

Sankofa Wetland Park Monitoring Report

July - September 2023



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Sankofa Wetland Park Monitoring Report

Summary of Activities: July-September 2023

Sampling Design

A preliminary sampling design was developed, shown below, consisting of five monitoring sites (S1 through S5) set approximately equidistant and in the planned path of the linear pond of the Sankofa Wetland Park. The St. Bernard drainage ditch at the bridge to the Viola wastewater treatment plant is also being monitored (site SB).



Location of sampling sites at the Sankofa Wetland Park (S1-S5) and the St. Bernard drainage ditch (SB).

Site visits

July 26, 2023: Comite Resources field technicians visited the Sankofa Wetland Park to carry out monthly monitoring. Dissolved oxygen, conductivity, temperature, salinity and pH were measured at monitoring sites S1 through S5 and SB using a handheld probe. The staff gauge was 39.5 cm at 11:20 am. During the same time, Rob Lane gave a lecture on

wetlands and water quality monitoring to students from Delgado. Jason Day provided insights during invertebrate collection.



Jason Day displaying an invertebrate to Delgado students on July 26th, 2023.

Dissolved oxygen was 6.9 mg/L at the bridge (SB) that flows into the wetland park, and ranged from 8.2 to 12.4 mg/L at sites S1 through S5 in the wetland park (these DO values seem very high and we suspect that our probe was malfunctioning). Conductivity was 968.0 mS at the bridge, and generally decreased going west in the park from 1211.3 mS at site S1 to 553.1 mS at site S5. Salinity was 0.43 ppt at the bridge (SB), and generally decreased going west in the park from 0.60 ppt at site S1 to 0.24 ppt at site S5. Temperature was lowest (28.2°C) at the bridge (SB), and ranged from 30 to 32°C at the park. pH was 7.6 at the bridge (SB) and ranged from 7.4 to 7.6 in the park. Total dissolved solids (TDS) was 0.59 mg/L at the bridge (SB) and ranged from 0.32 to 0.77 mg/L at the park.

Discrete water quality data from July 26, 2023.

| Site | Date | DO (mg/l) | Cond. (mS) | Salinity (ppt) | Temp. (°C) | pH | TDS (mg/L) |
|------|---------|--------------|---------------|-------------------|---------------|-----|---------------|
| SB | 7/26/23 | 6.9 | 968.0 | 0.43 | 28.2 | 7.6 | 0.59 |
| S1 | 7/26/23 | 8.0 | 1211.3 | 0.60 | 30.8 | 7.5 | 0.61 |
| S2 | 7/26/23 | 8.2 | 1342.0 | 0.49 | 31.4 | 7.6 | 0.77 |
| S3 | 7/26/23 | 12.4 | 1031.1 | 0.45 | 32.0 | 7.4 | 0.59 |
| S4 | 7/26/23 | 8.5 | 1114.9 | 0.50 | 30.8 | 7.5 | 0.65 |
| S5 | 7/26/23 | 10.1 | 553.1 | 0.24 | 30.7 | 7.7 | 0.32 |



Collecting a water sample at site S4 for probe analysis on July 26th, 2023.

August 18, 2023: Dr. Rob Lane looked into the macroalgae issue at the Sankofa ponds and found a product that is safe to use:

<https://www.lakerestoration.com/product/cape-furl/>

It is an oxidizer that kills macroalgae on contact with byproducts being water and oxygen. It is relatively cheap as well. A permit may be needed if this product is used - we can find out about permitting.

Dr. Lane also found an interesting manual from Texas

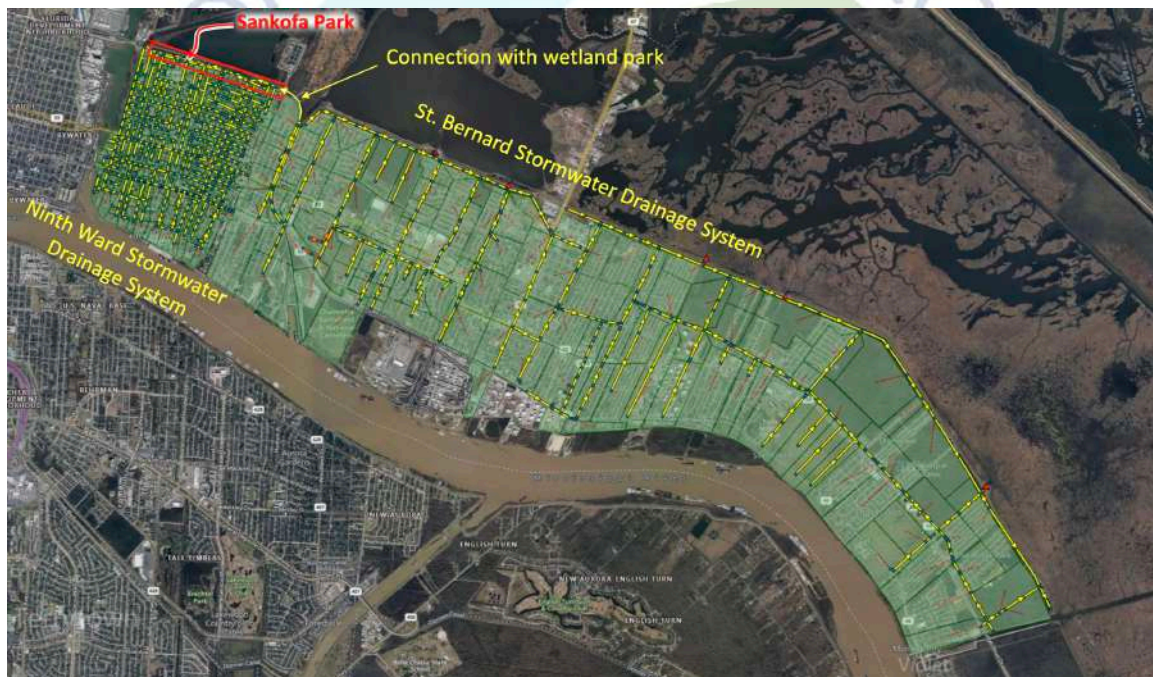
(<http://fisheries.tamu.edu/files/2013/09/Managing-and-Controlling-Algae->

[in-Ponds-Manual-format.pdf](#)) that suggests using sterile triploid grass carp, which are also available in Louisiana, though permitting may be an issue (again, we can find out if requested).

August 18, 2023: Dr. Lane was asked to prepare a document about the importance of the Sankofa Wetland Park. Below is what was submitted.

The Importance of the Sankofa Wetland Park to Surrounding Environs

The Sankofa Wetland Park is important to the surrounding environment in a variety of ways. The hydrological design of the park allows it to act as a stormwater retention pond during major storms. The water in the Sankofa wetland pond is directly connected to the St. Bernard stormwater drainage canal system at the east end of the wetland park. This has resulted in water levels in the wetland park being controlled by water levels in the St. Bernard drainage system (i.e., they are at the same level). Since the wetland park is directly connected to the St. Bernard stormwater drainage canal system, during large storms when water levels are elevated in the St. Bernard storm drainage canal system, the wetland park acts as a retention pond, holding water during peak storm discharge and then slowly releasing it back into the drainage system as water levels subside.



Wetlands can act as natural filters that purify water by trapping pollutants such as phosphorus and heavy metals in their soils and transform nitrogen into a gas that is released into the air, and wetlands physically and chemically break down dangerous bacteria and other materials. These processes are occurring in the wetland park as it retains stormwater, especially in between storm events when there are long water residence times. During droughts and heatwaves, both of which we are experiencing now, the wetland pond is a source of water and relatively cool habitat for birds and animals in an otherwise dry and hot urban landscape.

The Sankofa Wetland Park provides habitat for a wide range of birds and animals. Over 100 species of birds were observed using the park in 2022. The park has been home to a family of otters since last winter, and a beaver has also been observed in the area, along with alligators and many species of fish.

The Bayou Bienvenue Wetland Triangle is located directly to the north of the Sankofa Wetland Park and used to be directly connected before the flood control levee and railroad was constructed. It was once a thriving baldcypress swamp that was used extensively by ninth ward residents for hunting, fishing and lumber, but was killed by saltwater intrusion resulting from the construction of the Mississippi River Gulf Outlet (MRGO) in 1963, which increased regional salinities and coincided with the death of much of the forested wetlands in the region.



Historical imagery of the Bayou Bienvenue Wetlands Triangle.

With the closure of the MRGO in 2009, however, salinities in the Bayou Bienvenue Wetland Triangle have decreased to levels that are conducive to baldcypress and water tupelo survival. Sankofa has a wetland restoration plan for the area, and is advocating for the creation of 103 acres of wetlands in the 400-acre wetland triangle. Forty 1-to-11-acre islands could be created using clean sediment from either a land source, such as the Bonnet Carré Spillway, or from dredged sediments from the Mississippi River. The islands would be planted with baldcypress (*Taxodium distichum*) and water tupelo (*Nyssa aquatica*) seedlings and interspersed with giant bullwhip (*Schoenoplectus californicus*).



Conceptual design of the proposed wetland islands in the Bayou Bienvenue Wetland Triangle.

Restoration of the Bayou Bienvenue Wetland Triangle would provide protection to the surrounding levees from wind generated waves (i.e., fetch) during major storms. In addition, with less water holding capacity due to displacement from the restored wetlands, there would be less continual water pressure on the levees. Both of these factors will greatly improve the integrity and sustainability of the surrounding levees. Restoration of the Bayou Bienvenue Wetland Triangle would also provide habitat for birds, fish and other wildlife, and would greatly compliment the adjacent Sankofa Wetland Park.



Aerial image showing the Sankofa Wetland Park (left) and the Bayou Bienvenue Wetland Triangle (right) separated by the railroad and flood control levee.

August 24, 2023: Dr. Lane and Jason Day carried out monthly monitoring at the wetland park. Sankofa grounds keepers (Brian Carter, Royal Nash and Hye Sea) and others (Magnisha Casseus and Karen Marshall) joined them. Dissolved oxygen, conductivity, temperature, salinity and pH were measured at monitoring sites S1 through S5 and SB using a handheld probe. In addition, a meeting was held that afternoon with Veolia that allowed us to gather additional probe measurements as well as water quality samples. The new site has been designated at 'T1'. Below is a revised map. The staff gauge was 43.0 cm at 10 am.

Discrete water quality data from August 24, 2023.

| Site | Date | DO (mg/l) | Cond. (mS) | Salinity (ppt) | Temp. (°C) | pH | TDS (mg/L) |
|------|---------|--------------|---------------|-------------------|---------------|-----|---------------|
| SB | 8/24/23 | 1.1 | 1014.0 | 0.44 | 32.2 | 7.6 | 0.58 |
| S1 | 8/24/23 | 1.0 | 1045.2 | 0.55 | 27.1 | 7.2 | 0.72 |
| S2 | 8/24/23 | 2.3 | 1682.7 | 0.80 | 28.7 | 7.3 | 1.00 |
| S3 | 8/24/23 | 5.4 | 1279.7 | 0.57 | 31.2 | 7.8 | 0.74 |
| S4 | 8/24/23 | 7.9 | 1393.8 | 0.61 | 32.7 | 7.8 | 0.79 |
| S5 | 8/24/23 | 10.4 | 691.7 | 0.29 | 33.6 | 8.1 | 0.39 |
| T1 | 8/24/23 | 0.30 | 2805.1 | 1.22 | 34.8 | 7.4 | 1.50 |



Dissolved oxygen was 1.1 mg/L at the bridge (SB), and increased from 1.0 to 10.4 mg/L at sites S1 through S5 in the wetland park, and was 0.30 mg/L at new site T1. Conductivity was ~1000 mS at the bridge and site S1, 1680 mS at site S2, 1300 mS at sites S3 and S4, and 700 mS at site S5, while the new site T1 had a concentration of ~2800 mS. Salinity had the same general pattern as conductivity, with 0.44 ppt at the bridge (SB), 0.55 ppt at site S1, 0.80 ppt at site S2, 0.57 and 0.61 ppt at sites S3 and S4, respectively, 0.29 at site S5, and 1.22 ppt at site T1. Water temperature was 32.2°C at the bridge (SB), and generally increased going west into the wetland park from 27.1°C at site S1 to 33.6°C at site S5, and was highest (34.8°C) at the new site T1. pH was 7.6 at the bridge (SB), increased going west into the wetland pond with 7.2 at site S1 and 8.1 at site S5, and was lowest at new site T1 with 7.4. Total dissolved solids (TDS) was 0.58 mg/L at the bridge (SB), and general decreased going west into the wetland pond, ranging from 0.39 to 1.00 mg/L, and was 1.50 mg/L at the park.

Water samples for nutrient (NO_x, NH₃, TN, PO₄, TP), BOD₅ and sediment analysis were collected at sites S1 through S5, SB, and T1, and put on ice for transport to Pace Analytical in Baton Rouge for analysis.

Water quality results from August 24, 2023.

| 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) |
|------|---------|---------------------------|---------------------------|--------------|---------------------------|--------------|---------------|----------------------------|
| SB | 8/24/23 | <0.050 | 10.7 | 12.3 | 1.3 | 1.8 | 8.4 | 3.1 |
| S1 | 8/24/23 | <0.050 | 4.0 | 5.9 | 1.5 | 1.4 | <10 | 4.3 |
| S2 | 8/24/23 | <0.050 | 0.44 | 2.9 | 0.31 | 0.31 | <10 | 5.6 |
| S3 | 8/24/23 | <0.050 | 0.19 | 2.9 | <0.050 | 0.18 | 78.0 | 4.6 |
| S4 | 8/24/23 | <0.050 | <0.10 | 2.1 | <0.050 | <0.10 | 51.0 | 3.6 |
| S5 | 8/24/23 | <0.050 | 0.22 | 3.0 | <0.050 | 0.26 | 48.0 | 7.8 |
| T1 | 8/24/23 | <0.050 | <0.10 | 4.5 | 0.19 | 0.29 | 15.5 | 9.2 |

Nitrate+nitrite (NO_x) concentrations were below detection (<0.05 mg/L) at all sites. Ammonia (NH₃) concentrations were 10.7 mg/L at the Bridge, 4.0 mg/L at site S1, 0.44 mg/L at site S2, 0.19 mg/L at site S3, below detection (<0.10 mg/L) at site S4, 0.22 mg/L at site S5, and below detection (<0.10 mg/L) at site T1. Total nitrogen (TN) concentrations were 12.3 mg/L at the Bridge, and ranged from 5.9 to 2.1 mg/L at the wetland park sites, and 4.5 mg/L at site T1. Phosphate (PO₄) concentrations were 1.3 mg/L at the Bridge, 1.5 mg/L at site S1, 0.31 mg/L at site S2, below detection (<0.05 mg/L) at sites S2-S5, and 0.19 mg/L at site T1. Total phosphorus (TP) was 1.8 mg/L at the Bridge, 1.4 mg/L at site S1, 0.31 mg/L at site S2, 0.18 mg/L at site S3, below detection (<0.10 mg/L) at site S4, 0.26 mg/L at site S5, and 0.29 mg/L at site T1. Total suspended solids (TSS) concentrations were 8.4 mg/L at the Bridge, below detection (<10 mg/L) at site S1 and S2, and then very high concentrations ranging from 48.0 to 78.0 mg/L at sites S3-5, presumably due to construction in the area, and 15.5 mg/L at site T1. Five-day biological oxygen demand (BOD₅) was 3.1 mg/L at the Bridge, ranged from 3.6 to 7.8 mg/L at the wetland park sites, and 9.2 mg/L at the T1 site.

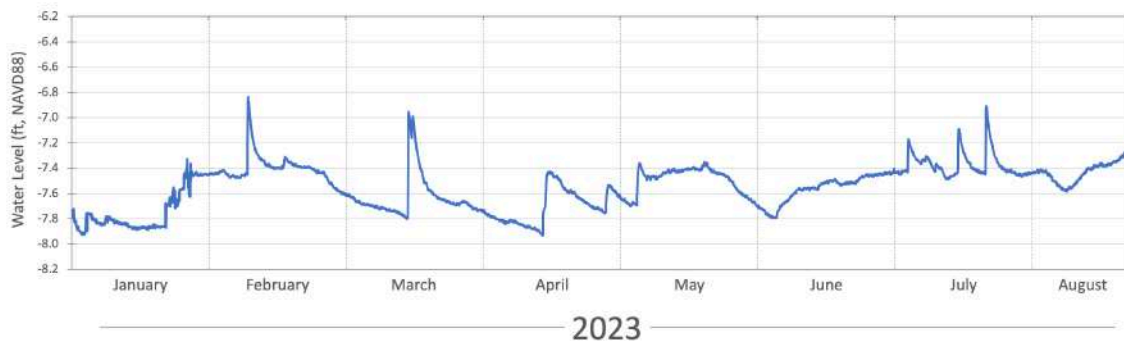


Water quality samples on August 24th, 2023.



Jason Day walking to collect a water sample at new site T1 on August 24th, 2023.

The water level recorder was also downloaded. The data indicates that water level in the wetland pond is surprisingly resilient with no significant decreases during the summer months, with, in fact, an increase in water level during August when there was no precipitation at all.



Water level in the Sankofa Wetland Park.

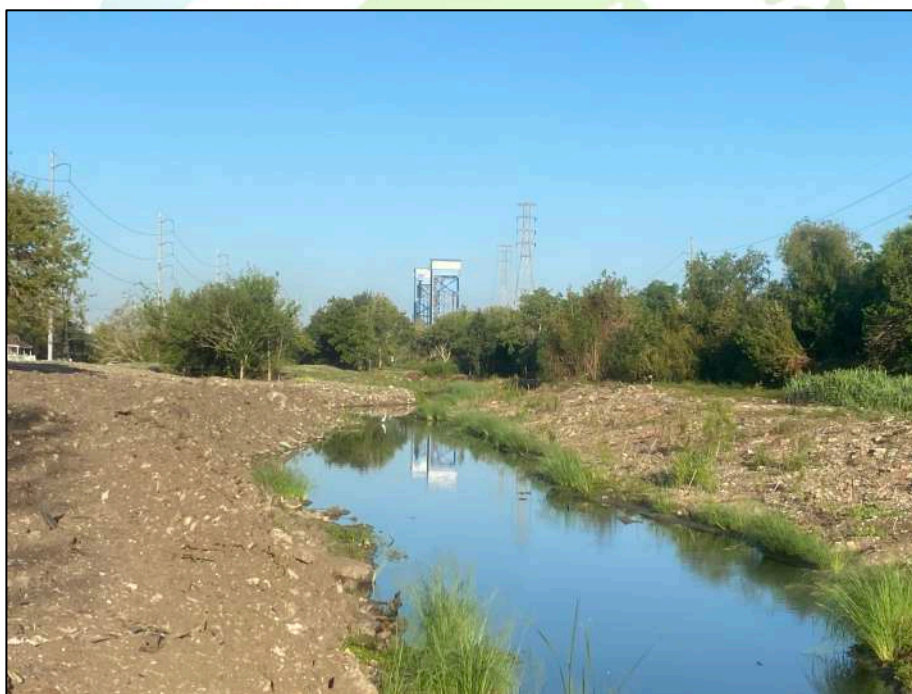
September 20, 2023: Dr. Robert Lane and Comite field technician Jason Day visited the Sankofa Wetland Park to carry out monthly monitoring. They first met with Royal and Bryan at the nursery on Tennessee Street to identify plants and provide advise as to where and how they should be planted. Advise was also provided as to the removal of invasive species from the park, specifically willow and tallow species.

Dissolved oxygen, conductivity, temperature, salinity and pH were measured at monitoring sites S1 through S5 and SB using a handheld probe. The staff gauge was 42.5 cm at 11:15 am.

Discrete water quality data from September 20, 2023.

| Site | Date | DO (mg/l) | Cond. (mS) | Salinity (ppt) | Temp. (°C) | pH | TDS (mg/L) |
|------|---------|--------------|---------------|-------------------|---------------|-----|---------------|
| SB | 9/20/23 | 0.9 | 1025.3 | 0.48 | 28.1 | 7.9 | 0.63 |
| S1 | 9/20/23 | 0.9 | 1143.0 | 0.57 | 25.3 | 7.6 | 0.75 |
| S2 | 9/20/23 | 0.3 | 1730.3 | 0.87 | 25.7 | 7.7 | 1.10 |
| S3 | 9/20/23 | 3.9 | 1228.1 | 0.61 | 25.8 | 7.6 | 0.79 |
| S4 | 9/20/23 | 4.5 | 1201.5 | 0.60 | 25.6 | 7.7 | 0.78 |
| S5 | 9/20/23 | 4.2 | 568.8 | 0.27 | 25.7 | 7.8 | 0.36 |

Dissolved oxygen was 0.9 mg/L at the bridge (SB), with similar values at sites S1 and S2 of the wetland park, but much higher (3.9-4.5 mg/L) further west into the park. Conductivity was 1025.3 mS at the bridge, 1143.0 mS at site S1, 1730.3 mS at site S2, and then decreasing concentrations to 568.8 mS at site S5. Salinity was 0.48 ppt at the bridge (SB), 0.57 ppt at site S2, 0.87 ppt at site S2, and then decreasing concentrations to 0.27 ppt at site S5. Water temperature was 28.1°C at the bridge (SB), and was ~25°C in the park. pH was 7.9 at the bridge (SB) and ranged from 7.6 to 7.8 in the wetland park. Total dissolved solids (TDS) was 0.63 mg/L at the bridge (SB), 0.75 ppt at site S2, 1.10 ppt at site S2, and then decreasing concentrations to 0.36 ppt at site S5.



The wetland park looking west from Fats Domino Avenue.

After completing the monitoring, Dr. Lane gave a lecture on wetlands and water quality monitoring to students from Delgado. After the lecture, Jason Day brought the students on a walk through the park where he identified plants species present and provided insights during invertebrate collection.



Jason Day lecturing to students on September 20, 2023.

Later that afternoon, Rashida Ferdinand and Rob Lane met with Dr. Antal Borcsok of Tela Marine in Honduras and Laila Bondi of Global New Orleans. They toured the park and discussed sustainability issues facing the greater New Orleans area and the world.



Rashida Ferdinand, Dr. Antal Borcsok and Laila Bondi on September 20, 2023.

Avian Survey

A total of 21 bird species were observed in July, 27 species in August, and 28 species in September.

Bird species observed at the Sankofa Wetland Park for Q3 2023.

| Common Name | Scientific Name | 7/26/23 | 8/23/23 | 9/20/23 |
|------------------------------|---------------------------------|---------|---------|---------|
| American Coot | <i>Fulica americana</i> | | X | X |
| American Crow | <i>Corvus brachyrhynchos</i> | X | X | X |
| Anhinga | <i>Anhinga anhinga</i> | X | X | X |
| Black Vulture | <i>Coragyps atratus</i> | | X | X |
| Black-Bellied Whistling-Duck | <i>Dendrocygna autumnalis</i> | X | X | X |
| Black-Crowned Night Heron | <i>Nycticorax nycticorax</i> | | X | |
| Blue Jay | <i>Cyanocitta cristata</i> | X | X | X |
| Carolina Chickadee | <i>Poecile carolinensis</i> | | X | X |
| Cattle Egret | <i>Bubulcus ibis</i> | X | | |
| Common Grackle | <i>Quiscalus quiscula</i> | | X | X |
| Common Moorhen | <i>Gallinula chloropus</i> | X | X | X |
| Coopers Hawk | <i>Accipiter cooperii</i> | X | | |
| Double Crested Cormorant | <i>Phalacrocorax auritus</i> | | | X |
| Eastern Phoebe | <i>Sayornis phoebe</i> | X | X | |
| Eurasian Collared Dove | <i>Streptopelia decaocto</i> | | X | X |
| European Starling | <i>Sturnus Vulgaris</i> | X | X | X |
| Fish Crow | <i>Corvus ossifragus</i> | | | X |
| Glossy Ibis | <i>Plegadis falcinellus</i> | | X | |
| Great Blue Heron | <i>Ardea herodias</i> | | | X |
| Great Egret | <i>Ardea alba</i> | X | X | X |
| Green Heron | <i>Butorides virescens</i> | X | X | X |
| Killdeer | <i>Charadrius vociferus</i> | | | X |
| Laughing Gull | <i>Larus atricilla</i> | X | X | X |
| Limpkin | <i>Aramus guarauna</i> | | X | X |
| Little Blue Heron | <i>Egretta caerulea</i> | X | X | X |
| Mississippi Kite | <i>Ictinia mississippiensis</i> | X | X | |
| Mockingbird | <i>Mimus polyglottos</i> | X | X | X |
| Mourning Dove | <i>Zenaidura macroura</i> | X | X | X |
| Northern Cardinal | <i>Cardinalis cardinalis</i> | X | | X |
| Red-Bellied Woodpecker | <i>Melanerpes carolinus</i> | X | | X |
| Snowy Egret | <i>Egretta thula</i> | X | X | X |
| Tricolor Egret | <i>Egretta tricolor</i> | | X | |
| Turkey Vulture | <i>Cathartes aura</i> | | | X |
| White Ibis | <i>Eudocimus albus</i> | X | X | X |
| Yellow-Breasted Chat | <i>Icteria virens</i> | | X | |



ANALYTICAL RESULTS

Project: SANKOFA
Pace Project No.: 20287104

| Sample: BRIDGE | | Lab ID: 20287104001 | | Collected: 08/24/23 11:30 | | Received: 08/25/23 09:13 | | Matrix: Water | |
|-------------------------------|---------|--|--------------|---------------------------|----------------|--------------------------|-----------|---------------|--|
| Parameters | Results | Units | Report Limit | DF | Prepared | Analyzed | CAS No. | Qual | |
| BR SM4500P E2011 OrthoP in WT | | Analytical Method: SM 4500P-E 2011 Pace Analytical Services - Baton Rouge | | | | | | | |
| Orthophosphate as P | 1.3 | mg/L | 0.25 | 5 | | 08/25/23 14:21 | | | |
| BR SM2540D TSS | | Analytical Method: SM 2540D 2011 Pace Analytical Services - Baton Rouge | | | | | | | |
| Total Suspended Solids | 8.4 | mg/L | 5.0 | 1 | | 08/28/23 11:53 | | | |
| BR 5210B 2016 BOD, 5 day | | Analytical Method: SM 5210B-2016 Preparation Method: SM 5210B-2016 Pace Analytical Services - Baton Rouge | | | | | | | |
| BOD, 5 day | 3.1 | mg/L | 1.7 | 1.5 | 08/25/23 14:45 | 08/30/23 10:33 | | | |
| 351.2 Total Kjeldahl Nitrogen | | Analytical Method: EPA 351.2 Preparation Method: EPA 351.2 Pace Analytical Services - New Orleans | | | | | | | |
| Nitrogen, Kjeldahl, Total | 12.3 | mg/L | 0.40 | 4 | 08/31/23 15:17 | 09/13/23 12:46 | 7727-37-9 | D4 | |
| 365.4 Total Phosphorus | | Analytical Method: EPA 365.4 Preparation Method: EPA 365.4 Pace Analytical Services - New Orleans | | | | | | | |
| Phosphorus | 1.8 | mg/L | 0.10 | 1 | 08/31/23 15:17 | 09/02/23 14:03 | 7723-14-0 | | |
| 4500 Ammonia Water | | Analytical Method: SM 4500-NH3 G Pace Analytical Services - New Orleans | | | | | | | |
| Nitrogen, Ammonia | 10.7 | mg/L | 0.10 | 1 | | 09/08/23 15:35 | 7664-41-7 | | |
| 4500NO3-F, NO3-NO2 | | Analytical Method: SM 4500-NO3 F Pace Analytical Services - New Orleans | | | | | | | |
| Nitrogen, NO2 plus NO3 | ND | mg/L | 0.050 | 1 | | 09/06/23 15:05 | | | |

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: SANKOFA
Pace Project No.: 20287104

| Sample: S1 | | Lab ID: 20287104002 | | Collected: 08/24/23 10:25 | | Received: 08/25/23 09:13 | | Matrix: Water | |
|-------------------------------|--|---------------------|--------------|---------------------------|----------------|--------------------------|-----------|---------------|--|
| Parameters | Results | Units | Report Limit | DF | Prepared | Analyzed | CAS No. | Qual | |
| BR SM4500P E2011 OrthoP in WT | Analytical Method: SM 4500P-E 2011 Pace Analytical Services - Baton Rouge | | | | | | | | |
| Orthophosphate as P | 1.5 | mg/L | 0.25 | 5 | | 08/25/23 14:16 | | | |
| BR SM2540D TSS | Analytical Method: SM 2540D 2011 Pace Analytical Services - Baton Rouge | | | | | | | | |
| Total Suspended Solids | ND | mg/L | 7.1 | 1 | | 08/28/23 11:53 | | PK | |
| BR 5210B 2016 BOD, 5 day | Analytical Method: SM 5210B-2016 Preparation Method: SM 5210B-2016 Pace Analytical Services - Baton Rouge | | | | | | | | |
| BOD, 5 day | 4.3 | mg/L | 1.7 | 1.5 | 08/25/23 14:45 | 08/30/23 10:35 | | | |
| 351.2 Total Kjeldahl Nitrogen | Analytical Method: EPA 351.2 Preparation Method: EPA 351.2 Pace Analytical Services - New Orleans | | | | | | | | |
| Nitrogen, Kjeldahl, Total | 5.9 | mg/L | 0.10 | 1 | 08/31/23 15:17 | 09/13/23 11:17 | 7727-37-9 | | |
| 365.4 Total Phosphorus | Analytical Method: EPA 365.4 Preparation Method: EPA 365.4 Pace Analytical Services - New Orleans | | | | | | | | |
| Phosphorus | 1.4 | mg/L | 0.10 | 1 | 08/31/23 15:17 | 09/02/23 14:03 | 7723-14-0 | | |
| 4500 Ammonia Water | Analytical Method: SM 4500-NH3 G Pace Analytical Services - New Orleans | | | | | | | | |
| Nitrogen, Ammonia | 4.0 | mg/L | 0.10 | 1 | | 09/08/23 15:36 | 7664-41-7 | | |
| 4500NO3-F, NO3-NO2 | Analytical Method: SM 4500-NO3 F Pace Analytical Services - New Orleans | | | | | | | | |
| Nitrogen, NO2 plus NO3 | ND | mg/L | 0.050 | 1 | | 09/06/23 15:07 | | | |

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: SANKOFA
Pace Project No.: 20287104

| Sample: S2 | | Lab ID: 20287104003 | | Collected: 08/24/23 10:30 | | Received: 08/25/23 09:13 | | Matrix: Water | |
|-------------------------------|---------|--|--------------|---------------------------|----------------|--------------------------|-----------|---------------|--|
| Parameters | Results | Units | Report Limit | DF | Prepared | Analyzed | CAS No. | Qual | |
| BR SM4500P E2011 OrthoP in WT | | Analytical Method: SM 4500P-E 2011 Pace Analytical Services - Baton Rouge | | | | | | | |
| Orthophosphate as P | 0.31 | mg/L | 0.050 | 1 | | 08/25/23 14:18 | | | |
| BR SM2540D TSS | | Analytical Method: SM 2540D 2011 Pace Analytical Services - Baton Rouge | | | | | | | |
| Total Suspended Solids | ND | mg/L | 10.0 | 1 | | 08/28/23 11:53 | | PK | |
| BR 5210B 2016 BOD, 5 day | | Analytical Method: SM 5210B-2016 Preparation Method: SM 5210B-2016 Pace Analytical Services - Baton Rouge | | | | | | | |
| BOD, 5 day | 5.6 | mg/L | 1.7 | 1.5 | 08/25/23 14:45 | 08/30/23 10:37 | | | |
| 351.2 Total Kjeldahl Nitrogen | | Analytical Method: EPA 351.2 Preparation Method: EPA 351.2 Pace Analytical Services - New Orleans | | | | | | | |
| Nitrogen, Kjeldahl, Total | 2.9 | mg/L | 0.10 | 1 | 08/31/23 15:17 | 09/13/23 11:19 | 7727-37-9 | | |
| 365.4 Total Phosphorus | | Analytical Method: EPA 365.4 Preparation Method: EPA 365.4 Pace Analytical Services - New Orleans | | | | | | | |
| Phosphorus | 0.31 | mg/L | 0.10 | 1 | 08/31/23 15:17 | 09/02/23 14:04 | 7723-14-0 | | |
| 4500 Ammonia Water | | Analytical Method: SM 4500-NH3 G Pace Analytical Services - New Orleans | | | | | | | |
| Nitrogen, Ammonia | 0.44 | mg/L | 0.10 | 1 | | 09/08/23 15:38 | 7664-41-7 | | |
| 4500NO3-F, NO3-NO2 | | Analytical Method: SM 4500-NO3 F Pace Analytical Services - New Orleans | | | | | | | |
| Nitrogen, NO2 plus NO3 | ND | mg/L | 0.050 | 1 | | 09/06/23 15:10 | | | |

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: SANKOFA
Pace Project No.: 20287104

| Sample: S3 | | Lab ID: 20287104004 | | Collected: 08/24/23 10:50 | | Received: 08/25/23 09:13 | | Matrix: Water | |
|-------------------------------|---------|--|--------------|---------------------------|----------------|--------------------------|-----------|---------------|--|
| Parameters | Results | Units | Report Limit | DF | Prepared | Analyzed | CAS No. | Qual | |
| BR SM4500P E2011 OrthoP in WT | | Analytical Method: SM 4500P-E 2011 Pace Analytical Services - Baton Rouge | | | | | | | |
| Orthophosphate as P | ND | mg/L | 0.050 | 1 | | 08/25/23 14:18 | | | |
| BR SM2540D TSS | | Analytical Method: SM 2540D 2011 Pace Analytical Services - Baton Rouge | | | | | | | |
| Total Suspended Solids | 78.0 | mg/L | 12.5 | 1 | | 08/28/23 11:53 | | | |
| BR 5210B 2016 BOD, 5 day | | Analytical Method: SM 5210B-2016 Preparation Method: SM 5210B-2016 Pace Analytical Services - Baton Rouge | | | | | | | |
| BOD, 5 day | 4.6 | mg/L | 1.7 | 1.5 | 08/25/23 14:45 | 08/30/23 10:40 | | | |
| 351.2 Total Kjeldahl Nitrogen | | Analytical Method: EPA 351.2 Preparation Method: EPA 351.2 Pace Analytical Services - New Orleans | | | | | | | |
| Nitrogen, Kjeldahl, Total | 2.9 | mg/L | 0.10 | 1 | 08/31/23 15:17 | 09/13/23 11:20 | 7727-37-9 | | |
| 365.4 Total Phosphorus | | Analytical Method: EPA 365.4 Preparation Method: EPA 365.4 Pace Analytical Services - New Orleans | | | | | | | |
| Phosphorus | 0.18 | mg/L | 0.10 | 1 | 08/31/23 15:17 | 09/02/23 14:04 | 7723-14-0 | | |
| 4500 Ammonia Water | | Analytical Method: SM 4500-NH3 G Pace Analytical Services - New Orleans | | | | | | | |
| Nitrogen, Ammonia | 0.19 | mg/L | 0.10 | 1 | | 09/08/23 15:39 | 7664-41-7 | | |
| 4500NO3-F, NO3-NO2 | | Analytical Method: SM 4500-NO3 F Pace Analytical Services - New Orleans | | | | | | | |
| Nitrogen, NO2 plus NO3 | ND | mg/L | 0.050 | 1 | | 09/06/23 15:11 | | | |

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ANALYTICAL RESULTS

Project: SANKOFA
Pace Project No.: 20287104

| Sample: S4 | | Lab ID: 20287104005 | | Collected: 08/24/23 11:05 | | Received: 08/25/23 09:13 | | Matrix: Water | |
|-------------------------------|---------|--|--------------|---------------------------|----------------|--------------------------|-----------|---------------|--|
| Parameters | Results | Units | Report Limit | DF | Prepared | Analyzed | CAS No. | Qual | |
| BR SM4500P E2011 OrthoP in WT | | Analytical Method: SM 4500P-E 2011 Pace Analytical Services - Baton Rouge | | | | | | | |
| Orthophosphate as P | ND | mg/L | 0.050 | 1 | | 08/25/23 14:19 | | | |
| BR SM2540D TSS | | Analytical Method: SM 2540D 2011 Pace Analytical Services - Baton Rouge | | | | | | | |
| Total Suspended Solids | 51.0 | mg/L | 25.0 | 1 | | 08/28/23 11:53 | | | |
| BR 5210B 2016 BOD, 5 day | | Analytical Method: SM 5210B-2016 Preparation Method: SM 5210B-2016 Pace Analytical Services - Baton Rouge | | | | | | | |
| BOD, 5 day | 3.6 | mg/L | 1.7 | 1.5 | 08/25/23 14:45 | 08/30/23 10:42 | | | |
| 351.2 Total Kjeldahl Nitrogen | | Analytical Method: EPA 351.2 Preparation Method: EPA 351.2 Pace Analytical Services - New Orleans | | | | | | | |
| Nitrogen, Kjeldahl, Total | 2.1 | mg/L | 0.10 | 1 | 08/31/23 15:17 | 09/13/23 11:23 | 7727-37-9 | | |
| 365.4 Total Phosphorus | | Analytical Method: EPA 365.4 Preparation Method: EPA 365.4 Pace Analytical Services - New Orleans | | | | | | | |
| Phosphorus | ND | mg/L | 0.10 | 1 | 08/31/23 15:17 | 09/02/23 14:05 | 7723-14-0 | | |
| 4500 Ammonia Water | | Analytical Method: SM 4500-NH3 G Pace Analytical Services - New Orleans | | | | | | | |
| Nitrogen, Ammonia | ND | mg/L | 0.10 | 1 | | 09/08/23 15:41 | 7664-41-7 | | |
| 4500NO3-F, NO3-NO2 | | Analytical Method: SM 4500-NO3 F Pace Analytical Services - New Orleans | | | | | | | |
| Nitrogen, NO2 plus NO3 | ND | mg/L | 0.050 | 1 | | 09/06/23 15:13 | | | |

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ANALYTICAL RESULTS

Project: SANKOFA
Pace Project No.: 20287104

| Sample: S5 | | Lab ID: 20287104006 | | Collected: 08/24/23 11:15 | | Received: 08/25/23 09:13 | | Matrix: Water | |
|-------------------------------|---------|--|--------------|---------------------------|----------------|--------------------------|-----------|---------------|--|
| Parameters | Results | Units | Report Limit | DF | Prepared | Analyzed | CAS No. | Qual | |
| BR SM4500P E2011 OrthoP in WT | | Analytical Method: SM 4500P-E 2011 Pace Analytical Services - Baton Rouge | | | | | | | |
| Orthophosphate as P | ND | mg/L | 0.050 | 1 | | 08/25/23 14:20 | | | |
| BR SM2540D TSS | | Analytical Method: SM 2540D 2011 Pace Analytical Services - Baton Rouge | | | | | | | |
| Total Suspended Solids | 48.0 | mg/L | 25.0 | 1 | | 08/28/23 11:53 | | | |
| BR 5210B 2016 BOD, 5 day | | Analytical Method: SM 5210B-2016 Preparation Method: SM 5210B-2016 Pace Analytical Services - Baton Rouge | | | | | | | |
| BOD, 5 day | 7.8 | mg/L | 1.7 | 1.5 | 08/25/23 14:45 | 08/30/23 10:46 | | | |
| 351.2 Total Kjeldahl Nitrogen | | Analytical Method: EPA 351.2 Preparation Method: EPA 351.2 Pace Analytical Services - New Orleans | | | | | | | |
| Nitrogen, Kjeldahl, Total | 3.0 | mg/L | 0.10 | 1 | 08/31/23 15:17 | 09/13/23 11:24 | 7727-37-9 | | |
| 365.4 Total Phosphorus | | Analytical Method: EPA 365.4 Preparation Method: EPA 365.4 Pace Analytical Services - New Orleans | | | | | | | |
| Phosphorus | 0.26 | mg/L | 0.10 | 1 | 08/31/23 15:17 | 09/02/23 14:05 | 7723-14-0 | | |
| 4500 Ammonia Water | | Analytical Method: SM 4500-NH3 G Pace Analytical Services - New Orleans | | | | | | | |
| Nitrogen, Ammonia | 0.22 | mg/L | 0.10 | 1 | | 09/08/23 15:45 | 7664-41-7 | | |
| 4500NO3-F, NO3-NO2 | | Analytical Method: SM 4500-NO3 F Pace Analytical Services - New Orleans | | | | | | | |
| Nitrogen, NO2 plus NO3 | ND | mg/L | 0.050 | 1 | | 09/06/23 15:14 | | | |

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ANALYTICAL RESULTS

Project: SANKOFA
Pace Project No.: 20287104

| Sample: ST | | Lab ID: 20287104007 | | Collected: 08/24/23 14:30 | | Received: 08/25/23 09:13 | | Matrix: Water | |
|-------------------------------|---------|--|--------------|---------------------------|----------------|--------------------------|-----------|---------------|--|
| Parameters | Results | Units | Report Limit | DF | Prepared | Analyzed | CAS No. | Qual | |
| BR SM4500P E2011 OrthoP in WT | | Analytical Method: SM 4500P-E 2011 Pace Analytical Services - Baton Rouge | | | | | | | |
| Orthophosphate as P | 0.19 | mg/L | 0.050 | 1 | | 08/25/23 14:21 | | | |
| BR SM2540D TSS | | Analytical Method: SM 2540D 2011 Pace Analytical Services - Baton Rouge | | | | | | | |
| Total Suspended Solids | 15.5 | mg/L | 12.5 | 1 | | 08/28/23 11:53 | | | |
| BR 5210B 2016 BOD, 5 day | | Analytical Method: SM 5210B-2016 Preparation Method: SM 5210B-2016 Pace Analytical Services - Baton Rouge | | | | | | | |
| BOD, 5 day | 9.2 | mg/L | 4.5 | 4 | 08/25/23 14:45 | 08/30/23 10:49 | | | |
| 351.2 Total Kjeldahl Nitrogen | | Analytical Method: EPA 351.2 Preparation Method: EPA 351.2 Pace Analytical Services - New Orleans | | | | | | | |
| Nitrogen, Kjeldahl, Total | 4.5 | mg/L | 0.10 | 1 | 08/31/23 15:17 | 09/13/23 11:26 | 7727-37-9 | | |
| 365.4 Total Phosphorus | | Analytical Method: EPA 365.4 Preparation Method: EPA 365.4 Pace Analytical Services - New Orleans | | | | | | | |
| Phosphorus | 0.29 | mg/L | 0.10 | 1 | 08/31/23 15:17 | 09/02/23 14:06 | 7723-14-0 | | |
| 4500 Ammonia Water | | Analytical Method: SM 4500-NH3 G Pace Analytical Services - New Orleans | | | | | | | |
| Nitrogen, Ammonia | ND | mg/L | 0.10 | 1 | | 09/08/23 15:46 | 7664-41-7 | | |
| 4500NO3-F, NO3-NO2 | | Analytical Method: SM 4500-NO3 F Pace Analytical Services - New Orleans | | | | | | | |
| Nitrogen, NO2 plus NO3 | ND | mg/L | 0.050 | 1 | | 09/06/23 15:15 | | | |

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