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SANKOFA WETLAND PARK 2025 MONITORING REPORT



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Sankofa Wetland Park 2025 Annual Report

Table of Contents

Executive Summary	2
Section 1. Monitoring	
Sampling Design	4
Water level	5
In Situ Parameters	6
Analytical Parameters	11
Section 2. Avian Survey	18
Section 3. Miscellaneous Activities	21
Appendix: Raw Data Tables	26

Executive Summary

The 2025 Sankofa Wetland Park monitoring program documented a generally functional and productive freshwater wetland system, while also identifying several localized water-quality concerns tied to hydrologic disruption and probable wastewater-related nutrient inputs. Monitoring continued at five Wetland Park sites (S1–S5), the St. Bernard drainage canal (SB) at the Veolia plant bridge, and the Bayou Bienvenue Wetland Triangle site (T2), with measurements of water level, field parameters, nutrient concentrations, suspended solids, and biological oxygen demand. Overall, salinity and pH remained within ranges consistent with a freshwater wetland, and temperature followed a normal seasonal pattern. However, dissolved oxygen was often low during warm months, especially at site SB and occasionally at other sites, indicating periodic oxygen stress in portions of the Wetland Park.

Hydrologic conditions were one of the most important factors affecting park performance in 2025. Water levels rose by more than 40 cm (15.7 in) and remained elevated after a drainage culvert became clogged in January 2024. The park reached its highest recorded staff gauge reading of 94 cm in July 2025. From September 2024 through August 2025, the mean staff gauge reading was 78 cm, compared to the pre-clog mean of 36 cm, a difference of 42 cm (16.5 in). After a leaking septic pipe was reported and repaired in September 2025, water levels dropped by 28 cm (11.0 in), strongly suggesting that the leak contributed substantially to the prolonged inundation of the park. Water levels, however, have remained elevated relative to baseline conditions documented in 2022 and 2023, most likely because drainage is still impaired by sediment accumulation in the St. Bernard Parish drainage canal, particularly along the reach extending about 400 to 600 ft east of the Veolia wastewater treatment plant bridge

over the canal (the location of the SB monitoring site) and about 50 ft east of the old Florida Avenue culvert (where the clog occurred in January 2024).

Nutrient results showed that most interior wetland sites remained relatively low in nitrate and phosphorus, suggesting that the wetland continued to retain and process nutrients effectively in many areas. In contrast, site SB repeatedly showed elevated ammonia, total nitrogen, phosphate, and total phosphorus. Site T2 exhibited several notably high values, including extremely elevated total nitrogen and total phosphorus in November 2025, suggesting localized nutrient enrichment and probable point-source influence.

There were also documented ecological stress events and management responses during the year. A fish kill observed in April 2025, followed by additional dead fish in June, was attributed to low dissolved oxygen associated with the aerator being unplugged, high organic loading, and likely septic-related impacts. These events appear to have been part of a broader sequence of hydrologic and water-quality problems that began in 2024, including clogged drainage infrastructure, prolonged flooding, and leaking wastewater pipes that loaded the park with septic water and organic matter. Although repairs were made in September 2025, the park continues to experience lingering effects from those problems, such as recurring algal blooms and chronically low dissolved oxygen, highlighting the importance of continued monitoring, drainage maintenance, and rapid response to future septic leaks.

High-resolution LiDAR imagery was acquired through Spatial Analytics & Research Consulting LLC to more precisely define local elevations at and around the Wetland Park. The imagery supports the conclusion that the park occupies a topographic low area relative to the surrounding neighborhood, indicating that water naturally collects there rather than draining outward into adjacent residential areas. This information is important for addressing the misconception of the Wetland Park as a potential source of neighborhood flooding, and reinforcing the understanding that the Wetland Park functions as a local water-storage feature within the Lower Ninth Ward landscape. More broadly, the elevation data should help guide future hydrologic planning, drainage improvements, and restoration design at the site.

Bird observations indicate that the Wetland Park supports a diverse and seasonally dynamic avian community. Overall species richness increased through time, suggesting that habitat value has improved as the park has matured. A stable group of resident birds was present throughout much of the monitoring period, while additional migratory and wintering species increased diversity during cooler months. Together, these patterns indicate that the park is functioning as important year-round and seasonal habitat for a wide variety of birds.

Taken together, the 2025 results show that the Sankofa Wetland Park remains an ecologically valuable and biologically active freshwater wetland, but one whose performance and habitat quality are strongly influenced by drainage constraints, legacy nutrient loading, and localized oxygen stress. Continued monitoring and targeted hydrologic management will be important for improving water quality and sustaining ecological function.



Section 1. Monitoring

SAMPLING DESIGN

Environmental monitoring at the Sankofa Wetland Park began in January 2022. The sampling design consists of five monitoring locations (S1 through S5) set approximately equidistant along the mile long length of the linear park (Figure 1.1). The St. Bernard drainage canal accessed at the bridge to the Veolia wastewater treatment plant is also being monitored (SB), as well as a site in the Bayou Bienvenue Wetland Triangle (T2). In 2022, only sites S1 and S2 were monitored. Sites S3-S5, as well as SB and T2 were added as the Wetland Park was expanded in 2023.



Figure 1.1. Location of sampling sites at the Sankofa Wetland Park (S1-S5), the St. Bernard drainage canal (SB) at the Veolia bridge, and the Bayou Bienville Wetland Triangle (T2).

In situ measurements of dissolved oxygen, conductivity, temperature, salinity, and pH were made using a handheld multiparameter probe (e.g., AquaTROLL 400 by In-Situ). Approximately every three months, water samples are collected for analytical analysis of nitrate+nitrite ($\text{NO}_2+\text{NO}_3 = \text{NO}_x$), ammonia (NH_3), total Kjeldahl nitrogen (TKN), phosphate (PO_4), and total phosphorus (TP), as well as five-day biological oxygen demand (BOD_5) and total suspended solids (TSS). All samples were stored on ice and transported to Pace Analytical Services in Baton Rouge for spectrophotometric analysis. The raw data tables for the graphics shown in this report can be found in the Appendix.

WATER LEVEL

A water level probe and a barometric compensation probe were installed on February 2022, between sites S1 and S2. A staff gauge was also installed and has been read monthly since (Table 1.1). From January 2022 through December 2023, the mean staff gauge reading was 36.4 cm, whereas from September 2024 through August 2025, the mean reading was 78.4 cm, a

difference of 42.0 cm (16.5 in). The staff gauge in the Wetland Park measured 94 cm on July 23, 2025, which was the highest reading ever recorded at the park.

On September 4, 2025, a 4-ft-wide main influent pipe to the Veolia wastewater treatment plant was reported by the New Orleans Sewerage & Water Board to be leaking. An 8-inch-wide corroded access plate at the bottom of the pipe was replaced, suggesting that the pipe may have been designed to discharge into the canal when necessary. Within a day, water levels decreased noticeably, and the staff gauge measured 65 cm on September 16, a drop of 29 cm (11.0 in) from the peak, strongly suggesting that the leak contributed substantially to the park’s prolonged inundation.

Table 1.1. Staff gauge measurements at the Sankofa Wetland Park.

Date	Gauge (cm)	Date	Gauge (cm)	Date	Gauge (cm)	Date	Gauge (cm)
.	.	1/27/23	41	1/24/24	66	1/7/25	84
2/23/22	32	.	.	2/6/24	63	2/14/25	69
3/23/22	37	3/22/23	34	3/12/24	89	3/26/25	69
4/26/22	35	4/25/23	30	4/30/24	71	4/14/25	65
5/24/22	28	5/23/23	39	5/23/24	66	5/13/25	71
6/13/22	37	6/6/24	27	6/17/24	58	6/12/25	82
7/14/22	37	7/26/23	40	7/11/24	77	7/23/25	94
8/16/22	36	8/24/23	43	8/19/24	68	8/28/25	79
9/16/22	35	9/20/23	43	9/20/24	88	9/16/25	65
10/12/22	30	10/25/23	37	10/8/24	84	10/23/25	63
11/14/22	41	11/9/23	33	.	.	11/11/25	66
12/16/22	44	12/13/23	42	12/12/24	77	12/12/25	76

Water levels in the Wetland Park have remain elevated since January 2024 when the culvert at old Florida Avenue near the railroad tracks (now gated) become clogged, resulting in water backing up into the Wetland Park (Figure 1.2). Though the culvert was replaced, the sustained water level increase is likely the result of sediment that accumulated while the culvert was blocked, resulting in about 100-200 feet of clogged and overgrown drainage canal directly west of the culvert (located 400 to 600 ft east of the Veolia bridge). Sustained high water levels may also be due to another leaking septic pipe. This possibility will be further investigated if water levels do not recede soon.

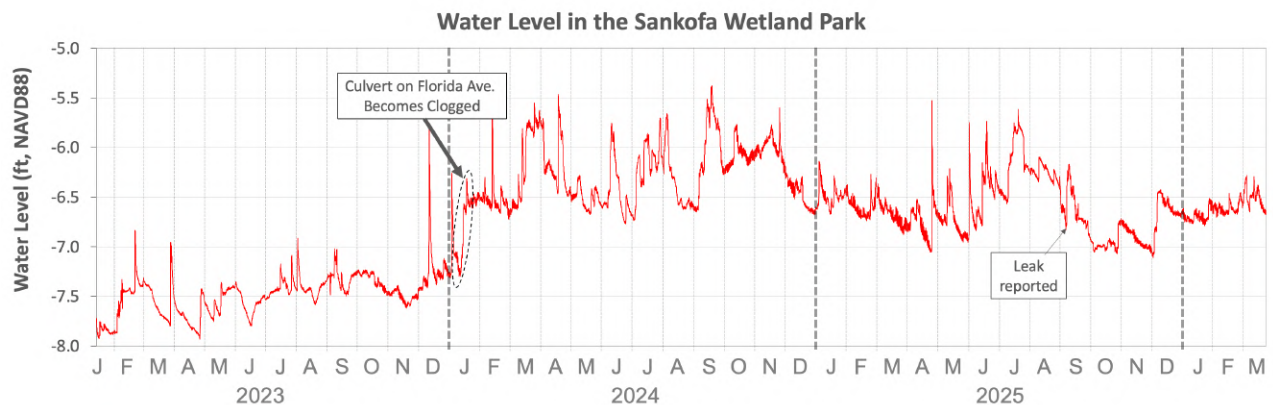


Figure 1.2. Water level in the Sankofa Wetland Park from January 2023 through March 2026.

IN SITU PARAMETERS

Temperature

Water temperature at the Sankofa Wetland Park followed a clear seasonal pattern from 2022 through 2025, with coolest conditions occurring in winter and warmest conditions in summer. Winter temperatures generally ranged from about 6.3 (43°F) to 19.8°C (68°F), spring temperatures increased into the high teens and low 20s°C (~65-73°F), and summer temperatures commonly ranged from the upper 20s to low 30s°C (~80s°F), with the warmest readings reaching 34.8°C (95°F) at T2 and approximately 30.3°C (87°F) at interior wetland sites. Fall temperatures declined progressively back into the low to mid-20s°C (~77°F) before returning to winter minima. Across the monitoring period, the SB site and the wetter perimeter sites were often slightly cooler than some of the more interior wetland locations during the warm season likely due to shading by trees, while site T2 occasionally exhibited the highest temperatures. Overall, the data indicate a normal seasonal temperature regime for a shallow subtropical wetland, with predictable warming in spring and summer and cooling in fall and winter.

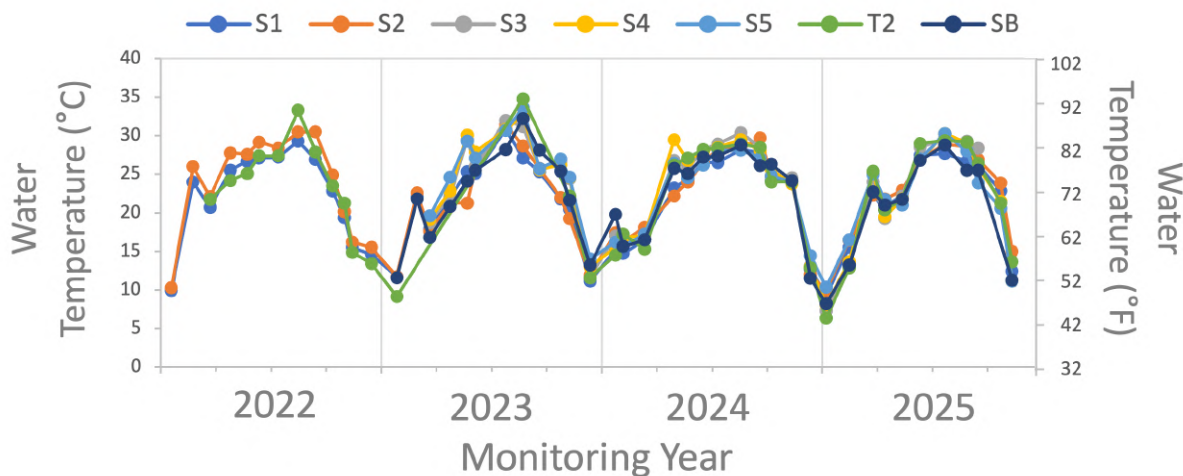


Figure 1.3. Water temperature data from 2022 through 2025.

The temperature data indicate a normal seasonal thermal regime for a shallow subtropical wetland, with winter cooling and summer warming that would be expected to strongly influence biological activity. Warmer spring and summer temperatures likely promoted plant growth, microbial activity, decomposition, and nutrient cycling, while cooler winter temperatures slow these processes. The high summer temperatures, particularly when temperatures exceeded about 30°C (86°F) at several wetland sites and at T2, would also be expected to reduce oxygen solubility and increase the likelihood of low dissolved oxygen during calm nighttime periods, especially in stagnant or organic-rich areas. Even so, these temperature patterns are typical of shallow wetlands in southern Louisiana and do not by themselves indicate a problem; rather, they reflect normal seasonal conditions that interact with hydrology, organic matter loading, and aeration to affect habitat quality and water chemistry across the Sankofa Wetland Park.

Salinity

Salinity at Sankofa Wetland Park was low throughout the monitoring period. At site SB, the salinity range was 0.3 to 0.7 ppt, while at sites S1 and S2, salinity generally ranged from 0.2 to 1.0 ppt, with the highest values occurring at site S2 in late 2023. Across the sites added in 2023 (S3, S4 & S5), salinity was generally 0.2 to 1.3 ppt, with most values clustering between 0.3 and 0.6 ppt. In general, salinity remained fresh across the Wetland Park. Site T2 salinity ranged from 0.2 to 2.2 ppt and was consistently higher than the other sites, with the highest value of 2.2 ppt on January 24, 2024.

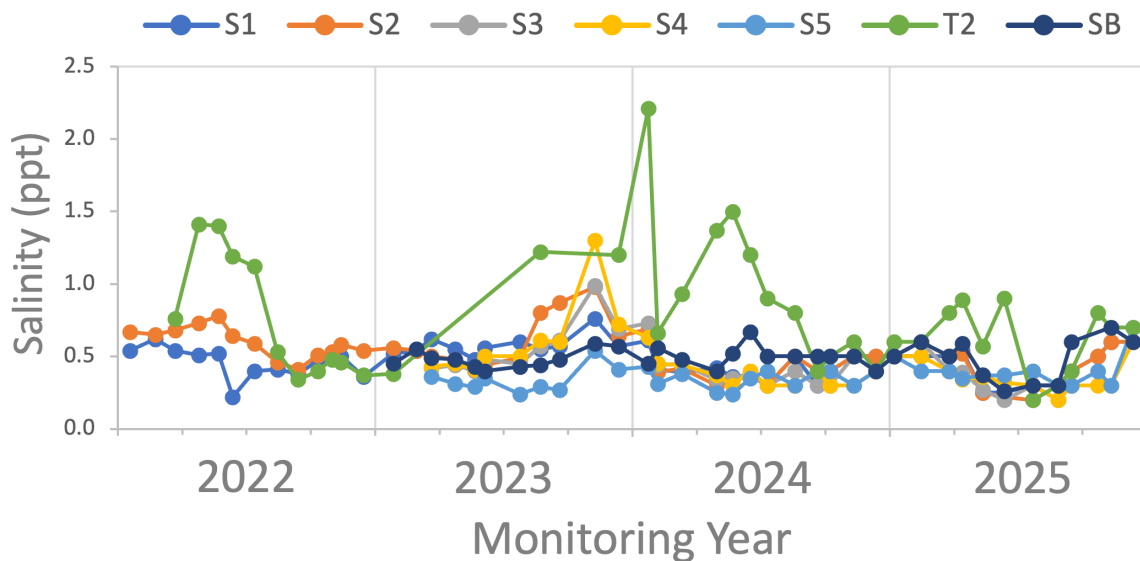


Figure 1.4. Salinity data from 2022 through 2025.

Ecologically, the low salinity values at sites S1 through S5 and site SB are consistent with conditions suitable for freshwater wetland vegetation and associated microbial and aquatic communities. Freshwater wetlands are generally characterized by salinities below about 0.5 ppt, and fresh marshes commonly occur in roughly the 0.1 to 3.4 ppt range, with an average near 1.0 ppt; by comparison, brackish conditions range from 5 to 12 ppt. The somewhat higher and more variable salinity at site T2 reflects its open connection to Gulf waters and tidal influence. However, the salinity values observed across the Wetland Park sites remained well within the range favorable for maintaining freshwater wetland conditions.

Conductivity

Conductivity at Sankofa Wetland Park was approximately 490 to 1,370 $\mu\text{S}/\text{cm}$ at site S1, approximately 450 to 1,730 $\mu\text{S}/\text{cm}$ at site S2, and approximately 580 to 1,170 $\mu\text{S}/\text{cm}$ at site SB over the period of record. Across the interior Wetland Park sites added in 2023, conductivity generally ranged from approximately 420 to 1,860 $\mu\text{S}/\text{cm}$ at sites S3 through S5, although one unusually low value of 25.0 $\mu\text{S}/\text{cm}$ was recorded at site S4 on November 9, 2023, and another unusually low value of 66.3 $\mu\text{S}/\text{cm}$ was recorded at site S3 on December 12, 2024. At site T2, conductivity was generally higher and more variable, ranging from approximately 540 to 3,410

$\mu\text{S}/\text{cm}$. In general, conductivity at the Sankofa Wetland Park sites was most often in the several-hundred to low-thousand $\mu\text{S}/\text{cm}$ range, whereas site T2 frequently exhibited the highest conductivity, with notably elevated values on several dates throughout the four-year period.

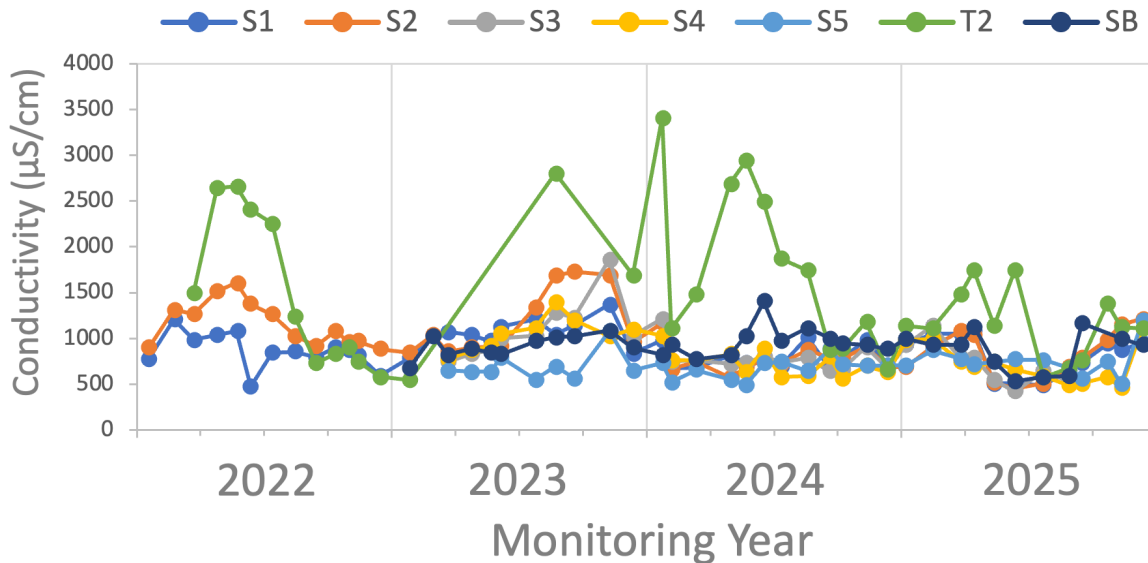


Figure 1.5. Conductivity data from 2022 through 2025.

The generally lower conductivity at the Sankofa Wetland Park sites (SB, S1 through S5) indicates freshwater conditions across most of the wetland park, although periodic increases indicate shifting hydrologic connectivity and changing water sources through time. Fresh surface waters commonly have conductivity values of roughly 50 to 1,500 $\mu\text{S}/\text{cm}$, with many biologically healthy systems often falling within about 150 to 500 $\mu\text{S}/\text{cm}$, whereas tidally influenced or more saline waters are often higher and may extend into the several-thousand $\mu\text{S}/\text{cm}$ range. The persistently higher conductivity at site T2 reflects that this location is tidally influenced and may also experience evapoconcentration and/or concentrated inflows. Overall, this pattern is consistent with a dynamic wetland system in which rainfall, evapotranspiration, inflow conditions, and water residence time interact to affect ionic strength. Periods of elevated conductivity could influence plant community composition, microbial processes, and habitat suitability for freshwater organisms if sustained, but most values indicate conditions that were variable rather than uniformly stressed.

Dissolved Oxygen

Dissolved oxygen concentrations at the Sankofa Wetland Park were variable across the four-year study period but followed a general seasonal pattern of being higher during cooler months and lower during the warmer growing season. Concentrations were often moderate to high during winter and early spring, with several readings above 8 mg/L and occasional peaks above 10 mg/L, whereas late spring through early fall frequently showed much lower concentrations, often in the 0–5 mg/L range. Across the monitoring period, site SB was commonly among the lower-oxygen locations, often remaining below about 3 mg/L and at times falling to less than 1

mg/L, while interior wetland sites such as S3–S5 often exhibited greater variability, including both low values and periods of relatively high oxygenation. Site T2 was likewise variable, ranging from near-anoxic conditions to well-oxygenated conditions depending on season and site conditions. Overall, the data indicate strong spatial and seasonal variability in dissolved oxygen across the Wetland Park, with low dissolved oxygen occurring most often during warm-weather periods.

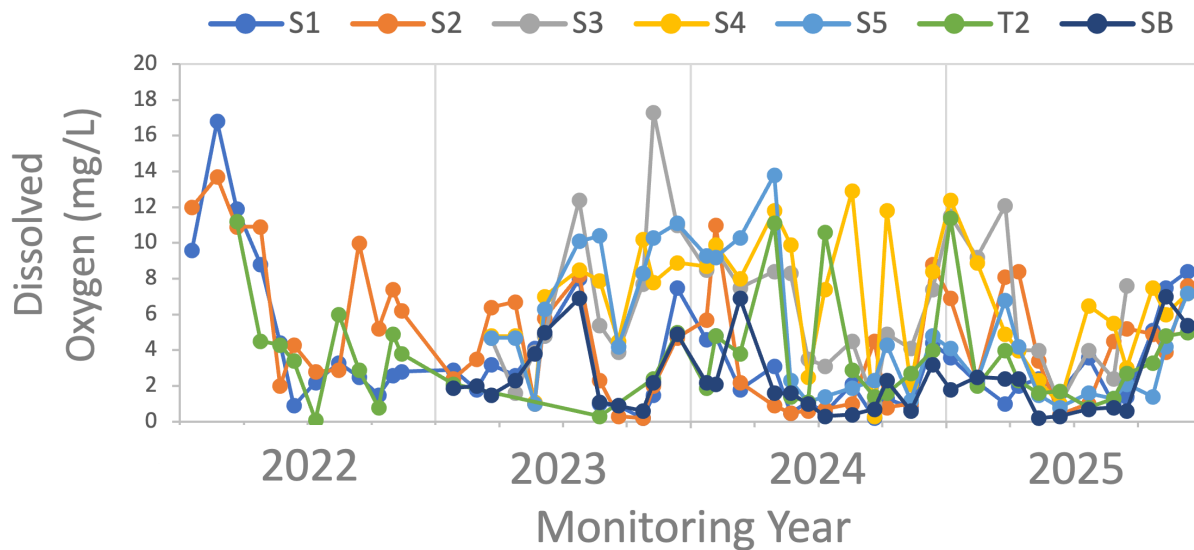


Figure 1.6. Dissolved Oxygen data from 2022 through 2025.

The dissolved oxygen data suggest that oxygen availability in the Wetland Park was often limited during warmer months, which is typical of shallow, organic-rich wetlands where high temperatures, microbial respiration, and decomposition reduce oxygen concentrations. In general, dissolved oxygen concentrations above about 5 mg/L are considered supportive of most aquatic life, concentrations below 5 mg/L are often considered stressful for fish, concentrations below about 3 mg/L are often too low to support fish well, and hypoxia is commonly defined as less than about 2–3 mg/L. Periods of very low dissolved oxygen, especially values near or below about 1–2 mg/L, can therefore place substantial stress on fish and aquatic invertebrates and may increase the risk of fish kills if such conditions occur overnight or persist for extended periods. The higher and more variable dissolved oxygen values observed at some interior sites indicate that photosynthesis, water depth, vegetation structure, and local hydrology likely created patchy oxygen conditions across the Wetland Park. Overall, the results are consistent with a productive wetland system, but they also indicate that some portions of the park periodically experience oxygen stress, particularly during the warm season.

pH

pH at the Sankofa Wetland Park was generally circumneutral to slightly alkaline during the four-year study period. Values were most often in the range of about 6.5 to 8.0, with occasional lower values near 6.3 and occasional higher values up to about 9.0. The interior wetland sites occasionally exhibited the highest values, including readings of 8.8 at site S3, 8.5 at site S4, and 8.5 at site S5, whereas site SB was often among the lower sites, frequently ranging from the upper 6s to mid-7s. In 2024 and 2025, pH remained stable across the Wetland Park, most commonly between about 7.0 and 7.8, with only minor spatial variability among sites. Overall, the data indicate that pH conditions at the Sankofa Wetland Park were generally stable and within the normal range expected for a freshwater wetland system.

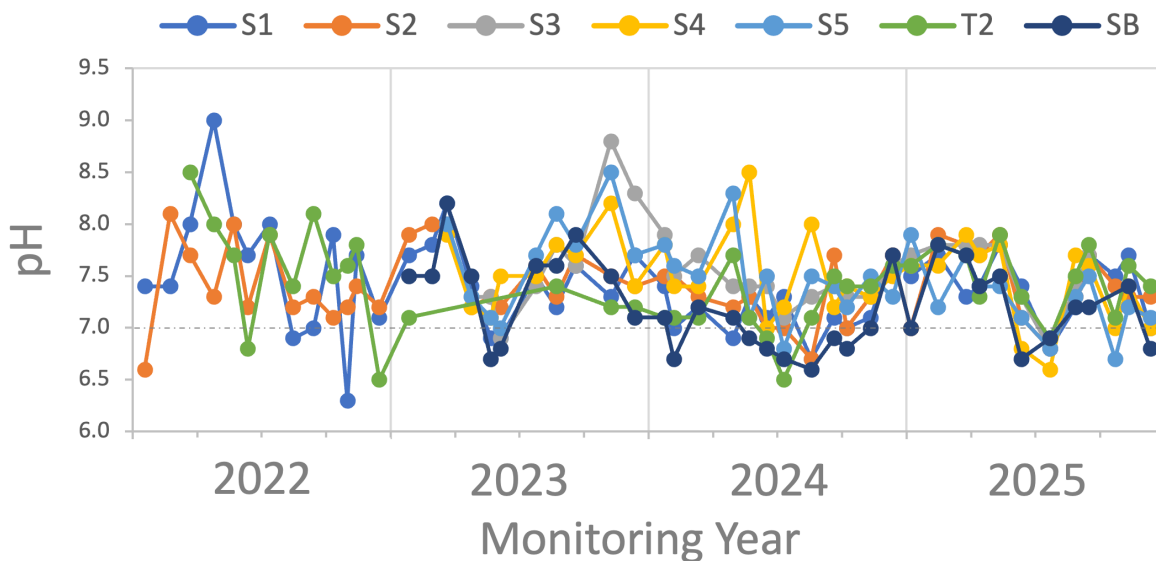


Figure 1.7. Water pH data from 2022 through 2025.

The pH data suggest that acid-base conditions in the Wetland Park were suitable for normal wetland biogeochemical processes and aquatic life throughout the monitoring period. Values in the neutral to slightly alkaline range generally support microbial activity, nutrient cycling, plant productivity, and habitat quality for fish and invertebrates. For most freshwater aquatic systems, a pH range of about 6.5 to 9.0 is generally considered acceptable, and many aquatic organisms tend to do well in the narrower range of about 6.5 to 8.5. The occasional higher pH values at some interior sites were likely related to periods of strong photosynthetic activity, which can raise pH by removing carbon dioxide from the water column, while the somewhat lower values at site SB may reflect greater organic matter influence due to the leaking septic pipes. Overall, the pH record indicates a chemically stable system with no evidence of chronic acidification or other major pH-related water quality concerns.

ANALYTICAL PARAMTERS

NO_x

Nitrate+nitrite (NO_x) concentrations at the Sankofa Wetland Park were generally very low or below detection throughout the study period, indicating that oxidized inorganic nitrogen was usually scarce across the Wetland Park. Most measurements were below detection, with only occasional low-level detections and a brief period of somewhat higher concentrations in Q1 2024, particularly at sites S1, S3, and S4, as well as at sites SB and S1 during a few sampling events, but these were not persistent. Overall, the data indicate that NO_x remained minimal across the monitoring period, with only infrequent short-term pulses at selected sites.

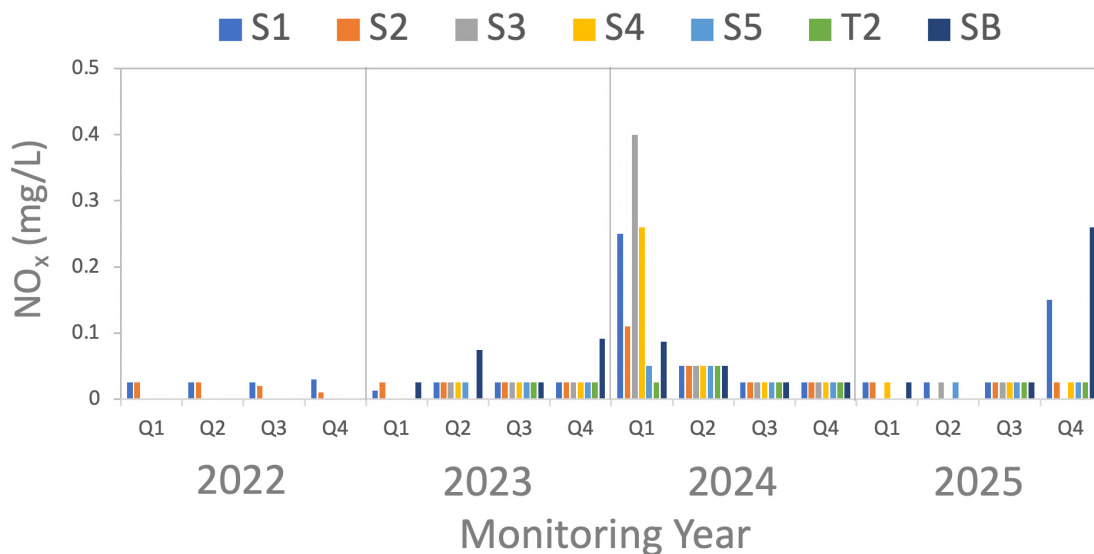


Figure 1.8. Nitrate+nitrite data from 2022 through 2025.

The very low nitrate+nitrite concentrations indicate that oxidized inorganic nitrogen was usually scarce in surface water at the Sankofa Wetland Park. This pattern is typical of productive wetlands, where nitrate is often rapidly taken up by vegetation and algae, transformed through microbial processes such as denitrification, or reduced under low-oxygen conditions. In general, NO_x concentrations in natural surface waters are usually low, often less than about 1 mg/L, and are commonly below about 0.35 mg/L at reference sites with minimal nutrient enrichment. The increased observed in Q1 2024 and at sites S1 and SB in Q4 2025 may reflect short-term pulses associated with runoff, seasonal hydrologic change, or localized nitrification, but concentrations remained low overall. In ecological terms, the data suggest that nitrate was not accumulating in the wetland and that nitrogen cycling was active, with conditions generally favoring retention or transformation of inorganic nitrogen rather than persistent export of nitrate out of the system.

NH₃

Ammonia (NH₃) concentrations at the Sankofa Wetland Park were generally low to moderate at most interior wetland sites during the four-year study period, but were often elevated at site SB and, at times, at site S1 and T2. Across the monitoring period, many readings at sites S2–S5 were below detection or remained at relatively low concentrations, whereas site SB repeatedly exhibited the highest ammonia concentrations. Ammonia concentrations tended to be more elevated during some warm-weather sampling events and during periods when dissolved oxygen was also low, although this pattern was not uniform across all sites and dates. Overall, the data indicate that ammonia was usually limited across much of the Wetland Park, but certain locations, especially site SB, periodically showed substantial accumulation of reduced nitrogen.

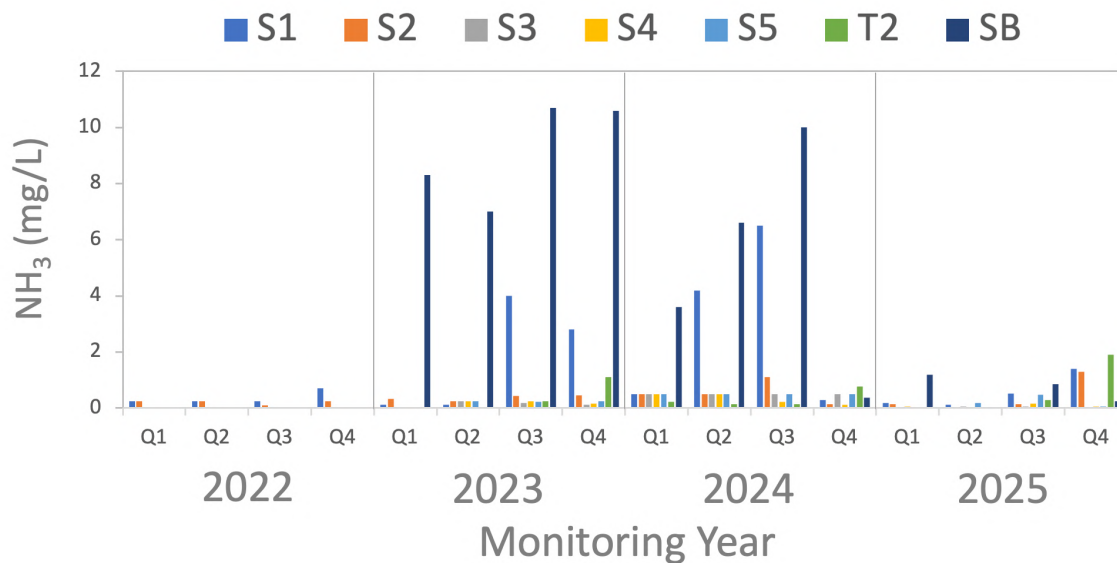


Figure 1.9. Ammonia data from 2022 through 2025.

The ammonia data suggest that reduced nitrogen was intermittently accumulating in portions of the Sankofa Wetland Park, particularly at site SB and occasionally at site S1. Elevated ammonia is commonly associated with organic matter decomposition and low-oxygen conditions. In general, ammonia concentrations in natural surface waters are typically low, often less than about 1 mg/L, whereas concentrations above about 2 mg/L may approach or exceed chronic levels of concern for aquatic life, depending on pH and temperature. The repeated occurrence of relatively high ammonia at site SB reflects the septic leakage at the area. In contrast, the generally lower concentrations at many interior sites reflects their distance from the septic discharge. Ecologically, elevated ammonia can contribute to water quality stress, especially when paired with warm temperatures and low dissolved oxygen. Overall, the data indicate active nitrogen cycling across the Wetland Park, but also that certain locations periodically experience conditions conducive to ammonia buildup.

TN

Total nitrogen (TN) concentrations at the Sankofa Wetland Park were generally low to moderate at most interior wetland sites during the four years of data collection but were often elevated at site SB and occasionally at sites S1 and T2. Across the monitoring period, concentrations at sites S2–S5 were commonly around 1–3 mg/L, although some higher values occurred, particularly during Q3 and Q4 of 2023. Site SB repeatedly exhibited among the highest total nitrogen concentrations, at times exceeding 10 mg/L, while site S1 also showed periodic elevations. Most sites had lower concentrations in 2025, generally near 1–2 mg/L, with the notable exception of the T2 site value of 205 mg/L in Q4 2025. Overall, the data indicate that total nitrogen was present throughout the Wetland Park at measurable concentrations, with persistent enrichment at site SB and occasional elevated concentrations at selected other sites.

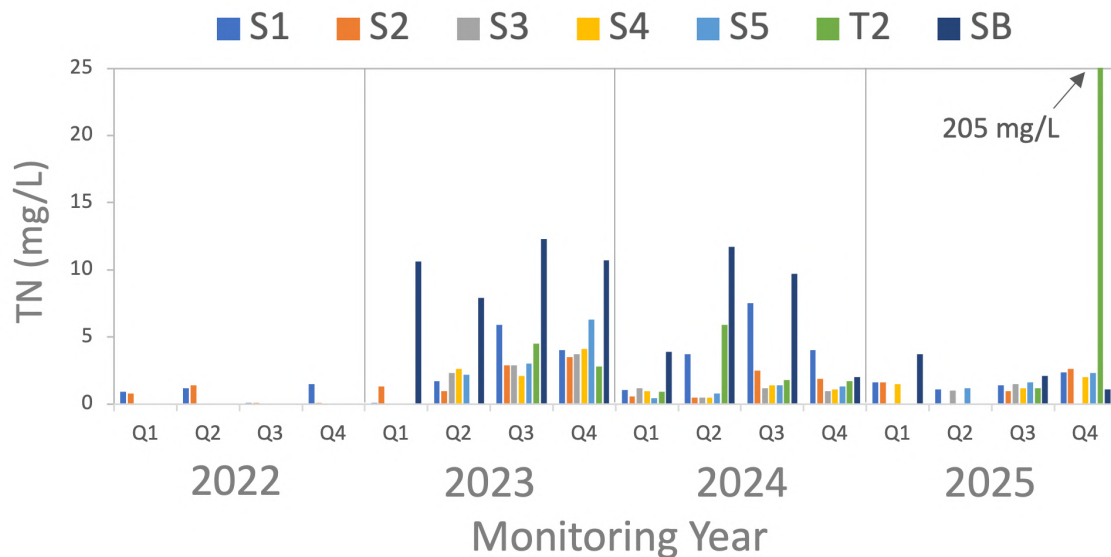


Figure 1.10. Total nitrogen data from 2022 through 2025.

The total nitrogen data indicate that nitrogen was consistently available within the Sankofa Wetland Park and that some portions of the system, especially site SB, experienced recurring nutrient enrichment. Elevated total nitrogen can reflect a combination of dissolved inorganic nitrogen, organic nitrogen, algal biomass, and detrital material, and is often associated with organic matter accumulation and external nutrient inputs. In relatively undeveloped surface waters, total nitrogen concentrations are often less than about 1 mg/L and may average closer to about 0.26 mg/L, whereas concentrations of 1 to 3 mg/L or more are more typical of nutrient-enriched systems. The higher concentrations observed at site SB reflects that this area was receiving septic inputs, while the generally lower concentrations at many interior sites suggest greater dilution, plant uptake, sedimentation, or transformation within the wetland. The very high concentration at site T2 reported in Q1 2025 is indicative of a major nutrient input from a nearby source.

PO₄

Phosphate (PO₄) concentrations at the Sankofa Wetland Park were generally low or below detection at many interior wetland sites throughout the four-year dataset, but were often elevated at site SB and, to a lesser extent, at sites S1, S2, and occasionally T2. Across the monitoring period, concentrations at sites S1–S5 were most often below detection or remained low, whereas site SB repeatedly exhibited among the highest phosphate concentrations, at times exceeding 1 mg/L. The S1 site also showed periodic elevations, particularly during 2023 and 2024, while site S2 had intermittent moderate increases. By 2025, phosphate concentrations were generally lower across most sites. Site T2, however, remained elevated during Q4 2025. Overall, the data indicate that phosphate was usually limited across much of the Wetland Park, but certain locations, especially sites SB and S1, periodically showed substantial phosphorus enrichment.

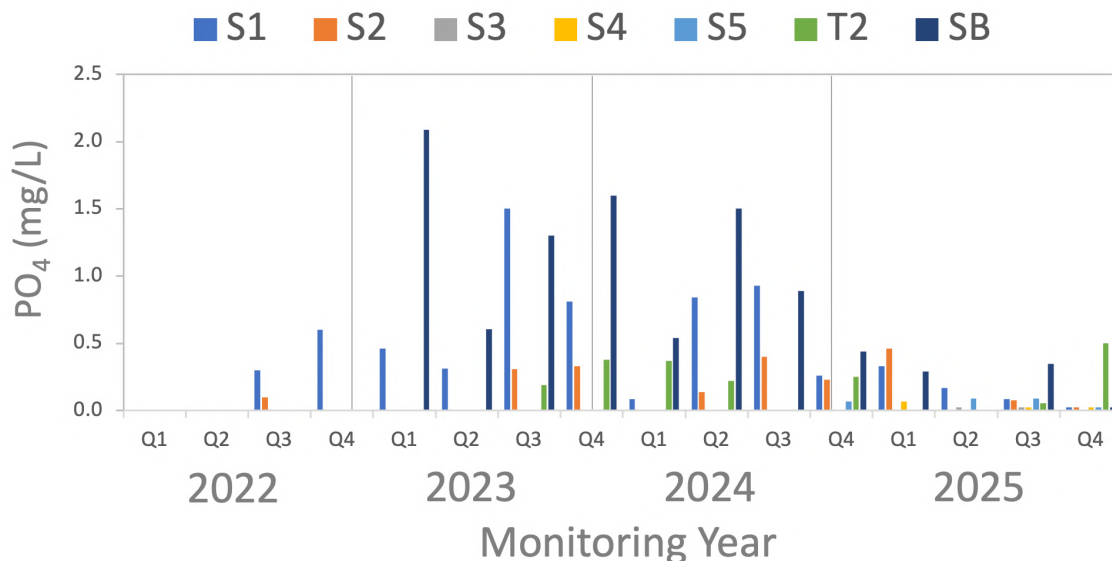


Figure 1.11. Phosphate data from 2022 through 2025.

The phosphate data suggest that phosphorus availability was unevenly distributed across the Sankofa Wetland Park sites, with some areas experiencing recurring enrichment while others remained consistently low. Elevated phosphate at sites SB and S1 may reflect localized nutrient inputs and/or the accumulation of decomposing organic matter. In general, orthophosphate concentrations in relatively unimpacted surface waters are often very low, commonly near or below 0.01 to 0.05 mg/L, whereas concentrations above about 0.05 to 0.10 mg/L are more consistent with nutrient enrichment. In contrast, the generally low concentrations at sites S3–S5 suggest that phosphorus was being retained in sediments or taken up by vegetation and algae. Ecologically, this pattern is consistent with a productive wetland system that can retain and process phosphorus, but repeated enrichment at selected locations may promote algal growth and contribute to oxygen demand when paired with warm temperatures and elevated organic loading. Overall, the results indicate active phosphorus cycling, with localized areas of greater nutrient accumulation within the Wetland Park.

TP

Total phosphorus concentrations at the Sankofa Wetland Park were generally low to moderate at most interior wetland sites throughout the study period, but were often elevated at site SB and, at times, at sites S1 and T2. Across the monitoring period, concentrations at sites S3–S5 were commonly low or below detection, whereas site SB repeatedly exhibited among the highest total phosphorus concentrations, often in the range of about 0.5 to 2.0 mg/L. The S1 site also showed recurring elevations, particularly during 2023 and 2024, while site S2 had intermittent moderate increases. Concentrations at most sites were lower in 2025, with the notable exception of site T2 with a value of 22.60 mg/L in Q4 2025. Overall, the data indicate that total phosphorus was present throughout the Wetland Park at measurable concentrations, with persistent enrichment at site SB and periodic enrichment at selected other locations.

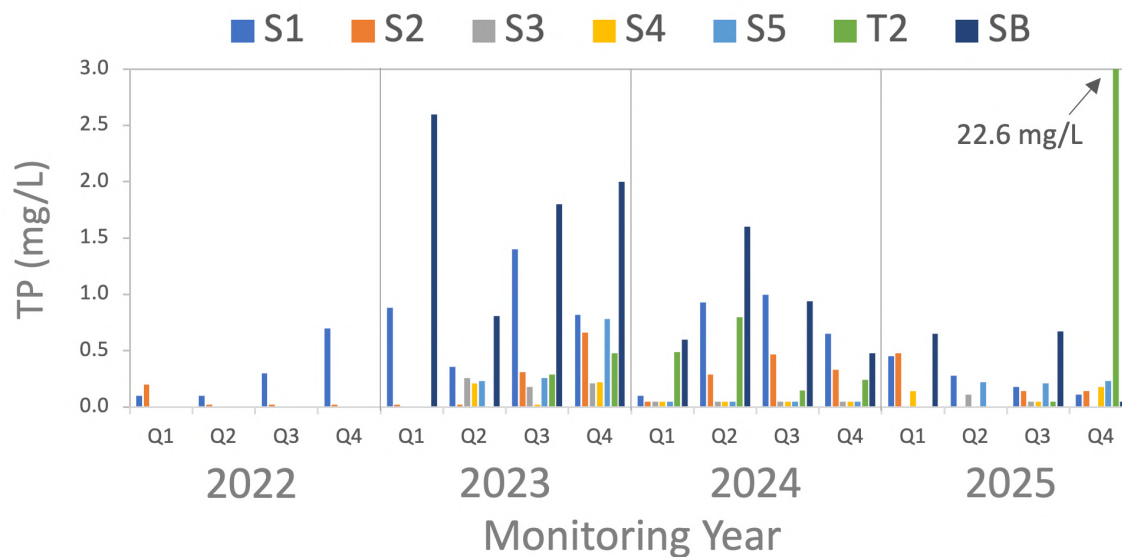


Figure 1.12. Total phosphorus data from 2022 through 2025.

Elevated total phosphorus at sites SB and S1 suggests localized nutrient inputs, accumulation of phosphorus-rich organic matter, and/or sediment release. In relatively unimpacted surface waters, total phosphorus concentrations are often about 0.01 to 0.10 mg/L as P, whereas concentrations above about 0.10 mg/L are more consistent with nutrient enrichment. The generally lower concentrations at sites S3–S5 reflects their distance and less direct exposure to the septic leak near site SB. Ecologically, this pattern is consistent with a wetland system that is actively retaining and processing phosphorus, but repeated enrichment has contributed to algal growth, elevated oxygen demand, and localized water quality stress, especially when combined with warm temperatures. The very high concentration reported in Q4 2025 suggests nearby point-source nutrient loading.

TSS

Total suspended solids concentrations at the Sankofa Wetland Park were generally low to moderate at many sites but were highly variable across the Wetland Park and periodically elevated at selected locations. Across the monitoring period, sites S1 and S2 were often low, frequently near or below detection, although occasional moderate increases occurred. In contrast, sites S3–S5 sometimes exhibited substantially higher TSS concentrations, particularly during 2023, and site SB also showed episodic large increases, including particularly elevated concentrations in Q1 2023, Q2 2024, and Q3 2025. The T2 site was variable as well, with generally low to moderate concentrations but an elevated value in Q4 2025. Overall, the data indicate that suspended sediment concentrations were usually not high throughout the entire Wetland Park but localized and sometimes pronounced increases occurred at certain sites and sampling events.

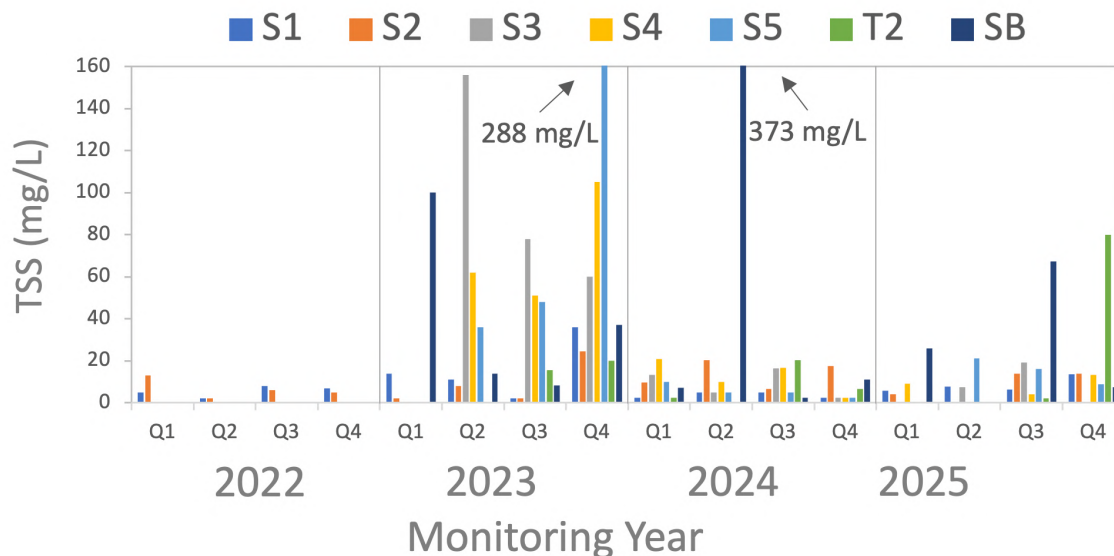


Figure 1.13. Total suspended solids data from 2022 through 2025.

The TSS data suggest that suspended sediment conditions at the Sankofa Wetland Park were spatially patchy and influenced by localized disturbance, sediment resuspension, inflow conditions, algal or organic particulates, or variable hydrologic connectivity among sites. In relatively unimpacted waters, median TSS concentrations commonly range from about 5 to 26 mg/L, although shallow wetlands may periodically exceed that range because of sediment resuspension and inflow events. Periodic high TSS at the Wetland Park sites may reflect wind-driven resuspension in shallow water, inflow of turbid water, disturbance of unconsolidated sediments, or transport of organic detritus through portions of the system. Elevated suspended solids can reduce light penetration, potentially limiting submerged plant growth and altering primary productivity, while also contributing to sediment and nutrient redistribution within the wetland. Overall, the data indicate an active and dynamic system in which most sites often had relatively low suspended solids, but some locations periodically experienced elevated turbidity and particulate loading.

BOD₅

BOD₅ concentrations at the Sankofa Wetland Park were generally low to moderate at most sites but were variable across the Wetland Park and periodically elevated at selected locations. Across the monitoring period, sites S1 and S2 often had modest BOD₅ concentrations, although both sites showed occasional increases. Interior wetland sites S3–S5 were likewise usually low to moderate, but site S4 and especially site S5 exhibited episodic elevated values during some sampling events. The SB site was generally in the low to moderate range but also showed periodic increases. Site T2 was variable, with generally modest concentrations and some elevated values in 2023, 2024, and Q4 2025. The highest BOD₅ concentrations occurred during 2024 and 2025, particularly at sites S4, S5, S1, and T2. Overall, the data indicate that oxygen demand from biodegradable organic matter was usually moderate across the wetland park, but certain sites periodically experienced elevated organic loading or decomposition activity.

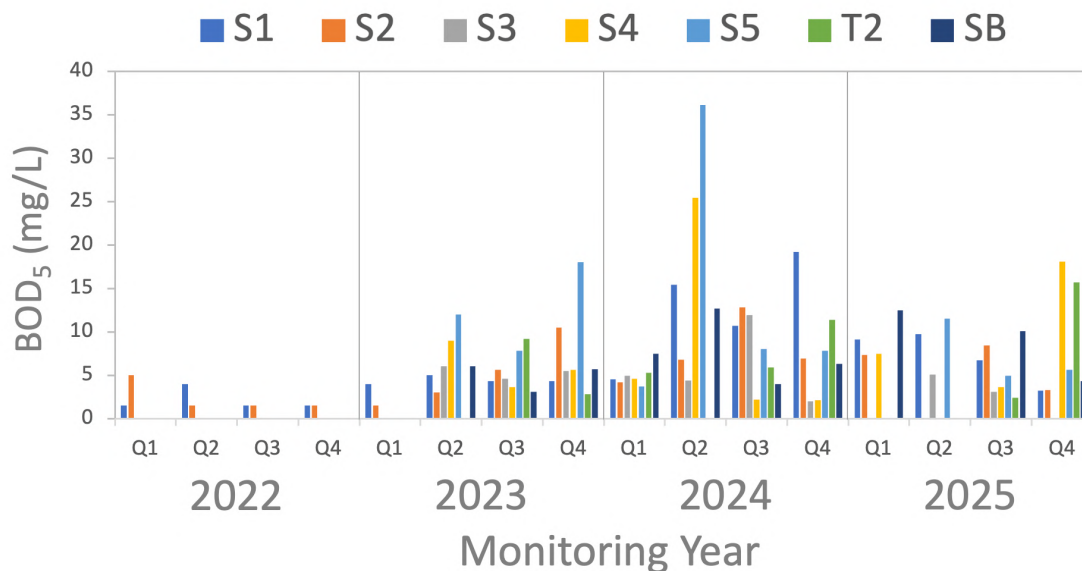


Figure 1.14. 5-Day Biological Oxygen Demand (BOD₅) data from 2022 through 2025.

The BOD₅ data suggest that the Sankofa Wetland Park periodically received or generated enough biodegradable organic matter to create localized oxygen demand, especially during warmer periods or at sites with greater organic accumulation. In general, unpolluted natural waters often have BOD₅ concentrations of about 5 mg/L or less, whereas higher values are more consistent with elevated organic loading and oxygen demand. Elevated BOD₅ can reflect decomposition of plant material, algal biomass, organic-rich sediments, or other carbon sources, and when paired with warm temperatures it can contribute to low dissolved oxygen in the water column. The episodic higher values observed at sites SB, S1, S4, and S5 indicate that oxygen demand was not evenly distributed across the wetland and likely varied with hydrology, vegetation density, organic matter inputs, and sediment conditions. Ecologically, this pattern is consistent with a productive wetland system where decomposition and nutrient cycling are active, but it also indicates that some locations may periodically be more vulnerable to oxygen stress, particularly during warm, stagnant conditions.

Section 2. Avian Survey

Comite Resources has been identifying all birds seen and/or heard at the Sankofa Wetland Park during monthly monitoring visits. A total of 77 species of birds were observed in the Sankofa Wetland Park during 2025 (Table 2.1), which is ten species more than surveyed in 2024. See detailed discussion below of all avian census data collected thus far.

Table 2.1. Bird species encountered at the Sankofa Wetland Park in 2025.

Common Name	Scientific Name	2025											
		J	F	M	A	M	J	J	A	S	O	N	D
American Black Duck	<i>Anas rubripes</i>									X			
American Coot	<i>Fulica americana</i>	X				X					X		
American Crow	<i>Corvus brachyrhynchos</i>	X	X	X	X	X	X	X	X	X	X	X	
American Kestrel	<i>Falco sparverius</i>									X	X		
Anhinga	<i>Anhinga anhinga</i>	X	X	X	X	X	X	X	X	X	X	X	
Bald Eagle	<i>Haliaeetus leucocephalus</i>		X					X			X	X	
Barn Swallow	<i>Hirundo rustica</i>				X	X	X		X	X	X		
Belted Kingfisher	<i>Megaceryle alcyon</i>									X		X	
Black Vulture	<i>Coragyps atratus</i>	X	X	X	X	X		X		X	X	X	
Black-Bellied Whistling-Duck	<i>Dendrocygna autumnalis</i>				X	X	X	X	X				
Black-Crowned Night Heron	<i>Nycticorax nycticorax</i>					X	X	X	X	X			
Black-Throated Green Warbler	<i>Setophaga virens</i>			X									
Black-Winged Stilt	<i>Himantopus himantopus</i>					X							
Blue Grosbeak	<i>Passerina caerulea</i>				X								
Blue Jay	<i>Cyanocitta cristata</i>	X	X	X		X	X	X	X	X	X	X	
Blue-Grey Gnatcatcher	<i>Polioptila caerulea</i>			X						X	X	X	
Brown Pelican	<i>Pelecanus occidentalis</i>	X											
Bufflehead	<i>Bucephala albeola</i>	X	X										
Carolina Chickadee	<i>Poecile carolinensis</i>	X		X	X	X	X	X	X	X	X	X	
Carolina Wren	<i>Thryothorus ludovicianus</i>			X	X	X	X	X	X	X	X	X	
Cattle Egret	<i>Bubulcus ibis</i>		X	X	X	X	X	X	X	X	X		
Cedar Waxwing	<i>Bombycilla cerorum</i>				X								
Chimney Swift	<i>Chaetura pelagica</i>				X	X	X						
Common Grackle	<i>Quiscalus quiscula</i>		X	X	X	X	X			X	X	X	
Common Moorhen	<i>Gallinula chloropus</i>	X	X	X	X	X		X	X	X	X	X	
Common Tern	<i>Sterna hirundo</i>				X	X						X	
Common Yellowthroat	<i>Geothlypis trichas</i>				X				X	X	X	X	
Coopers Hawk	<i>Accipiter cooperii</i>					X							
Double Crested Cormorant	<i>Phalacrocorax auritus</i>		X		X	X		X	X			X	
Downy Woodpecker	<i>Dryobates pubescens</i>	X	X	X	X	X		X		X	X	X	
Eastern Kingbird	<i>Tyrannus tyrannus</i>				X	X	X						
Eastern Phoebe	<i>Sayornis phoebe</i>	X	X	X	X	X				X	X	X	
Eurasian Collared Dove	<i>Streptopelia decaocto</i>					X			X	X			
European Starling	<i>Sturnus Vulgaris</i>	X	X	X	X	X	X	X	X	X	X	X	
Fish Crow	<i>Corvus ossifragus</i>		X	X	X	X	X				X	X	
Glossy Ibis	<i>Plegadis falcinellus</i>					X	X						
Great Blue Heron	<i>Ardea herodias</i>	X	X	X	X	X	X	X	X	X	X	X	
Great Egret	<i>Ardea alba</i>	X	X	X	X	X	X	X	X	X	X	X	
Green Heron	<i>Butorides virescens</i>				X	X	X	X	X	X	X		



Table 2.1 continued. Bird species encountered at the Sankofa Wetland Park in 2025.

Common Name	Scientific Name	2025											
		J	F	M	A	M	J	J	A	S	O	N	D
Gull-Billed Tern	<i>Gelochelidon nilotica</i>				X								
Indigo Bunting	<i>Passerina cyanea</i>					X							
Killdeer	<i>Charadrius vociferus</i>	X		X		X					X	X	
Laughing Gull	<i>Larus atricilla</i>	X	X	X	X	X		X	X				X
Limpkin	<i>Aramus guarana</i>		X		X	X		X	X	X	X	X	X
Little Blue Heron	<i>Egretta caerulea</i>	X		X	X	X	X	X	X	X	X	X	X
Mississippi Kite	<i>Ictinia mississippiensis</i>				X	X							
Mockingbird	<i>Mimus polyglottos</i>	X	X	X	X	X	X	X	X	X	X		X
Monk Parakeet	<i>Myiopsitta monachus</i>											X	X
Mourning Dove	<i>Zenaidura macroura</i>	X	X	X	X	X	X		X			X	X
Northern Cardinal	<i>Cardinalis cardinalis</i>	X	X	X	X	X	X	X	X	X	X	X	X
Northern Harrier	<i>Circus hudsonius</i>											X	
Osprey	<i>Pandion Haliaeetus</i>	X	X		X			X				X	X
Pied-billed Grebe	<i>Podilymbus podiceps</i>									X			X
Prothonotary Warbler	<i>Protonotaria citrea</i>				X								
Purple Martin	<i>Progne subis</i>				X	X							
Red Shouldered Hawk	<i>Buteo lineatus</i>						X	X	X	X		X	X
Red Tailed Hawk	<i>Buteo jamaicensis</i>	X											
Red Winged Blackbird	<i>Agelaius phoeniceus</i>	X	X	X	X	X	X			X	X	X	X
Red-Bellied Woodpecker	<i>Melanerpes carolinus</i>									X			
Roseate Spoonbill	<i>Platalea ajaja</i>								X	X			
Snowy Egret	<i>Egretta thula</i>		X		X	X	X	X	X	X	X	X	X
Song Sparrow	<i>Melospiza melodia</i>	X			X	X			X	X	X		
Swamp Sparrow	<i>Melospiza georgiana</i>												X
Tennessee Warbler	<i>Leiothlypis peregrina</i>												X
Tree Swallow	<i>Tachycineta bicolor</i>				X	X							X
Tricolor Egret	<i>Egretta tricolor</i>					X		X	X	X	X	X	
Tufted Titmouse	<i>Baeolophus bicolor</i>			X	X		X		X		X	X	X
Turkey Vulture	<i>Cathartes aura</i>	X	X	X	X	X		X			X	X	X
White Ibis	<i>Eudocimus albus</i>	X	X	X	X	X	X	X	X	X	X	X	
White Pelican	<i>Pelecanus erythrorhynchos</i>	X											X
White-Eyed Vireo	<i>Vireo griseus</i>				X	X	X	X		X			
Wood Duck	<i>Aix sponsa</i>				X					X			X
Yellow-Billed Cuckoo	<i>Coccyzus americanus</i>					X							
Yellow-Breasted Chat	<i>Icteria virens</i>								X				
Yellow-Crowned Night-Heron	<i>Nyctanassa violacea</i>				X	X	X	X	X				X
Yellow-Rumped Warbler	<i>Setophaga coronata</i>	X	X	X	X							X	
Yellow-Throated Vireo	<i>Vireo flavifrons</i>								X				

The avian census data show a clear increase in bird diversity through time. Annual richness rose from 57 species in 2022 to 70 species in 2023, 67 species in 2024, and 77 species in 2025, indicating that the Wetland Park supported an increasingly diverse bird community over the monitoring period. Survey-by-survey richness was generally lowest in mid to late summer and highest in spring, late fall, and winter, with the fewest species recorded in August 2024 and the highest number recorded in May 2025.

The data also suggest a strong seasonal pattern. Species counts tended to be lower during the hottest months, especially July and August, and higher during April, May, November, and



December. That pattern is consistent with the addition of wintering birds and spring/fall migrants to the resident community, which increases total richness during cooler months and migration periods.

A stable core group of common resident or frequently recurring birds was present throughout much of the record. Species such as Northern Cardinal, Blue Jay, American Crow, Mockingbird, Great Egret, White Ibis, Anhinga, Carolina Chickadee, Common Moorhen, and Great Blue Heron appeared repeatedly, indicating that the park provides dependable year-round habitat for a mix of songbirds, wading birds, and wetland-associated species. At the same time, the appearance of more seasonal species such as swallows, warblers, ducks, and raptors shows that the site also functions as opportunistic habitat for migratory and wintering birds.

Overall, the avian census data indicates that the Sankofa Wetland Park has become an increasingly valuable urban wetland habitat. The upward trend in total species richness, together with the recurring presence of wetland birds and the seasonal arrival of migrants, indicates that the park is supporting both a persistent resident avifauna and a broader assemblage of transient species over time.



An Anhinga spotted near site S2 on December 12, 2025.

Section 5. Miscellaneous Activities

A fish kill at the Sankofa Wetland Park was first observed on the morning of April 2, 2025, when 28 large dead carp and numerous smaller fish were found in the original completed section of the park. These were likely the sterile triploid grass carp stocked on November 9, 2023. Additional dead fish were observed in the Wetland Park during monitoring on June 12, 2025. The immediate cause for the April fish kill appears to have been low dissolved oxygen after an aerator was found unplugged, but the two events should also be viewed in the broader context of the recent history of the Wetland Park. During 2024, the park was negatively impacted by a clogged culvert, prolonged flooding, and two leaking septic pipes associated with the nearby wastewater treatment infrastructure, which introduced septic water, both treated and raw, into the system for well over a year (20 months) before repairs were made. These problems were initially minimized or not fully acknowledged by responding agencies, even as field observations documented black water, septic odors, and visible leakage. Although major repairs were eventually made, the Wetland Park continued to experience one problem after another, including persistent drainage blockage from sediment and debris, persistently raised water levels, and the long aftereffects of nutrient loading. The fish kill in April 2025, followed by additional dead fish in June, therefore appears to represent not just an isolated aeration failure, but part of a larger sequence of infrastructure, maintenance, and water-quality problems that have shaped the park since early 2024. Going forward, continued monitoring, improved drainage maintenance, rapid response to leaks, and investment in long-term infrastructure and restoration planning will be important, both for improving conditions at the Sankofa Wetland Park and for making the park a valuable case study in the challenges and resilience of urban wetland restoration.



Dead fish spotted at the Wetland Park on April 2, 2025.

On **June 12, 2025**, Dr. Rob Lane and Jason Day, along with Sankofa groundskeeper “Royal”, spent three hours clearing a path for water to flow in the St. Bernard Parish stormwater channel. Work extended approximately 100 feet on either side of the new big culvert at the end of Florida Avenue.



Rob Lane clearing the St. Bernard Parish stormwater channel on June 12, 2025.

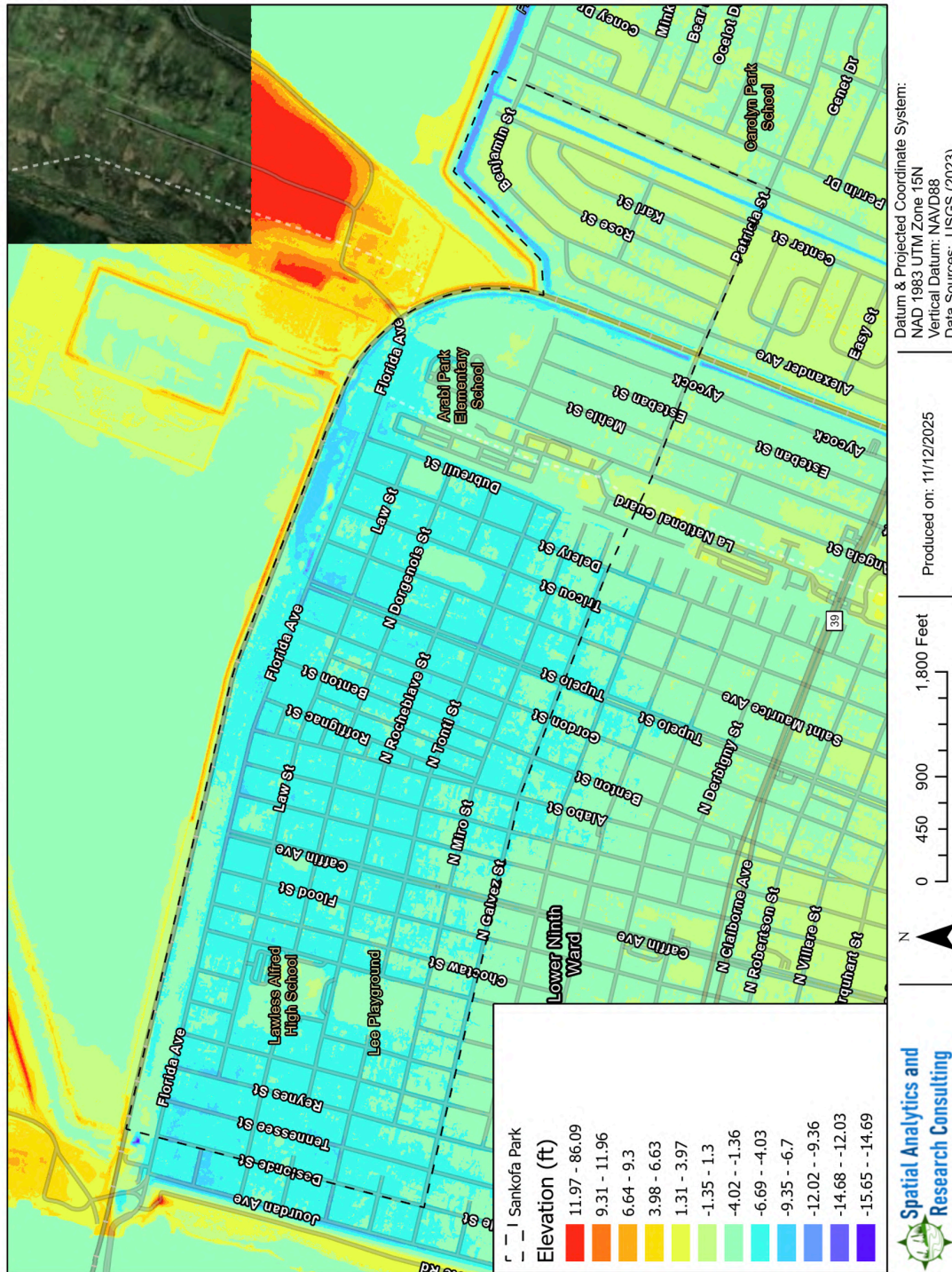
On **September 4, 2025**, a representative of SWBNO informed Sankofa of a leak from the large pipe shown in the background of the image above (the one with the riser pipe). Unfortunately, the third water level recorder logger (and the barometric recorder) deployed on August 28 was bulldozed over during the repair of the leaking pipe. A layer of sand was placed on top of the bulldozed area, approximately a foot thick. An attempt was made to retrieve the loggers by digging holes near where they were deployed, but they were never found. However, water level in the Wetland Park was much lower than in the past, corroborating our hypothesis that the increased water level in the Wetland Park was caused by a leaking septic pipe.

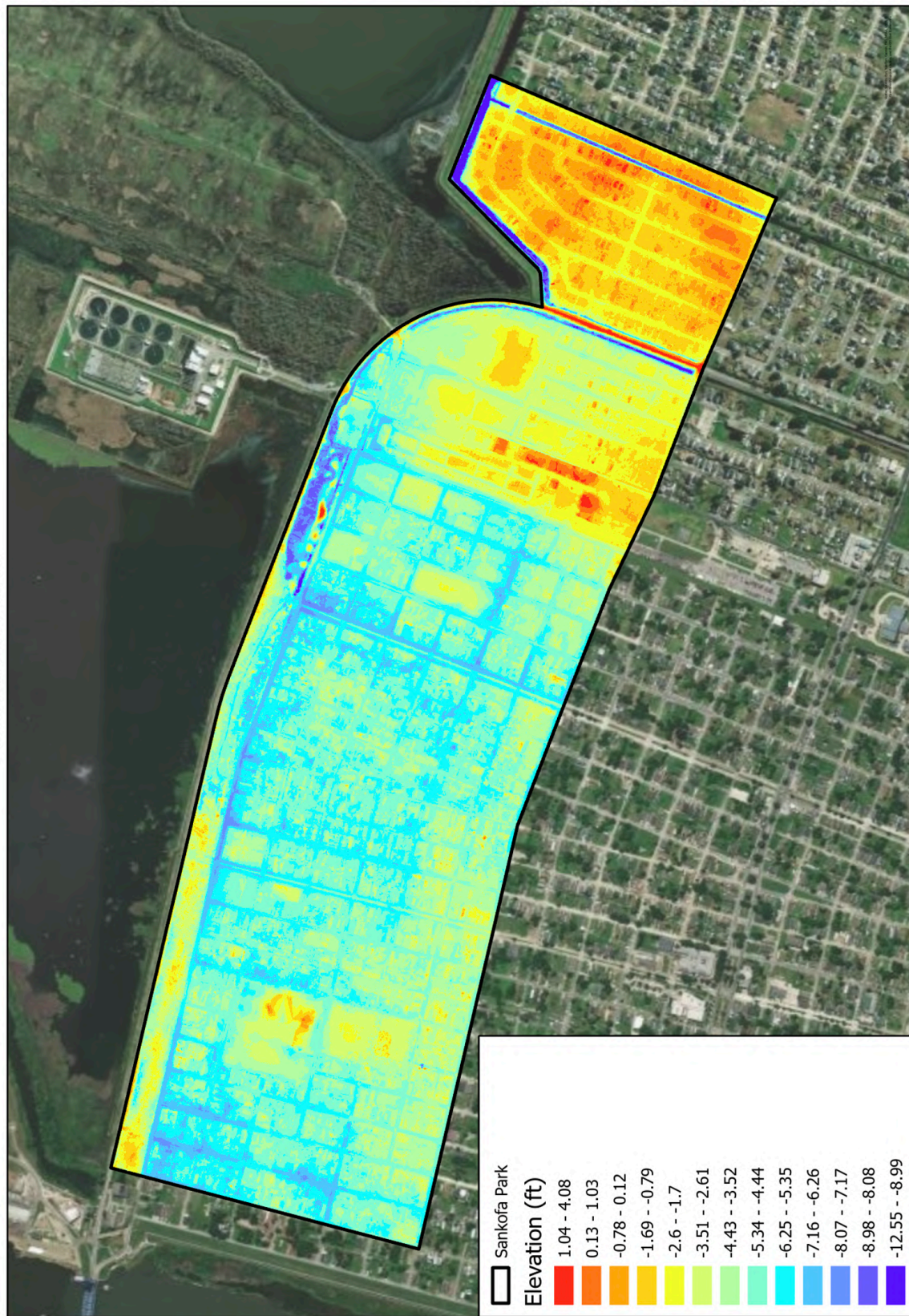


The location where the water level logger was deployed. Notice newly tarred pipe in the background.

High resolution LiDAR imagery was acquired through Spatial Analytics & Research Consulting LLC, a women-owned small business out of Houston Texas. Below are images from the PowerPoint file was provided. We believe that such imagery will be useful in dispelling the misconception that the Sankofa Wetland Park could flood surrounding neighborhoods since it clearly shows the water in the park to be at the lowest elevation in the region.

Sankofa General Elevation

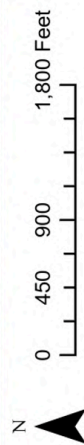


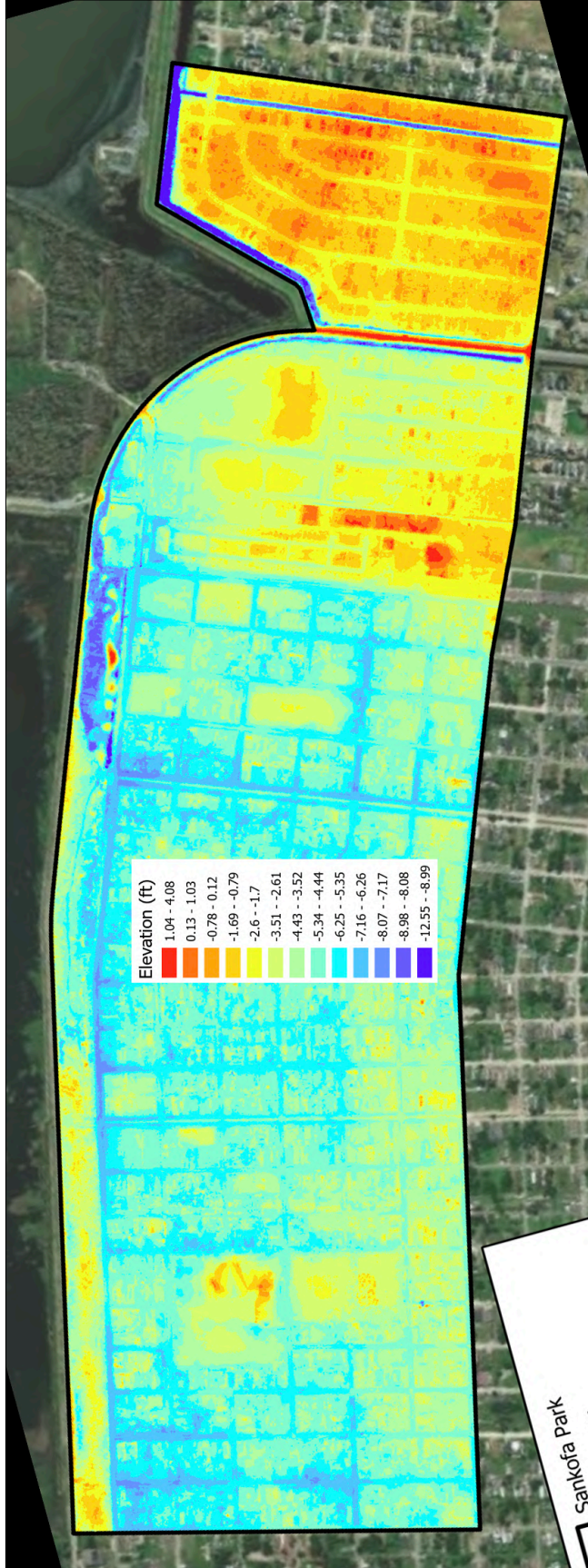


Sankofa Park	
Elevation (ft)	
■	1.04 - 4.08
■	0.13 - 1.03
■	-0.78 - 0.12
■	-1.69 - -0.79
■	-2.6 - -1.7
■	-3.51 - -2.61
■	-4.43 - -3.52
■	-5.34 - -4.44
■	-6.25 - -5.35
■	-7.16 - -6.26
■	-8.07 - -7.17
■	-8.98 - -8.08
■	-12.55 - -8.99

Datum & Projected Coordinate System:
 NAD 1983 UTM Zone 15N
 Vertical Datum: NAVD88
 Data Sources: USGS (2023)

Produced on: 11/12/2025





Appendix: Raw Data Tables

Water Temperature Data (°C)							
Date	S1	S2	S3	S4	S5	T2	SB
1/18/22	9.9	10.3	.	.	.	.	.
2/23/22	24.0	26.0	.	.	.	.	.
3/23/22	20.7	22.1	.	.	.	21.7	.
4/26/22	25.5	27.8	.	.	.	24.2	.
5/24/22	26.7	27.6	.	.	.	25.1	.
6/13/22	27.1	29.2	.	.	.	27.4	.
7/14/22	27.2	28.4	.	.	.	27.4	.
8/16/22	29.3	30.5	.	.	.	33.3	.
9/14/22	26.9	30.5	.	.	.	27.9	.
10/12/22	22.8	24.9	.	.	.	23.5	.
11/1/22	19.4	20.2	.	.	.	21.3	.
11/14/22	15.5	16.2	.	.	.	14.9	.
12/16/22	14.6	15.5	.	.	.	13.4	.
1/27/23	11.7	11.7	.	.	.	9.1	11.6
3/1/23	22.1	22.6	.	.	.	.	21.8
3/22/23	17.9	17.6	18.7	19.1	19.6	.	16.8
4/25/23	22.0	21.3	22.2	22.8	24.6	.	20.8
5/23/23	25.3	21.3	29.5	30.1	29.3	.	24.1
6/6/23	25.1	26.0	26.0	27.9	27.1	.	25.5
7/26/23	30.8	31.4	32.0	30.8	30.7	.	28.2
8/24/23	27.1	28.7	31.2	32.7	33.6	34.8	32.2
9/20/23	25.3	25.7	25.8	25.6	25.7	.	28.1
10/25/23	21.8	22.0	26.7	26.2	27.0	.	25.4
11/9/23	20.5	19.2	24.4	24.5	24.6	22.2	21.6
12/13/23	11.1	11.9	11.6	13.0	14.0	11.6	13.2
1/24/24	15.2	17.4	17.0	15.5	16.2	14.5	19.8
2/6/24	14.7	16.3	16.3	16.8	15.7	17.2	15.6
3/12/24	16.5	18.1	16.6	17.1	17.2	15.3	16.5
4/30/24	23.2	22.2	26.8	29.5	26.4	26.2	25.8
5/23/24	24.4	24.0	25.7	26.8	24.5	27.1	25.1
6/17/24	26.5	26.4	28.2	28.0	26.2	28.2	27.2
7/11/24	26.5	28.3	28.9	28.5	28.1	28.4	27.3
8/19/24	28.2	28.3	30.4	29.5	28.1	28.9	28.8
9/20/24	27.8	29.7	28.4	28.0	27.1	28.5	26.1
10/8/24	24.2	24.8	24.7	25.6	24.8	24.0	26.3
11/11/24	24.2	24.2	24.5	23.8	24.0	24.0	24.2
12/12/24	12.7	12.0	13.1	13.0	14.4	12.8	11.5
1/7/25	9.3	9.9	7.3	8.1	10.4	6.3	8.2
2/14/25	15.5	16.4	13.3	13.6	16.5	12.8	13.2
3/26/25	22.3	22.3	24.0	25.1	25.0	25.4	22.7
4/14/25	20.4	21.8	19.3	19.5	21.7	20.4	21.0
5/13/25	22.5	22.9	22.2	21.8	21.0	21.7	21.7
6/12/25	27.5	27.0	28.5	26.9	27.0	29.0	26.8
7/23/25	27.7	28.9	29.7	30.3	30.3	29.4	28.8
8/28/25	26.7	28.6	29.3	29.1	28.0	29.2	25.5
9/16/25	26.2	26.9	28.4	25.9	23.9	26.4	25.5
10/23/25	22.8	23.9		21.5	20.6	21.3	
11/11/25	12.4	15.0		11.1	11.2	13.6	11.3
12/12/25	14.3	15.8		15.6	15.1	15.9	14.6



Salinity Data (ppt)

Date	S1	S2	S3	S4	S5	T2	SB
1/18/22	0.5	0.7	.	.	.	.	.
2/23/22	0.6	0.7	.	.	.	.	.
3/23/22	0.5	0.7	.	.	.	0.8	.
4/26/22	0.5	0.7	.	.	.	1.4	.
5/24/22	0.5	0.8	.	.	.	1.4	.
6/13/22	0.2	0.6	.	.	.	1.2	.
7/14/22	0.4	0.6	.	.	.	1.1	.
8/16/22	0.4	0.5	.	.	.	0.5	.
9/14/22	0.4	0.4	.	.	.	0.3	.
10/12/22	0.5	0.5	.	.	.	0.4	.
11/1/22	0.5	0.5	.	.	.	0.5	.
11/14/22	0.5	0.6	.	.	.	0.5	.
12/16/22	0.4	0.5	.	.	.	0.4	.
1/27/23	0.5	0.6	.	.	.	0.4	0.5
3/1/23	0.5	0.5	.	.	.	.	0.6
3/22/23	0.6	0.5	0.4	0.4	0.4	.	0.5
4/25/23	0.6	0.5	0.4	0.5	0.3	.	0.5
5/23/23	0.5	0.4	0.4	0.4	0.3	.	0.4
6/6/23	0.6	0.4	0.5	0.5	0.4	.	0.4
7/26/23	0.6	0.5	0.5	0.5	0.2	.	0.4
8/24/23	0.6	0.8	0.6	0.6	0.3	1.2	0.4
9/20/23	0.6	0.9	0.6	0.6	0.3	.	0.5
11/9/23	0.8	1.0	1.0	1.3	0.5	.	0.6
12/13/23	0.6	0.6	0.7	0.7	0.4	1.2	0.6
1/24/24	0.6	0.7	0.7	0.6	0.4	2.2	0.5
2/6/24	0.4	0.4	0.4	0.5	0.3	0.7	0.6
3/12/24	0.4	0.4	0.5	0.4	0.4	0.9	0.5
4/30/24	0.4	0.3	0.3	0.4	0.3	1.4	0.4
5/23/24	0.4	0.3	0.4	0.3	0.2	1.5	0.5
6/17/24	0.4	0.4	0.4	0.4	0.4	1.2	0.7
7/11/24	0.3	0.3	0.3	0.3	0.4	0.9	0.5
8/19/24	0.5	0.5	0.4	0.3	0.3	0.8	0.5
9/20/24	0.3	0.4	0.3	0.4	0.4	0.4	0.5
10/8/24	0.4	0.4	0.3	0.3	0.4	0.5	0.5
11/11/24	0.5	0.5	0.5	0.3	0.3	0.6	0.5
12/12/24	0.5	0.5	0.4	0.4	0.4	0.4	0.4
1/7/25	0.5	0.5	0.5	0.5	0.5	0.6	0.5
2/14/25	0.5	0.6	0.6	0.5	0.4	0.6	0.6
3/26/25	0.5	0.5	0.4	0.4	0.4	0.8	0.5
4/14/25	0.5	0.5	0.4	0.3	0.4	0.9	0.6
5/13/25	0.3	0.3	0.3	0.4	0.4	0.6	0.4
6/12/25	0.3	0.2	0.2	0.3	0.4	0.9	0.3
7/23/25	0.3	0.2	0.3	0.3	0.4	0.2	0.3
8/28/25	0.3	0.3	0.2	0.2	0.3	0.3	0.3
9/16/25	0.4	0.4	0.3	0.3	0.3	0.4	0.6
10/23/25	0.5	0.5		0.3	0.4	0.8	
11/11/25	0.6	0.6		0.3	0.3	0.7	0.7
12/12/25	0.6	0.6		0.6	0.7	0.7	0.6



Conductivity Data ($\mu\text{S}/\text{cm}$)

Date	S1	S2	S3	S4	S5	T2	SB
1/18/22	776.5	897.1	.	.	.	.	.
2/23/22	1211.0	1314.7	.	.	.	.	.
3/23/22	988.7	1263.2	.	.	.	1493.1	.
4/26/22	1036.5	1515.2	.	.	.	2643.7	.
5/24/22	1078.3	1604.2	.	.	.	2664.0	.
6/13/22	472.9	1373.9	.	.	.	2408.9	.
7/14/22	842.5	1261.8	.	.	.	2256.6	.
8/16/22	852.3	1030.1	.	.	.	1239.3	.
9/14/22	794.1	913.2	.	.	.	726.9	.
10/12/22	899.7	1079.7	.	.	.	829.6	.
11/1/22	876.6	958.2	.	.	.	896.6	.
11/14/22	819.4	964.0	.	.	.	744.6	.
12/16/22	596.1	880.2	.	.	.	581.9	.
1/27/23	788.6	843.7	.	.	.	543.5	681.7
3/1/23	1020.2	1037.9	.	.	.	.	1029.8
3/22/23	1072.6	854.4	742.1	770.0	651.7	.	822.8
4/25/23	1039.8	902.3	833.0	865.6	635.1	.	888.5
5/23/23	965.6	906.4	872.0	914.2	636.5	.	841.7
6/6/23	1126.5	911.3	1001.6	1054.1	794.1	.	823.3
7/26/23	1211.3	1342.0	1031.1	1114.9	553.1	.	968.0
8/24/23	1045.2	1682.7	1279.7	1393.8	691.7	2805.1	1014.0
9/20/23	1143.0	1730.3	1228.1	1201.5	568.8	.	1025.3
11/9/23	1369.5	1692.7	1862.1	25.0	1079.4	.	1087.6
12/13/23	836.4	957.8	1027.4	1098.8	649.5	1691.2	895.7
1/24/24	977.7	1162.7	1216.0	1027.4	729.0	3412.7	820.5
2/6/24	670.1	662.9	748.5	765.5	526.4	1110.2	922.6
3/12/24	677.6	747.1	760.1	760.8	654.5	1475.1	772.0
4/30/24	811.1	573.4	720.8	825.5	553.4	2693.7	816.7
5/23/24	729.8	682.6	729.1	638.2	495.4	2940.0	1033.8
6/17/24	775.4	767.1	807.3	880.1	725.2	2487.0	1400.9
7/11/24	693.1	720.2	735.7	579.7	743.4	1869.0	965.1
8/19/24	1019.1	872.4	789.8	588.0	642.2	1745.0	1114.1
9/20/24	669.3	789.1	640.1	798.1	886.5	868.8	998.6
10/8/24	787.5	781.7	664.7	559.6	715.6	887.9	947.3
11/11/24	980.1	911.5	906.0	698.2	699.2	1181.0	930.2
12/12/24	704.7	685.8	66.3	629.8	701.7	661.3	881.6
1/7/25	927.9	687.8	927.7	980.3	709.7	1138	994
2/14/25	1052	911	1138	997	867.1	1105	933
3/26/25	1051.3	1082.6	788.3	752.4	779.8	1481.7	933.2
4/14/25	1083	1045	793	695	713	1741	1129
5/13/25	510	515	543	740	748	1134	747
6/12/25	511.9	452	420	658.8	767	1750	533
7/23/25	486.8	511	645.3	587.7	764	577.1	578
8/28/25	644.6	684.7	531.1	488	678	673.4	587
9/16/25	734.5	784.3	563.2	506.7	568.1	763.7	1166.1
10/23/25	939.4	989.7		581.4	750.7	1379.1	
11/11/25	871.7	1153		457.1	504.1	1125	1001
12/12/25	948.5	1213		1110	1195	1105	923



pH data

Date	S1	S2	S3	S4	S5	T2	SB
1/18/22	7.4	6.6	.	.	.	.	.
2/23/22	7.4	8.1	.	.	.	.	.
3/23/22	8.0	7.7	.	.	.	8.5	.
4/26/22	9.0	7.3	.	.	.	8.0	.
5/24/22	8.0	8.0	.	.	.	7.7	.
6/13/22	7.7	7.2	.	.	.	6.8	.
7/14/22	8.0	7.9	.	.	.	7.9	.
8/16/22	6.9	7.2	.	.	.	7.4	.
9/14/22	7.0	7.3	.	.	.	8.1	.
10/12/22	7.9	7.1	.	.	.	7.5	.
11/1/22	6.3	7.2	.	.	.	7.6	.
11/14/22	7.7	7.4	.	.	.	7.8	.
12/16/22	7.1	7.2	.	.	.	6.5	.
1/27/23	7.7	7.9	.	.	.	7.1	7.5
3/1/23	7.8	8.0	.	.	.	.	7.5
3/22/23	8.2	8.0	8.0	7.9	8.0	.	8.2
4/25/23	7.4	7.2	7.3	7.2	7.3	.	7.5
5/23/23	6.9	7.3	7.3	7.1	7.1	.	6.7
6/6/23	6.9	7.2	6.9	7.5	7.0	.	6.8
7/26/23	7.5	7.6	7.4	7.5	7.7	.	7.6
8/24/23	7.2	7.3	7.8	7.8	8.1	7.4	7.6
9/20/23	7.6	7.7	7.6	7.7	7.8	.	7.9
11/9/23	7.3	7.5	8.8	8.2	8.5	7.2	7.5
12/13/23	7.7	7.4	8.3	7.4	7.7	7.2	7.1
1/24/24	7.4	7.5	7.9	7.8	7.8	7.1	7.1
2/6/24	7.0	7.5	7.5	7.4	7.6	7.1	6.7
3/12/24	7.2	7.3	7.7	7.4	7.5	7.1	7.2
4/30/24	6.9	7.2	7.4	8.0	8.3	7.7	7.1
5/23/24	7.3	7.3	7.4	8.5	7.1	7.1	6.9
6/17/24	7.1	7.0	7.4	7.0	7.5	6.9	6.8
7/11/24	7.3	7.0	7.1	7.2	6.8	6.5	6.7
8/19/24	6.7	6.7	7.3	8.0	7.5	7.1	6.6
9/20/24	7.1	7.7	7.4	7.2	7.4	7.5	6.9
10/8/24	7.0	7.0	7.3	7.4	7.2	7.4	6.8
11/11/24	7.1	7.3	7.3	7.3	7.5	7.4	7.0
12/12/24	7.7	7.7	7.6	7.5	7.3	7.6	7.7
1/7/25	7.5	7.0	7.7	7.6	7.9	7.6	7.0
2/14/25	7.7	7.9	7.8	7.6	7.2	7.8	7.8
3/26/25	7.3	7.8	7.8	7.9	7.7	7.7	7.7
4/14/25	7.4	7.7	7.8	7.7	7.4	7.3	7.4
5/13/25	7.8	7.9	7.8	7.8	7.4	7.9	7.5
6/12/25	7.4	7.1	7.3	6.8	7.1	7.3	6.7
7/23/25	6.8	6.8	6.8	6.6	6.8	6.9	6.9
8/28/25	7.2	7.3	7.4	7.7	7.3	7.5	7.2
9/16/25	7.7	7.7	7.7	7.6	7.5	7.8	7.2
10/23/25	7.5	7.4	.	7.0	6.7	7.1	.
11/11/25	7.7	7.3	.	7.4	7.2	7.6	7.4
12/12/25	7.0	7.3	.	7.0	7.1	7.4	6.8



Dissolved Oxygen Data (mg/L)

Date	S1	S2	S3	S4	S5	T2	SB
1/18/22	9.6	12.0	.	.	.	.	.
2/23/22	16.8	13.7	.	.	.	.	.
3/23/22	11.9	10.9	.	.	.	11.2	.
4/26/22	8.8	10.9	.	.	.	4.5	.
5/24/22	4.4	2.0	.	.	.	4.3	.
6/13/22	0.9	4.3	.	.	.	3.4	.
7/14/22	2.2	2.8	.	.	.	0.1	.
8/16/22	3.3	2.9	.	.	.	6.0	.
9/14/22	2.5	10.0	.	.	.	2.9	.
10/12/22	1.5	5.2	.	.	.	0.8	.
11/1/22	2.6	7.4	.	.	.	4.9	.
11/14/22	2.8	6.2	.	.	.	3.8	.
1/27/23	2.9	2.4	.	.	.	2.1	1.9
3/1/23	1.8	3.5	.	.	.	.	2.0
3/22/23	3.2	6.4	4.7	4.8	4.7	.	1.5
4/25/23	2.6	6.7	1.6	4.8	4.7	.	2.3
5/23/23	4.1	1.0	3.9	1.1	1.0	.	3.8
6/6/23	4.8	5.8	4.8	7.0	6.3	.	5.0
7/26/23	8.0	8.2	12.4	8.5	10.1	.	6.9
8/24/23	1.0	2.3	5.4	7.9	10.4	0.3	1.1
9/20/23	0.9	0.3	3.9	4.5	4.2	.	0.9
10/25/23	0.2	0.2	7.7	10.2	8.3	.	0.6
11/9/23	1.5	2.0	17.3	7.8	10.3	2.4	2.2
12/13/23	7.5	4.7	11.0	8.9	11.1	5.0	4.9
1/24/24	4.6	5.7	8.5	8.7	9.3	1.9	2.2
2/6/24	4.8	11.0	9.6	9.9	9.2	4.8	2.1
3/12/24	1.8	2.2	7.5	8.0	10.3	3.8	6.9
4/30/24	3.1	0.9	8.4	11.8	13.8	11.1	1.6
5/23/24	0.5	0.5	8.3	9.9	2.3	1.4	1.6
6/17/24	1.1	0.6	3.5	2.5	1.1	1.1	1.0
7/11/24	0.5	0.7	3.1	7.4	1.4	10.6	0.3
8/19/24	2.1	1.0	4.5	12.9	1.9	2.9	0.4
9/20/24	0.2	4.5	1.0	0.3	2.3	1.4	0.7
10/8/24	1.3	0.8	4.9	11.8	4.3	1.6	2.3
11/11/24	0.8	1.0	4.1	2.1	1.2	2.7	0.6
12/12/24	4.4	8.8	7.4	8.4	4.8	4.0	3.2
1/7/25	3.6	6.9	11.5	12.4	4.1	11.4	1.8
2/14/25	2.2	2.3	9.2	8.9	2.3	2.0	2.5
3/26/25	1.0	8.1	12.1	4.9	6.8	4.0	2.4
4/14/25	2.0	8.4	4.0	4.0	4.2	2.3	2.4
5/13/25	2.4	3.4	4.0	2.3	1.5	1.6	0.2
6/12/25	1.6	0.4	1.0	1.0	0.8	1.7	0.3
7/23/25	3.6	1.0	4.0	6.5	1.6	0.8	0.7
8/28/25	1.0	4.5	2.4	5.5	1.3	1.3	0.8
9/16/25	1.4	5.2	7.6	3.0	2.1	2.7	0.6
10/23/25	5.1	4.9		7.5	1.4	3.3	
11/11/25	7.5	3.9		6.0	4.2	4.8	7.0
12/12/25	8.4	7.6		7.2	7.2	5.0	5.4

Nitrate+Nitrite data (mg/L)

Date	S1	S2	S3	S4	S5	T2	SB
1/18/22	<0.05	<0.05	.	.	.	.	.
5/24/22	<0.05	<0.05	.	.	.	.	.
8/16/22	<0.05	0.02	.	.	.	.	.
10/12/22	0.03	0.01	.	.	.	.	.
3/1/23	0.013	<0.05	.	.	.	.	<0.05
6/6/23	<0.05	<0.05	<0.05	<0.05	<0.05	.	0.074
8/24/23	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
11/9/23	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.091
2/6/24	0.25	0.11	0.4	0.26	0.05	<0.050	0.087
5/15/24	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100
8/19/24	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
12/12/24	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
3/26/25	<0.050	<0.050	.	<0.050	.	.	<0.050
6/12/25	<0.050	.	<0.050	.	<0.050	.	.
8/28/25	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
11/11/25	0.15	<0.050	.	<0.050	<0.050	<0.050	0.26

Ammonia data (mg/L)

Date	S1	S2	S3	S4	S5	T2	SB
1/18/22	<0.50	<0.50	.	.	.	.	.
5/24/22	<0.50	<0.50	.	.	.	.	.
8/16/22	<0.50	0.1	.	.	.	.	.
10/12/22	0.7	<0.50	.	.	.	.	.
3/1/23	0.12	0.33	.	.	.	.	8.3
6/6/23	0.12	<0.50	<0.50	<0.50	<0.50	.	7
8/24/23	4	0.44	0.19	<0.50	0.22	<0.50	10.7
11/9/23	2.8	0.46	0.11	0.16	<0.50	1.1	10.6
2/6/24	<0.10	<0.10	<0.10	<0.10	<0.10	0.22	3.6
5/15/24	4.2	<0.10	<0.10	<0.10	<0.10	0.13	6.6
8/19/24	6.5	1.1	<0.10	0.22	<0.10	0.15	10
12/12/24	0.28	0.15	<0.10	0.12	<0.10	0.76	0.37
3/26/25	0.18	0.15	.	<0.10	.	.	1.20
6/12/25	0.11	.	<0.10	.	0.18	.	.
8/28/25	0.51	0.13	<0.10	0.16	0.48	0.28	0.86
11/11/25	1.40	1.30	.	<0.10	<0.10	1.90	0.25

Total Nitrogen data (mg/L)

Date	S1	S2	S3	S4	S5	T2	SB
1/18/22	0.9	0.8	.	.	.	.	.
5/24/22	1.2	1.4	.	.	.	.	.
8/16/22	<0.16	0.1	.	.	.	.	.
10/12/22	1.5	<0.16	.	.	.	.	.
3/1/23	0.093	1.3	.	.	.	.	10.6
6/6/23	1.7	0.98	2.3	2.6	2.2	.	7.9
8/24/23	5.9	2.9	2.9	2.1	3	4.5	12.3
11/9/23	4	3.5	3.7	4.1	6.3	2.8	10.7
2/6/24	1.05	0.55	1.18	0.96	0.43	0.93	3.89
5/15/24	3.7	<0.10	<0.10	<0.10	0.77	5.9	11.7
8/19/24	7.5	2.5	1.2	1.4	1.4	1.8	9.7
12/12/24	4	1.9	0.98	1.1	1.3	1.7	2
3/26/25	1.6	1.6	.	1.5	.	.	3.7
6/12/25	1.1	.	1.0	.	1.2	.	.
8/28/25	1.4	0.94	1.5	1.2	1.6	1.2	2.1
11/11/25	2.35	2.6	.	2.0	2.3	205	1.1



Phosphate data (mg/L)

Date	S1	S2	S3	S4	S5	T2	SB
1/18/22	<0.01	<0.01	.	.	.	.	.
5/24/22	<0.01	<0.01	.	.	.	.	.
8/16/22	0.3	0.1	.	.	.	.	.
10/12/22	0.6	<0.01	.	.	.	.	.
3/1/23	0.461	<0.01	.	.	.	.	2.09
6/6/23	0.313	<0.01	<0.01	<0.01	<0.01	.	0.607
8/24/23	1.5	0.31	<0.01	<0.01	<0.01	0.19	1.3
11/9/23	0.81	0.33	<0.01	<0.01	<0.01	0.38	1.6
2/6/24	0.087	<0.050	<0.050	<0.050	<0.050	0.37	0.54
5/15/24	0.84	0.14	<0.050	<0.050	<0.050	0.22	1.5
8/19/24	0.93	0.4	<0.050	<0.050	<0.050	<0.050	0.89
12/12/24	0.26	0.23	<0.050	<0.050	0.068	0.25	0.44
3/26/25	0.33	0.46		0.068			0.29
6/12/25	0.17		<0.050		0.09		
8/28/25	0.086	0.078	<0.050	<0.050	0.089	0.055	0.35
11/11/25	<0.050	<0.050		<0.050	<0.050	0.5	<0.050

Total Phosphorus data (mg/L)

Date	S1	S2	S3	S4	S5	T2	SB
1/18/22	0.1	0.2	.	.	.	.	.
5/24/22	0.1	<0.04	.	.	.	.	.
8/16/22	0.3	<0.04	.	.	.	.	.
10/12/22	0.7	<0.04	.	.	.	.	.
3/1/23	0.88	<0.04	.	.	.	.	2.6
6/6/23	0.36	<0.04	0.26	0.21	0.23	.	0.81
8/24/23	1.4	0.31	0.18	<0.04	0.26	0.29	1.8
11/9/23	0.82	0.66	0.21	0.22	0.78	0.48	2
2/6/24	0.1	<0.10	<0.10	<0.10	<0.10	0.49	0.6
5/15/24	0.93	0.29	<0.10	<0.10	<0.10	0.8	1.6
8/19/24	1.0	0.47	<0.10	<0.10	<0.10	0.15	0.94
12/12/24	0.65	0.33	<0.10	<0.10	<0.10	0.24	0.48
3/26/25	0.45	0.48		0.14			0.65
6/12/25	0.28		0.11		0.22		
8/28/25	0.18	0.14	<0.10	<0.10	0.21	<0.10	0.67
11/11/25	0.11	0.14		0.18	0.23	22.60	<0.10

Total Suspended Solids data (mg/L)

Date	S1	S2	S3	S4	S5	T2	SB
1/18/22	5	13	.	.	.	.	.
5/24/22	<4	<4	.	.	.	.	.
8/16/22	8	6	.	.	.	.	.
10/12/22	7	5	.	.	.	.	.
3/1/23	14	<4	.	.	.	.	100
6/6/23	11	8	156	62	36	.	14
8/24/23	<4	<4	78	51	48	15.5	8.4
11/9/23	36	24.5	60	105	288	20	37
2/6/24	<5.0	9.8	13.2	20.8	10	<5.0	7.2
5/15/24	<10.0	20.4	<10.0	10	<10.0	.	373
8/19/24	<10.0	6.6	16.4	16.6	<10.0	20.4	<5.0
12/12/24	<25.0	17.6	<5.0	<5.0	<5.0	6.6	11.2
3/26/25	5.8	<8.3		9.0			26.0
6/12/25	7.6		7.4		21.0		
8/28/25	<12.5	14.0	19.3	<8.3	16.0	<4.2	67.3
11/11/25	13.5	14.0		13.2	8.9	80.0	7.3



Biological Oxygen Demand (BOD₅) data (mg/L)

Date	S1	S2	S3	S4	S5	T2	SB
1/18/22	<3.0	5	.	.	.	.	.
5/24/22	4	<3.0	.	.	.	.	.
8/16/22	<3.0	<3.0	.	.	.	.	.
10/12/22	<3.0	<3.0	.	.	.	.	.
3/1/23	4	<3.0	.	.	.	.	0
6/6/23	5	3	6	9	12	.	6
8/24/23	4.3	5.6	4.6	3.6	7.8	9.2	3.1
11/9/23	4.3	10.5	5.5	5.6	18	2.8	5.7
2/6/24	4.5	4.2	4.9	4.6	3.7	5.3	7.5
5/15/24	15.4	6.8	4.4	25.4	36.1	.	12.7
8/19/24	10.7	12.8	11.9	2.2	8	5.9	4
12/12/24	19.2	6.9	2	2.1	7.8	11.4	6.3
3/26/25	9.1	7.3		7.5			12.5
6/12/25	9.7		5.1		11.5		
8/28/25	6.7	8.4	3.1	3.6	4.9	2.4	10.1
11/11/25	3.2	3.3		18.1	5.6	15.7	4.3