Sankofa Wetland Park Monitoring Report

2nd Quarter of 2025

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April- June 2025

Monitoring Sampling Design

Environmental monitoring at the Sankofa Wetland Park began in April 2022. The sampling design includes five monitoring locations (S1 through S5), spaced approximately equidistant along the one-mile length of the linear park. Additional monitoring sites include the St. Bernard drainage ditch, accessed at the bridge to the Veolia wastewater treatment plant (SB), and a site in the Bayou Bienvenue Wetland Triangle (either T1 or T2, depending on accessibility). In 2022, only sites S1 and S2 were monitored. Sites S3 through S5, along with SB and T2, were added as the wetland park was expanded in 2023.

Location of sampling sites at the Sankofa Wetland Park (S1-S5), the Bayou Bienvenue Wetland Triangle (sites T1 & T2),the St. Bernard drainage ditch (SB), Sankofa culvert (SC), and the two leaking pipes (P1 & P2).

Since April 2022, in situ measurements of dissolved oxygen, conductivity, temperature, salinity, pH, and total dissolved solids (TDS) have been taken monthly at each monitoring location using a handheld water quality probe. Approximately every three months, water samples are collected for analysis of nutrients (nitrate+nitrite (NO_2+NO_3), ammonia (NH_3), total nitrogen (TN), phosphate (PO_4), total phosphorus (TP)), five-day biological oxygen demand (BOD_5), and total suspended solids (TSS). Fecal coliform analysis was also carried out. All samples are stored on ice and transported to Pace Analytical Services in Baton Rouge or St. Rose for laboratory analysis. In addition, water levels are recorded hourly using automated pressure transducer probes installed at two locations: near site S2 within the wetland park and at site T2 in the Bayou Bienvenue Wetland Triangle.

Fish Kills

A fish kill at the Sankofa Wetland Park was first observed on the morning of April 2, 2025. Rob Lane recorded 28 large dead carp floating in the original completed section of the wetland park. These were presumably the sterile triploid grass carp that were stocked in the ponds on November 9, 2023, when a total of 70 carp were released. Numerous smaller fish were also observed dead along the shoreline. Upon investigation, it was discovered that the aerator installed beneath the gazebo had been unplugged. This, in combination with increased organic loading into the pond during 2024, likely created conditions of low dissolved oxygen, leading to the fish kill. The aerator has since been reconnected and should be programmed to operate automatically from midnight to 6:00 a.m. to help maintain adequate oxygen levels in the water.

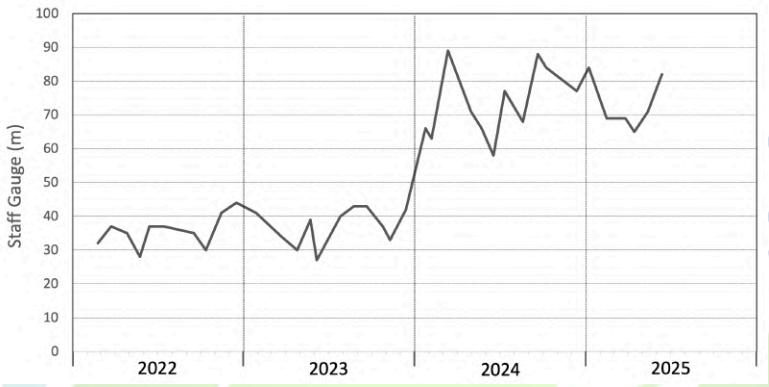
Dead fish spotted at the wetland park on April 2, 2025.

Additional dead fish were observed in the wetland park during monitoring on June 12, 2025. These fish kills are most likely the delayed result of septic loading that occurred in 2024, presumably from a leaking discharge pipe at site P2. Sustained high water levels, as discussed below, may be due to another leaking pipe. This possibility will be further investigated if water levels do not recede after the intervention described below has had sufficient time to take effect.

Monitoring – Water Level

The staff gauge in the wetland park measured 65.0 cm on April 14 at 9:22, 71.0 cm on May 13 at 9:35, and 82.0 cm on June 12 at 8:30.

Water levels in the wetland park have remain elevated compared to years 2022 and 2023, and at approximately the same level experienced since January 2024. The reason for this sustained increase could have to do with sediment buildup in the St. Bernard Parish stormwater channel between the Veolia wastewater treatment plant (site SB) and the new big culvert at the end of Florida Avenue.



Staff gauge readings from 2022 to the present.

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. The effectiveness of these actions at lowering water levels in the park will be assessed during future monitoring efforts.

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

Monitoring – Probe Data

Summary

During April through June 2025, dissolved oxygen concentrations were consistently low throughout the system, with critically low values recorded at the inflow (SB) and elevated conductivity and salinity observed at site T1 on all dates. Dissolved oxygen at site SB declined from 2.4 mg/L in April to 0.2 mg/L in May and remained low at 0.3 mg/L in June. The S1–S5 wetland park sites showed moderate oxygen levels in April (2.0–8.4 mg/L), slight improvement in May (1.5–4.0 mg/L), but dropped again in June (0.4–1.6 mg/L), indicating overall declining oxygenation.

Conductivity and salinity values remained moderately elevated at sites SB and S4–S5, but were consistently highest at site T1, where conductivity rose from 1741 µS in April to 1750 µS in June, and salinity increased from 0.89 to 0.90 ppt. These trends reflect the sustained influences from stormwater and tidal sources at site T1. TDS followed the same pattern, with elevated concentrations peaking at site T1 (up to 1.10 g/L in April, 0.74 g/L in May, and 0.51 g/L in June). Temperatures steadily increased with seasonal warming, reaching nearly 29°C at site T1 by June. pH levels remained within a normal circumneutral to slightly alkaline range (6.7–7.9) throughout all events.

Monthly Monitoring

Monthly monitoring was carried out at the wetland park on April 14, May 13 and June 12, 2025. Dissolved oxygen, conductivity, salinity, temperature, pH, and TDS were measured at all monitoring sites using a handheld multiparameter probe (i.e., AquaTROLL400 by In-Situ). The Bayou Bienvenue Triangle was monitored at site T1 for all dates. An avian census was carried out by sight and sound during each monitoring event.

Discrete water quality data from April 14, 2025.

Site	Date	DO (mg/l)	Cond. (mS)	Salinity (ppt)	Temp. (˚C)	pH	TDS (mg/L)
SB	4/14/25	2.4	1129	0.59	21.0	7.4	0.55
SC	4/14/25	no flow	no flow	no flow	no flow	no flow	no flow
S1	4/14/25	2.0	1083	0.54	20.4	7.4	0.71
S2	4/14/25	8.4	1045	0.52	21.8	7.7	0.68
S3	4/14/25	4.0	793	0.39	19.3	7.8	0.52
S4	4/14/25	4.0	695	0.34	19.5	7.7	0.45
S5	4/14/25	4.2	713	0.35	21.7	7.4	0.46
T1	4/14/25	2.3	1741	0.89	20.4	7.3	1.10

On April 14, 2025, dissolved oxygen (DO) was 2.4 mg/L at site SB, ranged from 2.0 to 8.4 mg/L at the wetland park sites (S1–S5), and was 2.3 mg/L at site T1. No flow was observed at site SC, and therefore no water quality data were collected. Conductivity was approximately 1130 µS at SB, ranged from approximately 695 to 1080 µS at sites S1–S5, and was elevated at site T1 at approximately 1740 µS. Salinity was 0.59 ppt at SB, ranged from 0.34 to 0.54 ppt across sites S1–S5, and was 0.89 ppt at site T1. Water temperature was 21.0°C at SB, ranged from 19.3 to 21.8°C at sites S1–S5, and was 20.4°C at site T1. pH values were 7.4 at SB, ranged from 7.4 to 7.8 across

sites S1–S5, and measured 7.3 at T1. Total dissolved solids (TDS) were 0.55 g/L at SB, ranged from 0.45 to 0.71 g/L at S1–S5, and reached 1.10 g/L at site T1.

White herons at sites S3 (left) and S1 (right) on May 13, 2025.

On May 13, 2025, dissolved oxygen was 0.2 mg/L at site SB, ranged from 1.5 to 4.0 mg/L at sites S1–S5, and was 1.6 mg/L at site T1. No data were collected at site SC due to dry or inaccessible conditions. Conductivity was approximately 750 µS at SB, ranged from approximately 510 to 750 µS at S1–S5, and was elevated at T1 at approximately 1130 µS. Salinity was 0.37 ppt at SB, ranged from 0.25 to 0.37 ppt at the wetland park sites (S1–S5), and reached 0.57 ppt at site T1. Water temperature was 21.7°C at SB, ranged from 21.0 to 22.9°C at sites S1–S5, and was 21.7°C at T1. pH values were 7.5 at SB, ranged from 7.4 to 7.9 across sites S1–S5, and measured 7.9 at T1. Total dissolved solids (TDS) were 0.48 g/L at SB, ranged from 0.33 to 0.49 g/L across the wetland park sites, and were elevated at T1 at 0.74 g/L.

Discrete water quality data from May 13, 2025.

Site	Date	DO (mg/l)	Cond. (mS)	Salinity (ppt)	Temp. (˚C)	pH	TDS (mg/L)
SB	5/13/25	0.2	747	0.37	21.7	7.5	0.48
SC	5/13/25	.	.	.	.	.	.
S1	5/13/25	2.4	510	0.25	22.5	7.8	0.33
S2	5/13/25	3.4	515	0.25	22.9	7.9	0.33
S3	5/13/25	4.0	543	0.27	22.2	7.8	0.35
S4	5/13/25	2.3	740	0.36	21.8	7.8	0.48
S5	5/13/25	1.5	748	0.37	21.0	7.4	0.49
T1	5/13/25	1.6	1134	0.57	21.7	7.9	0.74

On June 12, 2025, dissolved oxygen was 0.3 mg/L at site SB, 1.8 mg/L at site SC, ranged from 0.4 to 1.6 mg/L at sites S1–S5, and was 1.7 mg/L at site T1. Conductivity was approximately 530 µS at site SB, approximately 500 µS at site SC, ranged from approximately 420 to 770 µS at sites S1–S5, and was elevated at site site T1 at approximately 1750 µS. Salinity was 0.26 ppt at site SB, 0.24 ppt at site SC, ranged from 0.20 to 0.37 ppt at sites S1–S5, and reached 0.90 ppt at site T1.

Water temperature was 26.8°C at site SB, 27.2°C at site SC, ranged from 26.9 to 28.5°C at sites S1–S5, and was 29.0°C at site site T1. pH measured 6.7 at site SB, 7.3 at site SC, ranged from 6.8 to 7.4 at sites S1–S5, and was 7.3 at site T1. Total dissolved solids (TDS) were 0.34 g/L at site SB, 0.60 g/L at site SC, ranged from 0.33 to 0.57 g/L at sites S1–S5, and 0.51 g/L at site T1.

Discrete water quality data from June 12, 2025.

Site	Date	DO (mg/l)	Cond. (mS)	Salinity (ppt)	Temp. (˚C)	pH	TDS (mg/L)
SB	6/12/25	0.3	533	0.26	26.8	6.7	0.34
SC	6/12/25	1.8	502.8	0.24	27.2	7.3	0.60
S1	6/12/25	1.6	511.9	0.25	27.5	7.4	0.33
S2	6/12/25	0.4	452	0.22	27.0	7.1	0.57
S3	6/12/25	1.0	420	0.20	28.5	7.3	0.54
S4	6/12/25	1.0	658.8	0.32	26.9	6.8	0.42
S5	6/12/25	0.8	767	0.37	27.0	7.1	0.48
T1	6/12/25	1.7	1750	0.90	29.0	7.3	0.51

Synthesis and Ecological Implications:

The most consistent pattern across all three dates is persistently low dissolved oxygen throughout the system, especially at sites SB and T1. These conditions are indicative of potential eutrophication, stagnant water flow, or oxygen-depleting organic matter loads. Hypoxic (<2.0 mg/L) and near-anoxic conditions observed in May and June pose a serious risk to aquatic fauna and microbial community balance, limiting aerobic respiration and favoring less desirable anaerobic processes (e.g., sulfate reduction, methane production).

Site S5 on June 12, 2025. Note extensive coverage of macroalgae due to stagnant and eutrophic conditions.

The elevated salinity, conductivity, and TDS values at site T1 suggest a persistent influence from tidal inputs and nutrient-enriched stormwater sources. Such conditions can impact plant species composition by favoring salt-tolerant vegetation and excluding sensitive freshwater flora, potentially altering wetland structure and function over time. The consistent thermal rise and high temperatures observed in June (>27°C) further reduce oxygen solubility, compounding biological stress.

Monitoring – Nutrients, BOD_5 & TSS

Water samples were collected on June 12 for nutrient (NO_2+NO_3, NH_3, TN, PO_4, TP), BOD_5 and suspended sediment (TSS) analysis at sites S1, S3 and S5.

Site	Date	NO_x (mg/L)	NH_3 (mg/L)	TN (mg/L)	PO_4 (mg/L)	TP (mg/L)	TSS (mg/L)	BOD_5 (mg/L)	Fecal Coli. (CFU/100mL)
S1	6/12/25	<0.050	0.11	1.1	0.17	0.28	7.6	9.7	60
S3	6/12/25	<0.050	<0.10	1.0	<0.050	0.11	7.4	5.1	10
S5	6/12/25	<0.050	0.18	1.2	0.090	0.22	21.0	11.5	35

Nitrate+nitrite (NO_x) concentrations were below detection (<0.050 mg/L) at all sites (S1, S3 & S5). Ammonia (NH_3) concentrations were 0.11 mg/L at site S1, below detection (<0.10 mg/L) at site S3, and 0.18 mg/L at site S5. Total Nitrogen (TN) ranged from 1.0 mg/L at site S3 to 1.2 mg/L at site S5, with an intermediate value of 1.1 mg/L at site S1. Phosphate (PO_4) was 0.17 mg/L at site S1, below detection (<0.050 mg/L) at site S3, and 0.090 mg/L at site S5. Total phosphorus (TP) concentrations were 0.28 mg/L at site S1, 0.11 mg/L at site S3, and 0.22 mg/L at site S5. Total suspended solids (TSS) ranged from 7.4 mg/L at site S3 to 21.0 mg/L at site S5. Five-day biological oxygen demand (BOD_5) was lowest at site S3 (5.1 mg/L), intermediate at site S1 (9.7 mg/L), and highest at site S5 (11.5 mg/L). Fecal coliform levels were 60 CFU/100mL at site S1, 10 CFU/100mL at site S3, and 35 CFU/100mL at site S5.

Ecological implications

The consistently low NO_x concentrations suggest effective denitrification or plant uptake within the wetland system. However, the elevated NH_3 and TN levels indicate organic matter accumulation or insufficient nitrification, potentially due to anoxic conditions. The higher TP and PO_4 at sites S1 and S5 could contribute to eutrophication risks if sustained. Elevated BOD_5 and TSS at site S5 further suggest organic loading and turbidity issues, possibly linked to stagnant flow or localized disturbance. Fecal coliform levels remain within moderate levels, though the value at S1 (60 CFU/100mL) is concerning and warrants continued monitoring to assess public health or wildlife exposure risks.

Water samples that were sent for laboratory analysis on June 12, 2025.

Monitoring - Avian Survey

A total of 46 bird species were observed on April 14, 48 species on May 13, and 29 species on June 12, 2025. A total of 58 species were sighted this quarter.

Bird species observed at the Sankofa Wetland Park during 2025 Q2.

Common Name	Scientific Name	4/14/25	5/13/25	6/12/25
American Coot	*Fulica americana*		X	
American Crow	*Corvus brachyrhynchos*	X	X	X
Anhinga	*Anhinga anhinga*	X	X	X
Barn Swallow	*Hirundo rustica*	X	X	X
Black Vulture	*Coragyps atratus*	X	X	
Black-Bellied Whistling-Duck	*Dendrocygna autumnalis*	X	X	X
Black-Crowned Night Heron	*Nycticorax nycticorax*		X	X
Black-Winged Stilt	*Himantopus himantopus*		X	
Blue Grosbeak	*Passerina caerulea*	X		
Blue Jay	*Cyanocitta cristata*		X	X
Carolina Chicadee	*Poecile carolinensis*	X	X	X
Carolina Wren	*Thryothorus ludovicianus*	X	X	X
Cattle Egret	*Bubulcus ibis*	X	X	X
Cedar Waxwing	*Bombycilla cerorum*	X		
Chimney Swift	*Chaetura pelagica*	X	X	X
Common Grackel	*Quiscalus quiscula*	X	X	X
Common Moorhen	*Gallinula chloropus*	X	X	
Common Tern	*Sterna hirundo*	X	X	
Common Yellowthroat	*Geothlypis trichas*	X		
Coopers Hawk	*Accipiter cooperii*		X	
Double Crested Cormorant	*Phalacrocorax auritus*	X	X	
Downy Woodpecker	*Dryobates pubescens*	X	X	
Eastern Kingbird	*Tyrannus tyrannus*	X	X	X
Eastern Phoebe	*Sayornis phoebe*	X	X	
Eurasian Collared Dove	*Streptopelia decaocto*		X	
European Starling	*Sturnus Vulgaris*	X	X	X
Fish Crow	*Corvus ossifragus*	X	X	X
Glossy Ibis	*Plegadis falcinellus*		X	X
Great Blue Heron	*Ardea herodias*	X	X	X
Great Erget	*Ardea alba*	X	X	X
Green Heron	*Butorides virescens*	X	X	X
Gull-Billed Tern	*Gelochelidon nilotica*	X		
Indigo Bunting	*Passerina cyanea*		X	
Killdeer	*Charadrius vociferus*		X	
Laughing Gull	*Larus atricilla*	X	X	
Limpkin	*Aramus guarauna*	X	X	
Little Blue Heron	*Egretta caerlea*	X	X	X
Mississippi Kite	*Ictinia mississippiensis*	X	X	
Mockingbird	*Mimus polyglottos*	X	X	X
Mourning Dove	*Zenaida macroura*	X	X	X
Northern Cardinal	*Cardinalis cardinalis*	X	X	X
Osprey	*Pandion Haliaetus*	X		
Prothonotary Warbler	*Protonotaria citrea*	X		
Purple Martin	*Progne subis*	X	X	
Red Shouldered Hawk	*Buteo lineatus*			X
Red Winged Blackbird	*Agelaius phoeniceus*	X	X	X
Snowy Egret	*Egretta thula*	X	X	X
Song Sparrow	*Melospiza melodia*	X	X	
Tree Swallow	*Tachycineta bicolor*	X	X	
Tricolor Egret	*Egretta tricolor*		X	
Tuffted Titmouse	*Baeolophus bicolor*	X		X
Turkey Vulture	*Cathartes aura*	X	X	
White Ibis	*Eudocimus albus*	X	X	X
White-Eyed Vireo	*Vireo griseus*	X	X	X
Wood Duck	*Aix sponsa*	X		
Yellow-Billed Cuckoo	*Coccyzus americanus*		X	
Yellow-Crowned Night-Heron	*Nyctanassa violacea*	X	X	X
Yellow-Rumped Warbler	*Setophaga coronata*	X		