<0.005	0.345	0.032
Mid-B	0.018	0.101	<0.020	0.019	0.013	0.420	0.033
Mid-C	0.031	0.315	<0.020	0.070	0.055	0.211	0.024
N-A	0.012	0.036	<0.020	<0.005	<0.005		
N-B	0.012	0.037	<0.020	<0.005	<0.005		
N-C	0.013	0.037	<0.020	<0.005	<0.005		
S-A	0.008	0.033	<0.020	<0.005	<0.005		
S-B	0.015	0.057	<0.020	0.005	<0.005		
S-C	0.042	0.112	<0.020	0.019	0.009		

IEH ANALYTICAL LABORATORIES

LABORATORY & CONSULTING SERVICES

3927 AURORA AVENUE NORTH, SEATTLE, WA 98103

PHONE: (206) 632-2715 FAX: (206) 632-2417

CASE FILE NUMBER: 1757200 **PAGE 2**

REPORT DATE: 06/23/25

DATE SAMPLED: 05/15/25 **DATE RECEIVED:** 05/16/25

FINAL REPORT, LABORATORY ANALYSIS OF SELECTED PARAMETERS ON WATER SAMPLES FROM SPOKANE COUNTY PUBLIC WORKS

QA/QC DATA

QC PARAMETER	TOTAL-P (mg/L)	TOTAL FE (mg/L)	DISS. FE (mg/L)	TOTAL MN (mg/L)	DISS. MN (mg/L)	TOT. REC. AL (mg/L)	DISS. AL (mg/L)
METHOD	SM20 4500PF	EPA 200.7	EPA 200.7	EPA 200.7	EPA 200.7	EPA 200.8	EPA 200.8
DATE ANALYZED	05/19/25	05/20/25	05/20/25	05/20/25	05/20/25	05/19/25	05/19/25
DETECTION LIMIT	0.002	0.020	0.020	0.005	0.005	0.005	0.005
DUPLICATE							
SAMPLE ID	BATCH	BATCH	S-C	BATCH	S-C	BATCH	Mid-A
ORIGINAL	0.018	0.036	<0.020	0.095	0.009	<0.005	0.032
DUPLICATE	0.017	0.032	<0.020	0.099	0.009	<0.005	0.033
RPD	0.20%	12.04%	NC	3.91%	1.09%	NC	0.92%
SPIKE SAMPLE							
SAMPLE ID	BATCH	BATCH	S-C	BATCH	S-C	BATCH	Mid-A
ORIGINAL	0.018	0.036	<0.020	0.095	0.009	<0.005	0.032
SPIKED SAMPLE	0.071	5.16	4.96	0.586	0.455	0.504	0.529
SPIKE ADDED	0.050	5.00	5.00	0.500	0.500	0.500	0.500
% RECOVERY	107.67%	102.53%	99.27%	98.06%	89.10%	100.80%	99.36%
QC CHECK							
FOUND	0.096	5.13	5.13	0.489	0.489	0.515	0.515
TRUE	0.094	5.00	5.00	0.500	0.500	0.500	0.500
% RECOVERY	102.13%	102.54%	102.54%	97.82%	97.82%	103.00%	103.00%
BLANK	<0.002	<0.020	<0.020	<0.005	<0.005	<0.005	<0.005

RPD = RELATIVE PERCENT DIFFERENCE.
NA = NOT APPLICABLE OR NOT AVAILABLE.
NC = NOT CALCULABLE DUE TO ONE OR MORE VALUES BEING BELOW THE DETECTION LIMIT.
OR = RECOVERY NOT CALCULABLE DUE TO SPIKE SAMPLE OUT OF RANGE OR SPIKE TOO LOW RELATIVE TO SAMPLE CONCENTRATION.

SUBMITTED BY:

Damien Gadomski

Damien Gadomski, PhD
Laboratory Manager

IEH ANALYTICAL LABORATORIES

LABORATORY & CONSULTING SERVICES

3927 AURORA AVENUE NORTH, SEATTLE, WA 98103

PHONE: (206) 632-2715 FAX: (206) 632-2417

CASE FILE NUMBER:	**1757789**		**PAGE 1**
REPORT DATE:	**06/23/25**		
DATE SAMPLED:	**06/05/25**	**DATE RECEIVED:**	**06/06/25**

FINAL REPORT, LABORATORY ANALYSIS OF SELECTED PARAMETERS ON WATER SAMPLES FROM SPOKANE COUNTY PUBLIC WORKS

CASE NARRATIVE

Nine water samples were received by the laboratory in good condition and analyzed according to the chain of custody. No difficulties were encountered in the preparation or analysis of these samples. Sample data follows while QA/QC data is contained on subsequent pages.

SAMPLE DATA

SAMPLE ID	TOTAL-P (mg/L)	TOTAL FE (mg/L)	DISS. FE (mg/L)	TOTAL MN (mg/L)	DISS. MN (mg/L)
Mid-A	0.008	0.071	<0.020	<0.005	<0.005
Mid-B	0.018	0.118	<0.020	0.010	<0.005
Mid-C	0.026	0.985	0.164	0.115	0.107
N-A	0.010	0.071	<0.020	<0.005	<0.005
N-B	0.010	0.069	<0.020	<0.005	<0.005
N-C	0.020	0.220	<0.020	0.028	0.014
S-A	0.011	0.069	<0.020	<0.005	<0.005
S-B	0.011	0.070	<0.020	<0.005	<0.005
S-C	0.019	0.186	<0.020	0.021	0.006

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3927 AURORA AVENUE NORTH, SEATTLE, WA 98103

PHONE: (206) 632-2715 FAX: (206) 632-2417

CASE FILE NUMBER: 1757789 **PAGE 2**

REPORT DATE: 06/23/25

DATE SAMPLED: 06/05/25 **DATE RECEIVED:** 06/06/25

FINAL REPORT, LABORATORY ANALYSIS OF SELECTED PARAMETERS ON WATER SAMPLES FROM SPOKANE COUNTY PUBLIC WORKS

QA/QC DATA

QC PARAMETER	TOTAL-P (mg/L)	TOTAL FE (mg/L)	DISS. FE (mg/L)	TOTAL MN (mg/L)	DISS. MN (mg/L)
METHOD	SM20 4500PF	EPA 200.7	EPA 200.7	EPA 200.7	EPA 200.7
DATE ANALYZED	06/09/25	06/13/25	06/13/25	06/13/25	06/13/25
DETECTION LIMIT	0.002	0.020	0.020	0.005	0.005
DUPLICATE					
SAMPLE ID	BATCH	BATCH	S-C	BATCH	S-C
ORIGINAL	0.007	<0.020	<0.020	<0.005	0.006
DUPLICATE	0.007	<0.020	<0.020	<0.005	0.006
RPD	3.15%	NC	NC	NC	0.00%
SPIKE SAMPLE					
SAMPLE ID	BATCH	BATCH	S-C	BATCH	S-C
ORIGINAL	0.007	<0.020	<0.020	<0.005	0.006
SPIKED SAMPLE	0.056	5.00	4.86	0.485	0.489
SPIKE ADDED	0.050	5.00	5.00	0.500	0.500
% RECOVERY	97.95%	99.93%	97.24%	97.08%	96.44%
QC CHECK					
FOUND	0.093	5.08	5.08	0.475	0.475
TRUE	0.094	5.00	5.00	0.500	0.500
% RECOVERY	98.94%	101.62%	101.62%	95.08%	95.08%
BLANK	<0.002	<0.020	<0.020	<0.005	<0.005

RPD = RELATIVE PERCENT DIFFERENCE.
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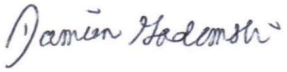
NC = NOT CALCULABLE DUE TO ONE OR MORE VALUES BEING BELOW THE DETECTION LIMIT.
OR = RECOVERY NOT CALCULABLE DUE TO SPIKE SAMPLE OUT OF RANGE OR SPIKE TOO LOW RELATIVE TO SAMPLE CONCENTRATION.

SUBMITTED BY:



Damien Gadomski, PhD
Laboratory Manager

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3927 AURORA AVENUE NORTH, SEATTLE, WA 98103

PHONE: (206) 632-2715 FAX: (206) 632-2417

CASE FILE NUMBER:	**1758159**		**PAGE 1**
REPORT DATE:	**06/28/25**		
DATE SAMPLED:	**06/18/25**	**DATE RECEIVED:**	**06/19/25**

FINAL REPORT, LABORATORY ANALYSIS OF SELECTED PARAMETERS ON WATER SAMPLES FROM SPOKANE COUNTY PUBLIC WORKS

CASE NARRATIVE

Nine water samples were received by the laboratory in good condition and analyzed according to the chain of custody. No difficulties were encountered in the preparation or analysis of these samples. Sample data follows while QA/QC data is contained on subsequent pages.

SAMPLE DATA

SAMPLE ID	TOTAL-P (mg/L)	TOTAL FE (mg/L)	DISS. FE (mg/L)	TOTAL MN (mg/L)	DISS. MN (mg/L)
Mid-A	0.010	0.083	<0.020	<0.005	<0.005
Mid-B	0.017	0.136	<0.020	0.007	<0.005
Mid-C	0.034	1.80	0.172	0.172	0.154
N-A	0.014	0.084	<0.020	<0.005	<0.005
N-B	0.015	0.084	<0.020	<0.005	<0.005
N-C	0.027	0.191	<0.020	0.010	<0.005
S-A	0.012	0.088	<0.020	<0.005	<0.005
S-B	0.012	0.083	<0.020	<0.005	<0.005
S-C	0.040	0.492	0.040	0.054	<0.005

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3927 AURORA AVENUE NORTH, SEATTLE, WA 98103

PHONE: (206) 632-2715 FAX: (206) 632-2417

CASE FILE NUMBER:	**1758159**	**PAGE 2**	
REPORT DATE:	**06/28/25**		
DATE SAMPLED:	**06/18/25**	**DATE RECEIVED:**	**06/19/25**

FINAL REPORT, LABORATORY ANALYSIS OF SELECTED PARAMETERS ON WATER SAMPLES FROM SPOKANE COUNTY PUBLIC WORKS

QA/QC DATA

QC PARAMETER	TOTAL-P (mg/L)	TOTAL FE (mg/L)	DISS. FE (mg/L)	TOTAL MN (mg/L)	DISS. MN (mg/L)
METHOD	SM20 4500PF	EPA 200.7	EPA 200.7	EPA 200.7	EPA 200.7
DATE ANALYZED	06/23/25	06/26/25	06/26/25	06/26/25	06/26/25
DETECTION LIMIT	0.002	0.020	0.020	0.005	0.005
DUPLICATE					
SAMPLE ID	S-C	BATCH	S-C	BATCH	S-C
ORIGINAL	0.040	<0.020	0.040	<0.005	<0.005
DUPLICATE	0.040	<0.020	0.040	<0.005	<0.005
RPD	0.50%	NC	1.01%	NC	NC
SPIKE SAMPLE					
SAMPLE ID	S-C	BATCH	S-C	BATCH	S-C
ORIGINAL	0.040	<0.020	0.040	<0.005	<0.005
SPIKED SAMPLE	0.093	5.01	5.02	0.478	0.483
SPIKE ADDED	0.050	5.00	5.00	0.500	0.500
% RECOVERY	107.13%	100.26%	99.52%	95.60%	96.60%
QC CHECK					
FOUND	0.095	5.20	5.20	0.500	0.500
TRUE	0.094	5.00	5.00	0.500	0.500
% RECOVERY	101.06%	103.92%	103.92%	100.00%	100.00%
BLANK	<0.002	<0.020	<0.020	<0.005	<0.005

RPD = RELATIVE PERCENT DIFFERENCE.
NA = NOT APPLICABLE OR NOT AVAILABLE.
NC = NOT CALCULABLE DUE TO ONE OR MORE VALUES BEING BELOW THE DETECTION LIMIT.
OR = RECOVERY NOT CALCULABLE DUE TO SPIKE SAMPLE OUT OF RANGE OR SPIKE TOO LOW RELATIVE TO SAMPLE CONCENTRATION.

SUBMITTED BY:

Damien Gadomski

Damien Gadomski, PhD
Laboratory Manager

IEH ANALYTICAL LABORATORIES

LABORATORY & CONSULTING SERVICES

3927 AURORA AVENUE NORTH, SEATTLE, WA 98103

PHONE: (206) 632-2715 FAX: (206) 632-2417

CASE FILE NUMBER:	**1758624**		**PAGE 1**
REPORT DATE:	**08/19/25**		
DATE SAMPLED:	**07/03/25**	**DATE RECEIVED:**	**07/05/25**

FINAL REPORT, LABORATORY ANALYSIS OF SELECTED PARAMETERS ON WATER SAMPLES FROM SPOKANE COUNTY PUBLIC WORKS

CASE NARRATIVE

Nine water samples were received by the laboratory and analyzed according to the chain of custody. The DOC bottle for Mid-A arrived cracked, therefore there is no DOC data for that sample. No other difficulties were encountered in the preparation or analysis of these samples. Sample data follows while QA/QC data is contained on subsequent pages.

SAMPLE DATA

SAMPLE ID	TOTAL-P (mg/L)	TOTAL FE (mg/L)	DISS. FE (mg/L)	TOTAL MN (mg/L)	DISS. MN (mg/L)
N-A	0.005	0.052	<0.020	<0.005	<0.005
N-B	0.006	0.109	<0.020	<0.005	<0.005
N-C	0.026	0.395	<0.020	0.022	<0.005
Mid-A	0.004	0.075	<0.020	<0.005	<0.005
Mid-B	0.017	0.217	<0.020	0.023	<0.005
Mid-C	0.029	2.75	0.257	0.277	0.073
S-A	0.005	0.065	<0.020	<0.005	<0.005
S-B	0.006	0.106	<0.020	0.005	<0.005
S-C	0.035	0.464	<0.020	0.042	<0.005

SAMPLE ID	HARDNESS (mgCaCO3/l)	DOC (mg/L)	TOTAL REC. ALUMINUM (mg/L)
Mid-A	7.96	NO DATA	0.021
Mid-B	12.3	5.27	0.029
Mid-C	16.5	5.69	0.091

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3927 AURORA AVENUE NORTH, SEATTLE, WA 98103

PHONE: (206) 632-2715 FAX: (206) 632-2417

CASE FILE NUMBER: 1758624
REPORT DATE: 08/19/25
DATE SAMPLED: 07/03/25 **DATE RECEIVED:** 07/05/25

FINAL REPORT, LABORATORY ANALYSIS OF SELECTED PARAMETERS ON WATER SAMPLES FROM SPOKANE COUNTY PUBLIC WORKS

QA/QC DATA

QC PARAMETER	TOTAL-P (mg/L)	TOTAL FE (mg/L)	DISS. FE (mg/L)	TOTAL MN (mg/L)	DISS. MN (mg/L)
METHOD	SM20 4500PF	EPA 200.7	EPA 200.7	EPA 200.7	EPA 200.7
DATE ANALYZED	07/07/25	07/09/25	07/09/25	07/09/25	07/09/25
DETECTION LIMIT	0.002	0.020	0.020	0.005	0.005
DUPLICATE					
SAMPLE ID	S-C	BATCH	N-A	BATCH	N-A
ORIGINAL	0.035	0.951	<0.020	0.020	<0.005
DUPLICATE	0.035	0.921	<0.020	0.020	<0.005
RPD	1.07%	3.26%	NC	3.49%	NC
SPIKE SAMPLE					
SAMPLE ID	S-C	BATCH	N-A	BATCH	N-A
ORIGINAL	0.035	0.951	<0.020	0.020	<0.005
SPIKED SAMPLE	0.091	6.05	4.88	0.506	0.464
SPIKE ADDED	0.050	5.00	5.00	0.500	0.500
% RECOVERY	113.14%	101.96%	97.60%	97.30%	92.80%
QC CHECK					
FOUND	0.094	4.53	4.53	0.486	0.486
TRUE	0.094	5.00	5.00	0.500	0.500
% RECOVERY	99.51%	90.60%	90.60%	97.20%	97.20%
BLANK	<0.002	<0.020	<0.020	<0.005	<0.005

RPD = RELATIVE PERCENT DIFFERENCE.
NA = NOT APPLICABLE OR NOT AVAILABLE.
NC = NOT CALCULABLE DUE TO ONE OR MORE VALUES BEING BELOW THE DETECTION LIMIT.
OR = RECOVERY NOT CALCULABLE DUE TO SPIKE SAMPLE OUT OF RANGE OR SPIKE TOO LOW RELATIVE TO SAMPLE CONCENTRATION.

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LABORATORY & CONSULTING SERVICES

3927 AURORA AVENUE NORTH, SEATTLE, WA 98103

PHONE: (206) 632-2715 FAX: (206) 632-2417

CASE FILE NUMBER: 1758624
REPORT DATE: 08/19/25
DATE SAMPLED: 07/03/25 **DATE RECEIVED:** 07/05/25

FINAL REPORT, LABORATORY ANALYSIS OF SELECTED PARAMETERS ON WATER SAMPLES FROM SPOKANE COUNTY PUBLIC WORKS

QA/QC DATA

QC PARAMETER	HARDNESS (mgCaCO3/l)	DOC (mg/L)	TOTAL REC. ALUMINUM (mg/L)
METHOD	SM18 2340C	EPA 415.1	EPA 200.8
DATE ANALYZED	07/07/25	07/15/25	07/09/25
DETECTION LIMIT	2.00	0.250	0.003
DUPLICATE			
SAMPLE ID	Mid-C	BATCH	BATCH
ORIGINAL	16.5	<0.250	<0.003
DUPLICATE	16.7	<0.250	<0.003
RPD	1.20%	NC	NC
SPIKE SAMPLE			
SAMPLE ID	Mid-C	BATCH	BATCH
ORIGINAL	16.5	<0.250	<0.003
SPIKED SAMPLE	38.6	4.60	0.522
SPIKE ADDED	20.0	4.50	0.500
% RECOVERY	110.45%	102.11%	104.40%
QC CHECK			
FOUND	40.0	3.84	0.538
TRUE	40.0	4.00	0.500
% RECOVERY	100.00%	96.00%	107.60%
BLANK	<2.00	<0.250	<0.003

RPD = RELATIVE PERCENT DIFFERENCE.
NA = NOT APPLICABLE OR NOT AVAILABLE.
NC = NOT CALCULABLE DUE TO ONE OR MORE VALUES BEING BELOW THE DETECTION LIMIT.
OR = RECOVERY NOT CALCULABLE DUE TO SPIKE SAMPLE OUT OF RANGE OR SPIKE TOO LOW RELATIVE TO SAMPLE CONCENTRATION.

SUBMITTED BY:

Damien Gadomski

Damien Gadomski, PhD
Laboratory Manager

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LABORATORY & CONSULTING SERVICES

3927 AURORA AVENUE NORTH, SEATTLE, WA 98103

PHONE: (206) 632-2715 FAX: (206) 632-2417

CASE FILE NUMBER:	**1758997**		**PAGE 1**
REPORT DATE:	**08/06/25**		
DATE SAMPLED:	**07/17/25**	**DATE RECEIVED:**	**07/18/25**

FINAL REPORT, LABORATORY ANALYSIS OF SELECTED PARAMETERS ON WATER SAMPLES FROM SPOKANE COUNTY PUBLIC WORKS

CASE NARRATIVE

Nine water samples were received by the laboratory in good condition and analyzed according to the chain of custody. No difficulties were encountered in the preparation or analysis of these samples. Sample data follows while QA/QC data is contained on subsequent pages.

SAMPLE DATA

SAMPLE ID	TOTAL-P (mg/L)	TOTAL FE (mg/L)	DISS. FE (mg/L)	TOTAL MN (mg/L)	DISS. MN (mg/L)
N-A	0.009	0.075	<0.020	<0.005	<0.005
N-B	0.009	0.101	<0.020	<0.005	<0.005
N-C	0.076	0.887	<0.020	0.035	<0.005
Mid-A	0.011	0.113	<0.020	<0.005	<0.005
Mid-B	0.020	0.163	<0.020	0.007	<0.005
Mid-C	0.030	2.86	0.356	0.248	0.245
S-A	0.013	0.080	<0.020	<0.005	<0.005
S-B	0.013	0.109	<0.020	<0.005	<0.005
S-C	0.030	0.483	<0.020	0.030	<0.005

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LABORATORY & CONSULTING SERVICES

3927 AURORA AVENUE NORTH, SEATTLE, WA 98103

PHONE: (206) 632-2715 FAX: (206) 632-2417

CASE FILE NUMBER:	**1758997**		**PAGE 2**
REPORT DATE:	**08/06/25**		
DATE SAMPLED:	**07/17/25**	**DATE RECEIVED:**	**07/18/25**

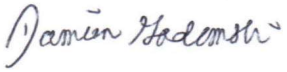
FINAL REPORT, LABORATORY ANALYSIS OF SELECTED PARAMETERS ON WATER SAMPLES FROM SPOKANE COUNTY PUBLIC WORKS

QA/QC DATA

QC PARAMETER	TOTAL-P (mg/L)	TOTAL FE (mg/L)	DISS. FE (mg/L)	TOTAL MN (mg/L)	DISS. MN (mg/L)
METHOD	SM20 4500PF	EPA 200.7	EPA 200.7	EPA 200.7	EPA 200.7
DATE ANALYZED	07/21/25	07/19/25	07/19/25	07/19/25	07/19/25
DETECTION LIMIT	0.002	0.020	0.020	0.005	0.005
DUPLICATE					
SAMPLE ID	S-C	BATCH	S-B	BATCH	S-B
ORIGINAL	0.030	0.371	<0.020	0.021	<0.005
DUPLICATE	0.029	0.372	<0.020	0.021	<0.005
RPD	3.31%	0.24%	NC	0.48%	NC
SPIKE SAMPLE					
SAMPLE ID	S-C	BATCH	S-B	BATCH	S-B
ORIGINAL	0.030	0.371	<0.020	0.021	<0.005
SPIKED SAMPLE	0.075	5.31	4.92	0.476	0.450
SPIKE ADDED	0.050	5.00	5.00	0.500	0.500
% RECOVERY	89.35%	98.70%	98.40%	91.10%	89.90%
QC CHECK					
FOUND	0.094	4.94	4.94	0.462	0.462
TRUE	0.094	5.00	5.00	0.500	0.500
% RECOVERY	99.68%	98.80%	98.80%	92.40%	92.40%
BLANK	<0.002	<0.020	<0.020	<0.005	<0.005

RPD = RELATIVE PERCENT DIFFERENCE.
NA = NOT APPLICABLE OR NOT AVAILABLE.
NC = NOT CALCULABLE DUE TO ONE OR MORE VALUES BEING BELOW THE DETECTION LIMIT.
OR = RECOVERY NOT CALCULABLE DUE TO SPIKE SAMPLE OUT OF RANGE OR SPIKE TOO LOW RELATIVE TO SAMPLE CONCENTRATION.

SUBMITTED BY:



Damien Gadomski, PhD
Laboratory Manager

IEH ANALYTICAL LABORATORIES

LABORATORY & CONSULTING SERVICES

3927 AURORA AVENUE NORTH, SEATTLE, WA 98103

PHONE: (206) 632-2715 FAX: (206) 632-2417

CASE FILE NUMBER:	**1759355**		**PAGE 1**
REPORT DATE:	**08/06/25**		
DATE SAMPLED:	**07/31/25**	**DATE RECEIVED:**	**08/01/25**

FINAL REPORT, LABORATORY ANALYSIS OF SELECTED PARAMETERS ON WATER SAMPLES FROM SPOKANE COUNTY PUBLIC WORKS

CASE NARRATIVE

Nine water samples were received by the laboratory in good condition and analyzed according to the chain of custody. No difficulties were encountered in the preparation or analysis of these samples. Sample data follows while QA/QC data is contained on subsequent pages.

SAMPLE DATA

SAMPLE ID	TOTAL-P (mg/L)	TOTAL FE (mg/L)	DISS. FE (mg/L)	TOTAL MN (mg/L)	DISS. MN (mg/L)
N-A	0.011	0.065	<0.020	<0.005	<0.005
N-B	0.002	0.056	<0.020	0.005	<0.005
N-C	0.014	0.399	<0.020	0.034	<0.005
Mid-A	0.056	0.096	<0.020	0.006	<0.005
Mid-B	0.011	0.165	<0.020	0.011	<0.005
Mid-C	0.017	3.46	0.050	0.213	0.194
S-A	0.034	0.060	<0.020	0.006	<0.005
S-B	0.012	0.063	<0.020	0.006	<0.005
S-C	0.036	0.412	<0.020	0.052	<0.005

IEH ANALYTICAL LABORATORIES

LABORATORY & CONSULTING SERVICES

3927 AURORA AVENUE NORTH, SEATTLE, WA 98103

PHONE: (206) 632-2715 FAX: (206) 632-2417

CASE FILE NUMBER: 1759355 **PAGE 2**

REPORT DATE: 08/06/25

DATE SAMPLED: 07/31/25 **DATE RECEIVED:** 08/01/25

FINAL REPORT, LABORATORY ANALYSIS OF SELECTED PARAMETERS ON WATER SAMPLES FROM SPOKANE COUNTY PUBLIC WORKS

QA/QC DATA

QC PARAMETER	TOTAL-P (mg/L)	TOTAL FE (mg/L)	DISS. FE (mg/L)	TOTAL MN (mg/L)	DISS. MN (mg/L)
METHOD	SM20 4500PF	EPA 200.7	EPA 200.7	EPA 200.7	EPA 200.7
DATE ANALYZED	08/05/25	08/02/25	08/02/25	08/02/25	08/02/25
DETECTION LIMIT	0.002	0.020	0.020	0.005	0.005
DUPLICATE					
SAMPLE ID	S-C	BATCH	N-A	BATCH	N-A
ORIGINAL	0.036	0.392	<0.020	<0.005	<0.005
DUPLICATE	0.036	0.391	<0.020	<0.005	<0.005
RPD	0.07%	0.03%	NC	NC	NC
SPIKE SAMPLE					
SAMPLE ID	S-C	BATCH	N-A	BATCH	N-A
ORIGINAL	0.036	0.392	<0.020	<0.005	<0.005
SPIKED SAMPLE	0.091	5.87	5.27	0.466	0.440
SPIKE ADDED	0.050	5.00	5.00	0.500	0.500
% RECOVERY	109.20%	109.51%	105.40%	93.28%	88.00%
QC CHECK					
FOUND	0.091	5.18	5.18	0.479	0.479
TRUE	0.094	5.00	5.00	0.500	0.500
% RECOVERY	96.37%	103.60%	103.60%	95.80%	95.80%
BLANK	<0.002	<0.020	<0.020	<0.005	<0.005

RPD = RELATIVE PERCENT DIFFERENCE.
NA = NOT APPLICABLE OR NOT AVAILABLE.
NC = NOT CALCULABLE DUE TO ONE OR MORE VALUES BEING BELOW THE DETECTION LIMIT.
OR = RECOVERY NOT CALCULABLE DUE TO SPIKE SAMPLE OUT OF RANGE OR SPIKE TOO LOW RELATIVE TO SAMPLE CONCENTRATION.

SUBMITTED BY:

Damien Gadomski

Damien Gadomski, PhD
Laboratory Manager

IEH ANALYTICAL LABORATORIES

LABORATORY & CONSULTING SERVICES

3927 AURORA AVENUE NORTH, SEATTLE, WA 98103

PHONE: (206) 632-2715 FAX: (206) 632-2417

CASE FILE NUMBER:	**1759609**		**PAGE 1**
REPORT DATE:	**08/14/25**		
DATE SAMPLED:	**08/08/25**	**DATE RECEIVED:**	**08/09/25**

FINAL REPORT, LABORATORY ANALYSIS OF SELECTED PARAMETERS ON WATER SAMPLES FROM SPOKANE COUNTY PUBLIC WORKS

CASE NARRATIVE

Three water samples were received by the laboratory in good condition and analyzed according to the chain of custody. No difficulties were encountered in the preparation or analysis of these samples. Sample data follows while QA/QC data is contained on subsequent pages.

SAMPLE DATA

SAMPLE ID	TOTAL-P (mg/L)	TOTAL FE (mg/L)	DISS. FE (mg/L)	TOTAL MN (mg/L)	DISS. MN (mg/L)
Mid-A	0.012	0.131	<0.020	0.012	<0.005
Mid-B	0.014	0.149	<0.020	0.015	<0.005
Mid-C	0.036	3.50	<0.020	0.225	<0.005

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LABORATORY & CONSULTING SERVICES

3927 AURORA AVENUE NORTH, SEATTLE, WA 98103

PHONE: (206) 632-2715 FAX: (206) 632-2417

CASE FILE NUMBER: 1759609 **PAGE 2**

REPORT DATE: 08/14/25

DATE SAMPLED: 08/08/25 **DATE RECEIVED:** 08/09/25

FINAL REPORT, LABORATORY ANALYSIS OF SELECTED PARAMETERS ON WATER SAMPLES FROM SPOKANE COUNTY PUBLIC WORKS

QA/QC DATA

QC PARAMETER	TOTAL-P (mg/L)	TOTAL FE (mg/L)	DISS. FE (mg/L)	TOTAL MN (mg/L)	DISS. MN (mg/L)
METHOD	SM20 4500PF	EPA 200.7	EPA 200.7	EPA 200.7	EPA 200.7
DATE ANALYZED	08/11/25	08/13/25	08/13/25	08/13/25	08/13/25
DETECTION LIMIT	0.002	0.020	0.020	0.005	0.005
DUPLICATE					
SAMPLE ID	S-C	BATCH	Mid-B	BATCH	Mid-B
ORIGINAL	0.036	<0.020	<0.020	<0.005	<0.005
DUPLICATE	0.037	<0.020	<0.020	<0.005	<0.005
RPD	2.59%	NC	NC	NC	NC
SPIKE SAMPLE					
SAMPLE ID	S-C	BATCH	Mid-B	BATCH	Mid-B
ORIGINAL	0.036	<0.020	<0.020	<0.005	<0.005
SPIKED SAMPLE	0.087	5.12	5.01	0.466	0.468
SPIKE ADDED	0.050	5.00	5.00	0.500	0.500
% RECOVERY	100.72%	102.40%	100.20%	93.28%	93.50%
QC CHECK					
FOUND	0.093	5.13	5.13	0.477	0.477
TRUE	0.094	5.00	5.00	0.500	0.500
% RECOVERY	99.33%	102.60%	102.60%	95.40%	95.40%
BLANK	<0.002	<0.020	<0.020	<0.005	<0.005

RPD = RELATIVE PERCENT DIFFERENCE.
NA = NOT APPLICABLE OR NOT AVAILABLE.
NC = NOT CALCULABLE DUE TO ONE OR MORE VALUES BEING BELOW THE DETECTION LIMIT.
OR = RECOVERY NOT CALCULABLE DUE TO SPIKE SAMPLE OUT OF RANGE OR SPIKE TOO LOW RELATIVE TO SAMPLE CONCENTRATION.

SUBMITTED BY:

Damien Gadomski

Damien Gadomski, PhD
Laboratory Manager

IEH ANALYTICAL LABORATORIES

LABORATORY & CONSULTING SERVICES

3927 AURORA AVENUE NORTH, SEATTLE, WA 98103

PHONE: (206) 632-2715 FAX: (206) 632-2417

CASE FILE NUMBER:	**1759766**	**PAGE 1**	
REPORT DATE:	**08/25/25**		
DATE SAMPLED:	**08/14/25**	**DATE RECEIVED:**	**08/15/25**

FINAL REPORT, LABORATORY ANALYSIS OF SELECTED PARAMETERS ON WATER SAMPLES FROM SPOKANE COUNTY PUBLIC WORKS

CASE NARRATIVE

Nine water samples were received by the laboratory in good condition and analyzed according to the chain of custody. No difficulties were encountered in the preparation or analysis of these samples. Sample data follows while QA/QC data is contained on subsequent pages.

SAMPLE DATA

SAMPLE ID	TOTAL-P (mg/L)	TOTAL FE (mg/L)	DISS. FE (mg/L)	TOTAL MN (mg/L)	DISS. MN (mg/L)
N-A	0.012	0.096	<0.020	0.007	<0.005
N-B	0.017	0.111	<0.020	0.008	<0.005
N-C	0.034	0.643	<0.020	0.091	<0.005
Mid-a	0.014	0.086	<0.020	0.007	<0.005
Mid-B	0.030	0.191	<0.020	0.016	<0.005
Mid-C	0.033	2.73	0.054	0.199	0.071
S-A	0.014	0.080	<0.020	0.007	<0.005
S-B	0.015	0.092	<0.020	0.009	<0.005
S-C	0.020	0.248	<0.020	0.028	<0.005

IEH ANALYTICAL LABORATORIES

LABORATORY & CONSULTING SERVICES

3927 AURORA AVENUE NORTH, SEATTLE, WA 98103

PHONE: (206) 632-2715 FAX: (206) 632-2417

CASE FILE NUMBER: 1759766
REPORT DATE: 08/25/25
DATE SAMPLED: 08/14/25 **DATE RECEIVED:** 08/15/25

FINAL REPORT, LABORATORY ANALYSIS OF SELECTED PARAMETERS ON WATER SAMPLES FROM SPOKANE COUNTY PUBLIC WORKS

QA/QC DATA

QC PARAMETER	TOTAL-P (mg/L)	TOTAL FE (mg/L)	DISS. FE (mg/L)	TOTAL MN (mg/L)	DISS. MN (mg/L)
METHOD	SM20 4500PF	EPA 200.7	EPA 200.7	EPA 200.7	EPA 200.7
DATE ANALYZED	08/18/25	08/19/25	08/19/25	08/19/25	08/19/25
DETECTION LIMIT	0.002	0.020	0.020	0.005	0.005
DUPLICATE					
SAMPLE ID	S-C	BATCH	S-B	BATCH	S-B
ORIGINAL	0.020	0.021	<0.020	0.020	<0.005
DUPLICATE	0.019	0.021	<0.020	0.020	<0.005
RPD	2.56%	0.95%	NC	1.99%	NC
SPIKE SAMPLE					
SAMPLE ID	S-C	BATCH	S-B	BATCH	S-B
ORIGINAL	0.020	0.021	<0.020	0.020	<0.005
SPIKED SAMPLE	0.066	5.04	4.89	0.477	0.460
SPIKE ADDED	0.050	5.00	5.00	0.500	0.500
% RECOVERY	92.38%	100.39%	97.80%	91.34%	92.00%
QC CHECK					
FOUND	0.093	5.09	5.09	0.476	0.476
TRUE	0.094	5.00	5.00	0.500	0.500
% RECOVERY	98.94%	101.80%	101.80%	95.20%	95.20%
BLANK	<0.002	<0.020	<0.020	<0.005	<0.005

RPD = RELATIVE PERCENT DIFFERENCE.
NA = NOT APPLICABLE OR NOT AVAILABLE.
NC = NOT CALCULABLE DUE TO ONE OR MORE VALUES BEING BELOW THE DETECTION LIMIT.
OR = RECOVERY NOT CALCULABLE DUE TO SPIKE SAMPLE OUT OF RANGE OR SPIKE TOO LOW RELATIVE TO SAMPLE CONCENTRATION.

SUBMITTED BY:

Damien Gadomski, PhD
Laboratory Manager

IEH ANALYTICAL LABORATORIES

LABORATORY & CONSULTING SERVICES

3927 AURORA AVENUE NORTH, SEATTLE, WA 98103

PHONE: (206) 632-2715 FAX: (206) 632-2417

CASE FILE NUMBER:	**1760184**	**PAGE 1**	
REPORT DATE:	**09/18/25**		
DATE SAMPLED:	**08/28/25**	**DATE RECEIVED:**	**08/29/25**

FINAL REPORT, LABORATORY ANALYSIS OF SELECTED PARAMETERS ON WATER SAMPLES FROM SPOKANE COUNTY PUBLIC WORKS

CASE NARRATIVE

Nine water samples were received by the laboratory in good condition and analyzed according to the chain of custody. No difficulties were encountered in the preparation or analysis of these samples. Sample data follows while QA/QC data is contained on subsequent pages.

SAMPLE DATA

SAMPLE ID	TOTAL-P (mg/L)	TOTAL FE (mg/L)	DISS. FE (mg/L)	TOTAL MN (mg/L)	DISS. MN (mg/L)
N-A	0.015	0.035	<0.020	0.005	<0.005
N-B	0.016	0.045	<0.020	0.005	<0.005
N-C	0.030	0.282	<0.020	0.035	<0.005
Mid-a	0.017	0.124	<0.020	0.015	<0.005
Mid-B	0.018	0.127	<0.020	0.013	<0.005
Mid-C	0.053	2.83	0.084	0.231	0.143
S-A	0.018	0.103	<0.020	0.007	<0.005
S-B	0.017	0.067	<0.020	0.008	<0.005
S-C	0.029	0.129	<0.020	0.025	<0.005

IEH ANALYTICAL LABORATORIES

LABORATORY & CONSULTING SERVICES

3927 AURORA AVENUE NORTH, SEATTLE, WA 98103

PHONE: (206) 632-2715 FAX: (206) 632-2417

CASE FILE NUMBER: 1760184
REPORT DATE: 09/18/25
DATE SAMPLED: 08/28/25 **DATE RECEIVED:** 08/29/25

FINAL REPORT, LABORATORY ANALYSIS OF SELECTED PARAMETERS ON WATER SAMPLES FROM SPOKANE COUNTY PUBLIC WORKS

QA/QC DATA

QC PARAMETER	TOTAL-P (mg/L)	TOTAL FE (mg/L)	DISS. FE (mg/L)	TOTAL MN (mg/L)	DISS. MN (mg/L)
METHOD	SM20 4500PF	EPA 200.7	EPA 200.7	EPA 200.8	EPA 200.8
DATE ANALYZED	09/02/25	09/05/25	09/16/25	09/05/25	09/05/25
DETECTION LIMIT	0.002	0.020	0.020	0.005	0.005
DUPLICATE					
SAMPLE ID	S-C	BATCH	BATCH	BATCH	N-A
ORIGINAL	0.029	0.021	<0.020	<0.005	<0.005
DUPLICATE	0.029	0.021	<0.020	<0.005	<0.005
RPD	0.07%	0.95%	NC	NC	NC
SPIKE SAMPLE					
SAMPLE ID	S-C	BATCH	BATCH	BATCH	N-A
ORIGINAL	0.029	0.021	<0.020	<0.005	<0.005
SPIKED SAMPLE	0.079	5.15	4.23	0.051	0.050
SPIKE ADDED	0.050	5.00	5.00	0.050	0.050
% RECOVERY	100.40%	102.60%	84.60%	102.00%	99.85%
QC CHECK					
FOUND	0.094	5.20	4.85	0.051	0.051
TRUE	0.094	5.00	5.00	0.050	0.050
% RECOVERY	99.97%	104.02%	97.00%	102.00%	102.00%
BLANK	<0.002	<0.020	<0.020	<0.005	<0.005

RPD = RELATIVE PERCENT DIFFERENCE.
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NC = NOT CALCULABLE DUE TO ONE OR MORE VALUES BEING BELOW THE DETECTION LIMIT.
OR = RECOVERY NOT CALCULABLE DUE TO SPIKE SAMPLE OUT OF RANGE OR SPIKE TOO LOW RELATIVE TO SAMPLE CONCENTRATION.

SUBMITTED BY:

Damien Gadomski

Damien Gadomski, PhD
Laboratory Manager

IEH ANALYTICAL LABORATORIES

LABORATORY & CONSULTING SERVICES

3927 AURORA AVENUE NORTH, SEATTLE, WA 98103

PHONE: (206) 632-2715 FAX: (206) 632-2417

CASE FILE NUMBER:	**1760567**	**PAGE 1**	
REPORT DATE:	**10/24/25**		
DATE SAMPLED:	**09/10/25**	**DATE RECEIVED:**	**09/11/25**

FINAL REPORT, LABORATORY ANALYSIS OF SELECTED PARAMETERS ON WATER SAMPLES FROM SPOKANE COUNTY PUBLIC WORKS

CASE NARRATIVE

Nine water samples were received by the laboratory in good condition and analyzed according to the chain of custody. No difficulties were encountered in the preparation or analysis of these samples. Sample data follows while QA/QC data is contained on subsequent pages.

SAMPLE DATA

SAMPLE ID	TOTAL-P (mg/L)	TOTAL FE (mg/L)	DISS. FE (mg/L)	TOTAL MN (mg/L)	DISS. MN (mg/L)
N-A	0.022	0.158	<0.020	0.010	<0.005
N-B	0.024	0.156	<0.020	0.010	<0.005
N-C	0.036	0.311	<0.020	0.052	<0.005
Mid-A	0.019	0.267	<0.020	0.020	<0.005
Mid-B	0.018	0.248	<0.020	0.018	<0.005
Mid-C	0.082	3.08	0.036	0.204	0.045
S-A	0.017	0.141	<0.020	0.010	<0.005
S-B	0.022	0.163	<0.020	0.012	<0.005
S-C	0.033	0.162	<0.020	0.012	<0.005

IEH ANALYTICAL LABORATORIES

LABORATORY & CONSULTING SERVICES

3927 AURORA AVENUE NORTH, SEATTLE, WA 98103

PHONE: (206) 632-2715 FAX: (206) 632-2417

CASE FILE NUMBER: 1760567 **PAGE 2**

REPORT DATE: 10/24/25

DATE SAMPLED: 09/10/25 **DATE RECEIVED:** 09/11/25

FINAL REPORT, LABORATORY ANALYSIS OF SELECTED PARAMETERS ON WATER SAMPLES FROM SPOKANE COUNTY PUBLIC WORKS

QA/QC DATA

QC PARAMETER	TOTAL-P (mg/L)	TOTAL FE (mg/L)	DISS. FE (mg/L)	TOTAL MN (mg/L)	DISS. MN (mg/L)
METHOD	SM20 4500PF	EPA 200.7	EPA 200.7	EPA 200.7	EPA 200.7
DATE ANALYZED	09/15/25	09/13/25	09/13/25	09/13/25	09/13/25
DETECTION LIMIT	0.002	0.020	0.020	0.005	0.005
DUPLICATE					
SAMPLE ID	S-C	BATCH	N-A	BATCH	N-A
ORIGINAL	0.033	0.045	<0.020	<0.005	<0.005
DUPLICATE	0.034	0.043	<0.020	<0.005	<0.005
RPD	3.22%	5.66%	NC	NC	NC
SPIKE SAMPLE					
SAMPLE ID	S-C	BATCH	N-A	BATCH	N-A
ORIGINAL	0.033	0.045	<0.020	<0.005	<0.005
SPIKED SAMPLE	0.087	5.05	4.89	0.477	0.479
SPIKE ADDED	0.050	5.00	5.00	0.500	0.500
% RECOVERY	107.69%	100.08%	97.80%	95.44%	95.70%
QC CHECK					
FOUND	0.094	5.24	5.24	0.494	0.494
TRUE	0.094	5.00	5.00	0.500	0.500
% RECOVERY	99.97%	104.84%	104.84%	98.86%	98.86%
BLANK	<0.002	<0.020	<0.020	<0.005	<0.005

RPD = RELATIVE PERCENT DIFFERENCE.
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OR = RECOVERY NOT CALCULABLE DUE TO SPIKE SAMPLE OUT OF RANGE OR SPIKE TOO LOW RELATIVE TO SAMPLE CONCENTRATION.

SUBMITTED BY:

Damien Gadomski

Damien Gadomski, PhD
Laboratory Manager

IEH ANALYTICAL LABORATORIES

LABORATORY & CONSULTING SERVICES

3927 AURORA AVENUE NORTH, SEATTLE, WA 98103

PHONE: (206) 632-2715 FAX: (206) 632-2417

CASE FILE NUMBER:	**1761155**	**PAGE 1**	
REPORT DATE:	**10/24/25**		
DATE SAMPLED:	**10/01/25**	**DATE RECEIVED:**	**10/02/25**

FINAL REPORT, LABORATORY ANALYSIS OF SELECTED PARAMETERS ON WATER SAMPLES FROM SPOKANE COUNTY PUBLIC WORKS

CASE NARRATIVE

Nine water samples were received by the laboratory in good condition and analyzed according to the chain of custody. No difficulties were encountered in the preparation or analysis of these samples. Sample data follows while QA/QC data is contained on subsequent pages.

SAMPLE DATA

SAMPLE ID	TOTAL-P (mg/L)	TOTAL FE (mg/L)	DISS. FE (mg/L)	TOTAL MN (mg/L)	DISS. MN (mg/L)
N-A	0.020	<0.020	<0.020	<0.005	<0.005
N-B	0.020	0.021	<0.020	<0.005	<0.005
N-C	0.032	0.028	<0.020	<0.005	<0.005
Mid-A	0.017	0.021	<0.020	<0.005	<0.005
Mid-B	0.017	0.026	<0.020	<0.005	<0.005
Mid-C	0.017	0.030	<0.020	<0.005	<0.005
S-A	0.019	0.020	<0.020	<0.005	<0.005
S-B	0.017	0.023	<0.020	<0.005	<0.005
S-C	0.024	0.042	<0.020	<0.005	<0.005

IEH ANALYTICAL LABORATORIES

LABORATORY & CONSULTING SERVICES

3927 AURORA AVENUE NORTH, SEATTLE, WA 98103

PHONE: (206) 632-2715 FAX: (206) 632-2417

CASE FILE NUMBER: 1761155
REPORT DATE: 10/24/25
DATE SAMPLED: 10/01/25 **DATE RECEIVED:** 10/02/25

FINAL REPORT, LABORATORY ANALYSIS OF SELECTED PARAMETERS ON WATER SAMPLES FROM SPOKANE COUNTY PUBLIC WORKS

QA/QC DATA

QC PARAMETER	TOTAL-P (mg/L)	TOTAL FE (mg/L)	DISS. FE (mg/L)	TOTAL MN (mg/L)	DISS. MN (mg/L)
METHOD	SM20 4500PF	EPA 200.7	EPA 200.7	EPA 200.7	EPA 200.7
DATE ANALYZED	10/06/25	10/04/25	10/04/25	10/04/25	10/04/25
DETECTION LIMIT	0.002	0.020	0.020	0.005	0.005
DUPLICATE					
SAMPLE ID	S-C	BATCH	N-A	BATCH	N-A
ORIGINAL	0.024	<0.020	<0.020	<0.005	<0.005
DUPLICATE	0.025	<0.020	<0.020	<0.005	<0.005
RPD	2.44%	NC	NC	NC	NC
SPIKE SAMPLE					
SAMPLE ID	S-C	BATCH	N-A	BATCH	N-A
ORIGINAL	0.024	<0.020	<0.020	<0.005	<0.005
SPIKED SAMPLE	0.079	5.11	5.01	0.051	0.459
SPIKE ADDED	0.050	5.00	5.00	0.050	0.500
% RECOVERY	108.66%	102.26%	100.20%	102.00%	91.80%
QC CHECK					
FOUND	0.097	5.09	5.09	0.463	0.463
TRUE	0.094	5.00	5.00	0.500	0.500
% RECOVERY	103.01%	101.80%	101.80%	92.60%	92.60%
BLANK	<0.002	<0.020	<0.020	<0.005	<0.005

RPD = RELATIVE PERCENT DIFFERENCE.
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NC = NOT CALCULABLE DUE TO ONE OR MORE VALUES BEING BELOW THE DETECTION LIMIT.
OR = RECOVERY NOT CALCULABLE DUE TO SPIKE SAMPLE OUT OF RANGE OR SPIKE TOO LOW RELATIVE TO SAMPLE CONCENTRATION.

SUBMITTED BY:

Damien Gadomski

Damien Gadomski, PhD
Laboratory Manager

ANATEK LABS

Analytical Results Report For:

Spokane County Public Works

Project:

Hardness/DOC

Anatek Work Order:

WFE0553

Anatek Moscow - 1282 Alturas Drive - Moscow, ID 83843 - 208-883-2839 - moscow@anateklabs.com - FL NELAP E87893
Anatek Spokane - 504 E Sprague Ste. D - Spokane, WA 99202 - 509-838-3999 - spokane@anateklabs.com - FL NELAP E871099
Anatek Yakima - 4802 Tieton Drive - Yakima, WA 98908 - 509-225-9404 - yakima@anateklabs.com - FL NELAP E871190
Anatek Wenatchee - 3019 Gs Center Rd - Wenatchee, WA 98801 - 509-701-8362

Anatek Labs, Inc.

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504 E Sprague Ste. D - Spokane, WA 99202 - (509) 838-3999 - email spokane@anateklabs.com

Client:	Spokane County Public Works	Work Order:	WFE0553
Address:	1026 W. Broadway Ave.	Project:	Hardness/DOC
	Spokane, WA 99260	Reported:	5/27/2025 13:24
Attn:	Derek Vilari		

Analytical Results Report

Sample Location:	Mid-C		
Lab/Sample Number:	WFE0553-01	Collect Date:	05/09/25 13:00
Date Received:	05/09/25 14:36	Collected By:	
Matrix:	Water		

Analyte	Result	Units	PQL	Analyzed	Analyst	Method	Qualifier
Inorganics							
Dissolved Organic Carbon	4.99	mg/L	0.100	5/23/25 22:56	TEC	SM 5310 B	
Hardness	16.7	mg CaCO3/L	3.00	5/12/25 10:06	ALH	SM 2340 C	

Anatek Labs, Inc.

1282 Alturas Drive - Moscow, ID 83843 - (208) 883-2839 - email moscow@anateklabs.com
504 E Sprague Ste. D - Spokane, WA 99202 - (509) 838-3999 - email spokane@anateklabs.com

Sample Location: Mid-B
Lab/Sample Number: WFE0553-02 Collect Date: 05/09/25 13:00
Date Received: 05/09/25 14:36 Collected By:
Matrix: Water

Analyte	Result	Units	PQL	Analyzed	Analyst	Method	Qualifier
Inorganics							
Dissolved Organic Carbon	5.39	mg/L	0.100	5/23/25 23:15	TEC	SM 5310 B	
Hardness	14.8	mg CaCO3/L	3.00	5/12/25 10:06	ALH	SM 2340 C	

Anatek Labs, Inc.

1282 Alturas Drive - Moscow, ID 83843 - (208) 883-2839 - email moscow@anateklabs.com
504 E Sprague Ste. D - Spokane, WA 99202 - (509) 838-3999 - email spokane@anateklabs.com

Sample Location: Mid-A
Lab/Sample Number: WFE0553-03 Collect Date: 05/09/25 13:00
Date Received: 05/09/25 14:36 Collected By:
Matrix: Water

Analyte	Result	Units	PQL	Analyzed	Analyst	Method	Qualifier
Inorganics							
Dissolved Organic Carbon	5.73	mg/L	0.100	5/23/25 23:31	TEC	SM 5310 B	
Hardness	14.8	mg CaCO3/L	3.00	5/12/25 10:06	ALH	SM 2340 C	

Anatek Labs, Inc.

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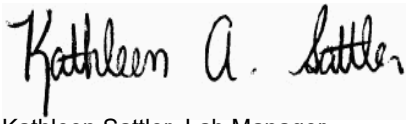
504 E Sprague Ste. D - Spokane, WA 99202 - (509) 838-3999 - email spokane@anateklabs.com

Authorized Signature,



Kathleen Sattler, Lab Manager

PQL	Practical Quantitation Limit
ND	Not Detected
MCL	EPA's Maximum Contaminant Level
Dry	Sample results reported on a dry weight basis
*	Not a state-certified analyte

ANATEK LABS

Chain of Custody Record

Anatek Labs, I
1282 Alturas Drive, Moscow ID 83
504 E Sprague Ste D, Spokane WA

WFE0553

Due: 05/26/25

Company Name: Spokane County	Project Manager:
Address: 1026 W Broadway	Project Name & # :
City: Spokane State: WA Zip: 99260	Purchase Order #:
Phone: 509 477 7262	Sampler Name & Phone:
Email Address(es): DVilar@spokanecounty.org	

Turn Around T

Please refer to our normal turn around times at www.anateklabs.com/pricing-lists

- ✓ Normal
- __Next Day*
- __2nd Day*
- __Other*_____

__Phone
__Email

*All rush order requests must have prior approval

List Analyses Requested

Lab ID	Sample Identification	Sampling Date/Time	Matrix	Preservative: # of Containers	Sample Volume	DOC	Hardness
	Mid-C	5-9-25/1300		2		X	X
	Mid-B	" "		2		2	1
	Mid-A	" "		2		2	1

Note Special Instructions/Comments

3x P 250
3x P 125

Inspection Checklist

Received Intact?	(Y)	N
Labels & Chains Agree?	(Y)	N
Containers Sealed?	(Y)	N
No VOC Head Space?	Y	N
Cooler?	(Y)	N
Ice/Ice Packs Present?	(Y)	N

Temperature (°C): 9.2°C/19.3°C DIG 08
Number of Containers: 6
Shipped Via: Hand
Preservative: N/A
Date & Time: 5-9-25 14:36
Inspected By: BAS

	Printed Name	Signature	Company	Date	Time
elinquished by	Derek Vilar	Derek Vilar	Spokane		
eceived by	Blake Sattler	Blake Sattler	Anatek	5/9/25	14:36
elinquished by					
eceived by					
elinquished by					
eceived by					

imples submitted to Anatek Labs may be subcontacted to other accredited labs if necessary. This message serves as notice of this possibility. Subcontracted analyses will be clearly noted on the analytical report.

ANATEK LABS

Analytical Results Report For:

Spokane County Public Works

Project:

DOC/TRC/Hardness

Anatek Work Order:

WFE1382

Anatek Moscow - 1282 Alturas Drive - Moscow, ID 83843 - 208-883-2839 - moscow@anateklabs.com - FL NELAP E87893
Anatek Spokane - 504 E Sprague Ste. D - Spokane, WA 99202 - 509-838-3999 - spokane@anateklabs.com - FL NELAP E871099
Anatek Yakima - 4802 Tieton Drive - Yakima, WA 98908 - 509-225-9404 - yakima@anateklabs.com - FL NELAP E871190
Anatek Wenatchee - 3019 Gs Center Rd - Wenatchee, WA 98801 - 509-701-8362

Anatek Labs, Inc.

1282 Alturas Drive - Moscow, ID 83843 - (208) 883-2839 - email moscow@anateklabs.com
504 E Sprague Ste. D - Spokane, WA 99202 - (509) 838-3999 - email spokane@anateklabs.com

Client:	Spokane County Public Works	Work Order:	WFE1382
Address:	1026 W. Broadway Ave.	Project:	DOC/TRC/Hardness
	Spokane, WA 99260	Reported:	6/9/2025 15:55
Attn:	Derek Vilari		

Analytical Results Report

Sample Location:	Mid-A		
Lab/Sample Number:	WFE1382-01	Collect Date:	05/29/25 12:00
Date Received:	05/29/25 14:40	Collected By:	Derek Vilari
Matrix:	Surface Water		

Analyte	Result	Units	PQL	Analyzed	Analyst	Method	Qualifier
Inorganics							
Dissolved Organic Carbon	5.08	mg/L	0.100	6/3/25 19:08	TEC	SM 5310 B	
Hardness	15.8	mg CaCO3/L	6.00	5/29/25 16:15	ALH	SM 2340 C	
Metals by ICP-MS							
Aluminum	0.0479	mg/L	0.0100	6/3/25 18:31	JLG	EPA 200.8	

Anatek Labs, Inc.

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504 E Sprague Ste. D - Spokane, WA 99202 - (509) 838-3999 - email spokane@anateklabs.com

Sample Location:	Mid-B		
Lab/Sample Number:	WFE1382-02	Collect Date:	05/29/25 12:00
Date Received:	05/29/25 14:40	Collected By:	Derek Vilari
Matrix:	Surface Water		

Analyte	Result	Units	PQL	Analyzed	Analyst	Method	Qualifier
Inorganics							
Dissolved Organic Carbon	4.71	mg/L	0.100	6/3/25 19:22	TEC	SM 5310 B	
Hardness	14.8	mg CaCO3/L	3.00	5/29/25 16:15	ALH	SM 2340 C	
Metals by ICP-MS							
Aluminum	0.0421	mg/L	0.0100	6/3/25 18:34	JLG	EPA 200.8	

Anatek Labs, Inc.

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504 E Sprague Ste. D - Spokane, WA 99202 - (509) 838-3999 - email spokane@anateklabs.com

Sample Location:	Mid-C		
Lab/Sample Number:	WFE1382-03	Collect Date:	05/29/25 12:00
Date Received:	05/29/25 14:40	Collected By:	Derek Vilari
Matrix:	Surface Water		

Analyte	Result	Units	PQL	Analyzed	Analyst	Method	Qualifier
Inorganics							
Dissolved Organic Carbon	5.23	mg/L	0.100	6/3/25 19:36	TEC	SM 5310 B	
Hardness	19.7	mg CaCO3/L	6.00	5/29/25 16:15	ALH	SM 2340 C	
Metals by ICP-MS							
Aluminum	0.0886	mg/L	0.0100	6/3/25 18:37	JLG	EPA 200.8	

Anatek Labs, Inc.

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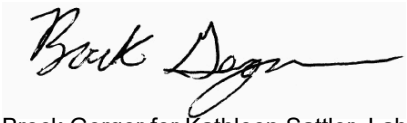
504 E Sprague Ste. D - Spokane, WA 99202 - (509) 838-3999 - email spokane@anateklabs.com

Authorized Signature,



Brock Gerger for Kathleen Sattler, Lab Manager

PQL	Practical Quantitation Limit
ND	Not Detected
MCL	EPA's Maximum Contaminant Level
Dry	Sample results reported on a dry weight basis
*	Not a state-certified analyte

ANATEK LABS

Chain of Custody Record

Anatek
1282 Alturas Drive, Mos
504 E Sprague Ste D, Spol

WFE1382

Due: 06/13/25

Company Name: Spokane County Public Works	Project Manager:
Address: 1026 W Broadway ave	Project Name & # :
City: Spokane State: WA Zip: 99260	Purchase Order #:
Phone: 509 477 7262	Sampler Name & Phone: Derek Vilar 509 477 7262
Email Address(es): DVilar@spokanecounty.org	

Turn

Please refer to our normal turn around times at www.anateklabs.com/pricing-lists

- [x] Normal
- [ ] Next Day*
- [ ] 2nd Day*
- [ ] Other*_____

- [ ] Phone
- [x] Email

*All rush order requests must have prior approval

List Analyses Requested

Lab ID	Sample Identification	Sampling Date/Time	Matrix	# of Containers	Sample Volume	Preservative	DOC	TRA	Hardness
	Mid-A	5-29-25 1200	Surface Water	3			1	1	1
	Mid-B	"	"	3			1	1	1
	Mid-C	"	"	3			1	1	1
	Mid-D	"	"						

Note Special Instructions/Comments

6x p 250
3x p 125

Inspection Checklist

Received Intact?	(Y)	N
Labels & Chains Agree?	(Y)	N
Containers Sealed?	(Y)	N
No VOC Head Space?	Y	N
Cooler?	(Y)	(N)
Ice/Ice Packs Present?	(Y)	N

Temperature (°C): 19.2°C/19.3°C D:Cr-08
Number of Containers: 9
Shipped Via: Hand
Preservative: N/A
Date & Time: 5-29-25 14:40
Inspected By: BAS

	Printed Name	Signature	Company	Date	Time
Relinquished by	Derek Vilar	Derek Vilar	Spokane	5-29-25	1439
Received by	Blake Sattler	Blake Sattler	Anatek	5-29-25	14:40
Relinquished by					
Received by					
Relinquished by					
Received by					

Samples submitted to Anatek Labs may be subcontacted to other accredited labs if necessary. This message serves as notice of this possibility. Subcontracted analyses will be clearly noted on the analytical report.

Analytical Results Report For:

Spokane County Public Works

Project:

Newman

Anatek Work Order:

WFJ0773

Anatek Moscow - 1282 Alturas Drive - Moscow, ID 83843 - 208-883-2839 - moscow@anateklabs.com - FL NELAP E87893
Anatek Spokane - 504 E Sprague Ste. D - Spokane, WA 99202 - 509-838-3999 - spokane@anateklabs.com - FL NELAP E871099
Anatek Yakima - 4802 Tieton Drive - Yakima, WA 98908 - 509-225-9404 - yakima@anateklabs.com - FL NELAP E871190
Anatek Wenatchee - 3019 Gs Center Rd - Wenatchee, WA 98801 - 509-701-8362

Anatek Labs, Inc.

1282 Alturas Drive - Moscow, ID 83843 - (208) 883-2839 - email moscow@anateklabs.com
504 E Sprague Ste. D - Spokane, WA 99202 - (509) 838-3999 - email spokane@anateklabs.com

Client:	Spokane County Public Works	Work Order:	WFJ0773
Address:	1026 W. Broadway Ave.	Project:	Newman
	Spokane, WA 99260	Reported:	10/24/2025 21:51
Attn:	Derek Vilar		

Analytical Results Report

Sample Location:	Mid-A		
Lab/Sample Number:	WFJ0773-01	Collect Date:	10/15/25 13:15
Date Received:	10/15/25 15:23	Collected By:	Derek Vilar
Matrix:	Water		

Analyte	Result	Units	PQL	Analyzed	Analyst	Method	Qualifier
Inorganics							
Dissolved Organic Carbon	5.89	mg/L	0.100	10/21/25 22:26	TEC	SM 5310 B	
Hardness	16.9	mg CaCO3/L	3.00	10/23/25 10:26	ALH	SM 2340 C	
Metals by ICP-MS							
Aluminum	0.0151	mg/L	0.0100	10/22/25 14:24	JLG	EPA 200.8	

Anatek Labs, Inc.

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504 E Sprague Ste. D - Spokane, WA 99202 - (509) 838-3999 - email spokane@anateklabs.com

Sample Location:	Mid-B		
Lab/Sample Number:	WFJ0773-02	Collect Date:	10/15/25 13:15
Date Received:	10/15/25 15:23	Collected By:	Derek Vilar
Matrix:	Water		

Analyte	Result	Units	PQL	Analyzed	Analyst	Method	Qualifier
Inorganics							
Dissolved Organic Carbon	5.89	mg/L	0.100	10/21/25 22:41	TEC	SM 5310 B	
Hardness	16.1	mg CaCO3/L	2.86	10/23/25 10:26	ALH	SM 2340 C	
Metals by ICP-MS							
Aluminum	0.0224	mg/L	0.0100	10/22/25 14:27	JLG	EPA 200.8	

Anatek Labs, Inc.

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504 E Sprague Ste. D - Spokane, WA 99202 - (509) 838-3999 - email spokane@anateklabs.com

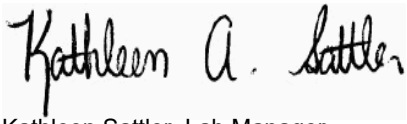
Sample Location:	Mid-C		
Lab/Sample Number:	WFJ0773-03	Collect Date:	10/15/25 13:15
Date Received:	10/15/25 15:23	Collected By:	Derek Vilar
Matrix:	Water		

Analyte	Result	Units	PQL	Analyzed	Analyst	Method	Qualifier
Inorganics							
Dissolved Organic Carbon	5.77	mg/L	0.100	10/21/25 22:56	TEC	SM 5310 B	
Hardness	16.9	mg CaCO3/L	3.00	10/23/25 10:26	ALH	SM 2340 C	
Metals by ICP-MS							
Aluminum	0.0266	mg/L	0.0100	10/22/25 14:30	JLG	EPA 200.8	

Anatek Labs, Inc.

1282 Alturas Drive - Moscow, ID 83843 - (208) 883-2839 - email moscow@anateklabs.com
504 E Sprague Ste. D - Spokane, WA 99202 - (509) 838-3999 - email spokane@anateklabs.com

Authorized Signature,



Kathleen Sattler, Lab Manager

PQL	Practical Quantitation Limit
ND	Not Detected
MCL	EPA's Maximum Contaminant Level
Dry	Sample results reported on a dry weight basis
*	Not a state-certified analyte

ANATEK LABS

Chain of Custody Record

Anatek Labs, Inc.
1282 Alturas Drive, Moscow ID 83843 |
504 E Sprague Ste D, Spokane WA 99202
4802 Tieton Drive, Yakima WA 98908 |
3019 GS Center Road, Wentachee WA 988

WFJ0773

Due: 10/30/25

Company Name: Spokane County Public Works	Project Manager: Derek Vilar
Address: 1026 W Broadway	Project Name & # : Newman
City: Spokane State: Wa Zip: 99260	Purchase Order #:
Phone: 509 477 7262	Sampler Name & Phone: Listed already
Email Address(es): DVilar@spokanecounty.gov	

Turn Around Tin

Please refer to our norma
www.anateklabs.com/pricing-lists

- [x] Normal
- [ ] Next Day*
- [ ] 2nd Day*
- [ ] Other*_____

- [ ] Phone
- [ ] Email

*All rush order requests must have prior approval

Additional Guidance

Sampling Type: Circle sampling method (G = grab, C = composite)

Matrix: Indicate matrix (W = water; S = soil, T = plant tissue, O = other). If O, describe matrix type in Note Special Instructions/Comments.

List Analyses Requested

Lab ID	Sample Identification	Sampling Date/Time	Sampling Type	Matrix	Preservative: # of Containers	Preservative: Sample Volume	Hardness	AL	DOC							
	Mid-A	10-15-25 / 1315	(G) / C	W	3		X	X	X							
	Mid-B	↓	(G) / C	W	3		X	X	X							
	Mid-C	↓	(G) / C	W	3		X	X	X							
			G / C													
			G / C													
			G / C													
			G / C													
			G / C													
			G / C													
			G / C													
			G / C													
			G / C													
			G / C													

Note Special Instructions/Comments

Inspection Checklist

Received Intact?	(Y)	N
Labels & Chains Agree?	(Y)	N
Containers Sealed?	(Y)	N
No VOC Head Space?	Y	N
Cooler?	(Y)	N
Ice/Ice Packs Present?	(Y)	N

Temperature (°C): 15.2°C 16.6°C 02L08

Number of Containers: 9

Shipped Via: Hand

Preservative: N/A

Date & Time: 10-15-25 15:23

Inspected By: BAS

	Printed Name	Signature	Company	Date	Time
Relinquished by	Derek Vilar	Derek Vilar	County	10-15-25	
Received by	Blake Sattler	Blake Sattler	Anatek	10/15/25	15:23
Relinquished by					
Received by					
Relinquished by					
Received by					

Samples submitted to Anatek Labs may be subcontacted to other accredited labs if necessary. This message serves as notice of this possibility. Subcontracted analyses will be clearly noted on the analytical report.

ANATEK LABS

Sample Receipt and Preservation Form

Cooler Temperature	
Read (°C):	15.2°c
Corrected (°C):	15.6°c
Thermometer Used:	DIG-08 (circled) IR-6

Client Name: Spokane County Public Works

TAT: (Normal) RUSH: _____ days

Samples Received From: FedEx UPS USPS (Client) Courier Other: _____

Custody Seal on Cooler/Box: Yes (No) Custody Seals Intact: Yes No (N/A)

Number of Coolers/Boxes: 1 Type of Ice: Wet Ice (Ice Packs) Dry Ice None

Packing Material: Bubble Wrap Bags Foam/Peanuts Paper (None) Other: _____

Samples Received Intact?	(Yes)	No	N/A
Chain of Custody Present/Complete?	(Yes)	No	N/A
Labels and Chains Agree?	(Yes)	No	N/A
Samples Received Within Hold Time?	(Yes)	No	N/A
Correct Containers Received?	(Yes)	No	N/A
Anatek Bottles Used?	(Yes)	No	Unknown
Total Number of Sample Bottles Received:	9		
Samples Properly Preserved?	Yes	No	(N/A)
If No, record preservation and pH-after details			
VOC Vials Free of Headspace (<6mm)?	Yes	No	(N/A)
VOC Trip Blanks Present?	Yes	No	(N/A)

Comments:

Initial pH: <2 or	pH Paper ID:

Record specific containers with preservatives (and lot numbers):

3x p 250ml

6x p 125ml

Notes, comments, etc.

Received/Inspected By: BAS Date/Time: 10-15-25 15:23

Form F19.02 - Eff 12 Sep 2025

Advanced Eco-Solutions Inc. Phytoplankton Report

Lake:	**Newman Lake**	**Station:**	**South-Newman**	**Depth:**	**Comp**
Date:	**4 /30/2025**	**Magnif:**	**900**	**Comment**	

			Nat. Count. units/ml	*BioV. mm3/L*
	Cyanophyte	***Blue-greens***		
ABDI	Chroococcus sp. (cells)		48.78	0.0061
AEXI	Merismopedia sp. (cells)		195.13	0.0006
AHNI	Synechococcus sp. (coccoid)		2439.13	0.0098
AHOI	Synechococcus sp. (rod)		195.13	0.0008
AHPI	Synechocystis		24.39	0.0002
AJMI	Aphanothece minutissimus		5488.04	0.0220
		Group Total	8390.61	0.0394
	Chlorophyte	***Coccoid Greens, Desmid***		
AFCI	Monoraphidium		24.39	0.0049
		Group Total	24.39	0.0049
	Bacillariophyte	***Diatoms***		
AAOI	Asterionella formosa		804.91	0.0805
AAQI	Aulacoseira italica		317.09	0.0476
AASI	Aulicoseira distans		48.78	0.0122
ABSI	Cocconeis sp.		24.39	0.0049
ACFI	Cyclotella sp.		48.78	0.0073
ACMI	Diatoma sp.		195.13	0.0195
ADFI	Fragilaria capucina		24.39	0.0018
ADHI	Fragilaria crotonensis		24.39	0.0017
AFFI	Navicula sp. (small)		48.78	0.0073
AHRI	Synedra acus		170.74	0.0171
		Group Total	1707.39	0.1999
	Dinophyte	***Dinoflagellates***		
AEBI	Gymnodinium sp. (medium)		24.39	0.0098
AECI	Gymnodinium sp. (small)		73.17	0.0146
		Group Total	97.57	0.0244
	Chryso- & Cryptophyte	***Flagellates***		
ABCI	Chromulina sp.		292.70	0.0059
ABHI	Chrysococcus		48.78	0.0037
ACAI	Cryptomonas sp. (medium)		73.17	0.0128
ACBI	Cryptomonas sp. (small)		97.57	0.0098
ACRI	Dinobryon sp. (medium)		121.96	0.0146
AENI	Chroomonas acuta		365.87	0.0183
AEOI	Komma sp.		48.78	0.0049
AEUI	Mallomonas sp. (medium)		121.96	0.0366
AFNI	Ochromonas sp.		97.57	0.0146
AGZI	Small microflagellates		2609.87	0.0130
AHVI	Synura (cells)		10488.26	0.3671
		Group Total	14366.48	0.5012
	Station Totals:		*24586.43*	*0.7698*

Comment::

Advanced Eco-Solutions Inc. Phytoplankton Report

Lake:	**Newman Lake**	**Station:**	**Mid-Lake Newman**	**Depth:**	**Comp**
Date:	**4 /30/2025**	**Magnif:**	**900**	**Comment**	

			Nat. Count. units/ml	*BioV. mm3/L*
	Cyanophyte	***Blue-greens***		
AEXI	Merismopedia sp. (cells)		292.70	0.0009
AHNI	Synechococcus sp. (coccoid)		1487.87	0.0060
AHOI	Synechococcus sp. (rod)		24.39	0.0001
AHPI	Synechocystis		73.17	0.0006
AJMI	Aphanothece minutissimus		3170.87	0.0127
		Group Total	5049.00	0.0202
	Chlorophyte	***Coccoid Greens, Desmid***		
ABOI	Closteriopsis		24.39	0.0037
ADAI	Euglena		24.39	0.0610
AFCI	Monoraphidium		48.78	0.0098
AFOI	Oocystis sp. (cells)		24.39	0.0030
		Group Total	121.96	0.0774
	Bacillariophyte	***Diatoms***		
AAOI	Asterionella formosa		853.70	0.0854
AAQI	Aulacoseira italica		609.78	0.0915
ACFI	Cyclotella sp.		73.17	0.0110
ACMI	Diatoma sp.		292.70	0.0293
ADFI	Fragilaria capucina		24.39	0.0018
ADHI	Fragilaria crotonensis		97.57	0.0068
AHRI	Synedra acus		73.17	0.0073
AHSI	Synedra acus var. angustissima		24.39	0.0037
AHTI	Synedra nana		24.39	0.0017
		Group Total	2073.26	0.2384
	Dinophyte	***Dinoflagellates***		
AEBI	Gymnodinium sp. (medium)		24.39	0.0098
AECI	Gymnodinium sp. (small)		121.96	0.0244
		Group Total	146.35	0.0341
	Chryso- & Cryptophyte	***Flagellates***		
ABCI	Chromulina sp.		121.96	0.0024
ABHI	Chrysococcus		48.78	0.0037
ACAI	Cryptomonas sp. (medium)		121.96	0.0213
ACBI	Cryptomonas sp. (small)		73.17	0.0073
ACRI	Dinobryon sp. (medium)		1414.70	0.1698
AENI	Chroomonas acuta		341.48	0.0171
AEOI	Komma sp.		97.57	0.0098
AEUI	Mallomonas sp. (medium)		195.13	0.0585
AFNI	Ochromonas sp.		97.57	0.0146
AGZI	Small microflagellates		1707.39	0.0085
AHVI	Synura (cells)		24.39	0.0009
		Group Total	4244.09	0.3139
	Station Totals:		*11634.65*	*0.6841*

Comment::

Advanced Eco-Solutions Inc. Phytoplankton Report

Lake:	**Newman Lake**	**Station:**	**North Newman**	**Depth:**	**Comp**
Date:	**4 /30/2025**	**Magnif:**	**900**	**Comment**	

			Nat. Count. units/ml	*BioV. mm3/L*
	Cyanophyte	***Blue-greens***		
ABDI	Chroococcus sp. (cells)		146.35	0.0183
AEXI	Merismopedia sp. (cells)		97.57	0.0003
AHNI	Synechococcus sp. (coccoid)		2512.30	0.0100
AHOI	Synechococcus sp. (rod)		170.74	0.0007
AHPI	Synechocystis		24.39	0.0002
AJMI	Aphanothece minutissimus		5000.22	0.0200
		Group Total	7951.57	0.0495
	Chlorophyte	***Coccoid Greens, Desmid***		
ABTI	Coelastrum sp. (cells)		195.13	0.0098
AGYI	Scourfieldia		24.39	0.0007
AHZI	Tetraedron		24.39	0.0012
		Group Total	243.91	0.0117
	Bacillariophyte	***Diatoms***		
AAOI	Asterionella formosa		780.52	0.0781
AAPI	Aulacoseira granulata		73.17	0.0146
ACFI	Cyclotella sp.		24.39	0.0037
ACJI	Cymbella sp. (small)		24.39	0.0024
ACMI	Diatoma sp.		73.17	0.0073
ADFI	Fragilaria capucina		24.39	0.0018
ADHI	Fragilaria crotonensis		24.39	0.0017
AGDI	Pinnularia sp. (medium)		24.39	0.0183
AHRI	Synedra acus		170.74	0.0171
AHTI	Synedra nana		48.78	0.0034
		Group Total	1268.35	0.1484
	Dinophyte	***Dinoflagellates***		
AEBI	Gymnodinium sp. (medium)		48.78	0.0195
AECI	Gymnodinium sp. (small)		73.17	0.0146
		Group Total	121.96	0.0341
	Chryso- & Cryptophyte	***Flagellates***		
ABCI	Chromulina sp.		268.30	0.0054
ABHI	Chrysococcus		121.96	0.0091
ABZI	Cryptomonas sp. (large)		24.39	0.0085
ACAI	Cryptomonas sp. (medium)		146.35	0.0256
ACBI	Cryptomonas sp. (small)		219.52	0.0220
ACRI	Dinobryon sp. (medium)		292.70	0.0351
AENI	Chroomonas acuta		365.87	0.0183
AEOI	Komma sp.		24.39	0.0024
AEUI	Mallomonas sp. (medium)		73.17	0.0220
AGZI	Small microflagellates		2707.43	0.0135
AHVI	Synura (cells)		487.83	0.0171
		Group Total	4731.91	0.1790

Station Totals:	*14317.70*	*0.4228*

Comment::

Advanced Eco-Solutions Inc. Phytoplankton Report

Lake:	**Newman Lake**	**Station:**	**South-Newman**	**Depth:**	**Comp**
Date:	**6 /5 /2025**	**Magnif:**	**900**	**Comment**	

			Nat. Count. units/ml	*BioV. mm3/L*
	Cyanophyte	***Blue-greens***		
ABDI	Chroococcus sp. (cells)		48.78	0.0061
AEXI	Merismopedia sp. (cells)		390.26	0.0012
AHNI	Synechococcus sp. (coccoid)		1902.52	0.0076
AHOI	Synechococcus sp. (rod)		97.57	0.0004
AHPI	Synechocystis		24.39	0.0002
		Group Total	2463.52	0.0155
	Chlorophyte	***Coccoid Greens, Desmid***		
AFCI	Monoraphidium		48.78	0.0098
AFOI	Oocystis sp. (cells)		48.78	0.0061
AHZI	Tetraedron		24.39	0.0012
		Group Total	121.96	0.0171
	Bacillariophyte	***Diatoms***		
AAOI	Asterionella formosa		292.70	0.0293
AAQI	Aulacoseira italica		48.78	0.0073
ACFI	Cyclotella sp.		48.78	0.0073
ACII	Cymbella sp. (medium)		24.39	0.0061
ADHI	Fragilaria crotonensis		24.39	0.0017
		Group Total	439.04	0.0517
	Dinophyte	***Dinoflagellates***		
AEAI	Gymnodinium sp. (large)		24.39	0.0195
AEBI	Gymnodinium sp. (medium)		73.17	0.0293
AECI	Gymnodinium sp. (small)		121.96	0.0244
		Group Total	219.52	0.0732
	Chryso- & Cryptophyte	***Flagellates***		
ABCI	Chromulina sp.		97.57	0.0020
ABHI	Chrysococcus		24.39	0.0018
ACAI	Cryptomonas sp. (medium)		121.96	0.0213
ACBI	Cryptomonas sp. (small)		73.17	0.0073
ACRI	Dinobryon sp. (medium)		439.04	0.0527
AENI	Chroomonas acuta		121.96	0.0061
AEOI	Komma sp.		24.39	0.0024
AEUI	Mallomonas sp. (medium)		121.96	0.0366
AFNI	Ochromonas sp.		97.57	0.0146
AGZI	Small microflagellates		2000.09	0.0100
AIBI	Trachelomonas sp.		24.39	0.0037
		Group Total	3146.48	0.1585
	Station Totals:		*6390.52*	*0.3160*

Comment::

Advanced Eco-Solutions Inc. Phytoplankton Report

Lake:	**Newman Lake**	**Station:**	**Mid-Lake Newman**	**Depth:**	**Comp**
Date:	**6 /5 /2025**	**Magnif:**	**900**	**Comment**	

			Nat. Count. units/ml	*BioV. mm3/L*
	Cyanophyte	***Blue-greens***		
AAHI	Anabaena sp.		585.39	0.0293
AEXI	Merismopedia sp. (cells)		195.13	0.0006
AHNI	Synechococcus sp. (coccoid)		2122.04	0.0085
AHOI	Synechococcus sp. (rod)		97.57	0.0004
AJMI	Aphanothece minutissimus		3048.91	0.0122
		Group Total	6049.04	0.0509
	Chlorophyte	***Coccoid Greens, Desmid***		
AFCI	Monoraphidium		97.57	0.0195
AGXC	Scenedesmus sp.		24.39	0.0015
AGYI	Scourfieldia		24.39	0.0007
		Group Total	146.35	0.0217
	Bacillariophyte	***Diatoms***		
AAOI	Asterionella formosa		48.78	0.0049
AAQI	Aulacoseira italica		292.70	0.0439
AASI	Aulicoseira distans		24.39	0.0061
ACFI	Cyclotella sp.		24.39	0.0037
ACMI	Diatoma sp.		73.17	0.0073
ADHI	Fragilaria crotonensis		24.39	0.0017
AHRI	Synedra acus		24.39	0.0024
		Group Total	512.22	0.0700
	Dinophyte	***Dinoflagellates***		
AAYI	Ceratium		24.39	0.1220
AEBI	Gymnodinium sp. (medium)		121.96	0.0488
AECI	Gymnodinium sp. (small)		48.78	0.0098
		Group Total	195.13	0.1805
	Chryso- & Cryptophyte	***Flagellates***		
ABCI	Chromulina sp.		24.39	0.0005
ACAI	Cryptomonas sp. (medium)		170.74	0.0299
ACBI	Cryptomonas sp. (small)		195.13	0.0195
ACRI	Dinobryon sp. (medium)		121.96	0.0146
AENI	Chroomonas acuta		195.13	0.0098
AEOI	Komma sp.		24.39	0.0024
AFNI	Ochromonas sp.		170.74	0.0256
AGZI	Small microflagellates		2146.43	0.0107
AHVI	Synura (cells)		2439.13	0.0854
AIBI	Trachelomonas sp.		24.39	0.0037
		Group Total	5512.43	0.2021
	Station Totals:		*12415.17*	*0.5252*

Comment::

Advanced Eco-Solutions Inc. Phytoplankton Report

Lake:	**Newman Lake**	**Station:**	**North Newman**	**Depth:**	**Comp**
Date:	**6 /5 /2025**	**Magnif:**	**900**	**Comment**	

		Nat. Count. units/ml	BioV. mm3/L
Cyanophyte	***Blue-greens***		
AHNI	Synechococcus sp. (coccoid)	1780.57	0.0071
AHOI	Synechococcus sp. (rod)	243.91	0.0010
AHPI	Synechocystis	24.39	0.0002
AJMI	Aphanothece minutissimus	4268.48	0.0171
	Group Total	6317.35	0.0254
Chlorophyte	***Coccoid Greens, Desmid***		
ABWI	Cosmarium sp.	24.39	0.0122
AFCI	Monoraphidium	48.78	0.0098
AFOI	Oocystis sp. (cells)	73.17	0.0091
AGYI	Scourfieldia	48.78	0.0015
AHDI	Spondylosium sp.	146.35	0.0220
AHZI	Tetraedron	24.39	0.0012
	Group Total	365.87	0.0557
Bacillariophyte	***Diatoms***		
AAOI	Asterionella formosa	195.13	0.0195
ACFI	Cyclotella sp.	48.78	0.0073
ACMI	Diatoma sp.	24.39	0.0024
ADFI	Fragilaria capucina	24.39	0.0018
	Group Total	292.70	0.0311
Dinophyte	***Dinoflagellates***		
AEBI	Gymnodinium sp. (medium)	73.17	0.0293
AECI	Gymnodinium sp. (small)	73.17	0.0146
	Group Total	146.35	0.0439
Chryso- & Cryptophyte	***Flagellates***		
ABCI	Chromulina sp.	170.74	0.0034
ABHI	Chrysococcus	97.57	0.0073
ACAI	Cryptomonas sp. (medium)	48.78	0.0085
ACBI	Cryptomonas sp. (small)	97.57	0.0098
ACRI	Dinobryon sp. (medium)	682.96	0.0820
AENI	Chroomonas acuta	195.13	0.0098
AEOI	Komma sp.	48.78	0.0049
AEUI	Mallomonas sp. (medium)	24.39	0.0073
AFNI	Ochromonas sp.	48.78	0.0073
AGZI	Small microflagellates	1707.39	0.0085
AHVI	Synura (cells)	7317.39	0.2561
	Group Total	10439.48	0.4049
Station Totals:		*17561.74*	*0.5610*

Comment::

Advanced Eco-Solutions Inc. Phytoplankton Report

Lake:	**Newman Lake**	**Station:**	**South-Newman**	**Depth:**	**Comp**
Date:	**7 /3 /2025**	**Magnif:**	**900**	**Comment**	

			Nat. Count. units/ml	*BioV. mm3/L*
	Cyanophyte	***Blue-greens***		
AAHI	Anabaena sp.		2853.78	0.1427
AEXI	Merismopedia sp. (cells)		97.57	0.0003
AHNI	Synechococcus sp. (coccoid)		2365.96	0.0095
AHOI	Synechococcus sp. (rod)		268.30	0.0011
AIWI	Woronichina sp.		7317.39	0.0293
AJMI	Aphanothece minutissimus		6097.83	0.0244
		Group Total	19000.83	0.2072
	Chlorophyte	***Coccoid Greens, Desmid***		
ABTI	Coelastrum sp. (cells)		195.13	0.0098
AFCI	Monoraphidium		48.78	0.0098
		Group Total	243.91	0.0195
	Bacillariophyte	***Diatoms***		
AAQI	Aulacoseira italica		73.17	0.0110
ACFI	Cyclotella sp.		73.17	0.0110
ACMI	Diatoma sp.		48.78	0.0049
AHKI	Stephanodiscus sp. (small)		24.39	0.0085
AHRI	Synedra acus		48.78	0.0049
		Group Total	268.30	0.0402
	Dinophyte	***Dinoflagellates***		
AEBI	Gymnodinium sp. (medium)		97.57	0.0390
AECI	Gymnodinium sp. (small)		73.17	0.0146
		Group Total	170.74	0.0537
	Chryso- & Cryptophyte	***Flagellates***		
ABCI	Chromulina sp.		97.57	0.0020
ABHI	Chrysococcus		24.39	0.0018
ACAI	Cryptomonas sp. (medium)		73.17	0.0128
ACBI	Cryptomonas sp. (small)		73.17	0.0073
AENI	Chroomonas acuta		243.91	0.0122
AEOI	Komma sp.		24.39	0.0024
AEUI	Mallomonas sp. (medium)		24.39	0.0073
AFNI	Ochromonas sp.		97.57	0.0146
AGZI	Small microflagellates		2463.52	0.0123
		Group Total	3122.09	0.0728
	Station Totals:		*22805.87*	*0.3934*

Comment::

Advanced Eco-Solutions Inc. Phytoplankton Report

Lake:	**Newman Lake**	**Station:**	**Mid-Lake Newman**	**Depth:**	**Comp**
Date:	**7 /3 /2025**	**Magnif:**	**900**	**Comment**	

			Nat. Count. units/ml	*BioV. mm3/L*
	Cyanophyte	***Blue-greens***		
AAHI	Anabaena sp.		3536.74	0.1768
ABDI	Chroococcus sp. (cells)		243.91	0.0305
AEXI	Merismopedia sp. (cells)		390.26	0.0012
AHNI	Synechococcus sp. (coccoid)		3463.57	0.0139
AHOI	Synechococcus sp. (rod)		146.35	0.0006
AHPI	Synechocystis		487.83	0.0039
AJMI	Aphanothece minutissimus		16586.09	0.0663
		Group Total	24854.74	0.2932
	Chlorophyte	***Coccoid Greens, Desmid***		
AFCI	Monoraphidium		24.39	0.0049
AFOI	Oocystis sp. (cells)		97.57	0.0122
		Group Total	121.96	0.0171
	Bacillariophyte	***Diatoms***		
AABI	Achnanthidium sp.		24.39	0.0020
AAOI	Asterionella formosa		48.78	0.0049
ACFI	Cyclotella sp.		24.39	0.0037
AHRI	Synedra acus		48.78	0.0049
AHTI	Synedra nana		48.78	0.0034
		Group Total	195.13	0.0188
	Dinophyte	***Dinoflagellates***		
AEAI	Gymnodinium sp. (large)		24.39	0.0195
AEBI	Gymnodinium sp. (medium)		73.17	0.0293
AECI	Gymnodinium sp. (small)		121.96	0.0244
		Group Total	219.52	0.0732
	Chryso- & Cryptophyte	***Flagellates***		
ABCI	Chromulina sp.		317.09	0.0063
ABHI	Chrysococcus		121.96	0.0091
ABZI	Cryptomonas sp. (large)		48.78	0.0171
ACAI	Cryptomonas sp. (medium)		195.13	0.0341
ACBI	Cryptomonas sp. (small)		243.91	0.0244
ACRI	Dinobryon sp. (medium)		97.57	0.0117
AENI	Chroomonas acuta		317.09	0.0159
AEOI	Komma sp.		121.96	0.0122
AEUI	Mallomonas sp. (medium)		24.39	0.0073
AFNI	Ochromonas sp.		73.17	0.0110
AGZI	Small microflagellates		3805.04	0.0190
		Group Total	5366.09	0.1682
	Station Totals:		*30757.43*	*0.5704*

Comment::

Advanced Eco-Solutions Inc. Phytoplankton Report

Lake:	**Newman Lake**	**Station:**	**North Newman**	**Depth:**	**Comp**
Date:	**7 /3 /2025**	**Magnif:**	**900**	**Comment**	

			Nat. Count. units/ml	*BioV. mm3/L*
	Cyanophyte	***Blue-greens***		
AAHI	Anabaena sp.		487.83	0.0244
AEXI	Merismopedia sp. (cells)		97.57	0.0003
AHNI	Synechococcus sp. (coccoid)		2170.83	0.0087
AHOI	Synechococcus sp. (rod)		97.57	0.0004
AHPI	Synechocystis		73.17	0.0006
AJMI	Aphanothece minutissimus		975.65	0.0039
		Group Total	3902.61	0.0382
	Chlorophyte	***Coccoid Greens, Desmid***		
AAJI	Ankistrodesmus sp.		24.39	0.0020
AFCI	Monoraphidium		24.39	0.0049
AFOI	Oocystis sp. (cells)		24.39	0.0030
AGYI	Scourfieldia		24.39	0.0007
AHZI	Tetraedron		24.39	0.0012
		Group Total	121.96	0.0118
	Bacillariophyte	***Diatoms***		
AABI	Achnanthidium sp.		24.39	0.0020
AAOI	Asterionella formosa		48.78	0.0049
AAQI	Aulacoseira italica		243.91	0.0366
ACFI	Cyclotella sp.		24.39	0.0037
ADFI	Fragilaria capucina		24.39	0.0018
AHRI	Synedra acus		48.78	0.0049
		Group Total	414.65	0.0538
	Dinophyte	***Dinoflagellates***		
AAYI	Ceratium		24.39	0.1220
AEBI	Gymnodinium sp. (medium)		48.78	0.0195
AECI	Gymnodinium sp. (small)		48.78	0.0098
		Group Total	121.96	0.1512
	Chryso- & Cryptophyte	***Flagellates***		
ABCI	Chromulina sp.		146.35	0.0029
ABHI	Chrysococcus		48.78	0.0037
ACAI	Cryptomonas sp. (medium)		24.39	0.0043
ACBI	Cryptomonas sp. (small)		73.17	0.0073
ACRI	Dinobryon sp. (medium)		24.39	0.0029
AENI	Chroomonas acuta		365.87	0.0183
AEOI	Komma sp.		73.17	0.0073
AFNI	Ochromonas sp.		24.39	0.0037
AGZI	Small microflagellates		2244.00	0.0112
		Group Total	3024.52	0.0616
	Station Totals:		*7585.70*	*0.3167*
	Comment::			

Advanced Eco-Solutions Inc. Phytoplankton Report

Lake:	**Newman Lake**	**Station:**	**South-Newman**	**Depth:**	**Comp**
Date:	**7 /31/2025**	**Magnif:**	**900**	**Comment**	

			Nat. Count. units/ml	*BioV. mm3/L*
	Cyanophyte	***Blue-greens***		
AAHI	Anabaena sp.		195.13	0.0098
ABDI	Chroococcus sp. (cells)		48.78	0.0061
ABUI	Coelosphaerium sp. (cells)		1219.57	0.0085
AEXI	Merismopedia sp. (cells)		97.57	0.0003
AHNI	Synechococcus sp. (coccoid)		2097.65	0.0084
AHOI	Synechococcus sp. (rod)		170.74	0.0007
AHPI	Synechocystis		24.39	0.0002
AJMI	Aphanothece minutissimus		292.70	0.0012
		Group Total	4146.52	0.0351
	Chlorophyte	***Coccoid Greens, Desmid***		
ABNI	Chlamydomonas		24.39	0.0007
AFCI	Monoraphidium		24.39	0.0049
AFOI	Oocystis sp. (cells)		48.78	0.0061
AGXC	Scenedesmus sp.		73.17	0.0044
AHAI	Sphaerocystis sp.		97.57	0.0039
		Group Total	268.30	0.0199
	Bacillariophyte	***Diatoms***		
AAQI	Aulacoseira italica		585.39	0.0878
AASI	Aulicoseira distans		121.96	0.0305
ACFI	Cyclotella sp.		73.17	0.0110
ACMI	Diatoma sp.		24.39	0.0024
ADHI	Fragilaria crotonensis		24.39	0.0017
ADWI	Gomphonema sp. (small)		24.39	0.0061
AHKI	Stephanodiscus sp. (small)		24.39	0.0085
AHRI	Synedra acus		48.78	0.0049
		Group Total	926.87	0.1529
	Dinophyte	***Dinoflagellates***		
AEBI	Gymnodinium sp. (medium)		73.17	0.0293
AECI	Gymnodinium sp. (small)		97.57	0.0195
		Group Total	170.74	0.0488
	Chryso- & Cryptophyte	***Flagellates***		
ABCI	Chromulina sp.		146.35	0.0029
ABHI	Chrysococcus		48.78	0.0037
ACAI	Cryptomonas sp. (medium)		121.96	0.0213
ACBI	Cryptomonas sp. (small)		146.35	0.0146
ACRI	Dinobryon sp. (medium)		146.35	0.0176
AENI	Chroomonas acuta		170.74	0.0085
AEOI	Komma sp.		24.39	0.0024
AFNI	Ochromonas sp.		24.39	0.0037
AGZI	Small microflagellates		2829.39	0.0141
		Group Total	3658.70	0.0889

Station Totals:	*9171.13*	*0.3457*

Comment::

Advanced Eco-Solutions Inc. Phytoplankton Report

Lake:	**Newman Lake**	**Station:**	**Mid-Lake Newman**	**Depth:**	**Comp**
Date:	**7 /31/2025**	**Magnif:**	**900**	**Comment**	

			Nat. Count. units/ml	*BioV. mm3/L*
	Cyanophyte	***Blue-greens***		
AAHI	Anabaena sp.		195.13	0.0098
ABDI	Chroococcus sp. (cells)		146.35	0.0183
AEXI	Merismopedia sp. (cells)		1365.91	0.0041
AHNI	Synechococcus sp. (coccoid)		3219.65	0.0129
AHOI	Synechococcus sp. (rod)		121.96	0.0005
AHPI	Synechocystis		292.70	0.0023
AJMI	Aphanothece minutissimus		10854.13	0.0434
		Group Total	16195.83	0.0913
	Chlorophyte	***Coccoid Greens, Desmid***		
ABTI	Coelastrum sp. (cells)		390.26	0.0195
ACOI	Dictyosphaerium (cells)		1097.61	0.0274
AFOI	Oocystis sp. (cells)		97.57	0.0122
AGYI	Scourfieldia		24.39	0.0007
AHAI	Sphaerocystis sp.		341.48	0.0137
AHGI	Staurodesmus sp.		24.39	0.0073
AHZI	Tetraedron		48.78	0.0024
		Group Total	2024.48	0.0833
	Bacillariophyte	***Diatoms***		
AAOI	Asterionella formosa		317.09	0.0317
AASI	Aulicoseira distans		73.17	0.0183
ACFI	Cyclotella sp.		48.78	0.0073
AHRI	Synedra acus		24.39	0.0024
		Group Total	463.43	0.0598
	Dinophyte	***Dinoflagellates***		
AEBI	Gymnodinium sp. (medium)		24.39	0.0098
AECI	Gymnodinium sp. (small)		97.57	0.0195
		Group Total	121.96	0.0293
	Chryso- & Cryptophyte	***Flagellates***		
ABCI	Chromulina sp.		146.35	0.0029
ABZI	Cryptomonas sp. (large)		48.78	0.0171
ACAI	Cryptomonas sp. (medium)		121.96	0.0213
ACBI	Cryptomonas sp. (small)		121.96	0.0122
ACRI	Dinobryon sp. (medium)		48.78	0.0059
AEHI	Isthmochloron sp.		24.39	0.0049
AENI	Chroomonas acuta		317.09	0.0159
AEOI	Komma sp.		97.57	0.0098
AFNI	Ochromonas sp.		73.17	0.0110
AGZI	Small microflagellates		3829.43	0.0191
		Group Total	4829.48	0.1200
	Station Totals:		*23635.17*	*0.3836*

Comment::

Advanced Eco-Solutions Inc. Phytoplankton Report

Lake:	**Newman Lake**	**Station:**	**North Newman**	**Depth:**	**Comp**
Date:	**7 /31/2025**	**Magnif:**	**900**	**Comment**	

			Nat. Count. units/ml	*BioV. mm3/L*
	Cyanophyte	***Blue-greens***		
AAHI	Anabaena sp.		146.35	0.0073
ABDI	Chroococcus sp. (cells)		97.57	0.0122
AEXI	Merismopedia sp. (cells)		390.26	0.0012
AHOI	Synechococcus sp. (rod)		97.57	0.0004
AHPI	Synechocystis		146.35	0.0012
AJMI	Aphanothece minutissimus		9146.74	0.0366
		Group Total	10024.83	0.0588
	Chlorophyte	***Coccoid Greens, Desmid***		
ABWI	Cosmarium sp.		24.39	0.0122
ACOI	Dictyosphaerium (cells)		487.83	0.0122
AFCI	Monoraphidium		73.17	0.0146
AFVC	Pediastrum sp. (medium)		97.57	0.0976
AGGI	Planktosphaeria		48.78	0.0122
AGXC	Scenedesmus sp.		48.78	0.0029
AGYI	Scourfieldia		73.17	0.0022
AHDI	Spondylosium sp.		24.39	0.0037
AHZI	Tetraedron		48.78	0.0024
		Group Total	926.87	0.1600
	Bacillariophyte	***Diatoms***		
AAOI	Asterionella formosa		487.83	0.0488
AAQI	Aulacoseira italica		365.87	0.0549
AASI	Aulicoseira distans		73.17	0.0183
ABSI	Cocconeis sp.		24.39	0.0049
ACFI	Cyclotella sp.		268.30	0.0402
ACJI	Cymbella sp. (small)		24.39	0.0024
ACMI	Diatoma sp.		48.78	0.0049
ADCI	Eunotia sp. (medium)		24.39	0.0037
ADHI	Fragilaria crotonensis		48.78	0.0034
ADUI	Gomphonema sp. (large)		24.39	0.0183
AHRI	Synedra acus		73.17	0.0073
AHUI	Synedra ulna		1219.57	0.3659
AHXI	Tabellaria flocculosa		24.39	0.0085
		Group Total	2707.43	0.5815
	Dinophyte	***Dinoflagellates***		
AAYI	Ceratium		24.39	0.1220
AEBI	Gymnodinium sp. (medium)		24.39	0.0098
AECI	Gymnodinium sp. (small)		146.35	0.0293
		Group Total	195.13	0.1610
	Chryso- & Cryptophyte	***Flagellates***		
ABCI	Chromulina sp.		268.30	0.0054
ABHI	Chrysococcus		73.17	0.0055
ACAI	Cryptomonas sp. (medium)		73.17	0.0128
ACBI	Cryptomonas sp. (small)		146.35	0.0146

ACRI	Dinobryon sp. (medium)	146.35	0.0176
AENI	Chroomonas acuta	292.70	0.0146
AEUI	Mallomonas sp. (medium)	24.39	0.0073
AFNI	Ochromonas sp.	97.57	0.0146
	Group Total	1122.00	0.0924
	Station Totals:	*14976.26*	*1.0538*

Comment::

Advanced Eco-Solutions Inc. Phytoplankton Report

Lake:	**Newman Lake**	**Station:**	**South-Newman**	**Depth:**	**Comp**
Date:	**8 /28/2025**	**Magnif:**	**900**	**Comment**	

			Nat. Count. units/ml	*BioV. mm3/L*
	Cyanophyte	***Blue-greens***		
AAHI	Anabaena sp.		121.96	0.0061
ABDI	Chroococcus sp. (cells)		146.35	0.0183
AEXI	Merismopedia sp. (cells)		487.83	0.0015
AGHI	Planktolyngbya sp.		24.39	0.0002
AHNI	Synechococcus sp. (coccoid)		2268.39	0.0091
AHOI	Synechococcus sp. (rod)		219.52	0.0009
AHPI	Synechocystis		170.74	0.0014
AIWI	Woronichina sp.		2439.13	0.0098
		Group Total	5878.30	0.0472
	Chlorophyte	***Coccoid Greens, Desmid***		
ABOI	Closteriopsis		24.39	0.0037
AFBI	Monomastix sp.		24.39	0.0030
AFHI	Nephrocytium sp.		121.96	0.0061
AFOI	Oocystis sp. (cells)		48.78	0.0061
AFVC	Pediastrum sp. (medium)		97.57	0.0976
AGXC	Scenedesmus sp.		48.78	0.0029
AGYI	Scourfieldia		73.17	0.0022
AHAI	Sphaerocystis sp.		24.39	0.0010
AHGI	Staurodesmus sp.		24.39	0.0073
		Group Total	487.83	0.1299
	Bacillariophyte	***Diatoms***		
AAOI	Asterionella formosa		97.57	0.0098
AASI	Aulicoseira distans		512.22	0.1281
ACFI	Cyclotella sp.		121.96	0.0183
ADHI	Fragilaria crotonensis		24.39	0.0017
AHRI	Synedra acus		24.39	0.0024
AHUI	Synedra ulna		24.39	0.0073
		Group Total	804.91	0.1676
	Dinophyte	***Dinoflagellates***		
AEBI	Gymnodinium sp. (medium)		73.17	0.0293
AECI	Gymnodinium sp. (small)		73.17	0.0146
		Group Total	146.35	0.0439
	Chryso- & Cryptophyte	***Flagellates***		
ABCI	Chromulina sp.		243.91	0.0049
ABHI	Chrysococcus		146.35	0.0110
ACAI	Cryptomonas sp. (medium)		48.78	0.0085
ACBI	Cryptomonas sp. (small)		195.13	0.0195
ACRI	Dinobryon sp. (medium)		48.78	0.0059
AEHI	Isthmochloron sp.		24.39	0.0049
AENI	Chroomonas acuta		365.87	0.0183
AEUI	Mallomonas sp. (medium)		48.78	0.0146
AGZI	Small microflagellates		2609.87	0.0130
		Group Total	3731.87	0.1006

Station Totals:	*11049.26*	*0.4891*

Comment::

Advanced Eco-Solutions Inc. Phytoplankton Report

Lake:	**Newman Lake**	**Station:**	**Mid-Lake Newman**	**Depth:**	**Comp**
Date:	**8 /28/2025**	**Magnif:**	**900**	**Comment**	

			Nat. Count. units/ml	*BioV. mm3/L*
	Cyanophyte	***Blue-greens***		
AAHI	Anabaena sp.		121.96	0.0061
ABDI	Chroococcus sp. (cells)		195.13	0.0244
AEXI	Merismopedia sp. (cells)		1561.04	0.0047
AHNI	Synechococcus sp. (coccoid)		2512.30	0.0100
AHOI	Synechococcus sp. (rod)		195.13	0.0008
AHPI	Synechocystis		341.48	0.0027
AJMI	Aphanothece minutissimus		5244.13	0.0210
		Group Total	10171.17	0.0697
	Chlorophyte	***Coccoid Greens, Desmid***		
AAJI	Ankistrodesmus sp.		24.39	0.0020
AAXI	Carteria sp.		24.39	0.0055
ABRI	Coccomyxa sp. (cells)		24.39	0.0001
ADAI	Euglena		24.39	0.0610
ADTI	Golenkinia sp.		24.39	0.0037
AFOI	Oocystis sp. (cells)		48.78	0.0061
AGXC	Scenedesmus sp.		48.78	0.0029
AGYI	Scourfieldia		73.17	0.0022
AHZI	Tetraedron		73.17	0.0037
AIAI	Tetrastrum		292.70	0.0059
		Group Total	658.57	0.0929
	Bacillariophyte	***Diatoms***		
AAPI	Aulacoseira granulata		48.78	0.0098
AAQI	Aulacoseira italica		170.74	0.0256
AASI	Aulicoseira distans		243.91	0.0610
ACFI	Cyclotella sp.		73.17	0.0110
ACJI	Cymbella sp. (small)		24.39	0.0024
ACMI	Diatoma sp.		73.17	0.0073
AHRI	Synedra acus		97.57	0.0098
AHTI	Synedra nana		24.39	0.0017
AHWI	Tabellaria fenestrata		24.39	0.0085
		Group Total	780.52	0.1371
	Dinophyte	***Dinoflagellates***		
AAYI	Ceratium		24.39	0.1220
AECI	Gymnodinium sp. (small)		97.57	0.0195
		Group Total	121.96	0.1415
	Chryso- & Cryptophyte	***Flagellates***		
ABCI	Chromulina sp.		121.96	0.0024
ABHI	Chrysococcus		48.78	0.0037
ACAI	Cryptomonas sp. (medium)		97.57	0.0171
ACBI	Cryptomonas sp. (small)		97.57	0.0098
ACRI	Dinobryon sp. (medium)		24.39	0.0029
AENI	Chroomonas acuta		243.91	0.0122
AEUI	Mallomonas sp. (medium)		48.78	0.0146

AFNI	Ochromonas sp.		48.78	0.0073
AGZI	Small microflagellates		292.70	0.0015
		Group Total	1024.43	0.0715
	Station Totals:		*12756.65*	*0.5126*

Comment::

Advanced Eco-Solutions Inc. Phytoplankton Report

Lake:	**Newman Lake**	**Station:**	**North Newman**	**Depth:**	**Comp**
Date:	**8 /28/2025**	**Magnif:**	**900**	**Comment**	

			Nat. Count. units/ml	*BioV. mm3/L*
	Cyanophyte	***Blue-greens***		
AAHI	Anabaena sp.		1000.04	0.0500
AEXI	Merismopedia sp. (cells)		682.96	0.0020
AHNI	Synechococcus sp. (coccoid)		2097.65	0.0084
AHOI	Synechococcus sp. (rod)		195.13	0.0008
AHPI	Synechocystis		73.17	0.0006
AJMI	Aphanothece minutissimus		2073.26	0.0083
		Group Total	6122.22	0.0701
	Chlorophyte	***Coccoid Greens, Desmid***		
ACOI	Dictyosphaerium (cells)		243.91	0.0061
AFBI	Monomastix sp.		48.78	0.0061
AFCI	Monoraphidium		24.39	0.0049
AFOI	Oocystis sp. (cells)		121.96	0.0152
AGXC	Scenedesmus sp.		48.78	0.0029
AHAI	Sphaerocystis sp.		121.96	0.0049
AHZI	Tetraedron		73.17	0.0037
		Group Total	682.96	0.0438
	Bacillariophyte	***Diatoms***		
AAOI	Asterionella formosa		48.78	0.0049
AAQI	Aulacoseira italica		170.74	0.0256
AASI	Aulicoseira distans		390.26	0.0976
ACFI	Cyclotella sp.		219.52	0.0329
ACMI	Diatoma sp.		121.96	0.0122
ADDI	Eunotia sp. (small)		24.39	0.0018
AFFI	Navicula sp. (small)		24.39	0.0037
AHRI	Synedra acus		24.39	0.0024
AHWI	Tabellaria fenestrata		48.78	0.0171
		Group Total	1073.22	0.1982
	Dinophyte	***Dinoflagellates***		
AEBI	Gymnodinium sp. (medium)		24.39	0.0098
AECI	Gymnodinium sp. (small)		73.17	0.0146
		Group Total	97.57	0.0244
	Chryso- & Cryptophyte	***Flagellates***		
ABCI	Chromulina sp.		195.13	0.0039
ABHI	Chrysococcus		24.39	0.0018
ACAI	Cryptomonas sp. (medium)		121.96	0.0213
ACBI	Cryptomonas sp. (small)		97.57	0.0098
ACRI	Dinobryon sp. (medium)		146.35	0.0176
AENI	Chroomonas acuta		243.91	0.0122
AEOI	Komma sp.		24.39	0.0024
AFNI	Ochromonas sp.		24.39	0.0037
AGZI	Small microflagellates		2390.35	0.0120
AIBI	Trachelomonas sp.		24.39	0.0037
		Group Total	3292.83	0.0883

Station Totals:	*11268.78*	*0.4248*

Comment::