

Lake Poinsett Association Water Quality Trend Summary

Five-Year Monitoring Report: 2021–2025

Prepared for: LPA Board of Directors

Prepared by: Lake Poinsett Association — Water Quality Monitoring Program

Date: May 2026

Data Sources: LPA Annual Water Quality Sampling Reports, 2021–2025

Executive Summary

This report summarizes five years of water quality monitoring data collected at Lake Poinsett and Lake Albert by the Lake Poinsett Association (2021–2025). Key findings are highlighted below:

- **Measurable improvement in 2025 core metrics:** Lake Poinsett showed its best five-year results for total phosphorus (seasonal avg 0.163 mg/L — a 5-year low) and chlorophyll-a (seasonal avg 10.91 ppb). CHL-a remained below the 37.8 ppb threshold for the entire June–July sampling period.
- **Water clarity (Secchi depth) moderate and stable:** Lake Poinsett's seasonal average Secchi depth was 1.87 m in 2025 — improved substantially

over the 2021 low of 0.90 m but below the 2023 peak of 2.55 m. The late-summer decline in clarity is a consistent seasonal pattern across all years.

- **E. coli generally safe with isolated exceptions:** All Lake Poinsett shoreline sites remained well below the 235 #/100 mL threshold in 2025, except one isolated September exceedance at Prestrude (343 #/100 mL). All other sites and all other months were safe.
- **Microcystin remains a serious, recurring concern:** 2024 was the worst year on record, with Lake Albert Access recording 29,270 µg/L in July — more than 3,659 times the safe threshold of 8 µg/L. In 2025, main Lake Poinsett shoreline sites improved considerably, but dangerous levels persisted at Lake Albert Access (Aug: 16,630 µg/L), Saaranen (Aug: 33.07 µg/L), and Sorenson (Sept: 18.29 µg/L). Every year in this dataset contains at least one site-month exceedance.
- **Lake Albert remains chronically impaired:** Secchi depth consistently below 0.65 m since 2022, CHL-a routinely exceeding safe limits (July 2025: 171.11 ppb — over 4.5× the threshold), and microcystin at extreme highs. Lake Albert continues to be the primary driver of overall system impairment and nutrient loading.
- **Highest-priority board actions:** Continued monitoring at all established sites through the full June–September window, proactive public advisories for August–September, and a targeted watershed assessment and nutrient reduction strategy for the Lake Albert sub-watershed are the most critical near-term needs.

Monitoring Overview

The Lake Poinsett Association has conducted annual water quality sampling at Lake Poinsett (site 3215) and Lake Albert (site 3201) each summer since at least 2021.

Sampling occurs monthly, June through September, at designated shoreline sites for E. coli and microcystin analysis, and at mid-lake stations for nutrients (total phosphorus and TKN-nitrogen), Secchi depth, and chlorophyll-a. An outlet station at the Lake Albert HWY 81 Bridge and a Dry Lake Outlet at Stonebridge were added to the monitoring network for nutrient and algae load tracking, providing insight into what is exiting the system downstream.

① **Safe Level Reference — Parameters & Thresholds**

- **E. coli:** ≤ 235 #/100 mL (recreational water contact standard)
- **Microcystin:** ≤ 8 µg/L (WHO/EPA recreational health advisory)
- **Chlorophyll-a (CHL-a):** ≤ 37.8 ppb (eutrophication threshold)
- **Secchi Depth:** Higher values indicate better water clarity; no single regulatory threshold — context and trend are key
- **Total Phosphorus (TP):** No federal threshold; 0.1–0.3 mg/L is a typical range for eutrophic lakes — values are interpreted relative to this range and trend direction
- **TKN-Nitrogen:** No single threshold; tracked for nutrient loading trends and system context

Section 1 — E. Coli Trends

Lake Poinsett Shoreline Sites

E. coli levels at Lake Poinsett were generally safe across most sites and most months from 2021–2025. Isolated exceedances occurred in September 2021 at Swim Beach (330 #/100 mL) and September 2025 at Prestrude (343 #/100 mL). The Lake Albert Access site recorded a dramatic E. coli spike in July 2024 (387 and 816

#/100 mL from duplicate samples), the highest Lake Albert reading in the entire dataset. Overall, Lake Poinsett's main swim sites maintained a consistently safe E. coli record throughout the monitoring period, and the Lake Albert Access site showed improvement in 2025 (September peak: 9.8 #/100 mL).

E. COLI — LAKE POINSETT SHORELINE SITES

Peak/notable seasonal values by site (#/100 mL). Safe threshold: ≤ 235 #/100 mL. Bold red = threshold exceedance.

Site	2021 Peak	2022 Peak	2023 Peak	2024 Peak	2025 Peak	Status
Swim Beach (A)	Sept: 330*	Aug: 139	Aug: 4.09	July: 7.4	July: 10.7	Generally safe
Sorenson (B)	June: 19.8	June: 35.0	Aug: 15.8	Aug: 22.8	June: 24.6	Safe
Saaranen (C)	Aug: 6.3	June: 62.4	June: 14.5	July: 8.5	Aug: 68.9	Safe
Prestrude (D)	Sept: 35.9	July: 6.3	June: 5.2	Aug: 23.8	Sept: 343*	One exceedance
Lake Albert Access (A)	N/A	Aug: 18.1	Aug: 107	July: 387-816*	Sept: 9.8	Improving

** Denotes exceedance of the 235 #/100 mL recreational threshold. 2024 Lake Albert Access values represent two duplicate samples collected at the same visit.*

Section 2 — Microcystin Trends

Microcystin — the toxin produced by harmful blue-green algae (cyanobacteria) — is the most variable and concerning parameter in this dataset. The 2021 data showed modest exceedances primarily in late summer: Swim Beach September 2021 (16.9 µg/L) and Saaranen August 2021 (9.9 µg/L). The 2022 season produced a notable

Lake Albert exceedance in August (45.0 µg/L). In 2023, elevated readings appeared at Swim Beach and Sorenson in August (14.4 and 27.4 µg/L respectively). The 2024 season was the most severe year by far: Lake Albert Access recorded 29,270 µg/L in July, and Sorenson and Saaranen reached 5,280 and 4,415 µg/L respectively in August — values thousands of times above the safe limit of 8 µg/L. In 2025, main shoreline conditions improved considerably from 2024 peaks, but the Lake Albert Access site recorded 16,630 µg/L in August, and Saaranen and Sorenson showed significant exceedances in August and September (33.07 and 18.29 µg/L). Microcystin risk remains highest in August and September and is strongly correlated with Lake Albert system conditions.

MICROCYSTIN — PEAK SEASONAL VALUES BY SITE

Values in µg/L. Safe threshold: ≤ 8 µg/L. Bold red = threshold exceedance.

Site	2021 Peak	2022 Peak	2023 Peak	2024 Peak	2025 Peak
Swim Beach (A)	16.9* (Sept)	1.6	14.4* (Aug)	5.81	9.04* (Aug)
Sorenson (B)	3.9	0.3	27.4* (Aug)	5,280* (Aug)	18.29* (Sept)
Saaranen (C)	9.9* (Aug)	6.5	4.7	4,415* (Aug)	33.07* (Aug)
Prestrude (D)	6.2	0.9	6.7	4.24	4.09
Lake Albert Access (A)	N/A	45.0* (Aug)	7.1	29,270* (July)	16,630* (Aug)

* Exceeds the 8 µg/L safe threshold. The 2024 Lake Albert Access value of 29,270 µg/L represents an exceedance of 3,659× the safe limit — an unprecedented public health event within this dataset.

Section 3 — Secchi Depth (Water Clarity) Trends

Secchi depth on Lake Poinsett improved substantially from 2021 to 2023, reaching its best seasonal average of 2.55 m in 2023. Clarity declined somewhat in 2024 and 2025 (seasonal averages of 1.95 m and 1.87 m respectively), but remained well above the extremely poor 2021 average of 0.90 m. The typical late-summer decline in clarity (reduced August values) is consistent across all monitoring years, reflecting seasonal algae growth. Lake Albert's Secchi depth is chronically poor — consistently under 0.65 m since 2022 — indicating persistent heavy algae loading that severely limits light penetration.

LAKE POINSETT — MID-LAKE SECCHI DEPTH

Values in meters. Higher values indicate better water clarity.

Month	2021	2022	2023	2024	2025	Trend Note
June	0.84	3.75	2.02	1.80	2.20	Variable
July	1.34	1.22	3.00	3.05	2.20	Improving mid-season
August	0.51	1.16	2.62	1.00	1.20	Consistent late-summer decline
Seasonal Avg	0.90	2.04	2.55	1.95	1.87	Peak in 2023; stable 2024–2025

LAKE ALBERT — MID-LAKE SECCHI DEPTH

Values in meters. Note: Lake Albert clarity is chronically impaired. All values substantially below Lake Poinsett readings. (—) = no sample collected.

Month	2022	2023	2024	2025
June	1.97	0.59	0.46	—
July	0.51	0.28	1.17	0.64
August	0.53	0.17	0.41	0.61
September	—	—	—	0.63

Lake Albert 2022 June value of 1.97 m is an outlier relative to subsequent years; post-2022 values have been consistently ≤ 0.65 m, consistent with severe eutrophication.

Section 4 — Nutrients (Total Phosphorus & TKN-Nitrogen)

Total Phosphorus (TP) is the primary driver of algae growth in the LPA system. On Lake Poinsett, TP peaked in 2024 (seasonal avg 0.281 mg/L) and dropped to its 5-year low in 2025 (seasonal avg 0.163 mg/L). This 2025 reduction is an encouraging sign, but must be sustained across multiple seasons to confirm a true improvement trend. TKN-Nitrogen values on Lake Poinsett remained relatively stable across all years, ranging from approximately 1.02 to 1.95 mg/L, with no clear upward or downward trajectory. Lake Albert shows consistently higher nutrient concentrations — TP routinely reaching 0.35–0.47 mg/L and TKN-Nitrogen reaching 4.08–4.23 mg/L in 2022 — reflecting the severely eutrophic character of that basin.

LAKE POINSETT — MID-LAKE NUTRIENT LEVELS

Values in mg/L. TP seasonal average calculated from June–August readings.

Parameter	2021	2022	2023	2024	2025
TP — June (mg/L)	0.177	0.141	0.258	0.291	0.118
TP — July (mg/L)	0.198	0.230	0.253	0.245	0.180
TP — August (mg/L)	0.277	0.198	0.309	0.307	0.190
TP Seasonal Avg	0.217	0.190	0.273	0.281	0.163
TKN — June (mg/L)	1.02	1.17	1.72	1.73	1.21
TKN — July	1.29	1.46	1.55	1.56	1.20

Parameter	2021	2022	2023	2024	2025
(mg/L)					
TKN — August (mg/L)	1.76	1.26	1.95	1.78	1.78

LAKE ALBERT — MID-LAKE NUTRIENT LEVELS

Values in mg/L. Note significantly higher concentrations compared to Lake Poinsett. (—) = no sample collected.

Parameter	2022	2023	2024	2025
TP — June (mg/L)	0.122	0.364	0.151	—
TP — July (mg/L)	0.152	0.372	0.192	0.192
TP — August (mg/L)	0.320	0.357	0.468	0.402
TP — September (mg/L)	—	—	—	0.426
TKN — July (mg/L)	4.08	2.25	2.04	2.68
TKN — August (mg/L)	4.23	2.20	2.44	2.68

Section 5 — Chlorophyll-a (Algae Biomass)

Chlorophyll-a (CHL-a) measures algae biomass in the water column. The safe threshold is 37.8 ppb. On Lake Poinsett, CHL-a was highest in 2021 (July: 56.07 ppb; August: 69.68 ppb — both exceeding the threshold). 2022 produced an August exceedance (52.87 ppb). 2023 was the best year on record for Lake Poinsett, with

all monthly readings below threshold. 2024 had a sharp August spike (64.91 ppb). In 2025, CHL-a remained very low in June (0.45 ppb) and July (1.36 ppb), with August rising to 20.45 ppb — below threshold and a marked improvement over the 2024 August spike. Lake Albert's CHL-a is chronically far above safe levels, with July 2025 reaching 171.11 ppb (over 4.5× the threshold); historical values include August 2022 at 169.44 ppb.

LAKE POINSETT — CHLOROPHYLL-a (ppb)

Safe threshold: ≤ 37.8 ppb. Bold red = threshold exceedance. Seasonal avg calculated from available June–August data. (—) = no sample collected.

Month	2021	2022	2023	2024	2025
June	—	4.81	8.39	1.21	0.45
July	56.07*	29.21	16.48	3.18	1.36
August	69.68*	52.87*	8.19	64.91*	20.45
Seasonal Avg (J–A)	62.88*	41.04*	12.33	34.04	10.91

** Exceeds 37.8 ppb threshold. 2021 seasonal avg based on July–August only (no June sample collected).*

LAKE ALBERT — CHLOROPHYLL-a (ppb)

Safe threshold: ≤ 37.8 ppb. Bold red = threshold exceedance. (—) = no sample collected.

Month	2022	2023	2024	2025
June	0.40	3.46	39.13*	—
July	105.73*	25.60	19.98	171.11*
August	169.44*	36.55	89.01*	32.68

** Exceeds 37.8 ppb threshold. Lake Albert September 2025 CHL-a reported as lab error — excluded from analysis.*

Section 6 — Outlet Data

Lake Albert HWY 81 Bridge & Dry Lake Stonebridge

Outlet sampling at the Lake Albert HWY 81 Bridge and the Dry Lake Stonebridge outlet provides insight into nutrient and algae loads leaving the system. CHL-a at the HWY 81 outlet has regularly exceeded safe levels, including August 2022 (187.66 ppb), August 2024 (65.79 ppb), and July 2025 (165.08 ppb). The Dry Lake outlet at Stonebridge also showed elevated readings, including September 2023 (150.19 ppb) and August 2024 (110.18 ppb). These values confirm that nutrient-rich, algae-laden water is actively exiting the Lake Albert system, with direct implications for downstream water quality.

OUTLET CHL-a SUMMARY

Values in ppb. Safe threshold: ≤ 37.8 ppb. Bold red = threshold exceedance. (—) = no sample or lab error.

Location & Month	2022	2023	2024	2025
HWY 81 Outlet — August	187.66*	13.69	65.79*	32.40
HWY 81 Outlet — July	83.74*	20.77	11.52	165.08*
Dry Lake / Stonebridge — August	—	51.15*	110.18*	92.22*
Dry Lake / Stonebridge — September	—	150.19*	56.15*	Lab Error

* Exceeds 37.8 ppb threshold. 2022 September HWY 81 and 2025 September Stonebridge results excluded due to laboratory equipment error.

Section 7 — Year-Over-Year Summary

Scorecard

The scorecard below provides a qualitative assessment of each year's overall performance for each monitored parameter. Ratings reflect the severity of exceedances and the number of affected sites relative to established thresholds. Lake Albert overall rating reflects that basin's status as a distinct and chronically impaired sub-system.

ANNUAL WATER QUALITY SCORECARD — LAKE POINSETT SYSTEM

Rating scale: Good (green) / Fair (yellow) / Poor (orange) / Critical (red)

Parameter	2021	2022	2023	2024	2025
E. coli	Fair 1 exceedance (Swim Beach Sept)	Fair Elevated June values	Good All sites safe	Fair LA spike (387-816)	Fair 1 exceedance (Prestrude Sept)
Microcystin	Poor 3 exceedances	Poor LA: 45.0 µg/L	Poor LP: 27.4 µg/L	Critical 29,270 µg/L (LA July)	Poor 16,630 µg/L (LA Aug)
Secchi Depth	Poor 0.90 m avg	Fair 2.04 m avg	Good 2.55 m avg	Fair 1.95 m avg	Fair 1.87 m avg
Total Phosphorus	Fair 0.217 mg/L avg	Good 0.190 mg/L avg	Fair 0.273 mg/L avg	Poor 0.281 mg/L avg	Good 0.163 mg/L avg — 5-yr low
CHL-a (Lake Poinsett)	Critical 62.9 ppb avg	Poor 41.0 ppb avg	Good 12.3 ppb avg	Fair 34.0 ppb avg	Good 10.9 ppb avg — 5-yr low
Lake Albert Overall	N/A Not sampled	Poor Multiple exceedances	Poor Chronic impairment	Critical Extreme microcystin event	Poor Persistently impaired

Section 8 — Key Findings & Recommendations

Key Findings

- **2025 improvement in core metrics is encouraging:** Lake Poinsett reached 5-year bests in both total phosphorus (seasonal avg 0.163 mg/L) and CHL-a (seasonal avg 10.91 ppb), and E. coli remained safe at all sites except one isolated September incident at Prestrude.
- **Microcystin is a persistent, multi-year public health hazard:** Every year in this dataset contains at least one site-month exceedance of the 8 µg/L safe threshold. The 2024 season was an unprecedented public health event — Lake Albert Access recorded 29,270 µg/L, exceeding the safe limit by a factor of 3,659×.
- **2025 microcystin risk has not abated despite improvement at main LP sites:** Lake Albert Access (August: 16,630 µg/L) and Saaranen (August: 33.07 µg/L) confirm that dangerous conditions persist. Improvement at some sites does not indicate system-wide safety.
- **September sampling is critical and must be maintained:** A consistent pattern of late-season toxin spikes is evident across 2021 (Swim Beach: 16.9 µg/L), 2023 (Sorenson: 6.8 µg/L), and 2025 (Sorenson: 18.29 µg/L). Reducing the monitoring window would miss these events.
- **Lake Albert is the primary driver of system impairment:** Its chronically poor Secchi depth (<0.65 m post-2022), extreme CHL-a (routinely >100 ppb), routine microcystin spikes, and high outlet nutrient concentrations are the root cause of downstream risk on Lake Poinsett.
- **Outlet data confirms active downstream export of impaired water:** Both the HWY 81 and Stonebridge outlets consistently show elevated nutrient and CHL-a concentrations, confirming that nutrient-laden, algae-rich water

from Lake Albert is leaving the system and affecting downstream water bodies.

Board Recommendations

1. **Maintain all monitoring sites through the full June-September window.** Continue all four Lake Poinsett shoreline sites and the Lake Albert Access site annually. Do not reduce to three months — September data is essential for capturing late-season toxin events.
2. **Issue advance public advisories for August-September.** Based on established multi-year patterns, proactive public health advisories for the August-September period are warranted. Consider rapid-test microcystin monitoring during these peak-risk months to enable timely public notifications.
3. **Pursue a targeted Lake Albert watershed assessment.** Commission a study to identify and quantify primary phosphorus and nitrogen loading sources, including agricultural runoff, shoreline erosion, and internal sediment loading. This is essential before management interventions can be designed.
4. **Apply for DENR or EPA 319 grant funding.** Explore South Dakota DENR and EPA Section 319 Nonpoint Source grant opportunities to support nutrient reduction practices within the Lake Albert sub-watershed, including best management practices for agricultural producers.
5. **Formalize emergency response protocols for extreme microcystin events.** Given the 2024 event (29,270 µg/L), evaluate and adopt a formal protocol for exceedances exceeding 100× the safe threshold (≥ 800 µg/L), including lake closure authority, public notification procedures, and coordination with SD DENR and local public health officials.
6. **Communicate 2025 successes to the LPA membership.** The 2025 improvements in Lake Poinsett's phosphorus and CHL-a are the best values recorded in this dataset and represent meaningful progress. Sharing these

results recognizes the value of the monitoring program and encourages continued community stewardship.

Appendix — Complete Raw Data Tables

The following tables present all raw sampling data collected through the LPA Water Quality Monitoring Program, organized by parameter and year. Values are presented exactly as collected; laboratory reporting conventions (e.g., <1, <0.1, <0.24) are preserved. Values in bold red exceed established safe thresholds.

Appendix A — E. Coli, All Sites, All Years (#/100 mL)

Safe threshold: ≤ 235 #/100 mL. Bold red = exceedance. (<1) = below detection limit.

2021 — Lake Poinsett

Site	June	July	August	September
Swim Beach (A)	4.0	<1	<1	330
Sorenson (B)	19.8	2	<1	1.0
Saaranen (C)	3.1	<1	6.3	5.1
Prestrude (D)	5.1	1	6.3	35.9

2022 — Lake Poinsett & Lake Albert

Site	June	July	August	September
Swim Beach (A)	13.4	1.0	139.0	1.0
Sorenson (B)	35.0	1.0	<1	5.2
Saaranen (C)	62.4	2.0	1.0	7.4
Prestrude (D)	3.1	6.3	<1	5.1
Lake Albert Access (A)	33.6	<1	18.1	1.0

2023 — Lake Poinsett & Lake Albert

Site	June	July	August	September
Swim Beach (A)	2.0	2.0	4.09	<1
Sorenson (B)	5.2	2.0	15.8	<1
Saaranen (C)	14.5	3.1	2.0	1
Prestrude (D)	5.2	1.0	1.0	4.09
Lake Albert Access (A)	9.7	1.0	107	2

2024 — Lake Poinsett & Lake Albert

Site	June	July	August	September
Swim Beach (A)	9.5	7.4	6.3	3
Sorenson (B)	6.3	1	22.8	5.1
Saaranen (C)	8.4	8.5	2	3
Prestrude (D)	3.1	18.7	23.8	22.8
Lake Albert Access (A)	6.3	387 & 816 (dup.)	1 & 3.1 (dup.)	1

2025 — Lake Poinsett & Lake Albert

Site	June	July	August	September
Swim Beach (A)	<1	10.7	1.0	6.3
Sorenson (B)	24.6	7.5	16.9	12.1
Saaranen (C)	4.1	6.3	68.9	4.1
Prestrude (D)	18.5	2.0	31.3	343.0
Lake Albert Access (A)	9.8	8.6	1.0	1.0

Appendix B — Microcystin, All Sites, All Years (µg/L)

Safe threshold: ≤ 8 µg/L. Bold red = exceedance. (<0.1 , <0.24) = below detection limit.

2021 — Lake Poinsett

Site	June	July	August	September
Swim Beach (A)	<0.1	0.8	3.2	16.9
Sorenson (B)	<0.1	1.3	3.9	0.8
Saaranen (C)	<0.1	3.7	9.9	0.6
Prestrude (D)	<0.1	0.5	6.2	1.9

2022 — Lake Poinsett & Lake Albert

Site	June	July	August	September
Swim Beach (A)	0.05	0.3	1.6	1.1
Sorenson (B)	0.05	0.2	0.2	0.3
Saaranen (C)	0.05	0.7	0.3	6.5
Prestrude (D)	0.05	0.3	0.3	0.9
Lake Albert Access (A)	0.05	0.2	45.0	1.3

2023 — Lake Poinsett & Lake Albert

Site	June	July	August	September
Swim Beach (A)	0.4	1.2	14.4	1.7
Sorenson (B)	0.3	1.5	27.4	6.8
Saaranen (C)	0.7	1.5	4.7	2.8
Prestrude (D)	0	1.6	6.7	0.8
Lake Albert Access (A)	0.3	3.4	7.1	0.4

2024 — Lake Poinsett & Lake Albert

Site	June	July	August	September
Swim Beach (A)	0	0.31	0.25	5.81
Sorenson (B)	0	25.00	5,280	6.86
Saaranen (C)	0	25.00	4,415	6.58
Prestrude (D)	0	1.22	4.24	3.09

Site	June	July	August	September
Lake Albert Access (A)	0.30	29,270	24.50	2.56

2025 — Lake Poinsett & Lake Albert

Site	June	July	August	September
Swim Beach (A)	<0.24	1.979	9.040	0.535
Sorenson (B)	<0.24	1.574	2.371	18.290
Saaranen (C)	<0.24	1.463	33.070	4.528
Prestrude (D)	<0.24	1.666	0.975	4.092
Lake Albert Access (A)	<0.24	2.177	16,630	5.810

Appendix C — Mid-Lake Data, All Years

Lake Poinsett — Mid-Lake Secchi Depth (meters)

Month	2021	2022	2023	2024	2025
June	0.84	3.75	2.02	1.80	2.20
July	1.34	1.22	3.00	3.05	2.20
August	0.51	1.16	2.62	1.00	1.20

Lake Albert — Mid-Lake Secchi Depth (meters)

Month	2022	2023	2024	2025
June	1.97	0.59	0.46	—
July	0.51	0.28	1.17	0.64
August	0.53	0.17	0.41	0.61
September	—	—	—	0.63

Lake Poinsett — Mid-Lake Total Phosphorus (mg/L)

Month	2021	2022	2023	2024	2025
June	0.177	0.141	0.258	0.291	0.118
July	0.198	0.230	0.253	0.245	0.180
August	0.277	0.198	0.309	0.307	0.190

Lake Poinsett — Mid-Lake TKN-Nitrogen (mg/L)

Month	2021	2022	2023	2024	2025
June	1.02	1.17	1.72	1.73	1.21
July	1.29	1.46	1.55	1.56	1.20
August	1.76	1.26	1.95	1.78	1.78

Lake Poinsett — Mid-Lake Chlorophyll-a (ppb; Safe ≤ 37.8 ppb)

Month	2021	2022	2023	2024	2025
June	—	4.81	8.39	1.21	0.45
July	56.07	29.21	16.48	3.18	1.36
August	69.68	52.87	8.19	64.91	20.45

Lake Albert — Mid-Lake Chlorophyll-a (ppb; Safe ≤ 37.8 ppb)

Month	2022	2023	2024	2025
June	0.40	3.46	39.13	—
July	105.73	25.60	19.98	171.11
August	169.44	36.55	89.01	32.68
September	—	—	—	Lab Error

Lake Albert — Mid-Lake Total Phosphorus (mg/L)

Month	2022	2023	2024	2025
June	0.122	0.364	0.151	—
July	0.152	0.372	0.192	0.192

Month	2022	2023	2024	2025
August	0.320	0.357	0.468	0.402
September	—	—	—	0.426

Appendix D — Outlet Data

CHL-a safe threshold: ≤ 37.8 ppb. Bold red = exceedance. (<0.05 , <0.2) = below detection limit. All nutrient values in mg/L; CHL-a in ppb.

Lake Albert Outlet — HWY 81 Bridge

Month / Year	Ammonia	NO ₂ /NO ₃	TKN	TP	CHL-a
2022 — June	0.29	0.2	2.16	0.216	3.60
2022 — July	<0.05	<0.2	2.88	0.200	83.74
2022 — August	0.20	<0.2	3.42	0.261	187.66
2022 — September	1.94	<0.2	3.14	0.277	Lab equip. error
2023 — June	0.97	<0.2	3.09	0.490	—
2023 — July	0.14	<0.2	2.34	0.371	20.77
2023 — August	0.30	<0.2	2.72	0.454	13.69
2023 — September	0.17	<0.2	2.10	0.183	18.54
2024 — June	0.06	<0.2	2.03	0.238	19.78
2024 — July	0.14	<0.2	1.76	0.266	11.52
2024 — August	0.24	<0.2	2.48	0.419	65.79
2024 — September	0.26	<0.2	2.64	0.550	24.31
2025 — June	<0.05	<0.2	1.83	0.208	2.14
2025 — July	0.74	<0.2	5.44	0.535	165.08
2025 — August	0.53	<0.2	2.55	0.561	32.40
2025 — September	0.10	<0.2	4.48	0.589	Lab Error

Dry Lake Outlet — Stonebridge

Month / Year	Ammonia	NO2/NO3	TKN	TP	CHL-a
2023 — June	0.19	<0.2	1.30	0.202	2.71
2023 — July	<0.05	<0.2	2.33	0.340	56.13
2023 — August	<0.05	<0.2	4.02	0.521	51.15
2023 — September	<0.05	<0.2	3.98	0.466	150.19
2024 — June	<0.05	<0.2	1.62	0.261	35.08
2024 — July	0.15	<0.2	1.72	0.194	11.08
2024 — August	<0.05	<0.2	2.65	0.374	110.18
2024 — September	<0.05	<0.2	2.60	0.325	56.15
2025 — June	<0.05	<0.2	2.06	0.253	12.55
2025 — July	<0.05	<0.2	2.67	0.287	90.89
2025 — August	<0.05	<0.2	1.87	0.354	92.22
2025 — September	<0.05	<0.2	2.87	0.347	Lab Error